

**GOVERNMENT OF INDIA  
TARIFF COMMISSION**



**REPORT  
ON THE  
P I S T O N A S S E M B L Y  
(PISTONS, PISTON RINGS AND  
GUDGEON PINS) INDUSTRY**

**BOMBAY.**

**1955**

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GOVERNMENT OF INDIA  
MINISTRY OF COMMERCE AND INDUSTRY  
NOTIFICATION

TARIFFS

New Delhi, the 23rd November, 1955

**No. 79(1)-T.B./55.**—In exercise of the powers conferred by sub-section (1) of section 3A of the Indian Tariff Act, 1934 (XXXII of 1934), as in force in India and as applied to the State of Pondicherry, the Central Government hereby directs that with immediate effect there shall be levied on the articles specified in column (1) of the Table hereto annexed, when imported into India or the said State, a duty of customs of such amount as is specified in the corresponding entry in column (2) thereof.

TABLE

Name of Article	Amount of duty of customs [inclusive of the duty chargeable under sub-section (1) of section 2 of the Indian Tariff Act, 1934, and any additional duty leviable under any other law for the time being in force.]
1	2
The following articles adapted for use as parts and accessories of internal combustion engines of all kinds other than those dutiable under item Nos. 72 (30), 75 (10) (i) and 76 :—	
Trunk piston assembly of diameter 6" and below, trunk pistons of diameter 6" and below, trunk piston rings (excluding chromium plated rings) of diameter 6" and below, and gudgeon pins for trunk pistons of diameter 6" and below.	50% <i>ad valorem</i>

K. B. LALL, Jt. Secy.

GOVERNMENT OF INDIA  
**MINISTRY OF FINANCE (REVENUE DIVISION)**  
**NOTIFICATION**

**CUSTOMS**

*New Delhi, the 23rd November, 1955*

**No. 185.**—In exercise of the powers conferred by section 23 of the Sea Customs Act, 1878 (VIII of 1878), as in force in India and as applied to the State of Pondicherry, the Central Government hereby exempts trunk piston assembly of diameter 6" and below, trunk pistons of diameter 6" and below, trunk piston rings (excluding chromium plated rings) of diameter 6" and below, and gudgeon pins for trunk pistons of diameter 6" and below, imported into India or into the State of Pondicherry, on which a duty of customs has been imposed under sub-section (I) of section 3A of the Indian Tariff Act, 1934 (XXXII of 1934), by the notification of the Government of India in the Ministry of Commerce and Industry No. 79(I)TB/55, dated the 23rd November 1955, if of the United Kingdom manufacture, from so much of the duty leviable thereon as is in excess of 42½ per cent. *ad valorem*.

Provided that the said articles are adapted for use as parts and accessories exclusively of motor cycles and motor scooters.

E. S. KRISHNAMOORTHY,  
Joint Secy.



GOVERNMENT OF INDIA  
**MINISTRY OF FINANCE (REVENUE DIVISION)**  
**NOTIFICATION**

**CUSTOMS**

*New Delhi, the 23rd November, 1955*

**No. 186.**—In exercise of the powers conferred by section 23 of the Sea Customs Act, 1878 (VIII of 1878), as in force in India and as applied to the State of Pondicherry, the Central Government hereby directs that the following further amendment shall be made in the notification of the Government of India in the Ministry of Finance (Revenue Division), No. 45-Customs, dated the 23rd October, 1948, namely:—

In the Schedule annexed to the said notification against Serial No. 1, in the second column headed "Nature of articles", for the words, figures and brackets "and tin rollers and steel belt fasteners under item 72(3)", the words, figures and brackets "and tin rollers, steel belt fasteners, trunk piston assembly of diameter 6" and below, trunk pistons of diameter 6" and below, trunk piston rings (excluding chromium plated rings) of diameter 6" and below, and gudgeon pins for trunk pistons of diameter 6" and below under item 72(3)" shall be substituted.

E. S. KRISHNAMOORTHY,  
Joint Secy.



## PERSONNEL OF THE COMMISSION

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SHRI B. N. ADARKAR, M.A. (CANTAB.) ..... *Member.*  
SHRI B. N. DAS GUPTA, B.A., A.S.A.A. (LONDON),  
F.C.A. .... *Member.*  
SHRI C. RAMASUBBAN ..... *Member.*

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SHRI B. N. DAS GUPTA.  
SHRI C. RAMASUBBAN.

## SECRETARY

SHRI S. K. BOSE, M.A., I.A.S.



सत्यमेव जयते

GOVERNMENT OF INDIA

MINISTRY OF COMMERCE AND INDUSTRY

RESOLUTION

TARIFFS

New Delhi, the 23rd November 1955

**No. 79(1)-T.B./55.**—The Tariff Commission has submitted its Report (1955) on the Piston Assembly (Pistons, Piston Rings and Gudgeon Pins) Industry on the basis of an inquiry conducted by it under Section 11 of the Tariff Commission Act, 1951. Its recommendations are as follows:—

- (1) Protection should be granted to the Piston Assembly industry till 31st December, 1957, by levying a duty of 50 per cent. *ad valorem* standard on trunk piston assemblies of 6" diameter and below and piston rings and gudgeon pins required for such piston assemblies imported separately, the preferential rate of duty being fixed in accordance with the India-U.K. Trade Agreement.
- (2) Indian Standards Institution should endeavour to finalise standard specifications for pistons, piston rings and gudgeon pins as early as possible.
- (3) Government should make arrangements with the Collectors of Customs, and the Director General of Commercial Intelligence and Statistics to record the imports of trunk piston assemblies (pistons, piston rings and gudgeon pins) and the component parts thereof separately under the following categories:—
  - (a) Trunk piston assemblies of diameter (i) of 6" and below, and (ii) above 6".
  - (b) Trunk pistons of diameter (i) of 6" and below and (ii) above 6".
  - (c) Trunk piston rings, excluding chromium plated rings, of diameter (i) of 6" and below (ii) above 6".
  - (d) Gudgeon pins for trunk pistons of diameter (i) of 6" and below (ii) above 6".
- (4) Government should make arrangements for the periodical testing of the quality of indigenous pistons, piston rings and gudgeon pins.
- (5) So long as import control is maintained for balance of payments considerations, Government should regulate imports of trunk pistons of diameter of 6" and below and trunk piston rings and gudgeon pins required for such trunk pistons so as to ensure that only such quantities will be allowed to be imported as are necessary to bridge

the gap between the estimated domestic demand for various types and specifications and the indigenous production of such types and specifications.

- (6) Imports of pistons, piston rings and gudgeon pins of types and specifications which are not included in the present or proposed manufacturing programme of India Pistons Ltd., or are required for engines which were manufactured before 1938, should be allowed until India Pistons Ltd., begin to manufacture them.
- (7) India Pistons Ltd., should complete their negotiations with Aluminium Manufacturing Co., Ltd., Calcutta, and start using indigenous aluminium castings as early as possible.
- (8) India Pistons Ltd., should forward samples of their pistons, piston rings and gudgeon pins to the Indian Institute of Science, Bangalore, for having them tested thoroughly.
- (9) The domestic industry should be required to charge selling prices in fair relation to its costs, to diversify its production so as to meet the requirements of domestic consumers to the widest possible extent and to begin the use of indigenous aluminium castings as early as possible.
- (10) The manufacturers of piston assembly, pistons, piston rings and gudgeon pins should also adopt the practice usually followed in foreign countries of supplying their products for use as original equipment at concessional prices.
- (11) The indigenous manufacturers of pistons, piston rings and gudgeon pins should set up an adequate sales organisation so as to enable the consumers in different parts of the country to obtain their requirements and should also maintain adequate stocks of the various types and specifications of pistons, piston rings and gudgeon pins required by the consumers.

2. Government accept recommendation (1). The protective duty recommended is being brought into force with immediate effect. Necessary legislation will also be introduced in due course.

3. Government also accept recommendations (2) to (4) and will take suitable steps to implement them as far as possible.

4. Government have taken note of recommendations (5) and (6) and these as also other relevant considerations will be taken into account while framing the import control policy from time to time.

5. The attention of the Industry is invited to recommendations (7) to (11).

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#### ORDER

Ordered that a copy of the Resolution be communicated to all concerned and that it be published in the *Gazette of India*.

K B. LALL, Jt. Secy.



## **REPORT ON THE PISTON ASSEMBLY (PISTONS, PISTON RINGS AND GUDGEON PINS) INDUSTRY.**

Under the terms of reference relating to the inquiry into the automobile industry, the Tariff Commission was requested by the Government of India in the Ministry of Commerce & Industry to examine the manufacturing programmes of the industries engaged in the production of essential components and report whether they were technically sound and if their implementation would result in the manufacture of vehicles at a price which would permit of an expanding demand. In paragraph 12(c) of its Report on the Automobile Industry (1953), the Tariff Commission observed that it would be difficult to arrive at a general conclusion in regard to all the ancillary industries which differed considerably in their technique and equipment and in the stage of development reached by them, and that it would be necessary to examine the case of each industry separately with a view to assessing its technical soundness and determining the fair ex-works price of its products. In its letter No. TC/ID/E/88/Comp., dated 6th August, 1953, to the Ministry of Commerce and Industry, the Commission stated that it proposed to complete its examination of the cases of those ancillary industries in respect of which cost investigation had already been carried out and to submit reports on their claims to protection and assistance. One of these ancillary industries was the Piston Assembly industry. In the meantime it was noticed that India Pistons Ltd., Madras, were manufacturing pistons, piston rings and gudgeon pins required for use in automobile engines as well as stationary engines. As the original terms of reference to the Commission in connection with the automobile industry precluded it from examining the claim for protection of pistons, piston rings and gudgeon pins required for use in engines other than automobile engines, the Commission, in its letter No. TC/ID/E/88/Comp./53/DFE, dated 19/20th May, 1954 to the Government of India in the Ministry of Commerce and Industry, explained the position and suggested that the scope of the inquiry should be extended to cover pistons, piston rings and gudgeon pins, used in all types of internal combustion engines. The Government of India in the Ministry of Commerce and Industry authorised the Commission in their letter No. I-T(40)/54, dated 3rd January 1955 to extend the scope of the inquiry to cover pistons, piston rings and cylinder liners used in all types of internal combustion engines. The inquiry into the Piston Assembly Industry, i.e., industry engaged in the manufacture of pistons, piston rings and gudgeon pins, used in all types of internal combustion engines other than aircraft engines was accordingly undertaken by the Commission under Section 11 of the Tariff Commission Act, 1951. The inquiry into the Cylinder Liners industry will be taken up later.

2.1. A press note was issued by the Commission on 15th January, 1955, inviting persons, firms and associations interested in the piston assembly (pistons, piston rings and gudgeon pins) industry to obtain copies of relevant questionnaires from the office of the Commission and to forward their replies thereto. Questionnaires were also issued to the producers,

consumers and importers. The State Governments were requested to furnish information regarding the present position of the industry in their respective states and their views on the question of granting protection and assistance to the industry. The Chief Industrial Adviser, Ministry of Commerce and Industry (Development Wing) and the Director General of Supplies and Disposals, Government of India, were requested to furnish memoranda on the wider scope of the inquiry into this industry. Data regarding c.i.f. prices of certain types and specifications of pistons, piston rings and gudgeon pins were obtained from the Collectors of Customs. The Director General of Commercial Intelligence and Statistics was addressed for information regarding the quantity and value of pistons, piston rings and gudgeon pins imported into the country during the last five years. A list of persons or bodies to whom questionnaires or letters were issued and from whom replies or memoranda were received is given in Appendix I.

2.2. Shri M. D. Bhat, Chairman, and Shri B. N. Das Gupta, Member, visited the factory of India Pistons Ltd. on 6th January, 1953. Shri C. Ramasubban, Member, visited the same factory on 15th March, 1954. Shri S. K. Basu, Cost Accounts Officer, visited the factory of India Pistons Ltd., Madras, from 26th January to 3rd February, 1955, and examined the cost of production of certain types and specifications of pistons, piston rings and gudgeon pins manufactured by them.

2.3. A public inquiry into the piston assembly industry was held on 28th February, 1955, at the Commission's office in Bombay. A list of persons who attended the inquiry is given in Appendix II.

3.1. A piston assembly consists of pistons, rings and gudgeon pins and in some cases of such additional parts as circlips, bushes, end pads and pegs. These additional parts, viz., circlips, bushes, end pads and pegs are not produced in the country. There are two types of pistons, those used with cross heads, mostly in double acting engines, and those in which the piston itself performs the function of a cross head. Pistons of the latter type are called trunk pistons and are used in all single acting engines. The manufacture of pistons in the country is confined only to trunk pistons. The diameter and length of a piston vary according to the type of engine to which it is fitted. There is no fixed correlation between the diameter of a piston and its length, and pistons of the same diameter may have different lengths. Pistons of the same diameter are, however, often interchangeable between mobile and stationary engines. India Pistons, Ltd., are manufacturing at present many varieties of pistons of diameters upto 6" and they have informed us that they have plans to manufacture other varieties also provided there is a reasonable demand for them. They have stated that there will be no difficulty in obtaining iron or aluminium castings for manufacturing pistons of various specifications upto 6" diameter. At the public inquiry, the representative of Ruston & Hornsby (India) Ltd., suggested that the scope of the inquiry in respect of pistons should be confined to such varieties of pistons as are being manufactured in the country and have been tested and found to be suitable for use as original equipment as well as for replacement. The representative of Bombay

Electric Supply & Transport Undertaking stated that as there was a large variety of pistons of different lengths though of the same diameter, it would not be possible for India Pistons Ltd., to manufacture pistons of the various specifications required for use in all internal combustion engines and, therefore, suggested that the scope of the inquiry should be confined to only such pistons as are actually manufactured in the country. The representative of Bombay Motor Merchants' Association Ltd., pointed out that there was a large range of types of engines of different models and that as India Pistons Ltd., would not be able to manufacture pistons upto 6" diameter for all such engines, the scope of the inquiry should be confined to only such engines as were manufactured after 1938. The inability of India Pistons Ltd., to manufacture pistons, piston rings and gudgeon pins required for engines of all types and models of automobiles in use in the country was also stressed by importers and consumers. It was also pointed out at the public inquiry that as the number of pistons, piston rings and gudgeon pins required for use in stationary engines, motor cycle engines, etc., was comparatively much smaller, the cost of manufacturing them would be higher and the scope of the inquiry should, therefore, be restricted to only such types and specifications of pistons, piston rings and gudgeon pins as could be produced economically.

3.2. The representatives of India Pistons Ltd., stated that they were manufacturing pistons, piston rings and gudgeon pins of all the popular types and specifications upto 6" diameter and that they had a programme to manufacture pistons, piston rings and gudgeon pins of other types and specifications also for which there was a reasonable demand. He stated that their plant could produce pistons of all types and specifications upto 6" diameter. He pointed out that they would be able to obtain locally or import, if necessary, iron or aluminium castings required for the manufacture of pistons of these types and specifications and would also be able to obtain from their associates drawings of the latest designs of pistons.

3.3. He also informed us that they did not manufacture chromium plated rings, but that they were manufacturing compression and oil control rings, expander type of rings and tin plated rings. He further stated that they would be able to manufacture other types of rings also. The representative of Goetze (India) Ltd., stated that they intended to start production of piston rings in 1956, and that they had plans to manufacture chromium plated and tin plated rings, expander type of rings and single and double control rings.

3.4. The representative of India Pistons Ltd., informed us that they were at present manufacturing gudgeon pins which could be used in pistons produced by them. He further stated that they had capacity to produce other varieties of gudgeon pins also to meet the demand in the country.

3.5. We have carefully considered the position in respect of production of pistons, piston rings and gudgeon pins of various types and specifications and decided to confine the scope of the inquiry to (1) trunk pistons of diameter of 6" and below; (2) trunk piston rings (excluding chromium plated rings) of diameter of 6" and below; and (3) gudgeon pins required for trunk pistons of diameter of 6" and below.

4.1. Pistons, piston rings and gudgeon pins are vital components of internal combustion engines which run on petrol, diesel oil, kerosene oil, etc. whether they are used in automobiles, aircraft, motor cycles, tractors, earth moving machinery or in stationary engines. The technical excellence of the engine, its efficient running and its life depend particularly upon the design and proper functioning of the piston assembly. The material specifications, dimensions and weight of the piston assembly depend upon various factors such as the number of cycles, speed, maximum temperature and pressures, types of cooling and lubrication envisaged by the designer for the engine to which the piston assembly is to be fitted.

4.2. The functions of a trunk piston are (a) to transmit gas pressure to the crankshaft of the engine through the connecting rod; (b) to take side pressure due to the angularity of the connecting rod; (c) to seal the inside of a cylinder from the crankshaft; and (d) to dissipate heat absorbed by the piston top during combustion.

4.3. Piston rings may be divided into two groups according to their function, viz., compression rings and oil control rings. The main function of the former is to seal the space between the piston and the cylinder wall against leakage of gases. The oil control rings, as the name signifies, regulate the lubricating oil on the cylinder wall. As the purpose of compression rings is different from that of control rings, the designs of these two types of rings are different. Compression rings are inserted at the top of the piston while control rings are located at the bottom end of the piston.

4.4. The function of the gudgeon pin, also known as piston pin, is to operate as a link between the piston and the connecting rod.

5.1. At present there is only one unit in the country viz., India Pistons Ltd., Madras, who manufacture component parts of piston assembly on a commercial scale for use as original equipment as well as for replacement. India Pistons Ltd., Madras, are a private limited company registered in July, 1949, at Madras. Their authorised capital is Rs. 25 lakhs which has been fully subscribed and paid-up. Amalgamations Ltd., Madras, who hold a major portion of the share capital are their managing agents. The rest of the share capital is held by Associated Engineering Holdings Ltd., of the United Kingdom. India Pistons Ltd., have entered into technical collaboration for a period of 20 years with Associated Engineering Holdings Ltd., which is a joint enterprise of four leading manufacturers of the U.K., namely, (i) Hepworth & Grandage Ltd., Bradford, (ii) Wellworthy Ltd., Lymington, Hants, (iii) Bricovmo Ltd., Yorkshire and (iv) Leeds Piston Ring Co., Ltd., Yorkshire. The products covered by the agreement are (i) pistons (ii) piston rings, (iii) gudgeon pins, (iv) centrifugal pot castings, (v) cylinder liners, (vi) piston and liner castings, (vii) tappets, (viii) valve guides and (ix) valve seats. Under the terms of the technical aid agreement, India Pistons Ltd., have been given also the exclusive rights of agency in India and Pakistan for the products manufactured by the unit companies of Associated Engineering Holdings Ltd. India Pistons Ltd., have to pay an engineering fee of 5 per cent. of the invoice price of every item manufactured and sold or used by the Company. The factory

of India Pistons Ltd., is located at Sembiam in Madras. The annual capacity of the factory on single shift basis is 3.60 lakhs pistons, 18 lakhs piston rings and 4.80 lakhs gudgeon pins. The production of pistons was started in November 1952, of piston rings in June 1950, and of gudgeon pins in October 1954. India Pistons Ltd., have two Technical Directors both of whom are nominated by their foreign associates. They have a scheme for training apprentices in the factories of their associates in the U.K. They have sent 3 Indians so far for training in that country. The number of persons employed in the factory at present is 458. The machinery and equipment have been imported from the U.K., and progress in design is kept up-to-date under the advice received from their foreign associates. They have no special research department but they have a fully equipped metallurgical laboratory under a qualified metallurgist who has received training abroad, where tests in respect of raw materials and finished products are carried out. They also obtain latest information in regard to various aspects of manufacture and research from their associates.

5.2.1. Government have granted a licence under the Industries (Development and Regulation) Act, 1951, to Goetze (India) Ltd., New Delhi, for manufacture of piston rings and certain other component parts. Goetze (India) Ltd., are a private limited company registered at New Delhi in 1955. Escorts (Agents) Ltd., New Delhi, are their Managing Agents. The authorised capital of Goetze (India) Ltd., is Rs. 50 lakhs while the subscribed and paid-up capital is Rs. 5 lakhs and Rs. 2 lakhs respectively. They have entered into an agreement with Goetzerwerke Friedrich Goetze A.G. of Duesseldorf (West Germany), who hold a few shares, for a period of 20 years, for manufacture of piston rings, sleeves and other spare parts and engineering stores required for various kinds of machinery. The German associates will supply the machinery and technical 'know-how', their testing and research facilities, etc., and permit Goetze (India) Ltd., the use of their patents. Goetze (India) Ltd., will pay their foreign associates a royalty of 3 per cent. on net sale value of the piston rings manufactured and sold by them. The factory will be built at Bahadurgarh (PEPSU) and is expected to go into production early in 1956. Its capacity for piston rings on single shift basis is estimated to be 15 lakhs in the first year and 30 lakhs in the second year.

5.2.2. Hindustan Motors Ltd., Calcutta, manufacture piston assembly for use in engines manufactured by them. They have an arrangement for technical collaboration with Nuffields Ltd., of the U.K., and Studebaker Corporation of the U.S.A., for manufacture of automobiles including their components.

5.2.3. We were informed at the public inquiry that there were some small engineering units which were manufacturing component parts of the piston assembly according to orders but that details of their capacity, production etc. were not available.

6.1. The indigenous production of pistons, piston rings and gudgeon pins was started on a commercial scale in 1952, 1950 and 1954 respectively and the domestic demand for these component parts was met till then by imports.

As imports of pistons, piston rings and gudgeon pins are not recorded separately in the Accounts relating to the Foreign Trade and Navigation of India, it is not possible to estimate the domestic demand on the basis of indigenous production and imports of these component parts over a period of years. The estimate of the domestic demand will therefore have to be made on the basis of the annual requirements of the internal combustion engines of all types in the country in respect of pistons, piston rings and gudgeon pins for original equipment as well as for replacement. This was discussed at the public inquiry and it was agreed that the requirements of pistons may be classified under the following categories for original equipment as well as for replacement:

- (1) Automobile petrol engines.
- (2) Automobile diesel engines.
- (3) Motor cycle engines.
- (4) Tractor engines.
- (5) Stationary and other engines.

6.2. The number of automobiles in the country is estimated approximately at 283,000. Of these, the number of passenger cars is estimated at 160,000 and of commercial vehicles at 123,000. Of the latter, about 93,000 vehicles are fitted with petrol engines and 30,000 with diesel engines. The production of new motor vehicles in the country during the current year is estimated at 18,000, of which 8,000 will be passenger cars and 10,000 commercial vehicles. The number of motor cycles in the country is estimated at 30,000 while the number of stationary diesel engines in the country is estimated at about 200,000. The indigenous production of stationary diesel engines in 1955 is estimated at about 11,000. The number of tractors in the country is estimated to be about 30,000. We understand that from this year about 10,000 motor cycles and scooters will be produced in the country. There is, however no manufacture of tractors in the country at present. It was agreed at the public inquiry, that the number of pistons required annually for original equipment and for replacement would be as follows:—

#### *Original equipment.*

5,000 passenger cars (4 cylinders per car)	20,000 pistons.
3,000 " " (6 cylinders per car)	18,000 "
10,000 commercial vehicles (average 6 cylinders per vehicle)	60,000 "
10,000 motor cycles and motor scooters (one cylinder per motor cycle or scooter)	10,000 "
11,000 stationary engines (single cylinder per engine)	11,000 "
<b>TOTAL</b>	<b>119,000</b>

#### *Replacement.*

160,000 passenger cars (average number of cylinders 5 per car—replacement once in every 5 years)	160,000 pistons.
93,000 commercial vehicles (petrol engine) (average number of cylinders 5 per vehicle—replacement once in every 2½ years)	186,000 "

**Replacement—contd.**

30,000 commercial vehicles (diesel engine) (average number of cylinders 6 per vehicle—replacement once in every 4 years) . . . . .	45,000	Pistons.
30,000 motor cycles and scooters (one cylinder per motor cycle or scooter—replacement once in every 3 years) . . . . .	10,000	..
200,000 stationary and other engines (one cylinder per engine—replacement once in every 5 years) . . . . .	40,000	..
30,000 tractors (average number of cylinders 4 per tractor—replacement once in every 5 years) . . . . .	24,000	..
<b>TOTAL</b> . . . . .	<b>465,000</b>	

These figures do not include the requirements of the Defence Services. The total demand for pistons exclusive of the requirements of the Defence Services may be estimated at about 600,000 per year. On the basis of 4 rings for each piston and on the assumption that occasions for replacement would be twice those of pistons, we estimate the current demand for rings at 4,800,000 per year. As one gudgeon pin is required for each piston, we estimate the current demand for gudgeon pins at 600,000 per year. It was stated at the public inquiry that the domestic demand for all these component parts might be expected to increase by 10 per cent. during the next two years.

7. The annual capacity of India Pistons Ltd., on single shift basis  
**Rated capacity and production** is as follows:—

Pistons . . . . .	3.60 lakhs.
Piston rings . . . . .	18.00 ..
Gudgeon pins . . . . .	4.80 ..

They have recently installed a new plant for manufacture of expanded type of rings. This plant has started production since February, 1955. Its capacity is estimated at 30,000 rings per month on single shift basis. If the factory works second and third shifts, the capacity of each such shift is estimated at 80 per cent. of that of the first shift except in the case of piston rings in which case it is estimated at 100 per cent., of the first shift. The capacity of Goetze (India) Ltd., who expect to start production early in 1956, is estimated at 15 lakhs piston rings per annum in the first year and 30 lakhs piston rings in the second year.

The production of India Pistons Ltd., during the last five years was as follows:—

	1950	1951	1952	1953	1954
1. Pistons . . . . .	..	..	746	65,497	114,223
2. Piston rings . . . . .	250,178	1,396,085	1,425,519	1,376,399	1,575,668
3. Gudgeon pins . . . . .	..	..	..	..	22,790

8.1. The materials required for manufacture of pistons, piston rings and gudgeon pins are: —

(a) *For pistons*

- (i) Pig iron
- (ii) Aluminium castings
- (iii) Ferro-alloys—Ferro-silicon  
Ferro-manganese  
Ferro-chrome

(b) *For piston rings*

- (i) Pig iron
- (ii) Ferro-alloys—Ferro-silicon  
Ferro-manganese  
Ferro-chrome  
Ferro-vanadium
- (iii) Nickel shots
- (iv) Steel strips

(c) *For gudgeon pins.*

Gudgeon pin steel bars

8.2. In the beginning India Pistons Ltd., found it difficult to use indigenous pig iron for manufacture of cast iron pistons due to high phosphorous content which affected the quality of the pistons. They have now been able to obtain the right type of pig iron from indigenous sources. Aluminium castings are being imported by them from the U.K. on which customs duty of 31½ per cent. *ad valorem* has to be paid. India Pistons Ltd., have informed us that heat treated aluminium castings are not at present available in the country, but that they are carrying on negotiations with Aluminium Manufacturing Company Ltd., Calcutta, for supply of aluminium castings and that the samples supplied by them so far have not been found to be satisfactory. The representative of Aluminium Manufacturing Co. Ltd., admitted that they had no plant for heat treatment, but that they had arranged for heat treatment of their products with Indian Aluminium Company Ltd., Calcutta, who had a heat treatment plant of their own. The representative of India Pistons Ltd., however, pointed out at the public inquiry that the cost of aluminium castings produced by Aluminium Manufacturing Company Ltd., was higher than that of similar imported aluminium castings by about 30 per cent. The representative of Aluminium Manufacturing Company Ltd., stated that if bulk orders were placed with them, the cost would be considerably reduced. He also pointed out that during the war they were supplying aluminium castings to the Ordnance factory at Ishapur and most of the automobile assemblers, and were at present supplying such castings to Hindustan Motors Ltd., who were satisfied with their quality. It has not been possible for us to go more fully into the technical aspects of this question, but we feel that whatever difficulties exist, they can be overcome by mutual co-operation between India Pistons Ltd. and Aluminium Manufacturing Company Ltd., and supplies of aluminium castings of requisite specifications could be made by the latter at reasonable prices. Aluminium, being a protected industry, it is desirable that indigenous manufacture of aluminium products should be encouraged. It is not in the interest of the country's economy that aluminium castings should continue to be imported by another industry which is



seeking protection, especially when the cost of imported castings constitutes about 50 per cent. or more of the cost of the finished pistons. We, therefore, recommend that India Pistons Ltd., should complete their negotiations with Aluminium Manufacturing Co. Ltd., Calcutta, and start using indigenous aluminium castings in place of imported aluminium castings as early as possible.

8.3. Other materials like ferro-alloys and gudgeon pin steel are not available from indigenous sources and have to be imported.

9.1. We obtained the views of the various interests concerned regarding the quality of indigenous pistons, piston rings and gudgeon pins. Four large road transport undertakings informed us that they had used indigenous rings and found them satisfactory. Three manufacturers of diesel engines in the country stated that they had used indigenous pistons, piston rings and gudgeon pins and that they were satisfied with their quality. Some of the consumers, however, stated that the indigenous products were inferior to imported products. India Pistons Ltd., have claimed that they are capable of producing pistons, piston rings and gudgeon pins to any specification required for the various types of internal combustion engines in the country. They have also pointed out that their factory is equipped with up-to-date machinery, laboratory and trained personnel, and that they obtain technical assistance from their foreign associates. (Hepworth & Grandage Ltd., Wellworthy Ltd., Bricovmo Ltd., and Leeds Piston Ring Co. Ltd.) who are well known for their manufacture of these products. They have further stated that their products conform to the specifications of their foreign associates, which are the same as British Standard Specifications. The matter was discussed at the public inquiry and the general opinion was that the quality of pistons, piston rings and gudgeon pins manufactured by India Pistons Ltd., was satisfactory. It was, however, pointed out that these products, especially pistons and gudgeons pins had not been in use for a sufficiently long period and further experience was therefore necessary. Although it is reasonable to expect that the quality of pistons, piston rings and gudgeon pins produced by India Pistons Ltd., according to the specifications of their foreign associates, i.e., British Standard Specifications, will be found satisfactory, and this is confirmed by the evidence we have received from some of the consumers, we recommend that India Pistons Ltd., should forward samples of their products to the Indian Institute of Science, Bangalore, for having them tested thoroughly. We also recommend that Government should make arrangements for the periodical testing of the quality of indigenous pistons, piston rings and gudgeon pins.

9.2. The opinions received by us regarding prejudice against pistons, piston rings and gudgeon pins manufactured in the country were divergent. We discussed this matter at the public inquiry and some of the consumers stated that there was a certain amount of prejudice against indigenous products and that a preference was shown for imported products. There were, however, other consumers who stated that there was no prejudice against indigenous products. India Pistons Ltd., informed us that prejudice against their piston rings had now subsided but that they encountered preju-

dice against their pistons and gudgeon pins which were comparatively new to the consumers. Their representative stated at the public inquiry that when they introduced their piston rings into the market four years ago, they found considerable prejudice against their product but that restriction of imports and passage of time had contributed to minimise the prejudice. The representative of Bombay Motor Merchants' Association Ltd., pointed out that prejudice against piston rings was due to their inferior quality and not because they were indigenous products. Preference for imported products to which consumers have been accustomed for years is natural, but when indigenous products manufactured in technical collaboration with well-known manufacturers in foreign countries, whose products are readily accepted in the domestic market, meet with resistance from the consumers, there is clear evidence that prejudice exists against indigenous products. This is also borne out by the fact that in the case of piston rings, it was only after imports were restricted by Government, that India Pistons Ltd., were able to sell their piston rings in large quantities.

9.3 There are at present no Indian standard specifications for pistons, piston rings and gudgeon pins. We understand that the Indian Standards Institution has prepared draft standards for piston rings which are likely to be published in July, 1955. Preliminary draft standards for (i) cast iron pistons, and (ii) aluminium alloy pistons and king pins (gudgeon pins) have also been prepared and are expected to be available by March, 1956. We recommend that the Indian Standards Institution should endeavour to finalise the standards for these products as early as possible so that necessary measures could be taken by the manufacturers of pistons, piston rings and gudgeon pins to conform to these standards.

10.1. *Import control policy*.—The import control policy in regard to piston assemblies viz., pistons, piston rings and gudgeon pins required for use as original equipment and for replacement generally varies according to the policy laid down for the import of engines or equipment to which they are to be fitted; for example, the import control policy in respect of pistons, piston rings and gudgeon pins required for stationary engines follows the import control policy for stationary engines.

During the period January-June, 1955, the import control policy in respect of piston assemblies viz., pistons, piston rings and gudgeon pins required for use as original equipment and for replacement in some of the important types of internal combustion engines is as follows:—

- (a) *Power driven road rollers and tractors and component parts thereof for original equipment and replacement—*

Licences will be granted on recommendation of the Transport Ministry (Roads Organization) and will be valid for a period of 12 months.

- (b) *Spare parts for agricultural tractors and tractor drawn agricultural implements—*

Licences will be granted to established importers on the basis of 100 per cent. of half of best year's imports from general and soft currency areas but not more than 1½ per cent. of the face value of the licence or Rs. 500 whichever is higher can be utilised for the import of pistons, piston rings and cylinder liners. Licences for newcomers will be considered in accordance with the provisions of Appendix I of the Policy Book.

- (c) *Diesel engines of all types and component parts thereof except spare parts for internal combustion engines of road vehicular type—*

(1) *For original equipment—*

(i) *Diesel engines of 0—3 H.P.—*

Licences will be granted only to actual users. Applications from established importers having firm orders from actual users will be considered on *ad hoc* basis. These licences will not be valid for the import of diesel engines which develop more than 3 H.P. at a speed of 1500 R.P.M. or less.

(ii) *Diesel engines of 4—30 H.P. and above 30 H.P.—*

Applications for licences will be considered on *ad hoc* basis.

(iii) *Marine type diesel engines—*

Licences will be granted to actual users only on a quota of 100 per cent. of half of best year's imports and will be valid for a period of 12 months. Applications for licences from fishermen's co-operative societies, and for additional licences from established importers will be considered on *ad hoc* basis.

Licences to new comers will be considered in accordance with the provisions of Appendix I of the Policy Book.

(2) *For replacement—*

(i) *In diesel engines other than spare parts for road vehicular type diesel engines—*

Licences will be granted on the basis of 100 per cent. of half of best year's imports of all parts imported under this category of engines from general and soft currency areas or alternatively, on the basis of 10 per cent. of half of best year's imports of complete diesel engines from the currency areas concerned. The licences will be valid for a period of 12 months.

Certain specified parts of diesel engines are covered by O.G.L. (Gen.) upto 30th September, 1955.

These licences will only be valid for spare parts which have been standardised by the makers as spare parts of the particular diesel engines and are supplied by

them. For this purpose the names and types of diesel engines and the particulars of the manufacturer concerned should be furnished and these will be indicated on the licence.

Not more than 10 per cent. of the face value of the quota licence can be used for the import of pistons, and piston rings below 6" dia.

(ii) *In diesel engines of the road vehicular type—*

Piston rings of 6" dia. and above will be allowed to be imported as spare parts under quota licences granted for the import of these types of diesel engines as mentioned above.

(d) *Petrol and kerosene engines of all types (excluding automobile units) and component parts thereof except spare parts for petrol internal combustion engines of road vehicular type—*

(1) *For original equipment—*

Licences will be granted only to actual users and applications from established importers having firm orders from actual users for engines of 0—3 H.P. will be considered on *ad hoc* basis.

In the case of engines for out-board motors, licences will be granted to actual users on the basis of 100 per cent. of half of best year's imports from general currency areas and 120 per cent. of half of best year's imports from soft currency areas. Applications from established importers for the grant of additional licences will be considered on *ad hoc* basis.

Applications from newcomers will be considered in accordance with the provisions of Appendix I of the Policy Book.

(2) *For replacement—*

Licences will be granted to established importers on the basis of 100 per cent. of best year's imports from general and soft currency areas or 10 per cent. of imports of complete engines from the same areas. The licences will be valid for a period of 12 months.

(e) *For use in engines of the road vehicular type—*

Licences for imports of pistons, piston rings and gudgeon pins required for original equipment and for replacement in engines of motor vehicles specified in S. Nos. 293, 295 and 297 of Part IV of the Import Control Policy Book for January-June, 1955 will be granted on the basis of specified quotas as is indicated in Appendix XXVI of the Policy Book mentioned above. During this period motor vehicle parts for which licences granted on the basis of joint quota are not valid, are grouped into two lists, List I and List III. List I contains items for which licences issued for motor vehicle parts on the basis of joint quota are not

valid and List III contains items for which licences are to be granted on the quota based on imports of individual items. List II contains items for which not more than three per cent. of the licences issued for motor vehicles parts on the basis of joint quota could be utilised. Piston assemblies *viz.*, pistons, piston rings and gudgeon pins fall under List III. According to this List piston assemblies are allowed to be imported by established importers on a quota based on imports of individual items of 25 per cent. from general currency area and 33 1/3 per cent. from soft currency area. Applications from fleet owners for import of pistons of the types not manufactured in the country will also be considered *ad hoc*. Applicants will have to give full justification for the proposed import.

Piston rings of 6" dia. and below are mentioned in List I under which licences issued for motor vehicle parts falling under S. Nos. 293, 295 and 297 of Part IV will not be valid. The following exceptions to the ban imposed on piston rings of 6" dia. and below have been made *viz.*:

- (i) Piston rings imported with the original equipment either C.K.D. or assembled,
- (ii) Piston rings fitted to pistons when imported as complete piston assemblies under List III,
- (iii) Elliptical rings for use on motor cycle,
- (iv) Compensating rings, and
- (v) Expander type piston rings or hydraulic piston rings or special engineered piston rings (steel rings only) *i.e.*, steel rings, chromium plated rings and expander rings only will be allowed to be imported.

10.2. *Imports*.—Statistics of imports of pistons, piston rings and gudgeon pins are not at present recorded separately in the Accounts relating to the Foreign Trade and Navigation of India. We think that it is necessary that imports of trunk pistons, piston rings and gudgeon pins should be recorded separately and suggest that arrangements should be made with the Collectors of Customs, and the Director General of Commercial Intelligence and Statistics to record the imports of trunk piston assemblies (pistons, piston rings and gudgeon pins) and the component parts thereof separately under the following categories:—

- (1) Trunk piston assemblies of diameter (a) of 6" and below, and (b) above 6".
- (2) Trunk pistons of diameter (a) of 6" and below, (b) above 6".
- (3) Trunk piston rings excluding chromium plated rings, of diameter (a) of 6" and below, (b) above 6".
- (4) Gudgeon pins for trunk pistons of diameter (a) of 6" and below, (b) above 6".

11. Piston assemblies, pistons, piston rings and gudgeon pins are assessed to import duty at various rates under **Existing rates of duty** I.C.T. items Nos. 72 (3), 72 (30), 75, 75 (2) and 75 (10) (i) according to their use in the different types of engines. The present rates of import duty are as given in the following table:—

Sl. No.	Description of the engine in which piston assemblies, pistons, piston rings and gudgeon pins are used	I. C. T. Item No.	Nature of duty	Standard rate of duty	Preferential rate of duty if the article is the produce or manufacture of the U. K.
1	Stationary, locomotive and marine internal combustion engines.	72 (3)	Revenue	5½ per cent. <i>ad valorem</i> .	
2	Agricultural tractor engines†	72 (30)†	..	Free*	
3	Vehicles not otherwise specified.	75	Revenue	31½ per cent. <i>ad valorem</i> .	
4	Motor cycle engines	75 (2)	Preferential Revenue	35 per cent. <i>ad valorem</i> .	27½ per cent. <i>ad valorem</i> .
5	Automobile engines—motor cars.	75 (10) (i)	Revenue	50 per cent. <i>ad valorem</i> .	..
6	Automobile engines—motor trucks.	75(10)(i)	Revenue	50 per cent. <i>ad valorem</i> .	42½ per cent. <i>ad valorem</i> .
7	Diesel engine of vehicular type.	75(10)(i)	Revenue	25 per cent. <i>ad valorem</i> .	17½ per cent. <i>ad valorem</i> .

NOTE.—\*Only if the articles are not interchangeable with motor vehicles or stationary engines, they are assessed as agricultural tractor parts under this item free of duty. If interchangeable with motor vehicles, the rates of duty are as shown against Serial Nos. 5 and 6 above and if interchangeable with stationary engines, the rates of duty as are shown against Sl. Nos. 1 and 7, as the case may be.

†This is a GATT Item.

Relevant extracts of these Item Nos. from the First Schedule of the Indian Customs Tariff (39th issue) are given in Appendix III.

12. We have obtained from the Collectors of Customs and some of the leading importers information regarding **C.i.f. prices and landed costs** of certain types and specifications of imported trunk piston assemblies (pistons, piston rings and gudgeon pins) corresponding to the types and specifications of indigenous trunk piston assemblies (pistons, piston rings and gudgeon pins) which represent

broadly the popular categories of these articles. It was not possible to obtain c.i.f. prices for all such types and specifications. We have, therefore, calculated c.i.f. prices, etc. in such cases on the basis of f.o.b. prices obtained from the importers. This information is contained in Appendix IV. The statement given on page 16, gives the c.i.f. prices and landed costs of recent imports of trunk piston assemblies (pistons, piston rings and gudgeon pins) and of trunk piston rings.

13.1. Our Cost Accounts Officer has examined the cost of production of piston trunk assemblies (pistons, piston rings, and gudgeon pins) and trunk piston rings manufactured by India Pistons Ltd. They manufacture a large variety of trunk pistons and trunk piston rings (both compression type and oil control type), and have recently started manufacturing gudgeon pins and also expander type of rings. In view of the large range of products it is not possible to estimate the cost of production of each individual type. Therefore, it was decided to examine the cost of piston assemblies and of piston rings of the following types which represent broadly the popular categories of piston assemblies and of rings that are required for use in various kinds of automobile engines and stationary engines:

Model	Bore
Ford V-8 (1937-40) . . . . .	3·1/16"
Chevrolet (1941-50) . . . . .	3·1/2"
Standard Vanguard (1948-52) . . . . .	85 mm.
Royal Enfield (1948-52) . . . . .	2·751"
Perkins P-6 (1937-52) . . . . .	3·501"
Ruston Hornsby VSH Diesel . . . . .	4 1/2"
Petters A. V. I . . . . .	80 mm.

The above types of piston assemblies and piston rings have been taken as representative products of the industry and, therefore, the actual costs have been investigated and fair ex-works prices for the future have been estimated in respect of these types only. The cost data compiled by our Cost Accounts Officer were discussed with the representatives of India Pistons Ltd. As they desire that the details of costs should be kept confidential, we are forwarding the report of the Cost Accounts Officer as a separate enclosure to this report.

13.2. The actual costs have been worked out for the year from 1st October 1953 to 30th September 1954 and the future costs have been estimated on the basis of these costs. The statement given on page Nos. 17—18 gives an estimate of the fair ex-works prices for the future of the above types of trunk piston assemblies (trunk pistons, trunk piston rings and gudgeon pins) and of compression and oil control rings.

13.3. The principal factors which we have taken into account in estimating the fair ex-works prices for the future are explained in the Statement on page 16.

Statement showing the c. i. f. prices and landed costs of recent imports of trunk piston assemblies (pistons, piston rings and gudgeon pins) and of trunk piston rings.

Trunk Piston Assemblies.

Items	Ford V-8 (3·1/16" bore)			*Chevrolet 3½" bore			Standard Vanguard (85 m.m. bore)			Royal Enfield (2·751" bore)			Perkins (3·501" bore)			Ruston Hornsby (4½" bore)			Petters (80 m.m. bore)								
	Rs.	A. P.		Rs.	A. P.		Rs.	A. P.		Rs.	A. P.		Rs.	A. P.		Rs.	A. P.		Rs.	A. P.							
1. C.i.f. price	.	.	.	.	.	.	11	6	0	10	2	0	15	0	0	15	13	0	19	11	4	53	5	0	19	6	0
2. Landing and clearing charges	.	.	.	.	.	.	0	1	0	0	5	0	0	0	2	0	3	9	0	3	3	1	8	0	0	12	6
3. Customs duty	.	.	.	.	.	.	5	11	0	5	1	0	7	8	0	4	5	7	3	7	2	2	12	0	0	14	6
4. Landed cost	.	.	.	.	.	.	17	6	0	15	8	0	22	8	2	20	6	4	23	5	9	57	9	0	21	1	0

Trunk piston rings.

Per set comprising of { Compression rings Oil control rings	Ford V-8 (3.1/16" bore)		Chevrolet 3½" bore		Standard Vanguard (85 m.m. bore)		Royal Enfield (2.751" bore)		Perkins (3.501" bore)		Ruston Hornsby (4½" bore)		Petters (80 m.m. bore)				
	Rs.	A. P.	Rs.	A. P.	Rs.	A. P.	Rs.	A. P.	Rs.	A. P.	Rs.	A. P.	Rs.	A. P.			
.	16	8	12	6	8	4	2	1	18	12	3	1	3	1			
1. C.i.f. price	.	.	18	4	6	18	1	0	17	0	0	6	2	3	2	13	6
2. Landing and clearing charges.	.	.	0	2	8	0	1	6	0	5	0	0	2	6	0	1	6
3. Customs duty	.	.	9	3	7	9	0	6	2	15	6	0	4	9	0	2	6
4. Landed cost	.	.	27	10	9	27	3	0	20	4	6	6	9	6	3	1	6

\*Trunk pistons with gudgeon pins only.



*Statement showing the estimate of the fair ex-works prices for the future of trunk piston assemblies (trunk pistons, trunk piston rings and gudgeon pins) and of compressions and oil control rings.*

(A) TRUNK PISTON ASSEMBLIES

Model and make		(Cost per unit)						
		Ford V-8	Chevrolet	Standard Vanguard	Royal Enfield	Perkins P-6	Ruston Hornsby	Peters A.V.1 (with-out rings)
Year		1937/42	1941/50	1948/52	1948/52	1937/52		
Bore		3.1/16"	3.1/2"	85 mm.	2.751"	3.501"	4.1/2"	80 mm.
(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Piston with gudgeon pin and Rings</i>								
1. Net Material		Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
		7.070	10.622	8.499	5.637	14.167	25.047	10.807
2. Conversion charges		2.435	8.931	2.401	2.355	2.961	4.978	3.974
3. Total		9.505	19.553	10.900	7.992	17.128	30.025	14.781
4. Interest on working capital		0.237	0.453	0.276	0.198	0.438	0.756	0.378
5. Return on block		0.880	1.965	0.866	0.778	0.960	1.124	0.595
6. Engineering fees		0.559	1.156	0.634	0.472	0.975	1.679	0.829
Fair Ex-works Price		11.181	23.127	12.676	9.440	19.501	33.584	16.583
Or Rs.		11-2-10.8	23-2-0.4	12-10-9.8	9-7-0.5	19-8-0.2	33-9-4.1	16-9-3.9

## (B) TRUNK PISTON RINGS

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	As.	As.	As.	As.	As.	As.	As.
<i>Compression Ring</i>							
1. Net Material	1.826	2.494	1.803	1.208	2.020	3.146	3.012
2. Conversion charges	3.004	4.104	2.262	2.082	3.136	2.450	2.575
3. Total	4.830	6.598	4.065	3.290	5.156	5.596	5.587
4. Interest on working capital	0.115	0.157	0.097	0.078	0.123	0.132	0.133
5. Return on block	1.034	1.138	1.030	0.937	1.064	1.240	1.218
6. Engineering fees	0.315	0.415	0.273	0.227	0.334	0.367	0.365
Fair Ex-works price	6.294	8.308	5.465	4.532	6.677	7.335	7.303
Or Rs.	0-6-3.5	0-8-3.7	0-5-5.6	0-4-6.4	0-6-8.1	0-7-4.0	0-7-3.6
	As.	As.	As.	As.	As.	As.	As.
<i>Oil Control Rings</i>							
1. Net Material	2.581	2.864	2.486	1.996	3.677	4.975	3.068
2. Conversion charges	4.916	5.373	3.853	4.434	4.911	8.000	8.891
3. Total	7.497	8.237	6.339	6.430	8.588	12.975	11.959
4. Interest on working capital	0.177	0.195	0.151	0.152	0.204	0.306	0.282
5. Return on block	1.152	1.196	1.137	1.060	1.323	1.526	1.227
6. Engineering fees	0.465	0.507	0.401	0.402	0.532	0.779	0.709
Fair Ex-works price	9.291	10.135	8.028	8.044	10.647	15.586	14.177
Or Rs.	0-9-3.5	0-10-1.6	0-8-0.3	0-8-0.5	0-10-7.8	0-15-7.0	0-14-2.1

*Production.*—Actual production during the period from 1st October 1953 to 30th September 1954 was as follows:—

Pistons . . . . .	122,953
Rings . . . . .	1,505,388

The representative of India Pistons Ltd., informed us that they had restricted production of pistons to correspond with firm orders which they had actually received. He further stated that as there were large stocks of imported pistons in the country, there was no point in undertaking increased production for which there would be no market. This would only increase their unsold stocks. He, however, estimated that the production of pistons would be 2 lakhs and of piston rings 18 lakhs in 1955. We have adopted this estimate.

*Raw Materials.*—The main raw materials for pistons are aluminium alloy castings and iron castings and for rings, iron castings. Aluminium alloy castings are imported from the U.K. and India Pistons Ltd., have informed us that the suppliers of aluminium alloy castings in the U.K. have intimated to them that prices of aluminium castings have been increased by 5 per cent. with immediate effect. India Pistons Ltd., have their own foundry where iron castings are made. The percentage of bad castings for pistons during the period from 1st October 1953 to 30th September 1954 was as high as 41. The wastage in the processing of iron castings for pistons was also as high as 47 per cent. Iron castings are also used for rings but in their case the percentage of rejection was only 10 per cent. The representative of India Pistons Ltd., explained that high wastage in foundry and in processing in the case of iron castings used for pistons was due to the fact that they had started making iron castings for pistons in their foundry recently and that with more experience they expected to reduce the percentage of wastage considerably in foundry as well as in processing. We have allowed 5 per cent. increase in the cost of imported aluminium castings and 25 per cent. wastage in foundry and 10 per cent. wastage in processing in the case of iron castings in our estimate of cost of raw materials. We, however, consider that India Pistons Ltd., should explore all possible ways to reduce the wastage in foundry and in processing to the lowest possible level.

*Works cost.*—It is estimated that the increased production assumed for the future would involve the following variations in the principal items of works cost:

Expenses under direct wages, power and consumable stores will increase in proportion to the increase in production; expenses under the heads repairs and maintenance, establishment and other overheads will increase by about 30 per cent. in the pistons department and by about 10 per cent. in the rings department.

*Depreciation.*—Depreciation has been allowed at income-tax rates. Double shift allowance has been provided for the rings department, and single shift allowance for the pistons department.

*Interest on working capital.*—India Pistons Ltd., have pointed out that as some of the raw materials have to be imported from foreign countries and as there are transport difficulties in obtaining supplies of indigenous raw materials from Calcutta, they find it necessary to

keep stocks of raw materials for about 6 months. Further, because of the large range of varieties of pistons and rings manufactured by them, they are required to maintain about 3 months' finished stock in order to meet the requirements of their customers promptly. We have, therefore, provided working capital equal to 7 months' cost of production and allowed interest thereon at  $4\frac{1}{2}$  per cent.

*Return on block.*—The original value of the block as on 30th September, 1954, was Rs. 11,90,394 for the pistons department; Rs. 8,42,458 for the rings department; and Rs. 14,45,718 for the foundry department. Return on block has been allowed at 10 per cent.

14.1. The statement on pages 21-22 gives a comparison of the fair ex-works prices of the indigenous piston assemblies and rings with the c.i.f. prices and landed costs without duty of corresponding imported assemblies and rings. India Pistons Ltd., usually sell piston assemblies, i.e., pistons fitted with rings and gudgeon pins. Petters A.V.1, 80 mm. pistons are, however, sold by them with gudgeon pins only. It was not possible to work out the assembling charges separately and we have, therefore, estimated the fair ex-works prices of piston assemblies, i.e., of pistons, piston rings and gudgeon pins and circlips, bushes etc., in case they are used. As the production of gudgeon pins has been started by India Pistons Ltd., recently, adequate data were not available for estimating the fair ex-works prices of gudgeon pins separately. We have, therefore, made provision for gudgeon pins in our estimates of pistons assemblies on the basis of costs of imported gudgeon pins.

14.2. It will be seen that in all cases except one, namely, piston assembly for Chevrolet  $3\frac{1}{2}$ " bore engine, the fair ex-works prices of indigenous piston assemblies and rings are lower than the landed costs without duty of the corresponding imported products. Iron castings are used for pistons which are required for certain engines such as Chevrolet engines, Perkins, tractor engines, etc., while aluminium castings are used for pistons which are required for other internal combustion engines. It is noteworthy that in the case of piston assemblies in which imported aluminium castings are used, the fair ex-works prices are lower in all cases than the landed cost without duty of the corresponding imported piston assemblies even though customs duty of  $31\frac{1}{2}$  per cent. is levied on imports of aluminium castings.

14.3. We understand that there is no programme of manufacture of Chevrolet and other motor vehicles in the country for which pistons of iron castings are required. A large number of Chevrolet, and such other vehicles are, however, at present in use in the country, but as new motor vehicles of these makes are not likely to be imported into the country in the future, the demand for pistons for motor vehicles of these makes will be declining. It is, however, estimated that the number of motor vehicles in the country such as Chevrolet, for which pistons made from iron castings are required is large and that nearly twenty five per cent. of the total replacement demand for pistons required for automobile engines is for pistons of this type.

*Statement showing comparison of the fair ex-work prices of the indigenous piston assemblies and rings with c.i.f. prices and landed costs without duty, of corresponding imported piston assemblies and rings.*

(A) TRUNK PISTON ASSEMBLIES.

	Ford V-8 3.1/16" bore	*Chevrolet 3½" bore	Standard Vanguard (85mm. bore)	Royal Enfield (2.751" bore)	Perkins P-6 (3.501" bore)	Ruston & Petters A.V.I. Hornsby (4½" bore)	Ruston & Petters A.V.I. (80 mm. bore)
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
1. C.i.f. price . . . . .	11 6 0	10 2 0	15 0 0	15 13 0	19 11 4	53 5 0	19 6 0
2. Landing and clearing charges . . . . .	0 5 0	0 5 0	0 0 2	0 3 9	0 3 3	1 8 0	0 12 6
3. Customs duty . . . . .	5 11 0	5 1 0	7 8 0	4 5 7	3 7 2	2 12 0	0 14 6
4. Landed cost . . . . .	17 6 0	15 8 0	22 8 2	20 6 4	23 5 9	57 9 0	21 1 0
5. Landed cost ex-duty . . . . .	11 11 0	10 7 0	15 0 2	16 0 9	19 14 7	54 13 0	20 2 6
6. Fair ex-works price . . . . .	11 2 11	19 7 4	12 10 10	9 7 1	19 8 0	33 9 4	†18 11 10
7. Advantage of (6) over (5) . . . . .	0 8 1	..	2 5 4	6 9 8	0 6 7	21 3 8	1 6 8
8. Disadvantage of (6) against (5) . . . . .	..	9 0 4	..	..	..	..	..
9. Percentage of (8) on (1) . . . . .	..	89.08	..	..	..	..	..

\* Piston with gudgeon pin only.

† Inclusive of rings.

## (B) TRUNK PISTON RINGS

Items	Ford V-8 (3 1/16" bore)		Chevrolet (3 1/2" bore)		Standard Vanguard (85 mm.bore)		Perkins P-6 (3.501" bore)		Ruston & Hornsby (4 1/2 bore)		Petters A.V.1 (80 mm. bore)	
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
Per set comprising of { Compression rings Oil control rings	.	.	.	.	.	.	.	.	.	.	.	.
1. C.i.f. price	18 4 6	18 1 0	12 6	8 4	18 12	3 1	3 1	3 1	3 1	3 1	3 1	3 1
2. Landing and clearing charges	0 2 8	0 1 6	0 0 2	0 0 2	0 5 0	0 2 6	0 1 6	0 2 6	0 2 6	0 2 6	0 2 6	0 2 6
3. Customs duty	9 3 7	9 0 6	3 5 10	3 5 10	2 15 6	0 4 9	0 2 6	0 4 9	0 4 9	0 4 9	0 2 6	0 2 6
4. Landed cost	27 10 9	27 3 0	10 1 7	10 1 7	20 4 6	6 9 6	3 1 6	6 9 6	6 9 6	6 9 6	3 1 6	3 1 6
5. Landed cost ex-duty	18 7 2	18 2' 6	6 11 9	6 11 9	17 5 0	6 4 9	2 15 0	6 4 9	6 4 9	6 4 9	2 15 0	2 15 0
6. Fair ex-works price	10 15 0	10 0 6	4 11 10	4 11 10	15 7 11	2 5 7	2 4 1	2 5 7	2 5 7	2 5 7	2 4 1	2 4 1
7. Advantage of (6) over (5)	7 8 2	8 2 0	1 15 11	1 15 11	1 13 1	3 15 2	0 10 11	3 15 2	3 15 2	3 15 2	0 10 11	0 10 11

15.1. India Pistons Ltd., have made considerable progress in the manufacture of piston assembly (pistons, piston rings and gudgeon pins) which is a very vital component of an internal combustion engine. This industry is an important ancillary industry to the manufacture of automobile and stationary and other engines and it is therefore in the national interest to develop this industry in order that the country should be self-sufficient. India Pistons Ltd. have already invested a large amount in installing machinery and equipment for the manufacture of pistons, piston rings and gudgeon pins. Their capacity is sufficient to meet the demand in the country for these products. They are at present manufacturing pistons and piston rings of diameter of 6" and below and gudgeon pins for their own pistons, and for engines of popular types of automobiles etc., but they are prepared to manufacture these products for other internal combustion engines also, provided the quantity required is reasonable. The quality of their products is satisfactory and their selling prices are generally lower than those of the imported products. Goetze (India) Ltd., who are working in collaboration with Goetzewerke Friedrich Goetze of West Germany expect to start production of piston rings early in 1956. The representative of India Pistons Ltd., who have been manufacturing piston rings since June 1950, stated that prejudice against their piston rings had subsided but that large stocks in the country combined with imports even though restricted, were hampering their sales. As regards pistons and gudgeon pins they have to encounter prejudice with the result that the offtake of these products is small. It is contended by India Pistons Ltd., that stocks in the country which include the stocks released by General Motors (India) Ltd., will last for some time, and that the only way by which effective assistance could be given to them for securing a share of the market was by severely restricting the imports of pistons, piston rings and gudgeon pins. If a market is not provided the industry will not have the incentive to expand its production and to undertake further investment. India Pistons Ltd., also apprehend that the indigenous industry will have to face in the future increasing and severe competition from the U.K., the U.S.A., Canada, Germany and Japan. In the circumstances, we consider that protection is essential for the growth and development of this industry. The statement given in paragraph 14.1 shows that a duty of 89.08 per cent. is required to equate the fair ex-works price of the indigenous piston assembly required for Chevrolet engine of 3½" bore with the landed cost without duty of the corresponding imported assembly. Pistons made from iron castings are required for this engine. The domestic demand for pistons made from iron castings is estimated at 25 per cent. of the total replacement demand for pistons required for automobile engines which form the bulk of the total demand for pistons in the country. The statement in paragraph 14.1 also shows that no duty is required to equate the fair ex-work prices of other indigenous piston assemblies and rings required for other popular types of engines with the landed costs without duty of the corresponding imported assemblies and rings. In all these cases pistons made from aluminium castings are used. The comparison of the fair ex-works price with c.i.f. prices, however, is subject to the following qualifications:—

- (a) The present cost of indigenous aluminium castings which are required for pistons for use in a large number of

automobile and other engines is stated to be 30 per cent. more than the price of corresponding imported products. It is essential that India Pistons Ltd., should use indigenous aluminium castings for pistons, and they may, therefore, have to incur higher cost on the manufacture of such pistons in comparison with the cost of similar imported aluminium castings even though indigenous production of aluminium castings would be on increasing scale.

- (b) India Pistons Ltd., will be expected to undertake the manufacture of pistons, piston rings and gudgeon pins of a large number of types and specifications so as to meet the requirements of the consumers to the widest possible extent, even though the volume of demand for these types and specifications is comparatively small and this is likely to result in some increase in the overall cost of production.
- (c) There is prejudice against indigenous products particularly pistons and gudgeon pins. These are vital components of an engine and it is usually difficult to induce an average consumer to take the risk of experimenting with the indigenous products with which he is not familiar.
- (d) As the factory of India Pistons Ltd., is located in Madras it suffers from a freight disadvantage in competition with pistons, piston rings and gudgeon pins of foreign manufacture imported in other parts especially Bombay and Calcutta.

Taking into account the various factors mentioned above we consider that the protection afforded by the present revenue duty of 50 per cent. for piston assemblies of automobile petrol engines should be maintained and extended to all types of piston assemblies included in the scope of the present inquiry.

15.2. We accordingly recommend that a protective duty should be levied on trunk piston assemblies of 6" diameter and below and piston rings and gudgeon pins required for such piston assemblies imported separately, at the standard rate of 50 per cent. *ad valorem*, the preferential rate being fixed in accordance with the India-U.K. Trade Agreement, for the period upto 31st December, 1957. Imports of piston assembly, piston rings and gudgeon pins used in internal combustion engines in agricultural tractors, when they are non-interchangeable with motor vehicles or stationary engines, are now allowed duty free under I.C.T. item No. 72 (30) which is a GATT item. We do not think that the interests of the domestic industry will be adversely affected if this position is maintained.

15.3. If the domestic industry is granted protection as recommended above it should be required (a) to charge selling prices in fair relation to its costs, (b) to diversify its production so as to meet the requirements of domestic consumers to the widest possible extent and (c) to begin the use of indigenous aluminium castings as early as possible.

15.4. If our recommendation for the grant of protection to the piston assembly (pistons, piston rings and gudgeon pins) industry is accepted, items Nos. 72 (3), 75, 75 (2) and 75 (10) (i) of the Indian



Customs Tariff Schedule should be modified so as to read as follows:—

*Item No. 72(3).*—Component parts of machinery as defined in Items Nos. 72, 72(1) and 72(2) namely, such parts only as are essential for the working of the machine or apparatus and have been given for that purpose some special shape or quality which would not be essential for their use for any other purpose, but excluding articles specified in item No.\* ——— and small tools like twist drills and remers, dies and taps, gear cutters and hacksaw blades: Provided that articles which do not satisfy this condition shall also be deemed to be component parts of the machine to which they belong if they are essential to its operation and are imported with it in such quantities as may appear to the Collector of Customs to be reasonable.

*Item No. 75.*—Conveyances not otherwise specified and component parts and accessories thereof other than parts and accessories of motor vehicles, batteries and articles specified in Item No. \*——, also motor vans and motor lorries imported completely assembled.

*Item No. 75(2).*—Motor cycles and motor scooters and articles (other than rubber tyres and tubes, batteries and articles specified in item No. \*——) adopted for use as parts and accessories thereof except such articles as are also adopted for use as parts and accessories of other motor vehicles.

*Item No. 75(10).*—The following articles, and parts thereof adopted for use as parts and accessories of motor vehicles other than motor cycles and motor scooters: (i) the following engine components: crank shafts, cam shafts, connecting rods, cylinder blocks and heads, manifolds, valves, valve springs, valve tappets, fly wheels, petrol tanks, radiators, fans, piston assembly viz., pistons, piston rings and gudgeon pins (excluding articles specified in item No. \*——), water pumps, timing gears and sprockets.

[NOTE.—In all the above cases “*item No. \**” refers to the new item suggested for introduction below. The new number allotted to the item should be inserted in the place of “\*”.]

We further recommend that a separate item should be introduced in the Indian Customs Tariff Schedule as shown on page 26:—

16.1. India Pistons Ltd., have asked for a total ban on imports of pistons of diameter of 6" and below and on piston rings and gudgeon pins required for these pistons. They have stated that their production will be sufficient to meet the entire requirements of the country in respect of these component parts. They have, however, admitted that imports of these products would be necessary in cases in which the types of pistons required have become obsolete or it is uneconomic to manufacture them. They have pointed out that although their selling prices are generally lower than those of the imported products they suffer from a handicap owing to prejudice against their products. They have further stated that due to the liberal import control policy in previous years, large quantities of these products

**Other forms of assistance**

*Proposed new item in the Indian Customs Tariff*

Item No.	Name of article.	Nature of duty	Standard rate of duty	Preferential rate of duty if the article is the produce or manufacture of		Duration or protective rates of duty
				The U. K.	A British colony	
*	The following articles adapted for use as parts and accessories of internal combustion engines of all kinds other than those dutiable under Item Nos. 72 (30) and 76 :—  Trunk piston assembly of diameter 6" and below, trunk pistons of diameter 6" and below, trunk piston rings (excluding chromium plated rings) of diameter 6" and below, and gudgeon pins for trunk pistons of diameter 6" and below.	Protective.	50 per cent. <i>ad valorem</i>	†	..	31st December, 1957

\*New Item number.

†To be fixed in accordance with the terms of the India-U. K. Trade Agreement.

have been imported with the result that indigenous products are not making much headway in the market. There is no doubt that restriction of imports of piston rings from 1952 onwards has helped India Pistons Ltd., to increase their production and to maintain it more or less at that level. It is likely that with further restriction of imports they will be able to expand their production greatly. We are not in favour of a total ban on imports but so long as import control is maintained for balance of payments considerations, we recommend that assistance should be given to the industry by regulating imports of trunk pistons of diameter of 6" and below and trunk piston rings and gudgeon pins required for such trunk pistons so as to ensure that only such quantities will be allowed to be imported as are necessary to bridge the gap between the estimated domestic demand for various types and specifications and the indigenous production of such types and specifications. We also recommend that imports of pistons, piston rings and gudgeon pins of types and specifications which are not included in the present or proposed manufacturing programme of India Pistons Ltd., or are required for engines which were manufactured before 1938 should be allowed until India Pistons Ltd., begin to manufacture them.

16.2. India Pistons Ltd. have asked for abolition or reduction of duty on raw materials and for refund of duty on finished components imported by them. They have pointed out that they have to pay a duty of 31½ per cent. *ad valorem* on aluminium castings and gudgeon pin steel and a duty of 5½ to 50 per cent. *ad valorem* on circlips, bushes, pads, pegs, etc., which have to be imported by them. We are unable to support this request for two reasons. Firstly, the duty on imported castings and components has been taken into account in our estimates of fair ex-works prices. Secondly aluminium being a protected industry, it is desirable that the expansion of indigenous manufacture of aluminium products should be encouraged.

16.3. In our report on the Automobile Industry, we have emphasized the need for mutual co-operation between the manufacturers of motor vehicles and the manufacturers of components. We are of the view that the manufacturers of internal combustion engines whether automotive, stationary, etc., in India should as far as possible, buy their requirements of pistons, piston rings and gudgeon pins from indigenous producers. The manufacturers of these component parts should also adopt the practice usually followed in foreign countries of supplying their products for use as original equipment at concessional prices.

16.4. India Pistons Ltd., have at present twelve distributors and nine sub-distributors in the country. As they will now expand their production and undertake the manufacture of many more varieties of pistons, piston rings and gudgeon pins, it is necessary that facilities should be provided by them in different parts of the country, especially in view of the restrictions on imports, so that consumers will be able to buy indigenous products without any difficulty. We, therefore, recommend that the indigenous manufacturers of pistons, piston rings and gudgeon pins should set up an adequate sales organisation so as to enable the consumers in different parts of the

country to obtain their requirements and that they should also maintain adequate stocks of pistons, piston rings and gudgeon pins of the various types and specifications required by the consumers.

17. Our conclusions and recommendations are summarised as **Summary of conclusions and recommendations** under:—

(i) The scope of the inquiry is confined to (1) trunk pistons of diameter of 6" and below, (2) trunk piston rings (excluding chromium plated rings) of diameter of 6" and below and (3) gudgeon pins required for trunk pistons of diameter of 6" and below.

(Paragraph 3.5).

(ii) The domestic demand for pistons exclusive of the requirements of the Defence Services may be estimated at 600,000 per year, of piston rings at 4,800,000 per year and of gudgeon pins at 600,000 per year.

(Paragraph 6.2).

(iii) The annual capacity of India Pistons Ltd., is estimated at 360,000 trunk pistons, 1,800,000 trunk piston rings and 480,000 gudgeon pins on single shift basis. The annual capacity of Goetze (India) Ltd., who expect to start production early in 1956 is estimated at 1,500,000 trunk piston rings in the first year and 3,000,000 trunk piston rings in the second year.

(Paragraph 7).

(iv) India Pistons Ltd., should complete their negotiations with Aluminium Manufacturing Co. Ltd., Calcutta and start using indigenous aluminium castings as early as possible.

(Paragraph 8.2).

(v) The quality of pistons, piston rings and gudgeon pins produced in the country is satisfactory.

(Paragraph 9.1).

(vi) India Pistons, Ltd., should forward samples of their pistons, piston rings and gudgeon pins to the Indian Institute of Science, Bangalore, for having them tested thoroughly.

(Paragraph 9.1).

(vii) Government should make arrangements for the periodical testing of the quality of indigenous pistons, piston rings and gudgeon pins.

(Paragraph 9.1).

(viii) Indian Standards Institution should endeavour to finalise standard specifications for pistons, piston rings and gudgeon pins as early as possible.

(Paragraph 9.3).

(ix) Government should make arrangements with the Collectors of Customs, and the Director General of Commercial Intelligence and Statistics to record the imports of trunk piston assemblies (pistons, piston rings and gudgeon pins) and the component parts thereof separately under the following categories:—

- (1) Trunk piston assemblies of diameter (a) of 6" and below, and (b) above 6";
- (2) Trunk pistons of diameter (a) of 6" and below and (b) above 6";
- (3) Trunk piston rings, excluding chromium plated rings, of diameter (a) of 6" and below and (b) above 6";

- (4) Gudgeon pins for trunk pistons of diameter (a) of 6" and below and (b) above 6". (Paragraph 10.2).

(x) Protection should be granted to the Piston Assembly industry till 31st December, 1957 by levying a duty of 50 per cent. *ad valorem* standard on trunk piston assemblies of 6" diameter and below and piston rings and gudgeon pins required for such piston assemblies imported separately, the preferential rate of duty being fixed in accordance with the India-U.K. Trade Agreement.

(Paragraph 15.2).

(xi) The domestic industry should be required to charge selling prices in fair relation to its costs, to diversify its production so as to meet the requirements of domestic consumers to the widest possible extent and to begin the use of indigenous aluminium castings as early as possible.

(Paragraph 15.3).

(xii) So long as import control is maintained for balance of payments considerations, Government should regulate imports of trunk pistons of diameter of 6" and below and trunk piston rings and gudgeon pins required for such trunk pistons so as to ensure that only such quantities will be allowed to be imported as are necessary to bridge the gap between the estimated domestic demand for various types and specifications and the indigenous production of such types and specifications.

(Paragraph 16.1).

(xiii) Imports of pistons, piston rings and gudgeon pins of types and specifications which are not included in the present or proposed manufacturing programme of India Pistons Ltd., or are required for engines which were manufactured before 1938, should be allowed until India Pistons Ltd., begin to manufacture them.

(Paragraph 16.1).

(xiv) The manufacturers of piston assembly, pistons, piston rings and gudgeon pins should also adopt the practice usually followed in foreign countries of supplying their products for use as original equipment at concessional prices.

(Paragraph 16.3).

(xv) The indigenous manufacturers of pistons, piston rings and gudgeon pins should set up an adequate sales organisation so as to enable the consumers in different parts of the country to obtain their requirements and should also maintain adequate stocks of the various types and specifications of pistons, piston rings and gudgeon pins required by the consumers.

(Paragraph 16.4).

18. We wish to express our thanks to the manufacturers, importers and consumers who furnished us with detailed information in connection with this inquiry and to their representatives who gave evidence before us. Our thanks are also due to Lt. Col. V. P. S. Menon, Officer on Special Duty (Automobiles), and Shri N. T. Gopala Iyengar, Deputy Development Officer (Automobiles) of the Development Wing of the Ministry of Commerce and Industry, and Lt. Col. W. S. Ahluwalia of the Ministry of Defence, for their assistance in connection with this inquiry.

M. D. BHAT, *Chairman.*  
B. N. DAS GUPTA, *Member.*  
C. RAMASUBBAN, *Member.*

S. K. BOSE, *Secretary.*  
BOMBAY;  
16th May, 1955.

## APPENDIX I

[Vide paragraph 2.1]

**List of firms or bodies to whom the Commission's questionnaires were issued and from whom replies or memoranda were received.**

\* Indicates that they have sent replies or memoranda.

† Indicates that they are not interested.

### A. PRODUCERS:

1. Cooper Engineering Ltd., Satara Road, Bombay State.
- \*2. Goetze (India) Ltd., Mg. Agents: Escorts (Agents) Ltd., Pratap Building, Connaught Circus, New Delhi.
3. Hindustan Motors Ltd., 8, Royal Exchange Place, Calcutta.
- \*4. India Pistons Ltd., Huzur Gardens, Sembiam, Madras 11.
5. Machines & Spares (India) Ltd., Garden View, 24, Daryaganj, Delhi.
6. Oriental Engineering Works, Ltd., Industrial Area, Yamuna Nagar, Ambala District.
- \*7. Precision Metal Works, Hubli Road, Dharwar.
8. Shri Ram Industries, Coimbatore, S. India.
9. C. M. Smith & Sons, Nadiad, (Bombay State).

### B. IMPORTERS:

#### (i) Manufacturers/Assemblers of automobiles

1. Addison & Co. Ltd., 158, Mount Road, Madras.
2. Ashok Motors Ltd., 13, Haddows Road, Madras 6.
- \*3. Automobile Products of India Ltd., Bhandup, Bombay.
4. Dewar's Garage & Engineering Works, 4, Council House Street, Calcutta 1.
- †5. French Motor Car Co. Ltd., 9-11, Hughes Road, Bombay 26.
6. General Motors India Ltd., Post Box No. 39, Bombay.
- \*7. George Oakes Ltd., Swadeshi Mills Compound, New Queen's Road, Bombay 4.
8. Hindustan Motors Ltd., 8, Royal Exchange Place, Calcutta.
- \*9. Mahindra & Mahindra Ltd., Gateway Building, Apollo Bunder, Fort, Bombay.
10. Premier Automobiles Ltd., Agra Road, Kurla, Bombay.
11. Peninsular Motor Corporation Ltd., 19, Convent Road, Entally, Calcutta.
- \*12. Standard Motor Products of India Ltd., 29, Mount Road, Madras.

#### (ii) Other importers and dealers.

13. Alcock Ashdown & Co. Ltd., Bank Street, Fort, Bombay.
14. Allibhai Premji Tyrewalla, 211, Lamington Road, Bombay 7.
15. A. R. Mukherjee & Co., P-74, Bentinck Street, Calcutta 1.
16. Arun Automobiles, Peerbhoy Mansion, Sandhurst Road, Bombay 4.
- †17. Associated Auto-Parts, 445, Lamington Road, Bombay 4.
18. Associated Imports Exports Corporation, 8, Lal Bazar, Street, Calcutta.
19. Automotive Manufacturers Ltd., 108, Bazar Road, Kurla, Bombay.
20. Auto & Diesels Co. Ltd., 1-155, Mount Road, Madras.
21. Auto & Radio Equipment Co., 316, Vithalbhai Patel Road, Bombay 4.

**B. IMPORTERS.—contd.**

22. Bachhraj Trading Corporation, 51, Mahatma Gandhi Road, Bombay 1.
23. Balmer Lawrie & Co. Ltd., Opera House, Tram Terminus, Bombay.
24. Balmer Lawrie & Co. Ltd., 21, Netaji Subhas Road, Calcutta 1.
25. Bombay Garage (Ahmedabad), Shahibag House, Ahmedabad.
26. Bentick Cycle Co., Bentick Street, Calcutta.
27. Bombay Cycle & Motor Trading Co., 434, Sandhurst Road, Near Sandhurst Bridge, Bombay.
- \*28. Bhari & Co., P-39, Mission Row Extension, Calcutta.
29. Blackwood Hodge Ltd., 139, Belighata Road, Calcutta.
- \*30. W. H. Brady & Co. Ltd., Brady House, 12-14, Veer Nariman Road, Fort, Bombay 1.
31. Century Automobiles Ltd., 9, Mangesh Building, Avantikabai Road, (New Bhatwadi), Bombay 4.
32. Chandulal Mehta & Co. Ltd., Queen's Road, Bombay 4.
33. Chimanlal Desai, Gool Mansion, Hòmji Street, Bombay.
34. Commercial Auto Stores, Kashmere Gate, Delhi.
- +35. Conwest Ltd., Lamington Road, Bombay 7.
36. Crossley Bros. Ltd., 4, Fairlie Place, Calcutta.
37. Cycle & Automobile Components Ltd., 4, Mission Row, Calcutta.
38. Deccan Automobiles, Opera House, Bombay.
39. Delhi Motor Company, Kashmere Gate, Delhi 6.
40. Dodge & Seymour (India) Ltd., Laxmi Building, Ballard Estate, Bombay.
41. Diesel India, Shethia Building, Relief Road, Ahmedabad.
42. Diesel (India), 8/2, Avanashi Road, Coimbatore, S. India.
43. Diesel (India), Manu Mansion (3rd floor), Old Customs House, Bombay.
44. Diesel (India), Opposite Lalbagh, Bangalore 2.
- \*45. Eastern Auto Parts Co., 55, Bentick Street, Calcutta.
- +46. English Electric Co. Ltd., Eruchshaw Building, 249, Dadabhoy Naoroji Road, Bombay.
47. Eruch D. Engineer & Co., Crossley House, Apollo Street, Bombay.
48. Express Automobiles Co., 495, Ramchandra Mansion, Sandhurst Road, Bombay.
49. Ghaziabad Engineering Co. Ltd., Peareylal Building, 44, Queensway, New Delhi.
50. G. M. C. Brothers & Co., 21, Meredith Road, Calcutta.
51. G. N. Chakrapani Chetty & Sons, Automobile Dealers & Importers, Madurai.
52. Gounder & Co. Ltd., Pollachi, S. India.
- \*53. Greaves Cotton & Co. Ltd., 1, Forbes Street, Fort, Bombay—1.
54. Gujrat Battery Auto Electric Co., Lal Darwaja, Ahmedabad.
55. Hind Motor Corporation, 24 B, Hamam Street, 4th Floor, Raja Bahadur Compound, Bombay.
56. Honesty Trading Corporation, Beaumon Chambers, Meadows Street, Fort, Bombay.
57. Howrah Motor Accessories Co. Ltd., Mangoe Lane, Calcutta—1.
58. Howrah Motor Co. Ltd., Mission Row Extension, Calcutta 1.
59. Ideal Motors Ltd., Bombay Mutual Annexe, Cawasji Street, Bombay.
- +60. Imperial Motors, 14, Queen's Road, Bombay 4.
61. Jayems Engineering Co., Warden House, Sir P. M. Road, Bombay.
- +62. Jullunder Motor Agency (Delhi) Ltd., Delhi.

**B. IMPORTERS—concl'd.**

- \*63. Madras Auto Service, 37, Mount Road, Madras.
- \*64. Madras Motors Ltd., 36-C Mount Road, Madras 2.
- 65. J. N. Marshall & Co., Ltd., Savoy Chambers, 5, Wallace Street, Fort, Bombay.
- 66. Metro Motors, Motor House, Hughes Road, Bombay 4.
- 67. J. V. Mehta, Opera House, New Queen's Road, Bombay.
- 68. Modern Auto & Aero Stores, Vallabh Terraces, Sandhurst Road, Bombay 4.
- 69. Modi Brothers, Lamington Road, Bombay 7.
- 70. Motor & General Trading Co., 159, Mount Road, Madras—2.
- 71. Muller & Phipps (India) Ltd., Queen's Mansions, Bastion Road, Fort, Bombay.
- 72. National Garage, B. Desai Road, Bombay 26.
- 73. Noble Cycle & Motor Co., Commissariat Building, Dadabhai Naoroji Road, Fort, Bombay.
- 74. Oriental General Agency, Hamilton Road, Kashmere Gate, Delhi.
- 75. Patel Engineering Co. Ltd., United India Building, Sir P. M. Road, Bombay.
- 76. Power, Tools & Appliances Co., Avantikabai Gokhale Street, Bombay.
- 77. Premchand Motor Co., French Bridge, Bombay 4.
- 78. P. Sharan & Co., Kashmere Gate, Delhi.
- 79. Parry & Co. Ltd., Dare House, 1st Line Beach, Madras.
- 80. Raja Ram & Sons, Outside Gandhi Gate, Amritsar.
- †81. Rallis India Ltd., 21, Ravelin Street, Bombay 1.
- 82. Rane Ltd., New Queen's Road, Bombay 4.
- \*83. Rane (Madras) Ltd., Mount Road, Madras.
- 84. R. B. Rodda & Co. Ltd., 2, Wellesley Place, Calcutta.
- \*85. Simpson & Co. Ltd., 202/203, Mount Road, Madras 2.
- 86. Standard Garage, French Bridge, Bombay.
- \*87. Sundaram Motors Ltd., 37, Mount Road, Madras 6.
- 88. Tanjore Motor Traders Ltd., Tanjore, S. India.
- 89. Tractors (India) Ltd., P.O. Box No. 323, Calcutta.
- 90. Spence Ltd., P-38, Mission Row Extension, Calcutta.
- 91. T. V. Sundaram Iyengar & Sons Ltd., West Veli Street, Madurai.
- 92. Triangular Motors, New Queen's Road, Bombay.
- †93. United Motors (India) Ltd., Hughes Road, Bombay 7.
- 94. Upper India Trading Co. Ltd., Lamington Road, Bombay 4.
- 95. Vijay Engineering Co. Ltd., 85, Love Lane, Bombay 10.
- 96. C. Vakil & Co., 497, Vithalbhai Patel Road, Bombay 4.
- 97. Vora Bros., New Queen's Road, Near Opera House, Bombay 4.
- 98. Voltas Ltd., Chinchpokli Road, Bombay 12.
- \*99. Vulcan Trading Co. Ltd., Indian Mercantile Chambers, Nicol Road, Ballard Estate, Bombay.
- \*100. Wilcox (Buckwell-India) Ltd., P.O. Box 289, New Delhi.
- 101. Worthington Simpson Ltd., Mubarak Manzil, Apollo Street, Bombay.

**C. CONSUMERS****(i) Manufacturers/Assemblers of automobiles**

- 1. Addison & Co. Ltd., 158, Mount Road, Madras.
- \*2. Ashok Leyland Ltd., 38, Mount Road, Madras 6.
- 3. Automobile Products of India Ltd., Bhandup, Bombay.



**C. CONSUMERS—contd.**

- \*4. Dewar's Garage & Engineering Works, 4, Council House Street, Calcutta 1.
- 5. French Motor Car Co. Ltd., 9-11 Hughes Road, Bombay 26.
- 6. General Motors India Ltd., Post Box No. 39, Bombay.
- \*7. George Oakes Ltd., Swadeshi Mills Compound, New Queen's Road, Bombay 4.
- \*8. Hindustan Motors Ltd., 8, Royal Exchange Place, Calcutta.
- 9. Mahindra & Mahindra Ltd., Gateway Building, Appollo Bunder, Fort, Bombay.
- \*10. Premier Automobiles, Ltd., Agra Road, Kurla, Bombay.
- 11. Peninsular Motor Corporation Ltd., 19, Convent Road, Entally, Calcutta.
- \*12. Standard Motor Products of India Ltd., 29, Mount Road, Madras.

**(ii) Fleet Owners****BOMBAY STATE**

- \*13. Ahmedabad Municipal Transport Service, Outside Jamalpur Gate, P.O. Box No. 142, Ahmedabad.
- \*14. Bombay Electric Supply & Transport Undertaking, Electric House, Colaba Causeway, Bombay.
- †15. Burmah-Shell Oil Storage & Dist. Co. of India Ltd., Burmah-Shell House, Currimbhoy Road, Ballard Estate, Bombay 1.
- 16. Singh Transport Co., Sitafalwadi, Mount Road, Mazagaon, Bombay.

**BIHAR**

- 17. National Industries, Dhanbad.
- 18. R. K. Budhia & Co., Ranchi.
- †19. Tata Iron & Steel Co. Ltd., Jamshedpur.

**DELHI**

- 20. Burma-Shell Oil Storage & Dist. of India Co. Ltd., Delhi.

**MADRAS STATE**

- 21. Annamallais Bus Transport Ltd., Goods-shed Road, Pollachi.
- 22. Burmah-Shell Oil Storage & Dist. Co. of India Ltd., P.O. Box No. 157, Madras.
- \*23. Canara Public Conveyance Co. Ltd., Post Box No. 85, Mangalore (S. India).
- 24. City Transport Ltd., United Motors Building, Avanashi Road, P.O. Box No. 56, Coimbatore.
- 25. C. C. Automobiles Ltd., Bank Road, Kozhikhode, S. India.
- 26. Gobald Motor Service Ltd., Mettupalyam. S. India.
- 27. Mettupalayam Coonoor Service Ltd., Mettupalayam. S. India.
- 28. Nazeeria Motor Services Ltd., Nellore.
- 29. Sri Rama Vilas Services Ltd., Kumbakonam. S. India.
- \*30. Southern Roadways Ltd., T. V. S. Building, West Veli Street, Madurai. S. India.
- 31. Sri Ram Vilas Services Ltd., "Dinroze Estate," 17, Mount Road, Madras 2.

**WEST BENGAL**

- 32. Allen Berry & Co. Ltd., 62, Hazri Road, Ballygunge, Calcutta 19.
- 33. Burmah-Shell Oil Storage & Dist. Co., of India Ltd., Calcutta.
- 34. National Transport Agency, 60/1, Ballygunge Circular Road, Calcutta 19.
- 35. Podar Brothers Ltd., 1154, Chittranjan Avenue, Calcutta.
- 36. R. Sen & Co., 10/1, Elgin Road, Calcutta.

## UTTAR PRADESH

37. Agra Roadways, Agra.
38. Allahabad Roadways, Allahabad.
39. Bareilly Roadways, Bareilly.
40. Gorakhpur Roadways, Gorakhpur.
41. Kumaon Roadways, Kanpur.
42. Kanpur Roadways, Kanpur.
43. Lucknow Roadways, Lucknow.
44. Meerut Roadways, Meerut.
45. Victory Transport Co., 17/9, Mahatma Gandhi Road, Kanpur.

## RAJASTHAN

46. Automobile Transport (Raj) Ltd., Ajmer.

## HYDERABAD

- \*47. Superintendent, Road Transport Department, Mushirabad, Hyderabad. (Dn.).

## MANIPUR

48. Manipur Motor Owners' Co-operative Society, Imphal.

## TRAVANCORE-COCHIN

49. Motor Service Syndicate Ltd., Alleppy.
50. R. S. N. Motor Services, Trichur.
51. Swaraj Motors Ltd., Kottayam.

## (iii) State Transport Services.

52. Manager, Ambala Roadways, Ambala.
- \*53. General Manager, Amritsar Omnibus Service, Amritsar.
54. General Manager, Bangalore Transport Co. Ltd., 449, Wilson Gardens, Bangalore.
55. General Manager, Bilaspur Transport Co. Ltd., Bilaspur (Simla Hills).
- \*56. Chairman, Bombay State Road Transport Corporation, Central Office, 80-81, Dr. Annie Beasant Road, Bombay 18.
- \*57. Director of Transport Services, Madhya Pradesh, Nagpur.
58. General Manager, State Transport Authority, Madhya Pradesh, Nagpur.
- \*59. Provincial Transport Co. Ltd., Ghat Road, Cotton Market, Nagpur.
60. General Manager, C.P. Transport Service, Nagpur.
- \*61. General Manager, Delhi Road Transport Authority, Scindia House, New Delhi.
62. General Manager, Government Transport Services, Jaipur.
- \*63. Director General, Directorate of Transportation, Government of West Bengal, 5, Nilgunge Road, Belghoria, 24, Parganas, West Bengal.
64. General Manager, Himachal Government Transport Service, Simla.
65. Manager, Jullunder Omnibus Service, Jullunder.
66. Chairman, Kutch State Motor Service Board, Bhuj, Kutch.
67. General Manager, Kulu Valley Transport Ltd., Pathankot.
68. General Manager, Madhya Bharat Roadways, Gwalior.
- \*69. Manager, Manipur State Transport, Imphal.
70. Secretary, Mysore Government Road Transport Department, Bangalore.
71. Transport Commissioner, Government Transport, Transport House, Mount Road, Madras.

72. General Manager, Orissa Road Transport Services Ltd., Berhampur, Ganjam Distt.
73. General Manager, Provincial Transport Co. Ltd., Jabbalpur.
74. Chairman, Board of Control, State Transport, Shillong, Assam.
75. Secretary, State Transport Department, Rajkot.
76. Director, State Transport Department, Trivandrum.
77. Deputy Transport Commissioner (Workshops), Uttar Pradesh, Lucknow.

(iv) *Diesel engine manufacturers*

78. Cooper Engineering Ltd., Satara Road, Bombay State.
79. Dhandayuthapani Foundry Ltd., Pappanaickenpalayam, Coimbatore.
- \*80. Faridabad Development Board, Faridabad.
81. Hindustan Motors Ltd., 8, Royal Exchange Place, Calcutta.
- \*82. Indian Commercial Co. Ltd., Ghodbunder Road, Santacruz, Bombay 23.
- \*83. Indian National Diesel Engine Co. Ltd., Hall & Anderson Building (1st floor), Parks Street, Calcutta 16.
- \*84. Kirloskar Oil Engines Ltd., Elphinstone Road, Kirkee, Poona 3.
85. Kulko Engineering Works Ltd., Ichalkaranji, Kolhapur.
- \*86. Jayems Beechey & Co. Ltd., Warden House, Sir P.M. Road, Fort, Bombay.
87. Machines and Spares (India) Ltd., Garden View, 24, Daryaganj, Delhi 7.
88. Mackinnon Mackenzie & Co. Ltd., P.B. No. 122, Bombay.
89. Nand Lal Bhandari & Sons, Indore City, Madhya Bharat.
90. Oriental Engineering Works Ltd., Industrial Area, Yamuna Nagar, Station Jagadhri, Distt. Ambala.
91. Shree Ram Mills, Ferguson Road, Parel, Bombay 12.
- \*92. Ruston & Hornsby (India) Ltd., 1, Forbes Street, Fort, Bombay.
93. Textool Co. Ltd., P.B. No. 221, Coimbatore.

(iv) *Tractor Engineering Firms.*

94. Blackwood Hodge (India) Ltd., Lotus House, Marine Lines, Bombay.
- \*95. J. N. Marshall & Co. Ltd., Savoy Chambers, 5, Wallace Street, Fort, Bombay.
96. Larsen & Toubro Ltd., J. K. Building, Ballard Estate, Bombay 1.
97. Marshall & Sons (India) Ltd., Marshall Building, Ballard Estate, Bombay.
98. Patel Engineering Co. Ltd., United India Building, Sir P. M. Road, Fort, Bombay.
99. Tractors (India) Ltd., P.O. Box 323, Calcutta.
100. Tractor & Equipment Corporation Ltd., P.O. Box 279, New Delhi.
101. Wilcox (Buckwell-India) Ltd., P.O. Box 289, New Delhi.

(vi) *General engineering firms*

- \*102. Acme Manufacturing Co. Ltd., Antop Hill, Wadala, Bombay 19.
- \*103. Andrew Yule & Co., 8, Clive Row, Calcutta.
- †104. Gannon Dunkerley & Co. Ltd., Chartered Bank Building, Fort, Bombay.
105. Hindustan Aircraft Ltd., Jallahalli, Bangalore.
- †106. Kamani Bros. Ltd., Kamani Chambers, 32, Nicol Rd., Ballard Estate, Bombay.

- 107. Killick Industries Ltd., Home Street, Fort, Bombay.
- \*108. Martin Burn Ltd., 12, Mission Row, Calcutta.
- \*109. Mazagon Dock Ltd., c/o Mackinnon Mackenzie & Co. Ltd., Ballard Estate, Bombay.
- 110. Millar's Timber & Trading Co. Ltd., Victoria House, Victoria Road, Bombay 27.
- †111. P.S.G. & Sons Charity Industrial Institute, Peelamedu P.O. Coimbatore.
- 112. Power, Tools & Appliances Co., Avantikabai Gokhale Street, Bombay.
- \*113. Richardson & Cruddas Ltd., Parel Road, Bombay 1.
- 114. Hindustan Construction Co. Ltd., Construction House, Ballard Estate, Bombay.
- 115. Uttam Singh Dougal & Co. Ltd., Civil Engineers & Contractors, 11, Marina Arcade, New Delhi.

(vii) *Electrical Industries*

- \*116. Octavius Steel & Co., P.B. No. 38, Calcutta—1.
- 117. South Madras Electrical Supply Corporation Limited, Tiruchirappalli.
- \*118. Surat Electricity Company Ltd., P.B. No. 20 Tilak Maidan, Surat.

(viii) *Pump manufacturers*

- 119. Bengal Iron Works Ltd., 18/2 Chatterjee Para Lane, Howrah, Calcutta.
- 120. Central Province Industries Ltd., Kandwa, Madhya Pradesh.
- 121. Diamond Machinery Works, c/o Andhra Industrial Syndicate Ltd., Vijayawada.
- 122. Forge and Blower & Co., Naroda Road, Ahmedabad.
- 123. Hindustan Foundry Ltd., Udyog Nagar, Bombay 22.
- 124. Kirloskar Brothers Ltd., Kirloskar Wadi, South Satara Distt.
- 125. Modern Engineering & Moulding Co., Shahpur Mill's Compound, Ahmedabad.
- \*126. Packo Engineering Ltd., Luxmipuri, Kolhapur.
- 127. Vijay Foundry, Pappanaickenpalayam, Coimbatore.

(ix) *Shipbuilding and repairs industry.*

- 128. Bombay Steam Navigation Co. Ltd., Dockyard Road, Mazagon, Bombay.
- 129. Binny's Engineering Works Ltd., Springhaven Road, Madras Harbour, Madras.
- 130. Brunton & Co. Engineers Ltd., Ballard Road, Cochin.
- 131. Calcutta Landing & Shipping Co., 20, Howrah Road, Salkia, Howrah.
- 132. H. I. Dixon & Co. Ltd., Love Lane, Cross Lane, Byculla, Bombay.
- †133. East Bengal Engineering Works, 2, Rustomjee Parsee Road, Cossipore, Calcutta.
- 134. Ganges Engineering Works, Ballygunge, Howrah.
- †135. Garden Reach Workshops Ltd., 2, Fairlie Place, Calcutta.
- †136. Hooghly Docking & Engineering Co. Ltd., 6, Howrah Road, Howrah.
- \*137. India General Navigation & Rly. Co., 4, Fairlie Place, Calcutta.
- \*138. Mazagon Dock Ltd., Mazagon, Bombay.
- 139. Modern Mechanical & Marine Works, 93, Chinch Bunder Road, Bombay.
- 140. Port Engineering Works Ltd., 8 Clive Row, Calcutta.
- 141. Rodda Craft Ltd., 62/L/2, Jogendra Mukherjee Road, Howrah.

- 142. Sen Mukherjee & Co. (Shipbuilders), 25, Foreshore Road (Lower), P.O. Shalimar.
- †143. Shalimar Works Ltd., 1, Foreshore Road, Sibasur, Howrah.
- 144. Shaparia Dock & Steel Co. Ltd., Sewree Fort Road, Sewree, Bombay.

(x) *Cranes*

- †145. Jessop & Co. Ltd., Netaji Subhas Road, Calcutta.

(xi) *Municipal Corporations*

- 146. Commissioner, Calcutta Municipal Corporation, Calcutta.
- †147. Commissioner, Bombay Municipal Corporation, Bombay.
- 148. Commissioner, Delhi Municipal Corporation, Delhi.
- 149. Commissioner, Madras Municipal Corporation, Madras.

(xii) *Port Trusts*

- \*150. Secretary, Bombay Port Trust, Ballard Estate, Bombay.
- 151. Secretary, Madras Port Trust, Madras.
- \*152. Commissioners for the Port Trust of Calcutta, 15, Strand Road, Calcutta.

(xiii) *Railways*

- \*153. Controller of Stores, Western Railway, Churchgate, Bombay.
- 154. Controller of Stores, Eastern Railway, Fairlie Place, Calcutta.
- †155. Controller of Stores, North Eastern Railway, 3, Kalighat Street, Calcutta
- \*156. Controller of Stores, Southern Railway, Perambur, Madras.
- †157. Controller of Stores, Central Railway, Victoria Terminus, Bombay.
- \*158. Divisional Superintendent, Northern Railway (Bikaner Division), Bikaner.
- †159. Secretary, Railway Board, New Delhi.

(xiv) *Shipping*

- \*160. Great Eastern Shipping Co. Ltd., Royal Insurance Building, 14, Jamshedji Tata Road, Churchgate Reclamation, Bombay 1.
- \*161. Scindia Steam Navigation Co. Ltd., Scindia House, Ballard Estate, Bombay.

(xv) *Other engineering industries.*

- 162. Walchandnagar Industries, Walchandnagar, Poona Distt.
- 163. Vulcan Trading Co. Ltd., Indian Mercantile Chambers, Nicol Road, Ballard Estate, Bombay.

D. ASSOCIATIONS

(i) *Automobile Associations*

- 1. Shri Kundanlal, All India Motor Union Congress, 5192, Lahori Gate, Delhi 6.
- \*2. Automobile & Ancillary Industries Association, Victoria Mills Estate, Gamdevi, Bombay.
- 3. Secretary, Automobile Association of Bengal, 40, Chowringhee Road, Calcutta.
- 4. Secretary, Automobile Association of S. India, 202, Mount Road, Madras.
- 5. Secretary, Automobile Association of Upper India, 83-84 Theatre Communication Bldg., Connaught Circus, New Delhi.
- 6. Secretary, Automobile Manufacturers' Association of India, 23-B Netaji Subhas Road, Calcutta.

7. Secretary, Indian Road & Transport Development Association Ltd., 27, Bastion Road, Bombay 1.
8. Secretary, United Provinces Automobile Association, 32A Canning Road, Allahabad.
- †9. Secretary, Western India Automobile Association, Lalji Naranji Memorial Building, Churchgate, Bombay.

(ii) *Automobile Importers' Association*

10. Ambala Motor Dealers' Association, Ellahie Building, S. B. Road, Ambala Cantonment.
11. Secretary, Automobile Traders' Association, 12, Scindia House, Curzon Road, New Delhi.
12. Secretary, Bombay Motor Merchants' Association Ltd., Sandhurst Bldg., (Top floor), Near Sandhurst Bridge, Bombay 4.
- \*13. Secretary, Calcutta Motor Dealers' Association, P-6, Mission Row Extension, Calcutta 1.
- \*14. Secretary, Delhi Motor Traders' Association, Post Box 1098, Kashmere Gate, Delhi 6.
15. Secretary, Motor Industries Association, 60/3, Dharamtala Street, Calcutta 1.
16. Secretary, Motor Manufacturers & Importers Association, Bank of Baroda Building, Fort, Bombay.
17. Secretary, Motor Vehicles & Allied Merchants' Association, 1/105, Mount Road, Madras 2.
- \*18. Society of Motor Manufacturers & Traders' Limited, P.O. Box 173, Indra Palace Lodge, "H" Block, Connaught Place, N. Delhi.

(iii) *Engineering Associations*

19. Secretary, Associated Corp. of Industries (India) Ltd., Commerce House, Ballard Estate, Bombay 1.
20. Secretary, Engineering Association of India, (Bombay Presidency Branch), Construction House, Ballard Estate, Bombay 1.
21. Secretary, Engineering Association of India, 23-B, Netaji Subhas Road, Calcutta.

(iv) *Mill Associations*

22. Secretary, Ahmedabad Millowners' Association, Lal Darwaja, Ahmedabad.
23. Secretary, Bengal Millowners' Association, Calcutta.
24. Secretary, C.P. & Berar Millowners' Association, Nagpur.
25. Secretary, Millowners' Association, 10, Vir Nariman Road, Fort, Calcutta.
26. Secretary, Southern India Millowners' Association, Race Course, Coimbatore.

(v) *Chambers of Commerce.*

27. Andhra Chamber of Commerce, Andhra Chamber Building, 272/3, Angappa Naik Street, Madras.
28. Associated Chambers of Commerce of India, Royal Exchange Building, Netaji Subhas Road, Calcutta.
29. Bengal Chamber of Commerce, Royal Exchange Building, 2, Netaji Subhas Road, Calcutta.
30. Bengal National Chamber of Commerce, P-11, Mission Row Extension, Calcutta.
31. Bengal Chamber of Commerce, Near Cotton Market, Nagpur.
32. Bihar Chamber of Commerce, Patna.
33. Bharat Chamber of Commerce, 195, Harrison Road, Calcutta.
34. Bombay Chamber of Commerce, Mackinnon Mackenzie Bldg., Ballard Estate, Bombay.

35. C.P. & Berar Chamber of Commerce, Surza Villas, Civil Station, Nagpur.
36. Eastern Chamber of Commerce, 15, Clive Row, Calcutta.
37. Federation of Indian Chamber of Commerce and Industry, 28, Pheroazshah Road, New Delhi.
38. Hindustan Chamber of Commerce, 14/2 Clive Row, Calcutta.
39. Indian Chamber of Commerce, Desi Beopar Mandal, Ambala Cantt.
40. Indian Chamber of Commerce, 162, Netaji Subhas Road, Calcutta.
41. Indian Merchants' Chamber, Lalji Naranji Memorial Building, Back Bay Reclamation, Fort, Bombay.
42. Jaipur Chamber of Commerce, Johri Bazar, Jaipur.
43. Karnatak Chamber of Commerce, Hubli.
- \*44. Madras Chamber of Commerce, Dare House, 1st Line Beach, Madras.
45. Maharashtra Chamber of Commerce, Industrial & Prudential Building, Near Churchgate Station, Bombay.
46. Maharatta Chamber of Commerce & Industries, 587/9, Shukrawar Peth, Tilak Road, Poona 2.
47. Mysore Chamber of Commerce, Bangalore.
48. Orissa Chamber of Commerce, P.O. Chandnichauk, Cuttack.
49. Punjab Chamber of Commerce, Scindia House, New Delhi.
50. Saurashtra Chamber of Commerce, Mahatma Gandhi Road, Lokhand Bazar, Bhavnagar.
51. Southern India Chamber of Commerce, Indian Chamber Building, North Beach, Madras.
52. United Provinces Chamber of Commerce, 15/134, Civil Lines, Kanpur.
53. Upper India Chamber of Commerce, 14/2, Clive Row, Kanpur.
54. Western Indian Chamber of Commerce Ltd., 232-234, Kalbadevi Road, Bombay.

(vi) Trade Associations

55. All India Importers' Association, Churchgate House, Churchgate Street, Bombay.
56. All India Manufacturers' Organization, Industrial Assurance Building, Opp. Churchgate Station, Fort, Bombay.
57. Association of Indian Industries, Industrial Assurance Building, Opp. Churchgate Station, Fort, Bombay.
- \*58. Indian Engineering Association, Royal Exchange Building, Netaji Subhas Road, Calcutta.
59. Madras Traders' Association, Mount Road, Madras.
60. Punjab Federation of Industry & Commerce, Amritsar.
61. West Coast Industries Association, Empress Hotel Road, Kozikode (S. India).

(vii) Other Associations

62. Secretary, Iron, Steel and Hardware Merchants' Chamber of India, "Steel Chambers", 153, Narayan Dhuru Street, Bombay 3.

**E. STATE GOVERNMENTS**

1. Chief Secretary to the Government of Andhra State, Kurnool.
- \*2. Chief Secretary to the Government of Assam, Shillong.
3. Chief Secretary to the Government of Bhopal, Bhopal.
4. Secretary to the Government of Bihar, Development (Industries) Department, Patna.
- \*5. Chief Secretary to the Government of Bombay, Bombay 1.
- †6. Chief Secretary to the Government of Coorg, Mercara.

7. Chief Secretary to the Delhi State, Delhi.
8. Chief Secretary to the Government of Himachal Pradesh, Simla.
- \*9. Chief Secretary to the Government of Hyderabad, Hyderabad.
10. Chief Secretary to the Government of Jammu-Kashmir, Srinagar.
- †11. Chief Secretary to the Government of Madhya Pradesh, Nagpur.
12. Chief Secretary to the Government of Madhya Bharat, Gwalior.
13. Chief Secretary to the Government of Madras, Fort. St. George, Madras.
- \*14. Chief Secretary to the Government of Mysore, Bangalore.
- \*15. Chief Secretary to the Government of Orissa, Cuttack.
16. Chief Secretary to the Government of E. Punjab, Simla.
17. Chief Secretary to the Government of PEPSU, Patiala.
18. Chief Secretary to the Government of Rajasthan, Jaipur.
19. Chief Secretary to the Government of Saurashtra, Kothi Compound, Rajkot.
- †20. Chief Secretary to the Government of Travancore-Cochin, Trivandrum.
21. Chief Secretary to the Government of Uttar Pradesh, Kanpur.
22. Chief Secretary to the Government of Vindhya Pradesh, Rewa.
- †23. Secretary to the Government of West Bengal, Commerce and Industries Department, Calcutta.

#### E. COLLECTORS OF CUSTOMS/CENTRAL EXCISE

- \*1. Dy. Collector of Central Excise & Land Customs, Ajmer.
- \*2. Collector of Central Excise, Post Box No. 118, Baroda.
- \*3. Collector of Central Excise and Land Customs, Construction House, Ballard Estate, Bombay 1.
- \*4. Collector of Customs, New Customs House, Bombay.
- \*5. Collector of Customs, Calcutta.
- \*6. Collector of Customs, Custom House, Willingdon Island, Cochin.
- \*7. Collector of Customs, Post Box No. 55, Customs House, Madras.
- \*8. Collector of Central Excise & Land Customs, Calcutta.
- \*9. Asstt. Collector of Central Excise, Puri Division, Puri.
- \*10. Collector of Central Excise, Shillong, Assam.

#### G. CENTRAL GOVERNMENT DEPARTMENT AND OTHER PARTIES

- \*1. Director-General of Supplies & Disposals, Government of India, Shahjahan Road, New Delhi.
- \*2. Indian Institute of Science, Bangalore 3.
- \*3. Chief Industrial Adviser, Ministry of Commerce & Industry (Development Wing), Government of India, New Delhi.
4. National Physical Laboratory of India, Hillside Road, New Delhi 12.
- \*5. Secretary to the Government of India, Ministry of Defence, New Delhi.
- \*6. Secretary to the Government of India, Ministry of Transport, New Delhi.
- \*7. Secretary to the Government of India, Ministry of Food & Agriculture, New Delhi.
8. Secretary to the Government of India, Ministry of Irrigation & Power, New Delhi.
- \*9. Director-General of Commercial Intelligence & Statistics, 1, Council House Street, Calcutta.

#### H. RAW MATERIAL MANUFACTURERS

- \*1. Aluminium Manufacturing Co. Ltd., 2, Jessore Road, Dum Dum, Calcutta 28.



## APPENDIX II

[vide paragraph 2.3.]

### List of persons who attended the Commission's public inquiry on 28th February, 1955.

Name of the representative	Representing	Name of the firm or body.
<i>A.—Producers—</i>		
1. Mr. V. A. Watts . . . }	"	India Pistons Ltd., Huzur Gardens, Sembiam, Madras -II.
2. Shri W. N. Kamath . . . }		
3. „ M. K. Swami . . . }		Goetze (India) Ltd., Managing Agents :— Escorts (Agents) Ltd., Pratap Building, Connaught Circus, New Delhi.
4. „ R. C. Smith . . . .	„	C. M. Smith & Sons, Nadiad, (Bombay State).
<i>B. Importers and Dealers</i>		
1. Shri S. Krishnamoorthy . . .	„	Simpson & Co., Ltd., 202/203, Mount Road, Madras.
2. „ V. R. V. Raghavan . . .	„	George Oakes, Ltd., Swadeshi Mills Compound, New Queen's Road, Bombay-4.
3. „ H. M. Surti . . . . }	„	J. N. Marshall & Co., Ltd., Savoy Chambers, 5, Wallace Street, Fort, Bombay.
4. „ A. V. S. Mani . . . . }		Dodge & Seymour (India) Ltd., Laxmi Building, Ballard Estate, Bombay.
5. „ M. V. Subramaniam . . .		Ideal Motors Ltd., Bombay Mutual Annexe, Cawasji Street, Bombay.
6. „ R. S. Irani . . . .	„	
<i>C. Consumers—</i>		
1. Shri S. K. Shah . . . .	„	Premier Automobiles, Ltd., Agra Road, Kurla, Bombay-37.
2. „ C. B. Saran . . . .	„	Mahindra & Mahindra Ltd., Gateway Building, Apollo Bunder, Bombay-1.
3. „ M. G. Bhat . . . .	„	Bombay Electric Supply & Transport Undertaking, Electric House, Colaba, Bombay.
4. Mr. J. H. Langdon . . . .	„	Ruston & Hornsby (India) Ltd., 1, Forbes Street, Fort, Bombay and Greaves Cotton & Co., Ltd., 1, Forbes Street, Fort, Bombay.
5. „ M. Ahmadullah . . . .	„	Ditto.
6. „ P. W. Brandt . . . . }	„	Tractor & Equipment Corporation Ltd., P. O. Box 279, New Delhi and their Associates.
7. Shri K. S. S. Mani . . . }		

Name of the representative	Representing	Name of the firm or body
8. Shri. P. C. Munot . . .	„	Cooper Engineering Ltd., Satara Road, Bombay State.
9. „ A. N. Kilachand . . .	„	Indian Commercial Co., Ltd., Ghodbunder Road, Santa Cruz, Bombay-23.
10. „ N. N. Saraiya . . .	„	Kirloskar Oil Engines, Ltd., Elphinstone Road, Kirkee, Poona-3.
11. „ C. R. Bondre . . .	„	Kulko Engineering Works, Ltd., Ichalkaranji, Kolhapur District.
12. „ S. R. Talavedekar . . .	„	
<i>D. Associations—</i>		
1. Shri D. S. Kalyanpur . . .	„	Bombay Motor Merchants' Association Ltd., Sandhurst Building, 1st Floor, Near Sandhurst Bridge, Bombay-4.
2. „ H. R. Aslot . . .	„	Engineering Association of India, (Bombay Regional Office), Construction House, Ballard Estate, Bombay, and Automobile Ancillary Industries Association, Victoria Mills Estate, Gamdevi, Bombay-7.
<i>E. Government Officials—</i>		
1. Shri N. T. Gopala Iyengar Dy. Development Officer on Special Duty (Automobiles).	„	Ministry of Commerce and Industry (Development Wing), Government of India, New Delhi.
2. Lt. Col. W. S. Ahluwalia . . .	„	Ministry of Defence, Government of India, New Delhi.
3. Shri B. Roy Chowdhury . . .	„	Directorate of Transportation, Government of West Bengal, 5, Nilgunge Road, Belghoria, 24, Parganas, W. Bengal.
4. „ M. K. Mantri . . .	„	Bombay State Road Transport Corporation, Central Office, 80-81, Dr. Annie Beasant Road, Bombay-18.
5. „ N. C. Killavala . . .	„	Western Railway, Churchgate, Bombay.
6. „ J. C. Shaha . . .	„	Collector of Customs, New Custom House, Bombay.
<i>F. Raw Material Manufacturers—</i>		
1. Shri H. K. Khannah . . .	„	Aluminium Manufacturing Co., Ltd., 2, Jessore Road, Dum Dum, Calcutta-28.

# APPENDIX III

[Vide paragraph 11.]

Extracts from the First Schedule of the Indian Customs Tariff (39th issue) of I. C. T.  
Item Nos. 72 (3), 72 (30), 75 (2) and 75(10)(i) relating to duties levied on piston assemblies,  
pistons, piston rings and gudgeon pins.

Item No.	Name of article	Nature of duty	Standard rate of duty	Preferential rate of duty if the article is the produce or manufacture of		
				The U. K.	A British Colony	Burma
(1)	(2)	(3)	(4)	(5)	(6)	(7)
72(3)	Component parts of machinery as defined in Items Nos. 72, 72 (1) and 72 (2), namely, such parts only as are essential for the working of the machine or apparatus and have been given for that purpose some special shape or quality which would not be essential for their use for any other purpose but excluding small tools like twist drills and remers, dies and taps, gear cutters and hacksaw blades : Provided that articles which do not satisfy this condition shall also be deemed to be component parts of the machine to which they belong if they are essential to its operation and are imported with it in such quantities as may appear to the Collector of Customs to be reasonable.	Revenue	10½ per cent. <i>ad valorem</i> (a)	..	..	Free
72(30)	Agricultural tractors and parts thereof.	..	Free(b)(c)	..	..	..
75	Conveyances not otherwise specified and component parts and accessories thereof other than parts and accessories of motor vehicles and batteries, also motor vans and motor lorries imported completely assembled.	Revenue	31½ per cent. <i>ad valorem</i>	..	..	10½ per cent. <i>ad valorem</i>



(1)	(2)	(3)	(4)	(5)	(6)	(7)
75(2)	Motor Cycles and motor scooters, and articles (other than rubber tyres, tubes and batteries) adapted for use as parts and accessories thereof except such articles as are also adapted for use as parts and accessories of other motor vehicles.	Preferential Revenue	47½ per cent. <i>ad valorem</i> (d)	39 ⅓ per cent <i>ad valo rem</i> (d)	..	21 per cent. <i>ad valoirm</i>
75(10)	The following articles, and parts thereof, adapted for use as parts and accessories of motor vehicles other than motor cycles and motor scooters.	Revenue	94½ per cent. <i>ad valorem</i> (e)	..	..	..
	(i) the following engine components : crank shafts, cam shafts, connecting rods, cylinder blocks and heads manifolds, valves, valve springs, valve tappets, flywheels, petrol tank radiators, fans, piston assembly(viz)piston, piston rings and gudgeon pins), water pumps timing gears and sprockets.					



NOTES:—(a) Under Government of India, Ministry of Finance (Revenue Division), Notification No. 45-Customs, dated the 23rd October 1948, as subsequently amended by the Ministry of Finance (Revenue Division), Notification No. 24-Customs, dated the 21st April, 1953, articles specified in this Item are exempt from payment of the Customs duty leviable thereon to the extent of 5½ per cent. *ad valorem*.

(b) This is a GATT Item.

(c) This classification for pistons, piston rings and gudgeon pins used in agricultural tractors will only apply if these articles are non-interchangeable with motor vehicles or stationary engines. If interchangeable, the duties are those applicable to such interchangeable items.

(d) Under Government of India, Ministry of Finance (Revenue Division) Notification No. 49-Customs, dated 17th March, 1955, motor cycles and scooters imported whole, and parts thereof falling under Item No. 75(2) are exempt from the payment of—

(1) from so much of the customs duty leviable thereon under the Indian Tariff Act, 1934 (XXXII of 1934), as is in excess of—

(i) where the standard rate of duty is leviable, the rate specified in the corresponding entry in column 4 of the said Schedule;

- (ii) where the preferential rate of duty is leviable, the rate specified in the corresponding entry in column 5 of the said Schedule; and
- (2) from the whole of the additional duty of customs leviable thereon under any law for the time being in force.

## SCHEDULE

Sl. No.	Relative item No. in the First Schedule to the Indian Tariff Act, 1934	Name of article	Standard rate of duty	Preferential rate of duty if the article is the manufacture of the United Kingdom
1	75 (2)	Motor cycles and scooters imported whole, and parts thereof.	35 per cent. <i>ad valorem</i> .	27½ per cent. <i>ad valorem</i> .
2	75 (2)	Component parts of scooters (other than wheel, handles, bars and saddles) imported in C. K. D. packs for assembly.	15 per cent. <i>ad valorem</i> .	7½ per cent. <i>ad valorem</i> .

(e) (1) Under Government of India, Ministry of Finance (Revenue Division), Notification No. 41-Customs, dated the 31st May, 1953, as subsequently amended by Notification No. 25-Customs, dated the 27th February, 1954, articles and parts thereof adopted for use as parts and accessories of motor vehicles, other than motor cycles and motor scooters (except body panels including turret tops and sides for passenger cars) falling under Item No. 75(10), are exempt from the payment of—

- (a) so much of the Customs duty leviable thereon under the said item as is in excess of the rates specified in column 2 of the Schedule hereto annexed, and
- (b) the whole of the additional duty of Customs leviable thereon under any law for the time being in force where such additional duty is in addition to the duty of Customs leviable thereon.

## SCHEDULE

Item No.	Standard rate of duty.
(1)	(2)
75 (10)	50 per cent. <i>ad valorem</i> .

- (2) Under Government of India, Ministry of Finance (Revenue Division), Notification No. 42-Customs, dated the 31st May, 1953, articles and parts thereof adapted for use as parts and accessories of motor vehicles, other than motor cycles and motor scooters falling under Item No. 75(10), if of the United Kingdom manufacture, are exempt from the payment of so much of the Customs duty leviable under the said item as is in excess of the rates specified in column 2 of the Schedule below:

Provided that the said articles are not also adapted for use as parts and accessories of motor cars including taxi cabs.

## SCHEDULE

Item No.	Reduced preferential rate.
1	2
75 (10)	42½ per cent. <i>ad valorem</i> .

- (3) Piston assembly, pistons, piston rings and gudgeon pins used in diesel engines of vehicular type falling under this item are assessed to a standard rate of duty of 25 per cent. *ad valorem* and at a preferential rate of duty of 17½ per cent. *ad valorem* if the article is the manufacture of the United Kingdom.



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# APPENDIX IV

(Vide paragraph 12)

Statement showing c.i.f. prices, custom duty, clearing charges and landed costs of piston assemblies, pistons with pins and piston rings (in sets).

Sl. No.	Type and specification	Model of vehicle or engine in which used	Source of information	Origin of import	Date of import	C.i.f. price	Custom duty				Clearing charges		Landed cost
							I.C.T. Item No.	Rate	Amount				
1	2	3	4	5	6	7	8	9	10	11	12		
Rs. A. P. Rs. A. P. Rs. A. P. Rs. A. P.													
(A) Piston Assemblies													
1	Piston, pin and ring assembly C.31A-6108A	Ford V.8	Collector of Customs, Bombay.	Canada	27-7-53	11 6 0	75(10)(i)	50%	5 11 0	0 5 0	17 6 0		
2	Piston with pin and ring E.93A-6102.	Ford Prefect.	George Oakes Ltd., Bombay.	U. K.	..	6 13 6 (a)	75(10)(i)	50%	3 7 3	0 1 1	10 5 10		
3	Piston assembly P. S. 5575	Ford Prefect 1940/50	Rane (Madras) Ltd., Madras.	U. K.	29-4-53	7 5 4	75(10)(i)	91 7/20%	6 10 11	0 1 4	14 1 7		
4	Piston, pin and assembly, E.93A-6102A.	Ford Prefect.	Collector of Customs Bombay	Canada	26-3-54	6 13 7	75 (10)(i)	50%	3 7 0	0 3 0	10 7 7		

(a) Based on latest f.o.b. price.

1	2	3	4	5	6	7	8	9	10	11	12
5	Piston, Pin and ring assembly C.39A-6108A	Ford Mer-cury.	Collector of Customs, Bombay.	Canada.	7-8-53	11 6 0	75(10)(i)	50%	5 11 0	0 5 0	17 6 0
6	Piston with pin and rings S. 2569 Covmo.	Standard Vanguard 1948/52	Rane (Madras) Ltd., Madras.	U. K.	29-4-53	15 0 0	75(10)(i)	91 7/20%	13 10 0	0 0 2	28 10 11
7	Do.	Do.	Do.	U. K.	1953(c)	15 0 0	75(10)(i)	50%	7 8 0	0 0 2	22 8 2
8	Piston with pin and rings.	Royal Enfield	Madras Motors Ltd., Madras.	U. K.	..	15 13 0 (b)	75 (2)	39 1/2%	6 3 7	0 3 9	22 4 4
9	Do.	Do.	Do.	U. K.	..	15 13 0 (b) (c)	75 (2)	27 1/2%	4 5 7	0 3 9	20 6 4
10	Piston with pin and rings SA.885	Perkins	George Oakes Ltd., Bombay.	U. K.	..	22 13 2 (b)	75 (12)	17 1/2%	4 0 6	0 3 6	27 1 2
11	Piston assembly SA.885.	Perkins diesel truck.	Collector of Customs, Bombay.	U. K.	30-7-53	28-4-8	75(10)(i)	42 1/2%	12 0 5	0 10 4	40 15 5
12	Piston assembly complete with gudgeon pin, rings and circlips, standard size.	Perkins	Simpson & Co., Ltd., Madras.	U. K.	1954	19-11-4	75 (10)(i)	17 1/2%	3 7 2	0 3 3	23 5 9
13	Piston assembly complete with gudgeon pin, ring and circlips 030 O/s SA. 885C	Do.	Do.	U. K.	1954	19-11-4	75(10)(i)	17 1/2%	3 7 2	0 3 3	23 5 9

(b) Based on latest f.o.b. prices

(c) For purpose of comparison with fair ex-work price of the corresponding indigenous product, the current rate of import duty has been taken and the date of import accordingly assumed.



1	2	3	4	5	6	7	8	9	10	11	12
14	Piston complete with rings and pins VH. 81.	Ruston Hornsby VTH engine.	Greaves Cotton & Co., Ltd., Bombay.	U. K.	October, 1954	40 13 0	72 (3)	51%	2 2 0	1 4 0	44 3 0
15	Piston complete with rings and pins VH. 81.	Ruston Hornsby VSH engine	Do.	U. K.	Dec. 1954	53 5 0	72 (3)	51%	2 12 9	1 8 0	57 9 9
16	Piston assembly 80 mm bore.	Petersen-Parry & Co., Ltd. engine.	Bombay.	U. K.	..	19 6 0 (d)	72 (3)	51%	0 14 6	0 12 6	21 1 0
(B) Piston with Pin.											
17	Piston with pin C. 31A-6108	Ford V.8	George Oakes, Ltd., Bombay.	Canada	..	9 6 2 (d)	75(10)(i)	50%	4 11 9	0 1 5	14 3 4
18	Piston with pin C. 39A-6108	Ford Mercury.	George Oakes Ltd., Bombay.	Canada	..	9 6 2 (d)	75(10)(i)	50%	4 11 9	0 1 5	14 3 4
19	Piston with pin (Thomson) 3-9/16" No. C. 106F.	Chevrolet	Rane (Madras) Ltd., Madras.	U.S.A.	30-11-50	8 12 10	75(10)(i)	90%	7 14 9	0 0 9	16 12 4
20	Piston with pin 3 9/16" No. 3693984	Do.	Collector of Customs, Bombay.	U.S.A.	1954	10 2 0	75(10)(i)	50%	5 1 0	0 5 0	15 8 0
21	Piston with pin 3 1/4" No. 605276	Do.	Do.	U.S.A.	1954	10 2 0	75(10)(i)	50%	5 1 0	0 5 0	15 8 0

(d) Based on latest f.o.b. price.

I	2	3	4	5	6	7	8	9	10	11	12
(C) Piston rings (in sets) (e)											
22	Piston ring set for Ford V.8 piston C. 31A-6149.	Ford V.8	George Oakes, Ltd., Bombay.	Canada	..	22 6 2 (f)	75(10)(i)	50%	11 4 8 0 3 5	33 14 3	
23	Piston ring set for Ford V. 8 piston 3.1/16" bore (16 compression rings and 8 oil control rings).	Do.	Do.	Do.	..	18 4 6 (f)	75(10)(i)	50%	9 3 7 0 2 8	27 10 9	
24	Piston ring set for Ford Mercury piston C.39A-6149.	Ford Mercury	George Oakes, Ltd., Bombay.	Canada	..	22 6 2 (f)	75(10)(i)	50%	11 4 8 0 3 5	33 14 3	
25	Piston ring set for Ford Prefect piston-ring compression CE-6150 and piston ring oil CE-6153.	Ford Mercury	Do.	U. K.	..	10 10 5 (f)	75(10)(i)	50%	5 6 0 0 1 8		
26	Piston ring set (steel) for Chevrolet piston 3 3/8".	Chevrolet	Collector of Customs, Calcutta.	U.S.A.	9-8-54	21 13 0	75(10)(i)	50%	10 14 6	..	..
27	Piston ring set for Chevrolet piston 3 3/8" bore (12 compression rings and 6 oil control rings)	Do.	Auto & Radio Equipment Co. Ltd., Bombay	U.S.A.	..	18 1 0 (f)	75(10)(i)	50%	9 0 6 0 1 6	27 3 0	

(e) Prices are per set of compression and oil control rings.

(f) Based on latest f. o. b. prices.

1	2	3	4	5	6	7	8	9	10	11	12
29	Piston ring set (steel) for Chevrolet piston 3 9/16"	Do.	Collector of Customs, Calcutta.	U.S.A.	9-8-54	21 14 0	75(10)(i)	50%	10 15 0	..	..
29	Brico piston ring set for standard Vanguard piston 85 mm bore (8 compression rings and 4 oil control rings).	Standard Vanguard	Rane (Madras) Ltd., Madras.	U. K.	3-8-51	6 11 7	75(10)(i)	91 7/20%	6 4 3 0 0 2	12 14 0	
30	Brico piston ring set for standard Vanguard piston 85 mm bore (8 compression rings and 4 oil control rings).	Standard Vanguard	Rane (Madras) Ltd., Madras.	U. K.	..	6 11 7 (g)	75 (10)(i)	50%	3 5 10 0 0 2	10 1 7	
31	Piston ring set for Perkins piston	Perkins	George Oakes, Ltd., Bombay.	U. K.	..	26 12 3 (h)	75(10)(i)	17 1/2%	4 11 7 0 4 1	31 11 11	
32	Piston ring set for Perkins piston 3.501" bore (8 compression and 12 oil control rings).	Perkins	Simpson & Co., Ltd., Madras.	U. K.	1954	17 0 0	75(10)(i)	17 1/2%	2 15 6 0 5 0	20 4 6	
33	Piston ring set for Ruston Hornsby engine.	Ruston Hornsby engine.	Greaves Cotton & Co. Ltd., Bombay.	U. K.	1954	6 2 3	72 (3)	5 1/2%	0 4 9 0 2 6	6 9 6	

(g) For purpose of comparison with fair ex-works price of corresponding indigenous product, the current rate of duty has been taken and the date of import accordingly assumed.

(h) Based on latest f.o.b. price.

1	2	3	4	5	6	7	8	9	10	11	12
34	Piston ring set for Petters piston 80 mm bore (3 compression rings and 1 oil control ring).	Petters	Parry & Co. Ltd., Bombay.	U. K.	..	2 13 6 72 (3) (i)	5 1/2 %	0 2 6 0 1 6 3 1 6			

(i) Based on latest f. o. b. price.

