

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.
Between stations for which no rating is shown maximum will apply.

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	22 179 30 190	3000 3410	1500 1770	3850 4135	3000 3410	3000 3135	1300 1470	3200 3500	
T 69	22 161 28	2595	1330	3150	2595	2380	1090	3500	
T 63	22 162 28	2870	1485	3480	2870	2685	1230	3500	
MacA 57	23 210 30	4000	2000	4500	4000	3655	1715	5500	
MacA 63	26 214 28 211	4500	2200	5000	4200	3950	1840	6000	
P 77	22 149 28	2570	1305	3100	2570	2350	1070	3500	
P 77	25 167 28 178	3500	1650	3700	3200	3000	1365	4000	
MT 73	29 230	4500	2200	5000	4200	3950	1840	6000	
MS 69	21-21 406 32	8000	4000	8000	8000	7500	3750	8000	

EXPLANATION

P Pacific
T Ten Wheeler
C Consolidation
MacA MacArthur
MT Mallet
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 — 22 — 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	Centralia to Cosmopolis	Cosmopolis to Hoquiam			
C 57	20 167 30 172	1490	2875	3355	3355	1490	2200	1175	
C 57	22 179 30 190	1325	3880	4290	4290	1700	2520	1515	
T 63	20 113 24	625	1930	2345	2345	695	1340	800	
T 64	22 145 26	710	2275	2560	2560	820	1590	885	
T 57	20 119 26	740	2375	2765	2765	855	1630	980	
T 57	20 125 26	710	2505	2920	2920	905	1720	980	
T 69	22 161 28	1020	2840	3310	3310	1570	1865	1170	
T 63	22 162 28	1120	3110	3625	3625	1650	1975	1280	
MacA 57	23 207 30	1515	4490	4980	4980	1960			
P 77	22 149 28	710	2505	2920	2920	905	1720	980	

UNION PACIFIC RAILROAD COMPANY
Northwestern District

Oregon Division
Special Instructions
No. 7

Effective Friday,
August 1, 1947

Superseding Special Instructions No. 6

Employes 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

G. J. MULICK,
Asst. General Manager

P. T. McCARTHY,
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 Agents
Trainmasters
Assistant Trainmasters
Traveling Conductors
Road Foremen of Engines
Traveling Firemen
*Station Agents
*Operators
Outside Hostler Helpers
Assistant Yardmasters

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

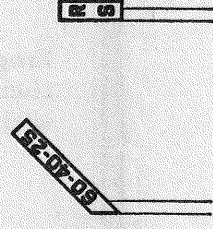
2 (S). Standard of watches to be used by employees designated in Rule 2 (R): Reliable railroad grade, lever set and must not vary more than 30 seconds from correct time.

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 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 DE-Pgr. and Psgr. trains, 25 MPH for freight trains.

Signs bearing the letters RS 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, and then extinguish white headlight.

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.

83 (U). 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.

Conductors of the following trains may register by registering ticket, per Rule 83 (A), when operator on duty:
La Grande —No. 105 and No. 106;
Rieth —all first class trains;
Black River—all trains.

Train registering exceptions:

Pendleton —only first-class trains will register;
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.

93 (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."

93 (S). 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.

93 (T). 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.

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..... 0
For Troutdale..... 0
For S. P. Main Line..... 0
For S. P. Yard..... 0
For East Second Street..... 0
For S. P. & S. to East Side.. 0

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

17 (S). Between Huntington and Portland, headlight must be displayed to the front of every train by day and night.

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 Huntington, Pendleton, La Grande 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.

21 (R). Between Huntington and Rieth, when a train is equipped with indicators, white flags will not be displayed by extra trains.

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:

Joseph Branch
Pilot Rock Branch
Heppner Branch
Condon Branch

Grass Valley Branch
Tono Branch
Olympia 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.

33 (R). Within the city limits of Pendleton it is unlawful to sound engine whistle except to signal flagman or 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 Heising Jct.

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.

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

Joseph —all regular trains, when no operator on duty;
East Olympia—all westward trains Olympia Branch;
Argo —all westward C. M. St. P. & P. passenger trains.

83 (T). 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.

98 (R). JUNCTIONS AND RAILROAD CROSSINGS.

Location	Railroad Crossed, or Junction With	Trains Which Have Precedence	How Governed
Rieth. (M.P. 211.3)	Third Sub-division.		Special Instruction 98 (T).
Umatilla. (M.P. 183.9)	Washington Division.		Special Instruction 98 (U).
East Portland. (S.E. Second Ave. between S.E. Salmon and S. E. Madison Sts.)	P. E. P.	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).
Heising Jct.	C.M.St.P.&P.	U. P.	Automatic block signals. Special Instruction 509 (S).
Schafer Bros. Crossing.	Schafer Bros. Logging Ry.	U. P.	Cabin Interlocking. Special Instruction 663 (R).
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.)	N. P. C.M.St.P.&P.		Stop signs, and signals from watchman.

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 Rieth, when a train is approaching on Third Subdivision main track, a Subdivision main track Branch must not open the switch to nor obstruct the Third Subdivision main track until the approaching train has stopped or passed.

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

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

98 (V). 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.

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 red fusee will be used for hand signals required by Rule 99.

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

19 (A). Each caboose must be equipped with a red lantern for use as required by Rule 250.

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 Joseph, Condon, Tono, Pilot Rock, Grass Valley, Olympia, Heppner and Grays Harbor 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 (t) 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 La Grande, over Fir Street and Greenwood Street;

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.

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

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 No. 1 track Pendleton and Rieth.

402 (T). At Pendleton, before using extension of track 6, Washington Division and Northern Pacific trains will obtain verbal authority from train dispatcher at La Grande before passing Signal 2165.

403 (R). In cutting helper engine in rear of westward freight train at Hilgard, train may be stopped with rear portion east of east switch to siding and cut made at that point for helper engine, or train may stop with head end at water tank. In either case, trainman must obtain permission from dispatcher to make back-up movement with rear portion of train to clear switch to cut second helper into train moving from siding to proper position in train. Trainman must move selector lever on dual control switch to hand position and notify helper engineer when done. Trainman will hand operate switch and helper engineer may then pass red signals at east end of siding and couple into train. After these movements have been completed, a trainman must move and lock selector lever in motor position and notify dispatcher.

405 (R). Between Rieth and east switch to No. 1 track Pendleton, 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.

For movement over Umatilla River Bridge from or to main track, or No. 1 track, trains will be governed by signals located at each end of the bridge, which are controlled by train dispatcher.

When one of these signals displays Stop indication and cause is unknown, conductor or engineer must communicate with train dispatcher and be governed by his instructions.

If movement is authorized by train dispatcher, or, in case of failure of means of communication, flagman must be sent ahead, 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.

509 (R). Between Huntington and Portland, Rule S-509 (A) applies.

509 (S). 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.

518 (R). In CTC territory, bus cars, light weight motor trains of three cars or less, any engine without cars, or cuts of less than four cars, must not be permitted to stand on sandbed rails on main track or between the fouling point and the switch on sidings.

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.....	_____	_____	0
For Graham.....	_____	_____	_____
For S. P. Main Line.....	0	_____	_____
For S. E. Second Ave.....	0	0	_____
For S. P. yard.....	0	_____	0
For transfer track.....	_____	_____	0
For East Side Freight Terminal.....	0	0	_____

Continued opposite side.

103 (T). Referring to Special Instructions 103 (S), 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.

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

Hinkle, junction switch—for line via Munley;

Umatilla, wye switch connection with Ore. Div. 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.;

Joseph, main track switch east leg of wye—for wye;

Joseph, switch at stem of wye—for east leg of wye;

Enterprise, west switch of cross-over between main track and house track

—for house track;

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.

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.

105 (R). At Gibbon, trains using siding will clear No. 2 track at east and west ends when length of train will permit.

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

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

At Baker, old eastward and westward sidings will be designated as No. 1 siding.

Old storage track will be designated as No. 2 siding. Trains using No. 2 siding will head in and out through cross-over west of Campbell Street.

107 (R). At Pendleton, white passenger engine or passenger train is being serviced on main track or No. 1 track, movement must not be made on adjacent track unless member of crew precedes movement.

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.

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.

209 (R). Operators must not typewrite Union Pacific train orders or clearances. **402 (R).** At Kamela, Telocaset and Encina, CTC clearance required by Rule 402 must not be received by light engine leaving those stations, but such movement must be governed by signal indication.

At La Grande, when a train or engine is stopped by Signal 2897 or Signal 2902, member of crew must communicate with dispatcher for instructions. If movement is authorized, movement may be made at restricted speed without receipt of CTC clearance, but movement must be preceded by flagman to next signal.

605 (R).—Continued.

At St. Johns Jct.:

For North Portland Jct..... _____

For Kenton..... _____

For St. Johns..... 0 _____

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..... 0 _____

At Argo:

For Seattle..... _____

For yard lead..... _____

From Seattle to Pacific Coast R. R..... 0 _____

From Argo yard to Georgetown lead..... 0 _____

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.

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, Fourth Subdivision, 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.

708 (R). 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;

Continued on Page 6.

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 313 and 314, Bend Branch.

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 cabooses, driver 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.

726 (R). Trainmen, enginemen, yardmen, agents and other employees 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.

Placards on Cars

BE 589 (a)(1). A car requiring car certificates and "Explosives", "Dangerous", or "Poison Gas" placards under the provisions of these regulations shall not be transported unless such freight car is at all times placarded and certificated as required by these regulations. Placards lost in transit shall be replaced at next inspection point.

BE 589 (a)(2). At points where trains are inspected, cars placarded "Explosives" and adjacent cars shall be inspected; such cars shall continue in movement only when inspection shows them to be in condition for safe transportation.

Switching Cars Containing Explosives or Poison Gas

BE 589 (b)(1). A car placarded "Explosives" or placarded "Poison Gas" shall not be cut off while in motion. No car moving under its own momentum shall be allowed to strike any car placarded "Explosives," or placarded "Poison Gas." No freight car placarded "Explosives" or placarded "Poison Gas" shall be coupled into with more force than is necessary to complete the coupling.

BE 589 (b)(2). When transporting a car placarded "Explosives" in terminals, yards, side tracks, or sidings, such cars shall be separated from the engine by at least one non-placarded car.

BE 589 (b)(3). Closed cars placarded "Explosives" shall have doors closed before they are moved.

Switching of Cars Containing Dangerous Articles

BE 589 (c)(1). In switching operations where use of hand brakes is not necessary, a placarded loaded tank car, or a draft which includes a placarded loaded tank car shall not be cut off until the preceding car or cars clear the ladder track and the draft containing the placarded loaded tank car, or a placarded loaded tank car shall in turn clear the ladder before another car is allowed to follow.

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 Side Tracks

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, 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.

Continued opposite side.

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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 cabooses; and shall, when the length of the train will not permit them to be so placed, be as near as possible to the middle of the train.

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 any car placarded "Dangerous." A car placarded "Explosives" or a placarded loaded tank car shall not be next to:

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

Position in Train of Loaded Placarded Tank Cars

BE 589 (g)(1). In a train either at rest or during transportation thereof, a placarded loaded tank car shall not, when the length of the train permits, be nearer than the sixth car from the engine or occupied caboose, but in no instance nearer than the second car in such train unless the entire train consists of such 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 in Train of Cars Placarded "Explosives" and "Poison Gas" or Containing Poison Liquids When Occupied 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 between points between which freight train service is not operated.

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 (f)(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.

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). In CTC or other territory 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.

727 (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. 388.40.....	Bridge.....	Side.
M.P. 387.75.....	Bridge.....	Side.
M.P. 387.36.....	Bridge.....	Side.
M.P. 386.92.....	Bridge.....	Side.
M.P. 386.62.....	Bridge.....	Side.
M.P. 385.95.....	Bridge.....	Side.
M.P. 385.19.....	Bridge.....	Side.
M.P. 385.02.....	Bridge.....	Side.
Lime.....	Overhead bridge.....	Side.
M.P. 384.42.....	Bridge.....	Side.
M.P. 383.27.....	Bridge.....	Side.
M.P. 382.02.....	Bridge.....	Side.
M.P. 381.9.....	Overhead bridge.....	Side.
M.P. 381.66.....	Bridge.....	Side.
M.P. 381.41.....	Bridge.....	Side.
M.P. 380.44.....	Bridge.....	Side.
M.P. 380.22.....	Bridge.....	Side.
M.P. 379.62.....	Bridge.....	Side.
M.P. 378.60.....	Tunnel No. 6.....	Side.
M.P. 378.75.....	Bridge.....	Side.
M.P. 378.19.....	Bridge.....	Side.
M.P. 377.15.....	Bridge.....	Side.
M.P. 376.84.....	Bridge.....	Side.
M.P. 376.11.....	Bridge.....	Side.
M.P. 375.62.....	Bridge.....	Side.
M.P. 374.80.....	Bridge.....	Side.
M.P. 374.52.....	Bridge.....	Side.
M.P. 373.90.....	Bridge.....	Side.
M.P. 373.76.....	Bridge.....	Side.
M.P. 373.00.....	Bridge.....	Side.
M.P. 372.91.....	Bridge.....	Side.
M.P. 372.00.....	Bridge.....	Side.
Durkee.....	Standpipe.....	Side.
Durkee.....	Water tank spout.....	Side.
M.P. 366.74.....	Bridge.....	Side.
Pleasant Valley.....	Water tank spout.....	Side.
M.P. 343.94.....	Bridge.....	Side.
North Powder.....	Overhead bridge.....	Top and side.
North Powder.....	Water tank spout.....	Side.
Telocaset.....	Water tank spout.....	Side.
M.P. 312.07.....	Overhead bridge.....	Side.
Union Jct.....	Water tank spout.....	Side.
Second Subdivision		
La Grande (Second St.).....	Viaduct.....	Top.
M.P. 288.02.....	Bridge.....	Side.
Hilgard.....	Water tank spout.....	Side.

Continued opposite side.

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Location	Structure or obstruction	Clearance of engine or car is close at—
Second Subdivision		
Motanic.....	Water tank spout.....	Side.
Kamela.....	Water tank spout.....	Side.
M.P. 252.52.....	Bridge.....	Top.
M.P. 251.18.....	Bridge.....	Side.
Duncan.....	Water tank spout.....	Side.
M.P. 231.67.....	Bridge.....	Side.
Gibbon.....	Water tank spout.....	Side.
M.P. 230.57.....	Bridge.....	Side.
Cayuse.....	Water tank spout.....	Side.
M.P. 226.86.....	Bridge.....	Side.
M.P. 214.42.....	Bridge.....	Side.
Third 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.
Fourth 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.....	Side.
M.P. 10.3.....	Overpass handrails.....	Top.
M.P. 8.5.....	Underpass handrails.....	Side.
M.P. 4.5.....	Tunnel.....	Side.
M.P. 4.2 (N.E. 63rd Ave.).....	Overhead bridge.....	Top and side.
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.

Continued on Page 8.

727 (R).—Continued.

Location	Structure or obstruction	Clearance of engine or car is close at—
Fifth 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 (Jackson St.).....	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.
Montesano Branch		
M.P. 0.31.....	Bridge.....	Side.
Tono Branch		
Tono.....	Coal mine tipple.....	Top and side.
St. Johns Branch		
M.P. 6.93.....	Overhead bridge.....	Top and side.
Joseph Branch		
M.P. 2.48.....	Bridge.....	Side.
Elgin.....	Water tank spout.....	Side.
M.P. 32.58.....	Water tank spout.....	Side.
M.P. 48.97.....	Water tank spout.....	Side.
Grass Valley Branch		
Biggs.....	Water tank spout.....	Side.
Wasco.....	Water tank spout.....	Side.
Grass Valley.....	Water tank spout.....	Side.
Heppner Branch		
Ione.....	Water tank spout.....	Side.
Cecil.....	Water tank spout.....	Side.

727 (S). In moving cars on tracks under trolley wires, employes are warned that overhead clearances to such wires and side clearances to supporting poles are close at locations shown below. Trolley wires must not be touched and careful lookout must be kept for low and broken wires.

Station	Location
East Portland.....	S. E. Second Ave. and S. E. Morrison St.
East Portland.....	S. E. Second Ave. and S. E. Hawthorne Blvd.....
Albina.....	N. Larrabee Ave.....
Albina.....	N. Interstate Ave.....
Black River.....	Argo yard lead and between Argo and Seattle passenger station.....
Argo-Seattle.....	Seattle passenger station.....
	P. E. P.
	P. E. P.
	P. E. P.
	C. M. St. P. & P.
	C. M. St. P. & P.

727 (T). At Portland, account curvature causing impaired clearance, 3800 and 3900 class engines, with or without cars, entering or leaving Union Station, must know that engines on adjacent tracks at south end of yard are into clear before passing them.

At south end of Union Station, clearance is very close and will not clear a man on side of car between tracks 1 and 2, 3 and 4, 5 and 6, 7 and 8, 9 and 10, from interlocking signals to point 100 feet north of the crossing.

727 (U). On Grass Valley Branch, employes must not ride on the side of cars or engines while moving in trains, as there are a number of places on this branch where clearance is impaired by narrow cuts.

At Olympia, account insufficient clearance between N. P. connection scale track and main track, trains or engines must not attempt to pass on main track if trains or engines are moving on connection.

At Aberdeen, account insufficient clearance between coach track No. 1 just east of passenger station and main track at turnout, trains and engines must not attempt to pass on main track if trains or engines are moving on coach track No. 1.

At La Grande, look out for close clearance on tracks 4 and 5, which have less clearance than other tracks in yard.

727 (V). Trains handling cars or loads of excess height or in excess of 12 feet in width must keep close lookout for close clearances and where overhead or side clearance is doubtful, movement must be stopped and adequate protection provided.

Cars of excess height, as per stencil or placard, must not be switched with except in placing them in and taking them out of trains. In switching movements such cars must not be cut off while in motion, but must be shoved to a stop with air brakes operative. No one will be permitted to ride on top of such cars.

Loads of excess width must not be stored on nor moved over yard tracks where clearance is insufficient, unless there is an intervening track between trains or cars containing loads of excess width. No one will be permitted to ride on the side of such cars.

Trains handling wide loads must obtain meeting or passing order with other trains handling wide loads at stations where they will have a track between them.

When a train which is handling a wide load is notified by train order of another train handling a wide load, the train dispatcher must be notified so that meeting or passing point can be arranged.

Crews of trains receiving notice of wide load in other trains must inspect their train for open or swinging doors or anything projecting beyond normal clearance.

727 (W). Pennsylvania box cars, series 36987-37090 inclusive, inside length 60 feet 6 inches and height over running board 15 feet 2½ inches. The handling of these cars must be closely watched when movements made over yard, warehouse and industrial tracks and tracks adjacent to umbrella and train sheds at passenger stations, to know there is sufficient clearance.

728 (R). At Pilot Rock, trains and engines must move at restricted speed, keeping a lookout for cars on or foul of main track west of derail.

728 (S). Steam derrick 0310 must not be handled over:

Bridges 388.58-S and 388.61-S on wye track, Huntington;

Bridge 331.33-S on house track, Haines;

Bridge 361.64-S on siding, Oxman.

Derrick has 1¼ inch horizontal, 1 inch vertical clearance at station platform, La Grande.

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.

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.

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 the 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.

802 (S). 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.

802 (T). Helper engine on passenger train must be coupled ahead of train engine.

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, except from Rieth to Gibbon, Huntington to Durkee, La Grande to Union Jet., and Baker to Telocast.

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

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.

805 (R). At Huntington, La Grande, Rieth, Umatilla, The Dalles, Albina and Argo, 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.

805 (S). Trains containing 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.

805 (T). 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.

Continued opposite side.

805 (U). 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 trammens 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 in accordance with Rule 806, if there is any possibility of their moving.

806 (S). In CTC territory, when cars are set out on sidings on grade where there are no derails, in addition to setting hand brakes and blocking wheels, cars must be chained to rail. When such cars are picked up, crew will take chain to terminal.

807 (R). A streamline train with motive power attached must not be pushed from the rear except in an emergency when it is necessary to push train into clear. When such movement is necessary, extreme care must be used due to weight of motive power. It must be known that all brakes are released before movement is started.

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 there) —Westward;
Wyeth, Farley, Cascade Locks or Bonneville (or at Dodson when train stops there for other purpose) —Eastward and westward.

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). Between Huntington and Rieth, 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.

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;
Passing by brick platform at passenger station, La Grande.

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

934 (R). 700 class and heavier engines must not go on the following tracks:

Baker —Sand spur;
Meacham —Casey Mill spur beyond Mt. Emily switch;
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 —Schlesser Bros. spur;
St. Johns —Beall Pipe & Tank spur;
—All sidings and spurs.

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

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

Baker —Davis Lumber Co. spur;
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;
—Spur;
—Track 19;
—Cross-over between spurs at freight house;
—Cross-over between lead and laundry spur;
—Old roundhouse spur;
—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;
—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;
—Montgomery Dock track;
—Pacific Coast Elevator track;
—Portland Flouring Mills spurs 1, 2, 3 and Jocko;
Continued opposite side.

817 (S). At Telocaset, when an engine headed west is to be turned on wye, engine will back around west leg, then head around east leg of wye.

817 (T). 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.

819 (R). At Huntington, La Grande, Pendleton, Rieth, Umatilla, The Dalles, Albina and Argo, 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.

854 (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.

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

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

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.

At initial terminals, before departure, fireman will go through engine rooms and make careful inspection of gauge indications, oil levels, engine temperatures and shutter controls. Any unusual condition detected or irregularities 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.

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.

10

934 (R).—Continued.

Kenton

—All spurs;

—West end of team track;

—All yard tracks and spurs;

—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;

—South end of No. 1 pocket track;

—Coach yard tracks;

—Rip tracks;

—101 track;

—All tracks;

—All tracks, except 2100 and 5400 class and Mallet type engines may go on all tracks within yard limits at Heppner Jct.;

—All tracks;

—Wye tracks;

—Bay City Mill tracks;

—South Aberdeen Belt Line;

—Middle cross-over to scale track;

—All tracks;

—All tracks.

Heavy MacArthur and Two-Ten-Two type engines must not go on river hole track at Lime.

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

—Texaco Oil spur;

—W. H. Ellis spur;

—Baker Grocery spur;

—Wye track, except in emergency when movement must be very slow over east leg of wye, account sharp curvature;

—Mill track west of pavement (5400 class may use track except west 200 feet);

—Stock track;

—House track;

—Standard Oil spur;

—House track;

—All tracks.

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

Huntington —Oil sump track east of unloading dock;

Lime —High line;

Durkee —House track;

La Grande —400 feet of west end engine track 3;

—Freight house track;

—Ash pit tracks;

—All yard tracks except 1, 2, 4, and 6; house track and short coach track;

—Jones-Scott spur; sand and gravel spur;

—Roundhouse track leading to Stall 1;

—Libby-McNeil Dryfresh tracks;

—Standard Oil track;

—All spurs;

Continued on Page 12.

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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.

—Engine lead to turntable on north side of roundhouse,

known as hill track;

—Stock tracks.

934 (S). 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 westward track between 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 movement on westward track (nearest river) between East Portland and Harding Street, Albina.

At Meacham, Mallet type engines must not go on log loading track beyond Casey mill spur switch.

Heavy Pacific type engines must not be turned on wye at Wallowa and must not go beyond platform on Bowman Hicks spur, and must move very carefully on lime kiln track at Enterprise.

AIR BRAKES.

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

1006 (S). Engines in freight or mixed train service will carry 90 pounds brake pipe pressure between Rieth and Huntington.

Passenger, freight and mixed trains will carry 90 pounds brake pipe pressure on Grass Valley and Condon Branches. Passenger and mixed trains will carry 90 pounds brake pipe pressure 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:

First Subdivision —eastward and westward trains at Encina and Telocaset;
 Second Subdivision —eastward and westward trains at Kamela;
 Fourth 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.

1041 (R). Brake pipe test as prescribed in Air Brake Rule 1041 must be made on all freight trains before descending grade between Encina and Durkee, Encina and Baker, Telocaset and Lun, Telocaset and Union Jct., Kamela and Hilgard and between Kamela and Duncan, and this test must also be made at intermediate points on these grades by single engine trains, and trains with helper on head end, ascending the grade, and by all trains descending grade, whenever engine is changed, Continued opposite side.

cars picked up or set out, air hose parted, angle cock turned, or when train has been standing for 30 minutes or more.

This test must also 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.

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

All retaining valves must be used on passenger, mail and express trains, descending grade between Huron and Hilgard.

Freight trains descending grades between Encina and Durkee, and between Hilgard and Huron must use one operative retaining valve for each fifty tons of train but in no case less than one-half of all retaining valves in train. If engineer finds it difficult to hold train or to recharge train, he will request train crew to turn up additional retaining valves necessary to insure safe control of train, stopping train if necessary.

Between Telocaset and Union Jct., and between Huron and Duncan, trains averaging not to exceed fifty gross tons per car may be handled without the use of retaining valves when handled by engines equipped with two air compressors which are operative. On trains averaging to exceed fifty gross tons per car, or trains handled by engines having one compressor, one-half of all retaining valves must be used.

Retaining valves must be used consecutively from head end of train.

Between Duncan and Gibbon, when in judgment of engineer train is hard to hold, retaining valves will be used on request of engineer and train will stop at Gibbon to turn down retaining valves.

At Union Jct., Durkee and Hilgard, freight trains must reduce speed, and stop if necessary, to enable trainmen to handle retaining valves.

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, trainmen must patrol top of train when 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.

1046 (R). Freight trains must stop and remain standing ten minutes to allow wheels to cool at the following points:

Oxman —Eastward;
 Glover —Eastward;
 Meacham —Westward;
 Huron —Westward.

When eastward freight trains stop at Motanic and remain standing ten minutes, stop need not be made at Glover to cool wheels.

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.

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.

Between stations for which no rating is shown maximum will apply.

TYPE OF ENGINE	NUMBERS (Inclusive)	HUNTINGTON AND LA GRANDE										EXPLANATION									
		WESTWARD					EASTWARD														
		Huntington to Durkee	Durkee to Encina	Encina to Lun	Lun to Telocaset	Telocaset to La Grande	La Grande to Union Jct.	Union Jct. to Telocaset	Telocaset to Baker	Baker to Encina	Encina to Huntington										
C 57 —22— 30	710 to 729	1150	525	2800	1270	2180	2800	785	1710	785	3000										
C 57 —22— 30	730 to 768	1265	575	3000	1470	2510	3000	890	1970	890	3000										
T 63 —22— 28	1755 to 1760	1070	475	2460	1070	2700	2700	690	2000	690	2700										
T 69 —22— 28	1742 to 1754	980	440	2240	980	2700	2700	640	2000	640	2700										
MacA 57 —23½— 30	1900 to 1949 2000 to 2034 2100 to 2165	1725	700	3500	1725	3500	3500	1000	2900	1000	6000										
MacA 63 —26— 28	2166 to 2171 2203 to 2284 2504 to 2594 2700 to 2735	1825	725	3500	1825	3500	3500	1100	3300	1100	6000										
P 77 —25— 28	2860 to 2899 3218 to 3225	1190	525	3000	1190	2700	2700	760	2200	760	3000										
P 77 —25— 28	3226 to 3227		440	2250	960	2700	2700	640	2000	640	2700										
P 77 —22— 28	3201 to 3217	960	440	2250	960	2700	2700	640	2000	640	2700										
MS 59 —23-23— 30	3500 to 3564 3705																				
MS 69 —22-22— 32	3800 to 3839	3000	1470	8000	3200	8000	8000	2200	4630	2200	8000										
MS 69 —21-21— 32	3930 to 3999																				
TTT 63 —29½— 30	5315 to 5318 5400 to 5414	2850	1045	6000	2350	6000	6000	1485	3215	1485	6000										
MT 73 —29— 28	7000 to 7039 7850 to 7869	1700	700	3500	1700	3500	3500	1000	2900	1000	6000										

P Pacific
 T Ten Wheeler
 C Consolidation
 MacA MacArthur
 MS Mallet Simple
 TTT 2-10-2
 MT 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 —22— 179

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.
 Between stations for which no rating is shown maximum will apply.

TYPE OF ENGINE	NUMBERS (Inclusive)	LA GRANDE AND THE DALLES												
		WESTWARD					EASTWARD							
		La Grande to Hilgard	Hilgard to Kamela	Kamela to Westland or Umatilla	Umatilla or Westland to The Dalles	The Dalles to Seufert	Seufert to Umatilla	Umatilla to Hinkle	Messner to Rieth	Rieth to North Fork	North Fork to Kamela	Kamela to La Grande		
C 57	22-30	179	710 to 729	1150	525	3000	3500	2200	2560	1125	1710	1170	525	3000
C 57	22-30	190	730 to 768	1265	575	3500	4000	2650	2900	1295	2000	1350	605	3000
T 63	22-28	162	1755 to 1760	1070	475	3000	3250	2105	2500	1085	1800	920	475	2700
T 69	22-28	161	1742 to 1754	980	440	2750	3000	2000	2330	960	1650	850	430	2700
MacA 57	23-30	210	1900 to 1949	1725	700	4000	4500	3050	3850	1700	2750	1510	700	4000
MacA 63	26-28	211	2166 to 2171	1825	725	4000	4500	3155	4250	1825	2850	1600	725	4000
P 77	25-28	178	2203 to 2294	1190	525	3250	3500	2385	2900	1195	2000	1150	525	2700
P 77	22-28	149	2504 to 2564	960	440	2700	3000	1875	2200	940	1600	800	420	2700
MS 59	23-23	472	3226 to 3227	3000	1470	8000	8000	6000	8000	3560	6060	3000	1470	8000
MS 69	22-22	400	3500 to 3564	2350	1045	5000	6000	4000	6000	2420	4000	2350	1045	6000
TTT 63	29-30	292	3800 to 3839	1725	700	4000	4500	3155	4250	1825	2850	1600	700	4000
MT 73	29-28	230	3930 to 3999											

EXPLANATION

P Pacific
 T Ten Wheeler
 C Consolidation
 MacA MacArthur
 MS Mallet Simple
 TTT 2-10-2
 MT 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 — 22 — 179
 — 30 —

TYPE OF ENGINE	NUMBERS (Inclusive)	JOSEPH AND LA GRANDE												
		WESTWARD					EASTWARD							
		Rieth to Pilot Rock	Pilot Rock to Rieth	Joseph to Rondowa	Rondowa to Gulling	Gulling to La Grande	La Grande to Rondowa	Rondowa to Enterprise	Enterprise to Joseph	Enterprise to Joseph	Enterprise to Joseph			
C 57	22-30	179	710 to 729	1050	1050	2300	1790	2300	2300	2150	1680	900	900	900
C 57	22-30	190	730 to 768	1150	1150	2515	1925	2515	2515	2330	1800	1015	1015	1015
T 63	20-24	113	1715 to 1726	625	625	1365	685	1365	1365	1120	625	445	445	445
T 57	20-26	119	1733 to 1736	700	700	1530	770	1530	1530	1255	700	500	500	500
T 57	20-26	126	1737 to 1741	800	800	1740	875	1740	1740	1425	800	555	555	555
T 69	22-28	159	1742 to 1754	700	700	2000	1500	2000	2000	2000	1600	700	700	700
T 63	22-28	162	1755 to 1760	800	800	2000	1600	2000	2000	2000	1600	800	800	800
P 77	22-28	149	3201 to 3217	800	800	1740	875	1740	1740	1425	800	555	555	555
P 77	25-28	167	3218 to 3225	800	800	1840	1000	1840	1840	1840	1000	700	700	700

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.
 Between stations for which no rating is shown maximum will apply.

TYPE OF ENGINE	NUMBERS (Inclusive)	PORTLAND AND THE DALLES												
		EASTWARD					WESTWARD							
		Albina to Hood River	Hood River to The Dalles	Portland to Troutdale	The Dalles to Cascade Locks	Cascade Locks to Albina	Albina via Kenton	Troutdale to Portland	Cascade Locks to Albina	Albina via Kenton	Troutdale to Portland			
C 57	22-30	179	710 to 729	2560	4000	1095	2600	4200	2300	2300	2300	2300	2300	2300
C 57	22-30	190	730 to 768	2895	4250	1250	2895	4500	2510	2510	2510	2510	2510	2510
T 63	22-28	162	1755 to 1760	2435	3600	930	2435	3800	2110	2110	2110	2110	2110	2110
T 69	22-28	161	1742 to 1754	2195	3500	850	2195	3600	1900	1900	1900	1900	1900	1900
MacA 57	23-30	207	1900 to 1949	3400	4550	1455	3380	5000	2930	2930	2930	2930	2930	2930
MacA 63	26-28	214	2166 to 2171	3500	4750	1560	3500	5500	3155	3155	3155	3155	3155	3155
P 77	25-28	167	2203 to 2294	2820	3800	1145	2820	4500	2385	2385	2385	2385	2385	2385
P 77	22-28	149	2504 to 2564	2175	3450	900	2175	3185	1875	1875	1875	1875	1875	1875
MS 59	23-23	472	3500 to 3564	7000	8000	3000	7000	8000	5875	5875	5875	5875	5875	5875
MS 69	22-22	403	3800 to 3839	5190	6000	2040	5190	7000	4100	4100	4100	4100	4100	4100
TTT 63	29-30	292	3930 to 3999	3500	4750	1560	3500	5500	3155	3155	3155	3155	3155	3155
MT 73	29-28	230	5315 to 5318											
MT 73	29-28	230	5400 to 5414											
MT 73	29-28	230	7000 to 7039											
MT 73	29-28	230	7850 to 7869											

EXPLANATION

P Pacific
 T Ten Wheeler
 C Consolidation
 MacA MacArthur
 MS Mallet Simple
 TTT 2-10-2
 MT 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 — 22 — 179
 — 30 —

TYPE OF ENGINE	NUMBERS (Inclusive)	OREGON TRUNK JCT. AND BEND												
		EASTWARD					WESTWARD							
		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			
C 57	22-30	179	710 to 729	1500	1730	1000	1500	3000	3000	3000	3000	3000	3000	3000
C 57	22-30	190	730 to 768	690	985	555	745	1580	1870	1580	180	290	415	415
T 63	20-24	113	1715 to 1726	830	1070	655	880	1870	1955	1870	210	340	435	435
T 64	22-26	145	1730 to 1731	740	1120	685	920	1955	2060	1955	220	355	455	455
T 57	20-26	119	1733 to 1736	890	1180	720	970	2060	2330	2060	230	375	480	480
T 57	20-26	125	1737 to 1741	1075	1385	760	1100	2330	2555	2330	265	425	545	545
T 69	22-28	161	1742 to 1754	1160	1465	825	1200	2555	2900	2555	290	465	600	600
T 63	22-28	162	1755 to 1760	1815	2060	1165	1815	3435	3505	3435	290	465	600	600
MacA 57	23-30	207	1900 to 1949	1850	2100	1190	1830	3505	3505	3505	290	465	600	600
MacA 63	26-28	214	2166 to 2171											
MacA 63	26-28	211	2203 to 2294											
MacA 63	26-28	211	2504 to 2564											
MacA 63	26-28	211	2700 to 2735											