



B.A.T. Belt Alignment Tool[®] DELTA



FAST-EASY-ACCURATE BELT ALIGNMENT!
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DELTA B.A.T. Belt Alignment Tool
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B.A.T. DELTA Belt/Sheave Alignment System User Manual

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Components and Features:

1. DELTA XF Cross-Fire Dual B.A.T. Belt Alignment Tool® Kit, includes:
 - a. Two (2) B.A.T. DELTA Laser Targets / Emitters, featuring GlowLine™ target faces
 - b. Two (2) 123 Lithium 3V Batteries
 - c. Three (3) dual magnetic-sided GlowLine™ magnetic targets, and measurement dividers for offset. Target increments are .082" (or approx 1/10th of an inch)
 - d. One (1) 715 DAP – DELTA Adapter Plate for Flangeless Timing Pulley alignment
 - e. One (1) Firm Joint Dividers for offset

*All products are shipped in a custom foam-filled carry case

2. Green Line Laser Description and Rating:
 - a. The B.A.T. Belt Alignment Tool™ is powered by an FDA Class IIIa/ANSI Class 3R green line < 5mW nominal laser module. A laser use safety warning label is affixed to each unit.
 - b. Lasers comply with 21 CFR, parts 1040.10 and 1040.11



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Belt-Alignment Pre-Check:

1. Observe all safety guidelines, lock-out and tag-out of the equipment.
2. Verify lock-out and follow all applicable plant safety policies and procedures.
3. Make sure equipment is at "ZMS" or Zero Mechanical State.
4. Inspect machinery for wear, looseness, deterioration, cracking, etc.
5. Check bases, foundations, and motor bolts for soft-foot conditions.
6. Check sheaves and/or pulleys, and drive belts for wear and replace as required.
7. Check sheaves and/or pulleys for wobble and run-out.

NOTE: Cross-Firing Lasers can be used to indicate shaft/drive issues.



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B.A.T. DELTA – V-Belt Dual Cross-Firing Laser Alignment Method

1. Magnetically affix a B.A.T. DELTA laser to each sheave or pulley, with laser emitters pointing at the opposing sheave/B.A.T. DELTA laser.
2. Turn each laser target on by pressing the black button on the left side. The Green Line laser should now be visible.
3. Align the laser lines to the center white target lines: The Green Line Laser should be visible on the opposing B.A.T. DELTA target face. On the target faces, observe the offset and angular position of the laser lines. If a Green Line Laser is not visible on white center target faces, see the rough alignment procedure (below) or see the offset alignment procedures described on page 5 of this manual).
4. Rough corrections can be made by aiming the lasers on floors, walls or ceilings, crossing the beams and observing the beam angles. Then, align laser lines on these alternate surfaces. Next, re-aim the lasers at the B.A.T. targets for final correction.
5. Make corrections by moving the moveable pulley system until the laser lines fall onto the white center of the DELTA B.A.T. GlowLine™ Target surfaces.
6. Confirm belt tensioning prior to returning equipment to normal service.
7. Picture of DELTA on V-Belt Alignment:





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B.A.T. DELTA – Timing Belt Dual Cross-Firing Laser Alignment Method

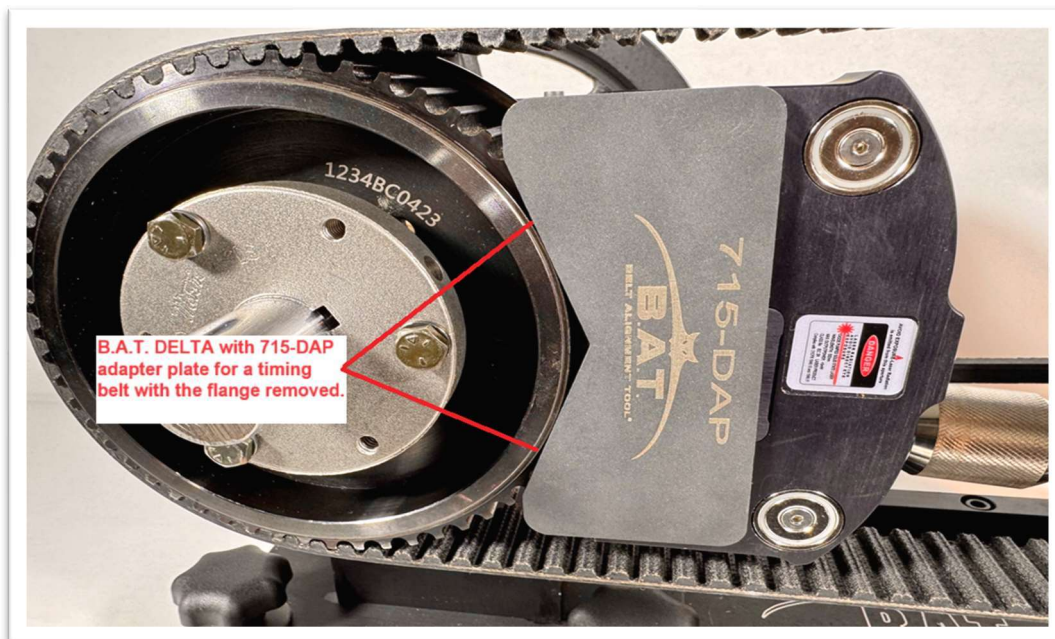
1. Using the magnets on the rear of the DELTA, affix both of the B.A.T. DELTA lasers to the cog surface of the timing pulleys. Place the DELTA against the flange of each pulley. If no flange is present, use the 715-DAP DELTA Adapter Plate as shown in the picture (below). Take care to ensure that the lasers are pointing at the opposing pulley and the B.A.T. DELTA target surface.
2. Turn on each laser by pressing the black button on the end of the B.A.T. DELTA. The Green Line Laser should be visible on the opposing DELTA target surfaces.
3. The Green Line Laser should now be visible on the opposing B.A.T. DELTA target face. On the target faces, observe the offset and angular position of the laser lines. If a Green Line Laser is not visible on white center target faces, see the rough alignment procedure or the offset alignment procedures described on page 5.
4. Make corrections by moving the moveable pulley system until the laser lines fall onto the white center of both of the DELTA B.A.T. GlowLine™ Target surfaces.
5. Confirm belt tensioning prior to returning equipment to normal service.
6. Picture of B.A.T. DELTA timing belt application:





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B.A.T. DELTA – Timing Belt Without Pulley Flange Ring Dual Cross-Firing Laser Alignment Method





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Offset Laser Alignment

In cases where there is a difference in sheave/pulley wall thickness, use the mechanical divider tool (included), and the three (3) double-sided magnetic disc targets.

1. Place a B.A.T. DELTA Laser on the “Offset” or the pulley with the widest rim face.
2. Using two of the double-sided magnetic disc targets, affix to the magnets on the DELTA B.A.T. Laser Tool. Now, affix the B.A.T. DELTA with the disc target onto the opposing sheave face.
3. On the offset sheave, measure the “Offset” (using the provided dividers), measure from the center of the first sheave groove to the center white line of the DELTA B.A.T. This measurement is the “Offset Value”.
4. Using this “Offset Value”, place the dividers on the center of **the opposing sheave first sheave groove** and observe the line on the B.A.T. GlowLine target at which the dividers point.
5. Align the machine as described in Dual Cross-Firing Laser Method(s).



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Maintenance

Maintenance of the B.A.T. and associated components consists primarily of cleaning, and battery replacement.

The fused glass protective lens on the laser emitter is cleaned easily with a soft cloth, or swab, with any glass cleaner.

Cleaning of the targets is achieved with a damp cloth – do not use solvents or other cleaning solutions.

Calibration

The B.A.T. Laser Emitters and all targets are calibrated in our production facility. Calibration is recommended annually.

Batteries

1. One Lithium “123” 3-volt battery is required to power the DELTA B.A.T. laser.
2. Remove batteries when not in use and during storage to prevent damage to the tool.
3. Damage from leaking or failed batteries is NOT covered under the warranty.
4. Install replacement batteries.

NOTE: Use Alkaline or lithium batteries only! Typical battery life is up to 6 hours. Keep spare batteries in the B.A.T. carry case.



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Technical Specifications

Laser/Target Dimensions:	3.125" x 5.125" x 1"
Weight:	1.2 lbs
Laser Line Width:	<2mm@5m
Beam Angle 110°:	70" @ 3 ft, 162" @ 8 ft
Accuracy:	.10° @ 8 ft
Pulley Size range V:	Any
Pulley Size Range Timing:	Min 6" with Belt on. 2" Belt off. Max Any
Belt Size Range:	< 75' - < 25" nominal
Operating Range:	<75' - < 25" nominal
B.A.T. Glowline Disc Targets	6061 Flat Black Anodized Aluminum
Disc Targets:	1.00" (diameter) x 1.00" (height)
Magnets:	13 lbs pull Rare Earth
Power:	One (1) Lithium 123 3-volt Battery
IP Rating:	IP 52



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Safety and Use

NEVER look into or stare at any laser beam!

The B.A.T. DELTA laser is powered by an FDA Class IIIa/ANSI Class 3R green line < 5mW nominal laser module. A Laser-Use Safety Warning label is affixed to each unit.

B.A.T. Lasers comply with 21 CFR, parts 1040.10 and 1040.11.

Use the B.A.T. and accessories only for the purpose(s) intended.

Follow all safety policies and procedures in accordance with FDA Class 111 a/ ANSI Class 3R laser devices.

Strong Magnets are used!

Each magnet used in the B.A.T. is a 13-pound pull. Use of non-B.A.T. components may result in product failure or inaccurate results. Use only with B.A.T. approved accessories.