MiTek®
Machinery Division

Service Bulletin

Machinery Affected:	***Cyber® A/T, Cyber, SmartSet® Pro, SmartSet,® and Easy-Set® Saws***
Document:	**SB168**
Title:	**Replacing Angle Scales**
Applies To:	**Adhesive-Backed Angle Scales**

MiTek Industries, Inc.
Machinery Division
301 Fountain Lakes Industrial Drive
St. Charles, MO 63301
Phone: 800-523-3380
Sales fax: 636-328-9222
Customer Service fax: 636-328-9218
www.mii.com

Date Created	01/13/2006
Created By	R. Widder
Revision	A
Revision Date	09/26/06
Revised by	R. Widder
Reviewed by	R. Tucker
Approved by	G. McNeelege
Manuf. Eng.	K. Schuermann

Machinery Affected:	***Cyber*® *A/T, Cyber, SmartSet*® *Pro, SmartSet,*® **and *Easy-Set*® Saws**
Document:	**SB168**
Title:	**Replacing Angle Scales**
Applies To:	**Adhesive-Backed Angle Scales**

Purpose and Scope

The instructions provided by this Service Bulletin are to be used to install bolt-on, steel angle scale plates and *Mylar*® labels to replace the original adhesive-backed angle scales located on the quadrant castings. Newer saws already have holes pre-drilled into the casting for the bolts holding the scales; older models do not. Separate procedures are provided for the cases when the quadrant has pre-drilled holes and when you must drill your own holes.

Parts and Supplies

The SB168KIT-A (for 5-bladed saws) or the SB168KIT-B (for 6-bladed saws) contains the necessary parts. The contents of the SB168KIT-A are shown in Table 1. The contents of the SB168KIT-B are shown in Table 2. If any parts are missing, please contact MiTek Customer Service at 800-523-3380.

Table 1: SB168KIT-A (5-Bladed Saw)

Qty	P/N	Description
1	563091	Scale kit for 5-bladed saw
20	325153	Flat head cap screw, 1/4-20”
5	60227	Angle scales label plate
1	SB168	Service Bulletin 168

Table 2: SB168KIT-B (6-Bladed Saw)

Qty	P/N	Description
1	563061	Scale A, *Mylar*, for blade #6
1	563091	Scale kit for 5-bladed saw
24	325153	Flat head cap screw, 1/4-20”
6	60227	Angle scales label plate
1	SB168	Service Bulletin 168

The following tools will be required to install the steel angle scales:

drill motor	1/4”-20 hand (bottom) tap	duct tape
#7 drill (.201” Dia.)	3/8” socket	countersink
multimeter	5/16” socket	center punch
drill stop, tape, or other method to limit drill depth	tap handle	cutting/tapping fluid

The following items are recommended to clean the quadrant thoroughly to ensure accurate results:

compressed air	clean rags	mineral spirits or denatured alcohol
scraper		

Lockout/Tagout Procedure

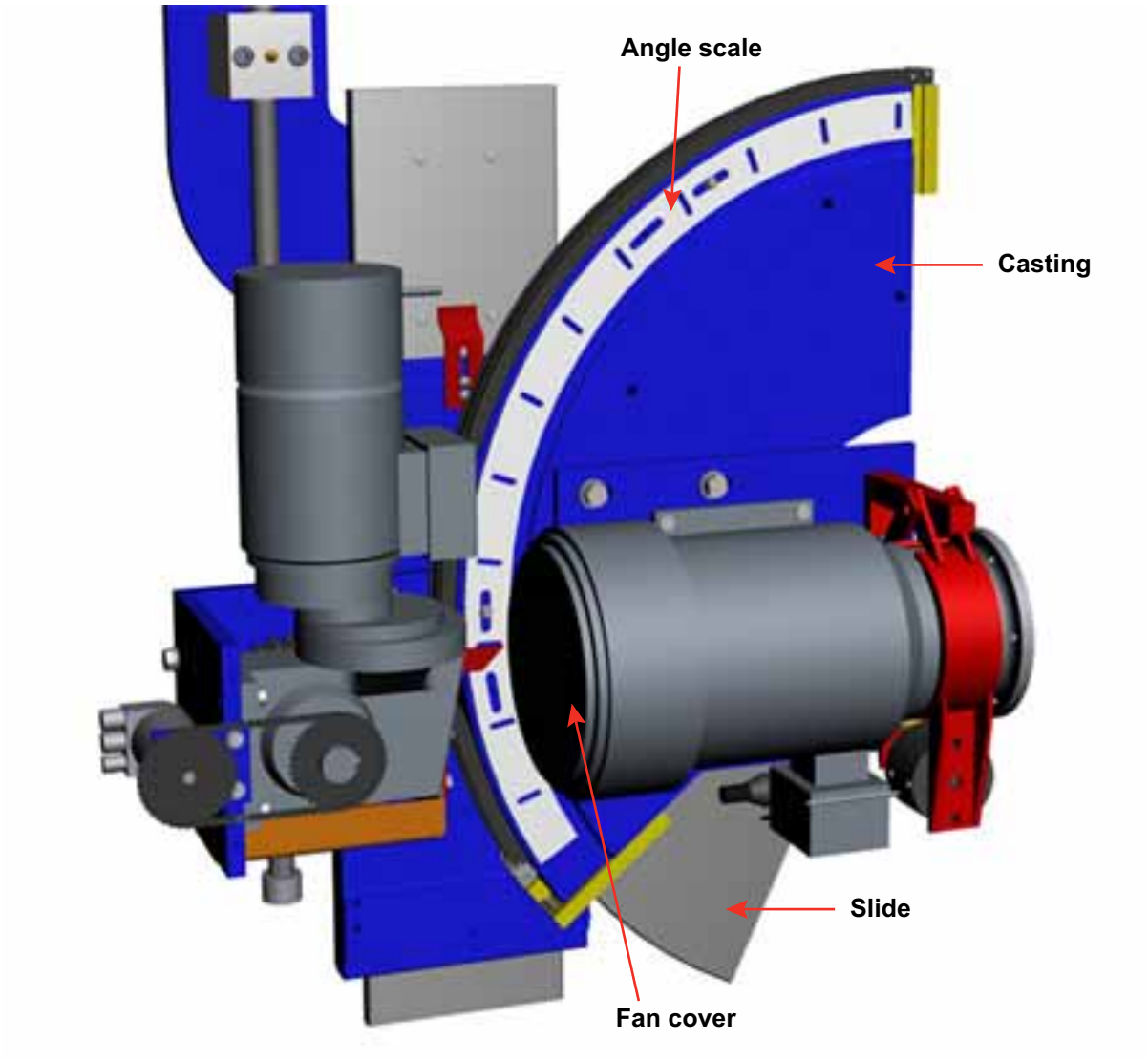
1. Turn off all power to the equipment, following your company’s approved lockout/tagout procedures (See also OSHA 29 CFR 1910.147).

    a) Engage an E-stop.

    b) Lockout/tagout all power to the main electrical enclosure.

2. Using a multimeter, verify that the power is off.

Figure 1: Diagram of a Quadrant on the *Cyber A/T* Saw



This diagram is a good representation of all equipment referred to in this Service Bulletin. The labeled items are referred to in the procedures enclosed.

Procedure to Use When Holes Exist in the Casting

1. Use Scale A for quadrants #2, #4, and #6. Scale B is for quadrants #1, #3, and #5.
2. Rotate each quadrant to 45º. This position will allow you to reach the location of the bolts in the castings with the least difficulty.
3. Turn off and lockout/tagout all power to the saw and touch screen. See the *Lockout/Tagout Procedure* section on page 2.
4. If necessary, remove the fan covers with a 5/16-in. socket, to allow easy access to each casting. See Figure 1.
5. Scrape off all residue and loose remnants of the old scale from each casting.

Figure 2: Angle Scale Plate Holes

6. Countersink the holes in the casting that correspond with the holes labeled “A” in Figure 2 to 3/8 in. x 82º and blow out the holes with compressed air.
7. Bolt an angle scale plate (PN60227) onto each casting using four (4) 1/4-20-in. flat head cap screws (PN 325153) per angle scale plate. See Figure 3 and Drawing 60227.
8. Wipe down the surface of the angle scale plates with a rag dampened in mineral spirits or denatured alcohol.

Figure 3: Bolt Plate to Casting

9. Tape the *Mylar* scale in place with duct tape. Do NOT remove the backing and adhere the label at this time.

	WARNING
	CUT HAZARD. **When visually confirming an angle, stay clear of moving parts.** **If other people are assisting the operator, the operator must ensure they are clear before moving any components or starting the saw.**

10. Turn the power back on. Rotate each quadrant angle up and down, comparing the angle indicated by the touch screen to that indicated by the pointer on the scale. Use a 6-in. magnetic torpedo level to confirm the positions of 0º, 45º, and 90º. See Figure 4.

Figure 4: Confirm Positions with Torpedo Level

11. If a scale must be adjusted, turn off and lockout/tagout all power to the saw. Repeat steps 8 and 9 until each angle scale label is in the proper position.

12. When satisfied with the accuracy of the full range on all five or six scales, move each quadrant back to 45º.

13. Turn off and lockout/tagout all power to the saw and touch screen.

14. With half the *Mylar* scale still taped in place with duct tape, remove the backing paper of the other half and attach to the angle scale plate. See Figure 7 on page 8.

15. Remove the rest of the duct tape and backing paper, and attach the remaining portion of the *Mylar* scale to the angle scale plate.

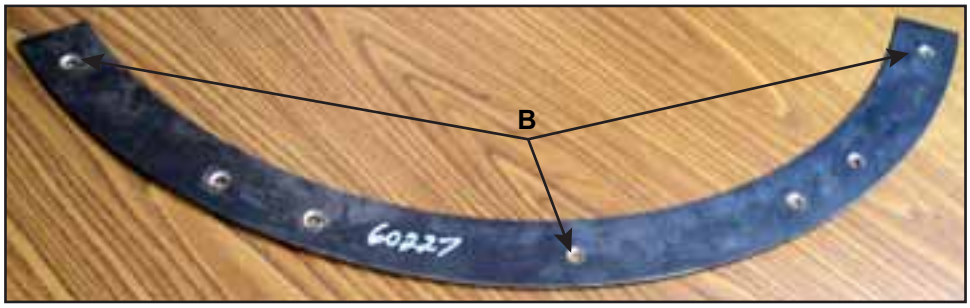
16. Ensure all tools and material are removed from the saw, replace the fan covers if necessary, and turn on power to the saw.

17. Examine the accuracy on the full range of each scale by comparing the angle indicated by the touch screen to the angle indicated by the guide on the scale.

Procedure to Use When Holes are Not Pre-Drilled in the Casting

1. Check the angle calibration of all blades and adjust if needed. Instructions can be found in the equipment manual.
2. Use Scale A for quadrants #2, #4, and #6. Scale B is for quadrants #1, #3, and #5.
3. Rotate each quadrant to 60º. This position will allow you to reach the location of the bolts in the castings with the least difficulty.
4. Turn off and lockout/tagout all power to the saw and touch screen. See the *Lockout/Tagout Procedure* section on page 2.
5. If necessary, remove the fan covers with a 5/16-in. socket to allow easy access to each casting. See Figure 1.
6. Center the angle scale plate on the quad casting. See Figure 3.
7. Mark each casting at the three points labeled "B" in Figure 5, using the holes in the angle scale plate as a template.

Figure 5: Angle Scale Plate Holes



8. Remove the angle scale plate.
9. Using a center punch, punch the holes marked in step 7 to prevent the drill from walking.
10. Set the drill stop on the #7 drill bit (or apply tape) to limit the drill depth to 3/4 in.

CAUTION
Drilling completely through the casting may damage the casting and cause premature failure.

11. Drill a pilot hole 3/4-in. deep at each marked point. See Figure 6.

Figure 6: Drill Pilot Hole

12. Tap the holes to 1/2-in. with a 1/4-20 hand (bottom) tap.
13. Countersink the drilled holes to 3/8 in. x 82º and blow out the holes with compressed air.
14. Bolt an angle scale plate (PN60227) onto each casting using three (3) 1/4-20-in. flat head cap screws (PN 325153) per angle scale plate. See Figure 3.
15. Wipe down the surface of the angle scale plates with a rag dampened in mineral spirits or denatured alcohol.
16. Tape the *Mylar* scale in place with duct tape. Do NOT remove the backing and adhere the label at this time.

	WARNING
	CUT HAZARD. **When visually confirming an angle, stay clear of moving parts.** **If other people are assisting the operator, the operator must ensure they are clear before moving any components or starting the saw.**

17. Turn the power back on. Rotate each quadrant angle up and down, comparing the angle indicated by the touch screen to that indicated by the pointer on the scale. Use a 6-in. magnetic torpedo level to confirm the positions of 0º, 45º, and 90º. See Figure 4 on page 5.
18. If a scale must be adjusted, turn off and lockout/tagout all power to the saw. Repeat steps 15 and 16 until each angle is in the proper position.
19. When satisfied with the accuracy of the full range on all five or six scales, move the quadrants back to 45º.
20. Remove part of the duct tape.

21. With half the *Mylar* scale still taped in place with duct tape, remove the backing paper of the other half and attach to the angle scale plate. See Figure 7.

22. Remove the rest of the duct tape and backing paper, and attach the remaining portion of the *Mylar* scale to the angle scale plate.

23. Ensure all tools and material are removed from the saw, replace the fan covers if necessary, and turn on power to the saw.

Figure 7: Remove Backing

24. Examine the accuracy on the full range of each scale by comparing the angle indicated by the touch screen to the angle indicated by the guide on the scale.

END OF SERVICE BULLETIN