RAW MATERIALS AND TOOLS REQUIREMENT PLANNING FOR (PUMPS-MATERIALS) DEPARTMENT, PRICOL

Thesis submitted in partial fulfilment of the requirements for the award of the degree of
MASTER OF ENGINEERING IN MECHANICAL ENGINEERING
(INDUSTRIAL ENGINEERING)
of BHARATHIAR UNIVERSITY

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COIMBATORE - 641 006

1998 - 1999

CERTIFICATE

Department of Mechanical Engineering

Certified that this is a bonafide report

of

The thesis work done by

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COIMBATORE - 641 006

During the year – 1998 - 99

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Synopsis

This project deals with the planning of raw materials and tools requirements for (pumps - materials) department of Pricol.

The aim of this project is to find out the quantity of rawmaterials in kilograms for each component of a particular product. The production people places the requistion form (materials and tools) to the materials manager to meet the production needs, as and when they require. This will lead to large consumption of time and the materials manager has to neglect his regular work. In order to reduce these difficulties, the materials and tools purchase orders are placed once in a year. This will help in reducing the inventory, and provides a mechanism for inventory control.

First the report is grouped in product wise and then it is grouped in material wise and the total quantity of each raw material required is found out. Similarly the requirement of tools to manufacture each and every component is also found out by taking the tool life into account. This method is very much effective and the purchase orders are placed to the vendor once in a year thus reducing the manpower and time.

CONTENTS

1. Organization Profile

Premier Instrument and controls limited established its operations in the manufacturing of Auto products in the year 1975.

In the year 1985, Pricol by itself developed electric counters, oil Pumps, speedometers, hydraulic pumps, Auto Fuel cock assembly for various automobiles, and also industrial pressure gauges.

In its earlier stages, Pricol entered into technical collaboration with

1. N.S. International Ltd., U.S.A.

2. Denso Corporation, Japan.

What are the various types of products that Pricol manufactures?

Electronic Speedometeresx, and Mechanical Speedometers, Tahometers, Pressure Gauges and Sensors, Temperature Gauges, Sensors, Voltmeters, ammeters handle bar switches, and also for defence purposes like panel instruments and sensors. ·

The project work titled materials and tools requirement planning was extimated at premier instruments and control limited for manufacturing various Auto Products.

In 1997 Pricol hands with Denso Corporation Japan, a 15 billion US $ auto ancillary company to chalk out its growth and future. Denso corporation picked up 12.5% equity stoke in Pricol.

Product Range :- Instruments and accessories such as electronic speedometers, Tachometers, mechanical speedometers, Quartz hour counters, fuel Gauges and Sensors, Temperature Gauges.

Product Range :- Pricol exports instruments, oil pumps and precision components more than 10% of its total sales.

R and D :- Pricol has a govt recognized R and D department. On an average, it spends about 3% of its sales on R and D.

Recently Pricol established a separate firm of the manufacturing of oil pumps for automobiles. Its market share in India is about 95%.

Pricol is awarded with ISO 9001 certification in 1993 for its various range of products. Pricol is expected to achieve QS 9000 by the end of 1999.

2. Problem Defination and Objectives

Problem Definition :- In order to meet the materials and tools requirments, the production people places the requistion form (materials and tools) to the materials manager to meet the production needs as and when they require. This will lead to

a) Large Consumption of time

b) The Materials Manager has to neglect his regular work.

c) It doesn't provide a mechanism for inventory control.

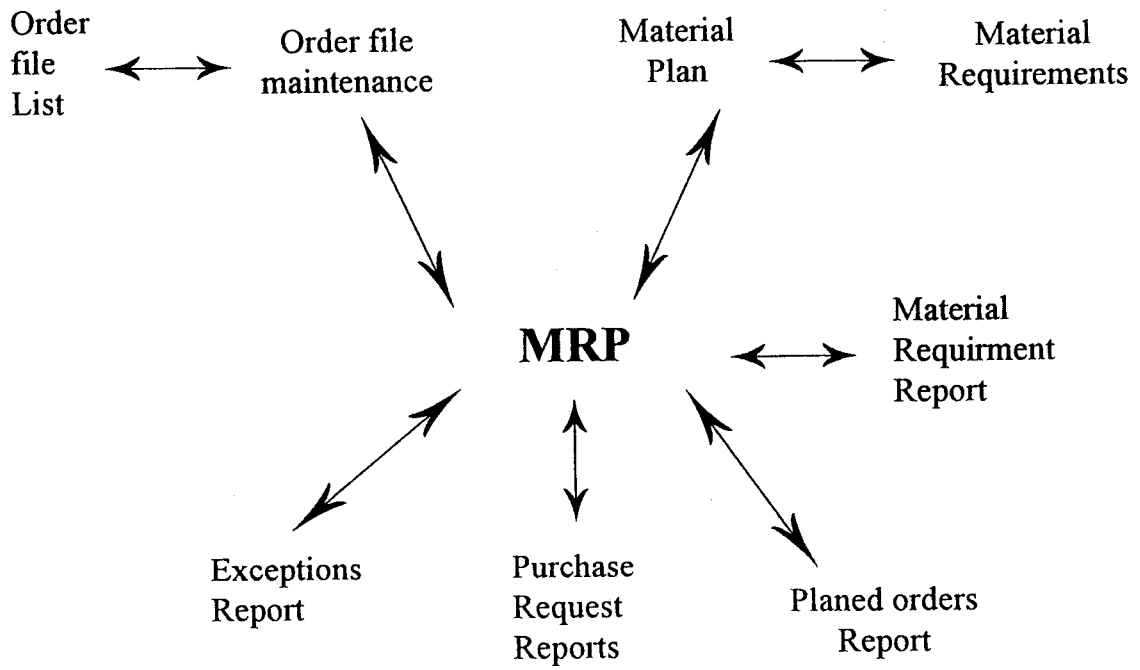
Objectives :-

Planning is the essence of any project. 100% efficiency cannot be achieved without sevicable and efficient planning.

Material Requirement planning is the scientific way of determining the requirements of raw materials, which meets the production needs within the economic investment policies.

Bill of materials and routings define the raw materials required to produce the product, the instructions and routings through the shop floor for producing the product MRP determines the total gross requirments and compares against the current inventory and scheduled receipts. If MRP determines that materials will not be available when it is required, it can regenerate planed orders for that material.

2.1 The MRP module contains the following features



MRP is used for planning material orders with the purpose of

1. Reducing Inventory
2. Responding more effectively to market demand.
3. To increase sales
4. It enables the management to anticipate the future material needs.
5. It enables the material manager to cope with the demand for materials as and when it comes to him.
6. It helps in Managing the materials in a manner is which it enables the organization to accomplish the given obejctives.
7. It provides a mechanism for inventory control.

2.2 Bill of materials :-

It indicates the products code, parts name and the name of material for each component for a particular product.

The bill of materials also includes the standard size of each material. When any one unit of the organisation receives a work order, the concerned production engineer prepares a list of all materials for manufacturing a list of all materials for manufacturing a product and places a requistion report to the materials manager.

The report includes the details regarding the quantity, code number and other specificartions.

2.3 What is a job order and purchase order :-

Job order is placed to a sub contractor. The specified raw materials are supplied to the sub contractor and he converts it in to a number of components.

Purchase order is placed to a direct supplier who in term supply the required raw materials to the firm based on the schedule.

2.4 Product Stage : In this stage, the product name, the products no, product code, parts name, exact drawing size, conversion no's, monthly schedule, are entered. Finally, the raw material requirement in kgs is calculated.

2.5 Conversion details : This from captures information about component code and the conversion no's in kilograms is got from the job order details. The no's in kilograms is the quantity of raw material required to make a single component

2.6 Master order Details : it includes the various orders placed by the customers of Pricol. The specifications of master order details are maintained regularly.

2.7 *Literature Survey*

1. P. Radhakrishnan and S. Subramaniyan published CAD / CAM / CIM, publishing for one world, suggested that the master schedule becomes direct input to the Material Requirements Planning (MRP) function, which determines the material needed at each work centre location in order to meet the manufacturing production schedule. This method is followed in the following section.

2. Manufacturing Systems Engineering, A unified approach to manufacturing technology production management and Industrial Economics, written by Kat Sundo Hitomi, has suggested that Materials Requirement planning is the heart of any Manufacturing Control System. The parameters that are collected are from the master production schedule. These suggestions are followed in the forth coming section.

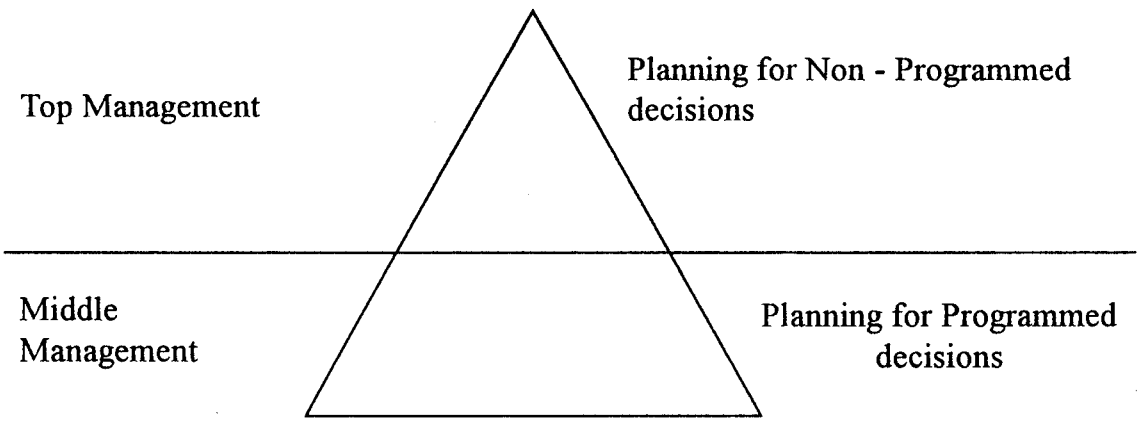
3. P. Gopalakrishnan and Mr. Sundaresan in their book Materials Management has suggested that in order to draw a detailed Material Requirements Plan, information from the bills of material, inventory, shop and purchase orders and the master schedule are used.

4. Dr. B.C. Ponmia, standard publishers distributors, suggested that bills of material and routings define the raw materials required to produce the product, the instructions and routing (s) through the shop floor for producing the product.

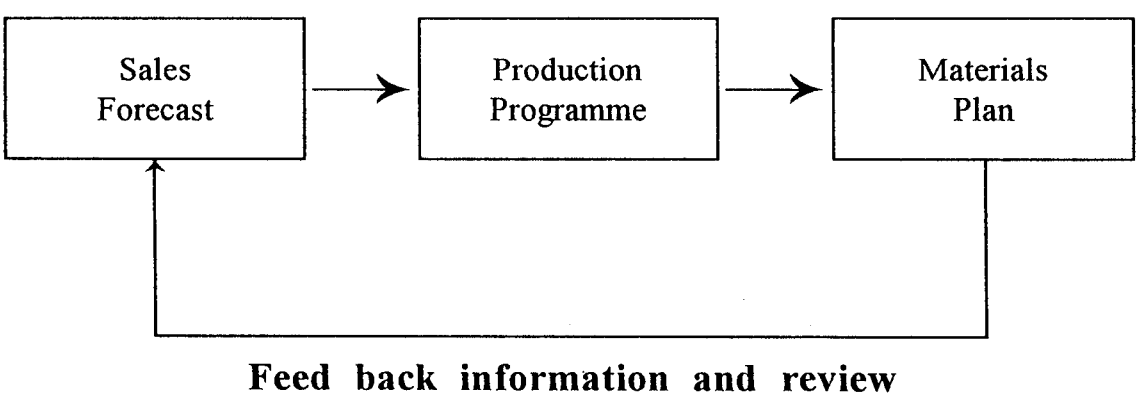
5. Personnel Management and Industrial Relations by Dr. Varma and Agarwal suggested that material requirment planning determines the total gross requirments and compares against current inventory and scheduled receipts.

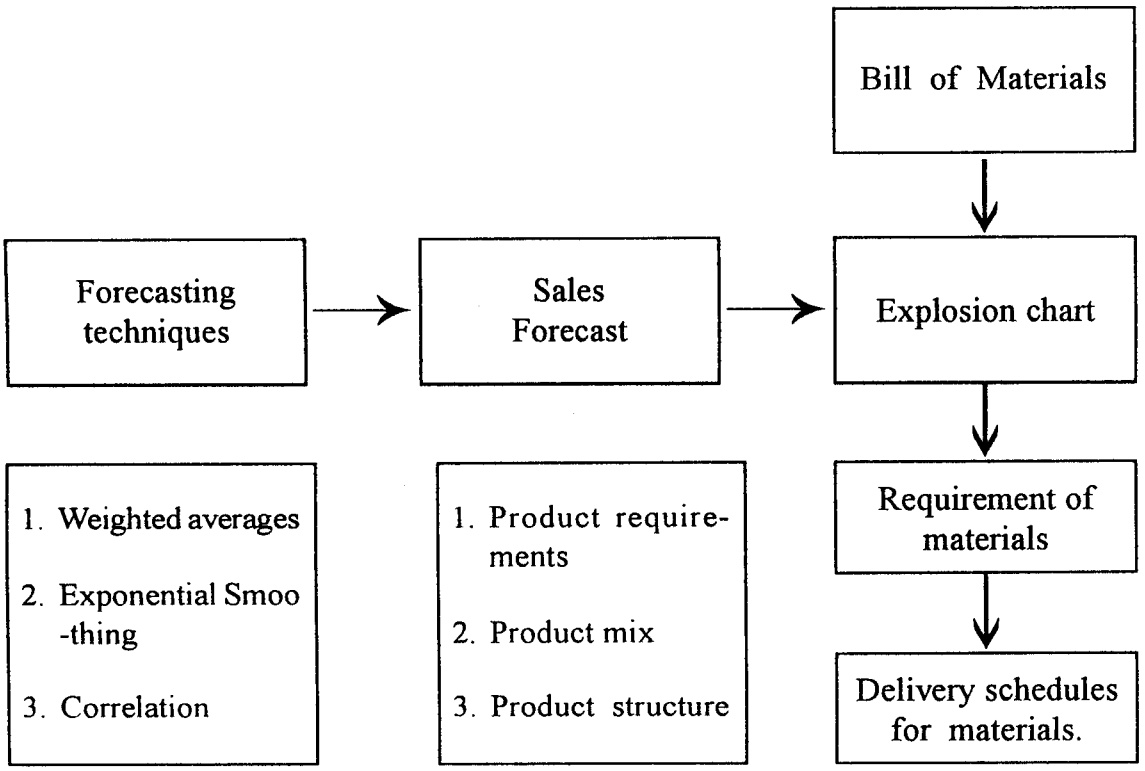
6. Mikell P. Groover and Emary W. Zimmers, Jr. wrote in Computer Aided design and manufacturing that if material requirement planning determines that material will not be available when it is required, it can generate planned orders for that material.

3. Data Flow Diagrams



In the context of materials management, planning has to be done for highly non-programmed decisions such as inport policy, froeign exchange availability and credit squeeze. In a similar manner, planning has also to be done for highly programmed decisions such as hypothecating inventory for Working Capital, Working out delivery schedules etc. The relationship between materials planning other major functions are shown as below.

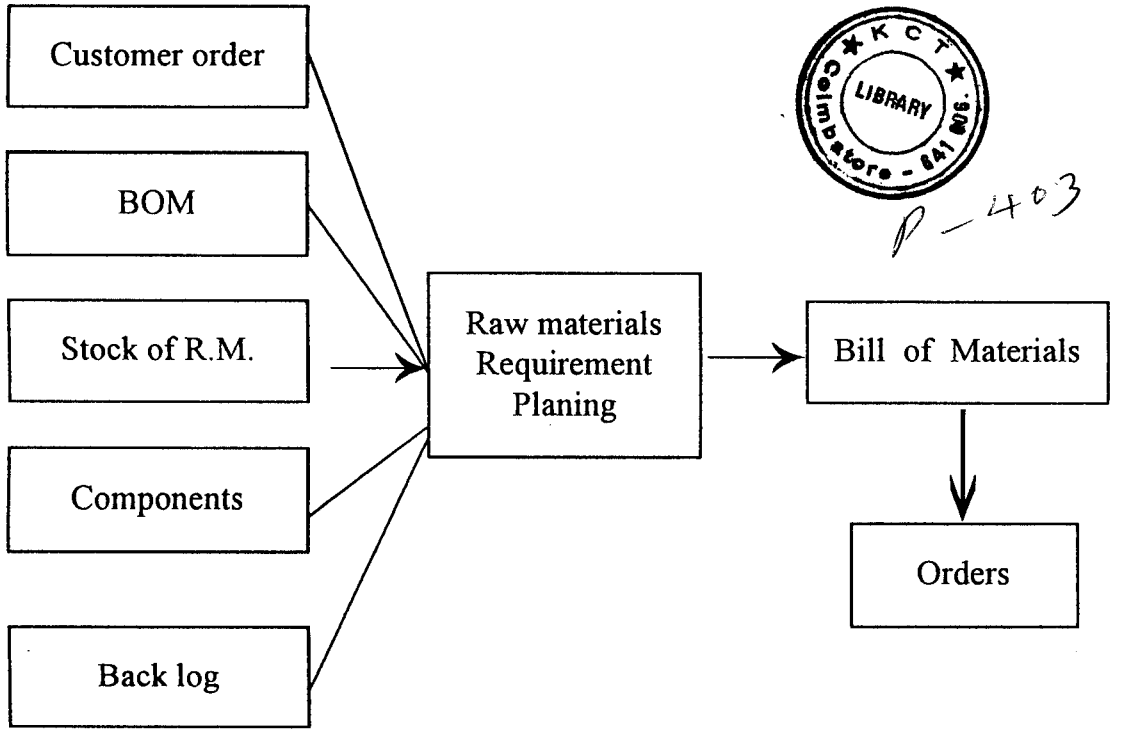


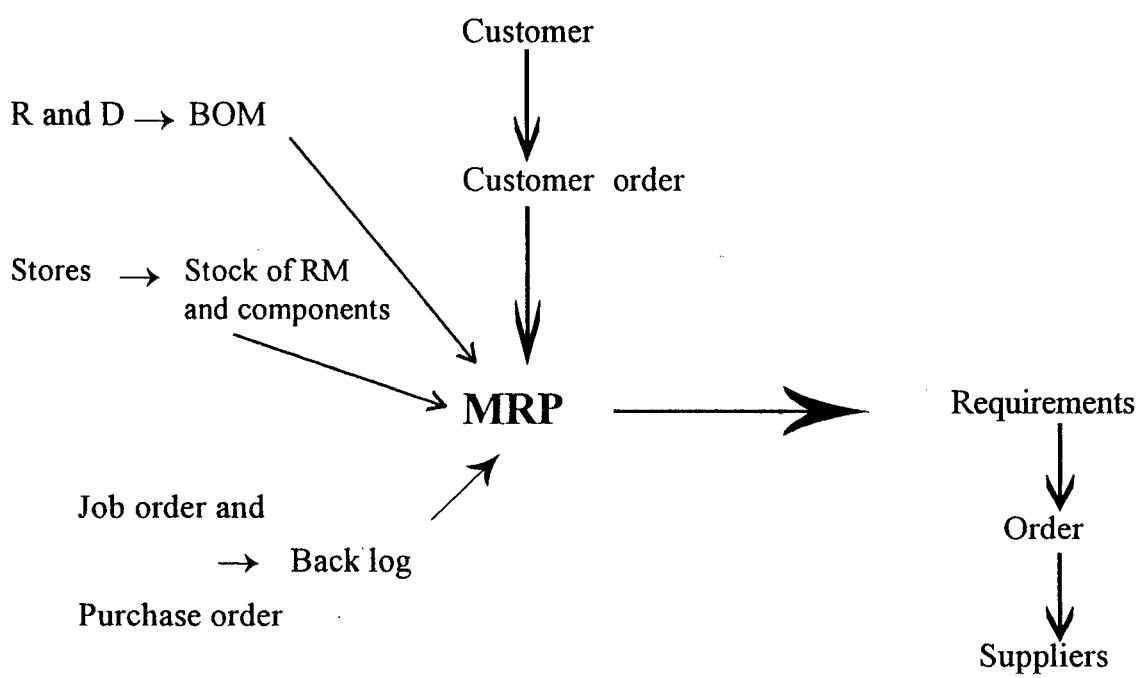


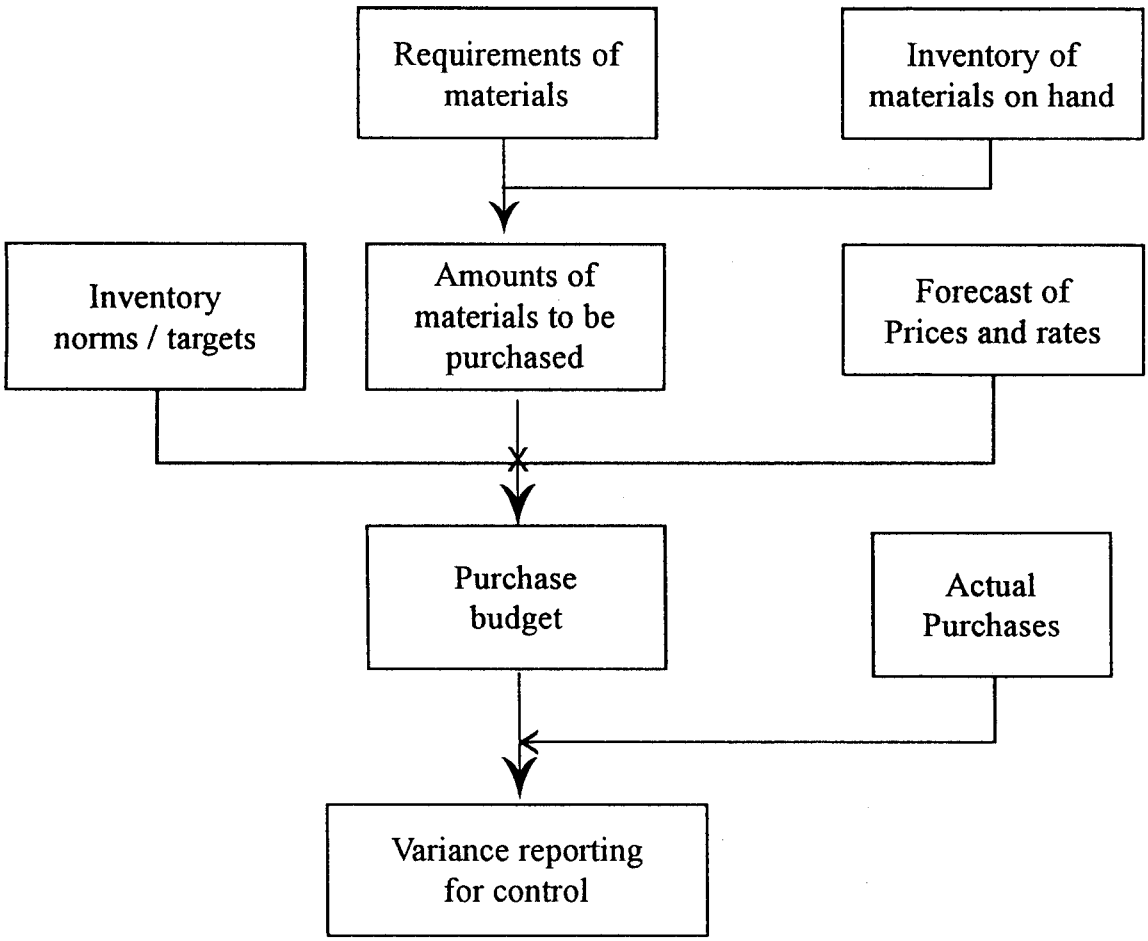
requirements of various materials are arrived at from the demand forecast, using bill of materials, through explosion charts. Bill of materials is nothing but a document which shows for a given component the list of materials required, unit consumption and location code.

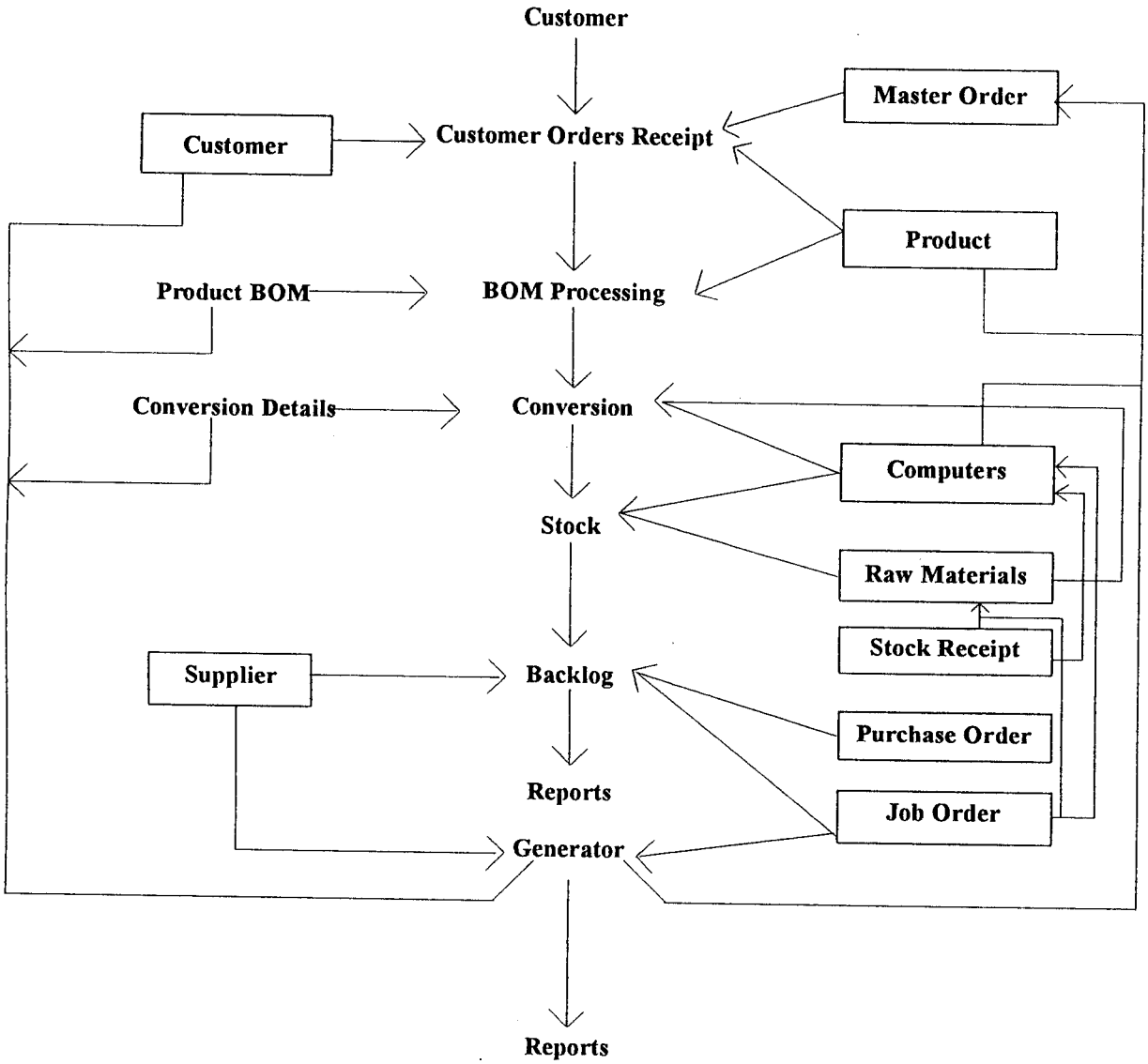
An explosion chart is just a series of bill of materials grouped together in a matrix form so that combining the requirements for different components can be done.

Materials planning can be used to assess the 'firm Requirements' for different planning horizons.






Requirements of materials
Inventory of materials on hand
Inventory norms / targets
Amounts of materials to be purchased
Forecast of Prices and rates
Purchase budget
Actual Purchases
Variance reporting for control


Customer
Customer
Customer Orders Receipt
Master Order
Product
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Conversion Details
Conversion
Computers
Stock
Raw Materials
Stock Receipt
Supplier
Backlog
Purchase Order
Reports
Job Order
Generator
Reports

PRODUCT NAME : **OIL PUMP ASSEMBLY**

PRODUCT NO. : M 168 00 00 00 00 (M/s. KH Motors Ltd.,)
M 305 00 00 00 00 (M/s. KH Motors Ltd.,)
M 341 00 00 00 00 (M/s. KH Engg Ltd.,)

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M168 0001 CA 01	Pump body	ADC 12	
M168 0003 CA 01	Cam Casing Plate	ADC 12	
M168 0010 TU 01	Driving Gear	ENIA	Ø 10 x 38.8
M168 0013 FO 01	Driving Gear	EN 353	Ø 12 x 117
M168 0014 TU 01	Sub Plunger	EN 31	Ø 5.07 x 23.7
M168 0018 TU 01	Control Shaft	EN 353	Ø 9.17 x 30.2
M168 0019 PR 01	Cam Shaft Spacer	CRLCD Grade	1.0
M168 0023 PR 01	Lever Control assy	CRLC DD	1.6
M168 0028 TU 01	Banjo	Leaded brass Type I	Ø 1/2" x 2
M168 0029 TU 01	Seat Check Valve	Type I	Ø 4 x 5
M168 0030 TU 01	Connector (output)	Type I	Ø 4 x 16
M168 0031 TU 01	Connector (input)	Type I	Ø 6.9 x 23
M168 0035 PR 01	Mounting Clamp	HSP 41 nH	2
M168 0036 PR 01	Shield Clamp	CRLC DD	0.5
M168 0043 M001	Plug (inlet)	HDPE	
M168 0044 M001	Connector I	Polyamide 6	
M168 0051 M001	Plug (outlet)	LDPE	

The following parts are to be replaced in M168 00000000 to make it M34100000000

M3410010 TU 01	Driver gear.	ENIA	Ø 10 x 38.8
M3410014 TU 01	Sub plunger.	103 Cr1/ 103 Cr2	Ø 5.1 x 23.7

PRODUCT NAME : **OIL PUMP ASSEMBLY**

PRODUCT NO.2 : M 169 . 00 00 00 00

CUSTOMER : **M/S. BAJAJ AUTO LTD.,**

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M169 0001 CA 01	Pump body	ADC 12	
M169 003A PR 01	Cam Casing plate (Top)	CRLC D	1.0
M169 003B PR 01	Cam Casing Plate (Bottom)	CRLC D	1.6
M169 0004 PR 01	Pump Casing Plate	CRLC D	1.5
M169 0007 CA 01	Drive bearing	ZDC 2	
M169 009A PR 01	Stiffner Ring	CRLC D	0.5
M169 0010 TU 01	Driver gear	EN 353	Ø 10.1 x 52.1
M169 0011 PR 01	Thrust Washer	Phosphor bronze hard	0.6
M170 0013 TU 01	Driving gear	EN 9	Ø 11.3 x 34.5
M169 0014 TU 01	Sub plunger	EN 31	Ø 6.1 x 14
M169 0015 PR 01	Spring Retainer Plate	EN 42 G	0.4
M169 0016 PR 01	Lever Control II	CRLC DD	
M169 0018 TU 01	Control Shaft	SAE 8620	Ø 9.4 x 33.9
M169 0019 PR 01	Cam Shaft Spacer	CRLC D	1.0
M169 0022 PR 01	Lever Control I	CRLC DD	
M169 0028 F0 01	Banjo (input)	Leaded brass	7.0
M169 0027 M001	Washer (Air Vert)	polyamide 66	
M169 0043 M001	plug (inlet)	LDPE	

PRODUCT NAME : **OIL PUMP**

PRODUCT NO.3 : M 170 00 00 00 00

CUSTOMER : **M/S. TVS SUZUKI LTD.,**

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M170 0001 CA 01	Pump body	ZDC 2	
M170 003A PR 01	Cam Casing Plate (Top)	CRLC D	4.2
M170 0004 PR 01	Pump Casing Plate	CRLC D	1.2
M169 0007 CA 01	Drive bearing	ZDC 2	
M169 009A PR 01	Stiffner ring	CRLC D	0.5
M170 0010 TU 01	Driver gear	EN 353	∅ 10.1 x 4.86
M169 0011 PR 01	Thrust Washer	Phosphor bronze hard	0.6
M170 0013 TU 01	Driving gear	EN 9	∅ 11.2 x 34.5
M170 0014 TU 01	Sub Plunger	EN 31	∅ 5.8 x 17.6
M169 0015 PR 01	Spring Retainer Plate	EN 42 G	0.4
M170 0018 TU 01	Control Shaft	En 353	∅ 9.45 x 32.5
M169 0019 PR 01	Cam Shaft Spacer	CRLC D	1
M170 0023 PR 01	Lever Control Assy	CRLC DD	1.6
M169 0027 M001	Washer (Air Vert)	polyamide 66	
M170 0028 F001	Banjo (input)	Leaded brass designation FLB	9
M170 0029 TU 01	Seat Check Valve	Leaded brass type II	
M170 0030 TU 01	Connector (output)	leadded brass type I	∅ 3.5 x 14
M170 0035 PR 01	Washer	A1 19000, half hard	0.5
M170 0036 F001	Banjo (output)	leaded brass designation FLB	7.3

PRODUCT NAME : HYDRAULIC PUMP

PRODUCT NO.4. : M 177 00 00 00 00

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M177 0101 CA 01	Tank	CI Gr 25	
M177 0201 CA 01	Body	CI Gr 25	SQ 40 x 6
M177 0202 TU 01	Cover	MS	Ø 14 F 6 x 57
M177 0204 TU 01	Link	EN 8	Ø 19.3 x 76
M177 0205 TU 01	Piston	Medium Carbon Steel	Ø 11.3 x 62
M177 0206 TU 01	Plunger	Medium Carbon Steel	Ø 11.3 x 55.5
M177 0207 TU 01	Pushing Pin	Medium Carbon Steel	Ø 10.15 x 20
M177 0214 TU 01	Dowel Pin	Alloy Steel	A / F 19 x 30
M177 0222 TU 01	Connector	ENIA (leaded)	
M177 0301 CU 01	Filter	Brass mesh	A/F 27 x 17.5
M177 0302 TU 01	Knob	ENIA	A/F 36 x 25.5
M177 0303 TU 01	Filter holder	ENIA	Ø 25.2 x 130
M177 0401 TU 01	Spool Shaft	Medium Carbon Steel	A/F 14 x 15
M177 0403 TU 01	Hex.Screw	EN 8	Ø 5.9 x 10
M177 0405 TU 01	Ball Retainer	MS	Ø 4.1 x 10
M177 0411 TU 01	Dowel Pin	Alloy Steel	Ø 19.3 x 19
M177 0501 TU 01	Check Valve	EN 8	A/F 22 x 38
M177 0601 TU 01	Valve body	MS	Ø 35.2 x 110
M177 0701 TU 01	Actuator	MS	
M177 0702 CU 01	Stopper	MS	Ø 40 x 30.5
M177 0704 TU 01	Connector	MS	Ø 30 x 69
M177 0705 TU 01	Holder	MS	
M177 0706 CU 01	Tip	MS	A/F 19 x 40
M177 0801 TU 01	Connector	ENIA	A/F 22 x 21
M177 0904 TU 01	Air Vert	ENIA (leaded)	

ODUCT NAME : CRANK CASE EMISSION VALVE
ODUCT NO.5 : M 181 00 00 00 00
USTOMER : M/S. PREMIER AUTOMOBILES LTD.,

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M181 0001 TU 01	Valve	EN 2C	∅ 12.83 x 23
M181 0002 TU 01	Body	EM 2C	∅ 21.9 x 43
M181 0004 PR 01	Washer	CRLC D	1.6

PRODUCT NAME : OIL PUMP ASSEMBLY
PRODUCT NO. 6 : M 182 00 00 00 00
CUSTOMER : M/S. HERO HONDA MOTORS LTD.,

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M182 0001 CA 01	Pump body	ADC 12	1.6
M182 0004 PR 01	Pump Casing Plate	CRCA D	0.14
M182 0009 PR 01	Oil Seal	Cellulose based fibre	∅ 9 x 18.9
M182 0018 TU 01	Control Shaft	EN 9	
M182 0019 M001	Plug	LDPE	

PRODUCT NAME : HUB DRIVE

PRODUCT NO. 7 : M 183 00 00 00 00

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M183 0005 TU 01	Gear	SAE 8620	∅ 8.18 x 47
M183 0006 TU 01	Gear Meter Screw	16 Mn Cr 5	∅ 10.2 x 63.5
M183 0007 TU 01	Gear Meter Screw	16 Mn Cr 5	∅ 18.70 x 56
M183 0008 TU 01	Gear Meter Screw	SAE 8620	∅ 28.8 x 18.5
M183 0058 TU 01	Drive Shaft	16 Mn Cr 5	∅ 12.5 x 129.5
M183 0070 TU 01	Shaft	EN 353	∅ 18.0 x 56
M183 0073 TU 01	Gear (Meter Screw)	16Mn Cr 5	∅ 28.8 x 18.5
M183 0067 TU 01	Gear Shaft oil pump	40 Ni 6 Cr 4 MO3	∅ 11.45 x 104
M183 0068 TU 01	Gear Crank Shaft	16 Mn Cr 5	∅ 34 x 4.4
M183 0071 FO 01	Compound Gear	16Mn Cr 5	14.2
M183 0009 TU 01	Gear Meter		∅ 8.18 x 47
M183 0010 TU 01	Gear Drive	EN 2	∅ 38.10
M183 0052 TU 01	Gear Driven	EN 2	∅ 16.2 x 67.2
M183 0018 TU 01	Pinion	EN 8	∅ 11.8 x 66
M183 0047 TU 01	Gear	EN 353	∅ 31.1 x 15.5
M183 0048 TU 01	Pinion	EN 353	∅ 11.4 x 66
M183 0049 PR 01	Receiver Gear		1.5

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M183 0053 TU 01	Driver Shaft	ENIA	∅ 15.9 x 82.4
M183 0054 TU 01	Driver Shaft	EN 353	∅ 18.9 x 9.5
M183 0400 PR 01	Gear driver Assy.		
M183 0500 PR 01	Gear driver Assy.	11 ClOS 25	∅ 15.9 x 82.4
M183 0060 TU 01	Driver Shaft		
M183 0600 PR 01	Driver Shaft Assy.		
M183 0700 PR 01	Driver Shaft Assy.	EN 353	∅ 44.32 x 28
M183 0057 TU 01	Drive gear	EN 353	∅ 44.32 x 28
M183 0063 TU 01	Drive gear	40 Ni 6 Cr 4 Mo3	
M183 0065 CU 01	Mixer Control Shaft	15 Ni 5 Cr 4 Mol	∅ 34 x 3.9
M183 0066 TU 01	Mixer Control Gear	Grey iron Casting	
M183 0011 CA 01	Sprocket (Cam)	16 Mn Cr 5	
M183 0072 CU 01	Pump Spindle		

PRODUCT NAME : **SPEEDO DRIVEN UNIT**

PRODUCT NO. 8 : M 193 00 00 00 00

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M193 0001 TU 01	Shaft	ENIA	∅ 10.2 x 86.5
M193 0002 TU 01	Shaft with gear	ENIA	∅ 22 GT x 56
M193 0003 TU 01	Sleeve	A1. 24534	∅ 14 x 6
M193 0007 TU 01	Bush	ENIA	
M193 0008 M001	Cap	LDPE	

DUCT NAME : **OIL PUMP ASSEMBLY**

DUCT NO. 9 : M 197 00 00 00 00

TOMER : **M/S. BAJAJ AUTO LTD.,**

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M197 0001 CA 01	Pump body	ADC 12	
M197 0004 PR 01	Pump Casing Plate	Cold rolled steel Sheet strip	2.0
M197 0011 PR 01	Washer	EN 42	1.0
M197 0012 M001	Nylon gear assy	polyamide 66	
M197 0013 TU 01	Control Shaft	EN 8D	∅ 9.05 x 34.4

DUCT NAME : DOUBLE ACTING AIR LOCK RELAY
DUCT NO. 10 : M 198 00 00 00 00
TOMER : INSTRUMENTATION LTD., PALAKKAD

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M198 0008 TU 01	Plug	Free Cutting brass I or II	A/F 27 - b 13 x 12
M198 0009 TU 01	Lower Valve	Free Cutting brass I or II	∅ 15 x 13
M198 0001 TU 01	Valve body bottom	Wrought Alloy	∅ 60.5 x 36
M198 0013 TU 01	Plunger Top	Free Cutting brass type I or II	∅ 15 x 32.0
M198 0014 TU 01	Pistone	Free Cutting Brass type I or II	∅ 28 x 32
M198 0002 TU 01	Valve Body Top	Wrought Alloy	∅ 60.5 x 36
M`98 0003 Tu 01	Pilot Valve body	Wrought Alloy	∅ 60.5 x 10
M198 0106 TU 01	Bleeder disc	Free Cutting brass I or II	∅ 20 x 7.0
M198 0107 TU 01	Diahragm Retainer	Al Alloy rod	∅ 28 x 3
M198 0010 TU 01	Spring Seat	Free Cutting brass I or II	∅ 24 x 6
M198 0004 CA 01	Top Cover	Al Alloy	A/F 27 x 6
M198 0005 TU 01	Nut	EN 8	∅ 12 x 48
M198 0011 TU 01	Adjusting Screw	SS GR X04 Cr 19 Ni 9	∅ 23 x 31
M198 0215 TU 01	Body	Free Cutting brass I or II	∅ 16 x 2
M198 0217 TU 01	Spacer	Free Cutting brass I or II	∅ 25 x 12
M198 0216 TU 01	Nut	Free Cutting brass I or II	∅ 38 x 3
M198 0034 TU 01	Ring	Al Alloy	

DUCT NAME : HYDRAULIC PUMP
DUCT NO.11 : M 201 00 00 00 00
TOMER : M/S. BHARATH EARTH MOVERS LTD.,

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M201 0001 CA 01	Task	LM 9	
M201 0002 CA 01	Body	LM 9	1.0
M201 0003 PR 01	Washer	Copper	Ø 19 x 28
M201 0004 TU 01	Connector	ENIA	Ø 50.8 x 101
M201 0005 TU 01	Cylinder	Alloy rod	Ø 16.2 x 7.2
M201 0006 TU 01	Check Valve	EN 19	Ø 31.2 x 106
M201 0007 TU 01	Piston	EN 353	1.0
M201 0008 PR 01	Washer	PTFE - White	M 20 x 1.5 - 6g x 12
M201 0010 TU 01	Locking Screw (piston)	ENIA	M 39 x 1.5 - 69 x 26
M201 0011 TU 01	Lock nut	ENIA	1.0
M201 0012 PR 01	Washer		Ø 8.2 x 29
M201 0013 TU 01	Pin (small)	EN 18	4.5
M201 0014 PR 01	Link	EN 45	Ø 28 x 80
M201 0015 TU 01	Holder	ASC8	33.0
M201 0016 F0 01	Actuator	ASC8	Ø 12.2 x 56.8
M201 0017 TU 01	Pin (big)	EN 353	Ø 20.2 x 66.7
M201 0018 TU 01	Spool Shaft	EN 18	Ø 12.2 x 15
M201 0019 TU 01	Pad	EN 31	Ø 23 x 15
M201 0021 TU 01	Cap nut	Al	
M201 0022 CA 01	Handle	ZDC 2	3.2
M201 0023 PR 01	Washer	Felt. Gr F5 / F6 / F7	
M201 0025 PR 01	Lock washer	CRLC - D	0.6
M201 0026 TU 01	Air Vert Screw	ENIA	Ø 30 x 46
M201 0028 CU 01	Filter Tube	10C4 / 15 C4	
M201 0043 M0 01	Plug inlet		
M201 0030 M0 01	Plug - II	Soft PVC	0.1
M201 0031 PR 01	Filter	X04 cr18 Ni 10 Ti	0.5
M201 0032 CU 01	Filter	X04 Cr 18 Ni 10 Ti	Ø 20 x 16
M201 0044 Tu 01	Dummy nut	ENIA	M 6 x 1 - 6g x 20
M201 0045 Tu 01	Pin	Al. rod	

ODUCT NAME : **OIL PUMP ASSEMBLY**

ODUCT NO.12 : M 201 00 00 00 00

STOMER : **M/S. BHARAT EARTH MOVERS LTD.,**

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M201 0001 CA 01	Task	LM 9	
M201 0002 CA 01	Body	LM 9	1.0
M201 0003 PR 01	Washer	Copper	Ø 19 x 28
M201 0004 TU 01	Connector	ENIA	Ø 50.8 x 101
M201 0005 TU 01	Cylinder	Alloy rod	Ø 16.2 x 7.2
M201 0006 TU 01	Check Valve	EN 19	Ø 31.2 x 106
M201 0007 TU 01	Piston	EN 353	1.0
M201 0008 PR 01	Washer	PTFE - White	M 20 x 1.5 - 6g x 12
M201 0010 TU 01	Locking Screw (piston)	ENIA	M 39 x 1.5 - 69 x 26
M201 0011 TU 01	Lock nut	ENIA	1.0
M201 0012 PR 01	Washer		Ø 8.2 x 29
M201 0013 TU 01	Pin (small)	EN 18	4.5
M201 0014 PR 01	Link	EN 45	Ø 28 x 80
M201 0015 TU 01	Holder	ASC8	33.0
M201 0016 F0 01	Actuator	ASC8	Ø 12.2 x 56.8
M201 0017 TU 01	Pin (big)	EN 353	Ø 20.2 x 66.7
M201 0018 TU 01	Spool Shaft	EN 18	Ø 12.2 x 15
M201 0019 TU 01	Pad	EN 31	Ø 23 x 15
M201 0021 TU 01	Cap nut	Alloy	
M201 0022 CA 01	Handle	ZDC 2	3.2
M201 0023 PR 01	Washer	Felt. Gr F5 / F6 / F7	
		CRLC - D	0.6
M201 0025 PR 01	Lock washer	ENIA	Ø 30 x 46
M201 0026 TU 01	Air Vert Screw	10CA / 15 CA	
M201 0028 CU 01	Filter Tube		
M201 0043 M0 01	Plug inlet	Soft PVC	
M201 0030 M0 01	Plug - II	X04 cr18 Ni 10 Ti	0.1
M201 0031 PR 01	Filter	X04 Cr 18 Ni 10 Ti	0.5
M201 0032 CU 01	Filter	ENIA	Ø 20 x 16
M201 0044 Tu 01	Dummy nut	Alloy rod	M 6 x 1 - 6g x 20
M201 0045 Tu 01	Pin		

ODUCT NAME : **AUTO FUEL COCK ASSEMBLY**

ODUCT NO.13 : **M 208 00 00 00 00**

USTOMER : **M/S. KINETIC HONDA MOTORS LTD.,**

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M208 0201 CA 01	Cover manifold	ZDC 2	
M208 0202 CU 01	Seal	Nitrile rubber with polyester cloth reinforcement	0.5
M208 0203 PR 01	Orifice	Al	
M208 0302 M0 01	Stiffner	Delrin 500 / 500 P.	10.5 x 7
M208 0303 TU 01	Holder	Al	
M208 0401 CA 01	Diaphragm housing	ZDC 2	
M208 0501 CA 01	Inlet Cover	ZDC 2	22 A/F x 11
M208 0503 TU 01	Inlet Nut	ENIA	
M208 0701 MO 01	Fuel Strainer set Screen	Polyamide 66	

ODUCT NAME : **OIL PUMP ASSEMBLY** M299 00 00 00 00

ODUCT NO. 14 : M 211 00 00 00 00 M243 00 00 00 00

STOMER : **ESCORTS YAMAHA MOTORS LTD.,**

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M211 0001 CA 01	Pump body	ADC 12	
M211 0003 CA 01	Cam Casing Plate	ADC 12	
M211 0009 PR 01	Oil Seal	Comp.Asbestos Sheet	0.4
			0.3
M211 0011 PR 01	Thrust Washer	EN 42 G	Ø 10.2 x 22.5
M211 0012 TU 01	Plunger	EN 8D	Ø 8.2 x 49.5
M211 0014 TU 01	Sub Plunger	EN 8D	0.5
M211 0015 PR 01	Spring ret. Plate	CRLC - O	
M211 0027 PR 01	Washer (Air Vert)	Volcanised fibre Sheet (red)	0.5
			Ø 9 x 15
M211 0028 TU 01	Banjo	ENIA	Ø 4.5 x 11.3
M211 0030 TU 01	Connector (output)	ENIA	Ø 7 x 18
M211 0031 TU 01	Connector (input)	Al rod	1.6
M211 0035 PR 01	Washer	CRLC D	Ø 21 x 20
M211 0042 M0 01	Plug (drive side)	LDPE	
M211 0043 M0 01	Plug (inlet)	LDPE	
M211 0051 M0 01	Plug (out let)	LDPE	
M211 0062 PR 01	Cam Shaft Spacer	CRLC - 'O'	0.5
M211 0066 PR 01	Washer (Shim)	Brass	0.07
M211 0073 PR 01	Washer (Shim)	Brass	0.10
M211 0074 PR 01	Washer (Shim)	Brass	0.30
M211 0075 PR 01	Washer (Shim)	Brass	0.50
M211 0076 PR 01	Washer (Shim)	Brass	0.70
M211 0077 PR 01	Washer (Shim)	Brass	0.90
M211 0078 PR 01	Plunger assy	Brass	1.20
M211 0100 PR 01	Banjo assy		
M211 1000 PR 01			

The following parts are to be replaced / deleted / added in M211 to make it M243.

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M243 0028 F0 01	Banjo (input)	Leaded brass designation FLB	7.0
M170 0043 M0 01	Plug (inlet)	LDPE	∅ 44 x 5.5
M1S0 2917 TU 01	Ring for lever control	EN 8	5.0
M1S0 3272 PR 01	Lever Control Assy.	Sintered iron	

The following parts are to be replaced / deleted / added in M211 to make it M299.

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M299 0028 F0 01	Banjo Input	Leaded brass designation : FLB	8.0
M299 00 36 TU 01	Banjo (output)	Leaded brass Type I	∅ 9.5 x 23.55

ODUCT NAME : **OIL PUMP ASSEMBLY**

ODUCT NO. 15 : M 212 00 00 00 00

STOMER : **M/S. LISTER PETTER LTD.,**

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M212 0001 CA 01	Pump body	ADC 12	∅ 15.25 x 55
M212 0018 TU 01	Control Shaft	EN 8 D	
M212 0019 M0 01	Plug I	LDPE	
M212 0020 M0 01	Plug II	LDPE	

PRODUCT NAME : **OIL PUMP ASSEMBLY**

PRODUCT NO. 16 : M 213 00 00 00 00

CUSTOMER : **M/S. LISTER PETTER LTD.,**

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M213 0002 CA 01	Pump body	ADC 12	
M213 0003 CA 01	Pump Casing Plate	ADC 12	∅ 12.8 x 63.5
M213 0018 Tu 01	Control Shaft	EN 8 D	

PRODUCT NAME : **OIL PUMP**

PRODUCT NO. 17 : M 214 00 00 00 00

CUSTOMER : **M/S. VST TILLERS AND TRACTORS LTD.,**

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M214 0001 CA 01	Body	CI Gr 25	
M214 0002 CA 01	Cover	CI Gr 25	∅ 8.3 x 34
M214 0103 TU 01	Control Shaft	EN 8	∅ 16 x 23
M214 0004 TU 01	Drive Shaft	EN 8	
M214 0005 CU 01	Wire	Spring Steel Gr 11	

ODUCT NAME : **THROTTLE VALVE**

ODUCT NO. 18 : M 224 00 00 00 00

JSTOMER : **MS/. BHARAT EARTH MOVERS LTD.,**

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M224 0001 TU 01	Housing - Throttle Valve	ENIA	19 HE x STK x 42
M224 0002 TU 01	Plunger	45 C8	∅ 10 x 18

PRODUCT NAME : **RAM ASSEMBLY**

PRODUCT NO. 19 : M 229 00 00 00 00

CUSTOMER : **M/S. ASHOK LEYLAND LTD.,**

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M229 0119 TU 01	Bush	EN 8	∅ 25.3 x 20
M177 0222 TU 01	Connector	ENIA	19 A/F x 30

PRODUCT NAME : **ALARM OIL BY PASS**

PRODUCT NO.20 : M 232 00 00 00 00

CUSTOMER : **M/S. EICHER MOTORS LTD.,**

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M232 0101 TU 01	Body	ENIA	22 A/F x 52
M232 0201 TU 01	Valve	ENIA	∅ 10 x 30.8
M232 0202 TU 01	Contactor	Free Cutting brass I	∅ 4.8 x 15.0
M232 0204 TU 01	Spacer	Brass CuZn 37 half hard	0.30
M232 0301 TU 01	Bolt	Free Cutting brass I	∅ 8 x21
M232 0302 PR 01	Insulator I	Glass Epoxy	1.0
M232 0303 PR 01	Insulator II	Glass Epoxy	1.0
M232 0308 M0 01	Cap	LDPE	

ODUCT NAME : **HYDRAULIC CYLINDER**

ODUCT NO.21 : M 233 00 00 00 00

JSTOMER : **M/S. BHARATH EARTH MOVERS LTD.,**

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M233 0001 CU 01	Casing	25 C4	∅ 62 x 492
M233 0002 TU 01	Piston rod	25 C4	
M233 0003 CA 01	Piston	C1	
M233 0004 CA 01	Front Cover	C1	64.0
M233 0005 F0 01	Rear Cover	45 C8	
M233 0006 M0 01	Seal I	Nitrile	
M233 0007 M0 01	Seal II	Nitrile	
M233 0008 M0 01	Seal III	Nitrile	∅ 26 x 22
M233 0009 TU 01	Nut	45 C 8	
M233 0010 MO 01	Spacer	Polyamide 66	21
M233 0011 F0 01	Eye bracket	45 C 8	∅ 32 x 22
M233 0012 TU 01	Connector	45 C 8	∅ 4.3 x 11
M233 0013 TU 01	Dowel	Alloy rod	
M233 0014 MO 01	'O' ring		
M233 0015 MO 01	'O' ring		

ODUCT NAME : **RELIEF VALVE ASSEMBLY**

ODUCT NO.22 : M 249 00 00 00 00

STOMER : **M/S. LISTER PETTER LTD.,**

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M249 0001 TU 01	Housing	EN 8M	∅ 23.5 x 115
M249 0002 TU 01	Plunger	EN 353	∅ 14.3 x 49.5
M249 0003 TU 01	Drain Valve	ENIA	∅ 18 x 18.5
M249 0006 CA 01	Drain Valve	ZDC 2	
M249 0019 M0 01	Plug I	LDPE	
M249 0020 M0 01	Plug II	LDPE	

PRODUCT NAME : **OIL PUMP ASSEMBLY**

PRODUCT NO. 23 : M 251 00 00 00 00

CUSTOMER : **M/S. HERO HONDA MOTORS LTD.,**

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M251 0001 CA 01	Pump body	ADC 12	
M182 0004 PR 01	Pump Casing Plate	CRCA - D	1.6
M182 0009 PR 01	Oil Seal	Comp asbestos Sheet	0.14
M252 0018 TU 01	Control Shaft	EN 9	∅ 9 x 20.1
M 182 0019 M0 01	Plug		

PRODUCT NAME : **OIL PUMP**

PRODUCT NO.24 : M 265 00 00 00 00

CUSTOMER : **M/S. LISTER PETTER LTD.,**

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M265 0001 CA 01	Pump body	LM4	
M213 0003 CA 01	Pump Casing Plate	ADC 12	
M265 0018 TU 01	Control Shaft	EN 8 D	∅ 12.8 x 65.5
M265 0118 PR 01	Control Shaft assy.		

DUCT NAME : OIL PUMP

DUCT NO.25 : M 266 00 00 00 00

STOMER : M/S. TVS SUZUKI LTD.,

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M170 0001 CA 01	Pump body	ZDC 2	
M170 003A PR 01	Cam Casing Plate (Top)	CRLC D	4.2
M170 0004 PR 01	Pump Casing Plate	CRLC D	1.2
M169 0007 CA 01	Drive bearing	ZDC 2	
M169 009A PR 01	Stiffner ring	CRLC D	0.5
M170 0010 TU 01	Driver gear	EN 353	∅ 10.1 x 48.6
M169 0011 PR 01	Thrustwasher	Phosphor bronze hard	0.6
M170 0013 TU 01	Driving gear	EN 9	∅ 11.2 x 34.5
M170 0014 TU 01	Sub Plunger	EN 31	∅ 5.8 x 17.6
M169 0015 PR 01	Spring retainer plate	EN 42 G	0.4
M170 0018 TU 01	Control Shaft	EN 353	∅ 9.45 x 32.5
M169 0019 PR 01	Cam Shaft Spacer	CRLC D	1.0
M266 0023 PR 01	Lever Control assy.	CRLC DD	
M169 0027 M0 01	Washer (Air Vert)	Polyamide 66	
M170 0028 F0 01	Banjo (input)	Leaded brass designation FLB	9.0
M170 0029 TU 01	Seat Check Valve	Leaded brass designation FLB	
M170 0030 TU 01	Connector (output)	Leaded brass Type I	∅ 3.5 x 14
M170 0035 PR 01	Washer	Alloy 19000	0.5
M170 0036 F0 01	Banjo (output)	Leaded brass FLB	7.3

PRODUCT NAME : **OIL PUMP ASSEMBLY**
PRODUCT NO.26 : M 272 00 00 00 00
CUSTOMER : **M/S. PIAGGIO, ITALY**
M/S. ELTRAMCO, CAIRO (M370 ONLY)

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M272 0101 CA 01	Body	AC 8 A	
M272 023B PR 01	Cam Casing Plate (Top)	CRLC - DD	3.4
M272 023C PR 01	Cam Casing Plate (Bottom)	CRLC - DD	3.4
M272 0104 PR 01	Pump Casing Plate	CRLC D	1.6
M272 0110 TU 01	Driver gear	EN 353	⌀ 10.1 x 48.6
M272 0111 PR 01	Thrust Washer	Phosphor bronze hard	0.6
M272 0113 TU 01	Driving gear	17 MNI Cr 95	33 x 9.6
M272 0314 TU 01	Sub Plunger	EN 31	⌀ 3 x 13.5
M272 0416 PR 01	Lever Control I	EN 353	5.0
M272 0418 TU 01	Control Shaft	EN 353	⌀ 8.10 x 35
M169 0019 PR 01	Cam Shaft Spacer	CRLC D	1.0
M272 0422 PR 01	Lever Control II	Spring Steel	5.0
M211 0027 PR 01	Washer (Air Vert)	Vulcanised fibre Sheet (Red)	0.5
M169 0028 FO 01	Banjo input	Leaded Brass	7.0
M272 0530 TU 01	Connector (O/P)	Leaded Brass Type I	⌀ 9 x 15
M272 0643 M001	Plug (inlet)	HDPE	
M272 0751 FO 01	Plug (outlet)	ENIA	⌀ 4 x 21
The following to make it M311	Components are	to be changed in	M272
M311 0418 TU 01	Control Shaft	15 Ni 5 Cr 4 Mol	⌀ 8.10 x 35
The following to make it M312	Components are	to be changed in	M272
M312 0110 TU 01	Driver gear	15 Ni 5 Cr 4 Mol	⌀ 11.4 x 27.1
M312 0314 TU 01	Sub Plunger	EN 31	⌀ 3.5 x 13.5
M312 0418 TU 01	Control Shaft	15 Ni 5 Cr 4 Mol	⌀ 8.10 x 35
The following to make it M334	Components are	to be changed in	M272
M334 40110 TU 01	Driver gear	15 Ni 5 Cr 4 Mol	⌀ 11.4 x 27.1
M334 0314 TU 01	Sub Plunger	EN 31	⌀ 2.1 x 13.5

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
The following to make it M335	Components are	to be changed in	M272
M312 0110 TU 01	Driver gear	15 Ni 5 Cr 4 Mol.	⌀ 11.4 x 27.1
M312 0314 TU 01	Sub Plunger	EN 31	⌀ 3.5 x 13.5
M312 0418 TU 01	Control Shaft	15 Ni 5 Cr 4 Mol.	⌀ 8.10 x 35
The following to make it M336	Components are	to be changed in	M272
M312 0110 TU 01	Driver gear	15 Ni 5 Cr 4 Mol	⌀ 11.4 x 27.1
M312 0314 TU 01	Sub Plunger	EN 31	⌀ 3.5 x 13.5
M312 0418 TU 01	Control Shaft	15 Ni 5 Cr 4 Mol	⌀ 8.10 x 35
The following to make it M356	Components are	to be changed in	M272
M356 0418 TU 01	Control Shaft	15 Ni 5 Cr 4 Mol	⌀ 8.10 x 35
The following to make it M357	Components are	to be changed in	M272
M356 0418 TU 01	Control Shaft	15 Ni 5 Cr 4 Mol	⌀ 8.10 x 35
The following to make it M328	Components are	to be changed in	M272
M328 0418 TU 01	Control Shaft	15 Ni 5 Cr 4 Mol	⌀ 8.10 x 35
The following to make it M370	Components are	to be changed in	M272
M312 0110 TU 01	Driver gear	15 Ni 5 Cr 4 Mol	⌀ 11.4 x 27.1
M312 0314 TU 01	Sub Plunger	EN 31	⌀ 3.5 x 13.5
M370 0416 PR 01	Lever Control II		
M370 0418 TU 01	Control Shaft	15Ni 5 Cr 4 Mol	⌀ 8.10 x 35
M370 0422 PR 01	Lever Control I		
M370 0854 TU 01	Banjo Check Valve	Leaded brass Type I	⌀ 9 x 23.7
M272 0530 TU 01	Connector	Leaded brass Type I	⌀ 3.5 x 14
M370 0829 TU 01	Seat Check Valve	Leaded brass Type II	⌀ 4 x 3.8

PRODUCT NAME : **OIL PUMP ASSEMBLY**

PRODUCT NO. 27 : M 273 00 00 00 00
M 273 20 00 00 00

CUSTOMER : **M/S. PIAGGIO - ITALY**

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M273 0001 CA 01	Pump Body	ADC 12	
M273 2004 CA 01	Pump Casing Plate	ADC 12	
M273 2018 CU 01	Control Shaft	EN 19	
M273 2001 CA 01	Pump Body	ADC 12	

PRODUCT NAME : **RELIEF VALVE ASSEMBLY**

PRODUCT NO. 28 : M 277 00 00 00 00

CUSTOMER : **M/S. LISTER PETTER LTD.,**

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M277 0001 TU 01	Housing	EN 8 M	Ø 26.5 x 11.5
M277 0002 TU 01	Plunger	EN 353	Ø 14.3 x 50
M277 0006 CA 01	Drain Valve	ZDC 2	
M249 0020 MO 01	Plug II	LDPE	

RODUCT NAME : **AUTO FUEL COCK ASSEMBLY**

RODUCT NO. 29 : M279 00 00 00 00 (M/S. BAJAJ AUTO LTD.,)
M279 10 00 00 00 (M/S. KINETIC ENGG. LTD.,)
M279 20 00 00 00 (M/S. KINETIC MOTORS CO. LTD.,)

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M279 0001 CA 01	Cover manifold	ZDC 2	
M279 0002 CA 01	Inlet Cover	ZDC 2	
M279 0003 MO 01	Diaphragm	Nitrile Rubber	
M208 0202 CU 01	Seal	Nitrile Rubber	0.5
M208 0203 PR 01	Orifice	A1	
M208 0302 MO 01	Stiffner	Delrin 500 / 500p.	22 A/F x 11
M208 0503 TU 01	Inlet Nut	ENIA	
M279 0020 MO 01	Fuel Strainer Set Screen	Polyamide 66	
M279 to make it M279 1002 CA 01	M279 10 Inlet Cover	ZDC 2	
M279 to make it M208 0701 MO 01	M 279 20 Fuel Strainer Set Screen	Polyamide 66	

PRODUCT NAME : **OIL PUMP**

PRODUCT NO. 30 : M283 00 00 00 00

CUSTOMER : **M/S. HERO MOTORS**

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M283 0001 CA 01	Pump body	ADC 12	2.05
M283 0003 PR 01	Cam Casing Plate	CRLC D	∅ 9.65 x 61.0
M283 0012 TU 01	Drive Shaft	EN 353	0.5
M211 0027 PR 01	Washer (Air Vert)	Vulcanised fibre sheet (Red)	
	Connector (output)	leaded brass Type I	∅ 3.5 x 14
M170 0030 TU 01	Plug inlet	HDPE	∅ 4 x 21
M272 0643 MO 01	Plug outlet	ENIA	
M272 0751 FO 01	Banjo	Leaded brass designation : FLB	7.0
M303 0001 FO 01		leaded brass Type I	∅ 4 x 14.0
M303 0002 TU 01	Connector (input)		

PRODUCT NAME : **OIL PUMP ASSEMBLY**

PRODUCT NO. 31 : M284 00 00 00 00
M314 00 00 00 00

CUSTOMER : **M/S. PIAGGIO LTD., (ITALY)**

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M284 0101 CA 01	Body	AC 8 A	2.02
M284 0203 PR 01	Cam Casing Plate	CRLC D	⌀ 12.6 x 30.6
M284 0110 TU 01	Driver gear	15 Ni 5 Cr 4 Mol.	⌀ 9.65 x 33.6
M284 0113 TU 01	Driving gear	17MN Cr 95	2.35 x 16.5
M284 0314 TU 01	Sub plunger	EN 31	
M211 0027 PR 01	Washer (Air Vert)	Vulcanised fibre sheet (red)	0.5
M169 0028 FO 01	Banjo input	Leaded Brass	7.0
M272 0530 TU 01	Connector (Output)	Leaded Brass I	⌀ 3.5 x14
M272 0643 MO 01	Plug inlet	HDPE	
M272 0751 FO 01	Plug outlet	ENIA	
M284 0829 TU 01	Seat Check Valve	Leaded Brass Type I	⌀ 5 x 11.5
M284 0831 TU 01	Connector	Leaded Brass Type I	⌀ 4.3 x 12
M284 0854 TU 01	Banjo Check Valve	Leaded Brass Type I	⌀ 7.8 x 16.5
M314 0110 TU 01	Driver gear	15 Ni 5 Cr4 Mol	⌀ 12.5 x 30.5
M314 0314 TU 01	Sub plunger	103 Cr1 / 10 3 Cr2	⌀ 2 x 16.5

RODUCT NAME : POSITIONER ASSEMBLY
RODUCT NO. 32 : M294 00 00 00 00
USTOMER : INSTUMENTATION LTD., PALAKKAD

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M294 0101 CA 01	Housing	LM 6	
M294 0102 CA 01	Bottom Cover	LM 6	
M294 0103 CA 01	Top Cover	LM 6	
M294 0201 CA 01	Lever	LM 6	
M294 0202 TU 01	Bush - Bottom	Leaded brass Type I	∅14 x 7.5
M294 0203 TU 01	Bush - Top	Leaded brass Type I	∅14 x 15.0
M294 0204 TU 01	Lever pin	S.S.	∅ 12.2 x 41.0
M294 0206 TU 01	Bearing pin	S.S.	∅ 15.0 x 12.8
M294 0301 TU 01	Zero Setting Screw	S.S.	A/F 10 x 29
M294 0302 TU 01	Spring holder	Al. Alloy	∅ 52 x 13.0
M297 0305 TU 01	Diaphragm Plate	Al. Alloy	∅ 52.0 x 13
M294 0405 TU 01	Diaphragm Retainer	Leaded Brass Type II	A/F 10 x 10
M294 0408 TU 01	Spool	S.S.	∅ 6.6 x 34
M294 0409 TU 01	Sleeve	Leaded brass Type II	∅ 15.0 x 30.0
M294 0411 TU 01	Spool positioner	Leaded brass Type II	∅ 10.5 x 8.6
M294 0413 TU 01	Plug manifold	Al. alloy	A/F 27 x 19.0
M198 0035 Mo 01	Part plug.		

PRODUCT NAME : SINGLE ACTING AIR LOCK RELAY
PRODUCT NO.33 : M296 00 00 00 00
CUSTOMER : M/S. INSTRUMENTATION LTD., PALAKKAD

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M296 0101 TU 01	Cap	Al. Alloy	A/F 1" x 40
M296 0104 TU 01	Adjusting Screw	S.S.	M 6 x1 - 6g x 40
M296 0201 TU 01	Spring Seat	S.S.	∅ 15 x 5
M296 0202 TU 01	Bonnet	Al. Alloy	A/F 32 x 65
M296 0301 TU 01	Disc holder	S.S.	∅ 21.5 x 21.5
M296 0401 FO 01	Body	Al.Alloy	46.0
M296 0404 TU 01	Cover	Al.Alloy	∅ 86 x 26
M296 0501 TU 01	Stem	S.Steel	∅ 5.65 x 38.0
M296 0502 TU 01	Diaphragm Plate	S.Steel	∅ 28.0 x 5.0
M198 0035 MO 01	Port Plug		

PRODUCT NAME : **OIL PUMP ASSEMBLY**

PRODUCT NO. 34 : M297 00 00 00 00

CUSTOMER : **M/S. KINETIC ENGG. LTD.,**

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M297 0001 CA 01	Pump body	ADC 12	1.6
M297 0004 PR 01	Pump Casing Plate	CRLC D	0.14
M297 0009 PR 01	Oil Seal	Cellulose based fibre	∅ 9 x 18.9
M182 0018 TU 01	Contro Shaft	EN 9	
M182 0019 MO 01	Plug	LDPE	

PRODUCT NAME : CRANK CASE EMISSION VALVE
PRODUCT NO. 35 : M 304 00 00 00 00
CUSTOMER : M/S. PREMIER AUTOMOBILES LTD.,

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M181 0001 TU 01	Valve	EN 2C	∅ 12.83 x 23
M181 0002 TU 01	Body	EN 2C	∅ 21.9 x 43.0
M304 0004 PR 01	Washer	CRLC - D	1.6

PRODUCT NAME : OIL PUMP ASSEMBLY
PRODUCT NO. 36 : M305 00 00 00 00
CUSTOMER : M/S. KINETIC HONDA MOTORS LTD.,

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M168 0001 CA 01	Pump body	ADC 12	
M168 0003 CA 01	Cam Casing Plate	ADC 12	
M168 009A PR 01	Stiffner ring		∅ 10 x 38.8
M168 0010 TU 01	Driver gear	ENIA	∅ 12 x 117
M168 0013 FO 01	Driving gear	EN 353	∅ 5.07 x 23.7
M168 0014 TU 01	Sub plunger	EN 31	∅ 9.17 x 30.2
M168 0018 TU 01	Control Shaft	EN 353	1.0
M168 0019 PR 01	Cam Shaft Spacer	CRLC - D	1.6
M168 0023 PR 01	Lever Control Assy.	CRLC - DD	
M168 0028 TU 01	Banjo	Leaded Brass Type I	∅ 1/2" x 2
M168 0029 TU 01	Seat Check Valve	Leaded Brass Type II	∅ 4 x 5
M168 0030 TU 01	Connector (output)	Leaded Brass Type II	∅ 4 x16
M168 0031 TU 01	Connecotr (input0	Leaded Brass Type II	∅ 6.9 x 23
M168 0035 PR 01	Mounting Clamp	HSP 41H	2.0
M168 0036 PR 01	Shield Clamp	CRLC DD	0.5
M305 0042 CU 01	Sleeve	Flexible PVC	
M168 0043 MO 01	Plug (inlet)	HDPE	
M168 0044 MO 01	Connector I	Polyamide 6	
M168 0048 CU 01	Tube (outlet)	Flexible PVC	
M168 0051 MO 01	Plug (outlet)	LDPE	

RODUCT NAME : **OIL PUMP ASSEMBLY**

RODUCT NO. 37 : M 306 00 00 00 00

USTOMER : **M/S. LISTER PETTER LTD.,**

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M306 0001 CA 01	Pump body	ADC 12	∅ 6.1 x 10
M306 003A TU 01	Dowel Pin	ENIA	∅ 5.1 x 23.4
M306 0111 TU 01	Pin	EN 2C	∅ 16.15 x 68
M306 0118 TU 01	Control Shaft	EN 8D	
M306 0020 MO 01	Plug	LDPE	
M306 0100 PR 01	Control Shaft Assy.		

PRODUCT NAME : **AUTO FUEL COCK ASSEMBLY**

PRODUCT NO. 38 : M 310 00 00 00 00

CUSTOMER : **M/S. HERO MOTORS LTD.,**

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M310 0001 CA 01	Inlet manifold	ZDC 2	
M310 0002 CA 01	Cover	ZDC 2	
M310 0003 CA 01	Inlet Connector	ZDC 2	
M310 0004 PR 01	Diaphragm	Gasoline resisting rubber with cloth reinforcement	0.17
M310 0005 MO 01	Diaphragm housing	DELRIN	∅ 7 x 3
M310 0006 TU 01	Stiffner lock	Al	∅ 7.8 x 16
M310 0007 TU 01	Stem	Al	∅ 8 x 3.7
M310 0011 TU 01	Spacer	Al	
M208 0202 CU 01	Seal	Nitrile Rubber	
M208 0203 PR 01	Orifice	Aluminimu, 19000	0.5
M208 0302 MO 01	Stiffner	Delrin 500/500 P	

PRODUCT NAME : **OIL PUMP ASSEMBLY**

PRODUCT NO. 39 : M 313 00 00 00 00

CUSTOMER : **M/S. PIAGGIO LTD., (ITALY)**

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M272 0101 CA 01	Body	AC 8 A	
M272 023B PR 01	Cam Casing Plate (Top)	CRLC DD	1.6
M272 023C PR 01	Cam Casing Plate (Bottom)	CRLC DD	3.4
M272 0104 PR 01	Pump Casing Plate	CRLC D	1.6
M312 0110 TU 01	Driver gear	EN 353	∅ 11.4 x 27.1
M272 0111 PR 01	Thrust Washer	Phosphor bronze hard	0.6
M272 0113 TU 01	Driving gear	17 MN 1 Cr 95	33 x 9.6
M312 0314 TU 01	Sub Plunger	EN 31	∅ 3.5 x 13.5
M272 0416 PR 01	Lever Control I	EN 353	5.0
M312 0418 TU 01	Control Shaft	15 Ni 5 Cr 4 Mol	∅ 8.10 x 35
M169 0019 PR 01	Cam Shaft Spacer	CRLC D	1.0
M272 0422 PR 01	Lever Control II	Spring Steel	5.0
M211 0027 PR 01	Washer (Air Vert)	Vulcanised fibre sheet	0.5
M169 0028 FO 01	Banjo input	Leaded brass	7.0
M272 0530 TU 01	Connector (output)	Leaded brass Type I	∅ 3.5 x 14
M272 0536 TU 01	Banjo output	Leaded brass I	∅ 3.5 x 14
M272 0643 MO 01	Plug (inlet)	HDPE	
M272 0751 FO 01	Plug outlet	ENIA	∅ 4 x 21

RODUCT NAME : **OIL PUMP ASSEMBLY**
RODUCT NO.40 : M 315 00 00 00 00
USTOMER : **M/S. PIAGGIO, (ITALY)**

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M272 0101 CA 01	Body	AC 8 A	
M272 023B PR 01	Cam Casing Plate (Top)	CRLC DD	3.4
M272 023C PR 01	Cam Casing Plate (bottom)	CRLC DD	
M315 084A CA 01	Pump Casing Plate	ADC 12	∅ 11.4 x 27.1
M315 0110 TU 01	Driven gear	15 Ni 5 Cr 4 Mol	0.6
M272 0111 PR 01	Thrust Washer	Phosphor bronze hard	33 x 9.6
M272 0113 TU 01	Driving gear	17 Mnl Cr 95	∅ 1.8 x 10.8
M315 0314 TU 01	Sub Plunger	EN 31	
M272 0416 PR 01	Lever Control I		∅ 8.10 x 35
M315 0418 TU 01	Control Shaft	15 Ni 5 Cr 4 Mol	1.0
M169 0019 PR 01	Cam Shaft Spacer	CRLC D	0.5
M272 0422 PR 01	Lever Control II	Vulcanised fibre sheet	0.5
M211 0027 PR 01	Washer	Vulcanised fibre sheet	∅ 3.5 x 14
M272 0530 TU 01	Connector (O/P)	Leaded brass Type I	∅ 9 x 14
M315 0536 TU 01	Banjo (O/P)	Leaded brass Type I	
M272 0643 MO 01	Plung inlet	HDPE	∅ 4 x 21
M272 0751 FO 01	Plug outlet	ENIA	2.0
M315 0854 PR 01	Spacer	CRLC DD	

PRODUCT NAME : **OIL PUMP ASSEMBLY**
PRODUCT NO. 41 : M 317 00 00 00 00
M 351 00 00 00 00
CUSTOMER : **M/S. BAJAJ AUTO LTD.,**

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M317 0001 CA 01	Pump body	ADC 12	2.0
M317 0004 PR 01	Pump Casing Plate	CRLC D	0.14
M317 0009 PR 01	Oil Seal	Cellulose based fibre; Glue or Glycerin impregnated.	
M317 0012 MO 01	Nylon gear assy.	Polyamide 66	∅ 8.15 x 41.8
M317 0018 TU 01	Control Shaft	Steel	

317 00 00 00 00 to make it M 351 00 00 00 00

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M351 0012 MO 01	Nylon gear assy.	Steel Gr 45 C8	∅ 8.15 x 42
M351 0018 TU 01	Control Shaft		

PRODUCT NAME : **OIL PUMP ASSEMBLY**
PRODUCT NO. 42 : M 318 00 00 00 00
CUSTOMER : **M/S. ESCORTS YAMAHA MOTORS LTD.,**

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M318 0001 CA 01	Pump body	ADC 12	2.0
M318 0104 PR 01	Pump Casing Plate	CRLC D	2.65
M318 0012 PR 01	Gear	CRLC Special	∅ 7 F 7 x 24.5
M318 0018 TU 01	Control Shaft	S4 5C	0.5
M318 0035 PR 01	Washer	CRLC	2.65
M318 0100 PR 01	Pump Casing Plate assy		

PRODUCT NAME : **OIL PUMP**
PRODUCT NO. 43 : M 320 00 00 00 00
CUSTOMER : **M/S. ELGI EQUIPMENTS LTD.,**

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M320 0001 PR 01	Body	CRLC D	5.52
M320 0003 PR 01	Cover	CRLC D	4.0
M320 0004 PR 01	Pump Casing Plate	CRLC D	4.0

RODUCT NAME : **OIL PUMP (LTW)**

PRODUCT NO. 44 : M 326 00 00 00 00

CUSTOMER : **M/S. KINETIC HONDA MOTORS LTD.,**

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M326 0001 CA 01	Pump body	ADC 12	
M326 0003 CA 01	Cam Casing Plate	AC 8 A	
M326 0013 TU 01	Driving gear	16Mn 5 Cr 4	∅ 9.6 x 32.8
M326 0014 TU 01	Sub Plunger	EN 31	∅ 2.6 x 12.3
M211 0027 PR 01	Washer Air - Vert	Vulcanised fibre sheet	0.5
M169 0028 FO 01	Banjo input	Leaded brass	7.0
M326 0029 TU 01	Seat Check Valve	Leaded brass Type I	∅ 3 x 2.5
M326 0030 TU 01	Connector O/P	Leaded brass Type I	∅ 3.5 x 11.5
M326 0031 TU 01	Banjo Output	Leaded brass Type I	∅ 9 x 15
M170 0043 MO 01	Plug inlet	LDPE	
M168 0051 MO 01	Plug outlet	LDPE	

RODUCT NAME : **OIL PUMP ASSEMBLY**

RODUCT NO. 45 : M 327 00 00 00 00

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M327 0001 CA 01	Pump body	ZDC 1	
M327 0002 CA 01	Air Cleaner box	ADC 12	
M327 0004 PR 01	Stopper Plate	CRLC D	0.5
M327 0007 TU 01	Reference dowel	CDS 2	∅ 13.1 x 10.0
M327 0009 PR 01	Oils Seal	Impregnated Cellulose based paper jointing	0.20
M327 0011 TU 01	Cylinder	Sintered Iron	∅ 12.1 x 30
M327 0012 TU 01	Rivet	C 15	∅ 7.0 x 6.5
M327 0014 TU 01	Plunger	EN 31	∅ 5.07 x 31.8
M327 0018 TU 01	Lever pin	EN 31	∅ 7.1 x 16.5
M327 0019 TU 01	Follower pin	EN 31	∅ 5 x 6.8
M327 0022 PR 01	Inner lever	CRLC D	2.5
M327 0023 PR 01	Outer lever	CRLC D	1.5
M327 0024 PR 01	Screw hook	CRLC DD	1.0
M327 0029 MO 01	Seat Check Valve	Polyamide 6	
M327 0035 PR 01	Washer	Brass	0.50
M327 0040 PR 01	Tube inlet	Copper brazed Steel tube	0.75
M327 0041 TU 01	Inlet Connector	40 C 8	He x 10 x 15.0
M327 0043 MO 01	Plug (inlet)	LDPE	
M327 0051 MO 01	Plug (outlet)	LDPE	
M327 0052 MO 01	Plug (drive side)	LDPE	
M327 0063 TU 01	Plug (cylinder)	11 C 10 S 25	∅ 5 x 4
M327 0064 TU 01	Plug A.C. Box	Leaded Brass Type I	∅ 3.5 x 3.0
M327 0500 PR 01	Tube inlet assy.	Copper brazed steel tube	

PRODUCT NAME : OIL PUMP

PRODUCT NO. 46 : M 337 00 00 00 00

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M170 0001 CA 01	Pump body	ZDC 2	
M170 003A PR 01	Cam Casing Plate Top	CRLC D	4.2
M170 0004 PR 01	Pump Casing Plate	CRLC D	1.2
M169 0007 CA 01	Drive bearing	ZDC 2	
M169 009A PR 01	Stiffner ring	CRLC D	0.5
M337 0010 TU 01	Driver gear	15 Ni 5 Cr 4 MO 1	∅ 10 x 48.5
M169 0011 PR 01	Thrust Washer	Phosphor bronze hard	0.6
M170 0013 TU 01	Driving gear	EN 9	∅ 11.2 x 34.5
M170 0014 TU 01	Sub Plunger	EN 31	∅ 5.8 x 17.6
M169 0015 PR 01	Spring Retainer Plate	EN 42 G	0.4
M337 0018 TU 01	Control Shaft	15 Ni 5 Cr 4 MO 1	∅ 9.40 x 32.5
M169 0019 PR 01	Cam Shaft spacer	CRLC D	1.0
M337 0023 PR 01	Lever Control Assy.		
M169 0027 MO 01	Washer (Air Vert)	Polyamide 66	
M170 0028 FO 01	Banjo input	Leaded brass designation FLB	9.0
M170 0029 TU 01	Seat Check Valve	Leaded brass Type I	
M170 0030 TU 01	Connector Output	Leaded brass Type I	∅ 3.5 x 14
M170 0035 PR 01	Washer	Al 19000	0.5
M170 0036 FO 01	Banjo Output	Leaded brass designation FLB	7.3

ODUCT NAME : **OIL PUMP ASSEMBLY**

RODUCT NO. 47 : M 338 00 00 00 00

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M338 0001 CA 01	Pump body	ADC 12	
M338 0002 CA 01	Cover	ADC 12	
M338 0004 CA 01	Pump Casing Plate	ADC 12	
M338 0018 TU 01	Control Shaft	45 C 8	∅ 13.15 x 27

PRODUCT NAME : **OIL PUMP ASSEMBLY**

PRODUCT NO. 48 : M 339 00 00 00 00

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M339 0001 CA 01	Pump body	ADC 12	
M339 0002 CA 01	Pump Cover	ADC 12	∅ 6.1 x 5.5
M339 0003 TU 01	Locating davel	11C 10 S 25	∅ 3.6 x 10.5
M339 0004 TU 01	Locating pin	EN 31	∅ 12.1 x 13.7
M339 0007 TU 01	Reference dovel	CDS 2	0.40
M339 0009 PR 01	Oil Seal Pump	Compressed asbestos Sheet	
	Cylinder	Sintered iron	∅ 12.1 x 30
M327 0011 TU 01	Oil Seal	Compressed	0.40
M339 0011 PR 01	A.C. Box	asbestos Sheet	
	Rivet	C 15	∅ 7 x 6.5
M327 0012 TU 01	Plunger	EN 31	∅ 5.07 x 31.8
M327 0014 TU 01	Lever pin	15 Ni 5 Cr 4 Mol	∅ 7.1 x 15.6
M339 0018 TU 01	Follower pin	EN 31	∅ 5 x 6.8
M327 0019 TU 01	Inner lever	CRLC D	2.5
M327 0022 PR 01	Outer lever	CRLC D	1.5
M327 0023 PR 01	Screw hook	CRLC DD	1.0
M327 0024 PR 01	Seat Check Valve	Polyamide 6	
M327 0029 MO 01	Connector Input	Leaded Brass Type I	∅ 6 x 22
M339 0031 TU 01	Washer	Brass Cu Zn 40	0.50
M327 0035 PR 01	Plug inlet		
M170 0043 MO 01	Plug outlet	LDPE	
M327 0051 MO 01	Plug (Drive Side)	LDPE	
M339 0052 MO 01	Plug (Cylinder)	11C 10 S 25	∅ 5 x4
M327 0063 TU 01			

PRODUCT NAME : **BANJO OUTPUT ASSEMBLY**

PRODUCT NO. 49 : M 342 00 00 00 00

CUSTOMER : **M/S. PIAGGIO LTD., ITALY**

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M342 0130 TU 01	Connector Output	Leaded brass Type I	∅ 3.5 x 14.0
M272 0536 TU 01	Banjo Output	Leaded brass Type I	∅ 9 x 15

PRODUCT NAME : **OIL PUMP ASSEMBLY**
PRODUCT NO. 50 : M 345 00 00 00 00
CUSTOMER : **M/S. BAJAJ AUTO LTD.,**

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M345 0001 CA 01	Pump body	ADC 12	
M345 0100 PR 01	Body assy.	ADC 12	0.5
M345 0002 CA 01	Cover	75 C6 / 80 C6	1.0
M345 0003 PR 01	Inlet Plate	CRLC DD	
M345 0011 PR 01	Washer		∅ 11.15 x 56
M345 0012 PR 01	Sprocket	SAE 8620	
M345 0018 TU 01	Control Shaft	CRLC DD	
M345 0036 PR 01	Shield Clamp		

PRODUCT NAME : **AUTO FUEL COCK**
PRODUCT NO. 52 : M 346 00 00 00 00
CUSTOMER : **M/S. BAJAJ AUTO LTD.,**

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M346 0001 CA 01	Cover Manifold	ZDC 2	
M346 0002 CA 01	Inlet Cover	ZDC 2	
M279 0003 MO 01	Diaphragm	Gasoline Resistance high	
		Nitrile Rubber	
M208 0202 CU 01	Seal	Al 19000	0.5
M208 0203 PR 01	Orifice	Delrin 500 / 500 P.	
M208 0302 MO 01	Stiffner		

PRODUCT NAME : **OIL PUMP ASSEMBLY**
PRODUCT NO. 52 : M 352 00 00 00 00
CUSTOMER : **TVS SUZUKI LTD.,**

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M352 0001 CA 01	Pump body	ADC 12	
M352 0004 CA 01	Pump Casing Plate	ADC 12	
M352 0012 MO 01	Nylon gear assy.	Polyamide 66	∅ 8.15 x 39
M352 0018 TU 01	Control Shaft	EN 8D	

PRODUCT NAME : OIL PUMP ASSEMBLY
PRODUCT NO. 53 : M 359 00 00 00 00 CUSTOMER : M/S. TVS SUZUKI LTD.,

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M359 0001 CA 01	Pump body	ADC 12	
M359 0004 CA 01	Pump Casing Plate	ADC 12	
M359 0018 TU 01	Control Shaft	Steel, 45 C8	∅ 8.12 x 43.30

PRODUCT NAME : TENSIONER ASSEMBLY
PRODUCT NO. 54 : M 360 00 00 00 00 CUSTOMER : M/S. TVS SUZUKI LTD.,

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M360 0001 CA 01	Body	ADC 12	11.0
M360 0002 FO 01	Plunger	40 C 8	12.5
M360 0003 FO 01	Screw	Carbon Steel	

PRODUCT NAME : OIL PUMP ASSEMBLY
PRODUCT NO. 55 : M 362, M 362 10, M 362 20 CUSTOMER : M/S. TVS SUZUKI LTD.,

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M362 0001 CA 01	Pump body	ADC 12	4.2
M170 003A PR 01	Cam Casing Plate (Top)	CRLC D	1.2
M170 0004 PR 01	Pump Casing Plate	CRLC D	
M169 0007 CA 01	Drive bearing	ZDC 2	∅ 10.1 x 48.6
M170 0010 TU 01	Driven gear	EN 353	0.6
M169 0011 PR 01	Thrust Washer	Phosphor bronze hard	∅ 11.2 x 34.5
M170 0013 TU 01	Driving gear	EN 9	∅ 5.8 x 17.6
M170 0014 TU 01	Sub Plunger	EN 31	0.4
M169 0015 PR 01	Spring Retainer Plate	EN 42 G	∅ 9.45 x 32.5
M170 0018 Tu 01	Control Shaft	EN 353	1.0
M169 0019 PR 01	Cam Shaft Spacer	CRLC D	1.6
M170 0023 PR 01	Lever Control Assy.	CRLC DD	1.0
M362 0027 PR 01	Washer (Air Vert)	Vulcanised fibre sheet	7.0
M272 0128 FO 01	Banjo input	Leaded : FLB	∅ 14.5 x 26.25
M170 0029 TU 01	Seat Check Valve	Leade brass II	∅ 3.5 x 14
M170 0030 TU 01	Connector output	Leaded brass I	

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M169 0036 FO 01	Banjo output		7.0
M272 0643 MO 01	Plug inlet	HDPE	
M168 0051 MO 01	Plug outlet	ENIA	
M362 To make it	M362 10		1.6
M266 0023 PR 01	Lever Control Assy.		
M362 To make it	N362 20	15 Ni 5 Cr 4 Mol	∅ 10 x 48.5
M337 0010 TU 01	Driver gear	15 Ni 5 Cr 4 Mol	∅ 9.4 x 32.5
M337 0018 TU 01	Control Shaft		
M337 0023 PR 01	Lever Control Assy.		

PRODUCT NAME : **VALVE ASSEMBLY**

PRODUCT NO. 56 : M 364 00 00 00 00

CUSTOMER : **M/S. SWARAJ MAZDA LTD.,**

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M364 0001 TU 01	Valve body	ENIA	∅ 25 x 52.5
M364 0003 PR 01	Washer	CRLC D	0.8
M364 0010 MO 01	Sleeve Assy.	Silicone Rubber	
M364 0011 TU 01	Contactor	ENIA	∅ 5.5 x 24
M364 0019 TU 01	Spacer	ENIA	∅ 11 x 9
M364 0023 TU 01	Holder	ENIA	∅ 11 x 8
M364 0028 TU 01	Valve	ENIA	∅ 10 x 14.5

RODUCT NAME : **PRESSERVE REGULATING VALVE ASSEMBLY**

RODUCT NO. 57 : M 367 00 00 00 00

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M367 0002 TU 01	Plunger	Steel	∅ 20.5 x 58
M367 0003 TU 01	Cap Screw	EN 19	∅ 22.4 x 32
M367 0005 TU 01	Washer	EN 2 / EN 2C	∅ 20.4 x 3

PRODUCT NAME : MASTER CYLINDER ASSEMBLY (Disc Brake System)

PRODUCT NO. 58 : M 500 10 00 00 00

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M500 1001 CA 01	Master Cylinder body	LM 4	
M500 1002 CA 01	Cover	ADC 12	
M500 1004 MO 01	Diaphragam Plate	Polypropylere	
M500 1006 MO 01	Piston	Zinc Alloy	
M500 1012 MO 01	Dust Plug	EVA	
M500 1014 CA 01	Clamp (handle bar)	ADC 6	0.2
M500 1019 PR 01	Protector	SUS 301 CSP	0.8
M500 1201 PR 01	Shield	CRCS - D	
M500 1202 MO 01	Oil Level Sight Glass	CRCS - D	
M500 1203 PR 01	Reflection Plate	X10 Cr 17 Ni 7	0.4
M500 4002 PR 01	Washer	Cold rolled Copper	1.5

PRODUCT NAME : CALIPER ASSEMBLY

PRODUCT NO. 59 : M 502 20 00 00 00

PRODUCT CODE	COMPONENT NAME	MATERIAL	EXACT DWG SIZE (mm)
M502 2001 CA 01	Body Caliper	LM 25	
M502 2006 PR 01	Spring Pad	SUS 301 CSP	
M502 2009 TU 01	Piston	EN 2	
M502 2017 PR 01	Mounting Bracket	Hot rolled	
		Micro alloyed	
		Structural steel	
M502 2021 TU 01	Bleed Screw	EN 2	3.5
M502 2101 PR 01	Pad Plate 'A'	Fe 510	3.5
M502 2201 PR 01	Pad Plate 'B'	Fe 510	
M502 4104 TU 01	Hose end (Cal.)	EN 2C	
M502 4104 TU 01	Hose end (M.cyl side)	EN 2C	
M500 1012 MO 01	Dust Plug	EVA	
M500 4002 PR 01	Washer	Cold Rolled Copper	1.5

PRODUCT NAME : AUTO FUEL COCK

PRODUCT NO. 37 (b) : M 307 00 00 00 00

PRODUCT NAME	PARTS NAME	MATERIAL	EXACT DWG SIZE (mm)
M208 0201 CA 01	Cover Manifold	ZDC 2	
M208 0202 CU 01	Seal	Nitrile Rubber	0.5
M208 0203 PR 01	Orifice	Al 19000	∅ 10.5 x 7
M208 0303 TU 01	Holder	Al 64423	
M208 0401 CA 01	Diaphragam Housing	ZDC 2	
M208 0501 CA 01	Inlet Cover	ZDC 2	22 A/F x 11
M208 0503 TU 01	Inlet Nut	ENIA	
M208 0701 MO 01	Fuel strainer set screen	Polyamide 66	

PRODUCT NAME : DISC

PRODUCT NO. 60 : M 561 01 01 00 00

PRODUCT NAME	PARTS NAME	MATERIAL	EXACT DWG SIZE (mm)
M561 0101 CU 01	DISC		

ZDC

Sl.No.	Product Code	Component Name	Exact Dwg Size	Con.Qty in KGS	Wt. per Qty	R.M. STD Size	Monthly Schedule	R.M. KGS
1.	M1690007 CA 01(M170)	Drive bearing		52.630	19.0		2000	38.000
2.	M1700001 CA 01	Pump body		4.780	209.2			
3.	M1690007 CA 01(M266)	Drive bearing		52.630	19.0		2000	38.000
4.	M2080201 CA 01	Cover manifold		34.420	29.0		9000	261.475
5.	M2080401 CA 01	Diaphragm housing		37.100	26.954		9000	242.587
6.	M2080501 CA 01	Inlet Cover		25.970	38.505		9000	346.553
7.	M2490006 CA 01	Drain Valve		97.270	10.2		2000	20.561
8.	M1700001 CA 01(M266)	Pump body		4.780	209.2			
9.	M1690007 CA 01	Drive bearing		52.630	19.0		2000	38.000
10.	M2490006 CA 01	Drain Valve		97.270	10.2		2000	20.561
11.	M2790001 CA 01	Cover manifold		44.440	22.5		6000	135.013
12.	M2790002 CA 01	Inlet Cover		24.400	40.9		6000	245.901
13.	M2791002 CA 01	Inlet COver		14.280	70.0		6000	420.168
14.	M3100001 CA 01	Inlet manifold		12.510	79.9			
15.	M3100002 CA 01	Cover		18.550	53.9			
16.	M3100003 CA 01	Inlet Connector		61.270	16.3			
17.	M1700001 CA 01(M337)	Pump body		4.780	209.2		2000	38.000
18.	M1690007 CA 01(M337)	Drive bearing		52.630	19.0			
19.	M3460001 CA 01	Cover manifold		48.080	20.7			
20.	M3460002 CA 01	Inlet Cover		15.870	63.0		2000	38.000
21.	M1690007 CA 01(M362)	Drive bearing		52.630	19.0		9000	261.475
22.	M2080201 CA 01(M307)	Cover manifold		34.420	29.0		9000	242.553
23.	M2080401 CA 01(M307)	Diaphragm housing		27.100	26.9		9000	346.553
24.	M2080501 CA 01(M307)	Inlet cover		25.970	38.5			
							TOTAL	**2733.434**

ADC 12 (Aluminium Die Casting)

Sl.No.	Product Code	Component Name	Exact Dwg Size	Con.Qty in KGS	Wt. per Qty	R.M. STD Size	Monthly Schedule	R.M. Req in KGS
1.	M1680001 CA 01	Pump body		9.620	103.9		14500	1507.276
2.	M1680003 CA 01	Cam Casing Plate		72.730	13.7		14500	199.367
3.	M1690001 CA 01	Pump body		10.000	100		2000	200.000
4.	M1820001 CA 01	Pump body		18.350	54.4		8000	435.967
5.	M1970001 CA 01	Pump body		20.000	50.0		18000	900.00
6.	M2110001 CA 01	Pump body		11.760	85.0		2200	187.000
7.	M2110003 CA 01	Cam Casing Plate		37.000	27.0		2200	59.459
8.	M2120001 CA 01	Pump body		10.310	96.9		100	9.699
9.	M2130002 CA 01	Pump body		3.703	270.0		2400	648.123
10.	M2130003 CA 01	Pump Casing Plate		12.980	77.0		2400	184.899
11.	M2510001 CA 01	Pump body		17.390	57.5		16000	920.069
12.	M2130003 CA 01(M265)	Pump Casing Plate		12.980	77.0		2400	184.899
13.	M2730001 CA 01	Pump body		15.330	65.2		4000	260.926
14.	M2732004 CA 01	Pump Casing Plate		27.770	36.0		4000	144.040
15.	M2732004 CA 01	Pump Casing Plate		27.770	36.0		4000	144.040
16.	M2732001 CA 01	Pump body		17.860	55.9		4000	223.964
17.	M2830001 CA 01	Pump body		24.366	41.0			
18.	M2970001 CA 01	Pump body		21.530	46.4		1000	46.446
19.	M1680001 CA 01(M305)	Pump body		9.620	103.9		14500	1507.276
20.	M306 0001 CA 01	Pump body		3.030	330.0		300	99.009

Sl.No.	Product Code	Component Name	Exact Dwg Size	Con.Qty in KGS	Wt. per Qty	R.M. STD Size	Monthly Schedule	R.M. Req. KGS
21.	M3170001 CA 01	Pump body		16.600	60.2		5000	168.406
22.	M3180001 CA 01	Pump body		29.690	33.6			
23.	M3260001 CA 01	Pump body		2.740	364.9		5000	470.366
24.	M3270002 CA 01	Air Cleaner box		10.630	94.07			
25.	M3380001 CA 01	Pump body		18.520	53.9			
26.	M3390001 CA 01	Pump body		23.800	42.0		200	8.399
27.	M3390001 CA 01	Pump Cover		23.810	41.9		200	5.000
28.	M3450001 CA 01	Pump body		40.000	25.0			
29.	M3450002 CA 01	Cover		17.860	55.9			
30.	M3520001 CA 01	Pump body		25.500	39.2		1200	48.000
31.	M3520004 CA 01	Pump Casing Plate		25.000	40.0		1200	27.000
32.	M3590001 CA 01	Pump body		44.440	22.5			
33.	M3590004 CA 01	Pump Casing Plate		24.390	41.0		32700	2878.521
34.	M3600001 CA 01	Body		11.360	88.0			
35.	M3620001 CA 01	Pump body					5000	299.940
36.	M5001002 CA 01	Cover		16.670	59.9		5000	89.992
37.	M3380002 CA 01	Cover		55.560	17.9		14500	199.367
38.	M3380004 CA 01	Pump Casing Plate		72.730	13.7		**Total : -**	**12057.454**
39.	M1680003 CA 01	Cam Casing Plate						

LM4 Al. Alloy

Sl.No.	Product Code	Component Name	Exact Dwg Size	Con.Qty in KGS	Wt. per Qty	R.M. STD Size	Monthly Schedule	R.M. Req in KGS
1.	M2650001 CA 01	Pump body		3.000	333.3		200	66.666
2.	M5001001 CA 01	Master Cylinder body						

Sl.No.	Aluminium 19000, Half Hard							
	Product Code	Component Name	Exact Dwg Size	Con.Qty in KGS	Wt. per Qty	R.M. STD Size	Monthly Schedule	R.M. Req in KGS
1.	M1700035 PR 01	Washer	0.5	3252.030				
2.	M1700035 PR 01	Washer	0.5	3252.030				
3.	M1700035 PR 01(M337)	Washer	0.5	3252.030			9000	9
4.	M2080203 PR 01(M310)	Orifice	0.5	1000.000	1		9000	9
5.	M2080203 PR 01(M346)	Orifice	0.5	1000.000	1		9000	9
6.	M2080203 PR 01(M307)	Orifice	0.5	1000.000	1			
							TOTAL	**27**

Al. Alloy Rod

Sl.No.	Product Code	Component Name	Exact Dwg Size	Con.Qty in KGS	Wt. per Qty	R.M. STD Size	Monthly Schedule	R.M. Req in KGS
1.	M2010005 TU 01	Cylinder	∅ 50.8 x 101	1.724	580.0		30	17.401
2.	M2010021 TU 01	Cap nut	23 x15	46.612	21.4		30	0.643
3.	M2010045 TU 01	Pin	M 6x1 - 6g x 20	77.405	12.9		30	0.387
4.	M2080303 TU 01(M307)	Holder	∅ 10.5 x 7	309.350	3.2		9000	29.093
5.	M2110031 TU 01	Connector (input)	∅ 7 x18	138.049	7.2		6200	44.911
6.	M2920001 TU 01	Pump body	∅ 62.5 x 30.8	468.170	21.1			
7.	M3100006 TU 01	Stiffner lock	∅ 7 x 3	163.830	6.1			
8.	M3100007 TU 01	Stem	∅ 7.8 x 16	425.500	2.3			
9.	M3100011 TU 01	Spacer	∅ 8 x 3.7				**TOTAL**	**92.435**

Leaded Brass Type I or II

Sl.No.	Product Code	Component Name	Exact Dwg Size	Con.Qty in KGS	Wt. per Qty	R.M. STD Size	Monthly Schedule	R.M. Req in KGS
1.	M1680028 TU 01	Banjo	Ø 1/2" x 2	35.730	27.9		14500	404.55
2.	M1680029 TU 01	Seat Check Valve	Ø 4 x 5	944.599	1.0		14500	14.500
3.	M1680030 TU 01	Connector output	Ø 4 x16	342.246	2.9		14500	42.05
4.	M1680031 TU 01	Connector input	Ø 4 x16	90.070	11.1		14500	160.95
5.	M1700029 TU 01	Seat Check Valve		87.720	11.3			
6.	M1700030 TU 01	Connector output	Ø 3.5 x 14	388.449	2.5		6200	106.02
7.	M2990036 TU 01	Banjo O/P	Ø 9.5 x 23.65	58.181	17.1			
8.	M1700029 TU 01	Seat Check Valve		87.720	11.3			
9.	M1700030 TU 01	Connector output	Ø 3.5 x 14	388.449	2.5			
10.	M2720503 TU 01	Connector output	Ø 3.5 x 14	299.760	3.3			
11.	M2720536 TU 01	Banjo O/P	Ø 9 x 15	102.790	9.7			
12.	M2720530 TU 01	Connector output	Ø 3.5 x 14	299.760	3.3			
13.	M1700030 TU 01	Connector O/P	Ø 3.5 x 14	388.449	2.5			
14.	M3030002 TU 01	Connector 1/P	Ø 4 x 14					
15.	M2720530 TU 01(M313)	Connector O/P	Ø 3.5 x 14	299.760	3.3			
16.	M2840829 TU 01	Seat Check Valve	Ø 5 x 11.5	260.189	3.8			
17.	M2840831 TU 01	Connector	Ø 4.3 x 12	352.620	2.8			
18.	M2840854 TU 01	Banjo Check Valve	Ø 7.8 x 16.5	111.510	8.9			
19.	M2940202 TU 01	Bush bottom						
20.	M2940203 TU 01	Bush top						
21.	M2940405 TU 01	Diaphragm Retainer	A/F 10 x 10					
22.	M2940409 TU 01	Sleeve	Ø 15 x 30					

Sl.No.	Product Code	Component Name	Exact Dwg Size	Con.Qty in KGS	Wt. per Qty	R.M. STD Size	Monthly Schedule	KGS
23.	M2940411 TU 01	Spool positioner	∅ 10.5 x 8.6	35.730	27.9		14500	404.55
24.	M1680028 TU 01(M305)	Banjo	∅ 1/2" x 2	944.599	1.05		14500	15.22
25.	M1680029 TU 01(M305)	Seat Check Valve	∅ 4 x 5	342.246	2.9		14500	42.05
26.	M1680030 TU 01(M305)	Connector O/P	∅ 4 x 16	90.070	11.1		14500	160.95
27.	M1680031 TU 01(M305)	Connector I/P	∅ 6 x 22	299.760	3.3			
28.	M2720530 TU 01	Connector O/P	∅ 3.5 x 14	102.790	9.7		1000	9.1
29.	M2720536 TU 01(M313)	Banjo O/P	∅ 3.5 x 14	109.328	9.1			
30.	M3150536 TU 01	Banjo O/P	∅ 9 x 14	299.760	3.3			
31.	M2720530 TU 01	Connector O/P	∅ 3.5 x 14					
32.	M3260029 TU 01	Seat check Valve	∅ 3 x 2.5					
33.	M3260030 TU 01	Connector O/P	∅ 3.5 x 11.5					
34.	M3260031 TU 01	Banjo O/P	∅ 9 x 15					
35.	M3270064 TU 01	Plug A.C. Box	∅ 3.5 x 3	98.262	10.1			
36.	M3390031 TU 01	Connecotr I/P	∅ 6 x 22	87.720	11.3			
37.	M1700029 TU 01(M337)	Seat Check Valve		388.499	2.5			
38.	M1700030 TU 01(M337)	Connector O/P	∅ 3.5 x 14	333.042	3.0			
39.	M3420130 TU 01	Connector O/P	∅ 3.5 x 14	102.790	9.7			
40.	M2720536 TU 01(M342)	Banjo O/P	∅ 9 x15	87.720	11.3			
41.	M1700029 TU 01(M362)	Seat Check Valve		388.449	2.5			
42.	M1700030 TU 01(M362)	Connector O/P	∅ 3.5 x 14				**TOTAL**	**1359.94**

Leaded Brass Designation : FLB

Sl.No.	Product Code	Component Name	Exact Dwg Size	Con.Qty in KGS	Wt. per Qty	R.M. STD Size	Monthly Schedule	R.M. Req in KGS
1.	M1690028 FO 01	Banjo input	7.0	54.670	18.2		2000	36.583
2.	M1700028 FO 01	Banjo input	9.0					
3.	M1700036 FO 01	Banjo output	7.3				6200	80.519
4.	M2430028 FO 01	Banjo input	7.0	77.000	12.9		6200	125.252
5.	M2990028 FO 01	Banjo input	8.0	49.500	20.2			
6.	M1700028 FO 01	Banjo input	9.0					
7.	M1700036 FO 01(M337)	Banjo O/P	7.3				2000	36.583
8.	M1690028 FO 01(M272)	Banjo I/P	7.0	54.670	18.2			
9.	M3030001 FO 01	Banjo	7.0				2000	36.583
10.	M1690028 FO 01(M284)	Banjo I/P	7.0	54.670	18.2		2000	36.583
11.	M1690028 FO 01(M313)	Banjo I/P	7.0	54.670	18.2		2000	36.583
12.	M1690028 FO 01(M326)	Banjo I/P	9.0					
13.	M1700028 FO 01	Banjo input	9.0					
14.	M1700028 FO 01	Banjo input	7.3					
15.	M1700036 FO 01	Banjo input						
							TOTAL	**338.686**

Brass Mesh

Sl.No.	Product Code	Component Name	Exact Dwg Size	Con.Qty in KGS	Wt. per Qty	R.M. STD Size	Monthly Schedule	R.M. Req in KGS
1.	M1770301 CU 01	Filter	0.07	12100.840	0.08		6200	0.496
2.	M2110066 PR 01	Washer Shim	0.10	9772.910	0.10		6200	0.620
3.	M2110073 PR 01	Washer Shim	0.30	3240.970	0.30		6200	1.860
4.	M2110074 PR 01	Washer Shim	0.50	1694.117	0.59		6200	3.658
5.	M2110075 PR 01	Washer Shim	0.70	1388.980	0.71		6200	4.402
6.	M2110076 PR 01	Washer Shim	0.90	1081.200	0.92		6200	5.704
7.	M2110077 PR 01	Washer Shim	1.20	810.240	1.23		1000	7.626
8.	M2110078 PR 01	Spacer	0.30	816.990	1.22			
9.	M2320204 PR 01	Washer	0.50		1.22			
10.	M3270035 PR 01(M359)	Washer	816.990					
11.	M3270035 PR 01						**TOTAL**	**24.366**

Free Cutting Brass I or II

Sl.No.	Product Code	Component Name	Exact Dwg Size	Con.Qty in KGS	Wt. per Qty	R.M. STD Size	Monthly Schedule	R.M. Req in KGS
1.	M1980008 TU 01	Plug	A/F 27 x 12	34.430	29.0		1000	2.930
2.	M1980009 TU 01	Lower vlave	⌀ 15 x 13	16.728	59.7		1000	15.632
3.	M1980013 TU 01	Plunger top	⌀ 15 x 32	30.970	32.2			
4.	M1980014 TU 01	Piston	⌀ 28 x 32	23.980	41.7			
5.	M1980106 TU 01	Bleeder disc	⌀ 20 x 7	8.020	124.6			
6.	M1980010 TU 01	Spring Seat	⌀ 24 x 6	17.540	57.0			
7.	M1980215 TU 01	Body	25 x 31	92.500	10.8			
8.	M1980216 TU 01	Nut	25 x12	341.290	2.9			
9.	M1980217 TU 01	Spacer	⌀ 16 x 2	63.970	15.6			
10.	M2320202 TU 01	Contactor	⌀ 4.8 x 15				**TOTAL**	**18.562**
11.	M2320301 TU 01	Bolt	⌀ 8 x 21					

Phosphor Bronze Hard (Grade I Sheet)

Sl.No.	Product Code	Component Name	Exact Dwg Size	Con.Qty in KGS	Wt. per Qty	R.M. STD Size	Monthly Schedule	R.M. Req in KGS
1.	M1690011 PR 01(M170)	Thrust Washer	0.6	2673.796	0.37		2000	0.74
2.	M1690011 PR 01	Thrust Washer	0.6	2673.796	0.37		2000	0.74
3.	M1690011 PR 01(M266)	Thrust Washer	0.6	2673.796	0.37		2000	0.74
4.	M2720111 PR 01(M313)	Thrust Washer	0.6	1688.610	0.59			
5.	M2720111 PR 01(M315)	Thrust Washer	0.6	1688.610	0.59			
6.	M2720111 PR 01	Thrust Washer	0.6	1688.610	0.59		2000	0.74
7.	M1690011 PR 01(M337)	Thrust Washer	0.6	2673.796	0.37		2000	0.74
8.	M1690011 PR 01(M362)	Thrust Washer	0.6	2673.796	0.37			
							TOTAL	**3.700**

Sl.No.	Cellulose Based Fibre ; Glue or Glycerin impregrated							
	Product Code	Component Name	Exact Dwg Size	Con.Qty in KGS	Wt. per Qty	R.M. STD Size	Monthly Schedule	R.M. Req in KGS
1.	M1820009 PR 01	Oil Seal Gasket	0.14	450.000	2.2		8000	17.777
2.	M2970009 PR 01	Oil Seal Gasket	0.14	450.000	2.2		1000	2.222
3.	M3170009 PR 01	Oil Seal Gasket	0.14	300.000	3.3		300	1.000
							TOTAL	**20.999**

Compressed Asbestos Sheet

Sl.No.	Product Code	Component Name	Exact Dwg Size	Con.Qty in KGS	Wt. per Qty	R.M. STD Size	Monthly Schedule	R.M. Req in KGS
1.	M2110009 PR 01	Oil Seal	0.40	508.000	1.96		6200	12.152
2.	M3390009 PR 01	Oil Seal Pump	0.40	182.000	5.49			
3.	M3390011 PR 01	Oil Seal A.C. Box		182.000	5.49		8000	17.777
4.	M1820009 PR 01(M251)	Oil Seal	0.14	450.000				
							TOTAL	**29.929**

Vulcanised Fibre Sheet (Ref.)

Sl.No.	Product Code	Component Name	Exact Dwg Size	Con.Qty in KGS	Wt. per Qty	R.M. STD Size	Monthly Schedule	KGS
1.	M2110027 PR 01	Washer Airvert	0.5	10375	0.09		6200	0.558
2.	M2110027 PR 01	Washer Airvert	0.5	10375	0.09		6200	0.558
3.	M2110027 PR 01	Washer Airvert	0.5	10375	0.09		6200	0.558
4.	M2110027 PR 01(M326)	Washer Airvert	0.5	10375	0.09		6200	0.558
5.	M2110027 PR 01(M315)	Washer Airvert	0.5	10375	0.09		6200	0.558
6.	M2110027 PR 01(M313)	Washer Airvert	0.5	10375	0.09		6200	0.558
7.	M3620027 PR 01	Washer Airvert	1.0	4629.630	0.21		32700	6.867
							TOTAL	**10.215**

Glass Epoxy Sheet

Sl.No.	Product Code	Component Name	Exact Dwg Size	Con.Qty in KGS	Wt. per Qty	R.M. STD Size	Monthly Schedule	KGS
1.	M2320302 PR 01	Insulator I	1	2341.920	0.42		1000	0.42
2.	M2320303 PR 01	Insulator II	1	3333.330	0.30		1000	0.30
							TOTAL	**0.72**

ENIA

Sl.No.	Product Code	Component Name	Exact Dwg Size	Con.Qty in KGS	Wt. per Qty	R.M. STD Size	Monthly Schedule	R.M. KGS
1.	M1680010 TU 01	Driver gear	∅ 10 x 38.8	32.49	30.7		14,500	445.150
2.	M1770022 TU 01	Connector	A/F 19 x 30	14.030	71.2			
3.	M1770302 TU 01	Knob	A/F 27 x 17.5	16.743	59.7			
4.	M1770303 TU 01	Fillter holder	A/F 36 x 25.5	3.780	264.5			
5.	M1770801 TU 01	Connector outlet	A/F 19 x 40	9.970	100.3			
6.	M1770904 TU 01	Air Vert	A/F 22 x 21					
7.	M1930001 TU 01	Shaft	10.2 x 86.5	12.500	80.0			
8.	M1930002 MO 01	Shaft with gear	302.000	3.3				
9.	M1930007 TU 01	Bush	∅ 14 x 6	75.270	13.2		30	2.430
10.	M2010004 TU 01	Connector	∅ 19 x 28	12.340	81.0			
11.	M2010010 TU 01	Locking Screw (Piston)	∅ 23 x 12	18.020	55.4		30	1.662
12.	M2010011 TU 01	Lock nut	∅ 42 x 26	2.675	373.8		30	11.214
13.	M2010026 TU 01	Air vert Screw	∅ 30 x 46	3.027	330.3		30	9.909
14.	M2010044 TU 01	Dummy nut	∅ 20 x 16	19.400	51.5		30	1.545
15.	M2080503 TU 01	Inlet nut	22 A/F x 11	22.201	45.0		9000	405.000
16.	M2110028 TU 01	Banjo	∅ 9 x 15	67.060	14.9		2200	32.780
17.	M2110030 TU 01	Connector (output)	∅ 4.5 x 11.3	251.576	3.9		2200	8.745
18.	M2240001 TU 01	Housing Thruttle Valve	19 A/F x 42	8.620	116.0			
19.	M1770222 TU 01(M229)	Connector	A/F 19 x 30	14.030	7.2			

Sl.No.	Product Code	Component Name	Exact Dwg Size	Con.Qty in KGS	Wt. per Qty	R.M. Size	Schedule	
20.	M2320101 TU 01	Body	A/F 22 x 52	5.130	194.9		1000	194.900
21.	M2320201 TU 01	Valve	∅ 10 x 30.8	40.481	24.7		1000	24.700
22.	M2490003 TU 01	Drain Valve	∅ 18 x 18.5				2000	
23.	M2720751 FO 01	Plug outlet	∅ 4 x 21					
24.	M2080503 TU 01(M307)	Inlet nut	22 A/F x 11	22.201	45.0		9000	405.000
25.	M2720751 FO 01(M315)	Plug outlet	∅ 4 x 21					
26.	M2720751 FO 01	Plug outlet						
27.	M1680010 TU 01(M305)	Driver gear	10 x 38.8	32.4999	30.7		14,500	445.150
28.	M2720751 FO 01(M313)	Plug outlet	∅ 4 x 21					
29.	M3640001 TU 01	Valve body	∅ 25 x 52.5	3.540	282.4			
30.	M3640011 TU 01	Contactor	∅ 5.5 x 24	168.350	5.9			
31.	M3640019 TU 01	Spacer	∅ 11 x 9	97.990	10.2			
32.	M3640023 TU 01	Holder	∅ 11 x 8	112.768	8.8			
33.	M3640028 TU 01	Valve	∅ 10 x 14.5	76.852	13.0			
34.	M1830053 TU 01	Driver Shaft	∅ 15.9 x 82.4	7.228	138.3			
35.	M1830053 TU 01	Driver Shaft	∅ 15.9 x 82.4	7.228	138.3		9000	405.00
36.	M2080503 TU 01	Inlet nut	22 A/F x 11	22.201	45.0			
37.	M3410010 TU 01	Driven gear					14500	445.150
38.	M1680051 M0 01	Plug outlet		32.499	30.7			
							TOTAL	**2838.235**

			EN 8					
Sl.No.	Product Code	Component Name	Exact Dwg Size	Con.Qty in KGS	Wt. per Qty	R.M. STD Size	Monthly Schedule	KGS
1.	M1770204 TU 01	Link	∅ 16 x 57	10.560	94.6			
2.	M1770403 TU 01	Hex Screw	A/F 14 x15	28.089	35.6			
3.	M1770501 TU 01	Check Valve	∅ 19.3 x 19	13.394	74.6			
4.	M1980005 TU 01	Nut	A/F 27 x 6	20.178	49.5			
5.	M1502917 TU 01	Ring for lever Control	∅ 44 x 5.5				150	3.252
6.	M2140103 TU 01	Control Shaft	∅ 8.3 x 34	46.125	21.6		150	6.625
7.	M2140004 TU 01	Drive Shaft	∅ 16 x 23	22.640	44.1			
8.	M2290119 TU 01	Bush	∅ 25.3 x 20				1500	104.592
9.	M1830018 TU 01	Pinion	∅ 11.8 x 66	14.341	69.7			
							TOTAL	**124.469**

EN 8D

Sl.No.	Product Code	Component Name	Exact Dwg Size	Con.Qty in KGS	Wt. per Qty	R.M. STD Size	Monthly Schedule	R.M. Req in KGS
1.	M1970018 TU 01	Control Shaft	∅ 9.05 x 34.4	47.675	20.9		18000	377.572
2.	M2110012 TU 01	Plunger	∅ 10.2 x 22.5	44.657	22.3		6200	138.836
3.	M2110014 TU 01	Sub Plunger	∅ 8.2 x 49.5	33.833	29.5		6200	183.253
4.	M2120018 TU 01	Control shaft	∅ 15.25 x 55	10.560	94.6		100	9.469
5.	M2130018 TU 01	Control shaft	∅ 12.8 x 63.5	12.000	83.3		2400	200.000
6.	M2650018 TU 01	Control Shaft	∅ 12.8 x 63.5	12.000	83.3		200	16.666
7.	M3520018 TU 01	Control Shaft	∅ 8.15 x 39	35.180	28.4		300	43.731
8.	M3060118 TU 01	Control Shaft	∅ 16.15 x 68	6.860	145.7			
9.	M3510018 TU 01	Control Shaft	9.5 x 34.4	38.260	26.1			
							TOTAL	**969.527**

EN 8M

Sl.No.	Product Code	Component Name	Exact Dwg Size	Con.Qty in KGS	Wt. per Qty	R.M. STD Size	Monthly Schedule	KGS
1.	M2490001 TU 01	Housing	∅ 23.5 x 115	2.160	462.9		2000	925.925
2.	M2770001 TU 01	Housing	∅ 26.5 x 115	2.340	427.3		300	128.205
							TOTAL	**1053.990**

EN 9 Bright Rod.

Sl.No.	Product Code	Component Name	Exact Dwg Size	Con.Qty in KGS	Wt. per Qty	R.M. STD Size	Monthly Schedule	R.M. Req in KGS
1.	M1700013 TU 01(M169)	Driving gear	∅ 11.3 x 34.5	29.650	33.7			
2.	M1700013 TU 01	Driving gear	∅ 11.2 x 34.5	29.650	33.7		8000	111.935
3.	M1820018 TU 01	Control Shaft	∅ 9 x 18.9	71.470	13.9		16000	231.481
4.	M2510018 TU 01	Control Sahft	∅ 9 x 20.1	69.120	14.4			
5.	M1700013 TU 01(M337)	Driving gear	∅ 11.2 x 34.5	29.650	33.7		8000	111.935
6.	M1820018 TU 01	Contro Shaft	∅ 9 x 18.9	71.470	13.9			
7.	M1700013 TU 01(M362)	Driving gear	∅ 11.2 x 34.5	29.650	33.7			
8.	M1700013 TU 01	Driving gear	∅ 11.2 x 34.5	29.650	33.7		**TOTAL**	**455.351**

EN 19

Sl.No.	Product Code	Component Name	Exact Dwg Size	Con.Qty in KGS	Wt. per Qty	R.M. STD Size	Monthly Schedule	R.M. Req in KGS
1.	M2732018 TU 01	Control Shaft		27.303	36.6		4000	146.504

40 Ni 6 Cr 4 MO3 (EN 24)

Sl.No.	Product Code	Component Name	Exact Dwg Size	Con.Qty in KGS	Wt. per Qty	R.M. STD Size	Monthly Schedule	R.M. KGS
1.	M1830067 TU 01	Gear Shaft Oil pump	∅ 11.45 x 104	10.430	95.8		1000	95.877
2.	M1830065 CU 01	Mixer Control Shaft		9.970	100.3			

EN 31

Sl.No.	Product Code	Component Name	Exact Dwg Size	Con.Qty in KGS	Wt. per Qty	R.M. STD Size	Monthly Schedule	R.M. Req in KGS
1.	M1680014 TU 01	Sub plunger	∅ 5.07 x 23.7	177.346	5.6		14500	81.200
2.	M1690014 TU 01	Sub plunger	∅ 6.1 x 1.4	223.290	4.4		2000	8.800
3.	M1700014 TU 01	Sub plunger	∅ 5.8 x 17.6	229.484	4.3			
4.	M2010019 TU 01	Pad	∅ 12.2 x 15	24.417	40.9		30	1.227
5.	M1700018 TU 01	Sub plunger	∅ 5.8 x 17.6	229.484	4.3			
6.	M2720314 TU 01	Sub plunger	∅ 3 x 13.5	1060.640	0.9			
7.	M3120314 TU 01	Sun plunger	∅ 3.5 x 13.5	1060.640	0.9			
8.	M3340314 TU 01	Sub plunger	∅ 2.1 x 13.5	1060.640	0.9			
9.	M3120314 TU 01	Sub plunger	∅ 3.5 x 13.5	1060.640	0.9			
10.	M3120314 TU 01	Sub plunger	∅ 3.5 x 13.5	1060.640	0.9			
11.	M3120314 TU 01(M313)	Sub plunger	∅ 3.5 x 13.5	1060.640	0.9			
12.	M2840314 TU 01	Sub plunger	∅ 2.35 x 16.5	838.600	1.1		14500	81.200
13.	M1680014 TU 01(M305)	Sub plunger	∅ 5.07 x 23.7	177.346	5.6			
14.	M3120314 TU 01	Sub plunger	∅ 3.5 x 13.5	1060.640	0.9			
15.	M3150314 TU 01	Sub plunger	∅ 1.8 x 10.8	364.972	2.1			
16.	M3150314 TU 01	Sub plunger	∅ 1.8 x 10.8	364.972	2.1			
17.	M3270014 TU 01	Plunger	∅ 5.07 x 31.8	134.410	7.4			
18.	M3270018 TU 01	Lever pin	∅ 7.1 x 16.5					
19.	M3270019 TU 01	Follower pin	∅ 5 x 6.8					
20.	M3390004 TU 01	Locating pin	∅ 3.6 x 10.5	858.778	1.1			
21.	M3270014 TU 01(M339)	Plunger	∅ 5.07 x 31.8					
22.	M3270019 TU 01(M339)	Follower pin	∅ 5 x 6.8					
23.	M1700014 TU 01(M337)	Sub plunger	∅ 5.8 x 17.6	229.484	4.3			
							TOTAL	**172.427**

EN 42 or EN 490

Sl.No.	Product Code	Component Name	Exact Dwg Size	Con.Qty in KGS	Wt. per Qty	R.M. STD Size	Monthly Schedule	R.M. Req in KGS
1.	M1970011 PR 01	Washer	1	470.031	2.12		18000	38.295

EN 42 G

Sl.No.	Product Code	Component Name	Exact Dwg Size	Con.Qty in KGS	Wt. per Qty	R.M. STD Size	Monthly Schedule	R.M. Req in KGS
1.	M1690015 PR 01	Spring Retainer plate	0.4	921.930	1.08		2000	6.696
2.	M1690015 PR 01(M170)	Spring Retainer plate	0.4				2000	
3.	M2110011 PR 01	Thrust Washer	0.3				6200	
4.	M1690015 PR 01(M337)	Sping Retainer plate	0.4				2000	
5.	M1690015 PR 01(M362)	Sping Retainer plate	0.4				2000	
6.	M1690015 PR 01	Sping Retainer plate	0.4				2000	
							TOTAL	**6.696**

EN 45								
Sl.No.	Product Code	Component Name	Exact Dwg Size	Con.Qty in KGS	Wt. per Qty	R.M. STD Size	Monthly Schedule	R.M. Req in KGS
1.	M2010014 PR 01	Link	4.5	36.530	27.3		30	0.819

16 Mn Cr 5 (EN 353)								
Sl.No.	Product Code	Component Name	Exact Dwg Size	Con.Qty in KGS	Wt. per Qty	R.M. STD Size	Monthly Schedule	R.M. Req in KGS
1.	M1830006 TU 01	Gear Meter Screw	∅ 10.2 x 63.5	22.660	44.1			
2.	M1830007 TU 01	Gear Meter Screw	∅ 18.70 x 56	6.132	163.0		200	23.582
3.	M1830058 TU 01	Drive Shaft	∅ 12.5 x 129.5	8.481	117.9		1000	45.653
4.	M1830073 TU 01	Gear Meter Screw	∅ 28.8 x 18.5	21.904	45.6			
5.	M1830068 TU 01	Gear Crank Shaft	∅ 34 x 4.4					
6.	M1830071 FO 01	Compund gear	14.2	1.090	917.4			
7.	M1830072 CU 01	Pump Spindle						
							TOTAL	**69.235**

Sl.No.	Product Code	Component Name	Exact Dwg Size	Con.Qty in KGS	Wt. per Qty	R.M. STD Size	Monthly Schedule	R.M. Req in KGS
1.	M1680018 TU 01	Control Shaft	∅ 9.17 x 30.2	51.039	19.5		14,500	282.750
2.	M1690010 TU 01	Driver gear	∅ 10.1 x 52.1	26.280	38.0		2000	76.000
3.	M1700010 TU 01	Driver gear	∅ 10.1 x 48.6	29.741	33.6			
4.	M1700018 TU 01	Control Shaft	∅ 9.45 x 32.5	46.553	21.4		30	21.426
5.	M2010007 TU 01	Piston	∅ 31.2 x 10.6	1.400	714.2		30	1.818
6.	M2010017 TU 01	Pin (big)	∅ 12.2 x 56.8	16.490	60.6		2000	142.800
7.	M249002 TU 01	Plunger	∅ 14.3 x 49.5	14.000	71.4			
8.	M1700010 TU 01(M266)	Driver gear	∅ 10.1 x 48.6	29.741	33.6			
9.	M1700018 TU 01	Control Shaft	∅ 9.45 x 32.5	46.553	21.4			
10.	M2720110 TU 01	Driver gear	∅ 10.1 x 48.6	37.500	26.6			
11.	M2720418 TU 01	Control Shaft	∅. 8.10 x 35	46.105	21.6		300	21.420
12.	M277002 TU 01	Plunger	∅ 14.3 x 50	14.000	71.4			
13.	M2830012 TU 01	Driver Shaft	∅ 9.65 x 61.0	22.640	44.1		14500	282.750
14.	M1680018 TU 01(M305)	Control Shaft	∅ 9.17 x 30.2	51.039	19.5			
15.	M3120110 TU 01(M313)	Driver gear	∅ 11.4 x 27.1	36.350	27.5			
16.	M1700010 TU 01(M362)	Driver gear	∅ 10.1 x 48.6	29.741	33.6			
17.	M1700018 TU 01(M362)	Control Shaft	∅ 9.45 x 32.5	46.553	21.4			
18.	M1830070 TU 01	Shaft	∅ 18 x 56					

Sl.No.	Product Code	Component Name	Exact Dwg Size	Con.Qty - KGS	Qty	Size		
							750	45.750
19.	M1830048 TU 01	Pinion	∅ 11.4 x 66	16.385	61.0			
20.	M1830047 TU 01	Gear	∅ 31.1 x 15.5	8.719	114.6			
21.	M1830054 TU 01	Driver gear	∅ 18.9 x 9.5	40.416	24.7			
22.	M1830057 TU 01	Driver gear	∅ 44.32 x 28	1.832	545.8		200	109.160
23.	M1830063 TU 01	Driver gear	∅ 44.32 x 28	1.832	545.8			
24.	M2720416 PR 01	Lever Control I	5.0					
25.	M2720416 PR 01(M315)	Lever Control I	5.0					
							TOTAL	**983.874**

Cold rolled Steel Sheet Strip

Sl.No.	Product Code	Component Name	Exact Dwg Size	Con.Qty in KGS	Wt. per Qty	R.M. STD Size	Monthly Schedule	R.M. Req in KGS
1.	M1970004 PR 01	Pump Casing Plate	2	20.901	47.8		18000	861.202

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Sl.No.	Product Code	Component Name	Exact Dwg Size	Con.Qty in KGS	Wt. per Qty	R.M. STD Size	Monthly Schedule	R.M. Req in KGS
1.	M3450018 TU 01	Control Shaft	∅ 11.5 x 56	18.634	53.6		200	10.733
2.	M1830006 TU 01	Gear	∅ 8.18 x 47	22.660	44.1			
3.	M1830008 TU 01	Gear (meter screw)	∅ 28.8 x 18.5	7.210	138.5		18000	400.712
4.	M1830005 TU 01	Gear	∅ 8.18 x 47	44.920	22.2			
							TOTAL	**411.445**

Steel Grade 45 C 8 EN 8 D

Sl.No.	Product Code	Component Name	Exact Dwg Size	Con.Qty in KGS	Wt. per Qty	R.M. STD Size	Monthly Schedule	R.M. Req in KGS
1.	M3170018 TU 01	Control Shaft	∅ 8.15 x 41.8	38.250	26.1		3000	78.431
2.	M3590018 TU 01	Control Shaft	∅ 8.12 x 41.30	39.950	25.0		1200	30.037
							TOTAL	**108.468**

Grey Iron Casting

Sl.No.	Product Code	Component Name	Exact Dwg Size	Con.Qty in KGS	Wt. per Qty	R.M. STD Size	Monthly Schedule	R.M. Req in KGS
1.	M1830011 CA 01	Sprocket (Cam)		6.360	157.2		14000	2201.257

S 45 C								
Sl.No.	Product Code	Component Name	Exact Dwg Size	Con.Qty in KGS	Wt. per Qty	R.M. STD Size	Monthly Schedule	R.M. Req in KGS
1.	M3180018 TU 01	Control Shaft	∅ 9.5 x 24.5	64.220	15.5		5000	77.857

75 C6 / 80 C6

Sl.No.	Product Code	Component Name	Exact Dwg Size	Con.Qty in KGS	Wt. per Qty	R.M. STD Size	Monthly Schedule	R.M. Req in KGS
1.	M3450003 PR 01	Inelt Plate	0.5	131.432	7.6		200	1.52

45 C 8 (EN 8D)								
Sl.No.	Product Code	Component Name	Exact Dwg Size	Con.Qty in KGS	Wt. per Qty	R.M. STD Size	Monthly Schedule	R.M. Req in KGS
1.	M2010015 TU 01	Holder	∅ 28 x 80	1.852	539.9		30	16.198
2.	M2010016 FO 01	Actuator	33				30	
3.	M2330005 FO 01	Rear Cover	64					
4.	M2330009 TU 01	Nut	∅ 26 x 22					
5.	M2330011 FO 01	Eye bracket	21.0				5000	252.397
6.	M2330012 TU 01	Connector	∅ 32 x 22	19.810	50.4			
7.	M3380018 TU 01	Control Shaft	∅ 13.15 x 27				**TOTAL**	**268.197**

Sl.No.	Product Code	Component Name	Exact Dwg Size	Con.Qty in KGS	Wt. per Qty	R.M. STD Size	Schedule		
1.	M3110418 TU 01	Control Shaft	∅ 8.10 x 35	46.105					
2.	M3120110 TU 01	Driver gear	∅ 11.4x27.1	36.350					
3.	M3120418 TU 01(M313)	Control Shaft	∅ 8.10 x 35	46.105					
4.	M3340110 TU 01	Driver gear	∅ 11.4 x 27.1	36.350					
5.	M3120110 TU 01	Driver gear	∅ 11.4 x 27.1	36.350					
6.	M3120418 TU 01	Control Shaft	∅ 8.10 x 35	46.105					
7.	M3120110 TU 01	Driver gear	∅ 11.4 x 27.1	36.350					
8.	M3120418 TU 01	Control Shaft	∅ 8.10 x 35	57.590					
9.	M3560418 TU 01	Control Shaft	∅ 8.10 x 35	57.590					
10.	M3280418 TU 01	Control Shaft	∅ 8.10 x 35	57.590					
11.	M3120110 TU 01	Driver gear	∅ 11.4 x 27.1	36.350					
12.	M2840110 TU 01	Driver gear	∅ 12.6 x 30.6	23.650				1000	26.624
13.	M3120418 TU 01	Control Shaft	∅ 8.10 x 35	46.105				1000	16.920
14.	M31501110 TU 01	Driver gear	∅ 11.4 x 27.1	37.560	26.62				
15.	M3150418 TU 01	Control Shaft	∅ 8.10 x 35	59.100	16.92				
16.	M3390018 TU 01	Lever pin	∅ 7.1 x 15.6	144.575					
17.	M3370010 TU 01	Driver gear	∅ 10 x 48.5	27.770					
18.	M3370018 TU 01	Control Shaft	∅ 9.4 x 32.5	40.890					
19.	M1830066 TU 01	Mixer Control gear	∅ 34 x 3.9	13.900					
20.	M3370010 TU 01(M362)	Driver gear	∅ 10 x 48.5	27.770					
21.	M3370018 TU 01(M362)	Control Shaft	∅ 9.4 x 32.5	40.890					
								TOTAL	**43.544**

CRLC D

Sl.No.	Product Code	Component Name	Exact Dwg Size	Con.Qty in KGS	Wt. per Qty	R.M. STD Size	Monthly Schedule	R.M. Req in KGS
1.	M1680019 PR 01	Cam Shaft Spacer	1.0	498.303	2.0		14,500	29
2.	M169003A PR 01	Cam Casing Plate (Top)	1.0	507.633	1.9		2000	3.8
3.	M16900313 PR 01	Cam Casing Plate (Bottom)	1.6	115.736	8.6		2000	17.2
4.	M1690004 PR 01	Pump casing Plate	1.5	121.381	8.2		2000	16.4
5.	M169009A PR 01(M170)	Stiffner ring	0.5	565.000	1.7		2000	3.4
6.	M1690019 PR 01(M170)	Cam Shaft Spacer	1.0	558.396	1.7		2000	
7.	M170003A PR 01	Cam Casing Plate (Top)	1.0	163.008	6.1		2000	3.4
8.	M170004 PR 01	Pump Casing Plate	1.2	565.000	1.7		2000	
9.	M1690009A PR 01(M266)	Stiffner ring	0.5	138.220	7.2		30	44.69
10.	M1690019 PR 01	Cam Shaft Spacer	1.0	558.396	1.7		6200	
11.	M2010025 PR 01	Lock Washer	0.6	163.008	6.1		2000	3.4
12.	M2110035 PR 01	Washer	1.6	565.000	1.7		2000	
13.	M170003A PR 01(M266)	Cam Casing Plate (Top)	1.0	61.270	16.3		2000	3.4
14.	M1700004 PR 01(M266)	Pump Casing Plate	1.2	565.000	1.7			
15.	M169009A PR 01	Stiffner ring	0.5	103.540	9.6			
16.	M1690019 PR 01	Pum Casing Plate	1.0	103.540	9.6			
17.	M2720114 PR 01	Pump Casing Plate	1.6	275.480	3.6		14500	29
18.	M1690019 PR 01(M313)	Cam Shaft Spacer	1.0	498.303	2.0			
19.	M2830203 PR 01	Cam Casing Plate	2.02					
20.	M2840203 PR 01	Cam Casing Plate	2.02					
21.	M3040004 PR 01	Washer	1.6					
22.	M1680019 PR 01(M305)	Cam Shaft Spacer	1.0					

Sl.No.	Product Code	Component Name	Exact Dwg Size	Con.Qty in KGS	Wt. per Qty	R.M. STD Size	Monthly Schedule	KGS
23.	M2720104 PR 01(M313)	Pump casing plate	1.6	61.270	16.3		2000	3.4
24.	M1690019 PR 01(M315)	Cam Shaft Spacer	1.0	565.000	1.7		3000	165
25.	M3170004 PR 01	Pump Casing Plate	2.0	18.175	55.0		5000	169
26.	M3180104 PR 01	Pump Casing Plate	2	29.560	33.8		200	32.64
27.	M3200001 PR 01	Body	5.52	6.127	163.2		200	22.46
28.	M3200003 PR 01	Cover	4	8.900	112.3		200	28.98
29.	M3200004 PR 01	Pump Casing Plate	4	6.900	144.9			
30.	M3270004 PR 01	Stopper plate	0.5	1088.790	0.91			
31.	M3270022 PR 01	Inner lever	2.5	82.850	12.0			
32.	M3270023 PR 01(M339)	Outer lever	1.5					
33.	M3270022 PR 01(M339)	Inner lever	2.5					
34.	M170003A PR 01(M337)	Cam Casing Plate (Top)	1.0	559.396	1.7		2000	3.52
35.	M1700004 PR 01(M337)	Pump Casing plate	1.2	163.008	6.13		2000	
36.	M169009A PR 01(M337)	Stiffner ring	0.5	565.000	1.76			
37.	M1690019 PR 01(M337)	Cam Shaft Spacer	1.0	558.396	1.79			
38.	M170003A PR 01(M362)	Cam Casing Plate	4.2	163.008	6.13		2000	3.52
39.	M1700004 PR 01(M362)	Pump Casing Plate	1.2	565.000	1.76			
40.	M1690019 PR 01(M362)	Cam Shaft Spacer	1.0					
41.	M3640003 PR 01	Washer	0.8	47.190	21.1		1000	32.00
42.	M1830049 PR 01	Receiver gear		31.250	32.0			
43.	M2970004 PR 01	Pump Casing Plate	1.6				**TOTAL**	**614.160**

CRLC DD

Sl.No.	Product Code	Component Name	Exact Dwg Size	Con.Qty in KGS	Wt. per Qty	R.M. STD Size	Monthly Schedule	R.M. Req in KGS
1.	M1680023 PR 01	Lever Control Assy.	1.6	89.950	11.1		14500	160.95
2.	M1680036 PR 01	Shield Clamp	0.5	31.350	31.8		14500	461.10
3.	M1690016 PR 01	Lever Control II (Top)					2000	
4.	M1690022 PR 01	Lever Control II (bottom)					2000	
5.	M1700023 PR 01	Lever Control Assy.	1.6	87.490	11.4			
6.	M2660023 PR 01	Lever Control Assy.						160.950
7.	M272023B PR 01	Cam casing Plate Top	1.6	204.490	4.8		14500	461.1
8.	M272023C PR 01	Cam Casing Plate Bottom	1.2	89.950	11.1		14500	
9.	M1680023 PR 01(M305)	Lever Control Assy.	1.6	31.350	31.8			
10.	M1680036 PR 01(M305)	Shield Clamp	0.5					
11.	M272023B PR 01(M313)	Cam Casing Plate (Top)	1.6	87.490	11.4			
12.	M272023B PR 01(M315)	Cam Casing Plate (Top)	1.6	87.490	11.4			2.2
13.	M272023C PR 01(M313)	Cam Casing Plate (bottom)	3.4	204.490	4.8		1000	
14.	M3150854 PR 01	Spacer	2	442.320	2.2			0.76
15.	M3270024 PR 01	Screw hook	1	252.750	3.9		200	4.22
16.	M3270024 PR 01(M339)	Screw hook	1	252.750	3.9		200	
17.	M3450011 PR 01	Washer	1	263.000	3.8			
18.	M3450036 PR 01	Shiled Clamp	0.5	47.180	21.1			
19.	M1700023 PR 01(M362)	Lever Control Assy.	1.6					
20.	M272023C PR 01	Cam Casing Plate (bottom)	3.4	204.490	4.8		TOTAL	**1251.280**

CRLC Special

Sl.No.	Product Code	Component Name	Exact Dwg Size	Con.Qty in KGS	Wt. per Qty	R.M. STD Size	Monthly Schedule	R.M. Req in KGS
1.	M3180012 PR 01	Gear	2.65	10.410	96.0		5000	480.307
2.	M3180035 PR 01	Washer	0.5				5000	
							TOTAL	**480.307**

CRCA Grade D

Sl.No.	Product Code	Component Name	Exact Dwg Size	Con.Qty in KGS	Wt. per Qty	R.M. STD Size	Monthly Schedule	R.M. Req in KGS
1.	M1820004 PR 01(M251)	Pump Casing Plate	1.6	32.000	31.25		8000	250
2.	M1820004 PR 01	Pump Casing Plate	1.6	32.000	31.25		8000	250
							TOTAL	**500**

CRLC O

Sl.No.	Product Code	Component Name	Exact Dwg Size	Con.Qty in KGS	Wt. per Qty	R.M. STD Size	Monthly Schedule	R.M. Req in KGS
1.	M2110015 PR 01	Spring net plate	0.5	1510.814	0.66		6200	4.092
2.	M2110062 PR 01	Cam Shaft Spacer	0.5	272.123	3.67		6200	22.754

HSP 41 H

Sl.No.	Product Code	Component Name	Exact Dwg Size	Con.Qty in KGS	Wt. per Qty	R.M. STD Size	Monthly Schedule	R.M. Req in KGS
1.	M1680035 PR 01(M305)	Mounting clamp	2	7.500	133.3		14500	1932.85
2.	M1680035 PR 01	Mounting clamp	2	7.500	133.3		14500	1932.85
								3865.7

Polyamide 6 / Fully

Sl.No.	Product Code	Component Name	Exact Dwg Size	Con.Qty in KGS	Wt. per Qty	R.M. STD Size	Schedule	
1.	M1680044 MO 01	Connector I		7600.000	0.13		14500	1.907
2.	M1690027 MO 01	Washer (Air vert)		3800.000	0.26		2000	0.526
3.	M1690027 MO 01(M170)	Washer Air vert		3800.000	0.26		2000	0.526
4.	M1970027 MO 01	Nylon gear assy.		43.180	23.1		18000	416.859
5.	M2080701 MO 01	Fuel Strainer Set Screen		505.050	1.9		9000	17.820
6.	M2330010 MO 01	Spacer		3800.000	0.26		2000	0.526
7.	M1690027 MO 01(M337)	Washer Air vert		425.000	2.352		6000	14.117
8.	M2790020 MO 01	Fuel strainer set screen		505.050	1.9		9000	17.820
9.	M2080701 MO 01	Fuel strainer set screen		7600.000	0.13		14500	1.907
10.	M1680044 MO 01	Connector I		250.000	4		3000	12.000
11.	M3170012 MO 01	Nylon gear assy.		3800.00	0.26		2000	0.526
12.	M3270029 MO 01(M339)	Seat Check Valve		0.000				
13.	M1690027 MO 01	Washer Air vert		505.050	1.98		9000	17.820
14.	M3520012 MO 01	Nylon gear assy.						
15.	M2080701 MO 01(M307)	Fuel strainer set screen			3.3			
16.	M1930002MO 01	Shaft with gear					**TOTAL**	**502.354**

HDPE								
Sl.No.	Product Code	Component Name	Exact Dwg Size	Con.Qty in KGS	Wt. per Qty	R.M. STD Size	Monthly Schedule	R.M. Req in KGS
1.	M1680043MO 01	Plug inlet		431.000	2.3		14500	33.35
2.	M2720643 MO 01	Plug inlet		588.000	1.7			
3.	M2720643MO 01	Plug inlet		588.000			14500	33.35
4.	M1680043 MO 01	Plug inlet		431.000	2.3			
5.	M2720643 MO 01(M362)	Plug ilet		588.000	1.7			
6.	M2720643 MO 01(M315)	Plug inlet		588.000	1.7			
7.	M2720643 MO 01(M313)	Plug inlet		588.000	1.7		TOTAL	**66.700**

Sl.No.	Product Code	Component Name	Exact Dwg Size	Con.Qty in KGS	Wt. per Qty	R.M. STD Size	Schedule	
1.	M1680051 MO 01	Plug outlet		3166.660	0.315		14500	4.578
2.	M1690043 MO 01	Plug inlet		980.000	1.02		2000	8.163
3.	M1820019 MO 01	Plug		500.000	2		8000	12.4
4.	M1930008 MO 01	Cap		1000.000	1		6200	6.2
5.	M2110042 MO 01	Plug drive side		1000.000	1		6200	6.2
6.	M2110043 MO 01	Plug inlet					6200	
7.	M2110051 MO 01	Plug outlet					100	
8.	M2120019 MO 01	Plug I					100	
9.	M2120020 MO 01	Plug II					2000	
10.	M2320308 MO 01	Cap					2000	8.16
11.	M2490019 MO 01	Plug I		980.000	1.02		8000	4.495
12.	M2490020 MO 01	Plug II		3166.660	0.31		14500	
13.	M1820019 MO 01	Plug						
14.	M1680051 MO 01	Plug outlet						
15.	M3270043 MO 01	Plug inlet						
16.	M3270051 MO 01	Plug outlet						
17.	M3270052 MO 01	Plug drive side						
18.	M3270051 MO 01(M339)	Plug outlet		950.000	1.05			4.495
19.	M3390052 MO 01	Plug drive side		950.000	1.05		14500	
20.	M1700043 MO 01	Plug inlet		3166.660	0.31			**54.694**
21.	M1700043 MO 01(M326)	Plug inlet					**TOTAL**	
22.	M1680051 MO 01(M326)	Plug outlet						

Nitrile Rubber with Polyester Cloth Reinforce

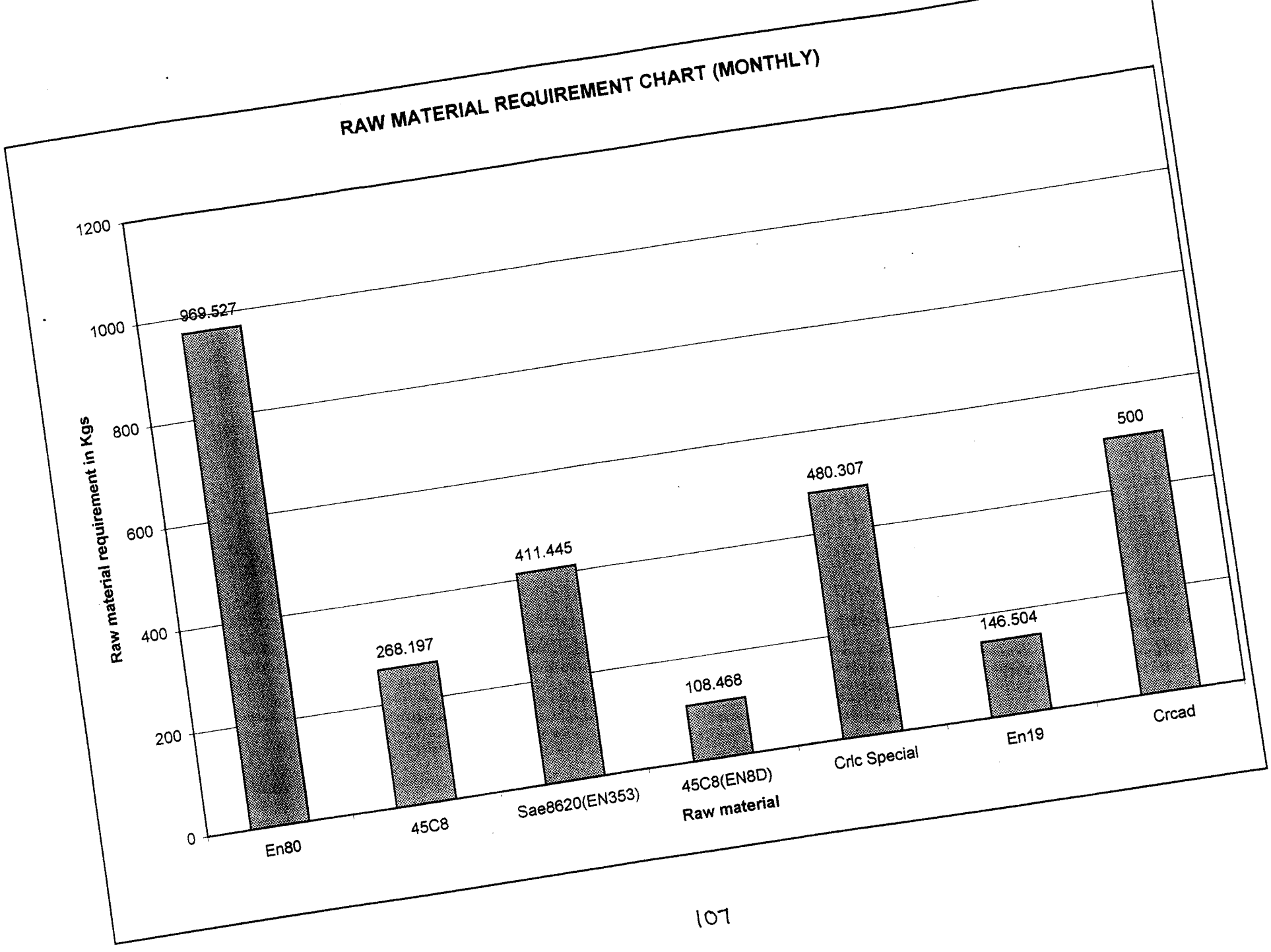
Sl.No.	Product Code	Component Name	Exact Dwg Size	Con.Qty in KGS	Wt. per Qty	R.M. STD Size	Monthly Schedule	R.M. KGS
1.	M2080202 CU 01	Seal		1600.000	0.625		9000	5.625
2.	M2790003 MO 01(M346)	Diaphragm		1600.000	0.625		6000	5.625
3.	M2080202 CU 01(M310)	Seal	0.17	312.500	3.2		9000	5.625
4.	M3100004 PR 01	Diaphragm		1600.000	0.625		6000	5.625
5.	M2080202 CU 01(M346)	Seal		1600.000			9000	5.625
6.	M2790003 MO 01	Diaphragm		1600.000	0.625		9000	5.625
7.	M2080202 CU 01	Seal		1600.000	0.625			
8.	M2080202 CU 01(M307)	Seal					**TOTAL**	**28.125**

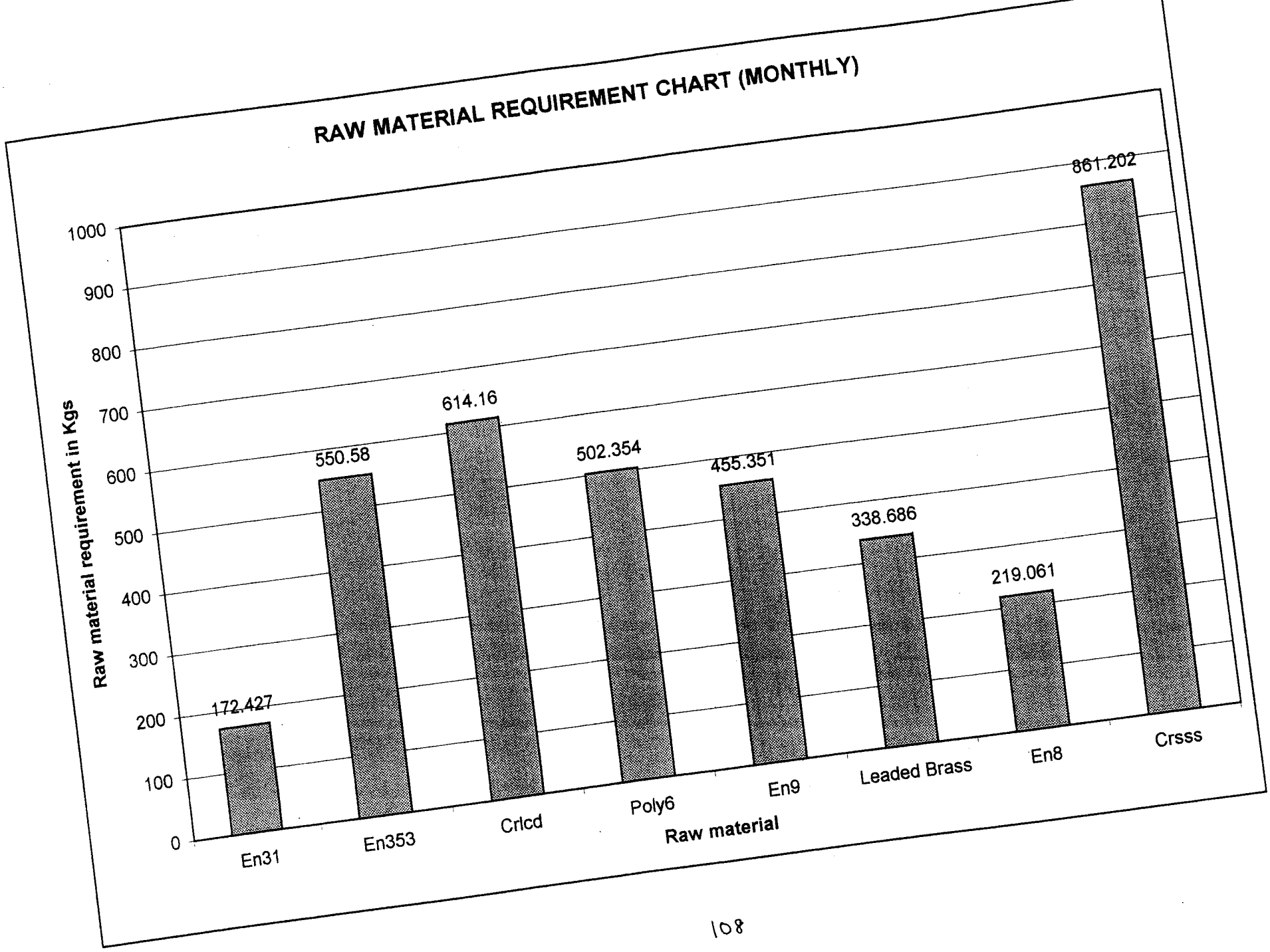
Delrin 500 / 500 [illegible]

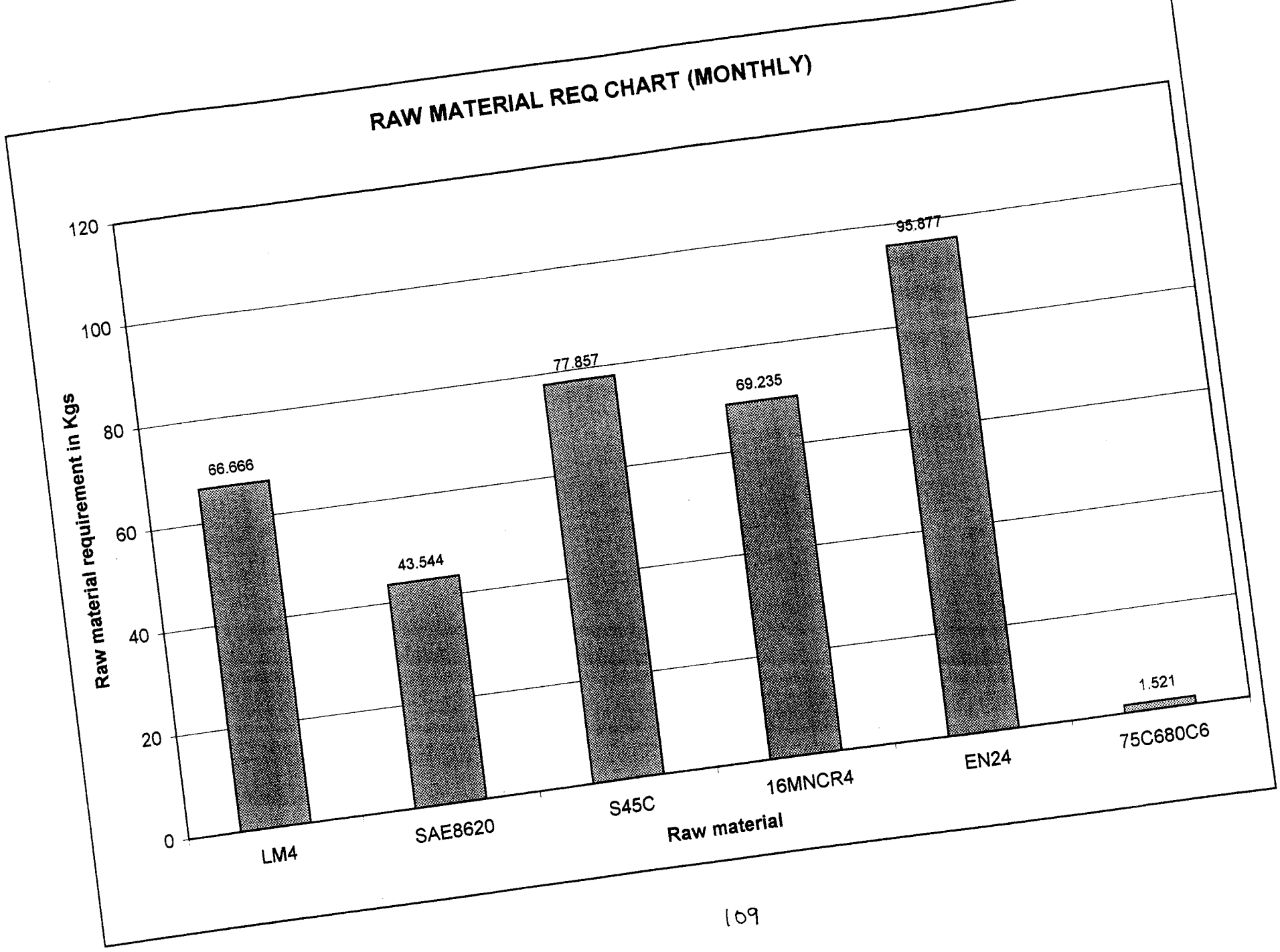
Sl.No.	Product Code	Component Name	Exact Dwg Size	Con.Qty in KGS	Wt. per Qty	R.M. STD Size	Schedule	
1.	M2080302 MO 01	Sliffner		2450.000	0.40		9000	3.673
2.	M2080302 MO 01	Sliffner		2450.000	0.40		9000	3.673
3.	M3100005 MO 01	Diaphragm housing		100.000	10.00			
4.	M2080302 MO 01(M346)	Stiffner		2450.000	0.40		9000	3.673
5.	M2080302 MO 01(M310)	Stiffner		2450.000	0.40		9000	3.673

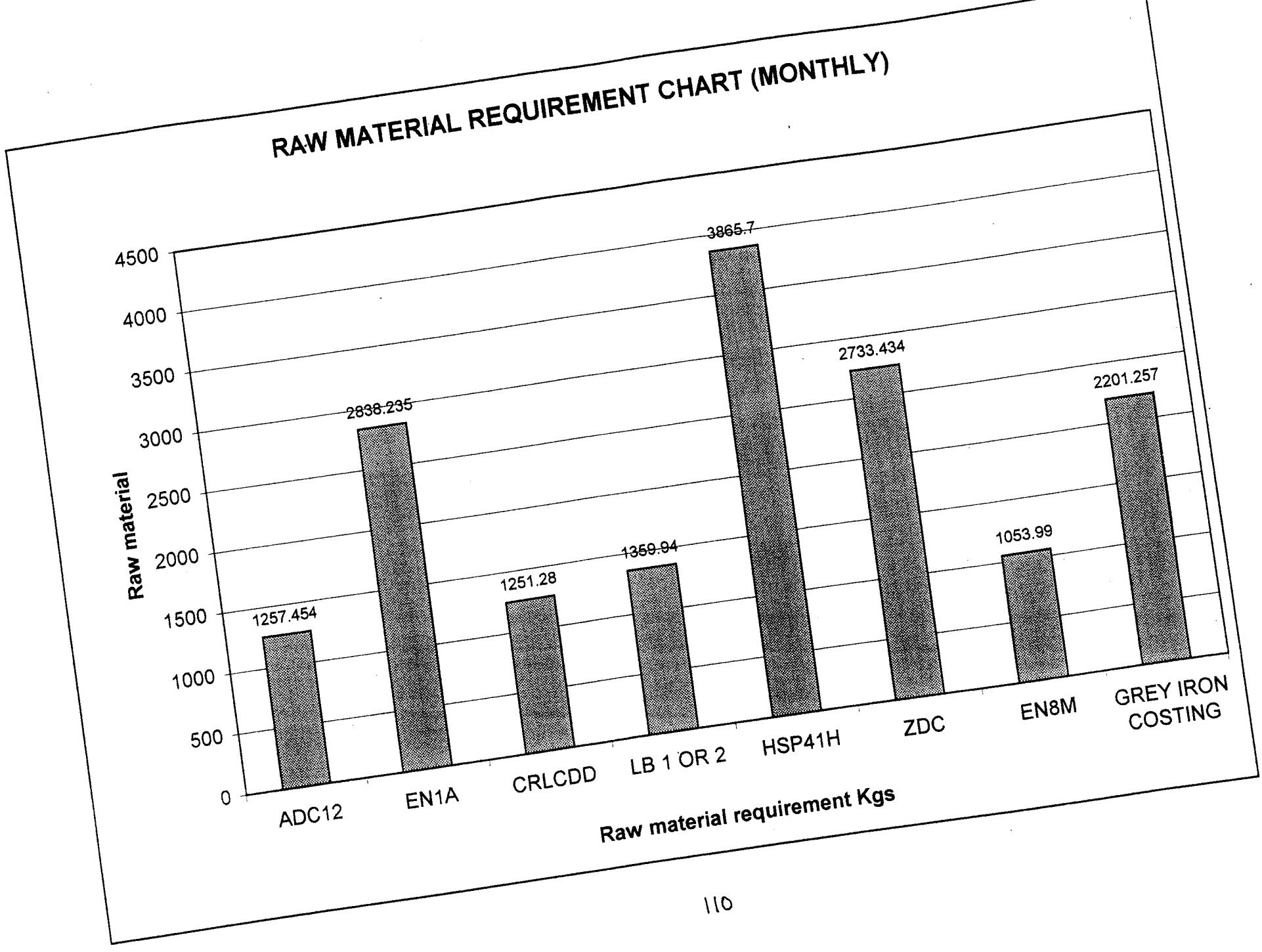
Soft Poly Vinyl Chloride

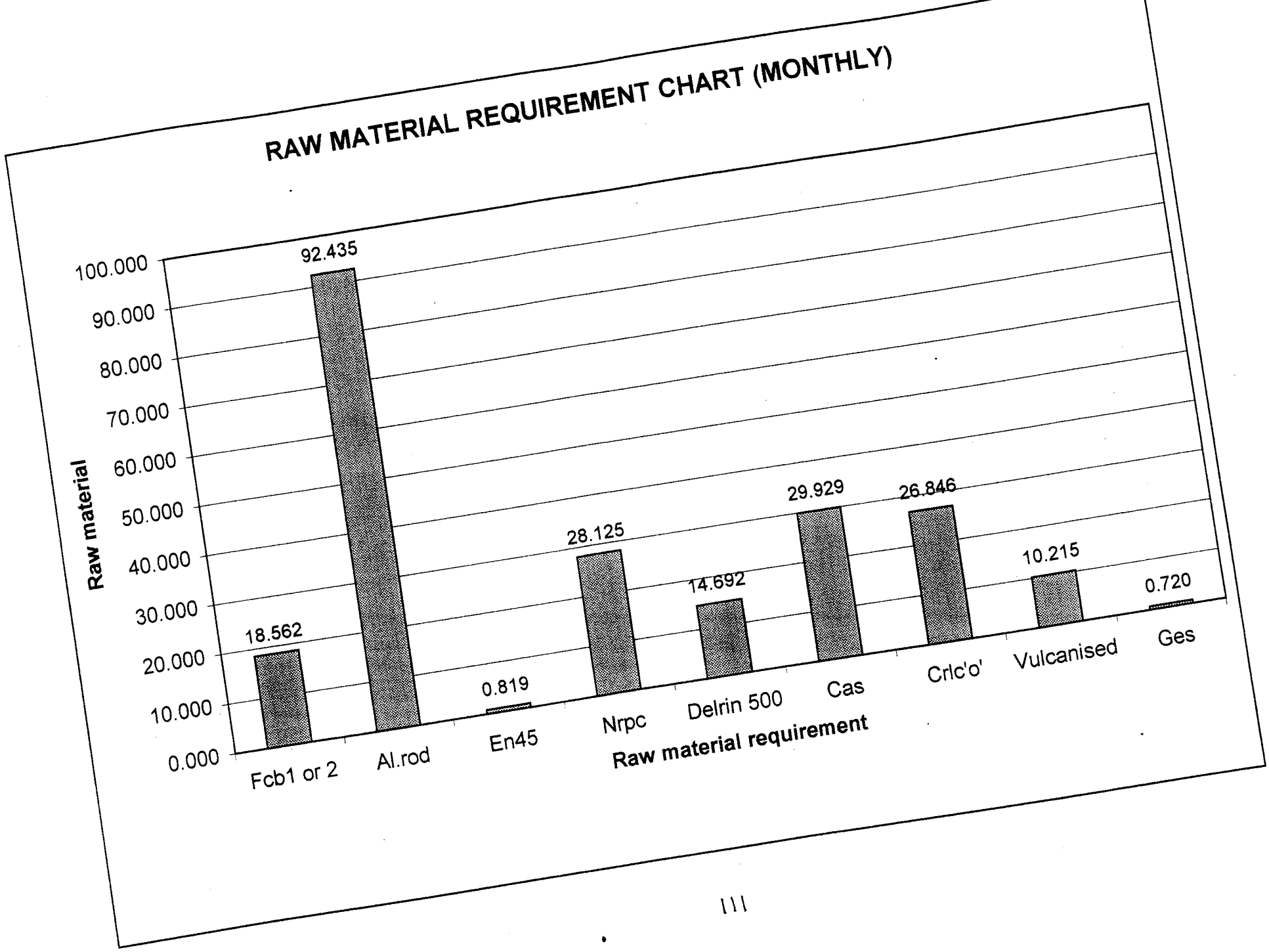
Sl.No.	Product Code	Component Name	Exact Dwg Size	Con.Qty in KGS	Wt. per Qty	R.M. STD Size	Monthly Schedule	R.M. Req in KGS
							30	
							1000	362.500
							14500	
1.	M2010030 MO 01	Plug II		40.000	25.00			
2.	M3050042 CU 01	Sleeve						
3.	M1680048 CU 01 (M305)	Tube outlet					**TOTAL**	**362.500**

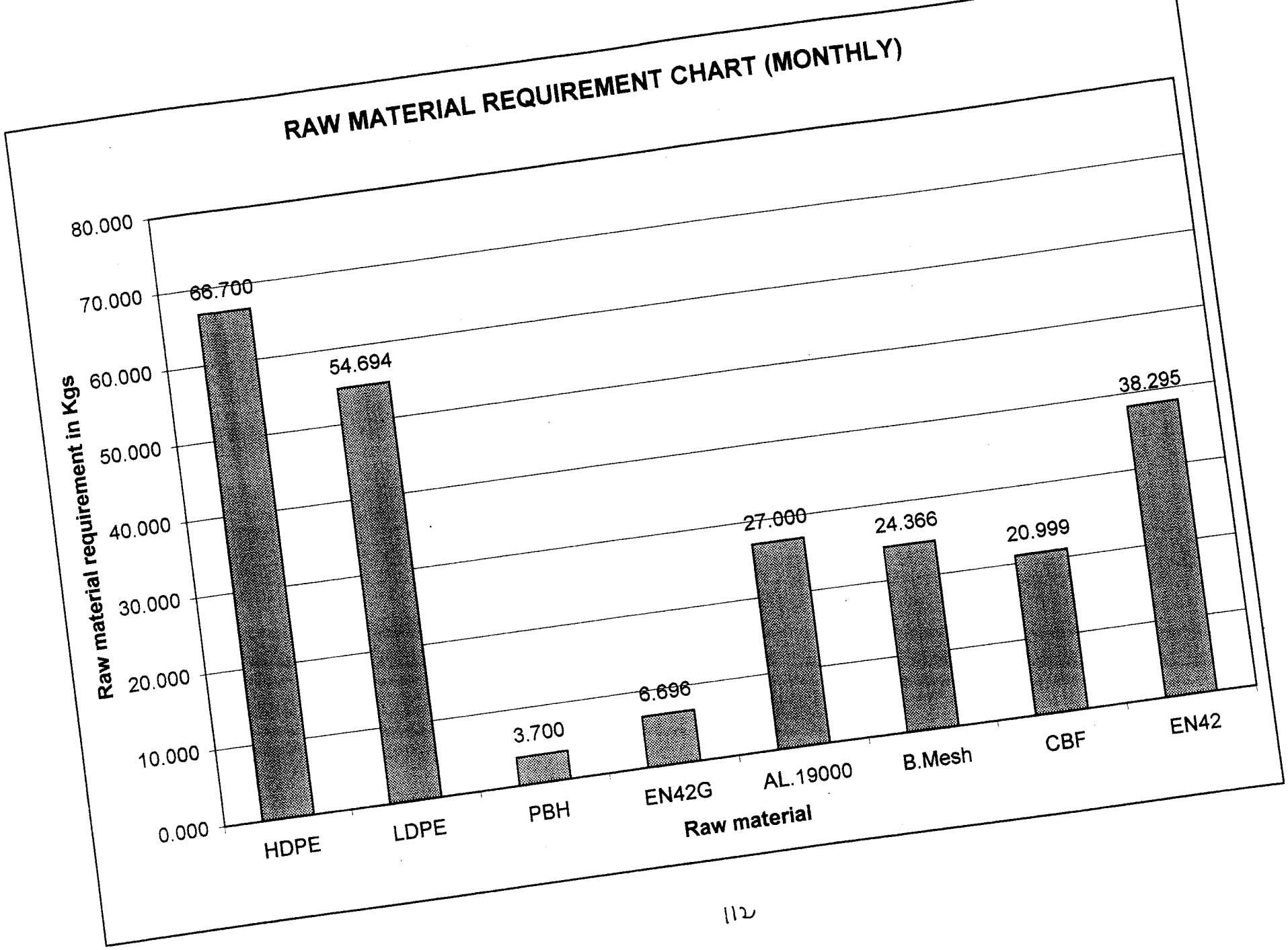

RAW MATERIAL REQUIREMENT CHART (MONTHLY)
Raw material requirement in Kgs
1200
1000
800
600
400
200
0
969.527
268.197
411.445
108.468
480.307
146.504
500
En80
45C8
Sae8620(EN353)
45C8(EN8D)
Crlc Special
En19
Crcad
Raw material


RAW MATERIAL REQUIREMENT CHART (MONTHLY)
Raw material requirement in Kgs
1000
900
800
700
600
500
400
300
200
100
0
172.427
550.58
614.16
502.354
455.351
338.686
219.061
861.202
En31
En353
Crlcd
Poly6
En9
Leaded Brass
En8
Crsss
Raw material


RAW MATERIAL REQ CHART (MONTHLY)
Raw material requirement in Kgs
120
100
80
60
40
20
0
66.666
43.544
77.857
69.235
95.877
1.521
LM4
SAE8620
S45C
16MNCR4
EN24
75C680C6
Raw material


RAW MATERIAL REQUIREMENT CHART (MONTHLY)
Raw material
4500
4000
3500
3000
2500
2000
1500
1000
500
0
1257.454
2838.235
1251.28
1359.94
3865.7
2733.434
1053.99
2201.257
ADC12
EN1A
CRLCDD
LB 1 OR 2
HSP41H
ZDC
EN8M
GREY IRON COSTING
Raw material requirement Kgs


RAW MATERIAL REQUIREMENT CHART (MONTHLY)
Raw material
100.000
90.000
80.000
70.000
60.000
50.000
40.000
30.000
20.000
10.000
0.000
18.562
92.435
0.819
28.125
14.692
29.929
26.846
10.215
0.720
Fcb1 or 2
Al.rod
En45
Nrpc
Delrin 500
Cas
Crlc'o'
Vulcanised
Ges
Raw material requirement


RAW MATERIAL REQUIREMENT CHART (MONTHLY)
Raw material requirement in Kgs
80.000
70.000
60.000
50.000
40.000
30.000
20.000
10.000
0.000
66.700
54.694
3.700
6.696
27.000
24.366
20.999
38.295
HDPE
LDPE
PBH
EN42G
AL.19000
B.Mesh
CBF
EN42
Raw material

5. Tools Requirement Planning

5.1 An Overview

It is done to meet the production needs of various Auto products for one year. At present, Pricol is having six different types of APT or modules (APT 1, APT 2.....APT 6). APT 2 is located is plant IV The auto products that are manufactured presently in the above said APT's are as follows :-

APT 1 - M170

APT 2 - M182, M197, M251, M297, M318, M345

APT 3 - M183, M201

APT 4 - M168

APT 5 - M315

APT 6 - M211.

The parameters that are required to calculate the Tools Requirement per year are :-

a) Production schedule per month

b) Tool life

$$\text{Tool Requirement / year} = \frac{\text{Production Schedule / month x 12}}{\text{Tool life}}$$

APT 1 M170

CARIBIDE TIPPED REAMER

,700			
cription	Drawing No.	Tool life	Tool Req / year
9.3	M170 0001 CT 02	3000	131
10.0	M170 0001 RE 02	2000	197
∅ 4.5	M170 0001 RE 05	10000	39
∅ 8.0	M170 0001 CT 07	5000	79
∅ 13.0	M170 0001 CT 08	5000	79

Combination Slot drill

Description	Drawing No.	Tool life	Tool Req / year
∅ 9.0	M170 0001 SC 01	15,000	27

Solid Carbide drill

Description	Drawing No.	Tool life	Tool Req / year
∅ 3.0	M170 0001 SC 02	10,000	40

Solid Carbide Reamer

Description	Drawing No.	Tool life	Tool Req / year
∅ 3.5	M170 0029 SC 03	5000	79
∅ 5.7	M170 0010 CT 03	5000	79
∅ 6 H7		15000	27

Slotting Cutters

Description	Drawing No.	Tool life	Tool Req / year
	M170 0018 SL 02	20000	20

Thread Roll

Description	Drawing No.	Tool life	Tool Req / year
6 x 1p 100 x 30 ∅ 40 h7	1,00,000		4

Taper Shark Spot Facing Cutter

Description	Drawing No.	Tool life	Tool Req / year
∅ 14.0	M1690001CTO4	25,000	16

Grinding Wheel

Description	Tool life	Tool Req / year
∅ 150 x ∅ 50 x 20 A 80 K5 V10	25,000	16
∅ 150 x ∅ 50 x 50 A 60 K5 V10	20,000	20
∅ 150 x ∅ 50 x 50 A 120 K5 V10	40,000	10
∅ 150 x ∅ 50 x 13 A 80 K5 V10	25,000	16

Carbide End Mill Extra Full length

Description	Tool life	Tool Req / year
∅ 6.0	12,000	33

Warm Wheel (Roll)

Description	Tool life	Tool Req / year
0.4 M ∅ 170 x 40 x ∅ 54 To suit praga 512m/c	60000	7

Slitting Saw

Description	Drawing No.	Tool life	Tool Req / year
00 x 2.75 ∅1"-50T S		20,000 4	20

HSS Tool Bit

Description	Drawing No.	Tool life	Tool Req / year
1/4 " x 6"		7500	53

Control Wheel

Description	Tool life	Tool Req / year
A 80 RR ∅ 100 x ∅ 40 x 20	50000	8
A 80 RR ∅ 100 x ∅ 40 x 10	50000	8
A 80 RR ∅ 100 x ∅ 40 x 10	50000	8
A 80 RR ∅ 100 x ∅ 40 x 50	50000	8

HOB

Description	Tool life	Tool Req / year
0.4 M 20 PA SS / RH Topping Class AA ∅ 25 x 25 x ∅ 10	10000	40

SIDE AND FACE CUTTER

Description	Tool life	Tool Req / year
4" x 3/8" x 1"	15000	16
4" x 5/6" x ∅ 1"	10000	24
4 teeth		

Drill

Description	Tool life	Tool Req / year
∅ 5.0	5000	79
∅ 2.5	2000	197
∅ 2.0	1000	393
∅ 2.5	2000	197
∅ 5.0	5000	79
∅ 5.0	5000	79
∅ 4.2	2000	197
∅ 3.0 long size	1000	480
∅ 3.0 (125) E. Length	1000	480

Consumable Items

Name of the item	Item Req / year in No's
Emery Sheet Finishing	800
M10 Sockets	20
ID D/P	60
Marking ink	80
Colour paint	12 Colour
Anabond 112	(250 ml) 24
Turbentine Oil	3600 lts
Anabond 412	(250 ml) 20
Needle File	
(a) Ordinary	80
(b) Diamond	40
Number punch (0 to 9)	8 sets
No 1 CSK	120
Servo TT	200 lts
Castrol Supper TT	1800 lts

APT 2 M251 S/M = 16,000

Machine Tap

Description	Component Used	Tool life	Tool Req / year
5 Spiral point	Body	10000	20

Carbide Tipped Reamer

Description	Component Used	Tool life	Tool Req / year
M 182 0001 CT 01	Body	4000	48

Form Cutter

M 182 0018 SL 01	C. Shaft	15000	13

Brazed Tip

ISO A12 K 20	Body	3000	64

Insert

CCG x 060202 Al H10	Body	2000	96

Grinding Wheel

AA 60 K5 V10 ∅ 300 x 50 x ∅ 76.2	Rotors	30,000	7
A 80 K 5 V 10 ∅ 150 x 30 x ∅ 50	C. Shaft	25,000	8

Control Wheel

A 80 RR ∅ 100 x 20 x ∅ 40	C. Shaft	50000	4

M249 APT 2 Schedule per month 2000

Carbide Tipped Reamer

Description	Drg No.	Tool life	Tool Req / year
∅ 14.2	M249 0001 CT 01	5000	5

Drill Bit

Description	Component Used	Tool life	Tool Req / year
∅ 4.0	Plunger	2000	12

Grinding Wheel

A 60 K5 V 10 ∅ 150 x 50 x ∅ 50	Plunger	20000	2

Control Wheel

A 80 RR ∅ 100 x 50 x ∅ 40	Plunger	30000	1

APT 2 M 265 S / M = 200

Carbide Tipped Reamer

Description	Dwg No.	Component	Tool life	Tool Req / year
∅ 7.5	M218 0001 CT 03	Body	8000	1
∅ 12.7	M213 0003 CT 06	Body	3000	1
∅ 19.0	M265 0001 CT 02	Body	4000	1
∅ 7.513	M214 0004 CT 07	PCP	1500	2

Carbide Tipped End mill

Description	Dwg No.	Component	Tool life	Tool Req / year
∅ 11.0	M2130001 CT 05	Body	4000	1
∅ 12.35	M2130001 CT 04	Body	5000	1

Form Tool

Description	Component Used	Tool life	Tool Req / year
2650001 CT 01	Body	5000	1

End Mill Cum Reamer (LH)

Description	Dwg No.	Component	Tool life	Tool Req / year
∅ 12.7	M213 004 CT 07	PCP	1500	2

Insert

Description	Component Used	Tool life	Tool Req / year
SEMN 1204 - A2	Body	2000	2

Grooving Tool Brazed

Description	Component Used	Tool life	Tool Req / year
1507 L1006 - K20	Body	2000	2

End Mill

Description	Component Used	Tool life	Tool Req / year
∅ 3.0	Body	1500	2
∅ 25.4	Body	8000	1

Machine Tap

Description	Component Used	Tool life	Tool Req / year
G 3/8" BSP long Shark " 4 Flute "	Body	2000	2

Grinding Wheel

Description	Drawing No.	Tool life	Tool Req / year
A 60 K5 V10 300 x 50 x Ø 76.2	Rotors	15000	1
Ø150 x 20 x Ø 50	C. Shaft	15000	1
A80 K5 V10 Ø150 x 50 x Ø50	C. Shaft	15000	1

Straight Knurling

Description	Component Used	Tool life	Tool Req / year
0.59 Ø170 x 18.6 x Ø 54 (Parga - 512 m/c)	C. Shaft	15000	1

Cham Fering Cutter

Description	Component Used	Tool life	Tool Req / year
Ø 6 x 90°	Body	15000	1

Drill

Description	Component Used	Tool life	Tool Req / year
Ø 6.8	Body	6000	1
Ø 13.5	Body	6000	1

Centre Drill

Description	Component Used	Tool life	Tool Req / year
BS No4	Body	1000	3

Turning Tool

Description	Component Used	Tool life	Tool Req / year
06 R 20 20 K 20	Body	4000	1

Control Wheel

Description	Component Used	Tool life	Tool Req / year
A 60 RR Ø100 x 10 x Ø 40 Ø100 x 20 x Ø 40	C. Shaft	2000	1

M213 APT 2 S/M = 2400

End Mill Cum Reamer (LH)

Description	Component Used	Tool life	Tool Req / year
M2130004 CT 07	P.C. Plate	3000	10

C.T. Form Tool

Description	Dwg No.	Component	Tool life	Tool Req / year
Ø 17.5	M2130001 CT 08	Body	5000	6
Ø 15.25	M2130001 CT 09	Body	5000	6

Insert

Description	Component Used	Tool life	Tool Req / year
CCG x 09 T 30	Body	4000	8
4ALHIO	Body	2000	15
SEMN1204-AZHI3A			

Drill

Description	Component Used	Tool life	Tool Req / year
Ø 13.5	Body	4000	8

C.T. Reamer

escription	Dwg No.	Component	Tool life	Tool Req / year
4.2	M2130001 CT 13	Body	5000	6
1.5	M2130001 CT 03	Body and PCP	3000	10

Brazed Tool

Description	Component Used	Tool life	Tool Req / year
ISOR 2020 K 20	Body	5000	6
ISO 12 TH 20	Body and PCP	4000	8

Grooving Tool Brazed

Description	Component Used	Tool life	Tool Req / year
IS07 LI 006 K 20	Body	5000	6

Tip Tool

Description	Component Used	Tool life	Tool Req / year
SQ * 20 ISO 6 R 20 - K20	Body	1000	29

Control Wheel

Description	Component Used	Tool life	Tool Req / year
∅ 100 x 20 x ∅ 40	Control Shaft	25000	2
∅ 100 x 13 x ∅ 40	Control Shaft	25000	2
∅ 100 x 50 x ∅ 40	Control Shaft	50000	1

Grinding Wheel			
Description	Component Used	Tool life	Tool Req / year
60 K5 V10 00 x 50 x Ø 76.2	Rotors	18000	2
60 K5 V10 150 x 50 x Ø 50	Control Shaft	15000	2
60 K5 V10 Ø 150 x 35 x Ø 50	Control Shaft	10000	3
A 80 K5 V10 Ø 150 x 35x Ø 50	Control Shaft	15000	2
A 60 K5 V10 Ø 150 x 20 x Ø 50	Control Shaft	15000	2
A 80 K5 V10 Ø 150 x 20 x Ø 50	Control Shaft	25000	2

Machine Tap			
Description	Component Used	Tool life	Tool Req / year
3/8" BSP EL - 125mm	Body	5000	6
3/4" UNF EL - 125 mm	Body	5000	6

Knurling Roll			
Description	Component Used	Tool life	Tool Req / year
(Praga 512 m/c) Ø 170 x Ø 20 x Ø 13 7 - ST knurling 0.5p	Control Shaft	50000	1

APT 2 M 273 Schedule Per month = 60,000

Slotting Cutter

escription	Dwg No.	Component	Tool life	Tool Req / year
98.5 x 4 Ø 25.4	M273 0018 SL 02	Control Shaft	20000	36
100 x 10 Ø 25.4	M2730018 SL 01	Control Shaft	20000	36

Grinding Wheel

Description	Component Used	Tool life	Tool Req / year
Ø 300 x 50 x Ø 76.2	Rotors	25000	30
Ø 150 x 30 x Ø 50	Control Shaft	20000	36
Ø 150 x 30 x Ø 50	Control Shaft	20000	36

C.T. Spot Facing Cutter

Description	Dwg No.	Component	Tool life	Tool Req / year
Ø 20.0	M2730001 CT 02	Body	10000	72

Machine Top

Description	Component Used	Tool life	Tool Req / year
M3 x 0.5p	Body	6000	120

Brazed Carbide Tool

Description	Dwg No.	Component	Tool life	Tool Req / year
ISO 6R 1010 K20	M2730001 FT 01	Body	20000	36
ISO 6R 1616 K20		Body	6000	120

C.T. Reamer

escription	Dwg No.	Component	Tool life	Tool Req / year
.0	M2730001 CT 03	Body	2000	360

Control Wheel

Description	Component Used	Tool life	Tool Req / year
A 80 RR Ø 100 x 20 x Ø 40	Control Shaft	25000	30

Drill

Description	Component Used	Tool life	Tool Req / year
BS No. : 1 centre drill Ø 5.1	Control Shaft	1000	720
	Control Shaft	1500	480

Hand Tap

Description	Component Used	Tool life	Tool Req / year
M 6 x 1p	Control Shaft	600	1200

Insert

Description	Component Used	Tool life	Tool Req / year
CCMT 060204 H 13 A	Body	1000	720
CCG x 060202 A1 - H 10	Body	1000	720
CCG x 09T308 Al - H 10	PC Plate	1000	720
CCMT 060202 UF CT 5015	Control Shaft	350	2060
CNM 6120404 - 61 GC 425	Control Shaft	1000	720

APT 2 M 277 Schedule Per month = 300

Carbide Tipped Reamer

escription	Dwg No.	Component	Tool life	Tool Req / year
14.2	M2490001 CT 01	Housing	5000	1

Slitting Sam

Description	Component Used	Tool life	Tool Req / year
∅100 x3.37 x ∅ 25.4	Plunger	15000	1

Grinding Wheel

Description	Component Used	Tool life	Tool Req / year
M 6 x 1p	Control Shaft	600	1200

Drill

Description	Component Used	Tool life	Tool Req / year
∅ 6.5	Plunger	3000	2

Control Wheel

Description	Component Used	Tool life	Tool Req / year
∅ 100 x 20 x ∅ 40	Plunger	30000	1

M197 APT 2 Schedule per month = 18000

C.T. End Mill Cum Reamer

Description	Component Used	Tool life	Tool Req / year
M1970001 CT 01	Body	4000	54

CT Combination End Mill			
escription	Component Used	Tool life	Tool Req / year
970000 CT 02	Body	4000	54

SIDE and Face mill Cutter			
Description	Component Used	Tool life	Tool Req / year
Ø 4" x 1/4" x 01"	Control Shaft	20000	11

Grinding Wheel			
Description	Component Used	Tool life	Tool Req / year
Ø 150 x 50 x Ø 50 A80 K5 V10	Control Shaft	25000	9
Ø 300 x 50 x Ø 76.2 AA 60 K5 V10	Rotors	30000	8

Control Wheel			
Description	Component Used	Tool life	Tool Req / year
A 80 RR Ø 100 x 50 x Ø 40	Control Shaft	50000	5

Knurling Roll			
Description	Component Used	Tool life	Tool Req / year
0.5 p, Ø 90x 30 x Ø 39.6 To suit praga 511 m/c.	Control Shaft	100000	3

M182 APT 2 Schedule per month = 8000

Brazed Tip

Description	Component Used	Tool life	Tool Req / year
) A12 K20	Body	3000	32

Form Cutter

Description	Component Used	Tool life	Tool Req / year
M1820018 SL 01	Control Shaft	15000	7

Insert

Description	Component Used	Tool life	Tool Req / year
CCG x 060202 Al H10	Body	2000	48

Carbide Tipped Reamer

Description	Component Used	Tool life	Tool Req / year
M182 0001 CT 01	Body	4000	24

Machine Tap

Description	Component Used	Tool life	Tool Req / year
M5 Spiral point	Body	10000	10

Control Wheel

Description	Component Used	Tool life	Tool Req / year
∅ 100 x 20 x ∅ 40 A 80 RR	Control Shaft	50,000	2

Grinding Wheel

Description	Component Used	Tool life	Tool Req / year
∅ 150 x 30 x ∅ 50 A80 K5 V10	Control Shaft	25000	4
∅ 300 x 50 x ∅ 76.2	Rotors	30000	4

M212 APT 2 Schedule per month 100

Brazed Tool

escription	Componentn Used	Tool life	Tool Req / year
ning and amfering o 6 R 1212 K 20	Body	2500	1
hamfering SO 6R 1212 K 20	Body	1250	1
Chamfering 1632020 R K 20	P.C. Plate	2000	1

C.T. End mill cum Reamer

Description	Dwg No.	Component	Tool life	Tool Req / year
∅ 7.5mm	M2120001 CT 03	Body	10000	1

C.T. Reamer

Description	Dwg No.	Component	Tool life	Tool Req / year
∅ 15.09	M2120001 CT 02	Body	4000	1

C.T. End mill

Description	Dwg No.	Component	Tool life	Tool Req / year
∅ 14.75	M2120001 CT 01	Body	10000	1

Wood ruff milling cutter

Description	Component Used	Tool life	Tool Req / year
∅ 9.5 x 3.18 x 6 mm shark	Control Shaft	500	3

Thread roll

Description	Component Used	Tool life	Tool Req / year
Praga (512 m/c) ∅ 170 x 30 x ∅ 54 3/8" x 24 UNF	Control Shaft	50000	1

Knurling roll

Description	Component Used	Tool life	Tool Req / year
ga 512 m/c 67 x 25.4x Ø 54 knurling 0.5 p	Control Shaft	50000	1

Chamfer Tool

Description	Component Used	Tool life	Tool Req / year
Ø 6 x 90°	P.C. Plate	2000	1

Grinding Wheel

Description	Component Used	Tool life	Tool Req / year
Ø 300 x 50 x Ø 76.2 A60 K5 V10	Rotors	25000	1
Ø 300 x 50 x Ø 76.2	PCP	15000	1
Ø 150 x 20 x Ø 50	Control Shaft	8000	1
Ø 150 x 20 x Ø 50	Control Shaft	15000	1
Ø 150 x 12 x Ø 50	Control Shaft	8000	1
Ø 150 x 12 x Ø 50	Control Shaft	15000	1
Ø 150 x 12 x Ø 50	Control Shaft	8000	1
Ø 150 x 12 x Ø 50	Control Shaft	15000	1

Lapping Paste (Fine)

Description	Component Used	Tool life	Tool Req / year
	Rotors	2000	1

APT 2 M 318 Schedule Per month = 5000

C.T. Reamer

Description	Dwg No.	Component	Tool life	Tool Req / year
9.44	M3180104 CT 01	P.C. Plate	3000	20

Solid Carbide Reamer

Description	Dwg No.	Component	Tool life	Tool Req / year
Ø 7	M3180001 SC 01	Body	6000	10
Ø 7	M3180104 SC 01	P.C. Plate	5000	12
Ø 2.92	M3180104 SC 02	P.C. Plate	3000	20
Ø 2.0	M3180018 SC 01	Control Shaft	4000	15

Grinding Wheel

Description	Component Used	Tool life	Tool Req / year
AA60 K5 V 8 Ø 300 x Ø 76.2 x 50	Rotors	40000	2
A80 K5 V10 Ø 150 x 50 x Ø 50	Control Shaft	25000	3

Side and Face mill Cutter

Description	Component Used	Tool life	Tool Req / year
M3180018 SL 01	Control Shaft	20000	3

Control Wheel

Description	Component Used	Tool life	Tool Req / year
RR 80 Ø 100 x 40 x Ø 50	Control Shaft / locating p is and 5p is dowel	40000	2

Control Wheel			
Description	Component Used	Tool life	Tool Req / year
00 x 20 x ∅ 40	Control Shaft	15000	1
100 x 10 x ∅ 40	Control Shaft	15000	1
100 x 10 x ∅ 40	Control Shaft	15000	1
100 x 50 x ∅ 40	Control Shaft	10000	1

Consumable Items	
2 D tip	144 Nos
3 D tip	36 Nos
20 WHO	1200 Lit
Tubentine	1600 Lit
Anabond 112 (250 ml)	24 box
Anabond 412 (250 ml)	12 box
Number puncher	
0 to 8	240 Sets
'9'	360 Nos.
Slace (/) punch	360 Nos.

Schedule per month = 3000 APT3 M1830050 pinion

Side and Face Milling Cutter		
Description	Tool life	Tool Req / year
100 x 10 x Ø 25.4 HSS	6000	6

HOB			
.90 mm Ø 50 x 32 x Ø 22 20" PA SS/RH Non top class AA	HOB sml 1830050	15000	3

Grinding Wheel		
Description	Tool life	Tool Req / year
A 80 K5 V10 Ø 150 x 20 x Ø 50	100000	1
A 80 K5 V10 Ø 150 x 13 x Ø 50	100000	1

Control Wheel		
Description	Tool life	Tool Req / year
Ø 100 x 20 x Ø 40	100000	1
A 80 RR Ø 100 x 13 x Ø 40	100000	1

APT 3 Schedule Per month = 18,000			
	Side and Face milling Cutter		
	Description	Tool life	Tool Req / year
8300050000 pinion	∅ 100 x 10 x ∅ 25.4	12000	18
18300510000 pinion	∅ 100 x 10 x ∅ 25.4	12000	37

	HOB		
	Description	Tool life	Tool Req / year
0.75M, ∅ 50 x 32 x ∅ 22 20" PA SS/RH Non top Class AA	M18300 050000	10000	15
0.65M, ∅ 50 x 32 x ∅ 22 20" PA SS/RH Non top Class AA	M18300 510000	15000	30

	Work Rest Table		
	Description	Tool life	Tool Req / year
M18300050000 pinion	M18305WB GR 01	20000	11
M18300510000 pinion	M18305 WB GR 01	20000	23

Schedule per month = 3000 APT3 M1830050 pinion		
Work Rest Table		
	Tool life	Tool Req / year
Description	20000	2
M183 18 WB GR 01		

'P' Punch 3/32		
	Tool life	Tool Req / year
	20000	1

Schedule per month = 2250 M1830018000 and pinion M18300480000

Form Cutter		
Description	Tool life	Tool Req / year
183 0018 FC 01	6000	4

HOB			
.90 mm Ø 50 x 32 x Ø 22 20" PA SS/RH Non top class AA	HOB sm 1830018	15000	2

Grinding Wheel		
Description	Tool life	Tool Req / year
A 80 K5 V10 Ø 150 x 13 x Ø 50	100000	1
A 80 K5 V10 Ø 150 x 20 x Ø 50	100000	1

Control Wheel		
Description	Tool life	Tool Req / year
A 80 RR Ø 100 x 13 x Ø 50	100000	1
A 80 RR Ø 100 x 20 x Ø 40	100000	1

Work Rest Table		
Description	Tool life	Tool Req / year
M1830018 WB GR 01	20000	1

'P' Punch 3/32		
	Tool life	Tool Req / year
	20000	1

M1830040 pinion S/M = 15,000		
Side and Face Milling Cutter		
Description	Tool life	Tool Req / year
Ø 100 x 10 x Ø 25.4 No.of teeth = 24	6000	30

HOB			
0.8 mm Ø 50 x 32 x Ø 22 20" PA SS/RH Non top class AA	HOB M1830039	15000	12

Control Wheel		
Description	Tool life	Tool Req / year
A 80 RR Ø 100 x 13 x Ø 40	100000	2
A 80 RR Ø 100 x 20 x Ø 40	100000	2

M1830039 pinion S/M = 15,000		
Grinding Wheel		
Description	Tool life	Tool Req / year
0 K5 V10 150 x 13 x ∅ 50	100000	2
80 K5 V10 ∅ 150 x 20 x ∅ 50	100000	2

Work Rest Table		
Description	Tool life	Tool Req / year
M1830018 WB GR 01	20000	9

'P' Punch 3/32		
	Tool life	Tool Req / year
	20000	1

M1830040 pinion S/M = 35,000		
Side and Face Milling Cutter		
Description	Tool life	Tool Req / year
∅ 100 x 10 x ∅ 25.4 No.of teeth = 24	6000	70

HOB			
0.8 m ∅ 50 x 32 x ∅ 22 20" PA SS/RH Non top class AA	HOB M1830039	15000	28

Grinding Wheel		
Description	Tool life	Tool Req / year
0 K5 V10 150 x 13 x ∅ 50	100000	5
80 K5 V10 150 x 20 x ∅ 50	100000	5

Control Wheel		
Description	Tool life	Tool Req / year
A 80 RR ∅ 100 x 13 x ∅ 40	100000	5
A 80 RR ∅ 100 x 20 x ∅ 40	100000	5

S/M = 35,000	'P' Punch 3/22 M1830040	
	Tool life	Tool Req / year
	20000	3

Work Rest Table		
Description	Tool life	Tool Req / year
M18318 WB GR 01	20000	21

Schedule per month = 6500 M1830011		
Taper Shark Reamer		
Description	Tool life	Tool Req / year
∅ 8.0	3000	84

Turning Tool		
Description	Tool life	Tool Req / year
20 x 20 K 20 (L/H)	2000	120

HSS Drill		
Description	Tool life	Tool Req / year
x 20 K 20 (L/H)	2000	120

Drill Cum Reamer (HSS)		
Description	Tool life	Tool Req / year
∅ 5.0	2000	120

M 1830011 Consumable Items	
Items	**Yearly Requirement**
Yellow (Dulux Auto motivept)	1 lit
White (Dulux Auto motivept)	1 lit
Buffing Wheel M183 - 11, M183 - 63	25 Nos
Buffing use and gear (47, 46 Rust Cleaning use)	1/2 Kg
Cupric Sulphate	1200
Cloth Emery (297)	200 120
Diamond Flat File	1000
Diamond Needle triangular file	200 120
3 Needle Round File (M183-04, R/W use)	10
Thinner	10 lit
Fevi Quick (20 gms)	36
DW x 30 oil (Vibrator use)	

APT 3 M201 Spares

Description	Yearly Requirement
x 12 R/H K 20	10 Nos.
x 16 R/H K 20	5 Nos.

Turning Tool For GD Weiler Use

Description	Yearly Requirement
12 x 12 R/H	20 Nos.

Dril Bit

Description	Yearly Requirement
12 x 12 R/H	20 Nos.

Internal Threading Tool

Description	Yearly Requirement
16 x 16 R/H K 20	5 Nos.

Form Cutter

Description	Tool life	Tool Req / year
M1830057 FC 01	600	60 Nos.

Consumable Items

M 201 Spares Items	Yearly Requirement	
M 14 x 1.5 die	1 set	
H and Hacksaw blade	10 Nos	
Diamond Cross Cut 6" Smooth File	1 No.	
240 Emery Sheet	10 Nos.	
Grinding Wheel Dresser JAS 0.75 ct / M101.62	10,000	240 Nos.
Control Wheel Dresser JAS 0.75 ct / M101.62	60,000	84 Nos.

M168 APT 4 Schedule per month 20,000

Solid Carbide End Mill

escription	Drg. No.	Tool life	Tool Req / year
5.30	M1680003SC 10	6000	40
6.20	M1680001SC13		59
9.30	M1680001SC10		24
ø 9.60	M1680001SC11		31
ø 6 H7	M1680003 SC 08	1500	160
ø 5 H7	M1680010 SC 06	2750	88

Extra Long Drill

Description	Tool life	Tool Req / year
ø 2.5	3750	64

Slotting Cutter

Description	Drg. No.	Tool life	Tool Req / year
ø125 x 25.4 x 7	M1680018 SL 01	20000	12
ø102.6 x 25.4 x 10	M1680010 SL 03	20000	12
ø100 x 25.4 x 10	M1680010 SL 01	20000	12
ø100 x 25.4 x 3.06	M1680018 SC 02	20000	12
ø994 x 25.4 x1.86	M1680018 SC 03	20000	12
ø100 x 25.4 x 4	M1680010 SL 04	30000	8
ø100 x ø 25.4 x 2.2	M1680010 SL 01	20000	12

Reamer

Description	Drg. No.	Tool life	Tool Req / year
ø 6.50	M1680001 SC 14	750	54
ø 4.96	M1680015 SC 07		320
ø 9.90	M1680001 SC 12		77

Drill

Description	Tool life	Tool Req / year
2.0	1500	160
3.5		70

C.T. Reamer

Description	Drg. No.	Tool life	Tool Req / year
∅ 7 H 7 x 9 H 7	M1680001 CT 01	2000	120

Flat Drill

Description	Tool life	Tool Req / year
∅ 3.0	3750	64
∅ 2.5	3750	64

Straight Shark drill

Description	Yearly Requirement
∅ 2 x 100	77
∅ 3 x 125	154

Flate File

Description	Yearly Requirement
1/2" Rough	108
1/2" Smooth	47

Needle

Description	Yearly Requirement
Smooth	47

Grinding Wheel		
Description	Tool life	Tool Req / year
0 K5 V10 150 x Ø 50 x 10	10000	24
80 K5 V10 Ø 150 x Ø 50 x 13	10000	24
A80 K5 V10 Ø 150 x Ø 50 x 5	3000	80
Ø 150 x Ø 50 x 20	10000	24
Ø 150 x Ø 50 x 25	10000	24
Ø 150 x Ø 50 x 30	10000	24
Ø 150 x Ø 50 x 50	10000	24

HOB		
Description	Tool life	Tool Req / year
0.4 MoD x 20° PA class AA	10000	24
0.75 MoD x 20° PA	10000	24

Thread Roll		
Description	Tool life	Tool Req / year
0.40 MoD	10000	24

Control Wheel		
Description	Tool life	Tool Req / year
Ø 100 x Ø 40 x 10	8000	30
Ø 100 x Ø 40 x 20	8000	30
Ø 100 x Ø 40 x 50	10000	24
Ø 100 x Ø 40 x 13	8000	30

Insert

Description	Tool life	Tool Req / year
MG 331 NG 1 C6 35	200	1200

Diamond Dresser

Description	Yearly Requirement
700	343

Machine Tap

Description	Yearly Requirement
M5 x 80 E.L.	77

BS2 Centre Drill

Description	Yearly Requirement
500	480

Revolving Centre

Description	Yearly Requirement
M T 4 (C.T.)	10

Dead Centre

Description	Yearly Requirement
M T4 (S.T.)	10

Turning Tool Holder

Description	Yearly Requirement
JNL 2020 K 16 Sandwick	4 set
Spare 8 All	10 sets

10.10

Drill Collet	
Description	Yearly Requirement
	30 Nos

Brush	
Description	Yearly Requirement
50 mm Cleaning	75
75 mm Cleaning	39

Consumable Items	
Description	Yearly Requirement
Diamond File (Flat)	47
Soap Oil	116 litres
Nylon mesh (200) filter cloth	116 metres
2T oil KH	5385 litres
Impregnation powder	3 kgs
Impregnation oil	1539 litres
Soap powder	116 Kgs.
Anabond 112	770 ml
Fevi Quick (20 gms)	770 ml
Tubertile oil	3847 litres
Anabond (412)	19 Litres

APT 5 M272 Diamond Dressure	
Description	Yearly Requirement
For all Grinding Components	360 Nos.

Control Wheel		
Description	Tool life	Tool Req / year
∅ 100 x 10 x 40	Driven Gear	72

Drill Bit

Description	Tool life	Tool Req / year
∅ 1.4	Pump body	300
∅ 2.0 (Ordinary)	Pump body	1800
∅ 2.5	Driven gear / Pump body	600
∅ 2.6	Driven gear	300
∅ 3.3	Pump body	60
∅ 3.0	Pump body	60
∅ 2.8	Pump body	60
∅ 1.2	Driven gear	600

Extra Length Drill

Description	Drg. No.	Tool life	Tool Req / year
∅ 2.0	Pump body	40	480
∅ 2.8	Pump body	10	120

Grinding Wheel

Description	Tool life	Tool Req / year
∅ 150 x ∅ 50 x 30	Driven gear / Control Shaft	60
∅ 150 x ∅ 50 x 50	Control Shaft / Sub Plunger	36
∅ 150 x 35 x 50		12
∅ 150 x 13 x 50	Driven gear	60
∅ 100 x 20 x 50	Driven gear	36
∅ 150 x 5 x 50	Control Shaft	120
∅ 150 x 10 x 50	Driven gear/ Control Shaft	60

Mesh Cloth (180)

Description	Yearly Requirement
	120

Control Wheel

Description	Tool life	Tool Req / year
∅ 100 x 20 x 40	Driven gear	24
∅ 100 x 50 x 40	Control Shaft / Sub plunger	36
∅ 100 x 12 x 40	Driven gear	72
∅ 100 x 15 x 40	Driven gear	24

Description	Tool life	Tool Req / year
BSI CSK	Pump body	60
BS2 CSK	Pump body	240

Machine Tap

Description	Tool life	Tool Req / year
M3 x 0.5	Pump body	900
M4 x 0.7	Pump body	360

Polish Tool Bit

Description	Tool life	Tool Req / year
1/4" x 150	Driven gear	48

Drill (M334)

Description	Tool life	Tool Req / year
∅ 1.85	Driven Gear	120

HOB Tapping Cutter

Description	Tool life	Tool Req / year
0.40 MOD	Driven gear	24

C.T. Cutter			
Description	Drg. No.	Tool life	Tool Req / year
∅ 125 x 25.4 x 6mm	M2720113 SL 01	Driven gear	24 sets
∅ 125 x 25.4 x 4.5	M2720418 SL 02	Control Shaft	24 sets

Solid Carbide Reamer			
Description	Drg. No.	Tool life	Tool Req / year
∅ 2.0	M3340110 SC 01	Driven gear	60
∅ 2.75	M3340110 SC 01	Driven gear	300
∅ 3.4	M3120110 SC 01	Driven gear	180
∅ 6.0	M2720101 SC 02	Driven gear	300
∅ 8.0	M2720101 SC 04	Pump body	180
∅ 10.0	M1700001 RE 02	Pump body	180
∅ 1.7		Driven gear	180

Solid Carbide Reamer			
Description	Drg. No.	Tool life	Tool Req / year
∅ 5.7	M272 0101 SC 01	Pump body	120
∅ 5.9	M272 0101 SC 05	Pump body	120
∅ 6.0		Driven gear	120
∅ 7.7	M272 0101 SC 03	Pump body	60
∅ 12		Pump body	24
∅ 14		Pump body	24
∅ 16		Pump body	24

Consumable Items

Description	Yearly Requirement
Needle File (Flat)	240
Anabond 412 (200 ml)	60
TH RSM 272 0113	24
Cup wheel ∅ 31.75, AA 60 K5 V8	48 (White)
Saucer wheel	
AA 60 J 15 V8	24 (White)
152.4 x 12.7 x 31.75	24
Cut off wheel	48
Straight wheel	
Diamond wheel	24
a. Flaring up	24
b. Straight peropheral	24
c. 120 ⁰'V' angle grinding	

APT 6 M 211 Schedule Per month = 6,500

Sold Carbide Reamer

Description	Drg. No.	Component	Tool Life	Tool Req / year
∅ 7.0	M2110001 SC 02	Body	2000	39
∅ 6.0	M2110001 SC 01	Body	2000	39
∅ 4.05	M2110012 SC 04	Plunger	2000	39
∅ 4.4	M2110012 SC 03	Plunger	3000	26
∅ 4.6 CNC	CNC	Body	—	—
∅ 4.0	M2110012 SC 05	Plunger	3000	26

Drill

Description	Drg. No.	Tool life	Tool Req / year
∅ 6.0	Body	2500	32
∅ 3.3	Body	2000	39
∅ 4.2	Plunger	2500	32
∅ 3.0	Plunger	2000	39
∅ 3.6	Plunger	2500	32
∅ 2.5	C C Plate	6000	13
∅ 1.4	L. Control	500	156
∅ 1.95	L. Control	1000	78
∅ 2.0	L. Control	1000	78
∅ 3.7	L. Control	2000	39

Machine Tap

Description	Drg. No.	Tool life	Tool Req / year
M4	Body	2000	39
M3	C C Plate	6000	13

Extra Length drill

Description		Drg. No.	Tool life	Tool Req / year
∅ 3	100	Body	1500	52
∅ 2	100	Body	1500	52
∅ 2.5	75	Plunger	2000	39

Wood Mff mill Cutter

Description	Drg. No.	Tool life	Tool Req / year
∅ 13.5 x 4	Body	5000	16

C.T. Reamer

Description	Drg. No.	Component	Tool Life	Tool Req / year
∅ 10.0	M211 0001 CT 03	Body	2000	39

CSK Drill

Description	Drg. No.	Tool life	Tool Req / year
1/2" x 90^0	Body	1000	78
1/2" x 5/16 - 90 Type A	Plunger	1000	78

End Mill

Description	Drg. No.	Tool life	Tool Req / year
∅ 5	Plunger	5000	16

Carbide Tipped Side and Face Cutter

Description	Drg. No.	Tool life	Tool Req / year
∅ 14.0	Body	10000	8

Slotting Cutter

Description	Drg. No.	Tool life	Tool Req / year
100 x 2.5 x 1	L. Control	15000	6

Grinding Wheel

Description	Drg. No.	Tool life	Tool Req / year
∅ 150 x ∅ 50 x 50.2	L. Control	10000	8
∅ 150 x 50 x 13.2		10000	8
∅ 150 x 50 x 30 - 2		10000	8

Control Wheel

Description	Tool life	Tool Req / year
∅ 100 x ∅ 40 x 50	20000	4
∅ 100 x ∅ 40 x 13 - 2	20000	4
∅ 100 x ∅ 40 x 20 - 4	20000	4

6. *Results and Discussions*

By following the method done to calculate the materials and tools requirement, ne production engineers places the requisition form once in a year to the materials manager to cope up the production needs.

The materials manager places, the purchase orders (materials - tools) to various vendors is bulk quantities. By placing the purchase orders the following results are obtained :-

1. He can get the raw materials at a fairly discount rate.
2. The materials manager can respond more effectively to market demand.
3. The management can make their products to increase sales.
4. It enables the management to anticipate the future material needs.

6. Conclusion

The project entitled " **Materials and Tools requirement planning for (Pumps Materials) department of Pricol**" is implemented to help the materials manager to place the purchase orders in bulk quantities. The work of man power is reduced and more important the cost of buying the materials and tools is bought out at discount rate. The production engineers need not place the requistion form to their materials manager again and again. It will result in time consuming and lag in production. This type of report is handy as it provides timely reports and faster access by the materials manager.

Similarly, the tools manager places the purchase order for the requirement of tools for one year so that he can buy it at a discount rate. He need not waste his time asking the production engineers what type of tools he wants. Overall, this project keeps track of the proceedings and provides a clear value to the management.

Scope :

This project will help the top management to increase the productivity in manufacturing and improve profits and market share applications. Material Requirment Planning can be used to organise and manage the manufacturing environment and to deliver manufacturing information in a useful and timely fashion.

Mateial Requirement Planning System that detects when the due date of an order is out of phase with its need date and ultimately keeps the priorities valid in a changing manufacturing environment. Overall this planning system can plan, track and control almost any aspect of manufacturing from inventory levels to job costing to the placement of finished goods to the right distributor.

7. Bibliography

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PRODUCTION SCHEDULE

No. : PD/631 (1/95)

: Process Owner - P & S (Pumps)

: 28 - Aug - 99

To : All Concerned

Schedule No : 09/99

	Product Code	Description	Monthly Schedule	Module
	M16900000000	OIL PUMP ASSY.	2,000	601
	M36200000000	OIL PUMP ASSY	32,000	601
	M36210000000	OIL PUMP ASSY.	300	601
	M36220000000	OIL PUMP ASSY.	400	601
	M35900000000	OIL PUMP ASSY.	1,200	601
6	M18200000000	OIL PUMP ASSY.	8,000	602
7	M19700000000	OIL PUMP ASSY.	18,000	602
8	M25100000000	OIL PUMP ASSY.	16,000	602
9	M29700000000	OIL PUMP ASSY.	1,000	602
10	M31700000000	OIL PUMP ASSY.	3,000	602
11	M31800000000	OIL PUMP ASSY.	5,000	602
12	M32000000000	OIL PUMP ASSY.	200	602
13	M33800000000	OIL PUMP ASSY.	5,000	602
14	M34500000000	OIL PUMP ASSY.	200	602
15	M18300050000	GEAR METER SCREW	18,000	603
16	M18400110000	SPROCKET CAM.	14,000	603
17	M18300180000	PINION (SPEEDO)	1,500	603
18	M18300390000	SOFT PINION	15,000	603
19	M18300400000	SOFT PINION	35,000	603
20	M18300410000	IL 3 GEAR	500	603
21	M18300480000	PINION	750	603
22	M18300510000	PINION	37,000	603
23	M18300630000	GEAR	2,000	603
24	M18300670000	GEAR SPD	1,000	603
25	M18300680000	GEAR CRANKSHAFT	1,000	603
26	M18300690000	SPROCKET CAM KEL	2,000	603
27	M18300710000	COMPOUND GEAR	200	603
28	M18300730000	SPEED MET GEAR	200	603
29	M18304000000	GEAR ASSY.	1,000	603
30	M18305000000	GEAR DRIVEN ASSY.	3,000	603
31	M18306000000	DRIVEN SHAFT ASSY.	2,500	603
32	M18308000000	SHAFT ASSY.	500	603

	Product Code	Description	Monthly Schedule	Module
	M20100000000	HYDRAULIC PUMP	30	603
	M20900000000	OIL STAINER	4,000	603
	M21400000000	VST OIL PUMP	150	603
	M2320000000	ALARAM BYE PASS VALVE	1,000	603
	M16800000000	OIL PUMP ASSY.	5,500	604
	M1680000000L	OIL PUMP ASSY.	5,500	604
	M20800000000	AUTO FUEL COCK	9,000	604
	M3050000000L	OIL PUMP ASSY.	1,000	604
	M30700000000	AUTO FUEL COCK	1,000	604
	M34100000000	OIL PUMP ASSY.	2,500	604
	M27900000000	AUTO FUEL COCK	4,000	604
	M27910000000	AUTO FUEL COCK	2,000	604
	M21100000000	OIL PUMP ASSY.	2,200	606
	M29900000000	OIL PUMP ASSY.	4,000	606
	M37100000000	OIL PUMP ASSY.	200	606
		PLANT IV		
3	M31500000000	OIL PUMP ASSY.	1,000	605
9	M33500000000	OIL PUMP ASSY.	2,500	605
0	M36200000000	OIL PUMP ASSY.	15,000	605
1	M21200000000	OIL PUMP ASSY.	100	607
2	M21300000000	OIL PUMP ASSY.	2,400	607
3	M24900000000	RELIEF VALVE ASSY.	2,000	607
4	M26500000000	OIL PUMP ASSY.	2000	607
5	M27300000000	OIL PUMP ASSY.	2,000	607
6	M27320000000	OIL PUMP ASSY.	2000	607
7	M27700000000	RELIEF VALVE ASSY.	300	607
8	M30600000000	OIL PUMP ASSY.	300	607

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