

RATING OF ENGINES IN FREIGHT SERVICE IN TONS OF 2000 POUNDS

Total weight of train, 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. Between stations for which no rating is shown maximum will apply.

TYPE OF ENGINE	NUMBERS (Inclusive)	SPOKANE AND UMATILLA										SPOKANE AND TEKOA				EAST-WARD		
		WESTWARD					EASTWARD					WESTWARD						
		Spokane to Geib	Geib to Ayer	Ayer to Page	Page to Humorist Wallula	Humorist to Wallula	Wallula to River-View Umatilla	River-View to Umatilla	Umatilla to River-View	River-View to Wallula	Wallula to Humorist	Humorist to Ayer	Ayer to Geib	Geib to Spokane	Spokane to Chester		Chester to Fairfield	Fairfield to Latah
C 57	22 190 30	2300	4000	3200	4000	2700	2700	2700	3400	2700	3400	2300	4000	1305	825	1240	1800	1150
T 69	22 161 28	1540	2205	2205	2205	1690	1690	1690	2315	1690	2315	1540	1540	1005	615	955	1385	890
MacA 57	23 207 30	2500	5500	3700	5500	3200	3000	3000	4500	3000	4500	2700	5500	1540	1000	1460	2120	1355
MacA 63	26 211 28 214	2550	5600	3750	5600	3250	3030	3030	4600	3030	4600	2730	6000	1555	1010	1475	2140	1370
P 77	22 149 28	1380	1970	1970	1970	1520	1520	1520	2075	1520	2075	1380	1380	900	550	855	1245	795
P 77	25 167 28 178	1785	2545	2545	2545	1960	1960	1960	2675	1960	2675	1785	1785	710	1005	1605	1025	
MS 59	23 253 30 472	5200	8000	7500	8000	6000	6000	6000	6000	6000	6000	5200	8000					
TTT 63	29 292 30	3550	7500	5500	7500	4500	4500	4500	7000	4500	7000	4000	7000					
MT 73	29 230 28	2500	5500	3700	5500	3200	3000	3000	4500	3000	4500	2700	5500	1540	1000	1460	2120	1355

EXPLANATION

P Pacific Ten Wheeler C Consolidation MacArthur MS Mallet Simple MT Mountain

T TTT MacArthur TTT 2-10-2 EXAMPLE: Consolidation engine having 57 inch drivers, cylinders 22 inch diameter and 30 inch stroke, and weighing 179,000 pounds on drivers:

$$C \frac{57}{30} \frac{22}{30} = 179$$

UNION PACIFIC RAILROAD COMPANY
Northwestern District

Oregon Division
Special Instructions
No. 8

Effective Saturday,
May 1, 1948

Superseding Special Instructions No. 7
Oregon and Washington Divisions

Employees whose duties are in any way affected thereby, must have a copy of these instructions with them while on duty.

L. A. COLLINS,
General Manager

A. McALLISTER,
Superintendent

2 (R). Employees listed below and other employees as may be designated, are not subject to Rules 2 and 2 (A), but they must, while on duty, have a reliable railroad grade watch which must not vary more than 30 seconds from correct time:

Safety Representatives	Traveling Firemen
Trainmasters	*Station Agents
Assistant Trainmasters	*Operators
Traveling Conductors	Outside Hostler Helpers
Road Foremen of Engines	Assistant Yardmasters

(*Except when assigned in offices where a standard clock is located.)

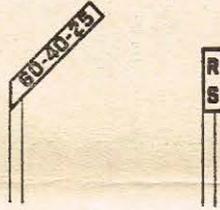
2 (S). Standard of watches to be used by employees designated in Rule 2 (R): Reliable railroad grade, lever set and must not vary more than 30 seconds from correct time.

2 (T). Officers and employees must not make solicitations in connection with the sale of watches.

2 (U). Employees must present their watches to officers and supervisors upon request.

5 (R). At Biggs, time shown in time-table schedules and in train orders applies at the end of double track.

10 (R).



Reduce speed signs as illustrated at left above will be located 1000 feet from beginning of restricted territory and will indicate by figures the maximum speed permitted as shown in current time-table. Example: 60-40-25 will indicate maximum speed of 60 MPH for streamline trains, 40 MPH for Pgr. trains, 25 MPH for freight trains.

Signs bearing the letters RS as illustrated at right above will be placed to indicate the end of the restricted territory.

17 (R). The following will govern use of oscillating red headlight:

When train becomes disabled or makes sudden stop due to unusual occurrence, or when an adjacent track is obstructed or there is possibility of it being obstructed, if red headlight is not set in motion automatically, engineer must immediately set it in motion by manual operation.

A train on adjacent track must stop before passing headlight, ascertain the cause and be governed by conditions.

When head end protection is required, engineer will immediately display red headlight. When occupying main track in meeting an opposing train, red headlight will be displayed until opposing train dims its headlight in accordance with Rule 17 (B), after which, if switch is lined to permit opposing train to enter siding, red headlight will be extinguished.

Engineer finding red headlight displayed by opposing train, must stop before passing headlight, ascertain the cause and be governed by conditions.

Display of red headlight does not relieve enginemen nor trainmen from protecting front of train in accordance with Rule 99, when required.

If red headlight has been set in motion automatically and necessity no longer exists, engineer must extinguish it.

When standing at terminals and red headlight is not required, it must be extinguished.

17 (S). Except on Third Subdivision, headlight must be displayed, burning bright, to the front of every train by day and night, except as otherwise prescribed by the rules.

19 (R). Oscillating red rear end light on passenger trains will be designated as a night signal in accordance with Rule 9 and will be displayed from sunset to sunrise and when day signals cannot be seen due to weather or other conditions. Also at any time train is moving under circumstances in which it may be overtaken by another train.

Red rear end light must be extinguished when train is clear of main track and rear end protection is not required.

The displaying and extinguishing of red rear end light must be done by trainman.

Display of red rear end light does not relieve trainmen nor enginemen from complying with Rule 99 nor any other rule.

19 (S). At Pendleton, The Dalles, Umatilla, Ayer, Wallula, Spokane and Seattle, when passenger trains, except those with electric lighted markers, are being switched from rear, markers must be removed to prevent obscuring view of enginemen. On trains having electric lighted markers, marker lights must be turned off while train is being switched from the rear.

19 (T). When helper engine is behind caboose or last car, train markers will not be removed but an additional set of markers will be displayed on rear of helper engine.

24 (R). At Albina, indicators may be placed on engines by enginemen before making light movement to Portland.

27 (R). Switch lights will not be used on:

Heppner Branch	Tono Branch
Condon Branch	Olympia Branch
Grass Valley Branch	
Pendleton Branch, except main track switches in Walla Walla yard	
Pomeroy Branch	Tucannon Branch
Dayton Branch	Connell Branch
Sierra Nevada Branch	Wallace Branch
	Thornton Branch

Trains and engines must approach facing point switches on these branches prepared to stop if switch is not in normal position.

28 (R). A green and white signal will be used to stop designated trains at conditional stops shown in time-table.

28 (S). A white indicator board displayed at a station will indicate to trains doing local work that there are cars to be moved or freight to be loaded.

32 (R). Within the city limits of Spokane, Pendleton and Pomeroy, it is unlawful to sound engine whistle except to signal flagman or interlocking signalman, or to prevent accident not otherwise avoidable.

At Walla Walla, the use of the engine whistle at the public crossings at West Cherry Street and Gardeners' Association just west of Mill Creek Bridge, is prohibited except to prevent accident not otherwise avoidable.

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

Umatilla	—all trains;
Black River	—all westward trains;
Centralia	—all westward Grays Harbor Branch trains originating at Blakeslee Jct.;
Centralia	—all eastward Tono Branch trains originating at Wabash;
Independence	—all westward C. M. St. P. & P. trains originating at Helsing Jct.;
Walla Walla	—all trains;
Wallula	—Yakima and Wallula Branch trains;
Ayer	—all trains;
Spokane	—all westward trains originating at West Spokane.

83 (S). Northern Pacific clearance must be received as follows:

Reservation	—all eastward second class and extra trains passing through Tacoma;
Tacoma, McCarver Street	—all eastward second class and extra trains originating at Tacoma.

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83 (T). Trains are not required to receive clearance as per Rule 83 (B) as follows:

Hinkle	—trains entering or leaving Umatilla Line if train order signal indicates Proceed;
Messner	—trains entering or leaving Umatilla Line if train order signal indicates Proceed;
Troutdale	—trains entering or leaving Kenton Line if train order signal indicates Proceed;
East Olympia	—all westward trains Olympia Branch;
Argo	—all westward C. M. St. P. & P. passenger trains;
Attalia	—all trains;
N. P. Crossing, Spokane	—all eastward S. I. trains;
Tucannon	—all trains;
Bolles	—all trains;
Midvale	—all trains;
Turner	—all westward trains.

When there is no operator on duty, trains are not required to receive a clearance as per Rule 83 (B) as follows:

Hooper Jct.	—all trains;
Starbuck	—all trains;
La Crosse	—all trains;
Sunnyside	—all eastward trains;
Connell	—all eastward trains;
Moscow	—all westward trains;
Burke	—all eastward trains.

83 (U).

A clearance received at	By	Will confer the same authority on	As when received at
Wallula	Eastward trains	Yakima Branch	Attalia
Ayer	Eastward trains	Connell Branch	Hooper Jct.
La Crosse	Westward trains	Fourth Subdivision	Hooper Jct.
Walla Walla	Eastward trains	Dayton Branch	Bolles
Dayton	Westward trains	Pendleton Branch	Bolles

83 (V). At Seattle, information required by Rule D-83 will be issued to C. M. St. P. & P. passenger trains by train order and delivered by operator on platform to conductor who will register by registering ticket.

83 (W). Information required by Rule S-83 or Rule D-83 need not be received at:

Peninsula Jct.	—all westward trains and engines;
Argo	—all westward U. P. and C. M. St. P. & P. trains and engines, but must move at restricted speed Argo to Seattle;
N. P. Crossing, Spokane	—all eastward trains and engines.

Conductors of the following trains may register by registering ticket, per Rule 83 (A), when operator on duty:

Rieth	—all first class trains;
Black River	—all trains;

Continued opposite side.

83 (W).—Continued.

N. P. Crossing, Spokane	—All first class trains;
Marengo	—Union Pacific first class trains;
Hooper Jct.	—All trains Fourth subdivision;
Ayer	—All first class trains;
Manito	—All trains.

The information required by Rule S-83 obtained by eastward Fourth Subdivision trains at Wallula may be accepted as applying at Attalia for eastward Yakima Branch trains.

Train registering exceptions:

Albina	—only trains which originate or terminate at that station will register;
Argo	—only trains which originate or terminate in U. P. yard at that station will register;
Centralia	—Tono Branch trains originating or terminating at Wabash, and Grays Harbor Branch trains originating or terminating at Blakeslee Jct. must register in U. P. train register in N. P. telegraph office;
Vancouver	—all trains must register by N. P. Form 608 and will be furnished check of register by train order or register check Form 602 issued by operator;
Zillah	—only first class trains will register.

83 (X). Information required by Rule S-83 need not be received at Attalia by westward trains.

Westward Fourth Subdivision trains and engines may move Attalia to Wallula against or ahead of Nos. 63 and 64 when automatic interlocking signal at Attalia displays Proceed indication.

Westward Yakima Branch trains and engines may move Attalia to Wallula against or ahead of first class trains when automatic interlocking signal at Attalia displays Proceed indication after junction switch is opened.

Westward first class trains at or seen to be approaching the junction at Attalia will have precedence over other westward trains and engines Attalia to Wallula.

84 (R). To synchronize the starting of freight trains where signals cannot be seen with helper on rear of train, the following method will be used: When ready to move, engineer on head end will make a 15-pound brake pipe reduction, return brake valve to running position and wait three minutes. Engineer on helper engine will start three minutes after his gauge shows brake pipe pressure being restored.

93 (R). Yard limits at the following stations include the territory shown:

Albina	—from 930 feet west of Signal 6.3 to North Portland Jct. and to M.P. 10, Kenton Line, including East Portland, Albina and Kenton;
Troutdale	—on Kenton Line only;
Oregon Trunk Jct.	—on Bend Branch only;
Messner	—on Umatilla Line only;
Spokane	—between yard limit sign west of West Spokane and yard limit sign at Hill.

93 (S). The following instructions govern while using trackage of Northern Pacific Terminal Company at Portland:

Trains and engines using Tracks 1 to 10, inclusive, must move at restricted speed when passing a train receiving or discharging passengers, and must not cross under "High Shed" at passenger station unless proceed signal is received from stationmaster or his assistant.

In making this movement with yard engines, a member of crew and not more than one, must ride on leading footboard and when cars are being pushed must ride on front of leading car in direction engine is moving.

A flagman must precede the movement of yard engines over crossings in front of baggage room unless proceed signal is received from stationmaster, baggage-master, or their assistant.

Continued on Page 4.

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Trains and engines must not exceed ten miles per hour between Seventeenth Avenue and passenger station, and six miles per hour between north end of passenger station tracks and Front Avenue.

Interlocking at south end of freight and passenger yards governs all trains and engines entering or leaving yards.

When the home signal indicates Stop, the following whistle signals will be used to call for desired route: (When conditions are favorable, hand or lantern signals should be used instead of whistle signals.)

- For Albina..... ——— o
- For Troutdale..... ——— ———
- For S. P. Main Line..... o ———
- For S. P. Yard..... o ——— o
- For East Second Street..... o o ———
- For S. P. & S. to East Side.. o o ———

When the home signal indicates Proceed, the whistle signal must not be sounded.

93 (T). Tracks of U. P. and N. P. within yard limits at Zillah, Wallula and Huntsville are used jointly by trains and engines of both companies for switching purposes, being governed by Rule 93.

93 (U). Trains and engines are authorized to cross N. P. main track at Athena to make movements to and from Preston-Shaffer elevator, being governed by Rule 93.

93 (V). At Spokane Union Station, trains and engines will be governed by signals from switchtenders.

Freight equipment, other than caboose and low cars, must be handled through Spokane Union Station on Track 5.

Track 5, the most northerly track in Spokane Union Station yard, will normally be used as the running track.

98 (R). JUNCTIONS AND RAILROAD CROSSINGS.

Location	Railroad Crossed, or, Junction With	Trains Which Have Precedence	How Governed
Umatilla. (M.P. 183.9)	Fourth Subdivision		Special Instruction 98 (T).
East Portland. (S.E. Second Ave. between S.E. Main and S.E. Madison Sts.)	S. P. & S.	U. P.	Stop signs.
East Portland. (S.E. Second Ave. and S.E. Morrison St.)	P. E. P.	U. P.	Stop signs.
Peninsula Jct. (M.P. 5.8 Kenton Line)	Seattle main track.		Special Instruction 663 (T).
Helsing Jct.	C.M.St.P.&P.	U. P.	Automatic block signals. Special Instruction 509 (T).
Schafer Bros. Crossing.	Schafer Bros. Logging Ry.	U. P.	Cabin Interlocking. Special Instruction 663 (R).

Continued opposite side.

Location	Railroad Crossed, or, Junction With	Trains Which Have Precedence	How Governed
South Aberdeen. (Donovan Mill)	N. P.	N. P.	Stop signs.
Olympia. (Jefferson and 7th Sts.)	N. P.	U. P.	Stop signs.
Tacoma. (Dempsey Mill Spur)	N. P.	N. P.	Stop signs.
Tacoma, Tidewater.	N. P.		Semi-automatic interlocking.
Seattle. (Spokane and Whatcom Aves.)	N. P.		Stop signs.
Seattle. (Whatcom Ave. and Holgate St.)	N. P.		Stop signs.
Seattle. (Whatcom Ave. and Massachusetts St.)	N. P.		Stop signs.
Seattle. (Railroad Ave. and Atlantic St.)	P. C. N. P. C.M.St.P.&P.		Stop signs, and signals from watchman.
Ayer. (M.P. 264.0)	Fourth Subdivision and Tekoa-Ayer Branch.		Special Instructions 98 (V).
N. P. Crossing. (M.P. 212.0)	N. P.		Automatic Interlocking. See Rule 672.
N. P. Crossing. (M.P. 212.6)	N. P.		Automatic Interlocking. See Rule 672.
Marengo. (M.P. 306.4)	C.M.St.P.&P.		Special Instruction 98 (W).
Manito. (M.P. 143.4)	C.M.St.P.&P.		Special Instruction 98 (W).
Farmington. (M.P. 103.2)	N. P.	U. P., except that passenger trains have precedence over freight trains.	Gate set normally against N. P.
Garfield. (M.P. 95.3)	N. P.	U. P.	Stop signs.

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Location	Railroad Crossed, or, Junction With	Trains Which Have Precedence	How Governed
Colfax. (M.P. 77.1)	G. N.	U. P.	Gate and automatic interlocking signals. Gate set normally against G. N.
Oakesdale. (M.P. 39.75)	G. N.	U. P.	Stop signs.
Oakesdale. (M. P. 39.73)	N. P.	N. P.	Stop signs.
Thornton. (M.P. 30.67)	G. N.	U. P.	Gate.
Riparia. (M.P. 17.3)	N. P.	U. P., except that passenger trains have precedence over freight trains.	Gate set normally against N. P.
Walla Walla. (M.P. 47.9)	N. P.	U. P.	Stop signs.
Walla Walla. (M.P. 47.3)	W. W. V.	U. P.	Gate.
Langdon. (M.P. 44.2)	W. W. V.	U. P.	Gate.
Milton. (M.P. 37.0)	W. W. V.	U. P.	Gate.
Villard. (M.P. 7.3)	N. P.	N. P.	Stop signs.
Auker. (M.P. 28.9)	W. W. V.	U. P.	Gate.
Dayton. (M.P. 13.10)	N. P.	U. P.	Stop signs.
Dayton. (M.P. 13.11)	N. P.	U. P.	Stop signs.
Pullman. (M.P. 19.3)	N. P.	U. P.	Stop signs.
Wallace. (M.P. 80.4)	N. P.	U. P.	Stop signs.
Wallace. (M.P. 80.6)	N. P.	U. P.	Stop signs.

98 (S). All trains and engines must stop at stop signs and not proceed onto draw span of bridge between Montesano and South Montesano until they have called for, received and acknowledged proceed signal from bridge tender, and in addition must be governed by position of derail located 128 feet east and derail located 195 feet west of trestle leading to drawbridge. During certain hours each day draw span will be left open for river traffic and derails will be set in derailing position. If necessary for train or engine to use drawbridge during such hours, engineer will sound one long, one short and one long blast of engine whistle to call bridge tender on duty, and if bridge tender does not respond promptly, a member of crew must be sent to bridge tender's house to notify him that bridge is to be used.

98 (T). At Umatilla, Umatilla Line trains must stop clear of junction switch connecting east leg of wye and Fourth Subdivision main track and must not proceed until information required by Rule S-83 is obtained.

If a train is seen approaching on Fourth Subdivision main track, switch must not be opened nor Fourth Subdivision main track occupied until approaching train has stopped or passed.

98 (U). All trains and engines must stop at stop signs and not proceed onto draw span of bridge at Tacoma until they have called for, received and acknowledged proceed signal from bridge tender.

98 (V). At Ayer, movement of trains and engines from Tekoa-Ayer Branch from junction to depot is authorized by Proceed indication of automatic block signal.

When signal displays Stop indication after switch is opened, train or engine must wait three minutes, and if no conflicting movement is evident, may proceed without sending a flagman ahead, but must move at restricted speed.

Westward first class trains at or seen to be approaching junction will have precedence over other westward trains and engines from junction to depot.

98 (W). At Marengo, eastward C. M. St. P. & P. trains and engines are governed by Dwarf Signal 3068 in making movement to Union Pacific main track. When dwarf signal displays Stop indication after operation of time release, movement may be made only under flag protection. (See Rules 522 and 523.)

At Manito, an eastward train must stop before passing stop sign and may then proceed if no conflicting movement is evident.

Westward C. M. St. P. & P. trains approaching junction switch must sound one long, one short and one long blast of engine whistle. When Signal 1437 displays Stop indication, train may proceed without stopping when proceed signal is received from switchtender, but engineer must see that junction switch is properly lined and must proceed at restricted speed.

98 (X). At drawbridge, M.P. 23.45 Wallace Branch, trains and engines must stop at stop sign and sound four short blasts of engine whistle and may proceed when proceed signal is received from bridge tender. If proceed signal is not received from bridge tender, flagman must be sent ahead to drawbridge to give proceed signal if draw span is found properly closed and locked.

Two long sounds of engine whistle must be sounded before moving over bridge.

98 (Y). At M.P. 17.23, Tekoa-Ayer Branch, trains must stop before passing over drawbridge and then proceed if draw span is seen to be closed.

98 (Z). At N. P. Crossing, Spokane, Spokane International trains and engines must stop clear of Signal 1640. If there is no conflicting movement, junction switch may be lined for movement to Union Pacific track. When Signal 1640 displays Stop indication after switch is opened, train or engine must wait three minutes and if no conflicting movement is evident, may proceed after sending flagman ahead, but must move at restricted speed.

99 (R). On portions of the division where there is no joint operation of trains with another company, last paragraph of Rule 99 is modified as follows:

"Night signals—A white light, not less than ten torpedoes and six fuseses." At night and during foggy and stormy weather, a lighted fusee will be used for hand signals required by Rule 99.

This does not change the requirements of Maintenance of Way or Signal Department Rule 99 (F).

Each caboose must be equipped with a red lantern for use as required by Rule 19 (A).

The equipment of each engine must include a red light in the cab as required by Rule 920.

99 (S). At Hood River and The Dalles, when passenger train stops at passenger station, engineer will not sound whistle for flagman to protect rear of train, but when on the time of a first-class train or in foggy or stormy weather, when ready to proceed, flagman must be recalled by engine whistle.

These instructions do not relieve conductor or flagman of the responsibility of protecting as required by the rules.

99 (T). On Condon, Tono, Grass Valley, Olympia, Heppner, Grays Harbor, Moscow, Pomeroy and Connell Branches, between 6 A.M. and 6 P. M. daily, all extra trains must run at restricted speed, looking out carefully at all points for track cars and men working on track without flag protection. Speed on curves must be such as to be able to stop within one-half the distance track is seen to be clear and whistle signal 14(l) must be sounded frequently.

103 (R). At public crossing protected by crossing watchman and crossing gates, yard crews must know gates are down and crossing protected before making movement over the crossing with engine or car; otherwise crossing must be protected by member of crew.

103 (S). In switching with an engine equipped with footboards, when there are no cars ahead of the engine, a yardman or trainman (and not more than one) must ride on leading footboard in direction the engine is moving, except as follows:

When the switches to be passed over can be plainly seen to be properly lined; Where movement is over crossing protected by watchman on duty; Over street crossings at Portland, Albina, Kenton and on Second Street at East Portland;

At Umatilla, over public crossing just east of M.P. 184;

At Seattle, over Spokane Street, Harbor Island;

At Seattle, over Spokane Street, Alaskan Way;

Where through movement is made:

Between Rieth and Pendleton;

Between Argo and Seattle passenger station or local yard;

Along East Marginal Way, Seattle.

When Diesel yard engine is used, a yardman or trainman may ride on side steps or platform in direction engine is moving instead of on leading footboard.

103 (U). Cars, except business cars equipped with spotlight, must not be shoved ahead of engines through tunnel between St. Johns Jct. and Peninsula Jct.

103 (V). At Bridal Veil, in switching tracks serving lumber company, movement over the two ramp crossings must be preceded by a member of crew.

At Fifteenth Street, Tacoma, all trains and engines must stop and a member of the crew must be sent ahead to act as crossing watchman.

On Grays Harbor Branch, between 8 A.M. and 6 P.M. daily, all trains must approach M.P. 45 at restricted speed, expecting to find logging trucks crossing track at new spur.

103 (W). The following will govern trains and engines at the public crossings named below:

Location	Instructions
Spokane—Monroe Street.	Normal position of gate is across track. Movement must not be made until gate is open and proceed signal given from middle of street by a member of crew. Gate must be returned to normal position after each movement.
Spokane—Division Street.	Instructions for Monroe Street also apply at Division Street, except it is not necessary to send flagman ahead of train or engine when electric signals are operating covering movements on old main line. Unless absolutely necessary, movements across street must not be made between 6:00 AM and 8:00 AM, 11:30 AM and 1:30 PM, 5:00 PM and 7:00 PM. Between 6:00 AM and midnight, the number of movements across the street is limited to twenty, and the street must not be crossed when to do so would interrupt traffic.
Tekoa—County road at junction switch to McGoldrick's Spur.	Flagman must be on ground and stop traffic before movement is made over the crossing.

104 (R). Switches will be set normally at:

- Hinkle, junction switch—for line via Munley;
- Umatilla, wye switch connection with First Subdivision main track—for wye;
- Messner, junction switch—for line via Munley;
- Crates, spring switch at end of double track—for eastward trains;
- Kenton, cross-over switch—for extension;
- Tacoma Jct., junction switch—for C. M. St. P. & P.;
- Aberdeen, switch at end of double track—for eastward trains;
- South Montesano, wye switch on Montesano Branch—for east leg of wye;
- Helsing Jct., junction switch—for U. P. main track;
- Hooper Jct. (Connell Branch)—for line via Park;
- Seltice—for line via Colfax;
- Winona—for line via Colfax;
- Tucannon—for line via Pataha;
- Walla Walla passenger station, east switch to No. 2 track—for No. 2 track when passenger equipment is left on No. 1 track;
- East wye switch Pendleton Branch—for Wallula Branch;
- Wye switch Wallula Branch—for movement to east leg of wye;
- Yakima, Walnut Street—for main switching lead.

104 (S). At Tacoma, when cross-over switches from Northern Pacific double track to U. P. drawbridge line are handled by trainmen account switchtender not on duty, all such switches must be returned to normal position after movement is completed.

104 (T). Main track derails are located at the following points:

Pomeroy (opposite water tank) (90 feet west of section house)	Derail will be set in derailing position only when cars are left standing on main track above it.
Dayton (100 feet east of depot) (150 feet east of west switch to cannery track)	
McAdam (500 feet west of west switch)	Derail will be set in derailing position only when cars are spotted to foul the main track, or when the warehouse track switches are set so as to permit loaders to drop cars west onto main track.
Wacota (500 feet west of west switch)	
Estes (500 feet west of west switch)	
Sulphur (500 feet west of west switch)	Spring switch point set in derailing position at all times and must be changed for eastward movement.
Wallace (M.P. 81.13)	
Wallace (350 feet east of depot)	Derail will be set in derailing position only when passenger train is left standing on main track at the depot west of derail.
Gem (M.P. 84)	
Burke (M.P. 86.3)	Derail will be set in derailing position only while switching is being done above it.
Burke (M.P. 86.4)	
Sierra Nevada Spur (300 feet east of refinery track switch)	Spring switch point must be set in derailing position at all times except when changed for descending movement.
Sierra Nevada Spur (west of No. 1 track switch at zinc plant)	

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105 (R). That part of last paragraph of Rule 93 reading, "(See Special Instructions, 105-R)" is changed to read, "See speed restrictions in time-table."

105 (S). At Hood River, when necessary to take siding, eastward passenger, mail and express trains will use cross-over from main track to siding.

105 (T). At stations where eastward and westward sidings are shown, the eastward siding is east of the westward siding.

105 (U). On Bridge 365.32 over Spokane River and Latah Creek between West Spokane and Cowles, and on Bridge 271.70 over Snake River between Joso and Chew, trainmen and enginemen must watch train and track closely and be prepared to stop should an emergency arise.

107 (R). At Pendleton, while passenger engine or passenger train is being serviced on main track or No. 1 track, movement must not be made on adjacent track past such train or engine unless protected by an employe walking just ahead of engine or leading car.

D-151 (R). At points shown below, trains and engines may move against the current of traffic without being preceded by a flagman, except when a first-class train is due or when the view is obscured by weather or other conditions:

- The Dalles —between Signal 867 and Signal 838;
- Albina and Portland—on parallel tracks between Portland and East Portland or Harding Street, Albina;
- Spokane —between Union Station and cross-over near sand house at West Spokane.

200 (R). Lights will not be kept burning at night in train order signals on branches when operators are not on duty, and trains must be governed by the day indication of such signals.

208 (R). Except at initial stations, when a train's superiority is restricted for an opposing train at the point where the order is issued to it, the order must not be made complete to the train which is being advanced until the operator has placed two torpedoes on the rail not less than 1000 feet from the train order signal in the direction of the restricted train, and the train dispatcher has been notified that torpedoes have been placed.

208 (S). At Kennewick, when train order signal displays Stop indication, stop must be made before engine passes train order signal unless proceed signal is received from operator.

209 (R). Operators must not typewrite Union Pacific train orders or clearances.

402 (R). At Pendleton, trains from Pendleton Branch to extension of Track 6, must obtain permission from train dispatcher at La Grande before passing Signal 2165.

402 (S). Clearance Form B received by westward train or engine originating at Pendleton or east of Pendleton will authorize movement in automatic block signal territory between east switch of No. 1 track, Pendleton, and Rieth.

Clearance Form B received by eastward train or engine at Rieth will authorize movement in automatic block signal territory between Rieth and east switch of No. 1 track, Pendleton, and movement in CTC territory east of Pendleton.

405 (R). Between east switch of No. 1 track, Pendleton, and Rieth, trains will be governed by automatic block signals whose indications will supersede the superiority of trains for both opposing and following movements on main track.

Signals located at each end of Umatilla River bridge are controlled by train dispatcher and govern movements over bridge to or from main track or No. 1 track. When one of these signals displays Stop indication and cause is unknown, conductor or engineer of train stopped by such signal must communicate with train dispatcher and be governed by his instructions.

When movement is authorized by train dispatcher, or when communication fails, flagman must be sent ahead. A member of crew must move selector lever on dual control switch to HAND position and it must be known that switch is lined for the movement to be made. After engine has passed over switch, stop must be made and selector lever restored to MOTOR position.

501 (R) 601 (R). On Spokane-Tekoa Branch, when a signal displays Approach indication, trains or engines must immediately reduce speed to one-half the authorized speed at that location, but not exceeding 20 miles per hour, and as much slower as necessary in order to be able to stop before passing the next signal.

509 (R). On Yakima Branch, between M.P. 41 and M.P. 42, slide detector signals, designated by triangular number plates, are in service. When signal displays Stop indication, train must stop before passing and may then proceed at restricted speed to signal at opposite end of protected territory, looking out for damaged rail or obstruction, and wire report must be made to chief dispatcher and superintendent.

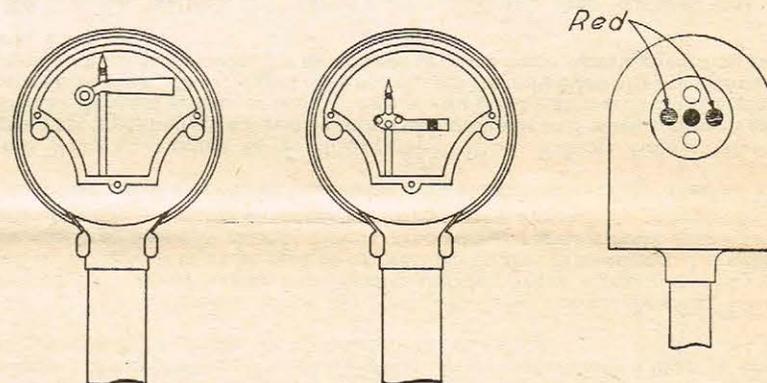
509 (S). Between Rieth and Portland, Spokane and Umatilla and between Spokane and Manito, Rule S-509 (A) applies.

509 (T). Movement of trains and engines between Helsing Jct. and Independence is governed by automatic block signals and when signals indicate Proceed, trains or engines may proceed regardless of first-class trains.

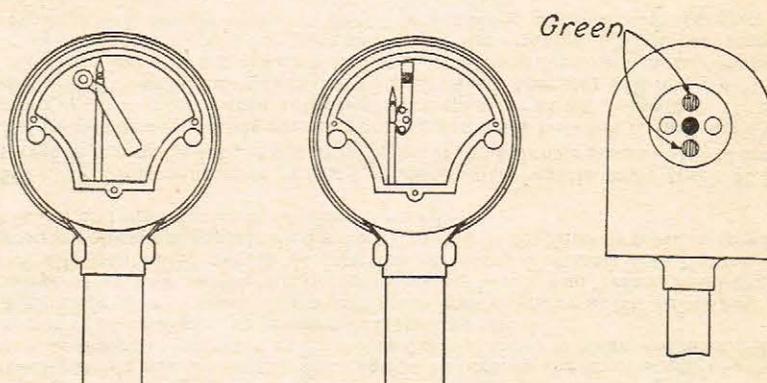
At Helsing Jct., when signal at junction switch displays Stop indication after junction switch is opened, westward C. M. St. P. & P. trains must comply with Rule 509 (A) and Grays Harbor Branch main track must not be occupied except under protection in accordance with Rule 99 against westward trains on Grays Harbor Branch.

509 (U). When a slide warning device plug is found pulled but no obstruction on or damage to track is found, the plug must be replaced, if practicable, and conductor must make wire report to train dispatcher from first open telegraph office.

512 (R).
Name—Switch Indicator.



Indication—Main track occupied.
See instructions below.



Indication—Main track clear.
See instructions below.

Continued on Page 8.

512 (R).—Continued.

Trainmen must observe indication displayed by switch indicators before changing derail or main track switch.

A switch must not be opened to permit a movement to a main track when indication "Main Track Occupied" is displayed, unless the movement is properly protected.

Indication displayed by switch indicator is not authority for a train or engine movement.

512 (S). At Marengo, dwarf signal governs movements from east leg of wye to main track. After switch is opened, signal will display yellow indication when block is clear, except when block is occupied west of Signal 3066, signal will not display yellow indication until three minutes after switch is opened.

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

- At East Portland:
- For Portland..... ———
 - For Albina..... ——— o
 - For Graham..... ———
 - For S. P. Main Line..... o ———
 - For S.E. Second Ave..... o o ———
 - For S. P. yard..... o ——— o
 - For transfer track..... ——— o ———
 - For East Side Freight Terminal..... o o ———

- At St. Johns Jct.:
- For North Portland Jct..... ———
 - For Kenton..... ——— o
 - For St. Johns..... o ———

- At Peninsula Jct.:
- As westward trains or engines approach and pass whistling posts and microphones located approximately one-half mile in advance of home interlocking signals on Kenton Line and North Portland Jct. Line, engineers will sound whistle signals as follows:
- For tunnel and main track to Albina... ———
 - For tunnel and yard lead to Albina.... ——— o

- At Argo:
- For Seattle..... ———
 - For yard lead..... ——— o ———
 - From Seattle to Pacific Coast R. R..... o ———
 - From Argo yard to Georgetown lead..... ——— o

- At N. P. Crossing, Spokane:
- For Spokane Union Station.... o o o
 - For old yard..... o o o o
 - For East Spokane..... o o o o
 - For N. P. transfer..... o o o
 - For G. N. transfer..... ——— ———

605 (S). At Troutdale, upper arm of interlocking signal located just east of junction switch governs westward movement via Graham and lower arm governs westward movement via Kenton Line.

Proceed indication of interlocking signal located just west of junction switch will authorize eastward trains from Kenton to proceed to train order office.

663 (R). At Schafer Bros. Crossing, Grays Harbor Branch, interlocking signal will automatically change from Stop to Proceed indication upon approach of train when crossing is not occupied. When signal fails to change to Proceed and crossing is not occupied, a member of crew must examine derails, and if found in non-derailing position, and no one in interlocking station, train may proceed through interlocking under flag protection, but must move at restricted speed.

663 (S). Movement of trains and engines between St. Johns Jct. and Peninsula Jct. is governed by interlocking which is operated from St. Johns Jct.

When a train or engine is stopped by interlocking signal at junction of North Portland and Kenton Lines, member of crew must immediately notify operator at St. Johns Jct. If operator is unable to clear signal, he must communicate with train dispatcher who may authorize flagman to precede the train or engine, examine route and report to operator at St. Johns Jct. If track is clear, operator will then authorize train or engine to proceed at restricted speed.

A member of crew must obtain authority from operator at St. Johns Jct. before hand-operating any switch within interlocking limits and before hand-operating electrically controlled switch at junction of North Portland and Kenton Lines. After using electrically controlled switch, it must be restored to position in which it was found and operator at St. Johns Jct. notified.

663 (T). Movement over railroad crossing with Seattle main track M.P. 5.8, just west of Peninsula Jct., is governed by color light signals on each side of crossing.

Before movement is made over this crossing on track between Kenton and Barnes, member of crew must obtain authority from operator at St. Johns Jct. If Seattle main track is clear so movement can be authorized, operator will line No. 9 switch for Kenton Line and set derail No. 1 in normal position, then notify member of crew who will line derails for movement over the crossing. When movement has been completed, derails must be placed in derailing position and operator at St. Johns Jct. notified.

663 (U). Eastward signal located on cantilever at M.P. 3.3 between St. Johns and Albina, Kenton Line, is an interlocking home signal, controlled from St. Johns Junction. When this signal displays Stop indication, permission must be obtained from operator at St. Johns Junction before passing signal.

663 (V). At Columbia River Bridge, M.P. 7.44 Yakima Branch, trains are governed by semi-automatic interlocking signals. When signal displays Stop indication, a flagman must be sent to drawbridge to give proceed signal if derail and draw span are properly closed. Before proceeding, engineer must sound two long blasts of engine whistle and must move at restricted speed.

Eastward trains stopped at this bridge must stand clear of N. P. crossing, Villard.

663 (W). At Yakima River Bridge, M.P. 89.35, Yakima Branch, trains and engines are governed by automatic interlocking signals and must approach gauntlet track at restricted speed. A train or engine stopped by an interlocking signal must comply with Rule 672. If signal does not change its indication after one minute, flag protection must be provided for movement between home signals governing gauntlet track.

708 (R). On multiple unit Diesel engine, not more than four men may ride in cab of leading unit. On freight train when cab is occupied by four men, head brakeman will ride in cab of trailing unit.

When necessary for head brakeman to ride in cab of trailing unit he must not occupy engineer's seat and must not tamper with or operate any of the switches or valves, nor place feet on dashboard or windshield.

Unauthorized persons, including deadhead train or engine crews, must not occupy cab of trailing unit of Diesel engine on freight or passenger train.

711 (R). The following passengers only may be carried on freight trains between stations at which the trains stop:

- Persons in charge of live stock or other freight when provided with proper transportation;
 - Employees of Union Pacific Railroad with annual pass when traveling on company business requiring use of freight trains;
 - Other persons with annual or trip pass only when endorsed "Good on Freight Trains";
 - Passengers holding revenue tickets with permit issued by superintendent;
 - Passengers with tickets on trains 365 and 366 between Dayton and Walla Walla.
- Agents and conductors must notify passengers, stockmen, messengers and caretakers that they must ride in the place provided for them, and must not get on or off caboose, drover cars or other cars while train is in motion, and that in all cases the train will be stopped at designated points for this purpose.

713 (R). In addition to inspection required by other rules, streamline trains must be given close running inspection by rear trainmen and enginemen on the following curves:

- First Subdivision—
- Nolin M.P. 197.8 to M.P. 198.6 —reverse curves;
 - Echo M.P. 191.6 —single curve;
 - Westland M.P. 180.1 —single curve;
 - Castle-Peters M.P. 159.5 to M.P. 161.4 —reverse curves;
 - Arlington M.P. 138.2 —single curve;
 - Blalock M.P. 129.4 to M.P. 130.0 —reverse curves;
 - Biggs M.P. 103.8 —single curve.
- Second Subdivision—
- Mosier M.P. 68.8 to M.P. 69.2 —reverse curves;
 - Wyeth M.P. 49.3 to M.P. 49.7 —reverse curves;
 - Troutdale M.P. 14.9 to M.P. 15.9 —reverse curves.

After rear trainman has completed inspection on the above curves, if everything is all right, he must give engine crew hand signal to proceed; this signal must be acknowledged by two long sounds of engine whistle.

If anything unusual is detected, train must be stopped and walking inspection of train must be made before proceeding.

714 (R). There are close clearances above and at the side of main tracks as follows, and in addition thereto, at platforms and other structures above and at the side of industry, stock and other tracks. (See Rule M.)

Location	Structure or obstruction	Clearance of engine or car is close at—
At all stations.....	Mail cranes.....	Side.
First Subdivision		
M.P. 206.21.....	Bridge.....	Side.
M.P. 205.84.....	Bridge.....	Side.
M.P. 204.91.....	Bridge.....	Side.
M.P. 204.15.....	Tunnel No. 3½.....	Top and side.
M.P. 198.26.....	Bridge.....	Side.
Echo.....	Water tank spout.....	Side.
M.P. 187.2.....	Overhead bridge.....	Top and side.
Munley.....	Water tank spout.....	Side.
M.P. 182.4 (W. of Umatilla).....	Bridge.....	Side.
M.P. 148.49.....	Bridge.....	Side.
Arlington.....	Water tank spout.....	Side.
Arlington.....	Standpipe.....	Side.
M.P. 114.3.....	Bridge.....	Side.
Day.....	Water tank spout.....	Side.
M.P. 104.46.....	Bridge.....	Side.
Ainsworth.....	Standpipe.....	Side.
M.P. 99.51.....	Bridge.....	Side.
M.P. 92.8.....	Overhead bridge.....	Side.

714 (R).—Continued.

Location	Structure or obstruction	Clearance of engine or car is close at—
Second Subdivision		
The Dalles.....	Standpipes.....	Side.
M.P. 74.1.....	Tunnel No. 3.....	Side.
M.P. 71.4.....	Tunnel No. 2.....	Top and side.
M.P. 69.40.....	Bridge.....	Side.
M.P. 63.32.....	Bridge.....	Side.
M.P. 61.03.....	Bridge.....	Side.
Wyeth.....	Water tank spout.....	Side.
M.P. 39.90.....	Bridge.....	Side.
M.P. 32.15.....	Bridge.....	Side.
M.P. 31.85.....	Bridge.....	Side.
M.P. 29.65.....	Bridge.....	Side.
M.P. 26.01.....	Bridge.....	Side.
M.P. 15.82.....	Bridge.....	Side.
Troutdale.....	Train order signal.....	Side.
M.P. 15.4.....	Overhead bridge.....	Top.
M.P. 10.3.....	Underpass handrails.....	Side.
M.P. 8.5.....	Underpass handrails.....	Side.
M.P. 4.5.....	Tunnel.....	Top and side.
M.P. 4.2 (N.E. 63rd Ave.).....	Overhead bridge.....	Top.
M.P. 3.8 (N.E. 53rd Ave.).....	Overhead bridge.....	Side.
M.P. 3.5 (N.E. 49th Ave.).....	Overhead bridge.....	Top.
M.P. 0.43 (Willamette River)	Bridge.....	Side.
Portland.....	Depot umbrella shed.....	Top and side.
Third Subdivision		
Tacoma.....	N. P. overhead bridge to draw span.	Top and side.
Tacoma.....	Viaduct.....	Top and side.
M.P. 144.92.....	Bridge.....	Side.
M.P. 146.93.....	Bridge.....	Side.
M.P. 174.6.....	Bridge.....	Side.
Seattle (Albro Place).....	Overhead bridge.....	Side.
Seattle (Eighth Ave. So.).....	Overhead bridge.....	Top.
Seattle (Dearborn Ave.).....	Overhead bridge.....	Top and side.
Seattle.....	Depot umbrella shed.....	Top and side.
Seattle (Jackson St.).....	Overhead bridge.....	Top.
Olympia Branch		
M.P. 5.2.....	Tunnel No. 25.....	Top and side.
M.P. 6.7.....	Overhead bridge.....	Top and side.
Olympia.....	Water tank spout.....	Side.
Grays Harbor Branch		
M.P. 1.25.....	Bridge.....	Side.
M.P. 4.35.....	Bridge.....	Side.
Independence.....	Water tank spout.....	Side.
South Elma.....	Water tank spout.....	Side.
M.P. 43.53.....	Overhead bridge.....	Top and side.
M.P. 43.64.....	Overhead bridge.....	Top.
M.P. 53.33.....	Bridge.....	Side.
Aberdeen.....	Depot umbrella shed.....	Side.

Continued opposite side.

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BE 589 (c)(2). In switching operations where hand brakes are used, it shall be determined by trial that a car placarded "Dangerous" or that a car occupied by a rider in a draft containing a car placarded "Dangerous" has its hand brakes in proper working condition before it is cut off.

Placement of Freight Cars Containing Explosives, in Yards, on Sidings, or Sidetracks

BE 589 (d)(1). Cars placarded "Explosives" shall be so placed that they will be safe from all probable danger of fire. Freight cars placarded "Explosives" shall not be placed under bridges or overhead highway crossings, nor in or alongside of passenger sheds or stations except for loading or unloading purposes.

Notice to Crews of Cars Containing Explosives in Train

BE 589 (e)(1). At all terminals or other places where trains are made up by crews other than road crew accompanying the outbound movement of cars, the railroad shall execute a consecutively numbered notice showing the location in the freight train of every car placarded "Explosives." A copy of such notice shall be delivered to the train and engine crew and a copy thereof showing delivery to the train and engine crew shall be kept on file by the railroad at each point where such notice is given. At points other than terminals where train or engine crews are changed, the notice shall be transferred from crew to crew.

Position in Train of Cars Containing Explosives

BE 589 (f)(1). In a train either standing or during transportation thereof, a car placarded "Explosives" shall, when the length of the train permits, be not nearer than the sixteenth car from both the engine or occupied caboose; and shall when the length of the train will not permit them to be so placed be as near as possible the middle of the train. When moved in a train engaged in "pickup" and/or "setoff" service it shall be placed not closer than the second car from the engine or second car from occupied caboose, except as provided in section 589(i)(1), to avoid unnecessary switching and handling of such car enroute. For the purpose of these regulations a train will be considered in "pickup" and/or "set-off" service when one or more cars are picked up and/or set off at more than three different stations enroute. Local trains engaged in loading and/or unloading of LCL merchandise in their trains will be considered engaged in "pickup" and "setoff" service.

BE 589 (f)(2). In a freight train or mixed train either standing or during transportation thereof, a car placarded "Explosives" must not be handled next to:

1. Occupied passenger car, other than gas handlers accompanying shipment.
2. Occupied combination car, other than gas handlers accompanying shipment.
3. Placarded loaded tank car.
4. Engine.
5. Car placarded "Poison Gas."
6. Wooden under-frame car.
7. Loaded flat car.
8. Open-top car when any of the lading extends or protrudes above or beyond the ends or sides thereof.
9. Car equipped with automatic refrigeration of the gas-burning type.
10. Car containing lighted heaters, stoves, or lanterns.
11. Car loaded with live animals or fowl, occupied by an attendant.
12. Occupied caboose (except as permitted in Section 589(i)(1)).

Position in Train of Loaded Placarded Tank Cars

BE 589 (g)(1). In a train either standing or during transportation thereof, a placarded loaded tank car shall not, when the length of train permits, be nearer than the sixth car from the engine or occupied caboose, but in no instance nearer than the second car from the engine or occupied caboose unless the remainder of train consists of placarded loaded tank cars or the train is engaged in "pickup"

Continued opposite side.

and/or "setoff" service. For the purpose of these regulations a train will be considered in "pickup" and/or "setoff" service when a car or cars are picked up and/or set-off at more than three different stations enroute. Local trains engaged in loading and/or unloading of LCL merchandise in their trains will be considered engaged in "pickup" and "setoff" service.

BE 589 (g)(2). In a freight train or mixed train either standing or during transportation thereof, a placarded loaded tank car must not be handled next to:

1. Occupied passenger car, other than gas handlers accompanying shipment.
2. Occupied combination car, other than gas handlers accompanying shipment.
3. Any car placarded "Explosives."
4. Engine (except when train consists only of placarded loaded tank cars).
5. Any car placarded "Poison Gas."
6. Wooden under-frame car.
7. Loaded flat cars.
8. Open-top car when any of the lading extends or protrudes above or beyond the ends or sides thereof.
9. Car equipped with automatic refrigeration of the gas-burning type.
10. Car containing lighted heaters, stoves, or lanterns.
11. Car loaded with live animals or fowl, occupied by an attendant.
12. Occupied caboose (except when train consists only of placarded loaded cars).

Position in Train of Cars Placarded "Poison Gas" or Containing Poison Liquids Class A

BE 589 (h)(1). In a train either at rest or during transportation, a car placarded "Poison Gas" or containing poison liquid Class A shall not be next to other freight cars placarded "Explosives" or cars placarded "Dangerous."

Position of Train of Cars Placarded "Explosives" and "Poison Gas" or Containing Poison Liquids When Accompanied by Cars Carrying Gas Handling Crews

BE 589(i)(1). A car placarded "Poison Gas" or containing poison liquids Class A in drums, tanks or bombs, or a car placarded both "Explosives" and "Poison Gas" shall at all times be next to and ahead of the car occupied by gas handling crews, when accompanying such car.

Cars Containing Explosives or Poison Gas and Tank Cars Placarded "Dangerous" in Passenger or Mixed Trains

BE 589 (j)(1). Cars containing explosives, Class A, poison gases or liquids, Class A, and tank cars requiring "Dangerous" placards shall not be transported in a passenger train. Such cars may be transported in mixed trains but only at such times and between such points that freight train service is not in operation.

BE 589 (j)(2). Cars containing explosives, Class A, poison gases or liquids, Class A, and tank cars placarded "Dangerous" shall not be transported next to occupied cabooses or cars carrying passengers in mixed trains except as provided in sec. 589(i)(1).

BE 589 (j)(3). When a car containing explosives, Class B, or dangerous articles other than explosives requiring labels (not including Class A poison gases or liquids) is moved in a mixed train and such car is not occupied by an employe of the carrier, placards must be applied to the car as required by these regulations.

BE 589(k)(1). In a freight train or mixed train either standing or during transportation thereof, a car placarded "Dangerous-Class-D Poison" must not be handled next to cars placarded "Explosives" or next to carload shipments of undeveloped film.

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.

726 (S). Where open flame switch heaters are used, cars loaded with explosives or inflammables must not be permitted to stand over switch heater. If stop is made with such cars standing over open flame heater, flame must be extinguished.

733 (R). There is hazard of carbon monoxide fumes from exhaust of Diesel or gasoline engines and precautions must be taken to avoid possibility of accident therefrom.

Exhaust from such engines must not be located in close proximity of fresh air intake of passenger cars and care must be exercised at all times to see that there is sufficient ventilation where such engines are operated.

733 (S). Dangerous gases, present in exhausts from Diesel locomotives, Clarkson Steam Generator, or engines of Waukesha air conditioning equipment may cause incapacitation or fatalities if in sufficient concentration as might result when a Diesel locomotive is stopped in a tunnel. These gases are not generally associated with the obnoxious odors given off by the exhausts of gasoline engines, and cannot be readily detected even in dangerous quantities.

When a Diesel locomotive is stopped in a tunnel under conditions preventing prompt movement, Diesel engines must be promptly shut down, Clarkson Steam Generator shut off, and passenger cars equipped with Waukesha air conditioning systems must have both the ice engine and engine generator shut off. Fresh air intakes on such cars must be closed, and circulating fans shut off.

When Diesel propulsion engines are shut off, air brakes must be fully applied and, in addition, a chain must be placed securely at front and rear of a traction wheel for blocking and sufficient hand brakes must be applied throughout the train to prevent movement should air brakes leak off.

During freezing weather, when Diesel engines are shut down, cooling water must be drained to winter level and if necessary to prevent damage to engine must be drained completely.

Local conditions must be carefully considered, as there may be situations where the exhaust gases are being carried away from the train by air currents, or where proximity to tunnel opening would make it unnecessary to shut down these engines. Safety of passengers and members of the crew must be the first consideration.

Train dispatcher should be notified immediately so that proper arrangements can be made for protection of persons and equipment.

734 (R). Power transmission wires carrying 2300 volts are located on top cross-arm of signal pole line.

735 (R). Adjustments must not be attempted nor made in high voltage cabinets of Diesel-electric locomotives until engine has first been isolated and stopped and units have come to a stop.

736 (R). When Diesel-electric switch locomotive is to be idle in excess of 30 minutes main engine must be stopped.

When Diesel-electric road locomotive is to be idle for one hour at initial or intermediate stations, main engines must be stopped.

Exception: In such cases, engines must not be stopped when outside temperature is below 35 degrees.

When Diesel engines are stopped at terminals when there is a heavy rain falling, enginemen will call on mechanical forces for covers to be placed over exhaust stacks.

When Diesel engines are stopped, hand brakes must be applied.

737 (R). Open top or flat cars loaded with pipe, rail, lumber, poles or other lading which has tendency to shift, must be handled in head end of train but must not be entrained immediately behind Diesel-electric locomotive.

Trains performing local work may handle such cars behind cars to be set out enroute. When more than three cars are picked up between terminals, cars picked up must be entrained behind open top cars mentioned above but such open top cars must not be switched with except to double pick-up into train.

738 (R). On branch lines north of Umatilla and Pendleton the maximum gross weight of cars that may be handled between stations is 200,000 pounds except that between Spokane and Manito on Spokane-Tekoa Branch there is no limit.

Exception: Pile driver 0321 weighing 222,200 pounds, may be handled on all branch lines except Dayton and Pomeroy Branches and between Hooper Jet. and Connell on Connell Branch.

When handling pile driver 0321, or a car weighing 200,000 pounds gross over Bridge 17.23 at Riparia, there must be at least four cars between such car or pile driver and engine or between pile driver and any car weighing more than 160,000 pounds gross.

When handling derrick 0310 there must be at least five cars between derrick and locomotive, or between derrick and any car weighing more than 240,000 pounds gross.

740 (R). In handling a dead engine it must be placed twelve cars behind the road engine, and if a second dead engine is in the train, the second dead engine should be twenty-five cars behind the road engine. In handling three dead engines in train, fifteen cars must be placed between each engine.

Dead engines, disabled engines or engines with one or more rods removed must not be moved in fast trains when possible to avoid it.

With a side rod or main rod removed, a speed of 15 miles per hour must not be exceeded.

With side rods and main rods in place, the speed may be increased to 25 miles per hour, unless otherwise restricted.

Shay, Climax, Heisler and similar type engines, when not in gear, may be handled at speed permitted for freight trains unless waybill specifies a lower speed, or attendant makes written request for a lower speed.

741 (R). Helper engine on passenger train must be coupled ahead of train engine or on rear of train.

On freight train, when not used on head end, helper engine must be cut in on rear as close ahead of caboose as conditions permit but always ahead of cars listed in Special Instruction 802 (R).

In helper territory, on freight trains, Mallet engines must not be doubleheaded. Engines must not be doubleheaded over Snake River Bridge 17.23 at Riparia.

741 (S). An engine in helper service equipped with pilot plow requiring extension coupler must be placed at head end of train.

741 (T). Between Tekoa and Chatcolet, engines must not be run backward in helper service where wye tracks or turntables are available, except in an emergency. When such back-up movement is necessary, engineer must secure authority from train dispatcher.

800 (R). Flangers on snow plows, spreaders and engines so equipped must be raised when passing over bridges, highway crossings, railroad crossings, frogs and switches and through interlocking limits.

802 (R). Cars designated below must be handled in rear of train, and next to caboose in the order named:

- Drover cars, occupied or unoccupied;
- Wooden underframe cars;
- Scale test cars;
- Any car unsafe to be handled in head end of train;
- Cars with emergency couplers;
- Cars tagged "Handle Only at Rear End of Train";
- Outfit cars.

802 (R).—Continued.

Steel underframe outfit cars may be handled on head end of train when cars are to be set out or are picked up between terminals.

Rotary snow plows handled in freight trains must be next to the caboose with rotary wheel to the rear.

Live stock must be handled in head end of train when practicable. Horses moving in stock cars must be handled at least three cars from steam engine.

In freight trains consisting of over 75 cars, passenger express refrigerators must be handled on rear of train not more than fifteen cars from caboose, except between Wallula and Umatilla when it would cause delay or extra switching.

803 (R). At Troutdale, when train is delayed at Sun Dial Crossing of road to Aluminum Plant, crossing must be cut.

At Tacoma, when practicable, westward freight train must pull rear of train over 15th Street crossing before taking water.

803 (S). At Barnhart, when movements are made over public crossing to ballast pit, a member of crew must be stationed in each direction to stop highway traffic.

803 (T). On Fourth Subdivision, cars may be placed for loading and storage on all industrial tracks, and all sidings equipped with derails when authorized by chief dispatcher.

805 (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.

806 (R). Stock cars equipped with roller bearings will start with much less effort than those otherwise equipped. When such cars are set out, either in yards or on line, hand brakes must be set, if there is any possibility of their moving.

811 (R). Freight cars with bad order couplers may be handled in trains only under the following conditions:

When containing live stock or perishables, may be chained up in train and handled to first repair point;

When not containing live stock or perishables, may be chained up in train and handled to first available side track where must be set out;

When loaded or empty, may be handled behind the caboose to destination or to first terminal, provided the good coupler can be coupled to the caboose and in addition is secured by chain, and has air and hand brakes operative. On ascending grades a trainman must ride such car.

812 (R). 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.

812 (S). When a stop is made by a streamline train, due to some unusual condition, both sides of the train must be inspected before proceeding.

812 (T). Freight trains must stop and entire train must be inspected by train crew at the following points:

Arlington or Blalock	—Eastward and westward;
Castle Rock	—Eastward;
Rocky Point (or at Castle Rock or Kalama when train stops for other purpose)	—Westward;
Wyeth, Farley, Cascade Locks or Bonneville (or at Dodson when train stops for other purpose)	—Eastward and westward;
Marengo	—East and westward;
Ash, Page, Simmons, Walker Pit or Scott	—Westward.

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923 (U). 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.

923 (V). Road fireman must not handle the engine in any switching terminal. Firemen with less than three years experience must not be permitted to operate engine at any time in road service.

925 (R). Except where blow-down boxes are provided, engineers must not use sludge removers when engines are standing.

Sludge removers must not be used while:

Moving through stations or terminals when adjacent to buildings or switches;
Passing block signals, CTC instrument houses or relay boxes;
Passing coal chutes;
Passing through truss or girder bridges;
Passing through, or immediately adjacent to tunnels.

When required by roundhouse employe, engineer will open sludge remover at terminal only enough and only a sufficient length of time to permit taking water sample.

Blow-off cocks must not be used:

At stations or terminals when adjacent to buildings or switches;
Near cars on adjacent tracks;
Near block signals, CTC instrument houses or relay boxes;
At coal chutes or water columns;
On truss or girder bridges;
On curves or near highways;
Passing through, or immediately adjacent to tunnels;

Fireman must not open left blow-off cock unless so instructed by engineer.

934 (R). On First, Second, Third Subdivisions and connecting branches, 700 class and heavier engines, except Diesel yard engines, must not go on the following tracks:

Graham	—Pool & McGonigle east track;
Near M.P. 4	—Wet Wash Laundry Co. spur;
Bruun	—Doernbecher Mfg. Co. middle spur, rear end;
Albina	—Albina Engine & Machine Works spur;
Kenton	—Armour spur;
	—Beall Pipe & Tank tracks;
St. Johns	—All sidings and spurs;
Terminal 4	—All tracks;
Swan Island	—Only Diesel switch engines may go on industrial tracks.

At Bridal Veil, engines must not go on track scales.

2100, 2200, 2500 class and heavier engines, except Diesel yard engines, must not go on the following tracks:

Pendleton	—Bluett spur; —Collins spur (except may use center track); —Walters Mill spur (except may use track to point 150 feet beyond Nelson platform); —Richfield Oil spur;
Dillon	—Spur;
The Dalles	—Port Dock tracks;
East Portland	—North leg of wye tracks, except the following engines may be operated: 7000 class engines equipped with Alco lateral device on No. 1 and No. 3 drivers and 3800 and 3900 class engines; —Curve on back track; —Lead to S.E. Second Avenue; —Globe Mill tracks;
Albina	—Coach tracks 5 and 6, west turnouts; —Store lead; —Old rip track 2 east of track crossing; —Old rip tracks 3, 4, 5, 6, 7, and 8; —North River Avenue track; —Luckenbach dock tracks;

Continued opposite side.

812 (U). When leaving regular inspection points, a trainman must be at head end of train and make careful inspection of train as it pulls by, giving particular attention to brake equipment.

814 (R). At Centralia and Hoquiam, Northern Pacific air brake rules will apply.

817 (R). On passenger trains backing up between Portland and East Portland, a trainman must be stationed on rear of train ready to apply brakes in emergency. Air whistle must be sounded when approaching Front Street, Portland, and at other points where conditions require.

820 (R). At Pendleton, Rieth, Umatilla, The Dalles, Kenton, Albina, Argo, Ayer, Walla Walla, Wallula, Yakima, Tekoa and Spokane, road engines and trains, and yard movements approaching leads, must stop before fouling lead unless it is known that switches are properly lined and lead is clear.

Before a train starts out of yard track, brakeman will precede the movement to a point where it is known route is clear.

Before a light engine starts out of yard track, the engineer and fireman must know that switches are properly lined and that route is clear.

821 (R). Rear of lounge cars operating in "City of Portland" must not be coupled into with passenger car equipped with diaphragm, account insufficient clearance.

822 (R). At Rieth, Umatilla, The Dalles, Albina, Argo, Ayer, Walla Walla, Yakima, Tekoa and Spokane, caboose track switches must be kept lined and locked for running lead. Before coupling to caboose on such tracks, caboose supply employes on or about cabooses must be warned before couplings are made.

823 (R). Trains handling drover cars must not be pushed by an engine at the rear. If it becomes necessary, in an emergency, to clear main track by use of an engine at rear of train, the drover cars must first be vacated. Switching must not be done with drover cars, except in handling to or from trains.

824 (R). When coupling an engine or cars to passenger equipment, coupling must be tested by stretching slack after coupling is made.

After coupling to cars standing on grade, slack must be stretched and it must be known that air brakes are fully charged before releasing hand brakes.

After coupling a tight lock coupler to any coupler, it must be seen that knuckle is securely locked in closed position.

When coupling other type coupler to tight lock coupler, knuckle on tight lock coupler must be closed and knuckle on other coupler must be open, to be closed by impact of car.

After cars are coupled, tight lock couplers must be inspected to see that tell-tale hole is visible just below bottom of coupler head and that knuckle is locked.

854 (R). On trains moving over Willamette River Bridge, trainman must be on rear car.

900 (R). A. T. & S. F. 6450 to 6459, inclusive, U. P. 961000, 561000, 661000 and 761000, specially constructed high, wide cars, must not be handled on tracks equipped with umbrella sheds.

920 (R). Enginemen on freight engines which are equipped with smoke deflectors, must test deflectors before entering St. Johns Tunnel and if found inoperative by air pressure, train must be stopped, and deflectors raised by hand. Such cases of inoperative deflectors must be reported to superintendent and master mechanic by wire from first open telegraph office at which stop is made, and in addition, must be reported on arrival at terminal.

923 (R). Diesel-electric locomotives must not be operated in road service, except by an engineer who has been qualified by proper officer for Diesel-electric road service.

923 (S). On Diesel-electric through passenger trains that make few or no stops, fireman will remain in control room at all times when train is in motion.

923 (T). On Diesel switch engines at least one engineman must remain on engine until expiration of shift or assignment, except during lunch periods.

934 (R).—Continued.

	—Quaker Oats spurs 1, 2 and 3 and Jocko; —Gravel dock tracks;
Kenton	—All spurs; —West end of team track;
North Portland	—All yard tracks and spurs;
Tacoma	—All tracks west from main line past gas plant toward Carstens Packing Plant and Glacier Dock, except that 2100, 2500 and 7000 class engines may be used to and from Carstens Stock Yards;
Argo	—South end of No. 1 pocket track; —Coach yard tracks; —Rip tracks; —101 track;
Hepner Branch	—All tracks, except 2100 and 5400 class and Mallet type engines may go on all tracks within yard limits at Hepner Jct.;
Condon Branch	—All tracks;
Grass Valley Branch	—All tracks;
Cosmopolis	—Wye tracks; —Bay City Mill tracks; —South Aberdeen Belt Line;
Tono	—Middle cross-over to scale track;
Olympia	—Industry, dock and wye tracks.

5400 class and heavier engines must not go on the following tracks:

Echo	—Mill track west of pavement (5400 class may use track except west 200 feet);
The Dalles	—Track 19; —Old roundhouse spur;
Castle	—Stock track;
Willows	—House track;
Arlington	—Standard Oil spur;
Grays Harbor Branch	—All tracks.

7000 and 7800 class and heavier engines must not go on the following tracks:

Pendleton	—All yard tracks except 1, 2, 4 and 6; —House track and short coach track;
Umatilla	—Jones-Scott spur; sand and gravel spur;
The Dalles	—Roundhouse track leading to Stall 1; —Libby-McNeil Dryfresh tracks;
Cascade Locks	—Standard Oil track;
Clarnie to East Portland	—All spurs;
Albina	—All tracks except main leads and main yard tracks and enginehouse leads, except 5400 class engines may use pole track; —Track 6 leading to enginehouse track.

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934 (S). On Fourth Subdivision and connecting branches:
At Dorn, engines or cars must not go beyond spot for Powder House, located approximately 300 feet from switch on high line spur.

Engines of any class must not go on the following tracks:

- Spokane —McGoldrick log rollway;
- Walla Walla —Switch-back curve leading to Libby, McNeil & Libby plant, except standard switch engines may go on this track;
- Bradley —Empire State and Sweeney Mill scale tracks beyond a point 350 feet from switches connecting with Sierra Nevada spur, and cars also prohibited thereon;
- Gem —Highline coal trestle or ore bins.

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

- Tekoa —East switch elevator track;
—McGoldrick Lumber Company spur;
- Walla Walla —Rose Street cross-over;
—Gardeners' Association track;
—Eureka Mill track;
—Pacific Fruit spur;
—Cannery spur;
—Garden City Mill track;
- Yakima —East of "A" Street; when switching between Walnut and "A" Streets, engine will hold onto sufficient cars to make it unnecessary to put engines through lead tracks connecting with Seattle main;
- Sunnyside —Trailing point movement only through east switch runaround track at N. P. transfer.

730 class and heavier engines must not go on following tracks:

- Walla Walla —Dixie-Dudley;
- Riparia —Spurs 1, 2 and 3.

2100 class and heavier engines must not go on following tracks:

- Spokane —Spokane Flour Mill trestle;
—Centennial Mill scale;
- East Spokane—New industrial trackage;
- Walla Walla —Switches at east end of tracks 2 and 3;
—Old N. P. transfer;
—All industry tracks;
—West leg of wye, except that 2100 class engines may head around from passenger station;
- Milton —Mill track;
—Utah Cannery track;
—East end of Valley Feed track;
- Colfax —East leg of wye;
- Kellogg —Sierra Nevada spur;
- Wallace —Standard Oil, except 2100 class may use;
—Coeur d'Alene Hardware.

5400 class and heavier engines must not go on the following tracks:

- Hooper Jct. —West leg of wye;
- Attalia —Hole track, or wye;
- Wallula —N. P. 1, 2, 3;
—O. W. 1, 2, 3;
—N. P. main beyond O. W. 1 east switch;
—West switch north pass.

1041 (R). Brake pipe test as prescribed in Air Brake Rule 1041 must be made on all freight and mixed trains before descending grade on Condon Branch between Barnett and Rock Creek and on Grass Valley Branch between Biggs and Klondike, and this test must also be made at intermediate points on these grades either ascending or descending, whenever engine is changed, cars picked up or set out, air hose parted, angle cock turned or when train has been standing for 30 minutes or more.

Brake pipe test, as prescribed in Air Brake Rule 1041, must be made on all freight trains before descending grade Weston to Barrett, Relief to Starbuck, Alto to Menoken, Crest to Colfax, Watt to Chateolet, Burke to Wallace, Sierra Nevada Branch end of track to Bradley.

1042 (R). Retaining valves must be used on descending grades as follows:

Condon Branch, on all trains, M.P. 35 to Mikkalo, Barnett to Rock Creek and M.P. 2 to Arlington, all retaining valves must be used.

Grass Valley Branch, on passenger trains Thornberry to Biggs, and on freight or mixed trains M.P. 33 to Moro, Klondike to Biggs and Sandon to Hay Canyon, all retaining valves must be used.

On Bend Branch, freight and mixed trains on descending grades between M.P. 100 and South Jct., trains averaging not to exceed 50 gross tons per car may be handled without use of retaining valves. On trains averaging in excess of 50 gross tons per car, one-half of the retaining valves will be used consecutively from the head end of the train.

On freight trains descending grades Mica to Chester and Darknell to Rockford and on freight and mixed trains Jerita to Hay, Alto to Menoken, Turner to Dayton, trains averaging not to exceed fifty gross tons per car, may be handled without the use of retaining valves. On trains averaging to exceed fifty gross tons per car, one-half of all retaining valves must be used. Retaining valves must be used consecutively from head end of train.

On all trains Crest to Colfax, Relief to Starbuck, Weston to Barrett, Burke to Wallace and Sierra Nevada Branch end of track to Bradley, all retaining valves must be used.

Continued opposite side.

934 (T). 3800 and 3900 class engines must not use eastward track over Willamette River Bridge, nor track 3, Union Station, Portland, and when used on passenger trains which operate through Albina, must use track nearest river between East Portland and Harding Street.

MacArthur type engines, with or without cars, except Engines 2166 to 2171, inclusive, and Engines 2528 and 2529, must not make movements between East Portland and Signal 1.1, Kenton Line over track nearest river.

2-10-2 engines must not use wye track at East Portland and two parallel tracks between East Portland and Signal 1.1, Kenton Line.

AIR BRAKES.

1006 (R). Standard brake pipe pressure for passenger trains on main lines is 110 pounds and on all branch lines is 90 pounds.

Engines in freight or mixed train service will carry 90 pounds brake pipe pressure on the Sierra Nevada Spur, between Wallace and Burke and on descending grades between Crest and Colfax, Alto and Belles, Barrett and Weston, Lovell and Chateolet, Relief and Starbuck, and on Grass Valley and Condon branches and in mixed train service on Bend Branch.

1018 (R). Air Brake Rule 1018 is changed to read:

"Speed governor control with high speed control brake equipment must be in operation on passenger train cars so equipped, when handled in passenger trains and must be made inoperative when such cars are handled in freight and mixed trains. Toggle switch located adjacent to air brake control relay cabinet controls operation of speed governor control and must be placed in 'On' position for operation and in 'Off' position to discontinue operation. Safety valve on D-22 control valve must be adjusted to 75 pounds air pressure when speed governor control is in operation and this safety valve must be adjusted to 60 pounds air pressure when speed governor control is not in operation."

1030 (R). Where Sperry rail-detector car is working when temperature is below freezing, trains, engines and track cars must be operated at a safe speed, using sand where necessary to overcome slippery condition caused by use of calcium chloride solution used by rail car.

1035 (R). Running test as prescribed in Air Brake Rules 1035, 1035 (A), 1035 (B) and 1035 (C) must be made before descending grades as follows:

- Second Subdivision —westward trains at M.P. 6 east of Graham;
- Condon Branch —westward trains at Speece, Mikkalo and Shutler;
- Grass Valley Branch —westward trains at Kent, M.P. 34, Klondike and Wasco;
- Grass Valley Branch —eastward trains at Sandon and M.P. 35;
- Bend Branch —westward trains at M. P. 100;
- Spokane-Tekoa Branch—eastward trains at Darknell and Freeman;
- Tekoa-Ayer Branch —westward trains at Jerita;
—eastward trains at Crest;
- Pendleton Branch —eastward trains at Weston;
—westward trains at Alto;
- Wallace Branch —eastward and westward trains at Watt;
—eastward trains at Burke.

1035 (S). At Spokane Union Station, passenger trains will make running air test only after leaving the elevated structure.

1040 (R). Before descending grade Jerita to Hay, Mica to Chester and Watt to Lovell, after stop has been made, brakes must be fully applied and before proceeding it must be known that brake pipe pressure is restored as indicated by caboose gauge, and that rear brakes are released. In the absence of caboose gauge, application and release test of brake on rear car must be made as prescribed in Rule 1040.

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1042 (R).—Continued.

Freight trains descending grades between Watt and Lovell and between Watt and Chateolet, if engineer finds it difficult to hold train or to recharge train, he will request train crew to turn up sufficient retaining valves necessary to insure safe control of train, stopping train if necessary.

On freight trains, trainmen must patrol top of train where retaining valves are used.

1042 (S). When retaining valves are used, freight and mixed trains will use five minutes moving first mile after turning up retaining valves, 4 minutes moving second mile and 3 minutes moving each mile thereafter, except where slower speed is otherwise prescribed.

1042 (T). On the following branches, gross weight of train, exclusive of engine and tender, must not exceed an average of sixty-five tons per effective brake:

- Tekoa-Ayer Branch—between Crest and Colfax;
- Pendleton Branch —between Weston and Barrett;
- Tucannon Branch —between Relief and Starbuck.

1046 (R). Eastward freight and mixed trains must stop at Blue Mountain and remain standing ten minutes to allow wheels to cool.

1047 (R). Westward freight and mixed trains must stop and trainmen must inspect and adjust piston travel at Barnett, Grass Valley, Thornberry and Madras.

1093 (R). Following has been added to Air Brake Rule 1093 (I):

If rear end of rear car is not equipped with inside operating lever to steam train line end valve, or if for any reason inside operating lever cannot be operated, trainman must fully open steam train line end valve from ground immediately after train is stopped.

1244 (R). When Fairbanks-Morse Diesel units 700, 700-B and 701 are used together, the low braking range on dynamic brake must not under any circumstances be used at a speed in excess of 36 M.P.H.

RATING OF ENGINES IN FREIGHT SERVICE IN TONS OF 2000 POUNDS

Total weight of train 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 time freight trains.

TYPE OF ENGINE	NUMBERS (Inclusive)	RIETH AND PORTLAND												
		WESTWARD						EASTWARD						
		Rieth to Westland or Umatilla	Umatilla or Westland to The Dalles	The Dalles to Cascade Locks	Cascade Locks to Albina via Kenton	Troutdale to Portland	Portland to Troutdale via Graham	Albina to Hood River	Hood River to The Dalles	The Dalles to Seufert	Seufert to Umatilla	Umatilla to Hinkle	Messner to Rieth	
C 57 $\frac{22}{30}$ 179	710 to 729	3000	3500	2600	4200	2300	1095	2560	4000	2200	2560	1125	1710	
C 57 $\frac{22}{30}$ 190	730 to 768	3500	4000	2895	4500	2510	1250	2895	4250	2650	2900	1295	2000	
T 69 $\frac{22}{28}$ 161	1742 to 1754	2750	3000	2195	3600	1900	850	2195	3500	2000	2330	960	1650	
T 63 $\frac{22}{28}$ 162	1755 to 1760	3000	3250	2435	3800	2110	930	2435	3600	2105	2500	1085	1800	
MacA 57 $\frac{23\frac{1}{2}}{30}$ 210	1900 to 1949 2000 to 2034 2100 to 2165	4000	4500	3380	5000	2930	1455	3400	4550	3050	3850	1700	2750	
MacA 63 $\frac{26}{28}$ 214 211	2166 to 2171 2203 to 2294 2504 to 2564 2700 to 2735	4000	4500	3500	5500	3155	1560	3500	4750	3155	4250	1825	2850	
P 77 $\frac{25}{28}$ 167 $\frac{25}{28}$ 178	2860 to 2899 3218 to 3225 3226 to 3227	3250	3500	2820	4500	2385	1145	2820	3800	2385	2900	1195	2000	
P 77 $\frac{22}{28}$ 149	3201 to 3217	2700	3000	2175	3185	1875	900	2175	3450	1875	2200	940	1600	
MS 59 $\frac{23-23}{30}$ 472	3500 to 3564 3705													
MS 69 $\frac{22-22}{32}$ 400 $\frac{21-21}{32}$ 406	3800 to 3839 3930 to 3999	8000	8000	7000	8000	5875	3000	7000	8000	6000	8000	3560	6000	
TTT 63 $\frac{29\frac{1}{2}}{30}$ 292	5315 to 5318 5400 to 5414	5000	6000	5190	7000	4100	2040	5190	6000	4000	6000	2420	4000	
MT 73 $\frac{29}{28}$ 230	7000 to 7039 7850 to 7869	4000	4500	3500	5500	3155	1560	3500	4750	3155	4250	1825	2850	

EXPLANATION
 P Pacific
 T Ten Wheeler
 C Consolidation
 MacA MacArthur
 MT Mallet Simple
 MS Mallet Simple
 TTT Mountain

EXAMPLE: Consolidation engine having 57 inch drivers, cylinders 22 inch diameter and 30 inch stroke, and weighing 179,000 pounds on drivers: C 57 $\frac{22}{30}$ 179

TYPE OF ENGINE	NUMBERS (Inclusive)	OREGON TRUNK JCT. AND BEND							BIGGS AND KENT					ARLINGTON AND CONDON				HEPPNER JCT. AND HEPPNER					
		EASTWARD				WESTWARD	EASTWARD			WESTWARD		EASTWARD		WESTWARD		EASTWARD							
		O. T. Jct. to North Jct.	North Jct. to South Jct.	South Jct. to Madras	Madras to Bend	Bend to O. T. Jct.	Biggs to Thornberry	Thornberry to Sandon	Sandon to Kent	Kent to Hay Canyon	Hay Canyon to Sandon	Sandon to Biggs	Arlington to Rock Creek	Rock Creek to Condon	Condon to Rock Creek	Rock Creek to Arlington	Heppner Jct. to Ione	Ione to Lexington	Lexington to Heppner				
C 57 $\frac{22}{30}$ 179	710 to 729																						
C 57 $\frac{22}{30}$ 190	730 to 768	1500	1730	1000	1500	3000	345	550	700				960	700	2000	600	340	1820	1700	1500	1150	1125	
T 63 $\frac{20}{24}$ 113	1715 to 1726	690	985	555	745	1580	180	290	415				500	370	2000	315	180	980	890	810	625	590	
T 64 $\frac{22}{26}$ 145	1730 to 1731	830	1070	655	880	1870	210	340	435				590	435	2000	370	210	1200	1045	900	710	695	
T 57 $\frac{20}{26}$ 119	1733 to 1736	740	1120	685	920	1955	220	355	455				615	455	2000	390	220	1210	1090	965	740	725	
T 57 $\frac{20}{26}$ 125	1737 to 1741	890	1180	720	970	2060	230	375	480				650	480	2000	420	240	1250	1155	1015	785	770	
T 69 $\frac{22}{28}$ 161	1742 to 1754	1075	1335	760	1100	2330	265	425	545				740	540	2000	465	260	1550	1310	1100	900	870	
T 63 $\frac{22}{28}$ 162	1755 to 1760	1160	1465	825	1200	2555	290	465	600				810	595	2000	510	285	1465	1430	1200	1000	950	
MacA 57 $\frac{23\frac{1}{2}}{30}$ 207	1900 to 1949 2000 to 2034 2100 to 2165	1815	2060	1165	1815	3435																	
MacA 63 $\frac{26}{28}$ 214 211	2166 to 2171 2203 to 2294 2504 to 2564 2700 to 2735	1850	2100	1190	1830	3505																	

RATING OF ENGINES IN FREIGHT SERVICE IN TONS OF 2000 POUNDS

Total weight of train 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 time freight trains.

TYPE OF ENGINE	NUMBERS (Inclusive)	PORTLAND AND SEATTLE							
		WESTWARD				EASTWARD			
		Albina to Vader	Vader to Napavine	Napavine to Centralia	Centralia to Argo	Argo to Centralia	Centralia to Napavine	Napavine to Albina	
C 57 $\frac{22}{30}$ 179	710 to 729	3000	1500	3830	3000	3000	1300	3200	
C 57 $\frac{22}{30}$ 190	730 to 768	3410	1770	4135	3410	3135	1470	3500	
T 69 $\frac{22}{28}$ 161	1742 to 1754	2595	1330	3150	2595	2380	1090	3500	
T 63 $\frac{22}{28}$ 162	1755 to 1760	2870	1485	3480	2870	2635	1230	3500	
MacA 57 $\frac{23\frac{1}{2}}{30}$ 210	1900 to 1949 2000 to 2034 2100 to 2165	4000	2000	4500	4000	3655	1715	5500	
MacA 63 $\frac{26}{28}$ 214 211	2166 to 2171 2203 to 2294 2504 to 2564 2700 to 2735	4500	2200	5000	4200	3950	1840	6000	
P 77 $\frac{22}{28}$ 149	3201 to 3217	2570	1305	3100	2570	2350	1070	3500	
P 77 $\frac{25}{28}$ 167 $\frac{25}{28}$ 178	2860 to 2899 3218 to 3225 3226 to 3227	3500	1650	3700	3200	3000	1365	4000	
MT 73 $\frac{29}{28}$ 230	7000 to 7039 7850 to 7869	4500	2200	5000	4200	3950	1840	6000	
MS 69 $\frac{21-21}{32}$ 406	3930 to 3999	8000	4000	8000	8000	7500	3750	8000	

EXPLANATION

P Pacific
 T Ten Wheeler
 C Consolidation
 MacA MacArthur
 MT Mountain
 MS Mallet Simple

EXAMPLE: Consolidation engine having 57 inch drivers, cylinders 22 inch diameter and 30 inch stroke, and weighing 179,000 pounds on drivers: C 57 $\frac{22}{30}$ 179

TYPE OF ENGINE	NUMBERS (Inclusive)	CENTRALIA AND HOQUIAM						CENTRALIA AND TONO	EAST OLYMPIA AND OLYMPIA
		EASTWARD			WESTWARD				
		Hoquiam to Cosmopolis	Cosmopolis to Centralia	Centralia to Cosmopolis	Cosmopolis to Hoquiam				
C 57 $\frac{20\frac{1}{2}}{30}$ 167 $\frac{22}{30}$ 172	710 to 724 719 to 723	1490	2875	3355	1490		2200	1175	
C 57 $\frac{22}{30}$ 179 $\frac{22}{30}$ 190	725 to 729 730 to 768	1325	3880	4290	1700		2520	1515	
T 63 $\frac{20}{24}$ 113	1715 to 1726	625	1930	2245	695		1340	800	
T 64 $\frac{22}{26}$ 145	1730 to 1731	710	2275	2560	820		1590	885	
T 57 $\frac{20}{26}$ 119	1733 to 1736	740	2375	2765	855		1630	980	
T 57 $\frac{20}{26}$ 125	1737 to 1741	710	2505	2920	905		1720	980	
T 69 $\frac{22}{28}$ 161	1742 to 1754	1020	2840	3310	1570		1865	1170	
T 63 $\frac{22}{28}$ 162	1755 to 1760	1120	3110	3625	1650		1975	1280	
MacA 57 $\frac{23\frac{1}{2}}{30}$ 207	1900 to 1949 2000 to 2034 2100 to 2165	1515	4490	4980	1960				
P 77 $\frac{22}{28}$ 149	3201 to 3217	710	2505	2920	905		1720	980	