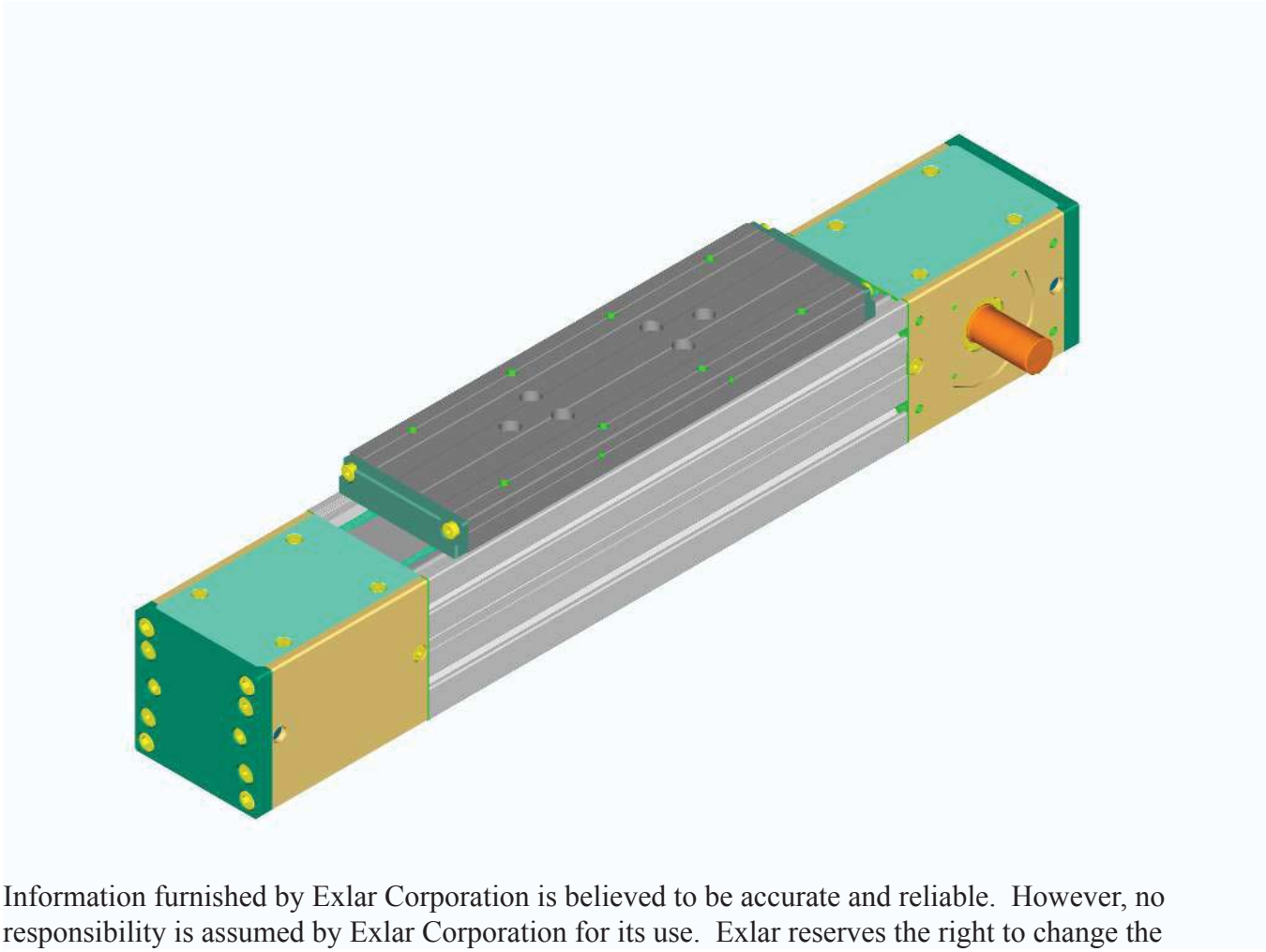
# Extrak Linear Actuator
# Belt Replacement Manual



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## 1.0 Warranty and Limitations of Liability

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Seller's obligation hereunder is limited solely to repairing or replacing (at its option), at the factory any product(s), or parts thereof, which prove to Seller's satisfaction to be defective as a result of defective materials or workmanship, and within the period of time, in accordance with the Seller's stated product warranty (see terms and conditions), provided, however, that written notice of claimed defects shall have been given to EXLAR within thirty (30) days from the date any such defect is first discovered. The product(s) or part(s) claimed to be defective must be returned to EXLAR, transportation prepaid by Buyer, with written specification of the claimed defect.

Components such as seals, wipers, bearings, belts, bushings, splines, and roller screws are considered wear parts and must be inspected and serviced on a regular basis. Any damage caused by failure to properly lubricate EXLAR products and/or to replace wear parts at appropriate times, are not covered by this warranty.

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The foregoing warranty shall also apply to products or parts which have been repaired or replaced pursuant to such warranty, and within the period of time, in accordance with Seller's stated warranty.

No person including any agent or representative of EXLAR, is authorized to make any representation of warranty on behalf of EXLAR concerning any products manufactured by EXLAR, except to refer purchasers to this warranty.

# 1. Introduction

## 1.1 Safety Considerations

As with any electro-mechanical device, safety should be considered during installation and operation of your Extrak actuator. Throughout this manual you will see paragraphs marked with CAUTION or WARNING signs as shown below.

Pay particular attention to these paragraphs. They are intended to provide you with helpful information to ensure a safe and trouble-free installation and operation.

Care should be taken not to exceed the travel limits of Exlar actuators. Doing so will cause the actuator to impact its end of travel bumpers. Repeated end travel crashes can physically damage the internal components of the actuator.

Caution

Warning

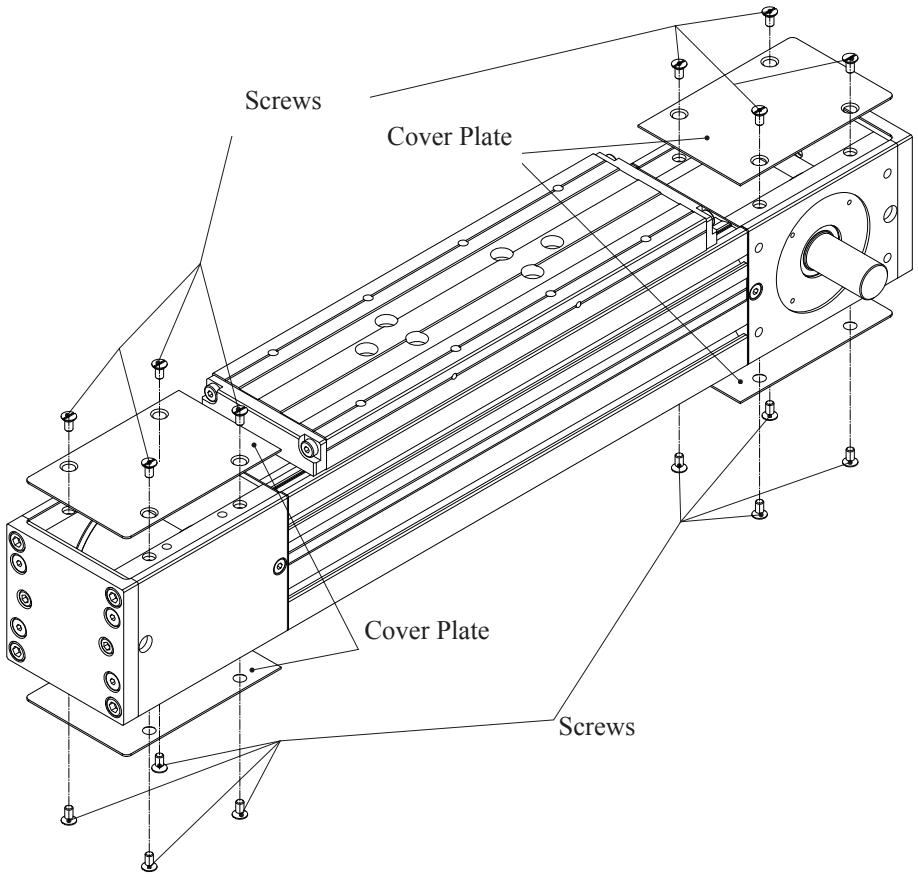
2. Timing Belt Change

2.1 Safety Advice

Loosen the belt first, it must be without tension.

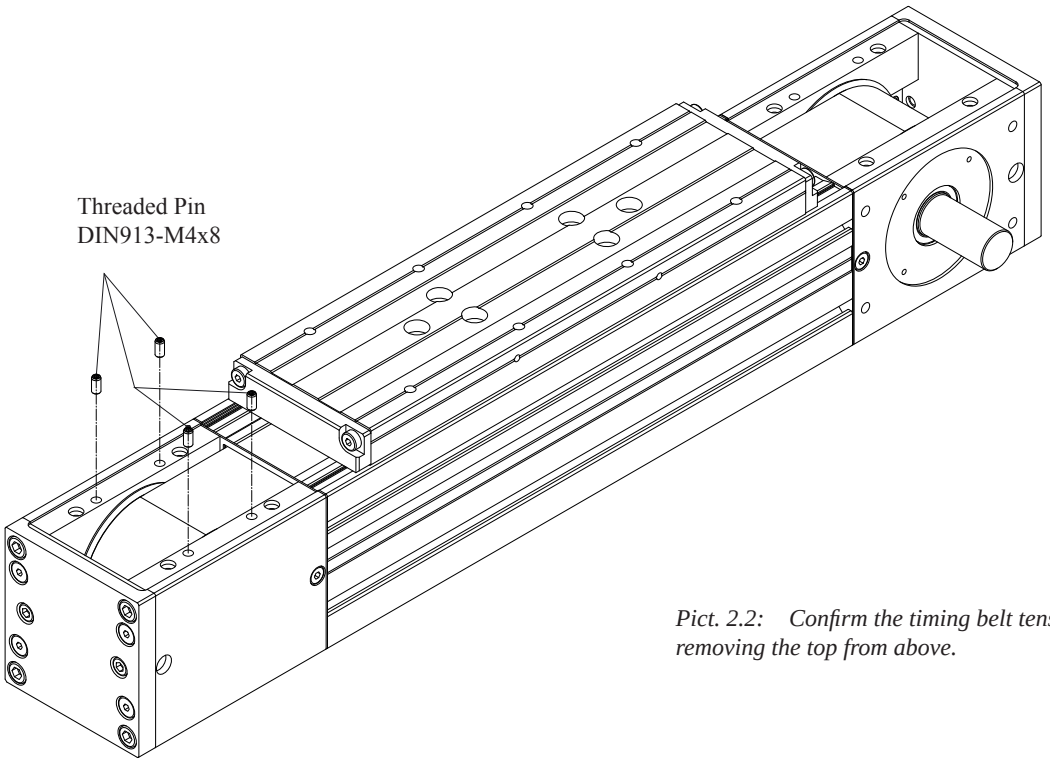
2.2 Procedure

2.2.1 Removal of Covers




Turn out the screws and remove cover.

### 2.2.2 Confirming the Timing Belt Tension from Above

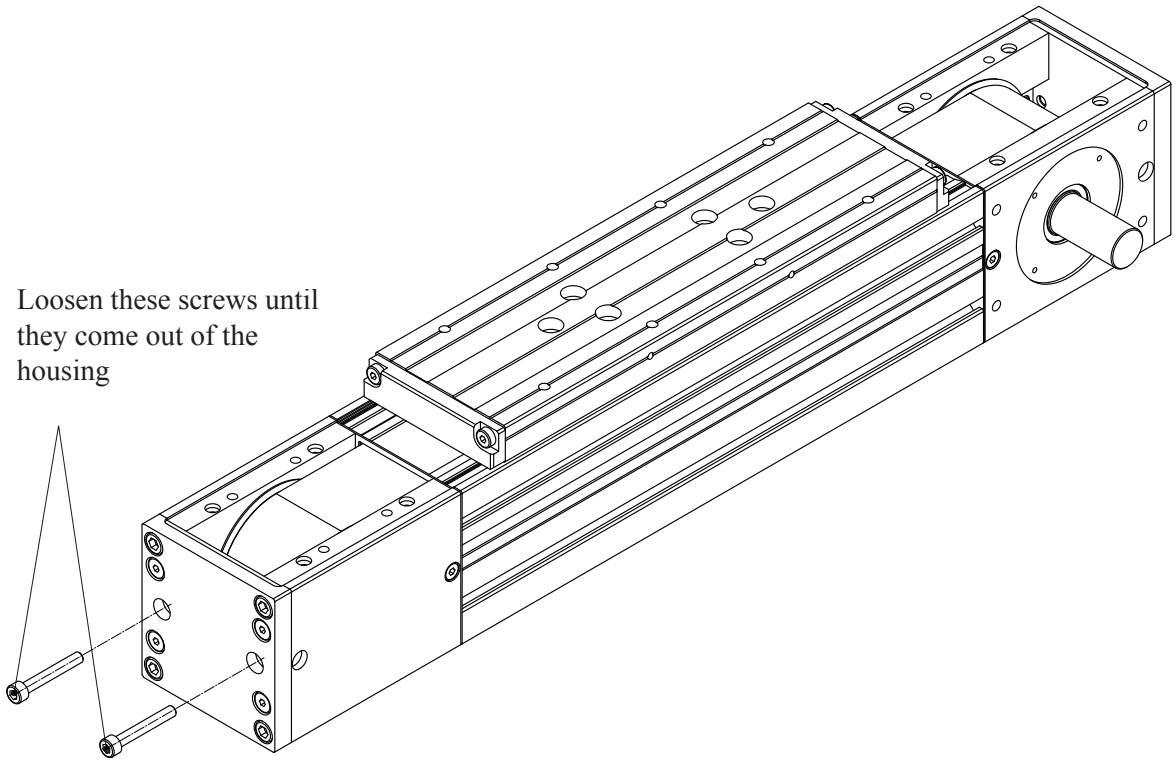



*Pict. 2.2: Confirm the timing belt tension by removing the top from above.*

Loosen and remove the four screws.

Remove the 4 threaded pins. If they are loctited, replace with new pins, if possible.

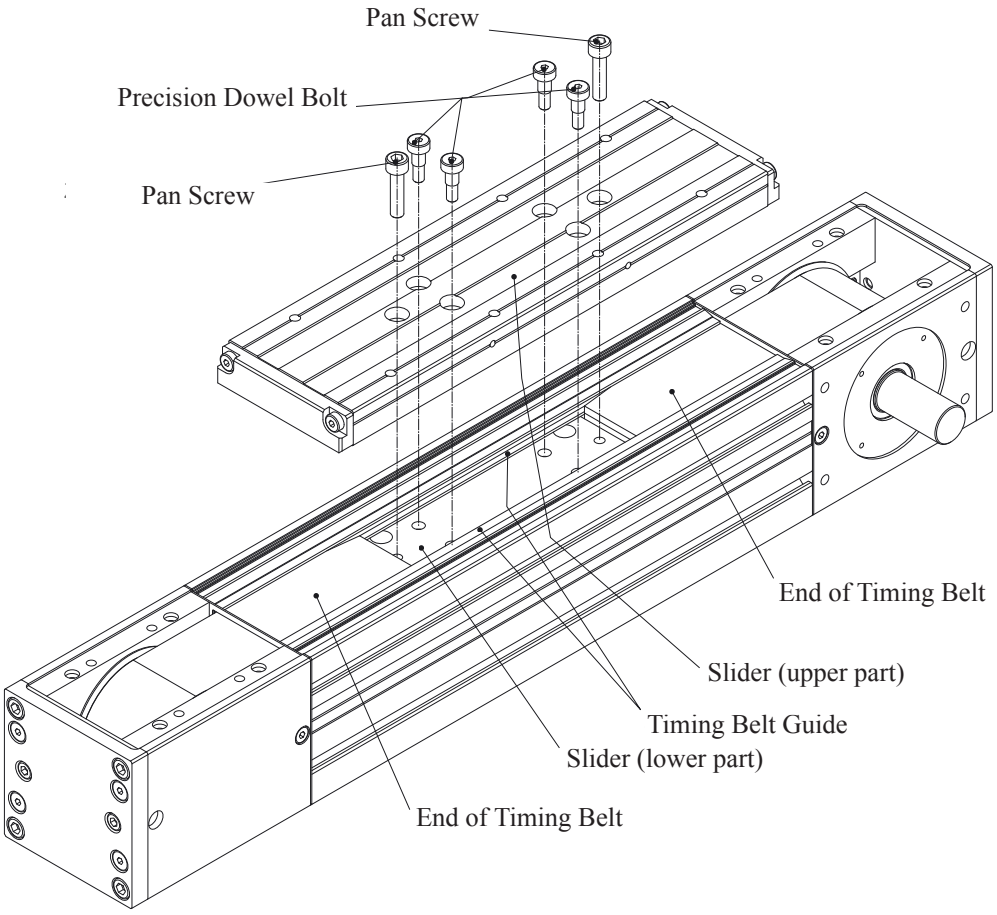
2.2.3 Relax Timing Belt




Alternatively loosen the screws until they are free.

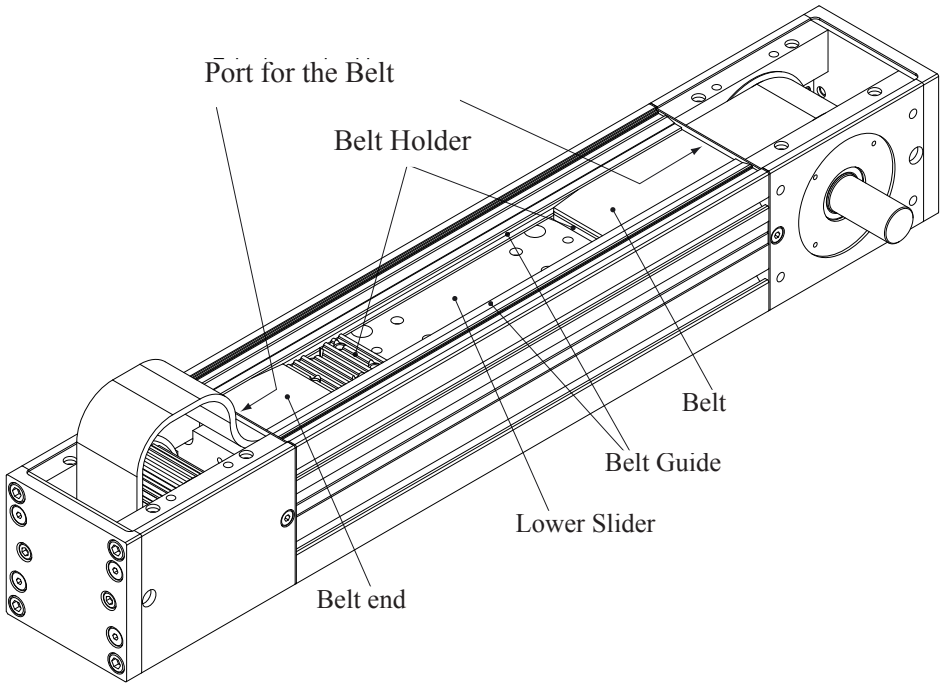
Loosen the screws turn by turn, changing between screw 1 and screw 2 to avoid the belt tension system becoming bent or locked.

2.2.4 Remove Slide

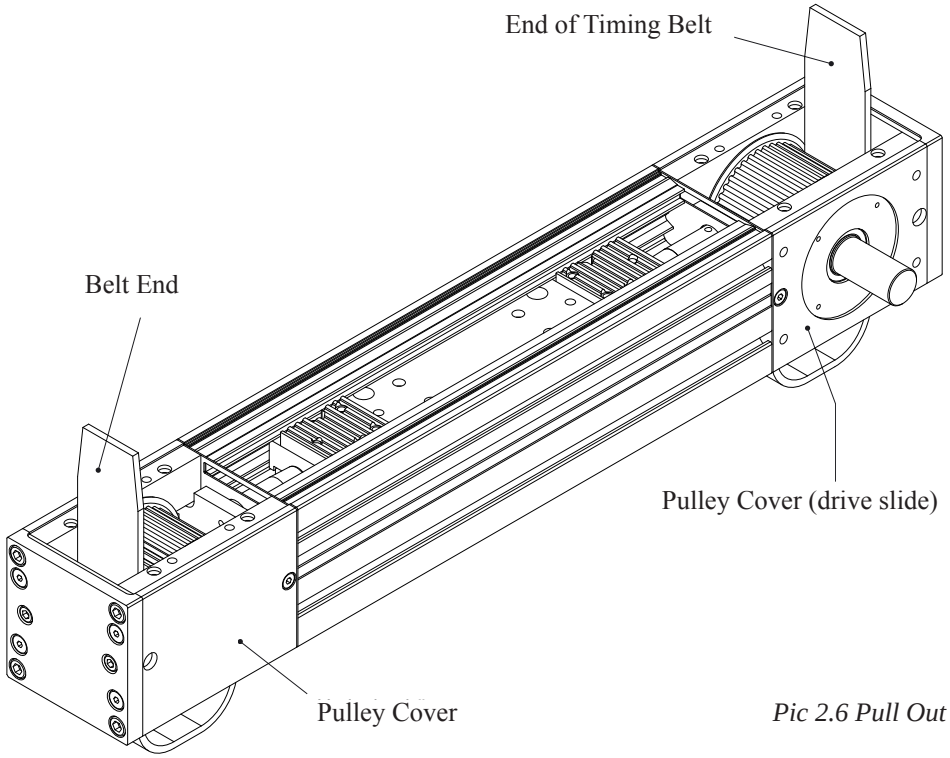



Remove all screws and remove the upper part of the slider.

2.2.5 Unthread and Pull Out Old Belt



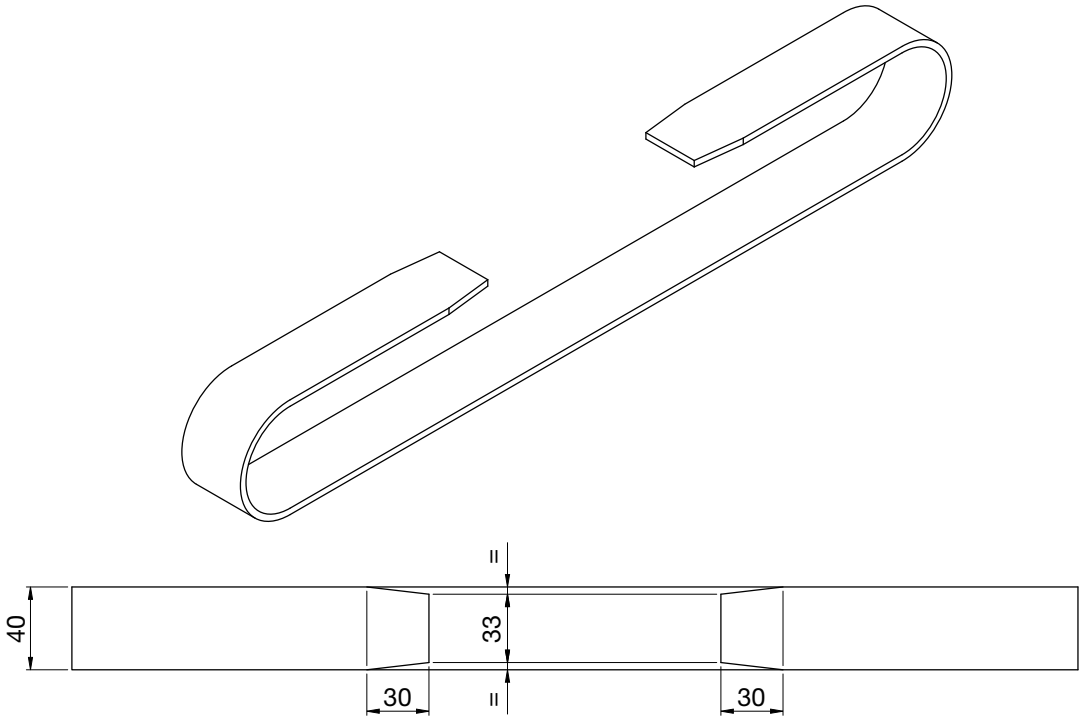

Lift belt ends and remove through the ports.




*Pic 2.6 Pull Out Old Belt*

Pull the belt of the pulleys and pull one side out of housing profile.

2.2.6 Prepare for a New Timing Belt

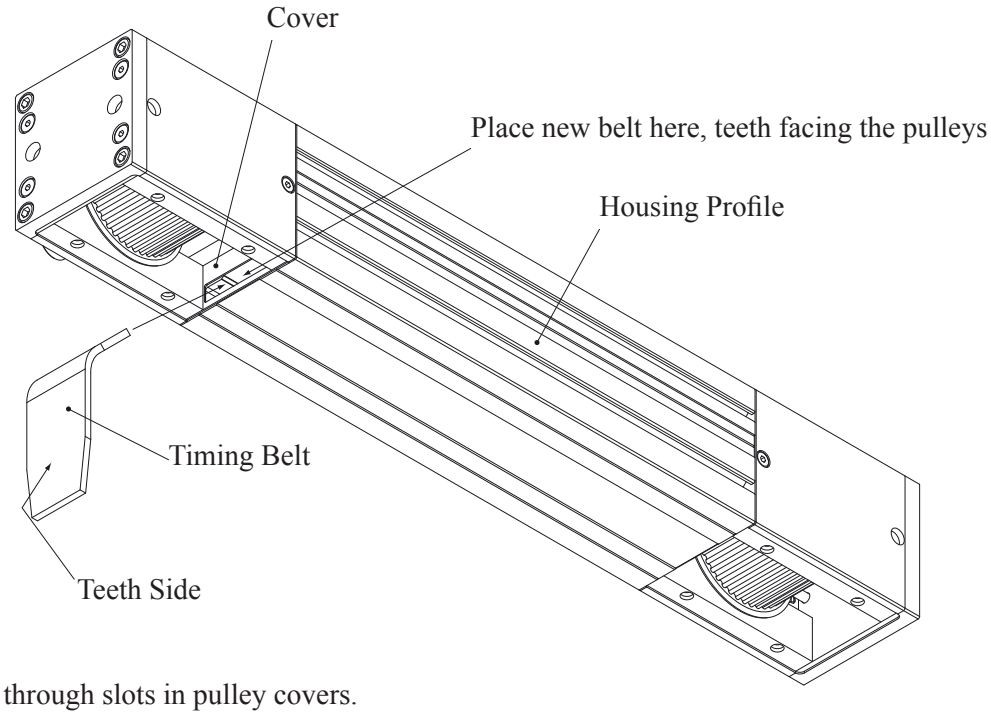



Pict 2.7

Cut new belt to needed length (measured from old belt or dimensions from catalog).

Shape belt ends referring Pict. 2.7.

2.2.7 New Timing Belt



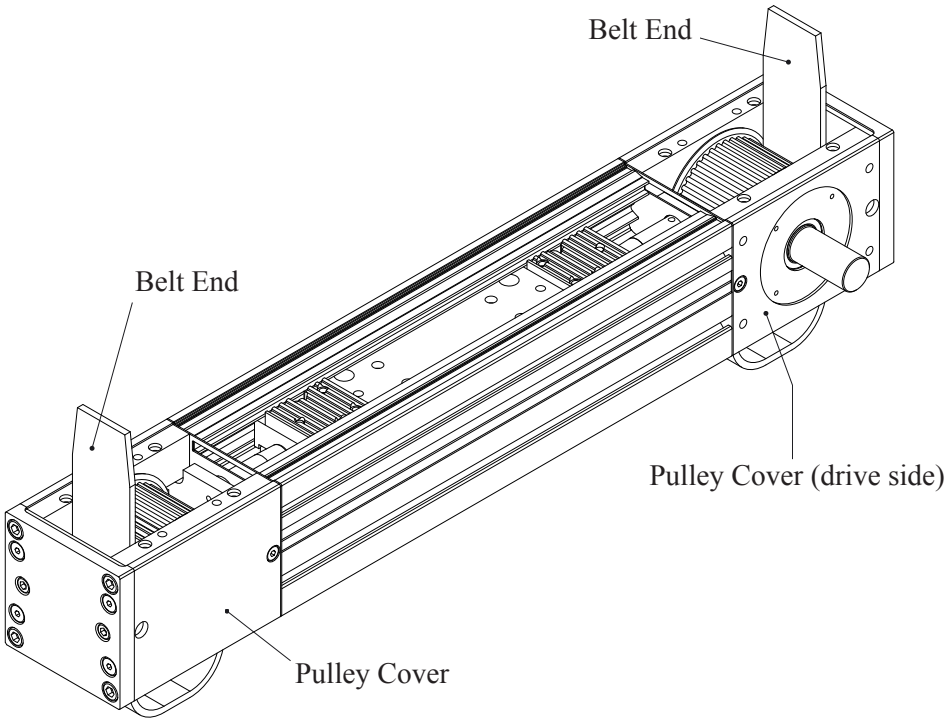

Push new belt through slots in pulley covers.

The tooth profile must be in the direction of the pulley teeth.

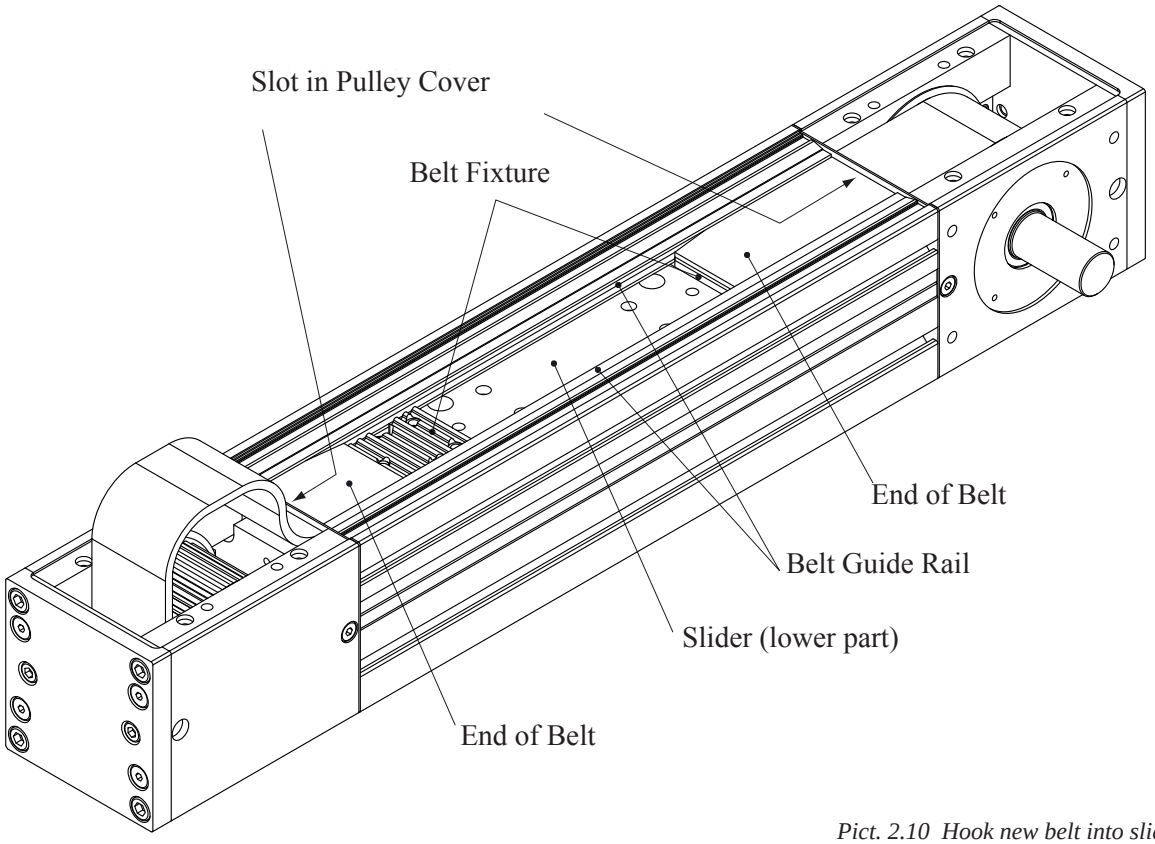
Pull out at side.

2.2.8 Thread New Belt

Push the new belt from bottom to top



2.2.9 Slide in the New Timing Belt

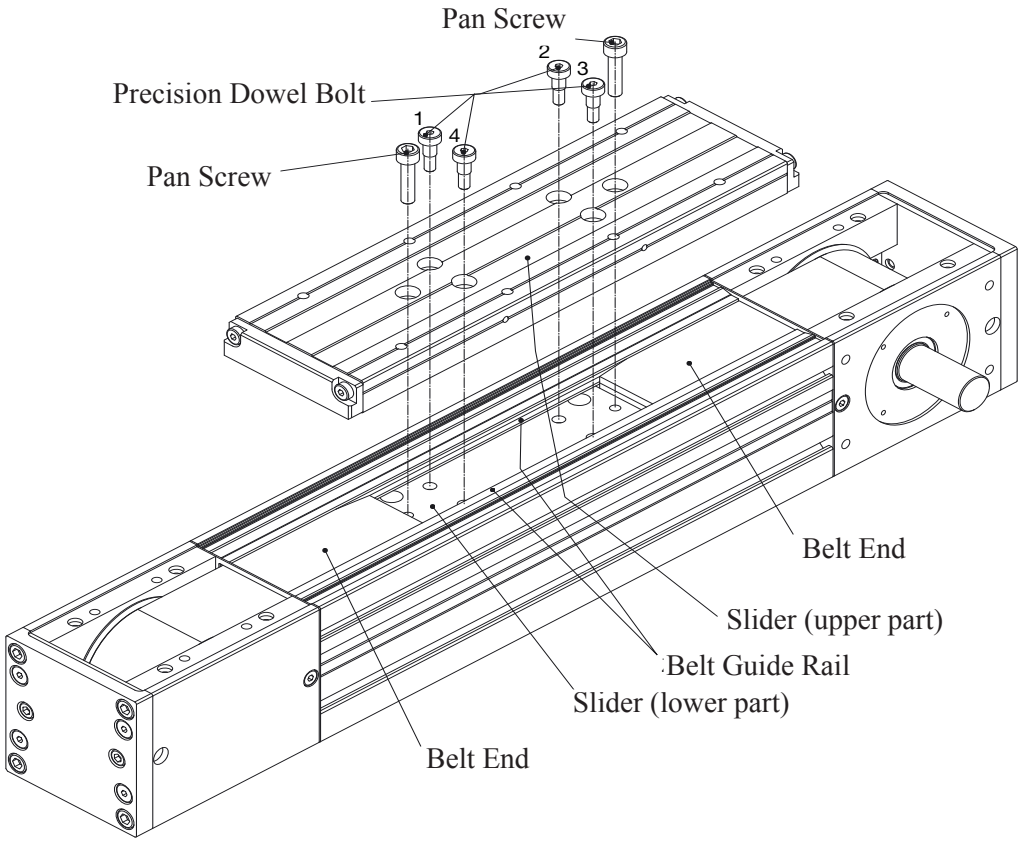



*Pict. 2.10 Hook new belt into slider.*

Push the belt through the ports. Belt must be guided in the rail at this point.
Hook the belt into the fixture.

The belt end must not protrude against the belt fixture.

2.2.10 Assembly of the Upper Slide




*Pict 2.11 Assembly of the upper slide*

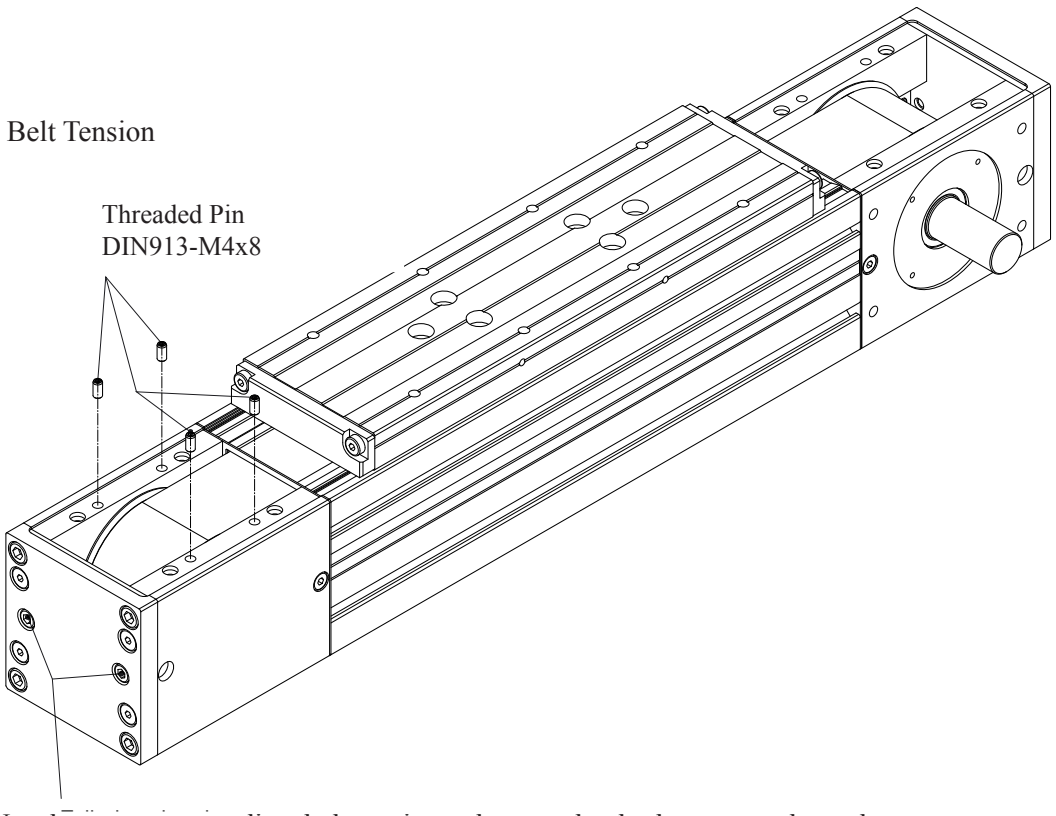
Put upper slider on lower slider. Take care that belt is parallel to the guide rail and that the teeth are properly hooked in fixture.

Put in screws 1 and 3 first to fix the slider.

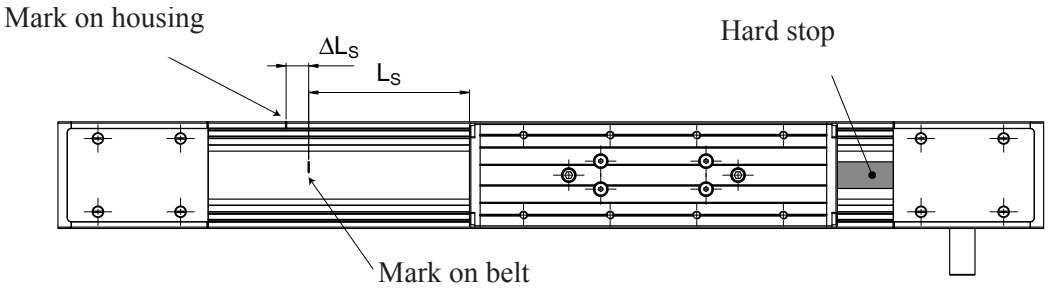
Use the cylindrical screws to fix the belt (use Loctite 243).

Fix screws 1 and 4 now using Loctite 243.

## 2.2.11 Timing Belt Tension




Use these screws to adjust belt tension, take care that both are turned equal.




1. Move the slide to the hard stop.

Do not use the integrated bumpers!

2. Mark the belt ($L_S$).
3. Mark the housing ($L_S + \Delta L_S$).
4. Tension belt until marks match.

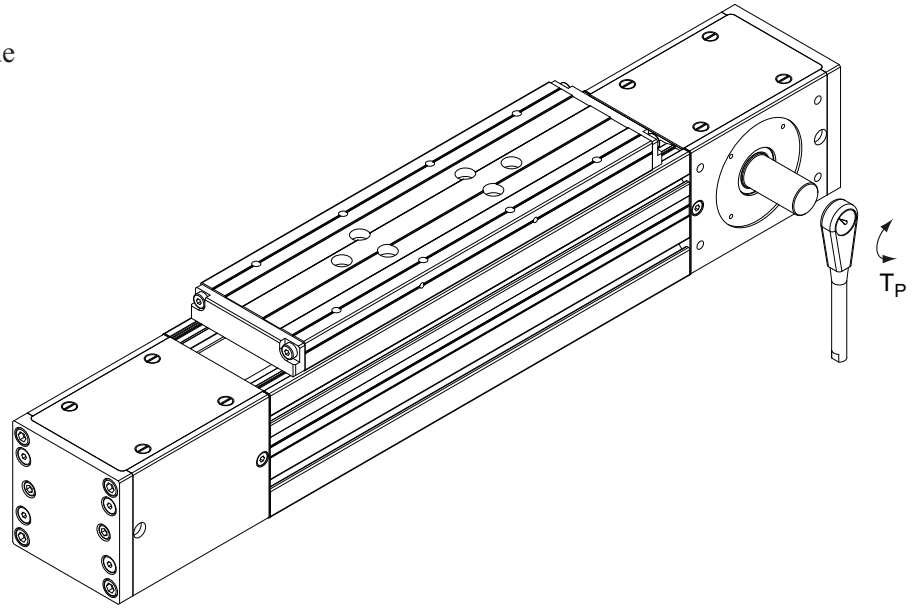
| $L_S$ | $\Delta L_S$ |
|---|---|
| 1‘000 mm | 2.2 - 2.4 mm |
| 2‘000 mm | 4.4 - 4.8 mm |
| 3‘000 mm | 6.6 - 7.2 mm |

Numbers on the chart are in linear relation (proportional)

2.2.12 Fasten Belt Tension Adjustment From Above

Fix the belt tension adjustment system, use Loctite 243.

2.2.13 Check Torque

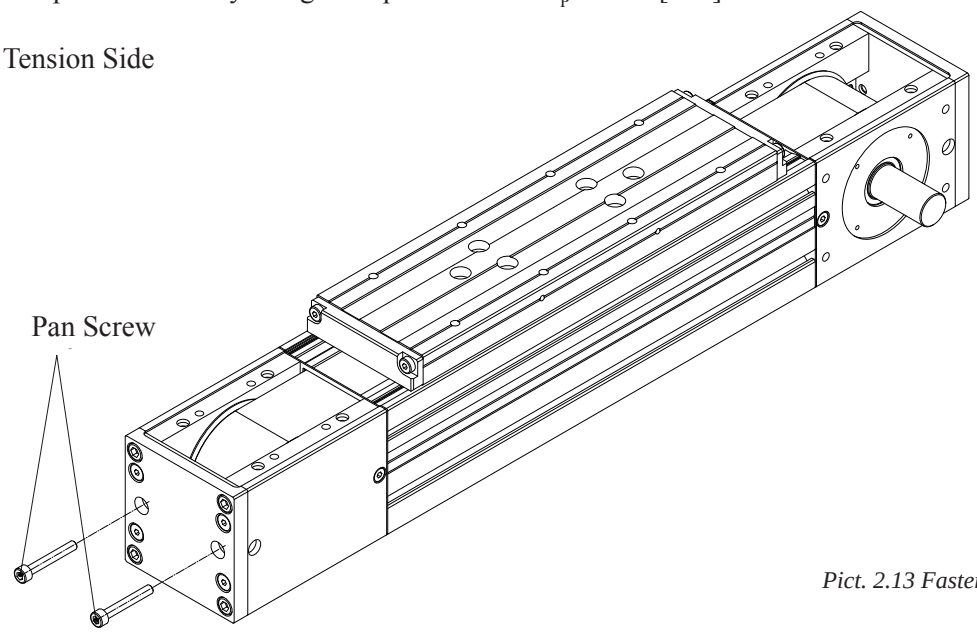



Move slide to hard stop.

Do not use internal bumpers.

Test with peak torque of 75 Nm by using a torque wrench. $T_P = 75.0$ [Nm].

2.2.14 Timing Belt Tension Side

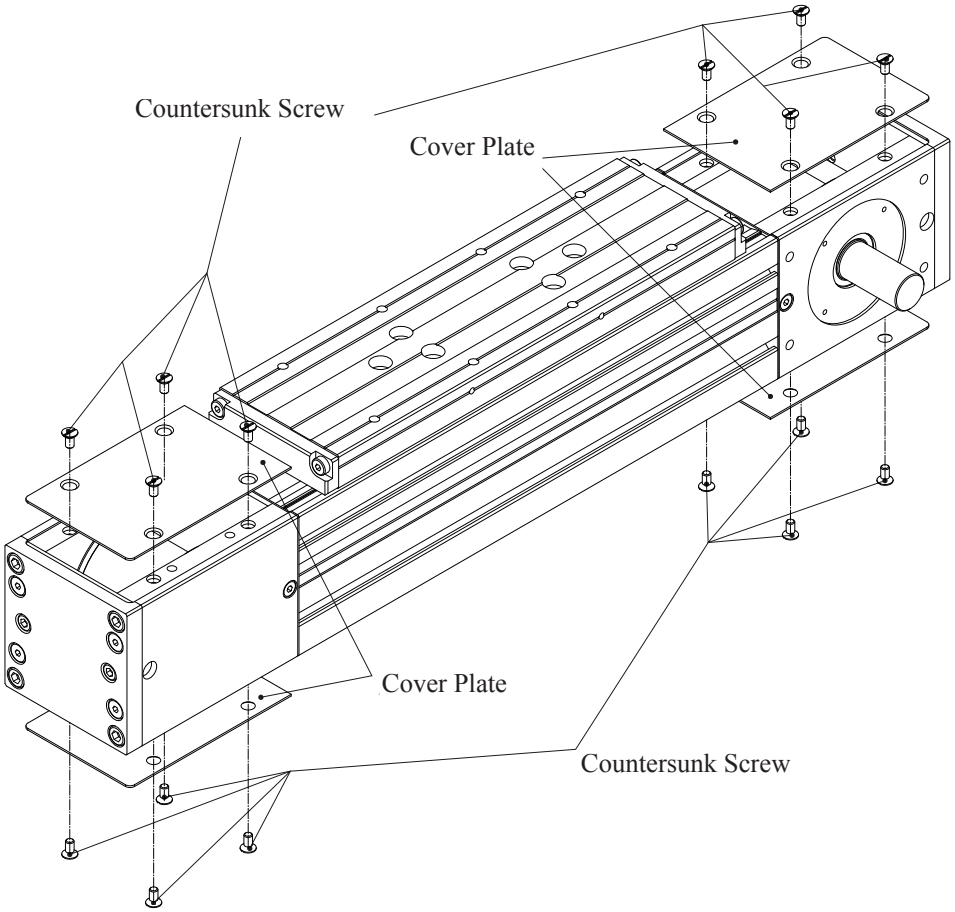



*Pict. 2.13 Fasten Timing Belt*

Remove screws and fix them with Loctite 243.

Do not use higher torque to fix them again.

2.2.15 Assembly of the Cover Plates




Remount Covers