breuer tonearm manual

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Book Descriptions:

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In spite of this fact, it is the tonearm in conjunction with the cartridge which determines the output quality of any high fidelity system as a resonance product. This system provides a natural, vibrant response. Such a synthesis is vital for tonal definition. This is the only way to guarantee uniform tracking quality for each tonearm. Breuer Dynamic Tonearm owners manual, service manuals and schematics are for reference only and the Vinyl Engine bears no responsibility for errors or other inaccuracies. The PDF files are provided under strict licence. Reproduction without prior permission or for financial gain is strictly prohibited. This website is not affiliated with or sponsored by Breuer Dynamic. Another Old Pls50 Question Does A Stylus Affect Volume. Heybrook Tt2 With At1100 In. 1219 Arm Position Challange. The Breuer Dynamic arm was thus the forerunner of, and the inspiration for such later arms as the Sumiko; the Linn Ittok and the SME V. It is said he designed and built the pickup arm for his own use, since he was dissatisfied with other commercial designs, as these did not measure up to his high musical and technical requirements. Like the original Suganobuilt Koetsu cartridge, Breuer went into smallscale production, working alone and making no more than he could comfortably turn out to his exacting standards. Thus each and every Breuer arm is hand built and tested Breuer personally signs the warranty card supplied with each arm. However this belies the fact that the arm employs some 120 parts, many of which are hand made and the arm is assembled by hand; so good is the fit and finish it just oozes Swiss precision.In early versions the arm tube was given a pale goldcoloured anodised finish; later models post 2000 the colour was changed to black. Fitted to the arm tube, at the cartridge end, is a thinwalled perforated aluminium headshell.http://www.dasita.com/files/egreat-m34a-manual-pdf.xml

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It is said that Herr Breuer considered a bent arm tube, but rejected this after having observed, over a period of many months, a very small relaxation in the angle of the bend. This gives one an idea of the fastidious research that went into the design. The arm has a very low effective dynamic mass of 4g. One part is a very snug fit to the arm tube using a PTFE sleeve. The second, heavier, part screws onto the first part, with an Oring seal to provide a precision fit and to offer a certain amount of decoupling from the first part. Owing to the airtight seal provided by the Oring, a tiny hole is drilled in the rear of the counterweight so as to allow the two parts to be screwed in and out. The counterweight component parts are machined from brass and given a clear lacquer finish. This is sufficient for the great majority of cartridges, but not all. The exceptions being the gemstonebodied Koetsu cartridges, both the EMT HSD6 and JSD6 models and the Denon range. Sadly I cannot give you precise details of the bearing used whether they are needlepoints running a jewelled cup, or precision ballrace types, suffice it to say they are precise with absolutely no play whatsoever. Such is the quality of the bearings that it is said they can take a 50Kg load and still the arm will move if breathed upon. The quoted bearing friction is 10mg in either plane. One of the vertical plane bearings has a knurled knob that provides dynamic tracking force adjustment using a hairspring. Likewise, the upper horizontal bearing has a similar knurled knob to provide antiskating bias, again via the use of a hairspring. The axis of the bearings in the vertical plane is at right angles to a line running through the cartridge cantilever.In my nearly thirty years experience with this arm, it has behaved flawlessly.http://www.pandawakaryacitra.co.id/fabercms/userfiles/egreat-m31b-manual.xml

Although these wires are distinguished by different coloured insulation, the distinction is not very clear and it is recommended that short lengths of coloured sleeving be fitted over the cartridge tags.This is a deliberate design feature, since Herr Breuer believed the arm should not be cued by hand; instead the damped cuing device should be used to raise and lower the arm, which can be moved horizontally by sliding it along the cuing support with one finger. These are a fluid damping dashpot, similar in design to the SME FD200, and an arm height adjusting device allowing realtime adjustment of vertical tracking angle. This latter device, although now prevalent on several upmarket arms, was unique at the time. Unfortunately I have no experience of these two items, so cannot discuss them further. The arm needs to be mounted on the turntable arm board such that the distance between the axis of the turntable spindle and the centre of the armmounting hole arm pivot point is exactly 208mm. Most arms come with some sort of mounting template, usually made of card, but for the Breuer arm this is a precision metal device available from the dealer. Consisting of an aluminium strip with a hole at one end that slides over the turntable spigot, and at the other end a much larger hole into which a template tube can slide through the template strip and thence into the arm mounting collar. In this way the armmounting collar can be located on the turntable arm board so as to provide enough clearance for the tonearm when the turntable dust cover if used is closed. Once the correct location is found, one of the mounting collar fixing holes is marked out, drilled and the collar fixed with one screw. Then, being careful not to move the collar, the template tube is removed and moving the template to one side, the remaining two fixing holes and the large centre hole of the collar are marked and drilled. Once the collar is fixed a final check is made with the template and tube.

The low effective mass permits the use of both high compliance designs as well as those having a lower compliance. Indeed the Breuer was one of the few arms available recommended by Sugano for use with the original Koetsu cartridge. The only real limitation on choice of cartridge is the internal width of the underside of the headshell. The widest cartridge width that can be accommodated is 18mm, however the only cartridges to my knowledge having widths greater than this are the Linn Asak and it successors, and possibly the Fidelity Research MC201 and MC202 designs. First mount the cartridge in the headshell with the supplied screws. Should longer screws be needed they could be obtained from the dealer, however there is no reason why suitable fixings from an alternative supplier should not be used, despite Breuer’s recommendation to the contrary. When fitting the cartridge into the headshell, the nylon washers supplied should be fitted under the heads of the screws, on top of the headshell. Next fit the cartridge tags. Being made of pure silver they are fairly soft and can be bent easily to fit various pin sizes. Now this is a difficult dimension to achieve it is virtually impossible to measure this distance with sufficient degree of accuracy.However, as alluded above, a discrepancy arises between aligning the cartridge using a protractor designed using the tonearm geometry, and Breuer’s own advice. It is thus clear that a commercially available alignment protractor cannot be used as the great majority of these are marked with the nullpoints corresponding to the Baerwald prescription. In this position it was found the stylus was about 2mm in front of the forward edge of the headshell and not 4mm as recommended by Breuer. Well given the importance Breuer places on precision and the care he has taken with the design of the arm and its geometry, it is surprising and puzzling that the above discrepancy manifests itself.

Small balance corrections can be made by turning the outer part of the counterweight. A provisional tracking force of 1g is applied by adjusting the dial on the right side of the tonearm pivot assembly and the stylus allowed to rest on a record. The tonearm height is adjusted by slackening the setscrew in the armmounting collar that holds the arm column in place. Breuer claims this last adjustment is essential if severe intermodulation distortion is to be avoided, however the best advice is for the listener to make these adjustments by ear. To help, the fitting of the arm height adjustment device is recommended as it was designed to permit fine adjustment of tonearm height. Before mounting the arm, the arm height adjustment device is slid onto the arm column, then the arm is

mounted on the turntable and the height adjusted as described previously. Lock the fineadjustment device so that it will support the arm at the same height, having assured the device is turned so that the vertical adjustment screw is beside the cuing lever but does not interfere with it in any way. Release the locking screw in the arm collar and make the final height adjustment with the vertical fine adjustment screw. Turning the screw by one division on the scale changes the arm height by 0.05mm resulting in a change of 0.75 minute of arc in arm angle; a full revolution equals 0.5mm resulting in a change of 7.5 minutes of arc. Breuer recommends that half of this figure should be achieved by adjusting the counterweight and the other half by turning the tracking force dial on the side of the arm pivot assembly. Again the use of a good test record is recommended to help find the correct setting. This is especially difficult to do with fixed headshell arms. This effect applies to the whole frequency spectrum; there is no curtailment of performance at the frequency extremes, as there are with say the SME Series II designs.

The Type 5 is extremely dynamic, transparent and open, with no trace of overhang as such, it would be interesting to hear how the Decca cartridge would sound mounted in the arm. And, as has been speculated, the combination of the Breuer with the Decca Reference cartridge mass 6.5g is a very tempting proposition. It will also counterbalance a greater range of cartridge masses, such as the heavy stonebodied Koetsu range. Sadly, however Breuer Dynamics now no longer seem to be in existence. Though not a Breuer design, the Brinkmann 10.5 arm is clearly based on the Breuer Type 8, both in visual appearance and specification, and is now the closest one will get these days to an original Breuer arm. It is not quoted in the installation instructions. If it is a measurement supplied by a user, then the measurement could be in error. Rarely seen stateside, the Breuer enjoys a legendary status that is nowadays also enjoyed by Frank Schroeders Reference arm. Both the Breuer and the Schroeder arms are handmade works of art. Among analog aficionados with a more global perspective, Schroeder and Breuer occupy an exalted status that we more provincial types here in the States tend to confer on Graham and Triplanar. So it is in audio; so it has always been. Ecumenicalism is not a concept that has much traction in audio.The net effect is the Brinkmann 10.5, which unsurprisingly resembles the Breuer. It is also one hell of a fine arm. It is elegant, easy to set up and use. Adjustments to VTA, HTA, azimuth and tracking force are easily performed and once optimized, stable over the long term. The ideal for those who adopt the fixed bearing approach is to eliminate any play in the arm. If the tonearm moves too much in response to the energy traveling from the groove through the arm, the arm will ultimately lose its stability and be unable to adequately track the record and reproduce the music accurately. No play may be the ideal but it is of course impossible to secure in practice.

The fact that the ideal cannot be realized in practice has led other designers to abandon the pursuit and adopt a unipivot approach e.g. Graham or variations SMEs knife bearing; Schroeders magnetic rejection; Well Tempereds strung paddle in silicon goop. The net effect of this approach is realized in great tracking and explosive dynamics. The Balance I reviewed came fitted with the recommended Brinkmann modified EMT. I am a huge fan of cartridges from the Ortofon SPU and EMT families. My reference cartridges are a Shindo modified SPU classic, a Denon 103 and the Roksan Shiraz. The latter is a modified EMT. Einstein also of Germany as well as Brinkmann modify EMTs. It is worth noting that van den Hul cartridges began life as modified EMTs as well. The Brinkmann modifications are designed to control resonance and in doing so, to increase clarity and extension beyond the original. For the same reasons, the headshell is nondetachable and the surface of the arm tube has also been treated with special anodizing. A double gimballed suspension, with precision ball bearings free of play, ensures precise and frictionless tracking. The vertical downforce and the dynamic mass can be adjusted over a wide range thanks to the split collar counterweight. Skating is compensated for without any contact by magnetic force. Too bad you actually will hardly ever notice any of these efforts. Because simply put, the better a tone arm works, the more youll hear what has been cut into the vinyl music! Adjustments to VTA, HTA, azimuth and tracking force

are easily performed and once optimized, stable over the long term. The Brinkmann arm is a fixed bearing. The ideal for those who adopt the fixed bearing approach is to eliminate any play in the arm. The fact that the ideal cannot be realized in practice has led other designers to abandon the pursuit and adopt a unipivot approach e.g.

Graham or variations SMEs knife bearing; Schroeders magnetic rejection; Well Tempereds strung paddle in silicon goop. Rather than abandon the fixedbearing no play ideal, Brinkmann, like Breuer, employs extremely small precision selfaligning ball bearings machined to very tight tolerances in Switzerland which enable the arm to approximate the fixed bearing ideal while allowing the arm to move with the least possible friction. The net effect of this approach is realized in great tracking and explosive dynamics. In essence it explains how Helmut noticed that the tiny screws that adjust the cantilever on the EMT cartridge were made of steel and realising that this was probably not a good idea he set about trying screws of different materials and in different arrangements to find the best sounding arrangement. These screws are 1mm in diameter, the man's attention to detail is clearly in another league to that normally encountered even in German engineering. After considerable experimentation he came to the conclusion that having one of the three screws in titanium produced the highest fidelity. I'm impressed that he made the time to listen, clearly German TV is no better than the programming we get over here! It was preceded by the Oasis which looks like the same design on a plinth and has the same rather elegant drive system. The motor and the bearing are one piece, that is they are combined because they both need to be in the same place. This is obviously not new, Technics and many other Japanese manufacturers did something similar over thirty years ago but I can think of only one other example with audiophile aspirations. That example is the Goldmund Studio which is no longer produced but had a pretty strong reputation even in the context of that company's exalted rang While the idea of putting the motor around the bearing would seem to be a logical thing to do in practice it's not without difficulties. Brinkmann has sought to combat this by placing the coils at 22.

5 degrees to one another and having overlapping magnetic fields, this was found to reduce cogging and make for higher sound quality compared to a traditional 90 degree layout. The Bardo also has somewhat more substantial platter than direct drives of yore, it weighs 22lbs 10kg and the inertia that this provides further helps to smooth out anyremaining cogging. A digital system would be simpler but its RF emissions were considered to be a hazard tosound quality. The latter is large enough to accept arms from nine to 12inches in length and Brinkmann makes two tonearms the 12.1 and the 10.5, the name indicating size. Both are based on the classic Breuer design and have gimbal bearings for both axis. The counterweight is a split type that can cope with a wide range of cartridges but the effective mass of 12g would appear to suit moving coils. It also has a resonance optimised contact patch or mounting made with a sandwich of materials. It has a Van den Hul stylus and various other modifications as well as a medium to low compliance suspension. Inconveniently the XLR outputs are not channel marked so you need a familiar record to establish this particular fundamental. Even though few phono stages take advantage of the fact the phono cartridge is naturally a balanced output transducer, so XLR sockets make a lot of sense. Fortunately I was able to use a another German component to assess its potential in this respect, namely a Burmester 100 phono stage which has the requisite sockets and is a very fine piece in its own right. It comes with a screw down clamp that's made to the same high standards as the rest of the player but you need to route around in the box and find the component that sits under the vinyl to give the clamp something to dish over. Much like the the output channels the user manual fails to mention such niceties.

You don't need it to use the thing but it's relatively inexpensive and has a positive effect on the low end performance, adding gravitas and power that you don't get even with a well isolated stand. This 1.25inch thick slab is supplied as standard in the US but it's a 339 extra in these parts. The balance is on the lean side really but it could never be described as forward, in fact it's very good at getting

out of the way and letting the music through in all its emotional glory. It sounded very real thanks to the layers that the Bardo reveals in pretty much everything you spin, it also extracts the life in the recording in no uncertain fashion. A lot of seemingly neutral turntables fail in this crucial respect and effectively undermine one of the key qualities of vinyl, but this one lets all the vitality of the music out in the context of a presentation that's as open as the recording allows. Its timing, while strong, is not in the front league, high mass turntables, whatever the drive system, rarely are but this is not all that apparent without comparison. What it does rather obviously is put the music squarely in the room, it creates a physical presence that makes everything in the mix more real and tangible. This is largely because it tracks dynamics so well, maximising the contrast between the various instruments and voices in the mix gives the result a true sense of life that is hard to resist. As mentioned the Bardo can sound a bit lean at times and needs the rich muscularity of the EMT cartridge to balance this out, but its tautness and body with a van den Hul Condor is also extremely engaging. So much so that I found myself listening at unnecessarily high levels just for the fun of it. Under such circumstances its musical skills are brought to the fore and the records sound even better, at least for as long as the neighbours can tolerate it. In the B a r d o 's hands the second track Mourning Grace changed all that.

What makes them good is not merely the drive system but the attention to detail that Helmut Brinkmann puts into their creation. Combine that with its skyhigh price—itself almost obscene—and the result is apparently the sort of product that envious, cynical, selfloathing audiophiles love to hate, and reviewers love to write about.But there was a method to Grahams madness—hed designed his arm to be a dropin replacement for more than 20 years worth of SME arms, all of which shared the same mounting platform.Back in 1877, Thomas A. Edisons original machines tangentially tracked his cylinders, but Emil Berliners invention of the flat disc put an end to cylinders altogether. In 1963, Marantz introduced the SLT12, which used a plastic pantograph to move the stylus across the record surface. Garrards Zero 100 pivoting arm controlled its independently pivoting headshell with a bar that extended from the main bearing of the tonearm.While some of its design details resemble those found on other products, in many significant areas the arm is unique—not for uniquenesss sake, but in order to efficiently implement some clearly considered goals. If the unipivot RPM2 bears a resemblance to any other contemporary arm, it is Naims highly regarded ARO—which Ive never heard. The similarity, though, would appear to be superficial.His turntables and tonearms are industrialstrength examples of engineering knowhow and machining excellence. But to those who appreciate such things, his products are truly beautiful, even if theyre not adorned with chrome, wood, and sleekly polished surfaces. But first, this messageKuzmas early industrial designs, however, while serviceable, looked less than distinguished. Why are they so popular then. Because they're small, inexpensive and the purchaser doesn't have to think about piecing together an entire system; it's right in front of them.

While the new P324 superficially resembles the P3 and virtually every other Rega table, the company has made some significant changes, including upgrading to the highquality, lowvoltage 24V, electronically adjusted motor used in the more expensive P5, P7, and P9. As in those models, an electronic circuit trims the phase angle of the P324s motor coils, thus substantially reducing motor vibrations. In 1998, during a factory tour, a Rega engineer demonstrated the circuits effectiveness to me. As he adjusted the circuit boards pot, vibrations from the motor dramatically decreased, until it was difficult to tell if the motor was spinning or not. The P324 uses a less sophisticated version of the same basic idea.By definition, a pivoted arm cant do that, so the goal there is to minimize the deviation. Thats basically it. Right Hes also an analog enthusiast who melds aesthetic and technical considerations into eyecatching, densely packed, compact recordplaying devices that are ruggedly built and functionally elegant. His turntables smooth, mattegray, metallic finishes and efficient lines make them among the most visually pleasing ever made. In the 1960s and 1970s, the original SME models 3009 and 3012 were by far the most famous and copied. They were on numerous turntables

and even phono cartridges were designed around them. A totally new type of tonearm was needed to optimize the potential performance of these new heavier pickups. Especially noteworthy were the Linn Ittok, SME V and IV, the Eminent Technology and the now unfairly forgotten models from Fidelity Research. There were many other innovative designs that offered excellent value and performance for the money. Many of these new models were designed and built in Asia, which offered lowpriced yet top quality engineering and technical skills. If not, its performance will always be compromised.

Within the last decade or so, there have been important and serious technological advancements in pivoted tonearms, which is now reflected in the models discussed below. However, as can be expected with any tonearm, there are critical qualifiers and conditions that must be taken into consideration before making an actual commitment. My Methodology A direct comparison with the Graham Phantom Supreme was conducted twice; The first time was in December 2012, with the original ZYX UNIverse, and with Jean Nantais Lenco present and assisting me. A second comparison was made in late September and early October 2013, with the ZYX UNIverse II X, though this time by myself alone. In both instances, the rest of the system remained exactly the same with one exception during the first comparison, see below. The details. II version of the Reference Lenco which I ended up keeping. Near the end of his one week visit, we replaced the Graham Supreme with the Talea II. This was basically an entire days project. That evening, we spent another 6 hours listening to it, while attempting even more fine tuning, though, by then, any changes were extremely subtle. This is what we both observed. This superiority was noticeable to us in less than a minute, and was consistent as well, at least with any record that had the appropriate musical material. However, there were downsides as well, just about as obvious, and which became more noticeable over time. It appeared that everything from the upper bass on down was attenuated and, even more important, noticeably compressed except the deepest bass, which was still powerful and defined. On certain records, I still preferred the Talea, because its problems were not exposed by the music, but on too many other records, those same weaknesses, with the UNIverse, were just too obvious and important musically. The Bottom Line I just couldnt live with them.

Meanwhile, Joel Durand, the designer of the Talea, had sent me a second tonearm wand, this time with a DIN jack, unlike the Talea II that Nantais and I had heard, with a preattached Discovery phono cable. This meant that there was one other factor, besides the tonearms, when we made the first comparison. With the DIN jack, both tonearms would now be using the exact same phono cable.The final results were surprising to me, though I believe this was mainly due to the inevitable prejudice created by the initial comparison. Fortunately, reality overcame prejudice in this instance. This is what I observed The Talea was also more articulate and had slightly better flow and timing. However, importantly, the sonic differences were much more subtle than before see below. The Talea almost sounded like a different tonearm with the UNIverse II X. The Graham was still slightly more extended and powerful in the bass, and still had a little more body and weight. This proves the cartridge is a critical factor when evaluating tonearms! The Bottom Line They are both outstanding performers, and I can live very happily with either tonearm with the ZYX UNIverse II X. Still, if I was forced to choose just one of them, to use with the II X, with cost not being a factor, which tonearm would it be. It would be the Talea II, though by only a small margin. For me, the subtle sonic advantages enjoyed by the Talea II trump the fewer subtle sonic advantages of the Graham Supreme, on the UNIverse II X, when it comes to reproducing most music. According to Jean Nantais, who has more practical experience with the Talea II than any independent observer I know of at this time, the Haniwa cartridge is another excellent choice for the Talea II. What about me. This is obviously a personal choice, based primarily on my circumstances. The goal of this short review is to assist serious audiophiles in making their own choice between the two finest tonearms Ive ever had the pleasure to use.

This might account for some of its sonic advantages see below. The DIN plug on the Talea was more convenient for switching phono cables with the Lenco, since it could be placed in a various positions, while the Graham required a DIN cable to connect to the bottom of the tonearm. Its azimuth adjustment, which can be used during play, is also preferable. However, I preferred the VTA adjustment on the Graham, because of its easy to read numbers, though both tonearms were easy to optimize. The Taleas VTA lock should be used if a setting is finalized, since it appeared to improve its performance. I also preferred the finger lift on the Graham, which made it easier to control and position, but I became used to positioning the Talea pretty quickly. However, when I reoptimized the Graham a few days later, with the assistance of one of my associates, those same differences were noticeably reduced, and are as now described above. This is more evidence of the critical nature of an optimized setup. In fact. It is also the finest tonearm Ive ever heard in my system, pivoted or linear. While I immediately heard an improvement when first using the Supreme, I had to make the distinctions between the tonearms per se, their respective arm tubes which are interchangeable , and even the basic setup since I sadly learned that my II was not completely optimized when I setup the Supreme.Finally, the small space separating the two opposing magnets the Magneglide system is slightly wider in the Supreme. I will try to find out the truth. Bottom Line The arm tubes are different. In what manner remains to be discovered. This is also noticeable at all volume levels. It is also slightly less homogenous than the II ceramic. A very nice improvement, which is easily noticeable and with no sonic downsides. Those concerns proved warrantless. This seeming inconsistency requires an explanation. In this instance, for me, the Supreme achieved that desired goal.