

PhaZZer Electronics CEW Cartridges

A real option for Taser X26/X26P

> By LAW and ORDER Staff

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The Taser X26-series (Taser X26E, X26P), Taser M26 and PhaZZer Enforcer all fire exactly the same cartridge. The same cartridges are fully functional and totally interchangeable between all these less-lethal weapons. That means the Taser-made cartridges will fit both Taser and PhaZZer devices. It also means that PhaZZer-made cartridges will fit both Taser and PhaZZer devices. The PhaZZer cartridges are priced competitively with Taser cartridges.

When the PhaZZer Enforcer was first released, it came with cartridges made in Taiwan. At the 2015 SHOT Show, PhaZZer introduced a line of made-in-the-U.S. cartridges. The PhaZZer cartridges are now made in Florida. These are the same basic cartridge design, but the fit and finish have all been improved.

Just as drop-free handgun magazines have advantages, so do dart cartridges that very easily snap in place and pull out when fired. This ease of insertion is important because the cart cartridge simply must be handled without putting any part of the fingers or hand in front of the blast doors. The ease of removal is important, especially for devices that fire one cartridge at a time, because the officer may need to

remove the empty cartridge quickly to insert another one.

With both the PhaZZer cartridge and the Taser cartridge, the blast doors are color-coded. Different colors mean different dart reach distances. Under the stress of some deployments, you may not remember the code for the color. To solve this stress-related confusion, the new PhaZZer cartridges have the dart distance embossed on their color-coded blast doors. Also embossed in raised letters is whether the cartridge is a dart cartridge (DC) or a training cartridge (TC). Brown blast door means a 25-foot dart cartridge. This is confirmed by the DC-25 embossment, Dart Cartridge and 25 feet.

Extensive Testing

We conducted a series of tests with the U.S.-made PhaZZer cartridges fired from the Taser X26P. These tests included ignition reliability, conductive reliability, dart accuracy, and dart spread. The test distances were measured from the muzzle to the target. For example, the officer was standing about 7 feet from the target to get the 5-foot result, 12 feet from the target to get the 10-foot results, etc.

The older Taser X26E is still widely used but is out of production. We did very limited testing with the new PhaZZer cartridges in the X26E. Same for the PhaZZer Enforcer. Due to its lower price, this toe-to-toe competitor with the Taser X26 has had sales success. We did very limited testing with the new PhaZZer cartridges in the PhaZZer Enforcer.

The bulk of our testing was with the new PhaZZer cartridges in the Taser X26P. Both makes of cartridges are interchangeable with all single-cartridge Taser and PhaZZer devices. However, all of these devices have slightly different software programs and hardware circuitry. The X26P has an all-digital, solid-state electrical architecture with "charge metering" that measures and delivers the optimal amount of electric charge. The best way to be SURE the new PhaZZer cartridges work in the Taser X26P is to fire a lot of them from the Taser X26P. The new PhaZZer cartridges were compatible with this circuitry.



■ Both the TASER X26E and the TASER X26P (shown) are currently in use. We fired U.S.-made PhaZZer cartridges from both TASER devices.



■ The U.S.-made Phaser cartridges were fully compatible with the TASER X26P and are a competitive option. Our test of 100 cartridges proved it.



■ The Phaser cartridges snap in and out of the TASER X26P just exactly like TASER brand cartridges.

Point of Aim & Impact

With the Phaser cartridge from the Phaser Enforcer, the laser dot shows the center of the two-dart group. The Phaser specs indicate the top dart impacts at 3 degrees above the laser dot and the lower dart impacts at 3 degrees below the laser dot.

With both the Taser cartridge from the Taser X26P and the Phaser cartridge from the Taser X26P, the cartridge fires the top dart level with the laser beam. The standard Taser cartridges have a point of aim versus point of impact (zero) for the top dart at 13 feet. Taser specs for the top dart will hit where the laser is pointed at 13 feet within a 3-inch circle.

With the Phaser cartridge from the Taser X26P, the top dart grouped about 1 inch above the laser dot from 5 feet. From 10 feet, the top dart group was 1 inch below the laser dot. This is essentially point of aim—point of impact for the top dart at common police engagement distances. At 15 feet, the top dart group was 6 inches below the laser dot, while at 20 feet, the top dart group centered 9 inches below the laser dot.

The consistency and accuracy of the Phaser darts from the Taser X26P were excellent. The 5-shot group sizes from the top dart and the bottom dart were the same for all distances. The 5-shot group sizes were 2 inches (from 5 feet), 3 inches (from 10 feet), 4 inches (from 15 feet) and 5 inches (from 20 feet).

Tighter Dart Spread

The dart spread for the Taser and Phaser cartridges is different. The Phaser cartridge has a 6-degree dart separation angle, which is tighter than the 8-degree dart separation with the Taser cartridge. This narrower dart spread is a tactical advantage at longer engagement distances. At 20 feet, the Phaser dart spread is 23 inches, more than a foot closer together than the Taser darts.

Under use-of-force stress, threats (generally) appear closer than they are. That means the actively resisting subject can be farther away than he/she looks. Less probe spread is tactically more tolerant of stress-induced errors in distance estimating. The hit probability of both darts increases.

At 5 feet, the difference between a 6-degree Phaser angle and an 8-degree Taser angle is negligible. The two groups of upper darts overlap one another. The two groups of lower darts are about 6 inches apart. The Taser probe spread at 5 feet is in the desired range of 12-18 inches apart. At 10 feet, both the Phaser probes and the Taser probes are in this ideal range.

At 15 feet, the Phaser darts still have the ideal separation while the Taser specs show a 26-inch spread. At 20 feet, the Phaser darts have the same spread as the Taser specs list for 15 feet, while the Taser probe spread is 36 inches. At longer distances, the difference between a 6-degree spread and an 8-degree spread, i.e., the 23-inch spread from the Phaser cartridge and the 36-inch spread from the Taser cartridge, may be the difference between a two-dart “closed” circuit and a one-dart miss or “open” circuit.

DART SPREAD DIFFERENCE

DISTANCE	PHAZZER	TASER
5 feet	7"	13"
10 feet	12"	18"
15 feet	16"	26"
20 feet	23"	36"

Ignition Reliability

Ignition reliability simply means, did the Taser X26P fire the new Phaser cartridge? “To document ignition reliability, we fired a total of 100 U.S.-made Phaser cartridges from the Taser X26P. These were a mix of 15-foot dart cartridges, 21-foot dart cartridges, 25-foot dart cartridges, and 21-foot training cartridges. Of those, 97 fired perfectly. Both probes impacted where expected. All wires were intact and delivering current.

From the X26P, three cartridges failed to fire of the 100



■ The PhaZZer cartridges fit both the TASER X26P and also the TASER Digital Power Magazine spare cartridge holder.



■ We tested at 5, 10, 15 and 20 feet. Like the TASER, the top PhaZZer dart hits the laser dot. However, the PhaZZer darts have less spread. At longer deployment ranges, less spread means both darts are more likely to hit the target.

cartridges. Of the three that did not fire, two of them fired from a PhaZZer Enforcer. One cartridge would not fire. When combined with the 45 cartridges fired in the Indianantic, Fla. Police test, and the 30 cartridges used in testing conducted by the Iowa Law Enforcement Academy, the dud rate is 0.6 percent for the U.S.-made PhaZZer cartridge. This is slightly better than the 0.9 percent dud rate for Taser brand cartridges based on a published NCJRS/NIJ test.

The one U.S.-made PhaZZer cartridge that would not fire resulted in an internal design change at PhaZZer Electronics, who has an ignition rate goal of 100 percent. A continuous improvement program company, this design change represents the sixth significant modification. The ignition rate of the Gen 5 U.S.-made PhaZZer cartridges stands now at 99.4 percent. Watch the pages of LAW and ORDER and Tactical Response for an ignition reliability test on the Gen 6 U.S.-made cartridges.

In the event of a dud or squib load, do exactly what you would do on most handguns. Keep the device armed at the subject, and put the device on "Safe." Then with the fingers clear of the blast doors, remove the cartridge and replace it with a new one. Do not try to reuse a "dud" cartridge. Just like Taser's dud return policy, notify PhaZZer Electronics and provide them with the serial number. PhaZZer cartridges have a one-year, free replacement warranty.

All PhaZZer cartridges have a date code in permanent ink on the label at the bottom of the cartridges. The serial number allows the cartridge to be assigned to, tracked by, individual officers. Like the Taser cartridges, the PhaZZer cartridges have a five-year functional (shelf) life. The reason for an expiration after five years has to do with the tiny compressed nitrogen cartridges. Over time, all compressed nitrogen cartridges may leak to an unacceptable low pressure level. Cartridges older than five years should be taken out of service and used for training.

Conduct Electricity

Ignition reliability is only part of the process. The purpose of the dart impacts is to conduct electricity. That means full wire deployment, with no broken wires at the dart or anywhere in the full length of wire. It also means deployment and wire insulation quality where the wires do not short out with one another.

We tested conductive reliability two ways. First, half of the U.S.-made PhaZZer dart cartridges were fired into plywood. This kept the electrical circuit open. We got lots of arcing when 50,000 volts was being exerted to complete the circuit. However, the arcing was back at the device, not between the propelled wires from the PhaZZer cartridge. That is how the Taser cartridges work, and it is how the new PhaZZer cartridges work.

The second half of the dart cartridges were fired into a thin sheet of aluminum. This completed the electrical circuit. We wanted silence, not arcing, and that is what we got each time: silence is success. During every dart deployment from the PhaZZer cartridges, the wires remained connected to both the darts and the cartridge. There were no broken or pulled-free wires.

Static Guard

All Taser and PhaZZer cartridges are fired by electricity. Unexpected deployments can be caused by static electricity. All of the PhaZZer cartridges are shipped with a patented cartridge static guard snapped over the cartridge. This guard covers the blast doors and the drive stun probes. The cartridge static guard protects the cartridges from static electricity during land and air transportation.

That said, the same loading precautions for the Taser cartridges apply to the PhaZZer cartridges. Keep your hands and fingers clear of the blast doors during loading. The PhaZZer cartridge can be installed in the CEW device with the guards in place. Be sure to remove the guards before or immediately after loading the device.

Like the Taser cartridge, the PhaZZer cartridge has terminals for a drive stun built right into the cartridge. The PhaZZer cartridge drive stun feature works exactly the same way as the Taser cartridge drive stun feature.

PhaZZer Training Cartridge

We shot the PhaZZer 21-foot Training Cartridge heads up against the PhaZZer 21-foot Dart Cartridge. To exactly match the point of aim versus point of impact of the dart cartridge, the Training Cartridge uses entirely different darts and wires.

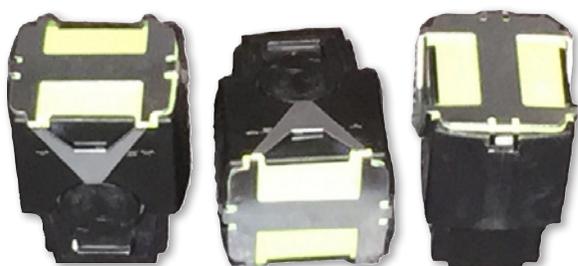
Instead of insulated steel wire used in the Dart Cartridge, the Training Cartridge uses non-conductive, high-tensile, nylon line. Instead of a two-piece steel-aluminum dart, the training dart is all aluminum. The training dart needle is similar to the energized dart, and has the same fishhook point.

The DC-21 Dart (duty) Cartridge and TC-21 Training Cartridge have the same function feel, sound, zero and spread. It is entirely legitimate to do some initial training and some re-certification training with the TC-21 for departments that issue a 21-foot dart cartridge.

Completely Viable Option

The PhaZZer cartridges work exactly like the Taser cartridges. Some Taser devices use a "smart cartridge" that communicates with the weapon to indicate the type of cartridge (range length) that has been loaded. This "communication" only applies to Taser X2 devices, and does not apply to the X26P or X26E.

Taser International indicates that the use of non-Taser cartridges will void the warranty of their devices. While Taser produces the two-cartridge X2, it is the X26P and original X26E devices that are carried by the vast majority of officers.



■ The U.S.-made PhaZZer cartridges use a newly designed and highly effective static guard.

INDIALANTIC, FLA. POLICE PHAZZER CARTRIDGE TESTS

By T. W. Baker, Sr.

In testing conducted for the Indialantic, Fla. Police Department, both Taser brand munitions and PhaZZer-brand CEW cartridges were tested for cross compatibility and function in both Taser and PhaZZer CEWs. For the test, Taser M26, Taser X26E, Taser X26P, PhaZZer Enforcer and PhaZZer Dragon were used.

Among the cartridges tested were the Taser 21-foot dart cartridge, PhaZZer 21-foot dart cartridge, PhaZZer 21-foot training cartridge, and PhaZZer 25-foot dart cartridge.

It was noted during the testing that both Taser and PhaZZer dart cartridge munitions when discharged from a Taser CEW had the top dart impact, the target in line with the laser site, and the bottom dart impact about 8 degrees below the top dart.

A total of five Taser and 45 PhaZZer cartridges were used for the testing. All Taser cartridges functioned without failure in all PhaZZer CEWs. All PhaZZer munitions functioned without failure in all Taser CEWs.

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With the one-year factory warranty, no X26E and very few X26P devices are still under warranty.

Based on these tests, the USA-made PhaZZer cartridges are a completely viable option for duty use in the Taser X26E and Taser X26P devices. PhaZZer cartridges are available directly from PhaZZer Electronics, or from SRT Supply and Witmer Public Safety Group.

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■ The U.S.-made PhaZZer cartridges include a 21-foot Training Cartridge (blue), 15-foot Dart Cartridge (yellow), 21-foot Dart Cartridge (lime green) and 25-foot Dart Cartridge (brown). The range of the darts is embossed on the blast doors.