son fall into the 'super' league if only by virtue of the prices asked for them: least expensive of the bunch is the Kuzma Stogi at £299, followed by the Alphason HR-100S-MCS at £385, and, ahead by a reasonably healthy margin, the SME Series IV which retails for the not inconsiderable sum of £675. In truth however, although the Kuzma looks inexpensive by comparison, even it is not a 'cheap' arm in reality. When buying an arm at this price, one would expect to own a turntable of LP12 or Roksan standards and be looking to extract the best performance available from it, and that is not strictly possible for beer budget money. The best always costs!

Starting with the dearest of the arms, we have the SME Series IV. This is basically a cost cut version of the famous Series V tonearm but nonetheless shares many of that design's components. Had the IV been treated to the same black finish as its more expensive brother it would be hard to differentiate between the two given just a cursory glance. The most noticeable omission on the Series IV is the dial-in vertical tracking force facility the Series V offers. Tracking force is instead set by means of the counterweight. Hidden from view are the slightly lower quality bearings used here: but that is not meant to be taken as a criticism as they are still reckoned to be better than most that are currently being used elsewhere. It's simply that the Series V uses extremely highly specified races - which one has every right to expect considering its extremely highly specified price!

Now it has to be said that SME certainly know how to present a product: the Series IV greets its purchaser from within sturdy and attractive packaging that also contains mounting and headshell hardware, all the tools necessary to align and adjust the arm, and an alignment protractor. Also included is what must easily qualify as 'the best instruction book in the world': from drilling out the hole in which to mount the arm, right through to actually using it once installed and aligned, each stage of the operation is clearly explained by text with accompanying photographs. Although the set-up procedures are perhaps more complex than usual, you'd have to try very hard to make a mess of things with instructions that are so well laid out and comprehensive. I'm sure that in practice, however, the initial installation work would be handled by the dealer from whom you purchased the arm, but the book will still be of use if, for example, you ever decided to change to a different cartridge which required realignment.

On the subject of cartridge fitting, the Series IV differs from the norm in not providing slotted fixing holes in its headshell. Instead there are just two 'fixed' holes at the standard half-inch spacing. Where one would normally align the cartridge by sliding it fore and aft along the headshell, with with the Series IV this adjustment is accomplished by moving the arm as a whole forward or backward on a rack and pinion type arrangement within its mounting base. It's a simple but effective method and doesn't seem to rob the arm of any of its rigidity or security.

Fitting the arm onto either of the turntables I used posed no problems at all and the swivelling output socket which accepts the arm lead meant that dressing the cable to adapt to the particular and different requirements of the LP12 and Xerxes in this respect was simple to execute. Cartridge mounting and adjustment - I used an Audio Technica AT-F5 for the bulk of my listening - was equally simple and trouble free. Tracking force adjustment becomes delightfully easy after the first attempt has familiarised one with the procedure: the balance weight is freed by twisting its clamp lever anti-clockwise and then moved by rotating a thumbwheel until the arm goes into equilibrium. When this state is achieved the thumbwheel, which is marked with arrows and the letters A-B-C-D at quarter turn intervals, is again rotated to apply the requisite amount of downforce. Once dialled in the balance weight is locked into position by turning its clamping lever clockwise. Anti skating is then set by a calibrated dial and SME's suggestion that it should be adjusted to read the same value as the tracking force applied seemed correct. Correct VTA setting - if it happens to be a hang-up of yours - is easily and accurately accomplished with help from markings on the alignment protractor.

Once fitted and adjusted the arm proved a real pleasure to use. Being so beautifully constructed and so finely finished, it is, for someone who appreciates high class engineering, a joy to simply handle the Series IV. The only cloud on the horizon in this respect was the rather flimsy, detachable headshell finger lift: this item can be dispensed with if one feels confident about cueing discs without it - I do, so it was! The excellent lift/lower

device on the arm makes the finger lift redundant anyway.

Now whilst it is fairly apparent to even the most casual observer where the money goes with an arm like the Series IV, one has too look a little harder at a product like the Alphason HR-100S-MCS which tends to hide it's technology under a rather less obvious exterior.

Where the SME features a magnesium arm tube, the Alphason designer has chosen to use titanium for this part of the HR-100S. Unlike the other arms in this test, the Alphason's arm tube is 'S' shaped and has a non-joint headshell: the platform onto which the cartridge is bolted is actually the result of opening out and flattening the end of the tube; a strengthening plate is then bonded to the underside of the platform. The tube is also internally damped.

The arm also departs from standard practice in the bearings it employs. Its designer, Mike Knowles, looked at all the different bearing choices open to him when he designed the arm and decided that he was not prepared to accept the compromises inherent in the available options. His answer to getting a bearing that would offer the lowest level of friction possible, with the minimum of unwanted play, and maximum robustness and reliability, was to use a ceramic material (said to be twenty times harder than conventional bearing materials) which is diamond polished for the pivots. The result is a bearing which he claims will be more resistant to the kind of abuse that some end-users of expensive arms see fit to inflict upon them: careless removal from arm clips, and changing cartridges with the arm still attached to the turntable. In the latter case this a useful provision as the arm cable is non-removable. With the arm fitted to a Linn Sondek this means that changing a cartridge will entail the removal and replacement of the cable's P-clip each time the arm is removed - something many users not versed in the art of Linn setting-up would, quite rightly, not wish to attempt.

The version of the arm we tested comes fitted with Mono Crystal Silver cable throughout, van den Hul M.C. D-502 - hence the MCS designation - which caused no problems when being 'dressed' to suit either the Linn or Roksan decks. Although I didn't have a non-MCS version to hand for comparison I think I'm right in my assumption that this cable does contribute noticeably to the overall character of the arm's sound.

Fitting and setting up the arm posed no major problems. It fits into a standard Linn pattern cut out and - unlike the other two arms tested here, which are both rather heavy - doesn't tax one's ability to get the suspension of a sprung turntable bouncing freely and evenly.

The arm is balanced by sliding the counterbalance weight over a rotating sleeve on the rear of the arm tube. Once equilibrium is established the counterweight is locked onto the rotating 'thimble' with a small grub screw. The thimble - uncalibrated - is then turned towards the bearing assembly to apply tracking force. The number of rotations needed to apply the correct amount of downforce depends upon the counterweight in use: I used the standard weight which is suitable for cartridges weighing between 3 and 8 grams, and in this case one complete turn applies 0.25g of downforce. Two other counterweights are available which will balance out cartridges weighing up to 30g.

Arm height - hence VTA adjustment, tweak freaks! - is set via two locking screws in the arm mounting bush. I'd suggest that if using this arm on a Linn or similar deck, you set the height approximately before clamping the arm cable, for obvious reasons.

Finally, bias force is applied in the old fashioned manner with a falling weight and thread arrangement. I can see why the designer opted for this method on this particular design, but I must confess that in general I find it a right, royal pain in the nether regions. Magnetic or spring applied bias is so much less of a hassle to set up and adjust and is also less prone to disturbance. The arrangement on the HR-100 allows the weight to foul on the sides of the tube in which it hangs if the arm goes slightly off level or if the deck's suspension is excited. A very small failing maybe, but a failing nonetheless. Like the SME, the headshell finger lift is optional. Again I chose not to fit it.

The arm comes well packaged, if not as lavish in this department as the SME, and is accompanied by alignment and mounting protractors and easy to follow instructions.

The third arm in the line-up comes not from these shores but from far-off Yugoslavia. The Kuzma Stogi certainly doesn't have the cosmetic lustre of either of the British arms but it does look extremely purposeful and businesslike. Looking at it you would guess that it is heavy - and you would not be wrong. It weighs in at about 750 grams, which is quite some tonnage for a tonearm: the Linn suspension coped with it manfully however and naturally it posed no problems on the unsprung Roksan.

The only problem one might encounter with this arm because of its bulk, is being able to play records with the turntable lid closed. Using a 'tall' cartridge might mean having to jack the arm height up to keep the arm tube parallel to the record surface. One then might reach the point where the upper part of the arm's bearing block comes into contact with the turntable lid. This is of no consequence to me as I prefer not to use the lid on my deck. In the cause of science I tried using it briefly with both an Audio Technica AT-F5 and Linn Karma fitted to the arm and enountered no such problem. Like the Alphason, the Kuzma mount fits a standard Linn pattern cut out.

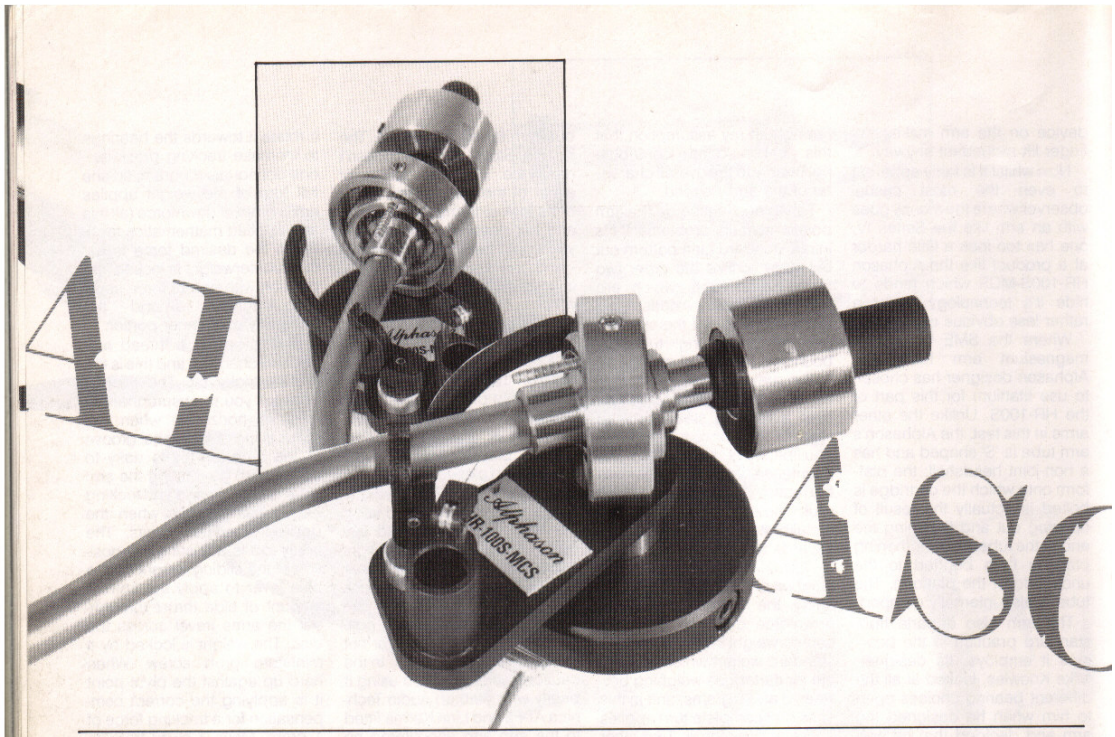
Whilst one could say that the Kuzma looks a bit stark and spartan when compared visually with the SME one has to remember that such considerations are mere superficiality if the product delivers the goods (more of which to follow). One also needs to take into consideration the price difference - for the cost of one SME IV, one could still have change after buying two Stogi's - or should that be Stogii? I'll confess to actually quite liking the way it looked - its aesthetics have a functional simplicity that many will, I'm sure, find rather appealing.

The arm took but a few minutes to set up once installed. Again, if fitting it to a Linn, you are advised to set the arm height - at least approximately - before clamping the fixed arm cable in the P-clip. The arm cable itself is of the same type as that on the Alphason - van den Hul D-502 - so my comments regarding its suitability for 'dressing' on both the LP12 and Xerxes are as before.

Adjusting the arm can be a wee bit fiddly, but not difficult. Balancing the arm and applying tracking force are both counterweight functions. Rotate the weight until the arm floats and then observing the red dots on it rotate it towards the bearings to increase tracking pressure - one dot equals 0.1 gram, so one full turn of the weight applies half a gram of downforce (all this and applied mathematics too!). When the desired force is set the counterweight is locked into position with one of three small grub screws around the periphery of its inner portion.

Bias is set by a thread and lever mechanism, and this is the slightly tricky bit. The instructions tell you to ensure that the lever is horizontal when the stylus is in the innermost groove of the record. This is easy to accomplish by rotating the arm pillar within its base and locking the retaining screw when the desired condition exists. The fiddly job is adjusting the position of the sliding weight on the bias lever to apply the correct amount of side thrust throughout the arms travel across the disc. The weight is locked by a miniature grub screw. When hard up against the pivot point it is applying the correct compensation for a tracking force of 1 gram. Move it away from its pivot in 5mm steps and you increase the bias to compensate for downforce increments of 0.5 gram with each move. For example, when the weight is 10mm away from the pivot point that is the bias setting for a cartridge tracking at 1.5 gram. This is fine if all things are equal - but they seldom are. I always find it preferable to set the bias by ear - an easy operation when that simply involves rotating a convenient dial: so easy, in fact, that it is possible to do this on my LP12/Ittok whilst a record is actually playing. With the Kuzma this is not a recommendable proposition - it is far safer to return the arm to its rest, unbolt the grub screw, move the tiny weight in or out, tighten the screw, place the arm back over the disc, lower it and so on until you get it right. Not difficult, in reality, but time consuming.

My only other gripe concerns cartridge fitting and removal. Whilst changing cartridges I managed to detach one of the very fine lead out wire lugs from its tag. No, I wasn't being clumsy, it just came off in my hand. Honest! The problem came when I tried to fit another tag. Yes, I lost the one that fell off, I'm afraid. The arm's internal wiring does not terminate onto a convenient terminal block - the very delicate wire that connects to the cartridge just disappears up the arm tube and off into the



night! What makes matters worse is the fact that it's also an absolute bugger to solder! So you have been warned: handle those lead out wires with caution.

The arms were all auditioned in my resident home system which has changed only slightly since the last issue of the magazine. The Naim Audio SBL loudspeakers are still giving sterling service driven by my NAP250, but my modified NAC32 pre-amp has been put out to grass and replaced by a new NAC62, powered naturally by a HiCap power supply. The 62, which is fundamentally a 42-5 with a reworked mother pcb, remote input switching like the 32-5, and three line level inputs, showed its worth the minute I put it into the system - instead of sounding better the system, in some respects, actually sounded worse! It was revealing negative aspects of the turntable's set-up that the aging 32 had been masking slightly. An hour or so of tightening things up and a few minor adjustments soon had the system back on song. Accordingly I felt even happier about testing these tonearms now, safe with the knowledge that I'd be hearing even their most subtle aspects and characteristics in sharply etched relief.

Whichever turntable I was listening to was placed on an Origin Live basic turntable support (suspended floor version). All other equipment was placed on Sound Organisation tables with Hi-Fi Review Medite Boards substituted for the original shelves (please note that this is not an advertisement: would I stoop to plug something we are selling - no matter how good it is - within the pages of a review? Answers to that question are not required!).

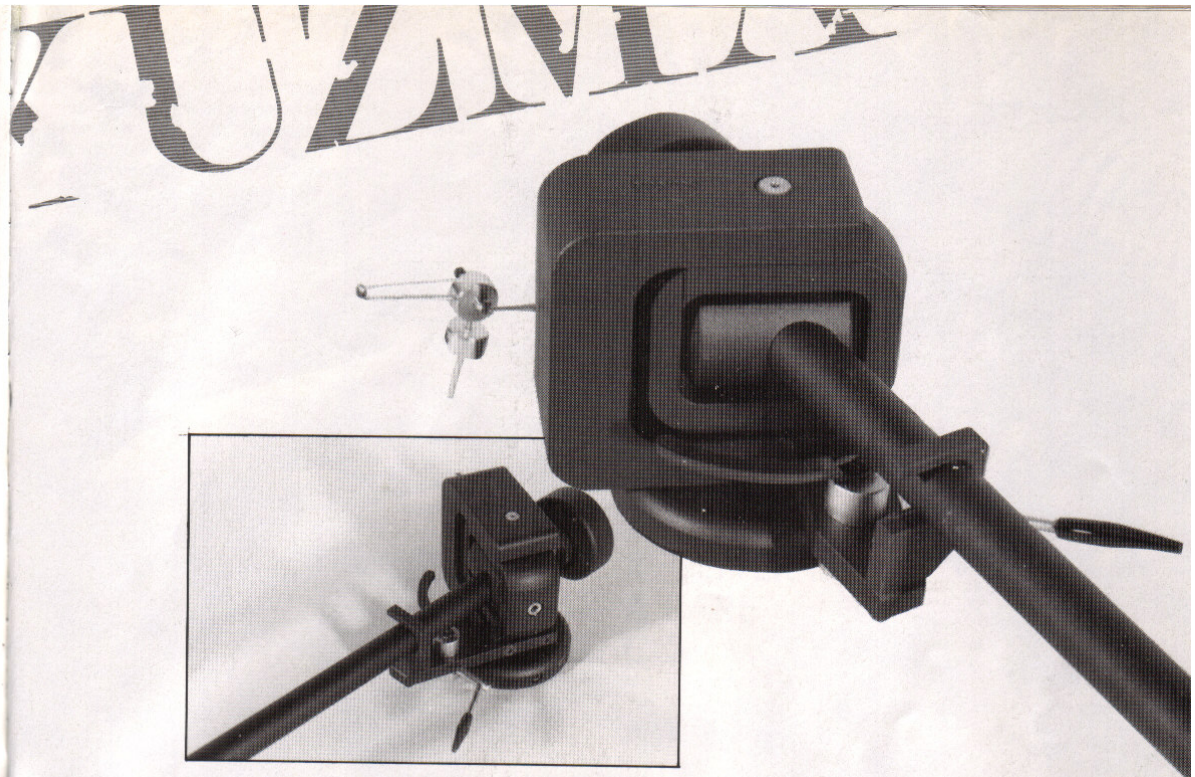
I started my listening with tracks from the excellent debut album from young British soul singer Paul Johnson which is featured in my record reviews in this issue. The first arm tried was the SME Series IV. It showed a curious mixture of virtues and vices: on 'When love comes calling' the opening drum strikes had great initial impact but severely curtailed decay. The deep sinuous bass line lost much of its 'roundness' and body which robbed the track of rhythmic conviction. Johnson's voice was very open and highly detailed but his powerful falsetto sounded thin and constricted - on sustained notes he appeared to be in danger of expiring before the microphone. On the song which followed, 'Fear of falling', the bass line this time became overfull and bloated. Notes had no clear starts and stops to them, instead they just grumbled amorphously below the other instruments. Johnson's voice seemed to have receded into the mix whilst his backing vocalists were portrayed very explicitly - the character of the different individual voices being clearly audible.

Overall though the sound had a brittle, uneasy quality to it. The music didn't flow with any grace - it seemed rather disjointed and lacking any definition of rhythm. I found myself following the vocal lines for clues here instead of the bass and drums which were no help at all.

Swapping to the Kuzma brought about a remarkable improvement in the way the music was presented. On the first song the bass line that had so perplexed the SME was now punchier, full bodied and harmonically richer, much more tuneful and easy to follow. Synthesiser voicing was more explicitly revealed and all upper register instrumentation had a vibrant 'sparkle' to it, where on the SME it had sounded dull and lacklustre. Drumkit was much more natural exhibiting both initial impact and decay of strikes.

Johnson's voice regained its strength and was portrayed in as detailed a manner as the SME had managed but with that indefinable something extra that made him appear more human and less like a recording. There was none of the compression that the SME seemed to impose on his vocal dynamics. The greatest improvement though, was the naturally integrated feel the Kuzma imparted to this and the other tracks on the album. The SME tended to present different strands of the music without regard for the others. Studio treatments also tended to sound disjointed. The Kuzma managed to combine all the elements in the mix to form a complete and lifelike whole. It had both a sense of authority, always sounding firmly in control, and a great sense of ease - always appearing unflustered and able to cope with however much information was thrown at it.

The Alphason made a good but very different showing on this album. Bass was deep and extended but lacking a little 'slam'. The top end was crystal clear and very finely detailed. The overall sound was clean and reasonably dynamic. Vocals were exceptionally easy to follow, seemingly as though all the singers' diction had improved. The separation of all instruments and facets of the mix was very good but not in the clinical manner of the SME. Studio treatments were clearly noticeable but not over stressed. Where it really excelled was in its presentation of instrumental timbre, note shaping on synths and bass being explicitly revealed. Rhythmically it was hard to fault despite its lack of



impact in the bass when compared to the Kuzma. In fact, it was hard to pick any real faults in its overall presentation of these tracks but ultimately I found it a little less enjoyable than the Kuzma.

The next piece of music I played was the instrumental 'You want me' from the Jonas Hellborg album 'Axis'. This track takes the form of a plaintive and soulful duet with master technician Hellborg on electric bass (his upper register playing on this track is particularly melodic and beautiful) and drummer Danny Gottlieb playing just cymbal figures. The important rhythmic flow of the track can appear vague on much equipment as it is more implied than stated obviously.

The SME was lowered into the groove to see how it fared with this testing number. Gottlieb's cymbal work rocketed from between the speakers with all the subtlety of blitzkrieg. Possessing little variety of tone or texture, and infuriatingly dominant, I found them constantly drawing my attention at the expense of all else. Hellborg's bass was clean sounding but harmonically dulled wih an homogeneous tone that didn't convey the nuances and inflections of this aspect of his technique at all well. String bends, for example, sounded more accidental than deliberate, rather as though he was searching for the right note intead of using the device to create an emotional effect in the listener. Gottlieb's cymbals similarly sounded superfluous and quite unrelated to the structure of the music.

In all, the track was an utter mess. Rhythmically uncoordinated with no semblance of the two musicians actually playing in harmony with each other, I enjoyed its presentation not one jot!

Relief came again with the change over to the Kuzma. Cymbals regained their overtones and richness, with better decay and sustain, and sounded less splashy and uncontrolled. Hellborg began to sound like the craftsman he is: his playing technique was far better portrayed and the instrument sounded convincingly natural. Harmonically fuller with better decay on held notes, it was now possible to differentiate between stopped and open strings. It was more obvious when he was emphasising notes or when he was pushing or holding back the tempo, which aided the progression and flow of the music. Dynamically the Kuzma proved more natural than the SME. With the latter it was all or nothing: the music was either fortissimo or pianissimo. The Kuzma managed to fill in those important gaps in between the two extremes. A far more emotive and fulfilling rendition.

The Alphason also proved far more successful on this song than the SME. Hellborg's bass sounded a little dry - pleasantly resonant but losing some of its harmonic richness. The cymbals were presented similarly - finely detailed but without the metallic sheen that the Kuzma had shown up. But more important than these timbral differences was the way the HR-100S proved itself capable of holding onto the track's rhythmical meanderings. Unlike the SME, the Alphason managed to elicit from me an emotional respose to the music.

The arm's designer has set a lack of coloration as one of his major objectives with the HR-100S. I may be wrong but I feel that in striving to strip out fully any additive coloration he has also managed to remove a small percentage of the music too, lending the arm a slightly artificial feel on some recordings.

Listening continued with many more discs of all varieties but the pattern which had been set thus far was maintained. The arms differing traits were consistent also regardless of which turntable they were installed on.

The SME IV, I'm sorry to say, singularly failed to impress me with its sonic capabilities: great hi-fi, but not at all musical. And that, I feel, is a real shame. Everything about this arm seems a hundred and one per cent right - until you actually listen to it.

The Alphason HR-100S-MCS proved somewhat enigmatic for me. Whilst not exactly my cup of tea I can still empathise with the designer's aims and criteria, and I think he has been successful in reaching the majority of the goals he has set himself. I found the arm presented music in much the same way as the Myst tma 3 amplifier does: great precision and detail, correct in terms of intonation and timing, but at the end of the day, a little mechanical and 'cold'. However, I think that many will be very happy with the way it does its job - more probably listeners whose staple diet is the classics rather than rock or jazz music.

Which leaves us with the Yugoslavian entry, the Kuzma Stogi. For me, this arm was , in pure musical terms, the most satisfying of the bunch. What I found particularly impressive was the unhurried and graceful way it presented even the most demanding of music. I constantly found myself switching off my 'critical' ears and just enjoying the music it was producing. At £299 it comfortably displayed a cleanly polished pair of heels to some far more expensive competition which must make it one of those real rarities in hi-fi - a true bargain.

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