



GATSME MODEL RAILROAD CLUB - EQUIPMENT INSPECTION PROCEDURE

1. Purpose

- 1.1. To provide instructions and guidance to the inspectors and the general membership in the inspection of model railroad equipment to be run on the club layout.
- 1.2. To identify and explain the proper use of the necessary tools utilized in the inspection of model railroad equipment.

2. Procedure - Inspectors and General Membership inspect the following parts of the model for acceptance as indicated.

2.1 Wheels and Trucks (In accordance with Track standards)

- 2.1.1. Must conform to NMRA Standards Gauge configuration: sharp edged flanges are specifically NOT Acceptable. Use NMRA standard gauge.

2.1.1.1. This applies to all rolling stock

2.1.1.2. Motive power - special dispensation must be obtained to operate equipment without RP-25 wheels (NMRA standard wheels).

Wheels must fit the gauge. The wheel tread, the part that meets the rail, must rest on the gauge. Flanges that are too large and will cause derailments in this case.

RP-25 wheels as specified by NMRA are strongly recommended

- 2.1.2. Wheels are to be concentric and perpendicular to the axle.

Wheel gauge is to be checked at more than one position on the circumference of the wheel to insure this.

- 2.1.3. Wheels must be clean and free of dirt and grime build up.

- 2.1.4. Wheels must turn freely in their journals.

- 2.1.5. Kadee wheel sets or equivalent are recommended (Metal wheels).

- 2.1.6. Metallic wheels shall be insulated.

One side may have continuity with truck frame such as is on a tender truck or a caboose with detection.

- 2.1.7. Wheel of truck shall not cause car to wobble. Observe during test operation.

- 2.1.8. Trucks shall swivel freely on their kingpins.

- 2.1.9. Trucks must be sufficiently equalized to maintain all wheels on the rails over uneven trackage.

2.1.9.1. This may be sprung trucks or modified 3 point leveling (one truck rocks more).

Regardless of truck design, both trucks must rock.

Non-sprung trucks must have at least one truck made somewhat looser.

2.1.9.2. No condition of equalizing shall cause the car to wobble.

- 2.1.10. All freight equipment shall be capable of operating on a minimum of 24" radius curve.

2.2 Body

- 2.2.1. No portion of the model, including air, steam, and signal lines, other than its wheels may extend lower than a plane 1/32" above the top of straight properly gauged rails.

Add spacer/shim under bolster screw for quick fix. Recheck coupler height.

- 2.2.2. No portion of the model may extend outside the clearance envelope of the NMRA gauge on straight or curved (30" radius min) track. Any model exceeding this standard needs permission of Equipment Foreman or Operations Chairman.



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2.3 Couplers

- 2.3.1 Kadee or compatible couplers are required on both ends of all models.
 - 2.3.1.1 Special unit trains or trains run at shows i.e. the circus train may be exempted from this section. The equipment foreman shall approve equipment on an individual basis.
 - 2.3.1.2 Motive power with dummy couplers on front or internally between units may be exempted on an individual basis by the equipment foreman.
 - 2.3.1.3 Rear end equipment NOT used in operating sessions may be exempted on an individual basis by the equipment foreman.
- 2.3.2 Coupler center height shall not be more than 1/64" above or below the knuckle centerline of the club's coupler height gauge. (Ref: NMRA Std. S-1 Knuckle Centerline of 25/64" or .391 ± .016). Eyeball is adequate.

Due the different sizes of compatible couplers from different manufacturers, the centerline must be the rule.

Regular sized knuckles are preferred over "semi-scale."
- 2.3.3 Coupler glad hand shall not be lower than 1/32" above the top of straight rail. Use club coupler height gauges. See also 2.2.1.
- 2.3.4 Coupler pockets shall be mounted on the model's centerline. In the case of truck-mounted pocket, it shall be mounted on the truck's centerline.
- 2.3.5 Electrical continuity shall not exist between a coupler and either rail.

This can be resolved with plastic couplers or coupler pocket or wheel sets.
- 2.3.6 Coupler shall deflect horizontally when on the uncoupler test fixture (delay) and return to its normal position when the model is moved off the uncoupling area of the fixture.
- 2.3.7 Couplers shall not have excessive vertical play. See 2.3.2

2.4 Appearance (In accordance with Scenery standards)

- 2.4.1 There shall be no "shiny/waxy" appearance. Dull coat is a minimum and weathering is Ideal!
 - 2.4.1.1 Passenger equipment and locomotives are generally exempt from this requirement.
- 2.4.2 There shall be no unpainted handrails or axles, etc. or have bare metal showing, except for power pickup.
- 2.4.3 All equipment shall be painted and lettered with some form of reporting marks and road name.
- 2.4.4 All equipment shall be complete in all of its major structural component and shall not exhibit obvious omissions, breakage or damage.
- 2.4.5 All equipment to be inspected and ON the railroad shall be free of DUST & DIRT.
Dust is not scale weathering.

2.5 Weight of Equipment

- 2.5.1 Each piece of equipment (not motive power) shall have a minimum weight based upon its coupler to coupler length. The following formula shall be used to determine the weight ± 1/2 oz.
- 2.5.2 Weight = Car Length over the couplers * 1/2 oz. See Table in Section 3.0
 - 2.5.2.1 Rear end protection equipment shall have 1/2 oz. added to the recommended weight.
- 2.5.3 No piece of normal (interchange) freight rolling stock shall weigh less than 3.0 ounces.
- 2.5.4 No passenger car shall weigh less than 4.0 ounces.
- 2.5.5 This requirement may only be waived or amended by the equipment foreman with the agreement of the operations chairman on a per car basis.



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2.6 Rear End Equipment

- 2.6.1 All cabooses, observation cars or any car designated as the end car (including the modern method of indicating the end of the train with a single flasher light) must have a protection device.
- 2.6.2 Protection devices may be internal illumination with resistor or resistors alone or directly across wheel-sets.
If wheel-set resistors are used, at least 2 axles must have resistors.
- 2.6.3 Rear End Equipment so equipped shall pass a functional test on the clubs test fixture and pending test on the layout.
- 2.6.4 Rear end cars must detect on the mainline with only minimal flickering (in case of a light) while rolling.
- 2.6.5 Nickel/Silver wheel-sets are recommended.

2.7 Motive Power

- 2.7.1 Steam locomotives using tender pick up shall have the trucks bonded.
Bonding provides a direct electrical path from the wheels to the metal tender frame.
This is a wire so mounted (soldered or screwed) from the bolster/metal wiper to the negative (-) pole of the motor or decoder (left).
Can also be directly connected to the decoder for DCC equipment.
Other methods are approved on an individual basis by the equipment foreman.
- 2.7.2 All motive power shall match NMRA mobile decoder wiring standards.
Power pickup right, is from the right hand wheels and is red. Left side is black wire.
- 2.7.3 All motive power shall have decoders
 - 2.7.3.1 Use 4 digit addressing (Unless the engine has 2 digit number)
 - 2.7.3.2 Decoder address shall match the Engine number.
 - 2.7.3.3 Decoders should be set to 127 speed steps by default
 - 2.7.3.4 Multiple Unit Engines should have individual addresses, not be assigned same, and use advanced mu'ing.
 - 2.7.3.5 Duplicate Numbers are discouraged – Be aware if your matches someone else's engine number.
 - 2.7.3.6 Hard Coupled Units, A-A, A-B, etc. can use same address (can never run apart)
Each unit must be recorded in database individually
 - 2.7.3.7 Decoder numbers that are different from Engine number must be put on bottom of engine
- 2.7.4 Direction of engine must match direction indicated on throttle.
 - 2.7.4.1 Steam Engines (boiler forward) and Diesel Cowl Engines must match
 - 2.7.4.2 Road Engines that have short & long hoods run per RR's preference.
 - 2.7.4.3 Hard coupled engines may be exempted by permission

2.8 Inspection Stickers and Validation

- 2.8.1 The members must apply some form of permanent and positive identification to the bottom of the equipment.
Last name is preferred, additional initials may be needed for clarification.
Engraving is preferred, sticker is acceptable
- 2.8.2 Gatsme's operations committee labels are the only acceptable labels, for purposes of inspection.
They may ONLY BE APPLIED by a member of the operations committee inspection crew.
- 2.8.3 Labels will include the following
 - 2.8.3.1 Member's last name
 - 2.8.3.2 Month/Year of Inspection
 - 2.8.3.3 Inspectors Initials or Stamp



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- 2.8.4 Accepted equipment being Inspected/Re-inspected shall have new labels installed.
- 2.8.5 Accepted equipment being Inspected/Re-inspected shall be recorded or have the date of Inspection/Re-inspection updated in either the member owned or the operation's system list.
- 2.8.6 Operation's System cars shall also be marked with an orange dot with an "S" on it.

2.9 Inspection Frequency Schedule

- 2.9.1 System Cars – Inspection/Re-Inspection 2 years
- 2.9.2 Non-System – Inspection/Re-Inspection 2 years
- 2.9.3 Motive Power – Inspection/Re-Inspection 1 year
- 2.9.4 Rear protection – Inspection/Re-Inspection 1 year
- 2.9.5 All Equipment - Policed 6 months
(Pursuant to Bylaws to Article XI, Section 6e #3)

3.0 Weight Reference Table

Length of Car	Weight Oz's- Acceptable	
	Minimum (-)	Normal
Over couplers		
3.0 in	3.00 oz.	3.00 oz.
3.5 in	3.00 oz.	3.00 oz.
4.0 in	3.00 oz.	3.00 oz.
4.5 in	3.00 oz.	3.00 oz.
5.0 in	3.00 oz.	3.00 oz.
5.5 in	3.00 oz.	3.00 oz.
6.0 in	3.00 oz.	3.00 oz.
6.5 in	3.00 oz.	3.25 oz.
7.0 in	3.00 oz.	3.50 oz.
7.5 in	3.25 oz.	3.75 oz.
8.0 in	3.50 oz.	4.00 oz.
8.5 in	3.75 oz.	4.25 oz.
9.0 in	4.00 oz.	4.50 oz.
9.5 in	4.25 oz.	4.75 oz.
10.0 in	4.50 oz.	5.00 oz.
10.5 in	4.75 oz.	5.25 oz.
11.0 in	5.00 oz.	5.50 oz.
11.5 in	5.25 oz.	5.75 oz.
12.0 in	5.50 oz.	6.00 oz.

(To ends of couplers)
Acceptable Weight = 1/2 oz. per inch