

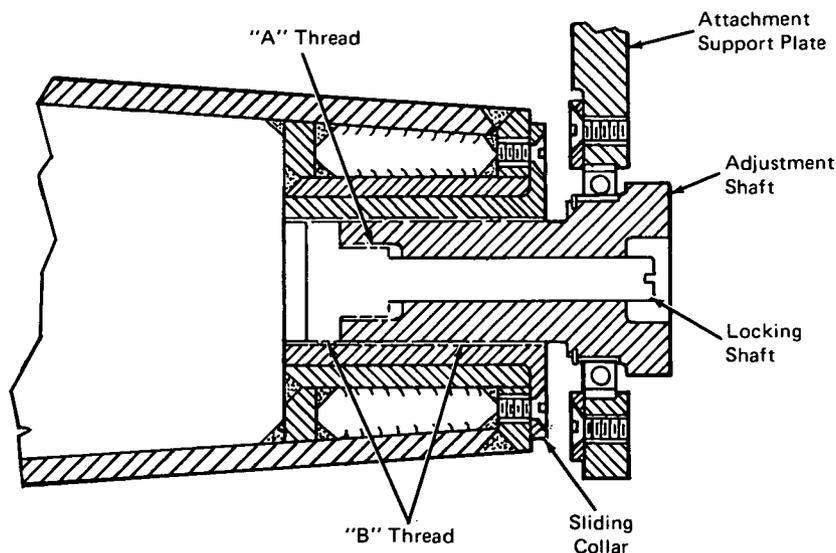
# NASA TECH BRIEF

## *Marshall Space Flight Center*



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### Adjustable Locking Device



Conventional methods of taking up end play of a shaft along its longitudinal axis involve the use of a sliding collar with set screws provided for holding the collar in place in some preset position on the shaft. The adjustable locking device is a device for taking up the end play of a shaft without displacing the shaft radially. Coincidentally threaded collars fastened to one or both ends of the shaft are threaded in and out of one another for adjustment of end play.

As shown in the illustration, when the locking shaft is advanced or retracted within the adjustment shaft, a point is reached at which the external threads on the shafts align and coincide. As long as the coincidental relationship is maintained, the shaft assemblies may be adjusted to any point along the internally threaded collar. However, any differential movement of the locking shaft with respect to the main load carrying adjustment shaft will immediately threadlock the locking shaft at that position within the threaded collar. This locking capability stems

from the fact that threads "A" and "B" (see figure) due to differences in size and thread pitch, have different translatory characteristics with respect to each other for the same angular or rotational movement. The differential threading causes all threads of both shafts to be brought into bearing and enhances the locking capability of the device.

An intrinsic feature of the adjustable locking device is its ability to be locked in any translatory position without additional axial displacement of the shaft. Some possible uses of this feature would be the removal of end play from large rotating shafts without costly disassembly and shimming operations, provision for quick and accurate alignment for conveyor systems, and provision for adjustment capability for leveling and installing machinery and other equipment. This feature would also permit precise but variable adjustment to tooling fixtures and similar devices for converting them from single purpose to multipurpose tools.

(continued overleaf)

**Notes:**

1. Information concerning this innovation may be of interest to the machine tooling industry.
2. Requests for further information may be directed to:  
Technology Utilization Officer  
Marshall Space Flight Center  
Code A&TS-TU  
Huntsville, Alabama 35812  
Reference: B72-10459

**Patent status:**

No patent action is contemplated by NASA.

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