

APPENDIX 3. List of Persons Met

Ministry of Public Works (MOPW)

Eng. W.P. Wambura
Eng. S.M. Kiguru

The Permanent Secretary
Engineer-in-Chief

Roads Department

Eng. S.N. Otonglo
Eng. Bajaber M.O.A.

CE (Roads)
SSE (Bridges)

Mechanical & Transport Department

Eng. S. Rotich
Eng. C.P. Washika
Eng. M.K.P. Chotai
Eng. S.K. Mbugua
Eng. F.K.N. Mbogorih
Eng. P.T. Mukiri
Eng. K.B. Mbui
Mr. O.K. Muvngu
Mr. G.K. Wangai
Mr. S.K. Nganga

CE
DCE
SSE (Technical)
SSE (Roads)
SSE (Operation)
SSE (Supplies)
ME
AME
AME
AME

Building Branch

Mr. Z.M. Bukania

CA

Development Planning Division

Eng. P.M. Wakori
Eng. D.O. Maganda

CSE (Planning)
CSE (Programming)

Administration Division

Mr. Edward K.

Deputy Secretary

Finance Division

Mr. P.A. Monda

Under Secretary

Department of Staff Training

Eng. B.G. Ariga
Mr. S.S. Obuki
Mr. P. Ndungu

Principal
Branch Head Planning & Co-ordination
Branch Head Roads

Coast Provincial Works Office

Eng. Kithyo PWO

Mombasa District Works Office (Coast Prov.)

Mr. B.B. Beja Engineer Mechanical

Kwale District Works Office (Coast Prov.)

Mr. DWO Assistant Engineer

Taita-Taveta District Works Office (Coast Prov.)

Mr. R.M. Chiira DWO Assistant Engineer

Muranga District Works Office (Central Prov.)

Mr. Kihumba Engineer Roads

Machakos District Works Office (Eastern Prov.)

Mr. L.K. Mangu Assistant Engineer Roads

Under ODA

Mr. N. Ings Highway Advisor

Expert on Bridge Engineering

Mr. Sumitaka Kurino

Engineering & Technical Advisor

Mr. Tadashi Maeda
Mr. Kozo Hatanaka

Office of the Vice-President and Ministry of Finance

External Resources Department

Mr. D.R. Ongalo Secretary
Mr. Chiboli I. Shakaba Undersecretary

Embassy of Japan

Ms. Ginko Satoh
Mr. Takashi Ariyasu

Ambassador
First Secretary

JICA Kenya Office

Mr. Tsuneko Takahata
Mr. Yuji Kashihara

Deputy Director
Assistant Resident Representative

ABBREVIATIONS

CE : Chief Engineer
DCE : Deputy Chief Engineer
SSE : Senior Supt. Engineer
ME : Mechanical Engineer
AME : Assistant mechanical Engineer
CA : Chief Architect
CSE : Chief Supt. Engineer
PWO : Provincial Works Office
DWO : District Works Office

APPENDIX 4. Minutes of Discussions

MINUTES OF DISCUSSIONS
BETWEEN
BASIC DESIGN STUDY TEAM AND
MINISTRY OF PUBLIC WORKS ON THE PROJECT FOR
MAINTENANCE EQUIPMENT
OF ROAD AND BRIDGE
IN REPUBLIC OF KENYA

In response to a request from the Government of Republic of Kenya, the Government of Japan decided to conduct a Basic Design Study on the Project for Maintenance Equipment of Road and Bridge in Republic of Kenya (hereinafter referred to as "The Project") and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to Kenya a study team, which is headed by Mr. Toshimitsu Muramatsu, Chief of Construction Equipment Division, Road Department, Chubu Regional Construction Bureau, Ministry of Construction, and was scheduled to stay in the country from November 9 to December 3, 1992.

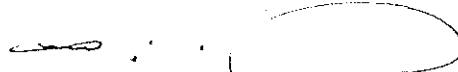
The team held discussions with the concerned officials of the Government of Kenya and conducted a field survey at the study area.

In the course of the discussions and field survey, both parties have confirmed the main items described on the attached sheets. The team will proceed with further studies and prepare the Basic Design Study Report.

NAIROBI
NOVEMBER 23, 1992



Mr. Toshimitsu Muramatsu
Leader
Basic Design Study Team,
JICA



Eng. W. P. Wambura
The Permanent Secretary
Ministry of Public Works

ATTACHMENT

1. Objective

The objective of the Project is to assist the Ministry of Public Works (MOPW) with appropriate road and bridge maintenance equipment which are essential for maintenance activities on the road network.

2. Project Area

Project area is throughout the country of Kenya in road network maintenance activities, as shown in Annex 1.

3. Responsible Organization and Executing Organization

(1) Responsible Organization : Ministry of Public Works

(2) Executing Organization : Mechanical & Transport Department
Ministry of Public Works

4. Equipment Requested by the Government of Kenya

After discussions with the Basic Design Study Team, the equipment shown in Annex II was finally requested by the Kenya side.

However, the final components of the Project will be decided after further studies.

5. Japan's Grant Aid System

(1) The Government of Kenya has understood the system of Japan's Grant Aid as explained by the team.

(2) The Government of Kenya will take necessary measures described in Annex III for smooth implementation of the Project, on condition that the Grant Aid Assistance by the Government of Japan is extended to the Project.



6. Utilization of Equipment in the Project

The equipment in the Project shall be utilized by the Provincial Works Offices or Nairobi Headquarters Workshop to implement timely road and bridge maintenance works. The use of the equipment will contribute to the road network maintenance action program of Kenya.

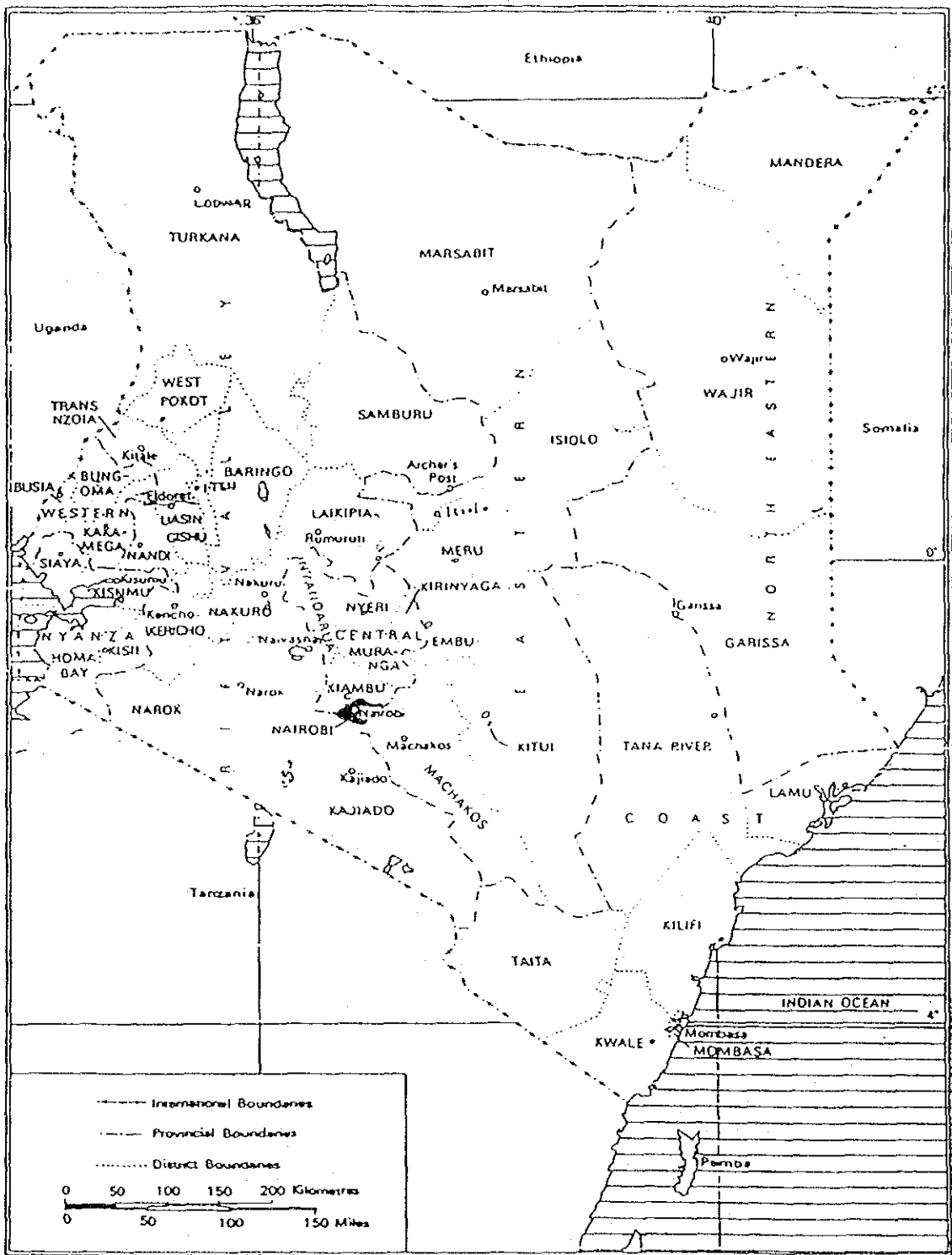
7. Monitoring

Ministry of Public Works will be responsible to monitor arrangement and operations as well as maintenance of equipment provided in the Project. Reports will be prepared as a part of EMS Management Reports specified in Equipment Management System.

8. Schedule of the Study

- (1) The team will proceed to further studies in Kenya until 3rd December 1992.
- (2) Based on the Minutes of Discussions and technical examination of the study results, JICA will complete the final report and sent it to the Government of Kenya by February 1993.

ANNEX - I PROJECT AREA



J

ANNEX - II

EQUIPMENT REQUESTED BY THE GOVERNMENT OF KENYA

1. Road Maintenance Equipment

1 - 1 Requested Purchase & Distribution of Equipment Set

Province	<u>Number of Equipment Set</u>			
	Priority A	Priority B	Priority C	Priority D
Nairobi	1 *1	0	0	Refer to next table
Central	1 *1	1	1	
Coast	1 *1	1	1	
Eastern	3 *2	0	0	
North Eastern	1 *1	1	0	
Nyanza	2 *3	1	0	
Rift Valley	2 *4	2	2	
Western	2 *5	0	1	
Total	13	6	5	

- [NOTE]
- * 1 : Head Quarter
 - * 2 : Head Quarter, Makueni, Tharaka-Nithi
 - * 3 : Head Quarter, Migori
 - * 4 : Head Quarter, Uasin Gishu
 - * 5 : Head Quarter, Vihiga



Name & Number of Equipment for Priority D

Province	Truck Flat Bed	Truck Tipper	Pick Up	Pedestrian Vib. Roller	Crawler Tractor 90HP	Front Wheel Loader 1m ³
Nairobi	0	0	0	0	1	1
Central	3	4	3	2	0	0
Coast	3	6	3	2	0	0
Eastern	4	8	4	1	1	1
North Eastern	1	2	1	0	0	0
Nyanza	3	6	3	3	2	2
Rift Valley	7	14	8	3	0	0
Western	1	2	1	1	1	1
Total	22	42	23	12	5	5



1 - 2 List of Equipment for a Set (Priority A, B & C)

Name of Equipment		Quantity per one set
1.	Truck Flat Bed Cargo capacity 7 tons	1 unit
2.	Truck Tipper Cargo capacity 7 tons	2 units
3.	Pick-up S-cabin Cargo capacity 1 ton	1 unit
4.	Pedestrian Vibrating Roller Diesel fuel type w=0.5 ton class	1 unit
Spareparts for Equipment		20%
Total		5 units

Provision of equipment for the provincial works offices under categories B,C and D are subject to the cost review in the Basic Design Study as well as the conditions of Japan's Grant Aid.



2. Bridge Maintenance Equipment (I)

2 - 1 Requested Purchase & Distribution of Equipment Set

Province	<u>Number of Equipment Set</u>			
	Priority A	Priority B	Priority C	Priority D
Central	1	0	0	Refer to next table
Coast	0	1	0	
Eastern	1	0	1	
North Eastern	0	1	0	
Nyanza	1	0	0	
Rift Valley	1	0	1	
Western	1	0	0	
Total	5	2	2	

Province	<u>Name & Number of Equipment for Priority D</u>		
	Concrete Mixer	Concrete Vibrator	Water Pump
Central	4	4	4
Coast	4	4	4
Eastern	3	3	3
North Eastern	1	1	1
Nyanza	4	4	4
Rift Valley	9	9	9
Western	3	3	3
Total	28	28	28

2 - 2 List of Equipment for a Set (Priority A, B & C)

Name of Equipment		Quantity per one Set
1.	Truck Flat Bed Cargo capacity 7 tons	1 unit
2.	Pick-up S-cabin Cargo capacity 1 ton	1 unit
3.	Concrete Mixer Diesel fuel type Mixing capacity 0.2m ³ class	2 units
4.	Concrete Vibrator Petrol fuel type Stick size 30mm×250mm	2 units
5.	Water Pump Portable and Diesel fuel type Caliber size D=80mm	2 units
6.	Vibrating Plate Compactor Petrol fuel type w=70kg class	2 units
Spareparts for Equipment		20%
Total		10units

Provision of equipment for the provincial works offices under categories B,C and D are subject to the cost review in the Basic Design Study as well as the conditions of Japan's Grant Aid.

3. Bridge Maintenance Equipment (II)

3 - 1 Requested Purchase & Distribution of Equipment Set

Place	<u>Number of Equipment Set</u>			
	PriorityA	PriorityB	PriorityC	PriorityD
H.Q.-Operations	1	0	0	Refer to next table
Total	1	0	0	

Place	<u>Name & Number of Equipment for Priority D</u>				
	Truck Flat Bed	Pick Up	Excavator	Truck Crane	Trailer + Horse
H.Q.-Operations	2	2	2	1	1
Total	2	2	2	1	1

3 - 2 List of Equipment for a Set (Priority A, B & C)

Name of Equipment		Quantity
1.	Truck Flat Bed Cargo capacity 7 tons	1 unit
2.	Pick-up S-cabin Cargo capacity 1 ton	1 unit
3.	Air Compressor Portable and Diesel fuel type Supply capacity 2.5m ³ /min	2 units
4.	Concrete Breaker Pneumatic type w=30kg class	4 units
Spareparts for Equipment		20%
Total		8 units

Provision of equipment for the provincial works offices under categories B, C and D are subject to the cost review in the Basic Design Study as well as the conditions of Japan's Grant Aid.

4. Small Service Truck for Equipment Maintenance

4 - 1 Requested Purchase & Distribution of Equipment Set

Province	<u>Number of Equipment Set</u>			
	Priority A	Priority B	Priority C	Priority D
Nairobi	0	1	0	0
Central	2 * ²	0	0	0
Coast	1 * ¹	0	0	0
Eastern	1 * ¹	0	0	0
North Eastern	1 * ¹	0	0	0
Nyanza	1 * ¹	0	0	0
Rift Valley	2 * ³	0	0	0
Western	1 * ¹	0	0	0
Total	9	1	0	0

[NOTE] * 1 : Head Quarter
 * 2 : Head Quarter, Ruiru
 * 3 : Head Quarter, Uasin Gishu

4 - 2 List of Equipment for a Set (Priority A, B, C & D)

Name of Equipment	Quantity per one set
1. Small Service Truck	1 unit
Van body type with necessary equipment and tools	
Spareparts for Truck	20%
Total	1 unit

Provision of equipment for the provincial works offices under categories B, C and D are subject to the cost review in the Basic Design Study as well as the conditions of Japan's Grant Aid.



ANNEX - III

Necessary measures to be undertaken by the Government of Kenya:

1. To bear commissions to the Japanese foreign exchange bank for the banking services based upon the Banking Arrangements.
2. To ensure prompt unloading and customs clearance at the port of disembarkation in Kenya and internal transportation therein of the products purchased under the Grant.
3. To accord Japanese nationals (Japanese physical persons or Japanese juridical persons controlled by Japanese physical persons) whose services may be required in connection with the supply of the products and services under the Verified Contract such facilities as may be necessary for their entry into Kenya and stay therein for the performance of their work.
4. To exempt Japanese nationals (Japanese physical persons or Japanese juridical persons controlled by Japanese physical persons) from customs duties, internal taxes and other fiscal levies which may be imposed in Kenya with respect to the supply of the products and services under the Verified Contracts.
5. To operate and maintain properly and effectively the equipment provided under the Grant for the execution of the works for the Project.
6. To bear all the expenses other than those to be borne by the Grant, necessary for the execution of the Project.



APPENDIX 5. List of References

REFERENCES

GENERAL

- 5-1 The Economist Intelligence Unit, Kenya No.1 1990
- 5-2 Statistical Abstract 1991
- 5-3 Economic Survey 1992
- 5-4 District (Regional) Information
- 5-5 Population Projections for Kenya 1980 ~ 2000
- 5-6 Civil Service Review Committee 1991
New Salaries and Salary Scales
- 5-7 Maps

DEVELOPMENT PLAN

- 5-8 Development Plan 1989 ~ 1993
- 5-9 Proposal for Funding of Kenya's Third
Highway Sector Programme 1992 ~ 2000
- 5-10 Programme Review for Budget Expenditures and
Guidelines for Road Development Sub-Sector
- Policy Statement -
- 5-11 Staff Appraisal Report Kenya Second Highway
Sector Project April 9, 1984 The World Bank
- 5-11 Road Maintenance Initiative Policy Seminar
Vol. I, II

BUDGET

- 5-13 National and Roads Budget 1988 ~ 1993
- 5-14 Bridge Programme 1988/89 ~ 1992/93

ORGANIZATION

- 5-15 Organization Chart for Ministry of Public Works
- 5-16 Mechanical & Transport Department
Organization Chart July 1991
- 5-17 Mechanical & Transport Department
Number of Staff by Province and District
- 5-18 General Layout for CM & TE Workshops and Offices
- 5-19 New Workshop Layout Final Plan
- 5-20 List of Location drawings for Type Mechanical Workshops
- 5-21 Prospectus Department of Staff Training 1991

ROADS AND BRIDGE

- 5-22 Schedule of Classified Roads
Lists and Tables by Province and District, June 1992
- 5-23 Road Map, July 1983
- 5-24 List of Bailey Bridges
- 5-25 Standard Drainage Structures Manual
 - Part 1 Standard Small Span Concrete Bridges
 - Part 2 Standard Concrete Box Culverts
 - Drifts Formwork, Reinforcement, Gabin

MACHINE AND EQUIPMENT

- 5-26 List of Machine and Equipment
in Ministry of Public Works
- 5-27 Monthly Reports from Districts
- 5-28 Japanese Grant Aid on the Project for Road
and Bridge Maintenance Equipment
 - Reference of Make of Equipment
 - List of Spare Parts
- 5-29 Conditions of Equipment Supplied by Japanese
Grant Aid in 1986 and 1989

MANAGEMENT SYSTEM

- 5-30 Highway Maintenance Management System
 - Highway Management Strategy
 - Performance Budget Summary
- 5-31 Equipment Management System

OTHERS

- 5-32 Standard Specification for Road and Bridge
Construction 1986
- 5-33 Road Design Manual Part IV Bridge Design Jan. 1982
- 5-34 Construction Cost

APPENDIX 6. Reference Tables

App. 6-1 GROSS DOMESTIC PRODUCT (CONSTANT 1982 PRICES)

	6th Development Plan (1989 ~ 1993)					Implemented			Annual Growth Rate 1987-91
	Actual	Projected	Target	Annual Growth Rate 1983-88	Annual Growth Rate 1988-93	1989	1990	1991	
	1983	1988	1993	%	%				
<i>Traditional Economy</i>	171	207	247	4.0	3.6	223	230	235	2.9
<i>Monetary Economy</i>	939	1,060	1,323	2.5	4.5	1,153	1,192	1,179	2.6
Agriculture	22	30	44	6.9	8.0	41	43	46	8.2
Forestry	11	15	21	7.4	7.0	13	13	13	4.7
Fishing	6	9	14	8.0	8.0	11	11	12	7.0
Mining & Quarrying	373	480	653	5.2	6.4	532	560	582	5.3
Manufacturing	105	112	139	1.1	4.5	128	135	138	4.2
Building & Construction	47	63	89	6.0	7.0	40	44	46	8.4
Electricity & Water	265	417	585	7.2	7.0	455	466	472	3.3
Trade, Restaurants & Hotels	193	228	301	3.4	5.7	241	250	256	3.3
Transport, Storage & Communications	214	271	352	4.8	5.4	313	333	353	6.8
Finance & Insurance	130	136	161	1.0	3.4	221	229	235	3.3
Ownership of Dwellings	66	95	141	7.6	8.2	128	136	141	6.0
Other Services	35	52	77	8.2	8.4	62	71	78	12.6
Domestic Services	460	587	749	5.0	5.0	618	646	669	4.9
Government Services	2,896	3,555	4,651	4.2	5.5	3,827	3,995	4,083	4.4
<i>Total Monetary Economy</i>	3,067	3,763	4,897	4.2	5.4	4,050	4,225	4,317	4.4
<i>Total Traditional & Monetary</i>	19	23	27	3.8	3.7	175	176	174	1.0
Population (Mn)	164	166	180	0.4	1.6				
GDP per capita (K£)									

App. 6-2

PROVINCE/DISTRICT	LAND AREA (Km ²) 1979	POPULATION (Thousand Person)		POPULATION DENSITY Prs/Km ²	High & Medium Potential Agricultural Land (km ²)	ROAD LENGTH				ROAD DENSITY Km/Km ²	Number of Equipment Fleet				Number of Camp
		1979 CENSUS	1990 ESTIMATE			BITUMEN	GRAVEL	EARTH	TOTAL		for Bitumen Road	for Bridge Maintenance (I)	for Bridge Maintenance (II)	for Small Service Truck	
Nairobi (HQ)	684	828	1,505	2,200	160 (23.4%)	(Km) 352	(Km) 31	(Km) 2	(Km) 385	56	1	0	1	1	1
Central Prov.	13,173	2,346	3,692	280	9,240 (70.1%)	1,944	3,362	2,430	7,736	59	2	1	0	2	40
Kiambu	2,448	686	1,098	449	3,910 (79.4%)	841	792	214	1,847	75					
Kirinyaga	1,437	292	448	312	1,080 (75.2%)	176	415	470	1,061	74					
Muranga	2,476	648	1,042	421	- (-)	413	925	556	1,894	76					
Nyandarua	3,528	233	355	101	2,650 (75.1%)	145	497	601	1,243	35					
Nyeri (HQ)	3,284	487	749	228	1,600 (48.7%)	369	733	589	1,691	51					
Coast Prov.	83,040	1,343	2,150	26	11,690 (14.1%)	761	1,830	3,268	5,859	7	2	1	0	1	31
Kilifi	12,414	431	684	55	3,510 (28.3%)	235	717	735	1,687	14					
Kwale	8,257	288	458	55	2,880 (23.2%)	184	678	684	1,546	19					
Lamu	6,506	42	77	12	3,260 (50.1%)	0	60	424	484	7					
Mombasa (HQ)	210	341	537	2,557	210 (100 %)	108	7	14	129	61					
Taita Taveta	16,959	148	228	13	520 (3.1%)	155	279	508	942	6					
Tana River	38,694	93	166	4	1,310 (3.4%)	79	89	903	1,071	3					
Eastern Prov.	155,760	2,720	4,368	28	26,920 (17.3%)	1,097	4,829	7,065	12,991	8	3	1	0	1	47
Embu (HQ)	2,714	263	430	158	2,520 (92.9%)	126	931	227	1,284	47					
Isiolo	25,605	44	70	3	0 (0 %)	9	197	922	1,128	4					
Kitui	29,388	464	724	25	12,040 (41.0%)	92	1,011	1,946	3,049	10					
Machakos	14,178	1,023	1,654	117	8,960 (63.2%)	616	1,064	1,476	3,156	22					
Marsabit	73,952	96	175	2	40 (0.1%)	10	377	1,830	2,217	3					
Meru	9,922	830	1,315	133	3,360 (33.9%)	244	1,249	664	2,157	22					
Makueni	-	-	-	-	- (-)	-	-	-	-	-					
N/Eastern Prov.	126,902	374	640	5	0 (0 %)	147	659	4,046	4,852	4	2	1	0	1	7
Garissa (HQ)	43,931	129	250	6	0 (0 %)	11	271	1,553	1,835	4					
Mandera	26,470	106	144	5	0 (0 %)	136	122	1,062	1,320	5					
Wajir	56,501	139	246	4	0 (0 %)	-	266	1,431	1,697	3					
Nyanza Prov.	12,526	2,644	4,322	345	12,526 (100 %)	747	3,716	2,737	7,200	57	3	1	0	1	38
Kisii	2,196	870	1,447	659	2,196 (100 %)	105	658	309	1,072	49					
Kisumu (HQ)	2,093	482	773	369	4,610 (99.8%)	299	508	809	1,616	77					
Siaya	2,523	474	773	306	- (-)	147	739	447	1,333	53					
Homa Bay						82	839	383	1,304						
Nyamira	5,714	818	1,329	233	5,710 (99.9%)	22	407	189	618	56					
Migori						92	565	600	1,257						
Rift Valley Prov.	171,108	3,240	5,356	31	31,480 (18.4%)	3,169	9,186	7,700	20,055	12	4	1	0	2	82
Kajiado	20,963	149	267	13	220 (1.0%)	300	1,085	381	1,766	8					
Kericho	4,890	633	984	201	3,800 (77.7%)	347	1,221	547	2,115	43					
Laikipia	9,718	134	256	26	1,300 (13.4%)	155	460	454	1,069	11					
Nakuru (HQ)	7,024	523	952	136	3,300 (47.0%)	554	622	674	1,850	26					
Narok	18,519	210	372	20	9,080 (49.0%)	146	1,213	707	2,066	11					
Trans Nzoia	2,468	259	499	202	2,080 (84.3%)	106	826	206	1,138	46					
Uasin Gishu	3,784	301	516	136	3,270 (86.4%)	338	730	160	1,228	32					
Baringo	10,627	204	307	29	2,500 (23.5%)	343	574	701	1,618	15					
Elgeyo Marakwet	2,722	149	169	62	1,040 (38.2%)	88	321	478	887	33					
Nandi	2,745	299	488	178	2,340 (85.2%)	169	755	287	1,211	44					
Samburu	20,809	77	104	5	1,400 (6.7%)	0	358	1,029	1,387	7					
Turkana	61,769	143	145	2	120 (0.2%)	485	314	1,706	2,505	4					
West Pokot	5,070	159	297	59	1,030 (20.3%)	138	707	370	1,215	24					
Western Prov.	8,223	1,833	2,837	345	7,410 (90.1%)	405	2,480	1,164	4,049	49	2	1	0	1	23
Bungoma	3,074	504	804	262	2,530 (82.3%)	115	906	371	1,392	45					
Busia	1,629	298	479	294	1,629 (100 %)	42	518	234	794	49					
Kakamega (HQ)	3,520	1,031	1,554	441	3,250 (100 %)	248	1,056	559	1,863	53					
Vihiga	-	-	-	-	0 (0 %)	-	-	-	-	-					
TOTAL:	564,162	15,328	24,870	44	99,420 (17.6%)	8,270	26,062	28,410	62,742	11	19	7	1	10	269

MINISTRY OF PUBLIC WORKS

CLASS 05,06,13,15,17,23,25,27,30,39

EQUIPMENT PREVENTATIVE MAINTENANCE SERVICE CHECK

GK No.
GP189 No.

JOB ORDER

KILOM/HRS

THIS FORM IS TO BE USED ONLY FOR PM RECORDS. ALL REPAIRS RESULTING FROM OR SCHEDULED WITH THIS INSPECTION FORM WILL BE RECORDED ON A SEPARATE JOB REPAIR ORDER

PM-A	
PM-B	
PM-C	

Date/Time Received In Shop Check If Inspection Made On Date Scheduled Check If Inspection NOT On Scheduled Date

MARK BOXES BELOW AS FOLLOWS: CHECK IF ITEM OK IF REPAIR REQUIRED WHEN ADJUSTMENT MADE

GROUP A SERVICE	
<input type="checkbox"/> 1	Tyre - Condition, Inflation, Rims, Lugs
<input type="checkbox"/> 2	All Lights and Instruments - Operation & Condition
<input type="checkbox"/> 3	Clutch - Free Pedal Operation Noise
<input type="checkbox"/> 4	Cab - Internal Window Glass, Mirrors
<input type="checkbox"/> 5	Radiator - Fill to Proper Level, Pressure Test
<input type="checkbox"/> 6	Belts - Condition and Proper Tension
<input type="checkbox"/> 7	Fuel system - Leaks, Governor and Pump Seals
<input type="checkbox"/> 8	Battery - Electrolyte, Voltage, Mounting
<input type="checkbox"/> 9	Exhaust system - Leaks, Condition, Mounting
<input type="checkbox"/> 10	Air cleaner - Service, Condition, Mounting
<input type="checkbox"/> 11	Crankcase - Drain Refill
<input type="checkbox"/> 12	Filters - Change or Replace: Oil, Fuel, Water
<input type="checkbox"/> 13	Steering Mechanism
<input type="checkbox"/> 14	Suspension - Axle, Springs, Equalizers, "U" Bolts
<input type="checkbox"/> 15	Transmission - Leaks, Mounting, Lubricant Level, Vent
<input type="checkbox"/> 16	Differential - Leaks, Lubricant Levels, Vent
<input type="checkbox"/> 17	Drive Shaft, Universal Joints, Yokes, Splines
<input type="checkbox"/> 18	Hydraulic System Operation
<input type="checkbox"/> 19	Bucket or Blade
<input type="checkbox"/> 20	Body - Damage, Paint Markings, Flaps, Bumpers
<input type="checkbox"/> 21	Governor - Check and Adjust
<input type="checkbox"/> 22	Air compressor - Clean Air Filter, Test Winches, etc.
<input type="checkbox"/> 23	Air system - Leaks, Operation, Drain Air Tank
<input type="checkbox"/> 24	Brakes - Check and Adjust
<input type="checkbox"/> 25	Check and Adjust Circle Draw Bar and Socket
<input type="checkbox"/> 26	Check Articulated Pivot Pins
<input type="checkbox"/> 27	Check Sprockets and Tensioners
<input type="checkbox"/> 28	Complete Lubrication
<input type="checkbox"/> 29	Main Generator Load Test- Note Voltage, Amperage and Engine R.P.M.
<input type="checkbox"/> 30	Safety Equipment -Emergency Valves, Remote Controls, Fire Extinguishers
<input type="checkbox"/> 31	Welding Unit Load Test - Note Voltage, Amperage and Engine R.P.M.

COMPLETE THE FOLLOWING SPECIAL PROCEDURES (1)	
GROUP B SERVICE	
<input type="checkbox"/> 1-31	Complete GROUP A Service
<input type="checkbox"/> 36	Ignition Points, Plugs, Timing
<input type="checkbox"/> 37	Carburetor - Clean and Adjust
<input type="checkbox"/> 38	Thermostat
<input type="checkbox"/> 39	Check Condition of Tracks and Rollers
<input type="checkbox"/> 40	Body Check - Cab and Body Mounting
GROUP C SERVICE	
<input type="checkbox"/> 1-40	Complete GROUP A and GROUP B Service
<input type="checkbox"/> 41	Automatic G/Box or Torque Converter Operation
<input type="checkbox"/> 42	Fuel Pump - Mounting, Pressure, Operation
<input type="checkbox"/> 43	Injector Valves - Check and Adjust
<input type="checkbox"/> 44	Change Final Drive and Transmission Oil
<input type="checkbox"/> 45	Engine - Torque Cylinder Heads, Rocker Arm Shaft, Manifold
<input type="checkbox"/> 46	Change Hydraulic System Oil
<input type="checkbox"/> 47	Brakes - Check Drums, Linings and Cylinders
<input type="checkbox"/> 48	Equipment Operator Checks: Machine with the Technician

THIS CHECK AND LUBRICATION HAS BEEN COMPLETED AND ALL INDICATED REPAIRS HAVE BEEN SCHEDULED, COMPLETED OR NOTED FOR REFERENCE.

Remarks:

Date Completed:

SERVICE COMMENTS

1 <input type="checkbox"/>	17 <input type="checkbox"/>
2 <input type="checkbox"/>	18 <input type="checkbox"/>
3 <input type="checkbox"/>	19 <input type="checkbox"/>
4 <input type="checkbox"/>	20 <input type="checkbox"/>
5 <input type="checkbox"/>	21 <input type="checkbox"/>
6 <input type="checkbox"/>	22 <input type="checkbox"/>
7 <input type="checkbox"/>	23 <input type="checkbox"/>
8 <input type="checkbox"/>	24 <input type="checkbox"/>
9 <input type="checkbox"/>	25 <input type="checkbox"/>
10 <input type="checkbox"/>	26 <input type="checkbox"/>
11 <input type="checkbox"/>	27 <input type="checkbox"/>
12 <input type="checkbox"/>	28 <input type="checkbox"/>
13 <input type="checkbox"/>	29 <input type="checkbox"/>
14 <input type="checkbox"/>	30 <input type="checkbox"/>
15 <input type="checkbox"/>	31 <input type="checkbox"/>
16 <input type="checkbox"/>	
1-31 <input type="checkbox"/>	1-40 <input type="checkbox"/>
36 <input type="checkbox"/>	41 <input type="checkbox"/>
37 <input type="checkbox"/>	42 <input type="checkbox"/>
38 <input type="checkbox"/>	43 <input type="checkbox"/>
38 <input type="checkbox"/>	44 <input type="checkbox"/>
40 <input type="checkbox"/>	45 <input type="checkbox"/>
	46 <input type="checkbox"/>
	47 <input type="checkbox"/>
	48 <input type="checkbox"/>

App. 6-4

MECHANIC TOOL SET FOR CONSTRUCTION EQUIPMENT (METRIC & INCH SIZE)

Tool Box

Dimensions: 680 x 335 x 380 (mm)

Name of Article	Quantity	
Open end Wrench	5.5 x 7	1
Open end Wrench	8 x 10	1
Open end Wrench	11 x 13	1
Open end Wrench	17 x 19	1
Open end Wrench	22 x 24	1
Open end Wrench	27 x 30	1
Open end Wrench	32 x 36	1
Open end Wrench	3/8 x 7/16	1
Open end Wrench	1/2 x 9/16	1
Open end Wrench	5/8 x 11/16	1
Open end Wrench	3/4 x 5/8	1
Open end Wrench	13/16 x 7/8	1
Open end Wrench	7/8 x 15/16	1
Double Offset Box Wrench	5.5 x 7	1
Double Offset Box Wrench	8 x 10	1
Double Offset Box Wrench	11 x 13	1
Double Offset Box Wrench	17 x 19	1
Double Offset Box Wrench	22 x 24	1
Double Offset Box Wrench	27 x 30	1
Double Offset Box Wrench	32 x 36	1
Double Offset Box Wrench	3/8 x 7/16	1
Double Offset Box Wrench	1/2 x 9/16	1
Double Offset Box Wrench	5/8 x 11/16	1
Double Offset Box Wrench	3/4 x 25/32	1
Double Offset Box Wrench	13/16 x 7/8	1
Double Offset Box Wrench	15/16 x 1	1
Socket Wrench	8 mm	1
Socket Wrench	9 mm	1
Socket Wrench	10 mm	1
Socket Wrench	11 mm	1
Socket Wrench	12 mm	1
Socket Wrench	13 mm	1
Socket Wrench	14 mm	1
Socket Wrench	17 mm	1
Socket Wrench	19 mm	1
Socket Wrench	21 mm	1
Socket Wrench	22 mm	1
Socket Wrench	23 mm	1
Socket Wrench	24 mm	1
Socket Wrench	26 mm	1
Socket Wrench	3/8"	1
Socket Wrench	7/16"	1
Socket Wrench	1/2"	1
Socket Wrench	9/16"	1
Socket Wrench	5/8"	1
Socket Wrench	11/16"	1
Socket Wrench	3/4"	1

App. 6-4

Name of Article		Quantity
Socket Wrench	13/16"	1
Socket Wrench	7/8"	1
Socket Wrench	15/16"	1
Socket Wrench	1"	1
Socket Wrench	1-1/16"	1
1/2" Reversible Ratchet Handle		1
1/2" Extension Bar	125 mm	1
1/2" Extension Bar	250 mm	1
1/2" Nut Spinner Handle		1
1/2" Cross Bar		1
1/2" Speeder Handle		1
1/2" Sliding T Handle		1
1/2" Universal Joing		1
3/4" Socket Wrench	27 mm	1
3/4" Socket Wrench	29 mm	1
3/4" Socket Wrench	30 mm	1
3/4" Socket Wrench	32 mm	1
3/4" Socket Wrench	35 mm	1
3/4" Socket Wrench	36 mm	1
3/4" Socket Wrench	38 mm	1
3/4" Socket Wrench	1-1/8"	1
3/4" Socket Wrench	1-1/4"	1
3/4" Socket Wrench	1-5/16"	1
3/4" Socket Wrench	1-7/16"	1
3/4" Socket Wrench	1-1/2"	1
3/4" Socket Wrench	1-5/8"	1
3/4" Socket Wrench	1-11/16"	1
3/4" Socket Wrench	1-13/16"	1
3/4" Reversible Ratchet Handle		1
3/4" Extension Bar	75 m	1
3/4" Extension Bar	200 m	1
3/4" Nut Spinner Handle		1
3/4" Sliding T Handle		1
3/4" Universal Joint		1
Hexagon Wrench	2.5 mm	1
Hexagon Wrench	3 mm	1
Hexagon Wrench	4 mm	1
Hexagon Wrench	5 mm	1
Hexagon Wrench	6 mm	1
Hexagon Wrench	8 mm	1
Hexagon Wrench	10 mm	1
Hexagon Wrench	12 mm	1
Hexagon Wrench	14 mm	1
Hexagon Wrench	3/16"	1
Hexagon Wrench	7/32"	1
Hexagon Wrench	1/4"	1
Hexagon Wrench	5/16"	1
Hexagon Wrench	3/8"	1
Hexagon Wrench	1/2"	1
1/2" Stud Remover	19ø	1
Brass Bar	20ø x 200 mm	1

App. 6-4

Name of Article		Quantity
Adjustable Wrench	200 mm	1
Adjustable Wrench	300 mm	1
Adjustable Wrench	465 mm	1
Adjustable Pipe Wrench	350 mm	1
Chain Wrench Opening	25.170 mm	1
Vice Grip Opening	0.50 mm	1
Combination Plier	200 mm	1
Cutting Plier	150 mm	1
Needle Nose Plier	150 mm	1
Diagonal Cutting Plier	150 mm	1
Snap Ring Plier set		1
(-) Screw Driver	50 mm	1
(-) Screw Driver	100 mm	1
(-) Screw Driver	150 mm	1
(+) Screw Driver	No. 1	1
(+) Screw Driver	No. 2	1
(+) Screw Driver	No. 3	1
(-) Stubby Driver	93 mm	1
(+) Stubby Driver	93 mm	1
(-) Offset Driver	8 - 9 mm	1
(+) Offset Driver	No. 1 & No. 2	1
Integral Handle Screw Driver	360 mm	1
Secrew Extractor		1
Ball Peen Hammer	450 g	1
Ball Peen Hammer	650 g	1
Test Hammer	200 g	1
Plastic Hammer	450 g	1
Copper Hammer	900 g	1
Engineer's File Set 5 pcs/set	250 mm	1
Needle File Set 5 pcs/set	200 mm	1
Oil Stone, combination	No. 80, No. 300	1
Wire Brush, 3 row with scraper	310 mm	1
Parts Cleaning Brush	300 mm	1
Gasket Scraper	190 mm	1
Wool Cutting Scissor	240 mm	1
Magnetic Finger	520 mm	1
Seal Tape	2	2
Vinyl Tape		2
Pry Bar		1
Pinch Bar		1
Chisel & Punch Set		1
Oiler		1
Vernier Caliper	200 mm	1
Measuring Tape	2000 mm	1
Steel Rule	300 mm	1
Thickness Gauge		1
Tool Cabinet		1
Oil filter wrench		1
Oil drain plug wrench		1
Electric drill	13 mm	1
Straight shank twist drill set	1.0 - 13.0 mm (0.5 mm step)	1 set
Disc grinder	150 mm with spare disc 5 pcs.	1

App. 6-4

Description	Quantity
• Tire service tool set	1 set
Contents;	
1) Cross rim wrench	: 1 pc.
2) Tire gauge	: 2 pcs.
3) Valve repair tools	: 1 pc.
4) Long nose plier	: 1 pc.
5) Soft hammer	: 1 pc.
6) Tire lever	: 3 pcs.
7) Wire brush	: 1 pc.
8) Tire spreader	: 1 pc.
9) Wheel cap tool	: 1 pc.
• Cold patch set for tube repair	1 set
Contents;	
1) Cold patch	: each 1 box
round shape	: 30, 37, 45, 54, 75, 94, 114mm
diamond shape	: 74x37, 90x45mm
2) Rasp handle	: 1 pc.
3) Vulcanizing flude	: 1 can
4) Liquid buffer	: 1 pc.
• Earth-stick set for tube repair	1 set
Contents;	
1) Earth stick size L	: 2 boxes
2) Earth stick size S	: 1 box
3) Super vulcan	: 1 can
4) Knife	: 1 pc.
5) Needle	: 1 pc.
6) Ratchet	: 1 pc.

JICA