

Athan Scanner Alignment Tool Instructions

Version 1.0 (February 2002)

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This procedure should be performed by qualified personnel.

Two rubber stoppers, which are optional, are included so the indicator does not run into the drum support.

**** DO NOT START ANY ALIGNMENTS WITHOUT PERFORMING PARTS A & B FIRST! ****

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Part A – Testing Upper Drum Eccentricity (TIR)

1. Disconnect and remove the slip ring assembly.
2. Place the rubber stoppers in the holes on the upper drum assembly closest to the drum support. See Illustration 1.2.
3. Place indicator arm (without the indicator) in the center hole where the slip ring usually is located. Push down on the backend, and tighten the lever to hold in position.
4. Make sure the pointer on the indicator is facing slightly inward, and position it on the indicator arm. Tighten the white plastic screw on the indicator arm to hold the indicator in place.
5. With the drum support facing away from you, rotate the indicator setup to just before rubber stopper at point “A”. Set the indicator to “0” by rotating the indicator face. See Illustration 1.2.
6. Rotate indicator setup to check eccentricity (TIR) of upper drum to the center spindle of the scanner. The indicator reading should be no more than .0002” maximum (two lines on the indicator face).

If the reading is LESS than .0002”, then the scanner is good to use. If the reading is MORE than .0002”, then you need to test the drum support as seen in **Part B** below.

Part B – Testing Drum Support Eccentricity (TIR)

1. Remove the indicator, and then the indicator arm from **Part A**.
2. Remove the upper drum assembly.
3. Place the indicator arm back in the center hole. Make sure the pointer on the indicator is now facing slightly outward and position it again on the indicator arm. Adjust the indicator so that the pointer is touching the drum support, loosening and tightening the white plastic screw as necessary. See Illustration 1.3.
4. Zero the indicator at Point “D”. Rotate the indicator setup from Point “D” to Point “E”, noting the reading on the indicator. It should not be more than .0001”. See Illustration 1.3.

If the reading is LESS than .0001”, then you need to align the upper drum (**Part C**). If the reading is MORE than .0001”, then you need to adjust the drum support (**Part D**).

Part C – Aligning Upper Drum

1. Remove the indicator, and then the indicator arm from **Part B**. Place the upper drum back on the scanner.
2. Verify that leaf spring is secure and adequate tension is applied by knob to support the upper drum. Tighten the upper drum mounting screws holding the drum support (see Illustration 1.1), and then slightly loosen them.
3. Place indicator arm (without the indicator) in the center hole where the slip ring usually is located. Push down on the backend, and tighten the lever to hold in position.
4. Make sure the pointer on the indicator is facing slightly inward, and position it on the indicator arm. Tighten the white plastic screw on the indicator arm to hold the indicator in place.
5. Zero-in the two sides “A” and “B”, first, 180° from each other. See Illustration 1.2.
Note: Don’t worry about center until **Step 7**.
6. Tighten the upper drum mounting screws alternately and gradually, tightening torque to 8Kgf.cm. Do this gradually first 2Kgf.cm then 4Kgf.cm and finally 8Kgf.cm. See Illustration 1.1.
7. Make sure to not exceed .0005” in center “C”.
 - a. If the indicator reads between “0” and .0005” to the RIGHT (or forward), then go to **Step 8**.
Note: Keep in mind that because the OEM cap may be egg-shaped, it can be ok if the upper drum is too far forward. In some cases, center “C” being forward .0005” may give you better performance.
 - b. If the indicator reads more than .0005” to the RIGHT of the “0” point, then the upper drum is too far forward. See Illustration 1.1 and 1.5 (side view). You need to move it backward using the steps in **Part D**.
 - c. If the indicator reads *any* measurement to the LEFT of the “0” point, then the upper drum is too far back. You need to move it forward using the steps in **Part D**.
8. Then adjust center “C” last by using setscrew as shown in Illustration 1.1 and 1.5 (side view). (Setscrews are included with the tool.) Rotate indicator setup to center “C” and then slowly tighten screws to bring to “0” with points “A” and “B”. See Illustration 1.2.
9. Glip screw into position.
10. For final testing of eccentricity, remove rubber stoppers and rotate indicator all the way from side to side.

Part D – Aligning Drum Support

This step requires that the scanner is in the alignment tool base.

1. Place the indicator arm in the center hole. Make sure the pointer on the indicator is now facing slightly outward and position it again on the indicator arm. Adjust the indicator so that the pointer is touching the drum support, loosening and tightening the white plastic screw as necessary.

The most important thing right now is to determine which way the drum support needs to be moved – in the forward position or backwards. This is determined by where the upper drum sits when you indicate Point “A” and Point “B” to “0”. If Point “C” is within .0005” on either side of “0”, then no adjustment is needed.

If Point “C” is more than .0005” forward (to the RIGHT of “0”), follow the instructions below:

1. Zero your indicator at point “E”. Loosen and *slightly* retighten the screw underneath Point “E” on the drum support (see [Illustration 1.4](#)).
2. Using the Athan-provided setscrew installed in the drum support (see [Illustration 1.1](#) [or [Illustration 1.5 for side view](#)]), pull the corner of the drum support back the appropriate amount. This amount is determined by subtracting .0005” from the measurement of Point “C”. For instance, if the reading at Point “C” was .0007”, you need to pull the drum support back at least .0002”.
3. Tighten the screw underneath the drum support.
4. Rezero your indicator on the corner of the drum support that you just pulled back. Rotate your indicator to Point “D”. Loosen and *slightly* retighten the screw underneath Point “D” on the drum support (see [Illustration 1.4](#)).
5. Repeat **Step 2**, except this time, pull the corner of the drum support backward until the indicator reads “0”.
6. Repeat **Steps 1-4** until both sides of the drum support give a reading of .0001” or less from each other.
7. Make sure that both screws underneath the drum support are tight.

Make sure that you didn’t go too far backward with the upper drum.

1. Remove indicator and indicator arm.
2. Place upper drum back into position by tightening the leaf spring and then slowly tighten the two mounting screws.
3. Place indicator arm and indicator back in the scanner. Then zero indicator at point “A” and rotate to point “C”. The key is to make sure that this does not exceed .0005” in the forward position.

If Point “C” is more than .0005” backward (to the LEFT of “0”), follow the instructions below:

1. Zero your indicator at point “E”. Loosen and *slightly* retighten the screw underneath Point “E” on the drum support (see [Illustration 1.4](#)).
2. Insert the Athan screwdriver (provided with the tool) into the drum support adjustment screw. This screw is located on the inside of the alignment tool base (see [Illustration 1.6](#)). Push the corner of the drum support forward the appropriate amount. This amount is determined by subtracting .0005” from the measurement of

Point “C”. For instance, if the reading at Point “C” was .0007”, you need to push the drum support forward at least .0002”.

3. Tighten the screw underneath the drum support.
4. Rezero your indicator on the corner of the drum support that you just pushed forward. Rotate your indicator to Point “D”. Loosen and *slightly* retighten the screw underneath Point “D” on the drum support (see Illustration 1.4).
5. Repeat **Step 2**, except this time, push the corner of the drum support forward until the indicator reads “0”.
6. Repeat **Steps 1-4** until both sides of the drum support give a reading of .0001” or less from each other.
7. Make sure that both screws underneath the drum support are tight.

If the drum support gets too far out of position and you are having a difficult time, go to **Part E** to help you reset the position of the drum support. This will help you start over.

Part E –Drum Alignment Tool Adjustment

To do this particular alignment, the scanner needs to be placed on the alignment tool base.

1. Remove upper drum assembly. Remove leaf spring knob and spring, remove 2 each screws.
2. Remove inner drum assembly. See owner service manual - inner drum assembly replacement procedure.
3. Loosen bottom 2 screws holding the drum support to the scanner. See Illustration 1.8. Use Athan screwdriver.
4. Slide the drum support out away from the lower drum. Then tighten the screws. This makes room for the drum alignment tool.
5. Place the drum alignment tool as you would the inner drum. Tighten four screws slightly. See Illustration 1.7.
6. Place the indicator in the indicator post. Make sure the pointer on the indicator is now facing slightly outward. Adjust the indicator so that the pointer is touching the drum alignment tool, loosening and tightening the white plastic screw as necessary. See Illustration 1.7.
7. Place the adjustment screw in the threaded hole that is second from the bottom.
8. Zero indicator at the highest point.
9. Rotate the drum alignment tool to determine deviation from the zero point.
10. Use adjustment screw as a pushing device to push the drum half the deviation distance.
11. Repeat **Steps 8-10** until you bring the drum within .0002”.
12. Slightly tighten screws on the drum alignment tool like you would on an inner scanner.
13. Remove indicator from indicator post and pull adjustment screw back.
14. Slightly loosen the bottom 2 screws of the drum support.
15. Move drum support so it makes contact with drum alignment tool. Then slightly tighten the bottom 2 screws of the drum support.
16. Place the Athan alignment bracket on top of the drum alignment tool so it lines up with the center hole, and to the back of the drum support. Then tighten center screw. See Illustration 1.8.
17. Ball point tension screw is pre-set. Setting is not overly important, just enough tension to keep drum support arm tight against drum alignment tool. See Illustration 1.8.
18. Then loosen bottom 2 screws holding the drum support to the scanner. This will allow the Athan alignment bracket to bring the drum support to the correct position against the drum alignment tool.
Note: There will be a slight play, side-to-side when the screws are loosened, so average the play when tightening bottom screws.
19. Tighten bottom screws evenly and slowly so there is no shifting (reference **Note:** in **Step 18**).
20. Remove Athan alignment bracket.
21. Remove drum alignment tool.
22. Reinstall leaf spring and leaf spring knob.
23. Go back to **Part D** to fine tune the position of the drum support.

Part F – Aligning the Inner Drum

To do this particular alignment, the scanner needs to be placed on the alignment tool base.

1. Remove upper drum assembly.
2. Remove old inner drum assembly. See owner service manual – inner drum assembly replacement procedure.
3. Install new inner drum assembly. Tighten four screws slightly. See owner service manual – inner drum assembly replacement procedure.
4. Place the indicator in the indicator post. Make sure the pointer on the indicator is now facing slightly outward. Adjust the indicator so that the pointer is touching the inner drum, loosening and tightening the white plastic screw as necessary. See Illustration 1.9.
5. Place the adjustment screw in the threaded hole that is closest to the bottom.
6. Zero indicator at the highest point.
7. Rotate the inner drum to determine deviation from the zero point.
8. Use adjustment screw as a pushing device to push the drum half the deviation distance.
9. Repeat **Steps 6-8** until you bring the drum within .0001”.
Note: This is 1.5 times more accurate than a millimeter indicator.
10. Slightly tighten screws on the inner drum. See owner service manual – inner drum assembly replacement procedure.
11. Remove indicator from indicator post and pull adjustment screw back.
12. Remount upper drum assembly. For further instructions, go to **Part C**.