



Crosscut

Newsletter of the Witwatersrand Woodworkers' Association
PO Box 411346, Craighall, 2024, South Africa

◀ The WWA chairman taking time off at Hobby-X to explore some of the other stands.

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Next General Club Meeting on Wednesday, the 10th April 2013 from 18h00 at WWA clubhouse at the Living Link Hall. Peter Middleton will demonstrate the use of a dovetail jig.

Next Turner's monthly meeting is on Monday, the 08th April 2013 at 18h00 at the WWA clubhouse at the Living Link Hall. Turning a Ball – Chris & Steven will demo various methods.

(Note the first Monday of April is Easter Monday, so the meeting has been postponed by a week.)

News

March Turner's Meeting (04 March 2013) – Part 2 of sharpening DVD by Nick Hanbury was shown. Nick showed how to grind gouges using jigs to accurately allow for swept back sides. He also covered scrapers. In part 1, he commented on a hurricane developing in the background and in part 2 it could be heard roaring during the pauses.

Wood of the month. Tulip Wood –Liriodendron Tulipifera. It is a native East coast of North America. Chris chose this wood at Clive Stacey's suggestion, Clive having just felled a large specimen that has now been planked and stacked to dry. The flowers have a characteristic tulip shape, hence the name. The tree grows to an impressive size and is similar to a poplar, as is wood. The fine grained wood is valued for cabinetry.



March Meeting (13 Mar 2013) – Philip Gowland from DMT in the UK gave a talk on the use of diamond stones for sharpening. DMT is a pioneer in the field and have been in the business since they were introduced. A variety of grits are offered ranging from Extra-Extra coarse (120grit) to Extra-Extra fine (8000 grit). Mono-crystalline diamond grits are electroplated using nickel onto a steel substrate to form the abrasive surfaces. A range of sizes and shapes of sharpening stones are produced to cater for many different applications. The selling points of these diamond stones, are that if they are not abused, they will last a lifetime, they remain sharp and they don't need flattening.



Club Notices:

Hobby-X 2013 was a success due to the hard work of many of the members. From setting up, manning, demonstrating and dismantling the stand many hours were put in. Alistair, the WWA chairman praised the work of the club and the contribution of the Pretoria club to putting on a good show. Thanks to all those who contributed.



SpringChallenge. Summer has passed with sorting out the clubhouse and Hobby-X, and autumn is upon us, so the committee has set its sights onto the Spring Challenge. A number of competitions are planned, including a table lamp – turned or not, toy designs and a turner's challenge. The turner's challenge is likely to involve making a ball, so pay attention to the upcoming

demonstrations at the next turner's meeting. To simplify the table lamp designs, a complete set of plug, cord, switch and socket will be available to purchase. Details to follow.

Survey. In order to plan future courses and demonstrations a short survey of members turning skills has been included at the end of this month's newsletter.

Saturday Workshop. Ken Bullivant previously held the Saturday workshop at the clubhouse, but when we moved from Helpmekaar, he decided to move it to his house in Boksburg. Currently 5 of our members attend these meetings and more are welcome. The location is 13 Franklin Avenue, Comet, Boksburg on the first Saturday of the month from 09:00 to 12:00. They decide on an annual project and work throughout the year making it. Individual projects are discussed and problems solved. Contact Ken on 082 809 0020 if you wish to take part.

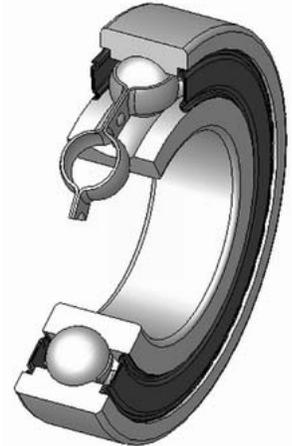
Please Note:

Toymakers. The toymakers meet on the first and third Mondays of every month, at 09h00 till 12h00 at the new clubhouse. Contact Eddie Marchio on 011-678-8062 or [rm22 AT mweb.co.za](mailto:rm22@mweb.co.za) for more information. **No meeting on the 1st April as it is Easter Monday!**

Wednesday Workshop. The Wednesday evening workshops are on the first and third Wednesdays of every month at the new clubhouse, from 18h00 till 20h00. Contact Grant Mackay on 082-391-9769 or [mackay.grant AT gmail.com](mailto:mackay.grant@gmail.com) or [gmackay AT worldonline.co.za](mailto:gmackay@worldonline.co.za) for more information.

For Sale:

NOVA DVR 3000 Brand new – still in the box and never used! R15, 000.00 Contact Werner on 083 454 5945



False Economy

Trevor Pope

Rolling- element bearings rarely give trouble, provided you respect their limitations. If you don't exceed their designed loads, keep them clean, cool and properly lubricated, they should last almost indefinitely. In your wood lathe you will probably find several, two in the headstock, two in the motor and one or more in the live centre in the tail stock. Most of these will probably be so-called deep-groove ball bearings, like the one shown on the right. You can see there is a set of balls running in the grooves in the inner and outer races. The balls are kept uniformly spaced around the circumference by a cage and lubricated by oil or grease. To contain the lubricant and prevent contamination, end seals are fitted. These are the dark grey end plates that can be seen in the drawing on the right.

When a bearing is running in a closed environment such as a gearbox or the axle of car, the seals may be separate, so that the lubricant can circulate to cool the bearing, remove contaminants and have a reasonable life.

The example of false economy that I have in mind is the bearing fitted to the live centre supplied with my Jet 1014 Mini lathe (2004 vintage). The Jet live centre is a cheap and simple design that is also versatile. It has a hollow number 2 Morse Taper shaft that fits into the tailstock. Pressed onto the shaft [54] is a ball bearing [53], and pressed onto the ball bearing is the outer, rotating centre [52]. The outer centre supports a removable pin [52A], that locates in a taper, and can be knocked out using the supplied knock-out bar inserted down the hollow shaft.



The hollow shaft is a useful feature, because it allows drills to be inserted through the tailstock to bore a hole in the work piece. When making tool handles for tools that have a tang that locate in a socket in the handle, the hole can be bored concentrically, without removing the work piece from the lathe. Clearly some thought went into the design of the Jet live centre. However, I think some cost cutting production engineer then spoiled things by installing the wrong bearing in my one.

The bearing used in my example is a 6002Z. This is a common bearing, widely available, cheap and highly reliable. It is a deep groove bearing, so it can take significant radial and axial loads and should last a lifetime. If you look at the data sheets and the bearing life calculator provided by the manufacturer, you will see that even at the highest speeds the Jet Mini can run at, with the largest work-pieces and high tail stock pressures, the life is given in thousands of hours. But the live centre supplied with my lathe failed.

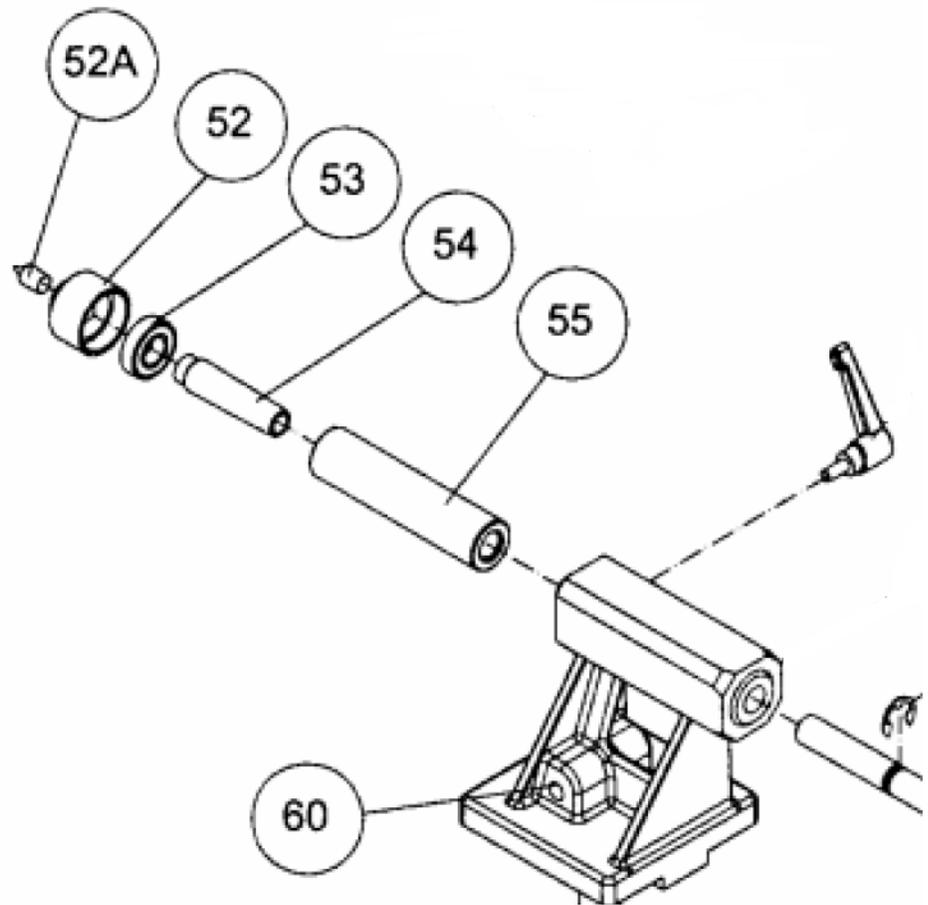
I was doing some through-hole boring at the

time. The drill has to be pulled out frequently to prevent clogging and all the waste comes out through the tailstock bore. Afterwards, the centre became sticky and was inclined to jam. Clearly some of the shavings had stayed behind in the workings. When I checked the bearing part number, and looked it up on the data sheet, I could see what the problem was. The Z suffix denotes a **single** metal seal on one side only. A 2Z or ZZ suffix denotes **two** metal seals, one on each side. There was a seal on the visible side, but not on the inside. The shavings had got into the workings and clogged up the bearing.

The exploded parts diagram from the Jet manual shows the parts of the live centre [52, 52A, 53 and 54]. An excerpt from the parts list is given below. You can see that the lathe manual gives the bearing [53]

part number as 6002ZZ, so the designer did his/her job. Production messed it up!

50	JML-50	Eccentric Locking Rod	1
51	JML-51	Bushing	1
52	JML-52	Live Center Head	1
52A	JML-52A	Center Point for Live Center	1
53	BB-6002ZZ	Ball Bearing	6002ZZ 1
54	JML-54	Live Center Shaft	1
	708331	Live Center Assembly (not shown)	1
55	JML-55	Tailstock Spindle	1



Unfortunately, if you have a Jet Mini, checking the part number on the live centre bearing may not tell you whether it has a single or double seal. The replacement bearing that I fitted was also marked 6002Z and it had seals on **both** sides. Some makes may be marked with a ZZ or 2Z suffix and then you know you will be safe. However, should you clog up the bearing, read on...

How to repair the live centre?

Replacement bearings are about R41- at Bearing Man. They don't even offer the single seal Z version, only the double seal ZZ version. To dismantle, the central shaft [54] was easily be tapped out from the inner race, as it was a light press fit. The outer race was more of a challenge, short of machining a special puller, it was not going to be extracted easily from the live centre head [52]. There are various tricks that can be used, such as heating up the bearing, and hoping differential expansion will loosen the fit. Or a bolt can also be welded to the inner race. I chose to drill two holes in the outer rotating centre

