MATE® PRECISION TOOLING
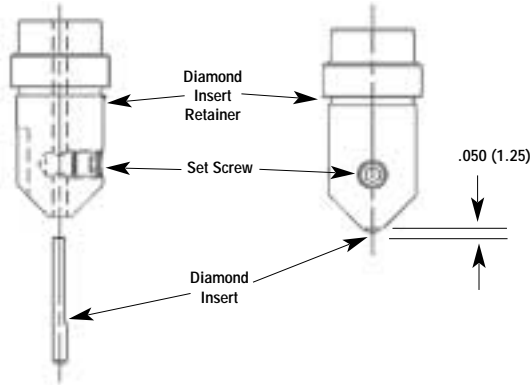
# SHEETMARKER™ TOOL INSTRUCTIONS BASIC INFORMATION AND COMPONENT IDENTIFICATION FOR ULTRAFORM®

• STEP 1

Place the desired diamond insert (120° or 150°) into the retainer so that the diamond point extends about .050 (1.25) from the end of the retainer, as illustrated.


Diamond Insert Retainer

Set Screw

.050 (1.25)

Diamond Insert

• STEP 2

Align the flat on the diamond insert with the retainer set screw and securely tighten the retainer set screw with the 3mm hex key. The 3mm pin punch is used to help position or remove the diamond insert from the retainer.

3mm Hex Key

3mm Pin Punch
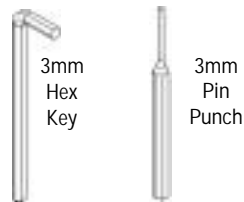
• STEP 3

Apply a lubricant to the retainer and install it into the Ultraform® insert, making sure that the pin is aligned with the keyway as shown to the left.

Diamond Insert Retainer

Keyway Pin
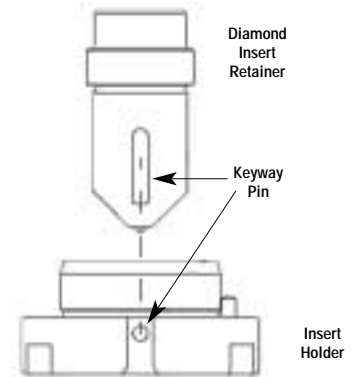
Insert Holder

• STEP 4

Place the desired spring into the Ultraform® holder and bolt the Ultraform insert onto the Ultraform™ holder, taking care to assure that the locating pin on the Ultraform insert is aligned with a slot in the Ultraform holder as shown to the right.

The preload applied to the spring when the tool is assembled equals the lowest value in the preload range for that spring. Never use the Sheetmarker™ without a spring behind the insert, and never replace the spring with any solid object.
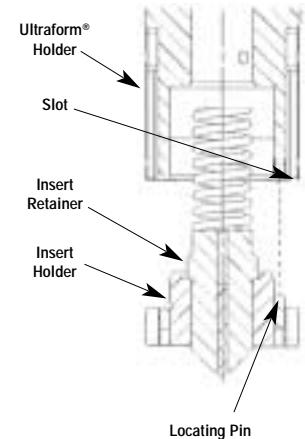
Secure the Ultraform insert into the Ultraform holder with the four bolts. This is now the Sheetmarker upper assembly.

Ultraform® Holder

Slot

Insert Retainer

Insert Holder

Locating Pin

Parts List

Part Number	Description
AFKB2	B Station Ultraform Holder
AOKBSMUI	Diamond Insert Retainer
XAVBD0SM11	Roller Die
EGR00001	Diamond Insert 120°
EGR00002	Diamond Insert 150°
MIS59715	3mm Pin Punch
MIS98909	3mm Hex Key
SPR33793	Silver Light Duty Spring
SPR00008	Green Medium Duty Spring
SPR00009	Red Heavy Duty Spring
AOKBSMUH	Ultraform Insert Holder

• STEP 5

The Sheetmarker™ upper assembly is now ready to be installed into the machine. The Sheetmarker Tool is omnidirectional during operation, therefore it is not necessary to use an indexable tool station.

Install the Sheetmarker upper assembly into the machine and place the roller die (shown below) into the corresponding die space. Use only the Sheetmarker roller die when working with the Sheetmarker Tool. **Do not use any other roller type die and do not place any shims under the Sheetmarker roller die.**
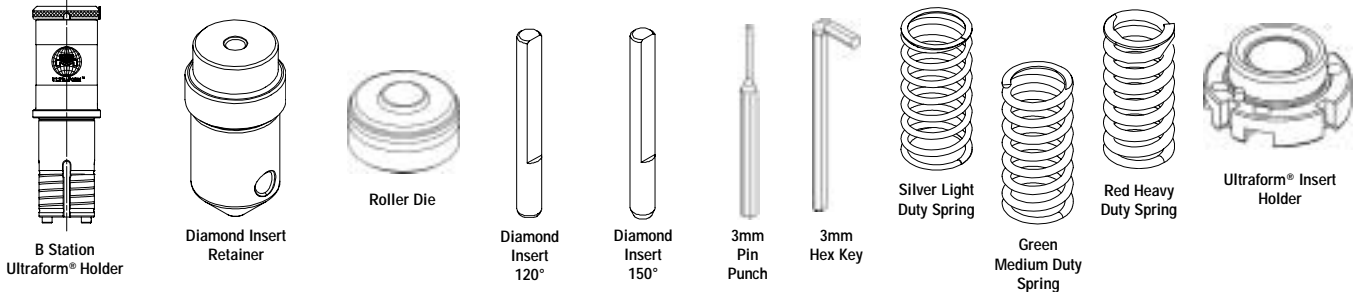

The tool is now ready to use.

MATE® PRECISION TOOLING

SHEETMARKER™ TOOL INSTRUCTIONS BASIC INFORMATION AND COMPONENT IDENTIFICATION FOR ULTRAFORM®

B Station Ultraform® Holder

Diamond Insert Retainer

Roller Die

Diamond Insert 120°

Diamond Insert 150°

3mm Pin Punch

3mm Hex Key

Silver Light Duty Spring

Green Medium Duty Spring

Red Heavy Duty Spring

Ultraform® Insert Holder

The Sheetmarker™ Tool is intended to be used for markings or etchings on the surface of sheet metal. The tool uses a diamond pointed insert in an Ultraform® holder to create the marking. The marking is the result of programs created in the punch press programming system. The Sheetmarker™ Tool is ideal for inscribing or marking components during the punch press portion of the manufacturing process.

The Sheetmarker Tool can be used on all material types and thicknesses. The results vary as each of the main variables is changed. The variables are:
• The geometry of the diamond insert – 120° or 150°.
• The spring selected – heavy duty (red), medium duty (green), or light duty (zinc).
• The machine's ram adjustment.
• The type of sheet metal being marked – stainless steel, mild steel, aluminum or other.
• The thickness of the material and variations within each sheet.
• The rate that the sheet is being advanced – slowly or more quickly.

A variety of results can be produced, ranging from very light etching to fairly deep grooves in the sheet. The springs are color coded for easy identification and the diamond inserts have markings on their sides so that they can be easily identified. Refer to the "Spring and Diamond Insert Components Quick Reference" table on the reverse side for the various spring and diamond insert part numbers and details.

Basic Tool Set-up

Spring pre-load is controlled by changing springs and by varying the programmed ram height. Notice that as the diamond insert/retainer sub-assembly travels deeper into the Ultraform holder, spring pressure increases. When setting up for the first time, it is best to try the lightest spring and preload settings first. Place the assembled tool in the machine and adjust so that the insert is just touching the sheet when the ram is in the down position. Next, adjust the ram or tool down .040(1.0). This provides the basic preload setting for each spring. Changing the ram depth will provide a range of spring preloads as described in the application guideline table shown below.

Sheetmarker™ Case

This sturdy black case stores and protects your Sheetmarker tooling components when not in use.

Application Guidelines

Desired Result	Material to be Cut	Diamond Insert	Spring Preload at .040″(1mm)	Spring Color	Sheet Movement Speed
Light etching	Mild Steel	120°	4 lb. (17.79N)	Zinc (light duty spring)	750 ipm (19000 mmpm)
Bold etching	Mild Steel	120°	8 lb. (35.59N)	Zinc (light duty spring)	750 ipm (19000 mmpm)
Light groove	Mild Steel	120°	18 lb. (80.07N)	Green (medium duty spring)	500 ipm (12700 mmpm)
Bold groove	Mild Steel	120°	50 lb. (222.41N)	Red (heavy duty spring)	500 ipm (12700 mmpm)
Light etching	Stainless Steel	120°	4 lb. (17.79N)	Zinc (light duty spring)	750 ipm (19000 mmpm)
Bold etching	Stainless Steel	120°	8 lb. (35.59N)	Zinc (light duty spring)	750 ipm (19000 mmpm)
Light groove	Stainless Steel	120°	18 lb. (80.07N)	Green (medium duty spring)	500 ipm (12700 mmpm)
Bold groove	Stainless Steel	120°	50 lb. (222.41N)	Red (heavy duty spring)	250 ipm (6350 mmpm)
Light etching	Galvanized Steel	150°	4 lb. (17.79N)	Zinc (light duty spring)	750 ipm (19000 mmpm)
Medium etching	Galvanized Steel	150°	8 lb. (35.59N)	Zinc (light duty spring)	750 ipm (19000 mmpm)
Medium etching	Aluminum	150°	4 lb. (17.79N)	Zinc (light duty spring)	750 ipm (19000 mmpm)
Bold etching	Aluminum	150°	8 lb. (35.59N)	Zinc (light duty spring)	750 ipm (19000 mmpm)
Bold etching	Aluminum	150°	18 lb. (80.07N)	Green (medium duty spring)	750 ipm (19000 mmpm)

ipm = inches per minute; mmpm = millimeters per minute

Note: When working with soft materials, it is advisable to use the 150° diamond insert with the zinc light duty spring to begin. A wider range of applications is possible when working with harder materials.