

## The Sieg X-1 Milling Machine.

This is probably the smallest size of mill that can be used to produce parts for a G3 loco and rolling stock. This mill is sold by a number of suppliers in the UK under different names and paint schemes. However all the castings are common and it is possible to use the same parts from differing suppliers on the same mill

Supplier	Name	Colour	Type	
Arc Euro Trade	X1-L	RED	Metric	long table as std
Machine Mart	CMD10	YELLOW	Metric	
Chester UK Tools	Cobra	YELLOW&WHITE	Metric	
		GREY&GREEN	Imperial	
Warco	Micro Mill	PEA GREEN	Metric	
Axminster Tools	Super X-1	WHITE	Metric	

### Manufacturers Specifications.

Drilling capacity	10 mm
End milling capacity	10 mm
Face milling capacity	16 mm
Headstock travel (Z)	230 mm
Cross axis (X)	90 mm
Longitudinal axis (Y)	180 mm
Throat	140mm
Max. distance spindle to table	220 mm
Spindle taper	MT2
Motor output power	150 W
Spindle speed Low range	100-1000±rpm 10%
High range	100-2000±rpm 10%
Table effective size	240x145 mm
T-slot size	8 mm
Overall dimension (L x W x H)	425 X 350 X 690 mm
Weight (Net/Gross)	32/44kg
Packing size (L x W x H)	420X410X630 mm

Some suppliers will offer their mills with “pre-prepared” work done on it -this involves degreasing, degritting and setting all slides. If this is your first mill then you are advised to take advantage of this service, however it will increase the lead time for delivery. The mill is normally shipped to you on a “Kerbside Delivery” basis ,and you will have to lift and shift the ½ pallet that it is strapped to. This can be moved with a wheel barrow or two people can lift it to the place of use. Some suppliers offer “Full Return to Base” warranty -but you will have to crate the mill yourself.

### Cleaning.

Prior to use clean all preservative grease from the mill with car engine cleaner and rags. **After use throw the rags away.** Lightly oil all exposed machined surfaces with motor oil and use engine cleaner and rags again. **After use throw the rags away.** Finally use Mobil Vactra no. 2 oil to lubricate all slide ways, lightly oil all machined surfaces with motor oil -to prevent rust.

Once installed in its position -follow the **Daily and Weekly** oiling guide.

## Initial Startup.

The mill will now require “running in”. Once you are satisfied that the chuck moves smoothly round by fingertips in both directions **-then and only then -**plug the mill in...

Your supplier manual will give you a series of safety checks to follow prior to turning the chuck.

**DO NOT SKIP ANY OF THEM.**

The normal running in procedure is that the mill is set to low gear and is progressively run at higher and higher speeds for about a 60 seconds per “notch” on the speed dial. Finally the mill is spun at full speed for 2 minutes and then taken down to stop a notch at a time over the course of another minute. The mill is then set into high gear and the process repeated.

## Known Problems.

Mechanically the mill is very robust -but the enamel does crack very easily. The main problems with this mill relate to:

### The Fuse Holder.

This is of the screwdriver “push in and twist” type. It is not very robust and what frequently happens while the “learning” process is being progressed -is that the mill often blows its 1 Amp fuse. The screwdriver top part of the fuse holder can break and it needs replacing. A more robust version of this is a standard part from MAPLIN Electronics, (circa £1.25p). Dependant on the thread , the hole might need to be bored out slightly with a broach. The fside panel unscrews and the replacement is a fiddly -but easy job.

### The Motor Drive Gear.

This is a machined Hostaform gear that is a circlip and key piece fitting to the motor. As this is the high speed gear it normally wears first. Order **two** when ordering a replacement gear. The key piece is steel and what normally happens is that this slowly cuts a slot around the inner part of the gear until it completes full circle. This results in loss of torque as the gear ceases to drive the mill. Replacement is about a 10 minute job.



## The Circuit Board.

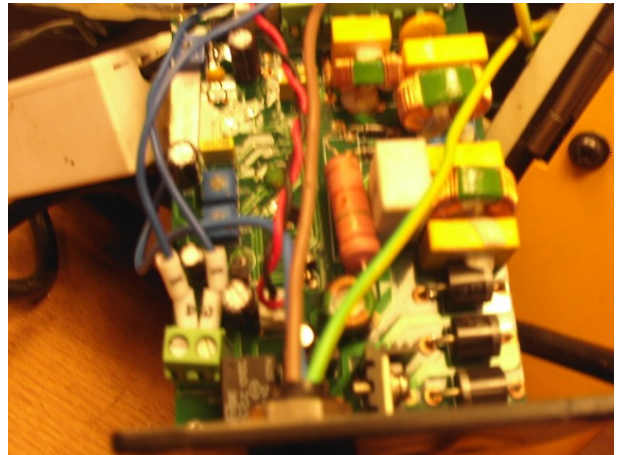
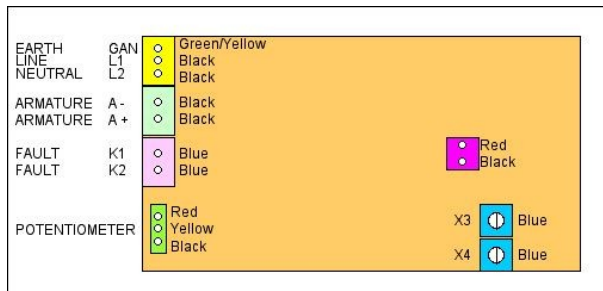
This is a thing that is perfectly reliable -or it is not... Most suppliers do a repair and exchange service. Common problems are running only at full speed regardless of the position of the control, erratic stopping from speed -or simply not turning...

There are two circuit boards used, they are **FC150B** (left) and **XMT2315** (right)



The circuit board is removed by unscrewing the panel where the mains lead is. The scrabble of cables may have looped around various exposed parts of the board so move slowly.

The following is a schematic for the **XMT2315** board.



**WARNING: X3 and X4 are always live when the lathe is plugged in.**

**X3 and X4 can be seen in the lower left of the board.**

Unfortunately both X3 and X4 are in a natural place to hold the board whilst it is being removed... The Earth connection for the mains is star earthed onto the screw inside the mill. Unscrew this **LAST**.

When re-assembling the board ensure that this is the connection made **FIRST**.

The cables all have rings with letters and numbers on them. Isolate the cables and rings together, (and don't drop any). The board is fixed to its carrier by four M3 screws.

## Accessories.

### Vices.



The standard range of vices are available for this mill. The Quick Release, (Top Left), The Rotary Vice, (Centre), and the Tilting Vice, (Top Right).

### Rotary Table.

This is possibly the most important addition to a milling machine. The two types are 90 turns to a revolution and 40 turns to a revolution. Even cheap tables can be set up by eye to within 15 minutes of arc. A Dividing Head is used to produce regular polygons -or specific gear cutting.



**4" Rotary Table  
and Chuck Backplate**

**Dividing Plate Set**

**Tailstock**

### Alternate Tables.

Arc EuroTrade sell a long table to fit the mill (and they supply this as std for their version of the X-1). It requires the long centre screw fitting as well. **This is not an easy operation and should be considered and researched before attempting.** However the benefits are very high indeed.



### Clamping Set.

This is an **essential** when doing anything on a mill. Due to the fact that the slots are 8mm it is possible to use the square roofing nuts and coach bolts available at DIY shops such as B&Q or Wilkos to construct specialised jigs via scrap steel and welding.



### Collets.

Quite a few suppliers sell collet chuck heads and boring heads. This will involve removing the drill chuck head, (fairly simple). Easily available are; spring collet chuck heads, Poz-Lok collet chucks and ER collet chucks.

Most people find that the std drill type head is the most useful.