CNC Machine Package Maintenance and Warranty (MD-MW01)

First Use
As the machine is new, many of the components will be heavily greased with preservation grease. It is important you remove any excess grease from the rails and ballscrews during the first few hours of each use.

Daily maintenance
Keep machine clean, remove excess dust/material from rails and ballscrews.

Weekly Maintenance
Thorough cleaning of machine removing all excess dust and material. General cleaning of any related hardware including PC/workstation and CNC controller.

Greasing of rails and ballscrews on X, Y and Z axis' where appropriate. **Ensure to remove excess grease before next use.**

Please only use grease supplied by Marchant Dice Ltd and **none other**. Additional grease can be obtained by contacting Marchant Dice Ltd.

Failure to keep the machine and related hardware reasonably clean and well maintained may invalidate the warranty. Any subsequent repair and or recalibration required including travel costs will be invoiced for accordingly.

Warranty
Your machine is supplied with one year parts and labour on any faulty hardware excluding the exceptions outlined below. Warranty is only valid when the operating user has following the Marchant Dice Quick User Guide. This includes ‘Reference all home’ and ensuring the ‘soft limits’ are activated.

The warranty supplied does not include damage to any part which has incurred due to user error when using the machine. This includes but is not limited to creating a toolpath which causes the machine to move out of its working area, the user manually moving the machine out of its working area and where the user has created a toolpath that causes any part of the machine and or the cutter to hit any part of the material, clamps or fixtures and or plunge too far or too fast into the material and or bed of the machine.

Proximity Home Switches
Proximity home switches can only be damaged due to user error and therefore are not covered by the above warranty. Replacement proximity home switches can be purchased from our online shop (www.worldofcnc.com).

Z Axis
Due to the impossibility for Marchant Dice Ltd to safe guard against the user creating a toolpath (or manual movement) that could cause damage to the Z axis by either any part of the machine and or cutter coming in contact with any clamps or fixtures including the machine bed, this is not covered by the warranty and any repair required will be invoiced for accordingly including labour, replacement parts and collection/delivery.
Tooling
Ensure tools used in the spindle are designed for CNC milling machine use. Specifically you must ensure every cutter has a full cutting surface. Some hand router tools that cut into the material from the side do not have a bottom cutter surface/point and therefore should not be used with the CNC machine. If used then when the Z axis plunges down the lack of cutter point/tip for a downward motion will cause the Z axis to bend and become unusable.

Relocating the Machine
Written permission must be obtained from Marchant Dice Ltd before moving of the machine may take place. Failure to obtain permission will invalidate the warranty. Any damaged caused to any parts of the machine or related components during transit is not covered by the warranty.

Marchant Dice Ltd is not liable for any damage and or loss of calibration of the machine due to relocating the machine. Any and all costs to Marchant Dice Ltd for repair to any part, PC and any related hardware and software including calibration as a result of relocating the machine will be invoiced for accordingly.

Help relocating the machine can be obtained from Marchant Dice Ltd. Please contact us for a quote.

PC/Mach3 Workstation/Software
It is very important that no additional software or hardware is installed on the supplied PC/workstation other than that supplied by Marchant Dice Ltd without first obtaining consent from Marchant Dice Ltd.

No additional software or hardware other than that supplied by Marchant Dice Ltd will be supported and if additional software and or changes to software provided result in damage to the machine or malfunction then repair costs will be invoiced.

Further to that, any additional software and or hardware that are installed without obtaining prior consent will invalidate the warranty on the PC/workstation as well as the machine and all related hardware and software. Any repair and or recalibration including replacement parts and travel costs incurred by Marchant Dice Ltd as a result of this will be invoiced for accordingly.

Repairs/Collections and Returns
Any costs (travel, time etc) to Marchant Dice Ltd as a result of damage to the machine not covered under this warranty may be invoiced for at the discretion of Marchant Dice Ltd.

This includes any repair work, additional visits by Marchant Dice Ltd to your premises for repair, collection and delivery.

In exceptional cases it may be required for Marchant Dice Ltd to collect the machine for repair at Marchant Dice Ltd premises due to the precision nature of the machine build. If this is required then collection, repair and delivery of the goods may be invoiced for at the discretion of Marchant Dice Ltd.

Software
All software is non-refundable.
3kW Spindle and Inverter User Manual

The Package

Wiring Instructions

Step 1 – Wiring Armoured Cable to Inverter

Remove the inverter cover and cable glands as shown here.

Using one end of the armoured cable strip back (100mm min) to expose the wires and push through cable gland as shown below.
Each of the black wires in the armoured cable are numbered from 1-4 and a 5th wire will be coloured yellow/green (earth).

Navigate the wires through the left cable gland hole (shown above) and wire to inverter connections as below:

Armoured Cable Black 1 to Inverter Connection 6 (U)  
Armoured Cable Black 2 to Inverter Connection 7 (V)  
Armoured Cable Black 3 to Inverter Connection 8 (W)  
Armoured Cable Earth to Inverter Connection 9

Note: armoured cable Black 4 is not used and should be cut and taped using electrical insulation tape.

**Step 2 – Wiring Armoured Cable to Spindle Connector**

At the spindle end of the armoured cable strip the cable (40mm min) to expose the black wires and the earth wire.

Using the screws in the spindle connector attach as below:

Armoured Cable Black 1 to Spindle Connector 1  
Armoured Cable Black 2 to Spindle Connector 2  
Armoured Cable Black 3 to Spindle Connector 3  
Armoured Cable Earth to Spindle Connector top-middle as shown

**Step 3 – Wiring Mains Power source to Inverter**

Strip back (80mm min) the free end of the power cable (other end should be wired to standard plug).

Navigate the wires through the right cable gland hole (shown right) and wire to inverter connections as below:

Power cable Earth to Inverter Connection 9  
Power cable Blue to Inverter Connection 1 (R)  
Power cable Brown to Inverter Connection 3 (T)
Inverter Front Panel Layout

How to set spindle speed (RPM)

Step 1 - Workout desired Spindle Speed (RPM) and Inverter Frequency
The inverter is set using frequency values within a range of 0-400. Multiply the frequency by 60 to work out the spindle speed (RPM). For example a maximum frequency of 400 is 400 x 60 = 24000RPM.

To calculate the inverter frequency, divide the desired spindle speed (RPM) by 60. For example if you require 18000RPM then 18000 / 60 = 300. In this case you would set the inverter frequency to 300.

Step 2 - Set the Inverter Frequency
Having worked out the inverter frequency required you now need to set this on the inverter.

- Use the ‘Shift’ button to navigate through the menu until to reach the frequency setting (shown below)

- Press the ‘Set’ button – nothing will change
- Press the ‘Up’ Arrow – the display will now show the current frequency (shown below)
- Each digit is set individually using the 'Up' arrow and 'Down' arrow
- Use the 'Shift' button to navigate across the digits
- When you have set your desired frequency, press the 'Start' button to start the spindle (ensure your spindle has been secured safely and the nut has been tightened before you press 'Start')
- Press the 'Stop' button to turn off the spindle

Notes

The spindle will take several seconds to reach full speed when started. Be sure to take this into account before running any CNC operations.

The spindle will take several seconds to stop when the 'Stop' button is pressed.

If you find the spindle running backwards (anti-clockwise) swap the armoured black wires 1 and 3 on the inverter connections 6 and 8 found in Step 1 of the Wiring Instructions above.

Visit our Wiki: www.marchantdice.com/help
Installation Procedure:

- Download ShuttlePro plugin from Mach3 website (click here)
- Place file on PC that contains your Mach3 installation
- Double click the file and it will auto install
- Open Mach3 and open the ‘Config’ menu (top left) and click ‘Config Plugins’
- A screen will appear as below

![Plugin Control and Activation]

- Make sure the green checkbox next to the ‘ShuttlePro 3’ entry is ticked
- If not then click the red ‘X’ to enable it
- You now need to click on the yellow ‘CONFIG’ button which will display the options screen as below
- Match the buttons on the configuration screen by selection the desired action from the dropdown list for each button
- We have left one button free (indicated by white circle on the button) for you to match with the action of your own preference
- Select ‘Express’ from the options in the bottom left of the screen

Revised: 14/05/2012
- Press OK and restart your PC

Open Mach3 and you should now find that your pendant is working. Click the appropriate button to select each axis and use the wheels to move the axis.

View a customer review of the jog wheel and own experience of the installation process [here](#).

Visit our Wiki: [www.merchantdice.com/help](http://www.merchantdice.com/help)