

ASN ***Automatic Sample Notcher***

INSTRUCTION MANUAL



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Rev. 3.0

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GENERAL EQUIPMENT SPECIFICATIONS

This page is a record of your equipment specifications. This information is found on the stamped nameplate of your instrument. Please fill in the blanks below when you receive your Dynisco unit.

When contacting the sales or service department to order parts or obtain information, refer to this page. This will allow us to respond quickly and accurately to your request.

MODEL NO. _____

SERIAL NO. _____

WIRING DIAGRAM (See drawings at back of manual)

MAIN FUSE _____ Amperes

SINGLE PHASE _____ Volts AC

MODEL _____ ASN _____
TYPE _____ Automatic Sample Notcher _____

Dynisco Polymer Test - Product Warranty

Dynisco Polymer Test warrants to the original buyer only, that all products and services furnished hereunder shall be free from defects in material and workmanship. This warranty is subject to the following terms and conditions.

1. This warranty shall remain in effect for a period of one (1) year from date of start-up or fifteen (15) months from date of shipment whichever is earlier; provided however that notice of any such defect is reported to Dynisco Polymer Test within thirty (30) days following its discovery.
2. Parts that normally contact the material under test shall have a warranty period of three (3) months from start-up or five (5) months from date of shipment whichever comes first; provided however that notice of any such defect is reported to Dynisco Polymer Test within then (10) days following its discovery.
3. This warranty not applicable to the fiber optic image bundle. This item to be warranted for thirty days, and not to exceed the OEM warranty.
4. The start-up date for parts sold as "spare parts" will be considered the date of shipment for purposes of this warrantee only.
5. Consumables such as heat elements, light sources, infrared sources, printer ribbons and the like shall be considered expendable and will only be warranted to be functional at time of shipment.
6. In the event any material or workmanship shall be determined defective by Dynisco Polymer Test, Dynisco Polymer Test's liability hereunder is limited to the repair or replacement, at Dynisco Polymer Test's option, of the defective part. Dynisco Polymer Test shall have NO liability for the costs of removing, returning, or reinstalling any repaired or replaced part or component.
7. Dynisco Polymer Test shall have no liability whatsoever for any defects which directly or indirectly arise out of or result from accident, abuse, improper use, vandalism, unauthorized repairs, or similar deviations from normal use under Dynisco Polymer Test control.
8. This warranty shall be void and of no effect if the products covered hereby are:
 - A. Installed or moved and reinstalled without the presence of Dynisco Polymer Test's personnel at start-up.
 - B. Not maintained in strict accordance with Dynisco Polymer Test's published maintenance procedures.
 - C. Altered or modified in any way without Dynisco Polymer Test's authorization.

Except as provided above, Dynisco Polymer Test makes no other warranties, expressed or implied, including without limitation, warranties of merchantability, or of fitness for a particular purpose.

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1.0 INTRODUCTION

The Dynisco Automatic Sample Notcher offers a safe, easy means of specimen notching for impact testing of plastics and related materials. It meets a broad range of test specifications including ASTM D 256, ISO 180, DIN 53753, BS 2782, JIS K 6871 and UNI 6323. For a list of standards organizations with contact information, see the table in **Section 8.0**.

The ASN is fully automated and allows fine adjustment of the sample's feed rate as well as the cutter speed to accommodate materials of varying hardness and softness. The ability to vary cutter and table speed avoids stress to the specimen during its preparation for testing.

In the notching procedure, the operator secures a sample in the ASN's vise. The vise can accommodate 16 Izod samples with the standard thickness of 3.17 mm (1/8 inch). The operator then closes the protective cover over the cutting area, adjusts the feed rate and cutter speed, and turns on the power switch. When notching is complete, the table automatically resets to the proper loading position and the specimen is ready to be removed.

2.0 SAFETY

This section introduces safety symbols that will appear throughout this manual. Please read and understand all cautions and warnings before using the instrument.

The ASN has a transparent safety cover that shields the sample area. If the cover is lifted during operation, a switch shuts off power to the instrument.



HIGH VOLTAGE!

HIGH VOLTAGE! indicates that ignoring the instructions may lead to electric shock for the operator.



DANGER!

DANGER! indicates that ignoring the instructions may lead to hazardous conditions for the operator.



NOTE!

NOTE! indicates operational hints and useful information.



WARNING!

WARNING! indicates that ignoring the instructions may damage the instrument.

3.0 SPECIFICATIONS

PHYSICAL

Length:	56 cm (22 in)
Width:	38 cm (15 in)
Height:	26 cm (10 in)
Weight:	55 kg (120 lb)

CUTTER

Single Tooth 45° cutter with 0.25 mm (0.01) radius

CUTTER SPEED

0–152.4 m/min (0–500 ft/min)

DEPTH OF MATERIAL UNDER NOTCH

1.016 cm (0.4 in)

SAMPLE TABLE SPEED

0–17.8 cm/min (0–7 in/min)

ELECTRIC

115 Vac, 60 Hz, 1.5 A
230 Vac, 50 Hz, 0.75 A

Fusing: 6 A, 115 Vac
3 A, 230 Vac

ENVIRONMENTAL

Indoor use
Altitude: up to 2,000 m
Ambient Temperature: 16 to 29 °C (60 to 85 °F)
Relative Humidity: 80% maximum
Mains Supply Voltage Fluctuations: ±10% of the nominal voltage
Overvoltage Category: II
Pollution Degree: 2

Workspace: To operate the instrument and perform routine maintenance, approximately 90 x 60 cm (3 x 2 ft) of workspace is recommended.

4.0 INSTALLATION

4.1 Uncrating the Instrument

When you receive your ASN, inspect the crate for damage that may have occurred during shipping. Carefully unpack the instrument and thoroughly inspect the instrument components for any damages. Immediately report any damage to the carrier and to Dynisco Customer Service.

4.2 List of Materials

The ASN is shipped with the following items:

- Single-tooth cutter blade, 45° angle with a radius of 0.25 mm (0.01 in)
- Gauge block, 10.2 mm (0.4 in), for measuring distance between sample cutter and sample feed table
- Notch Verification Tester
- Brass spindle locating rod, 6.4 mm (0.24 in), for holding the cutter shaft in place during cutter replacement.

For optional air-cooling of the sample-cutting area, the following items are to be supplied by the user:

- A source of compressed air not exceeding 552 kPa (80 psi)
- Compression fittings and tubing.

4.3 Instrument Setup

1. After uncrating the ASN, place it on a sturdy, level workbench with approximately 90 x 60 cm (3 x 2 ft) of workspace.
2. If you require air-cooling of the sample area, connect the air hose to the AIR IN connector at the back of the ASN. Air pressure should not exceed 552 kPa (80 psi).
3. Plug the power cord into the proper electrical outlet. (For electrical specifications, see **Section 3.0.**)

5.0 INSTRUMENT DESCRIPTION

5.1 General Information

The ASN Sample Notcher is equipped with a single-tooth cutter blade as referenced in the current version of ASTM D 256. The cutter has a 45° angle with a radius of 0.25 mm (0.01 in). The cutter, which rotates counterclockwise, produces a conventional cut on the samples. Dynisco also offers standard and special cutters that are easily installed on the instrument (see **Section 7.0 Optional Equipment.**)

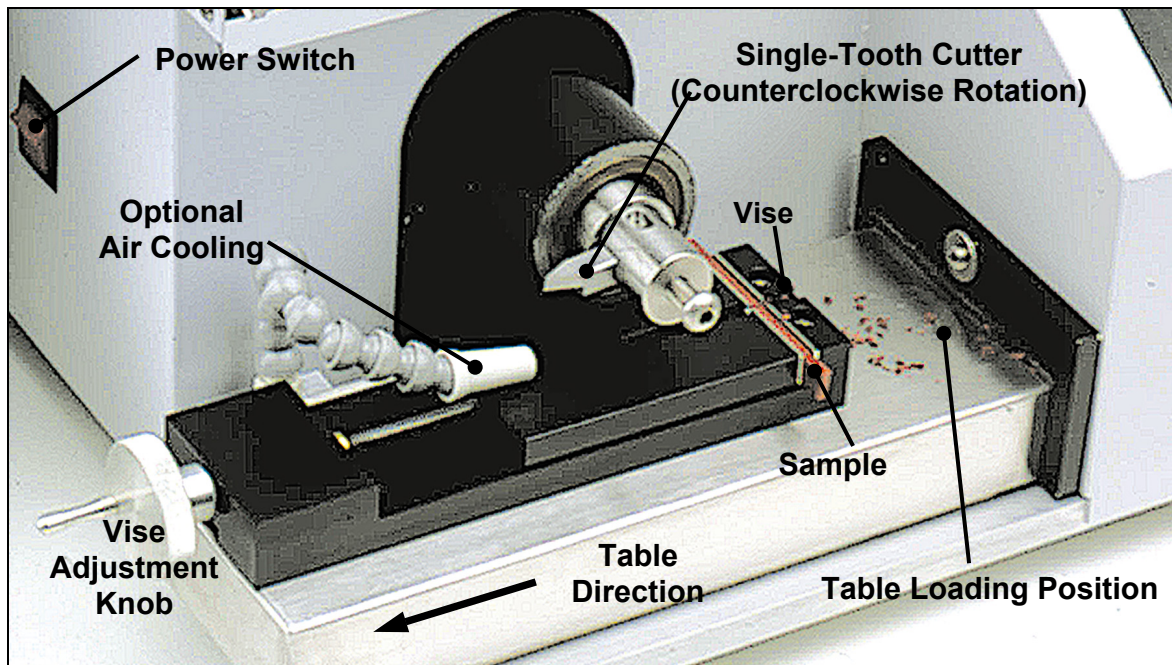
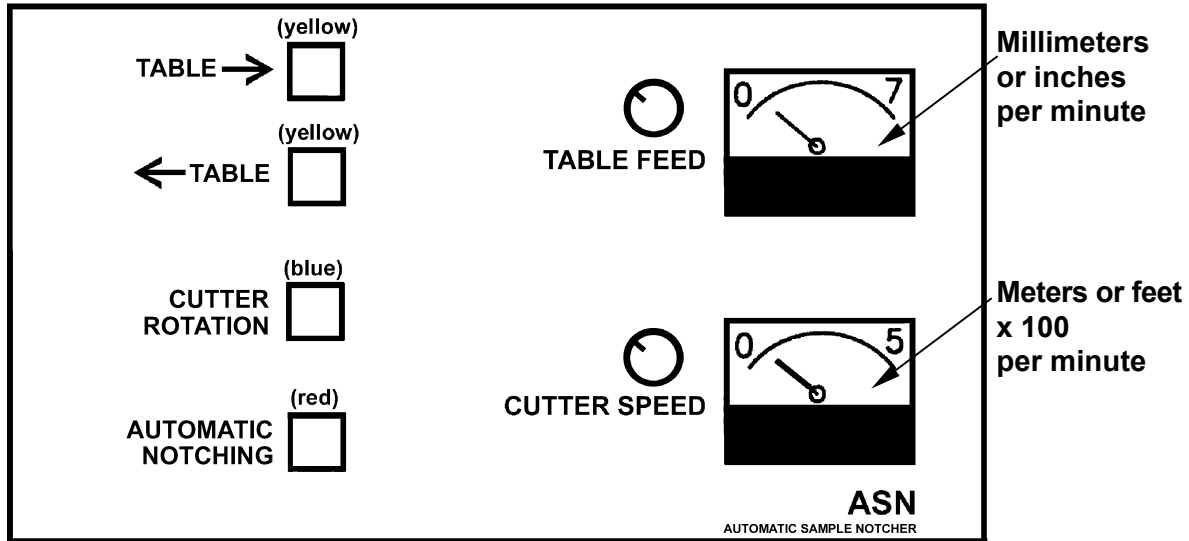


Figure 1
Sample Notching Area

5.2 Control Switches



*Figure 2
ASN Control Panel*

Main Power Switch: Located on the left rear of the instrument.

TABLE → (Right): Moves the sample vise to the right.

← TABLE (Left): Moves the sample vise to the left.

CUTTER ROTATION: Operates the cutter only while the blue switch is depressed.

AUTOMATIC NOTCHING: Starts operation of the cutter and the table feed. When the button is pressed, the ASN will cut through the samples until it reaches the end of cycle. The table will automatically reset to the proper loading position after the samples have been notched.

TABLE FEED: Sets speed (millimeters or inches per minute) at which the table moves. Refer to ASTM D 256.

CUTTER SPEED: Sets the speed (meters or feet x 100 per minute) at which the cutter blade rotates. Refer to ASTM D 256.

5.3 Sample Notching



DANGER!

The ASN is similar to a small milling machine. Always remember to use caution when operating instrument.

The clearance between the table and the cutter tip is factory-set at 10.2 mm (0.4 in) and should not require immediate adjustment. However, after several hours of use the table clearance should be checked periodically. A 10.2-mm (0.4-in) gauge block is provided for checking or readjusting the clearance between the table and the cutter tip (**see Section 6.0 Maintenance**).

1. Prepare samples to fit into the sample vise. The preparation should include the cutting of samples at the required length (ASTM D 256 or ISO 180). The vise will accommodate 16 Izod samples with a 3.17 mm (1/8 inch) standard thickness. For better results we recommend notching less than 10 samples at one time (7 samples have been found to be the most appropriate).
2. Load the samples with the table in its loading (reset), which is fully returned to the right. Use the yellow TABLE → (right) switch to return the table to its loading position. The red AUTOMATIC NOTCHING switch will flash when the table is not in its reset position. The switch remains lit when the table reaches its reset position.



NOTE!

If the ASN was shut off while the table not in its loading position, the table will return automatically to its loading position when you turn on the instrument.

3. Place the samples in the vise. Align them using either the bracket extending out of the vise or the spacer provided with the ASN (**Figure 3 B, C**). To keep the samples from moving, press both ends of the samples with your fingers while tightening the vise clamp.



NOTE!

The cutter is set at the factory for notching specimens according to ASTM D 256 Izod and Charpy methods, and ISO 180 specimen types 2, 3 and 4 only. To notch ISO 180 specimen types 1A and 1B (8 mm under the notch), place a 2.16-mm shim beneath the samples, as shown in Figure 3 C.

4. Close the protective cover over the sample area and turn on the instrument.

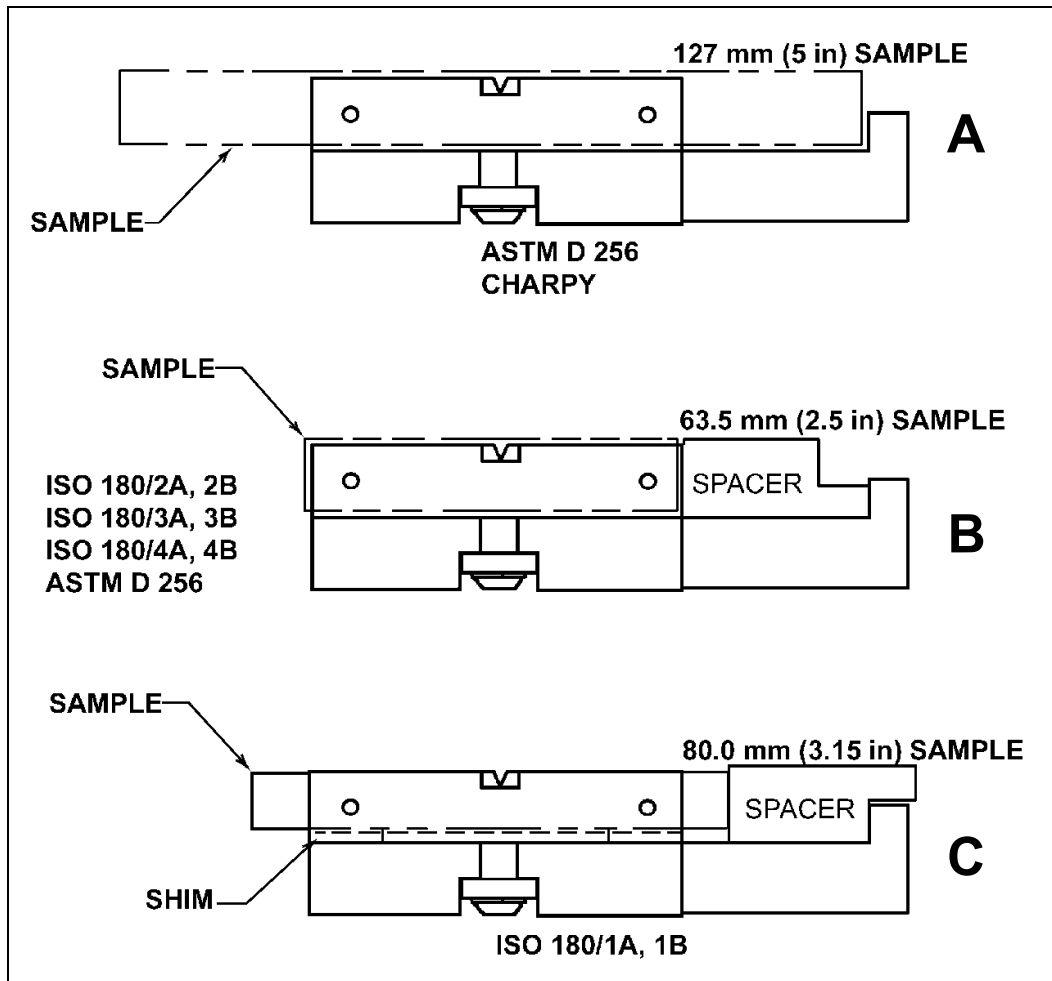


NOTE!

The instrument will not operate unless the transparent safety cover is closed.

5. Use the knobs next to the speed indicators to adjust the indicator needle to the approximate desired value. The table speed range is 0 to 17.8 cm (0 to 7 in) per minute. The cutter speed range is 0 to 152.4 m (0 to 500 ft) per minute.

5.3 Sample Notching *(continued)*



*Figure 3
Sample Vise/Adapter Configurations*

6. If you have installed a source of compressed air to cool the sample-cutting area, turn on the air injection device and open its valve.
7. Adjust the device's air pressure regulator to a pressure not exceeding 552 kPa (80 psi).
8. Press and release the red AUTOMATIC NOTCHING switch. When the table and the cutter start moving, fine-adjust both speeds at the exact desired value using the adjusting knobs next to the speed indicators. The values indicated by the needle while the motors are running represent the exact speed of both table and cutter. You must finish the speed adjustments before the cutter starts notching the first sample.

5.3 Sample Notching *(continued)*



The correct speed is the value indicated with the motors running, which is slightly higher than the speed indicated with the motors off (cutter or table not moving).



Never attempt to adjust the indicator needle with the screw located on the indicator front panel.

9. When notching is complete the table will automatically return to its reset position. Lift the protective cover and remove the notched samples.
10. Check the notch depth with the Notch Verification Tester (**Figure 4**).

You can check the accuracy of the Tester using the 10.2-mm (0.4-in) gauge block. Insert the gauge block into the Tester. If the indicator's needle is not centered on "0", you can adjust it by either loosening the top screw and rotating the scale, or by loosening the screw on the indicator's mounting bracket and moving the indicator up or down. Re-tighten the screw after making the adjustment.

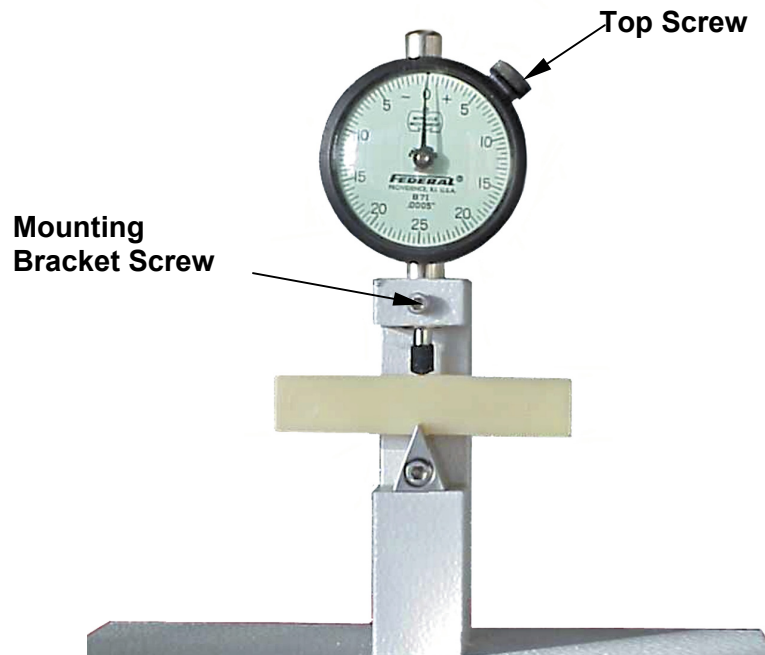


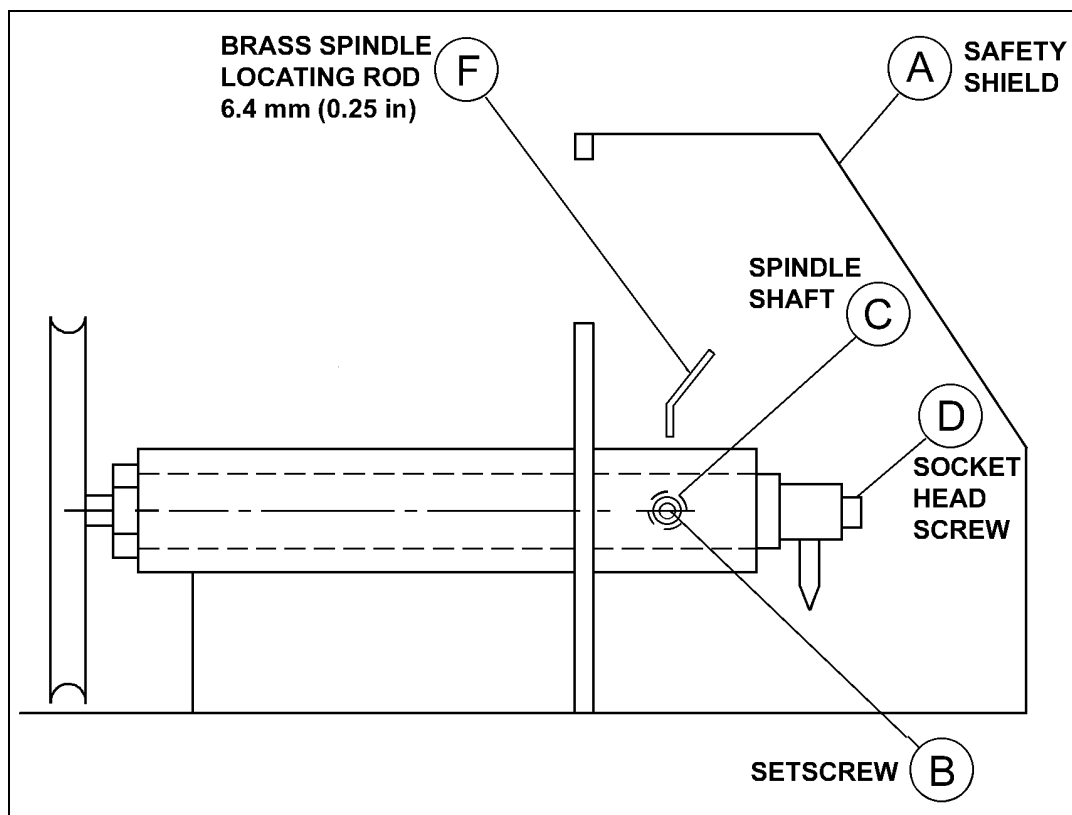
Figure 4
Notch Verification Tester

6.0 MAINTENANCE

The ASN requires little maintenance and no lubrication; just keep the instrument clean and free of oil and debris, which may damage small components over time.

At least once a year you must check the cutter for wear and replace it if necessary. The best way to determine wear is by checking the quality of the notch that the cutter makes in a transparent sample. Use a microscope of at least 60x multiplication to check the notch on both ends (cutter entrance and exit). Replace the cutter if the notch is not clean, shows nicks or thermal degradation, or lacks the correct radius of tip or tip angle.

6.1 Cutter Blade Replacement



*Figure 5
Spindle and Single-Tooth Cutter (Side View)*

1. Shut off the power switch and disconnect the power cord from the electrical outlet.
2. Raise the safety shield **Figure 5 A**.
3. Using an Allen wrench, remove the setscrew (**B**) located at the side of the spindle shaft housing.

6.1 Cutter Blade Replacement *(continued)*

4. Rotate the spindle/cutter until the brass spindle-locking rod (**Figure 5 F**) can be inserted into the spindle shaft (**C**). This will keep the shaft from rotating when you loosen or tighten the cutter.
5. Using an Allen wrench, remove the socket head screw (**D**) securing the cutter blade. The screw is located on the front of the spindle shaft.
6. Remove the old single-tooth cutter.

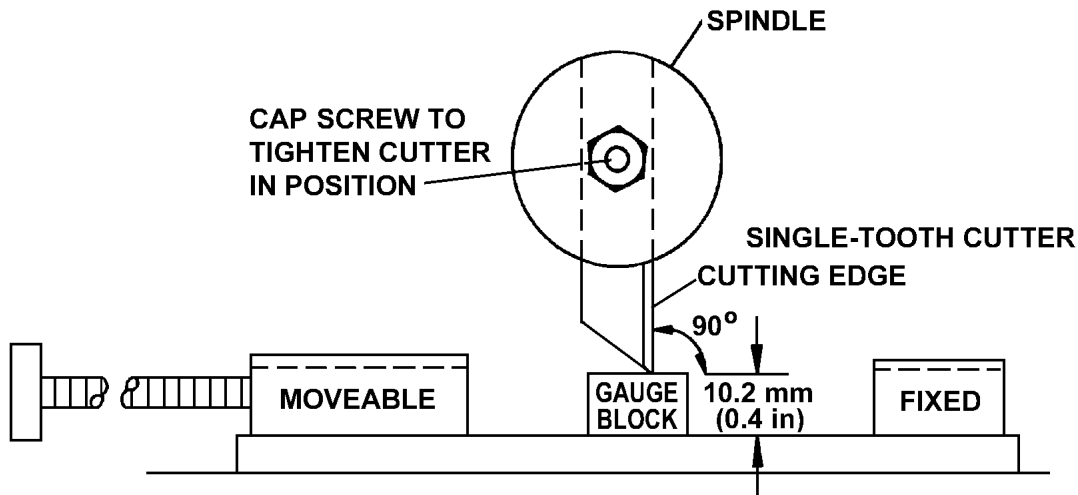


Figure 6
ASN Sample Vise with Clearance Gauge Block in Place

7. Place the 10.2-mm (0.4-in) gauge block in the vise. The vise should be clear of any plastic chips or other debris.
8. Move the table so the gauge block aligns with the cutter, as shown in **Figure 6**. Dynisco recommends that a 0.02-mm (0.001-in) shim be placed over the gauge block to protect it from scoring.
9. Carefully install a new single-tooth cutter. The cutter blade should be installed perpendicular to the gauge block with the cutting edge facing the fixed right side of the vise.
10. Tighten the socket head screw to secure the cutter. With your hand rotate the cutter spindle left and right to verify the cutter tip's clearance. The cutter tip should touch the shim without scoring it, otherwise repeat Steps 7 through 10.
11. Open the vise and remove the gauge block and shim. Remove the brass spindle-locking rod. Insert setscrew (Figure 5-B) into spindle shaft housing and turn setscrew until flush with housing.



NOTE!

Setscrew is for hole closure only. If turned too much, it will fall into the spindle shaft.

6.2 Cutter Blade Adjustment

1. Shut off the power switch and disconnect the power cord from the electrical outlet.
2. Raise the safety shield **Figure 5 A**.
3. Place the 10.2-mm (0.4-in) gauge block in the vise. The vise should be clear of any plastic chips or other debris.
4. Move the table so the gauge block aligns with the cutter, as shown in **Figure 6**. Dynisco recommends that a 0.02-mm (0.001-in) shim be placed over the gauge block to prevent scoring the block
5. Using an Allen wrench, remove the setscrew (**Figure 5 B**) located at the side of the spindle shaft housing.
6. Rotate the spindle/cutter until the brass spindle-locking rod (**F**) can be inserted into the spindle shaft (**C**). The rod will keep the shaft from rotating when you loosen or tighten the cutter.
7. Using an Allen wrench, slightly loosen the socket head screw (**D**) that secures the cutter blade. The screw is located on the front of the spindle shaft.
8. Carefully align the cutter blade to fall perpendicular to the gauge block, as shown in **Figure 6**.
9. Tighten the socket head screw to secure the cutter. With your hand rotate the cutter spindle left and right to verify the cutter tip's clearance. The cutter tip should touch the shim without scoring it, otherwise repeat Steps 7 through 10.
10. Open the vise and remove the gauge block and shim. Remove the brass spindle-locking rod from the spindle. Insert and tighten the setscrew.

Another way of adjusting the cutting depth is to add a shim at the base of the vise. This procedure will only lower cutting depth. First determine which thickness of shim you require by placing a shim beneath the samples in the vise, before notching (**Figure 3 C**). Once you determine the correct shim, loosen the four screws that tighten the vise onto the moving table and insert the shim under the vise. Tighten the screws.

6.3 Fuse Replacement

The fuse type for your ASN is listed on the model identification plate on the back of the instrument and in the electrical specifications in **Section 3.0**.

To remove the fuse, which is on the back of the ASN, push and turn the fuse holder's cap counterclockwise until it snaps loose. Remove the old fuse and Insert the new cap and fuse assembly. Push on the cap, turning clockwise until it locks.

7.0 OPTIONAL EQUIPMENT

Although most test standards recommend the use of a single-tooth cutter, Dynisco offers a range of cutters to satisfy other testing requirements. To order any of the options described in this section, contact Dynisco Customer Service.

7.1 Standard Cutters

14159700 45° Single-Tooth Carbide Cutter, length 4.45 cm (1.75 in), radius of 0.25 mm (0.01 in), ASTM D 256 and D 6110, ISO 179 and 180 Type A notch

14159500 45° Single-Tooth Carbide Cutter, length 4.45 cm (1.75 in), radius of 1.0 mm (0.04 in), ISO 179 and 180 Type B notch.

7.2 Special Cutters

14207400 45° Single-Tooth Carbide Cutter, length 3.8 cm (1.5 in) for use on pre-1990 models, square base, radius of 0.25 mm (0.01 in), ASTM D 256 and D 6110, ISO 179 and 180 Type A notch. **Special order.**

14219700 U-shaped Single-Tooth Carbide Cutter, length 4.45 cm (1.75 in), radius of 2.0 mm (0.08 in) for discontinued ISO 179 Types 1C and 3C notch. **Special order.**

14207500 U-shaped Single-Tooth Carbide Cutter, length 4.45 cm (1.75 in), radius of 0.8 mm (0.031 in) for discontinued ISO 179 Types 2C. **Special order.**

8.0 WHERE TO OBTAIN TEST SPECIFICATIONS

For more information about applicable test methods and specifications, contact the following standards organizations:

<p>ASTM American Society for Testing and Materials 100 Barr Harbor Drive West Conshohocken, PA 19428-2959</p>	<p>Telephone: 610-832-9585 Fax: 610-832-9555 Web: http://www.astm.org/</p>
<p>BSI British Standards Institution 389 Chiswick High Road GB-London W4 4AL</p>	<p>Telephone: +44 208 996 90 00 Telefax: +44 208 996 74 00 E-mail: standards_international@bsi.org.uk Web: http://www.bsi.org.uk</p>
<p>DIN (German Standards Institute) DIN Deutsches Institut für Normung Burggrafenstrasse 6 D-10787 Berlin Postal address: D-10772 Berlin</p>	<p>Telephone: 49 30 26 01-0 Fax: +49 30 26 01 12 31 E-mail: postmaster@din.de E-mail: X.400 c=de; a=d400; p=din; s=postmaster /directorate.international@din.de Web: http://www.din.de/</p>
<p>ISO The first point of contact should be the member organization in your country. For member organizations worldwide visit ISO Online at http://www.iso.ch/ Central Secretariat address: International Organization for Standards 1, rue de Varembe Case postale 56 CH-1211 Genève 20 Switzerland</p>	<p>ISO Central Secretariat: Telephone: +41 22 749 01 11 Fax: +41 22 733 34 30 E-mail: central@iso.ch ISO/IEC Information Centre: Fax: +41 22 749 01 55 E-mail: mbinfo@iso.ch</p>
<p>JISC Japanese Industrial Standards Committee c/o Standards Department Ministry of International Trade and Industry 1-3-1, Kasumigaseki, Chiyoda-ku JP-Tokyo 100</p>	<p>Telephone: +81 3 35 01 20 96 Telefax: +81 3 35 80 86 37 E-mail: jisc_iso@jsa.or.jp Web: http://www.jisc.go.jp/eng/</p>

8.0 WHERE TO OBTAIN TEST SPECIFICATIONS *(continued)*

UNI Ente Nazionale Italiano di Unificazione Via Battistotti Sassi 11/b IT-20133 MILANO	Telephone: +39 02 70 02 41 Telefax: +39 02 70 10 61 49 E-mail: uni@uni.com Web: http://www.uni.com
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