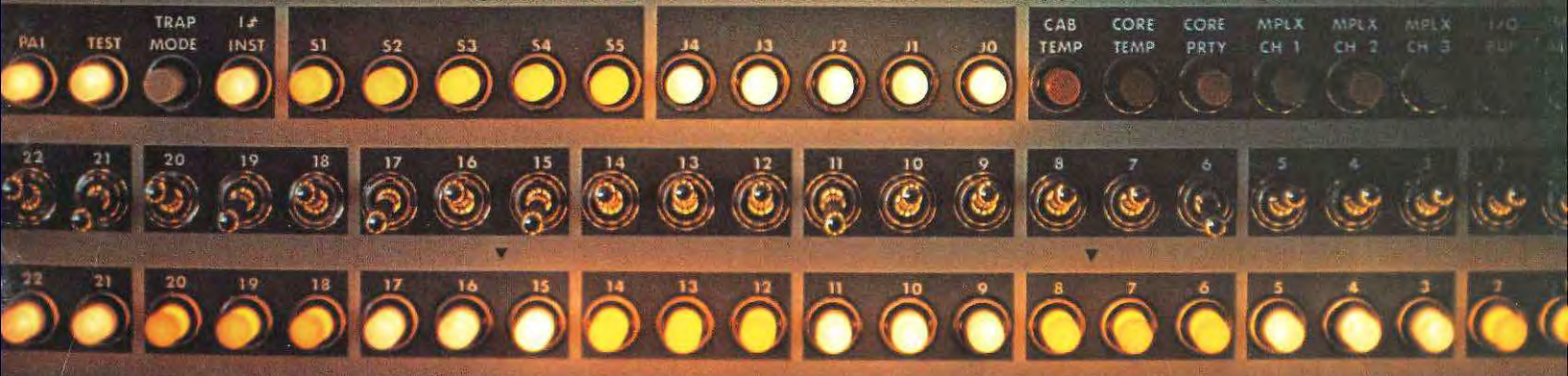




# NORTHTOWN

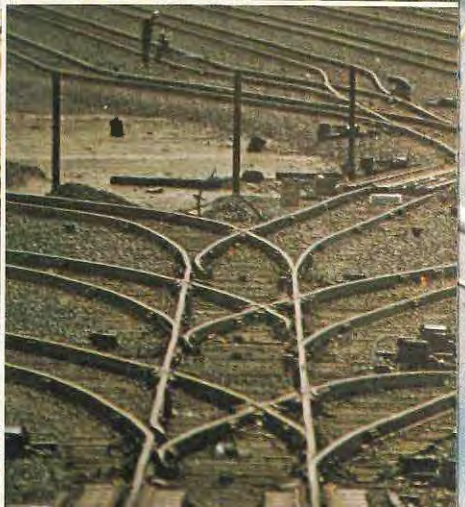
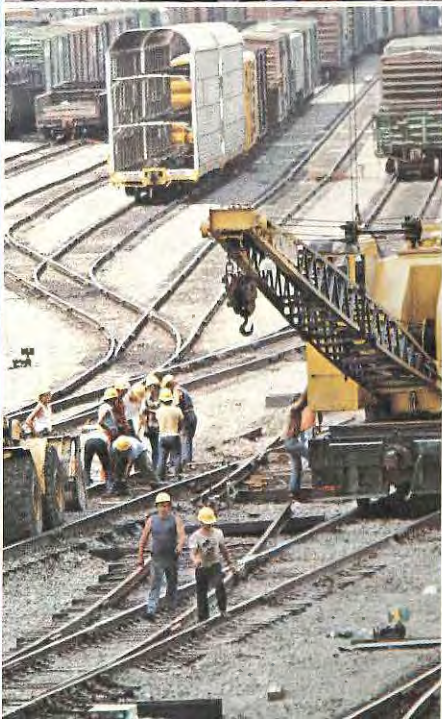
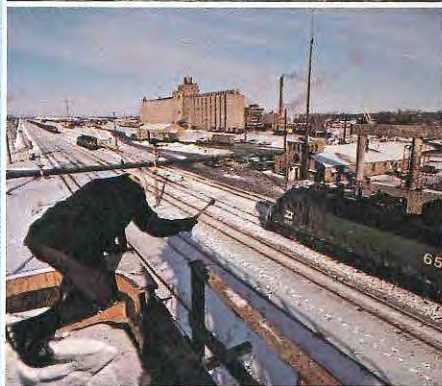
*Petracek JE*

## BURLINGTON NORTHERN'S FLAGSHIP ELECTRONIC CLASSIFICATION YARD





# NEED TO CONSOLIDATE DICTATED CONSTRUCTION



Before the 1970 merger which formed Burlington Northern, the Twin Cities terminal complex was a common point shared by three of the four merger partners. Eleven separate yards and 23 interchange points were operated by the Great Northern, the Northern Pacific and the Chicago, Burlington & Quincy railroads. The need to consolidate was vital to effect the savings in time, manpower and money the merger planners had forecast.

This former NP flatyard was chosen because of availability of additional land, access to switching areas, good labor supply and accessibility to interchanges.

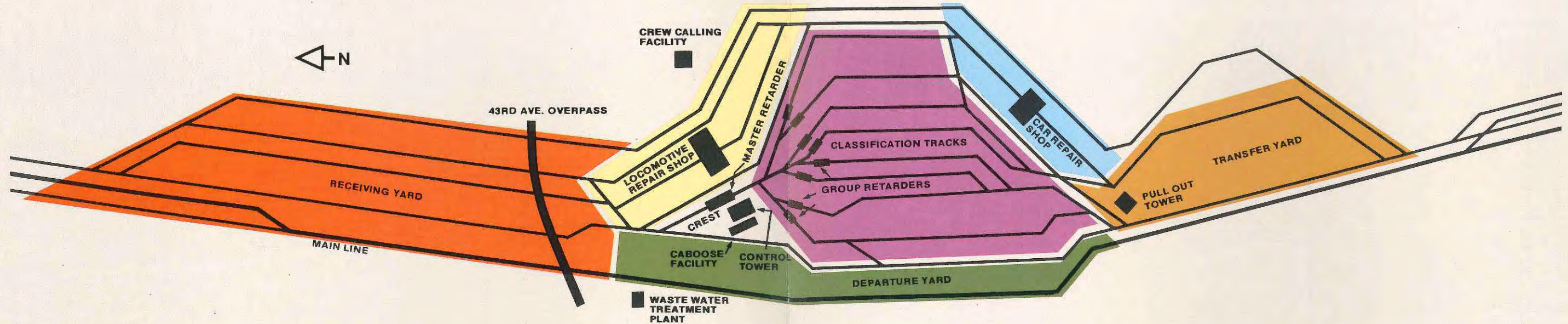
Construction was started in 1971 and work progressed steadily through the winters and without interrupting train traffic. Humping of cars began in November, 1974. The yard was completed in 1976 at a cost of more than \$43 million.

Complex negotiations were conducted with three cities — Minneapolis, Fridley and Columbia Heights — to assure them the yard would be a good neighbor.

Primary functions of the yard include: classification of cars for local industry and for interchange within the Twin Cities area where Burlington Northern serves 450 customers; blocking (grouping cars in order of their destinations) for major terminals from Billings to Chicago, from Fargo to Sioux City.

On the average, a car moves through the Twin Cities terminal area 18 hours faster than before completion of the yard.





**• RECEIVING YARD**

Eleven tracks on 20-foot centers to allow use of vehicles for car inspection and repair purposes. Based on 50-foot cars, capacity is 1,349 cars.

**• CLASSIFICATION TRACKS**

63 tracks in 8 groups (7, 8 and 9 tracks per group). Capacity is 2,175 cars based on 50-foot length.

**• DEPARTURE YARD**

3 tracks — north, 516-car capacity; 6 tracks — south, 968-car capacity. Speakers are located in critical areas to supplement radio communication.

**• LOCOMOTIVE REPAIR SHOP**

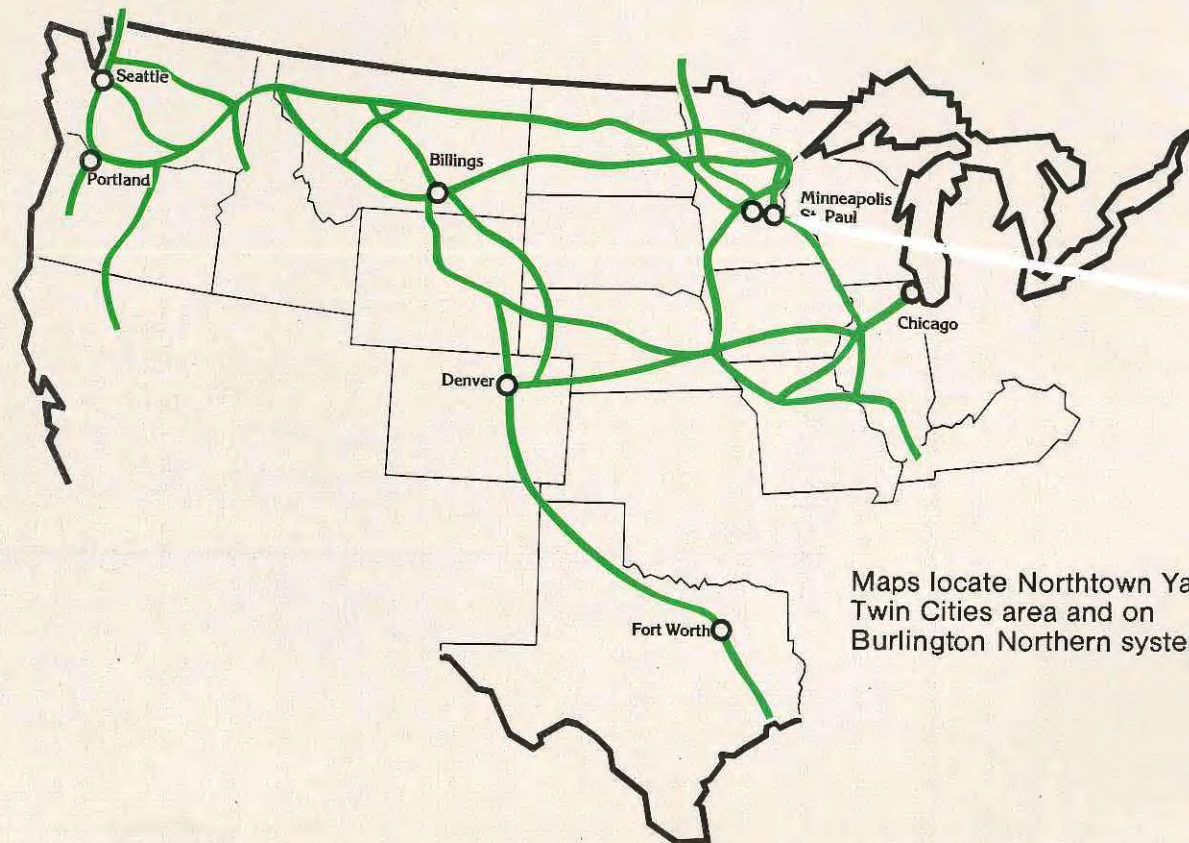
6 tracks; 2 for inspection/servicing; 4 for maintenance/repair. Total capacity is 62 units. Fuel storage tanks for 2 million gallons.

**• TRANSFER YARD**

27 tracks; 1,026-car capacity.

**• CAR REPAIR SHOP**

4 tracks: 2 light repair tracks with 20-car capacity each per shift; 2 tracks for heavy repair.



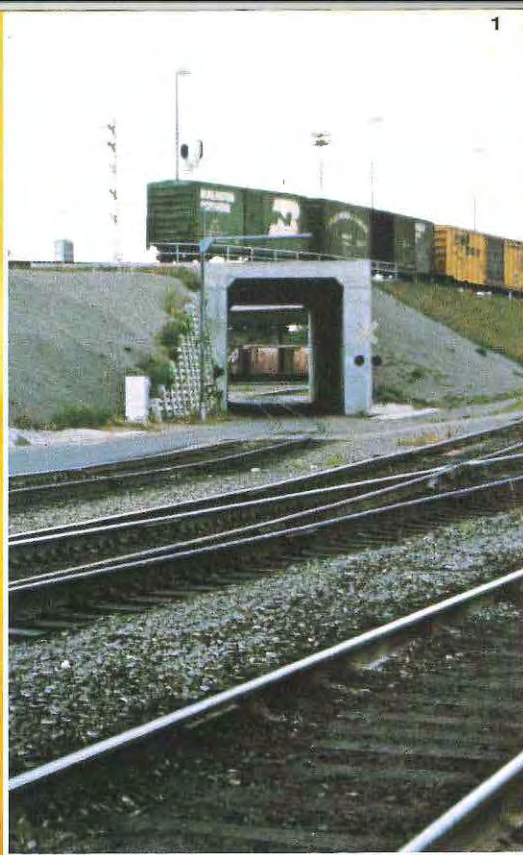
Maps locate Northtown Yard in Twin Cities area and on Burlington Northern system



**NORTHTOWN QUICK FACTS**

- Built on 250 acres of land in Minneapolis, Fridley and Columbia Heights.
- Cost: about \$43.9 million.
- Started in 1971. Completed in 1976.
- 105 miles of track.
- Height of hump: 21½ feet.
- Normal humping speed: 2.5 mph.
- Planned to classify 1000 cars each eight-hour shift.

- 63 classification tracks with capacity of 2,175 cars (based on length of car as 50 feet).
- Switches in classification tracks are equipped with electric snow melters.
- Receiving yard has tracks spaced to allow use of vehicles for car inspection and repair purposes.



# CARS ROLLING DOWN HUMPS ARE CONTROLLED BY COMPUTER — AND MAN

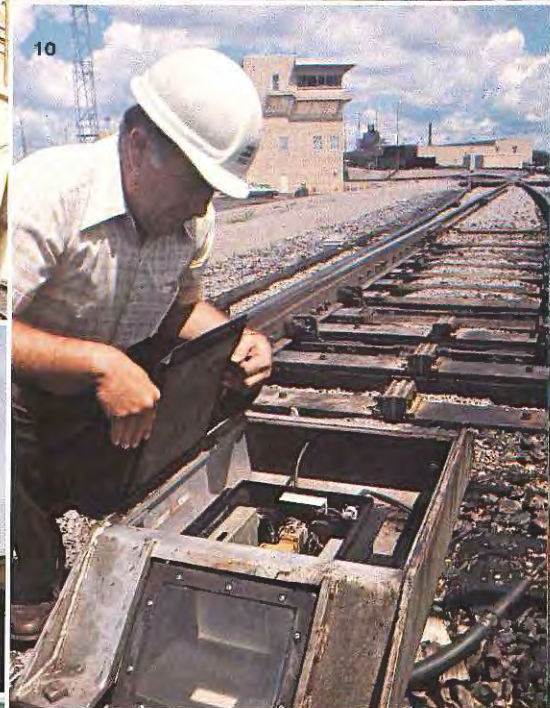
One hundred twenty tons of loaded hopper car is moved from the receiving yard to the man-made hump which rises 21½ feet into the Minnesota sky. As the switchman sets the car free from the train, it begins to roll by gravity through a collection of electronic devices and gadgets.

The car will come to rest quietly coupled to another on one of the 63 classification tracks, soon to be part of a complete train.

While rolling down the hump, the car is weighed, measured and identified as to destination and contents. Nearby, a cluster of instruments gauge air temperature, humidity, wind, snow, rain — all elements which can affect speed of the car. Even its ability to roll freely is measured.

With this information, the computer activates retarding devices which apply braking pressure on the car wheels so it will roll down the track with just the right speed to couple to the next car.

1. Tunnel under hump provides access to tower area.
2. Fine mist spray of oil and water muffles wheel-squeal in master retarder.
3. Vertical baffles in master retarder absorb noise and direct it upward to preserve neighborhood quiet.
4. Control tower overlooks hump area.
5. At crest, tv camera provides visual check of car numbers . . .
6. . . . to receiving screen in tower.
7. Ahead of master retarder is weigh-in-motion scale.
8. Group retarders activated by computer further slow cars as they head into classification tracks.
9. Pin-puller retarder on crest can be activated to gain slack for uncoupling extra-long cars.
0. Radar unit sends precise car speeds to computer.
1. All waste water from yard operations — including locomotive and caboose washing and other uses — passes through water treatment plant before going to municipal sewer.

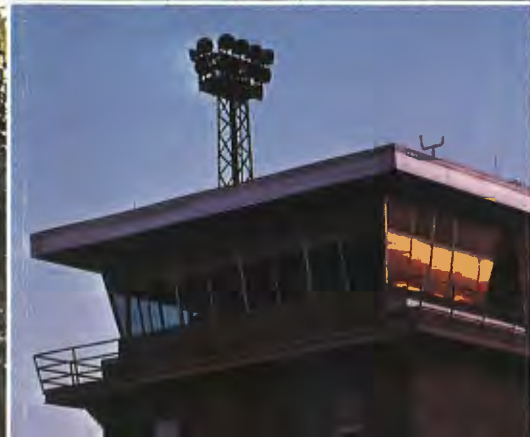
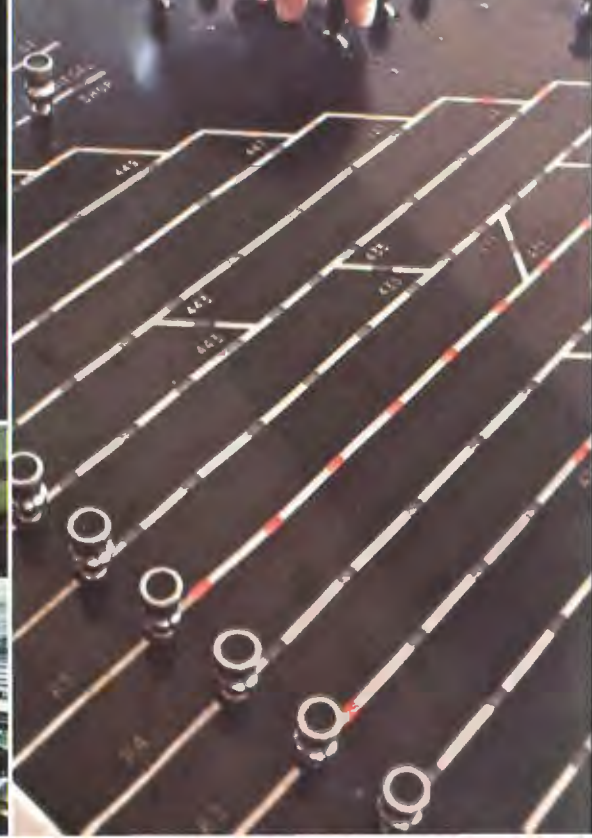






# CONTROL TOWER IS NERVE CENTER

Nerve center of Northtown Yard is the control tower and operations office. Highly skilled controllers oversee the performance of computerized equipment around the clock, operating the equipment manually when a need arises. Yard operations are all directed here: the arrival, classification and departure of trains.



1. Electric eye equipment measures car contours for computer.
2. Trainmaster coordinates terminal operation.
3. Housed in tower are myriads of relays which activate electronic devices throughout yard.
4. Computer room and test panel for entire yard.
5. This is operations central. Positions are, left to right, trainmaster, hump foreman, yardmaster.
6. Hump foremen can manually operate pre-set computer controlled switches when a need arises.
7. Cars are weighed on scale which registers in tower.



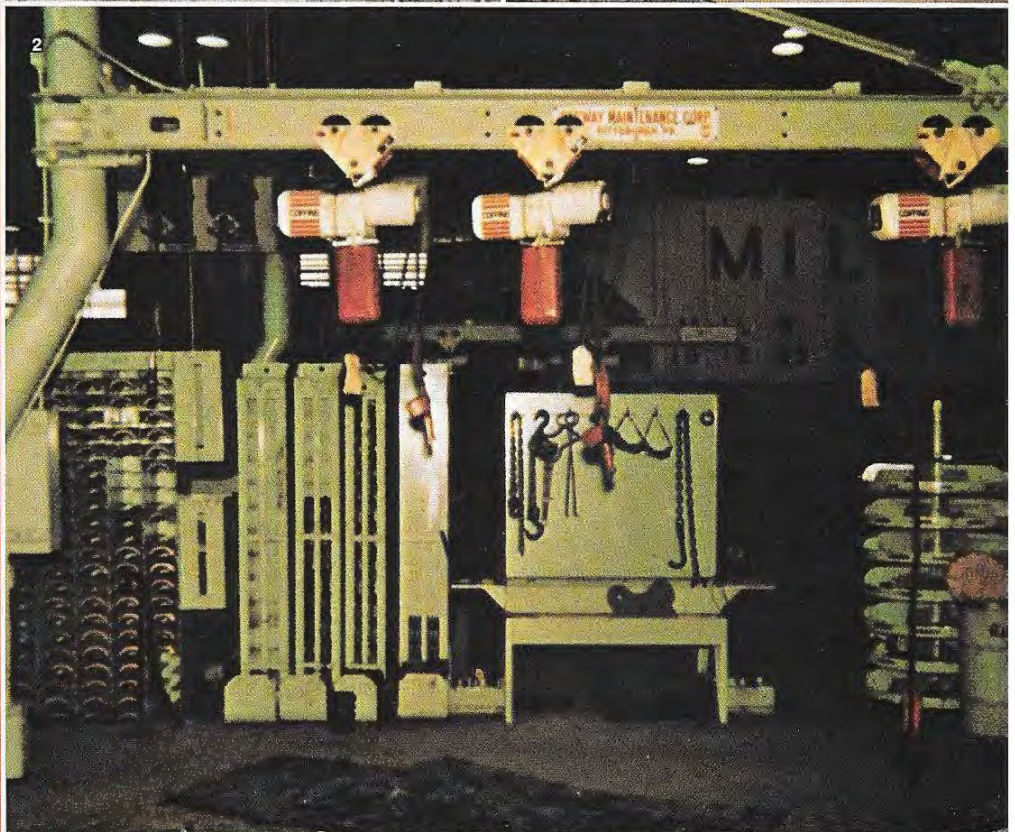
# LOCOMOTIVE SERVICE AND REPAIR SHOP

Locomotives operating in five states are assigned to this shop for inspection, maintenance and repair. The lubricating oil from each locomotive is tested and maintenance prescribed from the results. Here the engine oil is changed when needed, the locomotives are filled with diesel fuel, greased, filled with traction sand and repaired.



# CAR REPAIR SHOP

The "one-stop" car repair shop is equipped to do primarily light repairs, but also some heavy repairs, on all kinds of freight equipment. Electronic devices lend a hand in moving the cars through the shop; from the "rabbits" on cables, which move the cars into position, to the built-in-the-floor hydraulic jacks which raise the cars off their trucks for servicing.



1. Electronically controlled crane lifts locomotive traction wheels to repair area in shop.
2. Portable service crane has three hoists, hoses for oxygen, acetylene, compressed air, lube oil, grease, adapter for arc welding.
3. Cables from electronically controlled winches are connected to "rabbits."
4. "Rabbit," painted yellow, pushes cars into shop area. Because rabbit is jointed, it slips under axles to return for additional cars.
5. Rabbits position cars on floor where hydraulic jacks emerge to lift car bodies.



BURLINGTON NORTHERN

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