“The Best is Now the Simplest”

Designed & Manufactured in the USA

By

Kwik Mark Inc
Work Safely. Always wear safety glasses near the machine.
Work Safely. Always wear safety glasses near the machine.

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THINK SAFETY
As with all automated machine tools wear safety glasses when operating this machine or being near this machine at all times. Safety and caution should be observed and exercised at all times.
SECTION 1.0
GENERAL DESCRIPTION
The KwikMark Marker is a self contained bench top dot peen (impact) marker designed to quickly and consistently perform micro impacts on to the surface of a wide range of materials from hardened steel to delicate plastics.

The X-Y axes are driven by a unique pre-loaded drive system for maintenance free high performance operation. Two brushless programmable motors are used to actuate the X & Y drives to a linear motion for the purpose of moving an impact head point to point over your product which causes the marking operation.

The mark occurs by means of a solid carbide stylus vibrating between a spring and a jet of air hundreds of times per second, performing the impact on the parts surface. The force is ballistic which results in minimal stress to your product surface. Furthermore, this concept transfers no direct stresses into the machine slides, for greater longevity.

The standard KwikMark (KM-64) operates within an approximate 6" x 4" work area and features solid-state proximity switches as limit sensors for homing and initializing each axis. The KwikMark features high resolution, repeatable performance due in part to the anti-backlash assembly of the axial take up mechanism. The unique hardened and ground slide rods in combination with the bearings result in long life and require no external lubrication or maintenance/service.

The bearings are steel backed with impregnated bronze/PTFE on the surface. In operation, on a microscopic level, the teflon acts as miniature strands rolling and interweaving within themselves, providing the anti-friction properties. Because of this, no lubrication is required.

The KwikMark features high performance, high torque motors for fast speeds and high accelerations resulting in quick and accurate motion. Because of the above, caution should be taken to keep the operator aware of pinch points, moving slides, and sudden motions.
SECTION 2.0
SET-UP & START-UP
Work Safely. Always wear safety glasses near the machine.

Machine Set Up

Because of the fast speeds and extremely high acceleration rates caution should be taken to keep the operator aware of pinch points, moving slides and sudden motions.

Select a steady work bench or machine base to support the Kwikmark. Because of the high speeds and accelerations during operation a solid top such as butcher block maple or metal works best. The work area should have an approximate 22 inch deep by 36 inch wide open space for the machine clearance, cabling, etc.

Carefully remove the Kwikmark from its box, place it on the bench and inspect the unit in general to verify that no damage has taken place during shipment.

Assemble the handwheel to the top of the vertical leadscrew on the upright column. Assemble the filter/regulator/gage unit to the valve on the left side of the machine. These components are removed for shipping to minimize chance of damage during transit.

When the Kwikmark and accessories are in position at your work area, begin the following procedures:

1. Turn off power switch (press E-Stop) before plugging the unit into your power outlet.

2. Connect the keyboard to the ps-2 (mini-din) receptacle located on the side of the machine. See Diagram 2 in Section 6 Machine Diagrams

3. Connect a 25- 80 PSI clean and filtered air line to the pneumatic air prep input on the side of the machine. The input fitting is 1/8th NPT thread. This is directly connected to the filter, gauge and regulator also at the side of the machine. See Diagram 2 in Section 6 Machine Diagrams

4. If using the optional KwikTurn cylindrical attachment, connect the yellow signal cable to the 5 pin hex I/O connector also located on the side of the machine. See Diagram 2 in Section 6 Machine Diagrams

5. Plug the 110 power cord to your power source. Requirement is: 110-220 VAC, 50-60Hz, 2.5 Amp service. See Diagram 2 in Section 6 Machine Diagrams
Section 2.0 - Set Up & Start Up

Work Safely. Always wear safety glasses near the machine.

Machine Start Up

After the connections are complete, begin the following:

1. Turn the machine on (twist E-Stop). The 4 line LCD display will show a “welcome” screen in about 20-25 seconds. This lasts only 3 seconds. The main menu will appear in about 25-30 seconds after power-up. (Main Menu is: “RUN JOB” screen)

2. Be sure the tooling / fixturing is secure on the KwikMark base prior to attempting any marking operation.

3. Using the Arrows on the Key Board, jog the tip to the desired position over the surface you wish to mark.

4. Adjust the air pressure (PSI) with the regulator on the side of the machine. Turn the handwheel on top of the KwikMark until the tip is the approximate distance. Per chart below.

<table>
<thead>
<tr>
<th>Marking Type</th>
<th>Air Pressure (PSI)</th>
<th>Distance Tip to Part</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ultra Fine</td>
<td>15 - 25</td>
<td>.050</td>
</tr>
<tr>
<td>Fine - Medium</td>
<td>25 - 35</td>
<td>.100</td>
</tr>
<tr>
<td>Medium</td>
<td>35 - 45</td>
<td>.125</td>
</tr>
<tr>
<td>Medium - Heavy</td>
<td>45 - 65</td>
<td>.160</td>
</tr>
<tr>
<td>Heavy - Deep</td>
<td>65 - 85</td>
<td>.200 +</td>
</tr>
</tbody>
</table>

The above are only approximations. It is more important to tune the frequency of the pin for a nice BZZZZZZZZZ sound. If the pin is too far away it will be a low pitch, too close and the pin will stall and scratch not impact material.

The KwikMark has two modes of operation:

Express Text:
- Single Line
- Normal Text
- Marks from Current Pin position
- Does not Save File

For Express Text: Press F1 on the (ps-2) keyboard. Follow LCD screen prompts as follows:
- Type the text you wish to mark (press Enter)
- Accept default text height or type over (press Enter)
- Press Space Bar to begin marking cycle

Or

Standard Text:
- Limitless Amount of Lines / File
- Straight, Angular or Arc Text
- Infinite Font Size / Line
- Each Line has X-Y Position
- Multiple Serial Numbering / File
- Date Code & Time Stamping
- Graphics Marking
- Saves the File
SECTION 3.0

QUICK REFERENCE GUIDE
Work Safely. Always wear safety glasses near the machine.

### Keyboard (ps/2) Control

<table>
<thead>
<tr>
<th>Machine Keypad</th>
<th>Description</th>
<th>Event</th>
<th>Ps/2 Keyboard</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENTER</td>
<td>Enter</td>
<td>ENT</td>
<td></td>
</tr>
<tr>
<td>ESC</td>
<td>Escape</td>
<td>ESC</td>
<td></td>
</tr>
<tr>
<td>↑</td>
<td>Scroll Up</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>↓</td>
<td>Scroll Down</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>↑</td>
<td>Move Back Y</td>
<td></td>
<td></td>
</tr>
<tr>
<td>↓</td>
<td>Move Forward Y</td>
<td></td>
<td></td>
</tr>
<tr>
<td>←</td>
<td>Move Left X</td>
<td>←</td>
<td></td>
</tr>
<tr>
<td>→</td>
<td>Move Right X</td>
<td>→</td>
<td></td>
</tr>
<tr>
<td>↑</td>
<td>Move Z Up</td>
<td>Page UP</td>
<td></td>
</tr>
<tr>
<td>↓</td>
<td>Move Z Dn</td>
<td>Page DN</td>
<td></td>
</tr>
<tr>
<td>HOME</td>
<td>Home</td>
<td>HOME</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Go to Origin</td>
<td>END</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Programmable Hot Keys</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1</td>
</tr>
<tr>
<td>F2</td>
</tr>
<tr>
<td>F3</td>
</tr>
<tr>
<td>F4</td>
</tr>
<tr>
<td>F5</td>
</tr>
<tr>
<td>F6</td>
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<tr>
<td>F7</td>
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<tr>
<td>F8</td>
</tr>
<tr>
<td>F9</td>
</tr>
<tr>
<td>F10</td>
</tr>
<tr>
<td>F11</td>
</tr>
<tr>
<td>F12</td>
</tr>
</tbody>
</table>

If Park Path is Enabled:

- `<CTRL>` S: Move to Start Position
- `<CTRL>` P: Move to Park Position

09-23-10
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**F1 Express Text**

Express Text mode will mark one straight line and will not save it.

Enter Express Text

Type the text to be marked

Express Text
Part # 1234
Text Height [.125 ]
Press R for Rotary

Express Text
Part # 1234
Text Height [.312 ]
Press R for Rotary

Accept the default Text Height or type over to change it

Express Text
Part # 1234
Height=.25
Diameter [1.0 ]

Space bar toggles between running and pausing the machine

START Or INS to Start
STOP Or DEL to Stop
Work Safely. Always wear safety glasses near the machine.

|MARK_IT.TJB| 0% |
|Loaded    | 00:00 0000 |
|          | -0.931 -1.842 0.000 |

Pressing F2 will actuate the marking pin
Ready to start marking

F2 Acute Pin
Work Safely. Always wear safety glasses near the machine.

**F3 Set Origin**

- **Origin Set.**
  - saves the current X, Y, Z positions (from Home) to the machine's Setup File on the CF card

- **Origin Point is Set**
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Work Safely. Always wear safety glasses near the machine.

**F7** Set Batch Count

Setup, enable and disable Batch Count Mode

---

**NEW_NAME.TJB** 0%
Loaded 00:00 0000

0.000 0.001 0.000

Job Must be Loaded

**F7**

**Set Batch Count**

[5 ]

**NEW_NAME.TJB** 0%
Loaded 00:00 0005

0.000 0.001 0.000

When set, the count will display Quantity Run/Quantity Set values

**ESC**

**NEW_NAME.TJB** 0%
Loaded 00:00 0005

0.000 0.001 0.000

Press ESC after F7 to exit Batch Count Mode

**SPACE BAR**

**JOB LOADED**
Ready To Run

**SPACE BAR**

**NEW_NAME.TJB** 100%
Completed 00:12 0005
005/005 Completed Press ESC to Clear

Press ESC here to reset Batch Count Mode

**NEW_NAME.TJB** 0%
Loaded 00:00 0005

0.000 0.001 0.000

**NO MORE BATCH COUNT MODE**

**SPACE BAR**

**JOB LOADED**
Ready To Run

**SPACE BAR**

**NEW_NAME.TJB** 100%
Completed 00:12 0005
000/005

0.000 0.001 0.000

**NO MORE BATCH COUNT MODE**
Work Safely. Always wear safety glasses near the machine.

Name [TEST-123]
Flat ORIGIN toggles type
Type the name to save this job under

Type the name to save this job under

Line Type [Normal ]
Enter Text Part # Z & Y Text Height [.125 ]


Line Type [Serial ]
Enter Value 1000
1000 Increment [-4 ]
1000 Text Height [.125 ]
1000 Height: .125 X Position [0.000 ] Y Position [0.000 ]
1000 Height: .125 X Position [0.000 ] Y Position [0.000 ]

Line Type [Graphic ]
PAUSE JOB REDLINE6 JOB SERP.JOB SPACEX JOB

Graphic REDLINE6 JOB Y Position [0.000 ]
Graphic REDLINE6 JOB Y Position [0.000 ]

Line Type [Date Code ]
Enter Date Code MM-DD-YYYY

MM-DD-YYYY Text Height [.125 ]
MM-DD-YYYY X Position [0.000 ] Y Position [0.000 ]
MM-DD-YYYY X Position [0.000 ] Y Position [0.000 ]

Line Type [Var Text ]
Enter Variable Text ABCDEF

Enter Prompt 12345

Choose the Line Type:
Normal Serial Graphic Date Code Variable Move

Choose the Line Style:
Regular Text Arc Text Arc Teach Angular Text

Angular value may be typed with the keyboard or taught by jogging the machine in the X & Y axes.

X & Y Positions may be entered by keyboard or taught by jogging the machine

Press X or Y to move cursor to the desired position

Move X Position [0.000 ] Y Position [0.000 ]

Part # Z & Y Height: .125 X: -1.750 Y: .250 Style [Regular ]

Part # Z & Y Height: .125 X: -1.750 Y: .250 Style [Arc Text]

Part # Z & Y Height: .125 X: -1.750 Y: .250 Style [Arc Teach]

Part # Z & Y Height: .125 X: -1.750 Y: .250 Style [Angular]

Height: X: -1.750 Y: .250 Style Regular Accept [Y]
Height: X: -1.750 Y: .250 Style Regular Accept [Y]
Height: X: -1.750 Y: .250 Style Regular Accept [Y]
Height: X: -1.750 Y: .250 Style Regular Accept [Y]

Back to the TOP:
New Line

SPACE BAR to:
New Line
Run & Pause
Ready To Run

Back to the TOP to Re-Do

F8 New Job
Setting up a new Marking file
Section 3.0 - Quick Reference Guide

Work Safely. Always wear safety glasses near the machine.

F9 Edit Job
Allows full editing, adding and deleting lines

Job Must be Loaded

Scroll to desired function using the + & - keys

Line 1
PART 123
Height 0.125
X 0.000 Y 0.000

Line 2
SERIAL: 4577
Height 0.312
X 0.000 Y 0.000

Line 3
Height 0.312
X 0.000 Y 0.000

Enter Text
ABCD

Text Height [0.125]

Height: 0.125
X Position [0.000]
Y Position [0.000]

Type line positions or teach positions by jogging the machine

Does NOT Save Work
Will return to selection screen

Follow the Prompts
Use the scroll down to find the line you want to delete, then hit ENT
Once Deleted, will take you back to the menu

Accept default file name or type over to Save As

SPACE BAR to:
Run & Pause

SPACE BAR
Work Safely. Always wear safety glasses near the machine.

F10 Edit Lines
Allows editing line properties

Mark: MARK IT TJB 0%
Loaded 00:00 0000
0.000 0.000 0.000

F10

Line 1
SERIAL: 4577
Height 0.312
X 0.000 Y 0.000

Line 2
XYZ
Height 0.312
X 0.000 Y 0.000

Line 3
Part 1234
Height 0.100
X 0.000 Y 0.000

Use the scroll down to find the line you want to edit, then hit ENT

Enter Text
SERIAL: 4577

Text Height [.125 ]

Type line positions or by jogging the machine

Serial: 4577
Height: .125
X Position [ 0.000] Y Position [ 0.000]

N Does NOT Save Work
Y Accept [Y]

Save as [MARK IT ]
Save as [NEW_NAME]

Accept default file name or type over to Save As

Space Bar to:
Run & Pause

Job Must be Loaded

Space Bar to:
Ready To Run
Work Safely. Always wear safety glasses near the machine.

**F12 Teach Park Path**

Park Path is always tied to the marking file that was loaded when this mode was enabled.

---

**NEW_NAME.TJB**

**Job Must be Loaded**

F12

> New Park Path
> Select Park Path
> No Park Path

Teach Park Path

Press ‘M’ to Capture ENTER to Save

Jog Machine to Any Point

Optional

More Moves

Save as [Park_1]

---

**NEW_NAME.TJB**

Loaded 00:00 0000

0.000 0.001 0.000

---

**NEW_NAME.TJB**

Loaded 00:00 0000

0.022 0.943 0.000

---

**Press <ctrl> S or <ctrl> P to move machine to and from Start and Parked positions**

---

**SPACE BAR to:**

**RUN & PAUSE**

**SPACE BAR**
Rules

There are two ways to setup a marking job: **Express Text and Standard Job Setup**

Both **(F1 & F8)** are described below and explained in detail in the following pages.

Express Text Setup

When you just want to mark a line of text and do not need to save the file.

**Press F1**

- Type the text to be marked (Enter)
- Type text height, or accept the default (Enter)

The machine is now in Run mode and ready.

The machine will mark the text you just typed when you press the Space Bar.

Standard Job Setup

Full availability of all features and functions. No limit to number of lines or file size. Saves the file to the machine’s CF card memory.

**Press F8**

The software will prompt the user to define the following properties:

- File Name
- Line Type
  - Normal
  - Serial
  - Graphic
  - Date Code
  - Variable
  - Move
- Text to be Marked
- Text Height
- X & Y Text Positions
- Line Style
  - Regular
  - Arc Text
  - Angular
- Accept?
- Another Line?

The machine is now in Run mode and ready.

The machine will mark the job you setup when you press the Space Bar.
Work Safely. Always wear safety glasses near the machine.

Standard Job Setup Description

File Name:

Must be 8 characters or less. No spaces or math symbols. This will be saved to the CF card on the machine.
EX: PART_123

Normal Line Type:

Any numbers and characters and symbols available on the keyboard. Maximum of 20 characters per line.
EX: Abcd !$@#4576**(0!7>:

Serial Line Type:

Sequential number marking function is defined by a starting number and the increment.
EX: Starting: 1000 Increment: 1
This will mark every cycle:
1000
1001
1002...

The serial number may also be embedded into any regular text line by placing 2 percent (%) signs before and after the number definition.
EX: PART %1000.1% CODE
This will mark every cycle:
PART 1000 CODE
PART 1001 CODE
PART 1002 CODE

Graphic Line Type:

G Code files (.JOB) supporting the following commands: G00, G01, G02, G03, G04, G05
EX: LOGO.JOB
Work Safely. Always wear safety glasses near the machine.

Date Code Line Type:

Date, Time and Shift Code functions are used to automatically mark the current values as listed in below chart.

<table>
<thead>
<tr>
<th>Format</th>
<th>Output</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>YR</td>
<td>=8</td>
<td>Year</td>
</tr>
<tr>
<td>YY</td>
<td>=18</td>
<td>Year</td>
</tr>
<tr>
<td>YYYY</td>
<td>=8</td>
<td>Year</td>
</tr>
<tr>
<td>MM</td>
<td>=01</td>
<td>Month</td>
</tr>
<tr>
<td>MMM</td>
<td>=JAN</td>
<td>Month</td>
</tr>
<tr>
<td>Mmm</td>
<td>=Jan</td>
<td>Month</td>
</tr>
<tr>
<td>DD</td>
<td>=12</td>
<td>Date</td>
</tr>
<tr>
<td>DJ</td>
<td>=012</td>
<td>Julian Date</td>
</tr>
<tr>
<td>DY</td>
<td>=12</td>
<td>Day of Year</td>
</tr>
<tr>
<td>WY</td>
<td>=2</td>
<td>Week of Year</td>
</tr>
<tr>
<td>SH</td>
<td>=Code</td>
<td>From Shift File</td>
</tr>
<tr>
<td>HR</td>
<td>=01</td>
<td>12 Hr (Zero Padded 12 Hr)</td>
</tr>
<tr>
<td>HH</td>
<td>=13</td>
<td>24 Hr (Non Padded 24 Hr)</td>
</tr>
<tr>
<td>HM</td>
<td>=13</td>
<td>24 Hr (Zero Padded 24 Hr)</td>
</tr>
<tr>
<td>HN</td>
<td>=1</td>
<td>12 Hr (Non Padded 12 Hr)</td>
</tr>
<tr>
<td>MN</td>
<td>=34</td>
<td>Minute</td>
</tr>
</tbody>
</table>

EXAMPLES:

<table>
<thead>
<tr>
<th>Format</th>
<th>Output</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM/DD/YY</td>
<td>01/12/18</td>
<td>01-12-2018</td>
</tr>
<tr>
<td>MM-DD-YYYY</td>
<td>JAN-12-2018</td>
<td>01-12-2018</td>
</tr>
<tr>
<td>Mmm DD YY</td>
<td>Jan 12 18</td>
<td>18-2</td>
</tr>
<tr>
<td>HR:MN</td>
<td>11:51</td>
<td>11:51</td>
</tr>
</tbody>
</table>

Variable Line Type:

Variable line types allow the user to enter the marking data on the machine with the keyboard or a bar code scanner. There may be multiple Variable lines in a file. The text height and X and Y positions are setup as a regular line. When the file is run on the machine, it will prompt the operator to input the text to be marked. This may be input from the keyboard or optional bar code scanner.

**EX:** Marking data from a scale or instrument readout in the shop.

**EX:** Marking a job that requires new data to be input for each cycle.

Move Line Type:

The move line type moves the machine to an X & Y position, and does not do anything. It is useful for controlling the path between lines to miss obstructions such as clamps, pins, gussets, etc.
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Text to be Marked:

The text to be marked may be any keyboard characters or symbols. Upper and lower case are supported. There is a limit of 20 characters per line when input with the machine. There is no limit to the number of lines in a file.

Text Height:

The text height may be any size desired. The size is from top to bottom.

X and Y Positions:

The X & Y positions of each line may be typed in from the keyboard or taught with the machine using the tip as a pointer over the product. The jog keys are used to move the machine. Pressing X or Y will move the cursor to the X or Y position screen. Enter will accept the values shown on the display.

The reference point for the X & Y Positions:

**Regular Line Style – Upper left corner of text**
**Arc Text Line Style – Bottom center of text**
**Angular Line Style – Upper left corner of text**

Regular Line Style:

Regular line style is for marking straight text.

Arc Text Line Style:

Arc Text line style is for marking text around a radius. The user will define the radius of the text from the center to the bottom of the character, and the angle which is defined as follows:

0 = right quadrant
90 = top quadrant
180 = left quadrant
270 = bottom quadrant

Angular Line Style:

Angular line style allows marking the line at an angle infinitely defined around its pivot point. The reference pivot is at the upper left corner of the text. The same as its X & Y position reference. The angle may be input with the keyboard or taught with the machine by jogging it in the X & Y axes. Pressing the Enter key will capture the angle.
SECTION 5.0

CONTROLS
Section 5.0 - Controls

Work Safely. Always wear safety glasses near the machine.

The system features a backlit LCD display and a touch pad for operation and control. The following is a description of all of the features and their functions throughout all of the modes of operation. Please note some keys have multiple functions. These functions may be enabled during the different modes of operation.

NORMAL MODE
- Chooses current selection

JOB LOADED MODE
- Sets the machine into outline mode if enabled. If not enabled, changes to the tool setting screen
- Hold for 5 seconds to enter single step mode

JOB LOADED MODE WHEN DISPLAYING LINES
- Displays line formation for selected line

RUN MODE
- Toggles loop mode for continuous running

PAUSED MODE
- Toggles the display to the set height and edit tools screen

NORMAL MODE
- Cancels entry. Goes back by one level in selection
- Hold for 5 seconds to access security file via password

OUTLINE MODE
- Begins the outline process which disables output 1 and traces a rectangle around the outline of the pattern

NORMAL MODE
- Starts the machine cycle if a job is loaded
- Diagnostic mode toggles between axis info, I/O status & extended outputs

ALL MODES EXCEPT RUN MODE, PAUSE MODE AND DIAGNOSTIC MODE
- Displays the X, Y & Z home and origin position and enables jogging

RUN MODE
- Pauses machine cycle (1st key press)

PAUSED MODE
- Cancels cycle (2nd key press)

OUTLINE MODE
- Stops the outline mode and returns the head to the starting point

ROTARY VALVE SETUP
- Homes plunger to "top" position

JOB LOADED MODE
- Hold for 5 seconds to run job with no XY or Z motion
Section 5.0 - Controls

Work Safely. Always wear safety glasses near the machine.

**NORMAL MODE**
- Performs the following homing cycle
  - X axis moves left at high speed to limit sensor
  - Y axis moves back at high speed to limit sensor
  - Z axis moves up at high speed to limit sensor
  - X, Y & Z axes change to slow speed
  - X axis re-homes and moves to right of the limit sensor
  - Y axis re-homes and moves forward of the limit sensor
  - Z axis re-homes and moves down from the limit sensor

*This establishes and defines the home position of the machine*

If machine is powered off for any reason it is important to initialize machine by performing the "home" routine prior to "go to origin" or running production.

**NORMAL MODE**
- Moves the X, Y & Z axes to the origin position. This position is defined by homing the machine then jogging the head to the desired position and then choosing "set origin" from the main menu.

**DIAGNOSTIC MODE**
- Advances output cursor to next output number
- Toggles between XYZ & RST axes

**DISPLAY FIXTURE INFORMATION MODE**
- Toggles between the units of the rotary fixture diameter value and numerical entry functions.

**SELECTING RUN FIXTURE (ROTARY) MODE**
- Toggles from unit to unit of rotary fixture diameter value

**NUMERICAL EDITING**
- Toggles cursor from unit to unit of a numerical value

**NORMAL MODE**
- Scrolls upward through the menu

**DIAGNOSTIC MODE**
- Rotates 4th axis

**JOB LOADED MODE**
- Displays fixture information for Step & Repeat or the diameter value for rotary fixture

**DISPLAY FIXTURE MODE**
- Scrolls value of selected unit up by one for diameter

**NUMERICAL EDITING**
- Scrolls value of selected unit up by one

**SELECTING RUN FIXTURE (ROTARY) MODE**
- Scrolls value of selected unit up by one for diameter or numerical entries

**SET ROTARY DIRECTION MODE**
- Sets rotary axis to clockwise mode

**RUN MODE**
- Increases speed on the fly, in Tool File Mode only
Work Safely. Always wear safety glasses near the machine.

**NORMAL MODE**
- Scrolls downward through menu

**DIAGNOSTIC MODE**
- Rotates 4th axis

**JOB LOADED MODE**
- Displays all of the lines of text in that job
  
  Plain Text = Alpha-numeric
  
  (Blank) = Serial Number
  
  (.JOB) = Graphic File

  Displays line information for any line by pressing Enter.

**DISPLAY FIXTURE MODE**
- Scrolls value of selected unit down by one for diameter.

**NUMERICAL EDITING**
- Scrolls value of selected unit down by one.

**SELECTING RUN FIXTURE (ROTARY) MODE**
- Scrolls value of selected unit down by one for diameter or numerical entries

**SET ROTARY DIRECTION MODE**
- Sets rotary axis to counter-clockwise mode.

**RUN MODE**
- Decreases speed on the fly, in Tool File Mode only

**NORMAL MODE**
- Jogs head to left. Time/touch sensitive

**FIXTURE INFORMATION MODE**
- Changes current position from inches to tenths, hundredths, thousandths, etc.

**EDIT TOOL FILE MODE**
- Changes to the previous tool number

**NORMAL MODE**
- Jogs head to back. Time/touch sensitive

**EDITING FIXTURE WHILE JOB LOADED**
- Jogs R Axis

**NORMAL MODE**
- Jogs head to right. Time/touch sensitive

**FIXTURE INFORMATION MODE**
- Changes current position from inches to tenths, hundredths, thousandths, etc.

**EDIT TOOL FILE MODE**
- Changes to the next tool number

**NORMAL MODE**
- Jogs head to front. Time/touch sensitive

**EDITING FIXTURE WHILE JOB LOADED**
- Jogs R Axis
Work Safely. Always wear safety glasses near the machine.

**NORMAL MODE**
- Enters tool and clearance depth setting mode. See Z axis controls.

**ROTARY VALVE SETUP**
- Jogs 4th axis up

**PROGRAMMABLE MODE**
- User defined functionality. Setup to accept all supported G-codes and custom commands. See Setup Section

**NORMAL MODE**
- Enters tool edit mode. See Z axis controls.

**ROTARY VALVE SETUP**
- Jogs 4th axis down

**NORMAL MODE**
- Jogs Z axis up. Time/touch sensitive. (If equipped)

**NORMAL MODE**
- Jog Z axis down. Time/touch sensitive. (If equipped)
SECTION 6.0

MACHINE DIAGRAMS
Work Safely. Always wear safety glasses near the machine.
Work Safely. Always wear safety glasses near the machine.
Work Safely. Always wear safety glasses near the machine.

<table>
<thead>
<tr>
<th>Diagram 2</th>
<th>Description</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>115 vac power in</td>
<td>Wall outlet cord</td>
<td>Plug into wall outlet to power up machine</td>
</tr>
<tr>
<td>Fuse 2 amp 3AG</td>
<td>Replaceable fuse</td>
<td>Provides protection to the system if over current problem</td>
</tr>
<tr>
<td>24 vdc solenoid valve</td>
<td>On outside of machine</td>
<td>Controls the marking pin. Stays on during pin oscillation</td>
</tr>
<tr>
<td>Y limit sensor</td>
<td>Proximity switch</td>
<td>Detects the back (home position) of the Y axis</td>
</tr>
<tr>
<td>X limit sensor</td>
<td>Proximity switch</td>
<td>Detects the left (home position) of the X axis</td>
</tr>
<tr>
<td>Power supply</td>
<td>Inside left side of housing</td>
<td>24 &amp; 5 vdc power source for all internal components</td>
</tr>
<tr>
<td>Output relay(s)</td>
<td>Solid state</td>
<td>Drive marking pin and misc optional outputs</td>
</tr>
<tr>
<td>X drive</td>
<td>Back of housing</td>
<td>Controls the X axis (L to R) step motor</td>
</tr>
<tr>
<td>Y drive</td>
<td>Back of housing</td>
<td>Controls the Y axis (F to B) step motor</td>
</tr>
<tr>
<td>Y motor</td>
<td>Mounted to base</td>
<td>Moves the Y axis slide front to back</td>
</tr>
<tr>
<td>X motor</td>
<td>Mounted to base</td>
<td>Moves the X axis slide left to right</td>
</tr>
<tr>
<td>Input relay(s)</td>
<td>Reed relay(s)</td>
<td>Connected to inputs i.e. foot pedal</td>
</tr>
<tr>
<td>Controller</td>
<td>With CF card</td>
<td>Main processor and motion controller (battery backed up)</td>
</tr>
<tr>
<td>Air inlet 20-100 psi</td>
<td>Standard shop airline</td>
<td>Provides pneumatic input for marking pin and optional devices</td>
</tr>
<tr>
<td>Filter regulator gage</td>
<td>Plumbed to valve input</td>
<td>Controls the marking pressure (depth) and cleans incoming air</td>
</tr>
<tr>
<td>4 Line LCD display</td>
<td>20 characters per line</td>
<td>Provides operator interface and displays machine status</td>
</tr>
<tr>
<td>Keypad</td>
<td>Sealed membrane</td>
<td>Provides operator input of machine functions</td>
</tr>
<tr>
<td>E-stop</td>
<td>Emergency stop &amp; power</td>
<td>Push to stop (power off) and twist to power on</td>
</tr>
<tr>
<td>Foot pedal connection</td>
<td>3 pin mini din</td>
<td>For detachable footpedal or cycle start switch</td>
</tr>
<tr>
<td>Ps-2 keyboard</td>
<td>6 pin mini din</td>
<td>For attaching standard ps-2 keyboard (for data input)</td>
</tr>
<tr>
<td>Ethernet (LAN)</td>
<td>RJ connector</td>
<td>To connect the system to your network</td>
</tr>
<tr>
<td>RS-232 serial connect</td>
<td>9 pin serial connector</td>
<td>To connect system to PC via a null modem cable</td>
</tr>
</tbody>
</table>
Work Safely. Always wear safety glasses near the machine.
Work Safely. Always wear safety glasses near the machine.

Close-up dimensions for clearing obstructions

Notes:

Pin extends approximately 0.150" from below view when "ON"
Pin diameter is: 0.1250"
Pin is solid carbide
Standard angle of tip: 90 degrees
SECTION 7.0
MAINTENANCE
Work Safely. Always wear safety glasses near the machine.

Unplug the power supply and air hoses before beginning any maintenance or cleaning.

Most marking quality issues are due to dirty or worn part(s) in the Marking Head Assembly. The maintenance operations listed here are intended as a guideline. If the machine is constantly being used or in a highly dusty or dirty environment these operations may need to be performed more frequently. Clean or replace components as necessary.

Never lubricate any part of the Marking Head Assembly.

**Marking Head Assembly**

- **Marking Head Assembly**
  - Inspect every 3 months or 100 hours of operation
  - The impact marking head requires periodic cleaning. The head should be disassembled every 100 hours of operation cleaned with alcohol and replaced back in its mount.

- **Marking Head Gasket**
  - Look for cracks around center hole
  - The marking head seals against the orange gasket sandwiched between the aluminum slide and cone. From time to time it will need to be replaced due to inherent cyclic stress it is subject to.

- **Marking Pin Replacement**
  - Remove the head. The pin will be exposed for replacement. Additional length is provided to allow re-sharpening when the marking pin becomes dull.

- **Marking Spring Replacement**
  - Remove the head. The spring will be exposed for replacement.

- **Pin Bushing**
  - Occasionally wears out and needs to be replaced. Remove the head. The pin bushing is press fit into the marking cone. Special equipment is required for replacement.
Work Safely. Always wear safety glasses near the machine.

Unplug the power supply and air hoses before beginning any maintenance or cleaning.

<table>
<thead>
<tr>
<th>Component</th>
<th>Maintenance Schedule</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>X and Y Slides</strong></td>
<td>Inspect every 3 months or 100 hours of operation</td>
<td>Normally maintenance is not required. Keep rails free of any debris and residue, wipe with dry cloth.</td>
</tr>
<tr>
<td><strong>Z axis column lead screw</strong></td>
<td>Inspect yearly</td>
<td>Apply a general purpose light grease directly to the lead screw acme thread above the nut. This may be applied as required. Because of the near zero duty cycle, most applications will not require any lubricant for the life of the equipment.</td>
</tr>
<tr>
<td><strong>Motors</strong></td>
<td>Not Required</td>
<td>All programmable motors are brushless and require no maintenance. The ball bearings are lubricated for life, fully sealed and require no maintenance.</td>
</tr>
<tr>
<td><strong>Compressed Air Filter</strong></td>
<td>Inspect Weekly</td>
<td>The pneumatic filter may be replaced as required. This will depend on each factory floor condition. The filter is inside of a clear polycarbonate bowl allowing visual inspection from time to time. It is suggested that the filter be cleaned as soon as grit and grit and particulate matter accumulate. If any water accumulates, disconnect the air supply to drain.</td>
</tr>
<tr>
<td><strong>Cooling Fan / Air Filter</strong></td>
<td>Inspect Weekly, Clean every 3 months or 100 hours of operation</td>
<td>Unsnap cover, Replace filter or wash foam filter with mild soap and water; dry completely before reinstalling.</td>
</tr>
</tbody>
</table>
Work Safely. Always wear safety glasses near the machine.

### Spare Parts and Options List

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>STANDARD MARKING HEAD</strong></td>
<td></td>
</tr>
<tr>
<td>CB-2</td>
<td>CONE BODY</td>
</tr>
<tr>
<td>MP-1</td>
<td>MARKING PIN</td>
</tr>
<tr>
<td>MP-2</td>
<td>MARKING PIN (Long)</td>
</tr>
<tr>
<td>PS-1</td>
<td>ORANGE GASKET SEAL</td>
</tr>
<tr>
<td>PB-1</td>
<td>PIN BUSHING</td>
</tr>
<tr>
<td>MS-1</td>
<td>SPRING</td>
</tr>
<tr>
<td>US-1</td>
<td>SPRING, ULTRA FINE</td>
</tr>
<tr>
<td>MH-1</td>
<td>STANDARD HEAD (complete assembly)</td>
</tr>
<tr>
<td><strong>OPTIONS</strong></td>
<td></td>
</tr>
<tr>
<td>BS-1</td>
<td>BAR CODE SCANNER</td>
</tr>
<tr>
<td>FP-1</td>
<td>DETACHABLE FOOT PEDAL</td>
</tr>
<tr>
<td>KB-108</td>
<td>EXTRA KEYBOARD (IBM type PS-2)</td>
</tr>
<tr>
<td>MN-1</td>
<td>EXTRA PRINTED MANUAL</td>
</tr>
<tr>
<td>FR-1</td>
<td>FILTER / REGULATOR ASSEMBLY</td>
</tr>
<tr>
<td>GA-1</td>
<td>GAUGE, PNEUMATIC</td>
</tr>
<tr>
<td>PO-1</td>
<td>PORTA STAND ATTACHMENT</td>
</tr>
<tr>
<td>NM-6</td>
<td>SERIAL CABLE (6 ft long)</td>
</tr>
<tr>
<td>NM-10</td>
<td>SERIAL CABLE (10 ft long)</td>
</tr>
<tr>
<td>NM-15</td>
<td>SERIAL CABLE (15 ft long)</td>
</tr>
<tr>
<td>TS-10</td>
<td>T-SLOT BASE</td>
</tr>
<tr>
<td>WS-1</td>
<td>WINDOWS SOFTWARE SUITE</td>
</tr>
<tr>
<td>WS-2</td>
<td>2nd &amp; 3rd LICENSE FOR SOFTWARE SUITE</td>
</tr>
<tr>
<td><strong>COMPONENTS</strong></td>
<td></td>
</tr>
<tr>
<td>KT-3</td>
<td>KWIK TURN 3 JAW CHUCK</td>
</tr>
<tr>
<td>KT-5C</td>
<td>KWIK TURN 5-C</td>
</tr>
<tr>
<td>KT-1</td>
<td>KWIK TURN CYLINDRICAL FIXTURE</td>
</tr>
<tr>
<td>KT-4</td>
<td>KWIK TURN TIMING BELT</td>
</tr>
<tr>
<td>MV-44</td>
<td>MINI VISE (4 x 4)</td>
</tr>
<tr>
<td>MV-64</td>
<td>MINI VISE (6 x 4)</td>
</tr>
<tr>
<td>PT-1</td>
<td>PNEUMATIC TAILSTOCK ASSY</td>
</tr>
<tr>
<td>KC-64</td>
<td>VACUUM CHUCK SYSTEM w/ Pump</td>
</tr>
<tr>
<td><strong>MISCELLANEOUS</strong></td>
<td></td>
</tr>
<tr>
<td>FA-8</td>
<td>FAN 24VDC</td>
</tr>
<tr>
<td>FA-9</td>
<td>FAN COVER / GRILL</td>
</tr>
<tr>
<td>KP-12</td>
<td>KEYPAD KIT (with bezel)</td>
</tr>
<tr>
<td>LCD-4</td>
<td>LCD DISPLAY (with backlight)</td>
</tr>
<tr>
<td>TN-312</td>
<td>T SLOT NUTS (Bag of 10) 5/16-18</td>
</tr>
<tr>
<td>TN-250</td>
<td>T SLOT NUTS (Bag of 10) 1/4-20</td>
</tr>
<tr>
<td>TN-190</td>
<td>T SLOT NUTS (Bag of 10) 10-32</td>
</tr>
<tr>
<td>TN-236</td>
<td>T SLOT NUTS (Bag of 10) 6mm</td>
</tr>
</tbody>
</table>
SECTION 8.0
POWER REQUIREMENTS
To operate properly, the KwikMark requires the following electrical and pneumatic service:

**ELECTRICAL SERVICE**
120-220 VAC, 50-60 hertz, single phase, 2.5 AMP power supply from standard wall outlet.

**PNEUMATIC SERVICE**
25 to 100 PSI clean, dry, and filtered air source. Connects to 1/8 NPT fitting.
SECTION 9.0

ELECTRICAL SCHEMATIC
Work Safely. Always wear safety glasses near the machine.
SECTION 10.0
TROUBLESHOOTING
Work Safely. Always wear safety glasses near the machine.

Unplug the power supply and air hoses before beginning any maintenance or cleaning.

<table>
<thead>
<tr>
<th>Description</th>
<th>Diagnosis</th>
<th>Solution(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Mark is Not Legible</td>
<td>A. Air pressure incorrectly set.</td>
<td>A. Turn the regulator until the mark appears at the desired depth. Observe the gauge setting and record. See “Setting Air Pressure” in Section 2.</td>
</tr>
<tr>
<td></td>
<td>B. Distance from marking tip to surface incorrectly set.</td>
<td>B. Adjust the height of the column for optimum setting of the gap between the pin and material. See “Setting Air Pressure” in Section 2.</td>
</tr>
<tr>
<td></td>
<td>C. Machine speed set too high.</td>
<td>C. Be sure the speeds are not set too high as this may cause missing steps resulting in distorted images. From the machine keypad: Scroll to: “Setup” press Enter Scroll to: “Set Speeds” press Enter Scroll to: “Feed” (machine speed) or “Move” (rapid speed)</td>
</tr>
<tr>
<td></td>
<td>D. Worn or Damaged Pin</td>
<td>D. Sharpen or Replace marking pin.</td>
</tr>
<tr>
<td></td>
<td>E. Worn Marking Cone</td>
<td>E. Replace cone and/or bushing.</td>
</tr>
<tr>
<td></td>
<td>F. Worn or Damaged Bushing &amp; Slide Mechanism</td>
<td>F. Return machine to Factory for service.</td>
</tr>
<tr>
<td></td>
<td>G. Certain surfaces may not show a quality mark</td>
<td>G. Exp: Rough Castings or Forgings</td>
</tr>
</tbody>
</table>

2. Marking Image Appears too Deep or Shallow

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Solution(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Too much air pressure.</td>
<td>A. Decrease the air pressure by turning the regulator knob CCW and watching the gage.</td>
</tr>
<tr>
<td>B. Too low of air pressure.</td>
<td>B. Increase the air pressure by turning the regulator knob CW and watching the gage. See “Setting Air Pressure” in Section 2.0.</td>
</tr>
<tr>
<td>C. Dirty and/or damaged marking pin, cone, spring or orange gasket seal.</td>
<td>C. See “Marking Head Assembly” Maintenance in Section 7.0.</td>
</tr>
</tbody>
</table>

3. Noticeable Gap at Character Intersections

Example: Letter O does not close

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Solution(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Gap between marking pin and material too great.</td>
<td>A. Move pin closer to material by turning the top handwheel CCW.</td>
</tr>
<tr>
<td>B. Dwell time setting too short.</td>
<td>B. Increase the dwell time (milliseconds) in the setup menu.</td>
</tr>
<tr>
<td>C. Dirty and/or damaged marking pin, cone, spring or orange gasket seal.</td>
<td>C. See “Marking Head Assembly” Maintenance in Section 7.0.</td>
</tr>
</tbody>
</table>
**Work Safely. Always wear safety glasses near the machine.**

Unplug the power supply and air hoses before beginning any maintenance or cleaning.

<table>
<thead>
<tr>
<th>Description</th>
<th>Diagnosis</th>
<th>Solution(s)</th>
</tr>
</thead>
</table>
| **4. Marking Image varies in Depth**<br>Moving across part | A. Part is not fixtured flat to the machine’s travel.  
B. Dirty and/or damaged marking pin, cone, spring or orange gasket seal. | A. Indicate the top surface of the part by mounting indicator to the head & jog.  
B. See “Marking Head Assembly” Maintenance in Section 7.0. |
| **5. Marking Pin Does Not Vibrate**<br>or Impact. | A. No air service to the machine.  
1. Compressed air not reaching marking cone  
2. Plugged air passage  
3. Auto feed output incorrectly set  
4. Faulty air solenoid  
B. Regulator is set too low or too high.  
C. Marking pin is too close or in contact with the marking surface.  
D. Dirty and/or damaged marking pin, cone, spring or orange gasket seal. | A. Correct air supply issue.  
1. Kinked coil hose, straighten or replace  
2. Run marking cycle with marking cone removed, air should flow.  
3. Normally set to 1  
4. Test / replace solenoid  
B. Adjust the regulator to the optimum “tuning” to cause the marking head to vibrate. 20 to 80 PSI typically used.  
C. Adjust the distance from the pin to the substrate by turning the crank handle at the top of the machine.  
D. See “Marking Head Assembly” Maintenance in Section 7.0. |
| **6. No Power To KwikMark Marker** | A. Poor connection or no power at wall outlet.  
B. Switch is in OFF position.  
C. Blown fuse.  
D. No power to marker. | A. Check power cord for proper connections.  
B. Turn switch to ON - rotate switch clockwise.  
C. Inspect, and replace fuse in power/fuse inlet connection if necessary.  
D. Bad power supply - Contact Customer Service |
| **7. Machine is Not Moving X Y**<br>Direction in “Run Job” mode | A. Program is “empty”. (No text to mark in JOB) | A. Verify that a legitimate program exists or that the character height is not set to “0” zero. |
Work Safely. Always wear safety glasses near the machine.

Unplug the power supply and air hoses before beginning any maintenance or cleaning.

<table>
<thead>
<tr>
<th>Description</th>
<th>Diagnosis</th>
<th>Solution(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8. Machine does not jog</td>
<td>A. Stopped at the limit switch.</td>
<td>A. Jog the KwikMark using the keypad on the frontpanel opposite the limit stop.</td>
</tr>
<tr>
<td></td>
<td>B. Physical obstruction.</td>
<td>B. Jog the KwikMark away from the obstruction, remove obstruction and visually check for any damage.</td>
</tr>
<tr>
<td>9. Positioning Not Repeating</td>
<td>A. Move speed and/or Feed speed set too high.</td>
<td>A. Be sure the speeds are not set too high as this may cause missing steps resulting in distorted images. From the machine keypad: Scroll to: “Setup” press Enter Scroll to: “Set Speeds” press Enter Scroll to: “Feed” (machine speed) or “Move” (rapid speed)</td>
</tr>
<tr>
<td></td>
<td>B. Part not properly fixtured or clamped.</td>
<td>B. Carefully check the fixturing and nesting that holds your product. Be sure the product is not moving or vibrating during the marking operation.</td>
</tr>
<tr>
<td></td>
<td>C. X-Y drive mechanism may require service.</td>
<td>C. Contact Customer Service</td>
</tr>
<tr>
<td>10. Displays HIT LIMIT while running a file, when not on a limit sensor</td>
<td>A. Machine was not “Homed” when turned on.</td>
<td>A. Press HOME key on the front panel to initialize machine. Be sure no obstructions are present.</td>
</tr>
<tr>
<td></td>
<td>B. Machine’s Soft Limit feature detects a limit in the travel of an axis.</td>
<td>B. Check your positioning and file definitions of line positions in X &amp; Y axes.</td>
</tr>
<tr>
<td></td>
<td>C. Programmed move exceeds machine bed area or a negative move is programmed.</td>
<td>C. Verify program - Common errors are too large of text height or incorrect X-Y coordinates.</td>
</tr>
<tr>
<td>11. Machine will not Boot Up or Power Display pulses.</td>
<td>A. Keyboard failed or other external device has failed.</td>
<td>A. Power off machine and disconnect all plugged in accessories. (ex: keyboard, foot pedal, rotary, network and serial connections) Try to power on. If issue is not resolved contact customer service tech support. Note: We do not recommend hot plugging desivers.</td>
</tr>
</tbody>
</table>