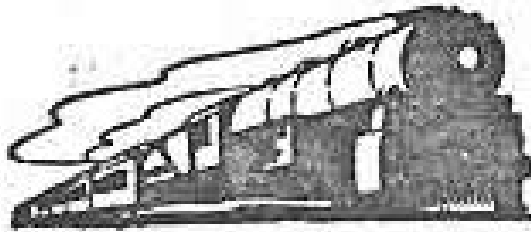


GENERAL CODE
OF
OPERATING RULES
For The
**GREAT NORTHWESTERN
RAILWAY COMPANY**

(ABBREVIATED)



OPERATING
DEPARTMENT

Revision 3

Effective November 2, 1970

The Great Northwestern Railway was conceived to develop and operate prototypical railroad operations in model form. As such, operations should reflect the essence of railroading. However, prototype railroad's rule books are lengthy and complicated. They have to be to cover every possible circumstance over all permutations of operations. In contrast, if someone goofs and blows the rules of the GNW, no one is likely to get killed (depending on how much rolling stock hits the floor). To that end, the GNW has developed this simplified rulebook. From time to time as the crews become more familiar with the rules, new rules and order types may be added.

The rules herein set forth govern the railroad operated by the Great Northwestern Railway Company effective on the date issued.

D. H. Kurpanek
President and General Manager

DEFINITIONS

TRAIN — An engine, or motor car, or more than one engine, or motor car, coupled, with or without cars, displaying markers.

REGULAR TRAIN — A train authorized by a timetable schedule.

EXTRA TRAIN — A train not authorized by a timetable schedule.

SUPERIOR TRAIN — A train having precedence over another train.

TIMETABLE — The authority for the movement of regular trains subject to the rules. It contains the classified schedules of trains with special instructions relating thereto.

SCHEDULE — That part of a timetable which prescribes class, direction, number and movement for a regular train.

TRACK WARRANT — Authorization to occupy the main track apart from the Timetable.

MAIN TRACK — A track extending through yards and between stations, upon which trains are operated by timetable or track warrant, or both.

STATION — A place designated on the timetable by name, at which a train may stop for traffic, or to enter or leave the main track, or from which fixed signals are operated.

SIDING — A track auxiliary to the main track for meeting or passing trains.

YARD — A system of tracks within defined limits provided for the making up of trains, storing of cars, and other purposes, over which movements not authorized by timetable, or by track warrant, may be made, subject to prescribed signals and rules, or special Instructions.

RESTRICTED SPEED — Proceed prepared to stop short of train, obstruction, or anything that may require the speed of a train to be reduced.

Guideline Rules

Rule A.

Train crews shall have a current copy of the Employee Timetable in their possession at all times. Crews shall read and understand any special instructions in the timetable before entering the main line.

Rule B.

Trains shall be operated in a reasonable manner at all times. Speed limits shall be observed. On a small railroad such as the GNW, slow is good and speed is your enemy. Besides, trains are big, heavy, loud moving objects that don't start and stop quickly. As such, all locomotives on the GNW are programmed with momentum. Maximum speeds are listed on the time table. Maximum speed in yards is 15 mph. Anyone found emulating Gomez Adams will be summarily executed and their operating privileges revoked.

Rule C.

There are two kinds of tracks: the main track and everything else. A clearance from the dispatcher is required to be authorized to use the main track. This clearance will be in the form of a track warrant and will define the limits of that authorization. No train may leave its originating station without the conductor holding a valid clearance.

Rule D.

Yardmasters carry authority for the control of the movement of trains within yards. Permission must be gained from the yardmaster prior to entering or moving within yards.

Two yards with assigned yardmasters operate on the GNW: Warm Springs and Valley Gate.

Rule E.

No food or drink is allowed on the layout or in the layout room.

Rule F.

If possible have fun. But not too much fun.

GENERAL RULES

STANDARD TIME

1. The railroad used fast clocks via the DCC system. Standard time is shown on the throttle display.

TIMETABLES

2. Each timetable, from the moment it takes effect, supersedes the preceding timetable.

3. Not more than two times are given for a train at any station; where one is given, it is, unless otherwise indicated, the leaving time; where two, they are the arriving and the leaving times.

The time applies to the switch where an inferior train enters the siding or arrives at the designated station or where traffic is received or discharged.

Schedule meeting or passing stations are indicated by figures in bold type.

Siding capacities on the timetable are the total number of 50' cars in the train which can fit into the sidings, not including the engine or caboose. Thus, a capacity of 4 indicates that the engine, caboose, and four 50' freight cars can fit between the clearance points on the siding. Train crews must take this into account when their train contains long or multi-unit cars.

The following signs when placed before the figures of the schedule indicate:

J	Junction
P	Passenger Stop
TO	Tower/Operator
X	Yard Limits
Y	Wye

SIGNALS

12-h. Any object waved violently by any one on or near the track is signal to stop.

14. ENGINE WHISTLE SIGNALS.

NOTE.—The signals prescribed are illustrated by “o” for short sounds “—” for longer sounds. The sound of the whistle should be distinct, with intensity and duration proportionate to the distance the signal is to be conveyed.

SOUND INDICATION

(a)	o	Apply brakes. Stop.
(b)	— —	Release brakes. Proceed.
(f)	ooo	When standing, back up.
(g)	— oo	To call the attention of yard engines, extra trains or trains of the same or inferior class or inferior right to signals displayed for a following section. If not answered by a train, the train displaying signals must stop and ascertain the cause.
(h)	— — o —	Approaching public crossings at grade to be prolonged or repeated until crossing is reached.
(i)	—————	Approaching stations, junctions, railroad crossings at grade and as may be required.
(j)	— — oo	Approaching meeting or waiting points.
(k)	Succession of short sounds	Alarm for persons or livestock on the track

HEADLIGHTS

16. The headlight will be displayed to the front of every train. It must be dimmed or extinguished when a train turns out to meet another and has stopped clear of main track, or is standing to meet a train at the end of two or more tracks or at a junction. It must be dimmed while passing through yards where yard engines are employed; approaching stations at which stops are to be made or where trains are receiving or discharging passengers; approaching track warrant signals, junctions, terminals, or meeting points or while standing on main track at meeting points and on two or more tracks when approaching trains in the opposite direction.

When an engine is running backward a white light must be displayed by night on the rear of the locomotive.

Locomotives not in service should extinguish their headlights and backup lights.

17. Yard engines will display the headlight to the front and rear. Yard engines will not display markers.

18. A red markers will be displayed to the rear of every train, except by switching activities within yards.

USE OF SIGNALS

28. The engine-bell must be rung when an engine is about to move and while approaching and passing public crossings at grade.

29. The whistle must be sounded at all places where required by rule or by law.

30. The unnecessary use of either the whistle or the bell is prohibited.

SUPERIORITY OF TRAINS

71. A train is superior to another train by right, class or direction. Right is conferred by track warrant; class and direction by time table. Right is superior to class or direction. Direction is superior as between trains of the same class.

72. Trains of the first class are superior to those of the second; trains of the second class are superior to those of the third; and so on. Trains in the direction specified by the time table are superior to trains of the same class in the opposite direction.

73. Extra trains are inferior to regular trains.

MOVEMENT OF TRAINS

81. A main track must not be occupied without authority and it must not be fouled until, by observation or protection by flagmen, the engineer or the conduction as the case may be is assured it is safe to do so.

82. Time table schedules, unless fulfilled, are in effect for twelve hours after their time at each station. Regular trains more than twelve hours behind either their scheduled arriving or leaving time at any station lose both right and schedule, and can thereafter proceed only as authorized by track warrant.

83. A train must not leave its initial station on any station until it has been ascertained whether all trains due, which are superior, or of the same class, have arrived or left.

85. Unless otherwise provided, an inferior train must clear the time of a superior train, in the same direction, not less than five minutes; but must be clear at the time a first class train, in the same direction, is due to leave the next station in the rear where time is shown.

86. An inferior train must keep out of the way of opposing superior trains and failing to clear the main track by the time required by rule must be protected as prescribed by Rule 99. Extra trains must clear the time of opposing regular trains not less than five minutes unless otherwise provided, and will be governed by track warrants with respect to opposing extra trains.

87. At meeting points between trains of the same class, the inferior train must clear the main track before the leaving time of the superior train. Trains must pull into the siding when practicable; if necessary to back in, the train must first be protected as prescribed by Rule 99, unless otherwise provided.

88. At meeting points between trains of different classes the inferior train must take the siding and clear the superior train not less than five minutes, and must pull into the siding when practicable. If necessary to back in, the train must first be protected as prescribed in Rule 99, unless otherwise provided.

90. Trains in the same direction must keep not less than five minutes apart, except in closing up at stations. A train following a train carrying passengers must keep not less than ten minutes behind it.

91. A train must not arrive at a station in advance of its schedule arriving time. A train must not leave a station in advance of its schedule leaving time.

92. Within yard limits, the main track may be used, protecting against first-class trains. Second class and extra trains must move within yard limits prepared to stop, unless the main track is seen or known to be clear.

93. Within yard limits engines may use main track without train-order authority, clearing or protecting against first-class trains and without flag protection against second and inferior class trains, extra trains and engines.

94. Extra trains must not be run without track warrants.

95. Two or more sections may be run on the same schedule. Each section has equal timetable authority.

99 A train occupying the main line without authority must send out flag men in both directions to protect against overtaking and opposing trains.

104. Switches must be left in proper position after having been used. Conductors are responsible for the position of the switches set by them and their trainmen but, when practicable, the engineman must see that the switches nearest the engine are properly set. A switch must not be left open for a following train unless in charge of a trainman of such train. The normal position of switches is for the movement of trains along the main line.

105. Trains using a siding must proceed, expecting to find it occupied.

TRAIN HANDLING

T-1. All arriving or departing freight train consists must stand for one minute per car after the road locomotive is coupled on to charge up the air brakes, or uncoupled to allow carmen to release brakes (and retainers, if used) on all cars. Switch engines must not couple to or move consist until all brakes have been released.

T-2. Grade crossings must be kept clear of standing cars.

T-3. If a road crossing is to be blocked for longer than 15 minutes, the train must be broken to allow traffic to pass.

T-4. Office cars must always be the last cars of any train. Office cars will be coupled into and handled gently at all times, in respect for the delicate nature of the occupants. Peeking into the office car is strictly prohibited.

FREIGHT TRAIN RULES

F-1. Extra freight trains must stop at posted yard limits and call for permission from the Yardmaster to proceed into the yard.

F-2. It is the responsibility of the train crew to see that the train paperwork is in the proper order prior to departure from initial terminal and at arrival at final destination. CREWS WILL MAKE A WHEEL CHECK OF THEIR TRAIN CONSIST PRIOR TO DEPARTURE, AND ON ARRIVAL AT THE FINAL TERMINAL.

F-3. All crews must be familiar with the track capacities as shown in this timetable. If a car cannot be spotted, it must be stored in a yard track or some other unused track until room is available. The waybill must be placed in the "Hold" box. If there is no room available to store a car in town, then the car must be taken to the nearest yard in the direction of travel.

F-4. Cabooses must always be carried at the rear of all trains. Backing of trains outside of yard limits is strictly prohibited. Yes, this means crews operating locals will have to turn trains.

F-5. Cabooses will be removed from inbound trains as soon as possible and delivered to the caboose track

F-6. High-Wide or locomotives moving dead in consist shall be coupled to the engines.

F-7. Hazardous-material (HAZ-MAT) cars should be no closer than the one car from occupied engines or caboose. This rule does not apply to yard switchers or local switching moves.

RULES FOR MOVEMENT BY TRACK

WARRANTS

201. For movements not provided for by timetable, track warrants will be issued by authority and over the signature of the dispatcher and only contain information or instructions essential to such movements.

202. Track warrants must be numbered consecutively each day, beginning at midnight.

221. Unless otherwise provided, warrants will be issued by radio to train crews.

222. Enginemen must promptly report to the dispatcher the time of departure of their train at each station.

CAR CARDS, WAYBILLS AND THE MOVING OF CARS

All rolling stock, including freight cars, locomotives and cabooses, on the GNW has an associated car card. Every car card has a pocket for a waybill. Rolling stock that has a destination includes a waybill, located within the car card pocket. The waybill has the routing information.

Cars are forwarded on the GNW utilize the Train-Industry Blocking System, or "TIBS". TIBS defined the specific city and industry location for each waybill via a code identifier. The code identifiers are outlined in the appendix in the back of this rulebook.

Operators should NOT flip waybills as a part of any operating session. Waybills will be update/flipped between operating sessions.

Every industrial area includes a car card box with pockets identifying "Setout", "Hold", and "Pickup". The pocket for "Setout" shall receive any car cards for cars properly spotted at the destination location. The "Pickup" pocket holds car cards for the cars to be picked up by the local crew for forwarding. The "Hold" pocket contains the car cards for cars not able to be spotted at the final destination location or are otherwise temporarily set out. Note that if the destination siding or other spotting location already has a car spotted there, additional cars cannot be considered as spotted there and the associated car card shall be placed in the "Hold" pocket. Once the siding or spot has cleared out, and the car awaiting spotting is properly spotted, only then can the associated car card be moved to the "Setout" pocket.

Bad order cars shall be set out as soon as convenient and be "Pink Tagged" and the car card placed in the nearest "Hold" pocket.

All trains operated on the GNW will have engine cards included with the train paperwork.

Locomotives require 90 day inspections. Locomotives with inspection requirements will have a note attached to their associated card indicating the location for the inspection. Inspections take 12 hours and the locomotive may not be moved during this inspection period.

The GNW services two locomotive and car repair facilities; one in Warm Springs and the one in Valley Gate. These facilities will receive locomotives and cars for work as specified on the inspection card. Locomotives shipped "dead-in-consist" shall be handled next to the operating locomotives at the head of the train. All movements will be made carefully and at restricted speed within the yards and engine service areas.

SUPPLEMENTAL RULES AND INSTRUCTIONS

GENERAL

Problems with track, electronics, or other equipment shall be directed to the Trainmaster for resolution.

DCC/Reverse loops - The DCC wiring and turnout toggles for the reversing loop and wye automatically handle "polarity" issues and no attention is needed when running through these sections.

The turntable at Valley Gate also automatically changes polarity automatically, however it is not "bumpless". The locomotive will de-power and repower as it passes through the polarity reversal point.

Circuit Breakers - Each of the main yards (Valley Gate, Warm Springs, Mesa City) plus the main track are protected by instant circuit breakers.

Turnout controls – Most turnouts on the GNW are manual. These are operated by the manual ground throws provided.

Derailed equipment - Derailed equipment shall be rerailed with care. Handling should be by the equipment trucks only, if at all possible.

Equipment experiencing recurring problems shall be bad-ordered with a pink card and set out on the nearest available siding.

Uncoupling – Most uncoupling is done manually; there are few under the tie magnetic uncouplers. The only exception is along the rear tracks at Sand Creek. Their locations are identified as the roadway crossings just west of Switch #1.

Normal uncoupling is done via skewers. To use, insert the tip of the skewer in between the coupler faces and gently twist. Some cars, notably passenger cars, do not allow use of skewers. In these cases, a pick may be used to pull the air hoses apart, or the car may be gently raised by picking up one truck on the end of the car to be uncoupled.

WARM SPRINGS

Yard limits exist at Warm Spring and extend from end of track at Warm Springs, through Sand Creek and to the east end of El Vado. All track within these limits are under the authority of the Warm Springs Yardmaster.

Equipment to be turned at Warm Springs shall be turned on the wye at Mesa City. Note that Mesa City is outside of the Warm Springs Yard Limits and will require authorization by means of a track warrant to run to Mesa City.

EL VADO

El Vado is entirely within the Warm Springs Yard Limits, including the branch line to the team track.

El Vado has several turnouts that are difficult to access. These are actuated by slow-motion switch motors, controlled by 2-position slide switches located on the layout fascia. Turnout numbers are identified by signs near the turnouts and correspond to the numbers above the slide switches.

MESA CITY

Two turnouts associate with the wye at Mesa City have dual controls. Panels on either side of

the layout allow control of either turnout at any time to avoid the need to reach across the layout to change the position of the hard to reach turnouts. Panels on both sides of the layout indicate the location and position of these turnouts, and signals provide visual indication of the turnouts from the tracks.

Wye tracks at Mesa City must be kept clear to allow turning of locomotives in support of Warm Springs yard operations.

The siding at Mesa City must be kept clear to allow passing of trains, and the switching of cars at the Wm Nixon Generating Station.

VALLEY GATE

Valley Gate DOES NOT have yard limits. As such, the main line is under the control of the dispatcher at all times, and the yardmaster must expect trains to be routed on and through Valley Gate at any time. The mainline is identified as the track with the light colored ballast.

The passenger yard and siding associated with Valley Gate is part of the Valley Gate yard and consequently, under the authority of the Valley Gate yardmaster. Meets, inbound and outbound trains through Valley Gate will be coordinated between the dispatcher and the yardmaster.

Turning equipment and trains - Equipment to be turned at Valley Gate is to be turned on the

turntable rather than by using the reverse loop. To use the turntable, run the equipment onto the turntable, and bumps (not hold) the control button for the direction intended. The turntable will automatically index at the next available track. Keep bumping the direction button until the desired track is selected.

ABAJO CALIENTE

Jones Hertz Company owns a locomotive for in-plant switching moves. This locomotive is not FRA inspected and is not approved for movements on the main line. It may be used to assist in the set out and pick up of cars on the Abajo Caliente siding, however may not pass the clearance point of the switch off the main.

STAGING YARDS

Turnouts associated with the staging yards are all slow-motion switch motor controlled via stationary DCC decoders utilizing routes. Each track in the staging yards is assigned a track number corresponding to the route number to align the associated turnouts. In general, these tracks are controlled by the dispatcher. To use, enter the route number into the controller and select option 1. Pressing enter again will return the controller to the last DCC loco address that was in use. West Staging tracks are designated tracks 1 through 8; East Staging tracks are designated tracks 9 through 16.

Equipment Operation



Throttles - A typical throttle display is shown. It provides the engine number, direction, speed, scale time, and which functions are turned on.

To assign a locomotive, press LOCO, input the engine number, and press Enter.

If the locomotive was previously assigned, press Recall until the desired engine number appears.

Direction is selected by touching the DIRECTION button. The current direction is displayed. Note that all engines should have a small “F” stenciled on the “Front” of the loco to identify the forward direction.

Throttle position may be set by either turning the throttle knob or by touching the “+1 Enter” or “Del -1” keys. To change/confirm the speed settings, press SPD STEP. The speed setting of 28 should generally be used.

Dedicated buttons are provided for the bell, whistle, and headlight functions. Functions are listed on the associated Locomotive Card. Typical functions are as follows:

0 – Headlight	4 – Dynamic Brakes	7 – Brakes
1 – Bell	5 – Rotary Beacon or Gyralight	8 – Mute Sound
2 – Horn (Long)	6 – Backup Light	9 – Dim Headlight/Backup Light
3 – Horn (Short)		

Railroad Standard Scale Time may be displayed by pressing the “TIME” button.

Touching the red “STOP” button will immediately stop the loco currently selected. Holding the red “STOP” button for more than 3 seconds will stop all trains on the railroad.

RADIO PROCEDURES

2.0 FRS type radios are used to communicate track warrants and other pertinent information between dispatcher, crews, yardmasters and other personnel.

2.1 Transmitting

Any employee operating a radio must do the following:

- * Before transmitting, listen long enough to make sure the channel is not being used.
- * Give the required identification.
- * Not proceed with further transmission until acknowledgment is received.

2.2 Required Identification

Employees transmitting or acknowledging a radio communication must begin with the required identification. The identification must include the following in this order:

- * For base or wayside stations:
 - * Name or initials of the railroad
 - * Name and location or other unique designation
- * For mobile units:
 - * Name or initials of the railroad
 - * Train name (number), engine number, or words that identify the precise mobile unit

Short Identification: After making a positive identification for switching, classification, and similar operations within a yard, fixed and mobile units may use a short identification after the initial transmission and acknowledgment.

2.11 Prohibited Transmissions

Employees must not use indecent language over the radio.

2.14 Transmitting Track Warrants and Track Bulletins

When transmitted by radio, track warrants and track bulletins must be transmitted according to applicable operating rules and the following:

- * The train dispatcher must state that a track warrant or track bulletin will be transmitted.
- * The employee must inform the train dispatcher when ready to copy.

* The employee receiving track warrants or track bulletins must copy them in writing using the format outlined in the operating rules and read back to the Dispatcher.

2.16 Assigned Frequencies

FRS Channel information for Railway operations:

Channel	8
Subchannel	4

Train – Industry Blocking System (TIBS)

Off-Layout (Staging) Destinations

Westbound

A	Great Northwestern Railway	C	Denver & Rio Grande Western
	A-1 To Green River	D	RESERVED
	A-2 To South Park Line		
B	Chicago, Rock Island & Pacific		

Eastbound

E	Southern Pacific	G	RESERVED
F	Atchison Topeka & Santa Fe		

On-Layout Destinations

WARM SPRINGS DISTRICT

H Warm Springs

H-1	GNW Engine House	H-3	GNW Sand/Fuel
H-2	GNW Car Shop	H-4	Del Monte Plant

I Sand Creek - South Side

I-1	Water Pur - South Side Track	I-4	Allied Manufacturing - Loading Docks
I-2	Allied Manufacturing - In shop	I-5	Suburban Propane
I-3	Allied Manufacturing - In yard under crane		

J Sand Creek - North Side

J-1	Water Pur - North Side Track	J-3	Consolidated Parts Warehouse
J-2	Sand Creek Team Track	J-4	Warm Springs Publishing

K El Vado

K-1	Suburban Propane	K-4	El Vado Team Track
K-2	Fuel and Oil		
K-3	Cement/Concrete Retailer		

L El Vado - William Nixon Generating Station

L-1	Wm Nixon Generating Station
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M Mesa City

M-1	Orchard Supply Hardware - Yard Area	M-3	Plastics
M-2	Orchard Supply Hardware - In Materials Building	M-4	NKK DesignWorks

N Abajo Caliente

N-1	Jones Hertz Lime Company - Main Bldg	N-3	Abajo Caliente Team Track
N-2	Jones Hertz Lime Company - Bulk Loading		

VALLEY GATE DISTRICT

P Valley Gate - West

P-1	GNW Engine Service - Sand	P-3	Western Rail Services - Engine Rebuild/Service
P-2	GNW Engine Service - Fuel		

Q Valley Gate - East