

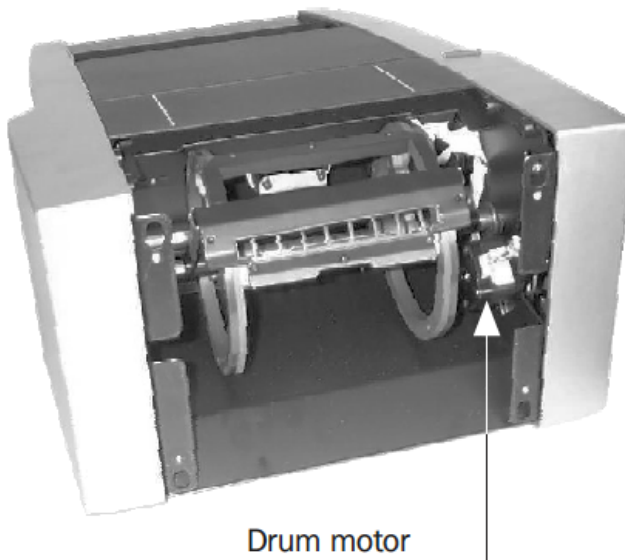
The Digital Coach™

Easy-to-understand training in Digital Imaging & Color Management



Servicing Imacon Drive System Tutorial

Let's start by understanding how the drive system operates. Below we see a photo of the virtual drum system. This is an 848 scanner.

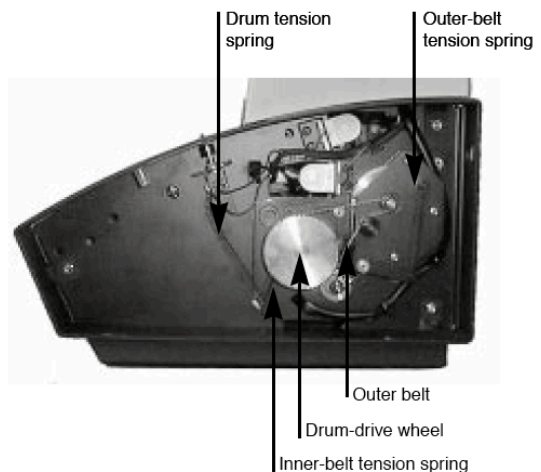


The rollers mount to the frame above the wheels and control the position of the drum. This is important to maintain alignment with the CCD. It is very important that the rollers turn freely. The rollers are relatively small in diameter and turn on small bearings. The roller standards are attached with 2 screws each indicated by the arrows in the picture above. In order to adjust the rollers at the factory, sometimes shims were used between the rollers and the frame. If you remove the rollers watch out for these shims and replace them as installed.

This is important to keep both sides of the image in focus and to keep the drum parallel to the CCD.

If the rollers do not turn freely, the holder will not feed properly. If this occurs for a long time, a flat spot can be worn on the roller rubber. This could further hinder feeding of the holder or make one side of the image out of focus.

The drum consists of 2 wheels mounted on a shaft. The shaft is supported by bearings and rotates, driven by the drive motor. Attached to the wheels is the film holder clip. The film holder is inserted into the clip and the scanner drum rotates, pulling the holder past the light source and returning it. This whole rotating assembly floats and is held in position against a pair of rubber rollers by spring tension.



Here is a view of the drive belts on a Precision II. The large wheel is attached to the drum assembly and turns the drum. The drive motor is located behind this panel and turns the inner drive belt which turns the outer drive belt which turns the drum. The motor is a pulsed drive motor and turns from a computer signal. When you hit the Preview or Scan button the motor turns the drum. The rotation of the drum pulls

the holder into the scanner, past the light tube. The frame size setting determines how far the drum pulls the holder in. When the drum reverses and pushes the holder back out, a micro switch tells the drum when to stop turning. Sometimes this switch can get knocked out of adjustment when the scanner eats a holder.

You will know this when upon pushing the holder out, the drum keeps turning and goes bang, bang, bang against it's stop. We will cover how to adjust it later.

Troubleshooting and Repair.

The drive system is relatively easy to maintain. I will cover common repairs and how to pinpoint the problem. The nature of the problem you may be experiencing will direct you to what to check.

I will start with the problem most frequently experienced, the rollers. I will describe the procedures used with a Precision II scanner, there are more of them out there than any other model. Note, a Precision II and Precision III are identical, just a software difference. Other models are similar techniques.

To determine if the rollers are free I will remove the drive belt on the large outer drum drive wheel. It is not necessary to keep track of the wheels position. Turn the wheel back and forth. It should turn freely with no binding. This is rotating the entire drum assembly and the rollers. Look through the front slot, are the rollers turning as you turn the drum?

Insert a business card between each of the rollers and the drum. Roll them in about halfway. Stop rotating and pull them out the front. You may need to slip the belt back on or have a helper hold the wheel so the drum doesn't turn while pulling the cards. They should be snug and have the same tension on both. This is checking the spring tension holding the drum against the rollers.

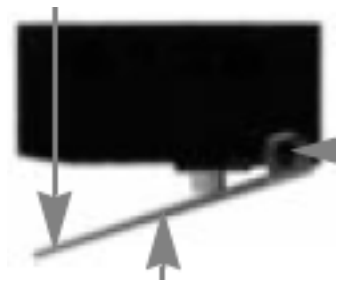
If it is not equal or snug you may need to increase the tension on one or both of the springs. You can do this by cutting a few coils off the spring and bending out a new eyelet. You could also replace the springs. Usually cutting them off works.

If you meet resistance in turning the wheel you can remove the springs or push down on the drum. Turn the rollers with a fingertip. Are they rotating freely?. They should turn very easily. If they do not they may need cleaned and lubed or replaced. With the springs off rotate the wheel again. Is it turning freely? If not the bearing on the shaft could need

cleaned or lubed. Very rare. Usually it's the rollers. You may want to, from time to time clean the roller bearings with a little WD-40. You could lube them with a little 3 in 1 oil. Very little, a drop on a toothpick, to feed it into the bearing. Wipe the whole assembly clean when done. You do not want any of the WD-40 or the oil to find it's way onto your film. Once the roller is turning freely, reinstall with any shims you found on disassembly.

If when the drum is returning the holder, you hear a banging sound as it gets near home, the micro switch is out of adjustment. This frequently happens after a holder get swallowed. To check the operation of the microswitch, slowly rotate the drive wheel with the belt off. Just before the drum hits the stop in the return position you should hear a very faint click. That is the microswitch, very faint click.

This is what the micro-switch looks like. The arm is pushed by the drum and it pushes the plunger on the switch. It only takes a very little movement to trip the switch. It is a positive action and makes a click when it happens.



It may be necessary to remove the transmission lamp before adjusting the switch. Adjust the switch by very slightly bending the arm until it just clicks before the rotating drum hits the stop. That will stop the drum from rotating before banging against the stop. Its momentum may carry the drum against the stop, but it won't bang it.

Drive belts are very long life and needn't be replaced unless there are missing teeth or frayed edges. They are standard industrial items and easy to find. Both belts are identical.

To replace the inner or rear belt, remove the tension spring then you must remove the 3 screws and remove the cover plate. Replace the belt by first putting it over the small wheel and then over the large wheel. Replace the cover panel.

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