

IMPROVISED EXPLOSIVE DEVICES

(IEDS, NON-COUNTRY SPECIFIC)

PURPOSE:

- TO PROVIDE DEPLOYING UNITS A TRAINING TOOL FOR IED IDENTIFICATION.
- TO DEPICT IN PHOTOGRAPHIC FORM, VARIOUS EXAMPLES OF THE IED THREAT AND COMMON IED COMPONENTS FROM CONFLICTS AROUND THE WORLD.
- TO DISCUSS IED FACTS & INDICATORS.

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SOURCES: VARIOUS OPEN SOURCES; AS OF JUL 06



INTRODUCTION

THIS HANDBOOK IS SPECIFICALLY DESIGNED TO PROVIDE TRAINERS, LEADERS AND SOLDIERS A “HIP POCKET” REFERENCE RESOURCE. IT MUST BE EMPHASIZED THAT THIS HANDBOOK IS NON-COUNTRY SPECIFIC.

THESE PHOTOS AND GRAPHICS ARE ACTUAL EXAMPLES OF IEDS, VBIEDS AND THEIR COMPONENTS, AS SEEN IN VARIOUS CONFLICTS AROUND THE WORLD. THIS COLLECTION IS NOT MEANT TO BE ALL-INCLUSIVE OR TO COVER ALL POSSIBLE VARIANTS OF IEDS.

FOR A DISCUSSION OF REMOTE CONTROL IEDS (RCIED), PLEASE SEE HANDBOOK #10 RCIED TRIGGER IDENTIFICATION.

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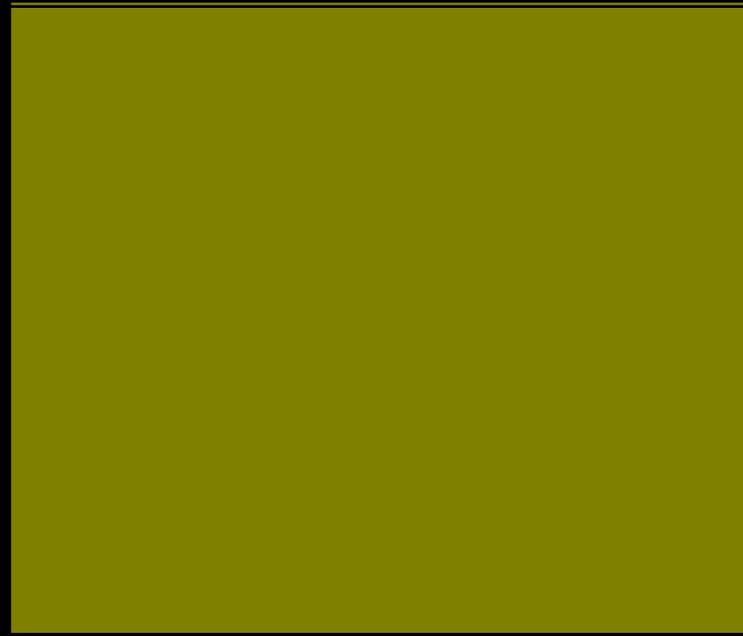
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IED CHAPTERS

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CHAPTER 1 GLOSSARY



GLOSSARY

IED	IMPROVISED EXPLOSIVE DEVICE, CONSISTING OF A CHARGE, INITIATOR, SWITCH, POWER SOURCE AND CONTAINER, DESIGNED TO DETONATE ON AN INTENDED TARGET.
SUICIDE IED	SUICIDE IED (E.G. WALK-UP, SUICIDE VEST BOMBER).
VBIED	VEHICLE BORNE IED (NON-SUICIDE).
SUICIDE VBIED	SUICIDE VEHICLE BORNE IED (NON-RC).
VOIED	VICTIM OPERATED IED (UNWITTINGLY INITIATED BY VICTIM); E.G. TRIP WIRE, PRESSURE, INFRA-RED, BREAK AWAY WIRE, MOTION OR LIGHT SENSOR TYPE IEDS.
COMMAND WIRE	COMMAND FIRING WIRE (ELECTRICAL) INSURGENTS USE TO DETONATE THE EXPLOSIVE IN AN IED.
TIME DELAY	WATCH, TIMER, OR TIME FUSE USED TO TIME THE DETONATION OF AN IED, ALLOWING FOR THEIR WITHDRAWAL BEFORE THE EXPLOSION.
RCIED	REMOTE CONTROL IED (MOST OFTEN ARE RADIO FREQUENCY CONTROLLED); DISCUSSED IN HANDBOOK #10 RCIEDs.

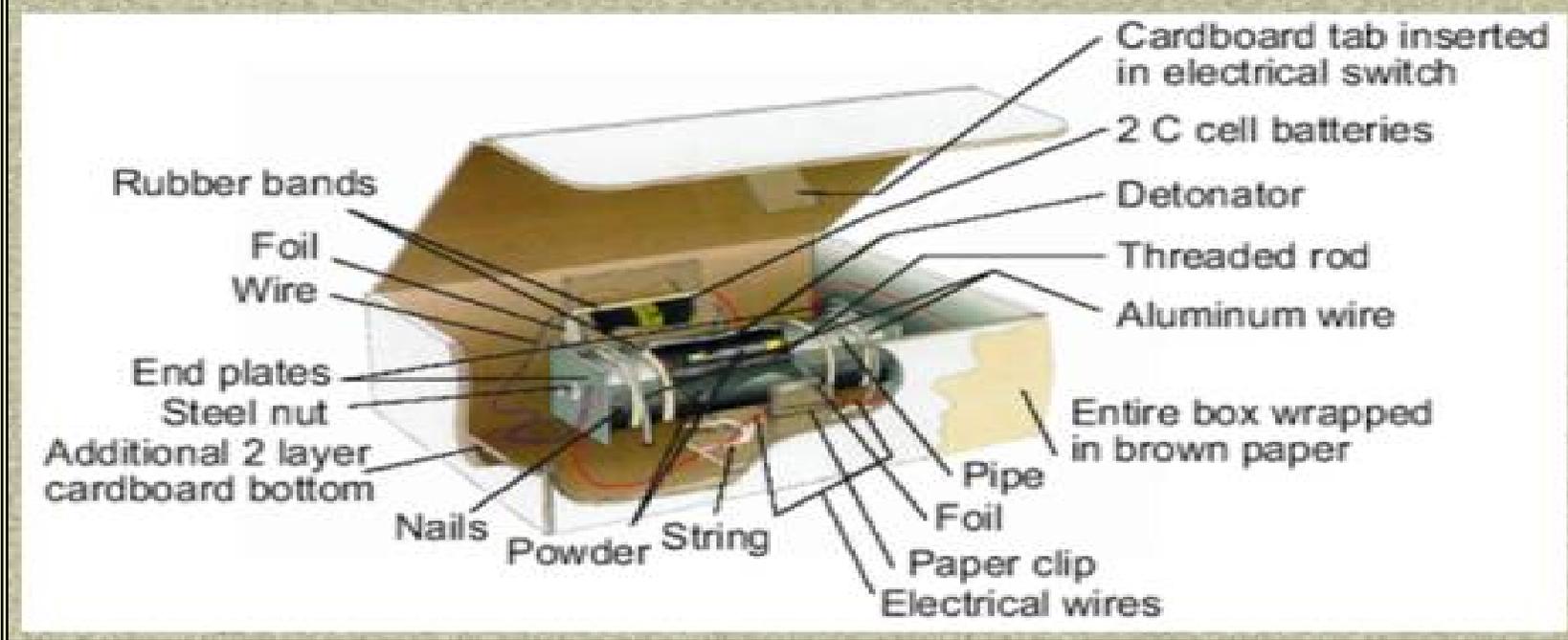
SOURCE: VARIOUS SOURCES; <https://naveodtechdiv.navsea.navy.mil/12/default.asp>; IED TRIGGER RECOGNITION GUIDE JUL05, NCT; IRAQ'S EVOLVING INSURGENCY APR 06, <http://www.comw.org/warreport/fulltext/0604cordesman.pdf>; OTHER OPEN SOURCES.



CHAPTER 2 IED COMPONENTS

COMMON IED COMPONENTS

IEDs commonly use, but do not always require, the following components: (1) an initiation system, (2) filler, (3) a detonator, (4) a power source, and (5) a container.

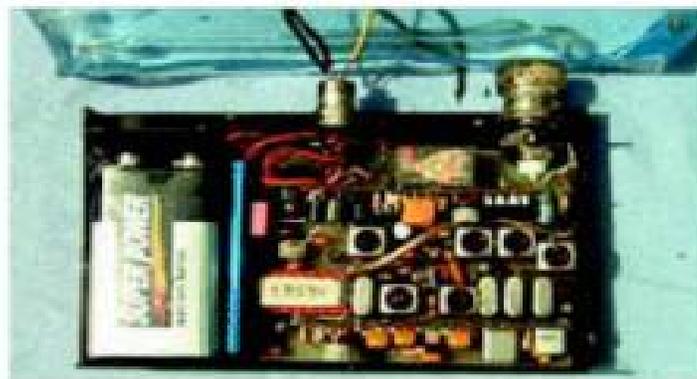


SOURCE: MCIA IED SMART CARD, 2004, <http://www.mcia.osis.gov/>

COMMON FIRING DEVICES



Pyrotechnic Systems



Triggers

SOURCE: MCIA IED SMART CARD, 2004, <http://www.mcia.osis.gov/>

EXAMPLES OF BLASTING CAP FIRING DEVICES



SOURCE: OPEN SOURCES

COMMON POWER SOURCES



9 Volt Battery



Solar powered cells

SOURCE: MCIA IED SMART CARD, 2004, <http://www.mcia.osis.gov/>

CHAPTER 3

IED TRIGGER IDENTIFICATION

PHOTOS



SOURCE: CHECHEN MUJAHIDIN IED OPERATIONS AGAINST RUSSIAN PATROL, <http://www.kavkazcenter.com/eng/video/>

IED TRIGGERS

- AN IED (NON-REMOTE CONTROL) MAY BE TRIGGERED BY:
 - COMMAND WIRE.
 - TIME DELAY:
 - SAFE ARM.
 - DIGITAL (WATCHES).
 - MICROPROCESSOR.
 - RESISTOR/CAPACITOR.
 - MECHANICAL (ALARM CLOCK OR TIME FUSE).
 - SUICIDE BOMBER (MANUAL).
 - VICTIM OPERATED (INITIATED/ACTIVATED) (NEXT PAGE).

SOURCE: IRAQ'S EVOLVING INSURGENCY APR 06, <http://www.comw.org/warreport/fulltext/0604cordesman.pdf>; OTHER OPEN SOURCES.

IED TRIGGERS

- VICTIM OPERATED (INITIATED/ACTIVATED) TRIGGERS INCLUDE:

- SENSORS:

- PASSIVE INFRA-RED.
- BAROMETRIC PRESSURE.
- LIGHT AND DARKNESS.
- RADIATION.
- TEMPERATURE.
- MOTION.
- SOUND.

- MANUAL PRESSURE (STEP ON TYPE).

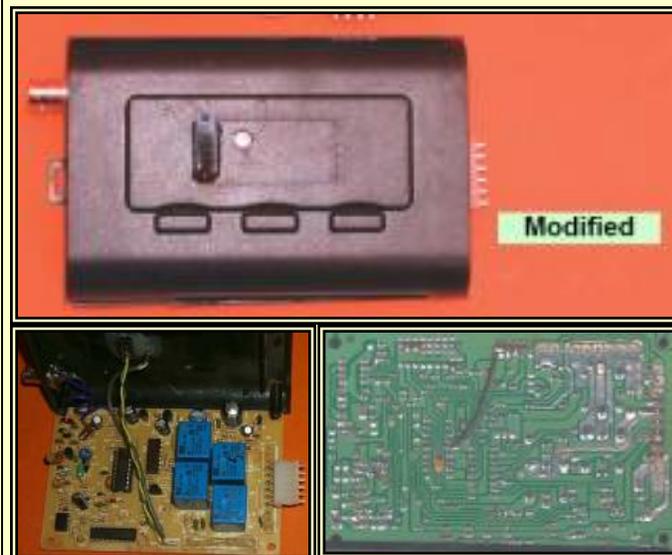
- TRIP WIRE.

- BREAK WIRE.

SOURCE: IRAQ'S EVOLVING INSURGENCY APR 06, <http://www.comw.org/warreport/fulltext/0604cordesman.pdf>; OTHER OPEN SOURCES.

CAR ALARM MOTION TRIGGER

- **AL QAEDA MODIFIED CAR ALARM R/CFS RECEIVER: THIS COMMERCIAL CAR ALARM RECEIVER, RECOVERED IN AFGHANISTAN IN 2002, WAS MODIFIED TO INCLUDE AN ADDED SLIDE SWITCH, LED INDICATOR, AND BNC CONNECTOR FOR THE ANTENNA. THREE MULTI-PIN CONNECTORS WERE REPLACED WITH A SINGLE CONNECTOR.**
- **RF FREQUENCY: 330-340 MHZ.**
- **CONTROL CODE: 12-BIT DIGITAL.**
- **OPERATING RANGE: NO TRANSMITTER WAS PROVIDED. A TYPICAL KEY-FOB TRANSMITTER, GENERALLY PROVIDED WITH SUCH SECURITY SYSTEMS, WOULD BE VERY SHORT RANGE.**
- **POWER SOURCE: DESIGNED TO OPERATE IN STANDARD 12-VOLT AUTOMOBILE ELECTRICAL SYSTEM. NO POWER SOURCE WAS RECOVERED WITH THE RECEIVER.**
- **SIZE: THE CASE MEASURES 125 MM X 88 MM X 32 MM THICK (4.9" X 3.5" X 1.25" THICK). THE CIRCUIT BOARD MEASURES 121 MM X 81 MM (4.8" X 3.20")**
- **PC BOARD SUBSTRATE: SINGLE CLAD 1.6 MM (0.063") THICK TAN EPOXY-FIBERGLASS WITH GREEN SOLDER MASKING AND WHITE SILKSCREEN MARKINGS.**

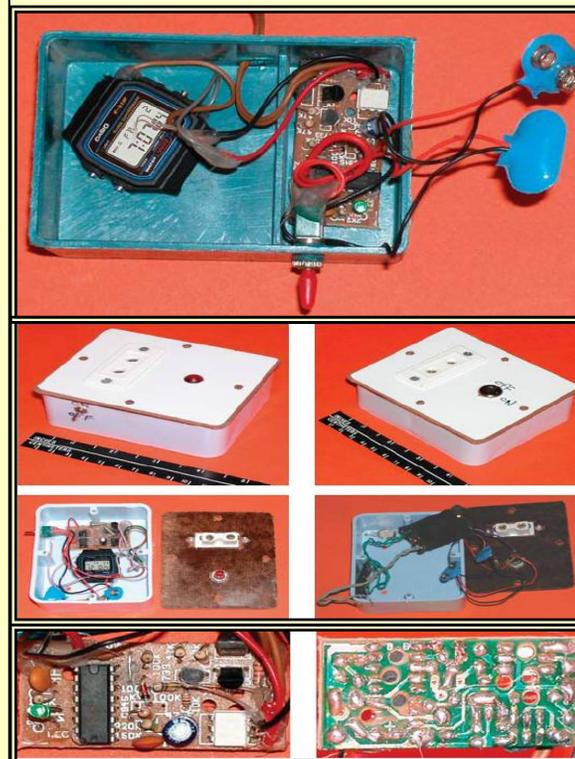


NOTE: THIS ALARM CAN BE TRIGGERED BY A VICTIM OPENING DOOR/TRUNK OR BY REMOTE CONTROL TRANSMITTER.

SOURCE: IED TRIGGER RECOGNITION GUIDE
JUL 05, NCT
http://www.i-mef.usmc.mil/hqtrs/mhg/MHG_files/CIA-2ndEditionIED_14Jul05.pdf

CASIO WATCH TIMER TRIGGER

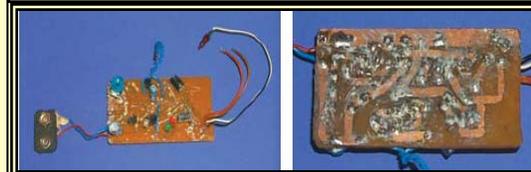
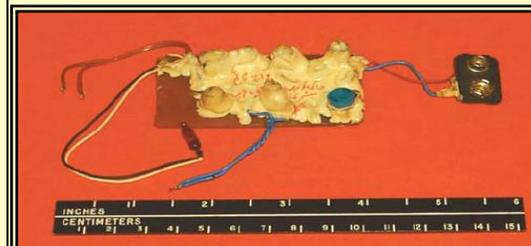
- AL QAEDA CASIO WATCH TIMER WITH OPTO-ISOLATOR: RECOVERED SINCE MID-2002 IN AFGHANISTAN AND PAKISTAN. THIS DEVICE USES AN OPTO-ISOLATOR TO INTERFACE WITH THE CASIO DIGITAL WATCH ALARM AND A SAFE-ARM DELAY TIMER. THIS IS A MUCH SAFER CIRCUIT TO USE THAN OTHER VERSIONS OF THE CASIO WATCH TIMER • TIME DELAY: USER PROGRAMMABLE UP TO 23 HOURS, 59 MINUTES IN ONE MINUTE INCREMENTS.
- POWER SOURCE: TWO STANDARD 9-VOLT BATTERIES IN PARALLEL (9 VDC) WITH NO ISOLATION.
- WATCH TYPE: CASIO F-91W, BUT OTHER DIGITAL ALARM WATCHES COULD BE UTILIZED.
- SIZE: THE BLUE PLASTIC CASE MEASURES 101 MM X 67 MM X 39 MM (4.0" X 2.6" X 1.5"). THE CIRCUIT BOARD MEASURES 52 MM X 26 MM X 1.6 MM THICK (2.0" X 1.0" X 0.063" THICK).
- CIRCUIT BASE: TYPE 4060 OSCILLATOR/DIVIDER IC FOR THE SAFE ARM DELAY TIMER; TYPE 4N25 OPTO-ISOLATOR FOR THE WATCH INTERFACE.
- CIRCUIT BOARD SUBSTRATE: BROWN SINGLE-SIDED WITH SILK SCREEN LEGENDS.
- VARIATIONS: CONCEALED IN ELECTRICAL OUTLET BOXES WITH TOGGLE OR KEY SWITCH.



SOURCE: IED TRIGGER RECOGNITION GUIDE JUL 05, NCT http://www.i-mef.usmc.mil/hqtrs/mhg/MHG_files/CIA-2ndEditionIED_14Jul05.pdf

WATCH BREAK WIRE TRIGGER

- **AL QAEDA DIGITAL WATCH: THIS DEVICE WAS RECOVERED IN AFGHANISTAN IN 2002. IT WILL TRIGGER WHEN THE DIGITAL WATCH ALARM FUNCTIONS OR WHEN THE BREAK WIRE IS OPENED.**
- **TRIGGER: ALARM FROM A DIGITAL WATCH (RED LEADS), OR IMMEDIATELY UPON OPENING THE BREAK WIRE (TWISTED BLUE LEADS).**
- **CONCEALMENT: CIRCUIT IS COVERED W/HOT-MELT GLUE.**
- **SAFE-ARM DELAY: VARIABLE, TWO MINUTES MAXIMUM.**
- **ANTI-TAMPER FEATURES: THE BREAK WIRE TRIGGER MECHANISM COULD BE UTILIZED WITH A LIFT SWITCH.**
- **POWER SOURCE: STANDARD 9-VOLT BATTERY ASSUMED TO POWER THE CIRCUIT. THE WATCH IS POWERED BY ITS INTERNAL SR-41 SILVER OXIDE BUTTON CELL.**
- **SIZE: THE PC BOARD MEASURES 70 MM X 39 MM (2.8" X 1.5").**
- **PC BOARD SUBSTRATE: BROWN PHENOLIC, 1.5 MM (0.060") THICK, WITH CIRCUIT TRACES ON ONE SIDE. THERE ARE NO MARKINGS ON THE BOARD.**
- **DIGITAL WATCH: THE DIGITAL WRIST WATCH PROVIDED WITH THE CIRCUIT IS MARKED ASAHI SPORT ALARM CHRONO, MODEL NUMBER M-686. THE WATCH MEASURES 39 MM X 37 MM X 11 MM THICK (1.54" X 1.46" X 0.43" THICK).**



SOURCE: IED TRIGGER RECOGNITION GUIDE JUL 05, NCT http://www.i-mef.usmc.mil/hqtrs/mhg/MHG_files/CIA-2ndEditionIED_14Jul05.pdf

FIXED TIME DELAY TRIGGER

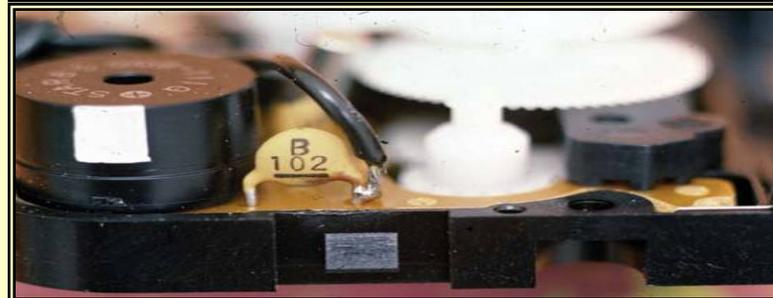
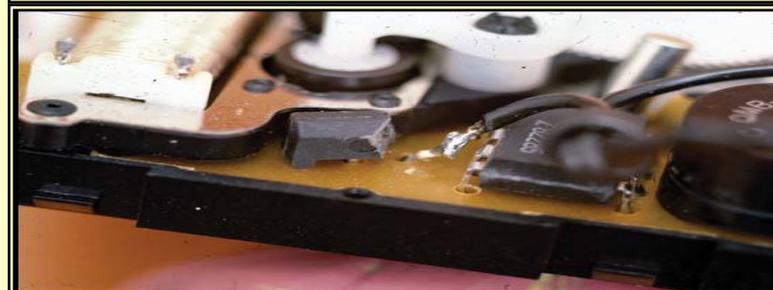
- **IRAQI FIXED-DELAY TIMER:** AT TIME OF MANUFACTURE, THIS FIXED-DELAY TIMER CAN BE SET FOR DELAYS OF SEVERAL MINUTES TO SEVERAL HOURS. IT WAS FIRST SEEN IN 1988 AND USED EXTENSIVELY IN THE 1991 GULF WAR. THE TIMER CIRCUIT HAS BEEN SEEN IN A NUMBER OF DIFFERENT EXTERNAL PACKAGES.
- **TIME DELAY:** MINUTES TO A FEW DAYS DELAY POSSIBLE. GENERALLY IN THE RANGE OF A FEW HOURS, FIXED AT TIME OF ASSEMBLY.
- **POWER SOURCE:** GENERALLY 9-VOLT BATTERY.
- **SIZE:** THE CIRCUIT BOARD MEASURES 38 MM X 25 MM X 1.3 MM THICK (1.5" X 1" X 0.05" THICK).
- **PC BOARD SUBSTRATE:** EPOXY FIBERGLASS.
- **CIRCUIT BASE:** TYPE 4536 OSCILLATOR/DIVIDER IC.
- **CONCEALMENT:** NONE, PLASTIC BOX, CYLINDER.



SOURCE: IED TRIGGER RECOGNITION GUIDE JUL 05, NCT http://www.i-mef.usmc.mil/hqtrs/mhg/MHG_files/CIA-2ndEditionIED_14Jul05.pdf

TRAVEL ALARM CLOCK TRIGGER

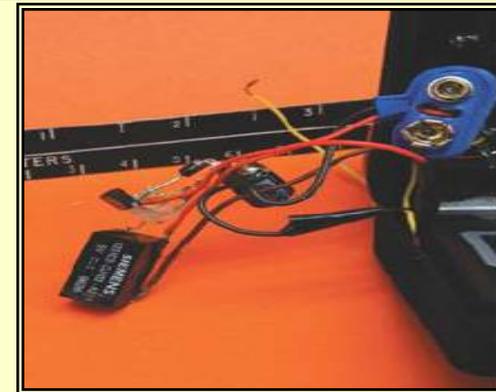
- **IRAQI MODIFIED TRAVEL ALARM CLOCK:** THIS MODIFIED ALARM CLOCK WAS OBTAINED IN IRAQ IN 1991. THE CLOCK USES MECHANICAL CONTACT CLOSURE TO SOUND THE ALARM. THE MODIFICATION IS SIMPLY TO SOLDER TWO BLACK WIRES ACROSS THOSE CONTACTS AS SHOWN. THIS APPLIES BATTERY POWER TO THE LOAD WHEN THE CONTACTS CLOSE. THE ALARM ON/OFF MECHANISM WAS IMMOBILIZED IN THE ON POSITION.
- **DELAY TIME:** MECHANICALLY SET UP TO 11 HOURS.
- **HOST:** CASIO ALARM QUARTZ TQ-110 TRAVEL CLOCK.
- **POWER SOURCE:** A SINGLE AA BATTERY POWERS THE CLOCK AND IS SWITCHED ACROSS THE LOAD AT THE ALARM SET TIME.
- **SIZE:** THE CLOCK MEASURES 60 MM SQUARE X 25 MM THICK (2.4" SQUARE X 1.0" THICK).



SOURCE: IED TRIGGER RECOGNITION GUIDE JUL 05, NCT http://www.i-mef.usmc.mil/hqtrs/mhg/MHG_files/CIA-2ndEditionIED_14Jul05.pdf

JEWELRY BOX TIMER TRIGGER

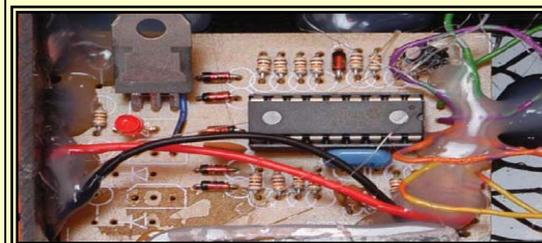
- IRAQI PROGRAMMABLE TIMER IN JEWELRY BOX: BASED ON A COMMERCIAL Q&Q TIMER AND ASSEMBLED IN A STANDARD JEWELRY BOX, THIS CIRCUIT CAN PRODUCE A MAXIMUM DELAY OF 99 MINUTES 59 SECONDS. IN THE COUNT-DOWN MODE, IT WILL ALARM WHEN THE COUNTER REACHES ZERO, TRIGGERING THE OUTPUT RELAY.
- TIME DELAY: PRESET ON TIMER TO 99 MINUTES 59 SECONDS IN ONE SECOND INCREMENTS.
- CIRCUIT BASE: Q&Q “TIMER COUNT UP/DOWN” DT26-501-GJB MANUFACTURED BY JAPAN CBM (CITIZENS BUSINESS MACHINE) CORPORATION.
- POWER SOURCE: A STANDARD 9-VOLT BATTERY IS MOUNTED IN THE LID OF THE BOX.
- SIZE: THE BLACK JEWELRY BOX MEASURES 78 MM X 78 MM X 39 MM (3.1” X 3.1” X 1.5”).
- PC BOARD SUBSTRATE: SINGLE-SIDED BROWN PHENOLIC CIRCUIT BOARD IS 1.6-MM (0.063”) THICK WITH WHITE SILK SCREEN MARKINGS.
- VARIATIONS: THE DEVICE HAS BEEN RECOVERED WITH BOTH RED AND BLACK SAFE-ARM SWITCHES.
- CONCEALMENT: THE JEWELRY BOX SERVES AS A LIGHT CONCEALMENT, BUT THE PRESENCE OF THE SAFE-ARM SWITCH IS A MODIFICATION.



SOURCE: IED TRIGGER RECOGNITION GUIDE JUL 05, NCT http://www.i-mef.usmc.mil/hqtrs/mhg/MHG_files/CIA-2ndEditionIED_14Jul05.pdf

1-3-5-7 HOUR TIMER TRIGGER

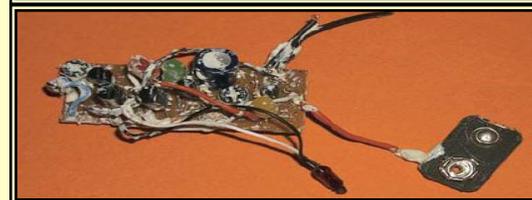
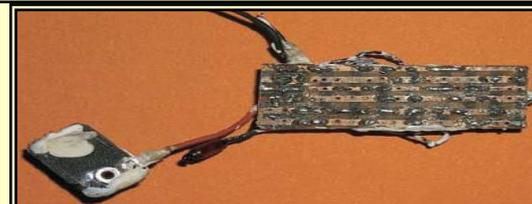
- AL QAEDA 1-3-5-7 HOUR TIMER USING PIC MICROPROCESSOR: THIS TIMER, RECOVERED IN AFGHANISTAN IN EARLY 2004, CAN BE SET TO ONE OF FOUR DIFFERENT DELAYS. CUTTING ONE OF THE FOUR JUMPER WIRES ON THE END OF THE PACKAGE WILL SET DELAY TIME TO 1, 3, 5, OR 7 HOURS. A CRYSTAL-CONTROLLED PIC MICROPROCESSOR SETS DELAY TIME. TIMING BEGINS WHEN A BATTERY IS ATTACHED TO CLIP AND THE DESIRED JUMPER WIRE IS CUT. THIS CAN BE DONE IN EITHER ORDER.
- TIME DELAY: 1, 3, 5, OR 7 HOURS, JUMPER SELECTED.
- CIRCUIT BASE: PIC16F84A MICROPROCESSOR.
- POWER SOURCE: CLIP W/STANDARD 9-VOLT BATTERY.
- SIZE: BLACK-PAINTED CLEAR PLASTIC BOX IS 74 MM X 56 MM X 30 MM (2.9" X 2.2" X 1.2"). BOX WAS MADE FROM CLEAR PLASTIC 2.54 MM (0.10") THICK SHEET STOCK AND PAINTED BLACK. BOARD IS 56 MM X 40 MM (2.2" X 1.6").
- PC BOARD SUBSTRATE: SINGLE-SIDED BROWN PHENOLIC CIRCUIT BOARD IS 1.6-MM (0.063") THICK WITH WHITE SILK SCREEN MARKINGS AND GREEN SOLDER-MASK ON THE TRACE SIDE.
- VARIATIONS: BOARD IS DESIGNED FOR FOUR SEPARATE OUTPUTS, ONE FUNCTIONING AT EACH OF THE DELAY TIMES. CIRCUIT HAS BEEN MODIFIED TO COMBINE ALL FOUR INTO A SINGLE OUTPUT.



SOURCE: IED TRIGGER RECOGNITION GUIDE JUL 05, NCT http://www.i-mef.usmc.mil/hqtrs/mhg/MHG_files/CIA-2ndEditionIED_14Jul05.pdf

LIGHT/BREAK WIRE TRIGGER

- AL QAEDA LIGHT/BREAK WIRE TRIGGER WITH SAFE-ARM DELAY: THESE CIRCUITS WERE RECOVERED IN AFGHANISTAN IN 2002. AFTER THE SAFE-ARM DELAY, LIGHT WILL TRIGGER THE DEVICE. TWO WIRES FROM THE DEVICE MUST BE SHORTED TO PREVENT IMMEDIATE DETONATION - OPENING THESE WIRES, EVEN WHILE DARK, WILL TRIGGER THE DEVICE. THIS SHORT COULD BE A BREAK WIRE OR SWITCH.
- TRIGGER: SENSITIVITY TO LIGHT OR BREAK WIRE.
- CONCEALMENT: CIRCUIT COVERED W/HOT-MELT GLUE.
- SAFE-ARM DELAY: VARIABLE, 45 SECONDS MAXIMUM.
- SIZE: THE PC BOARD MEASURES 56 MM X 24 MM (2.20" X 0.95").
- ANTI-TAMPER FEATURES: THE BREAK WIRE TRIGGER MECHANISM COULD BE UTILIZED WITH A LIFT SWITCH.
- POWER SOURCE: STANDARD 9-VOLT BATTERY ASSUMED.
- PC BOARD SUBSTRATE: PHENOLIC "STRIP STYLE" EXPERIMENTER BOARD, 1.6 MM (0.063") THICK. PC BOARD HAS AN ARRAY OF HOLES ON 0.1" CENTERS WITH STRIPS OF COPPER CONNECTING ROWS OF HOLES.



SOURCE: IED TRIGGER RECOGNITION GUIDE JUL 05, NCT http://www.i-mef.usmc.mil/hqtrs/mhg/MHG_files/CIA-2ndEditionIED_14Jul05.pdf

SHAPE CHARGE TIMER TRIGGER

- **IRAQI SHAPED CHARGE TIMER:** DEVICE WAS RECOVERED IN THE MID-EAST IN 1991. SHAPE OF THE CHARGE SUGGESTS ITS INTENDED USE ON OIL PIPELINES OF 122-137 CM (48"-54"). THE CHARGE IS TRIGGERED BY A 0-39 DAY TIMER ASSEMBLED IN A SECTION OF PIPE. DESIGN ERRORS PREVENT THE TIMER FROM FUNCTIONING IN MANY OF ITS DELAY SETTINGS.
- **SAFE-ARM DELAY:** 45 SECONDS.
- **CONTROL KEY:** A MAGNETIC PLUG MUST BE INSTALLED AT THE END OF THE TIMER ASSEMBLY FOR POWER TO BE APPLIED AND TIMER TO FUNCTION. REMOVING PLUG DISCONNECTS POWER FROM TIMER AND THE DETONATOR.
- **TIME DELAY:** PROGRAM FROM 1-39 DAYS, IN ONE DAY INCREMENTS, BEFORE ASSEMBLY ON THE CHARGE.
- **POWER SOURCE:** 5.8 VDC FROM TWO LISO2 D CELLS, CONNECTED IN SERIES, AS PART OF THE TIMER ASSEMBLY.
- **SIZE:** TIMER ASSEMBLY IS 280 MM LONG X 140 MM MAXIMUM DIAMETER (11" X 5.5" DIAMETER). SHAPE CHARGE IS 36 CM (14") DIAMETER WITH A CAPACITY OF 8 KILOGRAMS (18 POUNDS) OF EXPLOSIVE.



SOURCE: IED TRIGGER RECOGNITION GUIDE JUL 05, NCT http://www.i-mef.usmc.mil/hqtrs/mhg/MHG_files/CIA-2ndEditionIED_14Jul05.pdf

PUSH BUTTON TRIGGER



**MANUAL TRIGGER FOR AN IED;
CAN BE FOR A SUICIDE VEST IED
OR SUICIDE VEHICLE BORNE IED**

SOURCE: DOD PHOTO BY LANCE CPL. THOMAS D. HUDZINSKI, U.S. MARINE CORPS

SUICIDE SWITCHBOX TRIGGER

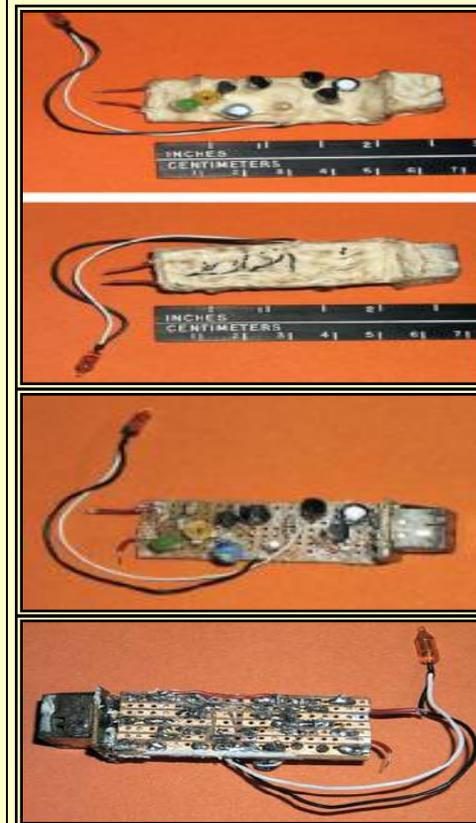
- **IRAQI SUICIDE SWITCH BOX:** THE PLASTIC CASE CONTAINS TWO TOGGLE SWITCHES, A PULL PLUG, A 9-VOLT BATTERY, AND TWO PAIRS OF SCREW OUTPUT TERMINALS FOR DETONATORS. THE OUTPUT TERMINALS HAVE FULL BATTERY VOLTAGE APPLIED WHEN BOTH SWITCHES ARE IN THE ON (UP) POSITION TO ARM THE DEVICE AND THE PLUG IS PULLED OUT. A RED LED BETWEEN THE SWITCHES GLOWS WHEN THE OUTPUT IS ACTIVE.
- **CONCEALMENT:** BATTERY, SWITCHES, OUTPUT TERMINALS, AND PULL PLUG ARE MOUNTED IN A GRAY PLASTIC BOX.
- **SAFE ARM DELAY:** PLACING BOTH TOGGLE SWITCHES IN THE ON POSITION ARMS THE DEVICE.
- **POWER SOURCE:** 9-VOLT BATTERY.
- **SIZE:** THE CASE MEASURES 70 MM X 55 MM X 30 MM (2.8" X 2.2" X 1.2").



SOURCE: IED TRIGGER RECOGNITION GUIDE JUL 05, NCT http://www.i-mef.usmc.mil/hqtrs/mhg/MHG_files/CIA-2ndEditionIED_14Jul05.pdf

INFRA-RED (IR) TRIGGER

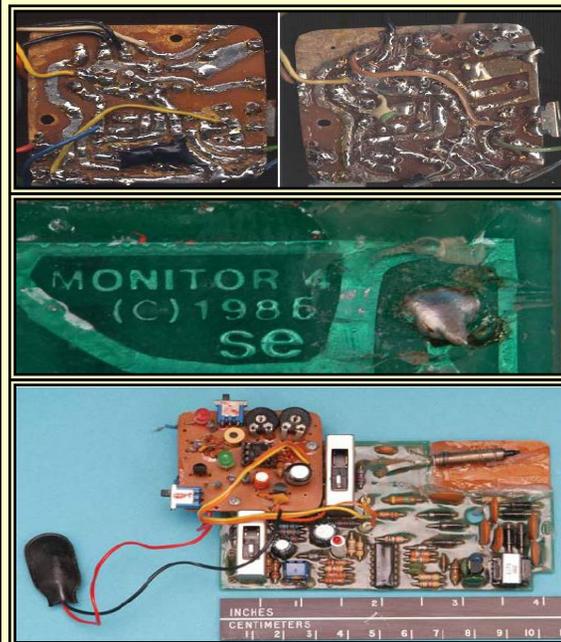
- **AL QAEDA INTERRUPTED IR TRIGGER:** THIS CIRCUIT, RECOVERED IN AFGHANISTAN IN EARLY 2002 REQUIRES MODULATED INFRA-RED (IR) TO HOLD THE OUTPUT OFF. WHEN THE IR IS INTERRUPTED, THE OUTPUT TRIGGERS. CONSTRUCTION IS SIMILAR TO THE AL QAEDA LIGHT/BREAK WIRE TRIGGER .
- **TRIGGER:** LOSS OF AN INFRA-RED (IR) BEAM WITH DIGITAL MODULATION IN THE 40-60 KHZ RANGE.
- **SAFE-ARM DELAY:** VARIABLE, BUT WITH A MAXIMUM OF ONLY ABOUT TEN SECONDS.
- **POWER SOURCE:** NO POWER SOURCE WAS RECOVERED. A STANDARD 9-VOLT BATTERY WOULD BE SUITABLE TO OPERATE THE CIRCUIT FOR ABOUT ONE DAY.
- **SIZE:** THE OVERALL PACKAGE MEASURES 67 MM X 20 MM X 21 MM THICK (2.64" X 0.79" X 0.83" THICK).
- **PC BOARD SUBSTRATE:** THE TRIGGER CIRCUIT IS ASSEMBLED ON 1.6 MM (0.063") THICK EPOXY-FIBERGLASS EXPERIMENTER BOARD WITH PARALLEL STRIPS OF COPPER CONDUCTORS OVER HOLES ON 2.5 MM (0.100") CENTERS.
- **CIRCUIT BASE:** SONY IR RECEIVER MODULE, MODEL SBX1610-52.
NOTE: THIS CIRCUIT COULD BE EASILY CONFIGURED TO TRIGGER ON THE PRESENCE OF AN IR SIGNAL, RATHER THAN THE LOSS OF SIGNAL.



SOURCE: IED TRIGGER RECOGNITION GUIDE JUL 05, NCT http://www.i-mef.usmc.mil/hqtrs/mhg/MHG_files/CIA-2ndEditionIED_14Jul05.pdf

RADIATION TRIGGER

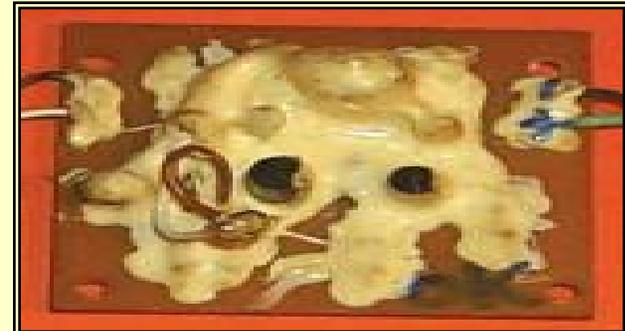
- IRAQI RADIATION TRIGGER OBTAINED IN A BAGHDAD “TERRORIST TRAINING FACILITY” IN 2003; CIRCUIT TRIGGERS WHEN RADIATION SOURCE IS SEPARATED FROM DEVICE (SIMILAR TO A BREAK WIRE DESIGN). THE DETECTOR PORTION IS A COMMERCIAL RADIATION MONITOR. THE METER SIGNAL IS PROCESSED ON AN ADDITIONAL CIRCUIT BOARD. THE GREEN LED GLOWS WHEN RADIATION IS PRESENT. WHEN THE RADIATION SOURCE IS REMOVED, THE RED LED GLOWS INSTEAD, AND TRIGGERS THE DETONATOR.
- ANTI-TAMPER FEATURES: THE DESIGN SUGGESTS USE AS AN ANTI-TAMPER DEVICE ON A RADIATION SOURCE.
- RAD DETECTOR: MONITOR 4 FROM S.E. INTERNATIONAL INC.
- SIZE: THE COMMERCIAL RADIATION MONITOR CIRCUIT BOARD MEASURES 105 MM X 64 MM X 1.8 MM THICK (4.1” X 2.5” X 0.07” THICK). ADDED CIRCUIT BOARD MEASURES 46 MM X 42 MM (1.8” X 1.7”).
- VARIATIONS: ADDED BOARDS ARE ELECTRICALLY EQUIVALENT BUT VARY IN PHYSICAL LAYOUT. ONE UNIT USED THE LND 714 GEIGER TUBE, WHILE ANOTHER USED THE LND712 (LARGER).
- POWER SOURCE: 10 TO 15 VDC.



SOURCE: IED TRIGGER RECOGNITION GUIDE JUL 05, NCT http://www.i-mef.usmc.mil/hqtrs/mhg/MHG_files/CIA-2ndEditionIED_14Jul05.pdf

DARKNESS SENSOR TRIGGER

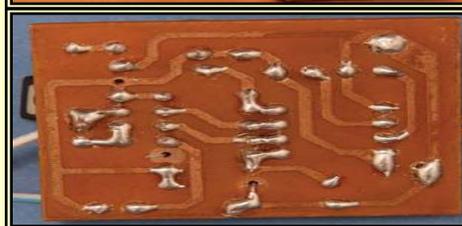
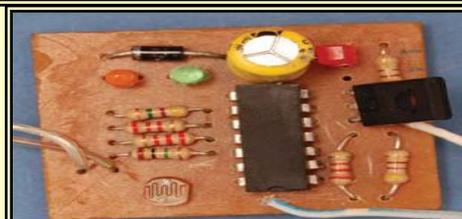
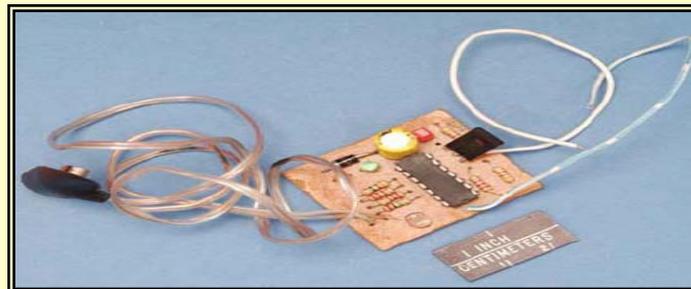
- AL QAEDA DARK TRIGGER WITH SAFE-ARM DELAY: RECOVERED IN KABUL IN 2002, THIS CIRCUIT IS HELD OFF BY LIGHT HITTING THE SENSOR. WHEN THE LIGHT IS REMOVED THE OUTPUT IS TRIGGERED.
- TRIGGER: NEARLY TOTAL ABSENCE OF LIGHT.
- SAFE ARM DELAY: 5 MINUTES.
- SIZE: 51 MM X 50 MM X 17 MM OVERALL HEIGHT, INCLUDING COMPONENTS (2.0" X 2.0" X 0.7").
- CONCEALMENT: CIRCUIT BOARD IS COVERED WITH HOT-MELT GLUE.
- POWER SOURCE: STANDARD 9-VOLT BATTERY ASSUMED. BATTERY LIFE IS ABOUT 15 HOURS.
- PC BOARD SUBSTRATE: SINGLE CLAD PHENOLIC, 1.5 MM (0.060") THICK. MARKED SCR-P PCB.



SOURCE: IED TRIGGER RECOGNITION GUIDE JUL 05, NCT http://www.i-mef.usmc.mil/hqtrs/mhg/MHG_files/CIA-2ndEditionIED_14Jul05.pdf

LOW LEVEL LIGHT TRIGGER

- **AL QAEDA LIGHT TRIGGER: THIS LIGHT SENSITIVE TRIGGER WAS RECOVERED IN AFGHANISTAN IN 2002. THE CIRCUIT BOARD HAS ALSO BEEN SEEN PLACED IN EPOXY. THE CIRCUIT IS SIMILAR TO LIGHT TRIGGERS CONCEALED IN FLUORESCENT STARTERS AND TELEPHONE WALL BLOCKS.**
- **TRIGGER: LOW LIGHT LEVELS.**
- **SAFE ARM DELAY: SIX MINUTES.**
- **SIZE: THE CIRCUIT BOARD MEASURES 38 MM X 34 MM X 1.6 MM THICK (1.5" X 1.3" X 0.063" THICK).**
- **CONCEALMENT: EPOXY BLOCK (PINK) MEASURING 48 MM X 34 MM X 21 MM (1.9" X 1.3" X 0.8").**
- **POWER SOURCE: STANDARD 9-VOLT BATTERY.**
- **CIRCUIT BASE: TYPE 4001 QUAD 2-INPUT NOR GATE.**
- **PC BOARD SUBSTRATE: SINGLE CLAD PHENOLIC.**



SOURCE: IED TRIGGER RECOGNITION GUIDE JUL 05, NCT http://www.i-mef.usmc.mil/hqtrs/mhg/MHG_files/CIA-2ndEditionIED_14Jul05.pdf

CHAPTER 4 IED IDENTIFICATION



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ANTI-PERSONNEL IEDS

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ANTI-VEHICLE/ARMOR

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VBIEDS

ANTI-PERSONNEL IED

NOT ALL IED ATTACKS TARGET VEHICLES. THESE PHOTOS WERE TAKEN FROM INSURGENT VIDEO IN CHECHNYA (VIDEO WAS DATED AUGUST 2005). INSURGENTS ATTACKED A RUSSIAN FOOT PATROL WITH AN IED.



SOURCE: WWW.KAVKAZ.COM

PEPSI CAN IED

MODIFIED PEPSI COLA
ALUMINUM CAN; FILLED WITH
EXPLOSIVE (PE-4 OR C-4),
USING A TIMED FUSE CORD



SOURCE: W333 C1, OCT 04 BNCOC, <http://www.bliss.army.mil/usasma/bncoc1/publications/W333%20CHANGE%20SHEET%201.pdf>

MORTAR ROUND IED

MODIFIED MORTAR WITH
GRENADE FUSE ATTACHED
TO TRIP WIRE



SOURCE: W333 C1, OCT 04 BNCOC, <http://www.bliss.army.mil/usasma/bncoc1/publications/W333%20CHANGE%20SHEET%201.pdf>

BOOBY-TRAPPED BUILDING IED

ENTIRE BUILDING
CAN BE BOOBY-TRAPPED
WITH ARTILLERY ROUNDS
COMBINED TO FORM A
MASSIVE BUILDING IED—
CAN BRING DOWN
STRUCTURE ON TOP OF A
TARGETED FORCE



SOURCE: COUNTER-IED TTPS https://call2.army.mil/focus/ied_tf/index.asp, FEB 05

TRASH PILE IED

IED HIDDEN IN A PILE
OF TRASH ALONG A
ROAD; HARD TO SEE
OR IDENTIFY; BUT
THIS IS THE POINT



SOURCE: <http://www.1id.army.mil/DISCOM/discomphoto.asp>, 2004

SARIN ROUND IED



Figure 3. 152mm binary Sarin round used as IED.

OLD, SARIN ARTILLERY ROUND IED FOUND & CLEARED. THE ROUND'S IDENTIFICATION MARKINGS HAD WORN OFF. TESTED POSITIVE FOR SARIN CHEMICAL.

SOURCE: BRIEFING TO DCI, SEP 04 www.cia.gov

SULFUR MUSTARD ROUND IED



Figure 1. 155mm sulfur mustard chemical round.

OLD, MUSTARD ARTILLERY ROUND IED FOUND & CLEARED. THE ROUND'S IDENTIFICATION MARKINGS HAD WORN OFF. TESTED POSITIVE FOR MUSTARD.

SOURCE: BRIEFING TO DCI, SEP 04 www.cia.gov

BOOBY-TRAPPED TIRE IED



VICTIM OPERATED (INITIATED) BOOBY TRAP; IED DETONATES AS CAR MOVES; MOST LIKELY IMPROVISED GRENADE DEVICE OR PLASTIC EXPLOSIVE; NOTICE EXPOSED WIRE.

SOURCE: COUNTER-IED TTP, https://call2.army.mil/focus/ied_tf/support.asp#1, FEB 05

BOOBY-TRAPPED CAR IED

VICTIM INITIATED
BOOBY TRAP. IED
DETONATES AS CAR
MOVES; IMPROVISED
GRENADE DEVICE.
NOTICE EXPOSED WIRE
AND GRENADE



SOURCE: COUNTER-IED TTP, https://call2.army.mil/focus/ied_tf/support.asp#1, FEB 05

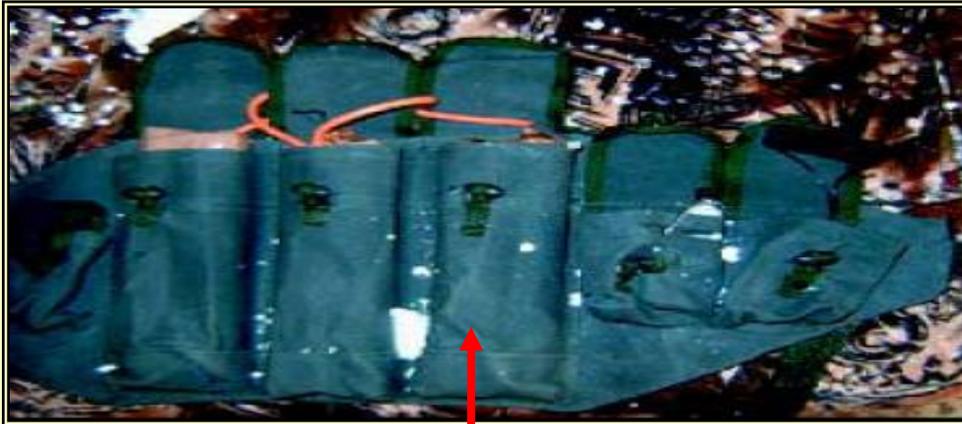
POSTER IED

POSTER IED RG-42 AP
GRENADE HIDDEN BEHIND A
VERY CONTROVERSIAL
POSTER PULL RELEASE
ACTIVATED IF POSTER TORN
DOWN



SOURCE: ENEMY TTP, <http://www.tecom.usmc.mil/utm/Warrior%20Classes/Iraqi%20Insurgent%20TTPs.ppt>, 2005

SUICIDE VEST IED



STICKS OF C-4/PE-4, WIRES, FIRING
DEVICE MAY HAVE BALL BEARINGS
OR NAILS FOR MAXIMUM CASUALTIES



SOURCE: MCIA IED SMART CARD, 2004, <http://www.mcia.osis.gov/>

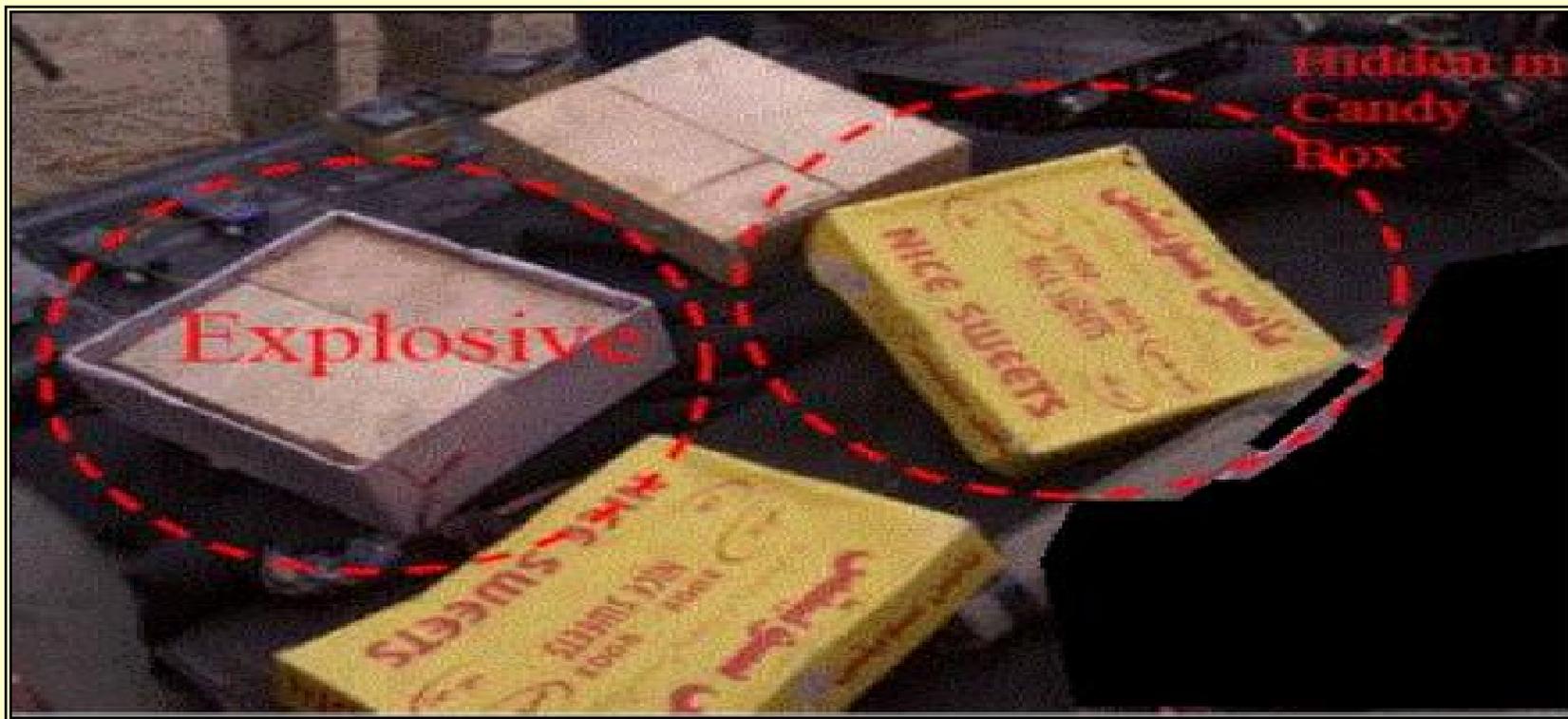
SUICIDE EXPLOSIVE BELT



SUICIDE ATTACK THREAT FROM ALL AGES/SEXES;
SEE MULTIPLE STICKS OF C-4/PE-4, WIRES, FIRING DEVICE; SOME MAY HAVE BALL BEARINGS OR NAILS FOR MAXIMUM CASUALTIES

SOURCE: <http://moqawmh.com/> HAMAS WEBSITE

CANDY BOX IED



PLATTER CHARGE EXPLOSIVES CONCEALED INSIDE CANDY BOXES

SOURCE: CLFX HANDBOOK VERSION V 15 SEP 04 https://call2.army.mil/focus/ied_tf/index.asp

PACKAGE IED

IED HIDDEN IN
A PACKAGE; HARD
TO SEE OR IDENTIFY



SOURCE: IED TRAINING MATERIALS, https://call2.army.mil/focus/ied_tf/index.asp, 2005

PAINT CAN IED

PAINT CAN WAS FILLED
WITH EXPLOSIVES AND
FIRING DEVICE; WIRE
USED TO COMMAND
DETONATE



SOURCE: DOD IED POWERPOINT BRIEFING, 16 JAN 04, <http://www.sftt.org/PPT/article03022004b.ppt>

CAMOUFLAGED CONCRETE BLOCK IED (1)

PROJECTILE EMBEDDED IN PLASTER
OF PARIS (POP) HOUSING TO
SIMULATE CONCRETE COVERED
WITH GRASS



SOURCE: W333 C1, OCT 04 BNCOC, <http://www.bliss.army.mil/usasma/bncoc1/publications/W333%20CHANGE%20SHEET%201.pdf>

PLASTIC IED EXAMPLES

SEVERAL EXAMPLES
OF IEDS THAT USE
EITHER PLASTIC
EXPLOSIVES OR TNT



SOURCE: CLFX HANDBOOK VERSION V 15 SEP 04 https://call2.army.mil/focus/ied_tf/index.asp

MULTIPLE ROCK PILE IEDS

**MULTIPLE 'ROCK'
IEDS WITH COMMAND
WIRES BURIED;
NOTICE OVERWATCH
OR OBSERVATION
POST**



SOURCE: CLFX HANDBOOK VERSION V 15 SEP 04 https://call2.army.mil/focus/ied_tf/index.asp

ROCK PILE IED



**105 MM PROJECTILE CONCEALED
BY ROCKS ON THE ROAD SIDE**

SOURCE: W333 C1, OCT 04 BNCOC, <http://www.bliss.army.mil/usasma/bncoc1/publications/W333%20CHANGE%20SHEET%201.pdf>

PLASTIC BAG IED

**IMPROVISED, DIRECTIONAL
EXPLOSIVE DEVICE IN CLEAR
PLASTIC TRASH BAG**



SOURCE: W333 C1, OCT 04 BNCOC, <http://www.bliss.army.mil/usasma/bncoc1/publications/W333%20CHANGE%20SHEET%201.pdf>

TANK KILLER IED



500LB IED (BURIED), 1 DEC 04. THIS 500-POUND BOMB, RIGGED UP AS AN IED, WAS FOUND IN AN OLD IED HOLE BY COALITION FORCES PERFORMING ROUTE CLEARANCE

SOURCE: <http://www.globalsecurity.org/military/intro/ied-packaged.htm>, 2004

LANDMINE IED

**ANTI-TANK LANDMINE WAS
ENCASED IN CONCRETE WITH
FIRING DEVICE AND WIRE**



SOURCE: COUNTER-IED TTPS https://call2.army.mil/focus/ied_tf/index.asp, FEB 05

CANVAS SACK IED



CANVAS SACK CAMOUFLAGES A PROJECTILE IED; PLACED NEXT TO A CURB; NOTICE WHITE WIRES PROTRUDING

SOURCE: CPA POWERPOINT PRESENTATION "IRAQI IMPROVISED EXPLOSIVE DEVICE FORCE PROTECTION" 16 JANUARY 2004

BALL BEARING IED



PHOTO TAKEN FROM INSURGENT VIDEO OF A DIRECTIONAL, BALL BEARING IED; NOTE THE SIGHT ON TOP; MAY BE REMOTELY DETONATED, VICTIM OPERATED, OR COMMAND WIRE DETONATED.

SOURCE: www.infovlad.net

GARBAGE BAG IED

ARTILLERY ROUND IED
WAS HIDDEN INSIDE
BLACK PLASTIC BAG,
NEXT TO A CURB



SOURCE: <http://www.globalsecurity.org/military/intro/ied-packaged.htm>, 2004

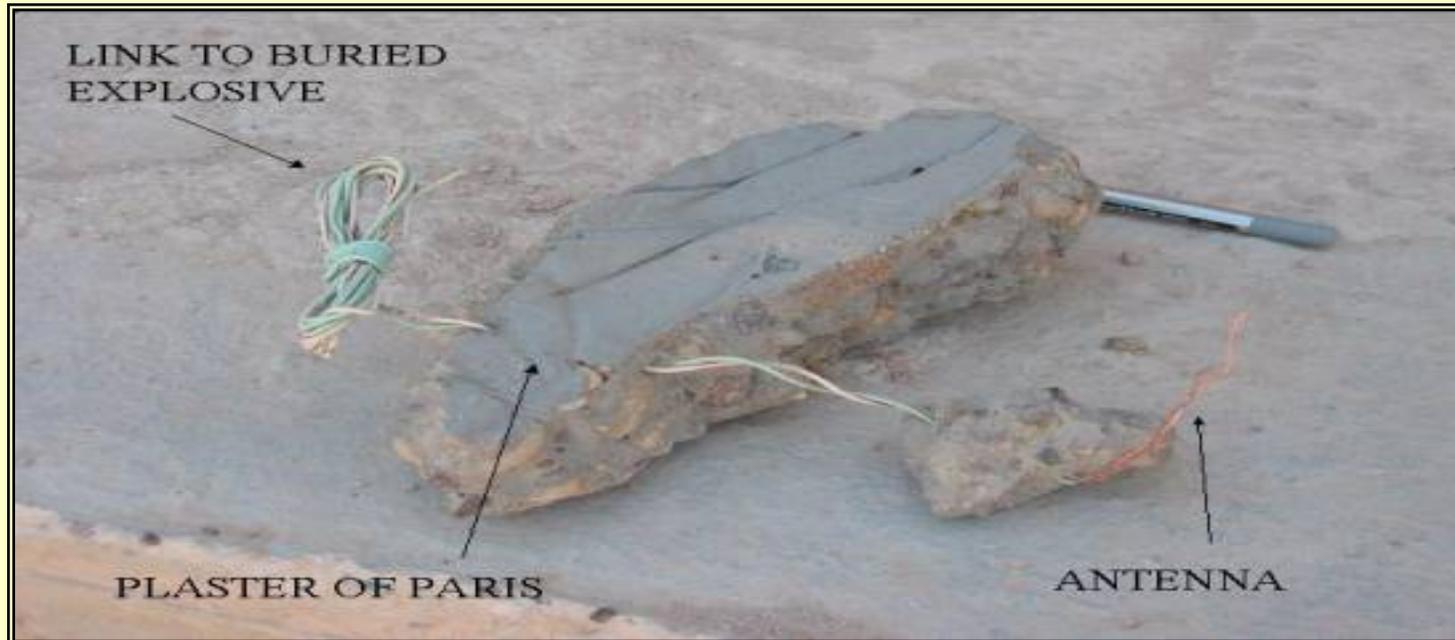
DIRECTIONAL IED



DIRECTIONAL IED, ROCKET
TUBE OR GRENADE LAUNCHER
MAY BE PLACED ON STAND TO
TARGET ARMORED VEHICLES;
MAY USE A COMMAND WIRE OR
REMOTE DEVICE TO LAUNCH

SOURCE: <http://www.globalsecurity.org/military/intro/ied-packaged.htm>, 2004

BIG ROCK IED



PLASTER OF PARIS CAMOUFLAGES AN EXPLOSIVE DEVICE; NOTICE WIRES PROTRUDING

SOURCE: IED TRAINING MATERIALS, https://call2.army.mil/focus/ied_tf/index.asp, 2005

ARTILLERY ROUND IED

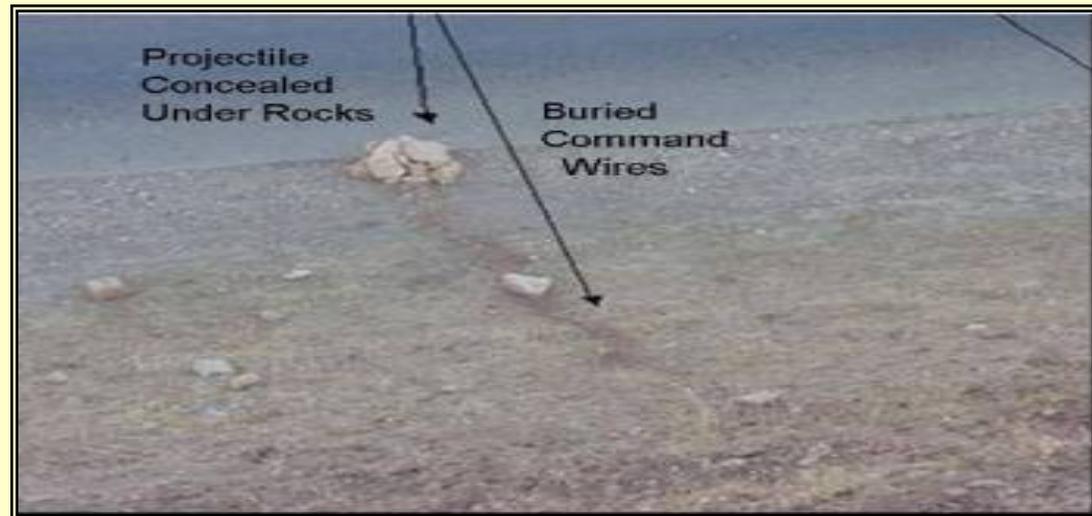


**IED MADE UP OF ARTILLERY
ROUND, FIRING DEVICE AND
WIRE**

SOURCE: IED TRAINING MATERIALS, https://call2.army.mil/focus/ied_tf/index.asp, 2005

BURIED IED

**ARTILLERY ROUND
BURIED NEXT TO ROAD;
NOTICE FRESHLY
BURIED WIRE LEADING
OFF ROAD**



SOURCE: <http://smct.armystudyguide.com/FY-05/Files/093-401-5050.pdf>, OCT 03

'BURN-IN-ASPHALT' IED

INSURGENT BURNS A
FUSE FOR AN IED INTO
AN ASPHALT ROAD



SOURCE: AP PHOTO, 2004, <https://www.us.army.mil/suite/portal/index.jsp>, DCSINT, Iraq OE, Iraq TTPs

BURIED PIPE IED

IED HIDDEN IN PIPE, AND BURIED
ALONG A ROAD



SOURCE: IED TRAINING MATERIALS, https://call2.army.mil/focus/ied_tf/index.asp, 2005

DONKEY CART IED



DONKEY CARTS CAN CARRY PROJECTILES, C-4/PE-4, OR 55 GALLON DRUMS OF FUEL WITH FIRING DEVICE; CART DRIVER MAY DETONATE AS A SUICIDE BOMBER OR MAY POSITION CART AND WALK AWAY FOR REMOTE DETONATION

SOURCE: MCIA IED SMART CARD, 2004, <http://www.mcia.osis.gov/>

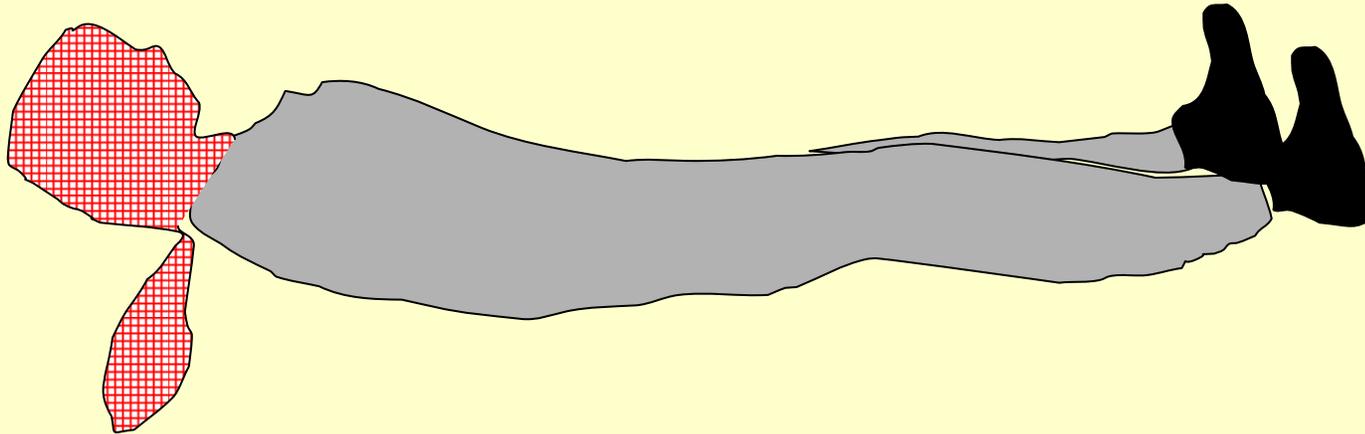
DEAD ANIMAL IED



ANIMAL CARCASSES CAN BE FILLED WITH EXPLOSIVES (ARTILLERY ROUND IN THIS PHOTO) TO TARGET VEHICLES; LOOK FOR WIRES PROTRUDING; MAY BE A COMMAND WIRE OR ANTENNA FOR A REMOTE DETONATION

SOURCE: <http://www.ogrish.com/archives/war/>

MANNEQUIN IED



INSURGENTS MAY USE VARIATIONS OF THIS TYPE OF IED:

- 1. 'MANNEQUIN' IED:**
 - PLASTIC CASTE MANNEQUIN**
 - RUDIMENTARY SCARECROW TYPE FIGURE**
- 2. DEAD HUMAN BODY BOOBY-TRAPPED WITH AN IED**
 - HOST NATION CIVILIAN**
 - US OR COALITION EMPLOYEE OR CONTRACTOR**
- 3. DEAD SOLDIER'S BODY BOOBY-TRAPPED WITH IED**
 - FRIENDLY SOLDIER**
 - ENEMY SOLDIER**
- 4. 'BODY' CAN BE FILLED WITH VARIOUS TYPES OF EXPLOSIVES OR MUNITIONS**

SOURCE: <http://iraqwar.mirror-world.ru/article/84666>

CURB IED



**MUNITIONS IED ENCASED IN
CONCRETE AND MADE TO LOOK
LIKE PART OF THE STREET'S
CURB**

SOURCE: ENEMY TTP, <http://www.tecom.usmc.mil/utm/Warrior%20Classes/Iraqi%20Insurgent%20TTPs.ppt>, 2005

GUARDRAIL IED



PLASTIC EXPLOSIVE WITH GARAGE DOOR
OPENER AS DETONATING DEVICE; WIRES
ARE EXPOSED

SOURCE: ENEMY TTP, <http://www.tecom.usmc.mil/utm/Warrior%20Classes/Iraqi%20Insurgent%20TTPs.ppt>, 2005

DAISY-CHAIN IED



**PLASTIC EXPLOSIVE WITH GARAGE DOOR
OPENER AS DETONATING DEVICE; WIRES ARE
EXPOSED**

SOURCE: <http://www.strategypage.com/messageboards/messages/480-593.asp>, 2004

SIGN IED

SIGN OR PLACARD ON
A STAND; SIGN IS
FILLED WITH PLASTIC
EXPLOSIVES; PROBABLY
PE-4, C-4 OR C-3



SOURCE: COUNTER-IED TTP, https://call2.army.mil/focus/ied_tf/support.asp#1, FEB 05

SIGN IED

SIGN OR PLACARD ON
A STAND; STAND IS
FILLED WITH PLASTIC
EXPLOSIVES; PROBABLY
PE-4, C-4 OR C-3



SOURCE: COUNTER-IED TTP, https://call2.army.mil/focus/ied_tf/support.asp#1, FEB 05

TIRE IED



TIRE FILLED WITH PLASTIC EXPLOSIVES; NOTE THE WHITE PACKAGES; MOST LIKELY PE-4 OR C-4; MAY ALSO USE TNT; NOTICE THE EXPOSED WIRE

SOURCE: COUNTER-IED TTP, https://call2.army.mil/focus/ied_tf/support.asp#1, FEB 05

EXPLOSIVE FORMED PENETRATOR

EXPLOSIVE FORMED PENETRATORS (EFP) (SOMETIMES REFERRED TO AS PLATTER CHARGES OR PROJECTILES), IMPROVISED LAUNCHERS USED TO FIRE HIGH EXPLOSIVE ANTI-TANK (HEAT) ROUNDS AND ROUNDS CONTAINING ARMOR PIERCING FLECHETTES. EFP'S ON RIGHT; CAMOUFLAGED ON RIGHT.



SOURCE: CENTER FOR ARMY LESSONS LEARNED.

WOODEN DOG IED



ACTUAL ANIMAL CARCASSES HAVE BEEN USED TO CONCEAL IEDS, BUT THIS IS THE FIRST REPORTED ANIMAL MOCK-UP. CONSTRUCTION: WOOD CUTOUT OF A DOG WITH TWO 152MM PROJECTILES MOUNTED ON WELDED TUBE FRAME THAT SUPPORTS THE PROJECTILES AND THE CUTOUT. REFLECTIVE TAPE ON THE EYES TO APPEAR TO BE A REAL DOG AT NIGHT.

SOURCE: EOD IED NEWSLETTER • VOLUME 2 • ISSUE 3, MAR 05 <https://naveodtechdiv.navsea.navy.mil/l2/default.asp>

PARKED VBIED



THIS IS AN ACTUAL EXAMPLE OF A PARKED VBIED EMPLOYED AGAINST COALITION FORCES IN IRAQ. PHOTOS TAKEN FROM INSURGENT VIDEO. THIS VBIED WAS PARKED ON A ROAD INTERSECTION. SUCH VBIEDS ARE OFTEN COMMAND WIRE OR REMOTE CONTROL DETONATED.

SOURCE: www.globalterroralert.com

PUSH-AWAY VBIED



THIS IS AN ACTUAL EXAMPLE OF A PARKED VBIED EMPLOYED AGAINST COALITION FORCES IN IRAQ. PHOTOS TAKEN FROM US MEDIA VIDEO. ANTI-IRAQI FORCES DETONATED THIS VBIED JUST AS SOON AS THE HMMWV BEGAN TO PUSH IT OFF THE ROAD. SUCH VBIEDS ARE OFTEN VICTIM OPERATED (BREAK WIRE TYPE), COMMAND WIRE OR REMOTE CONTROL DETONATED.

SOURCE: <http://www.katu.com/stories/76003.html>

SUICIDE VBIED (PRE-BLAST)

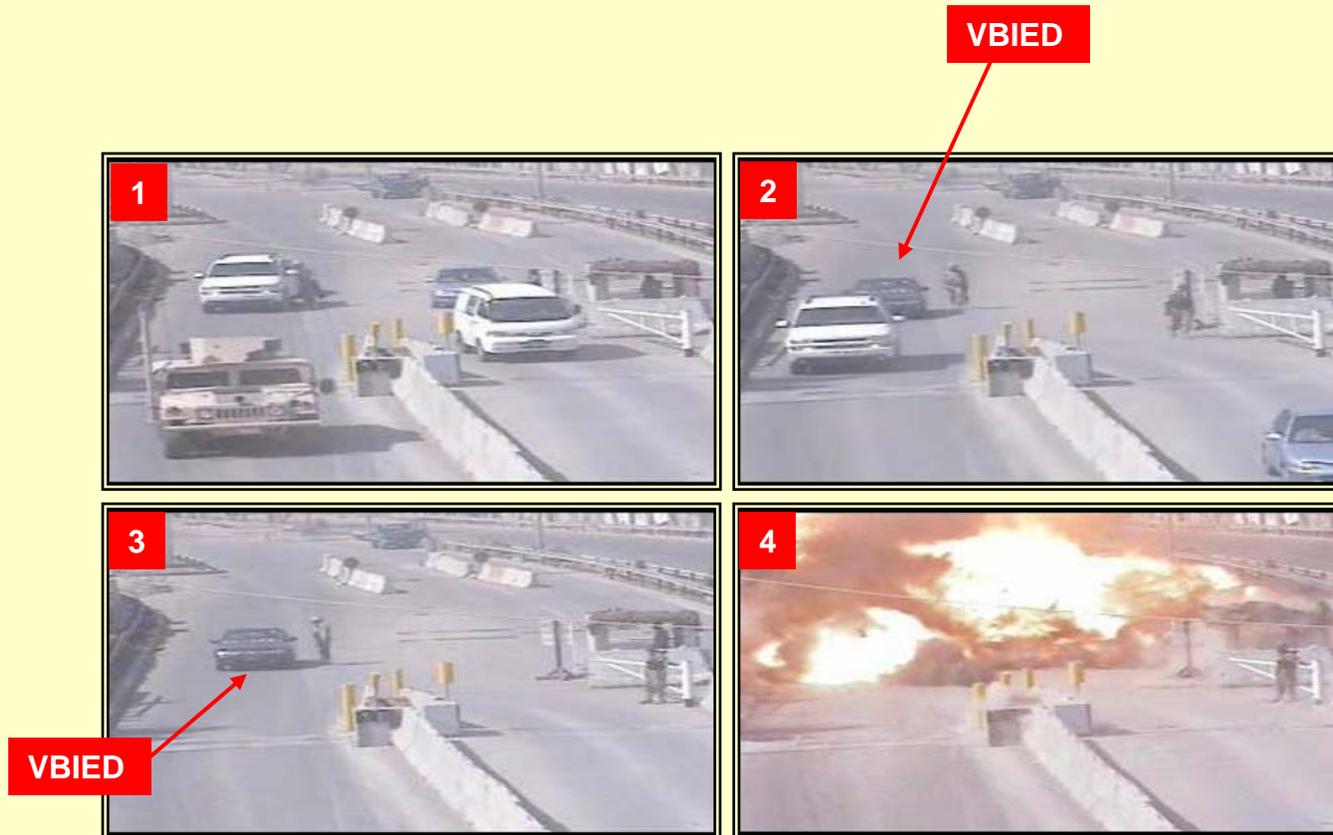
THIS IS AN ACTUAL EXAMPLE OF A DEVICE TAKEN FROM A CAR PRE-BLAST, AFTER KILLING THE SUICIDE DRIVER. THIS DEVICE WAS TO BE EMPLOYED AGAINST COALITION FORCES IN BAGHDAD ON 14 SEP 05. PHOTO TAKEN FROM INSURGENT VIDEO. NOTE THAT THIS DEVICE WAS COMPRISED OF LANDMINES, MUNITIONS AND FUEL CANS.



SOURCE: INSURGENT VIDEO

VBIED AT CHECKPOINT

MAY BE A SUICIDE ATTACK OR UNWITTING VICTIM. CAR (HIDDEN BEHIND WHITE SUBURBAN IN 1ST PHOTO) ATTEMPTED TO PASS THROUGH “RIGHT, OFFICIAL LANE,” DETONATED AS GUARD APPROACHED—TARGET APPEARED TO BE GATE GUARD FORCE.



SOURCE: INSURGENT VIDEO

SUICIDE VBIED CEMENT TRUCK

THIS CEMENT TRUCK SVBIED ATTACKED THE PALESTINE HOTEL IN IRAQ 24 OCT 05 (WITH TWO OTHER SVBIEDS). THE SUICIDE DRIVER ATTEMPTED TO RAM THIS SVBIED INTO ITS TARGET, BUT CAME UNDER FIRE, BACKED UP AND DETONATED. SUICIDE DRIVERS OFTEN DETONATE USING A PUSH BUTTON ELECTRONIC TRIGGERING DEVICE.



SUICIDE VBIED-RAMMING

THIS IS AN ACTUAL EXAMPLE OF A SVBIED EMPLOYED AGAINST COALITION FORCES IN IRAQ. PHOTOS TAKEN FROM INSURGENT VIDEO. THE ANTI-IRAQI FORCES' SUICIDE DRIVER RAMMED THIS SVBIED INTO A US ARMORED VEHICLE AND DETONATED THE EXPLOSIVE. SUCH SUICIDE DRIVERS MOST OFTEN DETONATE USING A PUSH BUTTON ELECTRONIC TRIGGERING DEVICE.



SOURCE: INSURGENT VIDEO

CHAPTER 5 IED FACTS



تعتقل 90 شخصا على خلفية تفجيرات شرم الشيخ - شارون يعرض على



رية تعتقل 90 شخصا على خلفية تفجيرات شرم الشيخ - شارون يعرض

IED FACTS

- IMPROVISED EXPLOSIVE DEVICES HAVE BEEN EFFECTIVELY USED IN MANY RECENT CONFLICTS, INCLUDING:
 - PALESTINE.
 - GULF WAR I & II.
 - BALKANS.
 - CHECHNYA.
 - OEF.
- ENEMY USES CHEAP, EASY TO ASSEMBLE COMPONENTS TO TARGET US SOLDIERS AND EXPENSIVE, TECHNICALLY SUPERIOR ARMORED AND NON-ARMORED VEHICLES.
- CHEAP, COST EFFECTIVE COUNTERMEASURE TO EXPENSIVE, MORE ADVANCED WEAPONS TECHNOLOGY.
- PROVIDES STAND OFF.
- DOES NOT REQUIRE ENEMY TO COMMIT FORCES.

SOURCES: VARIOUS OPEN SOURCES; CPA POWERPOINT PRESENTATION
"IRAQI IMPROVISED EXPLOSIVE DEVICE FORCE PROTECTION" 16 JANUARY 2004

IED FACTS

GENERIC TYPES OF IEDS:

1. DISGUISED, STATIC IEDS; ROADSIDE BOMB & VBIEDS.
2. DISGUISED, MOVABLE (OR PORTABLE) IEDS; INCLUDES VEST IED-SUICIDE BOMBER, WALK-UP STYLE & SVBIEDS.
3. THROWN IEDS (SUCH AS IMPROVISED GRENADE); OFTEN ARE THROWN FROM OVERPASS ONTO CONVOY.
4. IEDS PLACED IN, ON, OR UNDER A TARGET:
 - BOOBY-TRAP A VICTIM'S VEHICLE.
 - UNDER VICTIM'S CHAIR
(E.G. JALALABAD POLICE CHIEF).
 - UNDER VICTIM'S CAR SEAT.

SOURCES: VARIOUS OPEN SOURCES, INSURGENT VIDEOS AND CALL IED HANDBOOK 04-27
CPA POWERPOINT PRESENTATION "IRAQI IMPROVISED EXPLOSIVE DEVICE FORCE PROTECTION" 16 JANUARY 2004

IED INDICATORS

- ITEMS ALONG THE ROAD WITH EXPOSED:
 1. WIRES.
 2. DETONATION CORD.
 3. ORDNANCE.
- DEAD ANIMALS.
- FRESHLY DUG HOLES.
- NEW DIRT/GRAVEL PILES.
- OBSTACLES IN ROADWAY (CHANNELING).
- PERSONNEL STANDING ON OVERPASS.
- EMPTY STREET THAT IS NORMALLY BUSY.
- CALLS FOR PRAYER AT NIGHT.
- OBJECTS HANGING FROM TREES OR ELECTRICAL POLES.

SOURCES: VARIOUS OPEN SOURCES, INSURGENT VIDEOS AND CALL IED HANDBOOK 04-27
CPA POWERPOINT PRESENTATION "IRAQI IMPROVISED EXPLOSIVE DEVICE FORCE PROTECTION" 16 JANUARY 2004

IED INDICATORS

- FLARES LAUNCHED OR A SINGLE GUN SHOT FIRED, JUST AS YOUR CONVOY ENTERS A VILLAGE OR MAKES A MAJOR TURN.
- HOUSE OR VILLAGE LIGHTS GOING OFF OR BLINKING ON/OFF AS YOUR CONVOY APPROACHES.
- EMPTY STREET EXCEPT FOR A MAN TALKING ON A CELL PHONE IN A DOORWAY (LOOKOUT).
- ABSENCE OF CHILDREN, WHERE CHILDREN NORMALLY PLAY.
- KIDS KEPT HOME FROM SCHOOL ON A SCHOOL DAY.
- CHILDREN AS SCOUTS.
- CHILD CARRYING A BAG TOWARDS A CHECKPOINT (PALESTINE).
- IED AIMING OR TIMING POINTS:
 - PAINTED ROCKS.
 - MOUND OF DIRT OR ROCKS (MAY HAVE A CAN ON TOP).
 - SMALL COLORED FLAG NEXT TO ROAD.

SOURCES: VARIOUS OPEN SOURCES, INSURGENT VIDEOS AND CALL IED HANDBOOK 04-27
CPA POWERPOINT PRESENTATION "IRAQI IMPROVISED EXPLOSIVE DEVICE FORCE PROTECTION" 16 JANUARY 2004

IED FACTS

- FOR IEDS PLACED ON CONCRETE ROADS (DIFFICULT TO BURY), LOOK OUT FOR:
 - FRESH CONCRETE.
 - POT HOLES.
 - WATER FILLED POT HOLES.
 - TRASH.
 - DEAD ANIMALS.
 - MANHOLE COVER.
 - STREET DRAINAGE PIPE/HOLE.
 - DISABLED OR ABANDONED VEHICLES.

- FOR IEDS PLACED ON ASPHALT ROADS (AGAIN, DIFFICULT TO BURY), LOOK FOR THE ABOVE, PLUS:
 - NEWLY MELTED ASPHALT PATCH.
 - FRESH ASPHALT, JUST LAID ON TOP OF OLDER ROAD.

SOURCES: VARIOUS OPEN SOURCES, INSURGENT VIDEOS AND CALL IED HANDBOOK 04-27
CPA POWERPOINT PRESENTATION "IRAQI IMPROVISED EXPLOSIVE DEVICE FORCE PROTECTION" 16 JANUARY 2004

IED FACTS

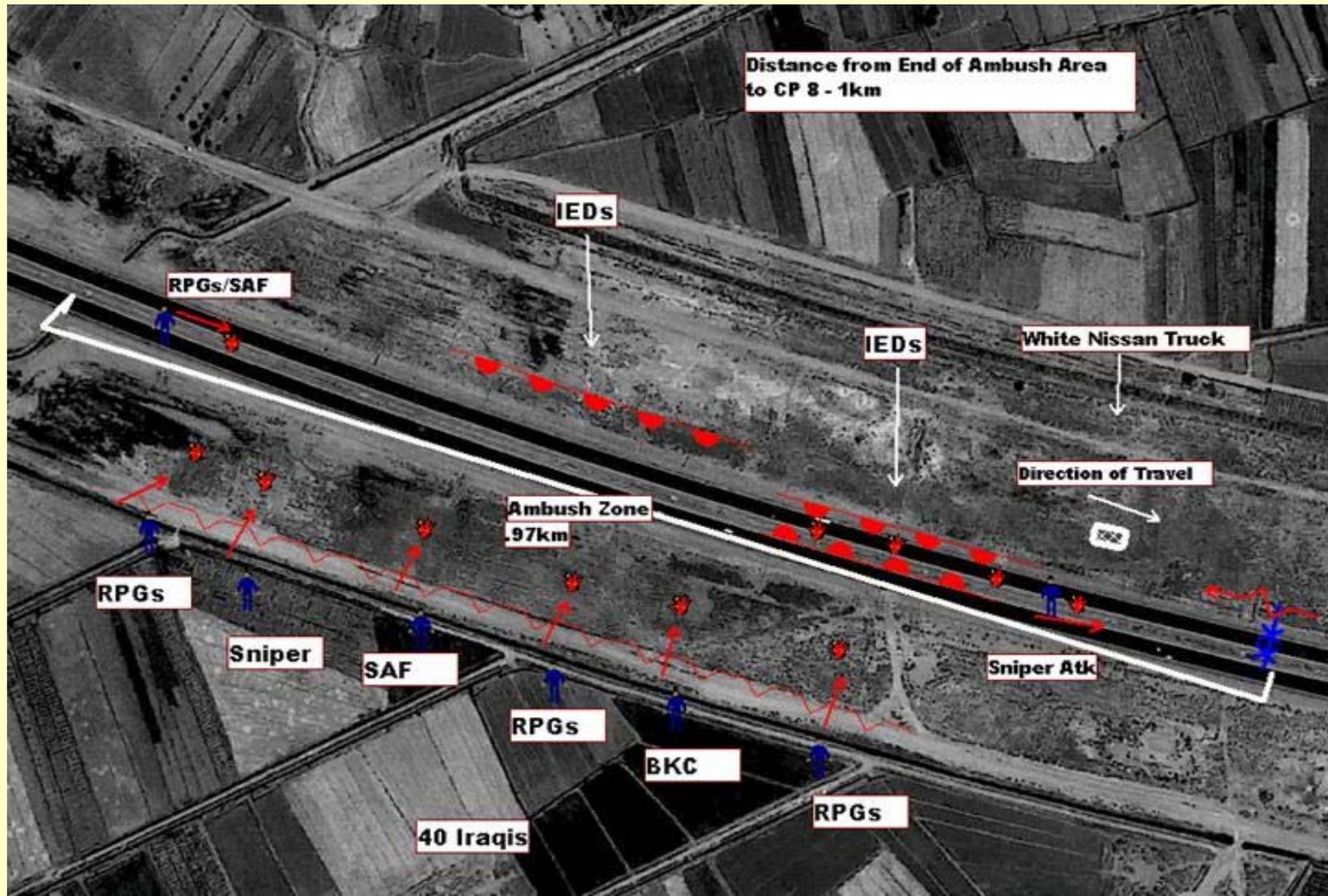
- **COMMAND WIRE DETONATED IEDS REQUIRE AN OBSERVATION POST (OP).**
 - **OP MAY BE MANNED WITH ONE OR MORE INSURGENTS.**
 - **OP WILL BE LIGHTLY DEFENDED AND INSURGENTS WILL EXFILTRATE AFTER IED ATTACK.**
 - **OP WILL BE WITHIN LINE OF SIGHT OF KILL ZONE.**
 - **OP MAY HAVE VIDEO MAN OR HE MAY BE IN A DIFFERENT OP.**

- **MANY SITUATIONS INVOLVE SECONDARY IEDS MEANT TO TARGET HALTED VEHICLES OR FIRST RESPONDERS.**

- **AN IED MAY BE USED TO STOP A CONVOY FOR A COMPLEX AMBUSH (SEE EXAMPLE ON NEXT SLIDE).**

SOURCES: VARIOUS OPEN SOURCES, INSURGENT VIDEOS AND CALL IED HANDBOOK 04-27
CPA POWERPOINT PRESENTATION "IRAQI IMPROVISED EXPLOSIVE DEVICE FORCE PROTECTION" 16 JANUARY 2004

EXAMPLE OF A COMPLEX AMBUSH



SOURCES: <http://www.act.nato.int/events/documents/cde/post/PrePost-conf/Thursday/HOUSTON%20-%20IED%2010NOV%20CDE.ppt>

RURAL VS. URBAN IED

- RURAL IED OPERATIONS:

- MORE TIME AVAILABLE TO PREPARE KILL ZONE:
 - FEWER PATROLS.
 - RURAL ROADS TEND TO BE DIRT OR GRAVEL.
 - MORE TIME TO DIG, BURY AND/OR CONCEAL.
- NO SENSE OF URGENCY TO REMOVE IED, IF TARGET DOES NOT APPEAR.
- CAN EMPLOY MORE POWERFUL IEDS.
- TIME TO DEVELOP MORE COMPLEX KILL ZONES.
- USE OF SECONDARY IEDS TO TARGET HALTED CONVOY OR FIRST RESPONDERS.
- CONCEALMENT OF OP IN RURAL AREAS MAY BE DIFFICULT:
 - IS COMPLEX TERRAIN AVAILABLE?
 - COMMAND WIRE LEADS TO OP.
 - KILL ZONE MUST BE IN LINE OF SIGHT FROM OP.

SOURCES: IRAQ'S EVOLVING INSURGENCY APR 06, <http://www.comw.org/warreport/fulltext/0604cordesman.pdf>;
http://www.defensetech.org/archives/002119_comments.html; <http://www.estripes.com/article.asp?section=104&article=21143&archive=true>;
OTHER VARIOUS OPEN SOURCES

RURAL VS. URBAN IED

- URBAN IED OPERATIONS:

- LESS TIME AVAILABLE TO PREPARE KILL ZONE:

- GREATER CHANCE OF DISCOVERY.
- IEDS (NON-RC) OFTEN EMPLACED BY VEHICLE OR PERSON (MAY APPEAR AS A “REPAIR CREW”).
- MORE INSURGENT SECURITY REQUIRED.
- OP WATCHES KILL ZONE TO TIME ATTACK AND TO ENSURE DEVICE NOT DISCOVERED.
- FEWER IEDS MAY BE EMPLACED IN SINGLE KILL ZONE DUE TO TIME CONSTRAINTS.
- IED MAY BE REMOVED IF TARGET DOES NOT APPEAR.
- LESS POWERFUL IEDS ARE EMPLOYED, AS IT IS HARDER TO CONCEAL, DIG IN OR BURY IN TOWNS/CITIES AS MOST URBAN ROADS ARE ASPHALT OR CONCRETE.

SOURCES: IRAQ'S EVOLVING INSURGENCY APR 06, <http://www.comw.org/warreport/fulltext/0604cordesman.pdf>;
http://www.defensetech.org/archives/002119_comments.html; <http://www.estripes.com/article.asp?section=104&article=21143&archive=true>;
OTHER VARIOUS OPEN SOURCES