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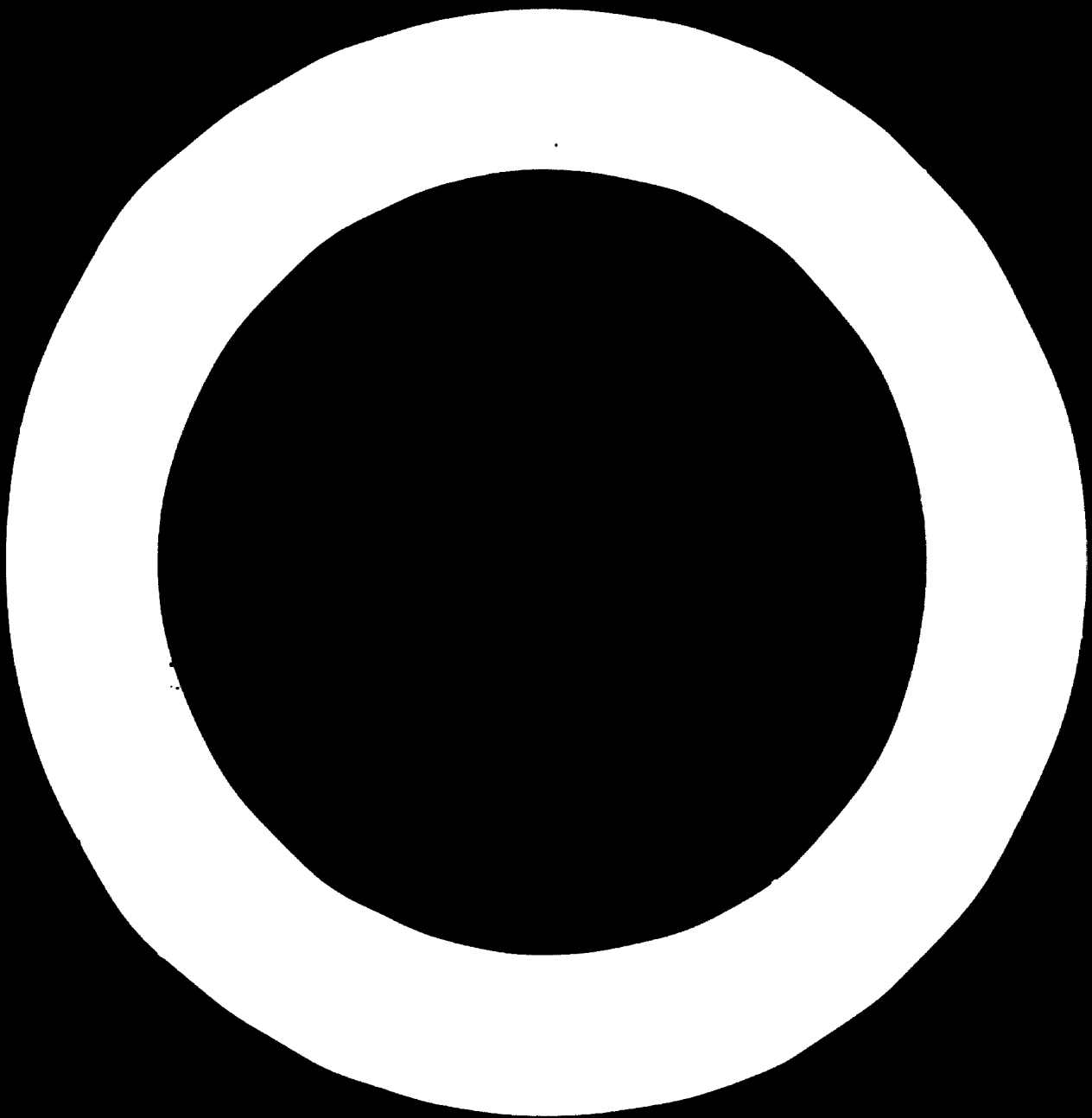

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UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

C/F

S.F. PROJECT - IRA - 16

COUNTRY: IRAN

MASTER DEMAND STUDY FOR

MECHANICAL AND CAPITAL GOODS INDUSTRY

1972 - 1987

PD 24

PART I

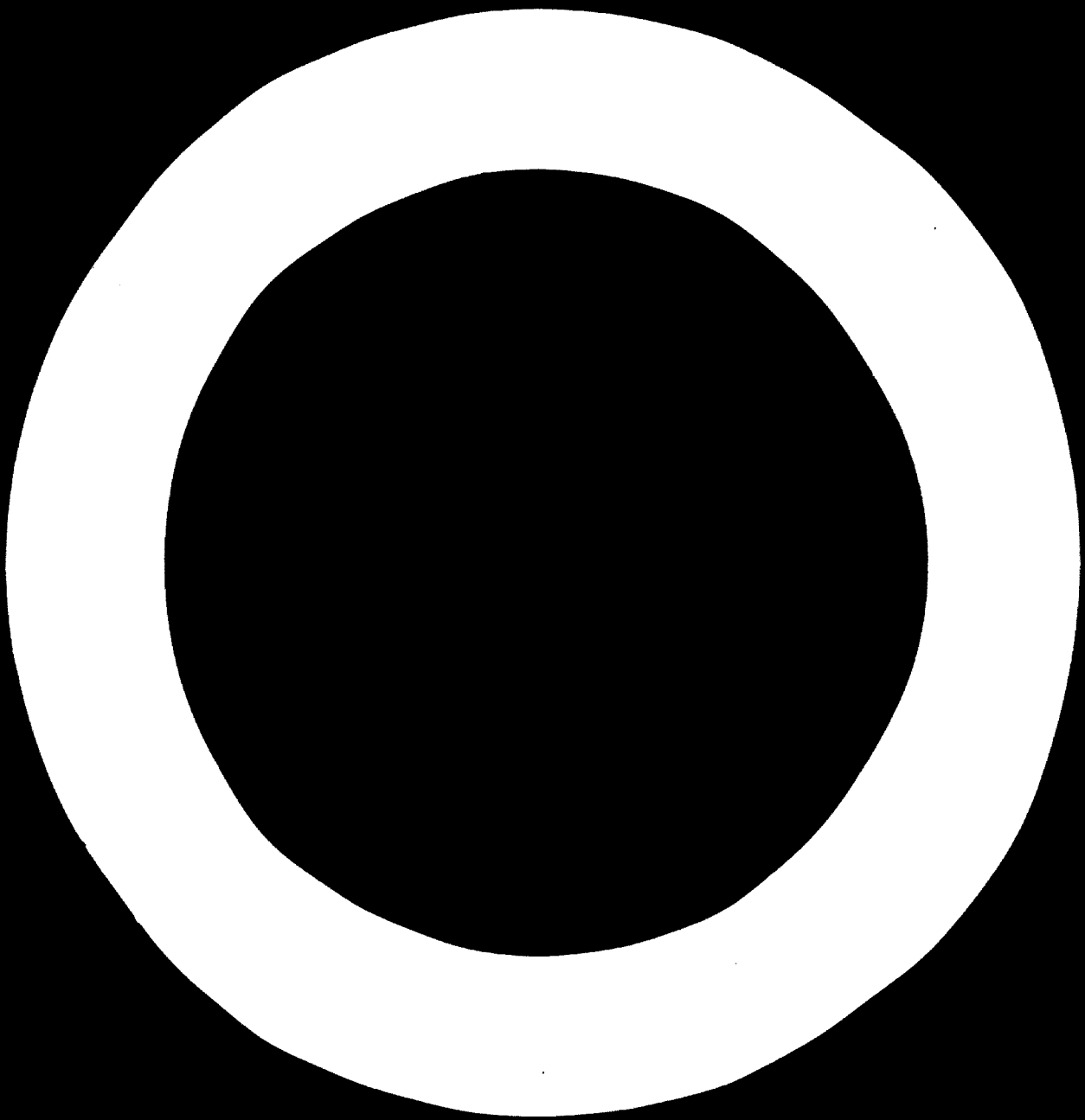
S/F

7. RUBBER INDUSTRY

Prepared by: Mr. J. Semach

Counterpart:

Date: March, 1973



Code No. 30	Manufacture of Rubber Products
Code No. 3001	Manufacture of Rubber Shoes
Code No. 3002	Manufacture of Tires and Tubes and Retreading
Code No. 3003	Manufacture of Rubber Articles, e.g. Water Pipes, Rubber Bottles etc.
Code No. 3004	Manufacture of Rubber Soles and Heels
Code No. 3005	Repair of Tires and Tubes of Cars and Bicyles by Patching
Code No. 3009	Miscellaneous Rubber Industry Not Elsewhere Classified

Manufacture of Rubber and Rubber Products - Time Series According To The Bureau of Statistics of The Ministry of Economy

		1342 (1963/4)	1343 (1964/5)	1344 (1965/6)	1345 (1966/7)	1346 (1967/8)	1347 (1968/9)
Net fixed capital	10^6 Rls.	893	815	928	1,177	1,653	2,181
Value of output	10^6 Rls.	886	1,609	1,524	2,450	2,896	3,030

Manufacture of Rubber and Rubber Products - Summary Statistics On Industrial establishments According To The Bureau Of Statistics Of The Ministry of Economy

	Central Province	Esfahan and Yazd Province	Total Iran
Number of establishments	53	148	583
Total person engaged	3,854	280	5,056
- from this - owners, employers, family members and other unpaid workers	132	168	760
- Salary and Wages earners-operatives	2,985	112	3,358
- Others	737	-	738

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		Central Province	Esfahan and Yazd Province	Total Iran
... investment (before depreciation)	1000 Rls.	305,760	-	307,154
Value of gross output	1000 "	3,745,110	20,650	3,818,556
Value of gross input	1000 "	1,971,488	7,813	1,999,115
Gross value added	1000 "	1,773,622	12,838	1,816,441

The Manufacture of Rubber Produts (Without Rubber Shoes) According To The Bureau Of Statistics Of The Ministry Of Economy Has As Follows:

Code No.	Product or Activity		1343 (1964/5)	1344 (1965/6)	1345 (1966/7)	1346 (1967/8)
3902	Automobile Tires	pcs	112,640	349,000	446,000	463,304
	Automobile Tubes	"	84,150		139,000	195,165
	Retreated Tires	"	17,300	34,000	56,880	131,592
3903	Pipes	m	136,757	no data	50,880	4,600
	Rubber Floor Mats	pcs	35,300	86,000	125,000	18,000
	Buckets	"	36,000	no data	37,000	4,000
	Various Rubber prods.	tons	19	91	460	-
		1000 pcs	47	11	5 ,330	81
3904	Soles and Heels	1000 pairs	323	603	1,175	381

Imports of Rubber Products

Tariff No.			1346 (1967/8)	1347 (1968/9)	1348 (1969/70)	1349 (1970/1)	1350 (1971/2)
604	Rubber tools and footwear	pairs	867	2,306	1,507	1,431	1,281
		tons	1.4	4.1	3.4	3.5	3.0
375A	Solid tyres	pcs	21,132	34,794	26,205	30,446	35,350
		tons	22.2	38.4	40.0	37.4	28.8
37581	Petal cycle tyres	pcs	769,473	1,092,883	150,090	5,856	4,900
		tons	660.0	953.8	123.3	3.2	4.4
375811	Passenger car tyres	pcs	972,270	130,814	199,165	174,649	175,118
		tons	799.2	1,138.0	1,834.3	1,344.7	1,328.1
375 822	Motorcycle tyres	pcs	111,225	146,632	47,352	6,209	63,753
		tons	195.0	271.1	76.9	10.1	169.5
375 831	Lorry tyres	pcs	77,628	111,277	175,438	118,753	141,500
		tons	5,280.2	7,393.3	11,953.1	7,541.4	8,332.6
375 832	Coach tyres	pcs	223	500	1,420	490	188
		tons	16.6	33.3	34.6	32.2	2.8
375 833	Tractor tyres	pcs	24,086	32,435	35,651	42,934	37,336
		tons	1,004.7	1,407.1	1,659.4	1,993.3	1,562.5

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			1346 (1967/8)	1347 (1968/9)	1348 (1969/70)	1349 (1970/1)	1350 (1971/2)
	[illegible] tyres	pcs	3,915	5,933	1,630	-	-
		tons	17.0	20.2	19.1	-	-
	[illegible] aircraft tyres	pcs	433	474	842	356	433
		tons	24.6	25.6	34.3	23.8	24.3
1	Pedal cycle tubes	tons	329.6	338.0	64.6	1.3	11.6
21	Passenger car tubes	tons	181.4	341.2	404.8	410.0	401.3
22	Motorcycles tubes	tons	69.1	118.4	34.3	7.2	34.0
31	Lorry tubes	tons	895.1	1,207.6	1,684.9	1,381.1	1,619.3
35	Tractor tubes	tons	91.1	103.9	112.4	193.3	230.1
4	[illegible]-wheeler tubes	tons	1.3	2.2	-	13.6	-
5	Aircraft tubes	tons	1.7	0.4	0.5	-	-
	[illegible] with metal, asbestos and other substances	tons	171.4	441.4	331.5	352.9	276.6
	Rubber thread	tons	60.3	64.3	132.0	116.7	218.3
73	Rubber piping, tubing	tons	685.9	673.4	1,030.9	966.7	1,137.8
74A	Rubber conveyor belting	tons	360.3	464.1	659.3	665.5	900.6
	Rubber pads, blocks etc.	tons	18.3	55.2	27.0	19.0	9.[illegible]

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Tariff No.			1346 (1967/8)	1347 (1968/9)	1348 (1969/70)	1349 (1970/1)	1350 (1971/2)
37482	Other rubber manufactures for industrial use	tons	198.5	527.4	278.9	338.5	645.1
37483	Brake lining	tons	501.0	426.3	177.7	109.6	25.1
376-1, 2	Teats	tons	33.2	18.0	5.1	4.3	5.3
376-3	Rubber gloves	tons	72.1	89.1	153.7	168.0	205.9
376-4	Prophylactic rubber	tons	16.0	7.3	9.8	16.5	9.0
376-5	Other moulded manufactures	tons	53.3	47.8	31.0	31.0	29.6
3778	Rubber doormats	tons	5.9	13.3	28.2	4.0	4.4
377C	Spongy rubber manufactures	tons	16.8	44.9	18.2	18.8	17.6
377 D1	Rubber erasers	tons	73.6	74.4	53.6	28.3	40.4
377 D2	Soft rubber manufactures	tons	67.1	37.6	88.8	80.3	96.6
378-379	Hardened rubber manufactures	tons	1.7	3.8	9.4	382.1	33.7

Export of rubber raw materials (without chemicals)

Tariff No.			1346 (1967/8)	1347 (1968/9)	1348 (1969/70)	1349 (1970/1)	1350 (1971/2)
[illegible]	Raw rubber, gutta-percha	tons	11,552.2	14,119.3	17,071.0	17,086.4	23,348.4
[illegible]	Scrap of rubber, gutta-percha	tons	1,028.8	1,153.6	1,125.4	667.3	978.6
37111	Rubber pastes, slabs, sheets, non-vulcanized	tons	66.9	190.4	337.3	124.2	127.5
[illegible]	Rubber adhesives	tons	872.1	1,038.3	895.5	1,137.5	1,633.0
371	Rubber crepe	tons	7.9	31.7	58.9	60.3	42.6

Exports of Rubber Products

Tariff No.			1346 (1967/8)	1347 (1968/9)	1348 (1969/70)	1349 (1970/1)	1350 (1971/2)
6041	Rubber boots	1000pcs	-	6.3	-	230.4	1,653.4
		tons	-	93.2	-	338.0	2,307.9
60482	Rubber footwear	1000pcs	2,100.2	1,284.5	1,457.5	1,302.1	449.7
		tons	2,046.7	1,287.7	1,577.7	2,183.2	568.6
373	Rubber piping, tubing	tons	-	-	-	-	3.2
37482	Other rubber manufactures for industrial use	tons	-	0.7	0.6	0.2	2.2
37581	Pedal cycle tyres	pcs	812	-	-		50
37582	Passenger car tyres	pcs	122	168	6	31	10,045
		tons	3.5	2.4	0.3	1.3	137.8

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Tariff No.			1346 (1967/8)	1347 (1968/9)	1348 (1969/70)	1349 (1970/1)	1350 (1971/2)
375B31	Lorry tyres	pcs	832	394	1,850	8,844	14,180
		tons	71.3	33.1	199.0	486.2	676.2
375C21	Passenger car tubes	tons	0.7	0.2	-	-	8.6
375C31	Lorry tubes	tons	0.3	0.3	5.2	50.9	14.7
3774	Rubber soles, heels	tons	-	-	-	0.1	0.5
3776	Spongy rubber manufactures	tons	11.4	11.4	14.9	10.5	0.9
3778	Other soft rubber manufactures	tons	0.6	0.6	0.5	0.8	13.3

Rubber

Main raw materials for production of rubber are:

1. Caoutchouc, a fluid that is obtained from certain tropical trees and then subjected to various processes of manufacture.

2. Synthetic rubber - for example SBR, Buna S, Polybutadiene, Polyisoprene, Nitrile, Butyl, Neoprene, Thiokol, Polyacrylate, etc. Some of the synthetic rubbers, resemble the vehical rubber while others have completely different physical properties.

3. Reclaimed or scrap rubber (20 of solid production of rubber is based on reclaimed or scrap rubber)

1. Rubber chemicals

a. Accelerators of vulcanization - guanidines, dithiocarbonates, mercaptothiazoles and derivates etc.

b. Reinforcing and filling materials - carbon black, talc, limestone, barites, asbestos powder

c. Antioxidants and stabilizers (age resistors) - arylamines, phenols, phenol-phosphites.

d. Plasticizers and softeners - for example vegetable and mineral oils, waxes, tars, pitches, resins, fatty acids etc.

e. Curing or vulcanizing agents - sulfur, benzol peroxide etc.

f. Colours - iron oxides, zinc oxide, phtalocyanine colours, titanium dioxide etc.

Natural or synthetic rubber is cut to pieces on bale cutting machine (in small factories by hand tools). Raw materials (natural and synthetic rubber, scrap rubber and chemicals) are then weighed on automatic or decimal weighing machine. Rubber is masticated and softened (the combination of heat and work produces a physical and chemical change of rubber) and then compounded and

mixed in two different machines or in the same machine - either roll mill, kneading or Banbury mixer.

Calendring The calender makes thin rubber sheets between rollers. There are two - , three- , four - , exceptionally even five - rolls calenders with rolls arranged vertically. Rolls are heated by steam or cooled by water according the process in use. On calenders is produced rubber-covered cloth, sheet rubber, mats etc.

Extruding Rubber tubes, bars or shaped strips are made on extruding machines. Heated rubber is forced through a heated shaped die by means of a screw. Extruders are used also for cable covering and production of threads.

Moulding Some articles, like tanks for batteries, heels etc. are moulded on hydraulic or mechanical presses to dies and in the same die vulcanized in one operation. Dies are heated by steam or electricity.

Vulcanising (Curing) Vulcanization is a hot process at which rubber is changed to nonthermoplastic material. It is polymerization in which elasticity, strength and resilience is increased. Machinery and equipment for vulcanizing, differs according the type of product. It is either continous, semi-continuous or batch.

Dipping Solid form made of ceramic or other material is dipped into the solution of rubber and the film formed on the surface is allowed to harden by evaporation and then vulcanized.

Sometimes the form is dipped twice or more times. Articles like rubber gloves, prophylactics etc. are produced by dipping process.

Code No. 3001 Manufacture of Rubber Shoes

There are 12 factories in Iran at present, producing rubber shoes, boots, slippers etc. According to the Bureau of Statistics of the Ministry of Economy the biggest are:

	Production in Year 1346(1967/8)
Shadanpour Shoe Co. Tehran	3,850,000 pairs
Delli Shoe Co. Tehran	1,324,857 "
Bella Shoe Co. Tehran	800,000 "
Shayan Shoe Co. Tehran	450,000 "
Panel Shoe Co. Tehran	300,000 "
Shaheen Shoe Co. Tehran	278,461 "

According to the Bureau of Statistics of the Ministry of Economy, total production of rubber shoes, boots, slippers etc. in Iran in the year 1346(1967/8) was 7,854,000 pairs.

Forecast of Production of Rubber Shoes, Boots, and Slippers in Iran:

Years	1351 (1971/)	1356 (1977/8)	1361 (1981/2)	1366 (1986/7)
Production (in 1000 pairs)	12,450	20,270	30,000	44,000

Forecast of production of rubber shoes, boots and slippers has been made by the Research Centre for Industrial and Trade Development of the Ministry of Economy for the year 1351(1972/3) and 1356(1977/8), and by the author of this study for the year 1361(1982/3) and 1366(1987/8) on the basis of growth rates applied to the production in the year 1347(1968/9). Projected growth rates were derived by corelation with expected levels of gross national product and by the reference to per capita consumption of rubber shoes, boots and slippers in other countries. Part of the production will be exported.

Characteristic of Existing Machinery and Equipment

Rubber is cut to pieces on bale cutting machines (in big factories/or by hand tools in small factories). Raw materials are stored in tanks and bins and then weighed on automatic or decimal weighing machines. Rubber is masticated and softened in Banbury mixers and then compounded in roll mills (in big factories) or only on roll mills with two rolls(in small factories). Mixed material is heated on two-roll mills and on the three rolls calender with wind-up equipment sheet of textile is covered by rubber and semi-product is cooled in colling box.

Other part of material, mixed in mixers or roll mills is heated on two-roll mills and then either extruded on rubber extrusion machine or rolled to thin sheets with profiled surface on four-rolls or five-rolls calenders with conveyor and emulsion tank.

From rubber sheets soles and heels are cut on rubber cutting

machines, marked with model and name of the factory on stamping machine and then shaped and cured on hydraulic multi-stage presses. After curing overflows are cut by rubber cutting, milling, grinding or brushing machine. The inner surface of soles and heels is roughened on roughing machine.

Upper part of shoes of textile for lining is cut on one- or two-arm rubber cutting machines.

Making-up shop of rubber shoes is equipped with assembly transporter (in big factories) or with separated works places. Main machines used in making-up shop are different sewing machines (sewing machines with one or more needles, post bed sewing machines etc.), extruding machines for small components and parts made of rubber, rubber solution applying machines, folding machines, presses for assembling upper part with sole and heel etc. Rubber shoes after making-up are vulcanized in curing pans, then last finish is applied (cutting of overflows on rubber cutting, milling or grinding machines) and then checked, packed in cardboard boxes and prepared for dispatch.

Survey of all kinds of footwear industries (leather, rubber, plastic) - see Code No. 3411.

Code No. 3002 Tyres and Tubes, Wheels, Retreading of Tyres.

There are 10 factories in Iran at present, producing tires, tubes and solid wheels and retreading of tires. According to the Bureau of Statistics of the Ministry of Economy the biggest are:

Factories		Production in Year 1346(1967) Tires	Tubes	Retreading of tires
B.F. Goodrich Tehran	pcs/year	257,907	115,645	-
General Tyres and Rubber Tehran	pcs/year	178,693	74,689	75,652
Tehran, New York Co. Tehran	pcs/year	-	-	20,000

Production of Tyres and Tubes in Iran According to the Bureau of Statistics Of The Ministry of Economy

		1346(1967/8)	1347(1968/9)
Tyres	tons	11,412	14,727
Tubes	tons	574	715

Capacity of Existing Plants in the year 1350(1971/2) According to the Research Centre for Industrial and Trade Development of the Ministry of Economy:

B.F. Goodrich, Theran	11000	tons/year
General Tyre and Rubber Co. Tehran	11000	"
Iran Yasa Industrial Manufacturing Co. Tehran	4000	"
Total capacity	26000	"

In year 1317(1968/9) started the production of bicycle and motorcycle tires and tubes size 2.5x17 up to 500x13 in Iran Yasa Industrial Manufacturing Co. The existing capacity is 3000 tires and 3500-4000 tubes/day in 2 shifts. In year 1349(1970/1) the production in this factory reached already 65-70% of total production.

This factory is producing also rubber gloves-production in year 1349(1970/1) was 1000 pairs/day, rubber bottles-300 pcs/day and tubes (hoses) with or without textile core, handles for motorcycles, rubber seals and glands - 800 tons/year.

Iran's present requirements were covered by own production of tyres and tubes for cars and lorries in 1346(1967/8) at 59,6% , in year 1317(1968/9) at 57.8%.

In recent years U.F. Goodrich Tehran as well as General Tyre and Rubber Co. Tehran got licence for expansion their capacity to 30,000 tons/year of tyres and tubes and it is planned that two new production licences for production of tyres and tubes will be issued at the beginning of the fifth five-year plan for the capacity 25,000 tons/year each.

Forecast of Demand, Capacity and Production of Tyres and Tubes

		1351 (1972/3)	1356 (1977/8)	1361 (1982/3)	1366 (1987/8)
Demand-tyres and tubes	tons	18,500	92,000	171,000	290,000
Existing capacity	tons	30,000	46,000	46,000	46,000
New Capacities	tons	-	50,000	120,000	240,000
Total capacity	tons	30,000	96,000	166,000	286,000
Production-tyres	tons	27,140	86,000	150,000	260,000
-tubes	tons	1,150	4,200		

Forecast of demand and production of tyres and tubes has been made by the author of this study on the basis of growth rates applied to the production in the year 1347(1968/9). Projected growth rates were derived by corelation with expected levels of population of cars, lorries, vannettes, station wagons, buses, minibuses, tractors, motorcycles, pedal cycles etc. in respective years and by the reference to theirs average operation per year in kilometres.

The forecast of Consumption of Tyres And Tubes Is Based On The Following Assumption:

		1351 (1972/3)	1356 (1977/8)	1361 (1982/3)	1366 (1987/8)
Average life of tyres and tubes (without retreading)	1000 km	30-35	33-38	25-30	28-34
Average weight of one set of tyres and tubes					

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		1351 (1972/3)	1356 (1977/8)	1361 (1982/3)	1366 (1987/3)
[illegible] car	k_1	9.2	9.3	9.4	9.5
Vannettes and station wagons	k_2	10.8	10.9	11.1	11.3
Lorries	k_3	66.2	67.2	67.8	68.4
Buses and minibuses	k_4	48.0	49.0	50.0	51.0
Tractors	k_5	41.8	42.2	42.6	43.0
Tillers	k_6	6.4	6.4	6.4	6.4
Motorcycles	k_7	1.8	1.8	1.8	1.8
Pedalcycles	k_8	0.8	0.8	0.8	0.8
Average operation of taxis	1000 km/year	120	120	120	120
Cars	"	24-25	25-26	26-28	28-30
Station wagons and vannettes	"	50	55	60	65
Buses and minibuses	"	80	80	80	80
Lorries	"	120	120	120	120
Tractors	"	15	18	20	22
Motorcycles	"	24-25	25-26	26-28	28-30
Retreading of tyres for cars, station wagons, vannettes, buses, minibuses, lorrires and tractors		7%	10%	15%	20%

Park of cars, vannettes, station wagons, buses, minibuses, lorries, tractors, tillers, motorcycles and pedalcycles in the year 1351 (1972/3) until 1366(1987/8) - see Automobile Industry.

From the above mentioned figures it is seen that there are big possibilities for the expansion of the existing plants for the production of tyres and tubes and for the erection of new ones. The same is with retreading of tyres.

Characteristic of Existing Machinery and Equipment

Tyres

The main components and parts of tyres are:

1. Carcase consisting of carcase cushion and bounding rubber
2. Breaker strip
3. Tread rubber
4. Side walls
5. Bead wires
6. Chafing strips, flippers etc.

1. **Carcase Cushion** is made of cord material either from viscose rayon or nylon yarns by calender coating the cord fabric on both sides with a thin coat of rubber at the three-rolls calender. These rubberized strips are then cut into bias strips on bias cutting machines.

Bounding Rubber are strips of rubber produced at the three-rolls calender, transported to cooling rolls and then rolled together with carcase cushion at taree-rolls calender.

2. **Breaker Strips** are made on three-rolls calender and then cut to prescribed size and length.

3. **Tread Rubber** in shaped at extrusion presses, then transported by belt conveyor to cooling vat and cutting rolls. After that trend

rubber is cut to prescribed length on cutting machines and then cemented and clamed together.

1. Side walls are shaped at extrusion press, together with tread rubber in one piece.

5. Bead fires fires (cables) are rust pickled, degreased and then coated by rubber solution. After drying, wires (cables) are covered by rubber strips on special machine and then by rubber covered textile strips. Sometimes wires are coated by rubber on extrusion presses.

6. Chafing Strips, Flippers are made of rubber coated textile or rubber sheets on flipper machines.

All components and parts are assembled on tyre building machines.

After assembling tyres are vulcanized in vulcanization presses. Inner shape is formed by presoure heating tubes. After vulcanising heating tubes are removed, overflow is cut, tire is sprayed , checked and packed.

Production of Tubes

Rubber, after compounding and warming, is straight extruded on rubber extruding machine through heated die. Tubes are then cut to prescribed length, hole for tube valve is punched on punching press, then added stiffener and assembled with tube valve. Both ends of tube are then jointed together on jointing machine and then vulcanised in tube vulcanizing presses, with dies heated mostly by steam.

After vulcanizing of tube, the valves are assembled and the tubes are tested on tube testing machine, then air is removed and the tubes are packed into cardboard boxes and dispatched. The same process is applied at the production of tubes for bicycles.

Retreading Of Tyres

Retreading of Tyres Accordin, to the Research Centre for Industrial and Trade Development of the Ministry of Economy.

		1346 (1967/8)	1347 (1968/9)
Retreading of Tyres	tons	2,376	1,936

Forecast of Retreading of Tyres

		1351 (1972/3)	1356 (1977/8)	1361 (1982/3)	1366 (1987/8)
Retreading of Tyres	tons	2,826	8,200	25,000	54,000

Using 1347(1968) as the base year and the historical annual rate of increase of production, figures for the years 1351(1972/3) and 1356(1977/8) were exterpolated, by the Research Centre for Industrial and Trade Development of the Ministry of Economy, for the years 1361(1982/3) and 1366(1987/8) by the author of this study.

[illegible] 39.3 Manufacture of Rubber Articles, i.e. Water, Rubber, Mats, Car Parts, etc.

Rubber Mats and Covers

There are three factories at present in Iran producing covers and mats:

		Production in Year 1346	
Shahnand Co. Tehran	Rubber Covers	335,317	sq.m.
Saboh Co. Tehran	Rubber Mats	4[illegible],000	kg
Asgari Co. Tehran	Rubber Mats	35,200	kg

Also Delli Shoe Co. Tehran produces in small quantity rubber mats. Rubber covers and mats are produced on three rolls calenders with profiled rolls, vulcanization is done in vulcanization utoclaves.

Forecast of Production of Rubber Mats

		1351 (1972/3)	1356 (1977/8)	1361 (1982/3)	1366 (1987/8)
Rubber mats	1000 pcs	116	223	400	650

Using 1347(1968/9) as the base year and the historical annual rate of increase of production, figures for the years 1351(1972/3) and 1356(1977/8) were exterpolated by the Research Centre for Industrial and Trade Development of the Ministry of Economy, for the years 1361(1982/3) and 1366(1987/8) by the author of this study.

Rubber Pipes (Hoses)

There are three factories in Iran at present producing rubber pipes:

Iran Yasa Co. Tehran - production started in year 1348(1969)

Mihan Check Co. Tehran - production in year 1346 (1967) - 46500 m

Magen Co. Tehrar

There are two kinds of rubber pipes (hoses): with or without textile core. Pipes(hoses) without textile core are extruded on extruder. Textile core is made on three-rolls calenders and then pipe (hose) is wound up on winding machine and the semi-product is vulcanized in autoclaves.

Other Rubber Products

There are four factories at present in Iran producing other rubber products like rubber components and parts for automobiles, rubber components and parts for other industry, profiled rubber packings etc. These products are produced either by extrusion on extruder or by moulding on hydraulic presses. The biggest producer of these goods is Iran Yasa Co. Tehran, having capacity approx 800 tons/year (not yet reached).

Code No. 3004 Manufacture of Rubber Soles and Heels

There are 7 factories or shops in Iran at present pro-

ducing rubber soles and heels for sale. Most of them are known as producers of other rubber products as well. The biggest are:

		production in year 1346(1967/8)	
		Soles	Heels
Melli Shoe Co. Tehran	pairs	1,500,000	-
Simcar Co. Tehran	"	25,000	140,000
Shahnand Co. Tehran	sheets	62,000	-
Asgari Co. Tehran	pairs	30,000	20,000

Iran's present requirements of rubber soles and heels were fully covered by own production from year 1346(1967/8) onwards.

Characteristic of Existing Machinery and Equipment

The same machinery and equipment as described in Code No. 3001 for production of soles and heels.

Forecast of Demand of Soles and Heels in Iran (for sale only)

		1351 (1972)	1356 (1977)	1361 (1982)	1366 (1987)
Heels	pairs	400,000	880,000	1,600,000	3,300,000
Soles	pairs	1,600,000	3,300,000	3,300,000	4,800,000

On the base of the production of the year 1346(1967/8) was projected the production for the years 1351 until 1366 by the author of this study.

Code No. 3903 Repair of Tyres and Tubes by Patching

There are no data available how many shops are repairing tyres and tubes of cars and bicycles by patching. Most of these repair shops are combined with automobile repair shops etc.

Characteristic of Existing Machinery and Equipment

The necessary machinery and equipment for patching tyres and tubes is mechanical patching device or electrically heated device (patch is vulcanized together with tire or tube), dismantling device for tires and tubes, mechanically or hydraulically driven or operated by hand, small compressor and jack.

Other Rubber Products, Not Mentioned Above

Production of Brake Lining - See Code No. 3829

Production of Seals For Batteries - See Code No. 3707

Production of Electric Wires and Cables, Covered by Rubber - see Code No. 3707.

Production of V-Belts For Fans Etc.

Until now there is no factory producing rubber V-belts, but license was issued and factory will be built in 1351(1972/3)

Production of Rubber Prophylactics

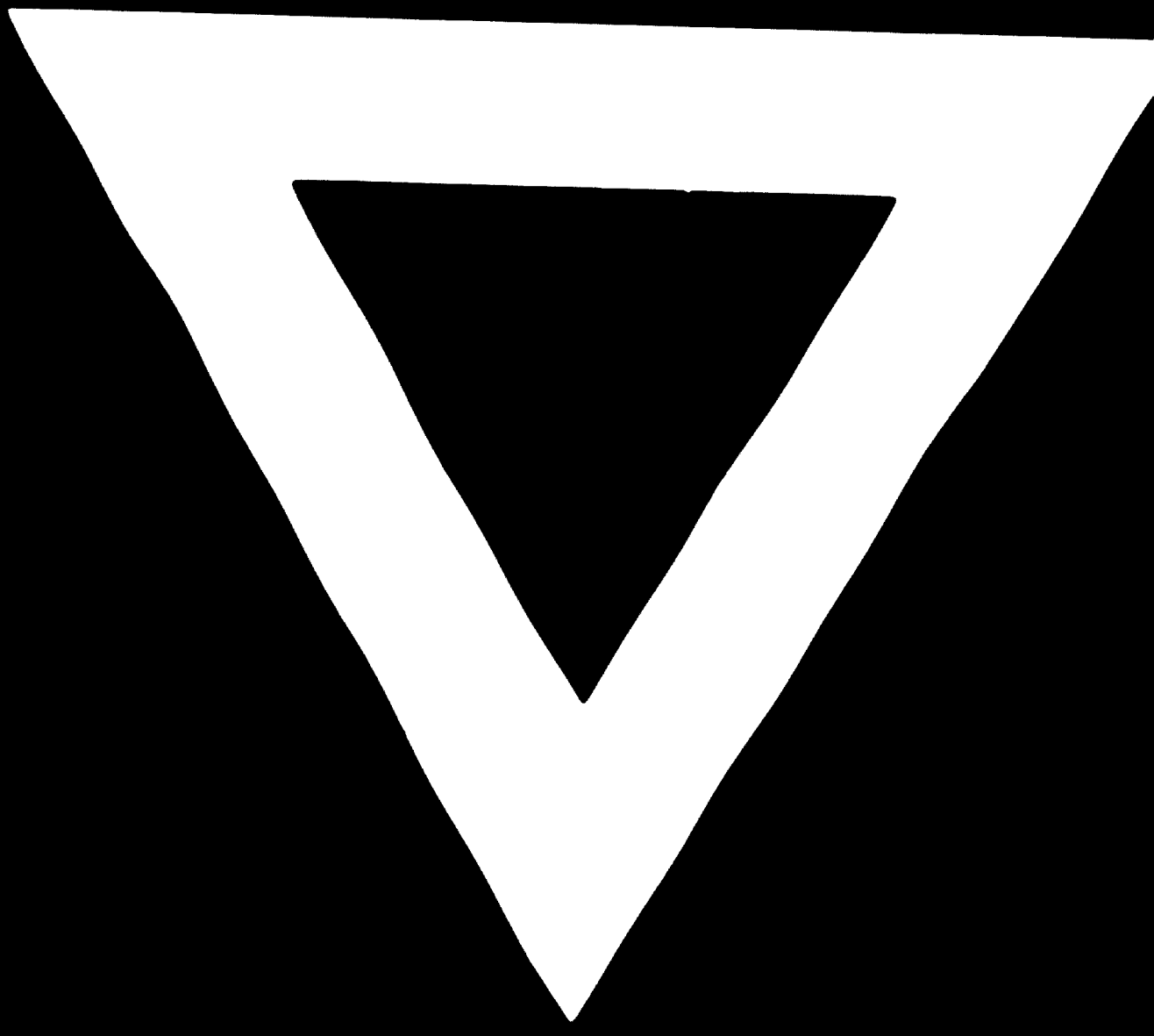
There is no factory in Iran producing rubber prophylactics. The machinery and equipment for such a plant is included in Code No. 3903.

Production of rubber toys

There is no factory in Iran at present producing rubber toys or moulding the machinery and equipment for such a plant is included in Code No. 3003.

Production of special rubber seals and Glands

As already mentioned, profiled rubber seals are already produced in Iran. In future there will be need of special rubber seals and glands (shaft seals etc.) . The machinery and equipment for such a plant is included in Code No. 3003.



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