

5. TECHNICAL DESCRIPTION

The TRS 400 unit is a studio turntable, providing high level performances and utmost operating safety; due to its following features it is particularly suitable for professional uses:

- direct drive system by high torque A.C. motor; noiseless and vibrations free rotation
- optimum isolation from solid-borne and mechanical disturbances
- easy control by means of push buttons located on the stationary chassis.

5.1 DRIVE SYSTEM

The rotating platter is directly driven by the rotor of an A.C. motor. This is an induction, multipolar motor.

Speed is controlled by a PLL (Phase Locked Loop) comparing the encoder frequency with the quartz oscillator frequency, opportunely divided according to the selected speed: 33 - 45 - 78 rpm.

The PLL output is applied to a filter, the function of which is to make the detected phase error analogic. This voltage is + 6 V when frequencies are in phase and equal; + 10 V when motor speed is higher and 0 V when motor speed is lower. It is supplied to a comparator having 6 V as reference, thus determining by its output the motor rotation mode.

This voltage is also supplied to the input of the "PWM" generator, which gives an impulse to its output: the magnitude of this impulse depends on the filter output voltage. Power supply to motor is so modulated at a frequency of 20 KHz thereby affording a constant motor rotation.

The rotation mode is continuously monitored by the "direction detector", which detects the two frequencies shifted 90° out of phase supplied by the encoder.

During starting, stopping and reversing, the PWM (which supplies the motor, thru SW1, with a modulated voltage of 50 V) is off, and also SW2 (which supplies a constant voltage of 100 V) is closed.

Consequently motor torque is being increased by approx. 5 times, thus allowing very quick starts, stops and reversals.

Speed reversal is activated by opening SW3 and by closing SW4 in order to allow the desired rotation mode.