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GOVERNOR & SAFETY TESTS

The Elevator Concepts LTD safety mechanism consists of Type A cam action safety dogs, which are actuated by either a 6" centrifugal governor or by a slack rope mechanism. The safety dogs are precision cut from a gear blank, drilled for pivot and linkage bushings, and then hardened. They are designed for a gross load of 1350 lbs at 35 FPM with a factor of safety of 10.

The slack rope mechanism has several configurations, depending on the model. All are designed so that the rope shackles are spring loaded; e.i., applying a load to the hoist rope compresses the springs. If the rope goes slack, the spring expands, tripping the safety linkage and engaging the dogs into the rails.

The centrifugal governor is of the "swing bail" type, and is designed for tripping speeds of 125 - 200 FPM, with 175 FPM being the mean design tripping speed, in accordance with ANSI 17.1a Rule 206.2a. 125 FPM is the minimum tripping speed recommended, as the safety mechanism is designed to trip inertially, and lower speeds will cause nuisance tripping. The governor rope is 1/4" diameter 8 x 19 traction steel.

The entire safety mechanism is designed not to require any periodic lubrication. The only maintenance required is the safety test outlined below. We recommend this test be conducted on an annual basis.

TEST PROCEDURE

1. Examine all parts of the safety mechanism, including the safety dogs, linkage, retraction spring, governor rope and fittings, governor, and tension sheave. Sheave all rotating parts for free, but not excessive movement - clean, lubricate, and adjust where necessary. If excessive play is evident, replace bushings and pins as required. Make certain the safety dogs are not corroded, damaged, or broken. Check the guide shoes for wear and alignment.
2. Check governor rope and connections for any faults. Check for rope damage, loss of lay, corrosion, loss of lubrication or decrease in diameter - replace if required. Check for adequate tension to maintain traction between the rope and the governor.
3. Check the safety operated switch for proper operation, adjust or replace if required.
4. To calibrate governor: Raise the car to a convenient working height, block it up, and pull the mainline disconnect. Remove the governor rope from the governor - this can be accomplished by simply pulling on the rope to compress the tension springs, allowing sufficient slack to remove the rope. Spin the governor by hand or with a drill motor fitted with a small wheel. Check the speed at which the flyweight hits the bail with a tachometer. The speed is adjusted by changing the spring tension on the flyweights. When the speed is set, the spring tension adjusting nut can be drilled and sealed with a lead tag. Do not drill more than a 1/8" diameter hole.
5. Replace the rope on the governor. Attach a string or wire to the governor bail, long enough to enable you to stand outside the hoistway to pull the bail in by hand. Put in the disconnect, remove the blocking. If a load test is required, load the car with the rated load at this time, evenly distributed on the platform.

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6. Jump the lower landing door lock. Call the car down, and pull the bail in by hand. It is a good idea to engage the safeties at a point where the car is still accessible from a hoistway entrance in case the weights need to be removed, but low enough so the safeties can be checked after setting. When the safeties engage, the safety operated switch should open and stop the motor. Visually inspect the safeties - make sure both are equally engaged, and that the platform is level.

7. If the safety does not set, block the car and actuate the safety linkage by hand. Check that the safeties will both engage the rail by manual activation. If not, adjust the linkage rods accordingly. Also check the spring pressure of the bail. The governor rope should pull through the bail between 200 - 500 lbs. This is adjusted by the ESNA nut on the bottom of the bail. If these adjustments do not correct the problem, lock out the car, and consult the factory.

8. Run the car up to release the safeties. Check the safety mechanism for any damage; check for full retraction of the dogs. Check the rails for even engagement of the safety dogs, and file any burrs on the rails. Remove door lock jumper, wire on safety bail, and test weights.

9. To check inertial engagement of the safety (free fall), attach a 30 lb. weight to the return side of the governor rope. The weight should bring the safeties into contact with the rail while the car is stationary. If the safeties do not engage with this weight, consult the factory - individual job conditions may require more weight. Remove weight and check for full retraction of safety mechanism.

10. Upon completion of all safety tests, check operation of car; check to make certain all jumpers are removed, and return car to service. It is good practice to affix a tag to the governor or safety, noting the date of test and the governor tripping