



8 (R). Yellow flags by day and yellow lights by night will be used by switchtenders.

Proceed signals as well as stop signals given by switch tenders must be answered.

17 (R). On engine equipped with Mars red oscillating Figure 8 headlight, red headlight must be displayed by engineer in case of break-in-two or other emergency which requires protection.

Enginemen and trainmen of trains moving in opposite direction observing the red indication displayed must take immediate action to stop their train and determine cause.

Display of red headlight does not relieve trainmen nor enginemen from complying with Rule 102 or any other rule.

Extreme care must be exercised by enginemen to avoid display of red headlight except in case of break-in-two or other emergency.

19 (R). Rule 19(B) will apply in use of markers between Yermo and Daggett, Riverside Jct. and Los Angeles, and on branches on First Subdivision.

21 (R). On the Second and Third Subdivisions and branches, that portion of Rule 21 specifying the display of two white flags by extra trains is cancelled where engines are provided with indicators.

27 (R). Switch lights will not be used on branch lines as follows:  
 Pasadena Branch            Boulder City Branch            Crestmore Branch  
 Glendale Branch            St. Thomas Branch            Crestmore yard limits  
 Anaheim Branch                                               Anza Spur

Where switch lights are not used, trains and engines must approach facing point switches prepared to stop if switch is not in normal position.

30 (R). Within the corporate limits of towns and cities named below, the engine bell must be rung continuously while the train or engine is moving:

Riverside                      Ontario                      Pomona                      Los Angeles

83 (R). First-class trains are not required to register at East Yard. Operator will register for such trains, obtaining the information from dispatcher.

83 (S). Information required by Rule 83 need not be obtained by trains entering CTC territory.

83 (T). Trains moving between Los Angeles Union Station and Downey Road must identify trains between those stations. Trains displaying signals must sound one long and two short blasts of engine whistle to all trains and engines on both tracks between those stations.

86 (R). Trains and engines may move between Downey Road and Alhambra Avenue with the current of traffic, irrespective of time-table superiority, but must avoid delay to first-class trains.

89 (R). At Bly, westward trains holding main track with orders to meet or wait for eastward trains, must stop to clear west cross-over switch near M.P. 48, and eastward trains holding main track with orders to meet or wait for westward trains, must stop to clear east switch of the east storage track at Signal 484.

93 (R). Arlington yard limits includes track between Arlington and Camp Anza;  
 Crestmore, includes tracks to Ormand and Bly quarries and to Bly;  
 Whittier Jct., includes Whittier;  
 Hynes, includes Douglas Jct.;  
 Los Angeles yard limits includes Glendale and Pasadena Branches and to M.P. 8.27 on the San Pedro Branch.

96 (R). Clearance must be received as follows:

- At Kelso —all trains;
- At Daggett —all eastward trains;
- At Riverside —all westward trains.

Trains are not required to receive a clearance per Rule 96 at initial stations which are not train order offices.

When a clearance is received at Riverside by the only section of a westward regular train, it will confer the same authority as when received at its initial station.

98 (R). Trains and engines must be governed by the following at the railroad crossings indicated:

Location	Railroad Crossed or Junction With	Trains Which Have Precedence	How Governed
Riverside Jct. (M.P. 58.2)	S. P. A. T. & S. F.		Interlocking.
Magnolia Ave. (M.P. 55.2)	P. E.		Automatic Interlocking.
Ontario (M.P. 38.1)	S. P.	U. P.	S. P. trains and engines stop and operate electrically locked derail before crossing.
W. O. Tower (M.P. 33)	S. P.		Interlocking.
Soto St. Jct. (M.P. 2.2)	U. P.		Special Rule 509(T).
Ninth St. Jct.	U. P.		Interlocking. Special Rule 609(T).
Pasadena Jct.	U. P.		Interlocking.
A. T. & S. F. Crossing (Mission Tower)	A. T. & S. F.		Interlocking.
Glendale Jct.	U. P.		Interlocking. Special Rule 98 (T).
Bridge Jct.	U. P.		Special Rule 98(S).
Redondo Jct.	A. T. & S. F.		Interlocking.
Violet Alley, Los Angeles (100 ft. east of Santa Fe Ave.)	U. P.-S. P.	U. P.	Flagman must protect when crossing U. P. old main track.
Violet Alley, Los Angeles (North leg of Wye)	A. T. & S. F.	A. T. & S. F.	Flagman must protect when crossing Santa Fe lead track.
Santa Fe Ave., Los Angeles	L. A. Ry.	U. P.	L. A. Ry. cars stop and flagman protect crossing.

Location	Railroad Crossed or Junction With	Trains Which Have Precedence	How Governed
Santa Fe Ave., Los Angeles	A. T. & S. F.	A. T. & S. F.	U.P. trains and engines stop. Flagmen protect two crossings unless given proceed signal by switch-tender.
<b>San Pedro Branch:</b>			
Hobart (M.P. 3.1)	A. T. & S. F.		Interlocking.
L. A. Jct. Ry. Crossing (M.P. 3.6) (M.P. 4.6-C) (M.P. 4.8-C)	L.A. Jct. Ry. L.A. Jct. Ry.	U. P. U. P.	Special Rule 98(W). L.A. Jct. Ry. trains and engines stop and flagmen protect crossing.
P. E. Crossing (M.P. 5.1)	P. E.		Automatic Interlocking.
South Gate (M.P. 7.4)	S. P.		Automatic Interlocking.
P. E. Crossing (M.P. 11.2)	P. E.		Automatic Interlocking.
Douglas Jct.	U. P.		Trains and engines must stop at Stop sign before fouling San Pedro Branch main track.
Cota (M.P. 17.4)	P. E.		Interlocking. Special Rule 609(R).
Thenard (M.P. 21.7) (M.P. 21.9)	S. P. P. E.		Interlocking. Special Rule 609(R).
Anaheim Team Track No. 85 (M.P. 22.36-C)	U. P.		Stop sign. Flagman protect crossing.
Anaheim Team Tracks No. 85 and No. 87 (M.P. 22.66-C)	A. T. & S. F.	A. T. & S. F.	U. P. trains and engines stop at Stop sign. Flagman protect crossing.
Henry Ford Boulevard (M.P. 23.2)	Drawbridge		Interlocking. (Westward home signal located on south side of track.)
Permanente Co. Spur (M.P. 23.52)	U. P.		Stop sign. Flagman protect crossing.

Location	Railroad Crossed or Junction With	Trains Which Have Precedence	How Governed
Columbia Construction Co. Spur (M.P. 23.52)	U. P.		Trains and engines stop and flagman protect crossing.
<b>Pasadena Branch:</b>			
Alhambra Ave. (M.P. 1.0)	S. P.		Interlocking.
Main St. (M.P. 1.4) Ave. 20 (M.P. 2.1)	L. A. Ry. L. A. Ry.	U. P. U. P.	L. A. Ry. cars stop and flagman protect crossing.
Ave. 33 (M.P. 2.7) Highland Park (M.P. 5.4)	A. T. & S. F. A. T. & S. F.	A. T. & S. F. A. T. & S. F.	U. P. trains and engines stop, throw target and wait 3 minutes before moving over crossing.
Fair Oaks Ave. (M.P. 8.5)	P. E.	U. P.	U. P. trains and engines stop and flagman protect crossing.
<b>Glendale Branch:</b>			
Broadway, Glendale	P. E.	U. P.	U. P. trains and engines stop and flagman protect crossing.
<b>Anaheim Branch:</b>			
M.P. 6.86	P. E.	U. P.	P. E. trains stop and flagman protect crossing. U. P. trains and engines approach prepared to stop unless crossing is clear.
P.E. Crossing (M.P. 10.5)	P. E.	P. E.	U. P. trains and engines stop and flagman protect crossing.
Sunny Hills Spur (M.P. 13.8)	A. T. & S. F. P. E.	A. T. & S. F. P. E.	U. P. trains and engines stop and flagman protect crossing.
A. T. & S. F. Crossing (M.P. 15.5)	A. T. & S. F.		Interlocking.
Anaheim Sugar Spur (M.P. 19.0)	A. T. & S. F.	U. P.	A. T. & S. F. trains and engines stop and flagman protect crossing. U. P. trains and engines approach prepared to stop unless crossing is clear.

98 (S). Eastward trains and engines moving from Santa Fe Ave. to Ninth St. Jct. must be governed by hand signals from switchtender at Bridge Jct.

98 (T). At Glendale Jct., trainmen of trains moving from Pasadena Branch must communicate with signalman at Mission Tower, who will release electric lock on switch; after lock has been released, trainman must operate switches and be governed by indication of signals. Trainmen of trains moving to Pasadena Branch must operate switch at east end of cross-over.

98 (U). Trainmen of engines entering or leaving spur track at North Main Street, Los Angeles, must communicate with signalman at Mission Tower, who will release electric lock on derail.

98 (V). For movement of U. P. trains and engines to and from Glendale Branch at Arroyo Jct., S. P. switchtender must be notified to handle switch.

98 (W). All trains and engines entering main track from Vernon Lead or from south leg of L. A. Jct. Ry. wye, located west of crossing, must proceed westward and clear eastward home signal, west of crossing, before making reverse movement.

All trains and engines entering main track from L. A. Jct. Ry., north leg of wye, located east of crossing, must proceed eastward and clear westward home signal, before making reverse movement.

All trains and engines entering main track from Flood Control track east of crossing, or from General Motors track west of crossing, must send flagman to crossing and protect movement.

99 (R). Trains will be relieved from protecting against following extra trains by the use of Example (7) of train order Form E only on the branches named:

Anaheim Branch	St. Thomas Branch
Crestmore Branch	Boulder City Branch

99 (S). Except where protected by interlocking, trains and engines entering, leaving or occupying main track between Downey Road and Alhambra Avenue must be protected by flagman, and when such movements make it necessary to cross over on double track such movements must be protected in both directions. When stop is made, flagman must go back immediately a sufficient distance to insure full protection. Exception: At Downey Road, if signals indicate proceed, trains and engines may move through crossover without flagging in either direction.

103 (R). All trains and engines must stop and be preceded by a flagman over the following crossings:

Lincoln Avenue, Pasadena;  
Colorado Boulevard, Pasadena;  
Fletcher Drive, Los Angeles;  
San Fernando Road, Los Angeles;  
Sepulveda Boulevard, in Manuel Hold Yard;  
State Street, in Manuel Hold Yard;  
Van Buren Avenue, Camp Anza Spur;  
Arlington Avenue, Camp Anza Spur;  
Highway 91, McCarran Spur;  
Highway 91, Arrolime Spur.

At Ontario, when an eastward train stops west of Euclid Avenue, it must be preceded by a flagman over crossing.

At Pasadena, all crossings north of Colorado Boulevard, all trains and engines must stop and be preceded by a flagman over crossings.

103 (S). All trains and engines must approach and pass over Santa Fe Avenue, Los Angeles, very carefully, keeping a sharp lookout for street traffic.

At Fullerton, M.P. 17.3, South Spadra Road, trains must be prepared to stop.

103 (T). Yardmen or trainmen need not ride on leading footboard of engine as follows:

At Los Angeles, on double track between Downey Road and Glendale Junction;

103 (T). Continued.

On main track, San Pedro Branch, between Hobart Tower and Firestone Blvd.;

At Mead Transfer, from east yard limit sign to west leg of wye at Terminal Island;

Over Anaheim team tracks and running lead to Pier A, Wilmington.

104 (R). Spring switches are located at:

Carp	—stem of wye;
Yermo	—east and west end of passenger siding;
Kelso	—stem of wye;
Riverside	—west end of double track;
Telegraph Road	—main line switch;
Soto St. Jct.	—eastward main track;
Soto St. Jct.	—west end of Alameda freight terminal lead;
Glendale Jct.	—west end of cross-over.

Spring point details are located as follows:

Cima, west end of caboose run-around track;  
M.P. 21.16, Boulder City Branch.

104 (S). In order to provide derail protection, switch at west end of run-around track near highway crossing, McCarran Field, must be left lined for run-around track.

104 (T). At Kelso, after eastward freight train has stopped into clear, caboose may be cut off and permitted to roll back for purpose of cutting in helper, providing cross-over switch is lined from No. 1 to No. 2 track so that derail protection will be afforded the caboose. Caboose should not be permitted to roll free at this location unless this derail protection is provided.

D-151 (R). At Riverside, trains and engines may move against current of traffic within yard limits without being preceded by a flagman, except when a first-class train is due or when view is obscured.

300 (R). Staff system is in effect between Santa Fe Avenue and Bridge Jct. Possession of staff is authority for a train or engine to proceed to the next staff station, complying with Rule 93 and the indications of interlocking signals at Redondo Tower.

If staff cannot be removed from machine, train or engine must communicate with switchtenders at Bridge Jct. and Santa Fe Avenue; after which, a flagman must be sent ahead and after a wait of five minutes after departure of flagman, train or engine may follow at a safe distance through the block.

Between Bridge Jct. and east derail at Redondo Tower and between Santa Fe Avenue and west derail at Redondo Tower, movements may be made without possession of staff, complying with Rule 93.

402 (R). CTC starting signals are located as follows:

Caliente	Signal 4593;
Las Vegas	Signals 3344, 3346 and 3348;
Las Vegas	Signals 3339 and 3341;
Kelso	Signal 2353 and Signal 2358.

When a train or engine is stopped by one of these signals, member of crew must communicate with dispatcher for instructions. If movement is verbally authorized by dispatcher, flagman must be sent ahead to next signal and movement made at restricted speed without receipt of CTC clearance.

At Yermo, when dwarf signal at east or west end of passenger track displays Stop indication, stop must be made, and after stopping, flagman must be sent ahead to next signal and movement made at restricted speed without receipt of CTC clearance.

At Cima, CTC clearance required by Rule 402 need not be received by light engine leaving Cima, but such movements must be governed by signal indication.

CTC clearance will not be required by trains entering CTC territory from Boulder City Branch, Blue Diamond Spur or Sloan Quarry tracks, but the movement will be governed by signal indication and instructions from dispatcher.

402 (R). Continued.

Eastward freight trains leaving Las Vegas for Third Subdivision will, unless otherwise instructed, use new drill track and leave the yard at extreme east switch, being governed by signal indication at that point. Westward freight trains arriving Las Vegas will be governed by signal indication at east switch.

At Caliente, main track switch at west end of yard, and cross-over switch at west end of drill track, are power-operated and controlled by dispatcher at Las Vegas. Dwarf signal governs movement to main track.

Trains and engines moving to main track must stop at Stop sign 200 feet east of dwarf signal. When illuminated "S" is displayed on signal unit located on top of signal case near cross-over switch, member of crew must operate push button on east side of signal case to cause switches to line for cross-over movement and dwarf signal to display Proceed indication.

A speed of 20 MPH must not be exceeded:

- At Yermo —On main track between east and west switches of passenger passing tracks;
- At Kelso —On main track between Signals 2352 and 2359;
- At Las Vegas —On main track between extreme west switch and switch at Mile Post 335, approximately 1750 feet east of Bonanza Road underpass.

Trains and engines moving from St. Thomas Branch to siding at Moapa, or engines moving from wye at Cima, must communicate with dispatcher before occupying siding at either point.

CTC telephone is located just west of depot at Cima.

509 (R). Home signal at east end Los Angeles River Bridge governs movements over A. T. & S. F. spur track crossing at west end of bridge.

Color light dwarf signal at west end of Los Angeles River Bridge governs movements over A. T. & S. F. Crossing at Redondo Tower.

509 (S). At Whittier Jct., switch leading from Anaheim Branch is equipped with electric lock. Instructions for operation of switch are posted at the switch.

509 (T). At Soto St. Jct., when a train or engine is stopped by Signals 20, 22 or B-23, a flagman must be sent ahead and train or engine must follow flagman at restricted speed to the next signal.

**San Pedro Branch:**

509 (U). Block signals are in service between Manuel and Thenard interlocking on the San Pedro Branch.

Approach signal located at M.P. 20.7 and Home signal 215 located at M.P. 21.5 governs westward movements.

Dwarf signal located 150 feet east of main track switch at Willow Junction governs westward movements from Manuel Hold Yard to San Pedro Branch main track.

Trains and engines moving from Manuel Hold Yard to San Pedro Branch main track must communicate with signalman at Thenard Tower, who will release electric lock on switch. After lock has been released, trainman must operate main track switch and be governed by signal indications.

When signalman at Thenard Tower is unable to release electric lock, trainman will, on instructions from signalman, operate time release, which, after three-minute interval, will release lock; switch can then be operated.

After main track switch has been opened, if dwarf signal does not display Proceed indication, Rule 509 will govern.

To release electric lock to enter Manuel Hold Yard, trains or engines must occupy the 66-foot unlocked section of track immediately west of Willow Junction main track switch.

605 (R). To indicate the route to be used, the following whistle signals will be used:

- W. O. Tower:  
For siding ..... ———— 0

605 (R). Continued.

**Riverside Jct.:**

- From A. T. & S. F. westward main track to U. P. eastward main track ..... ———— 0
- From U. P. westward main track to A. T. & S. F. eastward main track ..... ———— 0
- From U. P. westward main track to A. T. & S. F. westward main track ..... ———— 0 0 0 0
- To transfer track ..... 0 0 ————

**Downey Road:**

- For main track ..... ————
- For San Pedro Branch ..... ———— 0
- For Bridge Jct. .... 0 ———— 0
- For middle track ..... 0 0 ————

**Hobart:**

- For siding ..... ———— 0
- For east wye ..... ———— 0
- From San Pedro main track to A. T. & S. F. siding ..... ———— 0
- From A. T. & S. F. siding to San Pedro main track ..... 0 ————
- From U. P. transfer to A. T. & S. F. siding .... 0 0 ————
- From A. T. & S. F. siding to U. P. transfer .... 0 0 ————

**Pasadena Jct., passing microphone at First St.:**

- For Union Station ..... 0 ————
- To and from Glendale Jct. .... ————
- For Alhambra S. P. coach yard or to turn equipment or engine ..... 0 0 ———— 0
- For S. P. coach yard ..... 0 0 0 ————

**Ninth St. Jct., passing microphone between Fourth and Sixth Streets:**

- For main track ..... ————
- For Bridge Jct. .... ———— 0

**Mission Tower:**

One long sound of emergency whistle is a signal for all movements within interlocking limits to stop at once and not move until proper signal or definite information is received from signalman.

609 (R). At Cota and Thenard, when a train or engine is stopped by an interlocking signal displaying Stop indication, a member of crew must communicate with signalman and be governed by instructions posted in box.

609 (S). When a train or engine is stopped by a Stop indication of an interlocking signal at Signal Bridges 3, 4, or 6, and signal does not change to Proceed indication, a member of the crew must communicate with the signalman at Dayton Avenue or Mission Tower.

609 (T). When a train or engine is stopped by a Stop indication of an interlocking signal at Ninth St. Jct., and signal does not change to Proceed indication, a member of the crew must communicate with switchtender, and if instructed by switchtender, switches may be operated by hand and a member of the crew must precede the movement and give proceed signal from the crossing when safe to proceed.

Switches at Ninth St. Jct. are equipped with two levers and switch locks. To operate switch by hand, selector lever must be moved to reverse position. Lever must be returned to normal position when movement is completed.

609 (U). Trains moving to Chamberlin Spur must communicate with switchtender at Bridge Jct., and be governed by signal indication.

Trains moving from Chamberlin Spur or from Griffith Spur to Soto St. Jct. must communicate with switchtender at Bridge Jct., and movement must be made through cross-over between Ninth St. Viaduct and Ninth St. Jct.

609 (V). At Bell, in performing switching between the home and approach signals, cars must not be left standing on clearing section of track located between 350 feet west of the eastward home signal and 330 feet east

609 (V). Continued.

of the westward home signal. Switching movements may be made between these points and the approach signals without interfering with operation of the P. E. Ry.

At Bell, when making movements from siding or Bethlehem Steel Corporation spur to main track, trainmen must be governed by switch indicator at the switch. If switch indicator displays Proceed indication, switch may be thrown and when dwarf signal displays Proceed indication, movement will be made at restricted speed. When performing switching at those points, flag protection must be provided for cars left on main track between the Home signals.

When making movements to and from Bethlehem Steel Corporation spur to siding, the switch nearest train must be thrown first to make contact for the governing signal.

802 (R). All persons are prohibited from riding in cars while being switched, which are in the process of loading or unloading. Part loads will not be switched unless properly broken down or properly braced to prevent contents falling and being damaged. Before switching with or moving cars which are in the process of loading or unloading, persons working in the car must be notified and trainmen and yardmen should see that cars are not switched with until cars are vacated.

802 (S). Trainmen, enginemen, yardmen, agents, and other employes who in any way handle or care for explosives and other dangerous articles must familiarize themselves with the regulations and instructions governing the handling of them.

Whenever placards or car certificates become detached or lost in transit, they must be replaced. If both car certificates are missing, proper inspection, insofar as possible, must be made and new car certificates applied. (BE 589-c)

Cars placarded "Explosives" must be placed in through freight trains near the middle of the trains and must be not nearer than the sixteenth car from the engine, or a caboose in service if next to engine, electric locomotive, or motor car, nor the eleventh car from the rear end caboose, if the length of the train will permit. Cars placarded "Explosives" in all cases must be not nearer than the second car from engine, electric locomotive, motor car, or caboose. Where helper engines or electric locomotives are employed ahead of caboose, cars placarded "Explosives" must be separated from such helpers by at least one car. (BE 589-g)

Cars placarded "Explosives" may be placed in local freight trains, or mixed trains when authorized herein, not nearer than the second car from the engine, electric locomotive, motor car, or a caboose in service, when placing them near the middle of the train would require additional switching at way stations. (BE 589-h)

Cars placarded "Explosives" must not be placed in through or local trains next to dead engines, placarded tank cars, wooden-frame flat or gondola cars; or carloads of pipe, lumber, poles, iron, steel, or similar lading which by shifting may break through end of car placarded "Explosives" due to rough handling; refrigerator cars equipped with automatic refrigeration of the gas-burning type; nor next to cars containing lighted heaters, stoves, or lanterns; or cars with live stock or poultry occupied by an attendant. (BE 589-i)

Cars placarded "Explosives" must not be placed in through or local trains next to cars which bear "Dangerous" placards, unless the remainder of the train consists only of such cars. (BE 589-j)

Placarded loaded tank cars must not be placed in trains next to cars placarded "Explosives" nor next to cars containing lighted heaters, stoves, or lanterns; nor next to refrigerator cars equipped with automatic refrigeration of the gas-burning type; nor next to flat cars with lading such as logs, lumber, rails, or pipe, or gondola cars with such lading higher than ends, that is liable to shift. In through trains such tank cars must not be placed nearer than the sixth car from the engine, electric locomotive or motor car, or a caboose in service, and in local trains not nearer than the second car from engine, electric locomotive, motor car or a caboose in service, when length of train permits and cars other than loaded tank cars are in the train. (BE 589-k)

802 (S). Continued.

When handling cars placarded "Explosives" in yards or on sidings, explosives cars must be coupled to engine, electric locomotive, or motor car, protected by a car between. (BE 589-l)

When necessary to switch a train in which there are cars loaded with explosives, such cars should be set over before switching is commenced, and when switching completed, cars should be picked up and replaced in train. All moves with cars loaded with explosives must be made with air brakes cut in and operative and with hand brakes operative.

Cars containing dangerous explosives, Class A, poison gases or liquids, Class A, and tank cars requiring "Dangerous" placards must not be hauled in a passenger train. If freight train service is not operated such cars may be hauled in mixed trains. (BE 589-v)

In mixed train service or when passengers are carried in a caboose car of a freight train, a car containing a shipment of dangerous explosives, Class A, or poison gases or liquids, Class A, or a tank car placarded "Dangerous" may be hauled but such cars must not be placed next to cars carrying passengers, and whenever it is practicable to do so cars placarded "Explosives" must be placed between cars not bearing "Dangerous" or "Poison Gas" placards. (BE 589-w)

Empty tank cars must not be moved from stations unless dome cover and all outlet caps have been replaced and wrenched tight, shipping tags and cards removed from car, and "Inflammable" placards removed or replaced by "Dangerous Empty" placards.

802 (T). U. P. flat cars 55519, 56000, 56052 and 56228 are equipped with gas cylinders (high pressured flasks), to transport compressed gas, and are assigned between Wilmington and Pocatello-Council Bluffs.

This gas is highly inflammable and extreme care must be exercised switching in yards and handling in trains. In case of leakage, no open flame should be permitted in the vicinity of the cars, and cars must be handled in accordance with Bureau of Explosives regulations.

802 (U). Sanders or injectors must not be used over track scales and engines or cars must not stand on dead rail over scale deck or platform of track scales. Cars must not be violently stopped by impact, sudden application of brakes or by blocking wheels. After cars are weighed, they must not be moved over live rails if possible to avoid it. When making impact with cars on scale, speed must not exceed two MPH, and four MPH must not be exceeded over scales in any case. Cars on live rail must not be moved by other cars or engines standing on dead rail, or vice versa. Cars must not be moved over scale with one truck on live rail and other truck on dead rail.

804 (R). Assistant Supervisor Oil-Gas-Electric Mobile Power is responsible for the proper sealing of cut-out cock controlling the safety control feature in air brake equipment of Diesel-electric road locomotives; however, engineer must know that cut-out cock is sealed in proper position when taking over Diesel road locomotive and before departure of train from terminal.

804 (S). At Caliente, if engine is detached from passenger train, sufficient hand brakes must be set on head end of westward trains and on rear end of eastward trains, to secure cars until engine is again attached.

When engine is detached from westward passenger train, enginemen will deliver engine to hostler on adjacent yard track. When engine is detached from eastward passenger train, enginemen will move engine 15 feet from train where hostler will take charge.

804 (T). At Caliente, cars switched into any track must have hand brakes set to secure them. This applies in all cases, whether cars are cut off in a switching movement or shoved into any track.

Trainmen of all freight trains arriving Caliente will set sufficient hand brakes to properly secure train but in no case must there be less than 10 hand brakes set, length of train permitting. All brakes other than the power type must be set with brake club.

When yard crew makes cut in train for helper engine, unless helper engine is cut in immediately, sufficient hand brakes must be set to hold cut, but in no case not less than five hand brakes.

804 (T). Continued.

Yard crews will be held responsible for properly securing cars in yard, especially when cars are coupled to other cars already standing. Sufficient hand brakes must be set on all cars standing to hold them if other cars are coupled to them. It is not permissible to kick or drop loads westward nor kick empties westward on a clear track. In no case may empties be permitted to run free over 10 car lengths. In switching house track at Caliente, cars must not be switched to nor left standing on main track.

Track 55 leading from wye track to turntable is descending grade of one per cent toward turntable. This track is equipped with derail, which must be locked in derailing position when not being used. Cars, engines or other equipment must not be stored nor left standing between derail and turntable.

804 (U). Sufficient hand brakes, but not less than six, must be set on east end of all freight trains arriving Yermo and East Yard. Engine foremen working on east lead Yermo and in east end of "A," "B," and "C" yards, East Yard, will be responsible for knowing that sufficient hand brakes are set on east end of cars on all tracks in these yards.

804 (V). At Kelso, if a train is left unattended on any track it must be secured with at least 10 hand brakes, regardless of whether engine is detached from train.

At Kelso, on all eastward freight trains member of train crew must remain at rear of train until helper is cut in.

808 (R). Single helper may be used behind all-steel caboose San Bernardino to Summit, Kelso to Cima and Carp to Caliente when there are no wooden underframe cars, drover cars, scale test cars, cars with emergency drawbars or cars carded to be handled on rear of train ahead of caboose.

811 (R). In addition to making inspection of train as often as practicable, as per Rule 811, every freight train must stop and be inspected at the following points:

Kelso	—Eastward and westward, remain 10 minutes;
Cima	—Westward;
Chase	—Westward, remain 10 minutes;
Dawes	—Westward, remain 10 minutes;
Desert	—Eastward and westward;
Rox	—Westward;
Rox or Carp	—Eastward;
M.P. 6, Blue	
Diamond Spur	—Eastward, remain 10 minutes.

811 (S). On locomotive, tender and freight car wheels, flat spots two and one-half inches or longer, or if there are two or more adjoining spots each two inches or longer, and on passenger cars including streamline equipment one inch or longer, are condemnable and when discovered in train, conductor or engineer must immediately report to chief dispatcher and be governed by his instructions.

874 (R). Duties of firemen on multiple unit Diesel-electric road locomotives:

At initial terminals, before departure, fireman will go through engine rooms and make careful inspection of gauge indications, oil levels, engine temperatures, shutter controls and will operate the steam separator blow-down valves and soot blower valves of steam generating units, first blowing down steam separator, after which soot blower will be operated. Any unusual condition detected or irregularity found must be reported to engineer.

At all intermediate stations or stops, when time permits, fireman will make same observations in engine rooms as outlined above.

At points where firemen change, incoming fireman will assist outgoing fireman in inspecting gauges, blowing boilers and other required duties.

At stations where locomotive is to be detached, fireman will close main valve to train heat line.

When locomotive is coupled to train at initial or intermediate station, or where cars are cut in or cut out of train, fireman, on request or proper signal, will open main valve to train heat line. Unless locomotive equipped with remote control valve, opening or closing of main valve to train heat must be done while train is standing.

874 (R). Continued.

Warning lights located in cab on left side of panel board indicate:

1. Low oil pressure;
2. Hot engine;
3. Fire out in steam heat generator.

Warning bell located in cab will ring when any of the above indications are displayed. If necessary, train must be stopped for inspection and necessary attention.

875 (R). Adequate spot fire to provide near maximum steam pressure must be maintained on oil-burning engines when not working steam to avoid fire box leakage.

At Kelso, on westward trains, an engineman must be in charge of engine at all times.

876 (R). Firemen with less than one year's experience as fireman must not be permitted to operate engine at any time in yard or road service.

879 (R). On account of both sludge removers on Engines 4020 to 4024 inclusive, 3930 to 3949 inclusive and 835 to 844 inclusive, discharging on right side, left sludge remover must not be used by fireman on these engines except when instructed to do so by engineer.

879 (S). On engines equipped with Elesco exhaust steam injectors, when standing or moving around yards, engineers will use right high pressure injector instead of left exhaust injector, to avoid excessive waste of water from the left injector which causes a serious condition around switches and yard tracks.

896 (R). Engines of any class must not go on the following tracks:

Mira Loma	—Any tracks within Government enclosure;
Boulder City	—Machine Shop track No. 7;
Chase	—Water track over unloading flume;
Baxter	—Trestle on Lime Quarry spur track;
Crestmore	—Track over trestle in plant yard of R. P. C. Company;
Riverside	—Mission spur track serving A. F. G. Company yard. Diesel engines must not go beyond east end of packing house;
Whittier	—Whittier Citrus Association spur track;
	—Murphy Packing House spur, not beyond point 220 ft. from switch;
South Gate	—Three Fibreboard Products Company spurs except 4200 and 4400 class yard engines and Diesel engines.

2200 class and heavier engines must not go on the following tracks:

Henderson—	—Industrial trackage beyond former interchange track;
Basic Yard	—All tracks west of M.P. 0.23;
St. Thomas Branch	—Blue Diamond Spur;
Arden	—Yellow Pine Mining Company warehouse;
Jean	—Both legs of wye except 2200 and 2700 class engines;
Colton	—All tracks;
Crestmore Branch	—All tracks, except 2200 and 2700 class engines may operate between Bly and Ormand Quarry;
Crestmore Spur	—Cucamonga Co-operative Winery spur at M.P. 39.0, not beyond point 75 feet east of frog except 2200 and 2700 class engines;
Ontario	—250 feet easterly of Pomona Fruit Growers Exchange track on east side of Exchange Growers Building;
Pomona	—All tracks;
Anaheim Branch	—All tracks;
Glendale Branch	—All tracks, except 2200 and 2700 class engines;
Pasadena Branch	—Macco Lumber Company spur;
Clearwater	—Southern California Edison Company spur;
Hynes	—Two Richfield Oil Company spurs.
Rioco	

2800 class and heavier engines must not go on the following tracks:

Riverside	—City of Riverside oil spur track; Magnolia Avenue spur track;
Ontario	—Cutler-Lobinger Packing Company spur track; Packing House spur track at Cypress Avenue;
Fallon	—Spur track;
Hudson	—Spur track;
Clayton	—Spur track;
Bell	—Storage track.

2800 class and heavier engines must not go beyond main track switch at Douglas Junction on Douglas Spur.

3500, 3800 and 3900 class engines must not go on Dixon Spur at Mira Loma.

Trains and engines using Farrier Pit track must not go beyond loading ramp with box cars, caboose nor engine, account close clearance for any type of equipment except ballast and flat cars.

900 (R). There are close clearances above and at the side of main tracks as shown below, and in addition thereto, at platforms and other structures above and at the side of industry, stock and other tracks:

Location	Structure or obstruction	Clearance of engine or car is close at—
At all stations.....	Mail cranes .....	Side.
<b>First Subdivision.</b>		
Los Angeles Union Station..	Umbrella sheds .....	Top (800, 3800 and 3900 engines ventilators open)
Los Angeles River.....	Bridge .....	Side.
M.P. 1.89 (Butte St.).....	Bridge .....	Side.
Soto St. ....	Signal 24 .....	Side.
M.P. 8.90 .....	Highway bridge .....	Top.
M.P. 10.80 .....	Bridge .....	Top and side.
M.P. 11.1 .....	Highway bridge .....	Top.
M.P. 15.05 .....	Bridge .....	Top and side.
M.P. 15.39 .....	Bridge .....	Top and side.
M.P. 15.72 .....	Bridge .....	Top and side.
M.P. 30.65 .....	Telegraph poles .....	Side.
M.P. 31.95 (Thomas St.)....	Iron post barricade .....	Side.
Pomona .....	Signal 319 .....	Side.
Pomona .....	Signal 320 .....	Side.
Pomona .....	Signal 320 (Case) .....	Side.
W. O. Tower.....	Lever rod for train order signal .....	Side.
M.P. 33.0 to 34.2 .....	Telegraph poles .....	Side.
M.P. 39.1 .....	Relay box .....	Side.
Bly, west cross-over switch..	Switch indicator .....	Side.
M.P. 50.7 .....	Relay box .....	Side.
M.P. 52.3 .....	Relay box .....	Side.
M.P. 52.40 .....	Bridge .....	Side.
M.P. 55.74 .....	Canal syphon wall .....	Side.
M.P. 55.90 .....	Highway bridge .....	Side.
M.P. 56.2 .....	Relay box .....	Side.
M.P. 57.1 .....	Relay box .....	Side.
<b>Second Subdivision:</b>		
M.P. 192.34 .....	Tunnel No. 1 .....	Top.
M.P. 243.96 .....	Bridge .....	Side.
Chase .....	Water tank spout .....	Top and side.
M.P. 250.69 .....	Bridge .....	Side.
M.P. 267.25 .....	Bridge .....	Side.
Ivanpah .....	Water column .....	Side.

Location	Structure or obstruction	Clearance of engine or car is close at—
<b>Third Subdivision:</b>		
Arrolime .....	Tipple, spouts and waste pipes .....	Side.
Moapa .....	Water column .....	Side when on siding.
M.P. 395.42 .....	Bridge .....	Side.
M.P. 397.04 .....	Bridge .....	Side.
M.P. 397.32 .....	Bridge .....	Side.
M.P. 406.55 .....	Bridge .....	Side.
M.P. 407.09 .....	Bridge .....	Side.
M.P. 408.24 .....	Bridge .....	Side.
M.P. 408.97 .....	Bridge .....	Side.
M.P. 409.16 .....	Bridge .....	Side.
M.P. 409.25 .....	Signal poles .....	Side.
M.P. 419.30 .....	Bridge .....	Side.
M.P. 430.68 .....	Bridge .....	Side.
M.P. 431.82 .....	Bridge .....	Side.
M.P. 433.47 .....	Bridge .....	Side.
M.P. 437.22 .....	Bridge .....	Side.
M.P. 444.56 .....	Bridge .....	Side.
M.P. 447.89 .....	Bridge .....	Side.
M.P. 452.03 .....	Bridge .....	Side.
M.P. 458.56 .....	Bridge .....	Side.
<b>St. Thomas Branch:</b>		
M.P. 5.49 .....	Cut .....	Side.
M.P. 5.52 .....	Cut .....	Side.
M.P. 5.61 .....	Cut .....	Side.
M.P. 5.73 .....	Cut .....	Side.
M.P. 6.05 .....	Cut .....	Side.
M.P. 6.34 .....	Cut .....	Side.
M.P. 6.61 .....	Cut .....	Side.
M.P. 7.09 to 7.13 .....	Cut .....	Side.
M.P. 7.40 .....	Cut .....	Side.
M.P. 7.75 .....	Cut .....	Side.
<b>Pasadena Branch:</b>		
Ave. 21 to Ave. 22.....	Brick building, pipe and eaves .....	Side.
M.P. 5.24 .....	Retaining wall .....	Side.
M.P. 6.1 .....	Fence, concrete railing, lights at bridge .....	Side.
M.P. 6.2 .....	Guy wire .....	Side.
M.P. 8.7 .....	Retaining wall .....	Side.
M.P. 8.09 .....	Highway bridge .....	Top.
M.P. 8.09 .....	Cross-arms .....	Side.
M.P. 8.16 .....	Highway bridge .....	Top.
<b>Glendale Branch:</b>		
Forest Lawn Cemetery M.P. 6.3 .....	Gates .....	Side.
<b>San Pedro Branch:</b>		
M.P. 5.10 Randolph St.....	Trolley wires .....	Top.
M.P. 8.52 .....	Bridge .....	Side.
Clearwater—PE Crossing ..	Trolley wire .....	Top.
Thenard .....	Trolley wire .....	Top.
<b>Crestmore Branch:</b>		
M.P. 1.01 .....	Bridge .....	Side.

900 (S). Framed copies of Chief Engineer's drawings Nos. 53663, 53664, 54313 and 54398 are posted in yard offices and engineers' rooms.

C. E. drawing 53663 provides information with respect to the maximum

900 (S). Continued.

widths and heights of loads that can be handled between Los Angeles and Council Bluffs or Kansas City, either via Denver or North Platte, and through Aspen Tunnel.

The permissible maximum load line as shown on the drawing above a point four feet above the top of rail is the limit for loads that can be moved between above points and through the tunnel. The maximum load line shown on the drawing below a point 4 feet above the top of rail is due to signals, switch stands, platforms and other structures along the balance of the route; the permissible maximum load line below four feet above the top of rail does not refer to the tunnel.

Special attention is called to the table appearing at right of diagram showing various heights above top of rail, and opposite each height the maximum width of load that can be handled at that height when loaded on a car the length of which does not exceed 43 feet from center to center of trucks.

The maximum published width of 12 feet is the maximum width of load that can be handled, without restrictions, between above points and is limited by wide loads or equipment on adjacent tracks, based on minimum track centers of 13 feet, 12 ft. 6 inches is the maximum width of load that can be moved with special handling between the limiting heights as given in the table at the right hand side of the drawing. Advance approval of the General Superintendent of Transportation must be obtained for the movement of any shipment having an effective width in excess of 12 feet in order that protection can be arranged for other shipments exceeding 12 feet in width that may be moving in the same territory.

In all cases the measurements are based on symmetrical loads being exactly centered on the car, and it is important to know that loads are so centered. The effective width of eccentric loads is double the maximum extension of the load from the center of the car at any given height above top of rail.

See C. E. Drawing 53664 for dimensions of loads that can be handled between Los Angeles and Council Bluffs through Bear River Tunnel via McCammon and Granger.

See C. E. drawing 54313 for dimensions of loads that can be handled between Los Angeles and Kansas City, through Bear River tunnel via McCammon, Granger and North Platte.

See C. E. Drawing 54398 for dimensions of loads that can be handled between Los Angeles and Kansas City through Bear River Tunnel via McCammon, Granger and Denver.

900 (T). AT&SF 6450 to 6459 inclusive, specially constructed high, wide cars, are in service.

These cars as well as U.P. 961000 and 561000 series, over-size wing cars, can move between McCammon and Ogden through Bear River Tunnel but not through Aspen Tunnel between Granger and Ogden.

The above over-oversized wing cars must not be handled on tracks equipped with umbrella sheds.

900 (U). California Railroad Commission Order No. 36007 covers the operation of cars exceeding a maximum height of 15' 1" from the top of the rail to the top of the running board, also cars exceeding 10' 8" in width and loads of freight in excess of 10' 8" in width or in excess of 15' 1" in height.

When used for transportation of airplane wings and accessories, there is no restriction as to height of lading in such excess height cars. When used for other general commodities, the lading in cars having a maximum height of 15' 6" or greater shall not exceed a height of 11' from top of the car floor.

Car exceeding 15' 1" but less than 15' 6" from top of the rail to top of the running board and cars exceeding 10' 8" but not greater than 10' 11" in width, may be moved in ordinary service provided such cars are stenciled if in Union Pacific ownership, or placarded if foreign line cars, which are not so stenciled, such placarding indicating that the cars are of excess height or excess width or both.

Cars having a maximum height of 15' 6" or greater may be moved provided they are placarded or stenciled, the placard or stencil showing the excess height above top of rail.

The markings on such cars shall be adjacent to the ladder or hand holds

900 (U). Continued.

near the floor line of the car on the side at each of the four corners of all cars of excess height or width.

When any train containing cars having a height of 15' 6" or greater is operated, such freight cars of excess height shall be blocked in a single unit and if total number of cars in train permits, cars of such excess height shall be so located in the train to be at least five cars distant from either the caboose or the engine.

All open top cars with loads in excess of 10' 8" in width or 15' 1" in height shall be placarded on loads in conspicuous place when practicable and on the four corners of such cars at the ladder or hand holds. When the contents of such cars extend beyond the sides of the cars, such cars shall be so located as to be five cars from either the caboose or the engine.

When any train contains freight cars having a height of 15' 6" or greater from top of the rail to top of the running board, or having open top cars with loads in excess of 10' 8" in width or 15' 1" in height, is operated, each member of the crew of such trains shall be informed by appropriate train order that the consist of the train includes freight cars of such excess height or loads of such excess height or width, specifying the number of such cars and advising that no member of the train crew is required to ride on the top of such excess height freight cars or on the top or sides of any such open cars having loads of excess width or height.

Yard crews required to handle freight cars having a height of 15' 6" or greater shall be notified by their appropriate supervisor of the presence of such freight cars in said yard. Yard crews, carmen and yard clerks shall be notified by their appropriate supervisor of the movements and presence of cars containing excess height loads or excess width loads within the working limits of such employees.

Each member of the crews of trains whose operations may be affected by the presence of operation of other trains having such wide loads shall be informed by an appropriate train order advising them of that condition.

Below are shown where a number of close clearances exist, and every possible precaution must be taken in the movement of these cars over the railroad and close attention given the cars in yards, and on passing tracks when meeting trains, to know positively there is sufficient clearance on opposite track to clear loads, stopping trains, or yard movements on opposite tracks if necessary, to know positively there is clearance.

Excess width loads must not be moved over main and passing tracks at same time at Riverside, WO Tower, Pomona, Rowland, Montebello, Fruitland and Clearwater.

Excess width loads must not be stored on or moved over yard tracks at same time in yards at Las Vegas, Yermo and East Yard, unless there is an intervening track between excess width loads.

Account close clearance, 3800 and 3900 class engines must not be moved at the same time with cars with excess width loads over main track and passing tracks at Clearwater, Fruitland, Montebello, Rowland, WO Tower, Pomona and Riverside. This close clearance also applies on all yard tracks at East Yard; between tracks 1, 2, 3, 4, 5 and 6 in Yermo Yard; between tracks 1, 2, 3, 4, 5 and 6 on north side of old main track and between tracks 1 and 2 on south side of old main track at Las Vegas.

Any employe noting a close side or overhead clearance with one of the wide loads, or one of the high cars, should make immediate report so that protection can be given.

Excess width loads must not be stored on or moved over yard tracks in yards where clearance is insufficient, unless there is an intervening track between trains or cars containing excess width loads.

Employes in yards and elsewhere must keep close lookout for wide loads in trains and in switch movements, being on the alert when such movements are passing to avoid hazard of injury from such excess width loads, or damage to equipment. When employes have been informed of a load of excess width in a train, they must inspect their own train for swinging doors or anything projecting beyond normal clearance, and if any excess width loads in their

900 (U). Continued.

train, must obtain meeting or passing order at stations where there is sufficient clearance.

Emploees observing cars of excess height or width, or cars containing loads of excess height or width, should notify their supervisor in the event such cars are not placarded or stenciled as required by this rule.

900 (V). Ore dock at Lovell is equipped with apron that cannot be raised nor lowered to normal position alongside of dock when high cars are spotted at dock. It is necessary that apron be lifted before high cars are spotted under it, and if no one is there to lift apron, cars should be left clear of apron. When there are cars to be set in or taken out of dock, it must be known that apron will clear cars. Apron in raised position over track will not clear engines, nor high cars.

900 (W). In moving cars on tracks under overhead trolley wires, employees are warned that overhead clearances to such wires and side clearances to supporting trolley poles are close. Trolley wires must not be touched and careful lookout must be kept for low and broken wires.

Connections with electrically operated railways at following locations:  
 Los Angeles—Butte St. and Santa Fe Ave.  
 Riverside—Market Street.  
 Mead Transfer.  
 La Habra.

**TRACKS NOT SHOWN ON TIME-TABLE**

Location	Miles from Los Angeles	Car Capacity	Switch Connections
<b>First Subdivision:</b>			
St. Helens spur .....	11.1	17	West
Hudson .....	17.9	6	East
Fallon .....	21.7	9	West
Industrial spur .....	27.1		East
San Antonio Meat Co. ....	34.1	22	East
Cucamonga Co-operative Winery spur .....	39.1	12	West
Ballou .....	40.5	41	Both
Champagne .....	43.5	36	East
Dixon Spur, Mira Loma .....	45.8	267	East
Riverside (Magnolia Ave.) .....	55.2	15	East
<b>Second Subdivision:</b>			
New Dunn .....	188.5	20	East
Baxter Quarry spur .....	196.9	117	West
Baxter Gravel Pit tracks} .....			East
Chase Water track .....	251.2	15	Both
Blue Diamond .....	321.8		West
<b>Third Subdivision:</b>			
McCarran Airport spur .....	342.6		West
Lovell .....	344.5	18	Both
Arrolime .....	353.8	31	Both
Farrier Gravel Pit spur .....	391.9	100	East
Hoya Gravel Pit .....	401.5	73	Both
<b>Boulder City Branch:</b>			
Magnesium .....	Miles from Boulder Jct. 12.0	14	Both
<b>St. Thomas Branch:</b>			
Standard Oil Co. spur .....	Miles from Moapa 3.1	1	East
Arrowhead .....	3.3	18	West
Amber .....	9.5	4	East
Glassand .....	13.7	9	West

900 (W). Continued.

**TRACKS NOT SHOWN ON TIME-TABLE (Continued)**

Location	Miles from Los Angeles	Car Capacity	Switch Connections
<b>San Pedro Branch:</b>			
Bell Foundry spur .....	8.5	3	East
Vernon Foundry Co. ....	10.2	6	West
Hollydale spur .....	10.4	18	West
Macco Construction Co. ....	11.5	15	West
Export Petroleum spur .....	13.5	20	West
Richfield Oil Co. ....	13.8	36	East
Export Petroleum spur .....	14.1	20	East
Champion Gasoline Co. ....	14.4	19	West
<b>North Long Beach:</b>			
Siding, Industrial spur and wye .....	16.5		Both
Montana Ranch spur .....	17.1	98	West
City of Long Beach .....	17.1	8	East
Cherry Ave. Team track .....	17.1	17	East
Hancock Refining Co. ....	17.2	26	East
<b>Pasadena Branch:</b>			
Baker spur .....	5.3	5	West
Team track .....	5.3	5	West
Standard Bakeries Corp. ....	9.4	1	East
<b>Glendale Branch:</b>			
Dohrmann-Walker spur .....	5.4	2	East
Clifford spur .....	5.5	9	East
<b>Anaheim Branch:</b>			
	Miles from Whittier Jct.		
Gladding McBean spur .....	0.1	6	West
Sunny Hills spur .....	13.8	118	East
Fullerton Industrial Lead .....	15.4		West
California Juice, Inc. ....	19.1	13	West
So. California Citrus .....	19.2	16	West
<b>Crestmore Tracks:</b>			
	Miles from Bly		
Setout track .....	0.2	49	Both
Ennis .....	3.1	15	Both
Ormand .....	3.9	14	West
Ormand Quarry track .....	3.9		East
Crestmore .....	6.9	Yard	

**SET OUT TRACKS**

Location	MILE POST	CAR CAPACITY	SWITCH CONNECTIONS	GRADE DESCENDING
<b>Second Subdivision:</b>				
Toomey .....	168.5	5	East	East
Harvard .....	173.3	16	Both	East
Manix .....	177.6	19	East	East
Field .....	182.4	16	Both	Level
Afton .....	191.6	17	West	East
Crucero .....	204.1	23	West	East
Balch .....	212.0	14	Both	West

SET OUT TRACKS (Continued)				
Location	MILE POST	CAR CAPACITY	SWITCH CONNECTIONS	GRADE DESCENDING
Sands	217.4	12	Both	Level
Glasgow	222.0	16	Both	West
Kerens	225.8	18	Both	West
Flynn	230.8	15	Both	West
Hayden	238.9	11	Both	West
Dawes	243.4	16	Both	West
Elora	246.8	11	Both	West
Chase	250.3	12	Both	West
Cima	254.2	20	Both	East
Joshua	258.0	12	Both	East
Brant	262.8	7	Both	East
Ivanpah	267.2	12	Both	East
Moore	271.9	8	Both	East
Nipton	277.7	12	Both	East
Desert	282.2	12	Both	Level
Calada	287.1	14	Both	Level
Roach	291.5	11	Both	East
Borax	296.9	14	Both	West
Jean	300.8	10	East	West
Sutor	305.4	17	East	West
Erie	309.1	12	Both	West
Sloan	315.2	15	West	East
Arden	322.6	9	East	East
Bracken	328.2	12	Both	East
<b>Third Subdivision:</b>				
Wann	338.8	16	Both	Level
Valley	342.6	11	Both	West
Dike	347.3	8	East	West
Apex	352.0	8	Both	East
Garnet	357.3	6	West	East
Dry Lake	362.8	13	East	West
Crystal	368.8	16	East	Level
Byron	377.9	13	West	East
Rox	397.5	13	West	West
Hoya	402.7	7	East	West
Galt	408.8	13	Both	West
Vigo	413.6	12	Both	West
Carp	418.9	16	East	Level
Leith	428.9	13	Both	West
Elgin	438.5	17	Both	West
Boyd	445.0	12	Both	West
Stine	449.5	13	East	West
Etna	454.3	18	East	West

1006 (R). Standard brake pipe pressure for main line passenger trains is 110 pounds and must be maintained.

Standard brake pipe pressure for freight trains between Caliente and Los Angeles is 90 pounds and must be maintained.

1035 (R). Westward passenger trains must make running air test between 'S' sign east of Cima and east switch.

1041 (R). Air brake test as required by Air Brake Rule 1041 must be made by all eastward and westward freight trains at Cima.

1042 (R). Retaining valves must be used on all trains as required by Air Brake Rule 1042 as follows:

Cima to Kelso;

On Blue Diamond Spur (Arden), from end of track to Arden.

On other grades, conductor and engineer must have understanding as to number of retaining valves to be used.

On passenger trains, retaining valves must not be turned down until train passes mile board east of Kelso.

When possible, the use of retaining valves on live poultry cars must be avoided.

From Kelso to Sands, westward freight trains averaging 55 tons or more per operative brake, must not exceed 30 MPH.

Between Stine and Leith and Kelso and Sands, where tonnage of westward freight trains exceeds 65 tons per operative brake, retaining valves must be used on every other load throughout train. Speed must not exceed 20 MPH and stop of 10 minutes must be made at Elgin and Kerens for inspection of train.

Maximum tonnage per operative brake in freight service, Cima to Kelso, is 65 tons.

3120	3130	3140	3150	3160
3170	3180	3190	3200	3210
3220	3230	3240	3250	3260
3270	3280	3290	3300	3310
3320	3330	3340	3350	3360
3370	3380	3390	3400	3410
3420	3430	3440	3450	3460
3470	3480	3490	3500	3510
3520	3530	3540	3550	3560
3570	3580	3590	3600	3610
3620	3630	3640	3650	3660
3670	3680	3690	3700	3710
3720	3730	3740	3750	3760
3770	3780	3790	3800	3810
3820	3830	3840	3850	3860
3870	3880	3890	3900	3910
3920	3930	3940	3950	3960
3970	3980	3990	4000	4010
4020	4030	4040	4050	4060
4070	4080	4090	4100	4110
4120	4130	4140	4150	4160
4170	4180	4190	4200	4210
4220	4230	4240	4250	4260
4270	4280	4290	4300	4310
4320	4330	4340	4350	4360
4370	4380	4390	4400	4410
4420	4430	4440	4450	4460
4470	4480	4490	4500	4510
4520	4530	4540	4550	4560
4570	4580	4590	4600	4610
4620	4630	4640	4650	4660
4670	4680	4690	4700	4710
4720	4730	4740	4750	4760
4770	4780	4790	4800	4810
4820	4830	4840	4850	4860
4870	4880	4890	4900	4910
4920	4930	4940	4950	4960
4970	4980	4990	5000	5010
5020	5030	5040	5050	5060
5070	5080	5090	5100	5110
5120	5130	5140	5150	5160
5170	5180	5190	5200	5210
5220	5230	5240	5250	5260
5270	5280	5290	5300	5310
5320	5330	5340	5350	5360
5370	5380	5390	5400	5410
5420	5430	5440	5450	5460
5470	5480	5490	5500	5510
5520	5530	5540	5550	5560
5570	5580	5590	5600	5610
5620	5630	5640	5650	5660
5670	5680	5690	5700	5710
5720	5730	5740	5750	5760
5770	5780	5790	5800	5810
5820	5830	5840	5850	5860
5870	5880	5890	5900	5910
5920	5930	5940	5950	5960
5970	5980	5990	6000	6010
6020	6030	6040	6050	6060
6070	6080	6090	6100	6110
6120	6130	6140	6150	6160
6170	6180	6190	6200	6210
6220	6230	6240	6250	6260
6270	6280	6290	6300	6310
6320	6330	6340	6350	6360
6370	6380	6390	6400	6410
6420	6430	6440	6450	6460
6470	6480	6490	6500	6510
6520	6530	6540	6550	6560
6570	6580	6590	6600	6610
6620	6630	6640	6650	6660
6670	6680	6690	6700	6710
6720	6730	6740	6750	6760
6770	6780	6790	6800	6810
6820	6830	6840	6850	6860
6870	6880	6890	6900	6910
6920	6930	6940	6950	6960
6970	6980	6990	7000	7010
7020	7030	7040	7050	7060
7070	7080	7090	7100	7110
7120	7130	7140	7150	7160
7170	7180	7190	7200	7210
7220	7230	7240	7250	7260
7270	7280	7290	7300	7310
7320	7330	7340	7350	7360
7370	7380	7390	7400	7410
7420	7430	7440	7450	7460
7470	7480	7490	7500	7510
7520	7530	7540	7550	7560
7570	7580	7590	7600	7610
7620	7630	7640	7650	7660
7670	7680	7690	7700	7710
7720	7730	7740	7750	7760
7770	7780	7790	7800	7810
7820	7830	7840	7850	7860
7870	7880	7890	7900	7910
7920	7930	7940	7950	7960
7970	7980	7990	8000	8010
8020	8030	8040	8050	8060
8070	8080	8090	8100	8110
8120	8130	8140	8150	8160
8170	8180	8190	8200	8210
8220	8230	8240	8250	8260
8270	8280	8290	8300	8310
8320	8330	8340	8350	8360
8370	8380	8390	8400	8410
8420	8430	8440	8450	8460
8470	8480	8490	8500	8510
8520	8530	8540	8550	8560
8570	8580	8590	8600	8610
8620	8630	8640	8650	8660
8670	8680	8690	8700	8710
8720	8730	8740	8750	8760
8770	8780	8790	8800	8810
8820	8830	8840	8850	8860
8870	8880	8890	8900	8910
8920	8930	8940	8950	8960
8970	8980	8990	9000	9010
9020	9030	9040	9050	9060
9070	9080	9090	9100	9110
9120	9130	9140	9150	9160
9170	9180	9190	9200	9210
9220	9230	9240	9250	9260
9270	9280	9290	9300	9310
9320	9330	9340	9350	9360
9370	9380	9390	9400	9410
9420	9430	9440	9450	9460
9470	9480	9490	9500	9510
9520	9530	9540	9550	9560
9570	9580	9590	9600	9610
9620	9630	9640	9650	9660
9670	9680	9690	9700	9710
9720	9730	9740	9750	9760
9770	9780	9790	9800	9810
9820	9830	9840	9850	9860
9870	9880	9890	9900	9910
9920	9930	9940	9950	9960
9970	9980	9990	10000	10010

## RATING OF ENGINES IN FREIGHT SERVICE IN TONS OF 2,000 POUNDS

Total weight of trains, exclusive of engine and tender, which the different classes of engines will haul in each direction between stations named, under favorable weather conditions. A deduction of ten per cent may be made for fast trains.

Type of Engine	Numbers (Inclusive)	Los Angeles to Riverside	Riverside to San Bernardino	San Bernardino to Summit	Sands to Kelso	Kelso to Cima	Cima to Leith	Leith to Caliente	Moapa to Las Vegas	Las Vegas to Yermo	Yermo to Victorville	Victorville to Summit	San Bernardino to Los Angeles	
P 77	$\frac{25}{28}$ 165	2885 to 2887 3128 to 3133 3176 to 3181	1220	1170	500	1170	500	1170	780	1170	1170	1170	720	1350
C 57	$\frac{22}{30}$ 198	6010 to 6085	1700	1450	575	1350	575	1450	900	1450	1450	1780	925	2000
MacA 63	$\frac{26}{28}$ $\frac{212}{214}$ $\frac{218}{218}$	2700 to 2715 2726 to 2735	2000	1800	700	1600	700	1720	1150	1720	1720	2000	1075	2300
MacA 63	$\frac{26}{28}$ $\frac{212}{214}$	2200 to 2253, 2261, 2264 2293	2000	1800	735	1650	735	1800	1210	1800	1800	2050	1130	2400
MT 73	$\frac{29}{28}$ 230	7018 to 7024 7850 to 7869	2050	1850	800	1690	800	1850	1240	1850	1850	2050	1160	2450
TTT 63	$\frac{287}{290}$ $\frac{291}{298}$	5000 to 5026 5070, 5316, 5317 5500 to 5529	2520	2520	1000	2520	1000	2520	1600	2520	2450	2520	1625	2800
FTT 63	$\frac{27}{32}$ 307	5090 to 5099	2600	2600	1050	2600	1050	2550	1680	2600	2500	2600	1700	2900
SA-C-59	$\frac{23-23}{30}$ 471	3500 to 3563	3600	3500	1650	3500	1650	3460	2450	3460	3500	3500	2250	4200
CSA-69	$\frac{22-22}{32}$ $\frac{400}{394}$ $\frac{407}{407}$	3800 to 3809 3810 to 3814 3815 to 3839	3490	3350	1500	3070	1500	3350	2380	3350	3350	3350	2120	3880
CSA-69	$\frac{21-21}{32}$ 407	3975 to 3980	3490	3350	1500	3070	1500	3350	2380	3350	3350	3350	2120	3880

Note: Rating, Caliente to Moapa, Summit to San Bernardino, Summit to Sands, and Los Angeles to East San Pedro, car limit.

Note: Rating, 6010 to 6085 class engines East San Pedro to Rioco 3000 tons, Rioco to Los Angeles 3500 tons.

**EXPLANATION:**

P—Pacific Type  
C—Consolidation  
MacA—MacArthur  
TTT—2-10-2

MT—Mountain Type  
FTT—4-10-2  
SA-C—Simple Articulated-Consolidation  
CSA—Challenger Simple Articulated

Example:—Consolidation engine having 57 inch drivers, cylinders 22 inch diameter and 30 inch stroke, and weighing 198,000 pounds on drivers:

C—57  $\frac{22}{30}$  198