

EXHIBIT D2

UNCLASSIFIED

**FBI Laboratory**2501 Investigation Parkway
Quantico, Virginia 22135**REPORT OF EXAMINATION**To: Boston
Kristin Koch

Date: July 13, 2014

Case ID No.: 415M-BS-2814367

Lab No.: 130416021 AAR NN
130418012 AAR NN
130420100 AAR NN
130421100 AAR NN
130423010 AAR NN
130424003 AAR NN

Reference: Communications dated April 19, 2013, April 23, 2013, April 25, 2013, and April 27, 2013

Your No.:

Title: UNSUBS;
4/15/2013 Boston Marathon Bombing
IT

Date specimens received: April 16, 2013, April 18, 2013, April 20, 2013, April 21, 2013, April 23, 2013, and April 24, 2013

The items listed below were submitted under cover of communication dated April 19, 2013, assigned Laboratory number 130416021 AAR NN, and examined in the Firearms/Toolmarks Unit:

THE FOLLOWING ITEMS WERE RECEIVED AT THE LAB ON APRIL 16, 2013:**BOYLSTON STREET, SCENE 1 (SCENE A)**

Q10 Round metal object (Your S10, E5180221)

**THE FOLLOWING ITEMS WERE RECEIVED AT THE LAB ON APRIL 17, 2013
(SUBMISSION 1):****BOYLSTON STREET, SCENE 1 (SCENE A)**

Q39 Wires and circuit board (Your S42, E5180270)

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BOYLSTON STREET, SCENE 2 (SCENE B)

- Q44 Metal device component (Your S2031, E5180262)
- Q49 BBs, nails, fabric, plastic beads, and white caulk material (Your S2065, E5180268)
- Q50 Wires and connector (Your S2078, E5180267)
- Q51 Piece of green insulated wire (Your S2079, E5180269)
- Q52 Electrical components (Your S2099, E5180258)

THE FOLLOWING ITEMS WERE RECEIVED AT THE LAB ON APRIL 17, 2013 (SUBMISSION 2):

BOYLSTON STREET, SCENE 1 (SCENE A)

- Q106 Piece of green insulated wire (Your S65, E5180294)
- Q109.2 Piece of green insulated wire (Your S91, E5180290)

THE FOLLOWING ITEMS WERE RECEIVED AT THE LAB ON APRIL 18, 2013 (SUBMISSION 1):

BOYLSTON STREET, SCENE 2 (SCENE B)

- Q153 Piece of green insulated wire (Your S2062, E5180408)

BOYLSTON STREET, SCENE 1 (SCENE A)

- Q171 Five (5) pieces of wire, two (2) black plastic pieces, and one (1) switch (Your S110, E5180340)
- Q171.1 Tape from Q171 (Your S110, E5180340)
- Q177 Piece of green insulate wire (Your S117, E5180403)
- Q187 Piece of wire (Your S135, E5180457)
- Q188 One (1) piece of green insulated wire and two (2) pieces of plastic (Your S136, E5180458)
- Q190 Pieces of green insulated wire (Your S84, E5180445)

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Q195 Pieces of green insulated wire and one (1) red plastic piece (Your S121, E5180449)

Q215 Green wire piece (Your S152, E5180465)

The items listed below were submitted under cover of communication dated April 23, 2013, assigned Laboratory number 130418012 AAR NN, and examined in the Firearms/Toolmarks Unit:

THE FOLLOWING SPECIMENS WERE RECEIVED BY THE LAB ON APRIL 18, 2013:

SCENE 2 (SCENE B)

Q222 One (1) metal fragment (Your S2113, E5182206)

Q222.1 One (1) piece of blue wire (Your S2113, E5182206)

Q222.2 One (1) piece of green wire (Your S2113, E5182206)

Q230 One (1) piece of green insulated wire (Your S2182, E5182326)

Q231 Small piece of clumped wires (Your S2184, E5182278)

Q234 Three (3) pieces of green insulated wire (Your S2204, E5182215)

Q235.1 Piece of green insulated wire from Q235 (Your S2083, E5182286)

Q236 Wire (Your S2130, E5182317)

Q240 One (1) piece of green insulated wire and one (1) piece of rubber (Your S2175, E5182288)

Q241 One (1) piece of green insulated wire and one (1) piece of fabric (Your S2178, E5182327)

Q250 One (1) piece of wire (Your S2132, E5182231)

Q251 One (1) piece of white insulated wire (Your S2133, E5182280)

Q252 One (1) piece of green insulated wire and piece of zipper (Your S2134, E5182230)

Q253 Four (4) pieces of wire (Your S2192, E5182218)

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SCENE 2 (SCENE B)

- Q284 Wire pieces (Your S2155, E5182256)
- Q286 Wires (Your S2206, E5182239)
- Q287 Wire (Your S207, E5182235)
- Q289 Wire pieces (Your S2219, E5182251)
- Q298 Wires (Your S2315, E5180499)
- Q298.1 Three (3) pieces of metal (Your S2315, E5180499)
- Q298.2 Two (2) pieces of plastic (Your S2315, E5180499)

SCENE 1 (SCENE A)

- Q308 One (1) piece of green insulated wire and one (1) piece of gray insulated wire (Your S176, E5182346)
- Q309 Black plastic pieces and wire (Your S177, E5182348)
- Q314 Wire pieces (Your S71, E5182180)
- Q315 Gold-colored metal fragment with wire (Your S190, E5182334)
- Q319 Two (2) wire pieces (Your S167, E5180473)
- Q325 Wire piece with solder (Your S188, E5182335)
- Q339 One (1) piece of green insulated wire and one (1) piece of gray insulated wire (Your S249, E5180519)
- Q355 Wire (Your S208, E5180563)
- Q371 Two (2) pieces of green insulated wire (Your S245, E5180521)

SCENE 1 (SCENE A)

- Q413 Blue/green wire (Your S349, E5182499)
- Q416 Wire (Your S342, E5182524)

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- Q423 Wire (Your S325, E5182525)
- Q438 Pieces of green insulated wire, one piece of red insulated wire, and metal pieces (Your S311, E5182505)
- Q440 Green, red, and black insulated wires and one small electronic component (Your S308, E5182501)
- Q440.1 Piece of wire from Q440 (Your S308, E5182501)
- Q443 Small white wire (Your S163, E5182354)
- Q467.2 Piece of green wire from Q467 (Your S173, E5182333)

SCENE 2 (SCENE B)

- Q475 Green wire and nail (Your S2323, E5182497)
- Q480.5 Piece of metal with piece of wire from Q480 (Your S2140, E5182185)
- Q503 One (1) piece of green insulated wire (Your S2267, E5182378)
- Q515.1 Piece of green wire from Q515 (Your S2203, E5182265)

SCENE 1 (SCENE A)

- Q560 Small piece of wire (Your S332, E5182527)
- Q561 Wire (Your S374, E5179032)
- Q564 Wire (Your S378, E5179020)
- Q567 Three (3) pieces of wire (Your S404, E5179033)

The items listed below were submitted under cover of communication dated April 23, 2013, assigned Laboratory number 130420100 AAR NN, and examined in the Firearms/Toolmarks Unit:

THE FOLLOWING SPECIMENS WERE RECEIVED BY THE LAB ON APRIL 20, 2013:

The following specimens were obtained from 61 LAUREL ST:

- Q582 Switch (1B845, E5180944)

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- Q582.2 Piece of green insulated wire from Q582 (1B845, E5180944)
- Q582.3 Piece of green insulated wire from Q582 (1B845, E5180944)
- Q582.4 Piece of green insulated wire from Q582 (1B845, E5180944)
- Q582.5 Snap connector from Q582 (1B845, E5180944)
- Q582.6 Piece of plastic form Q582 (1B845, E5180944)
- Q588 Pressure cooker pot lid (1B828, E5180945)

The following specimens were from Laurel Street and received in the lab on April 21, 2013:

- Q603 Pieces of green insulated wire (Your #1W-47, E5179261)
- Q607 Wire (Your #1W-45, E5179259)
- Q608 Green wire (Your #1W-33, E5179247)
- Q612 Two pieces of green insulated wire (Your #1W-29, E5179243)
- Q641 Wire (Your #1W-80, E5179294)

The items listed below were submitted under cover of communication dated April 25, 2013, assigned Laboratory number 130421100 AAR NN, and examined in the Firearms/Toolmarks Unit:

THE FOLLOWING SPECIMENS WERE RECEIVED BY THE LAB ON APRIL 21, 2013:

Items from CRV, outside residence:

- Q670 Allen wrenches (Your 1B945, E5179077)

Items from residence, 410 Norfolk Street, Apt. 3, Cambridge, MA:

- Q674 Hammer (Your 1B1354, E5179156)
- Q674.1 Electric saw (Your 1B1354, E5179156)
- Q676 Razor blade knife (Your 1B1284, E5179010)

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- Q677 “PT 85 Blowback” pellet gun, serial #11E08716 (Your 1B1277, E5179109)
- Q678 Knife with sheath (Your 1B1265, E5179122)
- Q680 One (1) drill bit (Your 1B1337, E5179184)
- Q680.2 One (1) pair of nail clippers (Your 1B1337, E5179184)
- Q680.3 One (1) adjustable wrench (Your 1B1337, E5179184)
- Q680.4 One (1) socket wrench (Your 1B1337, E5179184)
- Q680.5 One (1) wall hanger (Your 1B1337, E5179184)
- Q681 Glass jar containing screws, keys, and tool heads (Your 1B1336, E5179183)
- Q684 Plastic tub (Your 1B1289, E5179185)
- Q684.1 Hardware (Your 1B1289, E5179185)
- Q684.3 Four (4) pieces of sand paper (Your 1B1289, E5179185)
- Q684.4 File (Your 1B1289, E5179185)
- Q684.5 Pick with attachment (Your 1B1289, E5179185)
- Q684.6 Voltage Tester (Your 1B1289, E5179185)
- Q684.7 Allen wrench set (Your 1B1289, E5179185)
- Q684.8 Phillips screwdriver (Your 1B1289, E5179185)
- Q684.9 Wood chisel (Your 1B1289, E5179185)
- Q684.10 Box of screws (Your 1B1289, E5179185)
- Q687 One (1) flathead screwdriver (Your 1B1330, E5179091)
- Q687.1 One (1) flathead screwdriver (Your 1B1330, E5179091)
- Q688 Flathead screwdriver (Your 1B1274, E5179113)
- Q692 Parts removed from “PT 85 Blowback” BB type gun (Q677) (Your 1B1278, E5179108)

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- Q697 One (1) Silencer brand 500 computer supply power box (Your 1B1391, E5179181)
- Q697.1 Miscellaneous wires (Your 1B1391, E5179181)
- Q697.2 Transformer plug (Your 1B1391, E5179181)
- Q697.3 Cooling fan (Your 1B1391, E5179181)
- Q697.4 One (1) battery pack, one (1) battery and four (4) wire coils (Your 1B1391, E5179181)
- Q697.5 Cloth Silencer bag (Your 1B1391, E5179181)
- Q697.6 Plastic bag (Your 1B1391, E5179181)
- Q697.6.1 3 cords (Your 1B1391, E5179181)
- Q697.7 Power cord (Your 1B1391, E5179181)
- Q698 Expended CO2 cartridge taken from "PT 85 Blowback" airgun (Q677) (Your 1B1279, E5179107)
- Q699 Weller brand solder gun case 140/100 watts (Your 1B1267, E5179120)
- Q699.1 Weller customer service manual (Your 1B1267, E5179120)
- Q699.2 Weller brand solder gun (Your 1B1267, E5179120)
- Q700 One (1) Sears Craftsman corded 3/8" drill with drill bit (Your 1B1270, E5179117)
- Q703 Black knife (Your 1B1294, E5179191)
- Q704 Knife (Your 1B1318, E5179168)
- Q704.1 Knife Sheath (Your 1B1318, E5179168)
- Q707.6 Tools (Your 1B1305, E5179169)
- Q707.7 Box cutter from Q707.6 (Your 1B1305, E5179169)
- Q707.8 Diagonal cutters from Q707.6 (Your 1B1305, E5179169)
- Q707.9 Needle nose pliers from Q707.6 (Your 1B1305, E5179169)

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- Q711 Screwdriver set (Your 1B1312, E5179176)
- Q725 Tools and miscellaneous items (Your 1B1352, E5179153)
- Q725.7 Tape packaging from Q725 (Your 1B1352, E5179153)
- Q725.8 Piece of paper towel from Q725 (Your 1B1352, E5179153)
- Q725.9 One (1) pair of scissors from Q725 (Your 1B1352, E5179153)
- Q725.10 Wire strippers from Q725 (Your 1B1352, E5179153)
- Q725.11 Piece of hobby fuse from Q725 (Your 1B1352, E5179153)
- Q725.12 One (1) pair of scissors from Q725 (Your 1B1352, E5179153)
- Q725.13 One (1) pair of scissors from Q725 (Your 1B1352, E5179153)
- Q725.14 One (1) pair of scissors from Q725 (Your 1B1352, E5179153)
- Q725.15 One (1) pair of scissors from Q725 (Your 1B1352, E5179153)
- Q725.16 One (1) screwdriver from Q725 (Your 1B1352, E5179153)
- Q725.17 One (1) screwdriver from Q725 (Your 1B1352, E5179153)
- Q725.18 One (1) screwdriver from Q725 (Your 1B1352, E5179153)
- Q725.19 One (1) awl from Q725 (Your 1B1352, E5179153)
- Q725.20 One (1) diagonal cutter from Q725 (Your 1B1352, E5179153)
- Q725.21 One (1) diagonal cutter from Q725 (Your 1B1352, E5179153)
- Q725.22 One (1) pair of pliers from Q725 (Your 1B1352, E5179153)
- Q725.23 One (1) pair of pliers from Q725 (Your 1B1352, E5179153)
- Q728 Kershaw 1006 knife (Your 1B1349, E5179150)
- Q729 Tools (Your 1B1353, E5179155)

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Items from Dorm room at Dartmouth:

- Q742 One (1) pocket knife (Your 1B1560, E5179231)
- Q742.1 One (1) pocket knife (Your 1B1560, E5179231)
- Q745 ProSeries 6-piece home tool set case (Your 1B1563, E5179234)
- Q745.1 Tape measure (Your 1B1563, E5179234)
- Q745.2 Pliers (Your 1B1563, E5179234)
- Q745.3 Knife (Your 1B1563, E5179234)
- Q745.4 Wrench (Your 1B1563, E5179234)
- Q745.5 Flathead screwdriver (Your 1B1563, E5179234)
- Q745.6 Phillips screwdriver (Your 1B1563, E5179234)
- Q746 Wires (Your 1B1565, E5179236)
- Q746.1 Wire strippers (Your 1B1565, E5179236)
- Q746.2 Plastic bag (Your 1B1565, E5179236)
- Q746.2.1 Flathead screwdriver (Your 1B1565, E5179236)
- Q746.3 Plastic bag (Your 1B1565, E5179236)
- Q746.3.1 Phillips screwdriver (Your 1B1565, E5179236)
- Q746.4 Plastic bag (Your 1B1565, E5179236)
- Q746.4.1 Pliers (Your 1B1565, E5179236)

The items listed below were submitted under cover of communication dated April 23, 2013, assigned Laboratory number 130423010 AAR NN, and examined in the Firearms/Toolmarks Unit:

THE FOLLOWING SPECIMENS WERE RECEIVED AT THE FBI LABORATORY ON APRIL 23, 2013:

Acquired from 69A Carriage, New Bedford, Mass:

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- Q753 Phillips screwdriver (1B2097, E5179479)
- Q754 Leatherman super tool (1B2118, E5179496)
- Q755 One (1) flathead screwdriver, one (1) Phillips screwdriver, one (1) pair of scissors, one (1) pair of pliers, one (1) socket wrench (1B2063, E5179446)
- Q762 Multi-purpose tool (1B2033, E5179510)
- Q763 One (1) roll of solder and one (1) soldering iron (1B2038, E5179516)
- Q764 Two (2) pair of pliers and six (6) screwdrivers (1B2040, E5179517)
- Q764.1 One (1) pair of pliers (1B2040, E5179517)
- Q764.2 One (1) pair of pliers (1B2040, E5179517)
- Q765 One (1) pair of scissors and three (3) screwdrivers (1B2042, E5179520)
- Q766 Six (6) screwdrivers (1B2043, E5179521)

Acquired from alley behind 283 Broadway, Cambridge, MA:

- Q773 One (1) screwdriver and two (2) pair of pliers (1B2036, E5179514)

Acquired from trash can behind 283 Broadway, Cambridge, MA:

- Q774 Four (4) screwdrivers (1B1972, E5179509)
- Q775 Nine (9) screwdrivers (1B1972, E5179509)
- Q776 Three (3) pliers (1B1972, E5179509)
- Q777 Two (2) wrenches and two (2) pliers (1B1972, E5179509)
- Q778 One (1) Phillips head screwdriver (1B1973, E5179511)

The items listed below were submitted under cover of communication dated April 27, 2013, assigned Laboratory number 130424003 AAR NN, and examined in the Firearms/Toolmarks Unit:

THE FOLLOWING SPECIMENS WERE RECEIVED AT THE FBI LABORATORY ON 04/24/2013:

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Acquired from 32 Vassar Street, Cambridge, MA:

- Q787 One (1) drill bit and tap case (1B2244, E5179567)
- Q787.1 Fourteen (14) drill bits and seven (7) taps (1B2244, E5179567)
 - Q787.1.1 One (1) tap (1B2244, E5179567)
 - Q787.1.2 One (1) drill bit (1B2244, E5179567)
 - Q787.1.3 One (1) drill bit (1B2244, E5179567)
 - Q787.1.4 One (1) drill bit (1B2244, E5179567)
 - Q787.1.5 One (1) tap (1B2244, E5179567)
- Q787.2 Nineteen (19) drill bits and eleven (11) taps (1B2244, E5179567)
- Q787.3 One (1) drill bit case (1B2244, E5179567)
- Q787.4 Eleven (11) drill bits (1B2244, E5179567)
- Q787.5 One (1) drill bit (1B2244, E5179567)
- Q787.6 Forty-eight (48) drill bits (1B2244, E5179567)
- Q788 Two (2) vise jaw caps (1B2245, E5179568)
- Q789 Two (2) vise jaws (1B2243, E5179566)
- Q790 Two (2) vise jaw caps (1B2246, E5179569)
- Q791 One (1) hacksaw blade (1B2247, E5179570)
 - Q791.1 One (1) hacksaw blade (1B2247, E5179570)
 - Q791.2 One (1) hacksaw blade (1B2247, E5179570)
 - Q791.3 One (1) hacksaw blade (1B2247, E5179570)
 - Q791.4 One (1) hacksaw blade (1B2247, E5179570)
 - Q791.5 One (1) hacksaw blade (1B2247, E5179570)

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- Q791.6 One (1) hacksaw blade (1B2247, E5179570)
- Q791.7 One (1) hacksaw blade (1B2247, E5179570)
- Q791.8 One (1) hacksaw blade (1B2247, E5179570)
- Q791.9 One (1) hacksaw blade (1B2247, E5179570)
- Q791.10 One (1) hacksaw blade (1B2247, E5179570)
- Q791.11 One (1) hacksaw blade (1B2247, E5179570)
- Q793 Green wire (1B2249, E5179572)
- Q794 Green wire (1B2250, E5179573)
- Q795 One (1) wire stripper (1B2251, E5179574)
- Q795.1 One (1) wire stripper (1B2251, E5179574)

The results of the firearm and toolmark examinations are included in this report.

Results of Examinations:

Items with Toolmarks of Value

130416021 AAR NN (Marathon, Boylston St)

Specimen Q50 is a connector that has a red and a black insulated wire. The black insulated wire on specimen Q50 has toolmarks in the insulation that are consistent with having been produced by a wire stripper. Due to a difference in class characteristics, the Q725.10, Q795, and Q795.1 wire strippers were excluded as having created the toolmarks present in the black insulated wire on the Q50 connector.

130418012 AAR NN (Marathon)

Specimen Q222.1 is a piece of blue insulated wire and Q222.2 is a piece of green insulated wire that were cut with a tool using a pinching-type action. Specimen Q443 is a piece of white insulated wire that was cut with a tool(s) using a pinching-type action. Specimen Q560 is a small piece of wire with black insulation. The insulation on one end of specimen Q560 has a toolmark that is consistent with having been produced with a wire stripper and the other end has a toolmark that is consistent with having been produced by a tool using a pinching-type action.

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Due to the elimination of specimens Q222.1, Q222.2, Q443, and Q560 by the FBI Laboratory Explosives Unit, no further toolmark examinations were conducted on these specimens.

130420100 AAR NN (Watertown, MA)

Specimens Q582.2 through Q582.4 are three wires with green insulation. The insulation on Q582.2 through Q582.4 wires was cut with a tool using pinching/slicing-type action, such as a wire stripper. The insulation on Q582.2 through Q582.4 wires were identified as having been cut by the 18 gauge slot of the Q725.10 wire strippers from Laboratory number 130421100 AAR NN.

130421100 AAR NN (Norfolk St, Cambridge, MA)

Specimen Q746 contains wires with red (18), black (8), green (9), yellow (7), white (17), and blue (13) insulation. Wires contained in Q746 have been cut with a tool(s) using a pinching and/or shearing-type action. No further examinations were conducted on the wires contained in specimen Q746.

130424003 AAR NN (Cambridge, MA)

Specimen Q787 contained debris consisting of metal filings with striated toolmarks from a tool(s) using a drilling-type action. No further examinations were conducted on the metal filings contained in specimen Q787.

Items with Limited or No Toolmarks of Value

An item having limited or no toolmarks of value has no individual characteristics, insufficient individual characteristics or limited individual characteristics, where a conclusion of identification cannot be reached.

130416021 AAR NN (Marathon, Boylston St)

Specimen Q39 is a circuit board with wires. Specimen Q44 appears to have been a circular piece of steel which may have been a lid. Specimen Q49 contains a bag of steel bearings, tacks, fabric, and plastic beads. Specimens Q51, Q106, Q109.2, Q153, Q177, Q190, and Q215 are pieces of green insulated wire. Specimen Q52 is electrical components with wires. The wires contained in specimen Q52 appear to have been cut with a tool(s) using a pinching-type action. Specimen Q171 contains three pieces of green insulated wire, two red insulated wires, switch, and two pieces of black plastic that were cut with a tool using a sawing-type action. Specimen Q187 is a wire that has white insulation with two red lines which was cut with a tool using a pinching-type action. Specimen Q188 is a piece of green insulated wire with black plastic trim and a red piece of insulation. Specimen Q195 contains two pieces of green insulated wire, one piece of red insulated wire, and a red piece of plastic.

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130418012 AAR NN (Marathon)

Specimen Q230 is a piece of green insulated wire. Specimen Q231 is two bundles of wires, each wire bundle contains three wires. Specimen Q234 is three pieces of green insulated wire. Specimen Q235.1 is a piece of green insulated wire. Specimen Q236 is a piece of wire with white insulation. Specimen Q240 is a piece of green insulated wire and a grey piece of rubber. Specimen Q241 is a piece of black insulated wire and a piece of fabric. Specimen Q250 is a piece of white insulated wire. Specimen Q251 is a piece white insulated wire. Specimen Q252 is a piece of green insulated wire that appears to have had the insulation removed by a stripper tool and a piece of black coiled plastic. Specimen Q253 is four pieces of yellow insulated wire that were cut with a tool(s) using a shearing-type action. Specimen Q284 is two pieces of green insulated wire and two pieces of white insulated wire. Specimen Q286 is two wires. Specimen Q287 is a piece of wire. Specimen Q289 is one green insulated wire and one white insulated wire. The white insulated wire from Q289 was cut by a tool using a pinching/shearing-type action. Specimen Q298 is four wires. Specimen Q308 is one piece of green insulated wire and one piece of grey insulated wire. Specimen Q309 is three grey insulated wires and three pieces of black plastic. The largest of the plastic pieces in Q309 was cut by a tool using a sawing-type action. Specimen Q315 is a brass fitting with a wire at one end. Specimen Q319 is a piece of green insulated wire with a crimping mark at one end and a piece of black wire insulation. Specimen Q325 is a piece of black insulated wire with solder at one end. Specimen Q339 is a piece of green wire insulation and a piece of grey insulated wire. Specimen Q355 and Q416 are wires. Specimen Q371 is a two pieces of black insulated wire. Specimen Q413 is a piece of green insulated wire that has a toolmark which was produced by a tool using a shearing-type action. Specimen Q423 is a piece of red insulated wire. Specimen Q438 contains two pieces of wire with green insulation, one wire with red insulation, and two pieces of metal. Specimen Q440 is a piece of black insulated wire, a piece of green insulated wire, and an electronic piece that appears to be a resistor. Specimen Q440.1 is a piece of red insulated wire that has toolmarks at both ends which were produced by a tool(s) using a shearing-type action. Specimen Q467.2 is a piece of green insulated wire. Specimen Q475 is a piece of green insulated wire and a nail. The ends of the insulation on the Q475 wire appear to have been cut with a wire stripper tool(s). Specimen Q480.5 is a connector. Specimens Q503 and Q515.1 are green insulated wires. Specimen Q561 is a red insulated wire that has toolmarks produced by a tool using a shearing-type action. Specimen Q564 is a piece of red insulated wire that has toolmarks at both ends which were produced by a tool(s) using a pinching-type action. Specimen Q567 is two pieces of white insulated wire and one piece of wire. One white insulated wire and the solid wire in specimen Q567 have toolmarks that were produced by a tool(s) using a shearing-type action.

130420100 AAR NN (Marathon)

Specimen Q582 is a toggle-switch that has Phillips head screws with toolmarks produced from tool(s) slippage. Q582.5 is a 9v connector that has two wires which appear to

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have had the insulation removed with a wire stripper tool(s). Specimen Q582.6 is a piece of black plastic. Specimen Q588 is a pressure cooker pot lid. Specimen Q603, Q608, Q612, and Q641 are pieces of green insulated wire. Specimen Q607 is a piece of yellow insulated/green stripe wire with one end having been cut with a tool using a pinching-type action.

130424003 AAR NN (Cambridge, MA)

Specimen Q793 is a piece of wire with green insulation. The insulation on the Q793 wire has striated toolmarks that appear to be an attempt to strip the insulation and the inner wires were cut with a tool using a pinch/shearing-type action. Specimen Q794 is a piece of wire with green insulation. The Q794 wire was cut with a tool using a shearing-type action.

Tools

130421100 AAR NN (Norfolk St, Cambridge, MA)

Specimen Q670 is a set of standard Allen wrenches with “Duralast” appearing on wrenches 5/32” and larger. Specimen Q674 is a Husky[®], 22 oz, claw hammer. Specimen Q674.1 is a Bosch[®] electric jigsaw, Model 1587AVS. Specimen Q676 is a razor blade knife (box cutter) with a yellow body. Specimen Q678 is a Winchester[®] knife with a single cutting edge and sheath. Specimen Q687 is a Craftsman[®] flathead screwdriver. Specimen Q687.1 is an Xcel flathead screwdriver. Specimen Q680 is an auger drill bit. Specimen Q680.2 is a Safety 1st[®] nail clippers. Specimen 680.3 is a Fuller adjustable wrench, No. 10-250mm. Specimen Q680.4 is a socket wrench with a 13mm socket. Specimen Q680.5 is a 3/16” wall mounting hanger. Specimen Q681 is a glass jar with lid containing keys, chrome post, nails, Phillips head screws, flathead screwdriver without handle, and a scribe tip. Specimen Q684.1 contains screws, nails, paper clips, bolts, nuts, washers, wing-nuts, and a penny. Specimen Q684.3 is four sheets of sandpaper. Specimen Q684.4 is a file with red handle. Specimen Q684.5 is an awl with electrical cord. Specimen Q684.6 is a Conduct-Tite[®] voltage tester. Specimen Q684.7 is a set of metric Allen wrenches. Specimen Q684.8 is a Pratt-Read[®] Phillips head screwdriver. Specimen Q684.9 is a Stanley[®] wood chisel. Specimen Q684.10 contains Phillips head screws in assorted sizes, nails, #3 screwdriver bit, and large picture hooks. Specimen Q688 is a flathead screwdriver. Specimen Q699.2 is a Weller[®] solder gun. Specimen Q700 is a 3/8” Craftsman[®] drill, Model 315.101210, with 1/8” drill bit. Specimen Q703 is a Hibben[®] single edge knife with black anodized blade. Specimen Q704 and Q704.1 are a knife and sheath.

Specimen Q707.6 contains a pair of Wiess[®] aviation snips, a pair of Husky[®] vise grips, a pair of Craftsman[®] slip joint pliers, a wedge, three Phillips head screwdrivers, and a pair of curved needle nose pliers. Specimen Q707.7 is a razor blade cutter (box cutter). Specimen Q707.8 is a pair of Craftsman[®] diagonal cutters. Specimen Q707.9 is a pair of diagonal cutters. Specimen Q711 is a screwdriver set containing fittings for torx, awl, sockets, flat and Phillips head screwdrivers. Specimen Q725 contains the three drill bits, Kriegar[®] knife, double opened wrench, Eklind[®] brand multi-tool, tongue and groove pliers. Specimens Q725.9 and Q725.12 through Q725.15 are pairs of scissors. Specimen Q725.10 is a pair of red handle wire strippers.

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Specimen Q725.16 is a Klein[®] Phillips head screwdriver. Specimens Q725.17 and Q725.18 are a Phillips and flathead screwdrivers. Specimen Q725.19 is an awl. Specimen Q725.20 is a pair of diagonal cutters. Specimen Q725.21 is a pair of Stanley[®] diagonal cutters. Specimens Q725.22 and Q725.23 are a pair of needle-nose pliers. Specimen Q728 is a Kershaw double-edge knife. Specimen Q729 contains a claw hammer, broken knife, a Trimo[®] pipe wrench, and a self-adjusting wrench. Specimen Q742 is a knife with a single-edge. Specimen Q742.1 is a Gerber[®] single-edge knife. Specimen Q745 is a plastic container for a 6-Piece, Pro Series Home Tool Set by KR tools. Specimen Q745 contains Q745.1 measuring tape, Q745.2 pliers, Q745.3 box cutter, Q745.4 wrench, Q745.5 flathead screwdriver, and Q745.6 Phillips head screwdriver. Specimen Q746.1 is a pair of red handle wire strippers. Specimen Q746.2.1 is a flathead screwdriver. Specimen Q746.3.1 is a Phillips head screwdriver. Specimen Q746.4.1 is a pair of needle-nose pliers.

130423010 AAR NN (New Bedford, MA)

Specimen Q753 is a Phillips head screw driver. Specimen Q754 is a Leatherman[®] multi-tool, Model Supertool. Specimen Q755 contains a Craftsman[®] flathead screwdriver, Xcelite[®] Phillips head screwdriver, grooming scissors, a pair of slip-joint pliers, and a socket wrench. Specimen Q762 is a Swiss-Tech[®] multi-tool. Specimen Q763 is an R.S.R Electronics solder iron with solder. Specimen Q764 contains a Craftsman[®] Phillips head screwdriver, three Phillips head screwdrivers, two flathead screwdriver, a pair of tongue-and-groove pliers, and a pair of needle-nose pliers. Specimen Q764.1 is a pair of slip joint pliers. Specimen Q764.2 is a pair of needle-nose pliers. Specimen Q765 contains a Husky[®] Phillips and flathead screwdrivers, a Phillips screwdriver, and a pair Westcott[®] scissors. Specimen Q766 contains a Stanley[®] Phillips head screwdriver, two flathead screwdrivers, and three Phillips head screwdrivers. Specimen Q773 contains a pair of Crescent[®] tongue-and-groove pliers, a pair of slip joint pliers, and a flathead screwdriver. Specimen Q774 contains a Titan[®] Phillips head screwdriver, two Phillips head screwdrivers, and a flathead screwdriver. Specimen Q775 contains two Craftsman[®] and one Makita[®] Phillips head screwdrivers, four Phillips head screwdrivers, a Cal-Hawk[®] flathead screwdriver, and a flathead screwdriver. Specimen Q776 contains two long reach needle-nose pliers and one curved nose needle-nose pliers. Specimen Q777 contains two pair of Channel Lock[®] tongue-and-groove pliers, and two slip joint pliers. Specimen Q778 is a Phillips head screwdriver.

130424003 AAR NN (Cambridge, MA)

Specimen Q787 is a Rutland[®] drill and tap case. Specimen Q787.1 contains fourteen drill bits and seven taps. Specimens Q787.1.1 and Q787.1.5 are two taps. Specimens Q787.1.2 through Q787.1.4 are drill bits. Specimen Q787.2 contains nineteen drill bits and eleven taps. Specimen Q787.3 is a Huot[®] drill bit case. Specimen Q787.4 contains eleven drill bits. Specimen Q787.5 is a drill bit. Specimen Q787.6 contains forty-eight drill bits. Specimen Q788 contains two Wilton[®] vise jaw clamps. Specimens Q789 and Q790 contain two vise jaw clamps. Specimens Q791 through Q791.11 are 12 inch hacksaw blades. Specimen Q795 and Q795.1 are wire strippers.

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Additional Items

130416021 AAR NN (Marathon, Boylston St)

Specimen Q10 is a pressure cooker lid with striated marks (abrasion) that appear to be the result of an impact.

130421100 AAR NN (Norfolk St, Cambridge, MA)

Specimen Q677 is a .177 cal (4.5mm) pellet Gammo airgun (compressed CO₂), Serial Number 11E08716. The Q677 airgun functioned normally when tested in the Laboratory with the Q692 magazine and grip. Specimen Q698 is a Crosman[®] CO2 cartridge the type designed to function in the Q677 airgun.

Specimen Q684 is a clear plastic tub with the label "Pyloon's Hommos." Specimen Q697 is a box with the label "PC POWER & COOLING." Specimen Q699 is a Weller[®] solder gun case with additional tips and solder. Q699.1 is a Weller customer service manual. Specimen Q725.11 is a green hobby fuse.

Specimen Q697.1 is a bag of miscellaneous wires. Some of the wires contained in specimen Q697.1 were cut with a tool(s) using a pinching/shearing-type action. Specimen Q697.2 is a transformer with wires. Specimen Q697.3 is a cooling fan with wires and connector. Specimen Q697.4 is a Besttec[®] battery back with wires. Specimen Q697.6.1 is three cords. Specimen Q697.7 is a power cord.

Specimen Q725 contains a bolt with washer, plastic bag with bobby pins, push pins, bearings, metal clip, aluminum fitting and small Phillips head screw; cork screw; fiber measuring tape; ball point pens; pair of tweezers; nylon brushes; green piece of fiber; metal can lid; and a plastic lid. Specimen Q725.11 is a hobby fuse with no marks of value.

No Exams

Specimen Q171.1 is tape. Specimen Q222 is a metal fragment. Specimen Q298.1 is three pieces of metal and Q298.2 is two pieces of plastic. Specimen Q314 is a group of wire, due to the absence of sooting, singing, and damage no examines were performed on specimen Q314. Specimen Q697.5 is a cloth bag. Specimens Q697.6, Q746.2, Q746.3, and Q746.4 are plastic bags. Additional items contained in specimen Q725, a lid, bearings, push pins, hair pins, brushes, measuring tape, plastic case, pens, wing nut, and tweezers. Specimen Q725.7 is Scotch brand tape. Q725.8 is a piece of paper towel.

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Methods:Toolmark Examination

Toolmarks, whether they are present on two evidence items or on one evidence item and one test-mark created in the Laboratory, undergo two stages of comparison. First, the toolmarks are examined to determine and compare their class characteristics. The class characteristics of toolmarks include type of cutting action and the size and orientation of gripping or cutting surfaces. If the class characteristics of the toolmarks are not clearly different, the examination moves to a second stage using comparative microscopy.

A microscopic comparison examination consists of a search of the impressed and striated marks present in two toolmarks to determine if patterns of similarity exist. At the completion of these comparisons, one of the following three opinions is issued:

1) Exclusion (Elimination)

If two toolmarks or a tool and toolmark have incompatible class characteristics, an Exclusion opinion is rendered.

2) Identification

If the following conditions are met during the comparison of microscopic marks, an opinion of Identification is rendered:

- a) The degree of similarity is greater than the examiner has ever observed in previous evaluations of toolmarks known to have been created by different tools.
- b) The degree of similarity is equivalent to that normally observed in toolmarks known to have been created by the same tool.

When these conditions are met the likelihood another tool could have produced the same mark is so remote as to be considered a practical impossibility. An Identification opinion cannot be reported unless a second qualified toolmarks Examiner has examined the items in question and reached the same conclusion.

3) Inconclusive (No Conclusion)

If the conditions required for an Exclusion or Identification are not observed, an opinion of Inconclusive is rendered. A failure to meet the conditions for an Exclusion or Identification could be the result of limited microscopic marks of value, a lack of any observed microscopic similarity, or microscopic similarity that is present but too limited to meet the criteria for identification.

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Tool

The type, action, and manufacturer of a tool are normally determined by directly observing the function and manufacturer markings on the tool in question. When these are not present, published materials and tool literature in the FBI Laboratory's Firearms/Toolmarks Unit reference library may be used to make determinations. When a microscopic comparison is necessary using a questioned tool, test samples are created using a test material that is softer or similar quality to the item being compared.

Firearms

The make, model and caliber of a firearm are normally determined by directly observing manufacturer markings on the firearm in question. When these are not present, published materials and firearms in the Laboratory's Reference Firearms Collection may be used to make determinations.

Unless otherwise noted, submitted firearms are test fired:

- 1) in the condition they are received in the Firearms/Toolmarks Unit,
- 2) with ammunition from the Laboratory's Reference Ammunition File,
- 3) in a manner that allows for testing of available modes of fire such as manual safety engaged, manual safety disengaged, single action, double action, semi-automatic, fully automatic, etc.

Limitations:Toolmark Examination

Firearms/Toolmark Identification is an empirical science that relies on objective measurements and a subjective comparison of microscopic marks of value.

Due to changes in tool working surfaces from wear, corrosion and abuse or the employment of unusual tool/work piece orientations, toolmarks created by the same tool are not always identifiable as such.

Tool

The results of tool examinations describe type and/or operating condition of the tool as it was received in the Firearms/Toolmarks Unit.

Firearms

The results of firearms function examinations describe the operating condition of the firearm as it was received in the Firearms/Toolmarks Unit.

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Remarks:

The supporting records for the opinions and interpretations expressed in this report are retained in the FBI files. The submitted items and FTU secondary evidence will be returned under separate cover. For questions about the content of this report or the status of other firearms examinations, please contact Examiner Erich D. Smith at 703-632-7242. For other questions, please contact Request Coordinator SA Edward S. Knapp at 703-632-7644.

Erich D. Smith
Firearms/Toolmarks Unit

This report contains the opinions/interpretations of the examiner(s) who issued the report.

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