6) The above is activated ? 2 6 14

7) Is periodic inspection for facilities conducted ? 3 6 13

	1回	2回	3回	未記入
8) How is the frequency of the above ?	7			15

9) Are the records for inspection/breakdown available ? 3 6 13

(8) Location

1) Distance

	企業数
1 ～ 50km	2
51 ～ 100km	
101 ～ 150km	
151 ～ 200km	
201 km ～	
未記入	20

2) Time required

		企業数
車	0～1時間 1～2 〃 2～3 〃 3～4 〃 5時間以上	1 1
船	0～1時間 1～2 〃 2～3 〃 3～4 〃 5時間以上	
電車	0～1時間 1～2 〃 2～3 〃 3～4 〃 5時間以上	
未記入		20

6．将来プラン（リンケージタイプ）……（QⅡ，Ⅳ）

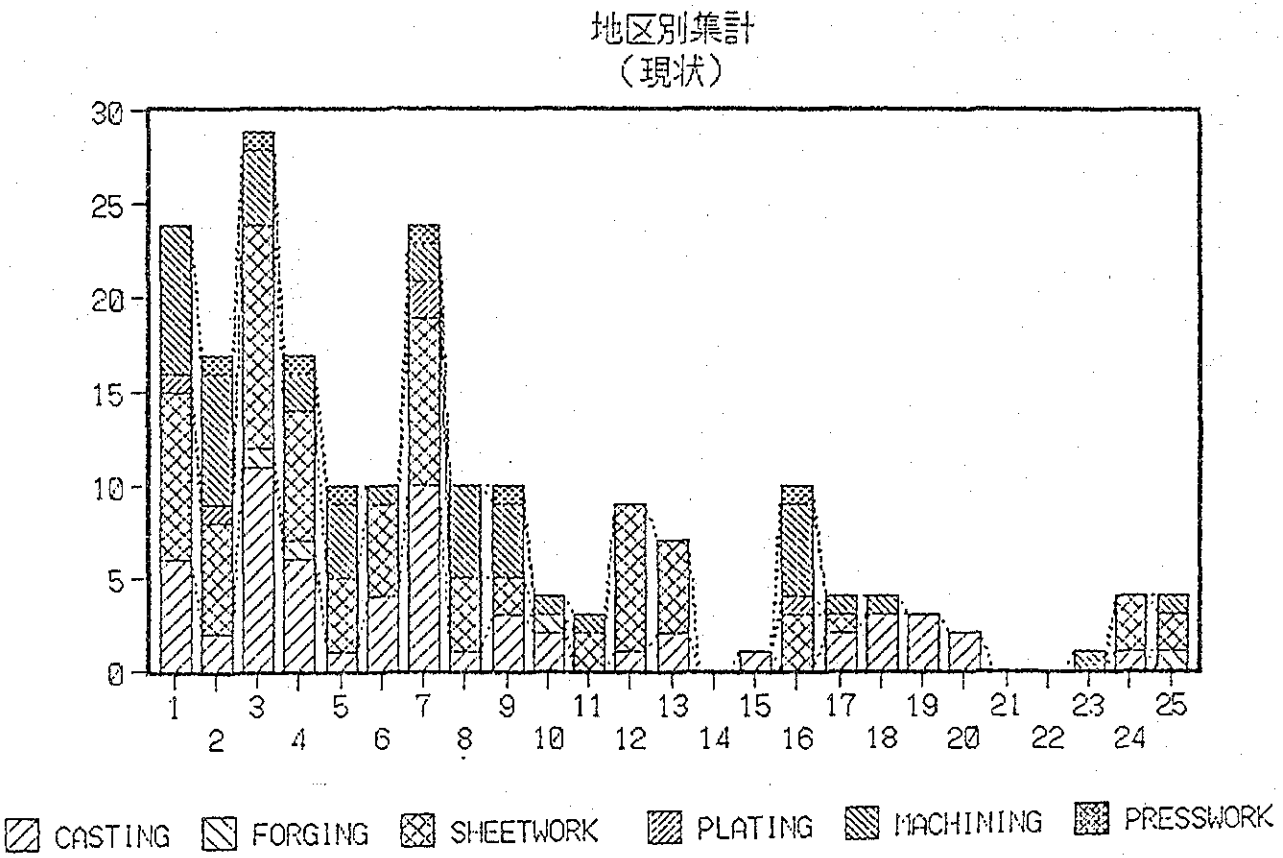
区　分	項　目	回答数
Facilities	New Procurement	
	Additional Installation	2
	Renewal	3
	Others	
Techniques	Automatization of facilities	3
	More precise processing	2
	Others	
Aimed fields	Machine tool	2
	Agricurtural machine	3
	Construction machine	1
	Car	
	Auto-bicycle and -tricycle	
	Electrical machine	
	Electrical tool	
	Shipbuilding	
	Plant machinery	2
	General-use diesel engine	
	Pump	2
	Others	

7．In-House Educational System （リンケージタイプ）……（QⅡ，Ⅴ）

Description		Answer		無回答
		Yes	No	
1) OJT System	Available	9	6	7
	Functioning	4	4	14
2)In-House Qualification System	Available		11	11
	Functioning		7	15
3)Official Qualification System	Supports to obtain offical qualifications		11	11
	Personnel has been officially qualified		10	12
4)Facilities	Training facilities are available		13	9
	Training is entrusted to other organization	1	10	11

8．新センターへの要望

(1)テスト＆インスペクション（現状）



（重複回答有り）

アセンブリ　66社　リンケージ　22社

地区別集計（現状）

総括表

		*							**			
	YES	1	2	3	4	5	6	NO	1	2	3	4
1 Brinnel Hardness	19	6	0	9	1	8	0	20	8	0	0	9
2 Vickeers Hardness	13	2	0	6	1	7	1	22	13	0	0	6
3 Tensile	29	11	1	12	0	4	1	17	9	0	0	6
4 Impact	16	6	1	7	0	2	1	21	14	1	0	4
5 Projector	8	1	0	4	0	4	1	22	15	0	1	4
6 Micro Structure	12	4	0	5	0	1	0	22	12	0	1	7
7 Chemical Analysis	22	10	0	9	2	2	1	20	10	0	0	6
8 Surfase Roughness	12	1	0	4	0	5	0	18	9	0	0	8
9 Three Dimension Measurement	8	3	0	2	0	4	1	23	17	0	1	3
10 Gear Tooth Demension	3	2	1	0	0	1	0	24	16	0	2	4
11 Magnetic Particle	4	0	0	2	0	1	0	26	17	3	1	3
12 Ultra Sonic	11	1	0	8	0	0	0	25	16	3	1	3
13 X-ray	8	2	0	5	0	0	0	25	14	3	2	4
14 Calibration Surface Temp Tester	2	0	0	0	0	0	0	23	15	1	2	3
15 Calibration of Thermo Couple	4	1	0	0	0	0	0	20	13	0	1	4
16 Calibration of Demension Measurement Tool	10	0	0	3	1	5	1	18	10	0	1	5
17 Calibration of Ultra Sonic Tester	7	2	0	1	0	1	0	21	18	0	0	3
18 Sand Grain Fineness Distribution	5	3	0	0	0	1	0	21	15	0	0	4
19 Mold Sand Parmiability Test	4	3	0	0	0	0	0	21	15	0	0	4
20 Moisture	3	2	0	0	0	0	0	22	17	0	0	4
21 Scanning Electron Micro Analyser	1	0	0	0	0	0	0	23	19	0	1	1
22 Electro Micro Analyser	1	0	0	0	0	0	0	23	19	0	1	1
23 Dynamic Balance Test	2	0	0	0	0	1	0	23	17	0	3	1
24 Air Tightness Hydrostatic Test	4	1	0	3	0	0	0	21	16	0	0	3
25 Other	5	0	1	2	0	1	0	13	10	0	0	1

* : 1. Casting
2. Forging
3. Sheetwork & Welding
4. Plating
5. Machining & Machine Assembly
6. Presswork

** : 1. No need
2. Not located nearby
3. Too expensive
4. Inspected at your own factory

アセンブリ　38社　リンケージ　2社

ＤＫＩジャカルタ

		YES	1	2	3	4	5	6	NO	1	2	3	4
1	Brinnel Hardness	12	5	0	4	1	6	0	10	3	0	0	6
2	Vickeers Hardness	8	2	0	2	1	6	1	10	5	0	0	4
3	Tensile	14	5	1	5	0	3	1	8	3	0	0	5
4	Impact	8	4	1	2	0	1	1	10	7	0	0	3
5	Projector	4	1	0	2	0	2	1	10	7	0	0	3
6	Micro Structure	8	4	0	2	0	0	0	10	4	0	0	5
7	Chemical Analysis	12	6	0	3	2	1	1	10	4	0	0	4
8	Surfase Roughness	7	0	0	1	0	4	0	9	3	0	0	7
9	Three Dimension Measurement	7	3	0	1	0	4	1	12	9	0	0	3
10	Gear Tooth Demension	3	2	1	0	0	1	0	13	9	0	1	3
11	Magnetic Particle	3	0	0	1	0	1	0	14	9	1	1	3
12	Ultra Sonic	6	1	0	3	0	0	0	14	9	1	1	3
13	X-ray	4	2	0	1	0	0	0	14	7	1	2	4
14	Calibration Surface Temp Tester	2	0	0	0	0	0	0	12	7	0	2	3
15	Calibration of Thermo Couple	3	0	0	0	0	0	0	11	6	0	1	4
16	Calibration of Demension Measurement Tool	7	0	0	2	1	2	1	9	3	0	1	5
17	Calibration of Ultra Sonic Tester	5	1	0	0	0	1	0	13	11	0	0	3
18	Sand Grain Fineness Distribution	2	1	0	0	0	0	0	13	9	0	0	3
19	Mold Sand Parmiability Test	2	1	0	0	0	0	0	13	9	0	0	3
20	Moisture	2	1	0	0	0	0	0	12	8	0	0	4
21	Scanning Electron Micro Analyser	1	0	0	0	0	0	0	13	10	0	1	1
22	Electro Micro Analyser	1	0	0	0	0	0	0	13	10	0	1	1
23	Dynamic Balance Test	1	0	0	0	0	0	0	13	9	0	2	1
24	Air Tightness Hydrostatic Test	1	0	0	0	0	0	0	12	9	0	0	2
25	Other	4	0	1	2	0	0	0	7	6	0	0	1

	西ジャワ				アセンブリ 4社				リンケージ 8社			
	YES	1	2	3	4	5	6	NO	1	2	3	4
1 Brinnel Hardness	2	0	0	2	0	0	0	3	1	0	0	2
2 Vickeers Hardness	2	0	0	2	0	0	0	3	1	0	0	2
3 Tensile	3	1	0	2	0	0	0	2	1	0	0	1
4 Impact	1	0	0	1	0	0	0	3	2	0	0	1
5 Projector	0	0	0	0	0	0	0	3	2	0	0	1
6 Micro Structure	0	0	0	0	0	0	0	4	2	0	0	2
7 Chemical Analysis	2	0	0	2	0	0	0	3	1	0	0	2
8 Surfase Roughness	1	1	0	0	0	0	0	1	1	0	0	0
9 Three Dimension Measurement	0	0	0	0	0	0	0	2	2	0	0	0
10 Gear Tooth Demension	0	0	0	0	0	0	0	2	2	0	0	0
11 Magnetic Particle	0	0	0	0	0	0	0	2	2	0	0	0
12 Ultra Sonic	0	0	0	0	0	0	0	2	2	0	0	0
13 X-ray	0	0	0	0	0	0	0	2	2	0	0	0
14 Calibration Surface Temp Tester	0	0	0	0	0	0	0	2	2	0	0	0
15 Calibration of Thermo Couple	0	0	0	0	0	0	0	2	2	0	0	0
16 Calibration of Demension Measurement Tool	1	0	0	0	0	1	0	2	2	0	0	0
17 Calibration of Ultra Sonic Tester	1	1	0	0	0	0	0	2	2	0	0	0
18 Sand Grain Fineness Distribution	1	1	0	0	0	0	0	2	2	0	0	0
19 Mold Sand Parmiability Test	1	1	0	0	0	0	0	2	2	0	0	0
20 Moisture	1	1	0	0	0	0	0	2	2	0	0	0
21 Scanning Electron Micro Analyser	0	0	0	0	0	0	0	2	2	0	0	0
22 Electro Micro Analyser	0	0	0	0	0	0	0	2	2	0	0	0
23 Dynamic Balance Test	0	0	0	0	0	0	0	2	2	0	0	0
24 Air Tightness Hydrostatic Test	0	0	0	0	0	0	0	2	2	0	0	0
25 Other	0	0	0	0	0	0	0	1	0	0	0	1

中部ジャワ　　アセンブリ　9社　リンケージ　11社

	YES	1	2	3	4	5	6	NO	1	2	3	4
1 Brinnel Hardness	1	0	0	0	0	1	0	4	3	0	0	1
2 Vickeers Hardness	1	0	0	0	0	1	0	4	4	0	0	0
3 Tensile	5	3	0	1	0	1	0	3	3	0	0	0
4 Impact	4	2	0	1	0	1	0	4	3	1	0	0
5 Projector	2	0	0	0	0	2	0	4	3	0	1	0
6 Micro Structure	1	0	0	0	0	1	0	3	3	0	0	0
7 Chemical Analysis	4	2	0	1	0	1	0	3	3	0	0	0
8 Surfase Roughness	1	0	0	0	0	1	0	3	3	0	0	0
9 Three Dimension Measurement	0	0	0	0	0	0	0	4	3	0	1	0
10 Gear Tooth Demension	0	0	0	0	0	0	0	4	3	0	0	1
11 Magnetic Particle	0	0	0	0	0	0	0	4	4	0	0	0
12 Ultra Sonic	0	0	0	0	0	0	0	4	4	0	0	0
13 X-ray	0	0	0	0	0	0	0	4	4	0	0	0
14 Calibration Surface Temp Tester	0	0	0	0	0	0	0	4	3	1	0	0
15 Calibration of Thermo Couple	1	1	0	0	0	0	0	2	2	0	0	0
16 Calibration of Demension Measurement Tool	0	0	0	0	0	0	0	3	3	0	0	0
17 Calibration of Ultra Sonic Tester	0	0	0	0	0	0	0	4	4	0	0	0
18 Sand Grain Fineness Distribution	0	0	0	0	0	0	0	4	3	0	0	1
19 Mold Sand Parmiability Test	0	0	0	0	0	0	0	4	3	0	0	1
20 Moisture	0	0	0	0	0	0	0	4	4	0	0	0
21 Scanning Electron Micro Analyser	0	0	0	0	0	0	0	4	4	0	0	0
22 Electro Micro Analyser	0	0	0	0	0	0	0	4	4	0	0	0
23 Dynamic Balance Test	0	0	0	0	0	0	0	4	4	0	0	0
24 Air Tightness Hydrostatic Test	0	0	0	0	0	0	0	4	3	0	0	1
25 Other	1	0	0	0	0	1	0	1	1	0	0	-1

東ジャワ　　アセンブリ　4社　リンケージ　1社

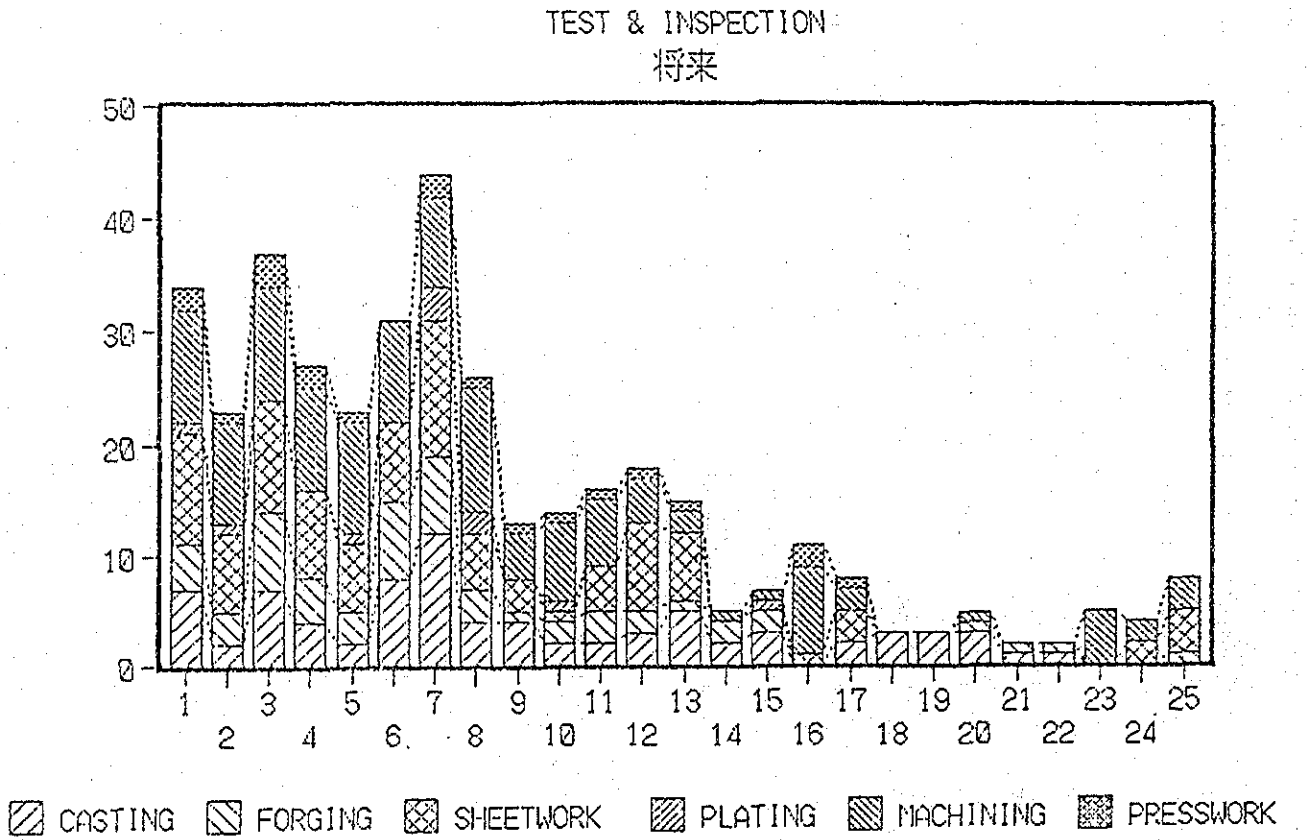
	YES	1	2	3	4	5	6	NO	1	2	3	4
1 Brinnel Hardness	0	0	0	0	0	0	0	0	0	0	0	0
2 Vickeers Hardness	0	0	0	0	0	0	0	0	0	0	0	0
3 Tensile	1	1	0	0	0	0	0	0	0	0	0	0
4 Impact	0	0	0	0	0	0	0	0	0	0	0	0
5 Projector	0	0	0	0	0	0	0	0	0	0	0	0
6 Micro Structure	1	0	0	1	0	0	0	0	0	0	0	0
7 Chemical Analysis	1	1	0	0	0	0	0	0	0	0	0	0
8 Surfase Roughness	0	0	0	0	0	0	0	0	0	0	0	0
9 Three Dimension Measurement	0	0	0	0	0	0	0	0	0	0	0	0
10 Gear Tooth Demension	0	0	0	0	0	0	0	0	0	0	0	0
11 Magnetic Particle	0	0	0	0	0	0	0	0	0	0	0	0
12 Ultra Sonic	1	0	0	1	0	0	0	0	0	0	0	0
13 X-ray	1	0	0	1	0	0	0	0	0	0	0	0
14 Calibration Surface Temp Tester	0	0	0	0	0	0	0	0	0	0	0	0
15 Calibration of Thermo Couple	0	0	0	0	0	0	0	0	0	0	0	0
16 Calibration of Demension Measurement Tool	1	0	0	1	0	1	0	0	0	0	0	0
17 Calibration of Ultra Sonic Tester	0	0	0	0	0	0	0	0	0	0	0	0
18 Sand Grain Fineness Distribution	0	0	0	0	0	0	0	0	0	0	0	0
19 Mold Sand Parmiability Test	0	0	0	0	0	0	0	0	0	0	0	0
20 Moisture	0	0	0	0	0	0	0	0	0	0	0	0
21 Scanning Electron Micro Analyser	0	0	0	0	0	0	0	0	0	0	0	0
22 Electro Micro Analyser	0	0	0	0	0	0	0	0	0	0	0	0
23 Dynamic Balance Test	0	0	0	0	0	0	0	0	0	0	0	0
24 Air Tightness Hydrostatic Test	1	1	0	1	0	0	0	0	0	0	0	0
25 Other	0	0	0	0	0	0	0	0	0	0	0	0

アセンブリ　１１社　リンケージ　　０社

スマトラ

	YES	1	2	3	4	5	6	NO	1	2	3	4
1 Brinnel Hardness	4	1	0	3	0	1	0	3	1	0	0	0
2 Vickeers Hardness	2	0	0	2	0	0	0	5	3	0	0	0
3 Tensile	6	1	0	4	0	0	0	4	2	0	0	0
4 Impact	3	0	0	3	0	0	0	4	2	0	0	0
5 Projector	2	0	0	2	0	0	0	5	3	0	0	0
6 Micro Structure	2	0	0	2	0	0	0	5	3	0	1	0
7 Chemical Analysis	3	1	0	3	0	0	0	4	2	0	0	0
8 Surfase Roughness	3	0	0	3	0	0	0	5	2	0	0	1
9 Three Dimension Measurement	1	0	0	1	0	0	0	5	3	0	0	0
10 Gear Tooth Demension	0	0	0	0	0	0	0	5	2	0	1	0
11 Magnetic Particle	1	0	0	1	0	0	0	6	2	2	0	0
12 Ultra Sonic	4	0	0	4	0	0	0	5	1	2	0	0
13 X-ray	3	0	0	3	0	0	0	5	1	2	0	0
14 Calibration Surface Temp Tester	0	0	0	0	0	0	0	5	3	0	0	0
15 Calibration of Thermo Couple	0	0	0	0	0	0	0	5	3	0	0	0
16 Calibration of Demension Measurement Tool	1	0	0	0	0	1	0	4	2	0	0	0
17 Calibration of Ultra Sonic Tester	1	0	0	1	0	0	0	2	1	0	0	0
18 Sand Grain Fineness Distribution	2	1	0	0	0	1	0	2	1	0	0	0
19 Mold Sand Parmiability Test	1	1	0	0	0	0	0	2	1	0	0	0
20 Moisture	0	0	0	0	0	0	0	4	3	0	0	0
21 Scanning Electron Micro Analyser	0	0	0	0	0	0	0	4	3	0	0	0
22 Electro Micro Analyser	0	0	0	0	0	0	0	4	3	0	0	0
23 Dynamic Balance Test	1	0	0	0	0	1	0	4	2	0	1	0
24 Air Tightness Hydrostatic Test	2	0	0	2	0	0	0	3	2	0	0	0
25 Other	0	0	0	0	0	0	0	4	3	0	0	0

(2)テスト＆インスペクション（将来）



（重複回答有り）

地区別集計（将来）

総括表

	YES	* 1	2	3	4	5	6	NO	** 1	2	3	4
1 Brinnel Hardness	23	7	4	10	1	10	2	14	5	7	10	2
2 Vickeers Hardness	18	2	3	7	1	9	1	16	4	5	8	2
3 Tensile	28	7	7	10	0	10	3	13	6	8	12	6
4 Impact	22	4	4	8	0	9	2	14	6	7	9	3
5 Projector	15	2	3	6	1	10	1	16	2	3	9	0
6 Micro Structure	21	8	7	7	0	9	0	14	5	4	11	2
7 Chemical Analysis	28	12	7	12	3	8	2	11	5	9	14	5
8 Surfase Roughness	21	4	3	5	2	11	1	13	2	6	9	3
9 Three Dimension Measurement	9	4	1	3	0	4	1	20	2	3	4	1
10 Gear Tooth Demension	7	2	2	1	1	7	1	18	5	3	5	0
11 Magnetic Particle	9	2	3	4	0	6	1	17	4	3	5	1
12 Ultra Sonic	11	3	2	8	0	4	1	19	3	4	5	2
13 X-ray	12	5	1	6	0	2	1	17	3	3	5	2
14 Calibration Surface Temp Tester	6	2	2	0	0	1	0	17	3	0	2	3
15 Calibration of Thermo Couple	8	3	2	0	1	1	0	16	4	0	3	4
16 Calibration of Demension Measurement Tool	13	0	0	1	0	8	2	14	6	2	7	2
17 Calibration of Ultra Sonic Tester	7	2	0	3	0	2	1	16	4	3	0	0
18 Sand Grain Fineness Distribution	4	3	0	0	0	0	0	17	3	0	2	2
19 Mold Sand Parmiability Test	4	3	0	0	0	0	0	17	3	1	0	1
20 Moisture	5	3	1	0	0	1	0	16	1	0	4	2
21 Scanning Electron Micro Analyser	2	1	1	0	0	0	0	18	1	1	1	1
22 Electro Micro Analyser	2	1	1	0	0	0	0	18	2	1	1	1
23 Dynamic Balance Test	6	0	0	0	0	5	0	15	1	3	3	3
24 Air Tightness Hydrostatic Test	4	0	0	2	0	2	0	17	1	1	1	3
25 others	7	0	1	4	0	3	0	8	1	0	7	1

* : 1. Casting
2. Forging
3. Sheetwork & Welding
4. Plating
5. Machining & Machine Assembly
6. Presswork

** : 1. Test facilities are very expensive.
2. Client's requirement
3. Getting authorization
4. Frequency of test is very few.

DKI ジャカルタ

	YES	1	2	3	4	5	6	NO	1	2	3	4
1 Brinnel Hardness	13	4	3	5	1	6	2	6	4	4	4	2
2 Vickeers Hardness	10	2	3	3	1	6	1	6	3	3	3	2
3 Tensile	14	3	3	5	0	6	2	6	3	4	5	4
4 Impact	12	3	3	3	0	5	2	6	3	4	4	2
5 Projector	8	2	3	2	1	7	1	7	2	2	4	0
6 Micro Structure	12	5	4	3	0	6	0	5	3	3	5	1
7 Chemical Analysis	15	7	4	5	3	5	2	4	2	5	7	3
8 Surfase Roughness	10	2	2	3	1	7	1	8	1	3	4	2
9 Three Dimension Measurement	5	2	1	2	0	2	1	11	1	1	3	1
10 Gear Tooth Demension	4	2	2	1	0	4	1	10	3	1	4	0
11 Magnetic Particle	5	1	2	1	0	4	1	8	2	2	3	1
12 Ultra Sonic	5	3	2	2	0	3	1	10	2	2	2	2
13 X-ray	6	4	1	1	0	2	1	8	2	1	3	2
14 Calibration Surface Temp Tester	3	1	1	0	0	0	0	8	3	0	1	2
15 Calibration of Thermo Couple	5	1	1	0	0	1	0	7	4	0	2	3
16 Calibration of Demension Measurement Tool	7	0	0	0	0	3	2	7	4	1	4	2
17 Calibration of Ultra Sonic Tester	4	1	0	1	0	2	1	8	2	2	0	0
18 Sand Grain Fineness Distribution	2	1	0	0	0	0	0	7	1	0	2	2
19 Mold Sand Parmiability Test	2	1	0	0	0	0	0	7	1	1	0	1
20 Moisture	3	1	0	0	0	0	0	7	0	0	3	2
21 Scanning Electron Micro Analyser	2	1	1	0	0	0	0	8	1	1	1	1
22 Electro Micro Analyser	2	1	1	0	0	0	0	8	2	1	1	1
23 Dynamic Balance Test	4	0	0	0	0	3	0	6	1	2	1	3
24 Air Tightness Hydrostatic Test	3	0	0	1	0	2	0	7	1	0	1	3
25 Other	4	0	1	2	0	2	0	3	1	0	4	1

西ジャワ

		YES	1	2	3	4	5	6	NO	1	2	3	4
1	Brinnel Hardness	3	0	0	2	0	1	0	2	1	1	2	0
2	Vickeers Hardness	3	0	0	2	0	1	0	2	1	1	2	0
3	Tensile	4	1	0	2	0	1	0	1	1	1	2	1
4	Impact	2	0	0	1	0	1	0	2	1	1	1	0
5	Projector	1	0	0	0	0	1	0	2	0	0	1	0
6	Micro Structure	1	0	0	0	0	1	0	3	0	0	1	0
7	Chemical Analysis	3	0	0	2	0	1	0	2	1	1	2	0
8	Surfase Roughness	2	1	0	0	0	1	0	0	0	0	1	1
9	Three Dimension Measurement	0	0	0	0	0	0	0	2	0	0	0	0
10	Gear Tooth Demension	1	0	0	0	0	1	0	1	0	1	0	0
11	Magnetic Particle	0	0	0	0	0	0	0	2	0	0	0	0
12	Ultra Sonic	0	0	0	0	0	0	0	2	0	0	0	0
13	X-ray	0	0	0	0	0	0	0	2	0	0	0	0
14	Calibration Surface Temp Tester	0	0	0	0	0	0	0	2	0	0	0	0
15	Calibration of Thermo Couple	0	0	0	0	0	0	0	2	0	0	0	0
16	Calibration of Demension Measurement Tool	1	0	0	0	0	1	0	1	0	0	1	0
17	Calibration of Ultra Sonic Tester	1	1	0	0	0	0	0	2	1	0	0	0
18	Sand Grain Fineness Distribution	1	1	0	0	0	0	0	2	1	0	0	0
19	Mold Sand Parmiability Test	1	1	0	0	0	0	0	2	1	0	0	0
20	Moisture	1	1	0	0	0	0	0	2	1	0	0	0
21	Scanning Electron Micro Analyser	0	0	0	0	0	0	0	2	0	0	0	0
22	Electro Micro Analyser	0	0	0	0	0	0	0	2	0	0	0	0
23	Dynamic Balance Test	0	0	0	0	0	0	0	2	0	0	0	0
24	Air Tightness Hydrostatic Test	0	0	0	0	0	0	0	2	0	0	0	0
25	Other	0	0	0	0	0	0	0	1	0	0	0	0

中部ジャワ

	YES	1	2	3	4	5	6	NO	1	2	3	4
1 Brinnel Hardness	2	0	0	0	0	2	0	3	0	1	1	0
2 Vickeers Hardness	2	0	0	0	0	2	0	3	0	1	1	0
3 Tensile	4	1	1	0	0	2	0	2	1	1	2	1
4 Impact	4	1	1	1	0	2	0	2	1	1	2	1
5 Projector	3	0	0	2	0	2	0	2	0	1	2	0
6 Micro Structure	4	1	1	2	0	2	0	2	1	1	3	0
7 Chemical Analysis	5	2	1	2	0	2	0	2	2	1	3	1
8 Surfase Roughness	3	0	1	0	0	2	0	2	0	2	1	0
9 Three Dimension Measurement	3	2	0	0	0	2	0	2	1	1	1	0
10 Gear Tooth Demension	1	0	0	0	0	1	0	3	1	1	0	0
11 Magnetic Particle	1	0	0	0	0	1	0	3	1	1	0	0
12 Ultra Sonic	1	0	0	1	0	0	0	3	0	1	0	0
13 X-ray	2	1	0	1	0	0	0	3	0	1	0	0
14 Calibration Surface Temp Tester	2	0	0	0	0	1	0	3	0	0	1	0
15 Calibration of Thermo Couple	2	1	0	0	0	0	0	3	0	0	1	0
16 Calibration of Demension Measurement Tool	3	0	0	0	0	2	0	2	0	0	2	0
17 Calibration of Ultra Sonic Tester	1	0	0	1	0	0	0	3	0	1	0	0
18 Sand Grain Fineness Distribution	0	0	0	0	0	0	0	4	0	0	0	0
19 Mold Sand Parmiability Test	0	0	0	0	0	0	0	4	0	0	0	0
20 Moisture	0	0	0	0	0	0	0	4	0	0	0	0
21 Scanning Electron Micro Analyser	0	0	0	0	0	0	0	4	0	0	0	0
22 Electro Micro Analyser	0	0	0	0	0	0	0	4	0	0	0	0
23 Dynamic Balance Test	1	0	0	0	0	1	0	3	0	1	1	0
24 Air Tightness Hydrostatic Test	0	0	0	0	0	0	0	4	0	0	0	0
25 Other	1	0	0	0	0	1	0	0	0	0	1	0

東ジャワ

	- YES	1	2	3	4	5	6	NO	1	2	3	4
1 Brinnel Hardness	1	1	1	0	0	0	0	0	0	0	0	0
2 Vickeers Hardness	1	0	0	0	0	0	0	0	0	0	0	0
3 Tensile	1	1	1	0	0	0	0	0	0	0	0	0
4 Impact	1	0	0	0	0	0	0	0	0	0	0	0
5 Projector	1	0	0	0	0	0	0	0	0	0	0	0
6 Micro Structure	1	1	1	0	0	0	0	0	0	0	0	0
7 Chemical Analysis	1	1	1	0	0	0	0	0	0	0	0	0
8 Surfase Roughness	1	0	0	0	0	0	0	0	0	0	0	0
9 Three Dimension Measurement	0	0	0	0	0	0	0	1	0	0	0	0
10 Gear Tooth Demension	0	0	0	0	0	0	0	1	0	0	0	0
11 Magnetic Particle	0	0	0	0	0	0	0	1	0	0	0	0
12 Ultra Sonic	0	0	0	0	0	0	0	1	0	0	0	0
13 X-ray	0	0	0	0	0	0	0	1	0	0	0	0
14 Calibration Surface Temp Tester	0	0	0	0	0	0	0	1	0	0	0	0
15 Calibration of Thermo Couple	0	0	0	0	0	0	0	1	0	0	0	0
16 Calibration of Demension Measurement Tool	1	0	0	1	0	1	0	1	1	0	0	0
17 Calibration of Ultra Sonic Tester	0	0	0	0	0	0	0	1	0	0	0	0
18 Sand Grain Fineness Distribution	0	0	0	0	0	0	0	1	0	0	0	0
19 Mold Sand Parmiability Test	0	0	0	0	0	0	0	1	0	0	0	0
20 Moisture	0	0	0	0	0	0	0	1	0	0	0	0
21 Scanning Electron Micro Analyser	0	0	0	0	0	0	0	1	0	0	0	0
22 Electro Micro Analyser	0	0	0	0	0	0	0	1	0	0	0	0
23 Dynamic Balance Test	0	0	0	0	0	0	0	1	0	0	0	0
24 Air Tightness Hydrostatic Test	0	0	0	0	0	0	0	1	0	0	0	0
25 Other	0	0	0	0	0	0	0	1	0	0	0	0

スマトラ

	YES	1	2	3	4	5	6	NO	1	2	3	4
1 Brinnel Hardness	4	2	0	3	0	1	0	3	0	1	3	0
2 Vickeers Hardness	2	0	0	2	0	0	0	5	0	0	2	0
3 Tensile	5	1	2	3	0	1	1	4	1	2	3	0
4 Impact	3	0	0	3	0	1	0	4	1	1	2	0
5 Projector	2	0	0	2	0	0	0	5	0	0	2	0
6 Micro Structure	3	1	1	2	0	0	0	4	1	0	2	1
7 Chemical Analysis	4	2	1	3	0	0	0	3	0	2	2	1
8 Surfase Roughness	5	1	0	2	1	1	0	3	1	1	3	0
9 Three Dimension Measurement	1	0	0	1	0	0	0	4	0	1	0	0
10 Gear Tooth Demension	1	0	0	0	1	1	0	3	1	0	1	0
11 Magnetic Particle	3	1	1	3	0	1	0	3	1	0	2	0
12 Ultra Sonic	5	0	0	5	0	1	0	3	1	1	3	0
13 X-ray	4	0	0	4	0	0	0	3	1	1	2	0
14 Calibration Surface Temp Tester	1	1	1	0	0	0	0	3	0	0	0	1
15 Calibration of Thermo Couple	1	1	1	0	1	0	0	3	0	0	0	1
16 Calibration of Demension Measurement Tool	1	0	0	0	0	1	0	3	1	1	0	0
17 Calibration of Ultra Sonic Tester	1	0	0	1	0	0	0	2	1	0	0	0
18 Sand Grain Fineness Distribution	1	1	0	0	0	0	0	3	1	0	0	0
19 Mold Sand Parmiability Test	1	1	0	0	0	0	0	3	1	0	0	0
20 Moisture	1	1	1	0	0	1	0	2	0	0	1	0
21 Scanning Electron Micro Analyser	0	0	0	0	0	0	0	3	0	0	0	0
22 Electro Micro Analyser	0	0	0	0	0	0	0	3	0	0	0	0
23 Dynamic Balance Test	1	0	0	0	0	1	0	3	0	0	1	0
24 Air Tightness Hydrostatic Test	1	0	0	1	0	0	0	3	0	1	0	0
25 Other	2	0	0	2	0	0	0	3	0	0	2	0

ANNEXⅢ．工業大臣布告による国産化スケジュール

ANNEX-III　　：工業大臣布告による国産化スケジュール

(1) 自動車の組立て、ならびに自動車部品および付属品の製造および組立てに関する国産化スケジュール	工業大臣布告No34／M／SK／2／1987 (1987年2月3日付)
(2) 能力2KWから25KWまだのディーゼル・モーターの組立てに関する国産化スケジュール	工業大臣布告No198／M／SK／6／1983 (1983年6月9日付)
(3) 能力26KWから375KWまでのディーゼル・モーターの組立てに関する国産化スケジュール	工業大臣布告No202／M／SK／6／1983 (1983年6月9日付)
(4) 工作機械の生産における国産化スケジュール	工業大臣布告No28／M／SK／1／1985 (1985年1月21日付)

(1) 自動車の組立て、ならびに自動車部品および付属品の製造および組立てに関する国産化スケジュール　工業大臣布告No34／M／SK／2／1987 (1987年2月3日付)

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(1) Parts and Accessories as well as Sub components of Two-wheel Motor Vehicles Scheduled for Deletion.

NO.	COMPONENTS	SCHEDULES	REMARKS
	ENGINE ASSY GROUP		
1.	Covers	October 1, 1987	*)
2.	Rubber parts for engine	October 1, 1987	*)
3.	Plastic parts	October 1, 1987	*)
4.	Gasket	October 1, 1987	*)
5.	Bearings	October 1, 1987	*)
6.	Springs	October 1, 1987	*)
7.	Pedal gear chain	October 1, 1987	*)
8.	Cylinder head	October 1, 1988	
9.	Cylinder Block	October 1, 1988	
10.	Piston	October 1, 1988	
11.	Kick starter pedal	October 1, 1988	
12.	Fly wheel	October 1, 1988	
13.	Pisten ring	October 1, 1988	*)
14.	Fuel cock	October 1, 1988	*)
15.	Oil filter	October 1, 1988	*)
16.	Crank case	October 1, 1988	
17.	Piston pin	October 1, 1989	
18.	Crank pin	October 1, 1989	
19	Cylinder sleeve	October 1, 1989	
20.	Cam shaft	October 1, 1989	
21.	Cam chain tensioner	October 1, 1989	*)
22.	Crank shaft	October 1, 1990	
23.	Connecting rod	October 1, 1990	
24.	Kick starter system	October 1, 1990	
25.	Valves assy	October 1, 1990	
26.	Oil pump	October 1, 1990	*)

NO.	COMPONENTS	SCHEDULES	REMARKS
	TRANSMISSION ASSY GROUP		
27.	Drive chain	October 1, 1987	*)
28.	Sproket rear	October 1, 1987	*)
29.	Sprocket (drive)	October 1, 1989	
30.	Gear change	October 1, 1989	
31.	Main gears	October 1, 1990	
32.	Counter gear (Spring gear)	October 1, 1990	
33.	Main shaft	October 1, 1990	
34.	Counter shaft	October 1, 1990	
	CLUTCH ASSY GROUP		
35.	Clutch	October 1, 1990	*)
	ELECTRICAL GROUP		
36.	Contact breaker	October 1, 1989	*)
37.	Spark advancer	October 1, 1989	*)
38.	Electric starter	October 1, 1990	*)
39.	Generator assy	October 1, 1990	*)
40.	Magneto coil	October 1, 1990	*)
	BRAKE SYSTEM GROUP		
41.	Disc brake & caliper	October 1, 1990	*)
	FRAME BODY GROUP		
42.	Emblem/name plate	October 1, 1990	*)

*) Outhouse manufacturing, depending on the presence of suppliers or sub-contractors and quality requirements.

11. PARTS AND ACCESSORIES AS WELL AS SUB COMPONENTS OF COMMERCIAL CARS SCHEDULED FOR DELETION.

NO.	COMPONENTS	SCHEDULES	REMARKS
	ENGINE ASSY GROUP		
1.	Intake manifold	January 1, 1987	Cat. I, machining.
2.	Exhaust manifold	January 1, 1987	Cat. I, machining.
		January 1, 1988	Cat. I casting.
3.	Cover, cylinder head	January 1, 1987	Cat. I machining.
4.	Fan belt	July 1, 1987	Cat. I, II, III, IV.
5.	Bearing cap	January 1, 1988	Cat. I, machining.
6.	Cylinder block	January 1, 1988	Cat. I, machining.
7.	Gasket	January 1, 1988	Cat. I, II, III, IV, cylinder head.
8.	Motor starter	January 1, 1988	Cat. I, II, III, IV.
9.	Alternator	January 1, 1988	Cat. I, II, III, IV.
10.	Cylinder head	January 1, 1989	Cat. I, machining.
11.	Cam shaft holder	January 1, 1989	Cat. I, machining.
12.	Rocker arm	January 1, 1990	Cat. I, machining.
13.	Connecting rod	January 1, 1990	Cat. I. machining.

NO.	COMPONENTS	SCHEDULES	REMARKS
14.	Cam shaft	January 1, 1990	Cat. I, machining
15.	Crank shaft	January 1, 1990	Cat. I, machining.
16.	Timing pulley	January 1, 1990	Cat. I, machining.
	TRANSMISSION ASSY GROUP		
17.	Speedometer gear	October 1, 1987	Cat. I, machining.
18.	Front bearing retainer	April 1, 1988	Cat. I, machining.
19.	Transmission cover.	April 1, 1988	Cat. I, machining.
20.	Transmission case	April 1, 1988	Cat. I, machining.
21.	Extension housing.	April 1, 1988	Cat. I, machining.
22.	Clutch housing	April 1, 1988	Cat. I, machining.
23.	Counter gear shaft	July 1, 1988	Cat. I, machining.
24.	Reverse idler gear shaft	July 1, 1988	Cat. I, machining.
25.	Speed shaft rail/fork	July 1, 1988	Cat. I, machining.
26.	Reverse gear	July 1, 1988	Cat. I, machining.
27.	Reverse idler gear	July 1, 1988	Cat. I, machining.
28.	First speed gear	January 1, 1990	Cat. I, machining.
29.	Second speed gear	January 1, 1990	Cat. I, machining.
30.	1-2 synchronizer hub	January 1, 1990	Cat. I, machining.
31.	1-2 synchronizer sleeve	January 1, 1990	Cat. I, machining.

NO.	COMPONENTS	SCHEDULES	REMARKS
32.	Main shaft (output shaft)	Jan. 1, 1990	Cat. 1, machining.
33.	Third speed gear	Jan. 1, 1990	Cat. 1, machining.
34.	3-4 speed synchronizer hub	Jan. 1, 1990	Cat. 1, machining.
35.	3-4 Speed synchronizer sleeve	Jan. 1, 1990	Cat. 1, machining.
36.	Counter gear	Jan. 1, 1990	Cat. 1, machining.
37.	Input shaft gear	Jan. 1, 1990	Cat. 1, machining.
38.	Synchronizer ring (1 -2)	Jan. 1, 1990	Cat. 1,
	CLUTCH ASSY GROUP.		
39.	Torsion spring	July 1, 1987	Cat. 1.
40.	Strap	July 1, 1987	Cat. 1.
41.	Pressure plate	October 1, 1987	Cat. 1.
42.	Disc plate	Jan. 1, 1988	Cat. 1.
43.	Splined hub	Jan. 1, 1988	Cat. 1, machining.
44.	Facing	Jan. 1, 1988	Cat. 1,
45.	Spring seat	Jan. 1, 1988	Cat. 1,
46.	Stopper pin	Jan. 1, 1988	Cat. 1.
47.	Friction plate; washer.	Jan. 1, 1988	Cat. 1.
48.	Pivot/wave spring	Jan. 1, 1988	Cat. 1,
49.	Rivet	Jan. 1, 1988	Cat. 1,
50.	Cushion, rubber	Jan. 1, 1988	Cat. 1,
51.	Cover	July 1, 1988	Cat. 1.
	ELECTRICAL GROUP		

NO.	COMPONENTS	SCHEDULES	REMARKS
52.	Battery cable - Climping - Die casting	 July 1, 1987 Jan. 1, 1988	
	STEERING SYSTEM GROUP.		
53	Tube assy	Oct. 1, 1987	Cat. I
54.	Steering wheel	Oct. 1, 1987	Cat. I, jig & dies do-mestic products.
55.	Tie rod linkage	Jan. 1, 1988	Cat. I.
56.	Knuckle arm	Jan. 1, 1988	Cat. I, machining.
57.	Pitman arm	Jan. 1, 1988	Cat. I, machining.
58.	Steering shaft	Jan. 1, 1988	Cat. I, machining.
59.	Steering gear	July 1, 1988	Cat. I, machining.
60.	Tue rod end	Jan. 1, 1989	Cat. I, machining.
	AXLE PROPELLER SHAFT GROUP.		
61.	Side bearing nut	Oct. 1, 1987	Cat. I, machining.
62.	Companion flange	Oct. 1, 1987	Cat. I, machining.
63.	Propeller tube	Oct. 1, 1987	Cat. I, machining.
64.	Pinion shaft	July 1, 1988	Cat. I, machining.
65.	Rear axle shaft	July 1, 1988	Cat. I machining.
66.	Rear axle housing	Sept. 1, 1988	Cat. I, machining.

NO.	COMPONENTS	SCHEDULES	REMARKS
67.	Differential case	Jan. 1, 1989	Cat. I, machining.
68.	Differential carrier case	Jan. 1, 1989	Cat. I, machining.
69.	Differential carrier cap	Jan. 1, 1989	Cat. I, machining.
70.	Tube yoke	Jan. 1, 1989	Cat. I, machining.
71.	Sleeve Yoke	Jan. 1, 1989	Cat. I, machining.
72.	Flange Yoke	Jan. 1, 1989	Cat. I, machining.
73.	Differential side gear	July 1, 1990	Cat. I, machining.
74.	Differential pinion gear	July 1, 1990	Cat. I, machining.
75.	Differential drive gear	July 1, 1990	Cat. I, machining.
76.	Differential drive pinion	July 1, 1990	Cat. I, machining.
	SUSPENSION GROUP :		
77.	Shock absorber	July 1, 1987	Strut type
	BRAKE SYSTEM GROUP :		
78.	Sleeve	July 1, 1987	Cat. I **)
79.	Guide pin	July 1, 1987	Cat. I, **)
80.	Support caliper	July 1, 1987	Cat. I, **)
81.	Backing plate	Sept. 1, 1987	Cat. I,
82.	Disc	Jan. 1, 1987	Cat. I, **)
83.	Brake lining	Jan. 1, 1988	Cat. I, *)
84.	Brake shoe	Jan. 1, 1988	Cat. I, *)
85.	Disc pad	Jan. 1, 1988	Cat. I, **)
86.	Body caliper	Jan. 1, 1988	Cat. I, **)
87.	Cylinder wheel	Jan. 1, 1989	Cat. I, *)
88.	Piston	Jan. 1, 1989	Cat. I,
89.	Brake drum	July 1, 1987	Cat. II, IV *)
	FRAME BODY GROUP:		
90.	Jack	Jan. 1, 1988	Mechanic and hydraulic
91.	Tools	Jan. 1, 1988	

*) Drum brake
**) Disc brake.

III. PARTS AND ACCESSORIES AS WELL AS SUB COMPONENTS OF POWER TILLERS (SINGLE AXLE HAND TRACTORS SCHEDULED FOR DELETION.

NO.	COMPONENTS	SCHEDULES	REMARKS
	ENGINE ASSY GROUP Engine 2 up to 25 Kw.		
1.	Crank case sub assy.	Dec. 31, 1988	
2.	Cylinder liner	Dec. 31, 1987	
3.	Cylinder head	Dec. 31, 1987	
4.	Connecting rod	Dec. 31, 1987	
5.	Crank shaft	Dec. 31, 1987	
6.	Cam shaft	Dec. 31, 1987	
7.	Push rod	Dec. 31, 1987	
8.	Rocker arm	Dec. 31, 1987	
9.	Gear case sub assy	Dec. 31, 1987	
	TRANSMISSION ASSY GROUP		
10.	Case transmission	July 1, 1988	
11.	Staged gear	July 1, 1988	
12.	Forks	July 1, 1987	
13.	Arm	July 1, 1987	
14.	Sprocket	July 1, 1987	

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IV. PARTS AND ACCESSORIES AS WELL AS SUB COMPONENTS OF MINI TRACTORS SCHEDULED FOR DELETION.

NO.	COMPONENTS	SCHEDULES	REMARKS
	ENGINE ASSY GROUP Engine 26 up to 375 Kw.		
1.	Crank case assy	Jan. 1, 1989	
2.	Crank shaft	Jan. 1, 1989	
3.	Cylinder liner	Jan. 1, 1988	
4.	Crank shaft gear	Jan. 1, 1988	
5.	Cam shaft gear	Jan. 1, 1988	
6.	Ring gear	Jan. 1, 1988	
7.	Valve drive	Jan. 1, 1988	
8.	Cylinder head	Jan. 1, 1989	
	TRANSMISSION ASSY GROUP		
9.	Case transmission	Sept. 1, 1988	
10.	Staged shaft	Sept. 1, 1987	
11.	Forks/arm, shifter.	Sept. 1, 1987	
12.	Sprocket	Sept. 1, 1987	
13.	Rotary case	Sept. 1, 1988	

V. SUB COMPONENTS OF AUTOMOBILE SHOCK ABSORBERS SCHEDULED FOR DELETION.

No.	COMPONENTS	SCHEDULES	REMARKS
1.	Cylinder tube	July 1, 1987	
2.	Damper case	July 1, 1987	
3.	Outer cover	July 1, 1987	
4.	Centering washer	July 1, 1987	
5.	End bolt washer	July 1, 1987	
6.	Piston nut	July 1, 1987	
7.	Protector	July 1, 1987	
8.	Packing cap	July 1, 1987	
9.	Packing retainer	July 1, 1987	
10.	Packing spring	July 1, 1987	
11.	Damper cap	July 1, 1987	
12.	Upper cap	July 1, 1987	
13.	Eye	July 1, 1987	
14.	Ring nut	July 1, 1987	
15.	Spring guide	July 1, 1987	
16.	Spring	July 1, 1987	
17.	Rubber bushing	July 1, 1987	
18.	Rubber bushing collar	July 1, 1987	
19.	Eye washer	July 1, 1987	
20.	Cushion rubber	July 1, 1987	
21.	Spacer	July 1, 1987	
22.	Piston rod	Jan. 1, 1988	Except strut type
23.	End bolt	Jan. 1, 1988	
24.	Rebound stopper	Jan. 1, 1988	

VI. SUB COMPONENTS OF AUTOMOBILE AND HEAVY EQUIPMENT RADIATORS SCHEDULED FOR DELETION.

NO.	COMPONENTS	SCHEDULES	REMARKS
1.	Upper tank assy		
	- Over flow pipe	Jan. 1, 1987	
	- Filler pipe	Jan. 1, 1987	
	- Inlet pipe	Jan. 1, 1987	
2.	Lower tank assy		
	- O-ring/packing rubber plate	Jan. 1, 1987	
	- Outlet pipe	Jan. 1, 1987	
3.	Frame & bracket	Jan. 1, 1987	For heavy equipment.
4.	Pressure cap assy	July 1, 1987	
5.	Upper tank assy:		
	- Upper tank	Jan. 1, 1988	Heavy equipment except fork lift & excavator.

VII. SUB COMPONENTS OF SPARK PLUGS SCHEDULED FOR DELETION.

NO.	COMPONENTS	SCHEDULES	REMARKS
1.	Housing	July 1, 1987 Jan. 1, 1988	Machining Forging.
2.	Insulator :		
	- Terminal stud center electrode	Jan. 1, 1989	
	- Ceramic	Jan. 1, 1989	

(2) 能力2KWから25KWまだのディーゼル・モーターの組立てに関する国産化スケジュール

工業大臣布告No198／M／SK／6／1983
(1983年6月9日付)

ATTACHMENT: DECREE OF THE MINISTER OF INDUSTRY
NO. 198/M/SK/6/1983 DATED JUNE 9, 1983.

Schedule of the domestically manufactured conponents utilization in assembling diesel motor of 2 to 25 kw capacity.

NO.	G R O U P	YEAR OF UTILIZATION		
		SINCE SEPTEMBER 1, 1983	SINCE SEPTEMBER 1, 1984	SINCE SEPTEMBER 1, 1985
1.	CRANK CASE	1.STUD (O) 2.IDLE FAN (O)	- -	1.CRANK CASE SUB ASSY(1)* 2.CYLINDER LINER (O)
2.	OIL FAN	1.OIL FAN (O) 2.GASKET (O) 3.PLUG, OIL DRAIN (O)	- - -	-
3.	GEAR CASE	1.OIL SEAL (O) 2.GASKET (O)	- -	1.GEAR CASE SUB ASSY (1)*
4.	SIDE COVER	1.GASKET (O) 2.CONNECTOR (O) 3.COVER, BEARING (1)* 4.OIL SEAL (O) 5.RETAINER,BEARING(O) 6.SPRING (O)	- - - -	- - - -
5.	OIL FILTER	1.CAP, ASSY, OIL FILTER (O)	-	-
6.	BREATHER	1.COVER, AIR BREATHER (O) 2.VALVE, AIR BREATHER (O) 3.BODY, AIR BREATHER (O)	-	-

NO.	G R O U P	YEAR OF UTILIZATION		
		SINCE SEPTEMBER 1, 1983	SINCE SEPTEMBER 1, 1984	SINCE SEPTE BER 1, 1985
		4.GASKET (0)		
7.	UPPER COVER	1.COVER ASSY, UPPER (0) 2.GASKET (0)	-	-
8.	ENGINE SUPPORT	.BASE SET. (1)	-	
9.	CYLINDER HEAD	1.COCK, WATER DRAIN (0) 2.PIPE, OIL RETURN (0) 3.GASKET (0)	-	1.CYLINDER HEAD (1)* 2.CHAMBER ASSY, PRESOMBUSTION (1)*
10.	ROCKER COVER	1.COVER,DECOMPRESS-ION ADJUSTING (0) 2.GASKET (0) 3.SPRING, RETURN (0) 4.COVER, ROCKER (0) 5.SHAFT ASSY, DECO-MPRESSION LEVER (0) 6.ELBOW (0)	- -	-
11.	PISTON	1.CLIP, PISTON PIN (0) 2.PISTON (0) 3.RING, PISTON (0) 4.RING, OIL (0)	- - -	- - -
12.	CONNECTING ROD	1.WASHER, LOCK (0) 2.BEARING, CONNECT-ING ROD (0)	-	1.CONNECTING ROD (1)*
13.	CRANK SHAFT	1.PLATE, BEARING STOPPER (0)	1.GEAR, CRANK (1)*	1.CRANK SHAFT (1)*

NO.	G R O U P	YEAR OF UTILIZATION		
		SINCE SEPTEMBER 1, 1983	SINCE SEPTEMBER 1, 1984	SINCE SEPTEMBER 1, 1985
		2.SNAP RING (0) 3.KEY, SUNK (0) 4.PULLEY, CRANK SHAFT (0)	-	-
14.	FLY WHEEL	1.FLY WHEEL (0) 2.NUT, LOCK (0) 3.KEY, WOOD RUFF (0)	-	-
15.	BALANCER	1.DISTANCE PLATE (0) 2.DISTANCE PIECE (0) 3.KEY, SUNK (0) 4.RING SNAP (0) 5.RING (0)	1.GEAR, IDLE SHAFT (0) 2.GEAR, BALANCER (0)	1.BALANCER (0)
16.	CAM SHAFT	1.KEY, SUNK (0)	1.CAM, INJECTION PUMP (0) 2.GEAR, CAM SHAFT (0) 3.GEAR, STARTING (0)	1.CAM SHAFT (1)*
17.	VALVE DRIVE	1.STAY, ROCKER SHAFT (1)* 2.SHAFT ROCKER (0) 3.LOCK RETAINER (0) 4.VALVE, INLET (0) 5.VALVE, OUTLET (0) 6.RING SNAP (0)	1.SPRING, VALVE (0) 2.RETAINER VALVE SPRING (0)	1.ROCKER ARM (1)* 2.TAPPET (0)
18.	STARTING HANDLE	1.SUPPORT, STARTING HANDLE (0) 2.CLAMP STARTING HANDLE (0)	1.GEAR STARTING SHAFT (0)	

NO.	G R O U P	YEAR OF UTILIZATION		
		SINCE SEPTEMBER 1, 1983	SINCE SEPTEMBER 1, 1984	SINCE SEPTEMBER 1, 1985
		3.SHAFT ASSY, STARTING (O) 4.KEY, SUNK (O) 5.RING, SNAP (O)		
19.	MISCELLANEOUS TIMING	1.INDICATOR TIMING (O)	-	-
20.	FUEL INJECTION PUMP	-	-	1.SHIM, ADJUSTING (O) 2.LEVER ASSY, PRIMING (O)
21.	N O Z Z L E	1.GASKET (O)	-	-
22.	INJECTION PIPE	1.PIPE, FUEL INJECTION (O)	-	-
23.	FUEL TANK	1.TANK ASSY, FUEL (O)	-	-
24.	FUEL FILTER	1.FILTER ASSY, FUEL (O) 2.SUPPORT, FILTER (O)	- -	- -
25.	FUEL PIPE	1.PIPE, RUBBER (O) 2.PIPE, FUEL (O)	1.CONNECTOR (O)	-
26.	MECHANICAL GOVERNOR	1.METAL, SAILING (O) 2.WIRE (O) 3.WEIGHT ASSY, GOVERNOR (O) 4.LEVER, GOVERNOR (O) 5.SHAFT ASSY, GOVERNOR (O)	1.SHAFT, GOVERNOR (O) 2.LEVER ASSY, SPEED GOVERNOR (O) -	- -

NO.	G R O U P	YEAR OF UTILIZATION: SINCE SEPTEMBER 1, 1983	SINCE SEPTEMBER 1, 1984	SINCE SEPTEMBER 1, 1985
		6.COVER ASSY, GOVERNOR (O) 7.SPRING, GOVERNOR (O) 8.KNOB, SPEED CONTROL (O) 9.INDICATOR (O) 10.SPRING (O) 11.SHAFT, SPEED CONTROL (O) 12.DISTANCE PIECE ASSY (O) 13.CLIP, CABLE (O) 14.LABEL (O) 15.PACKING (O) 16.RING, SNAP (O)	- - -	- - -
27.	OIL PUMP	1.OIL RING (O)	1.COVER, ROTOR (O)	1.ROTOR ASSY (O)
28.	OIL SCREEN	1.OIL SCREEN (O)	-	-
29.	OIL PIPE	1.OIL PIPE ASSY (FOR ROCKER COVER) (O) 2.OIL PIPE (FOR OIL SIGNAL) (O) 3.GASKET (O)	-	-
30.	OIL PRESSURE GAGE UNIT			1.SIGNAL, OIL PRESSURE (O)

NO.	G R O U P	YEAR OF UTILIZATION		
		SINCE SEPTEMBER 1, 1983	SINCE SEPTEMBER 1, 1984	SINCE SEPTEMBER 1, 1985
31.	HOPPER/ RADIATOR/ CONDENSOR	1.SIGNAL, WATER LEVEL GAGE (O) 2.SCREEN ASSY, HOPPER (O) 3.HOPPER (O) 4.GASKET (O) 5.PROTOTECTOR ASSY OVER FLOW (O) 6.BELT, HOPPER (O) 7.HANGER	1.CONDENSOR (O) -	- -
32.	AIR CLEANER	1.AIR CLEANER ASSY (O)	-	-
33.	INTAKE PIPE	1.INTAKE PIPE (O) 2.GASKET	-	-
34.	MUFFLER	1.MUFFLER ASSY (O) 2.GASKET	-	-
35.	MISCELLAN-EOUS	1.P I N (O) 2.B O L T (O) 3.SCREW (O) 4.WASHER (O) 5.TOOL SET (O)	-	-

NOTE : (O) = OUT HOUSE MANUFACTURING
(1) = IN HOUSE MANUFACTURING
* = only machining work, "Blank" of foundry/forging for the above mentioned

components is still importable as long as said "Blank" have not been domestically manufactured.

THE MINISTRY OF INDUSTRY

signed

Ir. HARTARTO

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(3) 能力26KWから375KWまでのディーゼル・モーターの組立てに関する国産化スケジュール

工業大臣布告No202／M／SK／6／1983
(1983年6月9日付)

ATTACHMENT : DECREE OF THE MINISTER OF INDUSTRY
- NO. 202/M/SK/6/1983 DATED JUNE 9, 1983.

1/4

UTILIZATION SCEDULE OF DOMESTICALLY MANUFACTURED COMPONENTS IN ASSEMBLING DIESEL MOTOR OF 26 THROUGH 375 kw CAPACITY.

NO.	G R O U P	YEAR OF UTILIZATION			
		SINCE OCTOBER 1, 1983	SINCE OCTOBER 1, 1984	SINCE OCTOBER 1, 1985	SINCE OCTOBER 1, 1986
(1)	(2)	(3)	(4)	(5)	(6)
1.	CRANK CASE		1. OIL PAN (0) 2. DIP ROD (0) 3. OIL FILTER PLUG (0)	1. CYLINDER LINER (1) 2. COUNTER BALANCE (1) 3. FRONT COVER (1) 4. FLY WHEEL HOUSING (1)	1. CRANK CASE ASSY (1)
2.	CRANK SHAFT		1. FLY WHEEL (1)	1. COUNTER WEIGHT (1)	1. CRANK SHAFT (1)
3.	CAM SHAFT			1. CAM SHAFT ASSY (1)	
4.	GEAR GROUP				1. CRANK SHAFT GEAR (1) 2. CAM SHAFT GEAR (1) 3. RING GEAR (1)
5.	COVER GROUP			1. COVER (1)	
6.	PISTON ASSY		1. PISTON RING (0) 2. PISTON (0)		

(1)	(2)	(3)	(4)	(5)	(6)
			3. PISTON PIN (1)		
7.	CONNECTING ROD		1. CONNECTING ROD (1)		
8.	CYLINDER HEAD		1. SUPPORT OF ROCKER ARM (1) 2. ROCKER ARM 3. PUSH ROD (1)	1. CYLINDER HEAD (1) 2. CYLINDER HEAD COVER (1)	
9.	OIL GEAR PUMP	1. OIL GEAR PUMP COMPLETE (O) is SINCE OCTOBER 1, 1987.			
10.	OIL COOLER	1. OIL COOLER COMPLETE (O) is SINCE OCTOBER 1, 1987.			
11.	FILTER GROUP	1. OIL FILTER(O) 2. FUEL FILTER (O) 3. AIR FILTER(O) 4. BRACKET (O)			
12.	CENTRIFUGAL				1. CENTRIFUGAL PUMP ASSY (O)
13.	FAN DRIVE				1. FAN DRIVE ASSY (O)
14.	BLOWER				1. BLOWER ASSY (O)
15.	INDIRECT COOLING			1. INDIRECT COOLING ASSY (O)	
16.	COOLING SYSTEM			1. CIRCULATION COOLING ASSY (O) 2. AIRDUCTION ASSY(O)	

(1)	(2)	(3)	4)	(5)	(6)
17.	INTAKE & EXAUSTE PIPE		1. INTAKE & EXAUST PIPE (1)		
18.	DYNAMO / ALTERNATOR			1. DYNAMO/ALTERNATOR ASSY (0) 2. SUPPORT ASSY (1)	
19.	STARTER			1. ELECTRIC STARTER (0)	
20.	ELECTRIC EQUIPMENT/ PANEL ENGINE		1. ELECTRIC EQUIPMENT/ ENGINE PANEL ASSY (0)		
21.	ENGINE MOUNTING	1. ENGINE MOUNTING ASSY (0)			
22.	PULLY GROUP		1. CRANK SHAFT PULLY (1) 2. CENTRIFUGAL PUMP PULLY (1) 3. TENSION PULLY (1) 4. FAN DRIVE PULLY (1) 5. ALTERNATOR PULLY (1)		
23.	PIPING GROUP	1. COOLING WATER PIPE(0) 2. FUEL PRESSURE PIPE (1)			

(1)	(2)	(3)	(4)	(5)	(6)
		3. LUBRICATION PIPE (1) 4. EXAUSTE PIPE CONNECTION (0) 5. PROTECTIVE PIPE (1)			
24.	COMPONENTS STANDARD	1. CLAMP (0) 2. V-BELT (0)	1. GASKET (0)		
25.	MISCELLANEOUS	1. ACCU (0) 2. MUFFLER (0) 3. HANDLING SLUG	1. TOOLS (0) 2. TURNING DEVICE (0) 3. PLASTIC PARTS (0)		

NOTE :

1. In house work (1) is only machining, whereas Blanks is from outside.
2. Blanks from foundry/forging for the foregoing components can still be imported as long as said blanks have not been able domestically manufactured.
3. The excheded components which can still be imported are : Speci l Screw & Nut; Stud; Valve; Roller/Ball Bearing; Bushing/Bearing Bush; Speed Adjusting Control Device; Injection Pump Assy and Turbo Charger ; etc.
4. By not closing the possibility for the manufacturing companies to manufacture said components earliner than the stipulated schedule.
5. (1) = in house work.
   (0) = out house work.

MINISTER OF INDUSTRY
signed

Ir. HARTARTO.

(4) 工作機械の生産における国産化スケジュール　　工業大臣布告No28／M／SK／1／1985
(1985年1月21日付)

ATTACHMENT I TO THE DECREE OF THE MINISTER OF INDUSTRY
NO. 28/M/SK/1/1985 DATED JANUARY 21, 1985

SCHEDULES FOR MACHINE TOOL PRODUCTION　1/6

NO.	KINDS OF MACHINE TOOLS	GROUPS OF COMPONENTS	DATES FOR MACHINE TOOL PRODUCTION					
			JULY 1 1985		JULY 1, 1986		DECEMBER 31, 1987	
			IMPORTS	LOCAL	IMPORTS	LOCAL	IMPORTS	LOCAL
1	2	3	4	5	6	7	8	9
1.	LATHES - Center distance less than 1600 mm. - Center height maximum 180 mm	1. Chuck assy. 2. Transmission 3. Apron assy. 4. Reversers rod & Driver	-Chuck assy -Speed gears -Shafts -Reverser gears -Case -Saddle -Cross slide -Lead screw -Bed -Racks -Feed rod -Rear support		-Chuck assy -Speed gears -Shafts -Reverser gears -Case -Saddle -Cross slide	-Lead screw -Bed -Racks -Feed rod -Rear support	-Chuck assy	-Speed gears -Shafts -Reverser gears. -Case -Saddle -Cross slide -Lead screw -Bed -Racks -Feed rod -Rear support

1	2	3	4	5	6	7	8	9
		5. Leg & covers		-Cabinet leg -Rear leg -Front leg -Chip pan -sheet cover -Aluminium cover		-Cabinet leg -Rear leg -Front leg -Chip pan -Sheet cover -Aluminium cover		-Cabinet leg -Rear leg -Front leg -Chip pan -Sheet cover -Aluminium cover
		6. Head stock assy	-Case -Gear -Main spindle		-Case -Gear -Main spindle		-Main Spindle	-Case - Gear
		7. Swivel ling Tool slide assy	-Tool post slide -tool holder			-Tool holder -Tool post slide		-Tool holder. -Tool post slide
		8. Tail Stock assy	-Case - Shaft -Racks gear		-Case -Shaft -Racks gear			-Case -Shaft -Racks gear

1	2	3	4	5	6	7.	8	9
		9. Others	-Cooling system -Coolant pump assy -Brake system -Copying attach-ment. -Electro motor -Lever assy -Bearing -Bolt & Nut.	-Coolant tank	-Cooling system -Coolant pump assy -Brake system -Copying attach ment -Bearing -Bolt & Nut -Screw -Spring -Electric/ electronic .components	-Electro motor -Lever assy	-Coolant pump assy	-Electro motor -Lever assy -Cooling System -Brake system -Copying attach-ment -Bearing -Bolt & Nut -Screw -Electric/ electronic components
2.	KNEE TYPE FREIS MACHINES. Table size: 1200 x 250 mm	1.Column assy	-Column -Case -Screw shaft	-Base -Cover		-Case -Cover -Base -Screw shaft -Column		-Case -Cover -Base -Screw shaft -Column.
		2.Main spindle	-Gear assy -Spindle -support-ing arm.		-Spindle -Gear assy	-Support-ing arm	-Spindle	-Gear assy -Supporting arm.
		3.Main drive	-Gears -Electro motor	-Pulley	-Gear assy	-Electro motor -pulley		-Gear assy -Electro motor assy -Pulley

1	2	3	4	5	6	7	8	9
		4. Feed Drive	-Extendable shaft -Worm gear assy -Gears	-Case	-Gears -Worm gear assy	-Case -Extendable shaft		-Gears assy -Case -Extendable shaft. -Worm gear assy.
		5. Knee	-Guide slide	-Frame		-Frame -Guide		-Frame -Guide slide
		6. Cross	-Saddle -Guide slide			-Saddle -Guide slide		-Saddle -Guide slide
		7. Table		-Table -Chip tray -Coolant tank		-Table -Chip tray -Coolant tank		-Table -Chip tray -Coolant tank.
		8. Others	-Cooling system -Hydraulic components -Electric/electronic components -Coolant pump assy	-Panel box	-Cooling system -Hydraulic components -Electric/electronic components -Bearing -Coolant pump assy	-Panel box	-Coolant pump	-Panel box -Hydraulic components -Cooling system -Electric/electronic components -Bearing.

1	2	3	4	5	6	7	8	9
3.	SURFACE GRINDING MACHINES. -Table type -Table size: 220 x 500 mm		-Cooling system -Hydraulic components -Spindle -Column -Base -Gears -Electro motor -Electric/ electronic components -Coolant pump assy -Bearing	-Table & leg -Sliding head -Coolant tank -Panel box	-Cooling system -Hydraulic components -Gears -Spindle -Electric/ electronic components -Coolant pump assy -Bearing.	-Table & leg -Sliding head -Coolant tank -Panel box -Electro motor -Column -Base	-Spindle -Coolant pump assy	-Table & leg -Sliding head -Coolant tank -Panel box -gears -Electro motor -Column -Base -Hydraulic components -Cooling system -Electric/ electronic components -Bearing.
4.	COLUMN TYPE BORING MACHINE		-Base -Table -column -drill head -spindle -gears -Electro motor -electric/ electronic components -bearing -coolant pump assy	-Handle -hand wheel -lever -bush -pin -cover -pulley	-Gears -drill head -spindle -Electric/ electronic components -bearing -coolant pump assy	-handle -hand wheel -lever -bush -pin -cover -pulley -Base -table -Column -electro motor	-spindle -coolant pump assy	-Handle -hand wheel -lever -bush -pin -cover -pulley -gears -base -table -column -electro motor -drill head -bearing -electric/ electronic components.

THE MINISTER OF INDUSTRY

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ATTACHMENT II TO THE DECREE OF THE MINISTER OF INDUSTRY
NO.28/M/SK/1/1985 DATED JANUARY 21, 1985

COMPONENTS THAT CAN BE IMPORTED FOR THE FOLLOWING MACHINE TOOLS:
Sewing machines, table type boring machines, plate folding machines, pipe bending machines, forging machines, shearing machines, rolling machines, punching machines, drill combination Freis machines, press brake machines.

1. Sawing machines : Size of objects : 100 mm.
   Electric components can be imported as long as they are not yet locally made.
2. Table type boring machines: Diameter of bits : 13 mm.
   Complete hydraulic components : cooling pumps, electric components and bearings can be imported as long as they are not yet locally made.
3. Plate folding machines :
   For plate folding machines, width of plates 2,500 mm and thickness 2½ mm.
   For plate folding machines : hydraulic and electric components can be imported as long as they are not yet locally made.
4. Pipe bending machines :
   For pipe bending machines, diameter of pipes 25 mm.
   Pipe bending machine components: hydraulic and electric components can be imported as long as they are not yet locally made.
5. Forging machines : Work pressure 250 tons.
   Complete hydraulic components and electric components can be imported as long as they are not yet locally made.
6. Shearing machines : Width of plates 1,200 mm, thickness 2 mm.
   Complete hydraulic components and bearings can be imported as long as they are not yet locally made.
7. Rolling machines : Length of plates 2,500 mm, thickness 2½ mm.
   Electric components and bearings can be imported as long as they are not yet locally made.
8. Punching machines: Pressure 3 tons and thickness of plates 3 mm.
   Electric components can be imported as long as they are not yet locally made.
9. Drill combination Freis machines : table size 240 x 600 mm.
   Bits 32 mm.
   Electric components, spindles and bearings can be imported as long as they are not yet locally made.
10. Press brake machines :
    Electric and hydraulic components can be imported as long as they are not yet locally made.

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ANNEXⅣ. Appendix table

ANNEX IV - Appendix Tables

(5) Flow of Testing and Inspections by Regions

FREQUENCY OF TESTS & INSPECTIONS BY INDUSTRY

INDUSTRY: MACHINE TOOL

TESTS & INSPECTIONS	CASTING	FORGING, HEAT TREATMENT	MACHINING	SHEET WORK, WELDING	PRESS WORK	PLATING
<CATEGORY A>						
1)BRINNEL HARDNESS	0.05 /TON	0.2 /TON				
2)VICKERS HARDNESS	0.025 /TON	0.1 /TON				0.05 /UNIT
3)TENSILE	0.5 /TON	2 /TON				
4)IMPACT	0.15 /TON	0.6 /TON				
5)PROJECTOR	0.15 /TON	0.6 /TON				
6)MICRO STRUCTURE		2 /TON				1 /UNIT
7)CHEMICAL ANALYSIS	0.5 /TON	2 /TON				
<CATEGORY B>						
8)SURFACE ROUGHNESS			1 /UNIT			
9)3-DIM. MEASUREMENT			1 /UNIT			
10)GEAR TOOTH DIM.			1 /UNIT			
<CATEGORY C1>						
11)MAGNETIC PARTICLE				0.1 /TON		
<CATEGORY C2>						
12)ULTRASONIC						
13)X-RAY						

FREQUENCY OF TESTS & INSPECTIONS BY INDUSTRY

INDUSTRY: AGRICULTURE MACHINE

TESTS & INSPECTIONS	CASTING	FORGING, HEAT TREATMENT	MACHINING	SHEET WORK, WELDING	PRESS WORK	PLATING
<CATEGORY A>						
1)BRINNEL HARDNESS	0.05 /TON	0.2 /TON				
2)VICKERS HARDNESS	0.025 /TON	0.1 /TON				
3)TENSILE	0.5 /TON	2 /TON				
4)IMPACT	0.15 /TON	0.6 /TON				
5)PROJECTOR	0.15 /TON	0.6 /TON				
6)MICRO STRUCTURE		2 /TON				
7)CHEMICAL ANALYSIS	0.5 /TON	2 /TON				
<CATEGORY B>						
8)SURFACE ROUGHNESS			0.025 /UNIT			
9)3-DIM. MEASUREMENT						
10)GEAR TOOTH DIM.			0.025 /UNIT			
<CATEGORY C1>						
11)MAGNETIC PARTICLE				0.1 /TON		
<CATEGORY C2>						
12)ULTRASONIC						
13)X-RAY						

FREQUENCY OF TESTS & INSPECTIONS BY INDUSTRY

INDUSTRY: CONSTRUCTION MACHINE

TESTS & INSPECTIONS	CASTING	FORGING, HEAT TREATMENT	MACHINING	SHEET WORK, WELDING	PRESS WORK	PLATING
<CATEGORY A>						
1)BRINNEL HARDNESS	0.05 /TON	0.2 /TON				
2)VICKERS HARDNESS	0.025 /TON	0.1 /TON				0.05 /UNIT
3)TENSILE	0.5 /TON	2 /TON				
4)IMPACT	0.15 /TON	0.6 /TON				
5)PROJECTOR	0.15 /TON	0.6 /TON				
6)MICRO STRUCTURE		2 /TON				1 /UNIT
7)CHEMICAL ANALYSIS	0.5 /TON	2 /TON				
<CATEGORY B>						
8)SURFACE ROUGHNESS			1 /UNIT			
9)3-DIM. MEASUREMENT						
10)GEAR TOOTH DIM.			1 /UNIT			
<CATEGORY C1>						
11)MAGNETIC PARTICLE				0.1 /TON		
<CATEGORY C2>						
12)ULTRASONIC						
13)X-RAY						

FREQUENCY OF TESTS & INSPECTIONS BY INDUSTRY

INDUSTRY: ELECTRIC MACHINE & APPLIANCES

TESTS & INSPECTIONS	CASTING	FORGING, HEAT TREATMENT	MACHINING	SHEET WORK, WELDING	PRESS WORK	PLATING
<CATEGORY A>						
1)BRINNEL HARDNESS		0.2 /TON				
2)VICKERS HARDNESS		0.1 /TON				
3)TENSILE		2 /TON				
4)IMPACT		0.6 /TON				
5)PROJECTOR		0.6 /TON				
6)MICRO STRUCTURE		2 /TON				
7)CHEMICAL ANALYSIS		2 /TON				
<CATEGORY B>						
8)SURFACE ROUGHNESS						
9)3-DIM. MEASUREMENT						
10)GEAR TOOTH DIM.						
<CATEGORY C1>						
11)MAGNETIC PARTICLE						
<CATEGORY C2>						
12)ULTRASONIC						
13)X-RAY						

FREQUENCY OF TESTS & INSPECTIONS BY INDUSTRY

INDUSTRY: AUTOMOBILE

TESTS & INSPECTIONS	CASTING	FORGING, HEAT TREATMENT	MACHINING	SHEET WORK, WELDING	PRESS WORK	PLATING
<CATEGORY A>						
1)BRINNEL HARDNESS	0.05 /TON	0.2 /TON				
2)VICKERS HARDNESS	0.025 /TON	0.1 /TON				0.0005 /UNIT
3)TENSILE	0.5 /TON	2 /TON				
4)IMPACT	0.15 /TON	0.6 /TON				
5)PROJECTOR	0.15 /TON	0.6 /TON				
6)MICRO STRUCTURE		2 /TON				0.01 /UNIT
7)CHEMICAL ANALYSIS	0.5 /TON	2 /TON				
<CATEGORY B>						
8)SURFACE ROUGHNESS			0.01 /UNIT			
9)3-DIM. MEASUREMENT			0.01 /UNIT			
10)GEAR TOOTH DIM.			0.01 /UNIT			
<CATEGORY C1>						
11)MAGNETIC PARTICLE						
<CATEGORY C2>						
12)ULTRASONIC						
13)X-RAY						

FREQUENCY OF TESTS & INSPECTIONS BY INDUSTRY

INDUSTRY: MOTORCYCLE

TESTS & INSPECTIONS	CASTING	FORGING, HEAT TREATMENT	MACHINING	SHEET WORK, WELDING	PRESS WORK	PLATING
<CATEGORY A>						
1)BRINNEL HARDNESS	0.05 /TON	0.2 /TON				
2)VICKERS HARDNESS	0.025 /TON	0.1 /TON				0.00025/UNIT
3)TENSILE	0.5 /TON	2 /TON				
4)IMPACT	0.15 /TON	0.6 /TON				
5)PROJECTOR	0.15 /TON	0.6 /TON				
6)MICRO STRUCTURE		2 /TON				0.005 /UNIT
7)CHEMICAL ANALYSIS	0.5 /TON	2 /TON				
<CATEGORY B>						
8)SURFACE ROUGHNESS			0.005 /UNIT			
9)3-DIM. MEASUREMENT			0.005 /UNIT			
10)GEAR TOOTH DIM.			0.005 /UNIT			
<CATEGORY C1>						
11)MAGNETIC PARTICLE						
<CATEGORY C2>						
12)ULTRASONIC						
13)X-RAY						

FREQUENCY OF TESTS & INSPECTIONS BY INDUSTRY

INDUSTRY: DIESEL ENGINE

TESTS & INSPECTIONS	CASTING	FORGING, HEAT TREATMENT	MACHINING	SHEET WORK, WELDING	PRESS WORK	PLATING
<CATEGORY A>						
1)BRINNEL HARDNESS	0.05 /TON	0.2 /TON				
2)VICKERS HARDNESS	0.025 /TON	0.1 /TON				0.0005 /UNIT
3)TENSILE	0.5 /TON	2 /TON				
4)IMPACT	0.15 /TON	0.6 /TON				
5)PROJECTOR	0.15 /TON	0.6 /TON				
6)MICRO STRUCTURE		2 /TON				0.01 /UNIT
7)CHEMICAL ANALYSIS	0.5 /TON	2 /TON				
<CATEGORY B>						
8)SURFACE ROUGHNESS			0.01 /UNIT			
9)3-DIM. MEASUREMENT			0.01 /UNIT			
10)GEAR TOOTH DIM.			0.01 /UNIT			
<CATEGORY C1>						
11)MAGNETIC PARTICLE				0.1 /TON		
<CATEGORY C2>						
12)ULTRASONIC						
13)X-RAY						

FREQUENCY OF TESTS & INSPECTIONS BY INDUSTRY

INDUSTRY: SHIP BUILDING

TESTS & INSPECTIONS	HULL STEEL		EQUIPMENT & OUTFIT	
<CATEGORY A>				
1)BRINNEL HARDNESS	0.01	/TON	0.01	/TON
2)VICKERS HARDNESS	0.005	/TON	0.005	/TON
3)TENSILE	0.1	/TON	0.1	/TON
4)IMPACT	0.03	/TON	0.03	/TON
5)PROJECTOR	0.03	/TON	0.03	/TON
6)MICRO STRUCTURE				
7)CHEMICAL ANALYSIS	0.1	/TON	0.1	/TON
<CATEGORY B>				
8)SURFACE ROUGHNESS				
9)3-DIM. MEASUREMENT				
10)GEAR TOOTH DIM.				
<CATEGORY C1>				
11)MAGNETIC PARTICLE	0.01	/TON	0.01	/TON
<CATEGORY C2>				
12)ULTRASONIC				
13)X-RAY	0.1	/TON	0.1	/TON

FREQUENCY OF TESTS & INSPECTIONS BY INDUSTRY

INDUSTRY: PROCESS EQUIPMENT

TESTS & INSPECTIONS	STRUCTURE WORK	PLATE WORK	MACHINE WORK
<CATEGORY A>			
1)BRINNEL HARDNESS	0.01 /TON		
2)VICKERS HARDNESS	0.005 /TON		
3)TENSILE	0.1 /TON		
4)IMPACT	0.03 /TON		
5)PROJECTOR	0.03 /TON		
6)MICRO STRUCTURE			
7)CHEMICAL ANALYSIS	0.1 /TON		
<CATEGORY B>			
8)SURFACE ROUGHNESS			1 /TON
9)3-DIM. MEASUREMENT			
10)GEAR TOOTH DIM.			1 /TON
<CATEGORY C1>			
11)MAGNETIC PARTICLE	0.01 /TON	0.01 /TON	
<CATEGORY C2>			
12)ULTRASONIC	0.05 /TON	0.05 /TON	
13)X-RAY	0.05 /TON	0.05 /TON	

RECOMMENDABLE NUMBER OF TESTS AND INSPECTIONS

INDUSTRY	MACHINE TOOL		
YEAR	1985	1993	1998
NUMBER OF UNIT	1,206	10,000	21,667

TESTS & INSPECTIONS / YEAR	1985	1993	1998
<CATEGORY A>			
1)BRINNEL HARDNESS	4	211	968
2)VICKERS HARDNESS	2	156	1,405
3)TENSILE	43	2,111	9,682
4)IMPACT	13	633	2,904
5)PROJECTOR	13	633	2,904
6)MICRO STRUCTURE	0	1,420	20,461
7)CHEMICAL ANALYSIS	43	2,111	9,682
<CATEGORY B>			
8)SURFACE ROUGHNESS	181	2,500	8,667
9)3-DIM. MEASUREMENT	181	2,500	8,667
10)GEAR TOOTH DIM.	181	2,500	8,667
<CATEGORY C1>			
11)MAGNETIC PARTICLE	3	59	206
<CATEGORY C2>			
12)ULTRASONIC	0	0	0
13)X-RAY	0	0	0
SUB TOTAL	664	14,834	74,213

RECOMMENDABLE NUMBER OF TESTS AND INSPECTIONS

INDUSTRY	AGRICULTURE MACHINE		
YEAR	1985	1993	1998
NUMBER OF UNIT	11,892	33,343	85,110

TESTS & INSPECTIONS / YEAR	1985	1993	1998
<CATEGORY A>			
1)BRINNEL HARDNESS	54	257	837
2)VICKERS HARDNESS	28	129	419
3)TENSILE	542	2,575	8,377
4)IMPACT	162	772	2,513
5)PROJECTOR	162	772	2,513
6)MICRO STRUCTURE	90	794	3,412
7)CHEMICAL ANALYSIS	542	2,575	8,377
<CATEGORY B>			
8)SURFACE ROUGHNESS	89	417	1,489
9)3-DIM. MEASUREMENT	0	0	0
10)GEAR TOOTH DIM.	89	417	1,489
<CATEGORY C1>			
11)MAGNETIC PARTICLE	66	350	1,257
<CATEGORY C2>			
12)ULTRASONIC	0	0	0
13)X-RAY	0	0	0
SUB TOTAL	1,824	9,058	30,683

RECOMMENDABLE NUMBER OF TESTS AND INSPECTIONS

INDUSTRY	CONSTRUCTION MACHINE		
YEAR	1985	1993	1998
NUMBER OF UNIT	1,914	2,442	3,116

TESTS & INSPECTIONS / YEAR	1985	1993	1998
<CATEGORY A>			
1)BRINNEL HARDNESS	17	488	1,312
2)VICKERS HARDNESS	9	256	788
3)TENSILE	170	4,881	13,122
4)IMPACT	51	1,464	3,936
5)PROJECTOR	51	1,464	3,936
6)MICRO STRUCTURE	118	3,634	11,767
7)CHEMICAL ANALYSIS	170	4,881	13,122
<CATEGORY B>			
8)SURFACE ROUGHNESS	574	1,221	2,181
9)3-DIM. MEASUREMENT	0	0	0
10)GEAR TOOTH DIM.	574	1,221	2,181
<CATEGORY C1>			
11)MAGNETIC PARTICLE	86	1,460	3,254
<CATEGORY C2>			
12)ULTRASONIC	0	0	0
13)X-RAY	0	0	0
SUB TOTAL	1,820	20,970	55,599

RECOMMENDABLE NUMBER OF TESTS AND INSPECTIONS

INDUSTRY	ELECTRIC MACHINE		
YEAR	1985	1993	1998
NUMBER OF UNIT	2,444K	3,838K	6,062K

TESTS & INSPECTIONS / YEAR	1985	1993	1998
<CATEGORY A>			
1)BRINNEL HARDNESS	0	0	0
2)VICKERS HARDNESS	0	0	0
3)TENSILE	0	0	0
4)IMPACT	0	0	0
5)PROJECTOR	0	0	0
6)MICRO STRUCTURE	0	0	0
7)CHEMICAL ANALYSIS	0	0	0
<CATEGORY B>			
8)SURFACE ROUGHNESS	0	0	0
9)3-DIM. MEASUREMENT	0	0	0
10)GEAR TOOTH DIM.	0	0	0
<CATEGORY C1>			
11)MAGNETIC PARTICLE	0	0	0
<CATEGORY C2>			
12)ULTRASONIC	0	0	0
13)X-RAY	0	0	0
SUB TOTAL	0	0	0

RECOMMENDABLE NUMBER OF TESTS AND INSPECTIONS

INDUSTRY	ELECTRIC APPLIANCES		
YEAR	1985	1993	1998
NUMBER OF UNIT	8,360K	10,700K	13,626K

TESTS & INSPECTIONS / YEAR	1985	1993	1998
<CATEGORY A>			
1)BRINNEL HARDNESS	0	65	83
2)VICKERS HARDNESS	0	33	41
3)TENSILE	0	650	828
4)IMPACT	0	195	248
5)PROJECTOR	0	195	248
6)MICRO STRUCTURE	0	650	828
7)CHEMICAL ANALYSIS	0	650	828
<CATEGORY B>			
8)SURFACE ROUGHNESS	0	0	0
9)3-DIM. MEASUREMENT	0	0	0
10)GEAR TOOTH DIM.	0	0	0
<CATEGORY C1>			
11)MAGNETIC PARTICLE	0	0	0
<CATEGORY C2>			
12)ULTRASONIC	0	0	0
13)X-RAY	0	0	0
SUB TOTAL	0	2,438	3,104

RECOMMENDABLE NUMBER OF TESTS AND INSPECTIONS

INDUSTRY	AUTOMOTIVE		
YEAR	1985	1993	1998
NUMBER OF UNIT	130K	183K	295K

TESTS & INSPECTIONS / YEAR	1985	1993	1998
<CATEGORY A>			
1)BRINNEL HARDNESS	0	3,397	6,948
2)VICKERS HARDNESS	0	1,708	3,599
3)TENSILE	0	33,972	69,483
4)IMPACT	0	10,192	20,845
5)PROJECTOR	0	10,192	20,845
6)MICRO STRUCTURE	0	30,735	63,062
7)CHEMICAL ANALYSIS	0	33,972	69,483
<CATEGORY B>			
8)SURFACE ROUGHNESS	0	549	885
9)3-DIM. MEASUREMENT	0	549	885
10)GEAR TOOTH DIM.	0	549	885
<CATEGORY C1>			
11)MAGNETIC PARTICLE	0	0	0
<CATEGORY C2>			
12)ULTRASONIC	0	0	0
13)X-RAY	0	0	0
SUB TOTAL	0	125,815	256,920

RECOMMENDABLE NUMBER OF TESTS AND INSPECTIONS

INDUSTRY	MOTORCYCLE		
YEAR	1985	1993	1998
NUMBER OF UNIT	248K	503K	810K

TESTS & INSPECTIONS / YEAR	1985	1993	1998
<CATEGORY A>			
1)BRINNEL HARDNESS	0	1,583	3,145
2)VICKERS HARDNESS	0	804	1,745
3)TENSILE	0	15,823	31,452
4)IMPACT	0	4,747	9,435
5)PROJECTOR	0	4,747	9,435
6)MICRO STRUCTURE	0	14,750	32,637
7)CHEMICAL ANALYSIS	0	15,823	31,452
<CATEGORY B>			
8)SURFACE ROUGHNESS	124	755	1,215
9)3-DIM. MEASUREMENT	124	755	1,215
10)GEAR TOOTH DIM.	124	755	1,215
<CATEGORY C1>			
11)MAGNETIC PARTICLE	0	0	0
<CATEGORY C2>			
12)ULTRASONIC	0	0	0
13)X-RAY	0	0	0
SUB TOTAL	372	60,542	122,946

RECOMMENDABLE NUMBER OF TESTS AND INSPECTIONS

INDUSTRY	DIESEL ENGINE		
YEAR	1985	1993	1998
NUMBER OF UNIT	96K	150.72K	238.08K

TESTS & INSPECTIONS / YEAR	1985	1993	1998
<CATEGORY A>			
1)BRINNEL HARDNESS	0	119	619
2)VICKERS HARDNESS	0	68	411
3)TENSILE	0	1,191	6,190
4)IMPACT	0	358	1,857
5)PROJECTOR	0	358	1,857
6)MICRO STRUCTURE	0	603	4,881
7)CHEMICAL ANALYSIS	0	1,191	6,190
<CATEGORY B>			
8)SURFACE ROUGHNESS	96	452	1,190
9)3-DIM. MEASUREMENT	96	452	1,190
10)GEAR TOOTH DIM.	96	452	1,190
<CATEGORY C1>			
11)MAGNETIC PARTICLE	38	72	113
<CATEGORY C2>			
12)ULTRASONIC	0	0	0
13)X-RAY	0	0	0
SUB TOTAL	326	5,316	25,688

RECOMMENDABLE NUMBER OF TESTS AND INSPECTIONS

INDUSTRY	SHIP BUILDING		
YEAR	1985	1993	1998
NUMBER OF UNIT			

TESTS & INSPECTIONS / YEAR	1985	1993	1998
<CATEGORY A>			
1)BRINNEL HARDNESS	0	30	60
2)VICKERS HARDNESS	0	15	30
3)TENSILE	0	300	600
4)IMPACT	0	90	180
5)PROJECTOR	0	90	180
6)MICRO STRUCTURE	0	0	0
7)CHEMICAL ANALYSIS	0	300	600
<CATEGORY B>			
8)SURFACE ROUGHNESS	0	0	0
9)3-DIM. MEASUREMENT	0	0	0
10)GEAR TOOTH DIM.	0	0	0
<CATEGORY C1>			
11)MAGNETIC PARTICLE	0	30	60
<CATEGORY C2>			
12)ULTRASONIC	0	0	0
13)X-RAY	0	300	600
SUB TOTAL	0	1,155	2,310

RECOMMENDABLE NUMBER OF TESTS AND INSPECTIONS

INDUSTRY	PROCESS EQUIPMENT		
YEAR	1985	1993	1998
NUMBER OF UNIT			

TESTS & INSPECTIONS / YEAR	1985	1993	1998
<CATEGORY A>			
1)BRINNEL HARDNESS	323	550	822
2)VICKERS HARDNESS	161	275	411
3)TENSILE	3,227	5,500	8,220
4)IMPACT	968	1,650	2,466
5)PROJECTOR	968	1,650	2,466
6)MICRO STRUCTURE	0	0	0
7)CHEMICAL ANALYSIS	3,227	5,500	8,220
<CATEGORY B>			
8)SURFACE ROUGHNESS	2,200	4,000	6,900
9)3-DIM. MEASUREMENT	0	0	0
10)GEAR TOOTH DIM.	2,200	4,000	6,900
<CATEGORY C1>			
11)MAGNETIC PARTICLE	405	740	1,132
<CATEGORY C2>			
12)ULTRASONIC	2,023	3,700	5,661
13)X-RAY	2,023	3,700	5,661
SUB TOTAL	17,725	31,265	48,859

DISTRIBUTION OF INDUSTRY BY REGION

INDUSTRY: MACHINE TOOL

(UNIT)

COMMODITY	JABOTABEK	JAWA BARAT (EX.BOTABEK)	JAWA TENGAH	JAWA TIMUR	SUMATERA	OTHERS
LATHE	0	300	0	0	0	0
BENDING MACHINE	100	0	0	0	0	0
PRESS MACHINE	100	0	0	0	0	0
DRILL MACHINE	300	0	0	0	0	0
SHEARING M/C	100	0	0	0	0	0
T O T A L	600	300	0	0	0	0
DISTRIBUTION	0.67	0.33	0.00	0.00	0.00	0.00

SOURCE: DEPARTEMEN PERINDUSTRIAN

DISTRIBUTION OF INDUSTRY BY REGION

INDUSTRY: AGRICULTURE MACHINE

(UNIT: TON)

COMMODITY	JABOTABEK	JAWA BARAT (EX.BOTABEK)	JAWA TENGAH	JAWA TIMUR	SUMATERA	OTHERS
HULLER	0	29	240	396	24	12
THRESHER	6	0	440	142	34	0
TRACTOR(SMALL)	0	0	0	104	0	0
TRACTOR(LARGE)	3,432	0	0	0	0	0
RICE MILLER	0	0	690	173	25	0
RICE POLISHER	0	0	441	101	0	0
IRRIGATION PUMP	1,704	14	654	12	624	0
HAND TRACTOR	84	0	254	264	0	0
T O T A L	5,226	43	2,719	1,192	707	12
DISTRIBUTION	0.53	0.00	0.28	0.12	0.07	0.00

SOURCE: DEPARTEMEN PERINDUSTRIAN

DISTRIBUTION OF INDUSTRY BY REGION

INDUSTRY: CONSTRUCTION MACHINE

(UNIT: TON)

COMMODITY	JABOTABEK	JAWA BARAT (EX.BOTABEK)	JAWA TENGAH	JAWA TIMUR	SUMATERA	OTHERS
CRAWLER BULLDO.	25,560	0	0	0	0	0
HYDRAULIC EXCA.	9,450	0	0	0	0	0
MOTOR GRADER	2,933	0	0	0	0	0
WHEEL LOADER	5,950	0	0	0	0	0
T O T A L	43,893	0	0	0	0	0
DISTRIBUTION	1.00	0.00	0.00	0.00	0.00	0.00

SOURCE: DEPARTEMEN PERINDUSTRIAN

DISTRIBUTION OF INDUSTRY BY REGION

INDUSTRY: ELECTRIC MACHINE AND APPLIANCE

(UNIT: TON)

COMMODITY	JABOTABEK	JAWA BARAT (EX.BOTABEK)	JAWA TENGAH	JAWA TIMUR	SUMATERA	OTHERS
GENERATOR	2,300	0	0	89	120	0
KWH METER	2,640	0	0	0	0	0
ELECTRIC MOTOR	660	0	0	0	0	0
ELECTRIC PANEL	295	0	0	70	0	0
ELEC.TRANSFORM.	845	0	0	54	15	0
WIND FAN	4,200	0	0	0	0	0
ELEC. LAUNDRY	864	0	0	0	0	0
T O T A L	11,804	0	0	213	135	0
DISTRIBUTION	0.97	0.00	0.00	0.02	0.01	0.00

SOURCE: DEPARTEMEN PERINDUSTRIAN

DISTRIBUTION OF INDUSTRY BY REGION

INDUSTRY: AUTOMOBILE

(UNIT)

COMMODITY	JABOTABEK	JAWA BARAT (EX.BOTABEK)	JAWA TENGAH	JAWA TIMUR	SUMATERA	OTHERS
AUTO. ASSEMBLY	296,500	0	0	72,000	0	0
T O T A L	296,500	0	0	72,000	0	0
DISTRIBUTION	0.80	0.00	0.00	0.20	0.00	0.00

SOURCE: DEPARTEMEN PERINDUSTRIAN

DISTRIBUTION OF INDUSTRY BY REGION

INDUSTRY: MOTORCYCLE

(UNIT)

COMMODITY	JABOTABEK	JAWA BARAT (EX.BOTABEK)	JAWA TENGAH	JAWA TIMUR	SUMATERA	OTHERS
MOTORCYCLE ASSY	1,230,000	0	0	0	0	0
T O T A L	1,230,000	0	0	0	0	0
DISTRIBUTION	1.00	0.00	0.00	0.00	0.00	0.00

SOURCE: DEPARTEMEN PERINDUSTRIAN

DISTRIBUTION OF INDUSTRY BY REGION

INDUSTRY: DIESEL ENGINE

(UNIT)

COMMODITY	JABOTABEK	JAWA BARAT (EX.BOTABEK)	JAWA TENGAH	JAWA TIMUR	SUMATERA	OTHERS
DIESEL ENGINE	48,464	0	28,000	29,000	0	0
T O T A L	48,464	0	28,000	29,000	0	0
DISTRIBUTION	0.46	0.00	0.27	0.27	0.00	0.00

SOURCE: DEPARTEMEN PERINDUSTRIAN

DISTRIBUTION OF INDUSTRY BY REGION

INDUSTRY: SHIP BUILDING

(UNIT: BRT)

COMMODITY	JABOTABEK	JAWA BARAT (EX.BOTABEK)	JAWA TENGAH	JAWA TIMUR	SUMATERA	OTHERS
SHIP BUILDING	53,200	0	12,950	25,750	23,600	8,900
T O T A L	53,200	0	12,950	25,750	23,600	8,900
DISTRIBUTION	0.43	0.00	0.10	0.21	0.19	0.07

SOURCE: DEPARTEMEN PERINDUSTRIAN

DISTRIBUTION OF INDUSTRY BY REGION

INDUSTRY: PROCESS EQUIPMENT

(UNIT: NUMBER OF EMPLOYEES)

COMMODITY	JABOTABEK	JAWA BARAT (EX.BOTABEK)	JAWA TENGAH	JAWA TIMUR	SUMATERA	OTHERS
METAL PROCESSG	71,835	41,702	11,895	41,389	12,530	2,290
T O T A L	71,835	41,702	11,895	41,389	12,530	2,290
DISTRIBUTION	0.40	0.23	0.07	0.23	0.06	0.01

SOURCE: BPS

NOTE:ESTIMATED FROM THE NUMBER OF PEOPLE ENGAGED WITH METAL PROCESSING IND.

FLOW OF RECOMMENDABLE TESTS AND INSPECTIONS BY INDUSTRY AND REGION

INDUSTRY	MACHINE TOOL		
YEAR	1985	1993	1998
NUMBER OF UNIT	1,208	10,000	21,067

TESTS	REGION	JABOTABEK			JAVA BARAT-EX.JABOTABEK			JAVA TENGAH			JAVA TIMUR			SUMATERA			OTHERS			TOTAL		
&	YEAR	1985	1993	1998	1985	1993	1998	1985	1993	1998	1985	1993	1998	1985	1993	1998	1985	1993	1998	1985	1993	1998
INSPECTIONS	RATIO	0.67	0.67	0.67	0.33	0.33	0.33	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
<CATEGORY A>																						
1)BRINNEL HARDNESS		3	141	649	1	70	319	0	0	0	0	0	0	0	0	0	0	0	0	4	211	968
2)VICKERS HARDNESS		1	105	941	1	51	464	0	0	0	0	0	0	0	0	0	0	0	0	2	156	1,405
3)TENSILE		29	1,414	6,487	14	697	3,195	0	0	0	0	0	0	0	0	0	0	0	0	43	2,111	9,682
4)IMPACT		9	424	1,946	4	209	958	0	0	0	0	0	0	0	0	0	0	0	0	13	633	2,904
5)PROJECTOR		9	424	1,946	4	209	958	0	0	0	0	0	0	0	0	0	0	0	0	13	633	2,904
6)MICRO STRUCTURE		0	951	13,709	0	469	6,762	0	0	0	0	0	0	0	0	0	0	0	0	0	1,420	20,471
7)CHEMICAL ANALYSIS		29	1,414	6,487	14	697	3,195	0	0	0	0	0	0	0	0	0	0	0	0	43	2,111	9,682
<CATEGORY B>																						
8)SURFACE ROUGHNESS		121	1,675	5,807	60	825	2,880	0	0	0	0	0	0	0	0	0	0	0	0	181	2,500	8,667
9)3-DIM. MEASUREMENT		121	1,675	5,807	60	825	2,880	0	0	0	0	0	0	0	0	0	0	0	0	181	2,500	8,667
10)GEAR TOOTH DIM.		121	1,675	5,807	60	825	2,880	0	0	0	0	0	0	0	0	0	0	0	0	181	2,500	8,667
<CATEGORY C1>																						
11)MAGNETIC PARTICLE		2	40	138	1	19	68	0	0	0	0	0	0	0	0	0	0	0	0	3	59	206
<CATEGORY C2>																						
12)ULTRASONIC		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13)X-RAY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUB TOTAL		445	9,335	49,723	215	4,895	24,490	0	0	0	0	0	0	0	0	0	0	0	0	804	14,634	74,213

FLOW OF RECOMMENDABLE TESTS AND INSPECTIONS BY INDUSTRY AND REGION

INDUSTRY	AGRICULTURE MACHINE		
YEAR	1985	1993	1998
NUMBER OF UNIT	11,892	33,343	85,110

TESTS	REGION	JABOTABEK			JAWA BARAT-EX.JABOTABEK			JAWA TENGAH			JAWA TIMUR			SUMATERA			OTHERS			TOTAL		
&	YEAR	1985	1993	1998	1985	1993	1998	1985	1993	1998	1985	1993	1998	1985	1993	1998	1985	1993	1998	1985	1993	1998
INSPECTIONS	RATIO	0.53	0.53	0.53	0	0	0	0.28	0.28	0.28	0.12	0.12	0.12	0.07	0.07	0.07	0	0	0	1	1	1
<CATEGORY A>																						
1)BRINNEL HARDNESS		29	136	444	0	0	0	16	72	234	8	31	100	4	18	59	0	0	0	54	257	837
2)VICKERS HARDNESS		15	68	222	0	0	0	8	36	117	3	15	50	2	9	29	0	0	0	28	129	419
3)TENSILE		287	1,305	4,440	0	0	0	152	721	2,346	85	388	1,005	38	180	588	0	0	0	542	2,575	8,377
4)IMPACT		88	400	1,332	0	0	0	46	216	704	19	93	302	11	54	170	0	0	0	162	772	2,513
5)PROJECTOR		88	400	1,332	0	0	0	46	216	704	19	93	302	11	54	178	0	0	0	162	772	2,513
6)MICRO STRUCTURE		48	421	1,808	0	0	0	26	222	956	11	96	409	6	58	239	0	0	0	90	794	3,412
7)CHEMICAL ANALYSIS		287	1,305	4,440	0	0	0	152	721	2,346	85	388	1,005	38	180	588	0	0	0	542	2,575	8,377
<CATEGORY B>																						
8)SURFACE ROUGHNESS		47	221	789	0	0	0	25	117	417	11	50	178	0	20	104	0	0	0	89	417	1,488
9)3-DIM. MEASUREMENT		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10)GEAR TOOTH DIM.		47	221	789	0	0	0	25	117	417	11	50	178	0	20	104	0	0	0	89	417	1,488
<CATEGORY C1>																						
11)MAGNETIC PARTICLE		35	186	666	0	0	0	18	98	352	8	42	151	5	25	88	0	0	0	66	350	1,257
<CATEGORY C2>																						
12)ULTRASONIC		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13)X-RAY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUB TOTAL		967	4,801	16,282	0	0	0	511	2,530	8,591	219	1,087	3,682	128	634	2,148	0	0	0	1,826	9,058	30,683

FLOW OF RECOMMENDABLE TESTS AND INSPECTIONS BY INDUSTRY AND REGION

INDUSTRY	CONSTRUCTION MACHINE		
YEAR	1985	1993	1998
NUMBER OF UNIT	1,914	2,442	3,116

TESTS & INSPECTIONS	REGION / YEAR	JABOTABEK			JAVA BARAT-EX.JABOTABEK			JAVA TENGAH			JAVA TIMUR			SUMATERA			OTHERS			TOTAL		
		1985	1993	1998	1985	1993	1998	1985	1993	1998	1985	1993	1998	1985	1993	1998	1985	1993	1998	1985	1993	1998
	RATIO	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
<CATEGORY A>																						
1)ROCKWELL HARDNESS		17	488	1,312	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17	488	1,312
2)VICKERS HARDNESS		9	256	788	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	256	788
3)TENSILE		170	4,881	13,122	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	170	4,881	13,122
4)IMPACT		51	1,464	3,936	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	51	1,464	3,936
5)PROJECTOR		51	1,464	3,936	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	51	1,464	3,936
6)MICRO STRUCTURE		118	3,634	11,787	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	118	3,634	11,787
7)CHEMICAL ANALYSIS		170	4,881	13,122	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	170	4,881	13,122
<CATEGORY B>																						
8)SURFACE ROUGHNESS		574	1,221	2,181	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	574	1,221	2,181
9)3-DIM. MEASUREMENT		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10)GEAR TOOTH DIM.		574	1,221	2,181	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	574	1,221	2,181
<CATEGORY C1>																						
11)MAGNETIC PARTICLE		80	1,400	3,254	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	80	1,400	3,254
<CATEGORY C2>																						
12)ULTRASONIC		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13)X-RAY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUB TOTAL		1,820	20,970	55,509	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,820	20,970	55,509

FLOW OF RECOMMENDABLE TESTS AND INSPECTIONS BY INDUSTRY AND REGION

INDUSTRY	ELECTRICAL MACHINE		
YEAR	1985	1993	1998
NUMBER OF UNIT	2,444X	3,836X	8,002X

TESTS & INSPECTIONS	REGION	JABOTABEK			JAWA BARAT-EX.JABOTABEK			JAWA TENGAH			JAWA TIMUR			SUMATERA			OTHERS			TOTAL		
	YEAR	1985	1993	1998	1985	1993	1998	1985	1993	1998	1985	1993	1998	1985	1993	1998	1985	1993	1998	1985	1993	1998
	RATIO	0.97	0.97	0.97	0	0	0	0	0	0	0.02	0.02	0.02	0.01	0.01	0.01	0	0	0	1	1	1
<CATEGORY A>																						
1)BRINNEL HARDNESS		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2)VICKERS HARDNESS		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3)TENSILE		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4)IMPACT		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5)PROJECTOR		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6)MICRO STRUCTURE		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7)CHEMICAL ANALYSIS		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<CATEGORY B>																						
8)SURFACE ROUGHNESS		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9)3-DIM. MEASUREMENT		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10)GEAR TOOTH DIM.		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<CATEGORY C1>																						
11)MAGNETIC PARTICLE		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<CATEGORY C2>																						
12)ULTRASONIC		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13)X-RAY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUB TOTAL		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

FLOW OF RECOMMENDABLE TESTS AND INSPECTIONS BY INDUSTRY AND REGION

INDUSTRY	ELECTRIC APPLIANCES		
YEAR	1985	1993	1998
NUMBER OF UNIT	6,300X	10,700X	13,626X

TESTS & INSPECTIONS	REGION	JABOTABEK			JAWA BARAT-EX.JABOTABEK			JAWA TENGAH			JAWA TIMUR			SUMATERA			OTHERS			TOTAL		
	YEAR	1985	1993	1998	1985	1993	1998	1985	1993	1998	1985	1993	1998	1985	1993	1998	1985	1993	1998	1985	1993	1998
	RATIO	0.37	0.37	0.37	0	0	0	0	0	0	0.02	0.02	0.02	0.01	0.01	0.01	0	0	0	1	1	1
<CATEGORY A>																						
1)BRINNEL HARDNESS		0	63	81	0	0	0	0	0	0	0	1	2	0	1	1	0	0	0	0	65	83
2)VICKERS HARDNESS		0	32	40	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	33	41
3)TENSILE		0	631	803	0	0	0	0	0	0	0	13	17	0	7	8	0	0	0	0	650	828
4)IMPACT		0	189	241	0	0	0	0	0	0	0	4	5	0	2	2	0	0	0	0	195	248
5)PROJECTOR		0	189	241	0	0	0	0	0	0	0	4	5	0	2	2	0	0	0	0	195	248
6)MICRO STRUCTURE		0	631	803	0	0	0	0	0	0	0	13	17	0	7	8	0	0	0	0	650	828
7)CHEMICAL ANALYSIS		0	631	803	0	0	0	0	0	0	0	13	17	0	7	8	0	0	0	0	650	828
<CATEGORY B>																						
8)SURFACE ROUGHNESS		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9)3-DIM. MEASUREMENT		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10)GEAR TOOTH DIM.		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<CATEGORY C1>																						
11)MAGNETIC PARTICLE		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<CATEGORY C2>																						
12)ULTRASONIC		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13)X-RAY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUB TOTAL		0	2,365	3,011	0	0	0	0	0	0	0	49	62	0	26	31	0	0	0	0	2,435	3,104

FLOW OF RECOMMENDABLE TESTS AND INSPECTIONS BY INDUSTRY AND REGION

INDUSTRY	AUTOMOTIVE		
YEAR	1985	1993	1998
NUMBER OF UNIT	130X	163X	205X

TESTS & INSPECTIONS	REGION	JABOTABEK			JAWA BARAT-EX.JABOTABEK			JAWA TENGAH			JAWA TIMUR			SUMATERA			OTHERS			TOTAL		
	YEAR	1985	1993	1998	1985	1993	1998	1985	1993	1998	1985	1993	1998	1985	1993	1998	1985	1993	1998	1985	1993	1998
	RATIO	0.8	0.8	0.8	0	0	0	0	0	0	0.2	0.2	0.2	0	0	0	0	0	0	1	1	1
<CATEGORY A>																						
1)BRINNEL HARDNESS		0	2,718	5,556	0	0	0	0	0	0	0	872	1,300	0	0	0	0	0	0	0	3,397	6,948
2)VICKERS HARDNESS		0	1,300	2,879	0	0	0	0	0	0	0	342	720	0	0	0	0	0	0	0	1,708	3,599
3)TENSILE		0	27,178	55,586	0	0	0	0	0	0	0	6,794	13,897	0	0	0	0	0	0	0	33,972	69,483
4)IMPACT		0	8,164	16,070	0	0	0	0	0	0	0	2,038	4,169	0	0	0	0	0	0	0	10,192	20,845
5)PROJECTOR		0	8,154	16,070	0	0	0	0	0	0	0	2,038	4,169	0	0	0	0	0	0	0	10,192	20,845
6)MICRO STRUCTURE		0	24,588	60,450	0	0	0	0	0	0	0	6,147	12,012	0	0	0	0	0	0	0	30,735	83,082
7)CHEMICAL ANALYSIS		0	27,178	55,586	0	0	0	0	0	0	0	6,794	13,897	0	0	0	0	0	0	0	33,972	69,483
<CATEGORY B>																						
8)SURFACE ROUGHNESS		0	439	708	0	0	0	0	0	0	0	110	177	0	0	0	0	0	0	0	549	885
9)D-DIM. MEASUREMENT		0	439	708	0	0	0	0	0	0	0	110	177	0	0	0	0	0	0	0	549	885
10)GEAR TOOTH DIM.		0	439	708	0	0	0	0	0	0	0	110	177	0	0	0	0	0	0	0	549	885
<CATEGORY C1>																						
11)MAGNETIC PARTICLE		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<CATEGORY C2>																						
12)ULTRASONIC		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13)X-RAY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUB TOTAL		0	100,052	205,538	0	0	0	0	0	0	0	25,103	51,384	0	0	0	0	0	0	0	125,815	258,920

FLOW OF RECOMMENDABLE TESTS AND INSPECTIONS BY INDUSTRY AND REGION

INDUSTRY	MOTORCYCLE		
YEAR	1985	1993	1998
NUMBER OF UNIT	248K	503K	810K

TESTS & INSPECTIONS	REGION	JABOTABEK			JAVA BARAT-EX.JABOTABEK			JAVA TENGAH			JAVA TIMUR			SUMATERA			OTHERS			TOTAL		
	YEAR	1985	1993	1998	1985	1993	1998	1985	1993	1998	1985	1993	1998	1985	1993	1998	1985	1993	1998	1985	1993	1998
	RATIO	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
<CATEGORY A>																						
1)BRINNEL HARDNESS		0	1,583	3,145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,583	3,145
2)VICKERS HARDNESS		0	804	1,745	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	804	1,745
3)TENSILE		0	15,823	31,452	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15,823	31,452
4)IMPACT		0	4,747	9,435	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4,747	9,435
5)PROJECTOR		0	4,747	9,435	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4,747	9,435
6)MICRO STRUCTURE		0	14,750	32,037	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14,750	32,037
7)CHEMICAL ANALYSIS		0	15,823	31,452	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15,823	31,452
<CATEGORY B>																						
8)SURFACE ROUGHNESS		124	755	1,215	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	124	755	1,215
9)3-DIM. MEASUREMENT		124	755	1,215	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	124	755	1,216
10)GEAR TOOTH DIM.		124	755	1,215	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	124	755	1,215
<CATEGORY C1>																						
11)MAGNETIC PARTICLE		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<CATEGORY C2>																						
12)ULTRASONIC		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13)X-RAY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUB TOTAL		372	60,542	122,946	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	372	60,542	122,946

FLOW OF RECOMMENDABLE TESTS AND INSPECTIONS BY INDUSTRY AND REGION

INDUSTRY	DIESEL ENGINE		
YEAR	1985	1993	1998
NUMBER OF UNIT	906	150.72%	238.08%

TESTS & INSPECTIONS	REGION	JABOTABEK			JAYA BARAT-EX.JABOTABEK			JAYA TENGAH			JAYA TIMUR			SUMATERA			OTHERS			TOTAL		
	YEAR	1985	1993	1998	1985	1993	1998	1985	1993	1998	1985	1993	1998	1985	1993	1998	1985	1993	1998	1985	1993	1998
	RATIO	0.48	0.48	0.48	0	0	0	0.27	0.27	0.27	0.27	0.27	0.27	0	0	0	0	0	0	1	1	1
<CATEGORY A>																						
1)BRINNEL HARDNESS		0	55	285	0	0	0	0	32	107	0	32	107	0	0	0	0	0	0	0	119	619
2)VICKERS HARDNESS		0	31	160	0	0	0	0	18	111	0	18	111	0	0	0	0	0	0	0	68	411
3)TENSILE		0	548	2,847	0	0	0	0	322	1,071	0	322	1,071	0	0	0	0	0	0	0	1,191	6,190
4)IMPACT		0	165	854	0	0	0	0	97	501	0	97	501	0	0	0	0	0	0	0	358	1,857
5)PROJECTOR		0	165	854	0	0	0	0	97	501	0	97	501	0	0	0	0	0	0	0	358	1,857
6)MICRO STRUCTURE		0	277	2,245	0	0	0	0	163	1,318	0	163	1,318	0	0	0	0	0	0	0	603	4,881
7)CHEMICAL ANALYSIS		0	548	2,847	0	0	0	0	322	1,071	0	322	1,071	0	0	0	0	0	0	0	1,191	6,190
<CATEGORY B>																						
8)SURFACE ROUGHNESS		44	208	547	0	0	0	26	122	321	26	122	321	0	0	0	0	0	0	98	452	1,190
9)3-DIM. MEASUREMENT		44	208	547	0	0	0	26	122	321	26	122	321	0	0	0	0	0	0	98	452	1,190
10)GEAR TOOTH DIM.		44	208	547	0	0	0	26	122	321	26	122	321	0	0	0	0	0	0	98	452	1,190
<CATEGORY C1>																						
11)MAGNETIC PARTICLE		17	33	52	0	0	0	10	19	31	10	19	31	0	0	0	0	0	0	36	72	113
<CATEGORY C2>																						
12)ULTRASONIC		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13)X-RAY		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUB TOTAL		150	2,445	11,816	0	0	0	86	1,435	6,030	86	1,435	6,030	0	0	0	0	0	0	326	5,316	25,088

FLOW OF RECOMMENDABLE TESTS AND INSPECTIONS BY INDUSTRY AND REGION

INDUSTRY	SHIP BUILDING		
YEAR	1985	1993	1998
NUMBER OF UNIT			

TESTS & INSPECTIONS	REGION	JABOTABEK			JAVA BARAT-EX.JABOTABEK			JAVA TENGAH			JAVA TIMUR			SUMATERA			OTHERS			TOTAL		
	YEAR	1985	1993	1998	1985	1993	1998	1985	1993	1998	1985	1993	1998	1985	1993	1998	1985	1993	1998	1985	1993	1998
	RATIO	0.43	0.43	0.43	0	0	0	0.1	0.1	0.1	0.21	0.21	0.21	0.13	0.13	0.13	0.07	0.07	0.07	1	1	1
<CATEGORY A>																						
1)BRINNEL HARDNESS		0	13	28	0	0	0	0	3	6	0	8	15	0	6	11	0	2	4	0	30	60
2)VICTERS HARDNESS		0	6	13	0	0	0	0	2	3	0	3	6	0	3	6	0	1	2	0	15	30
3)TENSILE		0	129	258	0	0	0	0	30	60	0	63	126	0	57	114	0	21	42	0	300	600
4)IMPACT		0	39	77	0	0	0	0	9	18	0	18	36	0	17	34	0	6	13	0	90	180
5)PROJECTOR		0	39	77	0	0	0	0	9	18	0	19	38	0	17	34	0	6	13	0	90	180
6)MICRO STRUCTURE		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7)CHEMICAL ANALYSIS		0	129	258	0	0	0	0	30	60	0	63	126	0	57	114	0	21	42	0	300	600
<CATEGORY B>																						
8)SURFACE ROUGHNESS		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9)3-DIM. MEASUREMENT		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10)GEAR TOOTH DIM.		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<CATEGORY C1>																						
11)MAGNETIC PARTICLE		0	13	28	0	0	0	0	3	6	0	8	15	0	6	11	0	2	4	0	30	60
<CATEGORY C2>																						
12)ULTRASONIC		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13)X-RAY		0	129	258	0	0	0	0	30	60	0	63	126	0	57	114	0	21	42	0	300	600
SUB TOTAL		0	497	993	0	0	0	0	116	231	0	243	485	0	219	439	0	81	162	0	1,155	2,310

FLOW OF RECOMMENDABLE TESTS AND INSPECTIONS BY INDUSTRY AND REGION

INDUSTRY	PROCESS EQUIPMENT		
YEAR	1985	1993	1998
NUMBER OF UNIT			

TESTS & INSPECTIONS	REGION	JABOTABEK			JAWA BARAT-EX.JABOTABEK			JAWA TENGAH			JAWA TIMUR			SUMATERA			OTHERS			TOTAL		
	YEAR	1985	1993	1998	1985	1993	1998	1985	1993	1998	1985	1993	1998	1985	1993	1998	1985	1993	1998	1985	1993	1998
	RATIO	0.4	0.4	0.4	0.23	0.23	0.23	0.06	0.06	0.06	0.23	0.23	0.23	0.07	0.07	0.07	0.01	0.01	0.01	1	1	1
<CATEGORY A>																						
1)BRINNEL HARDNESS		125	220	329	74	127	189	19	33	49	74	127	189	23	39	58	3	5	8	323	550	822
2)VICKERS HARDNESS		64	110	164	37	63	95	10	17	25	37	63	95	11	19	29	2	3	4	161	275	411
3)TENSILE		1,291	2,200	3,288	742	1,265	1,891	194	330	493	742	1,265	1,891	226	385	575	32	55	82	3,227	5,500	8,220
4)IMPACT		387	660	986	223	380	567	58	99	148	223	380	567	68	116	173	10	17	25	968	1,650	2,466
5)PROJECTOR		387	660	986	223	380	567	58	99	148	223	380	567	68	116	173	10	17	25	968	1,650	2,466
6)MICRO STRUCTURE		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7)CHEMICAL ANALYSIS		1,291	2,200	3,288	742	1,265	1,891	194	330	493	742	1,265	1,891	226	385	575	32	55	82	3,227	5,500	8,220
<CATEGORY B>																						
8)SURFACE ROUGHNESS		660	1,000	2,760	508	920	1,587	132	240	414	508	920	1,587	154	280	483	22	40	69	2,200	4,000	6,900
9)3-DIM. MEASUREMENT		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10)GEAR TOOTH DIM.		660	1,000	2,760	508	920	1,587	132	240	414	508	920	1,587	154	280	483	22	40	69	2,200	4,000	6,900
<CATEGORY C1>																						
11)MAGNETIC PARTICLE		162	295	453	93	170	260	24	44	68	93	170	260	28	52	79	4	7	11	405	740	1,132
<CATEGORY C2>																						
12)ULTRASONIC		809	1,480	2,264	465	851	1,302	121	222	340	465	851	1,302	142	259	396	20	37	57	2,023	3,700	5,661
13)X-RAY		809	1,480	2,264	465	851	1,302	121	222	340	465	851	1,302	142	259	396	20	37	57	2,023	3,700	5,661
SUB TOTAL		7,050	12,500	19,544	4,077	7,191	11,238	1,084	1,876	2,932	4,077	7,191	11,238	1,241	2,189	3,420	177	313	489	17,725	31,265	48,859

FLOW OF TESTS AND INSPECTIONS IN JABOTABEK

TESTS & INSPECTIONS / REGION / YEAR	JABOTABEK								
	1985	1986	1987	1988	1989	1990	1991	1992	1993
<CATEGORY A>									
1)BRINNEL HARDNESS	177	272	417	639	980	1,502	2,304	3,533	5,417
2)VICKERS HARDNESS	89	137	211	324	498	766	1,177	1,809	2,779
3)TENSILE	1,777	2,724	4,175	6,400	9,811	15,039	23,053	35,337	54,168
4)IMPACT	533	817	1,253	1,920	2,944	4,512	6,916	10,601	16,250
5)PROJECTOR	533	817	1,253	1,920	2,944	4,512	6,916	10,601	16,250
6)MICRO STRUCTURE	166	335	675	1,360	2,741	5,525	11,137	22,449	45,252
7)CHEMICAL ANALYSIS	1,777	2,724	4,175	6,400	9,811	15,039	23,053	35,337	54,168
<CATEGORY B>									
8)SURFACE ROUGHNESS	1,790	2,087	2,434	2,838	3,310	3,859	4,500	5,248	6,119
9)3-DIM. MEASUREMENT	289	389	522	702	943	1,268	1,704	2,290	3,077
10)GEAR TOOTH DIM.	1,790	2,087	2,434	2,838	3,310	3,859	4,500	5,248	6,119
<CATEGORY C1>									
11)MAGNETIC PARTICLE	302	384	487	617	783	993	1,260	1,598	2,027
<CATEGORY C2>									
12)ULTRASONIC	809	873	941	1,015	1,094	1,180	1,273	1,372	1,480
13)X-RAY	809	862	981	1,047	1,141	1,243	1,355	1,477	1,609
SUB TOTAL	10,843	14,527	19,937	28,021	40,308	59,297	89,147	136,899	214,717

FLOW OF TESTS AND INSPECTIONS IN JAWA BARAT(EXCLUDING JABOTABEK)

TESTS & INSPECTIONS	REGION / YEAR	JAWA BARAT-EX.JABOTABEK								
		1985	1986	1987	1988	1989	1990	1991	1992	1993
<CATEGORY A>										
1)BRINNEL HARDNESS		75	85	96	108	122	137	155	174	197
2)VICKERS HARDNESS		38	44	50	57	66	76	87	100	114
3)TENSILE		756	852	960	1,081	1,218	1,372	1,546	1,742	1,962
4)IMPACT		227	255	288	324	365	411	464	522	589
5)PROJECTOR		227	255	288	324	365	411	464	522	589
6)MICRO STRUCTURE		0	2	5	10	22	47	101	217	469
7)CHEMICAL ANALYSIS		756	852	960	1,081	1,218	1,372	1,546	1,742	1,962
<CATEGORY B>										
8)SURFACE ROUGHNESS		566	652	750	863	994	1,144	1,317	1,516	1,745
9)3-DIM. MEASUREMENT		60	83	116	160	222	309	426	595	825
10)GEAR TOOTH DIM.		566	652	750	863	994	1,144	1,317	1,516	1,745
<CATEGORY C1>										
11)MAGNETIC PARTICLE		94	103	112	122	133	146	159	173	189
<CATEGORY C2>										
12)ULTRASONIC		465	502	541	584	629	679	732	789	851
13)X-RAY		465	502	541	584	629	679	732	789	851
SUB TOTAL		4,296	4,838	5,455	6,162	6,978	7,926	9,046	10,397	12,087

FLOW OF TESTS AND INSPECTIONS IN JAWA TENGAH

TESTS & INSPECTIONS	REGION / YEAR	JAWA TENGAH								
		1985	1986	1987	1988	1989	1990	1991	1992	1993
<CATEGORY A>										
1)BRINNEL HARDNESS		34	41	49	58	69	83	99	118	140
2)VICKERS HARDNESS		18	21	25	30	36	43	51	61	72
3)TENSILE		346	412	491	584	696	829	988	1.177	1.403
4)IMPACT		103	123	147	175	208	248	296	353	421
5)PROJECTOR		103	123	147	175	208	248	296	353	421
6)MICRO STRUCTURE		25	35	50	70	98	138	194	273	385
7)CHEMICAL ANALYSIS		346	412	491	584	696	829	988	1.177	1.403
<CATEGORY B>										
8)SURFACE ROUGHNESS		183	206	233	262	296	334	377	425	479
9)3-DIM. MEASUREMENT		26	31	38	46	56	68	83	101	122
10)GEAR TOOTH DIM.		183	206	233	262	296	334	377	425	479
<CATEGORY C1>										
11)MAGNETIC PARTICLE		53	61	70	81	93	107	124	143	165
<CATEGORY C2>										
12)ULTRASONIC		121	131	141	152	164	177	191	206	222
13)X-RAY		121	133	146	160	175	192	210	230	252
SUB TOTAL		1.602	1.935	2.258	2.840	3.093	3.631	4.273	5.041	5.963

FLOW OF TESTS AND INSPECTIONS IN JAWA TIMUR

TESTS & INSPECTIONS	REGION / YEAR	JAWA TIMUR								
		1985	1986	1987	1988	1989	1990	1991	1992	1993
<CATEGORY A>										
1)BRINNEL HARDNESS		80	108	146	197	265	358	482	650	876
2)VICKERS HARDNESS		40	54	73	99	133	180	243	328	442
3)TENSILE		807	1,088	1,465	1,974	2,660	3,584	4,829	6,506	8,766
4)IMPACT		242	326	439	592	797	1,075	1,448	1,952	2,630
5)PROJECTOR		242	326	439	592	797	1,075	1,448	1,952	2,630
6)MICRO STRUCTURE		11	24	54	120	266	589	1,308	2,895	6,418
7)CHEMICAL ANALYSIS		807	1,088	1,466	1,974	2,660	3,584	4,829	6,506	8,766
<CATEGORY B>										
8)SURFACE ROUGHNESS		543	600	662	731	808	892	985	1,088	1,202
9)3-DIM. MEASUREMENT		26	34	45	59	78	102	134	176	232
10)GEAR TOOTH DIM.		543	600	662	731	808	892	985	1,088	1,202
<CATEGORY C1>										
11)MAGNETIC PARTICLE		111	122	135	148	163	179	197	216	238
<CATEGORY C2>										
12)ULTRASONIC		465	502	541	584	629	679	732	789	851
13)X-RAY		465	506	551	599	652	710	772	840	914
SUB TOTAL		4,383	5,377	6,677	8,400	10,718	13,897	18,390	24,987	35,168

FLOW OF TESTS AND INSPECTIONS IN SUMATERA

TESTS & INSPECTIONS / REGION / YEAR	SUMATERA 1985	1986	1987	1988	1989	1990	1991	1992	1993
<CATEGORY A>									
1)BRINNEL HARDNESS	27	30	33	37	41	46	51	57	63
2)VICKERS HARDNESS	13	15	16	18	20	23	25	28	31
3)TENSILE	264	294	328	365	407	454	506	564	629
4)IMPACT	79	88	98	109	122	136	152	169	189
5)PROJECTOR	79	88	98	109	122	136	152	169	189
6)MICRO STRUCTURE	6	8	11	14	19	26	35	46	62
7)CHEMICAL ANALYSIS	264	294	328	365	407	454	506	564	629
<CATEGORY B>									
8)SURFACE ROUGHNESS	160	174	189	205	222	241	262	285	309
9)3-DIM. MEASUREMENT	0	0	0	0	0	0	0	0	0
10)GEAR TOOTH DIM.	160	174	189	205	222	241	262	285	309
<CATEGORY C1>									
11)MAGNETIC PARTICLE	33	37	42	47	52	59	66	74	83
<CATEGORY C2>									
12)ULTRASONIC	142	153	165	178	192	207	223	240	259
13)X-RAY	142	157	173	191	212	234	259	286	316
SUB TOTAL	1,368	1,510	1,669	1,844	2,039	2,256	2,498	2,767	3,067

FLOW OF TESTS AND INSPECTIONS IN OTHER REGIONS

TESTS & INSPECTIONS / REGION / YEAR	OTHERS								
	1985	1986	1987	1988	1989	1990	1991	1992	1993
<CATEGORY A>									
1)BRINNEL HARDNESS	3	4	4	4	5	6	6	7	8
2)VICKERS HARDNESS	2	2	2	2	2	3	3	3	4
3)TENSILE	32	36	40	44	50	55	61	68	76
4)IMPACT	10	11	12	13	15	17	18	20	23
5)PROJECTOR	10	11	12	13	15	17	18	20	23
6)MICRO STRUCTURE	0	0	0	0	0	0	0	0	0
7)CHEMICAL ANALYSIS	32	36	40	44	50	55	61	68	76
<CATEGORY B>									
8)SURFACE ROUGHNESS	22	24	26	28	30	32	34	37	40
9)3-DIM. MEASUREMENT	0	0	0	0	0	0	0	0	0
10)GEAR TOOTH DIM.	22	24	26	26	30	32	34	37	40
<CATEGORY C1>									
11)MAGNETIC PARTICLE	4	5	5	6	6	7	8	9	10
<CATEGORY C2>									
12)ULTRASONIC	20	22	24	25	27	30	32	34	37
13)X-RAY	20	23	26	30	34	39	45	51	58
SUB TOTAL	177	196	216	238	263	291	322	356	394

SERVICES OF B4T BY REGION, 1987

TESTS & INSPECTIONS	JABOTABEK	JAWA BARAT (EX.BOTABEK)	JAWA TENGAH	JAWA TIMUR	SUMATERA	OTHERS	T O T A L
1)BRINNEL HARDNESS	59	56	45	121	50	6	337
2)VICKERS HARDNESS	34	25	4	4	8	0	75
3)TENSILE	1.011	412	60	201	52	7	1.743
4)IMPACT	60	11	27	80	3	4	185
5)PROJECTOR	0	0	0	0	0	0	0
6)MICRO STRUCTURE	3	1	16	51	5	1	77
7)CHEMICAL ANALYSIS	13	19	7	28	4	0	71
8)SURFACE ROUGHNESS	386	888	47	62	20	1	1.403
9)3-DIM. MEASUREMENT	11	23	2	2	0	0	38
10)GEAR TOOTH DIM.	1.170	495	84	231	75	9	2.064
11)MAGNETIC PARTICLE	0	0	0	0	0	0	0
12)ULTRASONIC	14	23	1	5	0	0	43
13)X-RAY	4	11	3	35	2	1	56
14)CALIB. OF MEASURE.	133	170	0	83	0	0	375
T O T A L	2.897	2.143	296	883	219	29	6.467

SOURCE: B4T

ADJUSTED FLOW OF TESTS AND INSPECTIONS IN JABOTABEK

TESTS & INSPECTIONS	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
<CATEGORY A>																		
1)BRINNEL HARDNESS	70	107	164	251	385	590	905	1,388	2,128	2,488	2,906	3,400	3,975	4,647	5,432	6,350	7,423	8,678
2)VICKERS HARDNESS	35	54	83	127	196	301	462	711	1,092	1,313	1,578	1,897	2,281	2,743	3,298	3,965	4,767	5,731
3)TENSILE	698	1,070	1,640	2,514	3,854	5,908	9,056	13,882	21,280	24,878	29,083	34,000	39,748	46,468	54,324	63,507	74,244	86,795
4)IMPACT	209	321	492	754	1,156	1,773	2,717	4,165	6,384	7,463	8,725	10,200	11,924	13,940	16,296	19,051	22,271	26,038
5)PROJECTOR	209	321	492	754	1,156	1,773	2,717	4,165	6,384	7,463	8,725	10,200	11,924	13,940	16,296	19,051	22,271	26,038
6)MICRO STRUCTURE	65	131	265	534	1,077	2,170	4,375	8,819	17,777	21,364	25,674	30,853	37,077	44,557	53,545	64,347	77,328	92,928
7)CHEMICAL ANALYSIS	698	1,070	1,640	2,514	3,854	5,908	9,056	13,882	21,280	24,878	29,083	34,000	39,748	46,468	54,324	63,507	74,244	86,795
<CATEGORY B>																		
8)SURFACE ROUGHNESS	703	820	956	1,115	1,300	1,516	1,768	2,062	2,404	2,837	3,348	3,951	4,663	5,503	6,494	7,664	9,045	10,674
9)3-DIM. MEASUREMENT	114	153	205	276	371	498	669	899	1,209	1,473	1,798	2,189	2,668	3,252	3,963	4,831	5,888	7,177
10)GEAR TOOTH DIM.	703	820	956	1,115	1,300	1,516	1,768	2,062	2,404	2,837	3,348	3,951	4,663	5,503	6,494	7,664	9,045	10,674
<CATEGORY C1>																		
11)MAGNETIC PARTICLE	119	151	191	243	308	390	495	628	796	938	1,104	1,300	1,531	1,803	2,123	2,499	2,943	3,465
<CATEGORY C2>																		
12)ULTRASONIC	318	343	370	399	430	464	500	539	581	633	689	750	817	890	969	1,055	1,148	1,250
13)X-RAY	318	346	377	411	448	488	532	580	632	692	757	828	906	991	1,084	1,186	1,298	1,420
SUB TOTAL	4,260	5,707	7,832	11,008	15,836	23,295	35,021	53,781	84,352	99,255	116,818	137,519	161,924	190,701	224,641	264,677	311,915	367,660

ADJUSTED FLOW OF TESTS AND INSPECTIONS IN JAWA BARAT

TESTS & INSPECTIONS	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
<CATEGORY A>																		
1)BRINNEL HARDNESS	30	33	38	42	48	54	61	68	77	93	113	136	165	200	241	292	353	427
2)VICKERS HARDNESS	15	17	20	23	26	30	34	39	45	62	85	116	160	219	301	414	569	781
3)TENSILE	297	335	377	425	479	539	607	684	771	933	1,128	1,365	1,651	1,998	2,417	2,924	3,538	4,280
4)IMPACT	89	100	113	127	143	162	182	205	231	280	338	409	495	599	725	877	1,061	1,284
5)PROJECTOR	89	100	113	127	143	162	182	205	231	280	338	409	495	599	725	877	1,061	1,284
6)MICRO STRUCTURE	0	1	2	4	9	18	40	86	184	314	535	913	1,556	2,653	4,522	7,708	13,141	22,401
7)CHEMICAL ANALYSIS	297	335	377	425	479	539	607	684	771	933	1,128	1,365	1,651	1,998	2,417	2,924	3,538	4,280
<CATEGORY B>																		
8)SURFACE ROUGHNESS	222	256	295	339	390	449	517	596	686	827	997	1,202	1,449	1,747	2,108	2,540	3,062	3,692
9)3-DIM. MEASUREMENT	24	33	45	63	87	121	168	234	324	416	533	683	876	1,124	1,441	1,847	2,369	3,038
10)GEAR TOOTH DIM.	222	256	295	339	390	449	517	596	686	827	997	1,202	1,449	1,747	2,108	2,540	3,062	3,692
<CATEGORY C1>																		
11)MAGNETIC PARTICLE	37	40	44	48	52	57	62	68	74	83	93	103	116	129	144	161	180	201
<CATEGORY C2>																		
12)ULTRASONIC	183	197	213	229	247	267	287	310	334	364	396	431	470	512	557	606	660	719
13)X-RAY	183	197	213	229	247	267	287	310	334	364	396	431	470	512	557	606	660	719
SUB TOTAL	1,688	1,901	2,143	2,421	2,741	3,114	3,554	4,085	4,748	5,773	7,078	8,787	11,003	14,035	18,260	24,317	33,253	46,797

ADJUSTED FLOW OF TESTS AND INSPECTIONS IN JAWA TENGAH

TESTS & INSPECTIONS	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
<CATEGORY A>																		
1)BRINNEL HARDNESS	14	16	19	23	27	33	39	46	55	70	88	112	142	179	227	288	364	461
2)VICKERS HARDNESS	7	8	10	12	14	17	20	24	28	37	47	61	78	100	129	166	214	276
3)TENSILE	136	162	193	230	274	326	388	462	551	698	884	1,119	1,418	1,796	2,274	2,880	3,648	4,620
4)IMPACT	40	48	58	69	82	98	116	139	165	209	265	336	425	539	682	864	1,095	1,387
5)PROJECTOR	40	48	58	69	82	98	116	139	166	209	265	336	425	539	682	864	1,095	1,387
6)MICRO STRUCTURE	10	14	19	27	39	54	76	107	151	216	308	439	628	893	1,274	1,817	2,592	3,697
7)CHEMICAL ANALYSIS	136	162	193	230	274	326	388	462	551	698	884	1,119	1,418	1,796	2,274	2,880	3,648	4,620
<CATEGORY B>																		
8)SURFACE ROUGHNESS	72	81	91	103	116	131	148	167	188	224	267	319	380	453	540	643	766	914
9)3-DIM. MEASUREMENT	10	12	15	18	22	27	33	40	48	58	71	86	104	126	153	186	226	274
10)GEAR TOOTH DIM.	72	81	91	103	116	131	148	167	188	224	267	319	380	453	540	643	766	914
<CATEGORY C1>																		
11)MAGNETIC PARTICLE	21	24	27	32	37	42	49	56	65	79	97	119	146	179	220	269	330	405
<CATEGORY C2>																		
12)ULTRASONIC	48	51	55	60	64	70	75	81	87	95	103	113	123	133	145	158	172	188
13)X-RAY	48	52	57	63	68	75	82	90	99	109	119	131	143	157	172	189	207	227
SUB TOTAL	653	760	887	1,037	1,215	1,426	1,679	1,980	2,342	2,926	3,666	4,807	5,807	7,342	9,312	11,848	15,123	19,367

ADJUSTED FLOW OF TESTS AND INSPECTIONS IN JAWA TIMUR

TESTS & INSPECTIONS	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
<CATEGORY A>																		
1)BRINNEL HARDNESS	32	43	57	77	104	140	189	255	344	400	465	541	629	731	850	988	1,148	1,335
2)VICKERS HARDNESS	16	21	29	39	52	71	95	129	174	204	239	281	329	386	453	531	623	731
3)TENSILE	317	427	576	776	1,045	1,408	1,897	2,556	3,444	4,003	4,653	5,409	6,288	7,310	8,497	9,877	11,482	13,347
4)IMPACT	95	128	172	232	313	422	569	767	1,033	1,201	1,396	1,623	1,887	2,193	2,549	2,963	3,444	4,004
5)PROJECTOR	95	128	172	232	313	422	569	767	1,033	1,201	1,396	1,623	1,887	2,193	2,549	2,963	3,444	4,004
6)MICRO STRUCTURE	4	10	21	47	104	231	513	1,137	2,521	2,982	3,479	4,087	4,801	5,640	6,625	7,783	9,142	10,740
7)CHEMICAL ANALYSIS	317	427	576	776	1,045	1,408	1,897	2,556	3,444	4,003	4,653	5,409	6,288	7,310	8,497	9,877	11,482	13,347
<CATEGORY B>																		
8)SURFACE ROUGHNESS	213	236	260	287	317	350	387	427	472	536	608	690	784	890	1,010	1,146	1,301	1,476
9)3-DIM. MEASUREMENT	10	13	18	23	30	40	53	69	91	106	124	144	168	196	228	266	310	361
10)GEAR TOOTH DIM.	213	236	260	287	317	350	387	427	472	536	608	690	784	890	1,010	1,146	1,301	1,476
<CATEGORY C1>																		
11)MAGNETIC PARTICLE	44	48	53	58	64	70	77	85	93	106	121	138	157	179	203	231	263	300
<CATEGORY C2>																		
12)ULTRASONIC	183	197	213	229	247	267	287	310	334	364	396	431	470	512	557	606	660	719
13)X-RAY	183	199	216	235	256	279	303	330	359	393	429	469	513	561	613	671	733	802
SUB TOTAL	1,722	2,112	2,823	3,300	4,210	5,459	7,225	9,816	13,816	16,015	18,570	21,537	24,983	28,988	33,641	39,049	45,334	52,641

ADJUSTED FLOW OF TESTS AND INSPECTIONS IN SUMATERA

TESTS & INSPECTIONS	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
<CATEGORY A>																		
1)BRINNEL HARDNESS	10	12	13	14	16	18	20	22	25	29	33	38	44	50	58	67	77	88
2)VICKERS HARDNESS	5	6	6	7	8	9	10	11	12	14	16	19	22	25	29	34	39	45
3)TENSILE	104	116	129	144	160	178	199	222	247	285	329	379	437	505	582	671	774	893
4)IMPACT	31	35	38	43	48	53	60	66	74	85	99	114	131	151	174	201	232	267
5)PROJECTOR	31	35	38	43	48	53	60	66	74	85	99	114	131	151	174	201	232	267
6)MICRO STRUCTURE	2	3	4	6	8	10	14	18	24	32	42	56	74	97	128	169	222	293
7)CHEMICAL ANALYSIS	104	116	129	144	160	178	199	222	247	285	329	379	437	505	582	671	774	893
<CATEGORY B>																		
8)SURFACE ROUGHNESS	63	68	74	80	87	95	103	112	121	138	157	178	203	231	262	298	339	385
9)3-DIM. MEASUREMENT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10)GEAR TOOTH DIM.	63	68	74	80	87	95	103	112	121	138	157	178	203	231	262	298	339	385
<CATEGORY C1>																		
11)MAGNETIC PARTICLE	13	15	16	18	21	23	26	29	32	38	44	52	60	70	82	96	112	130
<CATEGORY C2>																		
12)ULTRASONIC	56	60	65	70	75	81	87	94	102	111	121	131	143	156	169	185	201	219
13)X-RAY	56	62	68	75	83	92	102	112	124	137	150	165	182	200	221	243	267	294
SUB TOTAL	537	593	658	725	801	886	981	1,087	1,205	1,377	1,575	1,804	2,067	2,372	2,724	3,133	3,608	4,162

ADJUSTED FLOW OF TESTS AND INSPECTIONS IN OTHER REGIONS

TESTS & INSPECTIONS	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
<CATEGORY A>																		
1)BRINNEL HARDNESS	1	1	2	2	2	2	2	3	3	3	4	4	4	5	5	6	7	7
2)VICKERS HARDNESS	1	1	1	1	1	1	1	1	1	2	2	2	2	2	3	3	3	4
3)TENSILE	13	14	16	17	19	22	24	27	30	33	36	40	44	49	54	59	66	72
4)IMPACT	4	4	5	5	6	8	7	8	9	10	11	12	13	15	16	18	20	22
5)PROJECTOR	4	4	5	5	6	8	7	8	9	10	11	12	13	15	16	18	20	22
6)MICRO STRUCTURE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7)CHEMICAL ANALYSIS	13	14	16	17	19	22	24	27	30	33	36	40	44	49	54	59	66	72
<CATEGORY B>																		
8)SURFACE ROUGHNESS	9	9	10	11	12	13	14	15	16	18	20	22	24	27	30	34	38	42
9)3-DIM. MEASUREMENT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10)GEAR TOOTH DIM.	9	9	10	11	12	13	14	15	16	18	20	22	24	27	30	34	38	42
<CATEGORY C1>																		
11)MAGNETIC PARTICLE	2	2	2	2	2	3	3	3	4	4	5	5	6	6	7	7	8	9
<CATEGORY C2>																		
12)ULTRASONIC	8	9	9	10	11	12	12	13	15	16	17	19	20	22	24	26	29	31
13)X-RAY	8	9	10	12	13	15	16	20	23	25	28	31	35	39	43	48	53	59
SUB TOTAL	70	77	85	94	103	114	126	140	155	171	189	209	231	255	283	312	348	382

SERVICES OF MIDC BY REGION, 1984-1986

SERVICES OF MIDC		JABOTABEK	JAWA BARAT (EX.BOTABEK)	JAWA TENGAH	JAWA TIMUR	SUMATERA	OTHERS	T O T A L
TRAINING	AT MIDC	21	9	5	4	11	5	55
	OJT	3	0	0	0	0	0	3
	SEMINAR	5	1	0	0	0	0	6
	SUB TOTAL	29	10	5	4	11	5	64
R&D	FOUNDRY	1	7	0	1	0	0	9
	MACHINING	0	1	0	0	0	0	1
	WELDING	0	3	0	0	0	0	3
	OTHERS	7	26	1	0	0	1	35
	SUB TOTAL	8	37	1	1	0	1	48
T/A	FOUNDRY	14	20	13	4	1	2	54
	MACHINING	3	6	6	0	0	0	15
	WELDING	1	4	0	1	0	1	7
	OTHERS	12	16	5	0	6	3	42
	SUB TOTAL	30	46	24	5	7	6	118
O T H E R S		38	22	1	1	0	1	63
T O T A L		105	115	31	11	18	13	293

SOURCE: MIDC