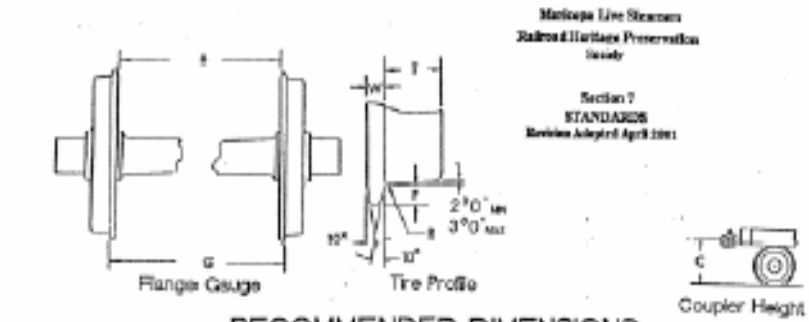


Maricopa Live Steamers  
Railroad Heritage Preservation Society  
Safety and Operating Rules  
Revision Adopted 8/11/07

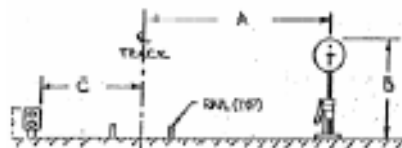
PREFACE

The purpose of these Rules is to ensure the safe enjoyment of Maricopa Live Steamers (MLS) facilities by all members, guests, and visitors.

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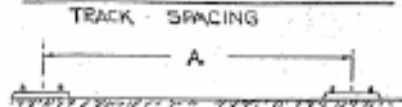
TRACK SCALE	G	B	T MIN	W MAX	F	R	C
1 1/2"	7.44 <sup>+0.00</sup> <sub>-0.02</sub>	7.12 <sup>+0.02</sup> <sub>-0.00</sub>	.59	.156	.187 MAX	.094 <sup>±.015</sup>	4.08 <sup>±.08</sup>



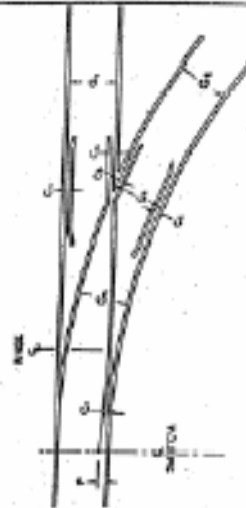
TRACK-SIDE CLEARANCES (inches)

GRADE	A MIN	B MIN	C MIN	C MAX
20'	24.0	16.0	11.0	6.0

NOTE: SIGNAL LIGHT HOUSING FOR DIMENSIONS C & D REPRESENTS METAL. BRASSWARE, OTHER TYPES OF HARDWARE SUCH AS LOW SPREAD SPANNS MAY BE USED AS LONG AS CLEARANCES ARE MAINTAINED.



15' DISTANCE	Minimum	15'
20' DISTANCE	Minimum	20'



TURNOUT DIMENSIONS

SCALE	G <sub>1</sub>	G <sub>2</sub>	C <sub>1</sub>	C <sub>2</sub>	P (min)
1 1/2"	7.50	7.54	.185	.250	.63

## Section 2 GENERAL

205. No one shall operate equipment in an unsafe manner.
210. No one shall operate equipment while under the influence of any substance adversely affecting his/her ability to safely operate that equipment.
220. Equipment operating at MLS facilities shall conform to MLS standards and shall be sufficiently quiet so as to permit normal conversation immediately adjacent to such equipment.
225. Locomotives and other power units shall be equipped with an audible warning device loud enough to permit safe operation.
230. Members and guests shall ensure that all MLS equipment they use is properly cared for and stored after use.
235. Members are liable for any damage to MLS equipment and/or facilities caused by their negligence/abuse and are liable for all associated repair costs. Specific action shall be determined by a majority vote of those present at a legally held BoD meeting.
240. It is the responsibility of all members to help keep MLS facilities neat and orderly. Members are to dispose of their waste in the proper receptacles or take it with them when they leave. **UNDER NO CIRCUMSTANCES ARE ANY OILS, FUELS, OR SOLVENTS TO BE Poured ON THE GROUND OR PLACED IN WASTE RECEPTACLES AT MLS FACILITIES.**
245. MLS owned equipment shall not be removed from MLS facilities without prior approval of the BoD or the President.
250. Steam boilers shall:
  251. Be certified as having passed an annual hydrostatic test to 50% above their normal working pressure. New steel boilers shall be tested to 100% above their normal working pressure. Steam boiler test certificates issued by other recognized live steam organizations within the past twelve (12) months shall be accepted as valid by the MLS.
  252. Have two safety valves set to operate within 5 psi of each other.
  253. Have the bottom of the water level gauge glass set at least ¼" above the top of the crown sheet.
  254. Have the ability to immediately shut off the heat source.
  255. Have at least two methods of putting water into the boiler while under pressure at least one of which must function while a moveable engine is stationary.
  256. Incorporate an ash pan and an effective spark arrestor with a mesh of 3/16ths of an inch or smaller if burning solid fuel.

### Section 3 SIGNALS

310. Hand signals may be given with the hand, a flag, or a light as follows.

- |                   |   |
|-------------------|---|
| 311. PROCEED      | Raised or lowered vertically.   |
| 312. REDUCE SPEED | Arms held horizontally with short up and down motion of the hands.  |
| 313. STOP         | Swung at arm's length down from shoulder height perpendicular to the track.<br>Any object waved violently on or near the track. |
| 314. WASHOUT      | Swung violently at arm's length down from above shoulder height perpendicular to the tracks. Used to signal emergency stop.     |
| 315. BACK-UP      | Swung vertically in circles perpendicular to the track.   |

320. Engine whistle signals. o = short blast. > = long blast.)

- |              |   |
|--------------|---|
| 321. o       | Apply brakes. Stop.   |
| 322. oo      | Proceed. Answer to any signal not otherwise provided for.                             |
| 323. ooo     | When standing, back up.   |
| 324. oooo    | Call for signals.   |
| 325. >>      | Release brakes and proceed.   |
| 326. >>>>    | Flagman return to the train.  |
| 327. >>o >   | Approaching public crossing, tunnel, area of restricted visibility, or another train. |
| 328. ooooooo | (multiple short blasts) Warning to people or animals on the track. General alarm.     |
| 329. >>>>>>  | (prolonged blast) Approaching a station.  |

330. Communicating signals given by the conductor.

- |              |   |
|--------------|---|
| 331. oo      | When standing, proceed. When running, stop.                     |
| 332. ooo     | When standing, back up. When running, stop at the next station. |
| 333. oooo    | When running, reduce speed.                                     |
| 334. ooooooo | (multiple short blasts) Emergency.                              |

340. Color signals, lights, or flags. They may appear as hand signals, electronic signals, or fixed signals (board beside the track).

- |             |  |
|-------------|--|
| 341. GREEN  | Proceed. On the front of a locomotive, indicates another section of the same train is following. |
| 342. YELLOW | Proceed with caution being prepared to stop at the next signal.                                  |
| 343. RED    | Stop.  |
| 344. BLUE   | Equipment must not be moved or coupled to. May only be removed by the person that put it there.  |
| 345. WHITE  | On the front of a locomotive, indicates that the train is an extra or second section.            |

350. MLS Signaling System

351. All signal aspects are absolute and are to be treated accordingly.

352. All red signals are absolute, i.e. they must not be passed without permission from the dispatcher or station master on duty. If no dispatcher or station master is on duty, wait five minutes, then proceed at restricted speed and be prepared to stop short of any obstruction.

353.

ASPECT	NAM E	INDICATIO N
Green or green over red	Clear	Proceed or proceed on mainline.
Yellow or yellow over red	Approach	Proceed or proceed on mainline. Prepare to stop at next signal.
Red or red over red	Stop	Stop. Remain stopped until signal changes aspect or permission to pass is given
Red over green	Diverging Clear	Proceed on diverging route.
Red over yellow	Diverging Approach	Proceed on diverging route. Prepared to stop at next signal.
Flashing yellow	Approach Medium	Prepare to enter diverging route at next signal.
Flashing red	Restricting	Dispatcher not on duty. If track clear, enter interlocking at reduced speed. Prepare to stop short of possible obstructions.

Section 4 TRAINS

400. Equipment.

401. During periods of limited visibility, trains shall have a white light showing to the front and a red light showing to the rear. Steam engines shall have the water glass and steam pressure gauge illuminated by a fixed light source. Such lights shall be bright enough to permit the safe operation of the train.

402. Refueling with flammable liquids shall not be done in covered station areas.

403. Ashes from solid fuel locomotives shall not be discharged in station areas except under emergency conditions. Cleanup is the responsibility of the individual discharging the ashes.

404. Locomotives and other power units shall, when appropriate, be permanently coupled to the car in or on which the engineer rides. Such coupling can either be by couplers and safety chain(s) or by drawbar with locking pins. Liquid or gas fuel cars shall be similarly coupled.

410. Equipment Safety.

411. No maintenance or repairs shall be done to MLS owned locomotives and/or rolling stock without prior approval of the Superintendent of Operations. The Superintendent of Operations or his/her designated representative(s) shall be notified as soon as is practical for the need of any such maintenance or repairs.

412. Engineers shall complete an operational/safety check of the locomotive/train before first use that day. When using an MLS locomotive, the engineer must also complete the log assigned to that locomotive.

413. Any member may declare a piece of club equipment unsafe and affix a "Bad Order" card to the equipment.
414. "Bad Order" equipment must be set out and the Superintendent of Operations or designated representative notified as soon as practical.
415. "Bad Order" equipment may not be returned to service until released by the Superintendent of Operations or designated representative.

## Section 5 TRAIN OPERATIONS

### 510. Personnel requirements

511. Engineers are responsible for the safe operation of their train.
512. Engineers shall qualify annually as determined by the safety committee.
513. All members operating equipment are required to pass an engineer's test annually with a passing score of 90% prior to operating equipment on MLS track.
514. All visiting engineers shall be given written and/or oral instructions explaining the track system, the signal system, and basic safety prior to operating on the railroad. This briefing may be given by any certified engineer.
515. Engineers shall not allow anyone to ride between themselves and the controls of their engine so as to restrict their ability to control the train.
516. Engineers shall be the final authority as to who may ride their train.
517. Engineers shall have radio contact with the dispatcher/stationmaster when appropriate. (8/00)
518. Engineers shall carry a working flashlight for personal safety when operating a train at night.
519. Certified engineers 13 through 17 years of age may operate a train during the time that a public train is operating.
520. Certified engineers under 13 years of age may not operate a train on mainline track during the time that a public train is operating.
521. When operating MLS equipment, a junior member shall be supervised by a qualified, adult member.
522. The signal superintendent shall certify other persons on the systems controls and operating procedures so they may act as dispatcher.
523. Prior to operating club locomotives, all engineers must be certified by the Safety Chairman or designated representative.

### 530. Operational requirements.

531. All trains shall be operated by or under the direct supervision of a certified engineer. The supervising engineer shall either be on the train and able to take control of it or close enough beside the train to give verbal instructions and otherwise assist as necessary.
532. All trains must be operated at a safe speed.
533. Train crews shall use appropriate signals when operating their trains.
534. All mainline switches shall be left in their normal, operational position.

535. When a dispatcher is on duty, all trains operating in an un-signalized area must have radio contact with the dispatcher or be a second section to a train that has such radio contact.
536. The dispatcher on duty shall be responsible for ensuring an orderly traffic flow over the entire railroad.
537. In the event of signal failure, dispatcher on duty shall be prepared to maintain traffic flow over the entire railroad by radio.
538. Boilers are not to be blown down in station areas.

## Section 6 PUBLIC TRAIN OPERATIONS

610. All trains carrying the public shall consist of MLS riding cars only. No member equipment shall be used when carrying the public except for those engines certified by the Superintendent of Operations or his/her representative.
620. Riding cars carrying the public shall:
  621. Be securely coupled to the satisfaction of the safety committee.
  622. Have seats installed so as to facilitate safety.
  623. Have bolsters that provide 3 or 4-point suspension.
  624. Have trucks that provide safe, stable operation.
  625. Safety chains or drawbars are required between all riding cars in public trains. (8/05)
630. Operational requirements.
  631. Trains carrying the public shall be operated only by a certified engineer with a certified conductor aboard.
  632. Maximum speed when operating public trains is five (5) miles per hour as determined by electronic means.
  633. Both stationmasters and train crews shall ensure that the public receives a BoD approved safety briefing before leaving the station and that they do not take anything aboard the train that may create an unsafe condition.
  634. The number of public riding cars on a public train shall be limited to a maximum of seven (7) with a maximum of three (3) passengers per car when the safety siren is functioning and in use. If the safety siren is not in use, the number of passenger cars in a general public train shall be limited to five cars with three passengers each.
  635. Public riding cars shall be placed behind the engineer's riding car with the conductor's riding car directly behind the last public riding car. (2/04)
  636. One unoccupied caboose may be placed behind the conductor's car. (8/05)
  637. The public shall, under normal circumstances, be loaded/unloaded only at designated station areas.
  638. All riders on regular public trains must be capable of walking to, boarding, and exiting riding cars under their own ability. (8/05)
  639. Individuals who weigh over 300 pounds or do not comfortably and safely fit in or on riding cars shall not be carried as public passengers.
  640. Pregnant women shall not be permitted to ride public trains. (8/05)

- 641. During public runs, first aid kits shall be made available to the public in designated station areas and on all engines pulling a public train. (8/05)
- 642. There shall be no servicing of locomotives or trains at a station that takes longer than the time required to unload and load passengers.
- 650. No engineer under the age of 18 years shall operate a public train.
- 655. Engineers must have radio contact with the dispatcher/stationmaster when operating a public train. (8/05)
- 660. Conductor:
  - 661. Must also pass the engineer's test annually prior to working on a public train. (2/04)
  - 662. Shall be responsible for monitoring safe operating conditions and for notifying the engineer when unsafe conditions arise.
  - 663. Shall have available a whistle, a radio, and, as appropriate, either a light or red flag.
  - 664. Must also have radio contact with the dispatcher/stationmaster when working on a public train. (8/05)
  - 665. Shall assist stationmasters with loading/unloading as needed.
- 670. Stationmasters:
  - 671. Shall be responsible for train movement in station areas and shall minimize congestion and delays there.
  - 672. Shall be responsible for activity in station areas to include the safe loading/unloading of passengers and safeguarding MLS property.
  - 673. Shall have available a whistle, a radio, and, as appropriate, either a light or red flag.
  - 674. Shall be responsible for recording the number of public passengers each run.