

### Reference Standard **Tape Path Gauge Block**

OTARI & Mitsubishi – 2" & 1" transports  
...for the accurate set-up and  
maintenance of tape path  
height & parallelism.

TYPE 304 NON-MAGNETIC STAINLESS STEEL VERTICAL  
TAPE PATH ELEMENTS. GROUND AND POLISHED.  
DIAMETER TO WITHIN .0001" END-TO-END... NO TAPER.  
TOPS ARE EQUAL IN HEIGHT TO WITHIN .0003".  
SET AT NEAR PERFECT PERPENDICULARITY AND  
ANCHORED WITH 3/8" HARDENED BOLTS FOR  
ABSOLUTE RIGIDITY. FOR 1" AND 2" TAPE.

1/2" TOOL STEEL BASE FOR STABILITY AND  
RIGIDITY. GROUND FLAT & PARALLEL TO  
WITHIN .0003" OVER ITS ENTIRE LENGTH &  
WIDTH.

HARD CERAMIC HEIGHTING GUIDES. EQUAL  
IN HEIGHT TO WITHIN .0002". SET EXACTLY  
AT THE RECOMMENDED LOWER LEVEL FOR  
ALL ROLLING GUIDES.

FITTED WOODEN CASE FOR STORAGE  
AND PROTECTION.



- Establishes the vertical & parallel standard for all tape path components.
- Exactly replaces the audio head stack.
- Transport remains fully operational during alignment.
- Eliminates head wear as a variable.
- Uses precision steel parallels to "indicate in" tape path without damage to audio heads
- Quickly shows tape path problems and points to the solution. No more guess work !
- Recommended for service technicians and facilities with multiple machines.
- A limited quantity are available for immediate delivery.

*Price is \$1,295.00 USD*

*Rental unit available for \$125.00 per week.  
Prices subject to change without notice.  
Please call for current prices.*

A guide to the origin, use, and care of the

## Reference Standard

# Tape Path Gauge Block for OTARI MTR-90 - 2" & 1" transports

**L**ike most tools, the Precision Gauge Block had its origins in the need to solve a problem. That problem was rooted in the essential inability to locate a single truly straight or parallel surface on a particularly troublesome MTR-90 tape transport. After nearly 2 solid days (*our days may be up to 16 hours each*) of shimming and tweaking various guides, rollers, heads and what have you, the tape still refused to move in a continuous straight line. Frustrated by the inability to resolve the problem, we were forced to approach the issue with a fresh perspective.

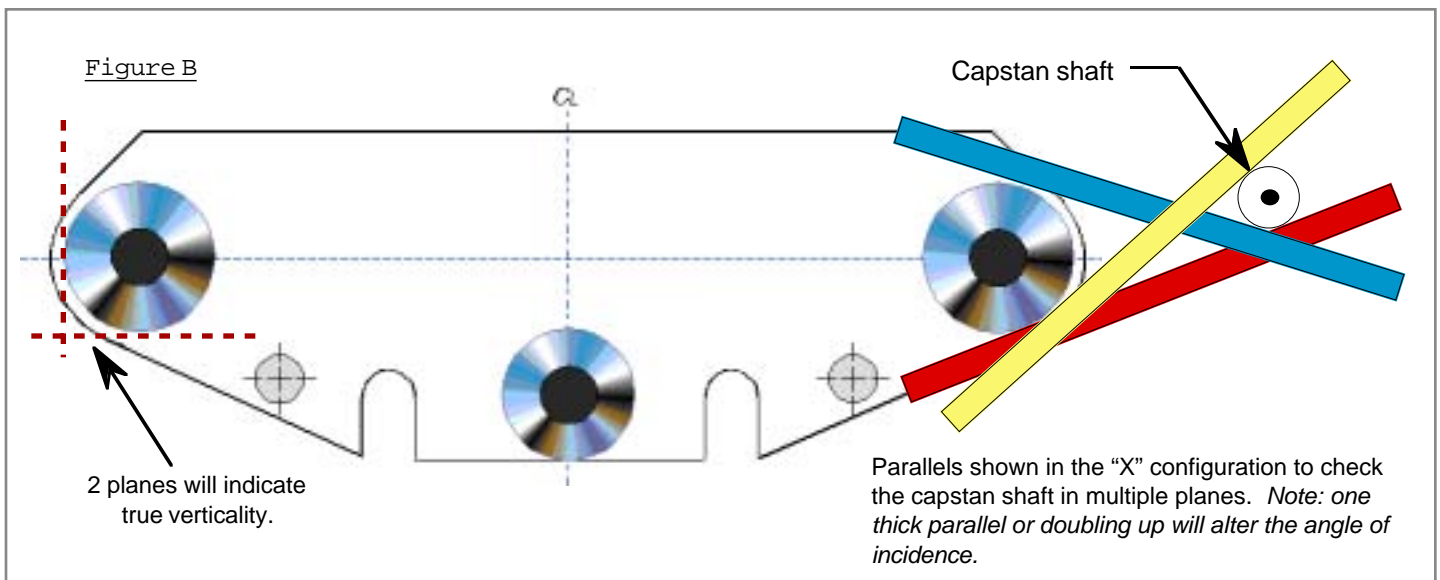
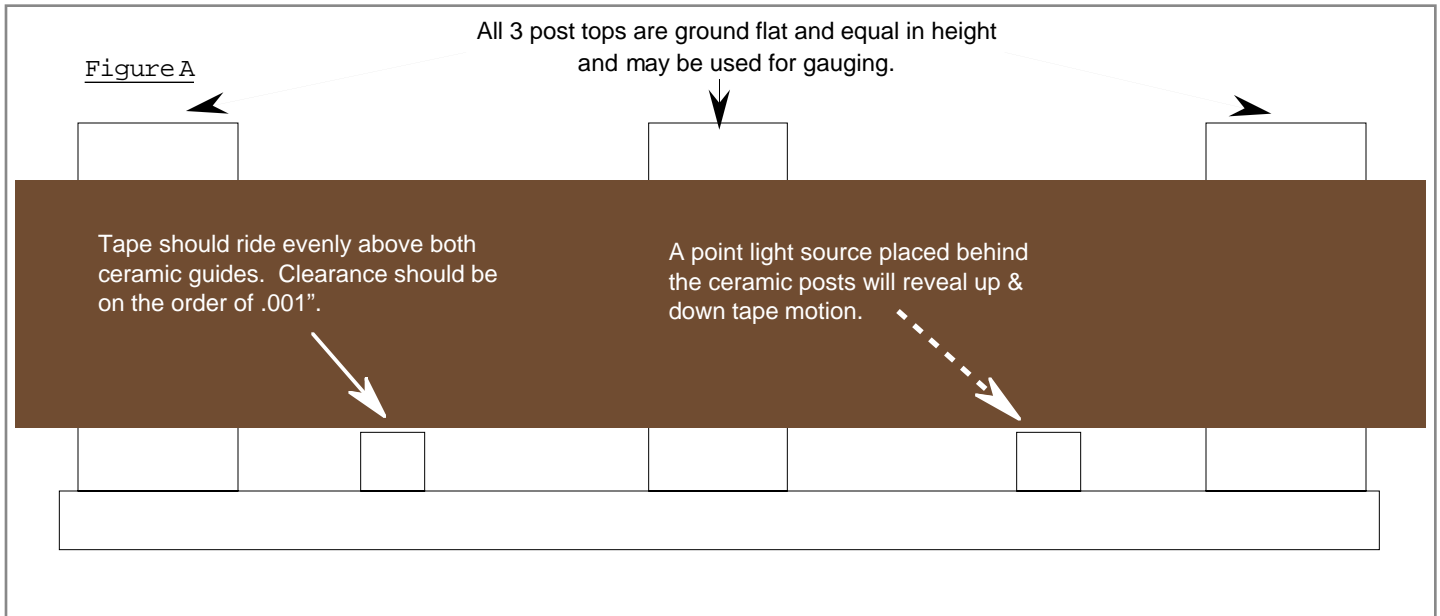
It should be clear to anyone who builds or works on tape recorders that in order for the tape to move in a straight unwavering path, all of the elements with which it comes in contact must be straight and parallel with one another. Unlike many machines of early U.S. design which were constructed like the proverbial "brick shit house" the MTR-90 is, unfortunately, not thusly constructed. There are any number of elements in the tape path which are subject to bending and misalignment over time. In addition, unlike many of the heavy metal monsters of yore, the MTR-90 is want for at least one dependable, truly vertical, seriously heavy duty post which can provide the reference for a point-to-point alignment of vertical tape path members. *In the old days, we often assumed that the capstan shaft was that reliable reference point. If you assume this to be the case with an MTR-90, you are likely headed for tape path hell!* Looking for that one post to rely on and not finding it, meant that we had create one. Thus was born the Reference Standard Tape Path Gauge Block and the problem was solved.

**B**y now, if you are a technician (*and we assume that you are or you wouldn't have purchased the Gauge Block*) you should be starting to see the picture quite clearly. The Gauge Block will become your sanctuary for tape path sanity. At last, you hold in your hands the device which gives you a massive, unbending, three post standard which when bolted to the MTR-90 deck plate, allows you to finally say with decisiveness..."this component *is/is not* straight. In the same breath, if all the posts/guides are truly straight and the tape isn't moving properly with the audio head stack back in place, then you may come to realize that the guy who just relapped and optically aligned your heads may have had a few martinis with lunch. Surely, by now you are getting the picture.

We assume that all of you are familiar with the use of straight edges and parallels to "rock in" and shim the tape path elements in succession, as required. *If not, than you probably don't understand why you just bought a costly gauge block. We offer an excellent matched pair of precision parallels for tape path alignment.* We can't tell you the absolute best way to use the gauge, because to a certain extent we're still discovering things ourselves. We built the tool but you are required to supply some of the ingenuity and we'd like to hear from some of you experts out there. We can say with certainty that if you use the gauge on an MTR-90 transport and properly align the vertical tape path elements, you will see a marked improvement in tape path stability, a reduction in "tone dance", a superior tape pack, as well as other benefits, such as even wear. It really is quite simple.

### A few tips:

1. We recommend disabling the tape lifters and head shields to keep them out of the way.
2. It is critically important that the locating surfaces be clean and free from debris. After removing the audio stack and installing the Gauge Block, first look carefully at how the tape is moving. Carefully note any skewing or significant differences in height above the ceramic guides. A penlight placed behind the ceramic height guides will nicely reveal any up and down bounce of the tape which usually translates to tone dance (see **Figure A**).
3. After removing the idler and capstan rollers, it is time to brake out your parallels. At this time, you may want to look at the the right post to capstan shaft relationship. *You may be very surprised!* Unshimable as it may be, don't be alarmed for we have a solution. *Call us.* Next, you may then move out ward, from either side.
4. Don't forget that when you put the head stack back on, there are posts which support the large rollers on either side of the heads. You may use the idler and/or capstan shafts as reference points, once aligned.
5. It is important to note that posts/rollers which have a lot of tape wrap have in effect a back and front side. Which is to say that a truly vertical post must be checked in more than one plane! Accomplish this by placing your parallels in an "X" configuration (see **Figure B**).
6. Feel free to use the Gauge Block in fast forward and rewind. *After defeating the lifters.* A truly straight tape path will skew very little as you reverse direction in high speed.



- It is unlikely that you will see any serious wear on the upright posts *but*, they are machined to allow rotation without altering accuracy.
- We recommend putting a light coat of oil on the base plate, top and bottom, when you put it away. The plate is tool steel and will corrode. The posts are stainless and don't require much attention.
- Please keep it in its box in a reasonably dry place.
- The gauge block is made to extremely precise tolerances. Even though it is heavy duty, dropping it may alter its accuracy and you may never know that it is exactly right unless it is sent back to us for recal.
- Take reasonable care of it and it will live forever.
- Calibration services are available. Please contact us.

...only from  
MDI

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