

# DAILY LOCOMOTIVE INSPECTION SEQUENTIAL GUIDELINE

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TOP/CAB INSPECTION

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GROUND/BOTTOM INSPECTION

<b>Compliance with §229?</b>	No	Locomotive repaired or moved pursuant to §229.9
	Yes	Locomotive continue in service.

To eliminate questions over the meaning of terms used to describe the inspections and tests that comprise a locomotive calendar day inspection, the FRA provides the following guidelines:

- §229.5(a) Break - means a fracture resulting in complete separation into parts.
  - §229.5(e) Crack - means a fracture that gives an indication of weakening the structure - exhibits a gap or significant length in an area of potential high stress -- without complete separation into parts. Surface flaws or old, minor shrinkage cracks usually do not weaken the integrity of the component.
  - §229.5(f) Dead Locomotive means (1) a locomotive other than a control cab locomotive that does not have any traction device supplying tractive power or; (2) a control cab locomotive that has a locked and unoccupied cab.
- NOTES: (1) A locomotive does not cease to be a locomotive because its propelling motor or motors are inoperative or because its control jumper cables are not connected; and (2) A dead locomotive may not continue in use following a calendar day inspection as a controlling locomotive or at the head of a train or locomotive consist.

- §229.7 Prohibited Acts - The Locomotive Inspection Act makes it unlawful for any carrier to use or permit to be used on its line any locomotive unless the entire locomotive and its appurtenances are in proper condition and safe to operate.
- §229.21 Daily Inspection - Each locomotive in use must be inspected at least once each calendar day.  
NOTE: Uncoupling of locomotives is not required when calendar day inspection is performed.
- Any condition that constitutes non-compliance with railroad locomotive safety standards (§229) shall be repaired before it is used or may be moved only as a lite locomotive or a dead locomotive after the carrier has complied with Federal requirements for movement of non-complying locomotives ( §229.9).
- Performance of the inspection prescribed by this chart does not relieve a railroad of its liability under §229.7 for failure to comply with any other provision of Part 229.
- §229.21 Daily inspection report must be prepared for each daily locomotive inspection performed. The report shall contain:
  - Name of carrier
  - Initials and number of locomotive
  - Place, date and time of inspection
  - Description of noncomplying conditions
  - Signature of inspector
- §229.21(C) A qualified person designated by the carrier to perform locomotive daily inspections required by these guidelines must be provided classroom and interactive training.  
NOTE: Qualified person must possess the necessary equipment to accomplish the inspection and test in accordance with these guidelines.

# DAILY LOCOMOTIVE INSPECTION (Pg 1 of 2)

## Top/Cab Inspection

Name: (Print) \_\_\_\_\_

(Sign): \_\_\_\_\_

Date: \_\_\_\_\_

Loco Locomotive #: \_\_\_\_\_

Location: \_\_\_\_\_

Time: \_\_\_\_\_

Yes[  ] No[  ] **#1 §229.23 PERIODIC INSPECTION** Examine Form F6180.49A (Blue Card) to ensure all inspections & tests prescribed by Part 229 are current.

Yes[  ] No[  ] **#7 §229.13 CONTROL OF LOCOMOTIVE** Whenever two or more locomotives are coupled in remote or multiple control, all systems shall respond to control from the cab of the controlling locomotive. (i.e. propulsion, sanders, air brakes, etc.)

Yes[  ] No[  ] **#2 §229.119 CABS, FLOORS, PASSAGEWAYS** Determine that cab floors and passageways are free of impediments that might cause a tripping/slipping hazard. Cab seats must be properly secured to prevent personal injury.

Yes[  ] No[  ] **#8 §229.135 EVENT RECORDERS** Examine event recorder if accessible to crew members, for evidence of tampering.

Yes[  ] No[  ] **#3 §229.129 AUDIBLE BELLING DEVICE** Operate the horn on the leading locomotive to determine that it functions. When equipped, operate the bell.

Yes[  ] No[  ] **#9 §229.41 PROTECTION - PERSONAL INJURY** Exposed moving mechanical parts, relays, switches and high voltage equipment (inside cab & engine room compartment) shall not present undue safety hazards to crew members.

Yes[  ] No[  ] **#4 §229.127 CAB LIGHTS** Cab overhead and instrument lights shall be operative and provide sufficient illumination. Passageways used by the crew shall also be illuminated.

Yes[  ] No[  ] **#10 §229.43 EXHAUST & BATTERY GASES** Inspect for signs of diesel exhaust, battery gases or other noxious fumes are vented to the outside and not in the cab of the controlling locomotive.

Yes[  ] No[  ] **#5 §229.117 SPEED INDICATORS** Inspect the speed indicator on the controlling locomotive to determine that it is not damaged. Tests shall be made to determine accuracy after departure.

Yes[  ] No[  ] **#11 §229.101 ENGINES** Temperature and pressure alarms shall be observed to determine that the engine functions properly. A shut down engine shall be tagged with a warning notice.

Yes[  ] No[  ] **#6 §229.46/47/49/53/59 BRAKE SYSTEMS** Locomotive brakes shall be known that they operate as intended. Test procedures should include the testing of automatic and independent brake valves. Drain water and oil from the reservoir.

Yes[  ] No[  ] **#12 §229.45 GENERAL CONDITION** Inspect to determine that no defects exists that would endanger the safety of the crew, such as insecure or improper function of components, safety appliances, structural defects, etc.

## DAILY LOCOMOTIVE INSPECTION (Pg 2 of 2)

### Ground/Bottom Inspection

Yes[  ] No[  ] **#13** §229.123 **PILOTS, SNOWPLOWS, ENDPLATES** The end in the direction of travel of each lead locomotive must have a pilot plate or snow plow properly secured and be not less than 3 inches nor more than 6 inches from rail.

Yes[  ] No[  ] **#19** §229.57 **FOUNDATION BRAKE GEAR** Inspect brake rigging to ensure that all parts are secured. Brake shoes must align correctly with the wheel and not be overlapped and grooved.

Yes[  ] No[  ] **#14** §229.61 **DRAFT SYSTEM** Couplers & uncoupling levers must function properly. Visually inspect the exposed components or the draft system for defects.

Yes[  ] No[  ] **#20** §229.75 **WHEELS**  
Inspect wheels for the following conditions:  
• Flat spot(s) • High flange • Shelled spot(s)  
• Thin flange • Thin rim • Gouge or chip in flange  
• Cracks or breaks in flange, rim, plate or hub.

Yes[  ] No[  ] **#15** §229.89 **JUMPER CABLES** Jumper cables may not be broken, chafed, or left hanging with one end free. Jumper receptacles may not have broken terminals or retainer caps.

Yes[  ] No[  ] **#21** §229.67/69/71 **TRUCKS** Trucks may not be cracked or broken. Conduct walk-around inspection of exposed truck components for cracked, broken or hazardous conditions. Inspect the underside from outside gauge of rail for defective components. No part except wheels and non-metallic sand hoses may be less than 2¼ inches from rail.

Yes[  ] No[  ] **#16** §229.131 **SANDERS** Sanders must operate on each locomotive in front of the first powered wheel set in the direction of travel and must be aligned to deposit sand on the rail.

Yes[  ] No[  ] **#22** §229.65 **SPRING RIGGINGS** Truck springs and rigging must not be broken and be in proper position; and spring safety hangers to be in correct position. Shock absorbers may not be broken or leaking clearly formed droplets of oil or fluid.

Yes[  ] No[  ] **#17** §229.125/133 **HEADLIGHTS, AUX. LIGHTS** Headlights and dimmer switch must be operative for the lead end of road locomotives & both ends of locomotive in switching service. Aux. lights may not be used in lieu of headlight.

Yes[  ] No[  ] **#23** §229.91 **MOTORS & GENERATORS** No traction motor may be cut out. All traction motor cables and cable connections should be damage free, and free from accumulation of oil that may be a hazard

Yes[  ] No[  ] **#18** §229.55 **PISTON TRAVEL** Piston travel must not exceed 1½ inches less than the maximum total travel. Total possible piston travel can be acquired from the Blue Card, (F6180.49A). Released brakes shall provide brake shoe clearance

Yes[  ] No[  ] **#24** §229.64 **PLAIN BEARING** Inspect plain bearing boxes for cracks or damage that might cause loss or contamination of lubricant.

## **Minimum Set of Observation and Tests Comprising a Locomotive Calendar Day Inspection**

This description of the minimum steps of a locomotive calendar day inspection is based on a section by section walk through of the Locomotive Safety Standards (49 CFR Part 229).

The calendar day inspection a visual walk around inspection is a crucial component of the railroad safety program. It provides the best and most frequent opportunity to find and correct incipient problems with locomotives before these problems lead to an accident or safety incident. An effective locomotive calendar day inspection should be based on common sense and judgement, as well as the guidance given by the Locomotive Safety Standards. The inspector should be alert for telltale signs of any condition or defect that is a potential hazard.

Railroads should use these guidelines as the foundation for the calendar day inspection tailored to the specific safety needs dictated by the railroad's type of equipment and method of operation.

### **DEFINITIONS**

To eliminate questions over the meaning of terms used to describe the inspections and tests that comprise a locomotive calendar day inspection, the FRA provides the following guidelines:

- §229.5(a) Break - means a fracture resulting in complete separation into parts.
- §229.5(e) Crack - means a fracture that gives an indication of weakening the structure - exhibits a gap or significant length in an area of potential high stress -- without complete separation into parts. Surface flaws or old, minor shrinkage cracks usually do not weaken the integrity of the component.
- §229.5(f) Dead Locomotive means (1) a locomotive other than a control cab locomotive that does not have any traction device supplying tractive power or; (2) a control cab locomotive that has a locked and unoccupied cab.

NOTES: (1) A locomotive does not cease to be a locomotive because its propelling motor or motors are inoperative or because its control jumper cables are not connected; and (2) A dead locomotive may not continue in use following a calendar day inspection as a controlling locomotive or at the head of a train or locomotive consist.

- §229.7 Prohibited Acts - The Locomotive Inspection Act makes it unlawful for any carrier to use or permit to be used on its line any locomotive unless the entire locomotive and its appurtenances are in proper condition and safe to operate.
- §229.21 Daily Inspection - Each locomotive in use must be inspected at least once each calendar day.  
NOTE: Uncoupling of locomotives is not required when calendar day inspection is performed.
- Any condition that constitutes non-compliance with railroad locomotive safety standards (§229) shall be repaired before it is used or may be moved only as a lite locomotive or a dead locomotive after the carrier has complied with Federal requirements for movement of non-complying locomotives (§229.9).
- Performance of the inspection prescribed by this chart does not relieve a railroad of its liability under §229.7 for failure to comply with any other provision of Part 229.
- §229.21 Daily inspection report must be prepared for each daily locomotive inspection performed. The report shall contain:
  - Name of carrier
  - Initials and number of locomotive
  - Place, date and time of inspection
  - Description of noncomplying conditions
  - Signature of inspector
- §229.21(C) A qualified person designated by the carrier to perform locomotive daily inspections required by these guidelines must be provided classroom and interactive training.  
NOTE: Qualified person must possess the necessary equipment to accomplish the inspection and test in accordance with these guidelines.

#### **SECTION 229.21 CALENDAR DAY INSPECTION**

This section of the Locomotive Safety Standards requires that locomotives in use will be inspected at least once each calendar day and a written report be prepared by the railroad inspector after inspection of a locomotive has been completed.

In addition to the information listed below, the written report must also indicate any non-complying condition disclosed by the inspection.

The written report shall contain:

- The name of the railroad;

- The initials and number of the locomotive;
- The location where the inspection was done;
- The date and time of the inspection;
- A description of any non-complying conditions found; and
- The signature of the inspector.

In addition, a record shall be maintained on each locomotive showing the place, date and time of the previous inspection.

All FRA non-complying conditions reported by the inspector must be repaired before the locomotive is used.

Any condition found by an inspector -- not covered by Federal regulations -- that in the judgement of the inspector poses a potential safety hazard should be reported to the railroad.

#### **SECTION 229.7 PROHIBITED ACTS**

The Locomotive Inspection Act requires that the entire locomotive and its appurtenances be inspected and be in proper condition and safe to operate in the service to which they are put, without unnecessary peril to life or limb.

#### **SECTION 229.9 MOVEMENT OF NON-COMPLYING LOCOMOTIVES**

Locomotives with one or more non-complying or defective conditions may be moved only after a qualified person has determined it is safe to move the locomotive and the locomotive is properly tagged and crew members notified in writing.

#### **SECTION 229.13 CONTROL OF LOCOMOTIVES**

Whenever two or more locomotives are coupled in remote or multiple control, the propulsion system, the sanders and the power brake system of each locomotive shall respond from the cab of the controlling locomotive.

#### **SECTION 229.23 PERIODIC INSPECTION: GENERAL**

The Locomotive Inspection and Repair Report, F6180.49A (Blue Card), must be present on the locomotive and be examined to determine that the periodic, annual and biennial inspections are not overdue as indicated by the dates.

#### **SECTION 229.41 PROTECTION AGAINST PERSONAL INJURY**

Exposed moving parts and high voltage equipment must be inspected to determine that no undue safety hazard to crew members operating the locomotive exists.

#### **SECTION 229.43 EXHAUST AND BATTERY GASES**

Inspect for signs of diesel exhaust, battery gases or other noxious fumes in compartments -- are vented to the outside -- or the operating cab that may result in an undue safety hazard to crew members.

#### **SECTION 229.45 GENERAL CONDITIONS**

Any condition that would endanger the safety of the crew, locomotive or train would be considered as non-complying under this section. Inspection of safety appliances -- handrails, stairways, handholds, ladders, walkways, etc -- should be inspected to determine that they are not loose, obstructed and are in safe condition for the intended use. Inspection for general conditions requires the inspector to possess sufficient knowledge of the equipment to enable him/her to identify any potentially unsafe conditions not specifically covered by federal safety standards.

These conditions may include;

- Insecure attachment of components or improper functioning of components.
- Cracks, breaks, excessive wear or other structural infirmities of components.
- Hazardous accumulation of oil on electrical equipment.
- Fuel, oil, water or leaks of excessive accumulations that constitute a personal injury hazard should be considered a non-complying condition.

The following sections have been grouped together and address the requirements outlined in these sections and should be inspected as a result of brake testing practices and procedures:

**SECTION 229.46 BRAKES, GENERAL**

**SECTION 229.47 EMERGENCY BRAKE VALVE (ROAD LOCOMOTIVES)**

**SECTION 229.49 MAIN RESERVOIR SYSTEM**

**SECTION 229.53 BRAKE GAUGES**

**SECTION 229.59 LEAKAGE**

Locomotive brakes should be tested to determine that they operate as intended, and that related air pressures are correct. Test procedures should be established by the railroad and should include the automatic and independent brakes valves.



Leakage tests are to be made to insure brake system integrity and that leakage does not exceed established limits.

Water and/or oil should be drained from the main air reservoir system.

The emergency brake valve should be checked for accessibility and physical condition.

#### **SECTION 229.55 PISTON TRAVEL**

The brake cylinder piston travel will be inspected when applied and shall not exceed 1½ inches less than the total possible piston travel. The maximum piston travel is found on the F6180.49A (Blue Card) located in the locomotive.

For example: A maximum brake cylinder piston travel of 8 inches may not exceed 6½ inches. Inspectors should determine actual piston travel. Independent brake cylinder pressure may not be less than 30 pounds per square inch after a full application of the independent brake valve.

#### **SECTION 229.57 FOUNDATION BRAKE GEAR**

Inspect the brake rigging to ensure that all parts, including the brake shoes, are properly secured. Brake shoes should be aligned correctly with the wheel tread and not extend vertically over the edge of the rim.

#### **SECTION 229.61 DRAFT SYSTEM**

Couplers and uncoupling mechanisms shall be inspected to determine that they are not cracked, bent or broken and function as intended. Coupler carriers and yokes must also be inspected to determine that they are not cracked or broken. Draft gears may not be broken. This visual inspection of the exposed components of the draft system is to inspect for apparent defects

#### **SECTION 229.64 PLAIN BEARINGS**

A plain bearing box shall contain visible free oil and may not be cracked to the extent that it will leak oil.

#### **SECTION 229.65 SPRING RIGGING**

Truck springs and rigging should be inspected to determine that all parts are free of breaks and in proper position.

Spring safety hangers should be in their correct position and not fouling the spring mechanism.

Shock absorbers may not be broken or leak clearly formed droplets of oil.

The following sections of PART 229 have been combined together to address essential components of the truck assembly:

**SECTION 229.67 TRUCKS**

**SECTION 229.69 SIDE BEARINGS**

**SECTION 229.71 CLEARANCE ABOVE THE TOP OF RAIL**

This visual inspection of the exposed components of the truck assembly shall be performed to inspect for apparent defects and to determine that components are not cracked or broken.

A walk around visual inspection of truck assemblies shall be performed to determine that truck components are not cracked, broken or in hazardous condition.

With the exception of the wheels and non-metallic sand hoses no component may have less than 2½ inches clearance above the top of the rail.

**SECTION 229.75 WHEEL DEFECTS**

A visual inspection of the wheels for the following conditions:

- Flat spot(s);
- Shelled out spot(s);
- Gouges(s) or chip(s) in the flange;
- High flange;
- Thin flange;
- Thin rim; and
- Cracks or breaks in the flange, rim, plate or hub.

**SECTION 229.89 JUMPER CABLE CONNECTIONS**

Jumper cables and receptacles should be in proper condition. No bare conductor or wires should be exposed. Determine that jumper cables are properly stored (ends of cables should not be hanging free), do not foul the couplers, and do not create a tripping hazard.

**SECTION 229.91 MOTORS AND GENERATORS**

No traction motor is to be cut out. All traction motor cables and cable connections should be free of damage. Traction motors and cables shall be free from accumulations of oil that may present a hazard.

#### **SECTION 229.101 ENGINES**

Temperature alarms, pressure alarms, and shutter controls of internal combustion engines should be observed to determine that the engine is operating properly.

#### **SECTION 229.117 SPEED INDICATORS**

Controlling locomotives operated at speeds greater than 20 mph, must be equipped with a operable speed indicator that is clearly readable from the engineer's normal position.

#### **SECTION 229.119 CABS, FLOORS AND PASSAGEWAYS**

Inspect passageways, walkways and engine compartment floors for accumulations of oil, water or debris that present a hazard to the crew. The following are some, but not the only examples of hazardous conditions:

- Oil or other slippery walkway surfaces,
- Obstacles that impede passageway to exits or obstacles that present a tripping hazard.

Inspect cab seats and windows to determine that the seats are properly secured and that the windows in the lead locomotive provide clear vision. A metal container shall be provided for fuses and torpedoes. A single container may be used if it has a partition to separate torpedoes from fuses. There shall be continuous barrier the full width of the end of a locomotive or a continuous barrier, such as safety chains, between locomotives.

#### **SECTION 229.123 PILOTS, SNOWPLOWS, ENDPLATES**

Inspect each lead locomotive to determine that it has a pilot, snowplow or endplate in the direction of movement that extends across both rails, and is properly secured and is not less than 3 inches nor more than 6 inches above the top of the rail. Inspect pilots, snowplows and endplates on non-leading/trailing locomotives to determine that they are properly secured.

#### **SECTION 229.125 HEADLIGHTS**

#### **SECTION 229.133 AUXILIARY EXTERNAL LIGHTS (DITCH LIGHTS, CROSSING LIGHTS, ETC)**

Each lead locomotive used in road service must have a headlight facing in the direction of travel. It must be ascertained that the headlight operates properly and can be dimmed.

Auxiliary external lights may not be substituted for the locomotive headlight. ~~An inoperative auxiliary external light is not a non-complying condition.~~

**SECTION 229.127 CAB LIGHTS**

Inspect cab and gauge lights to determine that they operate and provide sufficient illumination for control instruments, meters and gauges to enable the crew to make accurate readings and to read train orders from their normal positions in the cab. Cab passageways and compartments used by the crew shall have sufficient illumination for safe use.

**SECTION 229.129 AUDIBLE WARNING DEVICE (LEAD LOCOMOTIVE)**

Operate the horn on the lead locomotive to ascertain that it functions. When equipped, test the locomotive bell.

**SECTION 229.131 SANDERS**

Test sanders to determine that each locomotive has sand being delivered to each rail in front of the first powered wheel set in the direction of movement.

**SECTION 229.135 EVENT RECORDERS**

If the event recorder is accessible to crew members, inspect it for evidence of tampering.