

Northern Association of Model Engineers

Narrow Gauge Locomotive Efficiency Competition

Rules of Competition

1. The competition is for coal fired steam locomotives of 3 1/2" or 5" gauge only.
2. On arrival, competitors must register at the Reception where all necessary information concerning the day's events will be available, including their approximate time of run.
3. One hour before the start of each run, the driver will be called to prepare his locomotive in the presence of an official Observer who will also be at hand to offer any assistant required.
4. Welsh steam coal will be provided in pre-weighed bags
5. As much wood and/or charcoal as required will be provided for raising steam. Prior to changing to coal, the Official Observer will check that the amount of charcoal is no higher than the bottom of the firebox door.
6. The change to coal will be made using the weighed coal before the start of the run.
7. The train with a selection of loaded wagons, chosen by the driver, will be prepared by Appointed Officials of the host society.
8. The nominal duration of the run is 30 minutes. The competitor must run for a minimum of 25 minutes (inclusive of stops as detailed in Rule 10). The competitor may end his run after 25 minutes but must not run longer than the lap in which 30 minutes has elapsed. The competitor must inform the Observer of his intentions.
9. A competitor may come to a temporary halt during his run, but the total time at rest must not exceed 8 minutes as timed by the Observer, or the competitor will be disqualified. Competitors will not be penalized under this rule for stoppages due to engine or wagon derailments.
10. Should the load prove too much for the locomotive, one or more wagons may be detached whenever it is safe to do so. However, calculations will be based on the load at the end of the run.
11. Water will be handed to competitors at a specific point on the track as required during each run in suitable containers so that filling of tanks may take place without stopping. An emergency supply will also be available.
12. The run shall finish at the start/finish point when all unused coal will be collected and weighed in the presence of the driver. No allowance will be made for coal left in the firebox.
13. The results will be calculated by the host society's officials and displayed as soon as possible.
14. A maximum speed limit of 5 m.p.h. will be in operation for the competition, The Observer will advise drivers if this speed is approached. He will give a warning if the speed limit is exceeded. Three such warnings or exceeding the speed limit for more than 10 seconds will result in disqualification.
15. During the measured run all work must be provided by the locomotive. Trains must not be assisted in any way that would increase the drawbar pull. Infringement of this rule will result in disqualification.
16. Brakes may be used to stay within the speed limit. However, use of brakes whilst the regulator is open will result in the value of the total load hauled used to calculate the results being reduced..
17. The use of the hand pump during the run is not permitted except in an emergency when all other means of water feed have failed. Should this happen the locomotive must be retired. Infringement of this rule will result in disqualification.
18. The use of sand is not permitted except at the start of the run.
19. The decision of the Chief Judge is final. Judges will be appointed by the host society.

Method of calculating results.

Due to the incompatibility of the Rochdale track and all current dynamometer cars, the competition will be decided on the basis of least coal consumption per ton/mile calculated as follows:

$$\text{Result} = \frac{\text{Coal consumption (lbs)}}{\text{Load (tons) x Distance Travelled (miles)}}.$$

(Full size consumption for express locos was typically 0.1 lbs / Ton.mile).

Load is the weight of the train being pulled, including the driver, observer, riding truck and following wagons as carried at the finish.

It does not include the engine, tender, coal/water truck coal or water for the engine and their containers nor does it include wagons removed as in rule 10. Wagons may not be added during the run.

Distance travelled is the length of one lap of the track (0.3814 miles) multiplied by the number of full laps completed.