

G-2(37)

14915

REPORT ON THE ADMINISTRATION OF THE INDIAN  
BOILERS ACT, 1923, IN THE BOMBAY PROVINCE  
FOR THE YEAR 1945-46.

*Boilers and Steam Pipes and their Inspections.*

The total number of boilers registered in the Bombay Province up to the end of the year under report was 6,776. In addition, 286 have been transferred from other Provinces to the Bombay Province, since the Indian Boiler Regulations came into force in 1924. This total includes 22 for the current year. The number shown as added during the year was 39, of which 28 were new boilers and 11 second-hand.

Thirty-five boilers were transferred to other Provinces from the Bombay Province. The total of such transfers is 1,284 since 1924. A number of boilers have also been transferred to Indian States.

Eliminating boilers which have not been offered for inspection for 10 years and deducting others which have been scrapped or transferred to different Provinces and States, the total number of boilers on the register at present is 2,600 (approximately). There are, however, many serviceable boilers in this Province which for various reasons have not been examined for many years prior to 1935.

The following table shows the number of certificates issued during the year and two preceding years :—

Year.	Bombay and District.	Southern Division.	Central Division.	Ahmed-abad.	Northern Division except Ahmed-abad.	Indian States.	Total.
<b>G-2(37)</b>	777	389	349	302	244	11	2,072
<b>1945</b>	773	389	341	332	212	11	2,058
<b>14915</b>	774	388	300	323	204	9	1,998

The list of various types of boilers inspected during the year under report and the previous year is as follows :—

	1944-45.	1945-46.
Lancashire ... ..	939	904
Locomotive ... ..	373	348
Vertical (cross tubes, smoke tubes and water tube) ... ..	407	408
Water Tube ... ..	188	177
Cornish ... ..	61	64
Marine ... ..	59	63
Horizontal Multitubular ... ..	25	24
Cylindrical Disinfectors (externally fired) ... ..	5	4
Rectangular ... ..	1	1
	2,058	1,993

The different sizes of boilers inspected are shown below. The inspection fees are based on these particulars, which represent the heating surface in square feet :—

Rating.	No.	
	1944-45.	1945-46.
For boiler rating not exceeding 100 ...	517	505
For boiler rating between 101 and 300 ...	242	232
For boiler rating between 301 and 500 ...	107	112
For boiler rating between 501 and 700 ...	203	185
For boiler rating between 701 and 900 ...	98	86
For boiler rating between 901 and 1,100 ...	535	525
For boiler rating between 1,101 and 1,300.	155	161
For boiler rating between 1,301 and 1,600.	18	15
For boiler rating between 1,601 and 2,000.	30	27
For boiler rating between 2,001 and 4,000.	122	112
For boiler rating between 4,001 and 6,000.	24	24
For boiler rating between 6,001 and 7,000.	7	9
Total ...	2,058	1,993

Forty-one of the boilers shown above were inspected twice.

Of 9 boilers inspected in the Indian States, 8 were in Phaltan State and 1 in Savanur State.

Registration or first inspection of 27 boilers was made in the Town and Island of Bombay and 12 in the Province proper.

Several boilers intended for use in other Provinces were offered for inspection in Bombay.

One hundred and eight certificates for periods of less than twelve months were issued for reasons detailed below :—

Twenty-six, owing to the condition of the boilers,

Four, at owners' request, and

Seventy-eight, on account of grouping of inspections.

Twelve duplicate certificates were issued during the year.

Twenty-five certificates were withdrawn under section 11 (b) of the Indian Boilers Act, 1923, as defects had developed under working conditions.

Thirteen applications were made for inspection for which an additional fee under section 14 (2) of the above Act was charged, as the boilers were not ready at the appointed time. In fourteen other cases, a second fee under Rule 41 of the Bombay Boiler Rules, 1924, was charged as the inspections were not completed within six months.

Thirty-seven inspections were made on holidays, 22 after sunset and 4 before sunrise during the year. In each case an extra inspection fee was levied under Rule 16 of the Bombay Boiler Rules, 1924. These visits were arranged at the special request of the boiler owners as the inspections were urgently required.

The following table shows the number of inspections and tests made during the year and the preceding two years :—

Year.	Boilers.							Steam pipes.
	Thorough internal and external inspections.	Further visits in connection with 2 for which no fee is charged.	Hydraulic tests.	Steam tests of new boilers, etc.	Inspection of repairs.	Accident inspections and enquiries.	Casual external inspections.	First inspection and hydraulic test of new pipes, additions and alterations.
1	2	3	4	5	6	7	8	9
1943-44 ...	2,124	211	1,108	48	247	15	7,724	50
1944-45 ..	2,118	314	1,155	66	339	34	4,976	40
1945-46...	2,049	306	1,127	49	285	24	6,487	30

Under the heading "Casual external inspections" is shown the number of boilers seen under working conditions and at rest, by the Inspectors and the Chief Inspector at their visits to Mills, factories, etc. These include a considerable number of steam tests to check the correct setting of safety valves.

Two Inspectors were stationed at Ahmedabad for work in the Northern Division. One Inspector was fully occupied with boiler inspection work and smoke abatement duties in Ahmedabad, while the other carried out inspection work in the Districts and when available, assisted in Ahmedabad.

One Inspector having his headquarters at Bombay was in charge of the work in the Southern Division.

The inspection in the Central Division were carried out by an Inspector having his headquarters at Bombay.

During the year, the working pressure of seventeen boilers was reduced owing to wasting and deterioration: in three cases the working pressure was restored after satisfactory repairs and in eight other cases, the boilers were scrapped as unfit for further service.

There were no appeals under section 19 or 20 of the Indian Boilers Act, 1923.

#### *Irregularities and Prosecutions.*

The following irregularities were discovered:—

Four, under section 6 (c) of the Indian Boilers Act, 1923 (working the boiler without a current certificate),

Six, under section 12 of the Indian Boilers Act, 1923 (carrying out unauthorised repairs to the boiler),

One, under Regulation 169 of the Indian Boiler Regulations, 1924 (for allowing men to work in the boiler in a battery of of working boilers without being effectively disconnected).

The following prosecutions were instituted during the year:—

(1) and (2): Prosecutions are being filed against (i) Messrs. Continental Drug Co., Worli, Bombay and (ii) Messrs. Empire Oil Mill, Bombay, for a breach of section 6 (c) of the Indian Boilers Act, 1923 (working boilers without current certificates).

A prosecution was launched against the three Agents of the Kalyan Mills Ltd., Ahmedabad, in the previous year for breach of section 18 (1) and section 6 (c) read with section 8 (1) (b) of the Indian Boilers Act, 1923, viz. for not reporting accidents to boilers and for continuing to work the boilers. The judgment was delivered on 23rd July 1945 and all the three accused were convicted and sentenced to pay a fine of Rs. 150 each on each count, the total fine being Rs. 900.

In other cases of irregularities mentioned above, the explanations were accepted and a warning was given in each case.

#### *Accidents.*

The following accidents to boilers, etc., were discovered and investigated. No person was killed or injured:—

(1) B.Y. 5307: Lancashire boiler (Bombay) Cotton Mill, W.P. 150 lbs.—Several of the furnace drums bulged 2" to 3" in local places due to over-heating. This was caused by the attendants'

failure to remove the carbon deposit normal when oil fuel is used. If not periodically removed the deposit becomes white hot and causes overheating of the furnace drums. All the bulges were pressed back cold.

(2) *B. Y. 2801 : Vertical cross tube boiler (Ahmedabad) Textile Factory, W. P. 110 lbs.*—The two bottom cross tubes bulged under working conditions due to internal scale, thus causing overheating. The firm was instructed to cut out the defective cross tubes but they preferred to instal another boiler.

(3) *B. Y. 5044 : Clayton Wagon boiler (Bombay) Dairy, W. P. 150 lbs.*—Leakage developed at the firebox crown where originally fire welded. This was repaired by electric welding.

(4) *B. Y. 3791 : Portable Loco type boiler (Thana District), W. P. 120 lbs.*—Due to the mal-adjustment of the oil fuel burner the foundation seam was overheated. It was necessary to renew a number of rivets in this seam.

(5) *B. Y. 2059 : Lancashire boiler (Ahmedabad) Cotton Mill, W. P. 160 lbs.*—The crowns of seven furnace drums were severely bulged due to shortness of water. No fusible plugs were fitted. The crowns of the defective drums were cut out and welded patches fitted. The ends were flanged so that they could be rivetted to the Adamson joints. Subsequent to the hydraulic test on completion of repairs, the boiler was put into service.

(6) *B. Y. 6321 : Water tube boiler (Sholapur) Cotton Mill, W.P. 315 lbs.*—One tube in the 2nd bottom row burst and opened out for a length of 11" through which the contents of the boiler were discharged at high pressure (310 lbs.) The tube appeared to be lap welded but the defect was due to overheating caused by excessive deposit internally. It was necessary to renew a number of adjoining tubes but the boiler is now in service at the original pressure.

(7) *B. Y. 6441 : Vertical Cross tube boiler (Bombay) Silk Mill, W. P. 100 lbs.*—The boiler was found to be leaking at all firebox and cross tube seams due to shortness of water. It was necessary to withdraw the firebox and re-rivet all seams. The boiler is now at work.

(8) *B. Y. 6389 : Loco type boiler (Surat) : Ice Factory, W. P. 120 lbs.*—Leakage developed on the underside of the barrel. When the tubes were withdrawn the barrel was found to be affected by deep local pits. These were welded up, boiler retubed and put into service after satisfactory hydraulic test.

(9) *Cast Iron Stop Valve or Engine at Cotton Mill (Ahmedabad).*—Due to water hammer the valve was fractured. Attention is now being paid to the efficient draining of the steam pipes and a cast steel valve has been fitted.

(10) *B. Y. 4957 : Horizontal Multitubular Boiler (Ahmedabad) Cotton Mill, W. P. 180 lbs.*—Leakage developed from cracks in the furnace flanges. These were welded and a number of rivets were

renewed. The defects appear to have been due to the quick cooling and rapid raising of steam practised by the firm. They have been warned against this practice.

(11) B. Y. 4869 : Lancashire boiler (Ahmedabad) Cotton Mill, W. P. 180 lbs.—A fine crack developed in one of the furnace flanges. The plate was broadly grooved in this area but the defect appears to have been caused by fatigue. Repairs were carried out by welding.

(12) B. Y. 6530 and (13) B. Y. 6531 : Lancashire boilers (Pachora, East Khandesh) Vanaspati Products, W. P. 220 lbs.—Several slight bulges developed in the furnaces of each boiler. The cause has not been definitely ascertained but it is considered that the use of some unknown protective paint has contributed. The bulges were pressed back cold and the boilers are now at work.

(14) B. L. 7574 : Vertical cross tube boiler (Bombay) : Surgical Dressing Works, W. P. 100 lbs.—Some of the fire brick lining in the firebox was burnt out causing the oil fuel flame to impinge on the foundation seam. This necessitated the renewal of a number of rivets.

#### Finances.

The receipts excluding those on account of Boiler Attendants and Engineers examination fees for the year were Rs. 1,39,745 as against Rs. 1,45,039 in the previous year.

The receipts on account of the Examination fees during the year were Rs. 10,925 as against Rs. 11,120 for the preceding year.

#### Examinations.

A statement showing the number of applicants for the examinations with the number of candidates examined and passed during the year under report and the year 1944-45 is appended.

Three examinations for certificates of Competency as Boiler Attendants and three for certificates of Proficiency as Engineers were held at Bombay.

#### Observations.

There was a slight reduction in the inspections carried out and fees collected. The expenditure showed a material increase due to the grants for war allowance and increase in travelling allowance granted by Government. The Department is however still self-supporting as the surplus of receipts over expenditure was approximately Rs. 2,000.

No injury was caused by any of the accidents reported above but a few cases which concerned Lancashire boilers involved the owners in heavy expenses for repairs.

One Inspector who was previously appointed as Special Officer for Industrial Fuel Economy has now been lent to Government of India for this work. Another Inspector carried out work of

a similar nature regarding the consumption of Electrical Power in large mills, factories, etc. No substitute was recruited during the 5 months this Inspector was occupied with these duties. One Inspector was injured during the city disturbances in February 1946 and had not resumed duty before the end of the year.

Following the amendment of the Indian Boilers Act, the Chief Inspector at the request of the Central Boilers Board framed the new Regulations for the inspection of Economisers but the printing of these has been delayed pending a further amendment of the Act. The Chief Inspector also officiated as Chairman of a Sub-Committee to amend the Indian Boiler Regulations and bring them into line with up to date boiler practice. This work has now been completed and the Regulations will be open for criticism at an early date.

The number of candidates for the Competency and Proficiency certificate examinations was well maintained and satisfactory surplus of receipts over expenditure amounting to Rs. 5,000 was realised.

The Rules and Regulations continue to operate smoothly and I wish to report the good work and co-operation of the Inspectors and clerical staff especially of those on tour during the monsoon and hot season when the work is carried out under many difficulties and much discomfort.

J. PRATT,

Chief Inspector of Steam Boilers, Bombay Province.

Steam Boiler Inspection Office.

27, Military Square Lane, Fort :

Bombay, 18th June 1946.

*Statement showing the number of applicants for examinations held during 1944-45 and 1945-46  
compared with the number of candidates examined and passed.*

Years.	Name and place where examinations were held.	Certificates as Boiler Attendants.														Certificates of Proficiency as Engineers.					
		Competency.						Service.				Exchange.				First Class.			Second Class.		
		First Class.			Second Class.			First Class.		Second Class.		First Class.		Second Class.		First Class.		Second Class.			
		Total No. of applicants.	No. examined.	No. passed.	Total No. of applicants.	No. examined.	No. passed.	Total No. of applicants.	No. of those who were granted certificates.	Total No. of applicants.	No. of those who were granted certificates.	Total No. of applicants.	No. of those who were granted certificates.	Total No. of applicants.	No. of those who were granted certificates.	Total No. of applicants.	No. examined.	No. passed.	Total No. of applicants.	No. examined.	No. passed.
1944-45	Bombay	126	98	68	383	306	224	1	1	...	...	3	3	44	43	56	43	13	192	165	47
1945-46	Do.	126	103	76	350	294	197	...	...	...	...	...	...	18	18	78	65	10	167	143	40
Increase	...	...	5	8	...	...	...	...	...	...	...	...	...	...	...	22	22	...	...	...	...
Decrease	.....	...	...	...	33	12	27	1	1	...	...	3	3	26	25	...	...	3	25	22	7

Steam Boiler Inspection Office,  
27, Military Square Lane:  
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