Cross Trainer Flywheel Alignment

All Cross Trainers

The purpose of this document is to aid in the process of aligning the flywheel on a Star Trac cross trainer.

Please be aware of pinch points and take care to avoid injury while working inside of machines.

Tools Required

- 16mm socket
- #8 metric hex key
- Crescent wrench

- After removing the right side leg beam, pedal arm, crank arm assembly, and shroud you will be able to see the inner workings of the cross trainer (Fig. 1)
Technical Procedure

- The flywheel itself can move forward and back as well as left and right. The primary means of adjusting this movement are the pillow block adjustment bolts (Fig. 2).

![Fig. 2](image)

- In order to adjust the flywheel, the pillow block lock bolts will need to be loosened. These bolts secure the pillow block to the frame itself. Use a crescent wrench and a #8 metric hex key to loosen the pillow block lock nuts (Fig. 3). Note that these only need to be loosened, not removed.

![Fig. 3](image)

- Once the pillow block lock bolts are loosened, the pillow block adjustment lock nuts can be loosened (Fig. 4). Use a crescent wrench to loosen the lock nuts to allow the pillow block adjustment bolts room to turn.

![Fig. 4](image)
• The flywheel is now ready to align, the goal of the alignment is to have the grooves in the belt perfectly meet with the teeth on the flywheel. The picture below (Fig. 5) is from a unit that has been aligned. As you can see the grooves and teeth match up perfectly.

Fig. 5

• The easiest way to see if a flywheel is out of alignment is to spin the drive system while watching the belt tracking on the flywheel. Be careful to avoid moving parts while doing this. If the flywheel is out of alignment you will see the belt tracking either to the left or right side of the flywheel and eventually the belt will jump out of the flywheel teeth and the belt will be riding off-center with the belt overlapping the side of the flywheel.

• Think of aligning the flywheel like driving a car with a single wheel in front, and instead of a steering wheel, a dual lever system is used. If you push forward on the right stick and back on the left stick the car will turn to the left due to the deflection of the front wheel. This same principle applies to aligning the flywheel on a cross trainer (Fig. 6 + 6.1).
• If the belt is tracking off-center, adjust the flywheel slightly using a 16mm socket to turn the pillow block adjustment bolts so that the flywheel is pulled towards the side that the belt is overlapping on. Looking at a top-down view, the belt should be riding evenly over the center of the flywheel (Fig. 7). Uneven pressure due to an unaligned flywheel is the primary cause for a belt tracking off-center which will cause the belt to overlap the side of the flywheel.

GOOD

BAD

Fig. 7

• Another visual thing to check when adjusting alignment of the flywheel is to make sure that the crank arm assembly shroud is aligned with the outer shroud (Fig. 8). Use the pedals to spin the drive system and visually inspect the crank arm assembly shroud as it moves. Make sure that it is not contacting the outer machine shroud, that there is not significant “wobble” to the crank shroud, and that there is an even gap between the outer machine shroud and the crank arm assembly shroud (Fig. 8.1).