

# Tobin Cinema Systems TXM14-C

## Crystal Conversion of Eclair NPR "Ciblo" Governor Motor

### 1. General Cautions

- A. When power is applied to the motor, it is likely to advance one frame and stop. Avoid contact with any moving parts when applying power.
- B. Never apply reversed DC polarity to the motor. While most of the circuitry is protected against this fault, reversed polarity will blow the internal fuse 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 — and pin 4 should be +.

### 2. Installation

- A. Inspect the motor front drive coupling, and the camera's rubber coupling. They should be clean and free of oil or fingerprints which could cause slippage. Clean if necessary with detergent and water, or a mild solvent such as alcohol, without getting cleaner on other camera or motor parts. The front drive coupling is marked to indicate the position in which the motor will always stop at the end of a shot. Position this mark at the top of the motor.
- B. Remove the camera's lens and verify that the viewing mirror is centered in the lens aperture so that neither edge of it is visible. If the mirror is not centered, turn the threading knob or the rubber motor coupling to make it centered.
- C. Without disturbing the orientations of steps A and B, attach the camera to the motor by pushing it straight on, and lock it in place with the four retaining arms.
- D. Apply power. Run the camera with magazine and film for a few seconds, then release the run button. The camera should coast down to a low speed, about 4 FPS (frames per second) and then park in the viewing position. If the mirror position is off, remove the camera and turn the knob or coupling so the mirror is centered, and re-attach the camera to the motor.

### 3. Basic Operation

- A. The camera is operated as before. Sync Alarm lights if speed is lost. The shutter parking feature ensures that you can see through the viewfinder at all times so you are ready to film at a moment's notice. The shutter parking sequence ends with the motor power turned completely off, so there is no drain on the battery except when actually filming. (Accessories such as the Milliframe Controller will still draw power after parking, however.) 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.
- B. From twelve to fifteen crystal speeds are available, depending on your battery voltage. 12 volts is adequate for all speeds up through 24 or 25 FPS. Connecting instead a 16.8 V battery will enable reliable filming through 30 or 33.333 FPS and perhaps up to 40 FPS. A chart attached to the motor tells you what single-digit number or letter code to enter in the speed switch to achieve the desired speed.
- C. The TXM14-C 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 left side of the chart are 60-Hz HMI safe, and the speeds listed on the right are 50-Hz HMI safe. To set the speed, loosen the speed dial cover with a screwdriver and enter the code number or letter with a small (3mm tip) screwdriver, so the arrow point is towards the desired speed code.  
The normal speeds for double-system sound filming are 24 FPS (code 5) in North America and 25 FPS (code E) in Europe.
- D. No physical harm will be done by changing speeds during filming, but remember that a speed change requires a corresponding lens aperture change.

### 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-C outputs a 5 V genuine frame pulse so it will support optional features such as automatic shutter re-phasing, external footage counter, and strobe sync.
- 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. If using 16.8 V

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. If using 16.8 V power and a controller other than the TMC-55Aa verify that this voltage will not harm the controller.

C. For operational simplicity, and because the TCS TMC-55Aa draws such a small amount of current, no standby 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.

D. When the connector is inserted into the socket, speed control is automatically transferred to the external controller. Even when using externally selected speed control, also set the TXM14-C'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.

## **5. Maintenance**

No routine maintenance is required.

If the fuse blows, replace it by disconnecting power, removing two screws and the top cover, and installing a new 5 Amp GMA or 5 x 20mm fuse into the circuit board fuse clips.

There are three adjustments on the circuit board that should not be disturbed without instructions from TCS and suitable measuring instruments.

**Tobin Cinema Systems, Inc.**

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