DATA SHEET

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Sheet #:	**D9m**
Title:	**UNUSUAL LOADS**
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Photos:	Kalmbach Memorial Library (as noted)
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An unusual freight car load is one which is not run of the mill--part of the everyday railroad scene. It may be unique because of its sheer bulk or size; or if of ordinary size, unusual density or weight. Often only one dimension, such as length, may be out-of-the-ordinary.

In prototype railroading, there are about ten times as many box cars as there are flat cars. Those loads which will fit in box cars will more likely be so shipped than in another type of car. An understanding of box car limitations will be of value to the model builder who wishes to model some open car loadings. Most box cars are about 40 feet long; half of these are rated to carry 80,000 pounds and have doors six feet wide by eight feet high (approximately). The others are rated to carry 100,000 pounds and have doors up to 14 feet wide by 10 feet high. Some box cars are 50 feet in length, rated at 100,000 pounds capacity, and have doors mostly 16 feet wide and 10 feet high.

Loads exceeding these rather broad limitations may be carried on one of the many varieties of open cars.

Open car loads must meet these criteria:

a) The loading gauge (See S8) must not be exceeded.
b) The car must be of adequate capacity for the load.
c) The load must be so fastened as to keep it from shifting or falling off the car.
d) Provision for weather protection of the load must be made as required.
e) Roadbed and bridges must be capable of carrying the load at reasonable speeds.

Commodities regularly carried on open cars (other than bulk items such as coal or gravel) as classified by the AAR are:

a) Steel products: pipe, bars, angles, channels, cable on reels, box and lattice riders, trusses, rails, plates, coiled sheet, mill rolls, etc.
b) Machinery: machine tools, presses, etc.
c) Forest products: lumber, lath, poles, logs, pulpwood.
d) Road and farm machinery: tractors, graders, combines, rollers, etc.
e) Miscellaneous: automobiles, trucks, boilers, plate glass, cranes and shovels, concrete pipe, tanks, transformers.
f) Military material: artillery, gun barrels, barges, boats in cradles, buoys, aircraft engines, tanks, etc.

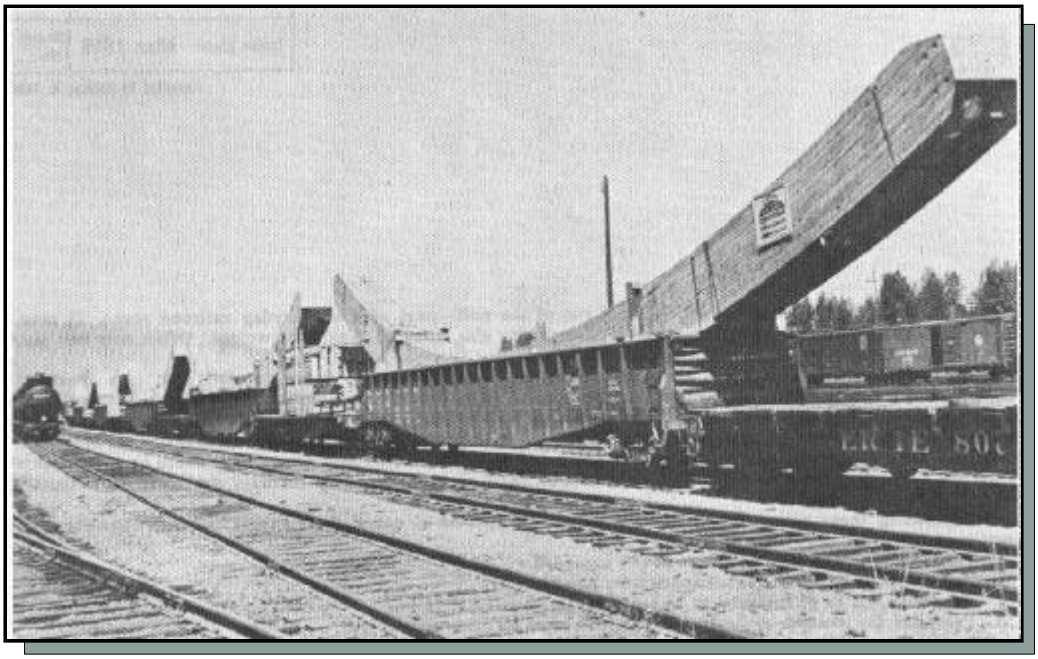
Most such shipments fall well within the "everyday" classification and, as "usual" loads, will not be further discussed here.

UNUSUAL LOADS - continued

Certain precautions are observed in all classes of loadings, however--even the ordinary ones--and these include:

a) Leaving sufficient clearance around the brake wheel that it can be operated. At least six inches all around is required.
b) Advertising cards may not be attached to the car, but only to the load.
c) Blocks and wedges of hardwood are used to support the load and keep it from shifting or falling off the car. Stakes 4" x 5" may be used. These should extend 4" below stake pockets to permit them to be spiked in place. Three pairs of stakes are used for loads up to 20 feet long, and four pair or more for longer loads. The stakes are tied across the tops with board, wire or steel strapping (banding).
d) Wire used for tying as in (c) above ranges 1/8" to 3/16", and banding steel from 3/8" to 2" width.
e) Rods ½ " to 1½" diameter may be used as braces, or lumber may be used. Rods fasten into stake pockets with wooden cleats under pockets.

Extra-long loads such as the roof trusses (Fig.1) or the creosoting cylinder (Fig. 2) may be handled on several cars, with any cars not actually carrying weight referred to as ***idler*** cars. Fig. 1 shows that some idler cars are used for carrying auxiliary pieces. In Fig 2 couplers between cars would be blocked to prevent undue shifting of or damage to the load. Each end rests on a bearing piece and a greased "sliding piece." Loads must clear idler cars by at least 4".



Milwaukee Road Photo

Figure 1: ROOF TRUSSES

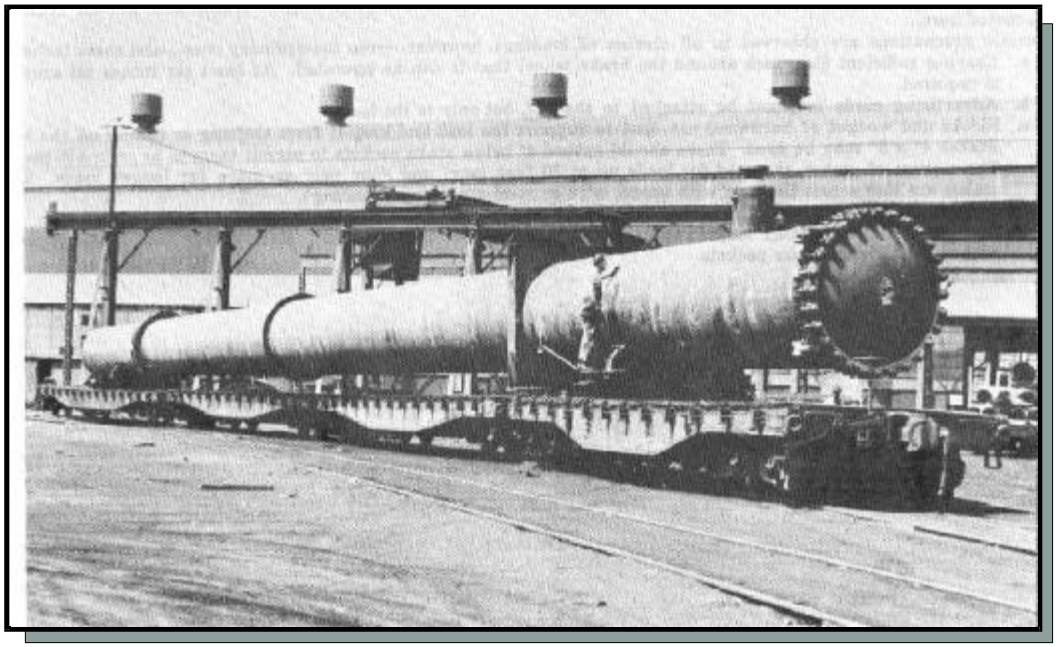


Figure 2: CREOSOTING CYLINDER Louisville and Nashville Photo

Concentrated weights must be distributed over the length of the car lest they crush the points on which they rest. Failure to spread out the load may restrict loading to 40% of the capacity of the car. Figures 3 and 4 show the loads are placed on timber "bearing pieces" in the shape of sleds or pallets. Multi-truck flat cars may be used for extremely heavy loads. Figure 3 shows a 207-ton casting loaded to 12'3" above railhead. Figure 4 shows a 125-ton wind-tunnel rotor measuring 17 ft.

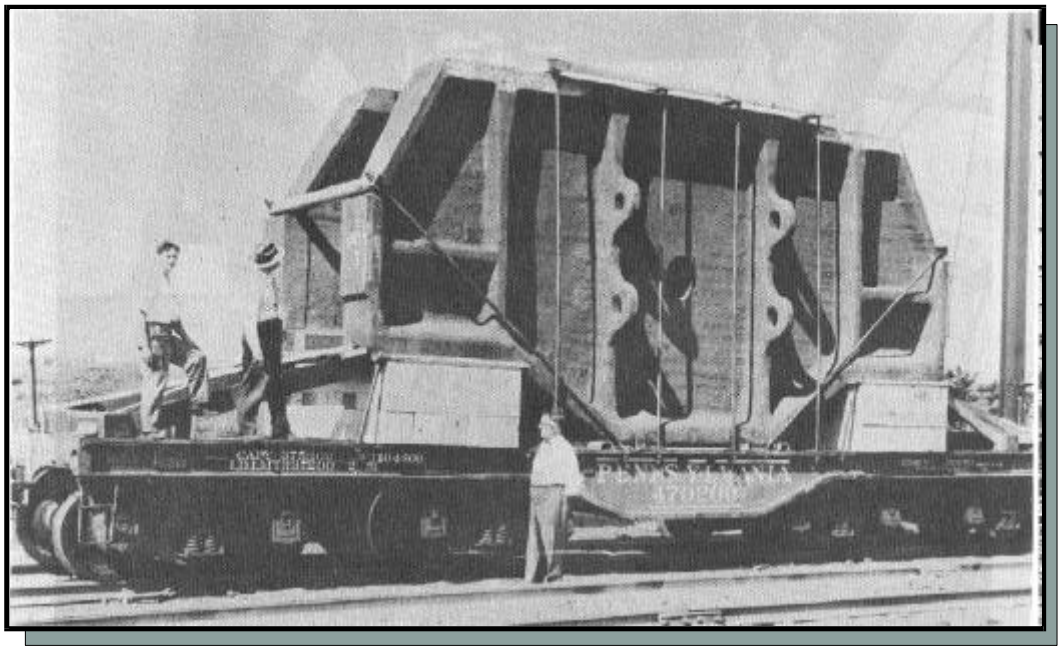


Figure 3: 207 TON CASTING PRR Photo

Figure 4: 125 TON WIND TUNNEL ROTOR NYC System Photo

Concentrated weights must be distributed over the length of the car lest they crush the points on which they rest. Failure to spread out the load may restrict loading to 40% of the capacity of the car. Figures 3 and 4 show the loads are placed on timber "bearing pieces" in the shape of sleds or pallets. Multi-truck flat cars may be used for extremely heavy loads. Figure 5 shows the arrangement made for carrying a bronze ship propeller in a "schnabel" or well flat car.

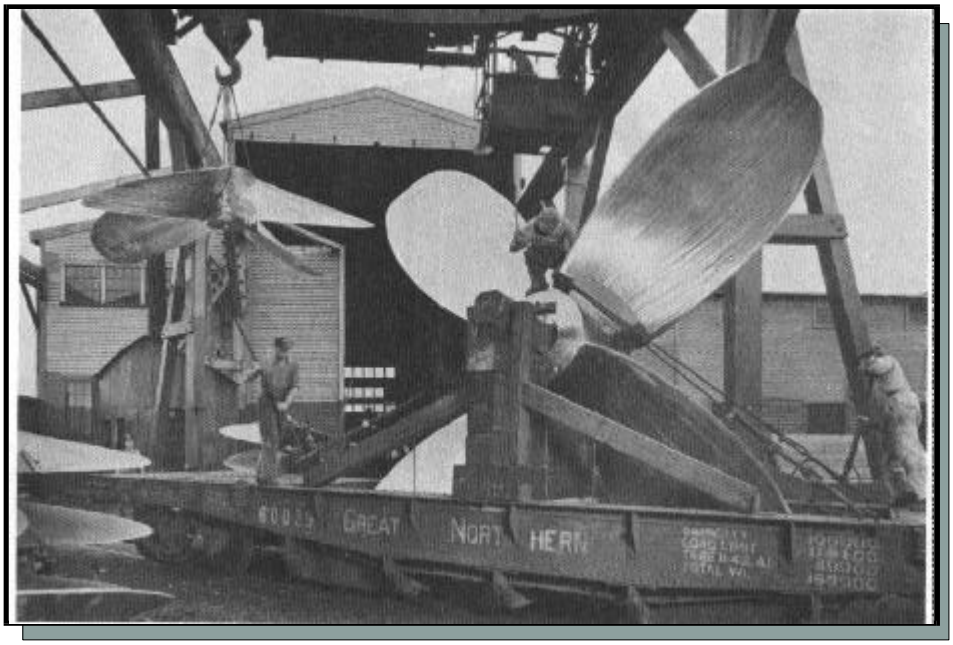


Figure 5: BRONZE SHIP PROPELLER Great Northern Photo

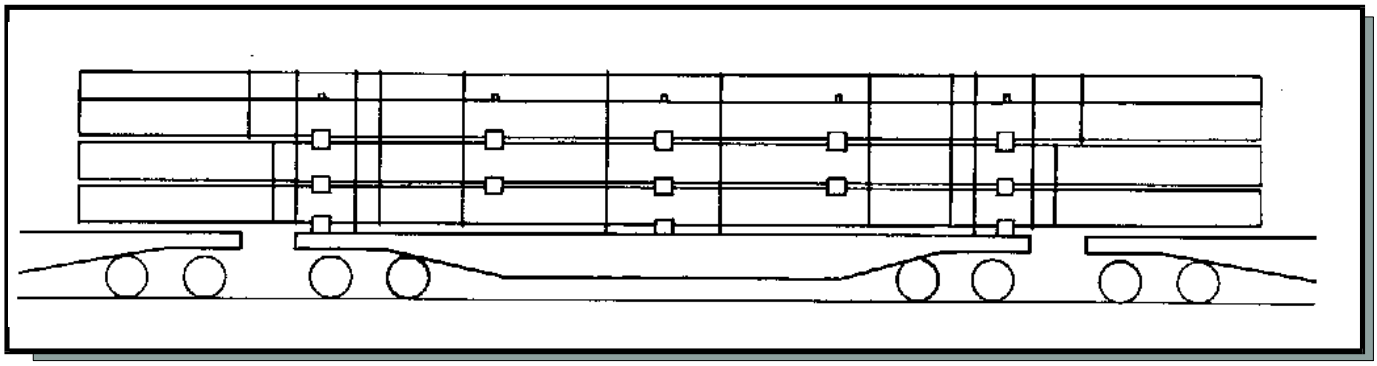


Figure 6: TRANSPORTING LONG PIPES

Figure 6 illustrates an arrangement for transporting 80 foot lengths of 30" pipe on three flat cars, including two idlers. Note the nesting of the top tier of two sections into the next tier. The lower tiers were of three sections each. 12"x12" blocking was cut out to nest the sections securely. Cable tied as shown.

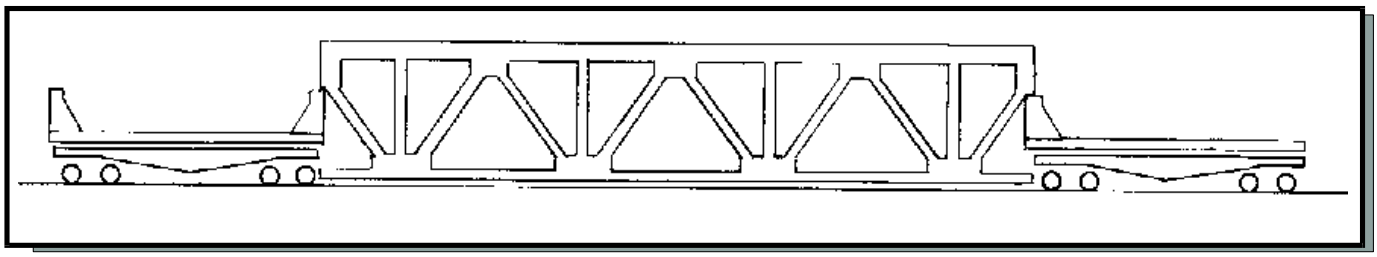


Figure 7: TRANSPORTING BRIDGES TRUSSES

Figure 7 illustrates how two short flat cars with special cradles are used to carry 16'x84' bridge trusses. Each train consists of three cars carrying two trusses. Load clears rail by barely 6". Special train movements only.

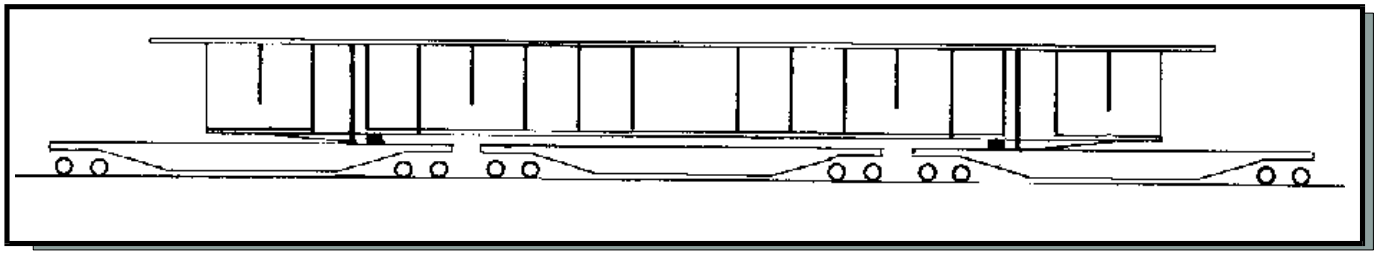


Figure 8: TRANSPORTING BRIDGE GIRDERS

Figure 8 shows a 132' bridge girder mounted on two 50' flat cars with idler between.

Photo courtesy Kalmbach Memorial Library

Figure 9: QUARRIED STONE BLOCKS

Photo courtesy Kalmbach Memorial Library

Figure 10: LAMINATED ROOF BEAMS

Photo courtesy Kalmbach Memorial Library

Figure 11: TRANSPORTING A MILITARY TANK