

SERVICE TEST S-701

EVALUATION of MAINLINE TRACK between BENSENVILLE & TACOMA

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TRAIN OPERATION on MOUNTAIN GRADE between HAUGAN & AVERY

APRIL 16-29, 1974

TEST DEPARTMENT
MILWAUKEE SHOPS
MAY 15, 1974

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SERVICE TEST S-701

EVALUATION OF MAINLINE TRACK
TRAIN OPERATION ON MOUNTAIN GRADE

I. TEST OBJECTIVE:

A. An evaluation was made of mainline track condition between Bensenville and Tacoma under prevailing speed restrictions.

B. Train operational procedures and performance on grade were checked on six (6) runs between Haugan and Avery to identify factors and conditions that could contribute to derailments.

II. CONCLUSIONS & RECOMMENDATIONS:

A. TRACK EVALUATION (between Bensenville & Tacoma)

66% of the total 569 reported stresses occurred on 916 track miles in five (5) principal sections, as follows:

<u>TRACK SECTION</u>	<u>TRACK MILES</u>	<u>% TOTAL MILES</u>	<u>NO. OF STRESSES</u>	<u>% TOTAL STRESSES</u>
1. Deer Lodge - Alberton	111	4.3	130	22.8
2. Miles City - Harlowton	217	8.4	84	14.7
3. Milwaukee - LaCrosse	194 W.B. 194 E.B.	7.5 7.5	65	11.4
4. Othello - Cle Elum	99	3.8	56	9.8
5. Alberton - Avery	101	3.9	41	7.3
TOTALS	<u>916</u>	<u>35.4%</u>	<u>376</u>	<u>66.0%</u>

TRACK MILES TESTED 2576 100.0%
(Bensenville - Tacoma, includes 387 miles of double track.)

TOTAL REPORTED STRESSES (Bensenville-Tacoma-Bensenville)...569...100.0%

RECOMMENDATIONS: Track upgrading should be concentrated on the 5 principal sections listed above, with immediate attention to track defects in the Haugan - Avery section.

The test report identifies points requiring maintenance from Bensenville to Tacoma and Roadmasters riding the test train have this information.

B. TRAIN PERFORMANCE & OPERATIONAL PROCEDURES RESULTS:

1. Favorable weather prevailed during testing between Haugan and Avery.
2. The three (3) westbound trains used dynamic braking only descending 1.7% grade Roland to Avery.
3. The three (3) eastbound trains used dynamic and air braking descending E. Portal to Haugan except the 2nd eastbound (Adv. 262-S23) which started down using dynamic and air brakes and discontinued "dynamic" one-third of the way down.
4. The three (3) "locotrol" trains descended under three (3) types of handling:
 - a. Dynamic braking : Booster in "independent" mode.
 - b. Dynamic braking : Booster in "Multiple Unit" (MU) mode.
 - c. Dynamic + air braking : Booster in "independent" mode.
5. EXCESSIVE DRAWBAR SLACK ACTION OCCURRED WHEN:
 - a. Units were restored to line before dynamic and air braking were initiated (2nd E.B.).
 - b. Dynamic and air brakes were being used and dynamic was temporarily shut off (2nd E.B.).
 - c. Train brakes were released and locomotive (independent) brakes were applied to bunch train before restarting downgrade (3rd E.B.).

CONCLUSIONS:

1. Dynamic braking, once initiated, should be retained and interrupted as little as possible to avoid undesired slack action.
2. Locomotives used on this section must be in good operating condition especially with regard to dynamic braking systems to avoid undesirable slack action resulting when units have to be placed back on line.
3. Independent brakes must be used carefully when restarting on descending grade to avoid excessive buff forces on head end cars.
4. Use of Booster in (independent control) dynamic braking one or two notches under head power setting was helpful in keeping slack bunched during descent.
5. Trains descended from Roland to Avery using dynamic brakes only with little slack action, however, day-to-day variations in train make-up, tonnage, and weather conditions indicate that flexibility in operational procedures is desirable.

III. INSTRUMENTATION & TEST PROCEDURES:

TRACK EVALUATION. Dynamic stress in the truck bolsters of Test Box Car M12009 was measured by strain gages. Vertical acceleration of the "AL" truck side frame was also monitored. Track lateral curvature, train speed, time and location data were also recorded by instrumentation in Dynamometer Car X-5000. Test Box Car M12009 was uniformly loaded (except in central door area) with scrap axles to 218,400 lbs. total weight. Track condition was monitored continuously during train operation.

Dynamic stresses of 8 KSI or greater above the existing 10 KSI static stress were considered as "critical", on the basis of design requirements specified in AAR "SPECIFICATIONS FOR DESIGN, FABRICATION, AND CONSTRUCTION OF FREIGHT CARS" par. 4.2.2.

TRAIN PERFORMANCE. A 27 point jumper cable was connected between the trailing unit and Dynamometer car on conventional trains to permit monitoring of locomotive functions including throttle position, dynamic brake, main excitation, and wheel slip.

Train speed, drawbar pull and buff, and brake pipe pressure were also continuously recorded by instrumentation in the Dynamometer car. Additional information concerning train location, arrangement, and tonnage was annotated on the recording chart.

TEST PROCEDURES. Three (3) westbound and three (3) eastbound test runs were made between Haugan and Avery April 18-26, 1974. All six (6) test trains were subject to existing speed restrictions, rules and regulations, however, various methods of train handling were used descending the 1.70% grade.

PLACEMENT OF DYNAMOMETER CAR IN TRAIN. Directly behind locomotive during 1st W.B. and 1st E.B. tests, and as 19th car behind locomotive on 2nd E.B. test. On Locotrol trains, the Dynamometer car was 29th car ahead of booster (3rd E.B.), 12th car ahead of booster (2nd W.B.), and 13th car behind booster (3rd W.B.).

(SEE IV. ARRANGEMENT OF SIX (6) TEST TRAINS) - page 10) and
V. SCHEDULE OF TEST TRAIN MOVEMENTS - page 11

VI. TRACK EVALUATION:

A. INCIDENCE OF CRITICAL STRESS BETWEEN CREW CHANGE POINTS:

The number of 8 KSI and greater stresses recorded between Bensenville and Tacoma westbound and eastbound are tabulated in VI. A., page 12. Distance and average train speeds between crew change points are included.

VII. TRAIN PERFORMANCE & OPERATIONAL PROCEDURES
BETWEEN HAUGAN (MP 1735) AND AVERY (MP 1773):

1st WESTBOUND TEST 4-18-74:

<u>TRAIN:</u>	261-C16
<u>POWER:</u>	E72 on point + 2 - SD40-2
<u>TOTAL TONS:</u>	2693 <u>CARS:</u> 49 (27L + 22E)
<u>DYNAMOMETER CAR:</u>	Next to trailing Diesel

ASCENDING - HAUGAN TO MILEPOST 1750:

The train ascended the 1.70% grade under favorable weather and rail conditions, and light tonnage.

Train stabilized between MP 1739-1747 at 107,000 lbs. drawbar pull and 25 MPH. Variations of 2,000 to 12,000 lbs. drawbar were recorded which apparently resulted from wheel resistance in curves. No slack action exceeding these variations occurred. Average speed ascending MP 1735-1750 was 25 MPH. Dynamometer car was in Tunnel #20 (8771 ft.) 5.2 minutes.

DESCENDING - MILEPOST 1750 TO AVERY:

Regeneration and dynamic braking only were used to retard the train. Brake pipe pressure remained at 87 PSI all the way down the 1.70% grade. Gradual changes in "buff" of 2000-30,000 lbs. occurred between MP 1751 and 1770 reflecting increased train resistance in curves.

No severe slack action was experienced during the descent. Regeneration and dynamic braking were discontinued near Avery station.

Average speed between MP 1750 and 1772 was 21.6 MPH. 10 MPH slow orders were observed at MP 1755.5 and from MP 1759.4 to 1761.5.

TRACK EVALUATION & BOX CAR ROLLING:

Irregular (lateral) track alignment was recorded in the body of the 8^o curve just east of MP 1745, and in the 1st 10^o curve west of MP 1745, by instrumentation.

Test Box Car M12009 exhibited carbody rolling at the ends of track "spirals" and frequently between reverse curves between MP 1746 and 1749.

The M12009 carbody rolled more frequently upgrade, with the "A" truck unloading to 90% at MP 1739.9, to 80% at MP 1737.2 and 1741.1, and to 70% at MP 1747.2. Approximately 80% unloading was recorded at both "A" and "B" ends (descending) at MP 1757.5 - 1757.8.

1st EASTBOUND TEST 4-21-74:

TRAIN: ADV. 262-S21
POWER: E-70 on point + 2 - SD40-2
TOTAL TONS: 3681 CARS: 54 (47L + 7E)
DYNAMOMETER CAR: Next to trailing Diesel

ASCENDING - AVERY TO MILEPOST 1750:

Good weather and rail conditions prevailed during test. The train stopped one hour at Falcon to allow a westbound train to pass. While restarting on 1.7% grade drawbar pull peaked at 192,000 lbs. and then gradually decreased to about 150,000 lbs. @ 15 MPH by MP 1759.

Train stabilized between MP 1759 and 1751.2 @ 15-16 MPH and 150,000 lbs. drawbar. Numerous fluctuations of 2,000 to 6,000 lbs. (pull) occurred over this section, however, slack action was comparatively mild. Drawbar pull decreased to zero at MP 1749 at which time dynamic braking was initiated.

Average speed ascending MP 1772-1750 was 17.6 MPH based upon 75 minutes running time. Dynamometer car was in tunnel #20 6.7 minutes.

DESCENDING - MP 1750 TO HAUGAN:

A 5 PSI brake pipe reduction was taken and dynamic braking was initiated at MP 1748.5. Train speed was reduced to 10 MPH while traversing a derailment site near East Portal.

Slack action occurred at MP 1741.7 as a 30,000 lb. "run-out" surge followed 15-20 seconds later by "run-in" to 114,000 lbs. The recorder chart shows that dynamic braking was terminated, then reinstated about 17 seconds later, at the east end of the 7°10' curve at MP 1742.

Drawbar buff stabilized at 78,000 lbs. from MP 1742 to 1738, at 26 MPH. Between MP 1738 and Haugan buff varied from 40,000 to 54,000 lbs. at 25-26 MPH. Average speed descending MP 1750-1735 was 18.7 MPH.

TRACK EVALUATION:

Deviations in track lateral alignment were recorded in the 10° curve in Tunnel #25 just west of MP 1756, near Adair.

Other locations at which alignment irregularities were detected by instrumentation in the Dynamometer car were:

- 10° curves between mileposts 1772 and 1771.
- 10° curve at milepost 1767.
- 10° curve just west of MP 1765.

2nd WESTBOUND TEST 4-23-74:

TRAIN: 261-TC20 (Locotrol)
HEAD POWER: 3 SD40-2 BOOSTER: 2 SD40-2
TOTAL TONS: 5499 CARS: 99
DYNAMOMETER CAR: 12th car ahead of booster

ASCENDING - HAUGAN TO MP 1750:

Starting drawbar departing Haugan peaked twice at 108,000 lbs. Lead unit #22 frequently ceased loading between MP 1737 and 1744. This was indicated by drawbar surges to 90,000 lbs. above and 42,000 lbs. below the existing 72,000 lb. level.

Unit 3011 was off the line leaving Haugan and was back on line at MP 1741. Passing MP 1742 all units were in run #7. The train stabilized at 15 MPH and 66,000 lbs. drawbar between MP 1740 and 1745, then speed was reduced to 10 MPH near East Portal.

Average speed ascending was 15 MPH based upon 61 minutes running time. The Dynamometer car was in Tunnel #20 6.1 minutes.

DESCENDING - MP 1750 TO AVERY:

Drawbar pull rose to 162,000 lbs. at MP 1749 and then gradually decreased to zero at MP 1750.5. Booster was placed in run #3 just prior to entering Tunnel #20.

Dynamic braking was initiated when the lead unit was 35 cars from the west end of the tunnel. "Locotrol" radio continuity was reestablished just after the lead unit emerged from the tunnel at Roland.

The train descended with the Booster in "MU" mode. Drawbar buff varied slowly from 30,000 to 60,000 lbs. with up to 525 amperes (in dynamic) on lead unit #22.

Train brakes were not used between Tunnel #20 and Avery. Running time descending was 64 minutes while average speed was 22.7 MPH.

TRACK EVALUATION - DETECTION METHOD:

An accelerometer on the truck "AL" side frame (position L4) of Test Box Car M12009 measured dynamic vertical force (in g's) transmitted through wheel L4.

"G" forces of 30 or greater indicated a defective rail joint and "corrugated" rail was evidenced by a rapid series of 25-30 "g" forces.

Corrugated rail was detected at MP 1752.45-1752.55 on the 10° curve in Tunnel #21, at MP 1754.4-.5 on the 10° curve in Tunnel #24, on the 7° curve at MP 1765.0, and at numerous other locations.

Defective rail joints were detected at many locations, for example:- East of the east spiral of the 7°45' curve at approximately MP 1757.9, on the tangent transition between the 7° and 10° curves just west of MP 1758 and in the body of the 8° curve west of MP 1762.

NOTE: The presence and location of defective joints and "corrugated" rail was subsequently visually verified April 25, 1974, after the 3rd westbound test on train 261-TC21.

2nd EASTBOUND TEST 4-23-74:

<u>TRAIN:</u>	ADV. 262-S23
<u>POWER:</u>	E76 on point and 2 SD40-2
<u>TOTAL TONS:</u>	2981 CARS: 53 (37L + 16E)
<u>DYNAMOMETER CAR:</u>	19th car behind trailing Diesel

ASCENDING - AVERY TO MP 1750:

Test consist was placed approximately one-third back in body of train from standpoint of total cars, however, based upon tonnage it was at approximately the center of the train.

Ascent was uneventful except for occasional slipping of electric helper E76 near MP 1764. Drawbar pull began decreasing at Roland. Two (2) run-in shocks of approximately 108,000 lbs. and one (1) "run-out" shock of 120,000 lbs. occurred between MP 1749.5 - 1748.7. A 6 PSI brake pipe reduction was made at MP 1749. Information received later from the head end crew was that "...the locomotive did not enter dynamic braking when initially attempted...". Average train speed was 20.9 MPH based on 68 minutes running time.

DESCENDING - MP 1750 TO HAUGAN:

The train engineer held a 6 PSI brake pipe reduction all the way down grade. He released briefly at MP 1744.3 but immediately made another 6 PSI reduction. Dynamic braking was discontinued at MP 1745.2 at which time a "run-out" shock of 96,000 lbs. was recorded. Drawbar buff was comparatively low the rest of the way to Haugan with alternating periods of 10,000-15,000 lb. drawbar pull and 30,000 lbs. buff. Average train speed from MP 1750 to 1736.6 was 23.7 MPH based on 40 minutes running time.

TRACK CONDITION:

Numerous track sections having defective rail joints, "corrugated" rail, or alignment deviations in the body/spiral of curves were detected during this test. Examples of these irregularities were:

- A. DEFECTIVE - In west spiral of 4° curve between MP 1756 and 1755.
RAIL JOINTS - In body of 10° curve in tunnel #36 between MP 1771 & 1770.
 In body of 8° curve west of MP 1762.
- B. LATERAL - Irregular in 8° curve west of MP 1762.
ALIGNMENT - Irregular in 10° curve just west of MP 1756, in Tunnel #25.
- C. CORRUGATED - In 10° curve at MP 1759 in Tunnel #27.
RAIL - In west spiral and body of 10° curve in Tunnel T21 between MP 1753 and 1752.

3rd WESTBOUND TEST 4/23-24/74:

<u>TRAIN:</u>	261-TC21 (Locotrol)
<u>HEAD POWER:</u>	3 SD40-2 <u>BOOSTER:</u> 2 SD40-2
<u>TOTAL TONS:</u>	6780 <u>CARS:</u> 107 (61L + 46E)
<u>DYNAMOMETER CAR:</u>	13th car behind booster

ASCENDING - HAUGAN TO MP 1750:

Test consist was located behind booster to monitor slack action in the rear portion of a locotrol train. Weather was cool, clear and dry. Drawbar fluctuations at MP 1742 and 1743 apparently resulted from "IDACing" (wheel slip control) on lead unit #3004 during average drawbar of 90,000 lbs. Booster was placed in idle just before it entered Tunnel #20 (8771 ft.) Dynamometer car was in tunnel 5.5 minutes. Two head end units reverted to idle in the tunnel from overheating and they were put back on line after emerging at Roland. Average speed (ascending) was 13.6 MPH.

DESCENDING - MP 1750 TO AVERY:

The head consist had all (3) units in dynamic braking at MP 1752, and Booster was placed in dynamic (independent). A "run-in" shock of 72,000 lbs. was recorded at MP 1751.1, when 1 unit had to be restarted. Train descended with booster in run #4 (dynamic) and drawbar buff slowly varied between 30,000 and 60,000 lbs. without harsh slack action. More dynamic braking effort (to 600 amperes) was used on the head end to keep the train "bunched", since air brakes were not used until stopping at Avery.

Average drawbar buff was 72,000 lbs. and average speed was 25.5 MPH based on 56 minutes running time.

TRACK INSPECTION BY RAIL CAR:

Messrs. G. Krohn, Assist. Engr., F. Striebel, Div. Engr., W. Newhauser, Engr. Test Dept., and F. Swann, Engr. Car Design, conducted a visual inspection of track between Avery and E. Portal on 4-25-74.

The exact locations of numerous defects such as defective joints and "corrugated" rail were verified by comparison with the chart recorded during the previous test run on train 261-TC21.

See Exhibit 1 "PHOTOCOPY OF CHART RECORDING MP 1758" (attached).

3rd EASTBOUND TEST 4/25-26/74:

<u>TRAIN:</u>	262-S25 (Locotrol)
<u>HEAD POWER:</u>	2 SD40-2, 1 SD45 BOOSTER: 2 SD40-2
<u>TOTAL TONS:</u>	6267 CARS: 99 (79L + 20E)
<u>DYNAMOMETER CAR:</u>	29th car ahead of booster

ASCENDING - AVERY TO MP 1750:

Starting drawbar attained 120,000 lbs. maximum. Booster was operated in "independent" mode, at one (1) throttle notch below that of the head power. After MP 1771, all units were in run #8.

Booster was placed in idle at MP 1751 (Roland) before entering tunnel #20. Lead power remained in run #8. Drawbar pull increased steadily and remained at 210,000 lbs. from 12:01 to 12:02 A.M.

Drawbar pull ranged between 90,000 and 210,000 lbs. ascending, and average train speed was 18.2 MPH based on 76 minutes running time.

DESCENDING - MP 1750 TO HAUGAN:

Halfway through Tunnel #20 (8771 ft. long), unit 4005 and one (1) other head end unit reverted to idle from overheating. The train engineer began throttling down and "feed-valving" drawing off 6 PSI (brake pipe) at MP 1749.4. The train stopped briefly at MP 1746.6 using train brakes and dynamic braking to inspect unit #4005. A 204,000 lbs. "run-in" resulted when the engineer released the train brakes to "bunch" the train while holding it with the head power "independent" brake. A test observer in the cab of lead unit #21 reported "only a slight surge was felt" at the moment the 204,000 lb. shock was recorded in the Dynamometer Car.

The train descended the remaining grade to Haugan with the head power in runs #4 or #5 (approximately 450 amperes-dynamic) controlling the booster in "independent" mode (run #3, dynamic). A 6 PSI brake pipe reduction was made at MP 1744.6 and maintained to MP 1738.3.

TRAIN SPEED & CARBODY ROLL:

Test box car MILW 12009, loaded to 218,400 lbs. total weight, exhibited carbody rolling between 21 and 29 MPH. Maximum rolling (resonance) occurred at 25-26 MPH. Carbody rolling was recorded which resulted in up to 50% truck unloading on numerous track sections east of MP 1744. Some locations where sustained rolling (10 seconds or longer) occurred were at mileposts 1741.1, 1739.8, and 1737.2.

IV. ARRANGEMENT OF SIX (6) TEST TRAINS

1st WESTBOUND TEST: TRAIN 261-C16 (CONVENTIONAL)

HAUGAN TO AVERY

APRIL 18, 1974

F						
E72	3025	3022	X-5000	M 12009	25L + 22E	Caboose
Power		78T	109T	2506 Tons		

1st EASTBOUND TEST: TRAIN ADV. 262-S21 (CONVENTIONAL)

AVERY TO HAUGAN

APRIL 21, 1974

F						
E70	3008	174	X-5000	M 12009	45L + 7E	Caboose
Power		78T	109T	3494 Tons		

2nd WESTBOUND TEST: TRAIN 261-TC20 (LOCOTROL)

HAUGAN TO AVERY

APRIL 23, 1974

F										
22	181	3011	30 Cars	ML2009	X-5000	11 Cars	3010	28	56 Cars	Caboose
Head Power		1573 Tons		109T	78T	960 Tons	Booster		2779 Tons	

2nd EASTBOUND TEST: TRAIN ADV. 262-S23 (CONVENTIONAL)

AVERY TO HAUGAN

APRIL 23, 1974

F							
E76	3030	3014	18L + 0E	X-5000	ML2009	17L + 16E	Caboose
Power		1304 Tons		78T	109T	1490 Tons	

3rd WESTBOUND TEST: TRAIN 261-TC21 (LOCOTROL)

HAUGAN TO AVERY

APRIL 23-24, 1974

F										
21	3004	3037	30L + 6E	3040	29	7L + 4E	ML2009	X-5000	22L + 36E	Caboose
Head Power		2527 Tons		Booster		901 Tons	109T	78T	3165 Tons	

3rd EASTBOUND TEST: TRAIN 262-S25 (LOCOTROL)

AVERY TO HAUGAN

APRIL 25-26, 1974

F										
21	3027	4005	14L + 1E	X-5000	ML2009	20L + 7E	3016	29	43L + 12E	Caboose
Head Power		1070 Tons		78T	109T	1448 Tons	Booster		3562 Tons	

IV. SCHEDULE: TEST TRAIN MOVEMENTS APRIL 16-29, 1974

<u>Location</u>	<u>Test Train</u>	<u>Date</u>	<u>Train Arrangement</u>	<u>Location of Dynamometer Car X-5000</u>	<u>Instrumentation</u>	
					<u>Track</u>	<u>Train Dynamics</u>
Bensenville - Haugan	261-C16	4/16-18	Conventional	Next Behind Locomotive	X	--
Haugan - Avery	"	4/18	"	"	X	1st Westbound Run
Avery - Tacoma	"	4/18-19	"	"	X	--
Tacoma - Avery	Adv.262-S21	4/20-21	Conventional	Next Behind Locomotive	X	--
Avery - Haugan	"	4/21	"	"	X	1st Eastbound Run
Haugan - Alberton	"	4/21	"	"	X	--
Alberton - Haugan	261-TC20	4/23	Locotrol	12th Car Ahead Booster	X	--
Haugan - Avery	"	4/23	"	"	X	2nd Westbound Run
Avery - Haugan	Adv.262-S23	4/23	Conventional	19th Car Behind Locomotive	X	2nd Eastbound Run
Haugan - Avery	261-TC21	4/23-24	Locotrol	13th Car Behind Booster	X	3rd Westbound Run
Avery - Haugan	262-S25	4/25-26	Locotrol	29th Car Ahead Booster	X	3rd Eastbound Run
Haugan - Deer Lodge	"	4/26	"	"	X	--
Deer Lodge - Bensen.	"	4/26-29	Conventional	Next Behind Locomotive	X	--

Note: Test Consist = Dynamometer Car X-5000 & Test Box Car M 12009

VI. A. INCIDENCE OF TRUCK BOLSTER CRITICAL STRESS

BETWEEN CREW CHANGE POINTS

BETWEEN STATIONS	DISTANCE (MILES)	WESTBOUND		EASTBOUND	
		AVG. SPEED (MPH)	NO. CRITICAL STRESSES	AVG. SPEED (MPH)	NO. CRITICAL STRESSES
BENSENVILLE					
	83	31.5	14	24.2	1
MILWAUKEE	91	39.6	13	32.9	22
PORTAGE	103	44.1	8	36.8	22
LA CROSSE	126	41.3	21	31.0	10
ST. PAUL	142	31.6	14	29.9	11
MONTEVIDEO	157	40.6	21	37.1	13
ABERDEEN	98	40.3	0	32.1	10
MOBRIDGE	190	42.9	5	37.9	7
MARMARTH	124	43.3	9	39.6	3
MELES CITY	217	34.4	46	40.1	38
HARLOWTON	114	32.4	6	30.4	0
THREE FORKS	111	29.7	28	26.0	6
DEER LODGE	111	33.8	129	25.7	1
ALBERTON	101	26.1	32	24.2	9
AVERY	109	24.8	0	20.8	0
MALDEN	104	25.5	0	26.3	0
OTHELLO	99	29.4	38	30.8	18
CLE ELUM	109	24.9	12	24.9	2
TACOMA					
	<u>2,189</u>	<u>33.5 MPH</u>	<u>396</u>	<u>30.4 MPH</u>	<u>173</u>

TRACK EVALUATION BENSENVILLE TO TACOMA

TRAIN 261-C16 APRIL 16-19, 1974

<u>APPROXIMATE LOCATION</u>	<u>SPEED (MPH)</u>	<u>DYN. STRESS (KSI)</u>	<u>REMARKS</u>	<u>APPROXIMATE LOCATION</u>	<u>SPEED (MPH)</u>	<u>DYN. STRESS (KSI)</u>	<u>REMARKS</u>
BENSENVILLE	START		WESTBOUND TEST	196.91	50	9.5	Rough Track
CNW 9.20	42	12.0	Higgins Rd.	214.08	49	9.0	Union St.
CNW 16.33	44	10.0	Farm Crossing	231.87	48	9.0	Hwy. Crossing
24.09	47	8.0	Switch	256.66	48	16.0	Walrath St.
56.51	40	8.0	Hwy. Crossing	257.34	49	9.0	Hwy. Crossing
66.09*	47	13.0	Switch	271.35	48	10.0	Leonard St.
69.26*	48	12.0	Switch	271.45	48	17.0	Switch
70.34*	46	8.0	Rough Track	LACROSSE			
70.78*	46	13.5	Hwy. Crossing	289.05	47	9.0	Culvert L-111-42
70.97*	48	16.0	Rough Track	290.72	49	8.0	Bridge L-12
71.25*	50	9.0	7-1/2 Mile Rd.	299.86	48	10.0	Rough Track
71.86*	50	15.5	Rough Track	303.79	48	8.0	Rough Track
78.77*	50	10.0	A-294 Hwy. Bridge	317.87	48	8.0	Culvert L-477-1/2
80.10*	50	14.0	Switch	320.12	48	9.0	Culvert L-513
81.18*	48	14.0	Rough Track	321.31	49	11.0	Rough Track
MILWAUKEE				324.10	49	10.0	Bridge L-84
89.95	33	9.0	Rough Track	324.34	49	9.0	Rough Track
98.18	45	10.0	Switch	324.52	50	8.0	Signal 324/5
93.88	47	12.5	B-19 Culvert	325.36	48	9.0	Farm Crossing
105.00	47	8.0	Switch	331.88	50	12.0	Rough Track
130.38	37	14.0	Switch	341.24	50	10.0	Switch
130.54	38	14.0	Third St.	342.09	51	11.0	Grant Blvd.
132.66	43	13.5	Power Switch	342.26	51	15.5	Bridge L-120
148.76	50	9.0	Farm Crossing	343.12	51	15.0	Culvert L-731
162.22	47	10.0	Switch	343.22	50	12.0	Main St.
162.96	43	10.0	Switch	344.20	49	10.0	Culvert L-759
164.07	48	12.0	Culvert C-151-1/2	349.52	51	17.5	Rough Track
168.37	48	9.0	Rough Track	353.63	51	12.0	Rough Track
169.68	49	12.5	Rough Track	403.83	51	8.5	Switch
PORTAGE				ST. PAUL			
183.78	48	8.5	Hwy. Crossing	431.75	31	13.5	Switch

*On Eastbound Main

TRACK EVALUATION BENSENVILLE TO TACOMA

TRAIN 261-C16 APRIL 16-19, 1974

<u>APPROXIMATE LOCATION</u>	<u>SPEED (MPH)</u>	<u>DYN. STRESS (KSI)</u>	<u>REMARKS</u>	<u>APPROXIMATE LOCATION</u>	<u>SPEED (MPH)</u>	<u>DYN. STRESS (KSI)</u>	<u>REMARKS</u>
432.13	39	11.0	Switch	684.95	49	9.0	Hwy. Crossing
433.50	48	8.0	Bridge -0466	692.21	47	9.0	Hwy. Crossing
450.72	50	9.0	Bridge 0-492	700.12	48	9.0	Rough Track
466.35	49	10.0	Culvert 0-249	700.22	48	9.0	Rough Track
466.62	50	9.0	Farm Crossing	ABERDEEN			
473.78	50	12.0	Rough Track	MOBRIDGE			
478.86	51	8.0	Rough Track	846.89	52	10.0	Culvert AA-64
480.70	50	8.0	Hwy. Crossing	881.76	52	8.0	Culvert AA-167
499.92	50	9.0	Hwy. Crossing	908.99	54	10.0	Rough Track
541.16	51	11.0	Street Crossing	911.31	51	11.5	Rough Track
541.85	48	12.0	Culvert 0-639	967.03	52	17.0	Rough Track
549.20	48	9.0	Hwy. Crossing	MARNARITH			
550.80	50	11.0	Farm Crossing	1015.84	52	9.0	Switch
MONTEVIDEO				1016.81	51	8.0	Farm Crossing
573.42	49	8.0	Culvert 0-837	1031.30	49	8.0	Bridge AA-298
577.95	50	12.5	Switch	1041.91	50	9.0	Culvert AA-493
578.28	50	8.0	BN Crossing	1048.79	48	8.0	Rough Track
579.43	50	11.0	Signal 68L	1049.91	49	8.5	Bridge AA-340
597.12	40	11.0	Rough Track	1051.80	49	8.5	Culvert AA-515
609.20	48	8.0	Hwy. Crossing	1107.56	48	8.5	Hwy. Crossing
612.05	49	13.0	Switch	1112.80	50	8.0	Rough Track
634.07	49	9.0	Culvert 0-1097	MILES CITY			
634.11	49	9.5	Rough Track	1133.19	48	8.0	Signal 1133/3
635.33	50	9.0	Rough Track	1143.93	50	8.0	Culvert BB-45-3/4
650.58	50	9.5	Hwy. Crossing	1144.08	50	9.0	Rough Track
658.61	49	9.0	Hwy. Crossing	1145.55	50	8.5	Culvert BB-51
662.32	50	11.0	Culvert 0-366	1145.76	50	9.0	Rough Track
663.64	48	8.0	Hwy. Crossing	1158.24	48	8.0	Culvert BB-117
664.47	50	11.0	Rough Track	1163.34	40	9.0	Farm Crossing
677.86	50	9.0	Hwy. Crossing	1163.64	38	8.5	Rough Track
684.49	50	12.0	Rough Track	1167.11	54	8.0	Rough Track

TRACK EVALUATION BENSENVILLE TO TACOMA

TRAIN 261-C16 APRIL 16-19, 1974

<u>APPROXIMATE LOCATION</u>	<u>SPEED (MPH)</u>	<u>DYN. STRESS (KSI)</u>	<u>REMARKS</u>	<u>APPROXIMATE LOCATION</u>	<u>SPEED (MPH)</u>	<u>DYN. STRESS (KSI)</u>	<u>REMARKS</u>
1167.15	54	12.0	Rough Track	1297.24	50	11.5	Rough Track
1167.20	54	13.0	Rough Track	1297.31	50	10.0	Rough Track
1175.46	54	9.0	Bridge BB-66	1297.86	52	13.0	Rough Track
1178.00	50	8.0	Rough Track	1297.93	52	8.5	Rough Track
1181.47	48	8.5	Hwy. Crossing	1298.27	51	14.0	Rough Track
1188.21	50	9.0	Rough Track	1298.32	51	13.0	Rough Track
1189.49	48	15.0	Rough Track	1298.37	51	10.0	Rough Track
1205.62	48	8.5	Switch	HARLOWTON			
1236.45	49	9.5	Switch	1344.51	49	9.0	Rough Track
1239.77	51	8.0	Farm Crossing	1348.68	47	11.5	Farm Crossing
1250.37	50	9.0	Rough Track	1390.56	46	8.0	Culvert CC-217
1250.44	50	14.0	Hwy. Crossing	1391.31	48	8.0	Farm Crossing
1251.96	51	11.5	Rough Track	1392.40	50	11.5	Rough Track
1251.99	51	12.0	Rough Track	1394.22	45	9.0	Culvert CC-225
1252.71	50	18.5	Bridge BB-172	THREE FORKS			
1257.80	52	8.0	Rough Track	1456.38	51	8.0	Switch
1258.50	52	8.0	Signal 1258/2	1463.15	38	10.0	Switch
1265.39	50	9.0	Switch	1464.08	40	8.5	Rough Track
1266.40	50	14.0	Switch	1464.91	40	8.0	Switch
1269.58	52	10.5	Rough Track	1465.52	40	10.0	Rough Track
1270.01	50	10.0	Farm Crossing	1465.65	40	8.5	Culvert CC-441
1274.48	52	8.5	Bridge BB-405	1465.76	40	10.5	Rough Track
1275.32	51	9.0	Switch	1465.89	40	15.0	Culvert CC-443
1276.90	50	10.5	Rough Track	1475.31	43	9.0	Farm Crossing
1278.59	50	9.0	Rough Track	1476.71	50	9.0	Rough Track
1285.72	48	9.0	Rough Track	1476.79	50	10.5	Culvert CC-479
1291.11	51	11.5	Switch	1477.57	50	9.0	Farm Crossing
1291.56	51	12.0	Bridge BB-445	1479.25	50	12.5	Rough Track
1294.57	49	8.0	Rough Track	1479.55	50	13.0	Rough Track
1297.00	50	11.0	Rough Track	1480.07	50	9.5	Rough Track

TRACK EVALUATION BENSENVILLE TO TACOMA

TRAIN 261-C16 APRIL 16-19, 1974

<u>APPROXIMATE LOCATION</u>	<u>SPEED (MPH)</u>	<u>DYN. STRESS (KSI)</u>	<u>REMARKS</u>	<u>APPROXIMATE LOCATION</u>	<u>SPEED (MPH)</u>	<u>DYN. STRESS (KSI)</u>	<u>REMARKS</u>
1480.40	50	8.5	Rough Track	1606.56	44	10.0	Rough Track
1480.53	50	13.0	Culvert CC-489	1607.07	45	9.0	Hwy. Crossing
1481.11	50	8.0	Rough Track	1607.45	45	8.5	Rough Track
1481.63	50	8.0	Culvert CC-336	1610.80	44	11.5	Bridge DD-56
1481.89	50	8.0	Farm Crossing	1614.44	48	11.0	Rough Track
1482.25	48	10.0	Hwy. Crossing	1615.00	48	9.0	Rough Track
1530.26	48	9.0	Farm Crossing	1615.11	48	10.0	Bridge DD-211
1530.79	48	11.0	Rough Track	1615.72	42	9.0	Hwy. Crossing
1535.75	36	14.0	Rough Track	1623.25	50	10.0	Rough Track
1536.15	38	8.0	Hwy. Crossing	1623.61	50	13.5	Bridge DD-251
1536.40	40	11.0	Switch	1623.74	50	9.5	Farm Crossing
1536.53	40	11.5	Rough Track	1623.83	50	13.5	Rough Track
1537.62	44	8.0	H.T.W. Crossing	1623.89	50	11.5	Signal 62/9
DEER LODGE				1624.05	50	11.0	Rough Track
1569.66	48	8.0	Rough Track	1624.25	50	14.5	Bridge DD-253
1569.98	48	8.5	Bridge DD-14	1624.49	48	15.0	Rough Track
1570.96	48	12.0	Bridge DD-16	1624.57	46	8.0	Switch
1571.0	48	9.0	Bridge DD-16	1624.76	42	8.0	Farm Crossing
1571.07	48	13.0	Rough Track	1630.12	35	9.5	Rough Track
1571.15	48	8.0	Rough Track	1632.45	41	13.0	Rough Track
1571.25	48	12.0	Rough Track	1632.74	43	10.0	Rough Track
1571.42	48	9.0	Rough Track	1635.38	44	10.0	Bridge DD-293
1576.58	43	8.0	Rough Track	1635.45	44	11.0	Signal 73/6
1578.14	42	11.0	Rough Track	1635.57	44	15.0	Bridge DD-72
1581.21	48	11.0	Rough Track	1643.26	49	8.0	Culvert DD-333
1581.41	48	16.0	Bridge DD-28	1643.35	49	11.5	Culvert DD-335
1581.77	48	8.5	Rough Track	1643.45	49	10.0	Farm Crossing
1582.15	48	9.5	Signal 20/5	1643.54	49	9.0	Bridge DD-80
1582.33	48	12.0	Rough Track	1644.46	50	13.0	Rough Track
1583.27	49	8.5	Rough Track	1644.57	50	11.0	Cattle Crossing

TRACK EVALUATION BENSENVILLE TO TACOMA

TRAIN 261-C16 APRIL 16-19, 1974

<u>APPROXIMATE LOCATION</u>	<u>SPEED (MPH)</u>	<u>DYN. STRESS (KSI)</u>	<u>REMARKS</u>	<u>APPROXIMATE LOCATION</u>	<u>SPEED (MPH)</u>	<u>DYN. STRESS (KSI)</u>	<u>REMARKS</u>
1644.68	50	12.0	Culvert DD-341	1658.65	48	17.0	Rough Track
1644.78	50	8.0	Culvert DD-341-1/2	1658.87	48	21.5	Farm Crossing
1647.67	49	13.0	Signal 86/0	1658.96	49	15.5	Rough Track
1647.96	49	8.0	Bridge DD-106	1659.10	49	8.5	Rough Track
1648.25	50	12.0	Rough Track	1659.16	49	13.5	Rough Track
1649.05	51	11.0	Culvert DD-381	1659.22	49	9.5	Farm Crossing
1649.50	51	8.5	Rough Track	1659.28	50	11.0	Rough Track
1649.79	51	10.0	Rough Track	1659.41	50	13.0	Rough Track
1650.69	50	10.0	Farm Crossing	1659.50	50	10.5	Rough Track
1650.79	50	12.0	Rough Track	1659.59	50	12.0	Rough Track
1650.86	50	8.0	Switch	1659.63	50	11.0	Rough Track
1651.88	50	10.5	Rough Track	1659.67	50	12.0	Culvert DD-415
1651.95	50	9.0	Rough Track	1659.77	50	8.5	Farm Crossing
1652.60	50	10.0	Rough Track	1659.89	50	10.0	Rough Track
1652.97	49	8.0	Farm Crossing	1659.98	50	10.0	Rough Track
1653.12	49	15.0	Culvert DD-393-1/2	1660.19	50	8.0	Rough Track
1653.27	49	8.5	Rough Track	1660.40	49	10.0	Rough Track
1653.46	49	8.5	Rough Track	1661.10	47	12.5	Culvert DD-419
1653.56	49	12.0	Rough Track	1661.18	47	14.0	Farm Crossing
1654.04	50	10.0	Hwy. Crossing	1661.24	47	9.0	Culvert DD-419-1/2
1654.34	50	14.0	Rough Track	1661.28	47	10.0	Farm Crossing
1654.61	50	10.0	Farm Crossing	1661.33	47	14.0	Rough Track
1655.10	49	10.5	Rough Track	1661.69	46	8.5	Culvert DD-421-1/2
1655.27	49	13.0	Rough Track	1661.93	46	8.0	Bridge DD-128
1655.56	49	10.0	Rough Track	1662.00	46	13.0	Rough Track
1655.67	49	11.5	Farm Crossing	1662.47	47	15.0	Hwy. Crossing
1657.13	49	11.5	Farm Crossing	1662.60	48	8.5	Rough Track
1658.00	48	9.0	Rough Track	1662.66	48	12.0	Rough Track
1658.37	48	18.0	Culvert DD-411	1662.82	48	8.5	Farm Crossing
1658.57	48	13.5	Rough Track	1662.90	48	14.0	Culvert DD-433
1658.62	48	13.0	Rough Track	1663.08	49	9.5	Culvert DD-130

TRACK EVALUATION BENSENVILLE TO TACOMA

TRAIN 261-C16 APRIL 16-19, 1974

<u>APPROXIMATE LOCATION</u>	<u>SPEED (MPH)</u>	<u>DYN. STRESS (KSI)</u>	<u>REMARKS</u>	<u>APPROXIMATE LOCATION</u>	<u>SPEED (MPH)</u>	<u>DYN. STRESS (KSI)</u>	<u>REMARKS</u>
1663.61	50	10.0	Rough Track	1695.02	51	9.0	Rough Track
1664.19	50	14.5	Rough Track	1695.10	50	13.0	Rough Track
1664.37	50	17.0	Farm Crossing	1695.19	50	13.0	Rough Track
1664.43	50	13.0	Rough Track	1695.33	48	12.0	Hwy. Crossing
1664.47	49	25.0	Rough Track	1695.86	41	10.0	Farm Crossing
1664.57	49	10.5	Rough Track	1696.55	42	10.0	Rough Track
1664.67	49	17.0	Culvert DD-439	1700.49	36	19.0	Rough Track
1664.86	48	15.0	Rough Track	1701.83	37	14.5	Rough Track
1664.93	48	18.0	Rough Track	1702.40	37	13.5	Rough Track
1664.96	48	12.5	Rough Track	1702.87	37	11.0	Culvert DD-579
1665.35	46	10.5	Farm Crossing	1703.47	36	10.0	Culvert DD-583
1665.58	46	10.0	Culvert DD-441	1708.98	37	15.0	Rough Track
1665.76	46	9.0	Rough Track	1709.72	36	8.5	Rough Track
1666.28	44	10.0	Rough Track	1712.98	44	12.0	Rough Track
1666.44	44	8.5	Rough Track	1713.12	46	10.0	Rough Track
1667.07	45	8.0	Switch	1713.20	47	13.5	Rough Track
1667.71	46	16.0	Culvert DD-447	1713.32	48	11.0	Farm Crossing
1667.75	46	18.0	Farm Crossing	1714.63	36	23.0	Rough Track
1669.00	44	11.0	Rough Track	1714.73	36	16.0	Signal 153/7
1669.24	44	10.0	Rough Track	1715.33	38	11.0	Rough Track
1670.41	44	11.5	Culvert DD-457	1715.88	44	9.0	Rough Track
ALBERTON				1715.90	44	11.5	Rough Track
1680.85	48	20.0	Rough Track	1716.00	44	9.0	Rough Track
1680.97	50	8.0	Rough Track	HAUGAN			See additional com-
1681.00	50	8.0	Rough Track				ments on track con-
1684.93	49	9.0	Signal 122/7				dition in "TEST
1685.10	49	9.5	Rough Track				TRAIN PERFORMANCE
1685.42	49	9.5	Rough Track				BETWEEN HAUGAN &
1688.39	46	10.0	Switch				AVERY".
1689.93	46	12.0	Rough Track	AVERY			
1694.74	52	16.5	Signal 132/9	MALDEN			

TRACK EVALUATION BENSENVILLE TO TACOMA

TRAIN 261-C16 APRIL 16-19, 1974

<u>APPROXIMATE LOCATION</u>	<u>SPEED (MPH)</u>	<u>DYN. STRESS (KSI)</u>	<u>REMARKS</u>	<u>APPROXIMATE LOCATION</u>	<u>SPEED (MPH)</u>	<u>DYN. STRESS (KSI)</u>	<u>REMARKS</u>
OTHELLO							
1990.56	50	9.5	Farm Crossing	2068.28	49	8.0	Rough Track
1990.62	50	11.5	Rough Track	2068.86	49	11.0	Rough Track
1993.56	51	14.0	Culvert EE-1125	2068.93	49	21.5	Rough Track
1997.19	44	8.0	Switch	2069.31	49	10.0	Hwy. Crossing
1999.08	40	8.5	Arch EE-234	2077.48	49	10.0	Signal 194/0
1999.53	40	9.0	Rough Track	2084.10	50	10.0	Rough Track
1999.60	40	13.0	Culvert EE-1165	2084.25	50	19.5	Culvert EE-1805
1999.75	40	23.0	Rough Track	2084.59	49	20.0	Rough Track
2004.78	44	10.5	Hwy. Crossing	CLE ELUM			
2005.26	44	13.5	Culvert EE-1217	2139.46	40	8.5	Rough Track
2016.36	37	10.0	Rough Track	2147.15	37	9.0	Rough Track
2016.43	36	9.0	Rough Track	2147.38	38	9.5	Private Crossing
2016.48	36	14.0	Rough Track	2147.52	38	10.0	Rough Track
2016.50	36	22.0	Rough Track	2147.80	38	15.5	Rough Track
2016.57	36	13.5	Bridge EE-260	2147.85	38	12.5	Rough Track
2020.27	30	16.5	Rough Track	2147.94	38	9.0	Rough Track
2056.70	48	10.5	Rough Track	2149.39	37	15.0	Rough Track
2056.93	48	11.0	Farm Crossing	2149.60	38	12.0	Rough Track
2057.09	48	10.5	Bridge EE-350	2149.67	38	8.0	Rough Track
2057.89	48	8.0	Farm Crossing	2152.29	38	10.0	Rough Track
2058.33	48	10.5	Farm Crossing	2152.55	39	18.0	Bridge FF-136
2060.64	35	9.0	Hwy. Crossing	TACOMA			End of Westbound
2065.53	46	9.0	Bridge EE-386A				Testing
2065.71	48	14.0	Bridge EE-386B				
2065.92	49	8.5	Rough Track				
2066.23	50	9.0	Rough Track				
2066.43	50	10.5	Farm Crossing				
2066.69	50	12.0	Farm Crossing				
2067.35	49	12.5	Hwy. Crossing				
2067.68	49	9.0	Rough Track				

TRACK EVALUATION TACOMA TO ALBERTON

TRAIN ADV. 262-S21 APRIL 20-21, 1974

<u>APPROXIMATE LOCATION</u>	<u>SPEED (MPH)</u>	<u>DYN. STRESS (KSI)</u>	<u>REMARKS</u>	<u>APPROXIMATE LOCATION</u>	<u>SPEED (MPH)</u>	<u>DYN. STRESS (KSI)</u>	<u>REMARKS</u>
TACOMA	START		EASTBOUND TEST	1715.37	40	14.0	Rough Track
2143.65	36	11.0	Rough Track	1714.97	44	8.0	Rough Track
2137.00	40	10.0	Switch	1714.78	44	11.0	Signal 153/7
CLE ELUM				1714.64	42	13.5	Rough Track
2084.23	44	9.5	Signal 200/7	1703.43	35	12.0	E. Switch Superior
2082.70	50	11.0	Bridge EE-434	1700.46	36	8.5	Rough Track
2082.29	50	15.0	Bridge EE-432	1694.71	43	8.0	E. Switch Corden
2077.47	40	11.0	Rough Track	1680.91	45	15.0	Rough Track
2069.30	48	10.0	Hwy. Crossing	1675.37	34	8.5	Culvert DD-501
2068.92	50	19.0	Rough Track	ALBERTON			
2068.86	50	10.0	Rough Track				
2067.39	48	11.5	Switch				End of Testing on
2067.20	50	13.5	Hwy. Crossing				Train ADV. 262-S21
2066.68	50	12.0	Farm Crossing				Testing was Resumed
2066.40	49	9.0	Farm Crossing				April 26, 1974, on
2057.05	47	10.0	Bridge EE 350	1635.54	44	10.0	Train 262-S25.
2056.90	47	11.0	Farm Crossing	DEER LODGE			W. Switch Banner Jc
2056.68	47	9.0	Culvert EE-1511	1537.52	39	8.0	Bridge CC-394 2/3
2003.16	41	8.0	Culvert EE-1205	1479.52	49	9.0	Rough Track
2003.04	40	9.0	Culvert EE-1201	1467.73	44	13.0	Rough Track
1990.61	40	10.0	Culvert EE-1109-1/2	1465.88	36	14.5	Culvert CC-443
1990.50	38	11.0	Farm Crossing	1464.37	41	11.0	Culvert CC-433
OTHELLO				1462.79	40	8.0	Rough Track
MALDEN				THREE FORKS			
AVERY			See Additional Data	HARLOWTON			
			on Track Condition	1316.88	52	8.0	Rough Track
			in "Test Train Per-	1316.29	52	9.0	Farm Crossing
			formance between	1298.31	50	9.0	Rough Track
			Haugan & Avery".	1298.26	50	11.0	Rough Track

TRACK EVALUATION ALBERTON TO BENSENVILLE

TRAIN 262-S25 APRIL 26-29, 1974

<u>APPROXIMATE LOCATION</u>	<u>SPEED (MPH)</u>	<u>DYN. STRESS (KSI)</u>	<u>REMARKS</u>	<u>APPROXIMATE LOCATION</u>	<u>SPEED (MPH)</u>	<u>DYN. STRESS (KSI)</u>	<u>REMARKS</u>
1297.95	49	8.0	Rough Track	1134.77	51	10.0	Rough Track
1294.54	50	10.0	Culvert BB-451	1133.18	50	10.0	Signal 1133.2
1291.53	52	10.0	Culvert BB-445	1128.13	50	11.0	Switch
1291.05	51	8.0	Bridge BB-226	1121.79	49	8.0	Culvert BB-6
1285.68	50	8.0	Bridge BB-218	MILES CITY			
1284.78	50	10.0	Rough Track	1107.48	50	8.0	Rough Track
1284.20	50	10.0	Rough Track	1101.89	50	8.0	Culvert AA-667
1265.37	50	9.0	Hwy. Crossing	1087.80	50	8.0	Bridge AA-430
1264.32	50	9.0	Rough Track	MARMARTH			
1263.92	50	8.0	Rough Track	961.73	48	8.0	Rough Track
1259.31	50	8.0	Bridge BB-182	921.70	50	8.0	Rough Track
1257.91	49	8.0	Hwy. Crossing	921.64	50	10.0	Rough Track
1254.07	49	11.0	Rough Track	921.25	50	9.0	Rough Track
1254.00	49	8.0	Rough Track	918.47	50	9.0	Hwy. Crossing
1253.13	50	9.0	Rough Track	846.87	50	10.0	Culvert AA-64
1252.70	51	16.0	Farm Crossing	825.69	50	9.0	Private Crossing
1252.36	51	10.0	Rough Track	MOBRIDGE			
1251.88	50	12.0	Rough Track	731.96	52	8.0	Rough Track
1250.87	51	8.0	Bridge BB-170	731.70	52	8.0	Rough Track
1250.42	50	16.5	Hwy. Crossing	729.41	52	10.0	Hwy. Crossing
1250.34	50	10.0	Culvert BB-299	718.49	51	8.0	Culvert P-318
1250.14	50	8.0	Bridge BB-168	712.63	51	10.0	Rough Track
1250.04	50	8.0	Culvert BB-297	712.25	52	8.0	Rough Track
1244.63	50	9.0	Rough Track	712.16	52	9.0	Culvert P-717
1229.59	48	12.0	Culvert BB-223	711.71	53	8.0	Farm Crossing
1228.53	50	10.0	Rough Track	711.50	52	8.0	Rough Track
1196.80	51	8.0	Culvert BB-205	711.40	52	9.0	Hwy. Crossing
1178.98	50	12.0	Culvert BB-177	ABERDEEN			
1175.38	50	8.0	Rough Track	658.77	50	8.0	Culvert O-1213
1167.13	49	11.0	Station	656.86	45	9.0	4th St. East
				655.61	48	8.0	Culvert O-356

TRACK EVALUATION ALBERTON TO BENSENVILLE

TRAIN 262-S25 APRIL 26-29, 1974

<u>APPROXIMATE LOCATION</u>	<u>SPEED (MPH)</u>	<u>DYN. STRESS (KSI)</u>	<u>REMARKS</u>	<u>APPROXIMATE LOCATION</u>	<u>SPEED (MPH)</u>	<u>DYN. STRESS (KSI)</u>	<u>REMARKS</u>
653.67	47	8.0	Hwy. Crossing	310.95	36	10.0	Rough Track
652.50	48	8.0	Culvert O-1181	310.86	36	9.0	Rough Track
651.27	50	8.0	Farm Crossing	288.90	45	10.0	"E" Street
650.71	50	8.0	Culvert O-1173	LA CROSSE			
650.58	50	9.0	Hwy. Crossing	263.03	44	8.5	Rough Track
642.59	51	9.0	Farm Crossing	259.50	48	8.0	Farm Crossing
641.17	46	8.0	Main Street	256.65	44	11.5	Hwy. Crossing
612.03	50	9.0	Switch	255.70	44	8.5	Rough Track
611.32	50	8.0	Harriet Street	231.70	50	10.0	Rough Track
563.95	50	8.0	Culvert O-238 2/3	231.63	50	9.5	Farm Crossing
MONTEVIDEO				229.53	50	9.0	Farm Crossing
543.02	50	8.0	Switch	229.44	50	10.0	Rough Track
499.43	52	13.0	Rough Track	227.44	46	8.5	Switch
495.38	52	8.0	Main Street	222.25	49	9.0	Hwy. Crossing
494.89	52	8.0	Hwy. Crossing	213.48	48	9.5	Rough Track
474.91	53	8.0	Culvert O-303	213.36	48	10.5	Bridge C-270
473.75	52	8.0	Culvert O-299	212.69	50	8.0	Farm Crossing
466.58	54	10.0	Culvert O-261	212.16	49	9.5	Farm Crossing
466.39	54	9.0	Hwy. Crossing	199.32	48	8.0	Rough Track
466.26	54	14.0	Berfield Street	191.88	50	11.0	Culvert C-163
466.02	53	10.0	Culvert O-299 1/4	191.13	52	8.0	Culvert C-161
465.93	52	8.0	Hwy. Crossing	188.07	48	8.5	Rough Track
ST. PAUL				187.72	48	8.5	Rough Track
395.13	40	10.0	Rough Track	185.20	49	12.0	Rough Track
355.00	50	9.0	Hwy. Crossing	184.88	48	14.0	Rough Track
348.65	50	8.0	Culvert L-821	184.36	48	10.0	Rough Track
341.28	44	8.0	Gambia Street	PORTAGE			
339.01	48	8.0	Culvert L-707	153.48	50	13.0	Switch
338.28	48	9.0	Culvert L-703 1/8	151.70	53	8.0	Signal 151.8
337.86	48	8.0	Culvert L-701 1/2	148.62	50	13.5	Rough Track

TRACK EVALUATION ALBERTON TO BENSENVILLE

TRAIN 262-S25 April 26-29, 1974

<u>APPROXIMATE LOCATION</u>	<u>SPEED (MPH)</u>	<u>DYN. STRESS (KSI)</u>	<u>REMARKS</u>
146.43	48	11.0	Switch
144.51	51	12.0	Hwy. Crossing
143.26	50	8.0	Rough Track
130.80	36	15.0	Signal 130.8
130.67	36	10.0	Bridge C-92
130.48	38	11.0	Hwy. Crossing
130.09	38	11.0	Hwy. Crossing
118.20	42	9.0	Switch
117.59	45	11.0	Switch
102.08	43	8.5	Hwy. Crossing
102.00	43	10.5	Rough Track
101.46	45	9.0	Culvert C-41
100.47	49	8.5	Hwy. Crossing
100.28	50	8.0	Bridge C-42
100.18	50	11.0	Rough Track
100.03	50	9.5	Rough Track
99.26	52	13.0	Rough Track
98.60	52	16.0	Culvert B-35 1/2
95.06	48	11.5	Hwy. Crossing
MILWAUKEE			
59.94	43	13.0	Rough Track
BENSENVILLE			END TESTING

RUNNING LOG: 261-C16

RUN: BENSENVILLE TO TACOMA
DATE: APRIL 16-19, 1974
TEST OF: MAIN LINE TRACK EVALUATION
ARRANGEMENT: LOCO, DYNAMOMETER CAR, M 12009, CARS, CABOOSE

TRAIN LOCATION	TIME (LOCAL)	SPEED (MPH)	REMARKS
<u>TUESDAY, APRIL 16, 1974</u>			
LOCO: 3020-3031			
BENSENVILLE	(CDT) 2:43 PM	START	20L + 1E = 1443 Tons
TOWER B-17	2:57	10	
C&NW MP 9.5	3:04	STOP	Emergency, Lost brake pipe air.
" "	3:07	START	
C&NW MP 10	3:10	STOP	Lost air.
" "	3:15	START	
C&NW MP 14	3:21	STOP	Lost air.
" "	3:30	START	Repaired faulty air brake connection.
Tower A-20	3:45	24	Entered Milw. westbound main.
MP 24.6	3:51	STOP	Lost air.
" "	3:58	START	Brakes B.O. on GTW 304838, 5 cars behind locomotive.
MP 31.0	4:10	STOP	Lost air.
" "	4:15	START	
RONDOUT	4:19	STOP	Set out GTW 304838.
"	4:28	START	
MILWAUKEE DEPOT	5:50	2	Rolling crew change.
MILWAUKEE (CUT-OFF)	6:00	STOP	Picked up test personnel.
" "	6:01 PM	START	

RUNNING LOG: 261-C16

RUN: BENSENVILLE TO TACOMA
DATE: APRIL 16-19, 1974
TEST OF: MAIN LINE TRACK EVALUATION
ARRANGEMENT: LOCO, DYNAMOMETER CAR, M 12009, CARS, CABOOSE

TRAIN LOCATION	TIME (LOCAL)	SPEED (MPH)	REMARKS
DUPLAINVILLE	6:26 PM	STOP	Received order & waited for Amtrak #10.
"	6:35	START	
HARTLAND	6:53	STOP	Waited for Amtrak #10.
"	7:20	START	
MP 123	7:39	34	Began 40 MPH slow order.
WATERTOWN	7:54	34	End 40 MPH slow order.
PORTAGE	8:55	3	Rolling crew change.
"	9:00	12	Hi-ball.
MP 194.5	9:21	35	Began 35 MPH slow order.
MP 195.5	9:22	30	End 35 MPH slow order.
MP 239.5	10:17	37	Began 35 MPH slow order.
MP 240.6	10:19	30	End 35 MPH slow order.
TUNNEL CITY	10:24	33	
LA CROSSE	11:15	STOP	Crew change and fueled locomotive.
"	11:22	START	
MP 283	11:28	12	Began 10 MPH slow order over Bridge L4A
MP 283.5	11:31	11	END: 10 MPH slow order.
LAMOILLE	11:50 PM	50	

RUNNING LOG: 261-C16

RUN: BENSENVILLE TO TACOMA
DATE: APRIL 16-19, 1974
TEST OF: MAIN LINE TRACK EVALUATION
ARRANGEMENT: LOCO, DYNAMOMETER CAR, M 12009, CARS, CABOOSE

TRAIN LOCATION	TIME (LOCAL)	SPEED (MPH)	REMARKS
<u>WEDNESDAY, APRIL 17, 1974</u>			
WINONA	12:02 AM	28	
TOWER "CK"	12:06	30	
WACOUTA	1:10	STOP	Met Train #262.
"	1:11	START	
BN MP 420	2:51	34	Began 30 MPH slow order.
BN MP 422.5	2:57	30	End 30 MPH slow order.
ST. PAUL	2:25	STOP	Crew change.
ST. PAUL	2:33	START	
RAND	2:55	13	
MP 434	3:26	25	Began 25 MPH slow order.
MP 435	3:28	26	End 25 MPH slow order.
COLOGNE	4:01	10	Began 10 MPH slow order.
MP 455.4	4:11	10	End 10 MPH slow order.
MP 484	5:00	40	Began 30 MPH slow order.
MP 493.3	5:14	40	End 30 MPH slow order.
MP 507	5:30	25	Began 25 MPH slow order.
MP 526	6:22 AM	8	End 25 MPH slow order and began 40 MPH slow order.

RUNNING LOG: 261-C16

RUN: BENSENVILLE TO TACOMA
DATE: APRIL 16-19, 1974
TEST OF: MAIN LINE TRACK EVALUATION
ARRANGEMENT: LOCO, DYNAMOMETER CAR, M 12009, CARS, CABOOSE

TRAIN LOCATION	TIME (LOCAL)	SPEED (MPH)	REMARKS
MP 539.4	6:40 AM		End 40 MPH slow order.
MP 542	6:45	46	Began 10 MPH slow order over BN crossing at E-122.
MP 545	6:51	50	Resumed speed.
MONTEVIDEO	7:03	STOP	Crew change.
"	7:05	START	
MP 580	7:40	30	Began 30 MPH slow order.
MP 587	7:56	32	End 30 MPH slow order, began 40 MPH slow order.
MP 598	8:11	35	End 40 MPH slow order, began 30 MPH slow order.
MP 602.3	8:20	30	End 30 MPH slow order.
MP 614.2	8:38	STOP	Apparent red flag on track.
"	8:39	START	
SUMMIT	9:12	48	
ABERDEEN	10:57	STOP	Crew change.
"	11:34	START	28L + 23E = 2605 tons.
MINA	11:56	47	
CRAVEN	12:06 PM	46	
IPSWICH	12:12	44	

RUNNING LOG: 261-C16

RUN: BENSENVILLE TO TACOMA
DATE: APRIL 16-19, 1974
TEST OF: MAIN LINE TRACK EVALUATION
ARRANGEMENT: LOCO, DYNAMOMETER CAR, M 12009, CARS, CABOOSE

TRAIN LOCATION	TIME (LOCAL)	SPEED (MPH)	REMARKS
ROSCOE	12:35 PM	42	
GREINA	12:46	41	
BOWDLE	12:55	50	
ALAMO	1:04	34	
JAVA JCT.	1:13	48	
SELBY	1:22	47	
SITKA	1:32	48	
GLENHAM	1:47	42	
MOBRIDGE	2:00 (CDT) STOP		Crew change.
"	1:04 (MDT) START		
WAKPALA	1:26	47	
MAITO	1:40	42	
MC LAUGHLIN	1:52	22	
WALKER	2:21	42	
MC INTOSH	2:37	50	
WATAUGA	2:49	50	
MORRISTOWN	2:59	52	
THUNDERHAWK	3:17	40	
LENNON	3:28 PM	46	

RUNNING LOG: 261-C16

RUN: BENSENVILLE TO TACOMA
DATE: APRIL 16-19, 1974
TEST OF: MAIN LINE TRACK EVALUATION
ARRANGEMENT: LOCO, DYNAMOMETER CAR, M 12009, CARS CABOOSE.

TRAIN LOCATION	TIME (LOCAL)	SPEED (MPH)	REMARKS
WHITE BUTTE	3:40 PM	52	
HAYNES	3:47	46	
HETTINGER	3:57	45	
BUCYRUS	4:08	47	
MP 943	4:16	45	Began 40 MPH slow order.
MP 957.3	4:38	45	End 40 MPH slow order.
RHAME	5:08	45	
IVES	5:15	40	
MARMARIH	5:30	STOP	Crew change.
"	5:35	START	
KINGMONT	6:04	44	
BAKER	6:11	51	
PLEVNA	6:26	48	
WESTMORE	6:35	46	
ISMAY	6:46	48	
LACOMB	6:55	48	
MILDRED	7:04	48	
MP 1065	7:12	39	Begin 40 MPH slow order.
MP 1085	7:43 PM	40	End 40 MPH slow order.

RUNNING LOG: 261-C16

RUN: BENSENVILLE TO TACOMA
DATE: APRIL 16-19, 1974
TEST OF: MAIN LINE TRACK EVALUATION
ARRANGEMENT: LOCO, DYNAMOMETER CAR, M 12009, CARS, CABOOSE

TRAIN LOCATION	TIME (LOCAL)	SPEED (MPH)	REMARKS
SUSAN	7:52 PM	48	
BONFIELD	8:00	48	
KINSEY	8:07	48	
TUSLER	8:16	50	
MILES CITY	8:27	STOP	Crew change.
" "	8:43	START	
PARAGON	9:03	STOP	Took siding for eastbound train.
"	9:15	START	
MP 1190.3	10:40	STOP	Lost air.
"	10:43	START	
MELSTONE	11:44	44	
<u>THURSDAY, APRIL 18, 1974</u>			
DELPHIA	12:06 AM	50	
MP 1253.5	12:12	STOP	Lost air.
"	12:15	START	
GAGE	12:23	53	
MP 1258.5	12:24	STOP	Lost air.
"	12:37	START	
ROUNDUP	12:47 AM	50	

RUNNING LOG: 261-C16

RUN: BENSENVILLE TO TACOMA
DATE: APRIL 16-19, 1974
TEST OF: MAIN LINE TRACK EVALUATION
ARRANGEMENT: LOCO, DYNAMOMETER CAR, M 12009, CARS, CABOOSE

TRAIN LOCATION	TIME (LOCAL)	SPEED (MPH)	REMARKS
ELSO	12:58 AM	52	
MP 1280.5	1:05	49	Began 30 MPH slow order.
MP 1282.5	1:09	26	End 30 MPH slow order.
LAVINA	1:20	49	
RYEGATE	1:40	23	
MP 1307	1:44	STOP	Red Signal
"	1:45	START	
SHAWMUT	2:27	18	On siding - met Extra 3026 East.
"	2:35	STOP	
"	2:36	START	Re-entered main line.
HARLOWTON	3:03	STOP	Crew change. Added helper E74 on point
"	3:13	START	
MP 1447.5	6:39	28	Began 25 MPH slow order.
THREE FORKS	6:44	STOP	Crew change. End 25 MPH slow order.
" "	6:51	START	
WILLOW CREEK	7:05	50	
SAPPINGTON	7:19	38	
PIEDMONT	7:51	36	
MP 1485	7:53 AM	52	Begin 25 MPH slow order.

RUNNING LOG: 261-C16

RUN: BENSENVILLE TO TACOMA
DATE: APRIL 16-19, 1974
TEST OF: MAIN LINE TRACK EVALUATION
ARRANGEMENT: LOCO, DYNAMOMETER CAR, M 12009, CARS, CABOOSE

TRAIN LOCATION	TIME (LOCAL)	SPEED (MPH)	REMARKS
MP 1485.6	7:55 AM	23	End 25 MPH slow order.
CEDRIC	8:13	25	
GRACE	8:25	25	
DONALD	8:41	25	
JANNEY	8:57	25	
NEWCOMB	9:08	36	
BUTTE YARD	9:13	34	
BUTTE	9:15	21	
ALLOY	9:21	30	
ROCKER	9:25	30	
SILVER BOW	9:31	30	
DAWSON	9:33	47	
FINLEN	9:45	38	
MOREL	10:01	32	
SINCLAIR	10:16	30	
DEER LODGE	10:35	STOP	Crew change and changed power.
" "	11:16	START	Loco: E72-3025-3022; 27L + 22E = 2693
" "	11:24	12	Hi-ball.
KOHRS	11:38	STOP	Checked car for hot box-no hot box fou

RUNNING LOG: 261-C16

RUN: BENSENVILLE TO TACOMA
DATE: APRIL 16-19, 1974
TEST OF: MAIN LINE TRACK EVALUATION
ARRANGEMENT: LOCO, DYNAMOMETER CAR, M 12009, CARS, CABOOSE

TRAIN LOCATION	TIME (LOCAL)	SPEED (MPH)	REMARKS
KOHR'S	11:52 AM	START	
GARRISON	12:01 PM	42	
GOLD CREEK	12:13	48	
HASKELL	12:22	30	
DRUMMOND	12:34	30	
OZAN	12:44	31	
BEAR MOUTH	12:54	43	
RAVENNA	1:13	44	
IRIS	1:17	30	
CLINTON	1:26	33	
BONNER JCT.	1:42	45	
MISSOULA	1:52	14	
PRIMROSE	2:05	50	
SCHILLING	2:08	49	
FRENCH TOWN	2:15	48	
HUSON	2:18	47	
SOUDAN	2:25	45	
ALBERTON	2:33	STOP	Crew change.
"	2:35 PM	START	

RUNNING LOG: 261-C16

RUN: BENSENVILLE TO TACOMA
DATE: APRIL 16-19, 1974
TEST OF: MAIN LINE TRACK EVALUATION
ARRANGEMENT: LOCO, DYNAMOMETER CAR, M 12009, CARS, CABOOSE

TRAIN LOCATION	TIME (LOCAL)	SPEED (MPH)	REMARKS
CYR	2:58 PM	35	
TARKIO	3:11	39	
COBDEN	3:21	47	
SUPERIOR	3:34	36	
ST. REGIS	3:55	STOP	Picked up orders.
"	4:00	START	
HENDERSON	4:33	28	
HAUGAN	4:43	26	START: 1st westbound train operation test.
SALTESE	4:56	26	
BRYSON	5:04	26	
EAST PORTAL	5:17	16	
ROLAND	5:23	21	
MP 1754.5	5:32	20	Began 10 MPH slow order.
ADAIR	5:38	12	
MP 1756.6	5:41	15	Resumed speed.
FALCON	5:51	16	
KYLE	6:07	25	
STETSON	6:16 PM	26	

RUNNING LOG: 261-C16

RUN: BENSENVILLE TO TACOMA
DATE: APRIL 16-19, 1974
TEST OF: MAIN LINE TRACK EVALUATION
ARRANGEMENT: LOCO, DYNAMOMETER CAR, M 12009, CAR, CABOOSE

TRAIN LOCATION	TIME (LOCAL)	SPEED (MPH)	REMARKS
AVERY	6:27 PM (MDT)	STOP	FINISH: 1st westbound train operation test. Crew change. Set out helper E-
"	5:42 (CDT)	START	
ETHELTON	5:55	25	
POCONO	6:14	26	
ST. JOE	6:58	26	
OMEGA	7:12	28	
ST. MARIES	7:24	21	
RAMSDELL	7:38	27	
PEDEE	7:51	25	
PLUMMER	8:08	14	
MOWRY	8:30	26	
TEKOA	8:49	29	
LONE PINE	8:57	22	
MP 1872	9:28	19	Began 10 MPH slow order.
MP 1876.4	9:52	15	End 10 MPH slow order.
SQUAW CANYON	9:57	20	
MALDEN	10:06	STOP	Crew change.
"	10:07 PM	START	

RUNNING LOG: 261-C16

RUN: BENSENVILLE TO TACOMA
DATE: APRIL 16-19, 1974
TEST OF: MAIN LINE TRACK EVALUATION
ARRANGEMENT: LOCO, DYNAMOMETER CAR, M 12009, CAR, CABOOSE

TRAIN LOCATION	TIME (LOCAL)	SPEED (MPH)	REMARKS
KENOVA	10:29PM	22	
LAVISTA	10:54	22	
REVERE	11:23	19	
<u>FRIDAY, APRIL 19, 1974</u>			
MARENGO	12:00 AM	STOP	On siding for Extra 22 East.
"	12:07	START	
RALSTON	12:29	30	
VASSAR	12:48	31	
LIND	12:58	30	
ROXBORO	1:23	31	
WARDEN	1:41	32	
MP 1976.6	1:46	12	Began 10 MPH slow order.
MP 1979.6	1:58	15	End 10 MPH slow order.
NOVARA	2:06	32	
OTHELLO	2:19	STOP	Crew change. Added 2 units: loco now: 3025, 3022, 5501, 5010.
OTHELLO	2:56	START	
TAUNTON	3:20	44	
MP 2001.6	3:27	26	Began 25 MPH Slow Order.
MP 2003.2	3:30 AM	29	End 25 MPH slow order.

RUNNING LOG: 261-C16

RUN: BENSENVILLE TO TACOMA
DATE: APRIL 16-19, 1974
TEST OF: MAIN LINE TRACK EVALUATION
ARRANGEMENT: LOCO, DYNAMOMETER CAR, M 12009, CAR, CABOOSE

TRAIN LOCATION	TIME (LOCAL)	SPEED (MPH)	REMARKS
MP 2006	3:35 AM	38	Began 35 MPH slow order.
MP 2008.6	3:39	37	End 35 MPH slow order.
SMYRNA	3:45	45	
MP 2018	3:53	30	Began 30 MPH slow order.
MP 2025.6	4:08	28	End 30 MPH slow order.
DORIS	4:27	19	
RYE	4:42	20	
BOYLSTON	5:05	STOP	Red signal.
"	5:06	START	
MP 2059.8	5:36	35	Began 30 MPH slow order.
MP 2064	5:45	38	End 30 MPH slow order.
CLE ELUM	6:19	STOP	Crew change.
"	6:25	START	
MP 2093.6	6:44	36	Began 25 MPH slow order.
EASTON	6:55	25	
HYAK	7:37	23	
MP 2116	7:38	23	End 25 MPH slow order.
BANDERA	7:56 AM	25	

RUNNING LOG: 261-C16

RUN: BENSENVILLE TO TACOMA
DATE: APRIL 16-19, 1974
TEST OF: MAIN LINE TRACK EVALUATION
ARRANGEMENT: LOCO, DYNAMOMETER CAR, M 12009, CAR, CABOOSE

TRAIN LOCATION	TIME (LOCAL)	SPEED (MPH)	REMARKS
GARCIA	8:09 AM	26	
RAGNAR	8:21	22	
CEDAR FALLS	8:30	21	
BAGLEY JCT.	8:38	38	
MAPLE VALLEY	8:58	30	
RENTON	9:29	12	
BLACK RIVER JCT.	9:39	STOP	Set out cars.
"	10:24	START	22L + 3E = 1481 tons.
KENT STATION	10:39	38	
WEST SIDING	10:44	STOP	Set out auto loads.
"	10:55	START	17L + 3E = 1231 tons.
AUBURN	11:01	40	
BENROY	11:06	48	
SUMNER	11:10	18	
TACOMA JCT.	11:22	STOP	Red signal.
TACOMA JCT.	11:38	START	
TACOMA YARD	12:00 PM	STOP	Friday, April 19, 1974

RUN: RUNNING LOG: Adv. 262-S21
 DATE: TACOMA TO BENSENVILLE
 TEST OF: APRIL 20-29, 1974
 TRACK EVALUATION
 ARRANGEMENT: LOCO, X-5000, M 12009, CARS, CABOOSE

TRAIN LOCATION	TIME (LOCAL)	SPEED (MPH)	REMARKS
	(PDT)		SATURDAY, APRIL 20, 1974
TACOMA	7:00 PM	DEPART	LOCO: 3008-174-3006. 35L + 3E = 2610 T
TACOMA JCT.	7:14	16	
SUMNER	7:26	19	
BENROY	7:31	48	
AUBURN	7:36	38	
KENT	7:45	42	
ANDOVER	7:53	40	
BLACK RIVER JCT.	8:02	STOP	Picked up cars.
"	8:35	START	49L + 7E = 3696 Tons. Began 25 MPH slow order.
RENTON	8:40	9	
MAPLE VALLEY	9:09	18	End 25 MPH slow order.
TRUDE	9:24	36	
BAGLEY JCT.	9:33	36	
CEDAR FALLS	9:39	40	
RAGNAR	9:50	19	
GARCIA	10:05	17	
BANDERA	10:26	18	
MP 2116	10:49 PM	20	Began 25 MPH slow order.

RUNNING LOG: ADV. 262-S21

RUN: TACOMA TO BENSENVILLE
DATE: APRIL 20-29, 1974
TEST OF: TRACK EVALUATION
ARRANGEMENT: LOCO, X-5000, M 12009, CARS, CABOOSE

TRAIN LOCATION	TIME (LOCAL)	SPEED (MPH)	REMARKS
HYAK	10:50 PM	22	
EASTON	11:31	25	
MP 2093.5	11:41	28	End 25 MPH slow order.
CLE ELUM	11:54	STOP	Crew change.
			SUNDAY, APRIL 21, 1974
CLE ELUM	12:07 AM	START	
THORP	12:45	48	
MP 2064	12:50	32	Began 30 MPH slow order.
MP 2062	12:53	30	End 30 MPH slow order.
ELLENSBURG	12:58	31	
KITTITAS	1:06	44	
BOYLSTON	1:38	19	
RYE	1:49	21	
BEVERLY	2:13	25	Began 30 MPH slow order.
MP 2025	2:14	30	
MP 2018	2:30	30	End 30 MPH slow order.
SMYRNA	2:39	45	
MP 2009.8	2:45 AM	39	Began 35 MPH slow order.

RUNNING LOG: ADV. 262-S21

RUN: TACOMA TO BENSENVILLE
DATE: APRIL 20-29, 1974
TEST OF: TRACK EVALUATION
ARRANGEMENT: LOCO, X-5000, M 12009, CARS, CABOOSE

TRAIN LOCATION	TIME (LOCAL)	SPEED (MPH)	REMARKS
MP 2006	2:49 AM	32	End 35 MPH slow order.
MP 2003.5	2:54	20	Began 25 MPH slow order.
MP 2000.2	3:00	29	End 25 MPH slow order.
TAUNTON	3:05	44	
CIHELLO	3:20	STOP	Crew change.
"	6:15	START	Loco: 3008, 174. 47L + 7E = 3681 Tons.
SERVIA	7:21	30	
LIND	7:34	31	
VASSAR	7:47	30	
PIZARRO	7:55	30	
RALSTON	8:05	30	
MARENGO	8:30	STOP	Waited for Extra 3005 West.
"	8:34	START	
PAXTON	8:58	29	
REVERE	9:06	29	
EWAN	9:30	25	
LAVISTA	9:34	25	
KENOVA	10:02 AM	25	

RUNNING LOG: ADV. 262-S21

RUN: TACOMA TO BENSENVILLE
DATE: APRIL 20-29, 1974
TEST OF: TRACK EVALUATION
ARRANGEMENT: LOCO, X-5000, M 12009, CARS, CABOOSE

TRAIN LOCATION	TIME (LOCAL)	SPEED (MPH)	REMARKS
PINE CITY	10:06 AM	24	
MALDEN	10:16	STOP	Crew change.
"	10:32	START	
MP 1875.5	10:49	10	Began 10 MPH slow order.
MP 1871.5	11:12	12	End 10 MPH slow order.
PANDORA	11:26	17	
SEABURY	11:40	23	
TEKOA	11:57	25	
MOWRY	12:16 PM	25	
MP 1838	12:32	12	Began 10 MPH slow order.
PLUMMER	12:40	STOP	Picked up train orders - end 10 MPH slow order.
"	12:43	START	
PEDEE	1:05	23	
RAMSDALL	1:43	24	
ST. MARIES	1:58	18	Slow: picked up orders.
ST. JOE	2:25	25	
CALDER	2:54	24	
POCONO	3:12 PM	24	

RUNNING LOG: ADV. 262-S21

RUN: TACOMA TO BENSENVILLE
DATE: APRIL 20-29, 1974
TEST OF: TRACK EVALUATION
ARRANGEMENT: LOCO, X-5000, M 12009, CARS, CABOOSE

TRAIN LOCATION	TIME (LOCAL)	SPEED (MPH)	REMARKS
AVERY	3:50 PM (PDT)	STOP	Crew change. Added Helper E-70 on point. Loco: E-70, 3008, 174.
"	5:46 (MDT)	START	Start 1st Eastbound train operation tes
STETSON	6:09	22	
KYLE	6:18	23	
FALCON	6:40	STOP	Hold main line and wait for extra 25 west.
"	7:40	START	
ADAIR	7:53	16	
ROLAND	8:09	16	
EAST PORTAL	8:20	10	
MP 1746	8:34	12	Begin 10 MPH slow order.
MP 1745	8:39	13	End 10 MPH slow order.
BRYSON	8:43	24	
SALTESE	8:53	28	
HAUGAN	9:03	28	End of 1st eastbound train operation test.
HENDERSON	9:15	28	
DREXEL	9:25	28	
ST. REGIS	9:45	35	
ALBERTON	10:56 PM	STOP	SUNDAY, APRIL 21, 1974 End of testing on Train 262-S21.

RUNNING LOG: 261-TC20, ADV. 262-S23, 261-TC21

RUN: TACOMA TO BENSENVILLE
DATE: APRIL 20-29, 1974
TEST OF: TRACK EVALUATION
ARRANGEMENT: LOCO, X-5000, M 12009, CARS, CABOOSE

TRAIN LOCATION	TIME (LDCAL)	SPEED (MPH)	REMARKS
<u>TUESDAY, APRIL 23, 1974</u>			
ALBERTON	12:01 AM	START	Test consist on Train 261-TC20.
MP 1686.1	12:21	STOP	Red signal.
"	12:22	START	
TARKIO	12:36	STOP	Take siding for Train 262.
"	12:46	START	
HAUGAN	2:22	STOP	Wait for Eastbound train.
"	2:49	START	Start 2nd westbound train operation test.
AVERY	4:54 AM	STOP	End of 2nd westbound train operation test.
AVERY	2:58 PM	START	Test consist on Train Adv. 262-S23. Start 2nd eastbound train operation test.
STETSON	3:10	STOP	Met Extra E-70 West.
"	3:27	START	
HAUGAN	5:03	STOP	End 2nd eastbound train operation test.
"	10:20	START	Test consist on Train 261-TC21. Start 3rd westbound train operations test.
MP 1748.4	11:17	STOP	Red signal.
MP 1748.4	11:19 PM	START	
<u>WEDNESDAY, APRIL 24, 1974</u>			
AVERY	12:06 AM	STOP	End of 3rd westbound train operation test.

RUNNING LOG: 262-S25

RUN: TACOMA TO BENSENVILLE
DATE: APRIL 20-29, 1974
TEST OF: TRACK EVALUATION
ARRANGEMENT: LOCO, CARS, TEST CONSIST, CARS, BOOSTER, CARS, CABOOSE

TRAIN LOCATION	TIME (LOCAL)	SPEED (MPH)	REMARKS
<u>THURSDAY, APRIL 25, 1974</u>			
AVERY	10:50 PM	START	79L + 20E = 6267 Tons. Arrgt: 21-3027-4005 (14L + 1E = 1070 T.), X-5000, M 12009 (20L + 7E = 1448 T.), Booster 3016-29 (43L + 12E = 3562 T.), Caboose. Start 3rd eastbound train operation test.
<u>FRIDAY, APRIL 26, 1974</u>			
MP 1746.6	12:18 AM	STOP	Checked Unit 4005.
"	12:19	START	
HAUGAN	12:50	23	End of 3rd Eastbound train operation test.
ALBERTON	3:33	STOP	Crew change.
"	3:35	START	Began 35 MPH slow order.
HUSON	4:04	33	
FRENCHTOWN	4:09	STOP	B. O. signal.
FRENCHTOWN	4:20	START	
SCHILLING	4:31	34	
MP 1642	4:55	25	End 35 MPH slow order.
MISSOULA	5:00 AM	4	

RUNNING LOG: 262-S25

RUN: TACOMA TO BENSENVILLE
DATE: APRIL 20-29, 1974
TEST OF: TRACK EVALUATION
ARRANGEMENT: LOCO, CARS, TEST CONSIST, CARS, BOOSTER, CARS, CABOOSE

TRAIN LOCATION	TIME (LOCAL)	SPEED (MPH)	REMARKS
BONNER JCT.	5:12 AM	43	
CLINTON	5:30	STOP	Loco, 4005 out of governor oil.
"	5:56	START	Loco 4005 dead.
IRIS	6:08	28	
REVENNA	6:18	35	
BEARMOUTH	6:34	41	
OZAN	6:43	35	
DRUMMOND	6:52	32	
HASKELL	7:05	28	
GOLD CREEK	7:16	33	
GARRISON	7:32	27	
KOHR	7:42	36	
DEER LODGE	7:52 AM	STOP	Crew change.

RUNNING LOG: 262-S25

RUN: TACOMA TO BENSENVILLE
DATE: APRIL 20-29, 1974
TEST OF: TRACK EVALUATION
ARRANGEMENT: LOCO, X-5000 - M 12009, CARS, CABOOSE

TRAIN LOCATION	TIME (LOCAL)	SPEED (MPH)	REMARKS
DEER LODGE	11:04 AM	START	Loco: 21, 3036, 4005, 3016, 29 All on head end. 62L + 13E = 5200 Tons
MOREL	11:35	32	
FINLEN	11:53 AM	STOP	Red signal.
"	12:02 PM	START	
DAWSON	12:16	12	
SILVER BOW	12:26	15	
ALLOY	12:36	30	
BUTTE	12:41	21	
BUTTE YARD	12:45	STOP	Red signal.
"	12:51	START	
NEWCOMB	1:08	6	Passing Extra 16 West.
JANNEY	1:22	18	
DCNALD	1:46	18	
CEDRIC	2:16	18	
MP 1485.2	2:35	25	25 MPH slow order over Hwy. crossing.
PIEDMONT	2:37	31	
THREE FORKS	3:37	STOP	Crew change.
"	3:40 PM	START	Began 25 MPH slow order.

RUNNING LOG: 262-S25

RUN: TACOMA TO BENSENVILLE
DATE: APRIL 20-29, 1974
TEST OF: TRACK EVALUATION
ARRANGEMENT: LOCO, X-5000 - M 12009, CARS, CABOOSE

TRAIN LOCATION	TIME (LOCAL)	SPEED (MPH)	REMARKS
THREE FORKS	3:47 PM	4	Hi-ball.
MP 1448	3:52	20	End 25 MPH slow order.
EUTIS	4:04	28	
CARDINAL	4:27	23	
RINGLING	5:42	45	
HAMEN	5:45	28	
BRUNO	6:13	23	
TWO DOT	6:58	43	
HARLOWTON	7:25	STOP	Crew change.
"	8:37	START	Loco 3036, 3016. 61L + 13E = 5198 Ton
RYE GATE	9:15	52	
LAVINA	9:37	51	
MP 1282.5	9:48	30	Begin 30 MPH slow order.
MP 1280.5	9:51	31	End 30 MPH slow order.
ROUNDUP	10:10	50	
GAGE	10:20	49	
MELSTONE	10:51	48	
INGOMAR	11:47 PM	STOP	Took siding.

RUNNING LOG: 262-S25

RUN: TACOMA TO BENSENVILLE
DATE: APRIL 20-29, 1974
TEST OF: TRACK EVALUATION
ARRANGEMENT: LOCO, X-5000 - M 12009, CARS, CABOOSE

TRAIN LOCATION	TIME (LOCAL)	SPEED (MPH)	REMARKS
<u>SATURDAY, APRIL 27, 1974</u>			
INGOMAR	1:10 AM	START	
MP 1189.4	1:38	13	Begin 10 MPH slow order.
MP 1186.5	1:45	14	End 10 MPH slow order.
PARAGON	3:10	48	
MILES CITY	3:25	STOP	Crew change.
"	4:40	START	
BONFIELD	5:14	49	
MP 1085	5:32	38	Began 40 MPH slow order.
MP 1065	6:03	40	End 40 MPH slow order.
MILDRED	6:12	28	25 MPH slow order over west switch.
LACOMB	6:25	40	
ISMAY	6:35	40	
WESTMORE	6:48	35	
PLEVNA	7:00	37	
BAKER	7:19	40	
MARMARTH	7:48	STOP	Crew change.
"	7:56	START	
RHAME	8:47 AM	32	

RUNNING LOG: 262-S25

RUN: TACOMA TO BENSENVILLE
DATE: APRIL 20-29, 1974
TEST OF: TRACK EVALUATION
ARRANGEMENT: LOCO, X-5000 - M 12009, CARS, CABOOSE

TRAIN LOCATION	TIME (LOCAL)	SPEED (MPH)	REMARKS
GRIFFIN	8:55 AM	49	
BOWMAN	9:04	49	
BUFFALO SPRINGS	9:13	50	
MP 956	9:17	38	Begin 40 MPH slow order.
MP 954	9:20	41	End 40 MPH slow order.
GASCOYNE	9:24	48	
REEDER	9:32	42	
HAYNES	10:03	51	
PETREL	10:24	STOP	Took siding.
"	10:29	START	
LEMMON	10:44	42	
WATAUGA	11:22 AM	48	
MC LAUGHLIN	12:10 PM	48	
MAHTO	12:19	50	
WAKPALA	12:40	STOP	On siding.
"	12:55	START	
MOREAU JCT.	1:04	28	
MOBRIDGE	1:17 MDT	STOP	Crew change.

RUNNING LOG: 262-S25

RUN: TACOMA TO BENSENVILLE
DATE: APRIL 20-29, 1974
TEST OF: TRACK EVALUATION
ARRANGEMENT: LOCO, X-5000 - M 12009, CARS, CABOOSE

TRAIN LOCATION	TIME (LOCAL)	SPEED (MPH)	REMARKS
MOBRIDGE	2:24 PM	START	
	CDT		
SELBY	3:22	STOP	In siding.
"	3:30	START	
JAVA JCT.	3:44	26	
MP 766	4:01	STOP	Broken air brake hose.
"	4:19	START	
BOWDLE	4:27	35	
GREYNA	4:36	43	
BOSCOE	4:47	46	
IPSWICH	5:05	50	
MINA	5:20	50	
ABERDEEN	5:45	STOP	Crew change.
"	6:23	START	
GROTON	6:59	49	
BRISTOL	7:43	37	
HOLMQUIST	7:50	45	
WEBSTER	7:58	46	
WAUBAY	8:11	50	
ORTLEY	8:18 PM	47	

RUNNING LOG: 262-S25

RUN: TACOMA TO BENSENVILLE
DATE: APRIL 20-29, 1974
TEST OF: TRACK EVALUATION
ARRANGEMENT: LOCO, X-5000 - M 12009, CARS, CABOOSE.

TRAIN LOCATION	TIME (LOCAL)	SPEED (MPH)	REMARKS
JACKSON	8:24 PM	33	
SUMMIT	8:30	36	
TWIN BROOKS	8:50	44	
MP 602.5	9:11	30	Began 30 MPH slow order.
MP 598	9:19	32	End 30 MPH slow order. Began 40 MPH slow order.
ODESSA	9:30	STOP	Picked up cars and Unit 586.
"	10:16	START	97L + 24E = 8290 Tons.
MP 587	10:31	30	End 40 MPH slow order. Begin 30 MPH slow order.
MP 579	10:45	30	End 30 MPH slow order.
APPLETON	10:47	36	
MILAN	10:58	48	
N. WATSON	11:10	48	
MONTEVIDEO	11:23 PM	STOP	Crew change.
			<u>SUNDAY, APRIL 23, 1974</u>
"	12:03 AM	START	
WEGDAHL	12:15	46	
E-118	12:28	35	
RENVILLE	12:50	24	

RUNNING LOG: 262-S25

RUN: TACOMA TO BENSENVILLE
DATE: APRIL 20-29, 1974
TEST OF: TRACK EVALUATION
ARRANGEMENT: LOCO, X-5000 - M 12009, CARS, CABOOSE

TRAIN LOCATION	TIME (LOCAL)	SPEED (MPH)	REMARKS
DANUBE	1:04 AM	25	
HECTOR	1:43	52	
STEWART	1:58	34	
GLENCOE	2:24	26	
MP 465	2:33	38	Begin 25 MPH slow order.
COLOGNE	3:09	STOP	Wait for Extra 172 west.
"	3:50	START	
MP 451.5	4:01	20	End 25 MPH slow order.
MP 443.4	4:13	38	Begin 25 MPH slow order.
MP 435	4:34	25	End 25 MPH slow order.
HOPKINS	4:40	27	
ST. PAUL	5:29 AM	STOP	Crew change.
"	12:10 PM	START	Loco: 585, 2055, 2044 586. 57L + 62E = 6550 Tons.
HASTINGS	12:53	18	
DUKE	1:20	STOP	Red signal for Amtrak #10.
"	1:29	START	
RED WING	1:50	34	
LAKE CITY	2:14	50	
WABASHA	2:30 PM	44	

RUNNING LOG: 262-S25

RUN: TACOMA TO BENSENVILLE
DATE: APRIL 20-29, 1974
TEST OF: TRACK EVALUATION
ARRANGEMENT: LOCO, X-5000 - M 12009, CARS, CABOOSE

TRAIN LOCATION	TIME (LOCAL)	SPEED (MPH)	REMARKS
KELLOGG	2:38 PM	45	
MP 324.4	2:51	STOP	Broken air hose.
"	3:21	START	
MP 316.9	3:42	STOP	Shifted load of lumber set out.
"	4:47	START	
WINNONA	5:11	25	
DAKOTA	5:37	48	
RIVER JCT.	5:44	43	
BRIDGE L4A	5:50	10	Slow order over bridge.
LA CROSSE	5:58	STOP	Crew change. Set out Unit 585.
"	6:08	START	
WEST SALEM	6:37	30	
SPARTA	6:58	45	
MP 241	7:31	38	Began 35 MPH slow order.
MP 239	7:33	35	End 35 MPH slow order.
MP 195.3	8:32	37	Began 35 MPH slow order.
MP 193.4	8:35	38	End 35 MPH slow order.
LEWISTON	8:43	47	
SILVER	8:50 PM	49	

RUNNING LOG: 262-S25

RUN: TACOMA TO BENSENVILLE
DATE: APRIL 20-29, 1974
TEST OF: TRACK EVALUATION
ARRANGEMENT: LOCO, X-5000 - M 12009, CARS, CABOOSE

TRAIN LOCATION	TIME (LOCAL)	SPEED (MPH)	REMARKS
PORTAGE	8:56 PM	STOP	Crew change.
"	8:59	START	
WYOCENA	9:25	35	
RIO	9:37	18	
COLUMBUS	10:05	49	
REESEVILLE	10:16	49	
WATERTOWN	10:31	32	Began 40 MPH slow order.
MP 123	10:45	37	End 40 MPH slow order.
OCCONOMOWOC	10:57	28	
HARTLAND	11:10	25	
MP 107	11:15	41	Began 40 MPH slow order.
MP 106	11:17	41	End 40 MPH slow order.
DUPLAINVILLE	11:22	45	
MILWAUKEE (CUT-OFF)	11:45 PM	STOP	Crew change. Set out Loco. 586. Pick up Loco 293.
<u>MONDAY, APRIL 29, 1974</u>			
MILWAUKEE (CUT-OFF)	12:34 AM	START	Loco: 2055-2044-293
LAKE	1:30	12	
STURTEVANT	1:59	42	

RUNNING LOG: 262-S25

RUN: TACOMA TO BENSENVILLE
DATE: APRIL 20-29, 1974
TEST OF: TRACK EVALUATION
ARRANGEMENT: LOCO, X-5000 - M 12009, CARS, CABOOSE

TRAIN LOCATION	TIME (LOCAL)	SPEED (MPH)	REMARKS
SOMERS	2:05 AM	41	
TRUESDELL	2:12	38	
WADSWORTH	2:28	43	
MP 34.1	2:42	STOP	Red Signal.
"	2:47	START	
RONDOUT	2:53	36	
DEERFIELD	3:04	47	
NORTHBROOK	3:08	23	
TOWER B-17	3:56	11	
BENSENVILLE	4:05 AM	STOP	End of test.

VII. A. SUMMARY OF GRADE PERFORMANCE BETWEEN HAUGAN & AVERY

APRIL 18-26, 1974

Test No. & Train	Location of Dyn. Car	Total Cars	Total Tons	ASCENDING				DESCENDING				Train Braking	
				Drawbar Pull		Avg. Speed (MPH)	X-5000 in Tunnel (Min.)	Drawbar Buff		Avg. Speed (MPH)	Booster Mode MU/Ind:		
				Avg. (Lbs.)	Max. (Lbs.)			Avg. (Lbs.)	Max. (Lbs.)				
1st W.B. 261-C16 Convent.	Next Behind Loco.	49	2693	107000	110000	25.0	5.2	60000	115000	21.6	--		X
1st E.B. Adv.262-S21 Convent.	Next Behind Loco.	54	3681	135000	190000	17.6	6.7	72000	140000	18.7	--	X	X
2nd W.B. 261-TC20 Locotrol	12th Car Ahead of Booster	99	5499	72000	150000	15.0	6.1	45000	90000	22.7	M.U.		X
2nd E.B. Adv.262-S23 Convent.	19th Car Behind Loco	53	2981	96000	132000	20.9	5.0	30000	12000	23.7	--	X	X
3rd W.B. 261-TC21 Locotrol	13th Car Behind Booster	107	6780	90000	138000	13.6	5.5	72000	96000	25.5	Ind.		X
3rd E.B. 262-S25 Locotrol	29th Car Ahead of Booster	99	6267	102000	210000	18.2	5.7	36000	204000	22.5	Ind.	X	X

RUNNING LOG: TRAIN 261-C16

RUN: HAUGAN TO AVERY
DATE: APRIL 18, 1974
TEST OF: TRAIN OPERATION - 1st WESTBOUND TEST
ARRANGEMENT: LOCO, DYNAMOMETER CAR, M 12009, CARS, CABOOSE

TRAIN LOCATION	TIME (LOCAL)	SPEED (MPH)	REMARKS
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THURSDAY, APRIL 18, 1974

Arrgt.: E-72 - 3025 - 3022, X-5000 -
M 12009, Cars
27L + 22E = 2693 Tons
Weather - Good, Rail - Excellent

TRAIN LOCATION	TIME (LOCAL)	SPEED (MPH)	REMARKS
	(MDT)		
HAUGAN	4:43 PM	26	Start 1st Westbound test.
MP 1736	4:45	24	Brake pipe pressure: 88 psi.
MP 1737	4:48	26	Numerous track curves to 10°.
MP 1738	4:50	28	Began steady run #8.
MP 1739	4:52	25	Drawbar pull stabilized at 105,000 lbs.
MP 1740	4:55	26	Drawbar 105,000 to 110,000 lbs.
SALTESE	4:56	26	"
MP 1741	4:57	26	"
MP 1742	4:59	26	"
MP 1743	5:02	26	"
BRYSON	5:04	26	"
MP 1745	5:06	27	"
MP 1746	5:09	26	"
MP 1747	5:11	26	"
MP 1748	5:13 PM	26	"

RUNNING LOG: TRAIN 261-C16

RUN: HAUGAN TO AVERY
DATE: APRIL 18, 1974
TEST OF: TRAIN OPERATION - 1st WESTBOUND TEST
ARRANGEMENT: LOCO, DYNAMOMETER CAR, M 12009, CARS, CABOOSE

TRAIN LOCATION	TIME (LOCAL)	SPEED (MPH)	REMARKS
MP 1749	5:16 PM	16	Drawbar pull zero at MP 1751.
EAST PORTAL	5:17	16	Entering Tunnel #20 (8771 ft.).
MP 1750	5:19	21	Loco in idle at MP 1750.2.
ROLAND	5:23	21	Began dyn. braking at MP 1751.3.
MP 1752	5:25	23	Negotiating numerous curves to 10°.
MP 1753	5:28	24	Holding train with dyn. braking only.
MP 1754	5:30	24	
MP 1755	5:34	15	10 MPH slow order over derailment site
ADAIR	5:38	12	
MP 1757	5:42	22	Resumed speed.
MP 1758	5:45	25	
MP 1759	5:47	22	10 MPH slow order Tunnel #28 to MP 1761
FALCON	5:51	16	
MP 1761	5:55	14	Numerous 20,000 to 30,000 lb. variation in buff due to curves.
MP 1762	5:59	24	"
MP 1763	6:01	24	"
MP 1764	6:04	26	"
MP 1765	6:06	26	Moderate slack action.
KYLE	6:07 PM	25	

RUNNING LOG: TRAIN 261-C16

RUN: HAUGAN TO AVERY
DATE: APRIL 18, 1974
TEST OF: TRAIN OPERATION - 1st WESTBOUND TEST
ARRANGEMENT: LOCO, DYNAMOMETER CAR, M 12009, CARS, CABOOSE

TRAIN LOCATION	TIME (LOCAL)	SPEED (MPH)	REMARKS
MP 1766	6:08 PM	26	
MP 1767	6:11	26	
MP 1768	6:13	25	
STETSON	6:16	26	Brake pipe still 88 psi.
MP 1770	6:18	26	
MP 1771	6:20	26	Moderate slack action to this point.
MP 1772	6:23	19	Ended dyn. braking at MP 1772.5.
MP 1773 (AVERY)	6:27	STOP	End 1st Westbound test.

NOTES: ASCENDING HAUGAN - MP 1750 (15 Miles)

Drawbar pull, range 105,000 - 110,000 lbs.
 Drawbar pull, average 107,000 lbs.
 Running time 36 min./0.6 Hr.
 Train speed, average 25.0 MPH

DESCENDING MP 1750 - AVERY (23 Miles)

Drawbar buff, range 30,000 - 115,000 lbs.
 Drawbar buff, average 60,000 lbs.
 Running time 61 min./1.0 Hr.
 Train speed, average 21.6 MPH

DYNAMOMETER CAR IN TUNNEL #20 5.2 Min.

RUNNING LOG: TRAIN ADV. 262-S21

RUN: AVERY TO HAUGAN
DATE: APRIL 21, 1974
TEST OF: TRAIN OPERATION - 1st EASTBOUND TEST
ARRANGEMENT: LOCO, DYNAMOMETER CAR, M 12009, CARS, CABOOSE

TRAIN LOCATION	TIME (LOCAL)	SPEED (MPH)	REMARKS
<u>SUNDAY APRIL 21, 1974</u>			
Arrgt.: E70 - 3008 - 174, X-5000 - M 12009, Cars, Caboose. 47L + 7 E = 3681 Tons. Weather: good. Rail: dry.			
	(MDT)		
AVERY	5:46 PM	DEPART	Start of 1st Eastbound test.
AVERY (WEST SWITCH)	5:54	STOP	Air test. Brake pipe 87 psi.
"	5:59	START	Max. starting drawbar 160,000 lbs.
MP 1772	6:00	15	Negotiating numerous 10° reverse curves.
MP 1771	6:04	20	Train stabilized - 150,000 lbs. drawbar.
MP 1770	6:06	22	
STETSON	6:09	22	10,000 to 30,000 lb. fluctuations in drawbar.
MP 1769	6:09	22	Wheel slip and 63,000 lb. drawbar reduction MP 1764.3 to 1763.7.
MP 1768	6:12	22	Stabilized at 140,000 lbs. drawbar.
MP 1767	6:14	22	
MP 1766	6:17	22	
KYLE	6:18	23	Numerous 15,000 lbs. variations in drawbar reflecting train resistance in curves.
MP 1764	6:22	16	
MP 1763	6:26PM	16	

RUNNING LOG: TRAIN ADV. 262-S21

RUN: AVERY TO HAUGAN
DATE: APRIL 21, 1974
TEST OF: TRAIN OPERATION - 1st EASTBOUND TEST
ARRANGEMENT: LOCO, DYNAMOMETER CAR, M 12009, CARS, CABOOSE

TRAIN LOCATION	TIME (LOCAL)	SPEED (MPH)	REMARKS
MP 1762	6:29 PM	17	
MP 1761	6:33	17	
FALCON	6:40	STOP	Held main track: Extra 25 West passed on siding. Held train using loco brake
"	7:40	START	Max. starting drawbar 190,000 lbs.
MP 1759	7:42	16	Stabilized at 150,000 lbs. and 16 MPH.
MP 1758	7:46	17	
MP 1757	7:50	16	
ADAIR	7:53	16	Numerous wheel slips in Tunnel #25 with 30,000 lb. drawbar variations.
MP 1755	7:57	18	Drawbar pull 120,000 - 135,000 lbs.
MP 1754	8:01	16	"
MP 1753	8:04	16	"
MP 1752	8:08	16	"
ROLAND	8:09	16	Entering St. Paul Pass (Tunnel #20).
MP 1750	8:15	16	
EAST PORTAL	8:20	10	10 MPH over derailment site.
MP 1749	8:22	11	Started dyn. braking. Made 5 psi brake pipe reduction at MP 1748.5.
MP 1748	8:25	19	
MP 1747	8:28	17	
MP 1746	8:34 PM	12	10 MPH slow order over derailment site.

RUNNING LOG: TRAIN ADV. 262-S21

RUN: AVERY TO HAUGAN
DATE: APRIL 21, 1974
TEST OF: TRAIN OPERATION - 1st EASTBOUND TEST
ARRANGEMENT: LOCO, DYNAMOMETER CAR, M 12009, CARS, CABOOSE

TRAIN LOCATION	TIME (LOCAL)	SPEED (MPH)	REMARKS
MP 1745	8:39 PM	13	
BRYSON	8:43	24	
MP 1743	8:45	29	Max. speed for 1/3 mile.
MP 1742	8:47	26	
MP 1741	8:50	28	Buff stabilized at approx. 78,000 lbs.
SALTESE	8:53	28	
MP 1740	8:52	28	
MP 1739	8:54	27	Releasing train brakes MP 1738.6.
MP 1738	8:56	25	Brakes released -dynamic braking off.
MP 1737	8:59	27	Buff action to 114,000 lbs.
MP 1736	9:01	28	
HAUGAN	9:03 PM	28	End of 1st Eastbound test.

NOTES: ASCENDING AVERY TO MP 1750

Drawbar pull, range 120,000 - 190,000 lbs.
 Drawbar pull, average 135,000 lbs.
 Running time 36 min./0.6 Hr.
 Train speed, average 17.6 MPH

DESCENDING MP 1750 to HAUGAN:

Drawbar buff, range 36,000 - 140,000 lbs.
 Drawbar buff, average 72,000 lbs.
 Running time 48 min./0.8 Hr.
 Train speed, average 18.7 MPH

DYNAMOMETER CAR IN TUNNEL #20 6.7 Min.

RUNNING LOG: TRAIN 261-TC20 (LOCOTROL)

RUN: HAUGAN TO AVERY
DATE: APRIL 23, 1974
TEST OF: TRAIN OPERATION - 2nd WESTBOUND TEST
ARRANGEMENT: LOCO, CARS, TEST CONSIST, CARS, BOOSTER, CARS, CABOOSE

TRAIN LOCATION	TIME (LOCAL)	SPEED (MPH)	REMARKS
<u>TUESDAY, APRIL 23, 1974</u>			
			Arrgt.: 22 - 181 - 3011, 30 Cars, M 12009 - X-5000, 11 Cars, 3010 - 28, 56 Cars, Caboose.
			Tonnage: Behind Lead Power 1573 Test Consist 187 Behind Test Consist 960 Behind booster 2779 T o t a l 5499 Tons
	(MDT)		Weather: 30-35 F° & clear. Rail: dry.
HAUGAN	2:49 AM	DEPART	START 2nd Westbound test. Booster 3010-28 in "MJ" mode.
MP 1737	2:57	8	Diesel 3011 off line.
MP 1738	3:00	26	90 psi on brake pipe.
MP 1739	3:03	21	
MP 1740	3:06	15	Lead unit #22 dropping load occasionally with drawbar pull surges to 90,000 lbs. over existing level.
SALTESE	3:09	14	Unit 3011 back on line.
MP 1741	3:10	15	Drawbar pull steady at 66,000 lbs.
MP 1742	3:14	15	All power in 7th run.
MP 1743	3:18	14	
BRYSON	3:22	15	Lead Unit #22 dropping load.
MP 1745	3:26 AM	14	

RUNNING LOG: TRAIN 261-TC20 (LOCOTROL)

RUN: HAUGAN TO AVERY
DATE: APRIL 23, 1974
TEST OF: TRAIN OPERATION - 2nd WESTBOUND TEST
ARRANGEMENT: LOCO, CARS, TEST CONSIST, CARS, BOOSTER, CARS, CABOOSE

TRAIN LOCATION	TIME (LOCAL)	SPEED (MPH)	REMARKS
MP 1746	3:32 AM	10	10 MPH slow order over derailment site at MP 1746.4.
MP 1747	3:37	12	
MP 1748	3:41	14	All power in run #7.
MP 1749	3:45	12	Booster placed in run #3.
EAST PORTAL	3:45	12	10 MPH slow order over derailment site. Numerous \pm 30,000 lb. drawbar fluctuations from existing 72,000 lb. level: MP 1748 - 1748.25. Drawbar rose to 162,000 lb. max. at MP 1749.
MP 1750	3:50	15	Lead consist initiated dynamic braking when 35 cars from west end of tunnel.
ROLAND	3:53	17	Reestablished continuity with booster same in 'MU' mode.
MP 1752	3:57	22	Buff slowly varying between 30,000 - 60,000 lbs.
MP 1753	3:59	22	
MP 1754	4:01	24	No train braking used to this point.
MP 1755	4:04	24	
ADAIR	4:06	24	
MP 1757	4:09	22	
MP 1758	4:11	24	Booster still in 'MU' mode.
MP 1759	4:14 AM	24	

RUNNING LOG: TRAIN 261-TC20 (LOCOTROL)

RUN: HAUGAN TO AVERY
DATE: APRIL 23, 1974
TEST OF: TRAIN OPERATION - 2nd WESTBOUND TEST
ARRANGEMENT: LOCO, CARS, TEST CONSIST, CARS, BOOSTER, CARS, CABOOSE

TRAIN LOCATION	TIME (LOCAL)	SPEED (MPH)	REMARKS
FALCON	4:16 AM	24	Lead Unit #22 holding 525 amps (dyn.).
MP 1761	4:19	24	
MP 1762	4:21	26	Buff slowly varying 30,000 to 60,000 lb
MP 1763	4:23	25	
MP 1764	4:26	22	
MP 1765	4:28	23	
KYLE	4:30	22	
MP 1766	4:31	22	
MP 1767	4:34	24	Buff still 30,000 - 60,000 lbs.
MP 1768	4:36	24	
STETSON	4:39	22	
MP 1770	4:41	24	
MP 1771	4:43	19	
MP 1772	4:48	10	Train brakes not used during descent.
MP 1772.6	4:54 AM	STOP	End 2nd westbound test.

NOTES: ASCENDING MP 1735 - 1750

Drawbar pull, range 36,000 to 150,000 lbs.
 Drawbar pull, average 72,000 lbs.
 Running time61 min./1.0 Hr.
 Train speed, average 15.0 MPH

RUNNING LOG: TRAIN 261-TC20 (LOCOTROL)

RUN: HAUGAN TO AVERY
DATE: APRIL 23, 1974
TEST OF: TRAIN OPERATION - 2nd WESTBOUND TEST
ARRANGEMENT: LOCO, CARS, TEST CONSIST, CARS, BOOSTER,
CARS, CABOOSE

DESCENDING MP 1750 - 1773 (23 Miles)

Drawbar buff, range 36,000 - 90,000 lbs.
Drawbar buff, average 45,000 lbs.
Running time 64 min./1.01 hr.
Train speed, average 22.7 MPH

DYNAMOMETER CAR IN TUNNEL #20 6.1 min.

RUNNING LOG: TRAIN ADV. 262-S23

RUN: AVERY TO HAUGAN
DATE: APRIL 24, 1974
TEST OF: TRAIN OPERATION - 2nd EASTBOUND TEST
ARRANGEMENT: LOCO, CARS, TEST CONSIST, CARS, CABOOSE

TRAIN LOCATION	TIME (LOCAL)	SPEED (MPH)	REMARKS
<u>WEDNESDAY, APRIL 24, 1974</u>			
Arrgt.: E-76 - 3030 - 3014, (18L + 0E = 1304 Tons), X-5000 - M 12009, (17L + 16E = 1490 Tons) Caboose.			
Total Cars: 53 37L + 16E = 2981 Tons			
	(MDT)		
AVERY	2:58 PM	DEPART	START of 2nd Eastbound test.
MP 1772	3:01	20	
MP 1771	3:03	22	Drawbar 72,000 lbs.
MP 1770	3:06	22	
MP 1770.8	3:10	STOP	Held main at Stetson while Extra E70 west passed on siding.
MP 1770.8	3:27	START	
STETSON	3:32	13	
MP 1768	3:34	22	Train stabilized at 90,000 lbs. pull.
MP 1767	3:37	22	
MP 1766	3:39	23	
KYLE	3:40	24	72,000 lbs. drawbar pull.
MP 1764	3:44	24	"Joe" E-76 slipping occasionally.
MP 1763	3:47	24	
MP 1762	3:49	25	
MP 1761	3:52 PM	14	

RUNNING LOG: TRAIN ADV. 262-S23

RUN: AVERY TO HAUGAN
DATE: APRIL 24, 1974
TEST OF: TRAIN OPERATION - 2nd EASTBOUND TEST
ARRANGEMENT: LOCO, CARS, TEST CONSIST, CARS, CABOOSE

TRAIN LOCATION	TIME (LOCAL)	SPEED (MPH)	REMARKS
FALCON	3:56 PM	12	
MP 1759	3:58	23	
MP 1758	4:01	23	Drawbar steady at 80,000 - 85,000 lbs.
MP 1757	4:03	23	
ADAIR	4:06	24	
MP 1755	4:08	26	
MP 1754	4:11	22	
MP 1753	4:13	23	
MP 1752	4:16	16	
ROLAND	4:20	19	Drawbar pull diminishing.
MP 1750	4:23	21	In tunnel - drawbar pull 24,000 lbs.
MP 1749.5	4:24.6	21	Sharp run-in of 102,000 lbs.
MP 1749.25	4:25.4	18	Run-out shock of 120,000 lbs.
MP 1749	4:26	22	Drawbar pull 36,000 lbs. Made 6 psi brake pipe reduction.
MP 1748.5	4:27	26	Run-in shock of 108,000 lbs.
MP 1748	4:29	22	12,000 lbs. pull and started dynamic braking.
MP 1747	4:31	22	30,000 lbs. buff.
MP 1746	4:36	10	10 MPH slow order over derailment site
MP 1745.2	4:41 PM	10	Out of dynamic braking: 96,000 lb. run-out.

RUNNING LOG: TRAIN ADV. 262-S23

RUN: AVERY TO HAUGAN
DATE: APRIL 24, 1974
TEST OF: TRAIN OPERATION - 2nd EASTBOUND TEST
ARRANGEMENT: LOCO, CARS, TEST CONSIST, CARS, CABOOSE

TRAIN LOCATION	TIME (LOCAL)	SPEED (MPH)	REMARKS
MP 1745	4:42 PM	16	Released train brakes.
BRYSON	4:44	26	Reapplied train brakes at MP 1744.3.
MP 1743	4:46	27	30,000 lbs. buff.
MP 1742	4:49	24	Floating couplers.
MP 1741	4:51	25	
SALTESE	4:52	26	
MP 1740	4:53	26	
MP 1739	4:56	25	120,000 drawbar buff.
MP 1738	4:58	25	
MP 1737.3	5:00	18	Released train brake.
MP 1737	5:01	20	Reapplied train brakes - 9 psi reduction 61,000 lb. run-in shock.
HAUGAN (MP 1736.6)	5:03 PM	STOP	End of 2nd Eastbound test.

NOTES: ASCENDING MP 1773-1750 (23 Miles)

Drawbar pull, range 66,000 - 132,000 lbs.
 Drawbar pull, average 96,000 lbs.
 Running time 68 min./1.1 Hr.
 Train speed (avg.) 20.9 MPH

DESCENDING MP 1750-1735 (15 Miles)

Drawbar buff, range 2,000 - 120,000 lbs.
 Drawbar buff, average 30,000 lbs.
 Running time, average 40 min./0.6 Hr.
 Train speed, average 23.7 MPH

DYNAMOMETER CAR IN TUNNEL #20 5.0 min.

RUNNING LOG: TRAIN 261-TC21 (LOCOTROL)

RUN: HAUGAN TO AVERY
DATE: APRIL 23-24, 1974
TEST OF: TRAIN OPERATION - 3rd WESTBOUND TEST
ARRANGEMENT: LOCO, CARS, BOOSTER, CARS, TEST CONSIST, CARS, CABOOSE

TRAIN LOCATION	TIME (LOCAL)	SPEED (MPH)	REMARKS
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TUESDAY, APRIL 23, 1974

Arrgt.: 21 - 3004 - 3037, 30L + 6E = 2527 Tons, Booster 3040 - 29, 7L + 4E = 901 Tons, M 12009 - X-5000, 22L + 36E = 3165 Tons, Caboose, 61L + 46E = 6780 Tons
 Total

	(MDT)		
HAUGAN (MP 1735.6)	10:20 PM	DEPART	Start of 3rd Westbound test. Max. starting pull 108,000 lbs.
MP 1736	10:22	21	42°F., clear, rail dry.
MP 1737	10:25	25	Holding 90 psi brake pipe pressure.
MP 1738	10:27	26	Booster in "MU" mode.
MP 1739	10:30	17	
MP 1740	10:34	15	
SALTESE	10:37	16	Train stabilized at 16 MPH & 90,000 lbs drawbar pull.
MP 1741	10:38	15	Unit 3004 "IDACing" between 400 & 900 amps. Drawbar pull fluctuating 18,000 lbs. above and below 90,000 lb. level.
MP 1742	10:43	14	
MP 1743	10:47	15	
BRYSON	10:50	15	Unit 3004 "IDACing" again.
MP 1745	10:55	12	All power in run #7.
MP 1746	11:01 PM	10	Alternating between run #6 & run #7.

RUNNING LOG: TRAIN 261-TC21 (LOCOTROL)

RUN: HAUGAN TO AVERY
DATE: APRIL 23-24, 1974
TEST OF: TRAIN OPERATION - 3rd WESTBOUND TEST
ARRANGEMENT: LOCO, CARS, BOOSTER, CARS, TEST CONSIST,
 CARS, CABOOSE

TRAIN LOCATION	TIME (LOCAL)	SPEED (MPH)	REMARKS
MP 1747	11:06 PM	12	
MP 1747.3	11:10	1	Slowdown at signal 183/9.
MP 1748	11:14	12	
MP 1748.4	11:17	STOP	
MP 1748.4	11:19	START	96,000 lbs. drawbar starting.
EAST PORTAL	11:23	12	Booster placed in idle prior to entering Tunnel #20.
MP 1750	11:26	17	Two units in lead consist dropped off line (overheating in Tunnel #20).
ROLAND	11:29	20	Restored the two units; a 72,000 lb. run-in shock resulted. Initiated dynamic braking.
MP 1752	11:32	23	All 3 head units now in dynamic braking.
MP 1753	11:35	22	Booster in "independent" mode (dyn.).
MP 1754	11:37	25	Buff slowly varying from 30,000-60,000 lbs.
MP 1755	11:40	24	
ADAIR	11:42	22	
MP 1757	11:45	24	Slight buff surge of 96,000 lbs.
MP 1758	11:47	23	Lead consist holding 600 amperes in dynamic & booster in run #4 (dynamic).
MP 1759	11:50 PM	23	Booster still in "independent" mode.

RUNNING LOG: TRAIN 261-TC21 (LOCOTROL)

RUN: HAUGAN TO AVERY
DATE: APRIL 23, 24, 1974
TEST OF: TRAIN OPERATION - 3rd WESTBOUND TEST
ARRANGEMENT: LOCO, CARS, BOOSTER, CARS, TEST CONSIST,
CARS, CABOOSE

TRAIN LOCATION	TIME (LOCAL)	SPEED (MPH)	REMARKS
FALCON	11:52 PM	24	
MP 1761	11:55	24	Train stabilized at 24-26 MPH & 78,000 lbs. buff.
MP 1762	11:57	26	
MP 1763	11:59 PM	25	
<u>WEDNESDAY, APRIL 24, 1974</u>			
MP 1764	12:02 AM	24	
MP 1765	12:04	25	
KYLE	12:06	23	
MP 1766	12:07	23	
MP 1767	12:09	25	
MP 1768	12:12	22	Holding 500 amperes (dyn.) on lead power
STETSON	12:15	25	Train brakes not used during entire descent.
MP 1770	12:17	24	
MP 1771	12:19	18	Terminated dynamic braking MP 1771.2.
AVERY (MP 1771.7)	12:22 AM	STOP	End of 3rd Westbound test.

RUNNING LOG: TRAIN 261-TC21 (LOCOTROL)

RUN: HAUGAN TO AVERY
DATE: APRIL 23-24, 1974
TEST OF: TRAIN OPERATION - 3rd WESTBOUND TEST
ARRANGEMENT: LOCO, CARS, BOOSTER, CARS, TEST CONSIST,
CARS, CABOOSE

NOTES: ASCENDING MP 1735-1750 (15 miles)

Drawbar pull, range 60,000 - 138,000 lbs.
Drawbar pull, average 90,000 lbs.
Running time 70 min./1.1 Hr.
Train speed, average 13.6 MPH

DESCENDING MP 1750 - 1773 (23 miles)

Drawbar buff, range 36,000 - 96,000 lbs.
Drawbar buff, average 72,000 lbs.
Running time 56 min./0.9 Hr.
Train speed, average 25.5 MPH

DYNAMOMETER CAR IN TUNNEL #20 5.5 Min.

RUNNING LOG: TRAIN 262-S25 (LOCOTROL)

RUN: AVERY TO HAUGAN
DATE: APRIL 25-26, 1974
TEST OF: TRAIN OPERATION - 3rd EASTBOUND TEST
ARRANGEMENT: LOCO, CARS, TEST CONSIST, CARS, BOOSTER, CARS, CABOOSE

TRAIN LOCATION	TIME (LOCAL)	SPEED (MPH)	REMARKS
<u>THURSDAY, APRIL 25, 1974</u>			
Arrgt.: 21 - 3027 - 4005 (14L + 1E = 1070 Tons), X-5000 - M 12009, (20L + 7 E = 1448 Tons), Booster 3016 - 29 (43L + 12E = 3562 Tons).			
Totals: 79L + 20E = 6267 Tons			
AVERY (MP 1772.8)	10:50 PM	DEPART	Start of 3rd Eastbound test. Starting drawbar pull 120,000 lbs.
MP 1771	10:54	18	All power in run #8; however, booster in "independent" mode. 47°F. & steady rain.
MP 1770	10:57	18	Drawbar pull approximately 100,000 lbs.
STETSON	11:00	19	Holding 90 psi brake pipe.
MP 1768	11:04	18	710 amperes on lead unit #21.
MP 1767	11:08	17	Train stabilized at 18 MPH & 115,000 lbs. drawbar pull.
MP 1766	11:11	17	
KYLE	11:13	18	
MP 1764	11:18	16	Wheel slip indicated by temporary drawbar reductions to 30,000 lbs.
MP 1763	11:21	17	
MP 1762	11:24	17	
MP 1761	11:27	17	
FALCON	11:31 PM	18	Drawbar pull 100,000 - 105,000 lbs.

RUNNING LOG: TRAIN 262-S25 (LOCOTROL)

RUN: AVERY TO HAUGAN
DATE: APRIL 25-26, 1974
TEST OF: TRAIN OPERATION - 3rd EASTBOUND TEST
ARRANGEMENT: LOCO, CARS, TEST CONSIST, CARS, BOOSTER, CARS, CABOOSE

TRAIN LOCATION	TIME (LOCAL)	SPEED (MPH)	REMARKS
MP 1759	11:34 PM	16	Wheel slip.
MP 1758	11:37	16	Continuous sanding on lead & booster.
MP 1757	11:41	16	
ADAIR	11:45	16	
MP 1755	11:47	18	Stabilized at 17-18 MPH & 105,000 - 110,000 lbs. drawbar pull.
MP 1754	11:51	16	
MP 1753	11:55	15	Drawbar reductions to 36,000 lbs. while negotiating 10° curves.
MP 1752	11:58 PM	15	Raining heavier.
<u>FRIDAY, APRIL 26, 1974</u>			
ROLAND	12:02 AM	12	Drawbar slowly increased to 210,000 lbs. Booster placed in idle before entering tunnel.
MP 1750	12:06	18	Drawbar pull now 84,000 lbs.
EAST PORTAL	12:09	15	Drawbar increased again to 132,000 lbs.
MP 1748	12:12	18	Started dyn. braking on head power. Booster still in idle.
MP 1747	12:16	15	Drawbar pull now down to zero.
MP 1746.6	12:18	STOP	Checked 1 unit - 204,000 lbs. buff surge.
"	12:19 AM	START	Booster in "ind." mode & dynamic braking.

RUNNING LOG: TRAIN 262-S25 (LOCOTROL)

RUN: AVERY TO HAUGAN
DATE: APRIL 25-26, 1974
TEST OF: TRAIN OPERATION - 3rd EASTBOUND TEST
ARRANGEMENT: LOCO, CARS, TEST CONSIST, CARS, BOOSTER
 CARS, CABOOSE

TRAIN LOCATION	TIME (LOCAL)	SPEED (MPH)	REMARKS
MP 1746	12:21 AM	12	Buff ranging from 24,000 - 60,000 lbs.
MP 1745	12:26	14	Made 6 psi brake pipe reduction at MP 1749.4
BRYSON	12:29	22	Slight drawbar pull to 6,000 lbs.
MP 1743	12:31	25	
MP 1742	12:34	24	Head power in run #5 (dyn.). Booster in run #3 (dyn.).
MP 1741	12:36	25	Train stabilized at 25 MPH & 48,000 lbs drawbar buff.
SALTESE	12:37	24	40,000 - 50,000 lbs. drawbar buff.
MP 1740	12:38	24	
MP 1739	12:41	24	
MP 1738.3	12:42	25	Released train brakes.
MP 1737	12:45	25	Lead unit holding 450 amperes (dynamic) Booster in run #1 (dyn.)
MP 1736	12:48	24	
HAUGAN (MP 1735)	12:50 AM	23	End of 3rd EASTBOUND TEST.

NOTES: ASCENDING MP 1773-1750 (23 miles)

Drawbar pull, range 90,000 - 210,000 lbs.
 Drawbar pull, average 102,000 lbs.
 Running time 76 min./1.2 Hr.
 Train speed, average 18.2 MPH

RUNNING LOG: TRAIN 262-S25 (LOCOTROL)

RUN: AVERY TO HAUGAN
DATE: APRIL 25-26, 1974
TEST OF: TRAIN OPERATION - 3rd EASTBOUND TEST
ARRANGEMENT: LOCO, CARS, TEST CONSIST, CARS, BOOSTER
CARS, CABOOSE

DESCENDING MP 1750 - 1735 (15 Miles)

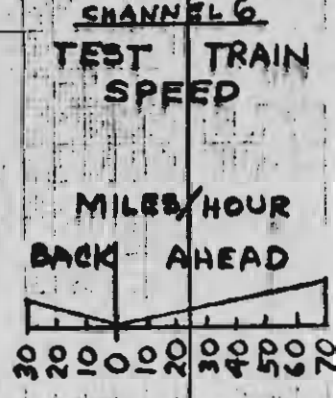
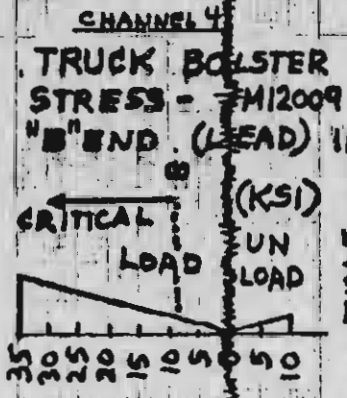
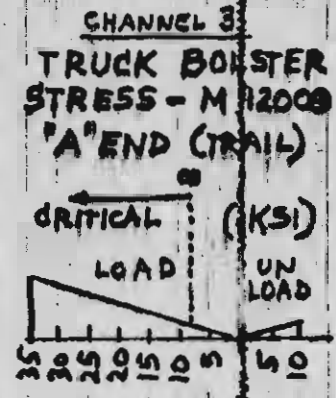
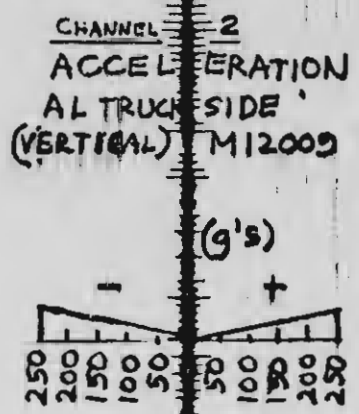
Drawbar pull, range 24,000 - 204,000 lbs.
Drawbar pull, average 36,000 lbs.
Running time 43 min./0.7 Hr.
Train speed, average 22.5 MPH

DYNAMOMETER CAR IN TUNNEL #20 5.7 Min.



EXHIBIT NO. 1
 SERVICE TEST S-701
 MAIN LINE TRACK EVALUATION
 LOCATION: VICINITY MILEPOST 1758,
 BETWEEN ADAIR & FALCON
 TRAIN: 261-TC21 (LOCOTROL)
 3rd Westbound Test
 April 23, 1974
 RECORDER: BRUSH MK 260, In
 DYNAMOMETER CAR X-5000 LOCATED
 AS 13th CAR BEHIND BOOSTER LOCO.

CHICAGO, MILWAUKEE, ST. PAUL AND PACIFIC RAILROAD CO.



11:48
 11:47
 P M
 MDT
 4/23/74

DIRECTION OF TRAVEL ↑

*BOOSTER
 IN 4th PIN
 LEAD BOLSTER
 HOLDING GO A DYN.*

TEST DEPT: 5/74 WRN

1146 P

S-701
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MILEPOST
 1758

DD 22

DD 22

95
 3

11:06
A M

EXHIBIT NO. 2
SERVICE TEST S-701
MAIN LINE TRACK EVALUATION

S-701
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LOCATION: BETWEEN AUBURN &
BENROY (MP 2182)

TRAIN: 261-C16 April 19, 1974

RECORDER: BRUSH MK 260, In
DYNAMOMETER CAR X-5000 LOCATED
DIRECTLY BEHIND LOCOMOTIVE

RX

218
MILEPOST

11:05
A M
PP
4/19/74

↑
ON
115 LB
RAIL
↑
ROAD CROSSING

↑
DIRECTION OF TRAVEL

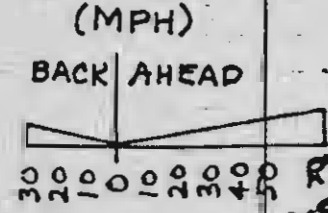
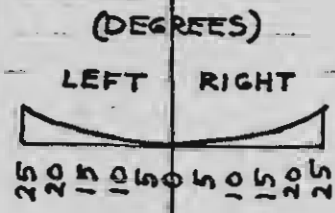
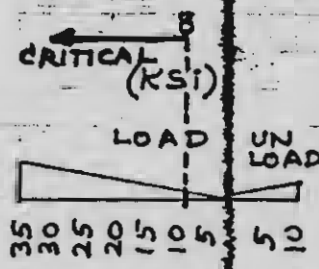
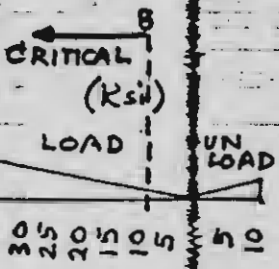
RX

CHANNEL 3
TRUCK BOLSTER
STRESS M12009
"A" END- LEAD

CHANNEL 4
TRUCK BOLSTER
STRESS M12009
"B" END- TRAIL

CHANNEL 5
TRACK LATERAL
CURVATURE

CHANNEL 6
TEST TRAIN
SPEED



TIME - 1-MINUTE

CHICAGO, MILWAUKEE, ST. PAUL AND PACIFIC RAILROAD CO.

5/74 WRN

RX
218

13.0

1659.41

11.0

1659.28

9.5

1659.22

13.5

1659.16

8.5

1659.10

15.5

1658.96

21.5

1658.87

17.0

1658.65

13.0

1658.62

13.5

1658.57

18.0

18.0

1658.37

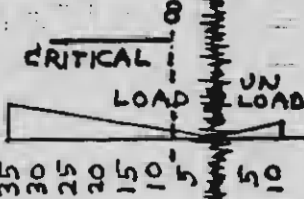
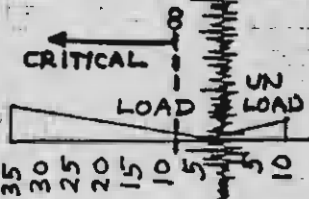
↑
STRESS
LEVELS
(Ksi)

↑
MILEPOST
LOCATION

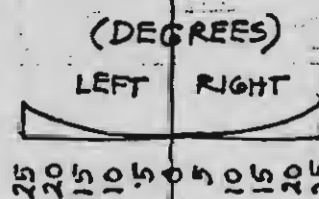
19.0

CHANNEL 3
TRUCK BEASTER
STRESS M12009
"A" END - LEAD

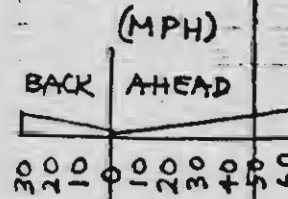
CHANNEL 4
TRUCK BEASTER
STRESS M12009
"B" END - TRAIL



CHANNEL 5
TRACK LATERAL
CURVATURE



CHANNEL 6
TEST TRAIN
SPEED 1650



2:16
P M
MDT
4/18/74

MILEPOST
1659
W. SW
2:15 French to

↑
DIRECTION OF TRAVEL

TIME - 1 MINUTE

CHICAGO, MILWAUKEE, ST. PAUL AND PACIFIC RAILROAD CO.

E. SW
French to

EXHIBIT NO. 3
 SERVICE TEST S-701
 MAIN LINE TRACK EVALUATION
 LOCATION: VICINITY OF FRENCH-TOWN MILEPOST 1659
 TRAIN: 261-C16 April 18, 1974
 RECORDER: BRUSH MK 260, In
 DYNAMOMETER CAR X-5000 LOCATED
 DIRECTLY BEHIND LOCOMOTIVE