

ATTACHMENT

1. OBJECTIVE

The objective of the Project is to provide necessary road construction equipment for the construction and maintenance of the Road No.8.

2. PROJECT SITE

National Road No.8.

(The Project location is shown in the Annex-1)

3. RESPONSIBLE ORGANIZATION, EXECUTING ORGANIZATION

- (1) Ministry of Communication, Transport, Post and Construction (hereinafter referred to as the "Ministry") shall serve as the responsible organization for the Project implementation, on condition that the Japan's Grant Aid is extended to the Project.
- (2) Enterprise Road No.8 of the ministry is responsible for the operation and maintenance of equipment procured under the Grant.
- (3) After completion of the National Road No.8, the equipment procured under the Grant shall be used for the construction of the National Road No.1 (khamkeut - Thathom - Xiengkhuang) by the Enterprise Road No.8.

4. EQUIPMENT REQUESTED BY THE GOVERNMENT OF LAO PDR

The list of equipment requested by the Government of Lao PDR is shown in Annex - 2 . Each item was selected based upon the machinery component required for the work programmed by the Ministry .

However, the final list of equipment will be decided after further studies be conducted in Japan .

5. DELIVERY POINT OF EQUIPMENT

Delivery point of the equipment procured under the Grant shall be " the 28 Km Camp " of the Enterprise Road No.8 on the National Road No.8 .

6. JAPAN'S GRANT AID SYSTEM

- (1) The Government of Lao PDR has understood the system of Japanese Grant Aid explained by the team .
- (2) The Government of Lao PDR will take necessary measures described in Annex-3 for smooth implementation of the Project, on condition that the Grant Aid Assistance by the Government of Japan is extended to the Project .

7. SCHEDULE OF THE STUDY

Based on the Minutes of Discussions and technical examination of the study results, JICA will complete the final report and will send it to the Government of Lao PDR by the end of April 1993.

①

①

ANNEX - 2
LIST OF EQUIPMENT REQUESTED BY THE
GOVERNMENT OF LAO PDR

Group No.	Equipment	Specification	Quantity	
			Priority A	Priority B
Group I(Earthworks)				
1)	Bulldozer	225 HP St.tilt w/Ripp.	2	(+2) 4
2)	Hyd.Excavator	19 t 0.7 m3 Bucket	3	(+1) 4
3)	Vibration Roller	11 t Front Padfoot	1	(+1) 2
4)	Vibration Roller	9.5 t Front Smooth	2	(0) 2
5)	Tire Roller	9 t Front & Rear Drive	2	(0) 2
6)	Motor Grader	230 HP 4.0 m Blade	3	(0) 3
7)	Wheel Loader	110 HP 1.5 m3 Bucket	4	(0) 4
8)	Spare Parts	for 2 years Operation		
Group II(Transportation Works)				
1)	Dump Truck	8 t 4 x 2	10	(+4) 14
2)	Flat Bed Truck	w/Crane 2-3 t	1	(+1) 2
3)	Pick-Up	Double Cabin 4 WD	2	(0) 2
4)	Water Tank Truck	6000 ltr.	2	(0) 2
5)	Fuel Tank Truck	4000 ltr. w/meter	1	(+1) 2
6)	Trailer & Tractor	30 t 280 Hp	1	(0) 1
7)	Spare Parts	for 2 years Operation		
Group III(Ancillary Works)				
1)	Air Compressor	7.5 m3/min	3	(+2) 5
2)	Vibration Roller	600 Kg	1	(+1) 2
3)	Drilling Machine	Crawler Type 7.0 m3/min	1	(+1) 2
4)	Jack Hammer	Sinker Handy 10 Kg	5	(0) 5
5)	Concrete Mixer	0.3 m3	2	(+1) 3
6)	Concrete Mixer	0.5 m3	2	(0) 2
7)	Asphalt Distributor	8000 ltr.	1	(0) 1
8)	Mobile Workshop	w/Welding Equipment	1	(0) 1
9)	Maintenance Car	5 t flat bed	1	(0) 1
10)	Screen for Aggregate	35-25t/h	1	(0) 1
11)	Generator	100 KVA 220v	1	(0) 1
12)	Mobile Hyd.Crane	15 t	0	(+1) 1
13)	Survey Instrument	2-Theodolites,2-Level,etc.	1	(0) 1
14)	Soil & Conc. Test Instr.	Stand.requirement	1	(0) 1
15)	Spare Parts	for 2 years Operation		

Remarks :

- 1) " Priority A " means equipment which are absolutely indispensable to supplement the essential core of the existing fleet of the Enterprise Construction National Road No.8 in order to proceed the construction of the project road.
- 2) " Priority B " means equipment which include additional equipment to " Priority A " to formulate the standard fleet of the same Enterprise to accomplish the project within their targeted construction period.

ANNEX - 3

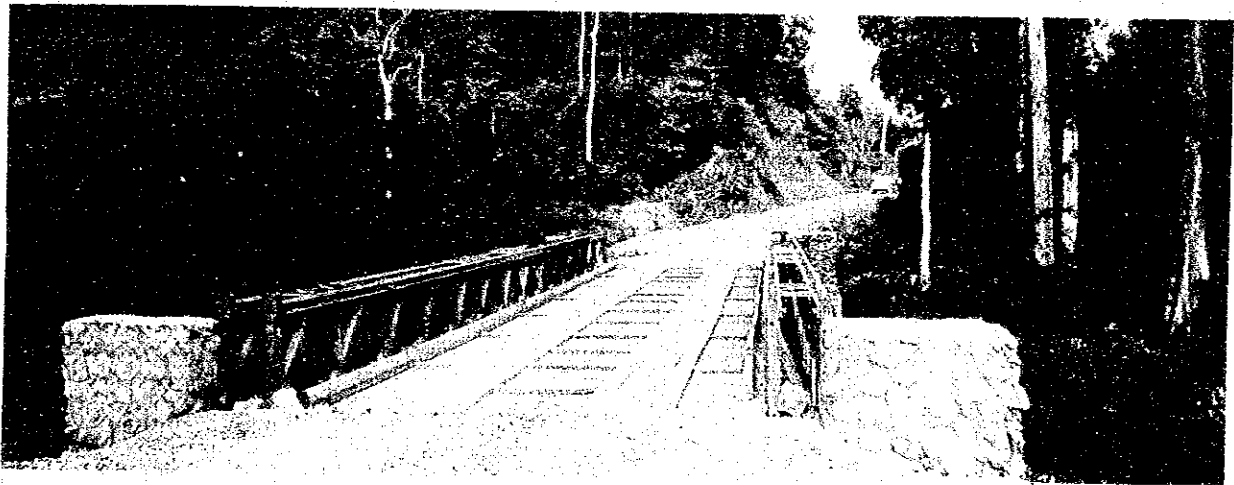
Necessary measures to be taken by the Government of Lao PDR as follows :

1. To provide necessary permissions, license and other authorizations for smooth implementation of the Project.
2. To bear advising commission of the authorization to pay (A/P) and payment commission to the Japanese foreign exchange bank for banking services based upon the Banking Arrangement (B/A).
3. To ensure prompt unloading, tax exemption, and custom clearance of the goods for the Project at port of disembarkation (Thakhek) in Lao PDR.
4. To ensure prompt unloading and internal transportation of the goods purchased and/or imported under the Grant Aid for the Project.
5. To accord Japanese nationals 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 Lao PDR, and stay therein for the performance of their work.
6. To exempt Japanese nationals from customs duties, internal taxes and other fisical levies which may be imposed in Lao P.D.R with respect to the supply of the products and services under the verified contracts.
7. To maintain and use properly and effectively the equipment and materials provided under the verified contracts.
8. To bear all the expenses other than those to be borne by the Grant, necessary for construction of the facilities as well as for the transportation of the equipment.
9. To coordinate and solve any matters related which may arise with third party and inhabitants living in the Project area during implementation of the Project.

APPENDIX 5 Photos for Reference



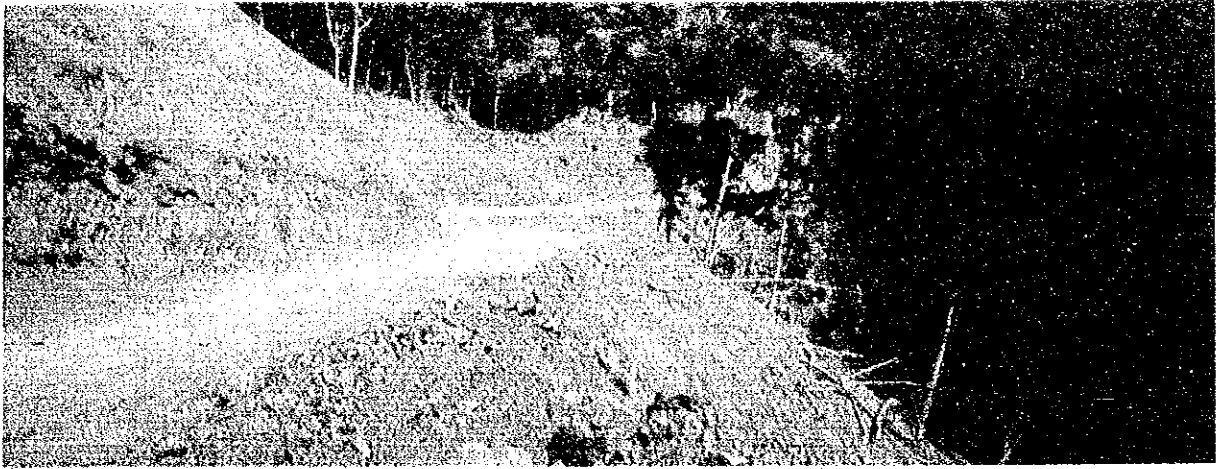
Project Beginning Point, Ban Lao Sta. 0+000 Junction with National Road No.13S



Sta. 31+000 Bailey Bridge (Panel Bridge), Upper Slab



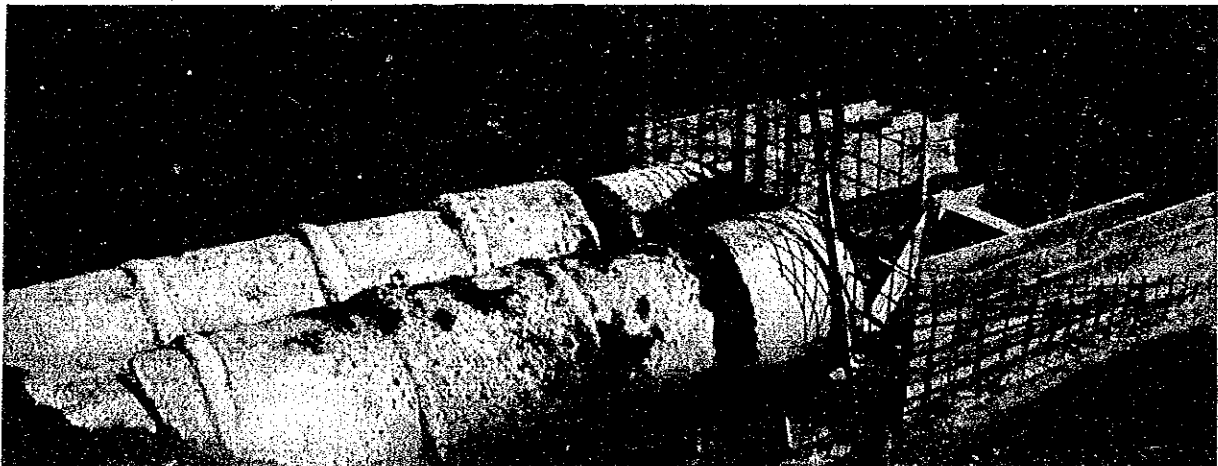
Sta. 34+000 Hard Rock Excavation Site



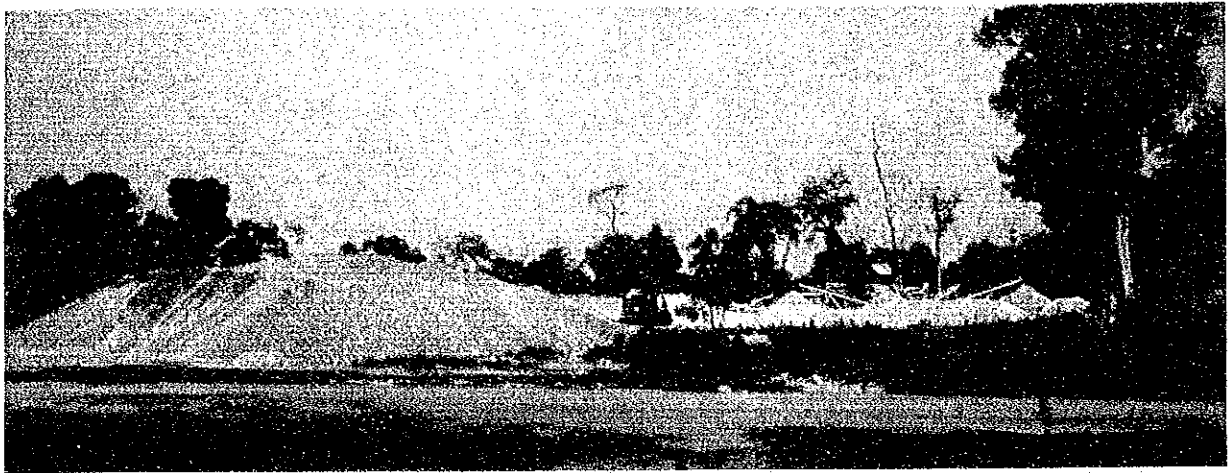
Sta. 38+000 Filling Soil Site



Sta. 41+000 Bridge Construction Site, Substructure



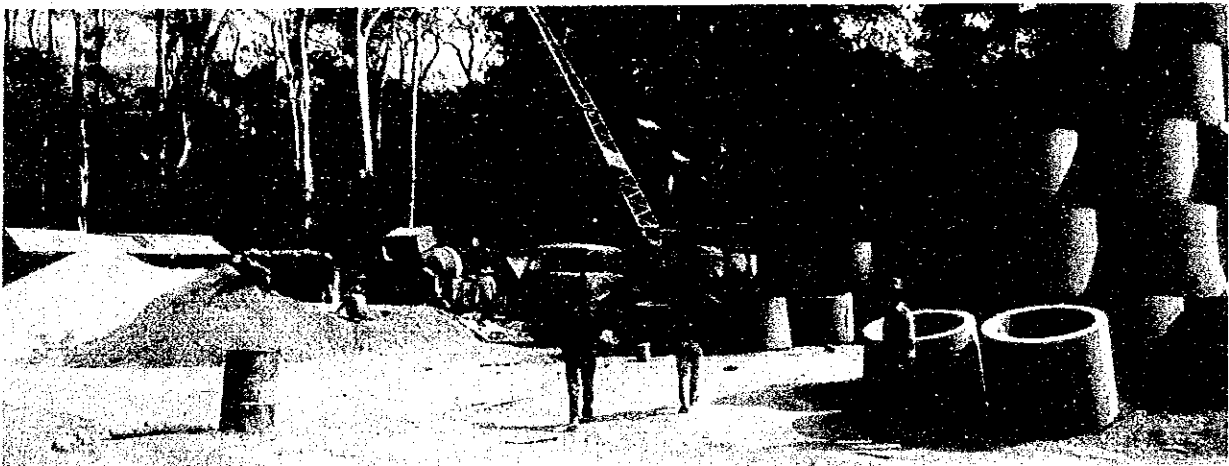
Installation of Pipe Culvert 2 ϕ 100



Whole Scene of Crushing Plant in Ban Lao



Quarry in Ban Lao



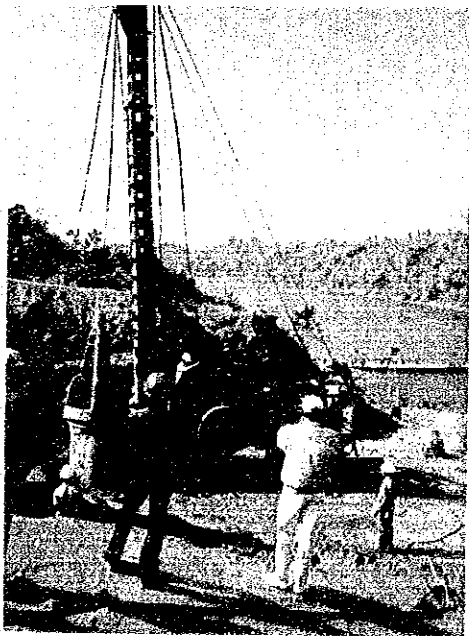
Operation of Concrete Plant for Concrete Pipes



Nami Theun Bridge under Construction



Temporary Bank for Piling for Bridge Work



Piling Operation

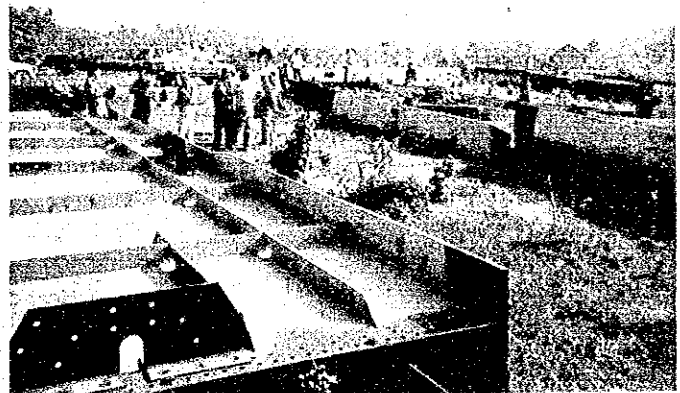
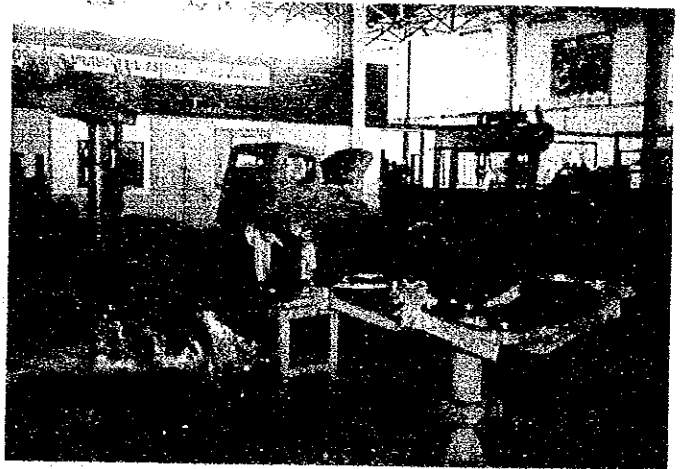


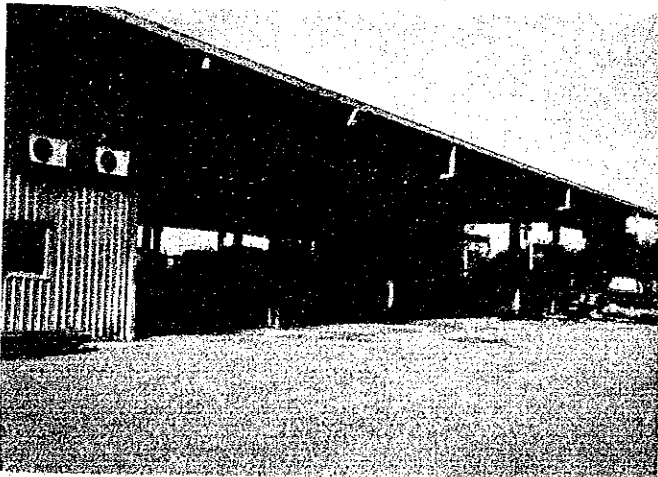
Plate Girders provided by then USSR



School of Communication and Transport (SCT), MCTPC



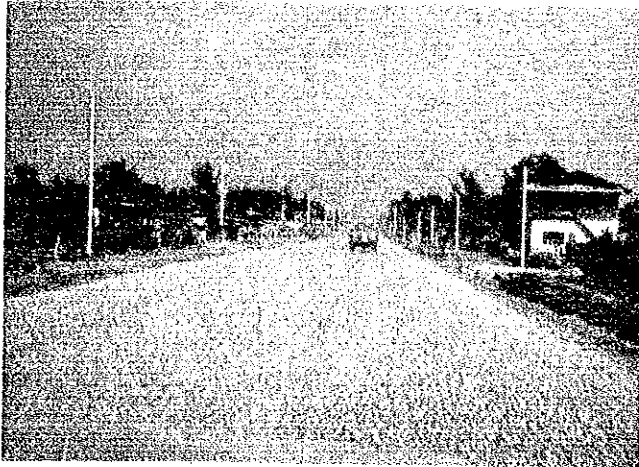
Don Chong Workshop, Lao-Soviet Heavy Duty Garage



Lao-Australian Heavy Duty Workshop (Private)



Workshop



Pavement National Road No.13S



Base Course Work National Road 13S: aggregates be mixed with sand, lateritic solid (solid sandy soil with gravel) excavated at the borrow pits.



Base Course Material being placed by "Finisher".

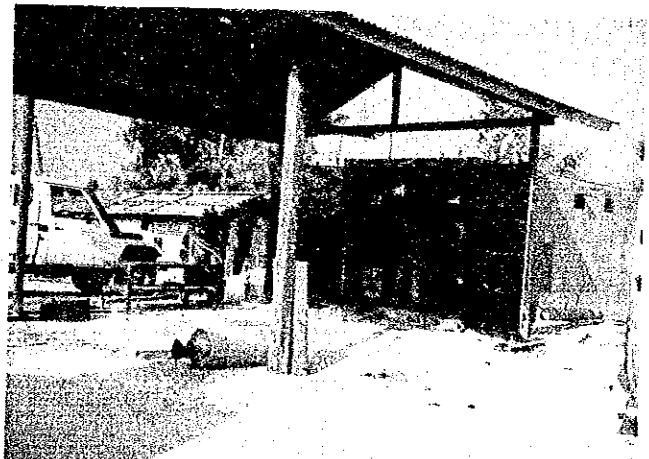


Borrow Pit, Mixing Operation:

lateritic soil + sand:	10%
sandy soil:	10%
crushed rock: (0-40 mm):	80%



The aggregates (0-40 mm) produced at the crushing plant shall be transported to the borrow pits.



Maintenance Crew of Project Workshop National Road No.13S

**APPENDIX 6-1 Equipment Inventory of National Road No.8
Construction Company**

No	Equipment	Maker	Model_year	Condition	Wear
104	AIR COMPRESSOR PV10	USSR	1988	OPE/R	0
105	AIR COMPRESSOR PV10	USSR	1988	OPE/R	0
106	AIR COMPRESSOR PV10	USSR	1989	OPE/R	0
068	ASPHALT DISTRIBUTOR	DC39 4000L	1988	OPE/R	0
069	ASPHALT DISTRIBUTOR	DC39 4000L	1992	OPE	0
111	BEND MACH./STEEL BAR		1981	OPE	0
075	BULLDOZER D7G	CAT	1991	OPE	0
076	BULLDOZER D7G	CAT	1992	OPE	0
049	BULLDOZER DZ110	USSR	1985	SCR	5
050	BULLDOZER DZ110	USSR	1986	SCR	5
051	BULLDOZER DZ110	USSR	1984	SCR	5
052	BULLDOZER DZ110	USSR	1986	SCR	20
053	BULLDOZER DZ110	USSR	1984	SCR	35
054	BULLDOZER DZ110	USSR	1986	SCR	35
055	BULLDOZER DZ110	USSR	1984	SCR	30
056	BULLDOZER DZ110	USSR	1986	SCR	40
057	BULLDOZER DZ110	USSR	1986	SCR	40
058	BULLDOZER DZ110	USSR	1984	SCR	25
070	BULLDOZER DZ110	USSR	1984	REP	0
071	BULLDOZER DZ110	USSR	1987	REP	0
072	BULLDOZER DZ110	USSR	1988	OPE/R	0
073	BULLDOZER DZ110	USSR	1988	OPE/R	0
074	BULLDOZER DZ110	USSR	1987	REP	0
078	BULLDOZER DZ171	USSR	1990	OPE	0
114	CONCRET MIXER TRUCK	KAMAZ 4 M3	1986	OPE	0
110	CUTTING MACH./STEEL		1981	REP	0
108	DRILLING MACH.BMK4	USSR	1982	REP	0
109	DRILLING MACH.BMK4	USSR	1982	REP	0
062	DRILLING MACHINE	BTC-150	1985	SCR	35
090	DRILLING MACHINE	BTC150	1982	OPE/R	0
091	DRILLING MACHINE	BTC150	1984	OPE/R	0
001	DUMP TRUCK 8 T	USSR-MAZ	1987	OPE/R	0
002	DUMP TRUCK 8 T	MAZ 5549	1987	OPE/R	0
003	DUMP TRUCK 8 T	MAZ 5549	1987	OPE/R	0
004	DUMP TRUCK 8 T	MAZ 5549	1987	OPE/R	0
005	DUMP TRUCK 8 T	MAZ 5549	1987	REP	0
006	DUMP TRUCK 8 T	MAZ 5549	1987	REP	0
007	DUMP TRUCK 8 T	MAZ 5549	1988	REP	0
008	DUMP TRUCK 8 T	MAZ 5549	1987	REP	0
009	DUMP TRUCK 8 T	MAZ 5549	1987	REP	0
010	DUMP TRUCK 8 T	MAZ 5549	1987	REP	0
011	DUMP TRUCK 8 T	MAZ 5549	1987	REP	0
012	DUMP TRUCK 8 T	MAZ 5549	1987	REP	0
013	DUMP TRUCK 8 T	MAZ 5549	1987	REP	0
014	DUMP TRUCK 8 T	MAZ 5549	1987	REP	0
015	DUMP TRUCK 8 T	MAZ 5549	1987	REP	0
016	DUMP TRUCK 8 T	MAZ 5549	1987	REP	0
017	DUMP TRUCK 8 T	MAZ 5549	1987	REP	0
018	DUMP TRUCK 8 T	MAZ 5549	1987	REP	0
019	DUMP TRUCK 8 T	MAZ 5549	1987	REP	0

No	Equipment	Maker	Model_year	Condition	Wear
020	DUMP TRUCK 8 T	MAZ 5549	1987	REP	0
021	DUMP TRUCK 8 T	MAZ 5549	1987	REP	0
043	DUMP TRUCK 8 T	MAZ 5549	1984	SCR	5
044	DUMP TRUCK 8 T	MAZ 5549	1984	SCR	5
045	DUMP TRUCK 8 T	MAZ 5549	1985	SCR	40
022	FLAT BED TRUCK 8 T	MAZ 5335	1987	REP	0
023	FLAT BED TRUCK 8 T	MAZ 5335	1987	REP	0
046	FLAT BED TRUCK 12 T	KRAZ	1985	SCR	20
035	FLAT BED TRUCK GE	GAZ 2.5 T	1989	OPE/R	0
036	FLAT BED TRUCK GE	GAZ 2.5 T	1989	OPE/R	0
024	FUEL TANK TRUCK	MAZ 8000 L	1989	OPE/R	0
025	FUEL TANK TRUCK	KAMAZ12000	1986	REP	0
047	FUEL TANK TRUCK	ZIL 6000 L	1982	SCR	45
027	FUEL TANK TRUCK GE	ZIL 6000 L	1983	REP	0
028	FUEL TANK TRUCK GE	ZIL 6000 L	1989	OPE/R	0
029	FUEL TANK TRUCK GE	ZIL 6000 L	1989	OPE/R	0
030	FUEL TANK TRUCK GE	ZIL 6000 L	1984	REP	0
099	GENERATOR	GERMAN	1991	OPE	0
094	GENERATOR 60KW	USSR	1985	OPE/R	0
095	GENERATOR 60KW	USSR	1988	OPE/R	0
096	GENERATOR 60KW	USSR	1985	OPE/R	0
092	GENERATOR 100KW	USSR	1988	OPE/R	0
093	GENERATOR 100KW	USSR	1988	OPE/R	0
063	GENERATOR 15KW	USSR	1987	SCR	25
101	GENERATOR 30KW	USSR	1981	REP	0
098	GENERATOR IT75L	YAMMAR	1991	OPE	0
100	GENERATOR IT75L	YAMMAR	1990	OPE	0
097	GENERATOR TA60H	YAMMAR	1990	OPE	0
087	HID. EXCAVATOR	E03322	1988	OPE/R	0
059	HYD. EXCAVATOR	E05111	1988	SCR	5
060	HYD. EXCAVATOR	E04121	1988	SCR	5
061	HYD. EXCAVATOR	E04121	1988	SCR	50
085	HYD. EXCAVATOR	E04121	1988	REP	0
086	HYD. EXCAVATOR	E04121	1988	REP	0
040	JEEP	CHEROKI	1991	OPE	0
037	JEEP GE	UAZ	1988	OPE	0
067	MAINTENANCE CAR		1988	OPE	0
038	MICLOBUS	UAZ	1989	OPE/R	0
039	MICLOBUS	UAZ	1986	REP	0
080	MOTOR GRADER DZ122	USSR	1988	REP	0
081	MOTOR GRADER DZ122	USSR	1988	REP	0
041	PICK-UP	TOYOTA	1991	OPE	0
042	PICK-UP	TOYOTA	1991	OPE	0
113	QUARRY SCREEN PDCU25	USSR		OPE	0
077	ROLLER SV500TF	SAKAI	1991	OPE	0
079	SMOOTH ROLLER 12 T	DU48	1990	OPE	0
112	TENSION MACH./ST.BAR		1988	OPE	0
088	TIRE ROLLER DU16	USSR	1984	REP	0
089	TIRE ROLLER DU16	USSR	1987	OPE/R	0
026	TRAIEL 20 T	KRAZ	1986	REP	0
107	TRANSFORMAR/WELDING		1981	REP	0
064	TRUCK CRANE 10 T	KC3561	1989	OPE	0
065	TRUCK CRANE 10 T	KC3561	1985	REP	0
066	TRUCK CRANE 10 T	KC3561	1984	REP	0
048	WATER TANK TRUCK	ZIL 6000 L	1985	SCR	45
031	WATER TANK TRUCK GE	ZIL 6000 L	1983	REP	0
032	WATER TANK TRUCK GE	ZIL 6000 L	1987	REP	0
033	WATER TANK TRUCK GE	ZIL 6000 L	1983	REP	0
034	WATER TANK TRUCK GE	ZIL 6000 L	1988	OPE/R	0
102	WELDING MACHINE	USSR	1986	OPE/R	0
103	WELDING MACHINE	USSR	1988	OPE	0
083	WHEEL LOADER BM845	VOLVO	1978	OPE	0
084	WHEEL LOADER BM845	VOLVO	1978	OPE	0
082	WHEEL LOADER T018	USSR	1988	OPE/R	0

SERVICEABLE EQUIPMENT

NO	EQUIPMENT	MAKER	MODEL	YEAR	CONDITION	WEAR
069	ASPHALT DISTRIBUTOR	DC39	4000L	1992	OPE	
111	BEND MACH./STEEL BAR			1981	OPE	
075	BULLDOZER D7G	CAT		1991	OPE	
076	BULLDOZER D7G	CAT		1992	OPE	
078	BULLDOZER DZ171	USSR		1990	OPE	
114	CONCRET MIXER TRUCK	KAMAZ	4 M3	1986	OPE	
099	GENERATOR	GERMAN		1991	OPE	
098	GENERATOR IT75L	YAMMAR		1991	OPE	
100	GENERATOR IT75L	YAMMAR		1990	OPE	
097	GENERATOR TA60H	YAMMAR		1990	OPE	
040	JEEP	CHEROKI		1991	OPE	
037	JEEP GE	UAZ		1988	OPE	
067	MAINTENANCE CAR			1988	OPE	
041	PICK-UP	TOYOTA		1991	OPE	
042	PICK-UP	TOYOTA		1991	OPE	
113	QUARRY SCREEN PDCU25	USSR	(1978)		OPE	
077	ROLLER SV500TF	SAKAI		1991	OPE	
079	SMOOTH ROLLER 12 T	DU48		1990	OPE	
112	TENSION MACH./ST.BAR			1988	OPE	
064	TRUCK CRANE 10 T	KC3561		1989	OPE	
103	WELDING MACHINE	USSR		1988	OPE	
083	WHEEL LOADER BM845	VOLVO		1978	OPE	
084	WHEEL LOADER BM845	VOLVO		1978	OPE	

EQUIPMENT FOR MAINTENANCE

NO	EQUIPMENT	MAKER	MODEL	YEAR	CONDITION	WEAR
104	AIR COMPRESSOR PV10	USSR		1988	OPE/R	
105	AIR COMPRESSOR PV10	USSR		1988	OPE/R	
106	AIR COMPRESSOR PV10	USSR		1989	OPE/R	
068	ASPHALT DISTRIBUTOR	DC39	4000L	1988	OPE/R	
072	BULLDOZER DZ110	USSR		1988	OPE/R	
073	BULLDOZER DZ110	USSR		1988	OPE/R	
090	DRILLING MACHINE	BTC150		1982	OPE/R	
091	DRILLING MACHINE	BTC150		1984	OPE/R	
001	DUMP TRUCK 8 T	USSR-MAZ		1987	OPE/R	
002	DUMP TRUCK 8 T	MAZ 5549		1987	OPE/R	
003	DUMP TRUCK 8 T	MAZ 5549		1987	OPE/R	
004	DUMP TRUCK 8 T	MAZ 5549		1987	OPE/R	
035	FLAT BED TRUCK GE	GAZ 2.5 T		1989	OPE/R	
036	FLAT BED TRUCK GE	GAZ 2.5 T		1989	OPE/R	
024	FUEL TANK TRUCK	MAZ 8000 L		1989	OPE/R	
028	FUEL TANK TRUCK GE	ZIL 6000 L		1989	OPE/R	
029	FUEL TANK TRUCK GE	ZIL 6000 L		1989	OPE/R	
094	GENERATOR 60KW	USSR		1985	OPE/R	
095	GENERATOR 60KW	USSR		1988	OPE/R	
096	GENERATOR 60KW	USSR		1985	OPE/R	
092	GENERATOR 100KW	USSR		1988	OPE/R	
093	GENERATOR 100KW	USSR		1988	OPE/R	
087	HID. EXCAVATOR	E03322		1988	OPE/R	
038	MICLOBUS	UAZ		1989	OPE/R	
089	TIRE ROLLER DU16	USSR		1987	OPE/R	
034	WATER TANK TRUCK GE	ZIL 6000 L		1988	OPE/R	
102	WELDING MACHINE	USSR		1986	OPE/R	
082	WHEEL LOADER T018	USSR		1988	OPE/R	

EQUIPMENT FOR REPAIR

NO	EQUIPMENT	MAKER	MODEL	YEAR	CONDITION	WEAR
070	BULLDOZER DZ110	USSR		1984		REP
071	BULLDOZER DZ110	USSR		1987		REP
074	BULLDOZER DZ110	USSR		1987		REP
110	CUTTING MACH./STEEL			1981		REP
108	DRILLING MACH. BMK4	USSR		1982		REP
109	DRILLING MACH. BMK4	USSR		1982		REP
005	DUMP TRUCK 8 T	MAZ 5549		1987		REP
006	DUMP TRUCK 8 T	MAZ 5549		1987		REP
007	DUMP TRUCK 8 T	MAZ 5549		1988		REP
008	DUMP TRUCK 8 T	MAZ 5549		1987		REP
009	DUMP TRUCK 8 T	MAZ 5549		1987		REP
010	DUMP TRUCK 8 T	MAZ 5549		1987		REP
011	DUMP TRUCK 8 T	MAZ 5549		1987		REP
012	DUMP TRUCK 8 T	MAZ 5549		1987		REP
013	DUMP TRUCK 8 T	MAZ 5549		1987		REP
014	DUMP TRUCK 8 T	MAZ 5549		1987		REP
015	DUMP TRUCK 8 T	MAZ 5549		1987		REP
016	DUMP TRUCK 8 T	MAZ 5549		1987		REP
017	DUMP TRUCK 8 T	MAZ 5549		1987		REP
018	DUMP TRUCK 8 T	MAZ 5549		1987		REP
019	DUMP TRUCK 8 T	MAZ 5549		1987		REP
020	DUMP TRUCK 8 T	MAZ 5549		1987		REP
021	DUMP TRUCK 8 T	MAZ 5549		1987		REP
022	FLAT BED TRUCK 8 T	MAZ 5335		1987		REP
023	FLAT BED TRUCK 8 T	MAZ 5335		1987		REP
025	FUEL TANK TRUCK	KAMAZ12000		1986		REP
027	FUEL TANK TRUCK GE	ZIL 6000 L		1983		REP
030	FUEL TANK TRUCK GE	ZIL 6000 L		1984		REP
101	GENERATOR 30KW	USSR		1981		REP
085	HYD. EXCAVATOR	E04121		1988		REP
086	HYD. EXCAVATOR	E04121		1988		REP
039	MICROBUS	UAZ		1986		REP
080	MOTOR GRADER DZ122	USSR		1988		REP
081	MOTOR GRADER DZ122	USSR		1988		REP
088	TIRE ROLLER DU16	USSR		1984		REP
026	TRAILER 20 T	KRAZ		1986		REP
107	TRANSFORMER/WELDING			1981		REP
065	TRUCK CRANE 10 T	KC3561		1985		REP
066	TRUCK CRANE 10 T	KC3561		1984		REP
031	WATER TANK TRUCK GE	ZIL 6000 L		1983		REP
032	WATER TANK TRUCK GE	ZIL 6000 L		1987		REP
033	WATER TANK TRUCK GE	ZIL 6000 L		1983		REP

SCRAP

NO	EQUIPMENT	MAKER	MODEL YEAR	CONDITION	WEAR
049	BULLDOZER DZ110	USSR	1985	SCR	5
050	BULLDOZER DZ110	USSR	1986	SCR	5
051	BULLDOZER DZ110	USSR	1984	SCR	5
052	BULLDOZER DZ110	USSR	1986	SCR	20
053	BULLDOZER DZ110	USSR	1984	SCR	35
054	BULLDOZER DZ110	USSR	1986	SCR	35
055	BULLDOZER DZ110	USSR	1984	SCR	30
056	BULLDOZER DZ110	USSR	1986	SCR	40
057	BULLDOZER DZ110	USSR	1986	SCR	40
058	BULLDOZER DZ110	USSR	1984	SCR	25
062	DRILLING MACHINE	BTC-150	1985	SCR	35
043	DUMP TRUCK 8 T	MAZ 5549	1984	SCR	5
044	DUMP TRUCK 8 T	MAZ 5549	1984	SCR	5
045	DUMP TRUCK 8 T	MAZ 5549	1985	SCR	40
046	FLAT BED TRUCK 12 T	KRAZ	1985	SCR	20
047	FUEL TANK TRUCK	ZIL 6000 L	1982	SCR	45
063	GENERATOR 15KW	USSR	1987	SCR	25
059	HYD. EXCAVATOR	E05111	1988	SCR	5
060	HYD. EXCAVATOR	E04121	1988	SCR	5
061	HYD. EXCAVATOR	E04121	1988	SCR	50
048	WATER TANK TRUCK	ZIL 6000 L	1985	SCR	45

APPENDIX 6-2 Ratio of Spare Parts Cost and Cumulative Hours of Operation (C1 - C17)

The tables of spare parts cost estimation are made from the both data of major construction equipment operation hours and spare parts cost ratio for the purchased value of the equipment.

These data was analyzed and prepared by CPC based on the data from its practical experience in the Construction Equipment Management System Project of the National Road Network Maintenance in Honduras.

METHOD OF USING TABLE

(1) Element of Equipment

Model of Equipment: Bulldozer D7G Class

Operating cumulative hours: 5,000 hs assumed

Cost of New Equipment: US\$200,000.-

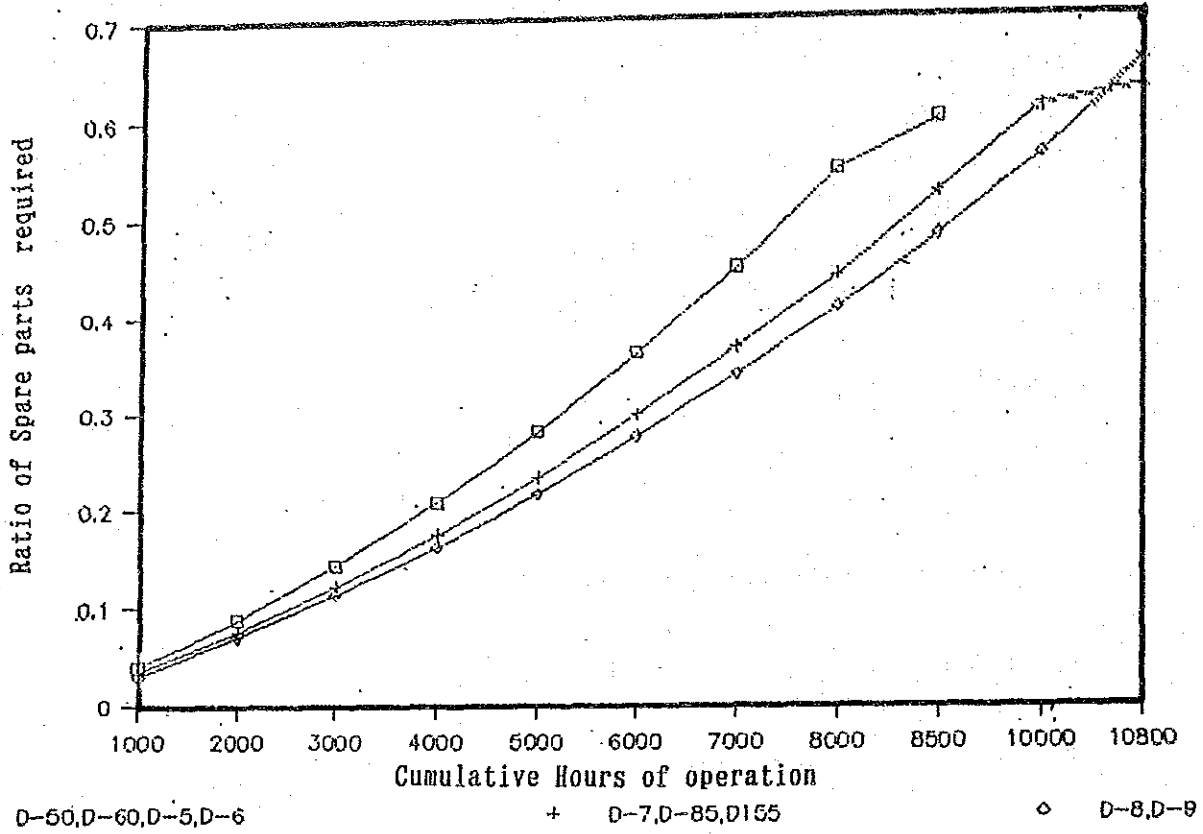
(2) Estimation of Spare Parts Cost

The constant is calculated as 0.2327 when employing bulldozer D7G per 5,000 hours. The cumulative parts cost is obtained by multiplying new equipment cost for the constant.

$US\$200,000.- \times 0.2327 = US\$46,540.-$

Bulldozer

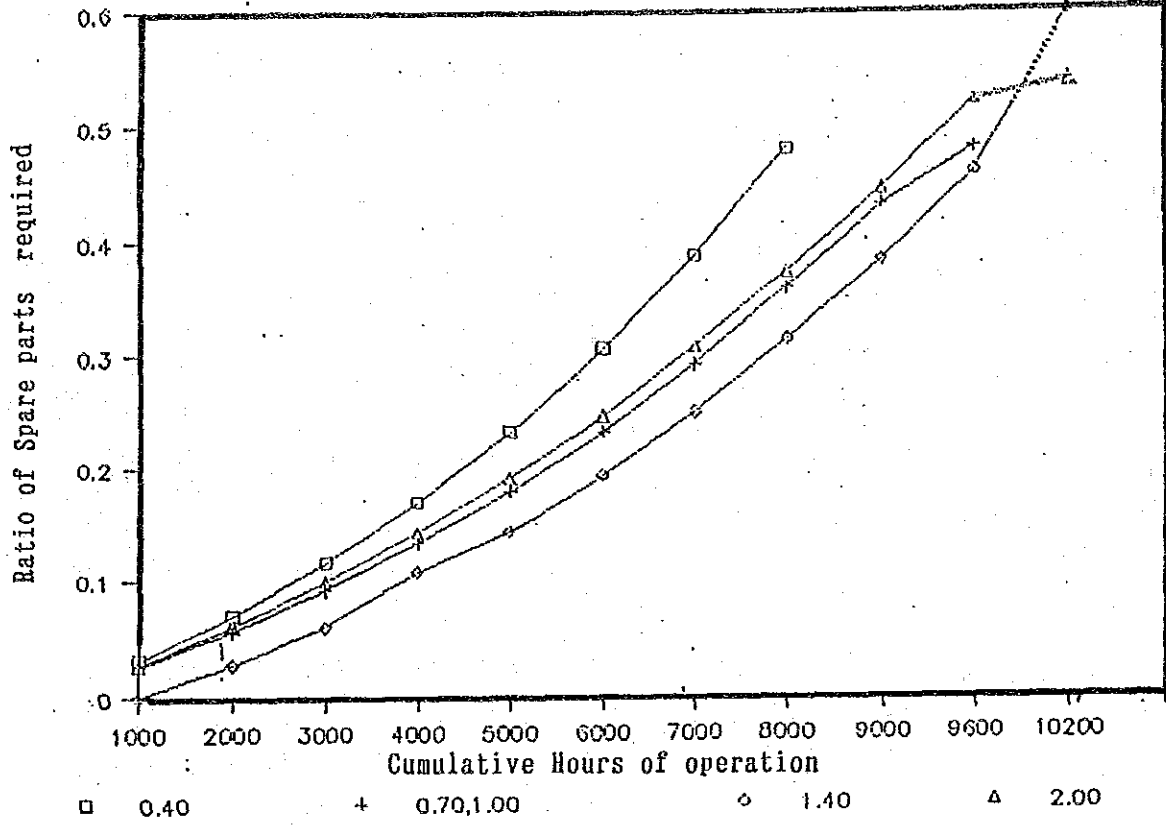
Spare parts cost for repair



Hours Model	1000	2000	3000	4000	5000	6000	7000	8000	8500	10000	10800
D-50 D-60 D-5 D-6	0.0394	0.0872	0.1432	0.2076	0.2803	0.3613	0.4505	0.5481	0.6000		
D-7 D-85 D-155	0.0343	0.0749	0.1215	0.1742	0.2327	0.2971	0.3673	0.4430	0.5247	0.6119	0.6300
D-8	0.0302	0.0700	0.1133	0.1620	0.2159	0.2750	0.3392	0.4007	0.4831	0.5627	0.6600

Hyd. Excavator

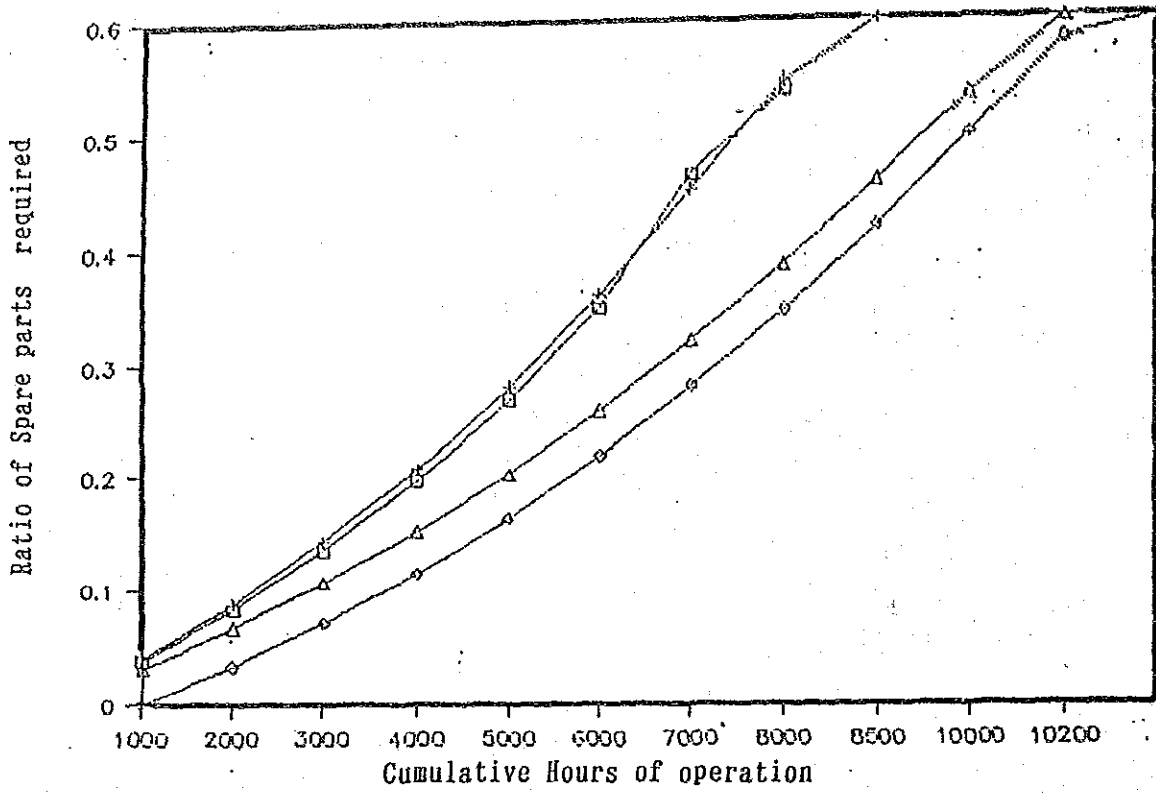
Spare parts cost for repair



Model \ Hours	1000	2000	3000	4000	5000	6000	7000	8000	9000	9600	10200
0.40 m3	0.0322	0.0706	0.1164	0.1705	0.2333	0.3056	0.3877	0.4800			
0.70 m3 1.00 m3	0.0265	0.0570	0.0925	0.1335	0.1803	0.2333	0.2929	0.3592	0.4325	0.4800	
1.40 m3	0.0204	0.0615	0.1081	0.1442	0.1945	0.2510	0.3142	0.3839	0.4606	0.6000	
2.00 m3	0.0204	0.0616	0.0998	0.1433	0.1923	0.2469	0.3073	0.3734	0.4456	0.5236	0.5400

Wheel Loader

Spare parts cost for repair



T 920,930

+ CAT 950

o CAT 966

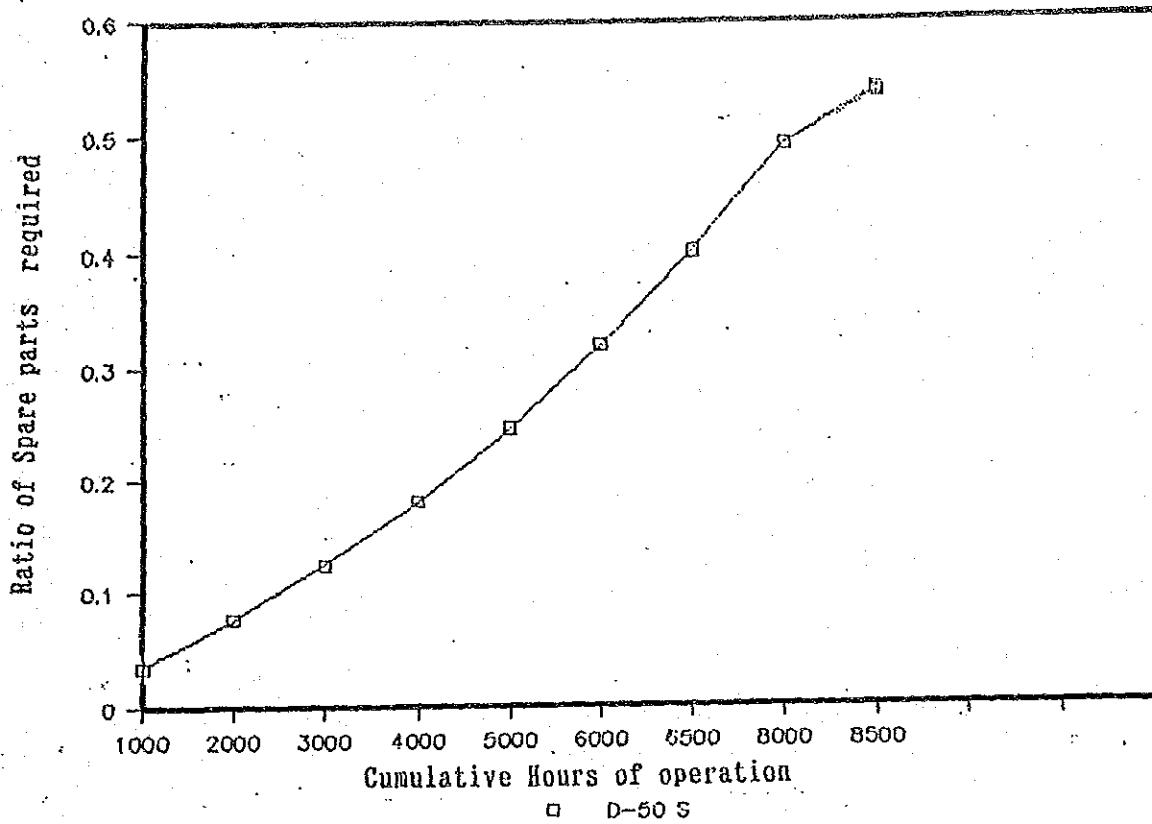
Δ CAT 980,988

Hours Model	1000	2000	3000	4000	5000	6000	7000	8000	8500	10000	10200
CAT 920 CAT 930	0.0371	0.0820	0.1353	0.1975	0.2609	0.3496	0.4636	0.5400			
CAT 950	0.0394	0.0872	0.1432	0.2076	0.2803	0.3613	0.4505	0.5401	0.6000		
CAT 966	0.0323	0.0704	0.1142	0.1638	0.2191	0.2803	0.3472	0.4190	0.4983	0.5825	0.6000
CAT 980 CAT 988	0.0303	0.0650	0.1064	0.1523	0.2032	0.2593	0.3205	0.3868	0.4503	0.5350	0.6000

C-4

Crawler Loader

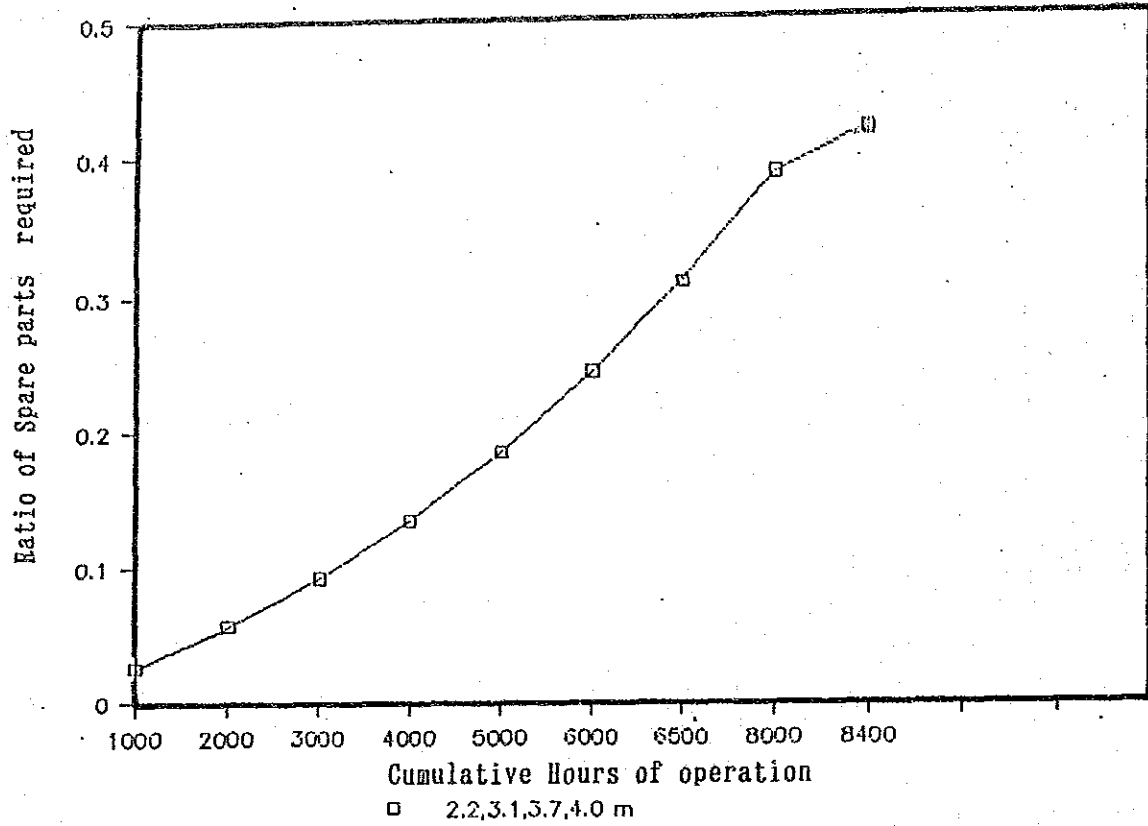
Spare parts cost for repair



Hours	1000	2000	3000	4000	5000	6000	6500	8000	8500
D-50 S	0.0347	0.0763	0.1252	0.1820	0.2469	0.3200	0.4015	0.4917	0.5400

Motor Grader

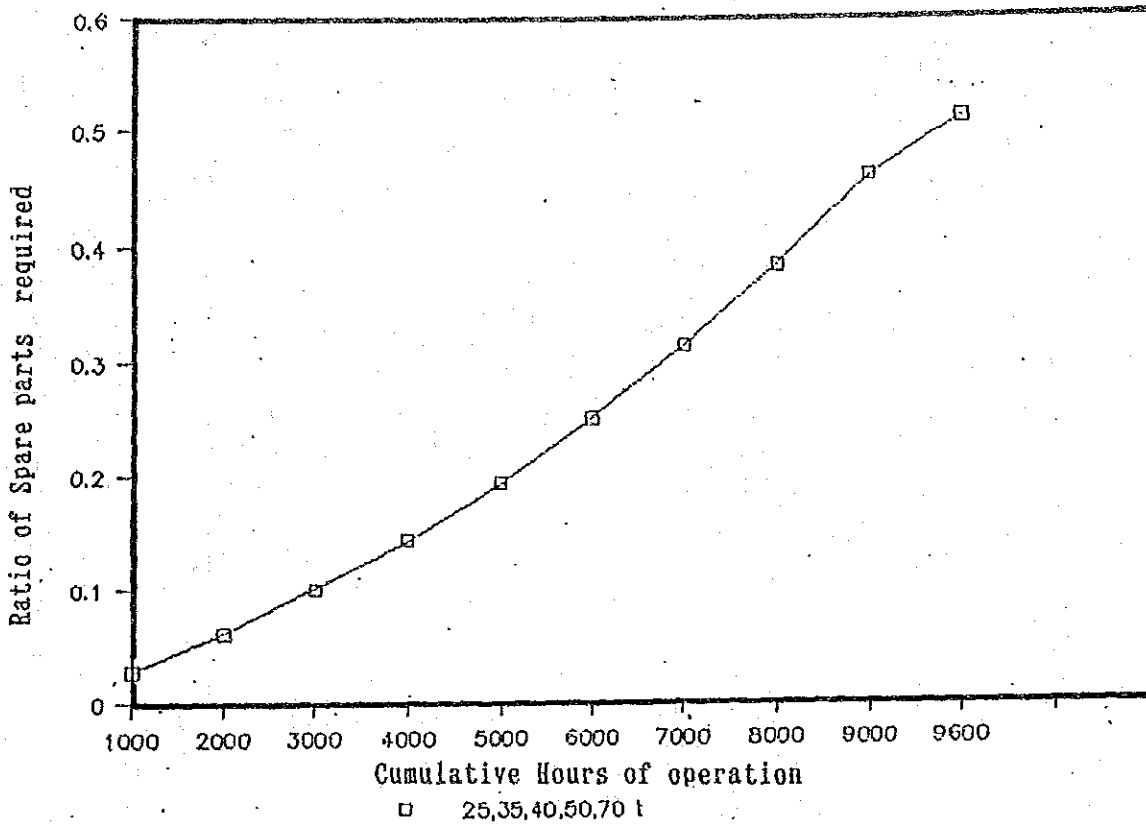
Spare parts cost for repair



Hours	1000	2000	3000	4000	5000	6000	7000	8000	8400
Model									
2.2 m	0.0262	0.0565	0.0922	0.1342	0.1846	0.2428	0.3098	0.3865	0.4200
3.1 m									
3.7 m									
4.0 m									

Crawler Crane

Spare parts cost for repair

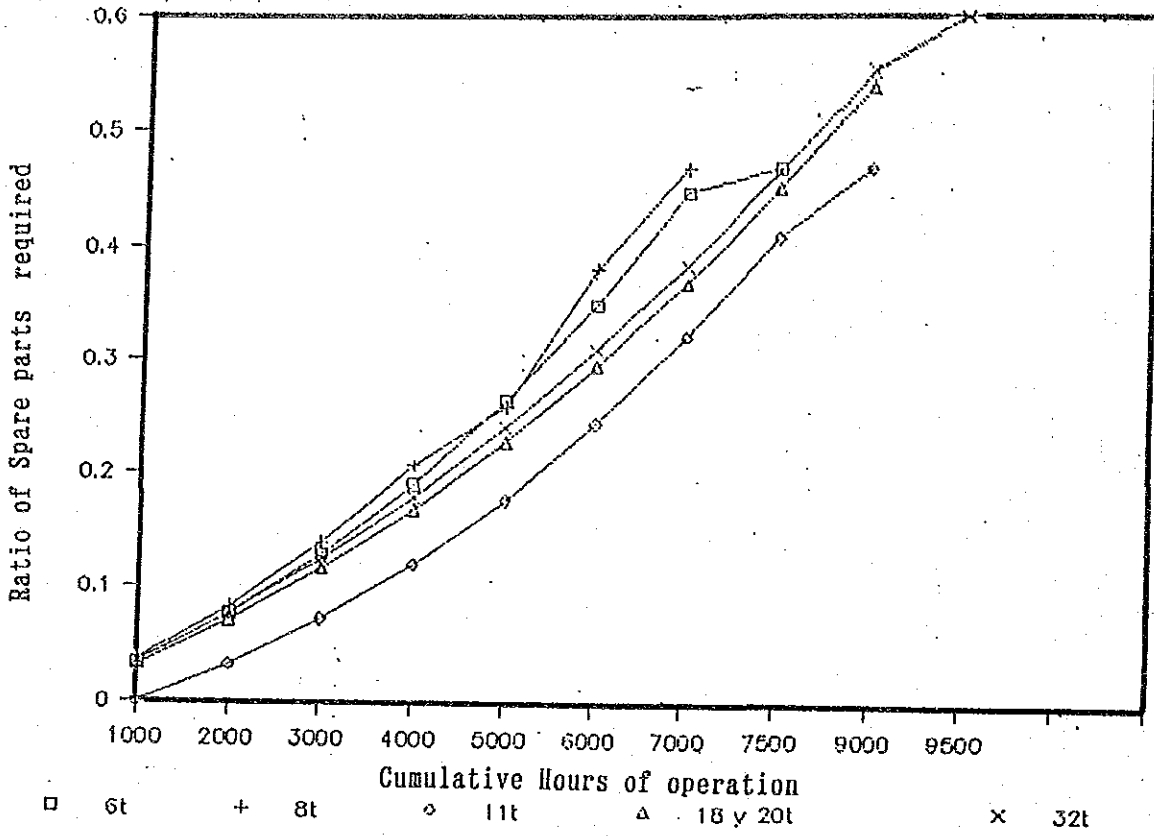


Hours Model	1000	2000	3000	4000	5000	6000	7000	8000	9000	9600
25 t	0.0204	0.0613	0.1000	0.1442	0.1945	0.2510	0.3142	0.3839	0.4606	0.5100
35 t										
40 t										
50 t										
70 t										

C-7

Dump Truck

Spare parts cost for repair

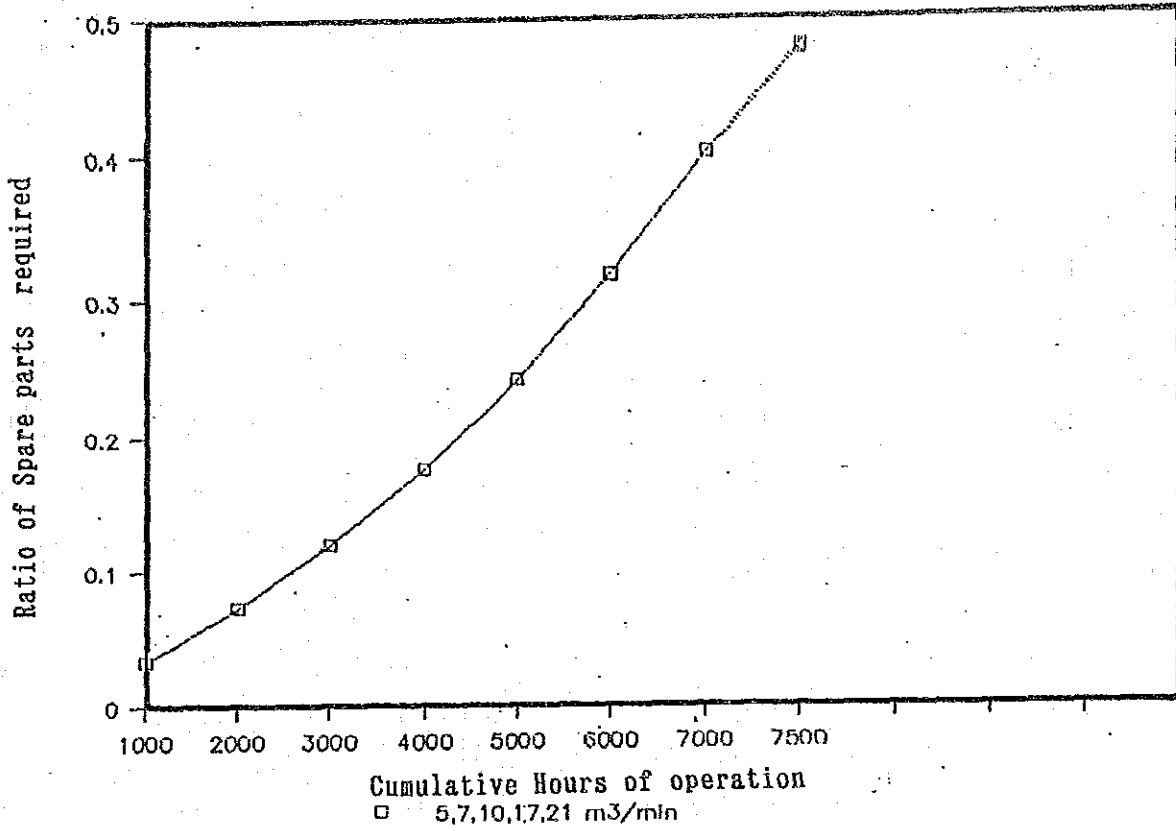


Model \ Hours	1000	2000	3000	4000	5000	6000	6800	7000	7200	7600	9000	9500
6 t	0.0351	0.0776	0.1292	0.1912	0.2643	0.3493		0.4469	0.4600			
8 t	0.0374	0.0832	0.1394	0.2074	0.2592	0.3024	0.4600					
11 t	0.0331	0.0727	0.1204	0.1772	0.2440	0.3212		0.4095		0.4680		
18 t 20 t	0.0326	0.0713	0.1165	0.1687	0.2281	0.2947		0.3600		0.4505	0.5400	
32 t	0.0349	0.0764	0.1247	0.1795	0.2410	0.3092		0.3839		0.4654	0.5535	0.6000

C-8

Compressor

Spare parts cost for repair

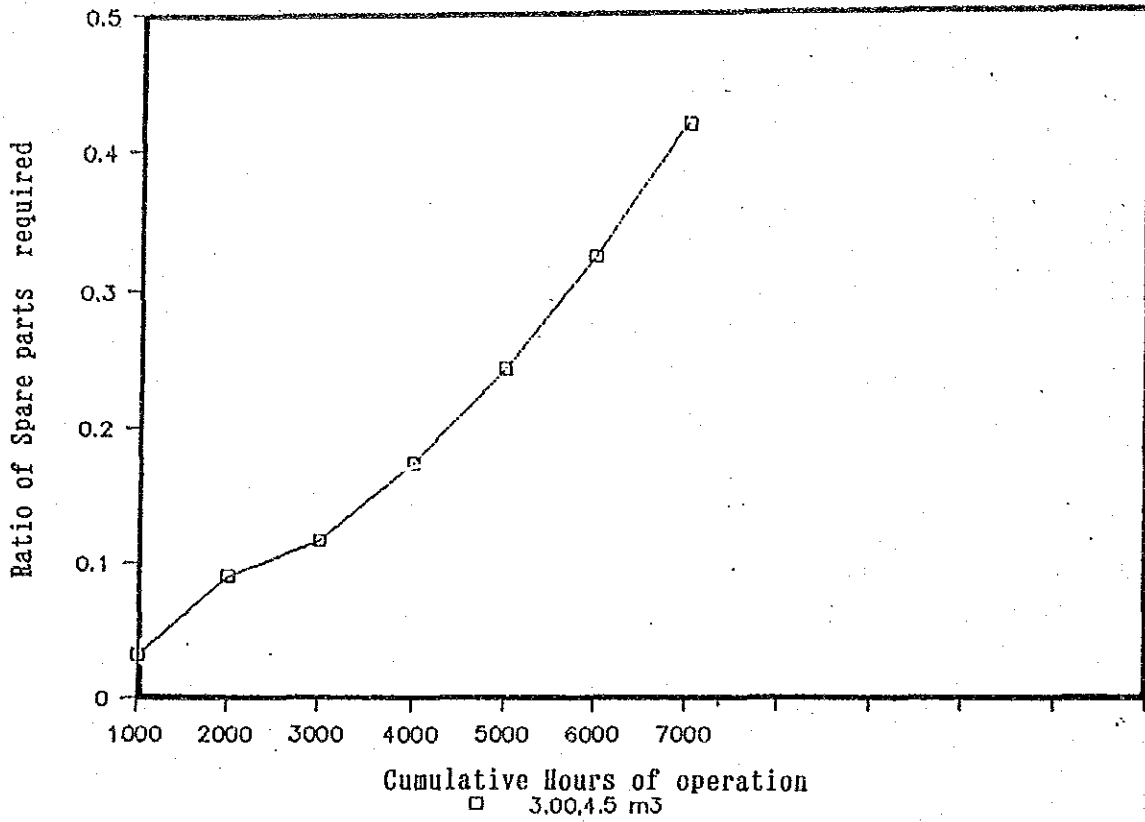


Hours Model	1000	2000	3000	4000	5000	6000	7000	7800
5 m ³ /min	0.0331	0.0728	0.1202	0.1965	0.2421	0.3176	0.4035	0.4800
7 m ³ /min								
10 m ³ /min								
17 m ³ /min								
21 m ³ /min								

C-9

Concret Mixing Truck

Spare parts cost for repair

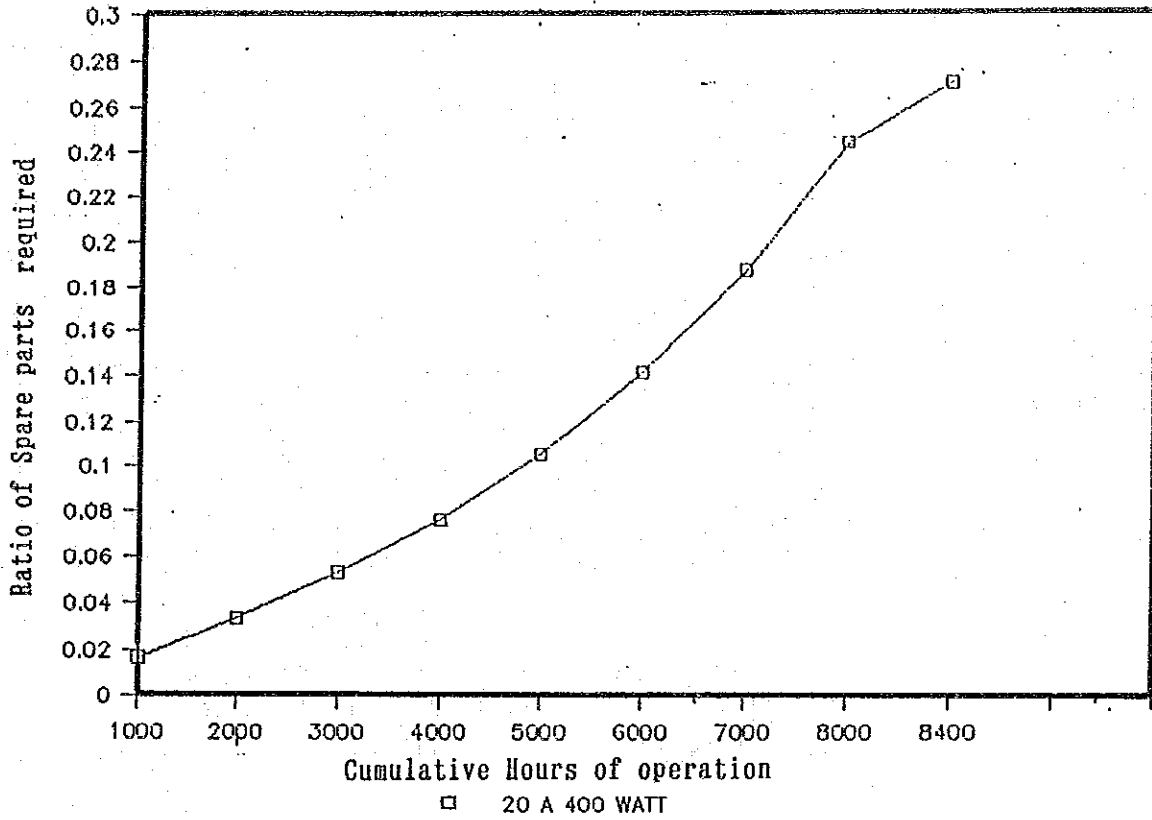


Hours:	1000	2000	3000	4000	5000	6000	7000
Model							
3.0 m3	0.0319	0.0700	0.1160	0.1739	0.2420	0.3244	0.4200
4.5 m3							

C-10

Generator

Spare parts cost for repair

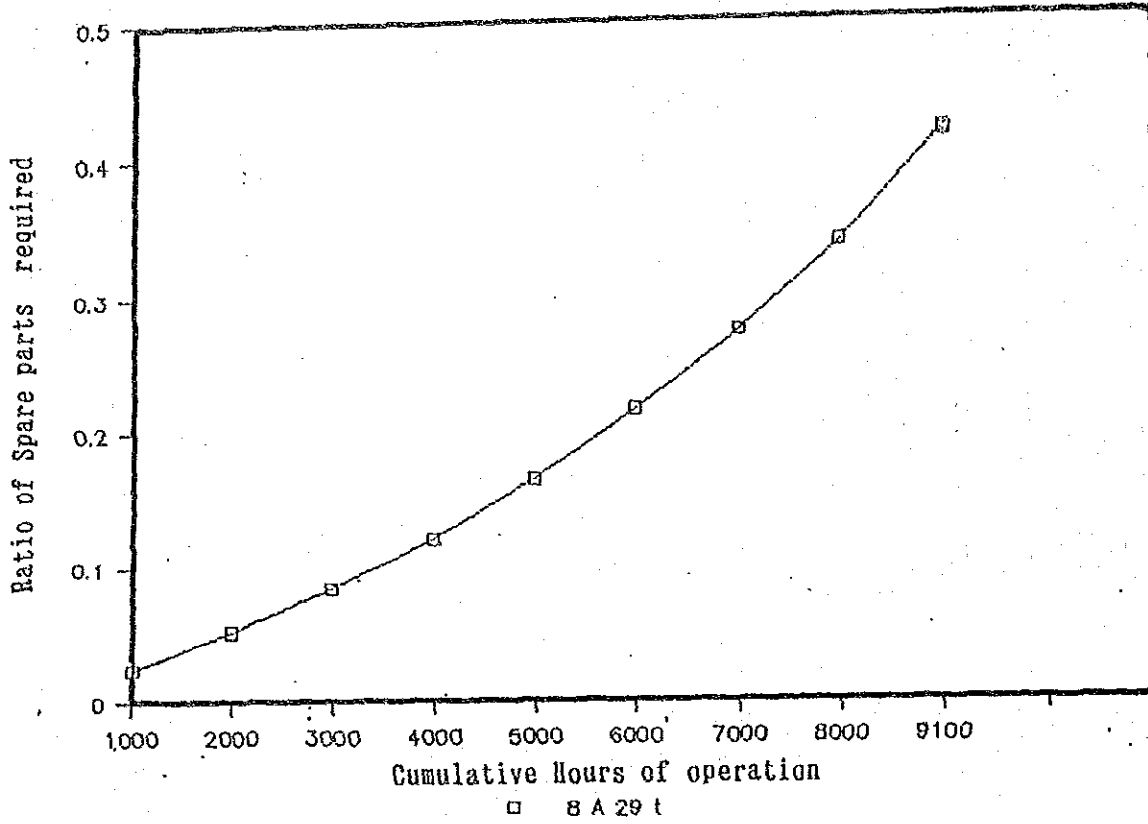


Hours Model	1000	2000	3000	4000	5000	6000	7000	8000	8400
20 Watt	0.0162	0.0335	0.0531	0.0766	0.1059	0.1421	0.1875	0.2440	0.2900
50 Watt									
75 Watt									
125 Watt									
175 Watt									
300 Watt									
400 Watt									

C-11

Tire Roller

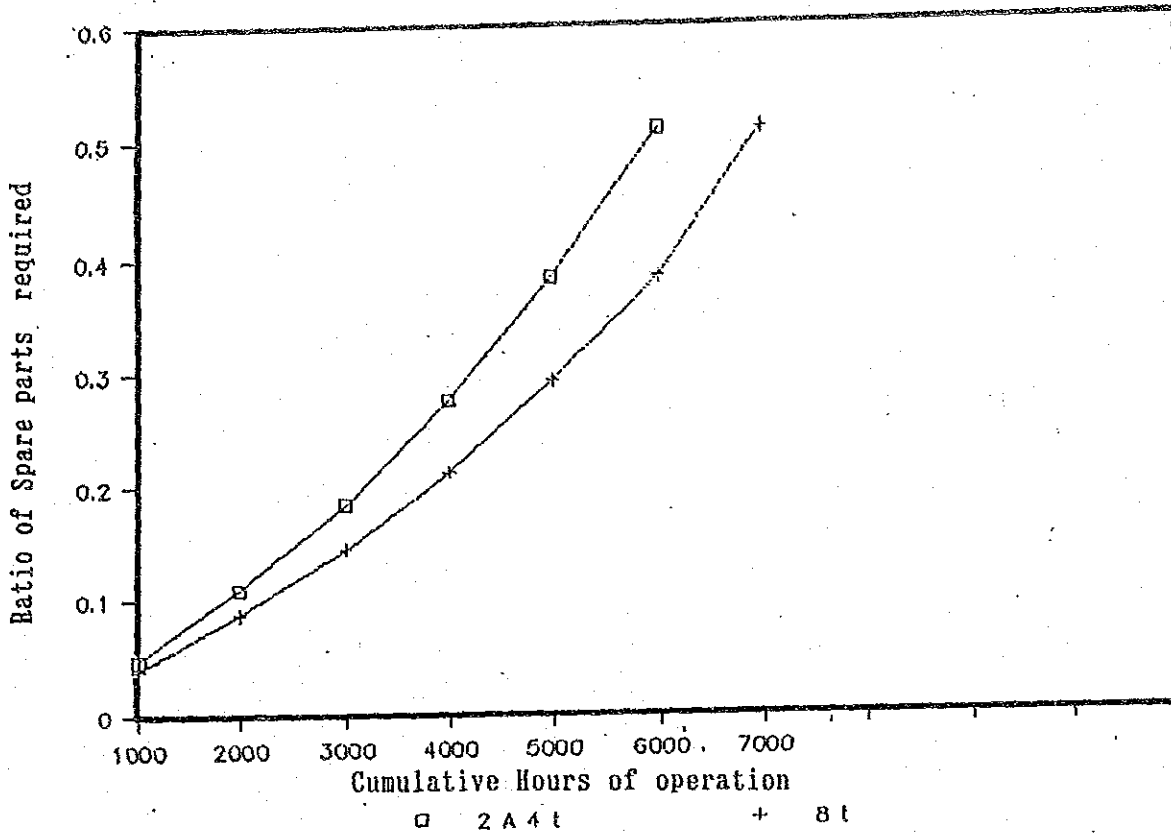
Spare parts cost for repair



Hours	1000	2000	3000	4000	5000	6000	7000	8000	9100
Model									
8-29 t	0.0241	0.0515	0.0834	0.1208	0.1645	0.215	0.2726	0.3382	0.4208

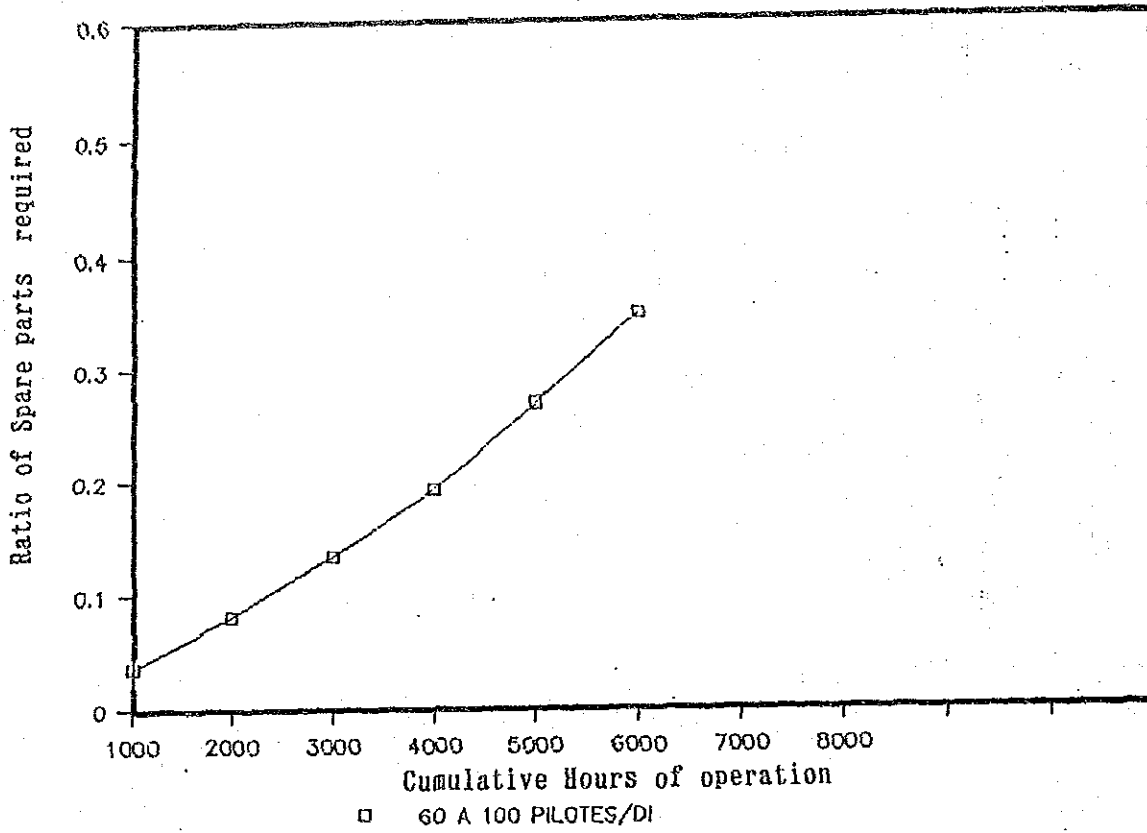
Vibration Roller

Spare parts cost for repair



Hours \ Model	1000	2000	3000	4000	5000	6000	7000
2.4 t	0.0477	0.1004	0.1839	0.2755	0.3839	0.5100	
8 t	0.0389	0.0865	0.1442	0.2126	0.2924	0.3839	0.5100

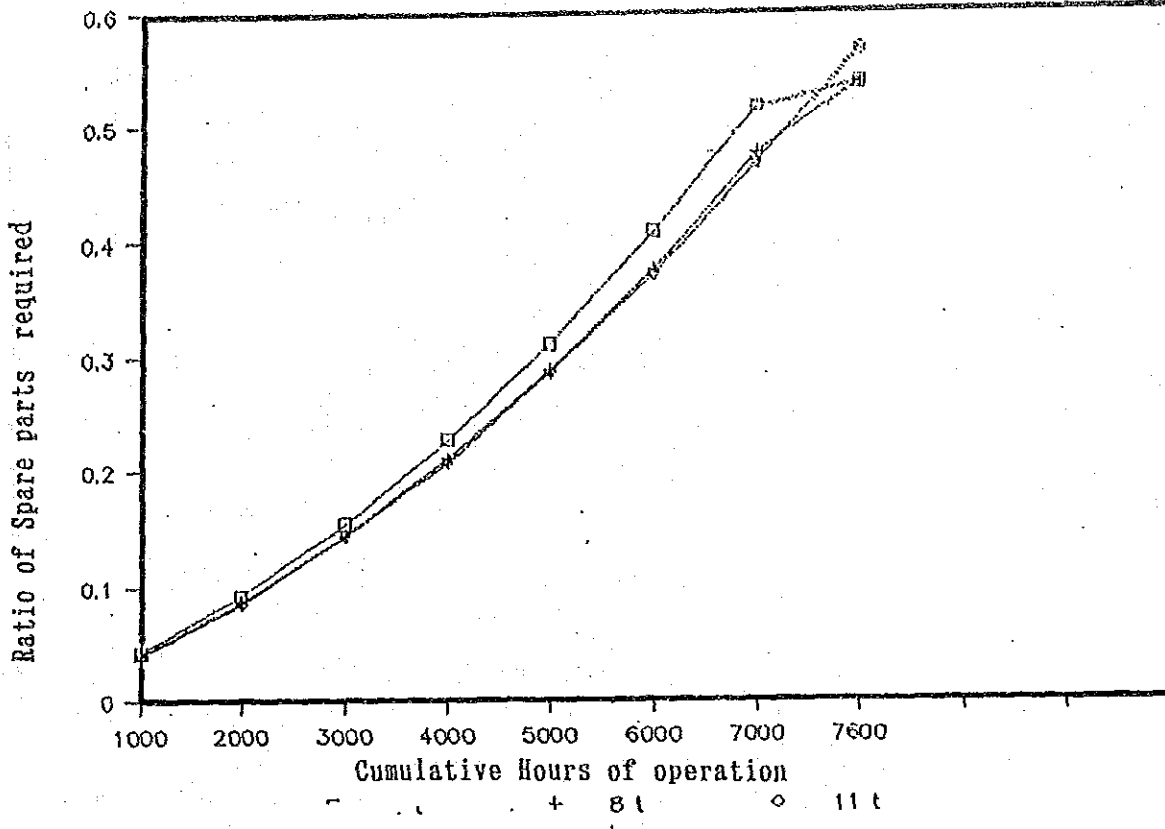
Diesel Hammer of Concrete Pile
 Spare parts cost for repair



Hours Model	1000	2000	3000	4000	5000	6000	7000	8000
60r-1000	0.0371	0.0820	0.1353	0.1934	0.2609	0.3496	0.4399	0.5400

Truck

Spare parts cost for repair

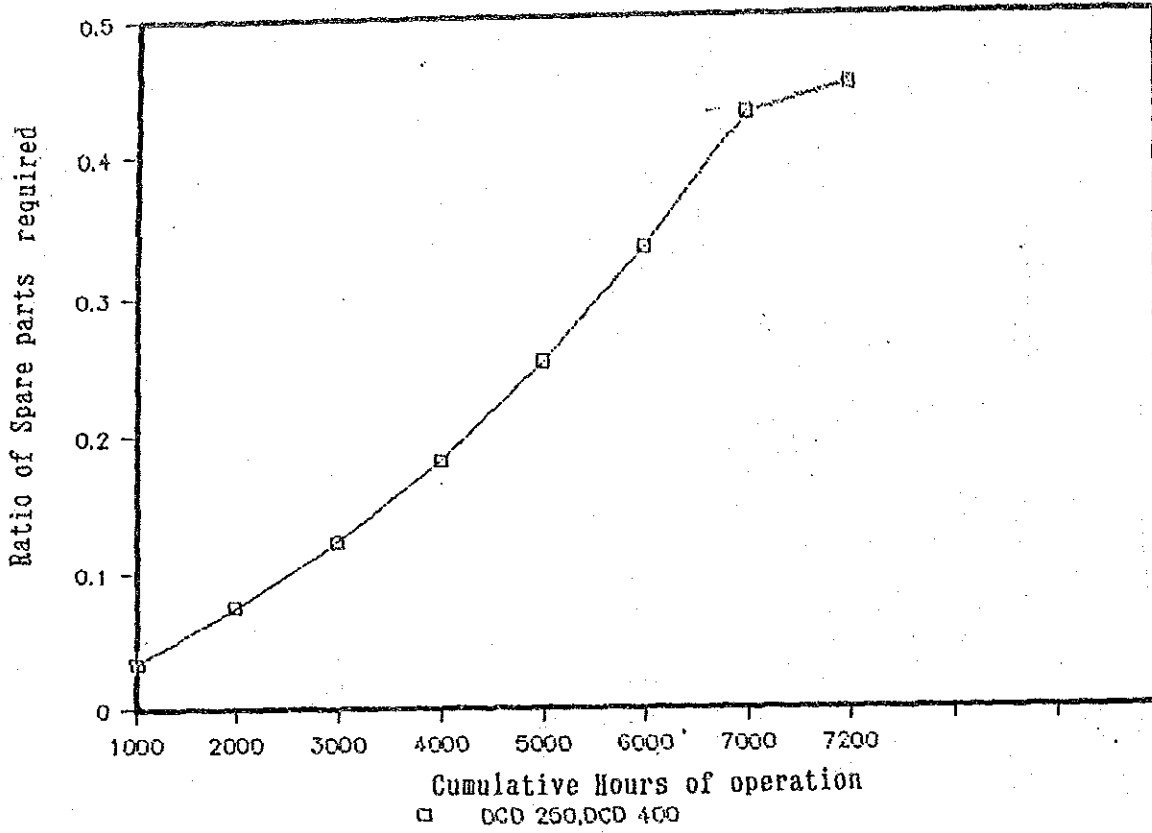


Hours \ Model	1000	2000	3000	4000	5000	6000	7000	7200	7600
6 t	0.0420	0.0930	0.1550	0.2280	0.3120	0.4090	0.5170	0.5400	
8 t	0.0396	0.0070	0.1446	0.2118	0.2892	0.3768	0.4752		0.5400
11 t	0.0396	0.0850	0.1452	0.2082	0.2860	0.3720	0.4662		0.5700

C-15

Electric Weldin Machine

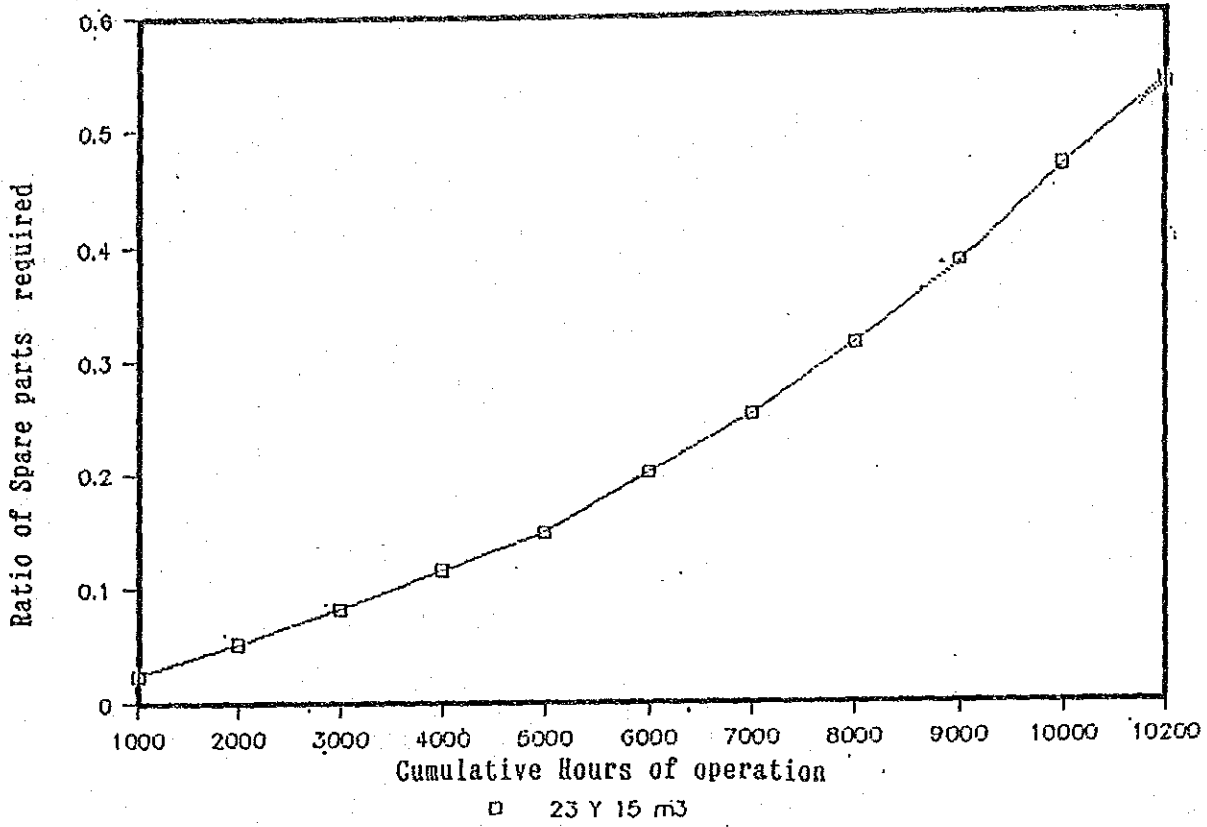
Spare parts cost for repair



Hours Model	1000	2000	3000	4000	5000	6000	7000	7200
DCD 250	0.0333	0.0736	0.1230	0.1824	0.2520	0.3342	0.4296	0.4500
DCD 400								

Motorscraper

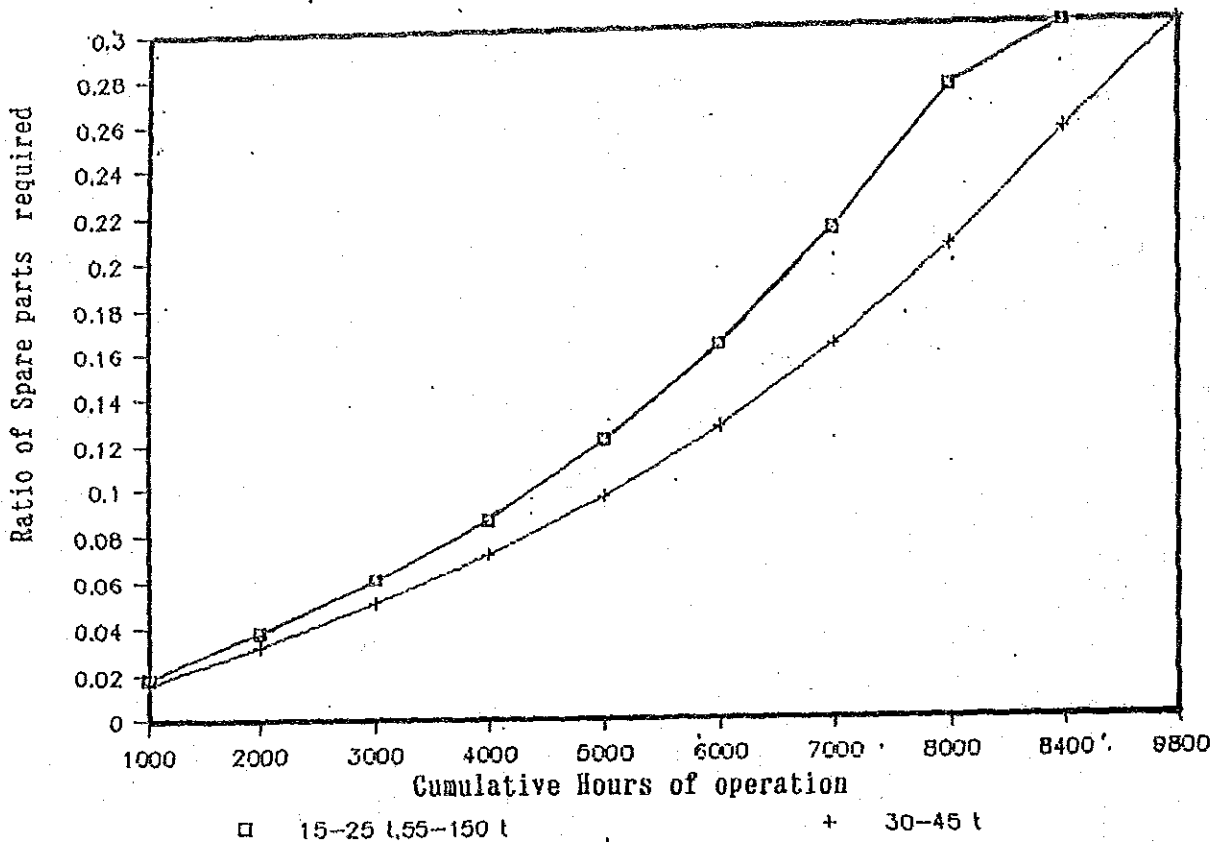
Spare parts cost for repair



Hours \ Model	1000	2000	3000	4000	5000	6000	7000	8000	9000	10200
23 m3	0.0250	0.0520	0.0820	0.1160	0.1490	0.2020	0.2530	0.3150	0.4670	0.5400
15 m3										

Truck Crane

Spare parts cost for repair



Hours Model	1000	2000	3000	4000	5000	6000	7000	8000	8400	9800
15-25 t	0.0181	0.0377	0.0604	0.0863	0.1209	0.1618	0.2118	0.2725	0.3000	
30-45 t	0.0155	0.0319	0.0502	0.0715	0.0965	0.1262	0.1610	0.2041	0.2532	0.3000
55-155 t	0.0181	0.0377	0.0604	0.0863	0.1209	0.1618	0.2118	0.2725	0.3000	

JICA