

Tobin Cinema Systems TXM14-35H

U.S.A. Crystal Circuitry for MKA 35H 35mm Camera

1. General Cautions

A. When power is applied to the camera, it is likely to advance up to one frame and stop. Avoid contact with any moving parts when applying power.

B. Never apply reversed DC polarity to the camera. While most of the circuitry is protected against this fault, reversed polarity will blow the external and perhaps internal fuses and could cause additional damage. When using a new power source or cable for the first time, check for proper polarity with a voltmeter to be safe. Pin 1 should be negative (—), and pin 4 should be +16.8 volts.

2. Connection

The camera requires 16.8 volts DC. With the main switch in “Stop,” connect the battery cable. The camera may advance up to one frame and stop, so keep your fingers away from the mechanism and film when connecting the battery cable.

In the Stop position, virtually no power is drawn from the battery. (Connected accessories such as the footage counter and external speed control will draw a small standby power, however.)

3. Basic Operation

A. For complete safety, disconnect the battery cable when threading around the claws, sprockets and gears. As mentioned previously, the camera may advance up to one frame and stop when the battery cable is first connected. Circuit failure could conceivably cause the camera to run even while in the Stop position.

B. To start the camera, switch to “Run.” The Sync Alarm light will come on briefly and will go out when crystal speed is reached. To stop the camera, switch back to “Stop.” The camera will run briefly at parking speed (about 4 FPS) and stop in the viewing position. If you change your mind during parking and decide to continue filming, the camera will almost instantly resume crystal speed, but another clapstick will be needed to re-establish sound sync, such as at the end of the shot.

C. Fifteen crystal speeds are available. The TXM14-35H has only HMI-safe speeds built in. Because an HMI, fluorescent or other discharge type light flashes 120 or 100 times per second (on 60 and 50 Hz current respectively) only speeds of 120 or 100 divided by a whole number are HMI safe and will give film that has even exposure from one frame to the next and does not flicker. The speeds listed on the top of the dial, and also 10 FPS, are 60-Hz HMI safe, and the speeds listed on the bottom are 50-Hz HMI safe. The normal speeds for double-system sound filming are 24 FPS in North America and 25 FPS in Europe. If you are filming in daylight or with high-amperage tungsten lights, you can film at any speed you like.

D. No physical harm will be done by changing speeds during filming, but remember that a speed change requires a corresponding lens aperture change.

E. The optional footage counter has a battery backup to preserve the count even while power is not connected. The internal batteries must be replaced every few years or whenever (a) the LCD (liquid crystal display) becomes faint or (b) the footage count is lost, when the battery cable is disconnected. The counter is reset to 0 by the “Reset” button. The counter measures film passing through the camera with normal powering; it does not count while advancing the threading knob by hand. A slight count error may be expected if starting and stopping the camera many times in a given roll. The LCD display may be damaged by excessive exposure to sunlight or heat.

4. External Speed Control

A. An external speed control such as the TCS TMC-55Aa Milliframe Controller gives added flexibility for: 1. Filming at non-HMI speeds such as traditional speeds of 16, 18, 32, etc. FPS; 2. Filming at video transfer speeds such as 23.976 and 29.970 FPS for double-system sound on DAT (digital audio tape), Hi-Fi video tape, CD (compact disc), etc. that cannot be speed corrected to match the Rank/Bosch video transfer rate; and 3. Filming from video or computer monitors, while giving shutter bar control. Other Aaton-compatible controllers using the WPI (formerly Amphenol) “Tiny Tim” 9-pin connector and 100 pulse per frame frequency should work also. The TXM14-35H outputs 16.8 V power and a 5 V frame pulse so it will support optional features such as automatic shutter re-phasing, external footage counter, and strobe sync. If using a speed controller other than the TCS TMC-55Aa verify that receiving 16.8 volt power will not harm the unit.

B. For best results limit external speeds to the range of 10 to 40 FPS. Speeds below 10 may have exposure inconsistencies and speeds above 40 are excessive for the camera mechanism. This still gives some 30,000 possible running speeds.

C. For operational simplicity, and because the TCS TMC-55Aa draws such a small amount of current, no Standby On-Off switch is provided. The TCS controller’s CMOS circuitry draws such little power (25 mA or .025 A) that it would have to be connected for a week, 24 hours a day, to discharge the typical battery.

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D. When the connector is inserted into the socket, speed control is automatically transferred to the external controller. **Note:** Even when using externally selected speed control, also set the TXM14-35H's speed dial to the approximate speed. This will enable reaching the externally chosen speed more quickly, without a sluggish start or overshooting the desired speed. When the speed controller is not connected, install the furnished dummy plug to guard against dirt, or bending or shorting of the pins in the receptacle.

5. Maintenance

No routine maintenance is required.

If the external fuse blows, replace it by unscrewing the knob and inserting a new fuse. If the internal fuse blows, replace it by disconnecting power, removing four screws and the control cover, and installing a new fuse into the circuit board fuse clips. Both are 5 Amp GMA or 5 x 20mm 32, 125 or 250 volt fuses.

There are two adjustments on the main circuit board, and one in the motor photo chopper, that should not be disturbed without instructions from TCS and suitable measuring instruments.

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