

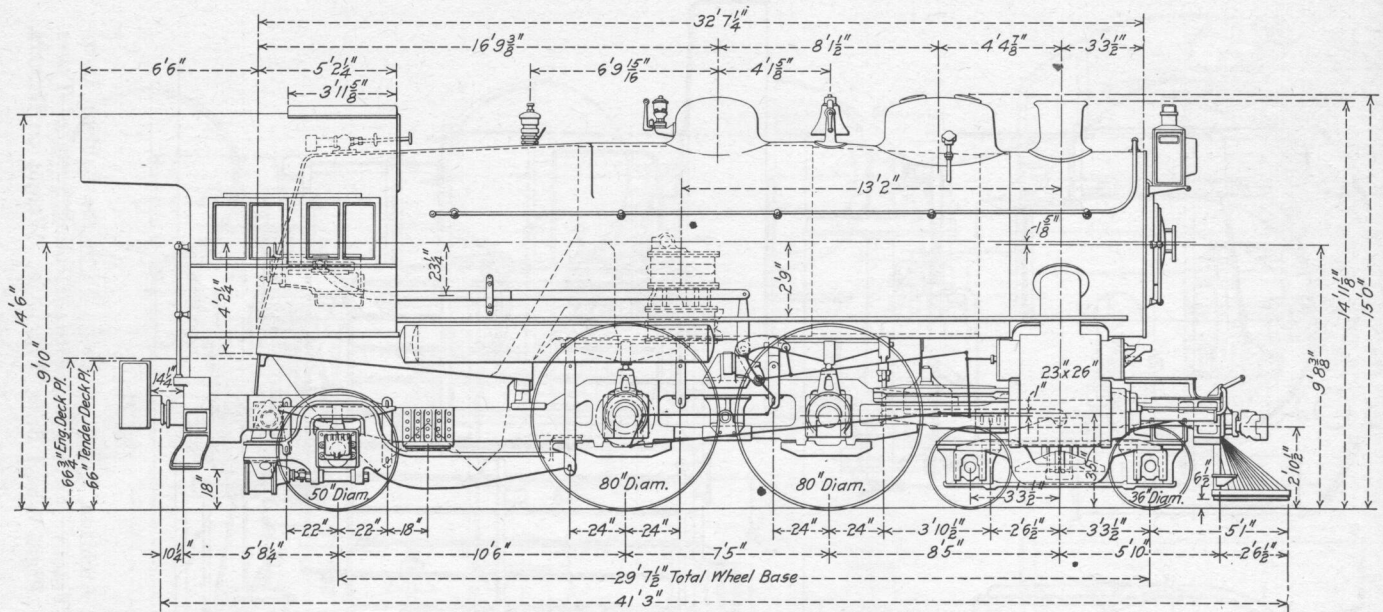


Fig. 120—Atlantic Type (4-4-2) Locomotive for Passenger Service. Built by the Pennsylvania Railroad.

#### GENERAL DATA.

|                                              |                |
|----------------------------------------------|----------------|
| Gage                                         | 4 ft. 9 in.    |
| Service                                      | Passenger      |
| Fuel                                         | Soft Coal      |
| Tractive Effort                              | 29,427 lbs.    |
| Weight in Working Order                      | 240,000 lbs.   |
| Weight on Drivers                            | 133,100 lbs.   |
| Weight on Leading Truck                      | 55,000 lbs.    |
| Weight on Trailing Truck                     | 51,900 lbs.    |
| Weight of Engine and Tender in Working Order | 398,000 lbs.   |
| Wheel Base, Driving                          | 7 ft. 5 in.    |
| Wheel Base, Total                            | 29 ft. 7½ in.  |
| Wheel Base, Engine and Tender                | 63 ft. 10½ in. |

#### RATIOS.

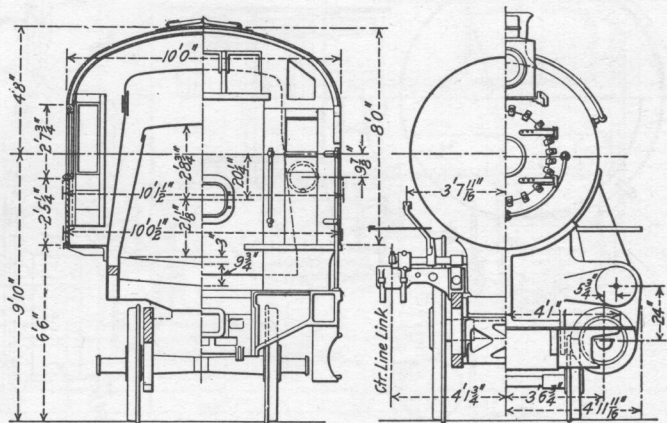
|                                                                  |               |
|------------------------------------------------------------------|---------------|
| Weight on Drivers ÷ Tractive Effort                              | 4.52          |
| Total Weight ÷ Tractive Effort                                   | 8.15          |
| Tractive Effort × Diameter Drivers ÷ Equivalent Heating Surface* | 599.00        |
| Equivalent Heating Surface* ÷ Grate Area                         | 71.30         |
| Firebox Heating Surface ÷ Equivalent Heating Surface,* per cent  | 4.93          |
| Weight on Drivers ÷ Equivalent Heating Surface*                  | 33.80         |
| Total Weight ÷ Equivalent Heating Surface*                       | 61.00         |
| Volume Both Cylinders                                            | 13.10 cu. ft. |
| Equivalent Heating Surface* ÷ Volume Cylinders                   | 300.00        |
| Grate Area ÷ Volume Cylinders                                    | 4.21          |

#### WHEELS.

|                                             |                 |
|---------------------------------------------|-----------------|
| Driving, Diameter Over Tires                | 80 in.          |
| Driving, Thickness of Tires                 | 4 in.           |
| Driving Journals, Main, Diameter and Length | 9½ in. x 13 in. |
| Engine Truck Wheels, Diameter               | 36 in.          |
| Engine Truck, Journals                      | 5½ in. x 10 in. |
| Trailing Truck Wheels, Diameter             | 50 in.          |

#### VALVES.

|                 |            |
|-----------------|------------|
| Kind            | Piston     |
| Diameter        | 12 in.     |
| Greatest travel | 7 in.      |
| Outside Lap     | 1 5/16 in. |



#### CYLINDERS.

|                     |                  |
|---------------------|------------------|
| Kind                | Simple           |
| Diameter and Stroke | 23½ in. x 26 in. |

#### BOILER.

|                                    |                      |
|------------------------------------|----------------------|
| Style                              | E. W. T.             |
| Working Pressure                   | 205 lbs. per sq. in. |
| Outside Diameter of First Ring     | 78½ in.              |
| Firebox, Length and Width          | 110½ in. by 72 in.   |
| Firebox Plates, Thickness          | 5/16 in. and 3/8 in. |
| Firebox, Water Space               | 5 in.                |
| Tubes, Number and Outside Diameter | 242—2 in.            |
| Flues, Number and Outside Diameter | 36—5¾ in.            |
| Tubes and Flues, Length            | 15 ft.               |
| Heating Surface, Tubes and Flues   | 2,660.5 sq. ft.      |
| Heating Surface, Firebox           | 195.7 sq. ft.        |
| Heating Surface, Total             | 2,856.2 sq. ft.      |
| Superheater Heating Surface        | 721 sq. ft.          |
| Equivalent Heating Surface*        | 3,937.7 sq. ft.      |
| Grate Area                         | 55.13 sq. ft.        |
| Center of Boiler Above Rail        | 118 in.              |

#### TENDER.

|                               |                 |
|-------------------------------|-----------------|
| Tank                          | Water Bottom    |
| Weight                        | 158,000 lbs.    |
| Wheels, Diameter              | 36 in.          |
| Journals, Diameter and Length | 5½ in. x 10 in. |
| Water Capacity                | 7,000 gal.      |
| Coal Capacity                 | 13 tons         |

\* Equivalent Heating Surface = Total Evaporative Heating Surface + 1.5 Times the Superheating Surface.