# ALERTER SYSTEM OPERATION

The alerter system is part of the FIRE system. It monitors various engineer's control console devices for indications that the engineer is present and alert. If it is apparent that the engineer is not present or alert, the alerter system activates a progressive alarm. Then, if not reset during the alarm period, it initiates penalty braking.



**Any of the following conditions suppress alerter system operation (provided that alerter has not already initiated penalty brake application) -** system does not activate alarm or initiate penalty brake, regardless of engineer's apparent lack of alertness:

**Or when all the following are true:**

**Any of the following activities cause alerter timer reset** - alerter system resets its counter to a preset time period: • Air brake system is in *TRAIL* mode. • SUP (suppression) or beyond. • Brake cylinder pressure is greater than 25 psi. • Brake pipe air pressure is less than 20 psi. • The status of the locomotive is Distributed Power remote. • Locomotive is in slow speed control. • Reverser is centered • The Isolation Switch is in Isolate position • Throttle is in Idle • Locomotive is moving at less than 2 MPH • The Generator Field switch is open (off). • FIRE has valid communication with EM2000

• Changing throttle handle setting • Changing dynamic brake setting, provided that speed control is Off • Changing reverser (directional handle) setting • Moving automatic or independent brake handle (incl. bail) • Pressing ALERTER RESET switch. Provided that alerter system has not detected switch tampering See explanation at end of list • Pressing engineer's BELL or HORN switch • Pressing any key on engineer's FIRE display • Cab signal acknowledgement (if present) • Manual sanding • Operation of lead truck sand switch



**ALERTER RESET switch tampering protection -** If ALERTER RESET switch operation is too frequent, the alerter system detects tampering and ignores the switch.

However, when too-frequent ALERTER RESET switch operation stops, the alerter system automatically reinstates the switch - it again recognizes inputs from the switch.

**Typical Alerter system timing -** When the alerter system is reset by any of the methods described above, the alerter timer is set according to conditions:

Once the alerter timer is set (and alerter system is not suppressed), it starts counting down. As the countdown progresses, the alerter system activates different alarms to get the attention of the engineer and crew. The following paragraphs detail the sequence.

**Alerter system countdown sequence -**

The red ALERT indicator to the left displays on the FIRE screen. The count (in seconds) displays under the word . The indicator starts flashing when the countdown reaches **25 seconds**.ALERT

When the alerter countdown reaches **20 seconds**, the ALERT indicator lights continuously, and the FIRE system audio warning device begins sounding. As the count progresses downward, the audio warning grows louder.

When alerter countdown reaches **10 seconds**, the ALERT indicator remains lit continuously and the FIRE system audio warning device sounds at its maximum level. When the alerter countdown reaches **0**, the FIRE system initiates a penalty brake application.- Locomotive Speed less than or equal to 40 MPH - *not* in drag operation: Alerter reset time = 120 seconds - Locomotive Speed equal to or greater than 40 MPH: Alerter reset time = 120 seconds x 40 / actual speed dropping to 60.8 seconds at 70 MPH