The Meade LXD55 Mount: Hype or Happiness?

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The Story So Far:

In September of 2001 the murmurs began. Meade was introducing a new line of low cost GOTO scopes with some real aperture, up to 10” in size. All of the scopes were rumored to have a couple of things in common: they were all going to be supported by the same mount, the LXD55, and they were going to be cheap (comparatively speaking) – if you believed the rumors, dirt cheap. Aside from the optics, what was of real and immediate interest for many amateurs was the prospect of an inexpensive medium duty mount with dual axis drives and GOTO capability.

As the release date slipped time and time again, it became evident that for whatever reason, Meade was having some problems getting these scopes to market. They finally succeeded in bringing the mount (along with the scopes) to market in spring 2002.

Its closest competitor is probably the Celestron CG-5, priced at around $450 for the mount and drives, although in this configuration you don’t get the GOTO. If you want GOTO, in the past, the easiest option for the CG-5 was to take the $250 mount and add the $1190 SkySensor 2000 kit – this brings you up to $1440. I’ve just become aware that Chris Erickson has pioneered a Autostar conversion kit for CG5/EQ4 class mounts. More information can be found here http://www.data-plumber.com/autostarupgrade.htm. But considering that for around $700 you can get an LXD55 scope, mount, optics, drives and computer all ready to go – well, it’s no surprise that some amateurs are buying the setup just for the mount. In fact, several amateurs seem to think that the fact it comes with optics is just a bonus.

Facts about the mount and autostar:

The LXD55 is about the same size as a CG-5, and comes with and adjustable illuminated polar scope, counterweight (1 ships in the box with the mount, the others come with the OTA and differ depending on the OTA ordered), Autostar and a 12V DC (8 D cell) battery pack. Meade claims 40+ hours of use from the pack, but this is highly dependent on weather conditions, as well as observing styles. In practice, 20 hours would probably be a better figure. The mount has the standard fine adjustments for accurate polar alignment, and the motors are capable of nine different speeds: 4.5, 3, 1.5, 128x, 64x, 16x, 8x, 2x, and 1x sidereal.

The Autostar provides GOTO functions with a standard database of 30,233 objects, and provides a provision to add your own objects to the database. One of the more interesting things about the Autostar is the ability to create your own “tours” – many are available for download of the internet. Additionally using the Meade 505 cable (or an equivalent) you can connect it to a PC or PDA for optional computer control. More detail on the Autostar can be found on Meade’s web site. A mount plate comes standard, but for users wishing to mount other equipment, the saddle plate is Vixen GP compatible. A wise choice, and a departure from previous logic for Meade. Some users will undoubtedly want the Meade 12V DC adapter cable to power the mount - rather than pay the $30+ many dealers want, I’d suggest you check out the $11 cable from Scope Stuff : http://www.scopestuff.com/ss_cig1.htm while I haven’t purchased one of these myself yet, I’m told it works very well.

Meade claims that the LXD55 mount was designed for “… high performance photo-visual observing”.

Aspiring astrophotographers will thus be glad to know that both axis of the drives use worm gears to produce less periodic error than you would get using spur gears. A spur gear is more likely to introduce random tracking errors while a worm gear has a constant repeatable error that could be compensated for using a Periodic Error Correction Circuit (PEC). For visual strictly observing, either is acceptable. Although the mount is designed for computer control, there is no “out of the box” option for autoguiding or for PEC. There is some hope that Meade will add support for the LXD55 to it’s next firmware release of the APM #909. The APM #909 is an Accessory Port Module designed to attach to the rear cell of the LX90 and connect by cable to the AUX port on that scopes control panel. The APM includes connections for (among other things) a CCD autoguider.

So, is this mount capable of doing what Meade says? Or is it just another over hyped product…

Reality Sets In:

In January of 2002, I began my hunt for a medium duty low cost GEM for visual use. I was looking for tracking capability for a 3” - 4” refractor and other small scopes. In March, as the LXD55 was still largely vaporware at this point, the most viable options appeared to be the LXD500B and the CG-5. Largely because of it’s compatibility with vixen mounting plates, I purchased a used CG-5 and motors (separately). At this time, I also had a telepod head / bogen 3036 combo. My plan was to use the alt/az setup for quick peeks and DSO’s, and the CG-5 for lunar and planetary work. I used the CG-5 for about 5 sessions and sold it (at a large loss). Aside from the ease of use of the alt/az mount, there were several issues that I found fault with on the CG-5. The worst was that the motors induced a “jitter” that was very evident at powers over 200x. I had no desire to purchase the expensive vixen motors (which were reputed to be much smoother) or tinker with it anymore than I had. I was beginning to resign myself to

acquiring a GM8 or a Vixen GP at some point in the future. A thought all the more depressing because of the cost of adding on a goto system for these units (which I also knew I would want to do eventually). For several months the idea of a medium duty GEM got pushed to the far recesses of my mind.

In early September, I attended the 0th Annual Great Lakes Gaze, (you can read my report here if you like http://kevin.badkarma.org/mag/gaze0.htm) and met with several of my cohorts from Michigan. It was at this star party that I was reminded of the benefits of a tracking mount – especially with the planets returning. The hunt for a GEM began again. The same old competitors were popping up – the CG-5, Vixen GP, LXD500B and finally, no longer vaporware... the LXD55.

Meade had recently announced its eyepiece program ($99 for a set of Series 4000 super plossls), and the LXD55's seemed to have many of the bugs worked out. Thinking that I could resell the eyepieces and the OTA, the price of the mount fell drastically. The more I thought about it, the more I realized that I had very little to loose. A mere week or two later – I took the plunge and ordered an LXD55 w/ 6" SNT from B&H photo. I had it within days.

That was the good news.

A yahoo post of mine on Sept 19 reveals:

The LXD55 SN6 arrived today - at least the mount was in good shape. <g> The OTA??? Wellllll - somehow in shipping, the secondary did a parachute drop on to the mirror, and then the mirror and the

*corrector had a good old game of ping pong with it. <G> I called Meade, they expressed their sympathies for my departed OTA (OTA - I hardly even knew ye <sob>) and promised to ship me out a replacement in short order (they hoped -hmmm). Actually, I was sort of impressed by their customer service. Although I must admit I would have been *MORE* impressed if I hadn't had to use it.*

This was not the last I would be dealing with Meade technical support

Fortunately the mount (what I really cared about) appeared to be in one piece. With one exception – the polar scope rotated slightly in its fittings. This was an easy fix. I simply removed the polar scope and reseated it.

In typical astronomical fashion I wasn’t able to get out and observe until 9 days later. Here are some of my notes from the evening of September 28:

The initial alignment was a kick.

I powered up the scope, and picked the first alignment star. The OTA slewed to the general area of the sky and claimed that Altair was centered. Hmmmm - not even if I had wide field bino's. I was probably around 12-15 degrees off. Centered the star, picked another, and was off by another 10 degrees. This was followed by the dreaded "Alignment Failed" message. I'm still not sure what exactly the problem was.

On the second try I got a successful alignment (still 10-15 deg off on the alignment stars though), did a GOTO to M31 as a test, and I wound up nowhere near M31.

Hmmmm.. Well, I had trained the drives before - maybe I should do it again. I spent another 5 minutes training the drives, spent another few minutes getting a fairly accurate polar alignment using the polar scope and tried again (using the 7mm nagler this time (125x) to center the alignment star). FWIW, I was *still* 10-15 deg off on the initial alignment stars. However, after I corrected for that, I got an alignment successful and this time, it nailed M31 dead center. On the eastern ½ of the sky was bang on every target I choose. Slewing to the western sky found targets still in the FOV, but considerably off to the side (although always in the same area of the FOV, which leads me to believe that the problem is correctable). I believe much of my subsequent GOTO problems stemmed from my poor choice of alignment stars. Autostar, it seems, likes alignment stars 90 deg from each other. The ones I picked were only around 50 deg.

On the whole - pointing accuracy was pretty consistent. It put the objects in the same part of the FOV every time. This bodes well for after I get the bugs worked out of my setup.

Any new system needs some trouble shooting. Since this was a fairly complicated setup, (and I had never used the Autostar before) I was pretty patient. Here are some notes from the next session.

I did finally solve the Autostar initial alignment issue. If you recall last time I said the alignment stars were off by 15 degrees or so. Tonight in an effort to combat this, I dusted off the trusty GPS and plugged in the details and exact time for my site. This solved that problem. Tonight there was no doubt about which alignment stars the computer was trying to choose. Each star was well within the FOV of the Quickpoint.

For some reason the lat/long of Saginaw appeared to be off. That may simply have been because I was expecting it to be closer - still…

Additionally, I did determine how to "sync" the Autostar to improve alignment in a certain portion of the sky (press enter for two seconds and then press enter again to sync). However - solve one problem and two more crop up.

The first had a VERY easy solution. As I began observing I started to loose pointing accuracy. Finally at one point, I asked it to slew to M31, and it came to rest somewhere in the Big Dipper. Hmmmm… Well at first I put it down to a computer glitch. But upon examination - I didn't have the RA and Dec locks tightened! The Dec lock in particular was a culprit in yet another issue for the evening. The Dec lock

needs to be tightened, and then tightened a *bit* more, otherwise there is just a tiny amount of play in the dec axis and this played heck with the pointing accuracy. Note: Make sure all axis are locked!

The second was a bit more confounding, although I believe I diddiscover the solution later in the evening. I had serious issues with the autostar. It crashed a total of four times over the evening. Once it hard locked while scrolling through a tour, once the display blanked (the lights remained lit) and twice the thing simply reset itself.

I've upgraded the ROM to 2.ec (the latest from Meade's site as of yesterday), but I was experiencing a most annoying set of lockups. The batteries are fresh - this was the second session I've used them and when I checked the gauge, it read 100%

Somewhat frustrated, I began to pack it in for the evening, and I did suddenly notice that the Autostar cord had wrapped itself around the power cord. As I walked around the mount holding the Autostar, it invariably pulled on the power cord. When the mount slewed, it would also catch the Autostar cord and thus the power cord. Hmmm - it seems that computers like a steady supply of power (Who would have thought? <g>). Taking a moment to unwrap the two, and ensure that I had slack just in case the power cord did catch on something seemed to give me very good results for the next 30-40 min or so.

In the end, I was to discover that the problem lay with the Autostar itself. The onboard port and cable were bad. A call to Meade promptly found a new one winging itself across country to me.

Two months after I purchased the mount, I finally appeared to have all of the difficulties straightened out. My self imposed break in time was over, and the Autostar learning curve had peaked.

Every system I've used has a "get acquainted time" where you learn what works and what does not. Some are shorter than others. The complexity of the autostar and the GEM add to this period for the ldx55 series. This increases the frustration level for some folks.

The Final Verdict:

Currently, I find myself quite pleased with the mount. The drives are extremely smooth and using my TV102 at 294x reveals no image damaging jitter whatsoever. Pointing accuracy is adequate and performs to my expectations. Using the stock legs, with a 14lb load, the tripod takes approximately 3-4 seconds to cease vibrating after a sharp rap on the leg – vibration suppression pads take 1-2 seconds off that time. For this load, I find that acceptable. I can’t imagine putting anything much heavier on it without replacing the tripod legs. I am quite fond of the Autostar, and have even taken to writing tours for it. I’ll also say that the LXD55 beats my CG-5 hands down. Now this may not be a fair comparison: my CG-5 was used, and perhaps not in the best of shape. Fit and finish is decent as well. It’s not TeleVue, Losmandy or AP, but it’s certainly on or above the level of comparable mounts.

You have probably heard the cheap grease many companies are using acts more like glue in cold

weather. I've often heard people say the first thing they do too improve many of the inexpensive imported mounts is replace the grease. I've used the mount several times in what I consider to be cold weather (10 F or below) and found the observer tends to freeze more easily than the mount.

As to the astrophotography questions – while I never intended to use this mount photographically, I'd have to say that it would probably be a fairly poor choice for any serious undertakings. In my opinion, its two greatest faults are that there is no current provision for an autoguider, and the tripod legs are the cheap aluminum ones that are becoming so prevalent in the astronomy world. Several companies offer replacement legs, and if you were going to use anything heavier than 14 lbs (and the 10 lb counter weight), I'd recommend replacing them, even for visual use. Currently (1/22/2003) there is no autoguiding solution for the LXD55, but I've heard there are several in development.

I'll admit Meade's technical support impressed me although, as I've said, I would have been MORE impressed if I'd not had to use it. Quality control is certainly an issue, BUT support is NOT. The two offset somewhat in my mind. Meade has done their best to make things work for me. I'm not typically much of a Meade fan, but I will certainly give credit where credit is due.

For any product in this price/class I would expect a certain amount of issues. It's simply not realistic to think you are going to get GM-8/Gemini quality and performance for LXD-55 prices. I probably would not recommend this mount to a beginner. Why? Take the incomplete/poorly written manual, and combine it with a newbie (who will naturally be attracted by the low price) and a GEM and then throw a computer with all it's potential for problems on top of it all… Well that's not a recipe that's going to result in a lot of happy folks. I would give it a strong recommendation to a somewhat experienced amateur looking for excellent value for his/her dollar (pound/euro/yen) IF they are somewhat patient and willing to work with issues that may/will arise.

It's not perfect, but given the price, I never expected it to be. I'd also never expect a CG-5 to perfect out of the box. If you want perfection you probably don't want this product. If you want to save some money, and are willing to work through any issues that may come up then it's an excellent value.

Overall, I'd rate this mount better than the CG-5 samples I've seen, but not as nice as a Vixen GP or a Losmandy GM8. Even with its warts, Meade should be applauded for bringing such a low cost GOTO German Equatorial to market. It's a shame they don't sell it separately.

I'm at the stage that where I'd much rather spend the cash on the optics than the mount. For my small scopes the LXD55 is a near perfect fit.

Tom Trusock has been an amateur astronomer for several years, and is currently enjoying teaching his 20 month old daughter words like: Telescope, Refractor and Al Nagler. He already has her first scope picked out, but due to some dissention in the ranks has not been able to purchase it yet.