



C O R P O R A T I O N

## Technical Data Sheet

### Transportation Simulator Motions

TDS-3

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**CIRCULAR SYNCHRONOUS MOTION:** This motion is where the eccentrics on both shafts are in phase with each other and both shafts operate at the same speed. As a result, the table surface remains level as it travels in a one inch diameter circle.

**30 DEGREE OUT-OF-PHASE MOTION:** This motion is where the eccentrics on the secondary shaft are 30 degrees out of phase from the eccentrics on the primary shaft. Both shafts operate at the same speed but, because of the out of phase relationship of the eccentrics, the table tilts as it describes an elliptical path.

**SYNCHRONOUS OUT-OF-PHASE MOTION:** This motion is where the eccentrics on the secondary shaft are out of phase from the eccentrics on the primary shaft by an infinitely adjustable degree as determined by the operator. Both shafts operate at the same speed but, because of the out of phase relationship of the eccentrics, the table tilts as it describes an elliptical path.

**NONSYNCHRONOUS MOTION:** This motion is the most violent since it is random and erratic. The primary and secondary shafts are supplied with different sized pulleys so they operate at different speeds causing the phase relationships of the eccentrics on the two shafts to change continuously. This results in an intermittent tipping action when the eccentrics progress to a point where they are briefly 180 degree out of phase. The eccentrics continue to change phase relation until they are briefly in phase again, and so on.

**VERTICAL LINEAR MOTION:** In the motions provided for paragraphs 1 and 2, the link mechanisms on the primary shaft are rigidly attached to the table frame and the secondary shaft links are allowed to pivot at their connection points to the table frame. The rigid connection of the primary shaft link to the table frame causes the table to move in both the vertical and horizontal directions. For vertical linear motion, the primary shaft links are adjusted so that they are also free to pivot at the table connection points in the same manner as the secondary shaft link blocks. Another linkage, called the horizontal stabilizer, is added to restrict the table's motion to a straight line up and down.