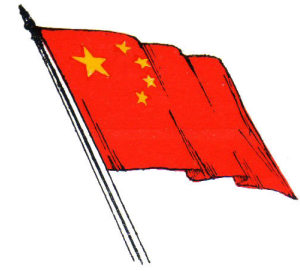


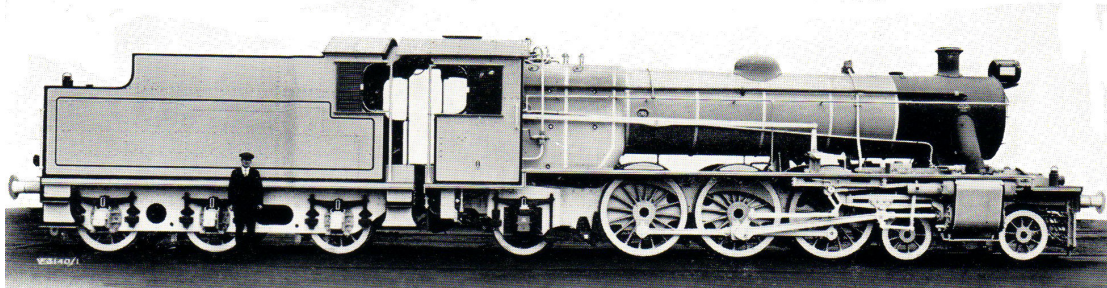
CHINESE NATIONAL RAILWAYS



4 ft. 8½ in. Gauge

1935

4-8-2

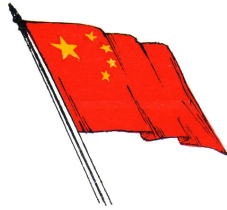


Cylinders.....	(2) 20¾ in. Diam. x 29½ in. Stroke	Maximum Axleload.....	16.8 tons
Diameter Coupled Wheels.....	5 ft. 8¾ in.	Weight :	
Working Pressure.....	220.5 lb.	Engine in Working Order.....	114.8 "
Tractive Effort at 85% Pressure.....	34,960 lb.	Tender " "	77 "
		Total " "	191.8 "

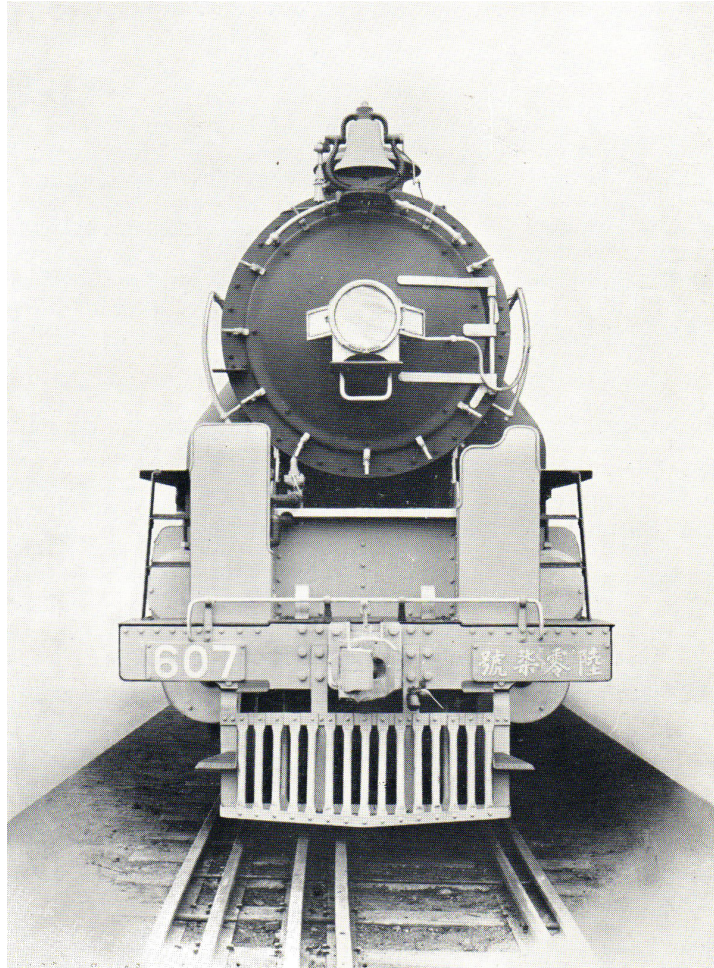
The 4-8-4 locomotive illustrated above—one of 24 built for the Canton Hankow Railway in 1935—is of particular interest, especially as regards its size and dimensions.

Many unusual features were incorporated, and not the least of these is the booster engine with which six of them were equipped. This booster drives the rear axle of the leading bogie of the 12-wheeled tenders, but on the remaining 18 locomotives which were not fitted with this accessory when built, provision was made for it to be fitted to the trailing bogie of the engine at any time it might be required.

As will be seen from the dimensions, the boiler is of very large proportions with ample heating surface, 67 sq. ft. of grate area, and a wide round-topped steel firebox with four arch tubes, and combustion chamber for burning low grade fuels. The ashpan has ash discharging doors. A tangential steam drier is located in the dome and coal is fed to the firebox by means of a B.K.1 type Standard stoker manufactured at Vulcan by arrangement with the Standard Stoker Company of U.S.A.



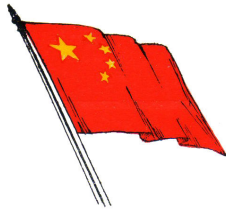
The superheater is also unusual and is of the Melesco E type with multiple-valve regulator header. It comprises 33 elements each of which occupies four flue tubes, with the exception of six which only occupy two. Superheated steam operates the stoker, booster, Westinghouse air pump, turbogenerator, and chime whistle. A further special accessory is the cut-off control gauge which enables the driver to adjust the cut-off correctly for the most economical working of the engine, and also shows the steamchest pressure when coasting, and detects a leaky regulator or creeping reversing gear.



Front End View of 4-8-4 Locomotive, Chinese National Railways

Bar frames are provided, the boiler being supported by the saddle casting under the smokebox and by sliding shoes and a breather plate at the front and rear of the firebox respectively. along the barrel. Additional breather plates are situated at appropriate points along the barrel.

The trailing bogie of the engine and both tender bogies are equipped with external Isothermos axleboxes and all coupled axleboxes and motion parts are grease lubricated.



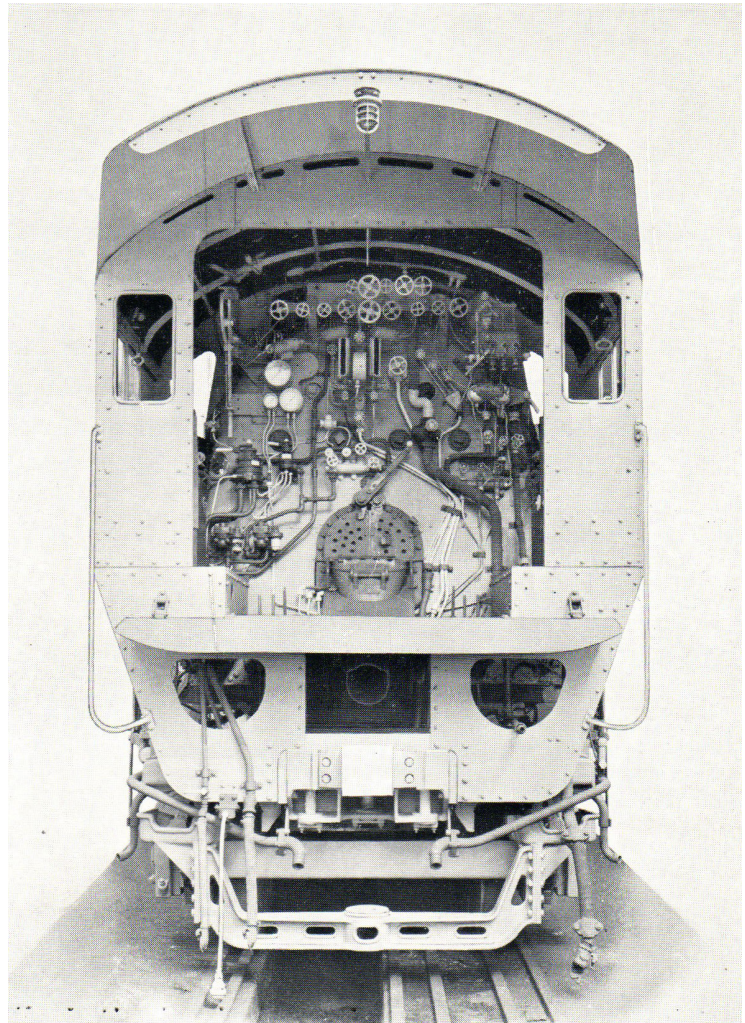
Cylinders, steamchests, and smokebox saddle are cast integral in two halves and the cylinder barrels and piston valve liners are of nickel cast iron, the stroke being no less than 29~ in. with a travel of 9 in. for the 125, in. diameter piston valves.

Air sanding is installed from a sand dome on the boiler top.

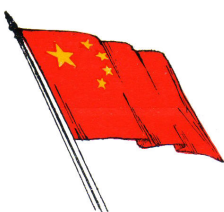
The large tender carried on two six-wheeled bogies, is of welded construction, and carries 11,3 tons of coal and 6,600 gallons of water.

Until 1932 the Canton Hankow Railway consisted of two unconnected stretches of line running due south from Hankow to Chuchow and from Lochang to Canton on the seaboard.

Traffic from Canton to Hankow and vice-versa had to go by sea to Shanghai and then by a very roundabout rail route taking in all some 15 days.



View of Interior of Cab, 4-8-4 Locomotive, Chinese National Railways



In 1933 however, with the assistance of the Boxer Indemnity Fund, work was re-started on the 406 kms. of rocky and mountainous country connecting the two isolated links and this was completed in 1936, thereby enabling through traffic between Canton and Hankow to cover the distance in only 32 hours.

These large 4-8-4's were built to operate the new through traffic which at that time included the carriage of troops from South to North China to oppose the Japanese. They were designed to negotiate curves of 150 metres radius and were required to deal with trains of 1,000 tons at 50 m.p.h. on the level, and 15 m.p.h. on the gradients of 1 in 66 which abound in this rugged country.