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JAPANESE INDUSTRIAL STANDARD

General Rules for the Inspection of
Electric Locomotives on
Completion of Construction

JIS E 4042-1967 (Reaffirmed: 1979)



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JAPANESE STANDARDS ASSOCIATION

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General Rules for the Inspection of
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Completion of Construction

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1. Scope

This Japanese Industrial Standard specifies the common inspection items to be performed after completion of construction of the electric locomotives, hereinafter referred to as the "locomotives".

2. Definitions

For the purposes of this standard, the following definitions apply:

- (1) completion inspection The completion inspection include the type inspection and acceptance inspection to be carried out between the parties concerned on the locomotives of which manufacturing processes have all been completed.
- (2) type inspection The type inspection means the inspection to be carried out on the first locomotive representing the type of locomotives in general.
- (3) acceptance inspection The acceptance inspection means the inspection to be carried out on all of the locomotives to be delivered.
- (4) condition in working order The conditions in working order mean that the locomotives have been laden with lubricating oil, sand, fuel for heating, water, tools, etc. which are requisite appliances and materials for running.
- (5) empty car condition The empty car condition means that the locomotive has not been laden with those goods specified in the condition in working order of (4). However, lubricating oil and the like necessary for out-of-service running shall be laden.

Reference Standard:

JIS E 4011-Method of Weight Measurement for Railway Rolling Stock

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3. Types of Inspections

The types of the completion inspections shall be as given in the following:

- (1) Type Inspection
- (2) Acceptance Inspection

4. Inspection Items

The inspection items shall be as given in following Table; the total items shall be for the type inspection and items marked with ○ for the acceptance inspection.

Table

Inspection item		Acceptance inspection	Corresponding item number
Appearance		○	5.1
Construction	Dimensions	○	5.2 (1)
	Vehicle gauge	○	5.2 (2)
	Weight	—	5.2 (3)
	Mutual positions of components	—	5.2 (4)
	Electrical circuits	○	5.2 (5)
	Waterproofing	○	5.2 (6)
Functions	Current collecting equipment	○	5.3 (2)
	Circuit breaking equipment and change-over equipment	○	5.3 (3)
	Main transformer equipment	○	5.3 (4)
	Tap changing equipment	○	5.3 (5)
	Main rectifier equipment	○	5.3 (6)
	Phase converting equipment	○	5.3 (7)
	Generator equipment	○	5.3 (8)
	Air-compressing equipment	○	5.3 (9)

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Table (Continued)

Inspection item		Acceptance inspection	Corresponding item number
Func-tions	Ventilating equipment	○	5.3 (10)
	Auxiliary rotary machines in general	—	5.3 (11)
	Brake equipment	○	5.3 (12)
	Main control equipment	○	5.3 (13)
	Air spring equipment	○	5.3 (14)
	Sanding equipment	○	5.3 (15)
	Lamp equipment	○	5.3 (16)
	Heating equipment	○	5.3 (17)
	Other equipments	○	5.3 (18)
	Dielectric strength	○	5.3 (19)
Running	Starting and acceleration	○	5.4 (1)
	Adjusted current values	(a) ○	5.4 (2)
		(b) —	
		(c) ○	
	Power source selecting equipment	○	5.4 (3)
	Air-compressing equipment	—	5.4 (4)
	Brake equipment	○	5.4 (5)
	Indicating equipment	○	5.4 (6)
	Circuit breaker equipment	○	5.4 (7)
	Main motor	○	5.4 (8)
	Amenities	○	5.4 (9)
	After completion of running	○	5.4 (10)

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5. Inspections

5.1 Appearance Inspection The appearance inspection shall generally be carried out on the locomotive as it stands, and the conditions of finishing on the locomotive as a whole, respective components, coatings, etc. shall be inspected.

5.2 Constructional Inspection The constructional inspection shall generally be carried out on the locomotives arranged under the condition in working order.

(1) Dimensions The following relative dimensions, with respect to the body and truck, shall be inspected with the brakes of the locomotive releasing on a flat permanent way.

- (a) A height between the rail surface and the centre of the coupler
- (b) Horizontality of the body under frame
- (c) Horizontality of the truck frame
- (d) Clearances between the body under frame components and the truck components, and clearances between the body under frame components and the peripheries of the wheels
- (e) Heights between the rail surface and the lowest surfaces of the life guards, snow ploughs, sanding pipes, etc.
- (f) Heights between the rail surface and the highest points of the pantagraph at the folding position and the kick-off position

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- (2) Vehicle Gauge After the locomotive has been run in advance so that the spring equipment attain stabilization, it shall be inspected with passing linearly through a vehicle limit gauge. However, the clearances between the vehicle limit gauge and the locomotive shall be measured, as required.

Furthermore, inspection shall be carried out also on the empty car condition and on the condition of the air spring without supplying air, as required.

- (3) Weight The weight of the locomotive shall be inspected on the axle load, wheel load, tare and weight in working order, measuring in accordance with JIS E 4011.

- (4) Mutual Positions of Components The mutual positions of the joints of the body and truck, body components, truck components, etc. shall be inspected, with the locomotive running slowly on a curved permanent way equal to the minimum radius of the permanent way on which the locomotive is used. However, in the case where the inspection on the minimum radius is unable to be carried out, it shall be determined on agreement between the parties concerned.

- (5) Electric Circuits On respective electric circuits, connections, wirings and insulation resistances shall be inspected.

Furthermore, resistance values of designated apparatuses and circuits shall be inspected, as required.

- (6) Waterproofing The waterproofness of the parts from which rain water is liable to intrude, such as the window frames, hinged doors, monitor tops, detachable roofs and ventilating openings, shall be inspected.

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5.3 Functional Inspection The functional inspection shall be carried out on the following items under the specified electric system, generally with the locomotive arranging in the condition in working order.

- (1) Common Matters The inspection items in common with respective equipments shall be as given in the following:
 - (a) Motions under the specified lowest air pressure and lowest voltage
 - (b) Interlocking motions with other equipment
 - (c) Conditions of vibrations, noises, heat accumulation, etc.
 - (d) Generating conditions of arc at circuit breaking parts
 - (e) Air leakage under the specified air pressure
- (2) Current Collecting Equipment The current collecting equipment shall be inspected on (a) to (c), (e) of 5.3 (1) and the following items:
 - (a) Smoothness of motions
 - (b) Contact pressure at the specified height
 - (c) Working time corresponding to the specified height by means of the operating switch and the like
- (3) Circuit Breaking Equipment and Change-Over Equipment
The circuit breaking equipment and change-over equipment shall be inspected on 5.3 (1).