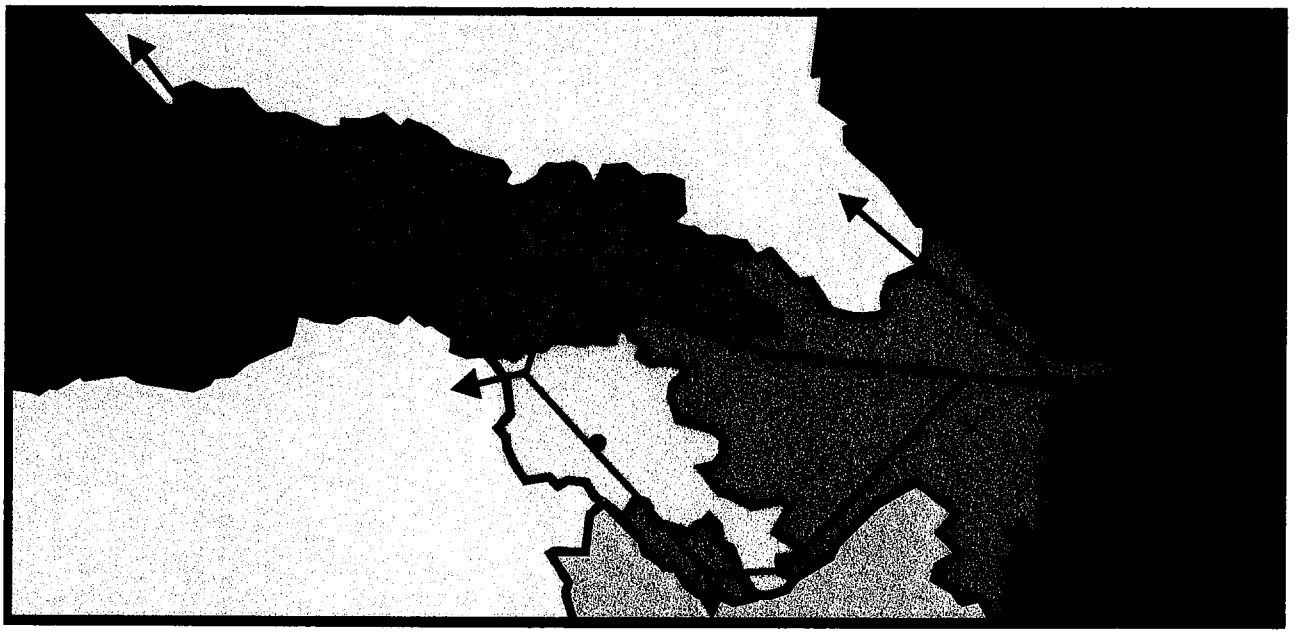
COMMISSION OF THE EUROPEAN UNION

Directorate General IA External Relations
DG IA/E/6 Tacis

Technical Assistance to the New Independent States and Mongolia
TRACECA
TNREG 939401

Joint Venture(s) for the Caucasian Railways



FINAL REPORT

Volume Ia - Annexes to Chapter 1

March 1998

TEWET
TRANSPORT EAST WEST EXPERT TEAM GMBH

in association with

DE-Consult

gtz

Contents

Abbreviation list:

AC	Alternating Current of electrical power
AGC	European Agreement on Main International Railway Lines
AGTC	European Agreement on Important International Combined Transport Lines and Related Installations
AGZD	Azerbaijan State Railways
AICCF	International Railway Congress Association
AIM	Agreements for the International Carriage of Goods
AIOC	Azerbaijan International Operating Company (Oil production)
AIV	Agreements for the International Carriage of Passengers and Luggage
ARM	Agreement for the Communication of Traffic Restrictions for the International Carriage of Goods by Rail
ARM	Armenian Railway
ATP	Agreement on the international carriage of perishable foodstuffs and on the special equipment to be used for such carriage
BIS	Baku International Seaport
BOLT	Build - Operate - Lease - Transfer
BOT	Build - Operate - Transfer
BUS	Transformer station of railway power supply
BWRS	Baku Wagon Repair Plant
CECA	European Community for coal and steel
CEH	European Timetable Conference for Passenger Trains
CEM	European Timetable Conference for Goods Trains
CEV	European Passenger Tariffs Conference
CFS	Container Freight Station
CIM	Contracts for International Carriage of Goods by Rail
CIS	Commonwealth of Independent States
CIT	International Rail Transport Committee
CIV	Contracts for International Carriage of Passengers by Rail
COTIF	Convention for the International Carriage by Rail
CSC	Caspian Shipping Company
DB AG	Deutsche Bahn AG (German Railways)
DC	Direct current of electrical power
DCU	Uniform Regulations for Rail Transport
DEG	Deutsche Investitions- und Entwicklungsgesellschaft mbH (German Society for Investment and Development Ltd.), Cologne, Germany
DEM	Deutsche Mark (= German currency)
DIN	German Regulations of Standardisation in the Industry
DM	Deutsche Mark (= German currency)
DMU	Diesel Motor Unit
Dpt.	Department
DR	type of inspections of locomotives, wagons, coaches and EMU/DMU
DSA	European Prestressed Concrete Sleepers (type of sleepers)
DSS	Decision Support System
EBRD	European Bank for Reconstruction and Development, London, UK

EC	European Community
ECE	Economic Commission of the UN for Europe
EDI	Electronic Data Interchange
EDIFACT	Electronic Data Interchange for Administration Commerce and Transport
EDP	Electronic Data Processing
EEC	European Economic Community
EMU	Electric Multiple Unit
ESCAP	Economic and Social Commission for Asia and the Pacific
EUROP	Agreement for the Common use of Wagons
FADA	Traffic controller installations
FESA	Permanent line-side radio installations
FSU	Former Soviet Union
FTOS	Freight Transport Operation System
FZ	Financial co-operation programme (in Germany)
GDP	Gross Domestic Product
GDR	former German Democratic Republic
GOST	State Organisation of Standardisation of the former Soviet Union
GRID®	American management training system
GRZD	Georgian Railways
HERMES	German State Guarantees for Suppliers
HQ	Headquarters
HV	High Voltage
ICC	Information and Computer Centre
ICE	Inter-City-Express(-Train)
IMF	International Monetary Found
IRR	Internal Rates of Return (of investments)
ISO	International Organisation of Standardisation
JV	Joint Venture
KfW	Kreditanstalt für Wiederaufbau (= German Bank for Reconstruction), Frankfurt/Main, Germany
KR	type of repairs of locomotives, wagons, coaches and EMU/DMU
LIF	General List of Frontier Points for Rail Transport
LOI	Letter of Interest
LOU	Letter of Understanding
LV	Low Voltage
MBC	Motorised coaches
MESA	Mobile railway radio installations
MIS	Management Information System
MPS	Ministry of Railway Transport of the former Soviet Union
MTT	Uniform Transit Tariff of the OSShD
MV	Medium Voltage
nm	nautical miles
OCC	Operations Control Centre (of the railways)
OCS	Overheadline catenary system of power supply
OCTI	Central Office for International Carriage by Rail (in Bern, Switzerland)
OR	type of overhauls of wagons, coaches and EMU
OSShD	Organisation for the Co-operation of Railways
PC	Personal Computer

PCM	Personal Computer assisted Management
PFCCS	Processing and Freight Cost Calculation System
PIEx	Common Regulations for the International Carriage of Express Parcels
PIM	Common Regulations for the International Carriage of Goods
PIV	Common Regulations for the International Carriage of Passengers and Luggage
Pkm	Passenger-kilometre
POD	Port of Discharge
POL	Port of Loading
PPW	Regulation for the Use of Wagons in International Rail Transport
resp.	respective
RIC	Regulations for the International Carriage of Containers by Rail
RIC	Regulations for the Reciprocal use of railway carriages and luggage vans for International Transport
RID	Regulations for the International Carriage of Dangerous Goods by Rail
RIEx	Regulations for the International Carriage of Express Parcels by Rail
RIP	Regulations for the International Carriage of Private Wagons by Rail
RIV	Regulations for the Reciprocal use of Wagons for International Transport
RoRo	Roll-on-Roll-off
RSM	General Summary of Special Regulations for the International Goods Traffic
SBB	Swiss Federal Railway
SCADA	Supervisory, Control and Data Acquisition System
SMGS	Conventions to International Railway Transport of Goods
SMPS	Conventions to International Railway Transport of Passengers
SNCB	Belgian Rail
SNCF	French National Railway Society
SZD	former Soviet Railways
TCLE	Trans-Caucasian-Logistic-Express
TECF	Tbilisi Electro-Locomotive Construction Factory
TEU	Twenty feet container Equivalent Unit
TEWRS	Tbilisi Electro-Wagon Repair Plant
TEWS	Tbilisi Electro-Wagon Repair Plant
TIEx	Agreements for the International Carriage of Express Parcels
Tkm	Ton-kilometre
TO	type of overhauls of locomotives, wagons, coaches and EMU/DMU
TQM	Total Quality Management
TR	type of repairs of locomotives, wagons, coaches and EMU/DMU
UIC	International Union of Railways
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UTI	International Transportation Units
VAT	Value Added Tax
ZÜV	System for the supervision of train running

Annexes

to Chapter 1

Annex 1.1-1

Annual planning for track rehabilitation of ARM in 1996

No.	Designation of work	Unit	Total in 1996	Districts of Armenian Railway				
				Vanadzor	Gyumri	Yerevan	Sevan	Ijevan
1	track renewal	km	12 *(2.45)*[1]	4 *(0.75)*	4 *(0)*	4 *(1.7)*	0	0
2	Periodical maintenance	km	24 *(11.1)*	7 *(4.3)*	6	6 *(0.8)*	5 *(0)*	0
3	Tamping and straigthening	km	32 *(31.06)*	12 *(3.7)*	10	12 *(14.85)*	6 *(2.5)*	0
4	rail renewal	km	7 *(7.325)*	3 *(5.3)*	2	1 *(0.025)*	1 *(0)*	0
5	changing of switch parts	piece	31 *(22.0)*	12 *(11.0)*	7 *(8.0)*	8 *(3.0)*	4 *(0.0)*	0
6	maintenance of switches	piece	20 *(8.0)*	5 *(4.0)*	5 *(2.0)*	6 *(2.0)*	4 *(0.0)*	0
7	changing of timber sleepers in small curves	1,000 piece	30 *(4.103)*	9 *(1.579)*	8 *(0.640)*	8 *(1.25)*	5 *(0.634)*	0
8	changing of concrete sleepers	1,000 piece	10 *(11.7)*	2 *(2.23)*	2 *(3.10)*	3 *(5.22)*	3 *(1.15)*	0
9	clearance of river beds, clearance of track lines and rehabilitation of underground and subsoil	1,000 Dram	0	0	0	0	0	0
10	major repairs on bridges and tunnels	1,000 Dram	0	0	0	0	0	0

[1] planned (realised)

Annex 1.1-2

Inventory of track laying engines of the permanent way workshop Masis (ARM)

No.	Designation and type	Year of construc-tion	Manufactorer	Main parts	piece	Needs for maintenance	piece
1	UK - 25 - 9/18 NR 479	1989	Tractor factory	1 power equipment			
	track layer crane		Kaluga	Diesel engine 1u D6		general	
				S5	2	revision	1
				CD generator P-111P	2	as above	1
				2 hydraulic equipment.			
				-hydraulic pump			
				N-401 U	2	as above	2
				3 lifting equipment			
				-lifting car	2	to be renewed	1
				-lifting rolls	12	to be renewed	6
				4 electric equipment		small revision	
2	UK - 25 - 9/18 NR 478	1989	Tractor factory	5 power equipment			
			Kaluga	Diesel engine 1U D6 S5	2	general revision	2
				6 electric equipment		small revision	
3	UK - 25/9	1957	Tractor factory Kaluga	all equipment damaged		to replace by a new one	
4	jib - crane, KZDE-16	1989	Tractor factory Kujbyshev	Power equipment-Diesel engine D-661		1 small revision	1
				AC generator		1 permanent repair	
5	jib - crane KDE - 161	1969	Kujbyshev	all equipment damaged		to be renewed	
6	crane portal NR 618	1973	Tula	power equipment		to be renewed	
				trafo 380 V			
				electric equipment		to be renewed	
7	portal crane NR 437	1985	Tula	power equipment		all equipment to be	1
				trafo 380 v		replaced by new	
				lifting equipment		ones	1
				electric equipment			1

Annex 1.1-2

Inventory of track laying engines of the permanent way workshop Masis (ARM)

No.	Designation and type	Year of construc-tion	Manufactorer	Main parts	piece	Needs for maintenance	piece
8	portal crane NR 229	1983	Tula	lifting equipment total		to renew	1
				electric equipment		to renew	1
9	loading ramp with driving						
	engine MPD NR 59	1957	Kirov	equipment total out of order		complete renewal	
10	loading - ramp with	1957	Kirov	equipment total out of		complete renewal	
	driving engine MPD NR 59			order			
11	Butt Welder engin PRSM-3	1974	Kaluga				
12	Track aligning tamping			equipment total out of		to be replaced by a	
	engine WPO 3000	1970	Tula	order		new one	
13	as above	no info.	Tula	electrical equipment		to be replaced	
				out of order			
14	Material transport car AGMU	1971	Tikhorezk			to be replaced	
15	Alignment engine PRB						
	Bogoshenko	no info.	No. info.	Electrical equipment		to be replaced	
16	Bulldozer 170	no info.	No info.	Driver engine		to be replaced	
17	Tractor DT-75	1987	Wolgograd	hydraulic system		to be renewed	
18	Tractor DT-75	1979	Wolgograd	complete out of order		to be renewed	
19	self driver generators AB-y	1983-1987	no info.	complete out of order		to be replaced	
20	gas driven car GAS-52	1986	Simferopol	complete out of order		to be replaced	
21	as above GAS-52-04	1988	Simferopol	complete out of order		to be replaced	
22	road truck KRAS-256-B1-	1991	no info.	tyres		to be renewed	10
23	Forklift GAS-52	no info.	no info.	complete out of order		to be renewed	
24	Bus PAS-672	1985	Pavlovo	driver-motor		to be replaced	1
25	BusKAWS-3270	1988	Kurganskij	motor		to be replaced	1
26	motor roller	1987	Ryabitkovo	motor		to be replaced	1
27	universal lathe					to be ordered	
28	milling machine					to be ordered	
29	spot welding machine					to be ordered	

Annex 1.2-1

Versions of transmission paths for telecommunication installations

Proceeding from the special features of the individual countries, general data for the project is furnished in this chapter. The requirements made on the channels have to be met by a modern and efficient cable installation. Due to this necessity, it is envisaged to use optical wave-guide cables along the lines. In doing so, it is planned to lay two cables along the line, in order to ensure the full availability of the cable equipment. An optical wave-guide cable containing 12 fibres (cable A) and a second cable containing 6 fibres (cable B) will be laid. The future demand for channels is already taken into account in this cable dimension. Cable A will be connected to each station and cable B only to junctions. If a cable is damaged, the continued transmission is ensured via the ring.

Due to the fact that necessary recommendations relating to laying optical wave-guide cables are not effective in the countries under consideration, the recommendations effective for the Deutsche Bahn AG are applied:

- planning, construction, maintenance and acceptance of aerial optical wave-guide cables on overhead line poles (ST 002/93)
- acceptance of optical wave-guide cable installations (ST 004/93)
- planning and construction of optical wave-guide cable installations (ST 026/93)

Optical fibre cables on overhead line poles

The supply of aerial optical wave-guide cables will have a decisive influence on the laying method applied for the cable. Aerial optical wave-guide cables of the A-D2Y(ZN)2Y or A-DS2Y(ZN)2Y types will be used. They do not require costly earth and civil engineering work for laying. It is possible to use the existing infrastructure, i.e. the existing catenary supports, along the railway line. A proven suspension and laying method will be applied:

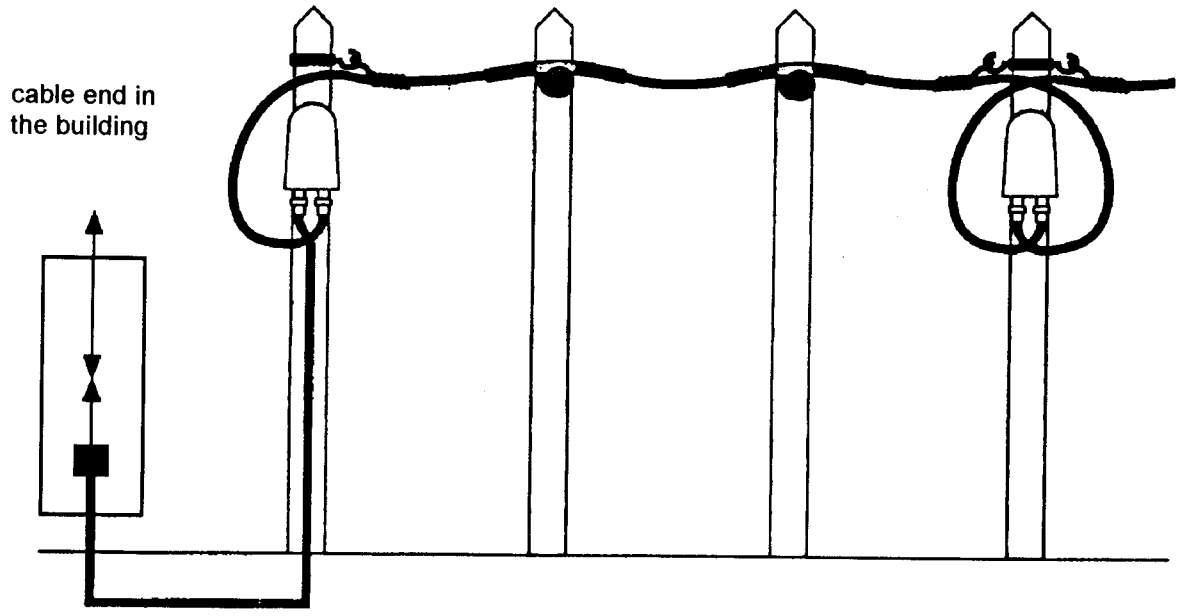
- guy spirals at the end points,
- supporting rollers on the individual supports.

This is a laying technique which does not only save time and thus costs during assembly but which also provides advantages for safety. Thanks to the automatic sag balancing, full operability of the cable installation is maintained also in the case of high loading:

- potential wind load, resulting also from driving,
- potential ice and snow load,
- potential danger by falling trees.

This type of laying is explained in greater detail in the following:
The cable is laid on supporting rollers on the catenary support at a height of 6.0 - 6.5 m above the upper level of the rails. Thus, any load which may arise will be distributed along the whole length of the cable. The rollers are mounted on metal brackets, to ensure the required safe distance to the catenary. As a rule, the cable end is fixed to the pole through guy spirals. Thus, tension loads may be carefully transferred to the cable jacket. The joint boxes are fixed on the pole. The fibres are thermally spliced, with attenuation totalling less than 0.1 dB. Altogether, cables may be used up to lengths of 4,000 m. The number of guy poles may be kept accordingly small. The distance between the supporting poles may total up to 100 m.

Fig. 1: Schematic view of fixing the optical wave-guide cable to the poles



In the case of a double-track line, the two cables may be fixed to the catenary supports right and left of the line. In the case of a single-track line one cable is fixed to the poles of the catenary installation. The second cable is fixed to separate poles or laid underground. Details relating to the individual line sections should be included in work projects to be prepared.

When planning aerial optical wave-guide cable installations on overhead line poles, the following basic requirements will have to be taken into account:

- The telecommunication department is responsible for planning, laying, supervising the laying, accepting and maintaining optical wave-guide cable installations on overhead line poles.

- Before planning aerial optical wave-guide cable installations on overhead line poles of electrified lines, the electrical engineering department has to approve.

- Even under unfavourable conditions, the optical wave-guide cable must not remain under the contact system gauge nor below the minimum distances to the overhead line installation.

Optical fibre cable buried or laid in a trough

The following general principles apply to laying optical wave-guide cables (railway telecommunication) according to the recommendations already mentioned:

Tab. 1: Type of cable laying

no.	type of laying	additional protective covering of cables	cable type: optical wave-guide
1	underground laying	protecting tube HDPE DN 40	A-DF(ZN)2Y gopher-protected cable on shorter sections
2	trough laying	gopher-protected cable	A-DF(ZN)2YB2Y or A-DF(ZN)2Y(SR)2Y HDPE tube only up to 50 m or as special variant
3	pipe duct laying	as a rule, without	A-DF(ZN)2Y gopher-protected cable permissible

According to the recommendations relating to planning and laying optical wave-guide cable installations (ST 026/93), the use of cable troughs for laying of optical wave-guide cables in a HDPE tube is limited to 50 m (differing heat expansion behaviour). When laying the optical wave-guide cable underground, a protecting tube is to be used over the whole length of laying at a depth of 0.8 m.

Transmission system

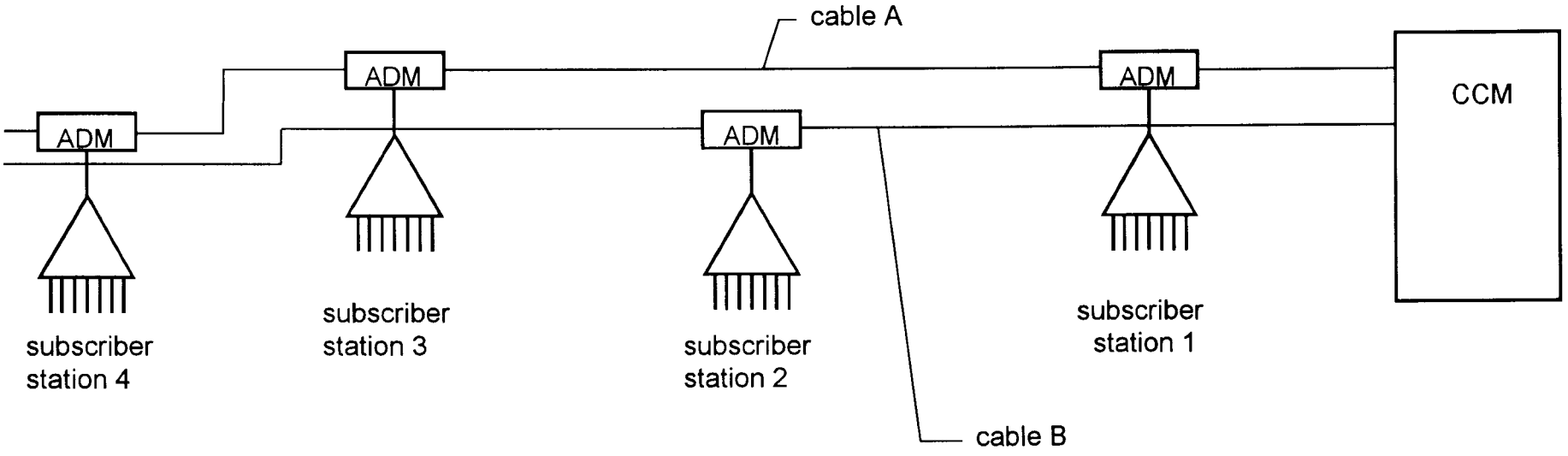
Line terminal equipment is used for decoupling signals in the individual stations for optical wave-guide cables and PCM equipment. The connection thus established allows the transmission on 30 channels without delay. Only one cable is laid in the first stages, as a rule. The final capacity will be reached only in the later stages, i.e. a second cable will be laid to form a ring structure.

In line with the conclusions drawn from the first project - to provide an STM-1 ring with SDH - the basis for establishing a forward-pointing channel is established by laying an optical wave-guide cable. The main advantages of SDH technology may be summed up as follows:

- automatic traffic control and high flexibility of the network,
- fast provision of new services,
- quality assurance by central management,
- increase of the working ranges and reliability of the systems by using optical wave-guides,
- safety of the network due to ring structures,
- reduction in cost due to simplified network structures and low operating cost.

By setting up an STM-1 ring with SDH, 1,920 channels are made available for the transmission lines. Thus, the possibility will be provided to lease channels. In view of the network of the railway covering the entire area, it will be possible to connect large parts of the country to the telephone network. Thus, it will be possible to connect smaller places, which cannot be reached by telephone yet or only with great difficulties, by leasing telephone subscriber connections.

Fig. 2: Survey systems of telecommunication installations



ADM - Add/Drop-Multiplexer
CCM - Cross Connect Multiplexer

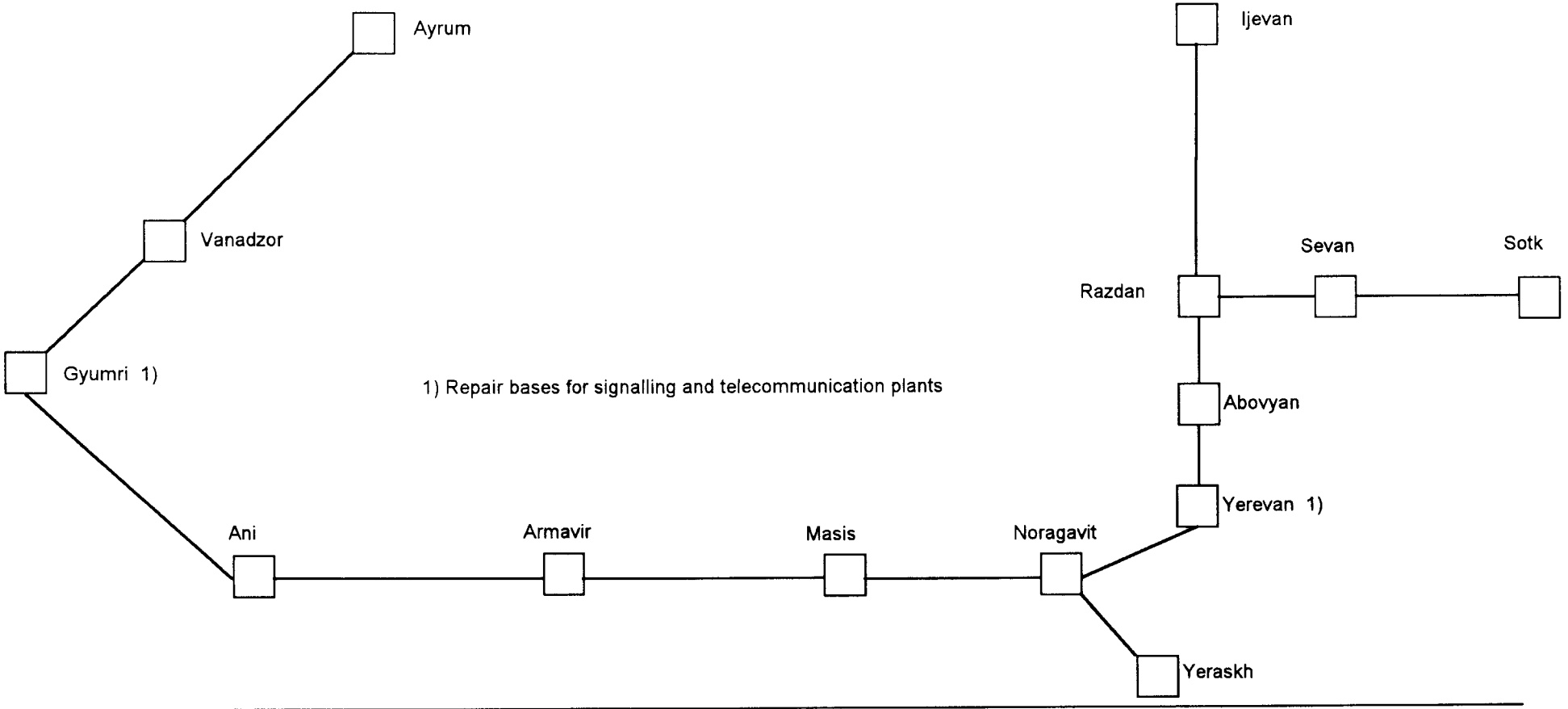
The information to be transmitted for the individual railways was investigated and a uniformity of the connections was established. The demand for connections is analysed in Table 2.

Tab. 2: Survey of the connections required between the stations

connection	abbr.	task
train dispatcher	TD	connection between the train inspector and the train dispatcher
energy dispatcher	ED	taking over the operative control of electrical supply facilities on electrified lines
connection in stations	G	service calls in a station
manual exchange M - 60	M	connection of telephone lines with local subscribers
telegraph connection	T	connection for telegraph service
connection to the substations	P	control of electrical supply facilities for the catenary installations
connection with the stations	SS	connection with the officials on duty at the neighbouring stations (train announcing line)
conference system	C	line for switching a conference system for participants of various departments
water distribution dispatcher	AD	organisation of water distribution in the depots
connection of the superstructure workers	PD	operative service of superstructure workers
connection for mechanics S	GM	operative service of mechanics of the signalling system
information connection	I	established between junctions for data exchange
locomotive dispatcher	LD	regulating the use of locomotives and organising the locomotive depots.
connection for radio service on trains	DR	permanent connection between the staff of locomotives and train dispatchers
central train dispatcher Baku	DD	
wagon distribution connection	WD	connection for the distribution of wagons
ticket dispatcher	BD	required for seat reservation
connection for security guards	PoD	separate circuit for security guards (police)
connection for ATS	S	connection to the automatic exchanges
trunk line telephone connection	ATS	
video connection	TV	

Annex 1.2-2

Location of repair bases for signalling and telecommunication plants in the line system of ARM



Annex 1.2-3

Survey of the state of the switch mechanism of ARM

no.	station	km	type	points	year of constr.	state
1	Ayrum	2582	EZ	11	1975	good
2	Akhtala	2593	EZ	9	1975	good
3	Hakhbat	2601	EZ	3	1975	satisfactory
4	Alaverdi	2606	EZ	23	1969	bad
5	Sanain	2613	EZ	19	1974	good
6	Kober	2620	EZ	10	1975	good
7	Tumanyan	2629	EZ	11	1975	good
8	Shagali	2631	EZ	9	1975	good
9	Pambak	2645	EZ	9	1975	good
10	Vanadzor	2653	EZ	62	1974	good
11	Archut	2662	EZ	4	1976	bad
12	Spitak	2673	EZ	15	1976	bad
13	Nalband	2683	EZ	6	1976	bad
14	Kaltakhtshi	2693	EZ	7	1976	bad
15	Dshadshur	2702	EZ	11	1975	bad
16	Maisyan	2712	EZ	5	1976	satisfactory
17	Gyumri	2723	EZ	67	1971	satisfactory
18	Bayandur	2735	EZ	7	1976	bad
19	Agin	2747	EZ	14	1981	good
20	Bagravan	1976	EZ	2	1976	good
21	Ani	2767	EZ	14	1975	good
22	Getap	2776	EZ	2	1976	good
23	Aragatz	2785	EZ	16	1977	good
24	Arteni	2795	EZ	2	1976	good
25	Karakert	2803	EZ	14	1977	bad
26	Dalarik	2810	EZ	17	1977	bad
27	Araks	2818	EZ	11	1977	good
28	Arteni	4	EZ	32	1989	bad
29	Artik	25	EZ	20	1978	bad
30	Pemsashen	32	EZ	7	1980	bad
31	Maralik	38	EZ	9	1980	bad
32	Akhurian	12	EZ	6	-	bad
33	Araks	543	EZ	13	1978	not satisfactory
34	Ararat	550	EZ	38	1978	not satisfactory
35	Aigavan	565	EZ	9	1978	not satisfactory
36	Artashat	577	EZ	17	1978	not satisfactory

Annex 1.2-3

Survey of the state of the switch mechanism of ARM

no.	station	km	type	points	year of constr.	state
37	Mkhchyan	587	EZ	9	1978	not satisfactory
38	Masis	2663	EZ	86	1976	satisfactory
39	Kamir Blur		EZ	25	1979	satisfactory
40	Etshmiadzin	2851	EZ	20	1977	satisfactory
41	Sovetakan	2840	EZ	18	1977	satisfactory
42	October	2829	EZ	24	1977	satisfactory
43	AAEC	-	EZ	10	1979	not satisfactory
44	Metsamor	-	EZ	6	1989	not satisfactory
45	Yerevan	2877	EZ	108	1967	satisfactory
46	Noragavit	2871	EZ	17	1981	satisfactory
47	Arabkir	8	EZ	9	1975	not satisfactory
48	Kanaker	17	EZ	12	1975	satisfactory
49	Abovian	25	EZ	24	1974	satisfactory
50	block position 51	51	EZ	6	1981	satisfactory
51	Nurnus	34	EZ	6	1971	satisfactory
52	Charentsavan	43	EZ	19	1971	satisfactory
53	Solak	50	EZ	4	1978	satisfactory
54	Pardahavan	60	EZ	21	1978	satisfactory
55	Zakhkunk	76	EZ	20	1978	not satisfactory
56	Sevan	84	EZ	19	1977	not satisfactory
57	Zovagyukh	93	EZ	12	1977	not satisfactory
58	Porsh	129	EZ	13	1977	not satisfactory
59	Vardenis	186	EZ	12	1977	not satisfactory
60	Sod	205	EZ	17	1977	not satisfactory
61	station 9 km	805	EZ	9	1981	not satisfactory
62	Spandaryan	14	EZ	7	1981	not satisfactory
63	Proshyan	23	EZ	6	1981	not satisfactory
64	Egvard	31	EZ	13	1981	not satisfactory
65	Nor-Atsin	38,9	EZ	12	1981	not satisfactory
66	Kakavadzor	120	EZ	41	1986	not satisfactory
67	Megradzor	111	EZ	12	1986	not satisfactory
68	Fioletovo	96	EZ	10	1986	not satisfactory
69	Dilishan	80	EZ	15	1986	not satisfactory
70	Kuibishevo	70	EZ	7	1986	not satisfactory
71	Goshavan	60	EZ	4	1986	not satisfactory
72	Ijevan	43	EZ	40	1986	not satisfactory

Annex 1.2-4

List of level crossings of ARM

no.	km	line section	remarks
1	2585 + 800	Ayrum - Akhtala	b
2	2594 + 400	- " -	b
3	2613 + 400	Alaverdi - Sanain	b
4	2639 + 300	Shagali - Pambak	b
5	2647 + 200	Pambak - Vanadzor	b
6	2664 + 300	Arshut Spitak	u
7	2673 + 600	- " -	b
8	2676 + 200	Spitak - Nalband	b
9	2693 + 500	Nalband - Kaltakhchi	u
10	2700 + 800	Kaltakhtshi - Dshadshur	b
11	2705 + 100	Dshadshur - Maisyan	b
12	2711 + 600	- " -	b
13	2715 +800	Maisyan - Gyumri	u
14	2721 + 300	- " -	b
15	2722 + 300	- " -	u
16	2730 + 900	Gyumri - Bayandur	u
17	2732 + 800	- " -	u
18	2754 + 400	Bayandur - Agin	u
19	2745 + 800	- " -	u
20	2759 + 900	Agin - Bagravan	u
21	2767 + 10	Bagravan - Agin	u
22	2771 + 10	Ani - Getap	u
23	2779 + 600	Getap - Aragaz	u
24	2783 + 10	- " -	u
25	2788 + 200	Aragaz - Arteni	u
26	2810 + 800	Karakert - Dalarik	u
27	2818 + 700	Dalarik - Araks	b
		branching to Artik	
1	7 + 600	Gyumri - Artik	u
2	12 + 500	- " -	u
3	19 + 900	- " -	u
4	22 + 500	- " -	u
5	25 + 300	- " -	b
6	32 + 400	Artik - Pemsashen	u
		branching to Akhurian	
1	8 + 300	Gyumrie - Akhurian	u
2	9 + 500	- " -	u
3	11 + 600	Akhurian - state border	u
		permanent way and structures district Yerevan	
1	2840 + 900	Sovetakan - Echmiatsin	u
2	2854 + 100	Etshmiadzin- Masis	u
3	2860 + 600	- " -	u
4	2866 + 100	Masis - Yerevan	b
5	2871 + 100	- " -	u
6	2 + 200	Noragavit - Yerevan Sortir.	b
7	2 + 800	- " -	b
8	542 + 400	Velitsakh - Yeraskh	u
9	545 + 10	Yeraskh - Ararat	u
10	550 + 800	- " -	u
11	560 + 400	Ararat - Aygevan	b
12	561 + 700	- " -	u
13	567 + 100	Aygevan - Artashat	u
14	571 + 200	- " -	u
15	575 + 400	- " -	u
16	579 + 800	Artashat - Mkhchan	u

Annex 1.2-4

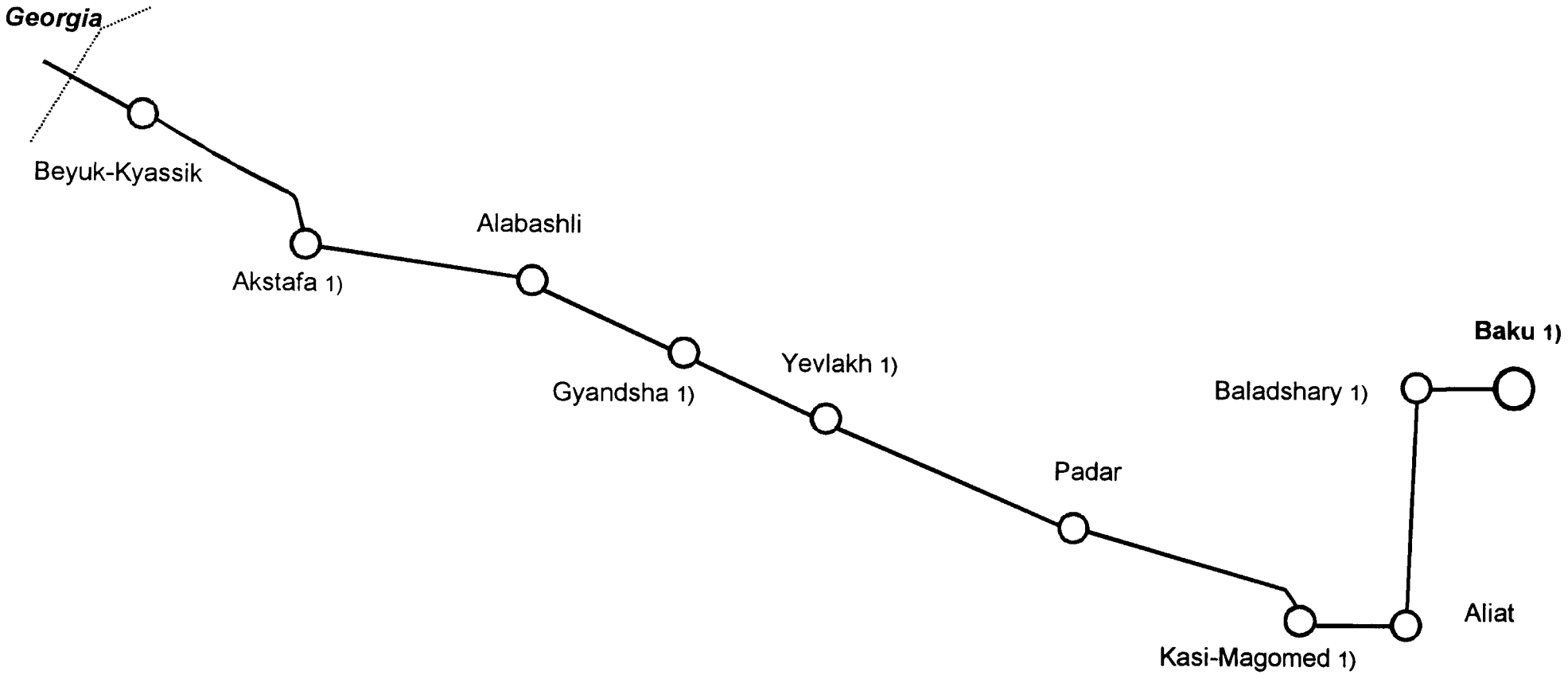
List of level crossings of ARM

no.	km	line section	remarks
17	581 + 100	-'-	u
18	585 + 700	-'-	b
19	593 + 300	Mkhchyan - Masis	u
20	13 + 200	Arabkir - Kanaker	u
21	3 + 0	Arvir - AAKW	u
22	9 + 100	-'-	u
23	13 + 100	-'-	u
25	25 + 800	Abovian - position 51 km	b
26	40 + 400	Nurnus - Charentsavan	u
27	48 + 400	Charentsavan - Solak	u
28	52 + 300	Solak - Razdan	u
29	55 + 10	-'-	u
30	56 + 500	-'-	u
31	59 + 300	-'-	u
32	60 + 300	-'-	b
33	71 + 500	Raszan - Zakhkunk	u
34	73 900	-'-	u
35	85 + 200	Sevan - Zovagyukh	u
36	87 + 200	-'-	u
37	138 + 800	Shorska - Vardenis	u
38	145 + 700	-'-	u
39	152 + 200	-'-	u
40	158 + 700	-'-	u
41	171 + 500	-'-	u
42	174 + 300	-'-	u
43	177 + 600	-'-	u
44	187 + 100	Vardenis - Sod	u
45	189 + 100	-'-	u
46	192 + 100	-'-	u
47	197 + 10	-'-	u
48	20 + 1	-'-	u

b = secured by electrical gate installations and manned
u = secured by light signals, not manned

Annex 1.2-5

Line section Baku - Beyuk-Kyassik of AGZD



1) Location of maintenance facilities for signalling and telecommunication equipment

Annex 1.2-6

Stations of AGZD section Baku - Beyuk-Kyassik

N°	station	km	interlocking system	number of switches	year of installation	condition
1	Baku - storage sidings	2661	BMRZ	51	1987	sufficient
2	Baku - goods station	2659	BMRZ	65	1963	sufficient
3	Kishli - main station	2654	BMRZ	66	1963	sufficient
4	Kishli - station part „A"	2654	BSZ	24	1976	sufficient
5	Baladshary	2646	BMRZ	193	1994	sufficient
6	Baladshary - hump yard	530	BMRZ	36	1993	sufficient
7	Eybat	518	SZ	15	1965	sufficient
8	Puta	510	SZ	12	1965	sufficient
9	Karadag	498	BMRZ	24	1963	sufficient
10	Sangatshali	484	SZ	20	1965	sufficient
11	Duvanni	475	SZ	20	1965	sufficient
12	Aliat - main station	461	BMRZ	65	1975	sufficient
13	Atbulak	447	SZ	14	1975	sufficient
14	Navagi	436	SZ	16	1965	sufficient
15	Pirsagat	427	SZ	15	1965	sufficient
16	Kasi-Magomed	417	MRZ	69	1961	poor
17	Mugan	405	SZ	12	1967	poor
18	Gadshievo	391	SZ	11	1967	poor

Annex 1.2-6

Stations of AGZD section Baku - Beyuk-Kyassik

N°	station	km	interlocking system	number of switches	year of installation	condition
19	Padar	379	SZ	24	1978	good
20	Sagiri	366	SZ	12	1967	good
21	Kerar	352	SZ	13	1964	good
22	Kyrdamir	342	MRZ	30	1968	poor (switches operated by hand)
23	Karabudshak	331	SZ	12	1967	good
24	Mysysli	321	SZ	15	1969	good
25	Bargusheti	308	SZ	15	1971	sufficient
26	Udshary	295	MRZ	44	1971	good
27	Alikent	286	SZ	12	1965	good
28	Yjaki	275	SZ	18	1965	good
29	Malai	264	SZ	14	1972	good
30	Yevlakh	250	MRZ	53	1966	poor
31	Mingetshaur - main station	238	SZ	19	1966	good
32	Geran	225	SZ	12	1969	poor
33	Kyrektshai	214	SZ	14	1966	poor
34	Dalimamedli	200	SZ	11	1966	good
35	Sasali	193	SZ	19	1966	good
36	Gyandsha	183	BMRZ	108	1987	good

Annex 1.2-6

Stations of AGZD section Baku - Beyuk-Kyassik

N°	station	km	interlocking system	number of switches	year of installation	condition
37	Alabashli	170	MRZ	30	1963	switches operated by hand
38	Shamkir	159	MRZ	16	1962	switches operated by hand
39	Dollyar	149	MRZ	21	1962	switches operated by hand
40	Dsegam	136	MRZ	13	1961	switches operated by hand
41	Kovlyar	122	MRZ	17	1961	switches operated by hand
42	Taus	109	SZ	27	1982	good
43	Tatlu	98	SZ	10	1975	good
44	Akstafa	88	MRZ	47	1969	good
45	Poili - main station	74	SZ	24	1966	good
46	Salogli	65	SZ	23	1975	good
47	Soyuk-Bulak	56	SZ	27	1975	good
48	Beyuk-Kyassik	45	MRZ	47	1975	poor

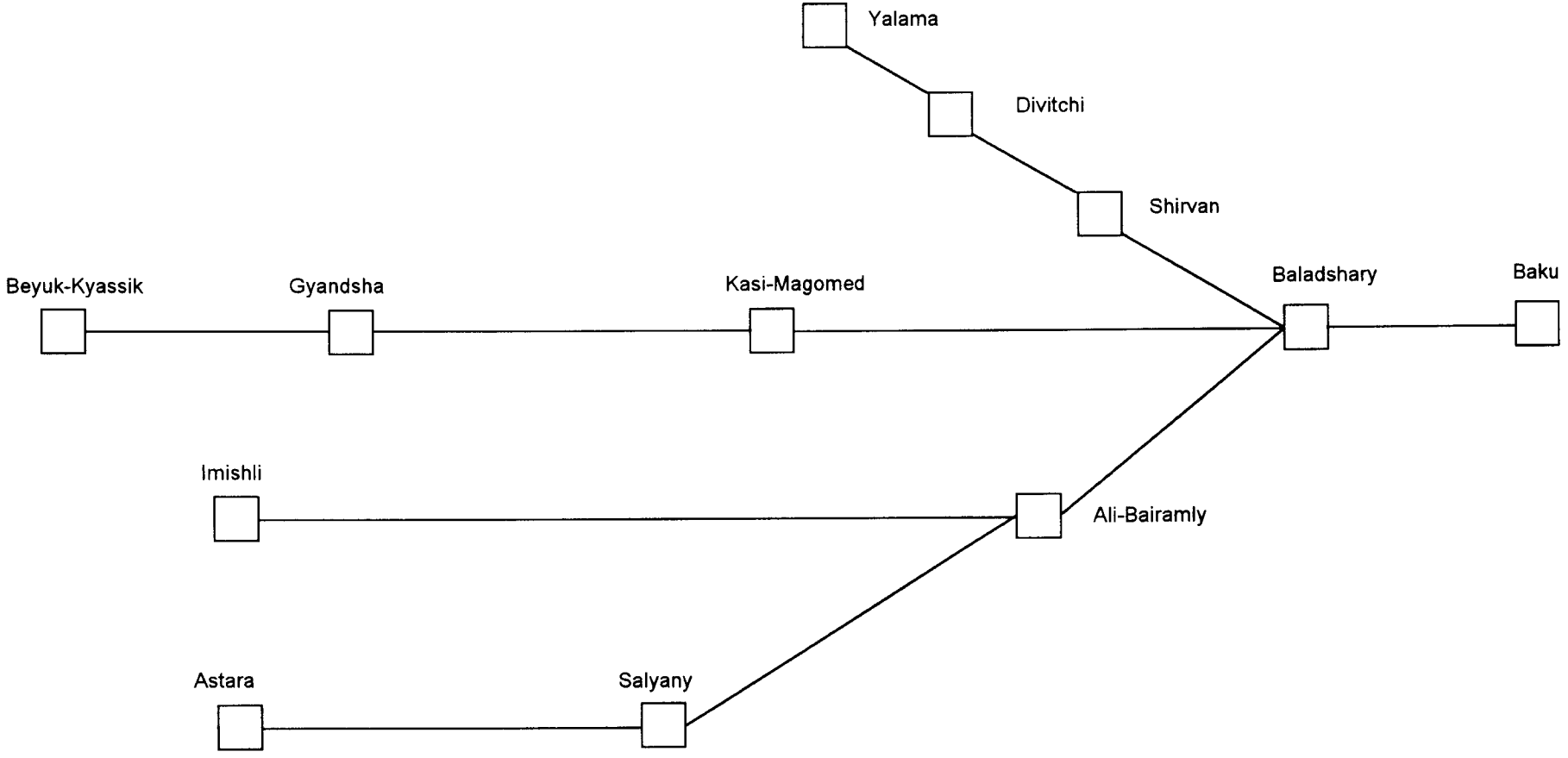
Annex 1.2-7

Survey of telephone stations of AGZD

no.	station	ATS type	year of const.	capacity of the plant	subscribers connected	manual exchanges
1	Yalama	ATSK-50/200	1995	200	50	M-60 - 1
2	Khudat	KRSCH-104	1976	50		-
3	Khatshmas	E CK-400	1993	400	400	M-60 - 2
4	Divitshi	UATS-49	1972	200	400	M-60 - 2
5	Divitshi Kend	KRSCH-204	1991	100	100	-
6	Kisil-Burun	KRSCH-104	1980	50		-
7	Shirvan St.	UATS-49	1980	200	200	M-60 - 2
8	Shirvan Shil	ATS-54	1986	1900	800	-
9	Sumgait	UATS-49	1976	200	300	M-60 - 1
10	Gyushdek	KRSCH-104	1974	50		-
11	Baladshary Spusk	UATS-49	1967	2100	2500	MRY-20-3
12	Baladshary	ATS-54	1985	1500	800	-
13	Kishli	UATS-49	1967	300	300	-
14	Beyuk-Shtshor	ATSK-100/2000	1972	100	100	-
15	Baku	ATS-54	1986	3000	2000	MRY-80-7
16	Aliat Gl.	KRSCH-204	1972	100	50	M-60 - 1
17	Aliat Pristan	KRSCH-204	1993	100	50	M-60 - 2
18	Kasi-Magomed	UATS-49	1969	300	500	M-60 - 3
19	Kyrdamir	ATSK-50/200	1986	200	200	-
20	Udshary	UATS-49	1972	200	200	M-60 - 1
21	Yevlakh	ATSK-50/200	1996	200	200	M-60 - 2
22	Gyandsha	ATS-100/2000	1971	2300	2300	M-60 - 3
23	Gyandsha P/J	UAATS-100/400	1980	400	400	-
24	Dollyar	KRSCH-204	1985	100	50	-
25	Akstafa	ATSK-50/200	1981	400	350	M-60 - 2
26	Beyuk-Kyassik	ATSK-50/200	1994	50	30	M-60 - 1
27	Ali-Bairamly	ATS-50/200	1986	200	150	M-60 - 1
28	Ali-Bairamly	KW KRSCH-104	1980	50	50	M-60 - 2
29	Saatly	ATSK-50/200	1985	100	80	M-60 - 1
30	Imishli	ATS-54A	1986	1000	800	M-60 - 2
31	Goradis	KRSCH-104	1984	50	-	-
32	Mindshevan	UATS-49	1972	500	-	M-60 - 2
33	Ordubad	MB/ZB-80/20	1979	100	-	M-60 - 1
34	Dshulfa	UATS-49	1980	500	-	M-60 - 2
35	Nakhitchevan	ATS-54A	1985	1000	-	MRY-20-3
36	Nakhitchevan	UATS-49	1980	300	-	-
37	Shakhtakhti	KRSCH-204	1986	100	-	-
37	Sharur	ATSK-50/200	1986	100	-	M60 - 1
39	Velokani	KRSCH-204	1986	100	-	-
40	Kakhi	KRSCH-204	1986	100	-	-
41	Sheki	-	-	-	-	-
42	Salyany	ATS-54A	1986	500	400	M-60 - 2
43	Masally	KRSCH-102	1978	50		-
44	Lenkoran	KRSCH-204	1978	100	50	M-60 - 2
45	Astara	KRSCH-204	1990	50	30	-

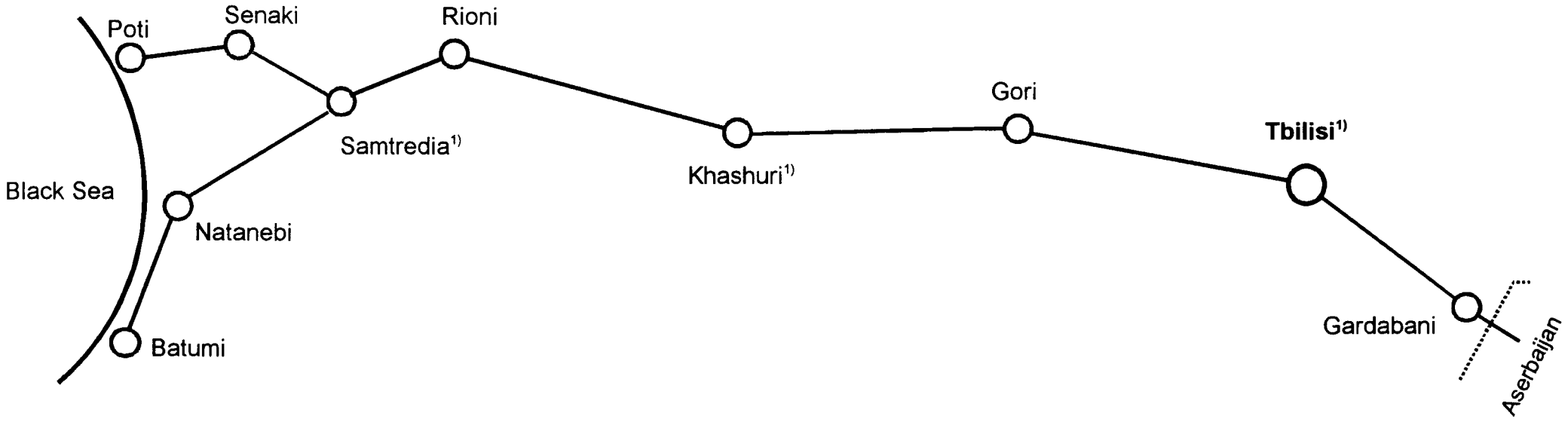
Annex 1.2-8

Structure of the existing transmission system of AGZD



Annex 1.2-9

Line section Tbilisi - Poti / Batumi of GRZD



1) Location of maintenance facilities for signalling and telecommunication equipment

Annex 1.2-10

Stations of GRZD section Gardabani - Poti/Batumi

N°	station	km	interlocking system	number of switches	year of installation	condition [2]
1	Gardabani	32.9	MRZ-13	36	1973	24 reactors / 8 light signals
2	Rustavi - goods station	24.6	MRZ-13	46	1973	10 reactors / 14 light signals
3	Rustavi - passenger station	21.5	EZ-9	19	1967	2 reactors / 2 light signals
4	Gatshiani	15.1	MRZ-13	33	1976	31 reactors / 12 light signals
5	Veli	9.6	EZ-9	22	1970	6 reactors / 4 light signals
6	Tbilisi - marshalling yard		MRZ-13	76	1990	40 reactors / 6 light signals
7	Tbilisi - marshalling sidings		-	-	1978	- reactors / 6 light signals
8	Tbilisi - uzlovaya	2509.2	MRZ-13	75	1964	12 reactors / 12 light signals
9	Tbilisi - passenger station	2502.9	MRZ-13	78	1976	1 reactors / 3 light signals
10	Tbilisi - freight station	2500.6	TP-47	47	1963	3 reactors / 7 light signals
11	Didube	2499.0	EZ-9	14	1977	4 reactors / 2 light signals
12	Avtshala	2492.5	EZ-9	12	1957	24 reactors / 4 light signals
13	Sages	2489.4	EZ-9	19	1977	4 reactors / 4 light signals
14	Mzkheta	2481.5	EZ-9	15	1976	1 reactors / - light signals
15	Dsegvi	2475.0	EZ-9	23	1978	13 reactors / 6 light signals
16	Ksani	2469.9	EZ-9	19	1979	7 reactors / 3 light signals
17	Kavtiskhevi	2459.8	EZ-9	21	1980	7 reactors / 3 light signals
18	Kaspi	2454.3	EZ-9	30	1980	1 reactors / - light signals
19	Metekhi	2447.2	EZ-9	19	1981	24 reactors / 6 light signals
20	Grakali	2441.8	EZ-9	19	1981	16 reactors / 3 light signals

Annex 1.2-10

Stations of GRZD section Gardabani - Poti/Batumi

N°	station	km	interlocking system	number of switches	year of installation	condition *
21	Upliszikhe	2434.5	EZ-9	16	1978	35 reactors / 4 light signals
22	Gori	2427.3	MRZ-13	35	1978	23 reactors / 3 light signals
23	Skra	2419.2	EZ-9	14	1974	7 reactors / 2 light signals
24	Kareli	2409.1	EZ-9	18	1980	7 reactors / 2 light signals
25	Agara	2402.7	EZ-9	29	1981	33 reactors / 2 light signals
26	Gomi	2394.0	EZ-9	17	1965	19 reactors / 2 light signals
27	Khashuri	2383.2	TP-47	59	1968	28 reactors / 4 light signals
28	Likhi	2375.0	EZ-2	14	1975	14 reactors / 2 light signals
29	Zipa	2366.7	EZ-9	11	1979	21 reactors / 2 light signals
30	Moliti	2359.6	EZ-2	8	1969	18 reactors / 2 light signals
31	Marelisi	2352.6	EZ-2	11	1969	13 reactors / 4 light signals
32	passing point 2347 km	2347.0	EZ-9	-	1969	4 reactors / 1 light signals
33	Kharagauli	2343.1	EZ-9	12	1969	9 reactors / 2 light signals
34	passing point 2338 km	2338.1	EZ-9	-	1970	9 reactors / 2 light signals
35	Dsirula	2333.4	EZ-2	10	1974	13 reactors / 2 light signals
36	passing point 2328 km	2328.5	EZ-9	-	1969	12 reactors / 2 light signals
37	Shoropani	2323.9	EZ-9	12	1969	13 reactors / 3 light signals
38	Zestafoni	2320.1	MRZ-13	52	1990	50 reactors / 7 light signals
39	Argveta	2313.3	EZ-9	29	1980	20 reactors / 6 light signals
40	Sviri	2306.9	EZ-9	16	1978	43 reactors / 2 light signals

Annex 1.2-10

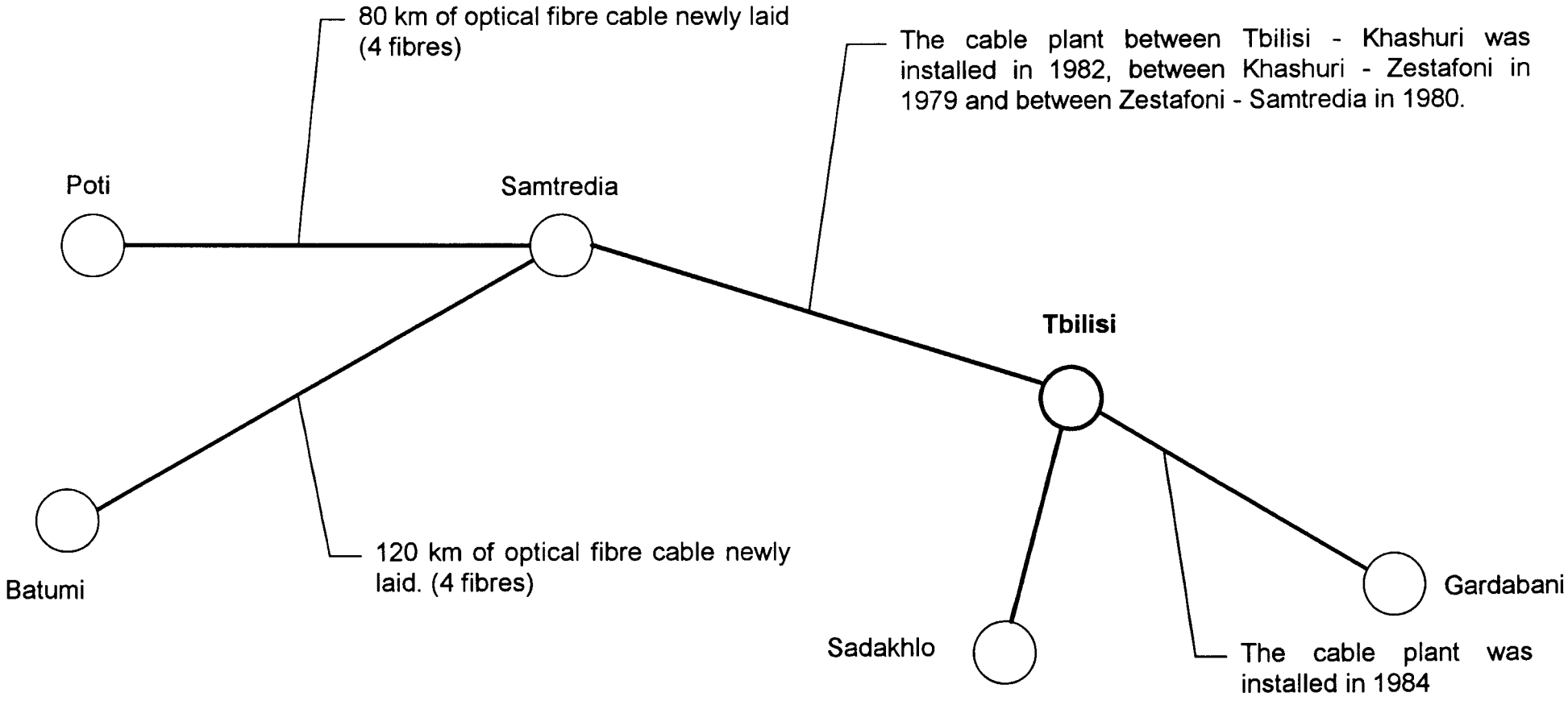
Stations of GRZD section Gardabani - Poti/Batumi

N°	station	km	interlocking system	number of switches	year of installation	condition [2]
41	Adshameti	2297.1	EZ-9	21	1978	53 reactors / 6 light signals
42	Rioni	2289.9	EZ-9	25	1991	29 reactors / 6 light signals
43	passing point 101 km	-	-	-	1987	[1]
44	Dshapani	88.1	EZ-9	3	1987	8 reactors / 2 light signals
45	Nigoiti	81.8	EZ-2	5	1987	4 reactors / 2 light signals
46	Lantshkhuti	75.1	EZ-2	6	1980	5 reactors / 2 light signals
47	Dshumati	63.4	EZ-2	6	1980	5 reactors / 2 light signals
48	Supsa	54.5	EZ-2	5	1966	4 reactors / 3 light signals
49	Ureki	48.0	EZ-9	7	1966	2 reactors / 3 light signals
50	Natanebi	39.5	EZ-2	8	1966	2 reactors / 2 light signals
51	Otshkhamuri	30.3	EZ-2	9	1967	2 reactors / 3 light signals
52	Kobuleti	23.5	EZ-2	11	1965	4 reactors / 2 light signals
53	Tshakva	13.9	EZ-2	11	1965	2 reactors / 2 light signals
54	Makhindshauri	6.9	EZ-9	4	1965	13 reactors / 1 light signals
55	Batumi	1.6	EZ-9	35	1965	6 reactors / 8 light signals

[1] The operating points in km 101 and 2256 are out of operation because of stolen equipment.
[2] Listed are all installations that were dismantled by theft.

Annex 1.2-11

Line survey of the cable plant of GRZD



Annex 1.2-12

Survey of the actual state / target state of computer applications

	ARM		AGZD		GRZD	
	Actual	Target	Actual	Target	Actual	Target
(1) Logistic information systems		X	X		X	
(2) Planning department (non-specific software) SYSTRA			X		X	
(3) Centralized control of goods traffic (CIS)	X		X		X	
(4) Centralized control of goods traffic (national)		X		X		X
(5) Running schedule		X	X		X	
(6) Goods traffic		X		X		X
(7) Statistics		X		X		X
(8) Data bank vehicles		X		X		X
(9) Pre-announcement of trains		X	X			X
(10) Financial accounting		X		X		X
(11) Customer accounting		X		X		X
(12) Daily wagon balances		X	X		X	
(13) Data bank facilities		X		X		X
(14) Data bank timetable		X		X		X
(15) Follow-up of containers (internal)		X		X		X
(16) Freight processing		X		X		X

Annex 1.3-1

List of main technical data of ARM power supply substations[1]

No.	Substations	Technical data of installed transformers		No. of rectifier units	Remarks
	Location	Voltage levels [kV]	Nominal output [kVA]		
1	Vardenis	10/ 2.7 10/0.23	2 x 12,500 2 x 250	2 with 2 invertors	
2	Arek	110/10 10/ 2.7 10/ 0.4	2 x 6,300 2 x 4,600 2 x 250	2	
3	Shorsha	110/ 35/ 10 10/ 2.7 10/ 0.4	2 x 16,000 2 x 4,640 2 x 250	2	additional non-railway supply
4	Zovagyukh	35/ 10 10/ 2.7 10/ 0.4	2 x 2,500 2 x 6,300 2 x250	2	
5	Sevan	35 /10 35/ 2.7 35/ 0.4	2 x 2,500 2 x 6,300 2 x 250	2	additional non-railway supply
6	Razdan	35/ 2.7 35/ 0.23	2 x 9,600 2 x 320	2 and 1 invertor	
7	Charentsavan	10/ 2.7 10/ 0.23	2 x 12,500 2 x 250	2 with 2 invertors	
8	Nurnus	35/ 2.7 35/ 0.23	2 x 5,600 2 x 250	2 with 1 invertor	
9	Nor- Hadshn	35/ 10 35/ 2.7 35/ 0.4	2 x 2,500 4 x 4,660 2 x 250	2 with 1 invertor	additional non-railway supply
10	Yegvard	35/ 10 35/ 2.7 35/ 0.4	2 x 2,500 4 x 4,660 2 x 250	2 with 1 invertor	additional non-railway supply
11	Proshyan	110/10 10/ 2.7 10/ 0.4	2 x 10,000 2 x 6,300 2 x 400	2 with 2 invertors	
12	Spandarian	35/ 10 35/ 2.7 35/ 0.4	2 x 2,500 4 x 4,660 2 x 250	2 with 1 invertor	additional non-railway supply
13	9th km	35/ 10 35/ 2.7 35/ 0.4	2 x 2,500 4 x 4,660 2 x 250	2 with 1 invertor	additional non-railway supply
14	Masis	6/ 10 6/ 2.7 6/ 0.23	1 x 1,600 4 x 4,640 2 x 100	2	additional non-railway supply
15	Sovietakan	110/ 35/ 10 10/ 2.7 10/ 0.4	2 x 16,000 2 x 11,840 2 x 250	2	additional non-railway supply
16	Araks	110/ 10 10/ 2.7 10/ 0.23	2 x 10,000 4 x 3,500 2 x 250	3 and 1 invertor	
17	Karakert	35/ 10 35/ 2.7 35/ 0.23	1 x 6,300 4 x 3,500 2 x180	2 with 1 invertor	additional non-railway supply
18	Aragatz	110/ 35/ 10 10/ 2.7 10/ 0.23	2 x 10,000 4 x 3,500 2 x 180	2 and 1 invertor	
19	Ani	110/ 35/ 10 10/ 2.7 10/ 0.23	2 x 10,000 4 x 3,500 2 x 160	2 and 1 invertor	additional non-railway supply

Annex 1.3-1

List of main technical data of ARM power supply substations[1]

No.	Substations	Technical data of installed transformers		No. of rectifier units	Remarks
	Location	Voltage levels [kV]	Nominal output [kVA]		
20	Agin	110/ 10 10/ 2.7 10/ 0.23	2 x 10,000 2 x 12,500 2 x 400	2 with 2 invertors	
21	Gyumri	6/ 2.7 6/ 0.23	2 x 3,700 1 x 4,655 2 x 100	2 1 invertor	
22	Dshadshur	110/ 10 10/ 2.7 10/ 0.23	2 x 10,000 2 x 12,500 1 x 4,680 2 x250	2 1 invertor	
23	Kaltakhtshi	110/ 35/ 10 10/ 2.7 10/ 0.23	2 x 10,000 2 x 3,500 2 x 250	2 with 1 invertor	additional non-railway supply
24	Spitak	6/ 10 6/ 2.7 6/ 0.23	1 x 1,000 3 x 3,500 2 x 100	2 and 1 invertor	additional non-railway supply
25	Kirovakan	6/ 10 6/ 2.7 6/ 0.23	1 x 1,000 3 x 3,500 2 x 100	2 and 1 invertor	additional non-railway supply
26	Chagali	110/ 10 10/ 2.7 10/ 0.23	2 x 10,000 6 x 3,500 2 x 250	2 and 1 invertor	
27	Tumanian	35/ 10 35/ 2.7 35/ 0.23	1 x 630 3 x 3,500 2 x 100	2 and 1 invertor	additional non-railway supply
28	Sanain	35/ 2.7 35/ 0.4	1 x 4,630 1 x 250	1	
29	Akhtala	110/ 35/ 10 10/ 2.7 10/ 0.23	1 x 7,500 1 x 10,000 2 x 3,700 1 x 3,500 2 x 320	2 1 invertor	
30	Ayrum	35 / 10 35/ 6 35/ 2.7 35/ 0.4	1 x 1,000 1 x 1,000 2 x 4,660 1 x 250		additional non-railway supply
31	Abovian	10/ 2.7 10/ 0.4	2 x 12,500 2 x 250	2 with 2 invertors	
32	Kirza	6/ 2.7 6/ 0.23	2 x 3,700 2 x 3,500 2 x 320	2 2 invertors	
33	Yerevan	110/10 10/ 2.7 10/0.4	2 x 16,000 2 x 10,500 2 x 320	2 with 2 invertors	

Annex 1.3-1

List of main technical data of ARM power supply substations[1]

No.	Substations	Technical data of installed transformers		No. of rectifier units	Remarks
	Location	Voltage levels [kV]	Nominal output [kVA]		
34	Artashat	10/ 2.7 10/ 0.4	2 x 4,640 2 x 250	2	
35	Ararat	6/ 10 10/ 0.4 6/ 2.7 6/ 0.4	1 x 1,600 2 x 63 2 x 4,640 2 x 100	2	additional non-railway supply
36	Yeraskh	10/ 2.7 10/ 0.4	2 x 4,640 1 x 0,4	2	
38	Artik	6/ 2.7 6/ 0.23	1 x 3,700 1 x 63	1	
39	Megrazor	35/ 10 35/ 2.7 35/ 0.4	2 x 2,500 4 x 4,660 2 x 250	2 and 2 invertors	additional non-railway supply
40	Arkhashen	110/ 35/ 10 10/ 2.7 10/ 0.4	2 x 16,000 2 x 10,500 2 x 400	2 with 2 invertors	additional non-railway supply
41	Fioletovo	110/ 10 10/ 2.7 10/ 0.4	2 x 16,000 2 x 12,500 2 x 400	2 with 2 invertors	
42	Frapanovo	110/ 10 10/ 2.7 10/ 0.4	2 x 16,000 2 x 12,500 2 x 400	2 with 2 invertors	
43	Dilijan	35/ 10 35/ 2.7 35/ 0.4	2 x 2,500 4 x 6,300 2 x 400	2 with 2 invertors	additional non-railway supply
44	Kuibishev	110/ 10 10/ 2.7 10/ 0.4	2 x 16,000 2 x 12,500 2 x 400	2 with 2 invertors	
45	Goshavank	110/ 10 10/ 2.7 10/ 0.4	2 x 16,000 2 x 11,900 2 x 400	2 with 2 invertors	
46	Lusabaz	110/ 10 10/ 2.7 10/ 0.4	2 x 16,000 2 x 12,500 2 x 400	2 with 2 invertors	
47	Ijevan	6/ 2.7 6/ 0.4	2 x 12,500 2 x 250	2 with 2 invertors	

[1] in build situation 1985

Annex 1.3-2

Important AGZD power supply substations on the main line between Baku and Beyuk-Kyassik (in total 26 substations)

1.	Substation	Energy Section No. 1 Kishli	Station Kishli-electr. km 6
	Circuit Breaker	MG-35 N 1971	MG-35 V 1971
	Rectifier Unit	2 x UTMRU-6300/ 35Sh 2 x 3.700 kVA 1972	1 x TMPU- 6300/ 35Sh 1 x 4,600 kVA 1972
	Rectifier Diodes	UBKE- 1 3.000 A 1972	UBKE- 1 3.000 A 1972
	High speed circuit breaker	VAB- 43 1985	
	Feeder 3.3 kV DC	No.1 2.300 A No.3 2.300 A No.5 2.300 A	No.2 2.300 A No.4 2.300 A
2.	Substation	Energy Section No. 6 Baladshary	Station Baladshary km 2645b5
	Circuit Breaker	MKP-35/ 1000 1970	MKP-35/ 1000 1969
	Rectifier Unit	2 x UTMRU-6300/ 35Sh 2 x 3.700 kVA 1969	2 x TMPU- 6300/ 35Sh 1 x 3.700 kVA 1969
	Rectifier Diodes	PVE- 3 3.000 A 1981	PVE- 3 3.000 A 1983
	High speed circuit breaker	VAB 43 VAB 28 AB 2/4	
	Feeder 3.3 kV DC	No.1 2.000 A No.3 2.500 A No.5 2.500 A No.7 2.000 A	No.2 2.000 A No.4 2.500 A No.6 2.500 A
3.	Substation	Energy Section No. 13 Aliat	Station Aliat km 460b6
	Circuit Breaker	MKP- 35/ 600 600 A 1969	MKP- 35/ 600 600 A 1969
	Rectifier Unit	2 x UTMPU-6300/ 35Sh 2 x 3.700 kVA 1969	2 x UTMPU-6300/ 35Sh 2 x 3.700 kVA 1969
	Rectifier Diodes	PVE- 5 3.000 A 1983	PVE- 5 3.000 A 1983
	High speed circuit breaker	VAB 28	
	Feeder 3.3 kV DC	No.1 2.300 A No.3 2.500 A No.5 2.000 A	No.2 2.300 A No.4 2.000 A
4.	Substation	Energy Section No. 15 Kasi-Magomed	Station Kasi-Magomed km 417b4
	Transformer	TDTN-16.000/110/35/10 2 x 16.000 kVA 1970	
	Circuit Breaker	VMG- 133	VMP- 10/ 600
	Rectifier Unit	2 x UTMPU-6300/ 35Sh 2 x 3.700 kVA 1969, 1975	2 x UTMPU-6300/ 35Sh 2 x 3.700 kVA 1969
	Rectifier Diodes	PVED- 3 3.000 A 1981	PVED- 3 3.000 A 1982
	High speed circuit breaker	1 x VAB 28 3 x VAB 43 2 x AB 2/4	
	Feeder 3.3 kV DC	No.1 2.100 A No.3 3.000 A No.5 2.100 A	No.2 2.100 A No.4 3.000 A No.6 2.100 A

Annex 1.3-2

Important AGZD power supply substations on the main line between Baku and Beyuk-Kyassik (in total 26 substations)

5	Substation	Energy Section No. 22 Yevlakh	Station Yevlakh km 250b3
	Circuit Breaker	MG- 35/ 6000 A 1966	MG- 35/ 6000 A 1966
	Rectifier Unit	3 x TMRU-6.300/ 35Sh 3 x 3.700 kVA 1966	
	Rectifier Diodes	PVE- 3 3.000 A 1972	PVE- 3 3.000 A 1972
	High speed circuit breaker	AB 2/4	
	Feeder 3.3 kV DC	No.1 2.000 A No.3 2.100 A	No.2 2.000 A No.4 2.100 A
6.	Substation	Energy Section No. 25 Gyandsha	Station Gyandsha km 182b1
	Transformer	TDTN-16.000/110/35/10 1 x 16.000 kVA 1966	TDTN-25.000/110/35/10 1 x 25.000 kVA 1966
	Circuit Breaker	VMG- 133 II 1966	
	Rectifier Unit	4 x TMRU-6.300/ 35Sh 4 x 3.700 kVA 1967	
	Rectifier Diodes	PVE- 3 3.000 A 1971	PVE- 3 3.000 A 1971
	High speed circuit breaker	AB 2/4	
	Feeder 3.3 kV DC	No.1 2.500 A No.3 2.500 A	No.2 2.500 A No.4 2.500 A
7.	Substation	Energy Section No. 31 Akstafa	Station Akstafa km 87b8
	Circuit Breaker	VMG- 133 20.000 A 1960	
	Rectifier Unit	TMRU- 16000/ 10Sh 1 x 11.840 kVA 1978	SKD-4150 2 x 4.150 kVA 1959
	Rectifier Diodes	PVE- 3 3.000 A 1978	PVE- 3 3.000 A 1978
	High speed circuit breaker	4 x 2 AB 2/4 3 x VAB 43 1978	
	Feeder 3.3 kV DC	No.1 2.000 A No.3 1.800 A	No.2 1.800 A No.4 1.800 A
8.	Substation	Energy Section No. 34 Beyuk-Kyassik	Station Beyuk-Kyassik km 44b8
	Transformer	TDN-16.000/110/35/10 2 x 16.000 kVA	
	Circuit Breaker	MKP 110 kV , MKP 35 kV 20.000 A 1973	VMP 10 kV 20.000 A 1973
	Rectifier Unit	TMRU- 16000/ 10Sh 1 x 11.840 kVA 1973	TMRU- 16000/ 10Sh 1 x 11.840 kVA 1973
	Rectifier Diodes	PVKE- 2 3.000 A 1973	PVKE- 2 3.000 A 1973
	High speed circuit breaker	8 x 2 AB 2/4 2.000 A 1977	
	Feeder 3.3 kV DC	No.1 2.500 A No.3 2.500 A	No.2 2.500 A No.4 2.500 A

Technical Condition of Stations
Name of Railway: Armenian Railway (ARM)

Annex 1.4-1

1 Number	2 Name of station	3 Route	4 Distance to the next station (km)	5 Type of station (main function) and category	6 Number of through tracks / length (m)	7 Additional tracks for operational purposes (train formation and splitting up; arrival and departure tracks) / length (m)	8 Number of storage and other sidings / length (m)	9 Track condition
1	**Ayrum**	**Ayrum - Gyumri - (Akhurian)**	12,8	Border station, Category 2	1 (track No. 2) / 656 m	5 / 781, 624, 624, 518 and 518 m	1 / 300 m	satisfactory
2	Akhtala		7,9	Intermediate station, Category 4	1 (track No. 2) / 525 m	2 / 516 and 518 m	3 / 493, 170 and 20 m (safety track)	* (not requested)
3	Akhpat		5	Passenger station, Category 5; (in Russian named: Razjezd)	1 (track No. 2) / 492 m	1 / 488 m	1 / 64 m	*
4	Alaverdi		6,2	Intermediate station, Category 3	1 (track No. 2) / 703 m	3 / 714, 773 and 616 m	4 / 560, 60, 224 and 30 m (safety track)	*
5	**Sanain**		8,1	Intermediate station, Category 2	1 (track No. 3) / 612 m	7 / 500, 500, 531, 344, 344, 624 and 400 m	5 / 66, 60, 220, 460 and 60 m	poor
6	Kober		9	Intermediate station, Category 4	1 (track No. 2) / 507 m	2 / 537 and 570 m	2 / 130 and 32 m	*
7	Tumanyan		8,3	Intermediate station, Category 3	1 (track No. 2) / 598 m	3 / 624, 518 and 500 m	5 / 25, 97, 713, 123 and 75 m	*
8	Shagali		7,7	Intermediate station, Category 4	1 (track No. 3) / 512 m	3 / 512 m each	3 / 46, 20 and 302 m	*
9	Pambak		7,4	Passenger station, Category 5; (Razjezd)	1 (track No. 2) / 560 m	2 / 560 m each	4 / 360, 100, 98 and 160 m	*
10	**Vanadzor**		9,5	Freight and passenger station, Category 1	1 (track No. 2) / 754 m	2 for passenger trains / 542 and 560 m; 11 for freight trains / 437, 789, 759, 797, 780, 779, 857, 850, 680, 680 and 700 m	12 / 228, 262, 91, 223, 100, 173, 125, 202, 180, 58, 15 and 193 m	satisfactory

Technical Condition of Stations
Name of Railway: Armenian Railway (ARM)

Annex 1.4-1

1 Number	2 Name of station	10 Available facilities for freight loading and unloading	11 Condition of facilities for freight loading and unloading	12 Number of forwarded wagons in 1995/1996	13 Number of received wagons in 1995/1996	14 Volume of forwarded freight traffic (tonnes) in 1995/1996	15 Number of platforms / type / length (m)	16 Condition of station building and facilities for passenger traffic	17 Number of passengers departing in 1996
1	Ayrum	non-existent	n/a (not applicable)	**(not available)	**	**	2 / low / 340 and 325 m	Station buildung: satisfactory; Platform: poor	8.500
2	Akhtala	*	*	*	*	*	**	*	*
3	Akhpat	*	*	*	*	*	1 / low / 50 m	*	*
4	Alaverdi	*	*	*	*	*	2 / low / 263 and 371 m	*	*
5	Sanain	non-existent	n/a	**	**	**	2 / low / 400 m each	Station building and platform including staircases to the platform: unsatisfactory	3.200
6	Kober	*	*	*	*	*	2 / low / 250 and 165 m	*	*
7	Tumanyan	*	*	*	*	*	2 / low / 178 and 219 m	*	*
8	Shagali	*	*	*	*	*	2 / low / 160 m each	*	*
9	Pambak	*	*	*	*	*	2 / low / 120 and 100 m	*	*
10	Vanadzor	2 covered storage areas; 1 loading ramp; Goods sheds; Area for handling containers	satisfactory to poor	100/300	1,017/436	2,500/10,800	Pass. part: 2 / high / 460 m each Freight part: 2 / low / 200 and 396 m	Station building: satisfactory; Intermediate platform: unsatisfactory	126.300

Technical Condition of Stations
Name of Railway: Armenian Railway (ARM)

Annex 1.4-1

1	2	3	4	5	6	7	8	9
Number	Name of station	Route	Distance to the next station (km)	Type of station (main function) and category	Number of through tracks / length (m)	Additional tracks for operational purposes (train formation and splitting up; arrival and departure tracks) / length (m)	Number of storage and other sidings / length (m)	Track condition
11	Archut		11	Passenger station, Category 5; (Razjezd)	1 (track No. 2) / 545 m	2 / 608 and 609 m	1 / 130 m	*
12	Spitak		9,9	Intermediate station, Category 3	1 (track No. 2) / 537 m	4 / 547, 588, 470 and 375 m	6 / 375, 30, 110, 78, 100 and 110 m	*
13	Nalband		9,8	Intermediate station, Category 3	1 (track No. 2) / 510 m	2 / 486 and 657 m	2 / 40 m each	*
14	Kaltakhtshi		9,6	Intermediate station, Category 4	1 (track No. 2) / 532 m	2 / 543 and 538 m	1 / 157 m	*
15	Dzhadzhur		10,1	Intermediate station, Category 4	1 (track No. 3) / 500 m	3 / 510, 510 and 475 m	3 / 129, 48 and 96 m	*
16	Maisyan		10	Intermediate station, Category 4	1 (track No. 2) / 500 m	2 / 578 and 554 m	1 / 80 m	*
17	Gyumri		11,7	Intermediate station, Category Extra	2 (track No. 2 and 3) / 520 and 767 m	10 / 520, 739, 786, 720, 720, 551, 551, 582, 536 and 597 m	4 / 795, 561, 262 and 260 m	satisfactory
18	Akhurian		at present end of the line	Border station (at present closed), Category 1; (Transhipment station)	Part I: 2 / 170 and 500 m; Part II (border area, normal gauge): 2 / 170 and 300 m; Part III: 1 / 300 m	Part I: 2 / 565 and 550 m; Part II: 1 / 238 m; Part III: 2 / 340 and 330 m	Part I: 7 / 562, 562, 660, 562, 562, 670 and 210; Part III: 1 / 40 m	satisfactory

Technical Condition of Stations
Name of Railway: Armenian Railway (ARM)

Annex 1.4-1

1	2	10	11	12	13	14	15	16	17
Number	Name of station	Available facilities for freight loading and unloading	Condition of facilities for freight loading and unloading	Number of forwarded wagons in 1995/1996	Number of received wagons in 1995/1996	Volume of forwarded freight traffic (tonnes) in 1995/1996	Number of platforms / type / length (m)	Condition of station building and facilities for passenger traffic	Number of passengers departing in 1996
11	Archut	*	*	*	*	*	1 / low / 70 m	*	*
12	Spitak	*	*	*	*	*	2 / low / 250 and 150 m	*	*
13	Nalband	*	*	*	*	*	2 / low / 250 and 50 m	*	*
14	Kaltakhtshi	*	*	*	*	*	2 / low / 125 m each	*	*
15	Dzhadzhur	*	*	*	*	*	2 / low / 100 m each	*	*
16	Maisyan	*	*	*	*	*	1 / low / 96 m	*	*
17	**Gyumri**	1 container terminal; 1 elevated track for bottom discharge wagons; 1 storage for luggage; Covered and uncovered storage areas for handling goods; Loading ramp; Goods sheds	satisfactory to poor	300/500	1,648/1,029	9,900/13,200	2 / high and covered / 430 and 500 m	Station building: satisfactory; Pedestrian subway and and platform No. 2: unsatisfactory	100.000
18	**Akhurian**	1 loading ramp; Covered and uncovered storage areas for handling goods	satisfactory	0/0	0/0	0/0	3 / low / 160, 50 and 60 m	Station building: unsatisfactory	0

Technical Condition of Stations
Name of Railway: Armenian Railway (ARM)

Annex 1.4-1

1 Number	2 Name of station	3 Route	4 Distance to the next station (km)	5 Type of station (main function) and category	6 Number of through tracks / length (m)	7 Additional tracks for operational purposes (train formation and splitting up; arrival and departure tracks) / length (m)	8 Number of storage and other sidings / length (m)	9 Track condition
19	**Artik**	**Gyumri - Maralik**	6,3	Intermediate station, Category 2	1 (track No. 3) / 572 m	3 / 333, 333 and 660 m	2 / 439 and 240 m	satisfactory
20	Pemzashen		6	Intermediate station, Category 4	1 (track No. 2) / 500 m	3 / 489, 539 and 499 m	-	*
21	Maralik		End of the line	Terminus, Category 3	-	4 / 497, 500, 373 and 360 m	3 / 100, 176 and 110 m	*
22	Bayandur	**Gyumri - Masis / Arshaluis**	12,5	Intermediate station, Category 3	1 (track No. 1) / 724 m	6 / 725, 750, 480, 718, 718 and 794 m	15 / 860, 860, 900, 880, 860, 870, 870, 236, 235, 750, 850, 700, 100, 40 and 35 m	*
23	Agin		12,2	Intermediate station, Category 4	1 (track No. 1) / 774 m	2 / 764 and 752 m	9 / 695, 330, 221, 221, 50, 170, 130, 150 and 220 m	*
24	Bagravan		8,5	Passenger station, Category 5; (Razjezd)	1 (track No. 1) / 1000 m	1 / 1000 m	1 / 1000 m	*
25	Ani		8,9	Intermediate station, Category 3	1 (track No. 2) / 796 m	5 / 795, 796, 730, 634 and 660 m	3 / 137, 90 and 310 m	*
26	Getap		8,9	Passenger station, Category 5; (Razjezd)	1 (track No. 1) / 796 m	1 / 796 m	-	*
27	Aragatz		9	Intermediate station, Category 4	1 (track No. 2) / 857 m	4 / 875, 830, 807 and 808 m	2 / 342and 280 m	*
28	Arteni		8,2	Passenger station, Category 5; (Razjezd)	1 (track No. 2) / 854 m	1 / 860 m	-	*
29	Kharakhert		6,7	Intermediate station, Category 4	1 (track No. 2 / 663 m	3 / 739, 656 and 586 m	2 / 206 and 50 m	*
30	**Dalarik**		7,5	Intermediate station, Category 2	1 (track No. 2 / 724 m	5 / 818, 724, 727, 624, 515 and 525 m	2 / 50 and 110 m	satisfactory to poor

Annex 1.4-1

Technical Condition of Stations
Name of Railway: Armenian Railway (ARM)

1	2	10	11	12	13	14	15	16	17
Number	Name of station	Available facilities for freight loading and unloading	Condition of facilities for freight loading and unloading	Number of forwarded wagons in 1995/1996	Number of received wagons in 1995/1996	Volume of forwarded freight traffic (tonnes) in 1995/1996	Number of platforms / type / length (m)	Condition of station building and facilities for passenger traffic	Number of passengers departing in 1996
19	Artik	1 area for handling goods; 1 elevated track for bottom discharge wagons	poor to very poor	**	**	**	1 / low / 145 m	Station building and platform: unsatisfactory	18.000
20	Pemzashen	*	*	*	*	*	1 / low / 56 m	*	36.000
21	Maralik	*	*	*	*	*	1 / low / 240 m	*	*
22	Bayandur	*	*	*	*	*	**	*	12.000
23	Agin	*	*	*	*	*	2 / high / 400 m	*	*
24	Bagravan	*	*	*	*	*	1 / low / 100 m	*	*
25	Ani	*	*	*	*	*	2 / low / 115 and 106 m	*	*
26	Getap	*	*	*	*	*	1 / 100 m	*	*
27	Aragatz	*	*	*	*	*	2 / 117 and 150 m	*	*
28	Arteni	*	*	*	*	*	2 / 107 and 140 m	*	*
29	Kharakhert	*	*	*	*	*	2 / 120 and 50 m	*	*
30	Dalarik	1 loading ramp	satisfactory	**	**	**	2 / 235 and 75 m	Station building and platform: unsatisfactory	1.600

Technical Condition of Stations
Name of Railway: Armenian Railway (ARM)

Annex 1.4-1

1	2	3	4	5	6	7	8	9
Number	Name of station	Route	Distance to the next station (km)	Type of station (main function) and category	Number of through tracks / length (m)	Additional tracks for operational purposes (train formation and splitting up; arrival and departure tracks) / length (m)	Number of storage and other sidings / length (m)	Track condition
31	Arakhs		10,6	Intermediate station, Category 4	1 (track No. 2 / 929 m	3 / 825, 825 and 1026 m	1 / 25 m	*
32	Armavir		14	Intermediate station, Category 2	1 (track No. 2 / 794 m	7 / 772, 734, 736, 504, 457, 454 and 547 m	7 / 15 to 330 m	satisfactory
33	Arshaluis		End of the line	Terminus, Categry 5 (Razjezd)	1 (track No. 3) / 387	3 / 383,383 and 387 m	3 / 80, 400 and 400 m	*
34	Sovietakan		8,1	Intermediate station, Category 4	1 (track No. 2 / 696 m	4 / 704, 678, 620 and 519 m	4 / 224, 110, 400 and 400 m	*
35	Etshmiadzin		12	Intermediate station, Category 2	1 (track No. 2 / 819 m	5 / 797, 855, 678, 672 and 658 m	3 / 200, 100 and 30 m	satisfactory
36	Masis		7	Marshalling yard, Category Extra	2 (tracks No. 2 and 3 / 984 and 928 m	20 / 1000, 932, 893, 850, 768, 860, 777, 783, 725, 752, 782, 768, 908, 908, 925, 913, 816, 950, 907 and 865 m	6 / 1124, 777, 883, 490, 700 and 90 m	satisfactory to poor (especially sorting lines)
37	Mkhtchyan	Masis - Yeraskh	10	Passenger station, Category 5; (Razjezd)	1 (track No. 1) / 887 m	3 / 857, 825 and 857 m	1 / 25 m	*
38	Artashat		12	Intermediate station, Category 3	1 (track No. 1 / 894 m	3 / 917, 789 and 883 m	7 / 516, 562, 366, 302, 100, 90 and 81 m	*
39	Aygavan		7	Intermediate station, Category 4	1 (track No. 1 / 752 m	3 / 751, 804 and 448 m	1 / 214 m	*
40	Ararat		15	Intermediate station, Category 1	1 (track No. 1 / 803 m	6 / 846, 808, 669, 615, 546 and 546 m	6 / 459, 459, 542, 310, 338 and 274 m	satisfactory to poor
41	Yeraskh		at present end of the line	Intermediate station, Category 3	1 (track No. 1) / 855 m	10 / 847, 845, 280, 686, 200, 684, 616, 315, 170 and 126 m	-	*

Technical Condition of Stations
Name of Railway: Armenian Railway (ARM)

Annex 1.4-1

1	2	10	11	12	13	14	15	16	17
Number	Name of station	Available facilities for freight loading and unloading	Condition of facilities for freight loading and unloading	Number of forwarded wagons in 1995/1996	Number of received wagons in 1995/1996	Volume of forwarded freight traffic (tonnes) in 1995/1996	Number of platforms / type / length (m)	Condition of station building and facilities for passenger traffic	Number of passengers departing in 1996
31	Arakhs	*	*	*	*	*	2 / 150 and 100 m	*	30.000
32	Armavir	1 area for handling goods; 1 elevated track for bottom discharge wagons; 1 loading ramp	satisfactory	30/30	168/194	1,800/1,600	2 / 325 and 270 m	Station building and platform: unsatisfactory	37.500
33	Arshaluis	*	*	*	*	*	1 / low / 150 m	*	*
34	Sovietakan	*	*	*	*	*	2 / 150 m each	*	26.400
35	Etshmiadzin	1 elevated track for bottom discharge wagons; 2 loading ramps	satisfactory	160/30	971/228	9,100/1,700	2 / 250 m each	Station building and platform: unsatisfactory	43.000
36	Masis	1 loading ramp; 1 elevated track for bottom discharge wagons	satisfactory	200/500	564/945	9,700/23,600	2 / 315 and 324 m	Station building, toilets and platform: unsatisfactory	47.000
37	Mkhtchyan	*	*	*	*	*	2 / 110 m each	*	12.000
38	Artashat	*	*	*	*	*	2 / 160 and 180 m	*	18.000
39	Aygavan	*	*	*	*	*	2 / 160 and 95 m	*	*
40	Ararat	1 loading ramp; 1 elevated track for bottom discharge wagons	satisfactory	2000/2300	2,632/1,973	126,300/152,300	2 / 130 m each	Station building, toilets and platform: unsatisfactory	18.000
41	Yeraskh	*	*	*	*	*	2 / 165 and 230 m	*	30.000

Technical Condition of Stations
Name of Railway: Armenian Railway (ARM)

Annex 1.4-1

1	2	3	4	5	6	7	8	9
Number	Name of station	Route	Distance to the next station (km)	Type of station (main function) and category	Number of through tracks / length (m)	Additional tracks for operational purposes (train formation and splitting up; arrival and departure tracks) / length (m)	Number of storage and other sidings / length (m)	Track condition
42	Noragavit	**Yerevan - Masis**	6 (from Yerevan)	Intermediate station, Category 4	4 (track No. 1 / 858 m; 2 / 853; 3 / 830; 4 / 844)	-	-	*
43	**Karmir Blur**		3 (to station No. 44)	Freight station, Category 1	1 (track No. 2) / 608 m	7 / 656, 604, 648, 546, 506, 462 and 462 m	4 / 110, 60, 50 and 50 m	satisfactory
44	Km 9	**Yerevan - Sevan - Sotk**	5	Passenger station, Category 5; (Razjezd)	1 (track No. 1) / 830 m	2 / 942 and 920 m	1 / 50 m	*
45	Spandaryan		9	Passenger station, Category 5; (Razjezd)	1 (track No. 1) / 894 m	3 / 900, 896 and 910 m	1 / 170 m	*
46	Proshyan		8	Passenger station, Category 5; (Razjezd)	1 (track No. 1) / 880 m	2 / 940 m each	1 / 94 m	*
47	Yegvard		7	Intermediate station, Category 5	1 (track No. 1) / 939 m	2 / 986 and 985 m	3 / 231, 200 and 200 m	*
48	Nor Achin		5 to Nurnus	Intermediate station, Category 5	1 (track No. 1) / 876 m	4 / 876, 915, 810 and 810 m	1 / 30 m	*
49	**Yerevan**	**Yerevan - Sotk (via Abovian)**	8	Passenger and freight station / Marshalling yard, Category Extra	Part I (passenger trains): 2 (track No. 1 and 2) / 586 and 587 m; Part II (freight trains): 1 (track No. 3) / 728 m	Part I: 7 / 573, 565, 391, 424, 375, 327 and 200 m; Part II: 17 / 703, 778, 743, 756, 750, 686, 709, 709, 709, 755, 788, 728, 670, 700, 700, 680 and 624	Part I: 11 / 97, 293, 293, 200, 76, 207, 175, 140, 72, 175 and 167; Part II: 3 / 400, 736 and 180	satisfactory

Annex 1.4-1

Technical Condition of Stations
Name of Railway: Armenian Railway (ARM)

1	2	10	11	12	13	14	15	16	17
Number	Name of station	Available facilities for freight loading and unloading	Condition of facilities for freight loading and unloading	Number of forwarded wagons in 1995/1996	Number of received wagons in 1995/1996	Volume of forwarded freight traffic (tonnes) in 1995/1996	Number of platforms / type / length (m)	Condition of station building and facilities for passenger traffic	Number of passengers departing in 1996
42	Noragavit	*	*	*	*	*	2 / 40 and 140 m	*	32.400
43	Karmir Blur	1 Container terminal	see Annex 1.1-7	600/700	1,838/1,669	26,600/27,600	2 / 92 and 200 m	Station building: satisfactory; Platform: satisfactory	0
44	Km 9	*	*	*	*	*	1 / 210 m	*	*
45	Spandaryan	*	*	*	*	*	1 / 200 m	*	*
46	Proshyan	*	*	*	*	*	1 / 210 m	*	*
47	Yegvard	*	*	*	*	*	1 / 210 m	*	*
48	Nor Achin	*	*	*	*	*	1 / 210 m	*	*
49	Yerevan	5 goods sheds;1 storage with mechanically handling equipment; 1 loading ramp; 1 storage area for heavy goods; 1 elevated track for bottom discharge wagons; 1 loading area for long items; 1 storage for luggage	satisfactory	1,600/700	7,429/5,067	68,200 / 35,900	2 / high and covered / 450 m each	Station building and platforms: satisfactory; the roof is in urgent need of repair	140.000

Technical Condition of Stations
Name of Railway: Armenian Railway (ARM)

Annex 1.4-1

1 Number	2 Name of station	3 Route	4 Distance to the next station (km)	5 Type of station (main function) and category	6 Number of through tracks / length (m)	7 Additional tracks for operational purposes (train formation and splitting up; arrival and departure tracks) / length (m)	8 Number of storage and other sidings / length (m)	9 Track condition
50	Arabkir		9	Intermediate station, Category 4	1 (track No. 1) / 490 m	2 / 201 and 169 m	3 /130, 45 and 64 m	*
51	Kanaker		6	Intermediate station, Category 3	1 (track No. 2) / 710 m	3 / 722, 719 and 712 m	3 / 140, 140 and 60 m	*
52	Abovian		6	Intermediate station, Category 1	2 (track No. 2 and 3) / 675 and 690 m	2 / 693 and 640 m	9 / 294, 294, 130, 180, 175, 119, 92, 60 and 50 m	poor
53	Nurnus		9.3 to Charentsavan	Intermediate station, Category 5	1 (track No. 1) / 936 m	2 / 916 and 830 m	1 / 17 m	*
54	Km 51			Branching-off station, Category 4 (Razjezd)	3 (track No. 1, 3 and 7) / 1400, 1250 and 950 m	1 / 553 m	2 / 50 each	*
55	Charentsavan		7	Intermediate station, Category 2	1 (track No. 2) / 825 m	5 / 870, 995, 794, 681 and 684 m	2 / 155 and 75 m	satisfactory
56	Solak		10	Passenger station, Category 5; (Razjezd)	1 (track No. 2) / 850 m	2 / 894 and 916 m	-	*
57	Razdan		16	Intermediate station, Category 2	2 (track No. 1 and 2) / 935 and 852 m	2 / 709 m each	6 / 795, 298, 298, 830, 616 and 40 m	satisfactory
58	Tsakhkunk		8,1	Intermediate station, Category 4	1 (track No. 2) / 733 m	2 / 745 and 856 m	6 / 623, 34, 189, 25, 56 and 50 m	*
59	Sevan		14,1	Intermediate station, Category 2	1 (track No. 2) / 750 m	3 / 778, 746 and 746 m	10 / 120, 130, 347, 251, 160, 160, 130, 160, 75 and 80 m	satisfactory

Technical Condition of Stations
Name of Railway: Armenian Railway (ARM)

Annex 1.4-1

1	2	10	11	12	13	14	15	16	17
Number	Name of station	Available facilities for freight loading and unloading	Condition of facilities for freight loading and unloading	Number of forwarded wagons in 1995/1996	Number of received wagons in 1995/1996	Volume of forwarded freight traffic (tonnes) in 1995/1996	Number of platforms / type / length (m)	Condition of station building and facilities for passenger traffic	Number of passengers departing in 1996
50	Arabkir	*	*	*	*	*	1 / high / 45 m; 1 / low / 65 m	*	30.000
51	Kanaker	*	*	*	*	*	2 / low / 180 m each	*	18.000
52	Abovian	1 container terminal; 1 elevated track for bottom discharge wagons	satisfactory to poor	30/200	628/1,263	1,100/8,700	2 / high / 108 and 110 m	Station building and platform: unsatisfactory	20.000
53	Nurnus	*	*	*	*	*	1 / low / 70 m	*	6.000
54	Km 51	*	*	*	*	*	non-existent	*	*
55	Charentsavan	1 covered storage area; 1loading ramp	poor	1,500/600	133/272	9,400/37,000	1 / high / 130 m; 1 / low / 92 m	Station building and platform: unsatisfactory	19.000
56	Solak	*	*	*	*	*	non-existent	*	12.000
57	Razdan	1 covered storage area; 1 loading ramp	poor	1,000/1,200	2,349/2,045	68,500/74,100	2 / low / 192 and 174 m	Station building and platform: unsatisfactory	25.000
58	Tsakhkunk	*	*	*	*	*	1 / low /105 m	*	*
59	Sevan	1 area for handling containers; 1 elevated track for bottom discharge wagons; 1 loading ramp	poor	200/90	274/381	11,800/5,100	2 / low / 180 and 170 m	Station building: satisfactory; Platform and fence: unsatisfactory	1.000

Technical Condition of Stations
Name of Railway: Armenian Railway (ARM)

Annex 1.4-1

1	2	3	4	5	6	7	8	9
Number	Name of station	Route	Distance to the next station (km)	Type of station (main function) and category	Number of through tracks / length (m)	Additional tracks for operational purposes (train formation and splitting up; arrival and departure tracks) / length (m)	Number of storage and other sidings / length (m)	Track condition
60	Tsovagyukh		31	Intermediate station, Category 4	1 (track No. 2) / 716 m	5 / 731, 698, 708, 620 and 260 m	-	*
61	Shorzha		57	Intermediate station, Category 4	1 (track No. 2) / 790 m	3 / 796, 763 and 663 m	3 / 650, 100 and 252 m	*
62	Vardenis		18,5	Intermediate station, Category 3	1 (track No. 2) / 861 m	3 / 866, 786 and 785 m	7 / 490, 270, 237, 125, 72, 88 and 110 m	*
63	Sotk		End of the line	Terminus, Category 4	1 (track No. 3) / 687 m	5 / 175, 697, 516, 492 and 118 m	5 / 243, 90, 103, 268 and 50 m	
64	Kakavadsor	Razdan - Ijevan (Due to land slipppage, the section from Dilijan to Ijevan has been closed for some years)	8,4	Intermediate station, Category 2	1 (track No. 2) / 942 m	11 / 963, 1028, 937, 937, 846, 846, 931, 863, 863, 864 and 884 m	5 / 282, 132, 310, 450 and 440 m	satisfactory
65	Megradsor		14,9	Intermediate station, Category 4	1 (track No. 1) / 962 m	3 / 940, 1002 and 840 m	-	*
66	Fioletovo		17	Passenger station, Category 5; (Razjezd)	1 (track No. 1) / 1122 m	2 / 466 and 906 m	-	*
67	Dilijan		28	Intermediate station, Category 2	1 (track No. 1) / 903 m	3 / 1005, 990 and 1070 m	5 / 70, 140, 100, 100 and 57 m	**
68	Goyavan		16,1	Passenger station, Category 5; (Razjezd)	1 (track No. 1) / 855 m	2 / 891 and 843 m	-	*

Technical Condition of Stations
Name of Railway: Armenian Railway (ARM)

Annex 1.4-1

1	2	10	11	12	13	14	15	16	17
Number	Name of station	Available facilities for freight loading and unloading	Condition of facilities for freight loading and unloading	Number of forwarded wagons in 1995/1996	Number of received wagons in 1995/1996	Volume of forwarded freight traffic (tonnes) in 1995/1996	Number of platforms / type / length (m)	Condition of station building and facilities for passenger traffic	Number of passengers departing in 1996
60	Tsovagyukh	*	*	*	*	*	1 / high /220 m; 1 / low / 90 m	*	*
61	Shorzha	*	*	*	*	*	1 / high / 250 m	*	*
62	Vardenis	*	*	*	*	*	1 / high / 210 m	*	*
63	Sotk	*	*	*	*	*	1 / low / 175 m	*	*
64	Kakavadsor	non-existent	-	**	**	**	1 / high /250 m	Station building: unsatisfactory	0
65	Megradsor	*	*	*	*	*	1 / low / 400 m	*	*
66	Fioletovo	*	*	*	*	*	1 / low / 700 m	*	*
67	Dilijan	1 elevated track for bottom discharge wagons; 1 storage area	very poor	0/0	0/0	0/0	1 / high / 400 m	Station building and platform: unsatisfactory	0
68	Goyavan	*	*	*	*	*	1 / low / 400 m	*	*

Technical Condition of Stations
Name of Railway: Armenian Railway (ARM)

Annex 1.4-1

1	2	3	4	5	6	7	8	9
Number	Name of station	Route	Distance to the next station (km)	Type of station (main function) and category	Number of through tracks / length (m)	Additional tracks for operational purposes (train formation and splitting up; arrival and departure tracks) / length (m)	Number of storage and other sidings / length (m)	Track condition
69	Ijevan		End of the line	Border station, Category 1	1 (track No. 1) /865 m	9 / 875, 950, 945, 907, 967, 870, 705, 733 and 710 m	7 / 160, 290, 135, 89, 90, 70 and 30 m	**

Annex 1.4-1

Technical Condition of Stations
Name of Railway: Armenian Railway (ARM)

1	2	10	11	12	13	14	15	16	17
Number	Name of station	Available facilities for freight loading and unloading	Condition of facilities for freight loading and unloading	Number of forwarded wagons in 1995/1996	Number of received wagons in 1995/1996	Volume of forwarded freight traffic (tonnes) in 1995/1996	Number of platforms / type / length (m)	Condition of station building and facilities for passenger traffic	Number of passengers departing in 1996
69	Ijevan	** (Due to closure of the section between Dilijan and Ijevan; the station is out of use and conserved:)	**	0/0	0/0	0/0	1 / high / 310 m; 1 / low / 300 m	Station building and platform: unsatisfactory	0

Annex 1.4-2

Technical Condition of Stations
Name of Railway: Azerbaijan State Railways (AGZD)

1	2	3	4	5	6	7	8	9
Number	Name of station	Route	Distance to the next station (km)	Type of station (main function) and category	Number of through tracks	Additional tracks for operational purposes (train formation and splitting up; arrival and departure tracks) / length (m)	Number of storage and other sidings / length (m)	Track condition
1	**Baku Pass.**	**Baku - Beyuk-Kyassik**	2	Passenger station, Category "Extra"	2	8 / 350, 325, 320, 275, 275, 350, 350 and 350 m	15 / 380, 400, 450, 450, 375, 425, 500, 550, 850, 530, 550, 600, 560, 400 and 400 m	poor
2	**Baku Tovarnaya**		4	Freight station, Category "Extra"	2	7 / 577, 590, 1633, 433, 684, 559 and 640 m (Ferry station: 8 / 468, 514, 1128, 1552, 756, 592, 400 and 360 m)	** (not available)	Baku Tov: good; Ferry station: satisfactory
3	**Kishli-Baku**		8	Freight station/ Container terminal, Categeory "Extra"	2	4 / 1458, 1650, 1409 and 1230 m; 2 sorting sidings / 1239 and 976 m	6 / 1000, 1000, 550, 1150, 450 and 660 m; (Container terminal: 4 / 1375, 875, 375 and 1130 m)	satisfactory to poor; container terminal: poor to very poor
4	**Baladshary**		12	Marshalling yard/ Freight station, Category "Extra"	2	Southern part: 9 / 800, 800, 800, 800, 800, 850, 900, 950 and 950 m; Northern part: 10 / 1240, 940, 1030, 1130, 890, 930, 930, 890, 930 and 104 m; 31 sorting sidings / 290, 290, 310, 350, 1185 , 874, 894, 1088, 924, 979, 1126, 1072, 1310, 1227, 1435, 1196, 1146, 1127, 1166, 1201, 1252, 1134, 710, 550, 660, 530, 570, 721, 487, 570 and 1084 m	1 / 560 m	poor good to satisfactory
5	Eybat		8	Freight station	2	* (not requested)	*	*
6	Puta		12	Freight station	2	*	*	*
7	Karadag		14	Freight station	2	*	*	*
8	Sangatshali		9	Freight station	2	*	*	*
9	Duvanni		14	Freight station	2	*	*	*

Annex 1.4-2

Technical Condition of Stations
Name of Railway: Azerbaijan State Railways (AGZD)

1	2	10	11	12	13	14	15	16	17
Number	Name of station	Available facilities for freight loading and unloading	Condition of facilities for freight loading and unloading	Number of forwarded wagons in 1995	Number of received wagons in 1995	Volume of forwarded freight traffic (tonnes) in1995	Number of platforms / type / length (m)	Condition of station building and facilities for passenger traffic	Number of passengers departing in 1995
1	**Baku Pass.**	non-existent	n/a	0	0	0	in total 7: 2 / low / 625 and 552 m; 4 / high / 440 and 254 m each; 1 / high+low / 276+84 m	satisfactory; Station building requires repair	
2	**Baku Tovarnaya**	Storage facilities; Loading ramp	satisfactory	**	**	**	non-existent	n/a (not applicable)	** (not available) 1)
3	**Kishli-Baku**	Area for handling containers; Storage facilities; Loading ramp; Various cranes	satisfactory (*compare Annex 1.1.4-5)*	**	**	**	1 / high+low / 70+110 m	satisfactory (no station buiding)	**
4	**Baladshary**	Storage facilities; Loading ramp	poor to very poor	433	813	17822	in total 3: 1 / high / 446 m; 1 / high+low / 125+425 m; 1 / high+low / 85+250 m	satisfactory to poor	**
5	Eybat	*	*	304	286	7098	*	*	**
6	Puta	*	*	70	168	3499	*	*	**
7	Karadag	*	*	5497	1330	321384	*	*	**
8	Sangatshali	*	*	140	301	4826	*	*	**
9	Duvanni	*	*	179	742	11036	*	*	**

Annex 1.4-2

Technical Condition of Stations
Name of Railway: Azerbaijan State Railways (AGZD)

1	2	3	4	5	6	7	8	9
Number	Name of station	Route	Distance to the next station (km)	Type of station (main function) and category	Number of through tracks	Additional tracks for operational purposes (train formation and splitting up; arrival and departure tracks) / length (m)	Number of storage and other sidings / length (m)	Track condition
10	**Aliat**		14	Marshalling yard/ Freight station, Category 1	2	4 / 1140, 1006, 956 and 1095 m; 4 sorting sidings / 1098, 1000, 1146 and 1072 m	**	satisfactory to poor
11	Atbulak		12	Freight station	2	*	*	*
12	Navagi		8	Freight station	2	*	*	*
13	Pirsagat		10	Freight station	2	*	*	*
14	**Kasi-Magomed**		12	Freight station, Category 1	2	6 / 827, 850, 850, 850, 840 and 851 m; 5 sorting sidings / 760, 873, 867, 946 and 946 m	2 / 157 and 158 m	poor to very poor
15	Mugan		14	Freight station	2	*	*	*
16	Gadshievo		12	Overtaking station	2	*	*	*
17	Padar		13	Overtaking station	2	*	*	*
18	Sagiri		14	Overtaking station	2	*	*	*
19	Kerar		10	Overtaking station	2	*	*	*
20	Kyrdamir		11	Freight station	2	*	*	*
21	Karabudshak		10	Overtaking station	2	*	*	*
22	Mysysli		13	Freight station	2	*	*	*
23	Bargusheti		13	Freight station	2	*	*	*
24	Udshari		9	Overtaking station	2	*	*	*
25	Alikent		11	Overtaking station	2	*	*	*
26	Lyaki		11	Freight station	2	*	*	*
27	Malay		14	Freight station	2	*	*	*
28	**Yevlakh**		12	Freight station, Category 1	2	Part A: 7 / 853, 820, 847, 826, 749, 636 and 637 m; Part B: 2 / 714 and 775 m	6 / 90, 80, 100, 124, 221 and 221 m	Part A: satisfactory; Part B: good to satisfactory; Sidings: very poor
29	Mingetshaur Main Sation		13	Freight station	2	*	*	*

Annex 1.4-2

Technical Condition of Stations
Name of Railway: Azerbaijan State Railways (AGZD)

1	2	10	11	12	13	14	15	16	17
Number	Name of station	Available facilities for freight loading and unloading	Condition of facilities for freight loading and unloading	Number of forwarded wagons in 1995	Number of received wagons in 1995	Volume of forwarded freight traffic (tonnes) in1995	Number of platforms / type / length (m)	Condition of station building and facilities for passenger traffic	Number of passengers departing in 1995
10	Aliat	non-existent	n/a	34	179	1492	1 / high+low / 150+560 m	satisfactory	**
11	Atbulak	*	*	*	*	*	*	*	**
12	Navagi	*	*	*	*	*	*	*	**
13	Pirsagat	*	*	-	*	*	*	*	**
14	Kasi-Magomed	non-existent	n/a	72	**	2976	3 / low / 320, 415 and 485 m	satisfactory; Station building is in need of repair	**
15	Mugan	*	*	1	**	22	*	*	**
16	Gadshievo	*	*	*	*	*	*	*	**
17	Padar	*	*	*	*	*	*	*	**
18	Sagiri	*	*	*	*	*	*	*	**
19	Kerar	*	*	*	*	*	*	*	**
20	Kyrdamir	*	*	1067	**	60416	*	*	**
21	Karabudshak	*	*	*	*	*	*	*	**
22	Mysysli	*	*	88	**	3292	*	*	**
23	Bargusheti	*	*	-	*	*	*	*	**
24	Udshari	*	*	349	**	19060	*	*	**
25	Alikent	*	*	*	*	*	*	*	**
26	Lyaki	*	*	425	**	19537	*	*	**
27	Malay	*	*	-	*	*	*	*	**
28	Yevlakh	Storage facilities; Loading ramp; Cranes	satisfactory to poor	566	**	29074	2 / low / 530 and 570 m	satisfactory; one platform roofing needs repair	**
29	Mingetshaur Main Sation	*	*	2244	**	126792	*	*	**

Annex 1.4-2

Technical Condition of Stations
Name of Railway: Azerbaijan State Railways (AGZD)

1	2	3	4	5	6	7	8	9
Number	Name of station	Route	Distance to the next station (km)	Type of station (main function) and category	Number of through tracks	Additional tracks for operational purposes (train formation and splitting up; arrival and departure tracks) / length (m)	Number of storage and other sidings / length (m)	Track condition
30	Mingetshaur City		18	Passenger station station	1	*	*	*
31	Geran		11	Freight station	2	*	*	*
32	Kyurok-Tshai		14	Freight station	2	*	*	*
33	Dalimamdli		7	Freight station	2	*	*	*
34	Sasali		10	Freight station	2	*	*	*
35	**Gyandsha**		13	Freight station, Category 1	2	11 / 553, 893, 804, 108, 990, 735, 875, 860, 638, 156 and 864 m; 3 sorting sidings / 872, 885 and 725 m	1 / 682 m	good; Sorting sidings: satisfactory
36	Alabashli		11	Freight station	2	*	*	*
37	Shamkhor		10	Freight station	2	*	*	*
38	Dollyar		13	Freight station	2	*	*	*
39	Dsegam		7	Freight station	2	*	*	*
40	Dyugarli		7	Overtaking station	2	*	*	*
41	Kovlyar		13	Freight station	2	*	*	*
42	Taus		11	Freight station	2	*	*	*
43	Tatlu		10	Freight station	2	*	*	*
44	**Akstafa**		6	Freight station, Category 1	2	6 / 856, 848, 848, 848, 767 and 774 m	3 / 292, 107 and 60 m	satisfactory to poor
45	Shakarlyi		8	Overtaking station	2	*	*	*
46	Poili		9	Freight station	2	*	*	*
47	Salakhlyi		9	Freight station	2	*	*	*
48	Soyuk-Bulak		11	Freight station	2	*	*	*
49	**Beyuk-Kyassik**		-	Border station, Category 1	2	10 / 865, 800, 800, 878, 878, 908, 1237, 1237, 1050 and 1050 m	**	5 good; 5 very poor
50	**Yalama**	**Yalama - Baku - Goradis**	9	Border station/ Freight station, Category 1	2	4 / 1037, 1165, 1099 and 1027 m	**	good to satisfactory

Annex 1.4-2

Technical Condition of Stations
Name of Railway: Azerbaijan State Railways (AGZD)

1	2	10	11	12	13	14	15	16	17
Number	Name of station	Available facilities for freight loading and unloading	Condition of facilities for freight loading and unloading	Number of forwarded wagons in 1995	Number of received wagons in 1995	Volume of forwarded freight traffic (tonnes) in1995	Number of platforms / type / length (m)	Condition of station building and facilities for passenger traffic	Number of passengers departing in 1995
30	Mingetshaur City	*	*	16	**	1648	*	*	**
31	Geran	*	*	283	**	12979	*	*	**
32	Kyurok-Tshai	*	*	2	**	120	*	*	**
33	Dalimanedli	*	*	130	**	6033	*	*	**
34	Sasali	*	*	198	**	5200	*	*	**
35	**Gyandsha**	Area for handling containers; Storage facilities; Loading ramp; Cranes	poor (*compare Annex 1.1.4-6*)	1574	**	81384	3 / low / 225, 600 and 220 m	satisfactory to poor	**
36	Alabashli	*	*	143	**	6668	*	*	**
37	Shamkhor	*	*	2672	**	145697	*	*	**
38	Dollyar	*	*	1707	**	183611	*	*	**
39	Dsegam	*	*	5	**	312	*	*	**
40	Dyugarli	*	*	*	*	*	*	*	**
41	Kovlyar	*	*	85	**	4417	*	*	**
42	**Taus**	*	*	377	**	23466	*	*	**
43	Tatlu	*	*	2	**	51	*	*	**
44	**Akstafa**	non-existent	n/a	75	**	4197	in total 2: 1 / high / 250 m; 1 / low / 560 m	satisfactory	**
45	Shakarlyi	*	*	-	*	*	*	*	**
46	Poili	*	*	794	**	44212	*	*	**
47	Salakhlyi	*	*	49	**	1946	*	*	**
48	Soyuk-Bulak	*	*	8	**	3206	*	*	**
49	**Beyuk-Kyassik**	non-existent	n/a	*0	0	0	2 / low / 400 m each	satisfactory	**
50	**Yalama**	non-existent	n/a	608	841	9274	3 / low / 450, 400 and 450 m	satisfactory; the platforms are in need of repair	**

Annex 1.4-2

Technical Condition of Stations
Name of Railway: Azerbaijan State Railways (AGZD)

1	2	3	4	5	6	7	8	9
Number	Name of station	Route	Distance to the next station (km)	Type of station (main function) and category	Number of through tracks	Additional tracks for operational purposes (train formation and splitting up; arrival and departure tracks) / length (m)	Number of storage and other sidings / length (m)	Track condition
51	Ledshet		8	Freight station	2	*	*	*
52	Khudat		8	Freight station	2	*	*	*
53	Kusar-Tshai		13	Freight station	2	*	*	*
54	Khatshmas		10	Freight station	2	*	*	*
55	Chartli		12	Freight station	2	*	*	*
56	Sarvan		11	Freight station	2	*	*	*
57	Divitshi		9	Freight station, Category 1	2	Northern part: 9 / 1085, 1111, 942, 1262, 1058, 1052, 1209, 1045 and 1200 m; Southern part: 4 / 953, 945, 971 and 1048 m	**	good
58	Gilgil-Tshai		10	Freight station	2	*	*	*
59	Kizil-Burun		11	Freight station	2	*	*	*
60	Siasan		9	Freight station	2	*	*	*
61	Zorat		10	Freight station	2	*	*	*
62	Kiliasi		7	Freight station	2	*	*	*
63	Sital-Tshai		10	Freight station	2	*	*	*
64	Yashma		11	Freight station	2	*	*	*
65	Shirvan		1	Marshalling yard / Freight station, Category "Extra"	2	27 / 985, 875,850, 850, 843, 968, 1039, 1050, 1207, 1015, 1937, 1075, 1275, 1275, 1800, 1890, 1800, 1785, 1800, 1800, 1800, 1775, 1785, 1775, 1785, 1785 and 1950 m; 42 sorting sidings / 8 x 1100, 6 x 1175, 5 x 1050, 4 x 1000, 3 x 975, 3 x 1025, 3 x 1150, 3 x 1200, 2 x 1125, 2 x 1075, 1x 1250, 1 x 800, 1 x 850 m	**	good to satisfactory good to satisfactory
66	Seynalabdin		9	Freight station	2	*	*	*
67	Sumgait		11	Freight station	2	*	*	*

Annex 1.4-2

Technical Condition of Stations
Name of Railway: Azerbaijan State Railways (AGZD)

1	2	10	11	12	13	14	15	16	17
Number	Name of station	Available facilities for freight loading and unloading	Condition of facilities for freight loading and unloading	Number of forwarded wagons in 1995	Number of received wagons in 1995	Volume of forwarded freight traffic (tonnes) in1995	Number of platforms / type / length (m)	Condition of station building and facilities for passenger traffic	Number of passengers departing in 1995
51	Ledshet	*	*	*	*	*	*	*	**
52	Khudat	*	*	159	240	8155	*	*	**
53	Kusar-Tshai	*	*	5	8	124	*	*	**
54	Khatshmas	*	*	351	1111	13508	*	*	**
55	Chartli	*	*	632	56	37000	*	*	**
56	Sarvan	*	*	*	*	*	*	*	**
57	Divitshi	non-existent	n/a	382	943	10626	1 / high+low / 400 and 440 m	satisfactory	**
58	Gilgil-Tshai	*	*	48	0	2400	*	*	**
59	Kizil-Burun	*	*	27	156	1046	*	*	**
60	Siasan	*	*	*	*	*	*	*	**
61	Zorat	*	*	*	*	*	*	*	**
62	Kiliasi	*	*	1342	1787	52100	*	*	**
63	Sital-Tshai	*	*	*	*	*	*	*	**
64	Yashma	*	*	36	51	1075	*	*	**
65	Shirvan	non-existent	poor	46	0	2041	1 / low / 45 m	poor	**
66	Seynalabdin	*	*	219	1251	9219	*	*	**
67	Sumgait	*	*	2569	12956	122323	*	*	**

Annex 1.4-2

Technical Condition of Stations
Name of Railway: Azerbaijan State Railways (AGZD)

1	2	3	4	5	6	7	8	9
Number	Name of station	Route	Distance to the next station (km)	Type of station (main function) and category	Number of through tracks	Additional tracks for operational purposes (train formation and splitting up; arrival and departure tracks) / length (m)	Number of storage and other sidings / length (m)	Track condition
68	Gyuzdek		8	Freight station	2	*	*	*
69	Khirdalan		2	Freight station;Container terminal	2	*	*	*
70	Aliat Nov.		16	Overtaking station	2	*	*	*
71	Snoini		15	Overtaking station	2	*	*	*
72	Garakyuna		8	Overtaking station	2	*	*	*
73	Ali-Bairamly Sort.		4	Marshalling yard, Category 1	2	6 / 894, 838, 792, 594, 575 and 572 m	1 / 595	satisfactory to poor
74	Ali-Bairamly Glav. (Main Station)		12	Freight station	2	*	*	*
75	Osmanly		14	Overtaking station	2	*	*	*
76	Myursali		11	Freight station	1	*	*	*
77	Saradshalyar		11	Freight station	1	*	*	*
78	Saatli		13	Freight station	1	*	*	*
79	Bedshari		16	Overtaking station	1	*	*	*
80	Imishli		14	Freight station, Category 1	1	5 / 920, 834, 862, 827 and 876 m; 4 sorting sidings / 836, 836, 834 and 834 m	2 / 220 m each	poor to very poor
81	Vatagi		12	Freight station	1	*	*	*
82	Khalach		14	Freight station	1	*	*	*
83	Dashburun		11	Freight station	1	*	*	*
84	Begmanli		10	Freight station	1	*	*	*
85	Bala-Begmanli		5	Overtaking station	1	*	*	*
86	Gadshilu		13	Overtaking station	1	*	*	*

Annex 1.4-2

Technical Condition of Stations
Name of Railway: Azerbaijan State Railways (AGZD)

1	2	10	11	12	13	14	15	16	17
Number	Name of station	Available facilities for freight loading and unloading	Condition of facilities for freight loading and unloading	Number of forwarded wagons in 1995	Number of received wagons in 1995	Volume of forwarded freight traffic (tonnes) in1995	Number of platforms / type / length (m)	Condition of station building and facilities for passenger traffic	Number of passengers departing in 1995
68	Gyuzdek	1 elevated track for bottom discharge wagons	*	12621	15	870322	*	*	**
69	Khirdalan	Stoarage facilities; Container terminal (*compare Annex 1.1.4-7*)	*	165	1393	3794	*	*	**
70	Aliat Nov.	*	*	34	179	1492	*	*	**
71	Snoini	*	*	*	*	*	*	*	**
72	Garakyuna	*	*	*	*	*	*	*	**
73	**Ali-Bairamly Sort.**	non-existent	n/a	*			2 / high+low/ 100+300 m	satisfactory	**
74	Ali-Bairamly Glav. (Main Station)	Storage facilities; Loading ramp	*	432	22785	21875	*	*	**
75	Osmanly	*	*	*	*	*	*	*	**
76	Myursali	*	*	32	128	1859	*	*	**
77	Saradshalyar	*	*	709	861	19793	*	*	**
78	Saatli	*	*	218	218	13032	*	*	**
79	Bedshari	*	*	*	*	*	*	*	**
80	**Imishli**	non-existent	n/a	619	1040	30466	2 / low / 325 and 650 m	poor	**
81	Vatagi	*	*	2890	459	181240	*	*	**
82	Khalach	*	*	-	30	**	*	*	**
83	Dashburun	*	*	804	744	39952	*	*	**
84	Begmanli	*	*	-	*	*	*	*	**
85	Bala-Begmanli	*	*	*	*	*	*	*	**
86	Gadshilu	*	*	*	*	*	*	*	**

Annex 1.4-2

Technical Condition of Stations
Name of Railway: Azerbaijan State Railways (AGZD)

1	2	3	4	5	6	7	8	9
Number	Name of station	Route	Distance to the next station (km)	Type of station (main function) and category	Number of through tracks	Additional tracks for operational purposes (train formation and splitting up; arrival and departure tracks) / length (m)	Number of storage and other sidings / length (m)	Track condition
87	Goradis		at present end of the line	Freight station, Category 1	1	4 / 848, 920, 8882 and 845 m	1 7 259 m	satisfactory
88	Salyany	Ali-Bayramli - Astara	47 from Ali-Bayramli	Freight station; Category 1	1	13 / 883, 1000, 113, 926, 913, 858, 961, 966, 892, 851, 851, 880 and 911m	1 / 905 m	good to satisfactory
89	Astara		136 from Salyany	Border station	1	10 / 830, 1079, 1071, 916, 915, 874, 874, 916, 892 and 851 m	1 / 851 m	poor to very poor

[1] **Passenger traffic in 1995:**
in total: 8,964,000 passengers (arriving 4,474,000; departing 4,490,000)
short-distance traffic: 6,334,500 passengers (arriving 3,066,200; departing 3,268,300)
long-distance traffic (within Azerbaijan): 2,558,700 passengers (arriving 1,272,400: departing 1,286,300)
international traffic: 11,200 passengers (arriving 4,700; departing 6,500)

[2] cost estimates based on Consultant's unit cost calculations

Annex 1.4-2

Technical Condition of Stations
Name of Railway: Azerbaijan State Railways (AGZD)

1	2	10	11	12	13	14	15	16	17
Number	Name of station	Available facilities for freight loading and unloading	Condition of facilities for freight loading and unloading	Number of forwarded wagons in 1995	Number of received wagons in 1995	Volume of forwarded freight traffic (tonnes) in1995	Number of platforms / type / length (m)	Condition of station building and facilities for passenger traffic	Number of passengers departing in 1995
87	Goradis	Storage facilities; Loading ramp; 1 crane; Area for handling 3 t and 5 t containers	poor	-	*	*	2 / low / 345 m each	poor to very poor	**
88	Salyany	2 cranes	satisfactory	**	**	**	2 / low / 450 m each	poor	**
89	Astara	Storage area (rented out)	**	**	**	**	2 / low / 450 and 100 m	poor	**

Annex 1.4.-3

Technical Condition of Main Stations
Name of Railway: Georgian Railways (GRZD)

1	2	3	4	5	6	7	8	9	10
Number	Name of station	Route	Distance to the next station listed (km)	Type of station (main function)	Category of station	Number of through tracks / length (m)	Additional tracks for operational purposes (train formation and splitting up; arrival and departure tracks) / length (m)	Number of storage and other sidings / length (m)	Track condition
1	Poti	**Poti - Tbilisi - Gardabani - (Baku)**	67.9 from Poti Port; 65.2 from Poti	Freight station	1	2 / 670 and 615 m	4 / 616 and around 400 m	28 / 520, 560, 675, 192, 96, 765, 475, 225, 225, 70, 69, 90, 150, 150, 140, 300, 300, 120, 422, 445, 620, 380, 252, 620, 290, 425, 288 and 355 m	poor to very poor
2	Samtredia		61,0	Combination of the former seperated stations Samtredia and Samtredia 2: Marshalling yard / Freight station / Container terminal	Extra	2 / 5856 and 5322 m	16 / 916, 962, 867, 865, 874, 872, 994, 920, 891, 932, 900, 900, 958, 958, 976 and 829 m	37 / 694, 694, 825, 944, 828, 784, 849, 988, 962, 878, 859, 859, 892, 841, 878, 861, 844, 844, 856, 856, 803, 803, 734, 630, 563, 669, 664, 694, 165, 280, 128, 195, 120, 47, 50, 272 and 200 m	satisfactory to poor
3	Zestafoni		63,1	Freight station	1	2 / 402 and 679 m	2 / 558 and 444 m	10 / 506, 326, 330, 695, 760, 753, 770, 771, 220 and 85 m	satisfactory to poor
4	Khashuri		44,1	Freight station	1	1 / 725 m	3 / 387, 306 and 250 m	9 / 885, 430, 410, 683, 683, 800, 760, 790 and 786 m	good to satisfactory

Annex 1.4-3

Technical Condition of Stations
Name of Railway: Georgian Railways (GRZD)

1	2	11	12	13	14	15	16	17	18	19
Number	Name of station	Available facilities for freight loading and unloading (dimension in m)	Condition of facilities for freight loading and unloading	Number of forwarded wagons in 1996	Number of received wagons in 1996 (incl. empty wagons)	Volume of forwarded freight traffic (tonnes) in 1996	Number of platforms / length (m)	Condition of station building and facilities for passenger traffic	Number of passengers arriving in 1996	Number of passengers departing in 1996
1	Poti	non-existent	-	24.097	28.367	1.429.061	2 / 600, 420	satisfactory	60.000	62.000
2	Samtredia	2 warehouses (96x26; 216x30); 1 Covered loading ramp (90x18); 1 loading ramp (60x20); 3 areas for handling containers 260x16; 260x16; 160x25 for 20 ft containers); *compare Annex 1.1.4-9*	satistactory to poor	695	561	37067	3 / 503, 577, 306 and 2 / 180 m each at the former station Samtredia 2	satisfactory	320.000	322.000
3	Zestafoni	1 warehouse (60x18); 1 Covered loading ramp (36x22);	very poor	594	585	37193	2 / 350, 240	good	200.000	205.000
		1 area for handling containers (220x60); 1 elevated track for bottom discharge wagons (168)	satisfactory							
4	Khashuri	1 warehouse (37x13); 1 area for handling containers (170x16); 1 elevated track for bottom discharge wagons (115)	very poor	485	908	16.420	2 / 720, 640	good	300.000	300.000

Annex 1.4.-3

Technical Condition of Main Stations
Name of Railway: Georgian Railways (GRZD)

1	2	3	4	5	6	7	8	9	10
Number	Name of station	Route	Distance to the next station listed (km)	Type of station (main function)	Category of station	Number of through tracks / length (m)	Additional tracks for operational purposes (train formation and splitting up; arrival and departure tracks) / length (m)	Number of storage and other sidings / length (m)	Track condition
5	Gori		73,3	Passenger station / Container terminal	2	2 / 850 and 930 m	2 / 854 m each	7 / 930, 900, 245, 320, 445, 448 and 448 m	satisfactory to pooor
6	Tbilisi Tov.		2,3	Freight station / Container terminal	1	2 / around 900 m each	2 / 879 and 850 m	24 / 728, 807, 752, 752, 72, 350, 188, 262, 304, 332, 206, 290, 73, 80, 345, 248, 276, 280, 342, 570, 90, 106, 72 and 136 m	satisfactory to very poor
7	Tbilisi Pass.		6,3	Passenger station	Extra	2 / 655 and 605 m	not available	18 / 605, 575, 575, 570, 430, 460, 480, 710, 585, 380, 310, 170, 90, 50 180, 110, 80 and 50 m	satisfactory to poor
8	Tbilisi Usl.		0,8	Branch-off station / Freight station	Extra	2 / 554 and 502 m	6 / 857, 316, 857, 316, 555 and 639 m	9 / 355, 445, 428, 366, 590, 640, 726, 428 and 400 m	good to satisfactory

Annex 1.4-3

Technical Condition of Stations
Name of Railway: Georgian Railways (GRZD)

1	2	11	12	13	14	15	16	17	18	19
Number	Name of station	Available facilities for freight loading and unloading (dimension in m)	Condition of facilities for freight loading and unloading	Number of forwarded wagons in 1996	Number of received wagons in 1996 (incl. empty wagons)	Volume of forwarded freight traffic (tonnes) in 1996	Number of platforms / length (m)	Condition of station building and facilities for passenger traffic	Number of passengers arriving in 1996	Number of passengers departing in 1996
5	Gori	1 warehouse (45x24); 1 area for handling containers (100x16); *compare Annex 1.1.4-11*	very poor	192	1169	6951	2 / 570, 500	satisfactory	180.000	185.000
		1 covered loading ramp; 1 loading ramp (80x18); 1 elevated track for bottom discharge wagons (90)	poor							
6	Tbilisi Tov.	3 covered loading areas (60x24; 60x24; 75x24)	satisfactory	492	3433	14728	1/ 150	satisfactory	20.000	20.000
		1 loading ramp (100x20); 1 area for handling containers (430x16); 1 area for handling 20 ft containers (*compare Annex 1.1.4-10*)	poor							
7	Tbilisi Pass.	non-existent	-	-	-	-	3 / 700, 600, 570	good	1.200.000	1.200.000
8	Tbilisi Usl.	non-existent	-	608	5.876	28.558	2 / 420 each	good	120.000	120.000

Annex 1.4.-3

Technical Condition of Main Stations
Name of Railway: Georgian Railways (GRZD)

1	2	3	4	5	6	7	8	9	10
Number	Name of station	Route	Distance to the next station listed (km)	Type of station (main function)	Category of station	Number of through tracks / length (m)	Additional tracks for operational purposes (train formation and splitting up; arrival and departure tracks) / length (m)	Number of storage and other sidings / length (m)	Track condition
9	Tbilisi Sort.		20,2	Marshalling yard	1	2 / 860 and 876 m	23 / 812, 790, 800, 816, 878, 865, 865, 323, 823, 877, 824, 828, 828, 827, 827, 963, 914, 938, 938, 856, 856, 760 and 760 m	7 / 855, 871, 862, 862, 892, 804 and 852 m	satisfactory to very poor
10	Gardabani		28,5	Border station	2	2 763 and 1010 m	not available	4 / 813, 835, 815 and 607 m	good to satisfactory
11	Batumi	Batumi - Samtredia	105.6 to Samtredia	Combination of the former seperatad passenger and freight station (under rebuilding since 1996)	Extra	2 / 1285 and 1191 m	8 / 953, 747, 747, 813, 799, 590, 455 and 860 m	10 / 1049, 426, 587, 519, 523, 809, 828, 849, 200 and 282 m	poor to very poor
12	Marneuli	Tbilisi - Sadakhlo - (Yerevan)	29.9 from Tbilisi Usl.	Freight station	2	1 / 448 m	2 / 574 and 280 m	5 / 575, 756, 546, 548 and 574 m	satisfactory to very poor
13	Sadakhlo		59.1 from Tbilisi Usl.	Border station	4	1/ 467 m	not available	4 / 534, 534, 1050 and 1050 m	satisfactory to very poor

Annex 1.4-3

Technical Condition of Stations
Name of Railway: Georgian Railways (GRZD)

1	2	11	12	13	14	15	16	17	18	19
Number	Name of station	Available facilities for freight loading and unloading (dimension in m)	Condition of facilities for freight loading and unloading	Number of forwarded wagons in 1996	Number of received wagons in 1996 (incl. empty wagons)	Volume of forwarded freight traffic (tonnes) in 1996	Number of platforms / length (m)	Condition of station building and facilities for passenger traffic	Number of passengers arriving in 1996	Number of passengers departing in 1996
9	Tbilisi Sort.	non-existent	-	92	889	4.634	1 / 240	satisfactory	75.000	75.000
10	Gardabani	non-existent	-	31	31	1.345	2 / 430, 250	satisfactory	50.000	50.000
11	Batumi	1 warehouse (76x24); 1 covered loading ramp (106x18); 1 loading ramp (46x20); 1area for handling containers (215x16); 1 elevated track for bottom discharge wagons (180)	satisfactory to poor	10.619	14.258	668.704	2 /395, 340 (old passenger staion)	satisfactory	250.000	235.000
12	Marneuli	1 elevated track for bottom discharge wagons (168)	satisfactory	113	1.188	5.524	2 / 100 each	satisfactory	25.000	25.000
13	Sadakhlo	non-existent	-	490	40	34.178	2 / 100, 150	satisfactory	15.000	15.000

[1] General repairs; no specification has been provided by GRZD

Annex 1.5-1

Analysis of Existing Terminals for Combined Traffic - Abovian

Name of railway	Armenian Railway
Name of station	Abovian
Handling devices	
cranes (number/lifting capacity)	1 gantry crane (KK-20)/20 tonnes/span 16 m/never completely assembled *in addition 2 gantry cranes/10 tonnes each*
present condition/availability	never fit for use
length of craneway	80 m
other devices for container handling	
number of tracks under the crane	1
present condition of tracks	very poor
number of lanes (for container trucks) under the crane	
Storage facilities	
storage area	800 m^2/not paved/in very poor condition
warehouse	non-existent
Location in the railway network	not well situated; transfer of wagons from Masis necessary
Links with the road network	
location in the network	long distance from Yerevan
condition of road access	very poor
Fencing	non-existent
Lighting installation	non-existent
Communication and data processing technology	not available
Additional remarks	
Main deficiencies/overall assessment/	Generally, the terminal is not suitable for container handling at all./Taking into account the present condition and the future development according to the forecast, it is considered unwise to make any proposal to complete and to rehabilitate this terminal.

Volume of container traffic included in the figures for Karmir Blur

Annex 1.5-2

Analysis of Existing Terminals for Combined Traffic - Gyumri

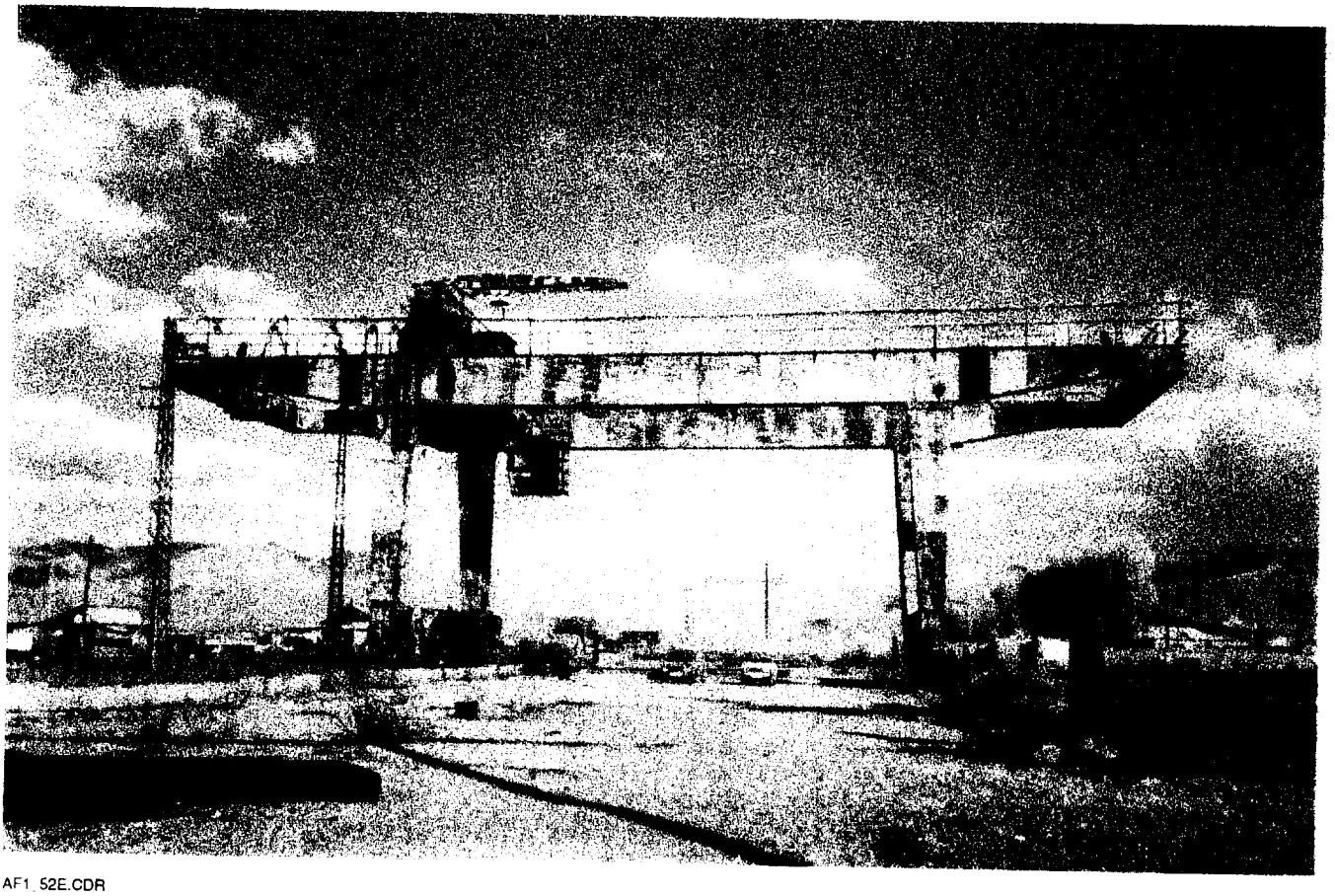
Name of railway	Armenian Railway
Name of station	Gyumri
Handling devices	
cranes (number/lifting capacity)	1 gantry crane with 2 jibs (KK-32)/ 32 tonnes/span 25 m *in addition 2 gantry cranes/10 tonnes each/partly cannibalised*
present condition/availability	not in working order/partly cannibalised/in need of general overhaul
length of craneway	80 m
other devices for container handling	1 spreader/20 tonnes/not in working order
number of tracks under the crane	1
present condition of tracks	very poor
number of lanes (for container trucks) under the crane	1 beside the storage area/craneway
Storage facilities	
storage area	900 m^2/paved/in acceptable condition
warehouse	non-existent
Location in the railway network	1.5 km away from the Gyumri railway station
Links with the road network	
location in the network	long distance to trunk roads
condition of road access	very poor, not acceptable
Fencing	only partly existing
Lighting installation	non-existent
Communication and data processing technology	since 1988 (earthquake) out of order
Additional remarks	office building destroyed by the earthquake
Main deficiencies/overall assessment	Present condition of the handling devices; access to the road network/Taking into account the present condition and the projected traffic level, the rehabiltation of the container terminal cannot be recommended.

Volume of container traffic (number of containers handled)

Type of container		1990	1991	1992	1993	1994	1995	1996 (Jan-June)
3 and 5 t[1)]	forwarded	5,302	3,231	482	0	0	0	0
	received	5,513	3,257	464	0	0	0	0
TEU (20')	forwarded	563	120	110	0	0	0	3
	received	1,265	328	44	0	70	58	21
in total	forwarded	5,865	3,411	591	0	0	0	3
	received	6,778	3,585	508	0	70	58	21

[1)] one 5 t container is counted as two 3 t containers

Container terminal Gyumri (ARM)



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Annex 1.5-3

Analysis of Existing Terminals for Combined Traffic - Karmir Blur

Name of railway	Armenian Railway
Name of station	Karmir Blur
Handling devices	
cranes (number/lifting capacity)	2 gantry cranes (KK-20)/20 tonnes/span 25 m *in addition 3 gantry cranes/5 tonnes each*
present condition/availability	1 crane in acceptable condition;1 crane not in working order, in need of general overhaul/availabilty of the functional crane around 80%
length of craneway	224 m
other devices for container handling	1 spreader (20 tonnes) 40' containers are handled by railway revolving crane
number of tracks under the crane	1
present condition of tracks	poor
number of lanes (for container trucks) under the crane	1 beside the storage area/craneway
Storage facilities	
storage area	5,700 m^2/mainly paved/acceptable condition
warehouse	non-existent
Location in the railway network	good/close to the Masis marshalling yard
Links with the road network	
location in the network	short distance to trunk roads and main destinations
condition of road access	acceptable
Fencing	existing; only light repair necessary
Lighting installation	not in working order
Communication and data processing technology	only telephone connection; however, only sometimes functional
Additional remarks	It must be decided whether the second crane should be scrapped or overhauled.
Main deficiencies/overall assessment	The supply of energy must be stabilised; an adequate communication system installed./The terminal is able to handle 20' containers without any investment (but only in daylight).

Volume of container traffic including Abovian (number of containers handled)

Type of container		1990	1991	1992	1993	1994	1995	1996 (Jan-June)
3 and 5 t[1)]	forwarded	58,557	29,632	5,763	83	13	0	0
	received	64,976	39,462	6,393	80	33	12	0
TEU (20' and 40')	forwarded	6,847	2,158	1,177	78	135	180	151
	received	12,518	3,623	1,958	657	986	817	776
in total	forwarded	65,404	43,085	6,940	161	148	180	151
	received	77,494	31,796	8,351	737	1,019	829	776

[1)] one 5 t container is counted as two 3 t containers

Annex 1.5-4

Analysis of Existing Terminals for Combined Traffic - Vanadzor

Name of railway	Armenian Railway
Name of station	Vanadzor
Handling devices	
cranes (number/lifting capacity)	1 gantry crane (KK-20)/20 tonnes/span 25 m
present condition/availability	poor/50%/the electrical parts are especially in need of general overhaul
length of craneway	75 m
other devices for container handling	1 spreader/20 tonnes
number of tracks under the crane	2
present condition of tracks	very poor
number of lanes (for container trucks) under the crane	1 beside the storage area/craneway
Storage possibilities	
storage area	1,600 m^2/originally paved/now in very poor condition
warehouse	2 warehouses existing/in acceptable condition
Location in the railway network	short distance to the railway station Vanadzor
Links with the road network	
location in the network	short distance to trunk roads
condition of road access	acceptable
Fencing	partly existing
Lighting installation	existing;but out of order
Communication and data processing technology	only telephone connection
Additional remarks	
Main deficiencies/overall assessment	The supply of energy must be stabilised. The crane is in need of general overhaul./The present condition permits the handling of a small number of containers only. The decision on rehablitation depends on the future traffic level.

Volume of container traffic (number of containers handled)

type of container		1990	1991	1992	1993	1994	1995	1996 (Jan-June)
3 and 5 t[1]	forwarded	12,383	6,083	1,205	0	0	0	0
	received	9,526	5,738	836	0	0	0	0
TEU (20')	forwarded	1,856	550	339	0	0	0	0
	received	1,362	362	150	0	0	6	45
in total	forwarded	14,239	6,633	1,544	0	0	0	0
	received	10,888	6,100	986	0	0	6	45

[1] one 5 t container is counted as two 3 t containers

Annex 1.5-5

Analysis of existing Terminals for Combined Traffic - Kishli-Baku

Name of railway	Azerbaijan State Railways
Name of station	Kishli-Baku
Handling devices	
cranes (number/lifting capacity)	one 20 t Valmet mobile container crane *in addition various other cranes with a lifting capacity up to 5 tonnes*
present condition/availability	in satisfactory condition/availability around 80%
length of craneway	n.a.
other devices for container handling	non-existent
number of tracks	15 arrival and shunting sidings 7 shunting sidings 19 sidings for handling goods 4 train formation sidings 2 storage sidings
present condition of tracks	acceptable
number of lanes (for container trucks) under the crane	not applicable
Storage facilities	
storage area	paved/acceptable condition
warehouse	existing/usable
Location in the railway network	good/close to the marshalling yard
Links with the road network	
location in the network	long distance to the main destinations
condition of road access	acceptable
Fencing	existing; only light repair necessary
Lighting installation	existing; however, only partly functional
Communication and data processing technology	only telephone connection
Additional remarks	The use of the container terminal at Baku Port for the Trans-Caucasian-Logistic-Express to Batumi/Poti is recommended. *Only at the port, 40' containers can be handled (cranes with a lifting capacity of 40 t).*
Main deficiencies/overall assessment	The terminal is able to handle 20' containers without any investment (but only in daylight).

Volume of container traffic (number of containers handled)

Type of container		1995[1] (January - July)	1996 (January - July)
3 and 5 t[2]	forwarded	1,154	2,605
	received	350	516
TEU (20')	forwarded	196	20
	received	82	202
in total	forwarded	1350	2625
	received	432	708

[1] including Khirdalan

[2] one 5 t container is counted as two 3 t containers

Annex 1.5-6

Analysis of existing Terminals for Combined Traffic - Gyandsha

Name of railway	Azerbaijan State Railways
Name of station	Gyandsha
Handling devices	
cranes (number/lifting capacity)	4 gantry cranes /10 tonnes each *in addition various other cranes with a lifting capacity up to 10 tonnes/most of them should be scrapped*
present condition/availability	satisfactory to poor/50%
length of craneway	around 150 m
other devices for container handling	not available
number of tracks	15 arrival and departure tracks 3 shunting sidings 2 storage sidings for passenger trains 2 storage sidings for freight trains 2 siding for train formation 1 siding for unloading cement
present condition of tracks	poor
number of lanes (for container trucks) under the crane	1
Storage facilities	
storage area	existing
warehouse	non-existent
Location in the railway network	good
Links with the road network	
location in the network	acceptable
condition of road access	poor
Additional remarks	From April 1997, the Trans-Caucasian-Logistic-Express shall have a stop at Gyandza for loading and unloading containers.
Main deficiencies/overall assessment	This small terminal is not properly equipped for handling 20' containers. Two cranes have to work synchronously to lift together one 20' container. In total, the terminal is very poor equipped. / The present condition permits the handling of a small number of containers only. The decision on rehabilitation depends on the traffic forecasted.

Volume of container traffic (number of containers handled)

Type of container		1995 (January - July)	1996 (January - July)
3 and 5 t[1)]	forwarded	193	129
	received	91	24
TEU (20')	forwarded	170	0
	received	12	1
in total	forwarded	363	129
	received	103	25

[1)] one 5 t container is counted as two 3 t containers

Annex 1.5-7

Analysis of existing Terminals for Combined Traffic - Khirdalan

Name of railway	Azerbaijan State Railways
Name of station	Khirdalan
Handling devices	
cranes (number/lifting capacity)	2 gantry cranes with spreaders/20 tonnes each *in addition 1 gantry crane/10 tonnes*
present condition/availability	in poor condition; partly cannibalised/The terminal and the cranes have not used since August 1995.
length of craneway	around 200 m
other devices for container handling	one 20 t Valmet mobile container crane/not in working order
number of tracks	one track under the crane each
present condition of tracks	very poor
number of lanes (for container trucks) under the crane	2 beside the storage area/craneway each
Storage facilities	
storage area	originally paved/now in very poor condition (large potholes, steel reinforcement juts out of the concrete); not usable
warehouse	non-existent
Location in the railway network	good; around 2 km to the marshalling yard Baladzhary
Links with the road network	
location in the network	unfavourable location with respect to the city
condition of road access	poor
Fencing	only partly existing, damaged
Lighting installation	existing; however, only partly functional
Communication and data processing technology	non-existent
Additional remarks	
Main deficiencies/overall assessment	The terminal cannot be used in the present condition. The estimated costs for the rehabilitation of the road access, the storage area, the tracks and the fencing (wall) are about USD 1.2 million. / Taking into account the present condition, the unfavourable location and the bad climatic conditions (exposed to stormy winds weather, force more than 6, and this during about 240 days per year), the rehabilitation of the terminal cannot be recommended.

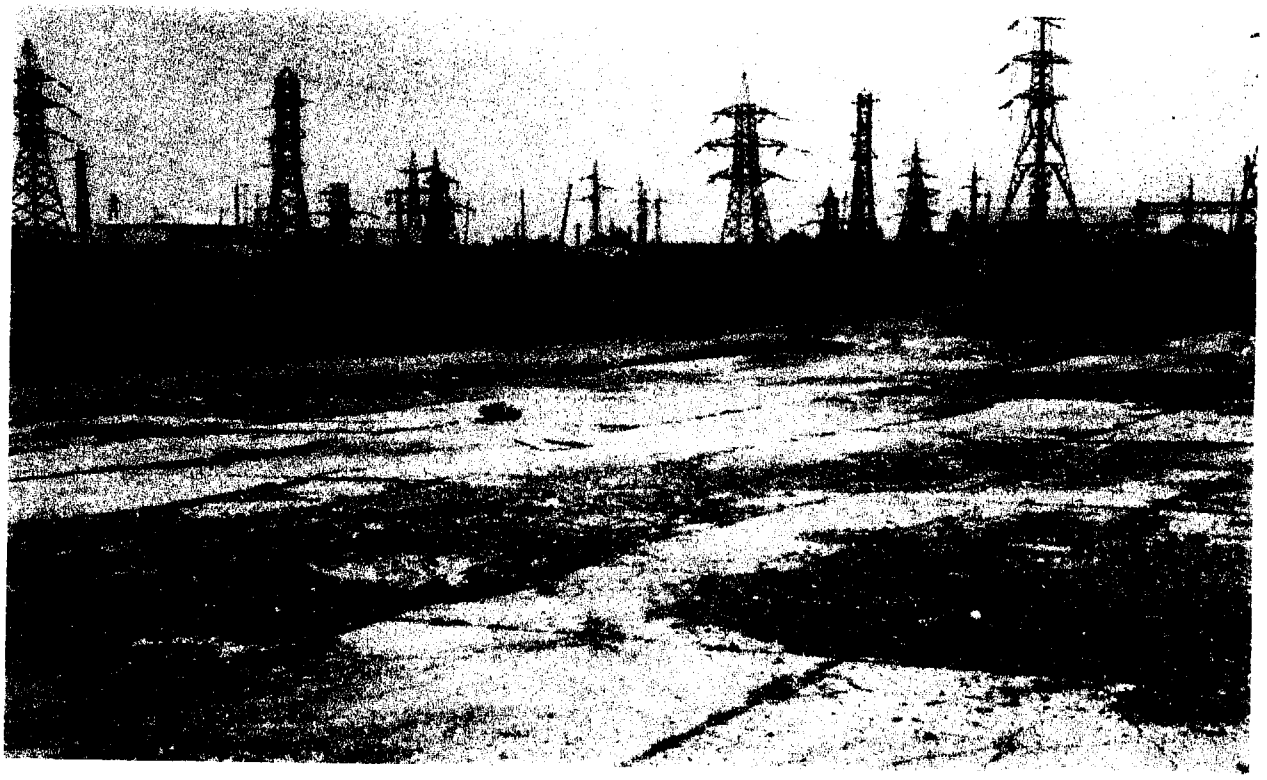
Volume of container traffic (number of containers handled)

The terminal has not been used since August 1995.

Detailed figures for the previous years could not be provided by AGZD.

Annex 1.5-7

Container terminal Khirdalan (AGZD)



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Annex 1.5-8

Analysis of Existing Terminals for Combined Traffic - Gori

Name of railway	Georgian Railways
Name of station	Gori
Handling devices	
cranes (number/lifting capacity)	1 gantry cranes/10 tonnes
present condition/availability	not in working order, cannibalised
length of craneway	150 m
other devices for container handling	non-existent
number of tracks under the crane	2
present condition of tracks	very poor, should be renewed
number of lanes (for container trucks) under the crane	combined with the storage area
Storage facilities	
storage area	around 750 m^2/ not paved, very poor condition
warehouse	available/in poor condition, partly damaged and cannibalised
Location in the railway network	good, short distance to the freight station
Links with the road network	
location in the network	short distance to trunk roads and main destinations
condition of road access	very poor; not paved
Fencing	non-existent
Lighting installation	existing; however not in working order, in need of general overhaul
Communication and data processing technology	not available
Additional remarks	The terminal and the crane have not used since 1994.
Main deficiencies/overall assessment	In the present condition, the terminal cannot be used. It is not possible to handle 20' containers there./ Taking into account the present condition and the traffic forecasted, the rehabilitation of the terminal (including the installation of a crane with a lifting capacity of 20 t) cannot be recommended.

Volume of container traffic (number of containers handled):
The figures could not be provided by GRZD.

Annex 1.5-9

Analysis of Existing Terminals for Combined Traffic - Samtredia

Name of railway	Georgian Railways
Name of station	Samtredia
Handling devices	
cranes (number/lifting capacity)	1 gantry cranes/20 tonnes *in addition 3 gantry cranes/3 tonnes, 5 tonnes respectively*
present condition/availability	all cranes are not in working order, cannibalised (for instance, 250 m cable are missing), the 20 t crane needs a new electric motor
length of craneway	160 m
other devices for container handling	spreader (20 tonnes); not functional
number of tracks under the crane	1 (under the 20 t crane)
present condition of tracks	very poor, should be renewed
number of lanes (for container trucks) under the crane	combined with the storage area
Storage facilities	
storage area	around 2,000 m^2/ not paved /very poor condition
warehouse	available/in poor condition, partly damaged and cannibalised
Location in the railway network	good, short distance to the marshalling yard
Links with the road network	
location in the network	short distance to trunk roads and main destinations
condition of road access	in satisfactory condition
Fencing	existing; however, partly destroyed
Lighting installation	non-existent
Communication and data processing technology	not available
Additional remarks	The terminal and the cranes have not used since 1994.
Main deficiencies/overall assessment	In the present condition, the terminal cannot be used. The envisaged inclusion of this terminal in the Trans-Caucasian-Logistic-Express would require the rehabilitation of the 20 t crane or the use of a mobile container crane.

Volume of container traffic (number of containers handled)

Type of container		1990	1991	1992	1993	1994	1995	1996
in total	forwarded	2,523	3,032	432	136	*	*	not available
	received	2,429	5,048	566	23	*	*	not available

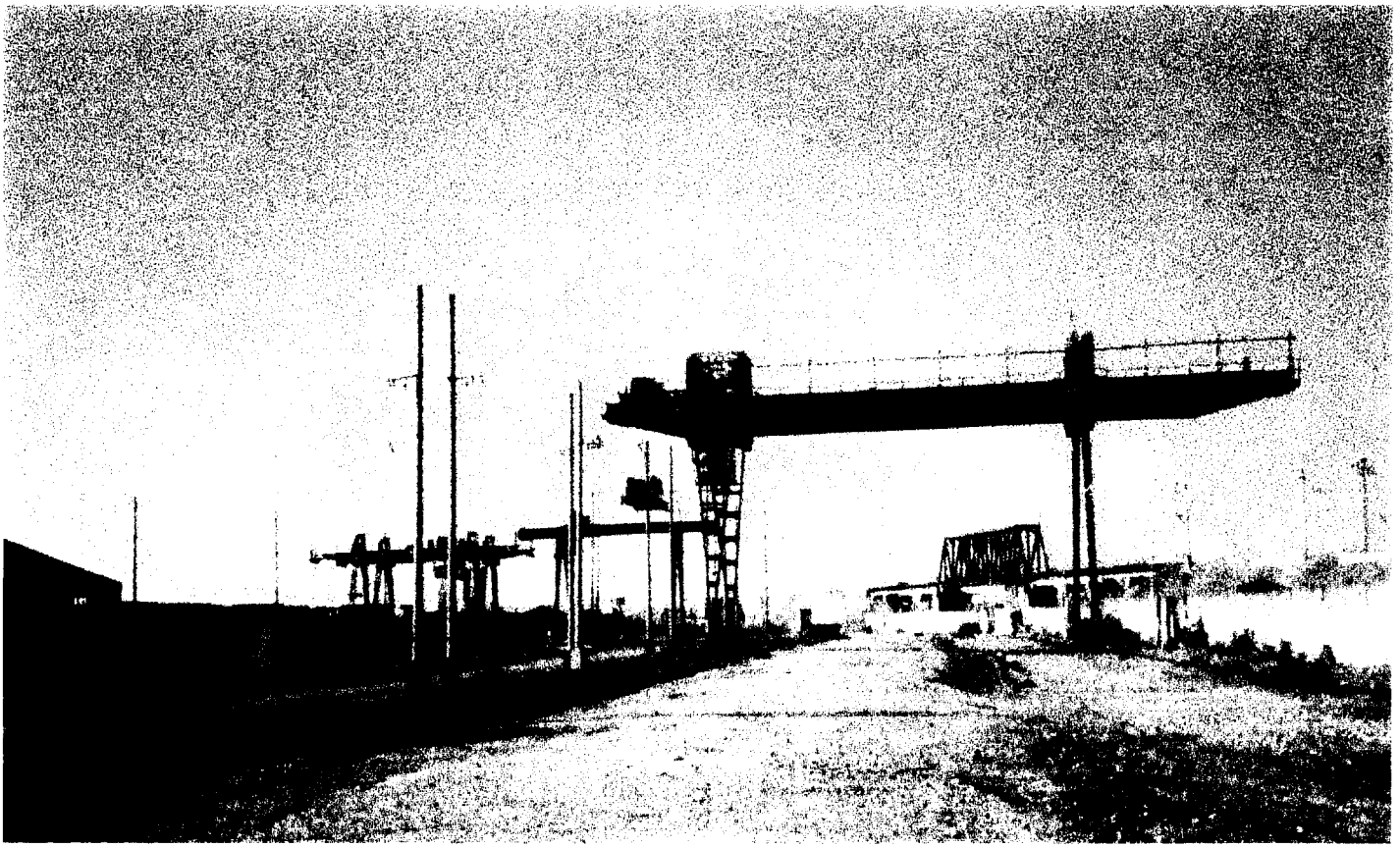
[1] one 5 t container is counted as two 3 t containers

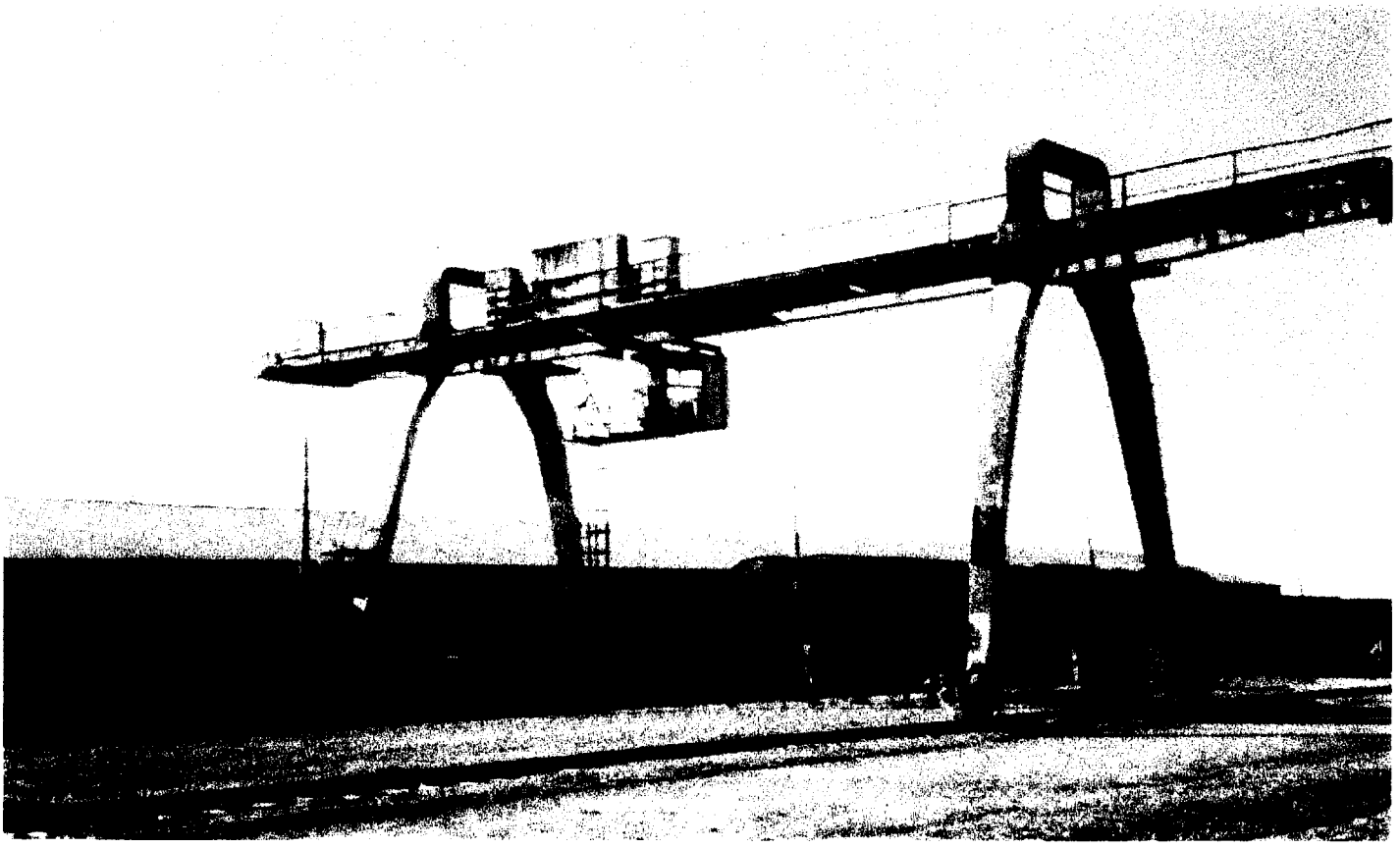
* No container traffic, due to the situation in Chechenya.

During "good years", about fifty 3 and 5 t containers were handled per day; in addition about twenty 20' containers

More detailed figures could not be provided by GRZD.

Container terminal Samtredia (GRZD)





Annex 1.5-10

Analysis of Existing Terminals for Combined Traffic - Tbilisi-Tovar. (freight station)

Name of railway	Georgian Railways
Name of station	Tbilisi-Tovarnaya (freight station)
Handling devices	
cranes (number/lifting capacity)	2 gantry cranes/20 tonnes each *in addition 4 gantry cranes/5 tonnes each*
present condition/availability	1 crane in acceptable condition, ready for operation; 1 crane not in working order, in need of general overhaul / availability of the functional crane around 70%; only one 5 t crane ready for operation
length of craneway	270 m
other devices for container handling	spreader (20 tonnes)
number of tracks under the crane	2
present condition of tracks	poor
number of lanes (for container trucks) under the crane	2 beside the storage area/craneway
Storage facilities	
storage area	around 5,000 m^2/ originally paved /very poor condition
warehouse	available
Location in the railway network	good
Links with the road network	
location in the network	short distance to trunk roads and main destinations
condition of road access	very poor
Fencing	existing, repair work required
Lighting installation	available; interruptions due to frequent power cuts
Communication and data processing technology	only telephone connection; however, only sometimes functional
Additional remarks	It must be decided whether the second 20 t crane should be scrapped or overhauled.
Main deficiencies/overall assessment	The supply of energy must be stabilised; an adequate communication system installed./The terminal is able to handle 20' containers without any investment.

Volume of container traffic (number of containers handled)

Type of container		1990	1991	1992	1993	1994	1995	1996
in total	forwarded	7,394	4,689	2,164	1,067	*	*	not available
	received	17,102	4,557	3,399	1,132	*	*	not available

[1] one 5 t container is counted as two 3 t containers

* No container traffic, due to the situation in Chechenya.

In 1996, about 60 containers were handled per month, mainly 3 and 5 t containers.

During "good years", about 3,000 to 3,500 containers were handled per month; nearly 50% were 20' containers

More detailed figures could not be provided by GRZD.

Annex 1.6-1

Brief technical description of the important electrolocomotives of the Caucasian railways

no.	locomotive type	VL-8	VL-10	VL-11
1	service weight	184 tons	184 tons	180 tons
2	number of axles	8	8	8
3	axle-load	23 tons	23 tons	22.5 tons
4	number of traction engines	8	8	8
5	installed power per traction engine	525 kW	650 kW	670 kW
6	power per hour	4,200 kW	5,200 kW	5,360 kW
7	constant power	3,660 kW	4,530 kW	4,600 kW
8	traction per hour	352 kN	397.6 kN	387 kN
9	constant traction	303 kN	324.8 kN	314 kN
10	constructional speed	80 km/h	100 km/h	100 km/h
11	speed during constant power	44.3 km/h	51.2 km/h	51.2 km/h
12	speed during power per hour	42.6 km/h	48.7 km/h	48.7 km/h
13	lenght	27.52 m	32.84 m	32.88 m
14	diameter of axle	1,200 mm	1,250 mm	1,250 mm

Annex 1.6-2

Electric locomotives age structure of the of the Caucasian railways - 1996

no.	locomotive type	age in years	number ARM	number AGZD	number GRZD	total	%
1	VL-8	35 and older	11	92	11	114	36
2		34 - 30	20	91	66	177	56
3		29 - 26	16		8	24	8
4	VL-10	29 - 26			41	41	28
5		25 - 21			44	44	30
6		20 - 13	44		18	62	42
7	VL-11	16 - 11			12	12	14
8		10 - 6		37	29.5	66.5	78
9		5-1		6	1	7	8
	total		**91**	**226**	**230.5**	**547.5**	

Annex 1.6-3

Existing freight wagon stock in the Caucasus region (November 1996)

no.	type of wagon	ARM number of wagons	AGZD number of wagons	GRZD number of wagons	total number of wagons
1	covered	2,218	6,453	4,982	13,653
2	platforms	722	4,942	2,303	7,967
3	coal	1861	5,860	6,076	13,797
4	tanks	47	4,948	2,243	7,238
5	refrigerators	19	2,280	549	2,848
6	others	369	4,635	4,942	9,946
	total	**5,236**	**29,118**	**21,095**	**55,449**

Annex 1.6-4

ARM coach stock and its age structure

coach types

year	1962	1963	1965	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	subtotal	%
ZMB			3	2	1	1				1				8	3,4
age	35	34	32	30	29	28	27	26	25	24	23	22	21		

ZMB = metallic coach for luggage and post, constructor Russia

year	1966	1968	1969	1970	1971	1972	1973	1974	1975	1976	1980	1982	1985	1986	1988	1989		
ZMO		2	7	8	11	11	2	6	8	16	4	23	2	3	7	9	119	50,0
age	31	29	28	27	26	25	24	23	22	21	17	15	12	11	9	8		

ZMO = metallic coach without compartments with middle gangway and couchette places, constructor Russia without air condition

year	1964	1968	1969	1970	1972	1974	1975	1976	1982	1986	1988	1989	1991		
ZMK	1	6	8	1	1	3	2	15	12	3	1	4	9	66	27,7
age	33	29	28	27	25	23	22	21	15	11	9	8	6		

ZMK = metallic coach without compartments with middle gangway and couchette places, constructor Russia without air condition

year	1972	1974	1976	1987	1989	1990		
ZMKR	1	1	4	1	2	1	10	4,2
age	25	23	21	10	8	7		

ZMKR = metallic coach with 9 compartments each with 4 places, side gangway, air condition constructor AMMENDORF COMP., East Germany radio compartment

year	1969	1970	1976	1982	1989		
SW	3	1	7	7	1	19	8,0
age	28	27	21	15	8		

SW = metallic coach with 9 compartments each with 2 places, side gangway, air condition constructor AMMENDORF COMP., East Germany

year	1965	1966	1969	1970	1976	1983	1987		
ZMR	1	1	2	1	3	5	1	14	5,9
age	32	31	28	27	21	14	10		

ZMR = restaurant coach, air condition, constructor AMMENDORF COMP.,

year	1965	1979		
service	1	1	2	0,8
age	32	18		

Total	**238**	**100**

age structure	>30/30	25/29	20/24	15/19	10/14	5/9	0/4
ZMB	63	25	13	0	0	0	0
ZMO	0	33	27	23	4	13	0
ZMK	2	24	30	18	5	21	0
ZMKR	0	10	50	0	10	30	0
SW	0	21	37	37	0	5	0
ZMR	14	21	21	0	43	0	0
service	50	0	0	50	0	0	0
Total	**4**	**27**	**29**	**20**	**6**	**14**	**0**

AGZD coach stock and its age structure

coach types

year	1962	1963	1965	1966	1968	1969	1970	1971	1972	1974	1975	1976	1977	subtotals	%
ZMB	1	1	2	1	4	14	3	4	1	1	4	1	2	39	4,6
age	34	33	31	30	28	27	26	25	24	22	21	20	19		

ZMB = metallic coach for luggage and post, constructor Russia

year	1966	1968	1969	1972	1974	1975	1976	1977	1978	1980	1981	1982	1984	1985	1986	1988	1989	1990	1991		
ZMO	6	12	17	9	24	24	9	10	14	28	13	31	63	48	60	10	25	3	10	416	48,8
age	30	28	27	24	22	21	20	19	18	16	15	14	12	11	10	8	7	6	5		

ZMO = metallic coach without compartments with middle gangway and couchette places, constructor Russia without air condition

year	1966	1969	1970	1971	1972	1974	1975	1976	1977	1978	1980	1981	1982	1983	1984	1985	1986	1988	1989	1990	1991		
ZMK	29	15	3	18	11	16	12	10	14	5	7	8	8	8	20	31	20	11	9	6	26	287	33,6
age	30	27	26	25	24	22	21	20	19	18	16	15	14	13	12	11	10	8	7	6	5		

ZMK = metallic coach without compartments with middle gangway and couchette places, constructor Russia without air condition

year	1969	1970	1971	1972	1974	1975	1978	1981	1982	1985	1986	1988	1989	1990		
ZMKR	3	1	5	2	2	5	7	2	3	3	3	3	2	2	43	5,0
age	27	26	25	24	22	21	18	15	14	11	10	8	7	6		

ZMKR = metallic coach with 9 compartments each with 4 places, side gangway, air condition constructor AMMENDORF COMP., East Germany radio compartment

year	1960	1966	1970	1974	1977	1980	1982	1983	1989	1991		
SW	1	3	5	2	5	3	6	5	2	2	34	4,0
age	36	30	26	22	19	16	14	13	7	5		

SW = metallic coach with 9 compartments each with 2 places, side gangway, air condition constructor AMMENDORF COMP., East Germany

year	1976	1977	1981	1983	1984	1985	1986		
ZMR	2	4	3	6	6	4	5	30	3,5
age	20	19	15	13	12	11	10		

ZMR = restaurant coach, air condition, constructor AMMENDORF COMP.,

year	1964	1965		
MIKST	2	2	4	0,5
age	32	31		

MIKST = metallic coach, constructor Hugary, 8 compartments, 4 weak and 4 wooden, without air condition

Total 853

age structure	>30/30	25/29	20/24	15/19	10/14	5/9	0/4
ZMB	13	64	18	5	0	0	0
ZMO	1	7	16	16	49	12	0
ZMK	10	13	17	12	30	18	0
ZMKR	0	21	21	21	21	16	0
SW	12	15	6	24	32	12	0
ZMR	0	0	7	23	70	0	0
MIKST	100	0	0	0	0	0	0
Total	6	12	16	15	39	13	0

GRZD coach stock and its age structure

Annex 1.6-6

coach types

year	1958	1961	1962	1963	1968	1969	1971	1973
ZMB	1	6	8	5	3	2	3	5
age	39	36	35	34	29	28	26	24

ZMB = metallic coach for luggage and post, constructor Russia

year	1958	1966	1967	1968	1969	1970	1971	1972	1974	1975	1976	1977	1978	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
ZMO	1	10	19	7	15	9	24	8	14	96	37	15	5	46	27	34	15	36	21	16	8	34	19	8	5
age	39	31	30	29	28	27	26	25	23	22	21	20	19	17	16	15	14	13	12	11	10	9	8	7	6

ZMO = metallic coach without compartments with middle gangway and couchette places, constructor Russia without air condition

year	1958	1960	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
ZMK	1	3	4	19	2	2	8	24	3	26	11	4	10	1	7	67	3	46	12	20	30	14	13	25	17	10	13	9	11	12	10
age	39	37	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	17	16	15	14	13	12	11	10	9	8	7	6

ZMK = metallic coach with 9 compartments each with 4 places, side gangway, with air condition, constructor AMMENDORF COMP., East Germany

year	1961	1967	1969	1970	1971	1972	1973	1976	1982	1983	1989
SW	5	4	1	2	9	6	3	2	8	5	1
age	36	30	28	27	26	25	24	21	15	14	8

SW = metallic coach with 9 compartments each with 2 places, side gangway, with air condition, constructor AMMENDORF COMP., East Germany

year	1961	1965	1977	1981	1982	1983	1984	1987
ZMR	1	5	6	5	3	2	11	2
age	36	32	20	16	15	14	13	10

ZMR = restaurant coach, air condition, constructor AMMENDORF COMP., East Germany

year	1964
MIKST	5
age	33

MIKST = metallic coach, constructor Hugary, 8 compartments, 4 weak and 4 wooden, without air condition

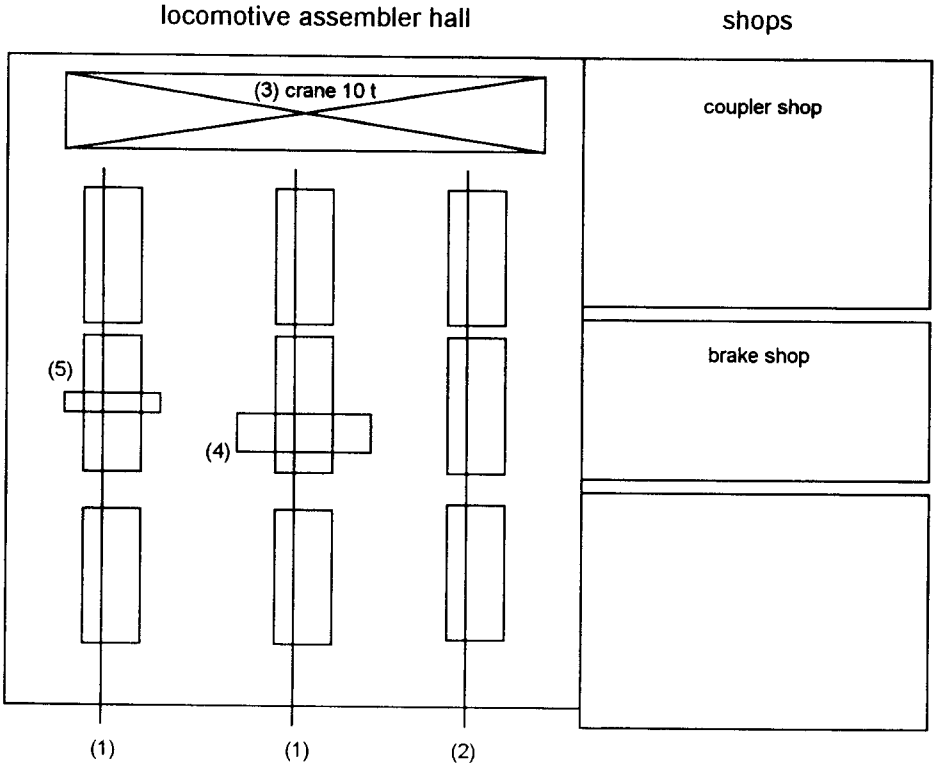
	locals	bufets	post-luggage	ST	service	service-T	freight
others	32	2	3	4	4	3	5

	subtotals	%
	33	0,0
	529	1,7
	437	1,1
	46	0,0
	35	0,0
	5	0,0
	1085	
	53	
Total	1138	

age structure	>30/30	25/29	20/24	15/19	10/14	5/9	0/4
ZMB	61	24	15	0	0	0	0
ZMO	6	12	31	21	18	12	0
ZMK	14	12	28	17	18	10	0
SW	20	39	11	17	11	2	0
ZMR	17	0	17	23	43	0	0
MIKST	100	0	0	0	0	0	0
Total	12	13	28	19	18	10	0

Annex 1.6-7

Locomotive - depot Yerevan
- Repair shed for locomotives -



Repair hall for locomotives with 3 tracks (6 repair places)
(1) 2 tracks for electric locomotives
(2) 1track for Diesel locomotives
(3) 1 bridge crane 10 t
(4) 1 under-ground wheel lathe, Rafamet, 8 years old, in operation
(5) 1 axle-drop pit

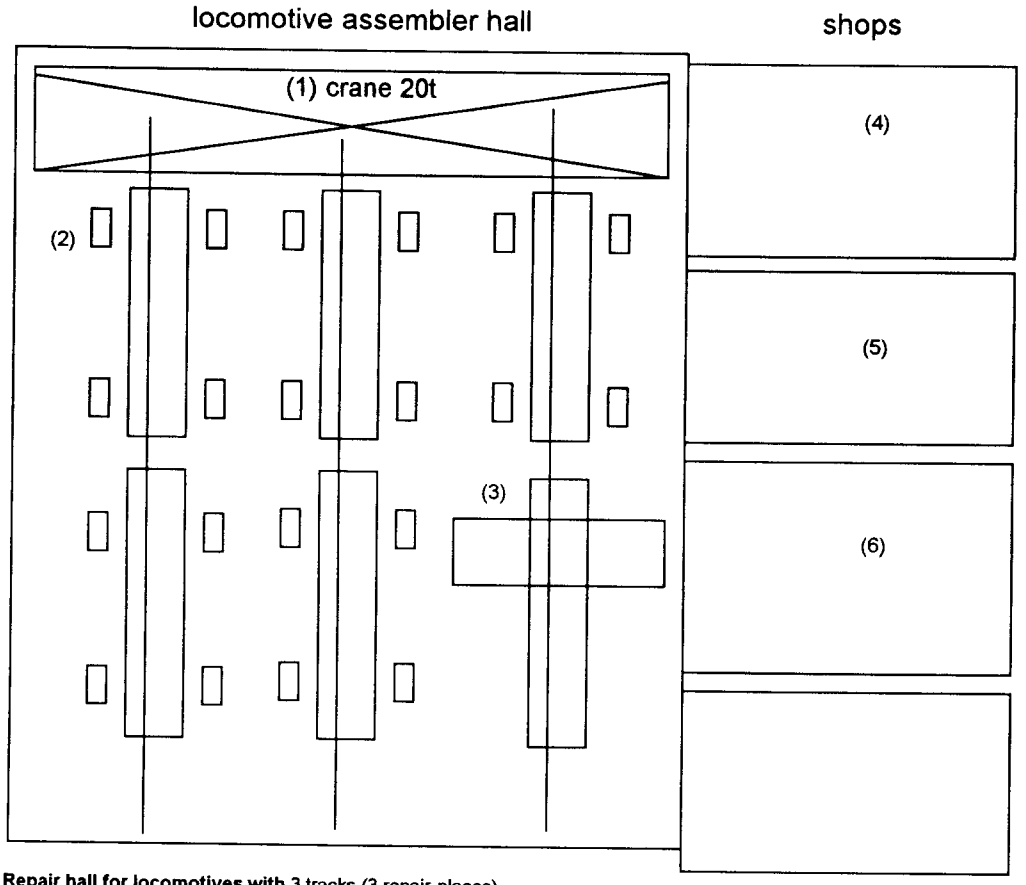
shops:
coupler shop, brake shop

Renewing:

no.	object	year	using	kind	price (US$)
1	2 compressors 10 cqm/h	1961	damaged	replace 1998	140,000
2	2 ultrasonic flaw detectors	1969	in use	replace 1997 / 1999	8,000
3	2 bridge cranes 10 tons	1966	in use	cap-repair 1999 / 2000	70,000
4	2 distilling apparatus	1966	in use	replace 1997	6,000
5	1 electric welding transformer	1979	out of order	replace 1999	4,500
6	1 electric welding rectifier	1979	out of order	replace 1997	4,500
7	8 electric lifting jacks 25 tons	1966	in use	cap-repair 1998 / 2000	36,000
8	1 electric welding station for shroud	1966	in use	procure 1999	90,000

Annex 1.6-8

Locomotive - depot Gyumri
- Repair shed for locomotives -



Repair hall for locomotives with 3 tracks (3 repair-places)

(1) 1 bridge crane with 20 t
(2) 20 electric lifting jacks each 20 t
(3) 1 axle catch pit
(4) shop for rotor windings (compressor motors only)
(5) 1 wheelset - flange welding machine
(6) 1 wheelset lathe - 8 years old

shops
coupler shop, brake shop

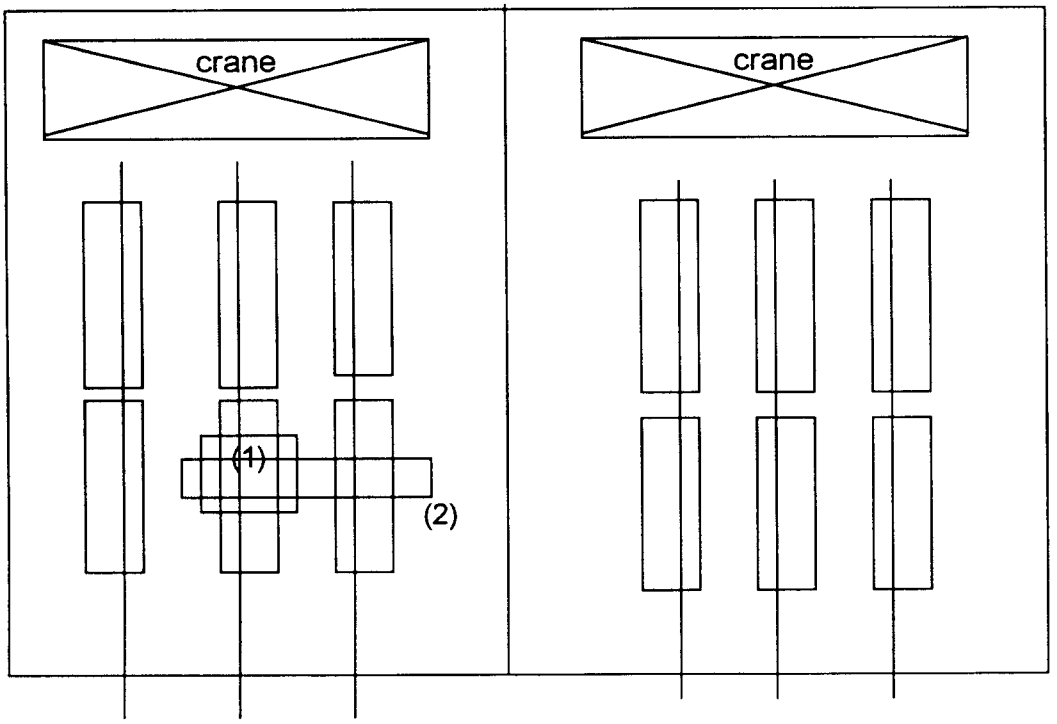
Renewing:

no.	object	year	using	kind	price (US$)
1	2 compressors 10 cqm/h	1961	damaged	replace 1998	140,000
2	2 ultrasonic flaw detectors	1969	in use	replace 1997 / 1999	8,000
3	2 bridge cranes 20 tons,10 tons	1966	in use	cap-repair 1997	70,000
4	1 distilling apparatus	1966	in use	replace 1997	3,000
5	1 electric welding transformer	1979	out of order	replace 1998	4,500
6	1 electric welding rectifier	1979	out of order	replace 1997	4,500
7	8 electric lifting jacks 25 tons	1966	in use	cap-repair 1998 / 2000	36,000
8	1 whell-set lathe KZTS	1966	in use	procure 1999	175,000

Annex 1.6-9

Locomotive - depot Baku-Baladshary (1)
- Repair shed for electric locomotives -

locomotive assembler halls

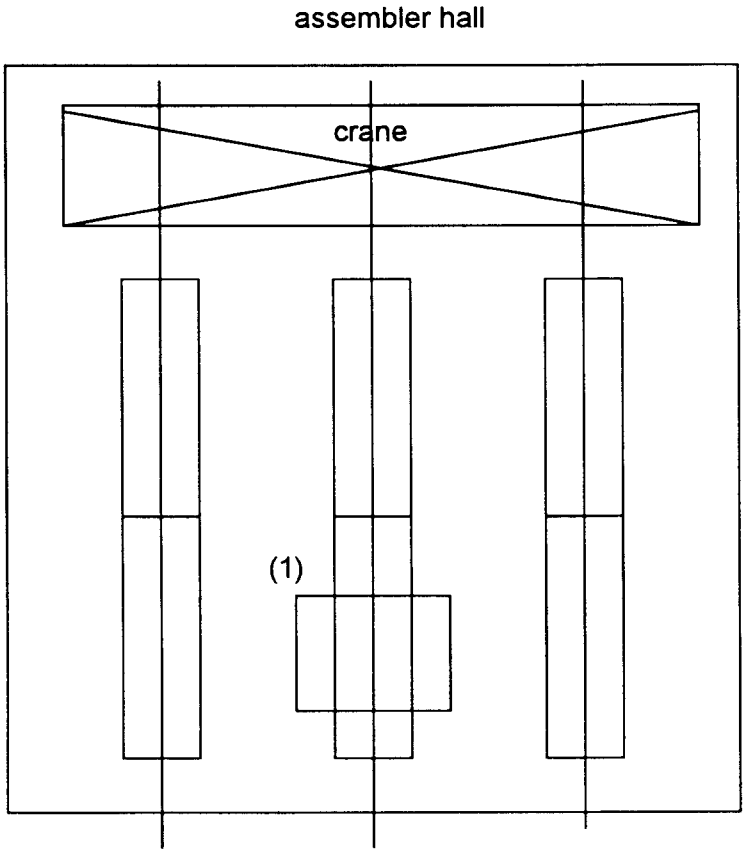


Repair hall for electric locomotives with
6 tracks all with canals (6 repair places)
2 bridge cranes each 10 t
(1) underfloor wheelset lathe K<-20
(2) axle catch pit under 2 tracks
17 electric-mechanic lifting jacks (movable)

shops:
coupler shop, brake shop

Annex 1.6-9

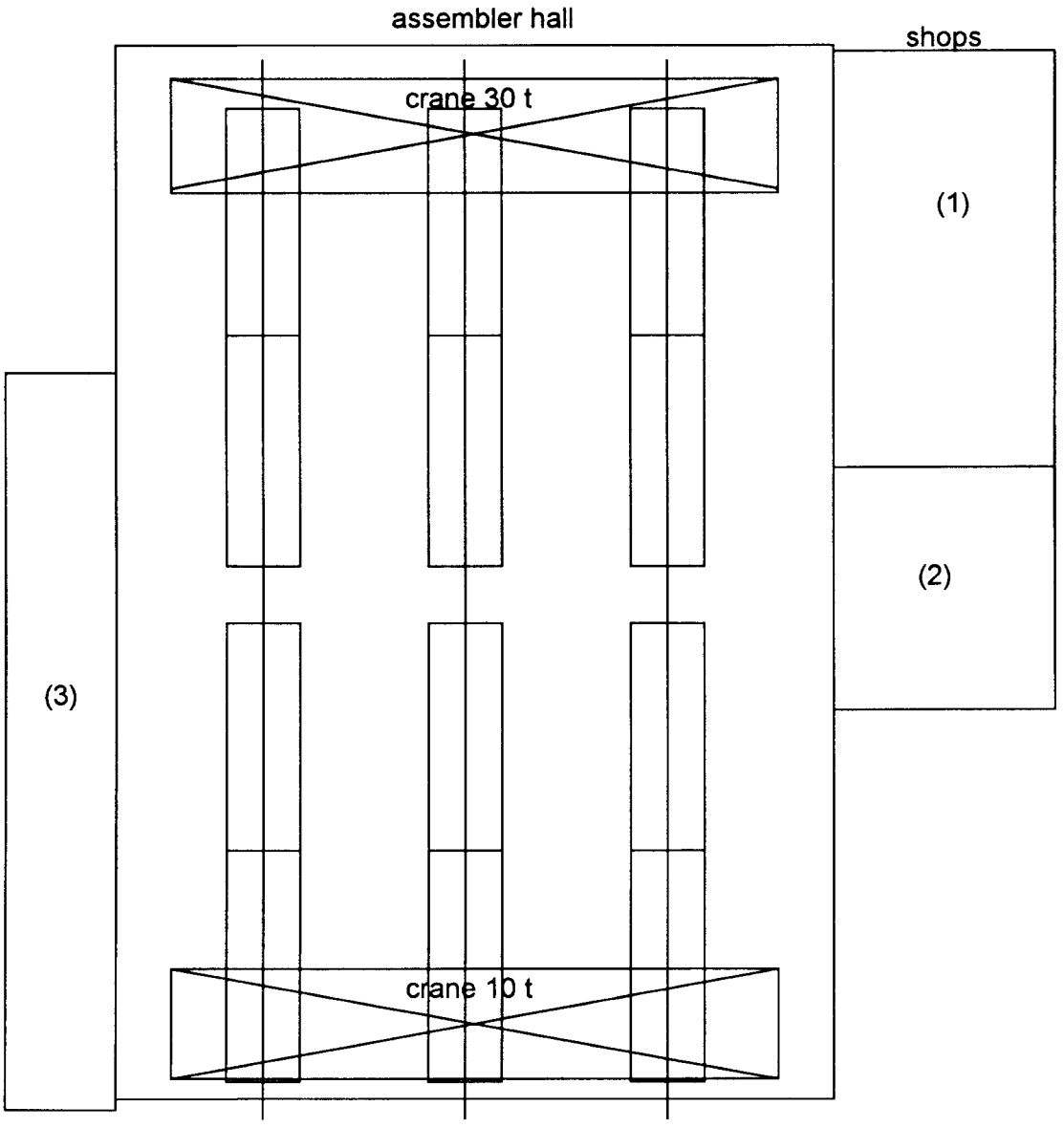
Locomotive - depot Baku-Baladshary (2)
- Repair shed for diesel locomotives -



Repair hall for diesel locomotives with
3 tracks all with canals (3 repair places)
(1) 1 underfloor wheelset lathe K<-20

Annex 1.6-9

Locomotive - depot Baku-Baladshary (3)
- Repair shed for electric locomotives repair TR-3 -



TR-3 repair hall for electric locomotives with 3 tracks (6 repair places)
2 cranes with 30 and 10 tons
(1) bogie shop
(2) wheelset shop with wheelset lathe KZTS
(3) electric-machine shop

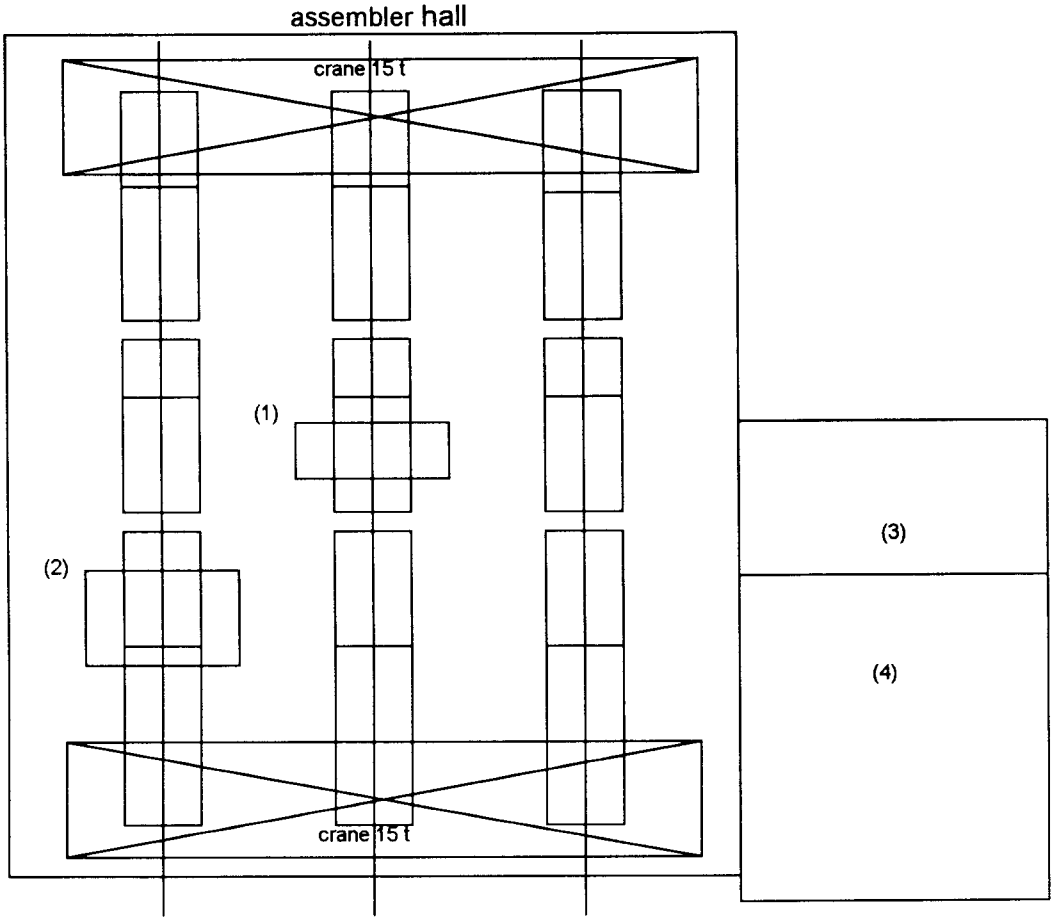
Remark: The TR-3 shed is actually not under operation.
Reasons: no spares for locomotives, impossible maintenance of cranes and wheelset lathe

Renewing:

no.	object	year	using	kind	price (US$)
1	1 wheel-set lathe KZTS	1963	in using	replace 1998	175,000
2	2 wheel-set lathes K<-20	1961	in using	replace 1999, 2000	350,000
3	1grinding mashine	1963	in using	replace 1998	15,000
4	1 drilling mashine	1984	in using	cap-repair 1999	15,000
5	1 turning lathe DIP 300	1958	in using	replace 2001	20,000
6	1 axle catch pit	1978	in using	cap-repair 2002	30,000
7	1 bridge crane 30 tons	1976	in using	cap-repair 1998	35,000

Annex 1.6-10

Locomotive - depot Baku - Beyuk-Shtshor
- Repair shed for electric passenger train locomotives -



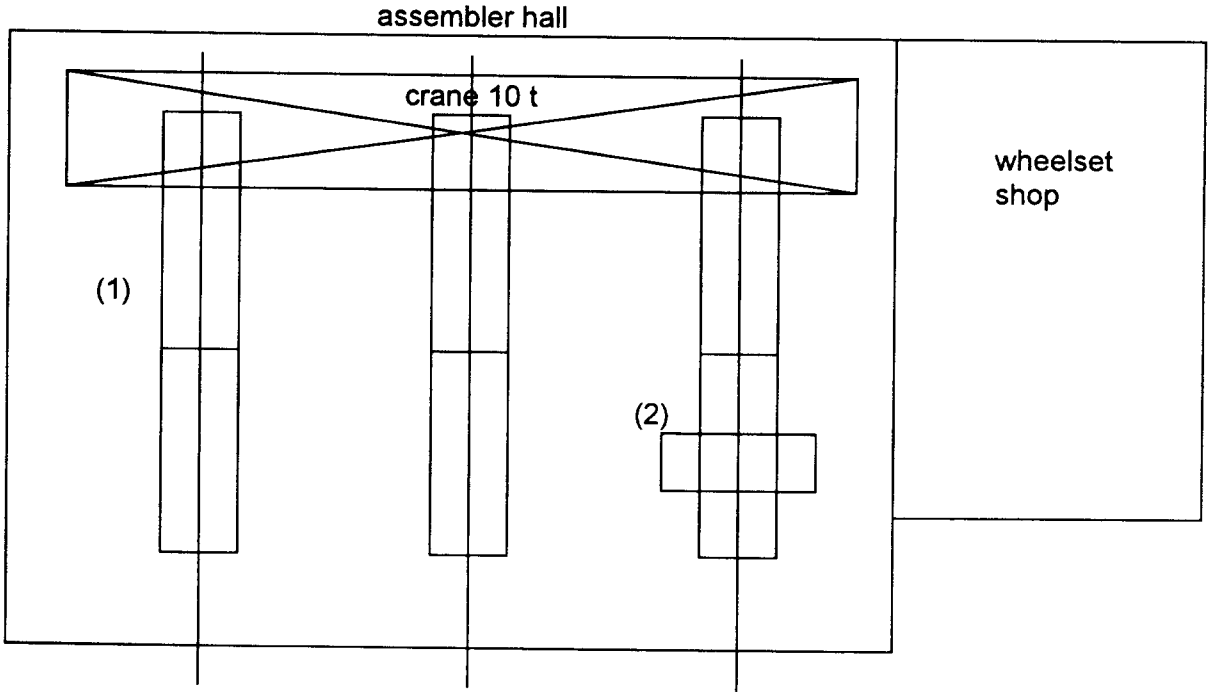
Repair hall for electric locomotives with 3 tracks with 2 canals (6 locomotice repair places, 1 EMU repair-place), 32 electric-mechanic lifting jacks (8 out of order) 2 bridge cranes each 15 t
(1) axle catch pit
(2) 1 underfloor wheelset lathe K<-20
(3) **wheelset shop** with wheelset lathe Rafamet
(4) **electric-machine shop**

Renewing:

no.	object	year	using	kind	price (US$)
1	1 wheel-set lathe K<-20	1984	in using	cap.-repair 1999	90,000
2	1 wheel-set lathe KZTS	1963	in using	replace 1999	175,000
3	1 grinding mashine	1963	in using	replace 1999	15,000
4	1 axle catch pit	1971	in using	cap.-repair 2002	30,000
5	1 turning lathe DIP-300	1957	in using	replace 1999	20,000
6	1 drilling mashine	1958	still in use	replace 1998	15,000
7	1 planing mashine	1956	still in use	replace 1999	15,000

Annex 1.6-11

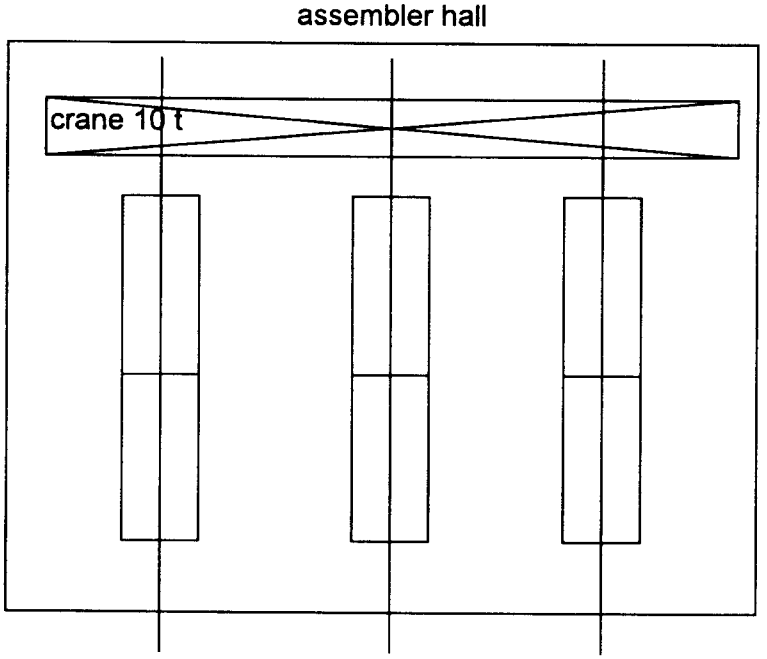
Locomotive - depot Gyandsha (1)
- Repair shed for electric locomotives -



Repair hall for electric locomotives with 3 tracks
3 locomotice repair places,
1 bridge cranes 10 t
(1) 8 electric-mechanic lifting jacks
(2) axle catch pit
wheelset shop with wheelset lathe
electric-machine shop

Annex 1.6-11

Locomotive - depot Gyandsha (2)
- Repair shed for diesel locomotives -



Repair hall for diesel locomotives with 3 tracks and with 2 canals (3 repair places for diesel locomotives)
bridge crane 10 t

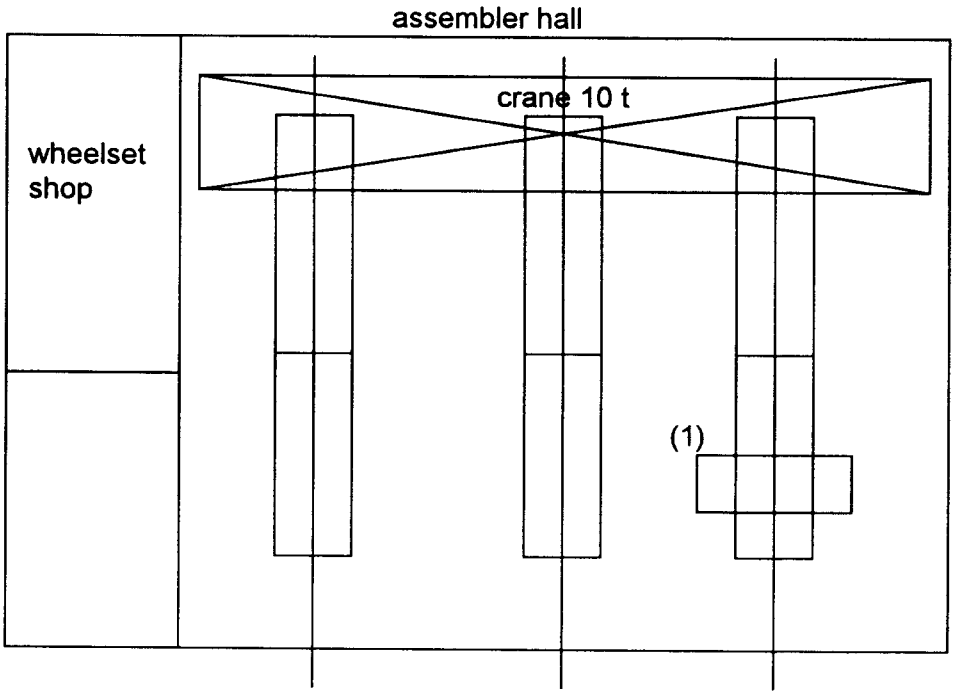
electric-machine shop

Renewing:

no.	object	year	using	kind	price (US$)
1	1 wheel-set lathe K<-20 M	1981	in using	cap.-repair 2000	90,000
2	1 turning lathe „Kuson"	1982	in using	cap.-repair 2001	10,000
3	1 axle catch pit	1981	in using	cap.-repair 2002	20,000
4	1 turning lathe DIP-300	1957	in using	replace 1999	30,000

Annex 1.6-12

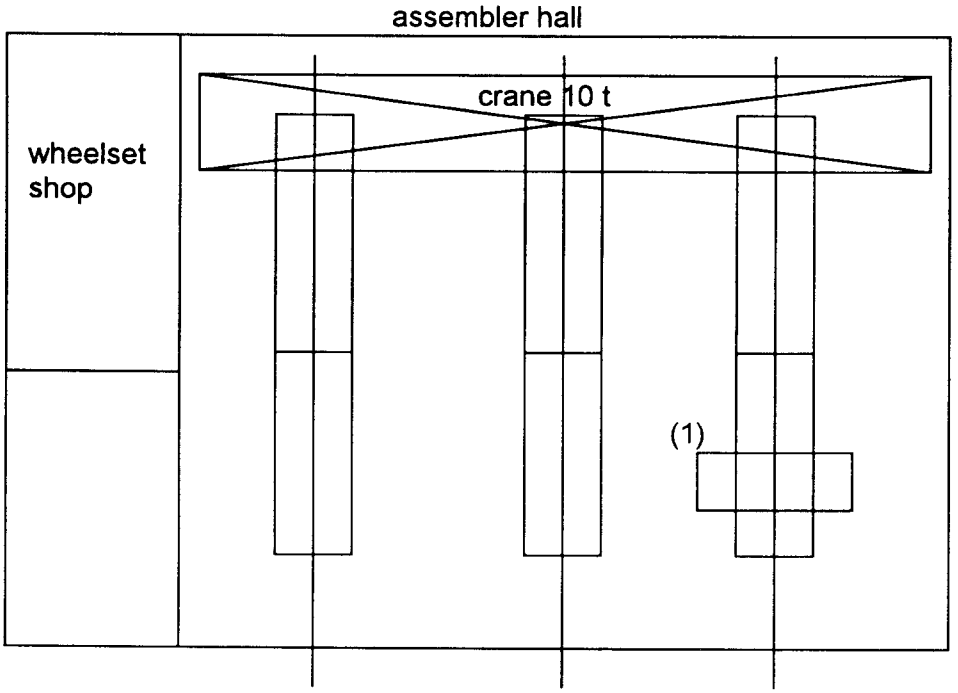
Locomotive - depot Imishli
- Repair shed for diesel locomotives -



Repair hall for diesel locomotives with 3 tracks
3 locomotice repair places,
1 bridge cranes 10 t
(1) axle catch pit
wheelset shop with wheelset lathe
electric-machine shop

Annex 1.6-13

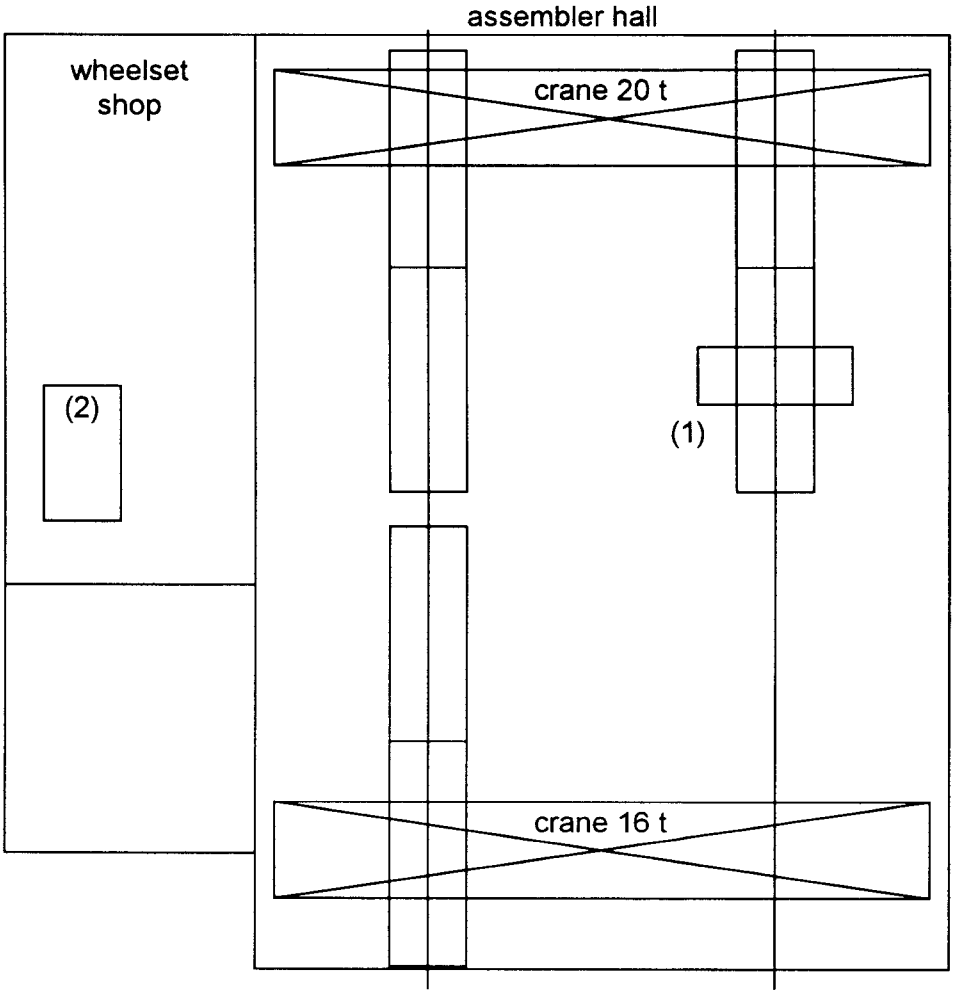
Locomotive - depot Dshulfa
- Repair shed for diesel locomotives -



Repair hall for diesel locomotives with 3 tracks
3 locomotice repair places,
1 bridge cranes 10 t
(1) axle catch pit
wheelset shop with wheelset lathe A21
electric-machine shop

Annex 1.6-14

Locomotive - depot Tbilisi-Pass.
- Repair shed for diesel locomotives -



Repair hall for diesel locomotives with 2 tracks
3 locomotice repair-places,
2 bridge cranes 20 t and 16 t
(1) axle catch pit

wheelset shop with wheelset lathe KZTS (2)

further shops
electric-machines, mechanic

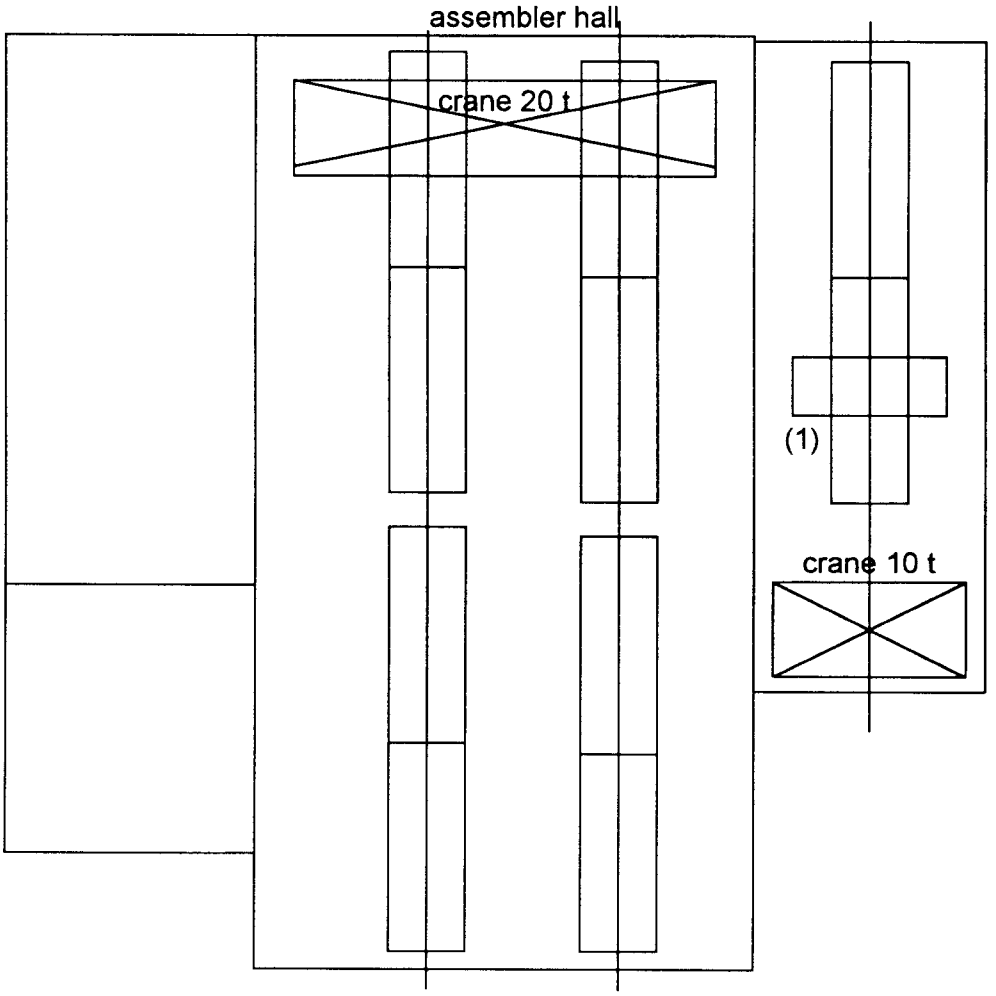
Remark:
Assembling a welding equipment for loco wheelsets is actually going on.

Renewing:

no.	object	year	using	kind	price (US$)
1	1 axle catch pit	1967	damaged	replace 1998	30,000
2	1 turning lathe DIP - 200	1958	damaged	replace 1999	20,000
3	1 bridge crane	1978	in using	cap-repair 2000	35,000

Annex 1.6-15

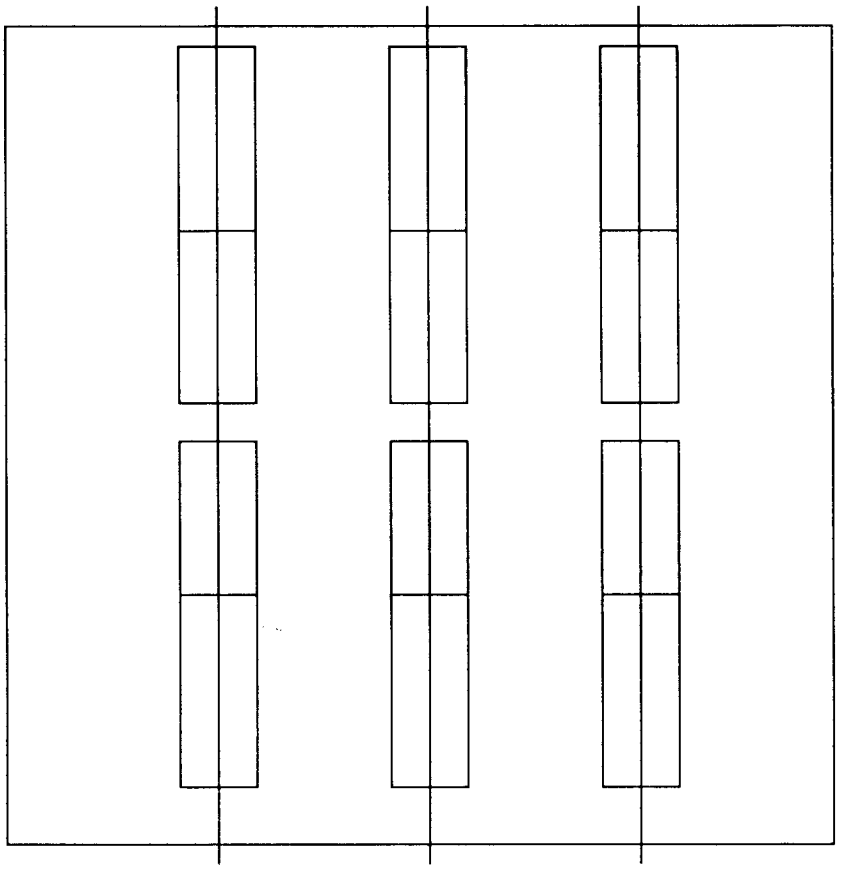
Locomotive - depot Tbilisi-Sortir. (1)
- Repair shed for electric locomotives -



Repair hall for electric locomotives with 3 tracks
4 locomotice repair-places,
1 repair-place with wheelset lathe KZTS (1)
2 bridge cranes 20 t and 10 t

further shops
electric-machines, mechanic

Locomotive - depot Tbilisi-Sortir. (2)
- Inspection shed for electric locomotives -



Inspection hall for electric locomotives with 3 tracks
6 locomotive repair-places,

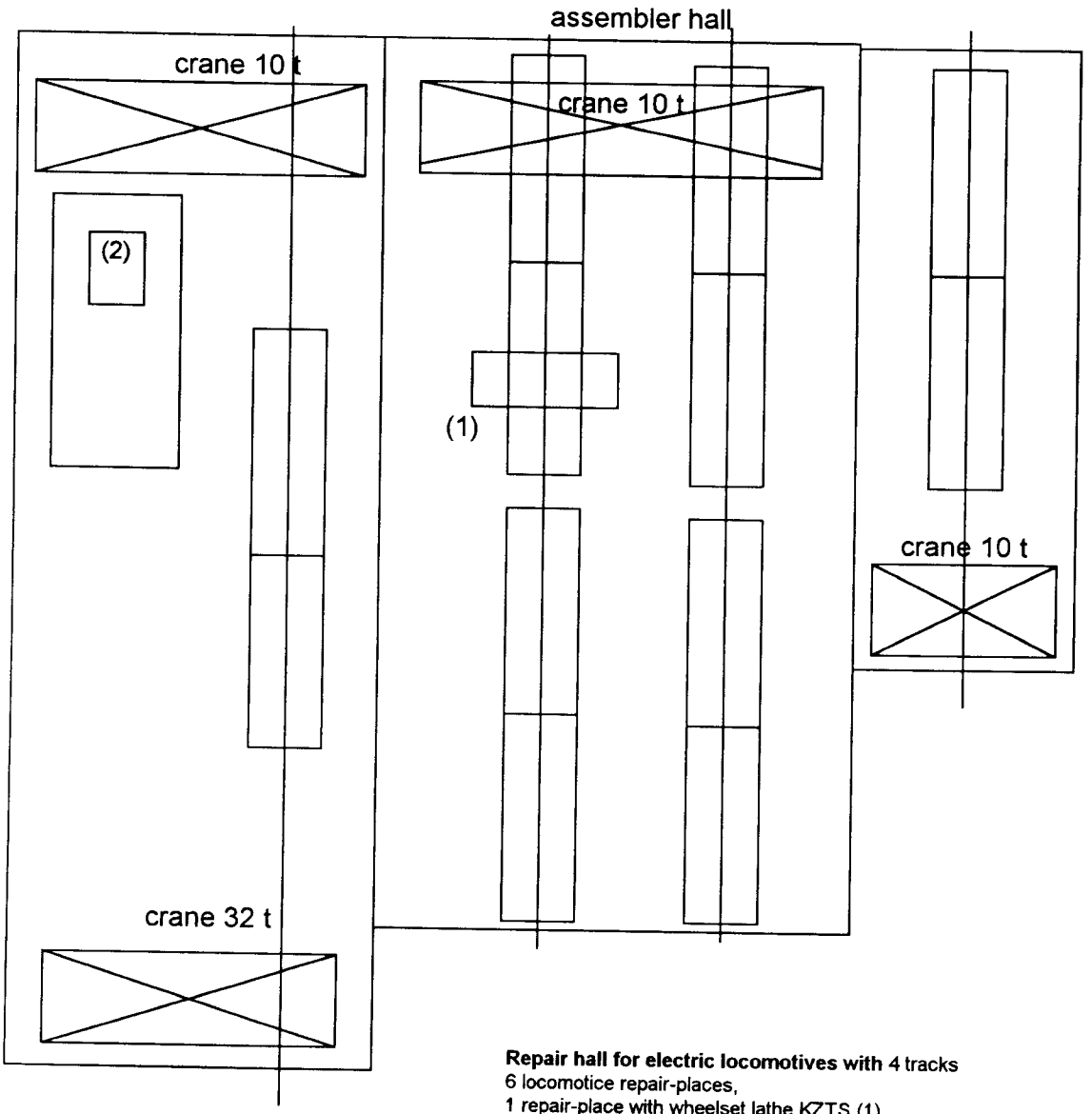
further shops
electric-machines, mechanic

Renewing:

no.	object	year	using	kind	price (US$)
1	wheel-set lathe K-Sh-20M	1984	in use	cap-repair 1999	90,000
2	wheel-set lathe KZTS	1969	damaged	replace 1999	175,000
3	grinding mashine	1969	damaged	replace 1999	15,000
4	axle catch pit	1967	damaged	cap-repair 2002	30,000
5	1 turning lathe DIP - 300	1958	damaged	replace 2001	20,000
6	drilling lathe	1988	in use	cap-repair 1998	15,000
7	planing mashine	1967	damaged	replace 1999	15,000
8	1 bridge crane	1978	in use	cap-repair 1997	35,000

Annex 1.6-16

Locomotive - depot Khashuri
- Repair shed for electric locomotives -



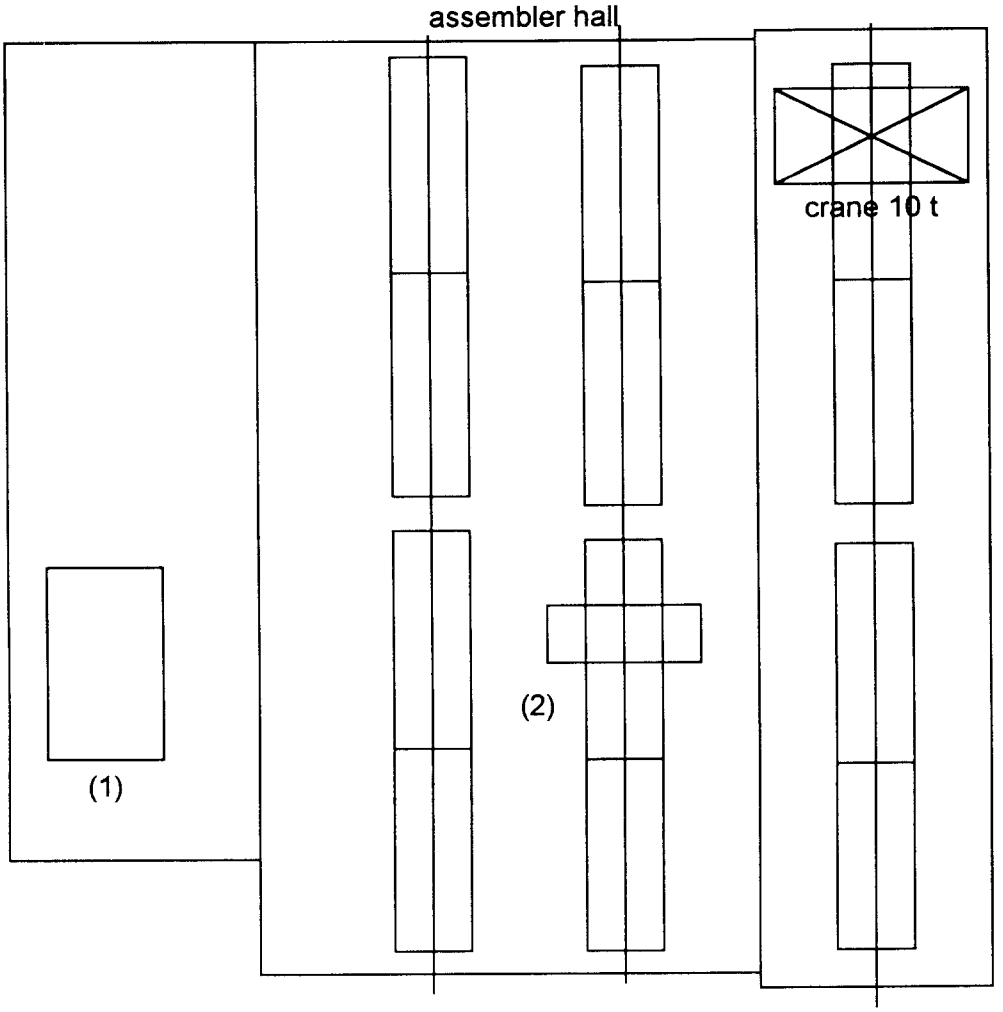
Repair hall for electric locomotives with 4 tracks
6 locomotice repair-places,
1 repair-place with wheelset lathe KZTS (1)
1 wheelset shop with lathe (2) out of order
4 bridge cranes: 1x32 t, and 3x10 t

further shops
electric-machines, mechanic

Renewing:

Nr.	object	year	using	kind	price (USD)
1	1 axle catch pit	1984	damaged	cap-repair 1999	30,000
2	1 wheelset lathe K-Sh 1836	1988	damaged	urgent repair 1997	25,000
3	1 turning lathe DIP 300	1958	out of order	replace 2001	20,000
4	1 bridge crane 32 tons	1980	in use	cap-repair 2000	35,000

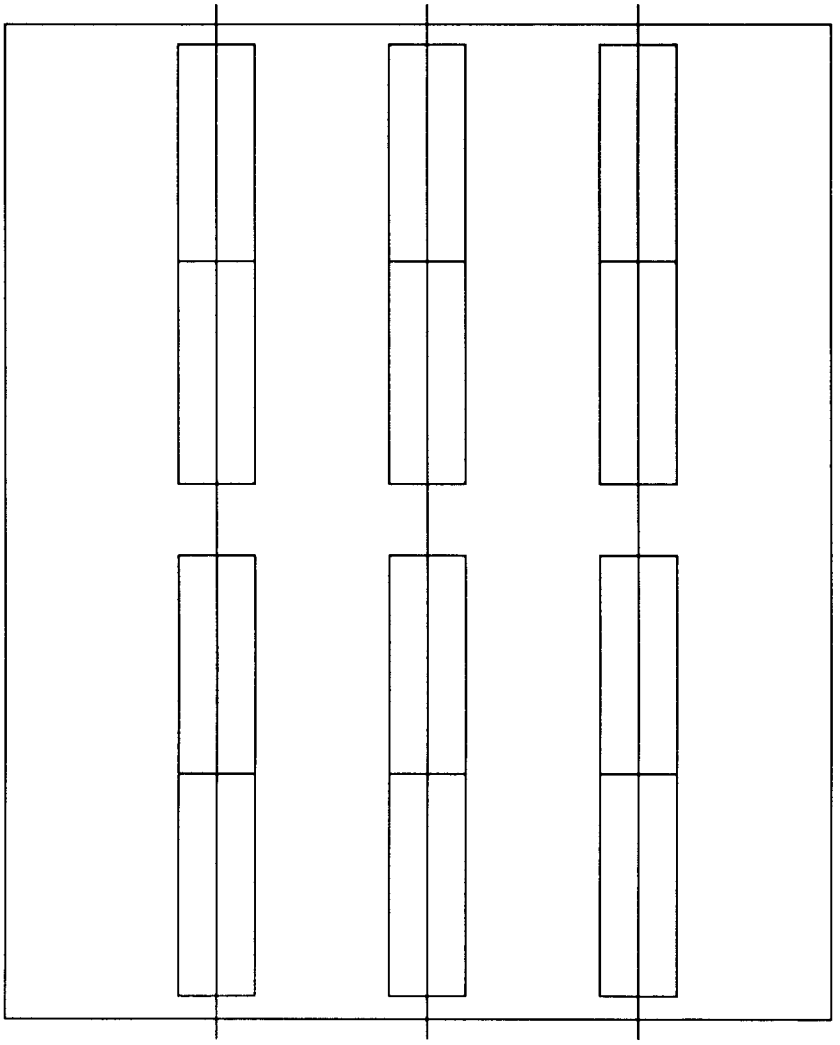
Locomotive - depot Samtredia
- Repair shed for electric locomotives -



Repair hall for electric locomotives with 3 tracks
6 locomotice repair-places,
1 repair-place with wheelset lathe A-41 (1)
1 axle catch pit (2)
1 bridge crane 10 t

further shops
electric-machines, mechanic

Locomotive - depot Samtredia
- Inspection shed for electric locomotives -



Inspection hall for electric locomotives with 3 tracks
6 locomotice repair-places,

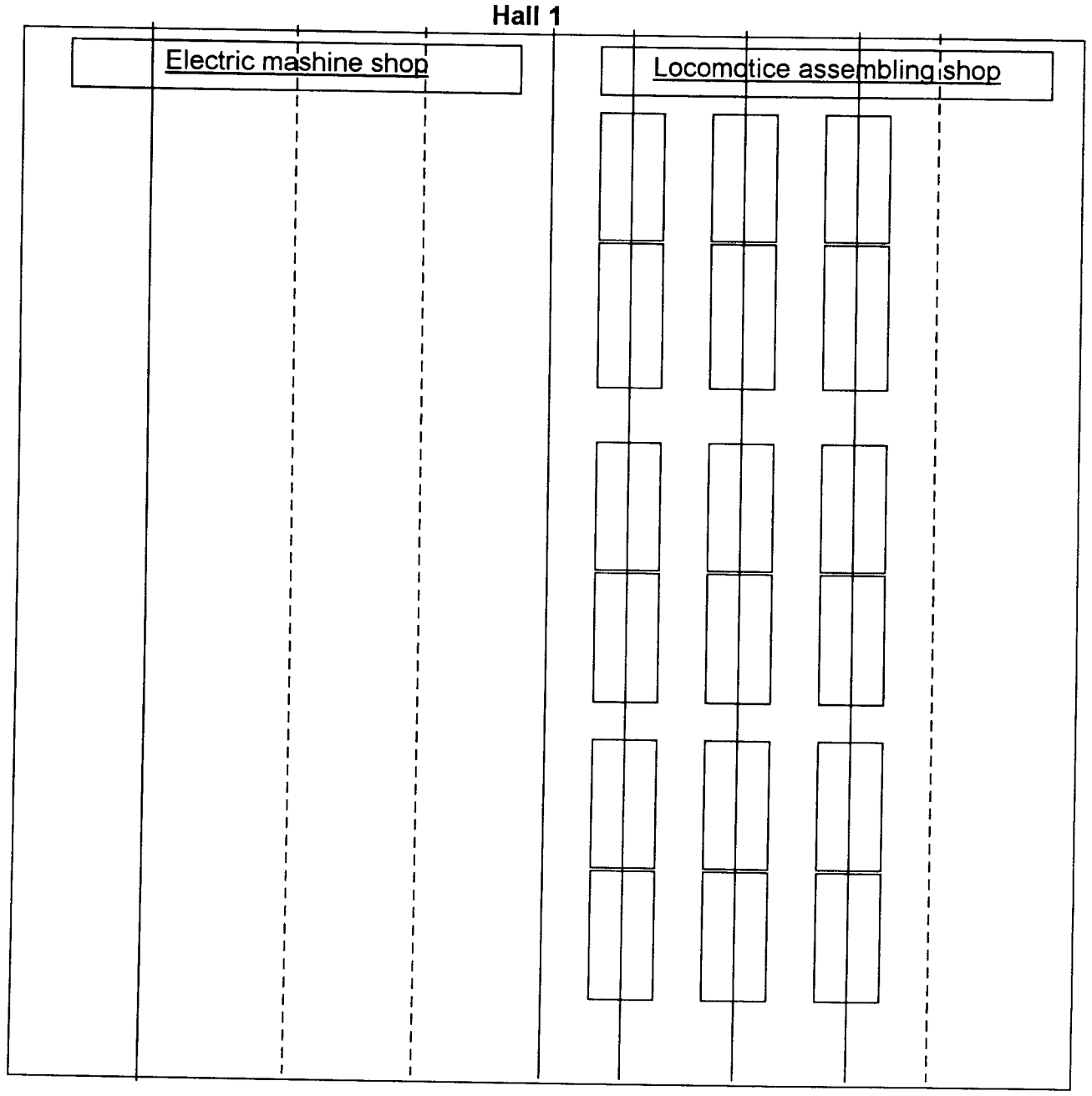
further shops
electric-machines, mechanic

Renewing:

Nr.	object	year	using	kind	price (US$)
1	1 axle catch pit	1984	damaged	replace 1998	60,000
2	1 wheel-set lathe A-41	1984	in use	cap-repair 2000	90,000
3	1 bridge crane 10 tons	1979	in use	cap-repair 1999	35,000

Annex 1.6-18

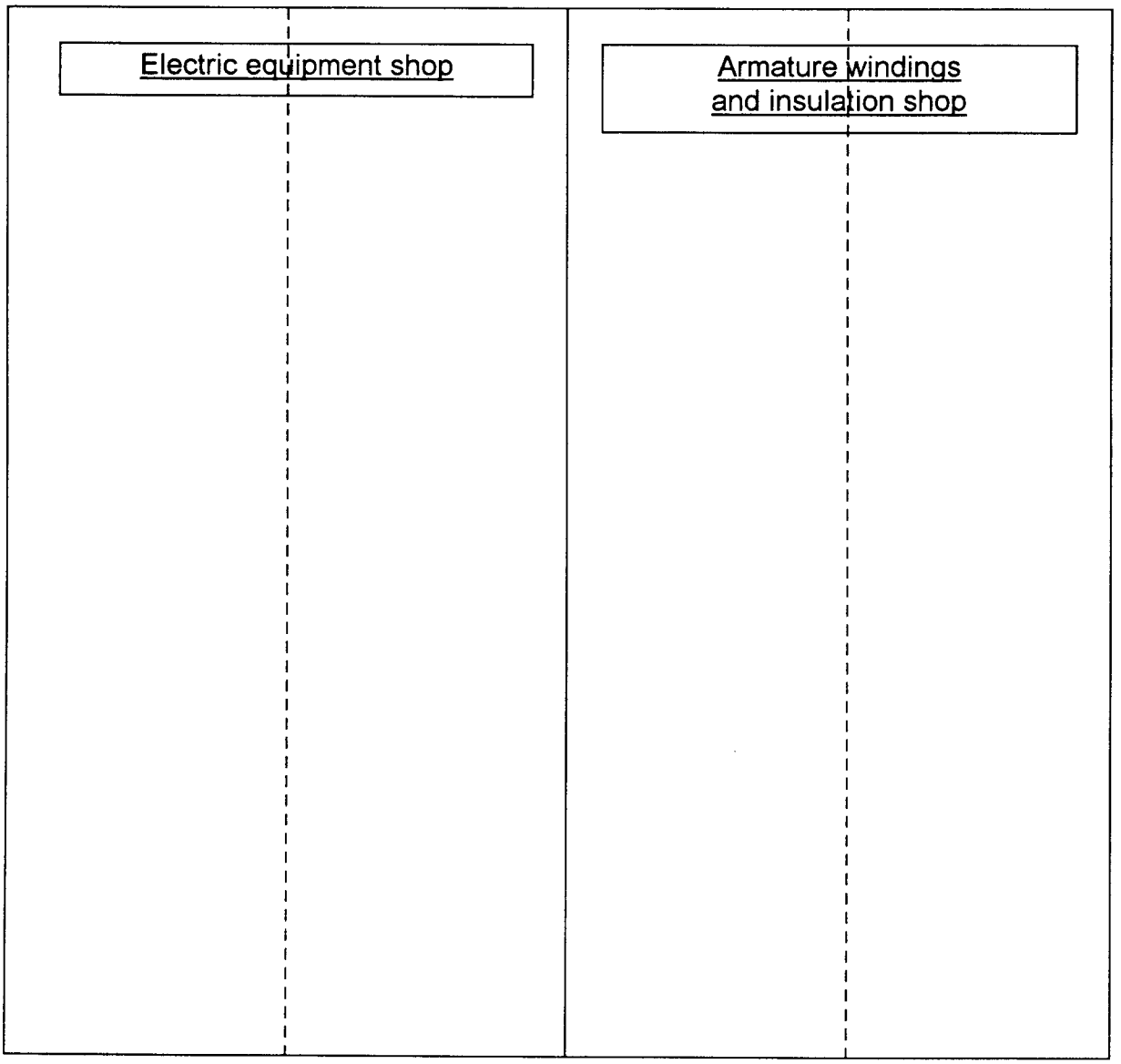
Tbilisi Electro-Locomotive Construction Factory (TECF)
- scheme of the construction sheds -



length 150 m
width 125 m

Annex 1.6-18

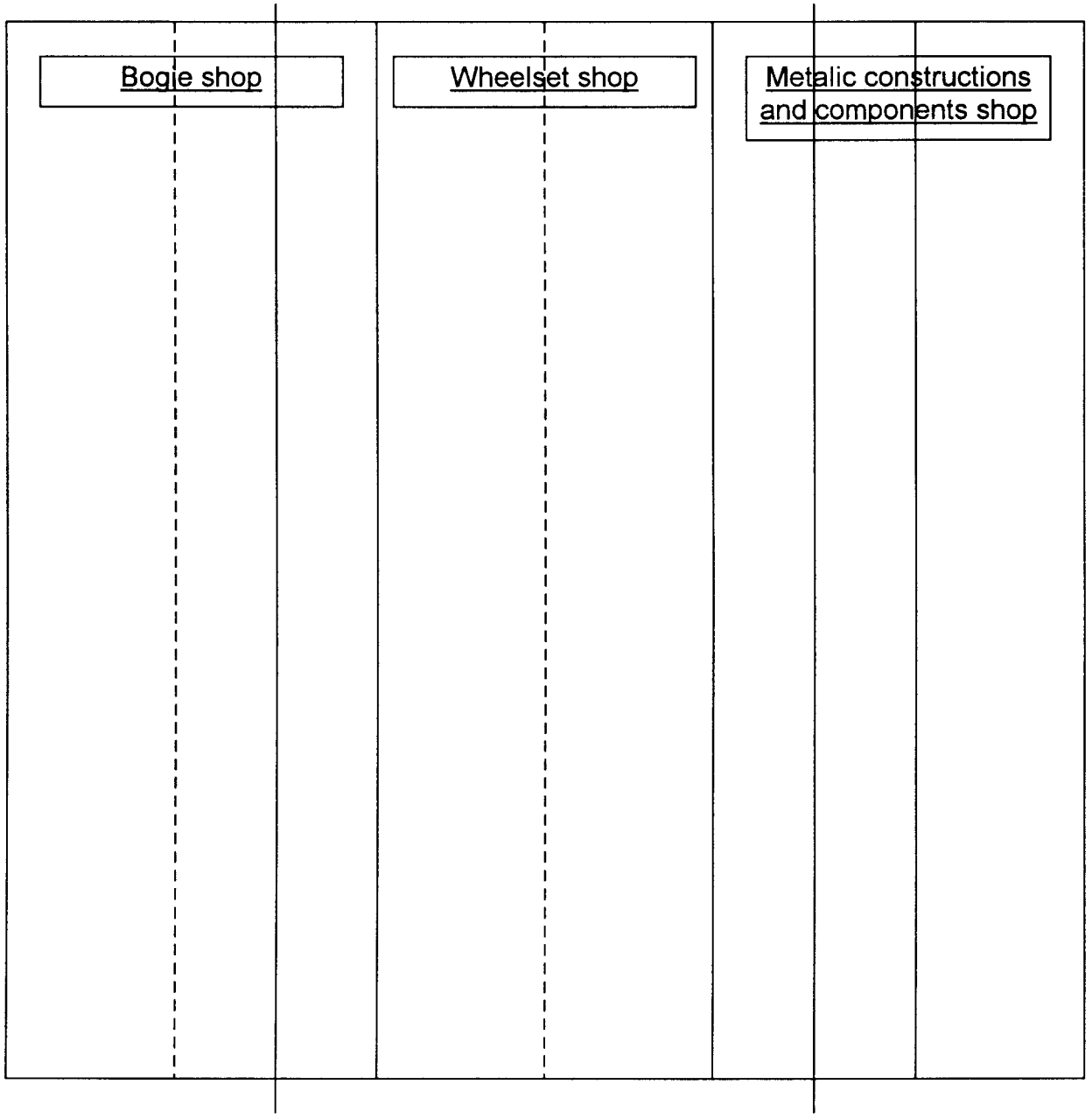
Hall 2



length 150 m
width 60 m

Annex 1.6-18

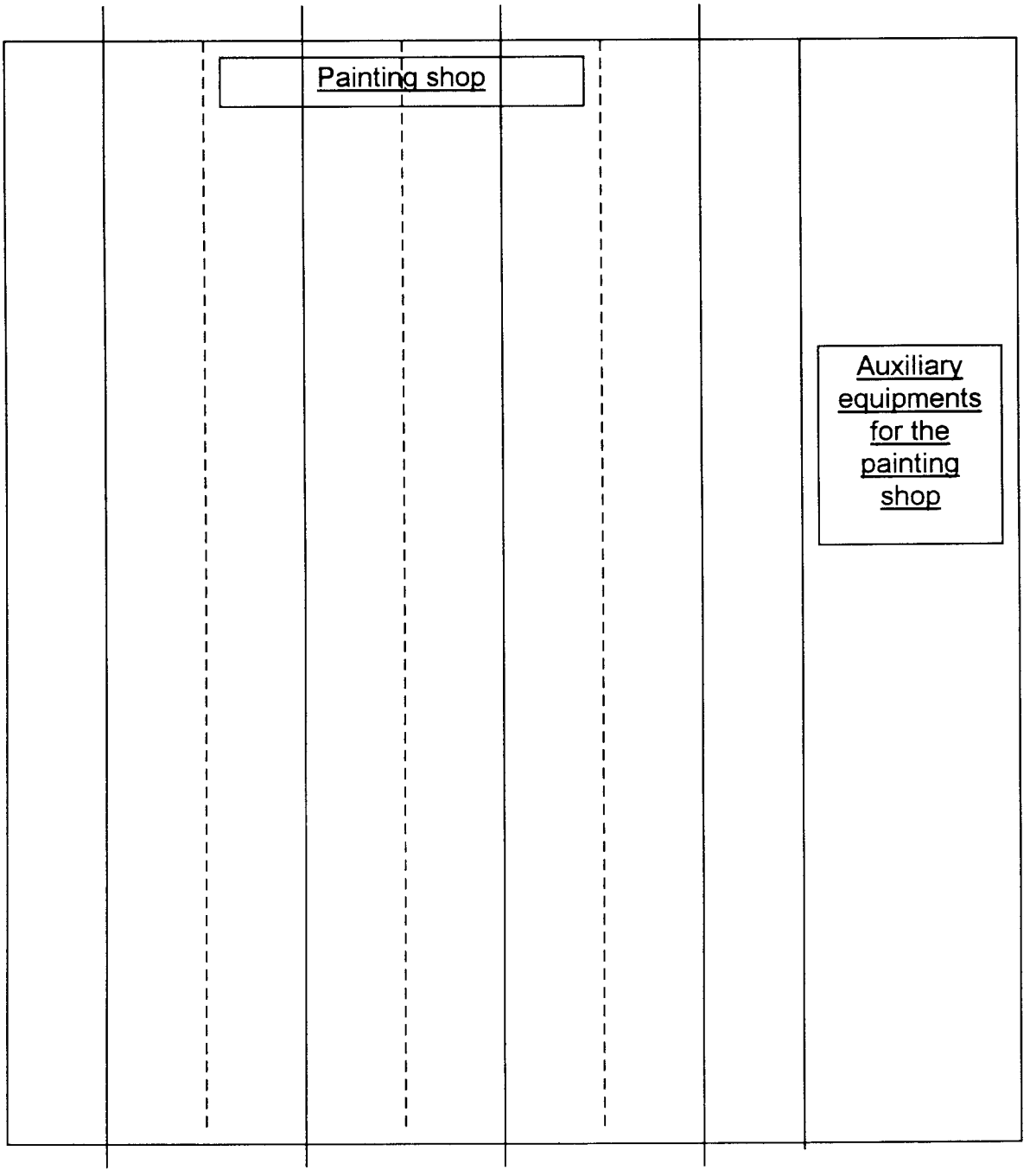
Hall 3



length 216 m
width 144 m

Annex 1.6-18

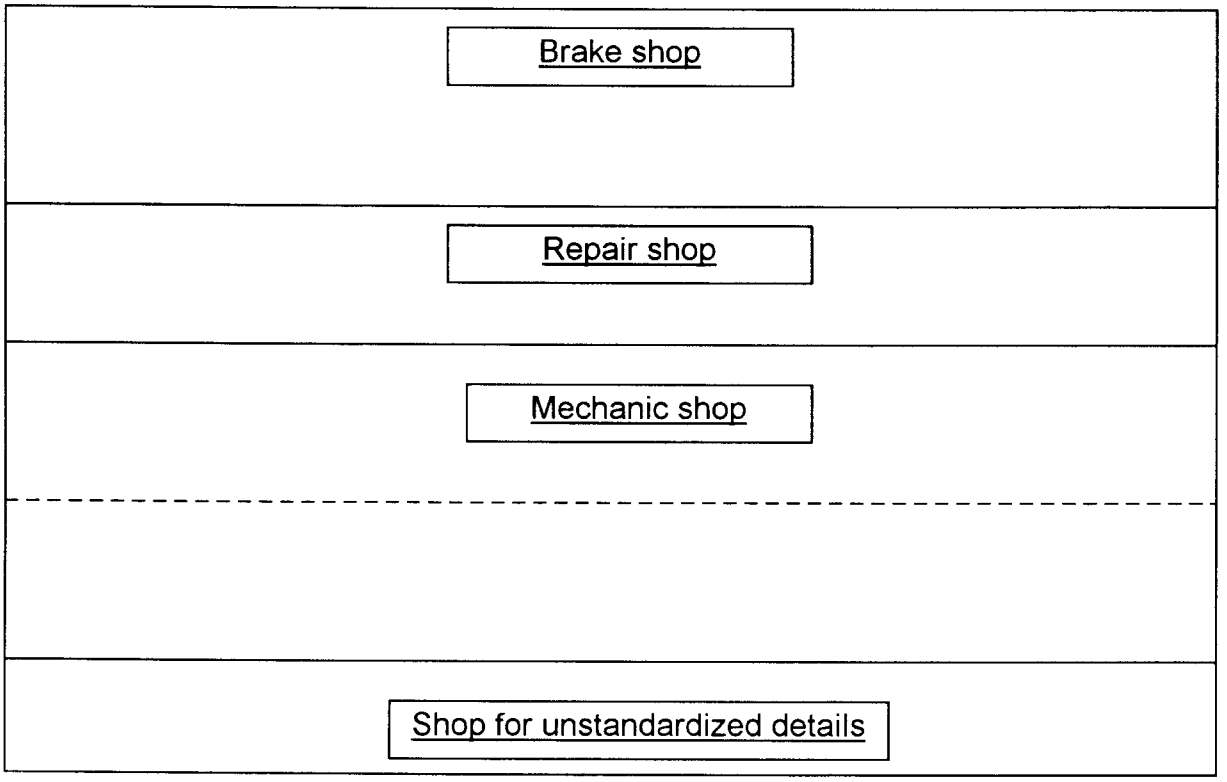
Hall 4 „B“



length 128 m
width 45 m

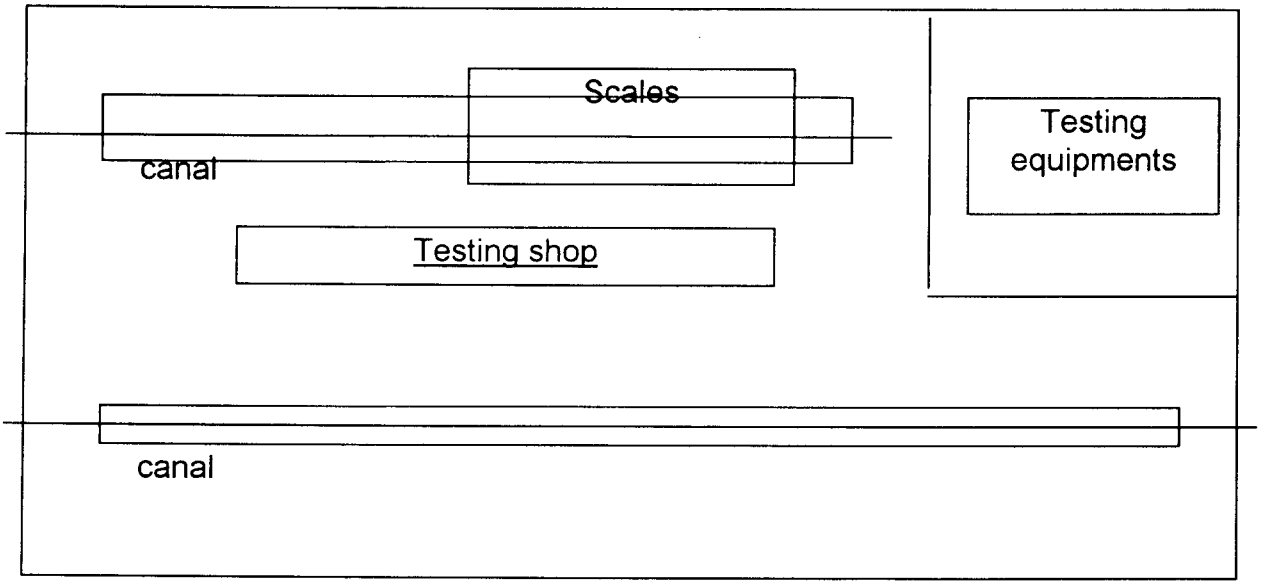
Annex 1.6-18

Hall 5



length 120 m
width 97 m

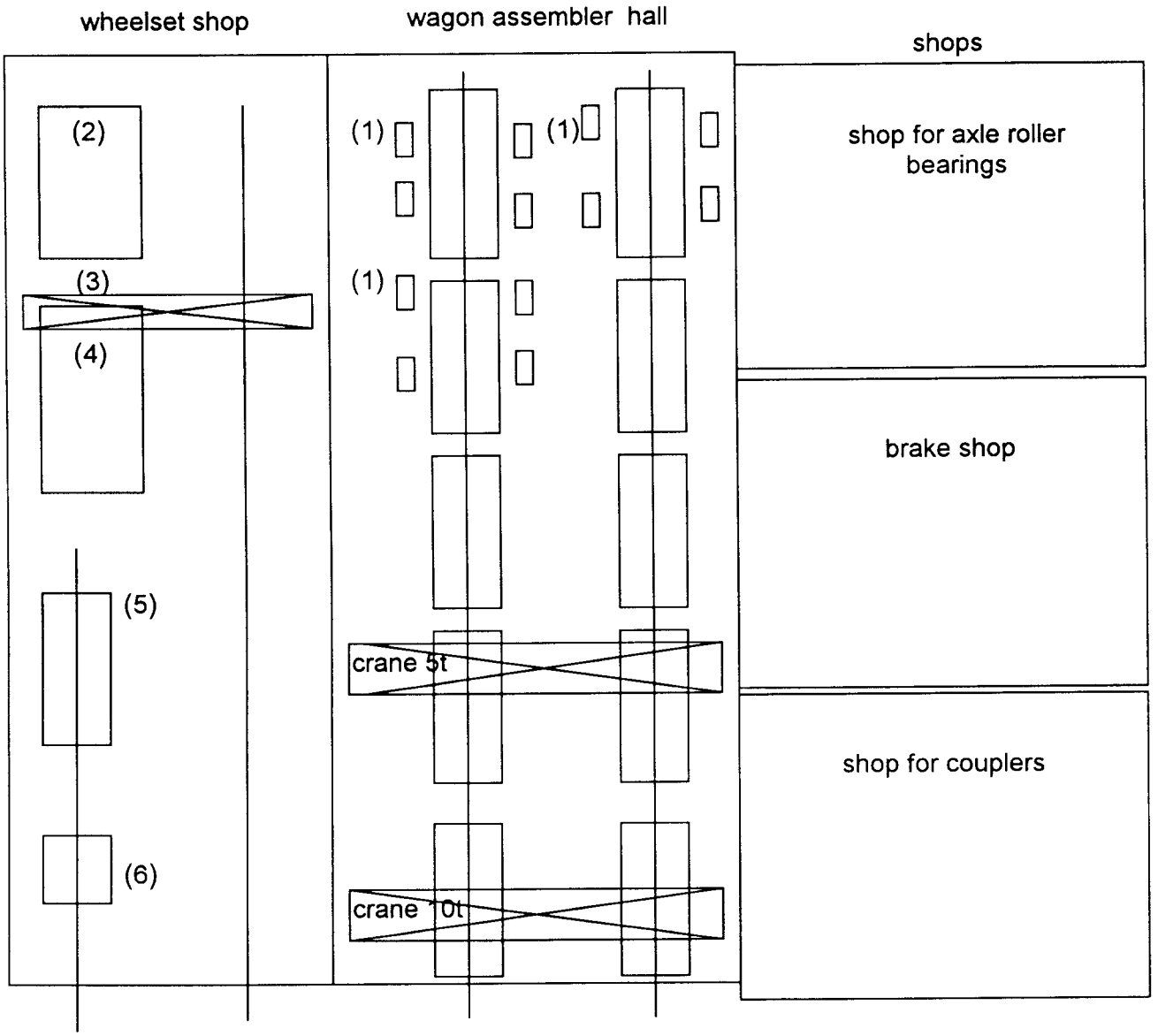
Hall 11



length 60 m
width 24 m

Annex 1.6-19

Wagon / Coach - depot Yerevan
- Scheme of the repair shed -



Wagon shed with 2 tracks used for wagons and coaches (total 10 repair-places)
8 places for wagons / 2 places for coaches

(1) 12 electric-mechanic lifting jacks each 40 t (movable)
2 bridge cranes 10 t and 5 t

wheelset shop with 1 long and 1 short track
(2) 1 wheelset lathe - Rafamet 6 years old, under operation
(3) 1 bridge crane for wheelsets, 2t

(4) 1 wheelset lathe - 15 years old, out of order
(5) 1 wheelset washing mashine, old fashioned
(6) 1 defectoscop for wheelsets

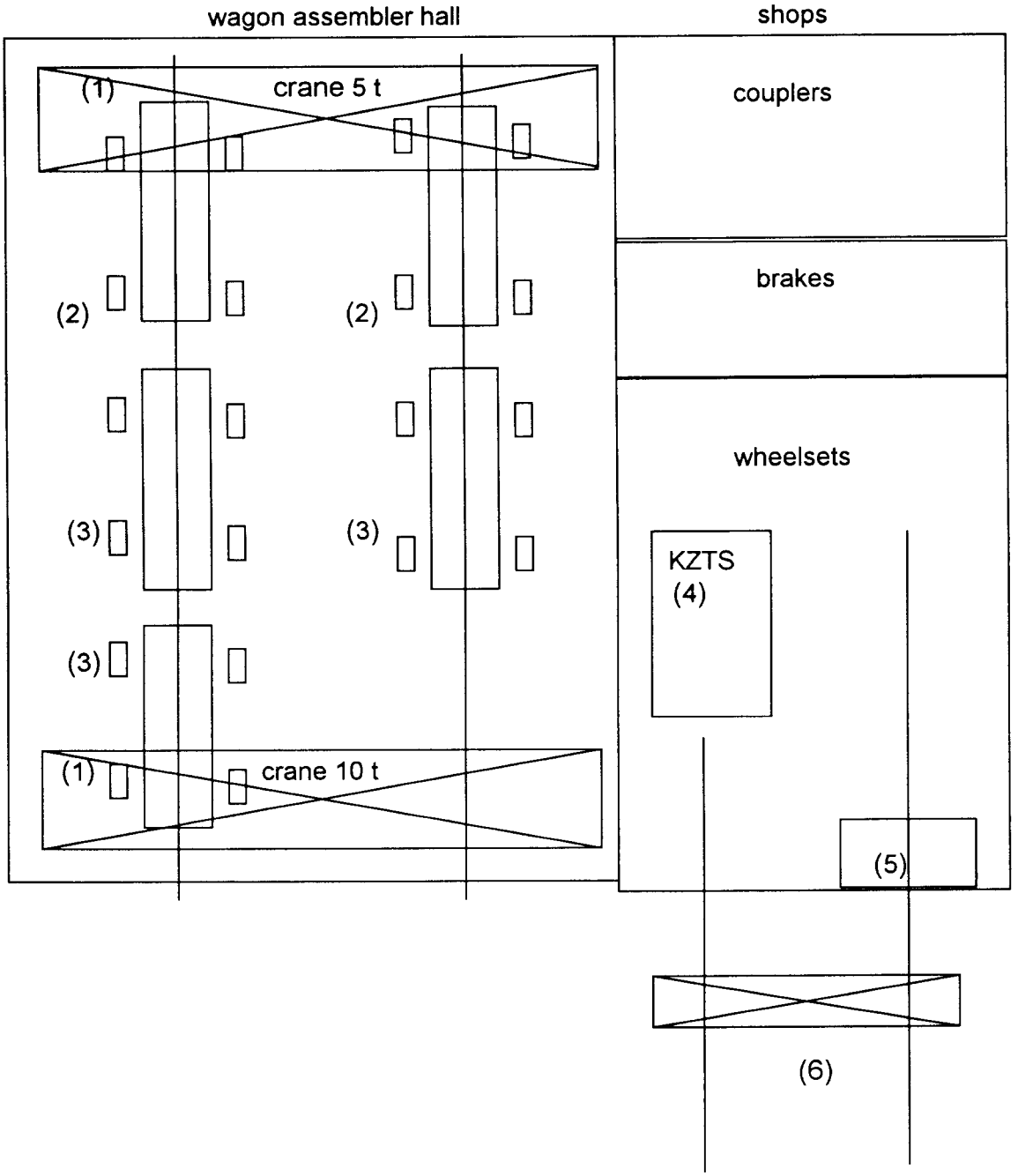
further shops:
roller bearings, couplers, brakes

Renewing:

Nr.	object	year	using	kind	price (USD)
1	1 compressor 10 cqm/h	1961	damaged	replace 2002	70,000
2	3 portal cranes 5 tons	1966	in use	replace 1999	90,000
3	1 wheel-set lathe Rafamet	1966	in use	cap-repair 1997	90,000
4	1 slewing crane 5 tons	1979	no	procure 2000	4,000
5	8 hydraulic lifting jacks	1979	no	procure 1998	8,000
6	8 electric lifting jacks 5 tons	1966	no	procure 1998	24,000
7	1 four-side planing mashine	1966	no	procure 2002	25,000

Annex 1.6-20

Wagon - depot Gyumri
- Scheme of repair shed -



Wagon repair hall with 2 tracks (6 repair-places)

(1) 2 bridge cranes with 10 t and 5 t
(2) 8 mechanic lifting „BOCKS" each 6 t, unmovable
(3) 12 movable electric-mechanic lifting jacks each 10 t

wheelset shop with 2 tracks

(4) 1 wheelset lathe - new, type KZTS - 1836M Russia, still unused, because lack of special lubrications
(5) 1 defectoscop for wheelsets
(6) 1 portal crane for wheelsets, 2t

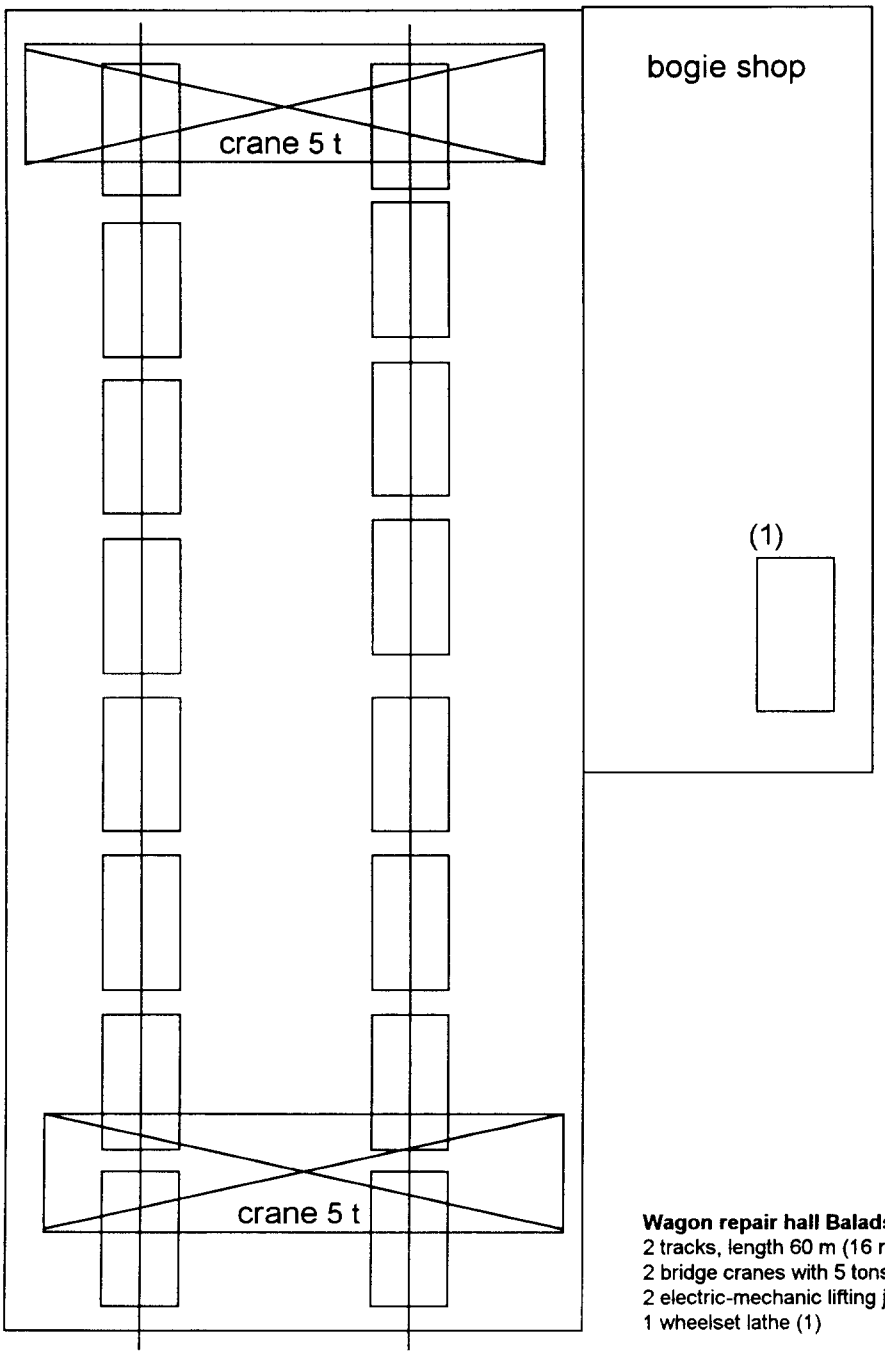
further shops:
couplers, brakes

Renewing:

no.	object	year	using	kind	price (US$)
1	1 compressor 10 cqm/h	1961	damaged	replace 1997	70,000
2	1 bridge crane 10 tons	1966	in use	cap-repair 1999	30,000
3	1 electric welding equipment	1969	out of order	replace 1998	30,000
4	1 electric welding transformer	1979	out of order	replace 1998	4,500
5	1 bridge crane 5 tons	1966	in use	cap-repair 1999	30,000
6	1 four-side planing mashine	1966	in use	replace 2002	25,000

Annex 1.6-21

Wagon - depot Baladshary
- Scheme of wagon repair shed -



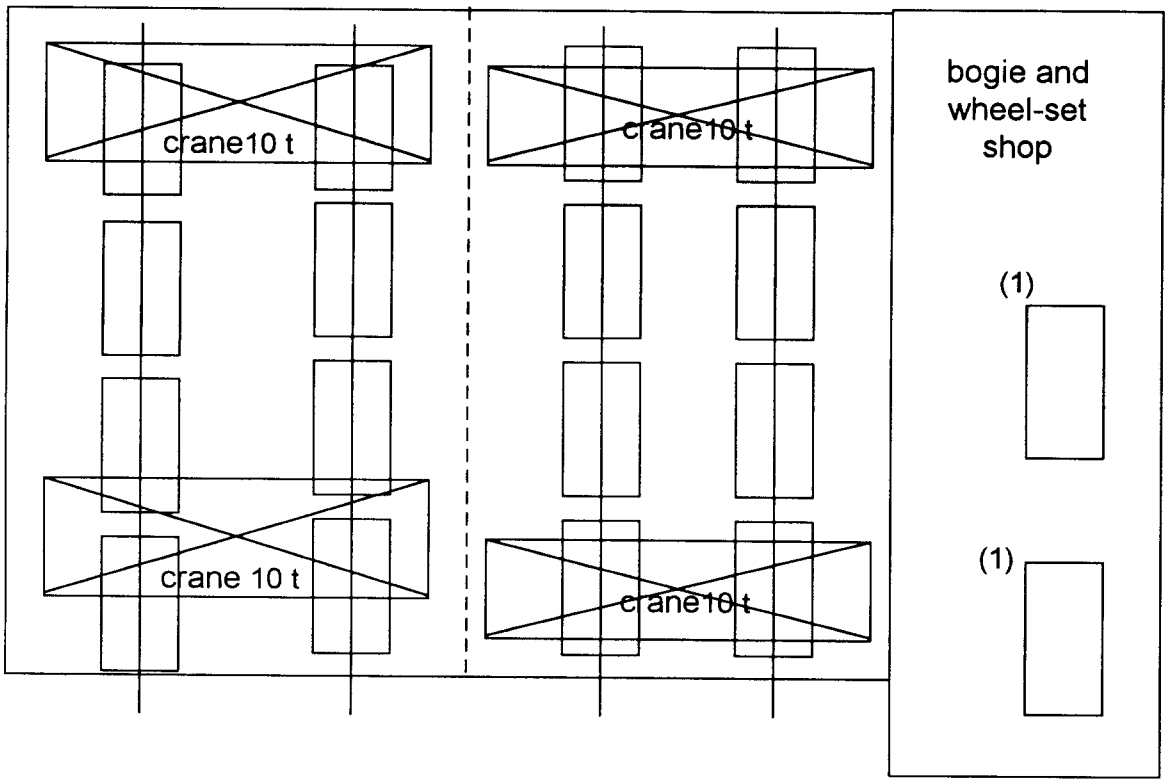
Wagon repair hall Baladshary with
2 tracks, length 60 m (16 repair-places)
2 bridge cranes with 5 tons each
2 electric-mechanic lifting jacks each 40 tons
1 wheelset lathe (1)

Renewing:

no.	object	year	using	kind	price (US$)
1	1 bridge cranes 10 tons	1973	under using	replace 1998	50,000
2	1 bridge cranes 10 tons	1982	under using	cap-repair 1998	10,000
3	2 pneumatic hammer	1938 1953	out of order under using	replace 1998	30,000
4	1 compressor	1979	under using	cap. repair 1998	5,000

Annex 1.6-22

Wagon - depot Gyandsha
- Scheme of wagon repair shed -



Wagon repair hall Gyansha with
4 tracks, length 120 m (16 repair-places)
4 bridge cranes with 10 tons each
2 electric-mechanic lifting jacks each 40 tons
2 electric-mechanic lifting jacks each 30 tons
8 electric-mechanic lifting jacks each 7 tons
2 wheelset lathes (1)

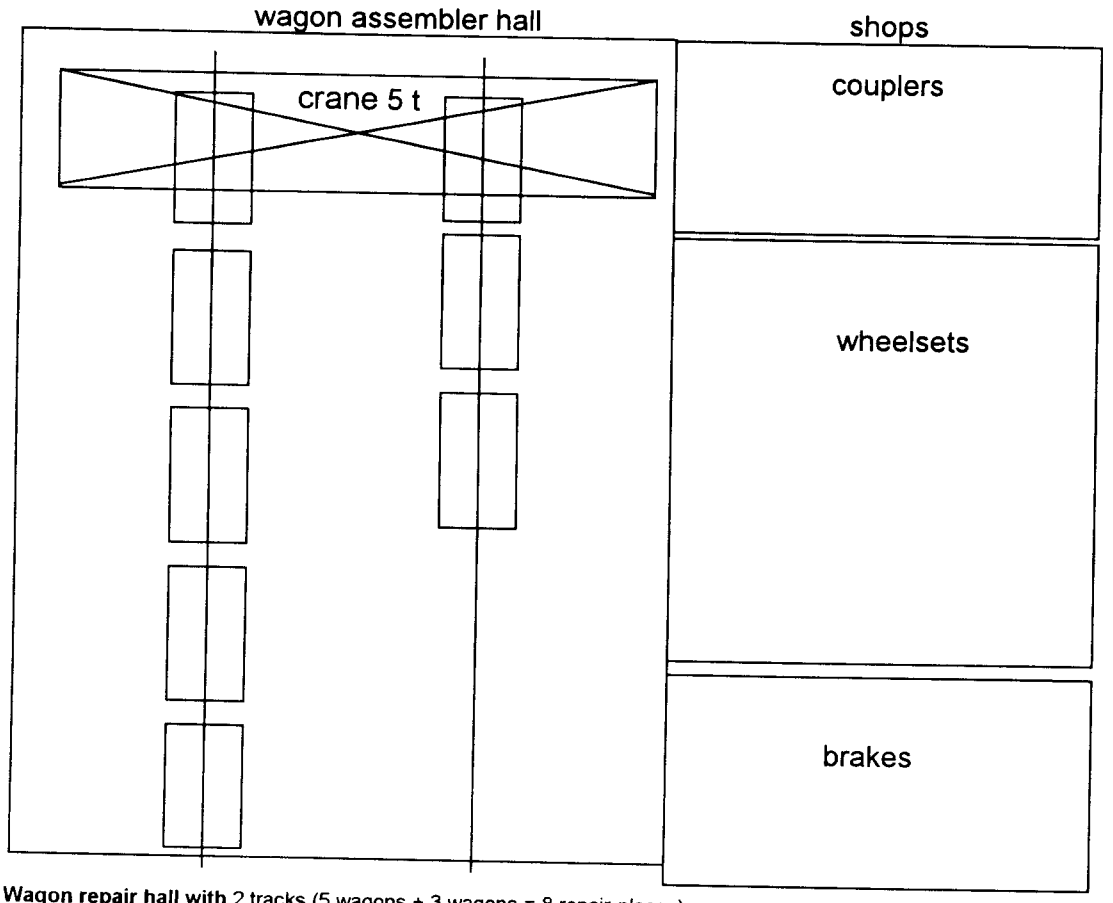
Further the depot posses 1 central-buffer shop, 1 brake shop and mechanic shop

Renewing:

no.	object	year	using	kind	price (US$)
1	1 bridge cranes 10 tons	1973	under using	replace 1998	50,000
2	1 bridge cranes 10 tons	1982	under using	cap-repair 1998	7,500
3	2 lifting jacks 40 tons	1938 1953	out of order under using	replace 1998	8,000
4	2 lifting jacks 30 tons	1979	under using	cap-repair 1998	6,000
5	wheel-set lathe Rafamet	1988	under using	cap-repair 1998	90,000
6	wheel-set lathe Rafamet	1992	under using	cap-repair 2000	90,000

Annex 1.6-23

Wagon - depot Kasi-Magomed
- Scheme of repair shed -



Wagon repair hall with 2 tracks (5 wagons + 3 wagons = 8 repair-places)
1 bridge crane with 5 tons
8 electric-mechanic lifting jacks each 30 t

bogie shop
1 bridge crane for wheelsets with 10 tons
2 wheel-set lathe „Rafamet", 1969 and 1989, first for scrapping
2 defectoscops

further shops:
couplers, brakes, mechanics,

Renewing:

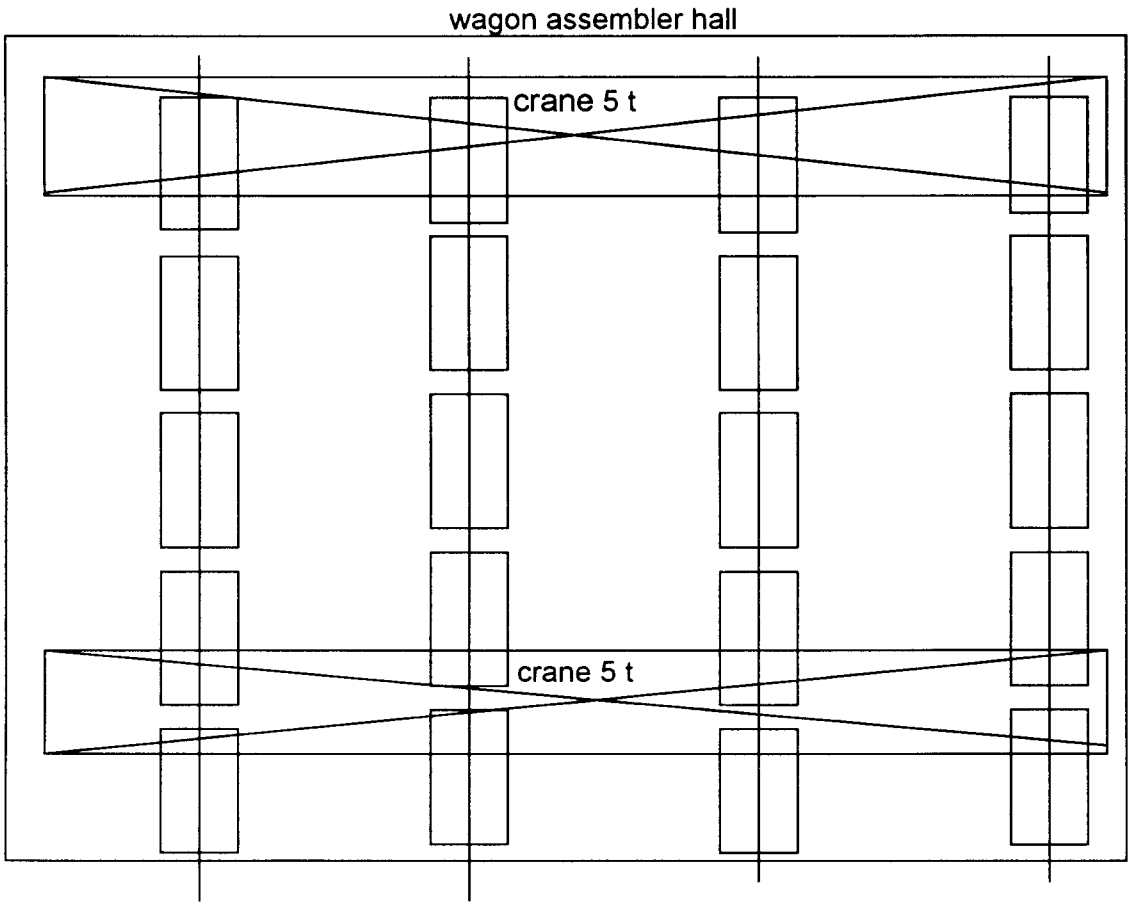
no.	object	year	using	kind	price (US$)
1	2 electric welding mashines	1972	dameged	new	9,000
2	1 ultrasonic flaw detector	1970	out of order	cap-repair 1997	4,000
3	1 compressor	1970	damaged	cap-repair 1998	5,000
4	1 wheel-set lathe Rafamet	1969	damaged	replace 1999	175,000
5	1 drilling lathe	1971	damaged	replace 1999	37,500
6	3 lifting jacks	1980	damaged	cap-repair 1998	9,000

Scrapping:

1 wheelset lathe from 1969

Annex 1.6-24

Wagon - depot Aliat
- Scheme of repair shed -



Wagon repair hall with 4 tracks (4x5 wagons = 4 sets; 20 repair-places)
2 bridge cranes each with 10 t
12 electric-mechanic lifting jacks each 30 t
4 movable hydraulic lifting jacks each 40 t

bogie shop
1 bridge crane for wheelsets with 10 tons, 2 wheel-set lathe „Rafamet"
3 defectoscops

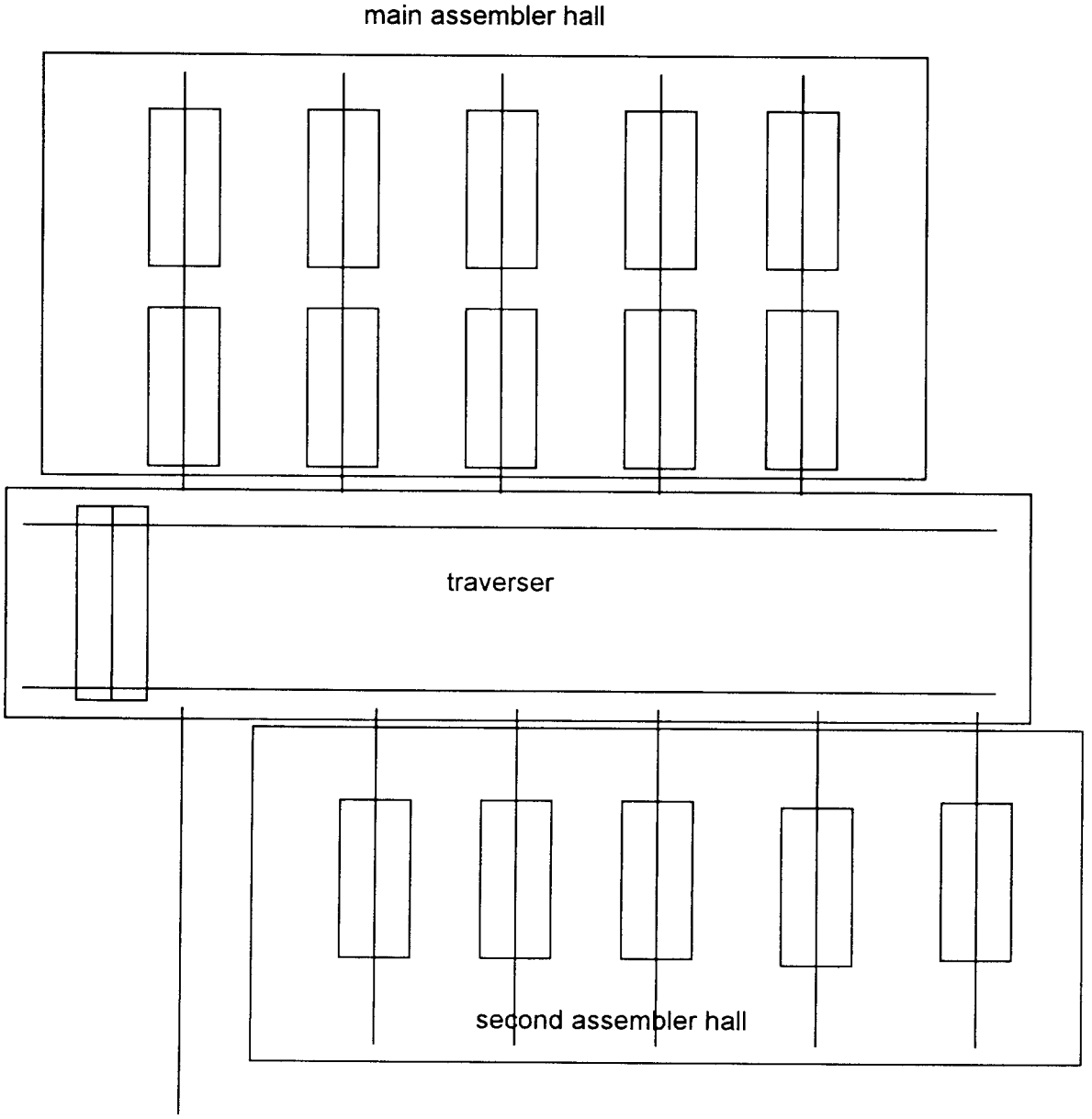
further shops:
couplers, brakes, electric mashines, mechanics, diesel mashines, cooling mashines

Renewing:

no.	object	year	using	kind	price (US$)
1	2 bridge cranes 10 tons	1980	damaged	cap-repair 1997	15,000
2	1 portal crane 12.5 tons	1984	out of order	cap-repair 1997	12,500
3	1 wheel-set lathe Rafamet	1982	damaged	cap-repair 1998	90,000

Annex 1.6-25

Baku Wagon-Repair Plant
- scheme of the repair sheds -



Wagon shed with 2 assembler halls, 1 incoming (outgoing) track and 1 transponder:
1) Main assembler hall with 5 tracks used for 10 wagons (10 repair-places) and 40 electric-mechanic lifting jacks each 10 t
2) Second assembler hall with 5 tracks used for 5 wagons (5 repair-places) and 20 electric-mechanic lifting jacks each 10 t

bogie shop along the main assembler hall

wheelset shop situated in the oposite of the traverse at the other hand of the main workshop street
1 wheelset lathe - KZTS under operation
1 wheelset washing mashine, old fashioned
1 defectoscop for wheelsets
included is a roller bearing shop with all equipment needed

further shops:
couplers, brakes

tank corpus shop situated in a distance of 400 m from the assembler halls
5 tracks with 5 repair-places used for repairing, checking and painting the tank corpus

overall volume of repair-places: 20

designed capability: 200 tanks per month

actually performance: 50 tanks per month
reason: lack of spares, obsolete equipments, no incoming orders by the tank owners

Remark:
There exists a project draft for modernizing the plant worked out by the **Charkov Railway Designing Institute** in 1996.
The designed capability of this draft is 200 tanks per month also.

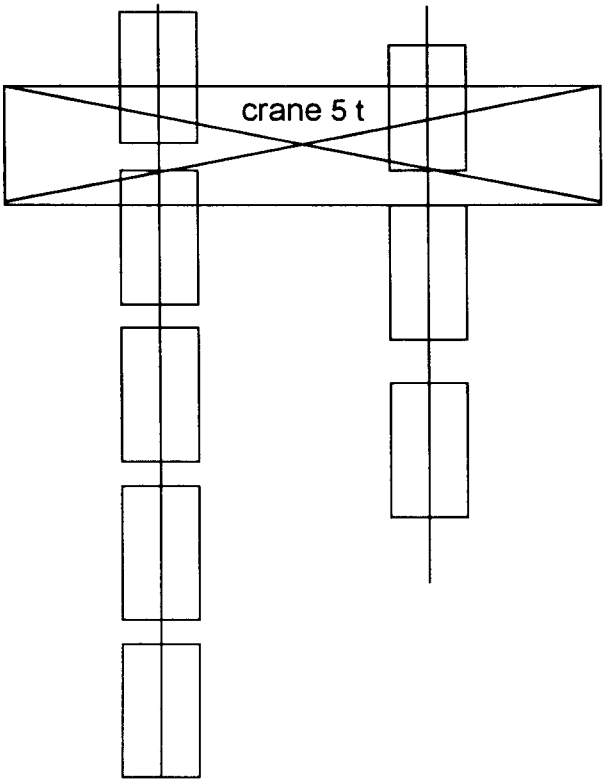
Renewing:

Besides of the plans for modernizing the plant as mentioned under remarks there exists an urgent need for a capital repair of the wheelset lathe that should be done no waiting to the moment of cleared up the financial cources for crediting the general modernizing.

no.	object	year	using	kind	price (US$)
1	1 wheel-set lathe „Rafamet“	1980	damaged	cap-repair 1998	90,000

Annex 1.6-26

Wagon - depot Shirvan
- Scheme of repair place Shirvan-



1 Wagon repair place Shirvan with
2 tracks, length 100 m (5 wagons + 3 wagons = 8 repair-places)
1 portal crane with 5 tons
6 electric-mechanic lifting jacks each 35 t

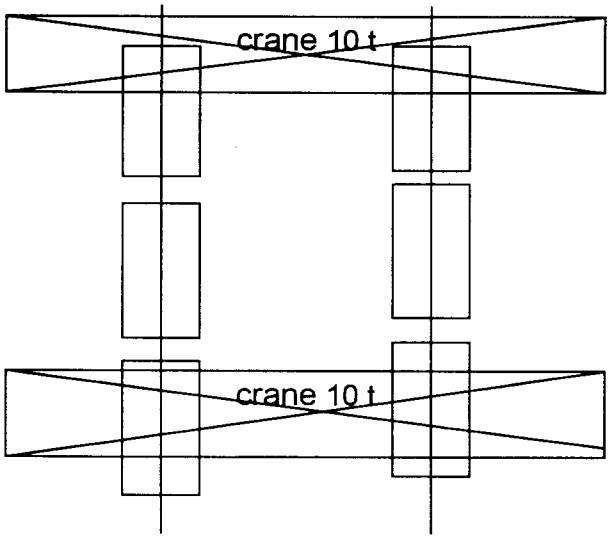
2 Wagon repair place Divitshi with
1 track, lenght 50 m (2 wagons)
1 portal crane with 3 tons
2 electric-mechanic lifting jacks each with30 tons

Renewing:

no.	object	year	using	kind	price (US$)
1	1 portal crane	1972	damaged	cap-repair 1998	12,500
2	1 slewing crane 3 tons	1976	damaged	cap-repair 1998	5,500
3	6 electric lifting jack 35 tons	1982	damaged	cap-repair 1999	21,000

Annex 1.6-27

Wagon - depot Tbilisi-Grusovaya - Scheme of repair place Tbilisi-



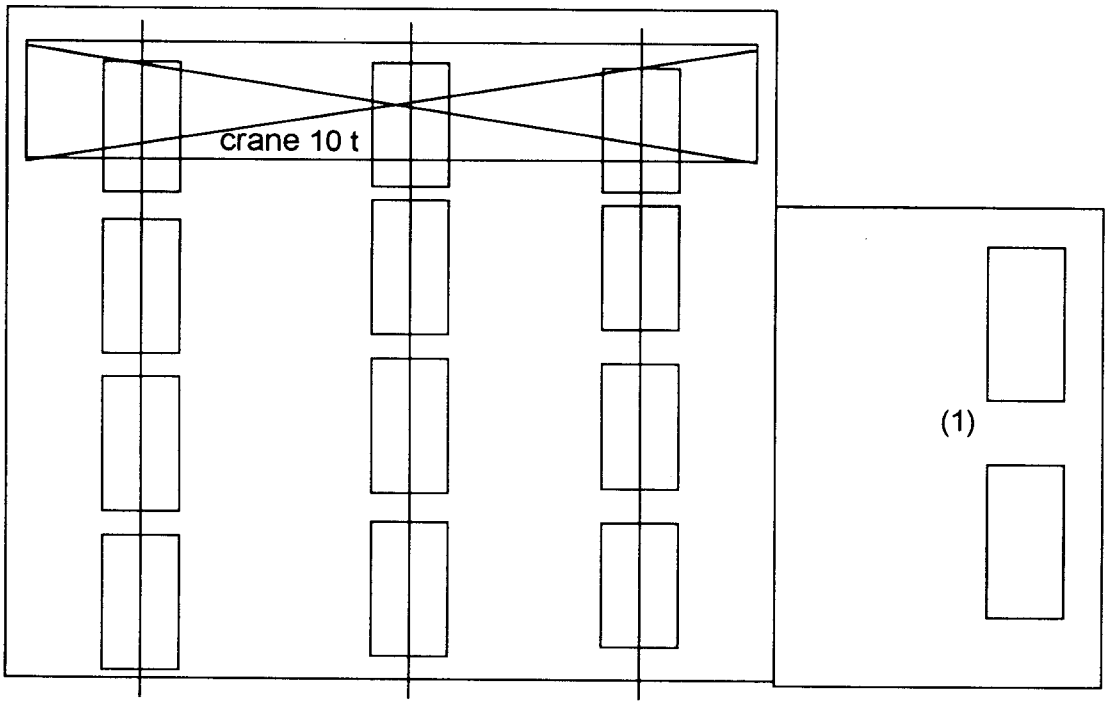
Wagon repair place Tbilisi with
2 tracks, length 80 m (3 wagons + 3 wagons = 6 repair-places)
2 portal cranes with 10 tons
4 electric-mechanic lifting jacks each 35 t

Renewing:

no.	object	year	using	kind	price (US$)
1	1 portal crane 10 tons	1971	damaged	replace 1999	30,000
2	1 slewing crane 10 tons	no	no	procure 2000	5,500
3	1 slewing crane 5 tons	no	no	procure 2000	4,000
4	4 electric lifting jack 35 tons	no	no	procure 1998	18,000
5	8 hydraulic lifting jack 25 tons	1982	damaged	procure 1998	8,000
6	1 compressor 10 cqm/h	1973	in use	replace 2002	70,000
7	1 four-side planing mashine	no	no	procure 2002	25,000

Annex 1.6-28

Wagon - depot Khashuri
- Scheme of wagon repair shed -



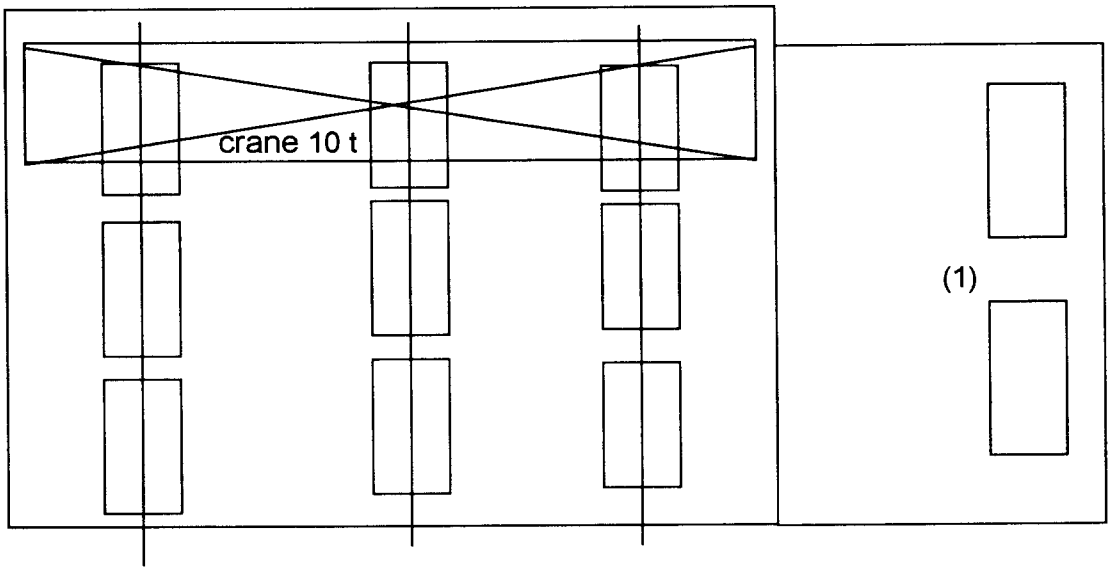
Wagon repair hall Khashuri with
3 tracks, length 102 m (12 repair-places)
1 bridge crane with 10 tons
4 electric-mechanic lifting jacks each 35 t
2 wheelset lathes (1)

Renewing:

no.	object	year	using	kind	price (US$)
1	1 compressor 10 cqm/h	no	no	replace 1997	70,000
2	1 conveyor for roller bearings	no	no	procure 1998	50,000
3	1 bridge crane 10 t	1985	in use	cap-repair 1998	30,000
4	3 sets of lifting jacks 35 tons	new	for adding	procure 1998	54,000
5	1 four-side planing mashine for wood	1983	in use	replace 2002	25,000
6	1 wheel-set lathe Rafamet	1979	in use	cap-repair 1999	90,000
7	2 electric welding transformer	1976	out of order	replace 1998	9,000

Annex 1.6-29

Wagon - depot Samtredia
- Scheme of wagon repair shed -



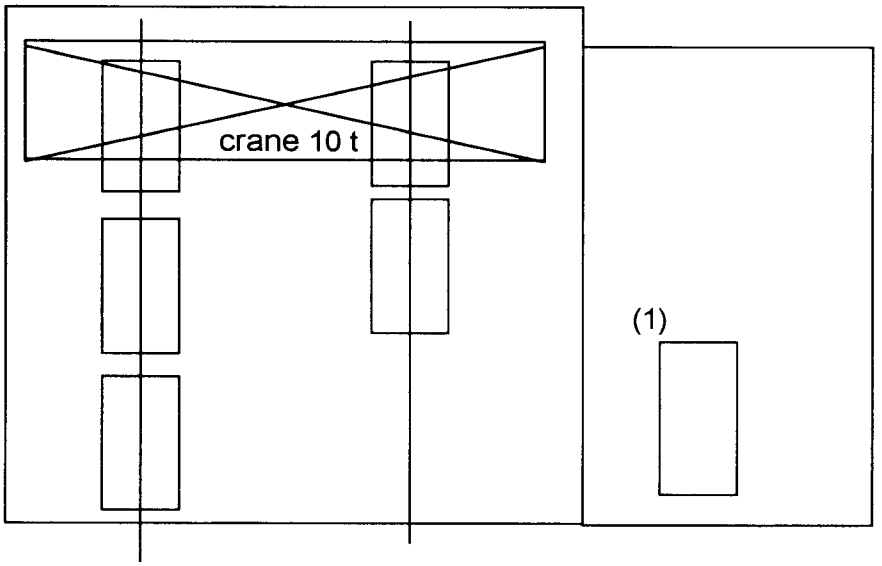
Wagon repair hall Samtredia with
3 tracks, length 60 m (9 repair-places)
1 bridge crane with 10 tons
4 electric-mechanic lifting jacks each 35 t
2 wheelset lathes (1)

Renewing:

Nr.	object	year	using	kind	price (USD)
1	1 compressor 10 cqm/h	1972	out of order	replace 1998	70,000
2	1 wheelset lathe Rafamet	1986	no	cap-repair 1999	90,000
3	1 bridge crane 10 t	1967	under using	replace 1999	40,000
4	1 conveyor for roller bearings	no	no	procure 1998	50,000
5	1 four-side planing mashine for wood	1980	under using	replace 1998	25,000
6	2 welding transformer	1968	out of order	replace 1998	9,000
7	4 lifting jacks 35 tons	1978	out of order	procure 1998	18,000
8	12 lifting jacks 35 tons	no	no	procure 1999	54,000

Annex 1.6-30

Wagon - depot Batumi
- Scheme of wagon repair shed -



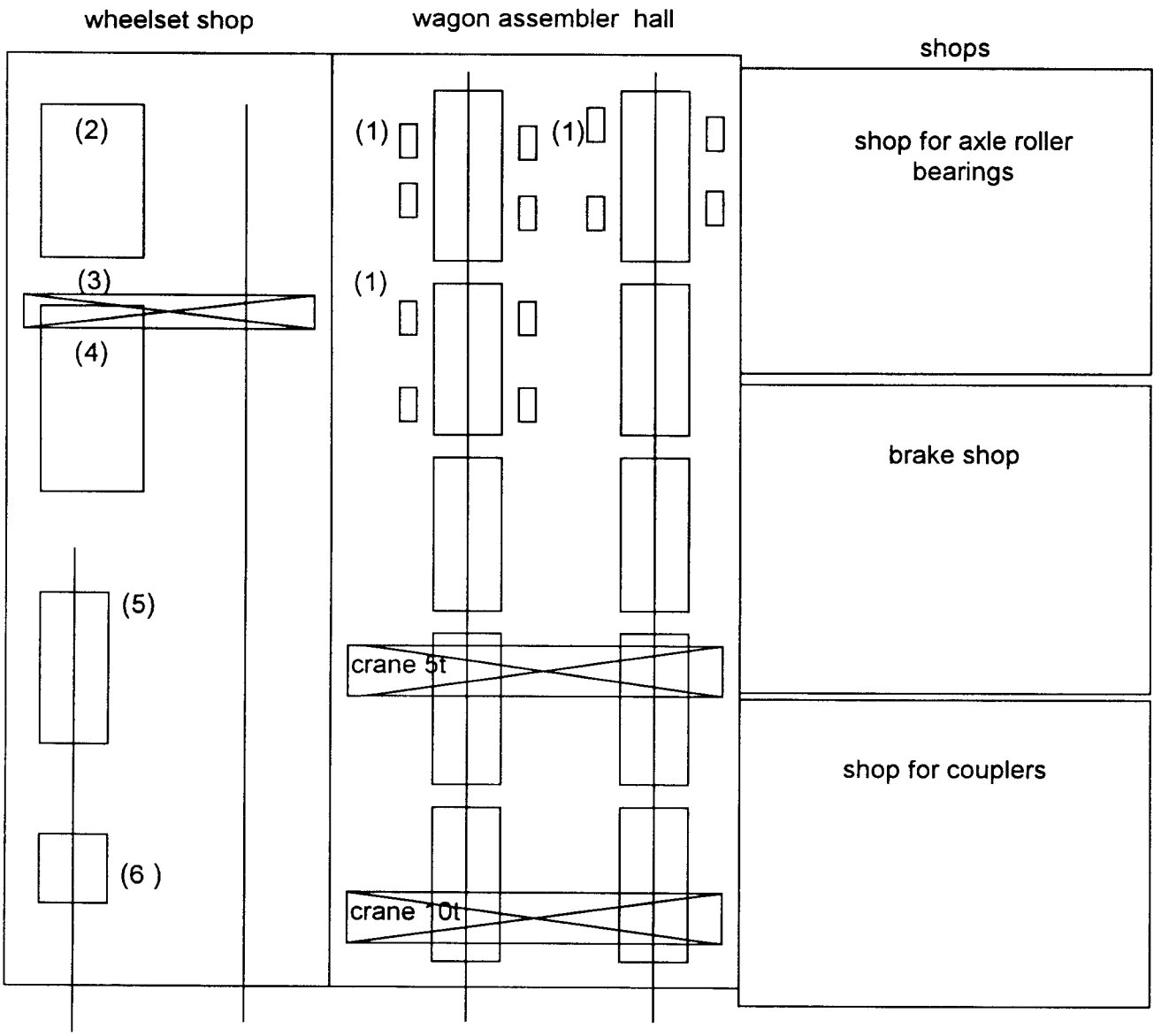
Wagon repair hall Batumi with
2 tracks, length 60 m (5 repair-places)
1 bridge crane with 10 tons
16 electric-mechanic lifting jacks each 35 t
1 wheelset lathe (1)

Renewing:

no.	object	year	using	kind	price (US$)
1	1 bridge crane 10 t	1966	under using	replace 1998	30,000
2	2 welding transformer	1978	out of order	replace 1998	9,000
3	4 electric lifting jacks	no	no	procure 1998	18,000
4	2 welding transformer	1976	out of order	replace 1998	9,000
5	1 four-side-planning mashine	1967	damaged	replace 1998	25,000

Annex 1.6-31

Coach- / Wagon - depot Yerevan
- Scheme of the repair shed -



Wagon shed with 2 tracks used for wagons and coaches (total 10 repair-places)
8 places for wagons and 2 places for coaches
(1) 12 electric-mechanic lifting jacks each 40 t (movable)
2 bridge cranes 10 t and 5 t

wheelset shop with 1 long and 1 short track
(2) 1 wheelset lathe - Rafamet 6 years old, under operation
(3) 1 bridge crane for wheelsets, 2 t

(4) 1 wheelset lathe - 15 years old, out of order
(5) 1 wheelset washing mashine, old fashioned
(6) 1 defectoscop for wheelsets

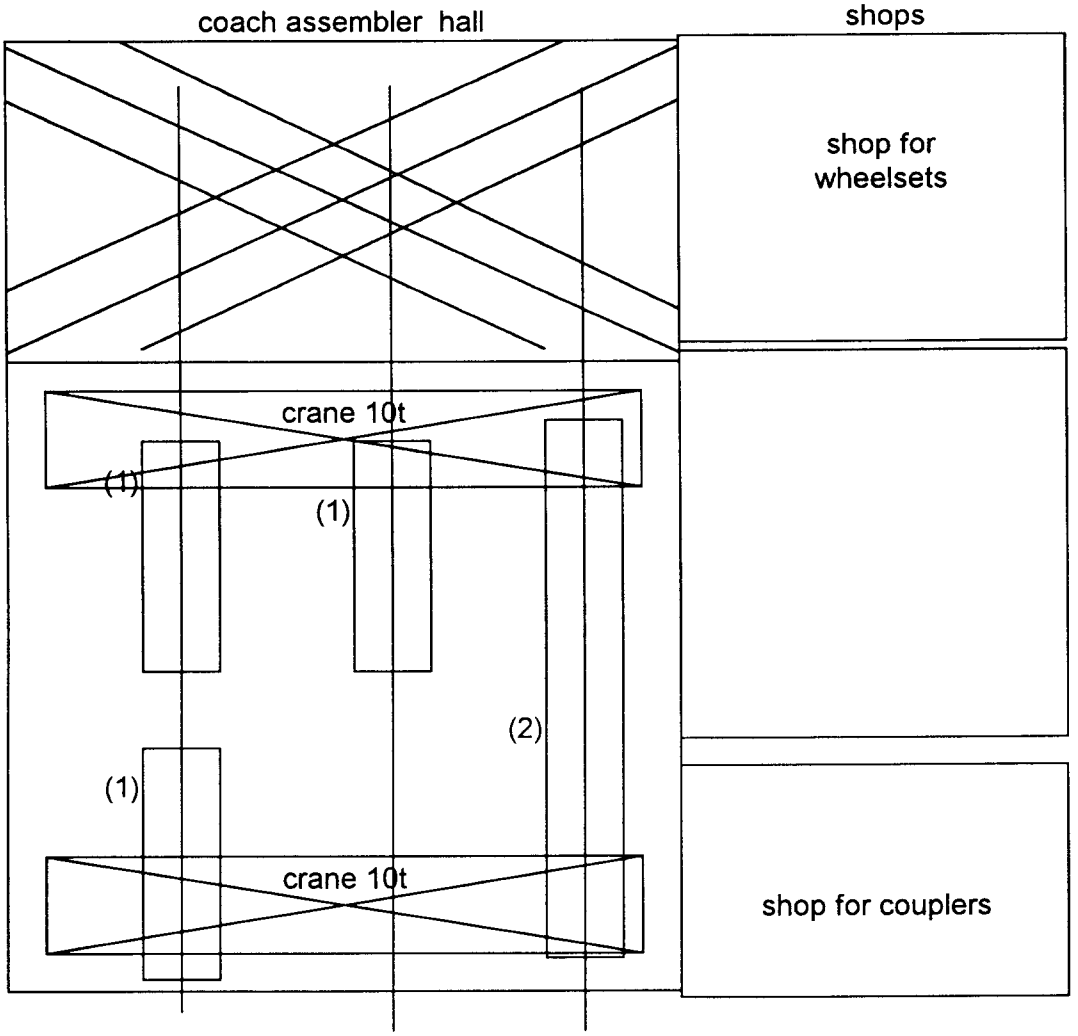
further shops:
roller bearings, couplers, brakes

Renewing:

no.	object	year	using	kind	price (US$)
1	main assembler hall	1981	damaged	cap-repair 2002	250,000
2	1 bridge crane 10 tons	1966	in using	cap-repair 2000	7,500
3	3 welding transformers	1979	out of order	replace 1999	13,500
4	1 bogie washing plant	1966	in using	renewing 1999	35,000
5	1 coach washing plant	1966	in using	cap-repair 2000	70,000
6	1 test stand for air brake valves	1969	damaged	replace 1997	46,500

Annex 1.6-32

Coach- depot Baku
- Scheme of the repair shed -



Coach shed with 3 tracks, (1) 2 used for coaches (3 repair-places), (2) 1 track for bogies
8 electric-mechanic lifting jacks each 40 t (movable)
2 bridge cranes 10t

wheelset shop
2 wheelset lathes - Rafamet, 26 and 10 years old, the last only under operation
5 defectoscops for wheelsets and couplers

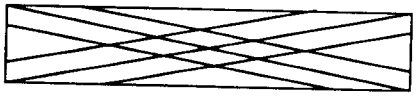
further shops:
couplers, mechanic shop, brakes

Annex 1.6-32

Renewing:

no.	object	year	using	kind	price (US$)
1	1 wheel-set lathe „Rafamet"	1988	in using	cap-repair 1998	90,000
2	1 wheel-set lathe „Rafamet"	1973	in using	replace 1998	175,000
3	2 drilling lathe	1968	damaged	replace 1999	75,000
4	2 drilling lathe	1983	in using	cap-repair 1999	30,000
5	1 bridge crane 10 tons	1975	in using	replace 1998	50,000
6	1 bridge crane 10 tons	1975	in using	cap-repair 2000	7,500
7	planing machine for wood	2001	in using	replace 2001	15,000
8	planing machine	1986	in using	cap-repair 1998	7,500
9	3 welding transformer	1981, 1987	damaged	replace 1999	13,500
10	1 bogie washing mashine	1978	in using	renewing (general repair) 1999	34,900
11	1 coach washing mashine	1978	in using	cap-repair 1999	70,000
12	test stand forair-brake-valves	1963	in using	replace 1997	46,500

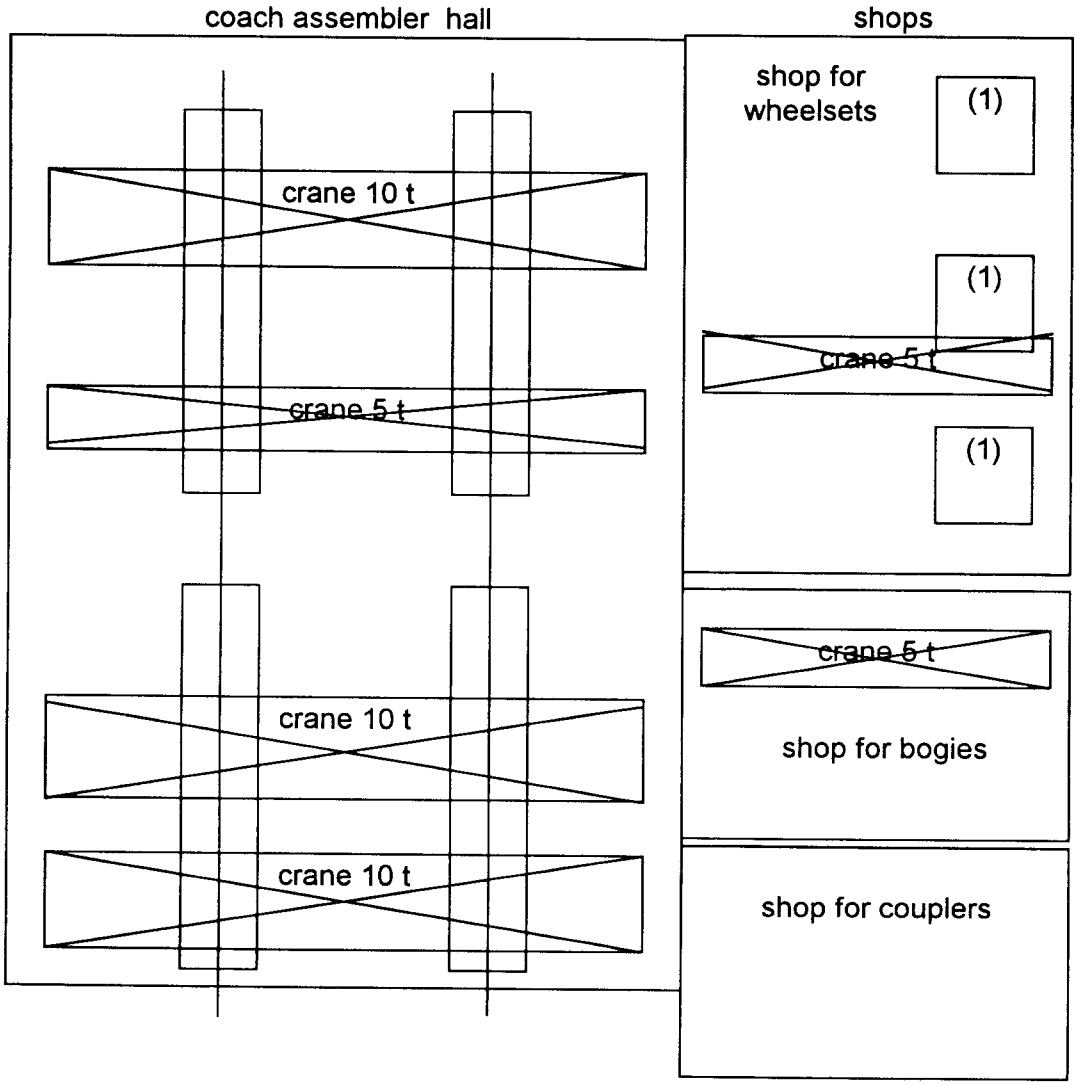
The above mentioned renewing need for the depot is directed only to the main problems.
The overall financial need was estimated with 1,2 mio USD for the next 5 years. In above estimation the plan for extending the depot is not included.

Remark:  forecasted place for extending the assembler hall in the above given scheme

The passenger traffic service of AGZD is actually trying to reach the management solution for extending the coach depot in order to carry out main overhauls here. The aim is to organize capabilities for the main overhaul (KR-1).
The extension of the assembler hall for KT-1 cannot carried out in an economic manner because of the small amount of yearly needed KR-1. For maintaining the volume of 205 coaches (the need in 2015) results to 17 KR-1 only.

Annex 1.6-33

Coach- depot Tbilisi-Pass.
- Scheme of the repair shed -



Coach shed with 2 tracks used for coaches (4 repair-places)
16 electric-mechanic lifting jacks each 30 t
1 bridge crane 5 t
3 bridge cranes 10 t

wheelset shop
2 wheelset lathes - Rafamet, 16 and 7 years old
1 wheelset lathe KZTS, 22 years old
5 defectoscops for wheelsets and couplers

further shops:
couplers, mechanic, brakes, electric mashines, wooden material

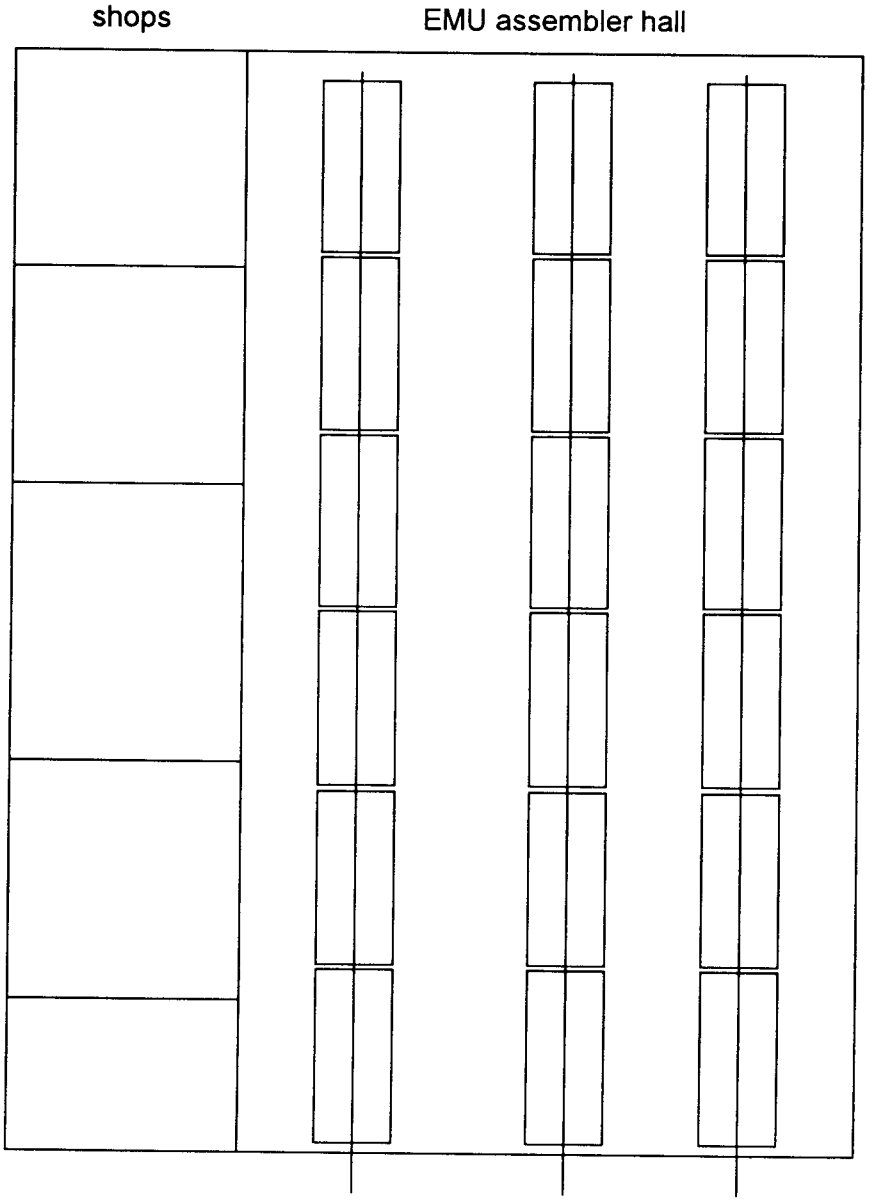
Annex 1.6-33

Renewing:

no.	object	year	using	kind	price (US$)
1	1 wheel-set lathe „Rafamet"	1981	damaged	replace 2002	175,000
2	1 portal crane 5 tons	1969	in using	cap-repair 2000	20,000
3	1 bridge crane 5 tons	1966	in using	replace 1998	45,000
4	1 bridge crane 10 tons	1966	in using	cap-repair 2000	7,500
5	1 planing mashine	1969	damaged	replace 2001	15,000
6	3 welding transformers	1979	out of order	replace 1999	13,500
7	1 bogie washing plant	1966	in using	renewing 1999	35,000
8	1 coach washing plant	1966	in using	cap-repair 2000	70,000
9	1 test stand for air brake valves	1969	damaged	replace 1997	46,500

Annex 1.6-34

Locomotive - depot Yerevan
- Repair shed for EMU (MBC) -



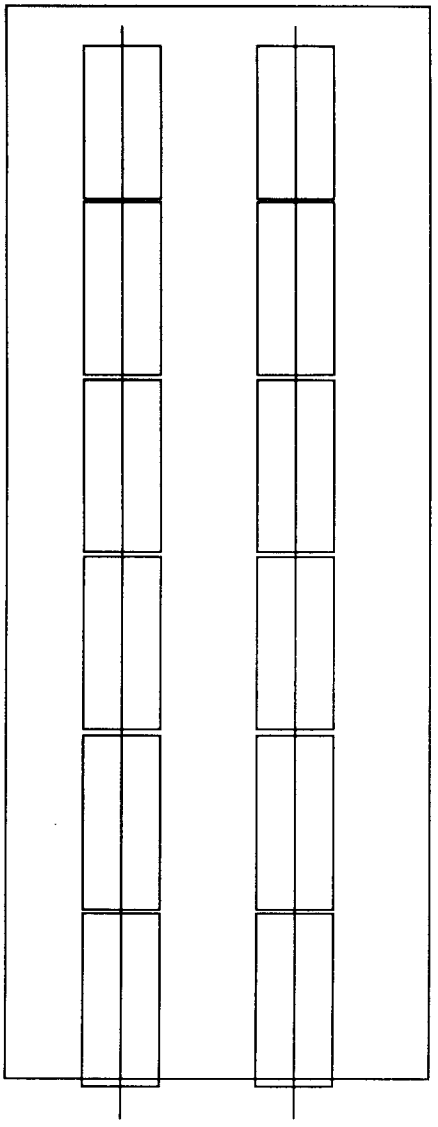
Repair hall for EMU with 3 tracks (3 complete sets)
EMU repair capabilities and activities is a integrated part of the electro locomotives depot Yerevan, see **Annex 1.6-7**.

The cost estimation for needed improvements of the locomotive depot is included in **Annex 1.6-7.**

Annex 1.6-35

Locomotive - depot Gyumri
- Repair shed for EMU -
- Repair shed for locomotives -

EMU assembler hall



Repair hall for EMU with 2 tracks
(2 complete sets)

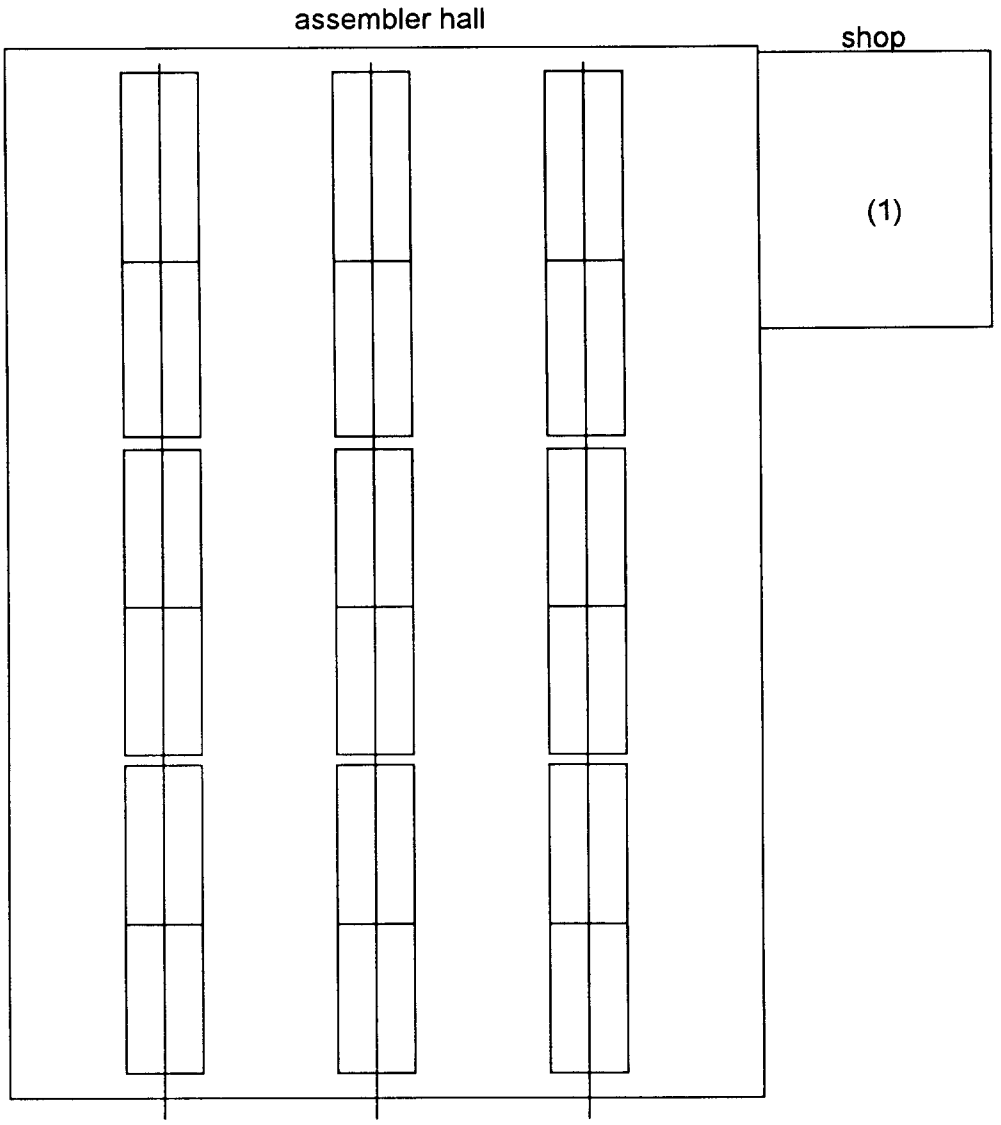
Remarks:
The construction was started after the Gyumri earthquake in 1989 and stopped in 1991 because of the collaps of the SU.

The cost estimation for needed improvements of the locomotive depot is included in **Annex 1.6-8**.

The question of continuation and completion the construction of the Gyumri locomotive depot is depending on the volume of needed locomotive and EMU stock in the future. The estimated traffic volume does not give up to now the possibility for such considerations.

Annex 1.6-36

Locomotive - depot Baku-Beyuk-Shtshor
- Repair shed for EMU -



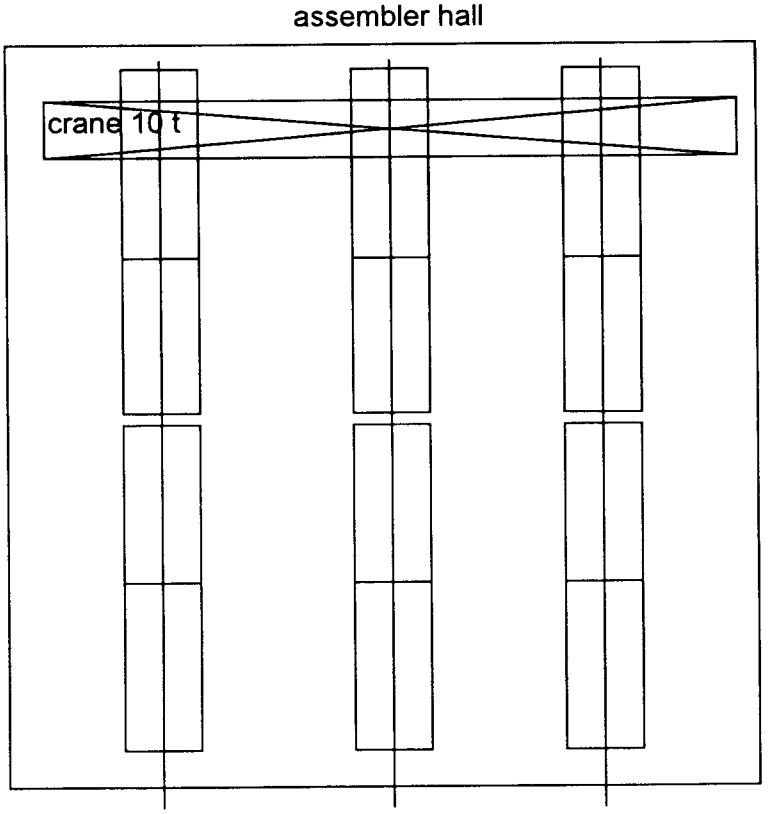
Repair hall for EMU with 3 tracks and with 3 canals (3 repair places for EMU each with 6 cars)

(1) electric-machine shop

The cost estimation for needed improvements of the locomotive depot is included in **Annex 1.6-10.**

Annex 1.6-37

Locomotive - depot Gyandsha
- Repair shed for EMU -



Repair hall for EMU with 3 tracks and with 2 canals (3 repair places for EMU each with 4 cars)
bridge crane 10 t

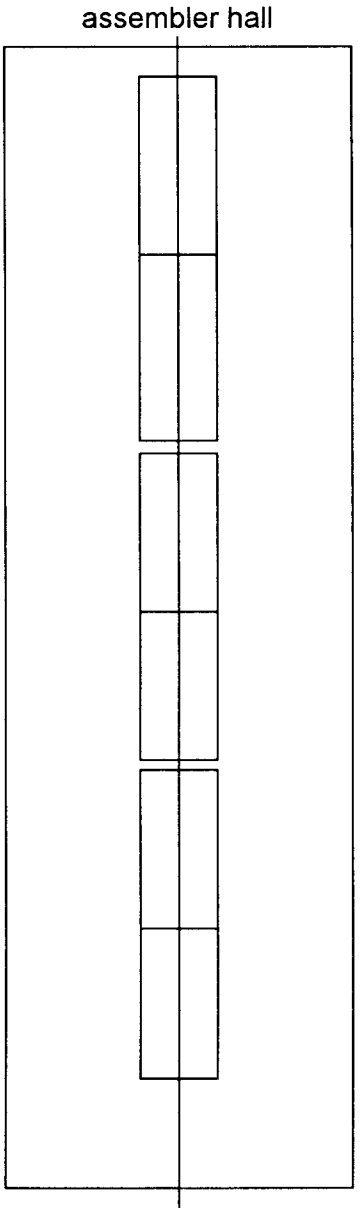
electric-machine shop

The cost estimation for needed improvements of the locomotive depot is included in **Annex 1.6-11.**

Annex 1.6-38

Locomotive - depot Tbilisi-Pass.
- Repair shed for EMU -

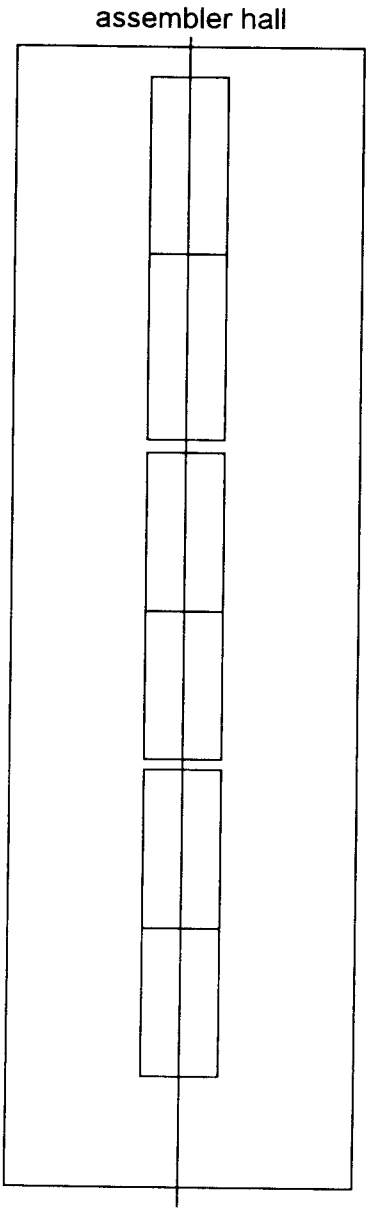
Repair hall for EMU with 1 track
1 EMU set repair-place



The cost estimation for needed improvements of the locomotive depot is included in **Annex 1.6-14.**

Annex 1.6-39

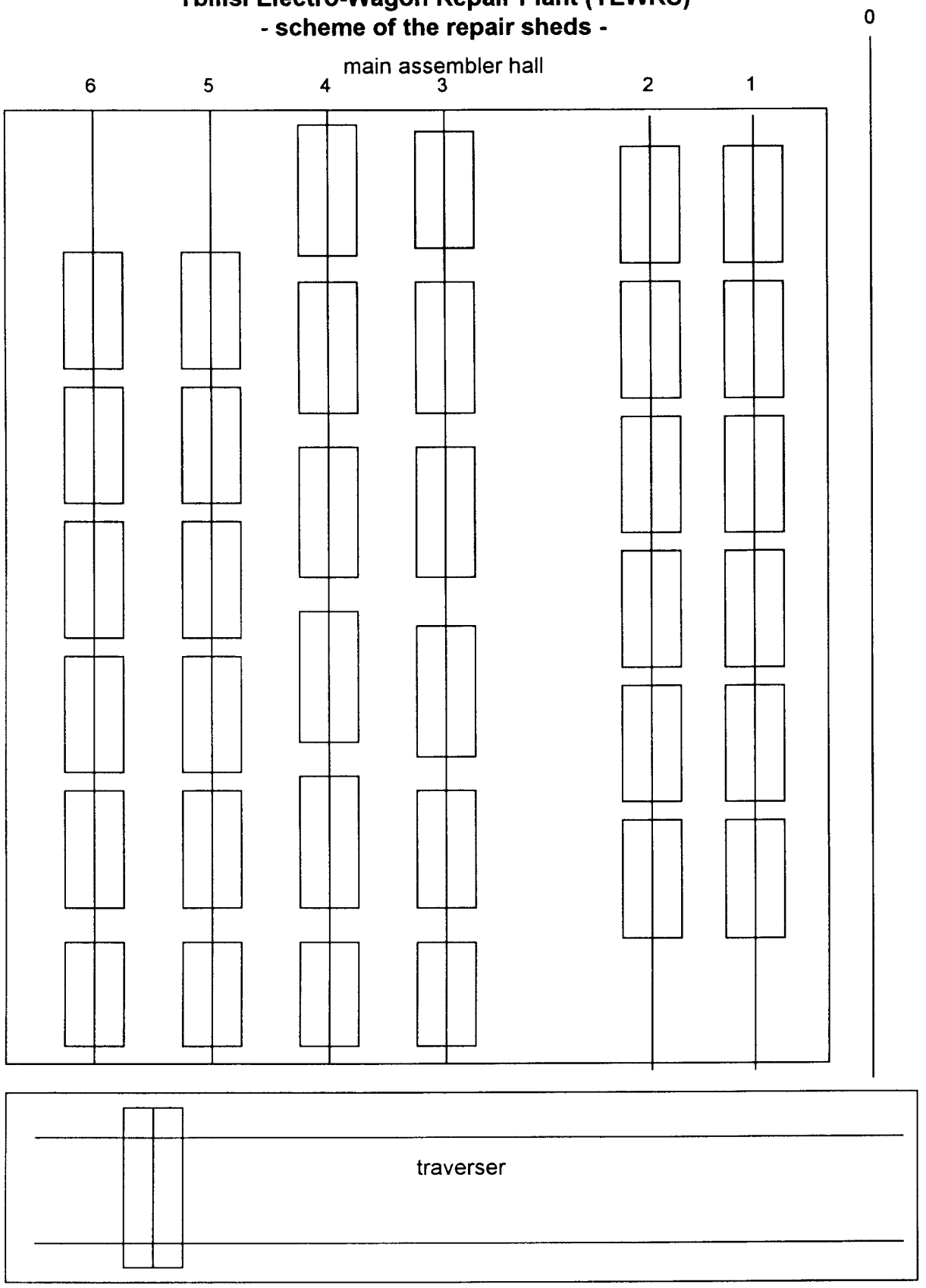
Locomotive - depot Khashuri
- Repair shed for EMU -



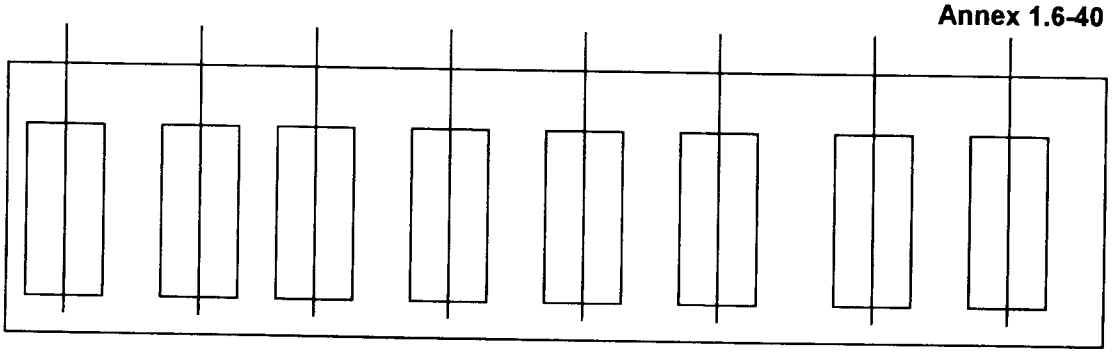
Repair hall for EMU with 1 track
1 EMU set repair-place

The cost estimation for needed improvements of the locomotive depot is included in **Annex 1.6-16.**

Tbilisi Electro-Wagon Repair Plant (TEWRS)
- scheme of the repair sheds -



Annex 1.6-40



second assembler hall

Wagon shed with 2 assembler halls, 1 incoming (outgoing) track and 1 traverser:
The traverser connects the two halls.

1) Main assembler hall with 6 tracks used for 6 wagons (6 repair-places), 6 coaches (6 repair-places) and 2 EMU sets
track 0: operating track
track 1 + 2: dissassembling wagons, coaches and EMU
track 3 + 4: assembling wagons and coaches
track 5 + 6: assembling EMU

2) Second assembler hall with 8 tracks used for 8 metro-coaches (8 repair-places)

Bogie shop and wheelset shop along the main assembler hall
1 wheelset lathe - KZTS under operation
1 wheelset washing mashine, old fashioned
1 detectors for wheelsets
included is a roller bearing shop with all equipment needed

further shops:
couplers, brakes, electric mashines for electric locomotives (VL-8) and EMU

designed capability per year:
750 coaches
150 EMU sets
50 Metro-coaches
2100 traction motors
3000 wheel-sets

actually performance: no orders
reason: lack of spares, obsolete equipments, no incoming orders by the tank owners

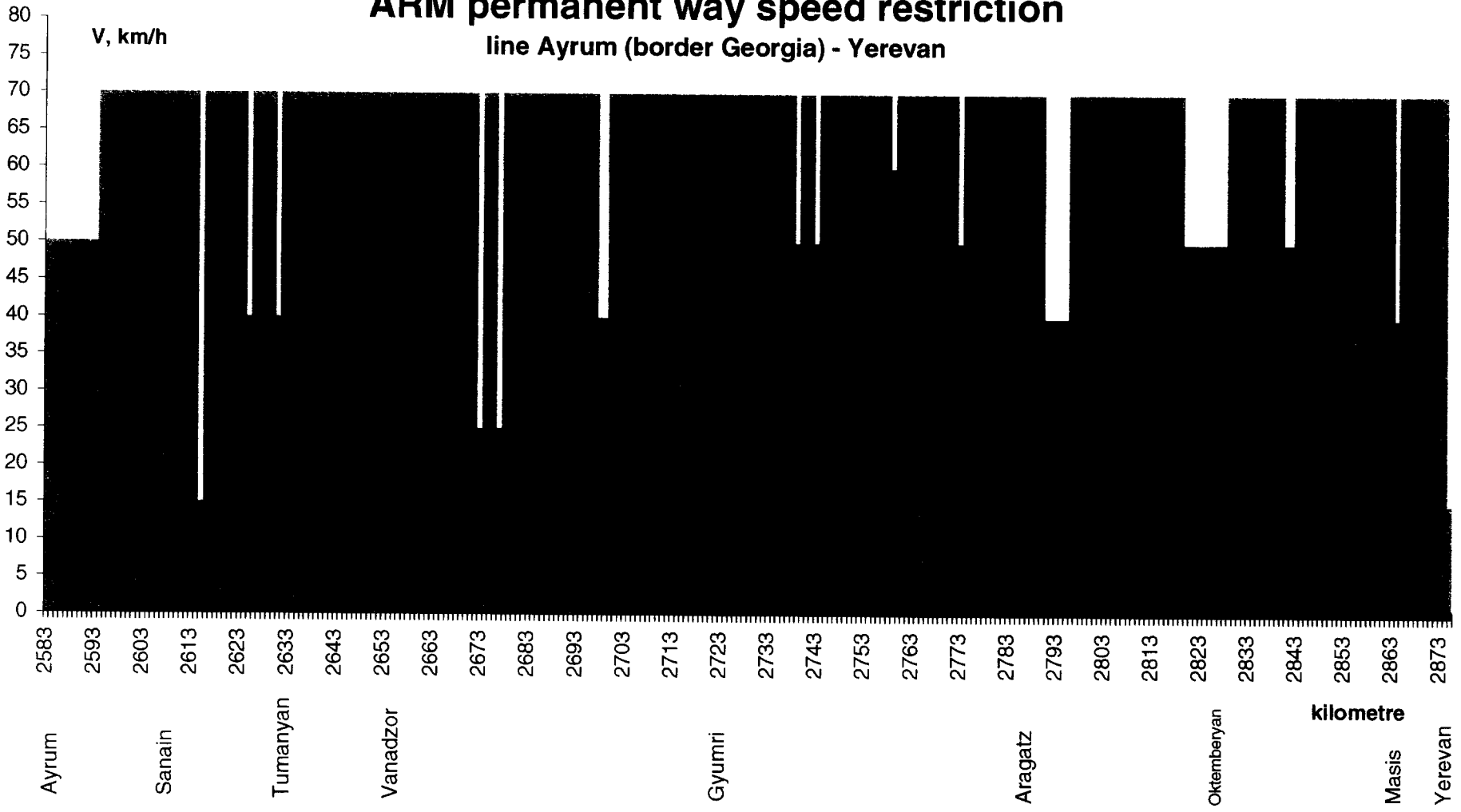
Renewing:

no.	object	year	using	kind	price (US$)
1	1 wheel-set lathe „Rafamet"	1980	damaged	cap-repair 2002	90,000
2	1 traverser	1974	in use	cap-repair 1999	50,000
3	techn. equipments for motors overhaul	1976	in use	cap-repair 1998	100,000
4	22 cranes	different	in use	inspections 1997 / 1998	110,000
5	ultrasonic flaw detector	1978	in use	replace 2000	8,000
6	bogie washing plant	1976	damaged	renewing 1999	35,000
7	coach washing plant	1978	damaged	cap-repair 2000	70,000
8	coach assempler hall	1974	damaged	cap-repair 1998	405,000
9	wheelset shop hall	1974	damaged	cap-repair 1998	97,500
10	electric mashine hall	1974	damaged	cap-repair 1998	175,500

Annex 1.7-1

ARM permanent way speed restriction

line Ayrum (border Georgia) - Yerevan



Annex 1.7-2

Bridge list of ARM[1)]

No.	Bridge km	Designation	length m	Construction	Needs of major or minor repair	Remarks
1	2600+100	Akhatala - Yerevan	68.00	steel construction covered by concrete slab	regular maintenance	substructure 1963 renewed
2	2605+900	Hachpat - Alaverdi	32.00	steel bridge	to renew	year of construction 1898
3	2607+100	Hachpat - Alaverdi	66.00	concrete slab	maintenance	last span of 42 m renewed in 1960 by prestressed concrete slab.
4	2629+900	Kober - Tamanyan	58.50	steel construction deck bridge	middle part to renew	year of construction in 1898
5	2636+400	Tamanyan - Shagali	42.70	steel construction deck bridge	to renew	year of construction 1899
6	2640+200	Shagali - Pambak	147.00	steel construction deck bridge	to renew	year of construction unknown
7	2648+000	Pambak - Vanadzor	32.00	steel construction through bridge	to renew	year of construction 1898
8	2657+800	Vanadzor - Artshut	24.00	steel construction deck bridge	to renew	year of construction 1898
9	2829+300	Araks - Armavir	91.20	steel construction through bridge	no information	year of construction 1912
10	2834+100	Armavir - Sovietakan	91.20	steel construction through bridge	no information	year of construction in 1912
11	2862+400	Etshmiadzin -	33.60	steel construction		substructure reconstructed in 1985
		Track line Masis -Nurnus				
12	Post 51	Nor Hadshn	272.25	steel construction through bridge		year of construction in 1979/80
		total	958.45			

[1)] Source: Track Department of ARM

List of bridges for the main line Poti - Tbilisi - Baku (GRZD / AGZD)

No.	Bridge km	Crossing river / valley	Length m	Needs of major or minor repair	Deficiency	Line section
1	31 + 849	Rioni	413	400 bridge sleepers renewal		Poti - Senaki
2	29 + 700	Korathi	41	20 bridge sleepers renewal		Poti - Senaki
3	21 + 791	Korathi	40	20 bridge sleepers renewal		Poti - Senaki
4	18 + 657	Korathi	59	25 bridge sleepers renewal		Poti - Senaki
5	3 + 678	Zivi	103		Maintenance	Poti - Senaki
6	2 + 915	Gortali	26		Maintenance	Poti - Senaki
7	2234 + 383	Tekhuri	183	renewal of bridge support		Senaki - Samtredia
8	2235 + 491	Galitsha	34		Maintenance	Senaki - Samtredia
9	2238 +043	Skuria	34		Maintenance	Senaki - Samtredia
10	2241 + 529	Abasha	116	100 bridge sleepers renewal		Senaki - Samtredia
11	2248 + 179	Nokhela	118	100 as above and corrosion prot.		Senaki - Samtredia
12	2248 + 179	Nokhela	119		Maintenance	Senaki - Samtredia
13	2255 + 143	Zkheniskaro	118	400 bridge sleepers renewal		Senaki - Samtredia
14	2255 + 143	Zkheniskaro	129		Maintenance	Senaki - Samtredia
15	2261 + 963	Estakade	175		Maintenance	Senaki - Samtredia
16	2266 + 528	Gubitzvali	111		Maintenance	Samtredia - Zestafoni
17	2266 + 528	Gubitzvali	115		Maintenance	Samtredia - Zestafoni
18	2289 + 216	Lioni	185	needs renewal, year of constr. 1896		Samtredia - Zestafoni
19	2290 + 850		28		Maintenance	Samtredia - Zestafoni
20	2291 + 887	Zkazitela	57		Maintenance	Samtredia - Zestafoni
21	2291 + 887	Zkazitela	61		Maintenance	Samtredia - Zestafoni
22	2295 + 801	Kvirila	208		Maintenance	Samtredia - Zestafoni
23	2295 + 801	Kvirila	210		Maintenance	Samtredia - Zestafoni
24	2304 + 578	Lekhuti	27		Maintenance	Samtredia - Zestafoni
25	2308 + 214	Kvirila	162		Maintenance	Samtredia - Zestafoni
26	2308 + 214	Kvirila	170		Maintenance	Samtredia - Zestafoni
27	2324 + 239	Kvirila	93	needs renewal, year of constr.1907		Samtredia - Zestafoni
28	2324 + 239	Kvirila	87		Maintenance	Zestafoni - Khashuri
29	2327 + 428	Dzirula	157		Maintenance	Zestafoni - Khashuri
30	2327 +895	Dzirula	120		Maintenance	Zestafoni - Khashuri
31	2388 + 100	Dzirula	126		Maintenance	Zestafoni - Khashuri
32	2328 + 132	Dzirula	117		Maintenance	Zestafoni - Khashuri
33	2332 + 999	Dzirula	97		Maintenance	Zestafoni - Khashuri
34	2336 + 648	Korneba	46		Maintenance	Zestafoni - Khashuri
35	2337 + 234	Tshkherimela	47		Maintenance	Zestafoni - Khashuri
36	2338 + 104	Tshkherimela	55		Maintenance	Zestafoni - Khashuri
37	2344 + 251	Tshkherimela	94		maintenance	Zestafoni - Khashuri
38	2344 + 567	Tshkherimela	75		Maintenance	Zestafoni - Khashuri
39	2344 + 742i	Tshkherimela	52		Maintenance	Zestafoni - Khashuri
40	2345 + 659	Tshkherimela	53		Maintenance	Zestafoni - Khashuri
41	2345 + 659	Tshkherimela	57		Maintenance	Zestafoni - Khashuri

List of bridges for the main line Poti - Tbilisi - Baku (GRZD / AGZD)

No.	Bridge km	Crossing river / valley	Length m	Needs of major or minor repair	Deficiency	Line section
42	2358 + 366	Molta	47		Maintenance	Zestafoni - Khashuri
43	2358 + 892	Molta	43		Maintenance	Zestafoni - Khashuri
44	2358 + 892	Molta	55		Maintenance	Zestafoni - Khashuri
45	2361 + 528	Viaduki	88		Maintenance	Zestafoni - Khashuri
46	2362 + 100	Viaduki	172		Maintenance	Zestafoni - Khashuri
47	2362 + 075	Eskada	236		Maintenance	Zestafoni - Khashuri
48	2363 + 092	Kherkheulis	92		Maintenance	Zestafoni - Khashuri
49	2363 + 868	Torolishevi	87		Maintenance	Zestafoni - Khashuri
50	2363 + 868	Torolishevi	75		Maintenance	Zestafoni - Khashuri
51	2365 + 661	Tarabela	39		Maintenance	Zestafoni - Khashuri
52	2365 + 661	Tarabela	59		Maintenance	Zestafoni - Khashuri
53	2382 + 784	Suramula	53		Maintenance	Zestafoni - Khashuri
54	2385 + 880	Suramula	38		Maintenance	Khashuri - Tbilisi
55	2385 + 880	Mtkvari	40		Maintenance	Khashuri - Tbilisi
56	2404 + 790	Mtkvari	169	needs renewal, year of constr.1896		Khashuri - Tbilisi
57	2404 + 790	Mtkvari	178		Maintenance	Khashuri - Tbilisi
58	2442 + 260	Mtkvari	219		Maintenance	Khashuri - Tbilisi
59	2450 + 089	Kotzakhuri	68		Maintenance	Khashuri - Tbilisi
60	2450 + 089	Kotzakhuri	61		Maintenance	Khashuri - Tbilisi
61	2454 + 970	Lekhura	65		Maintenance	Khashuri - Tbilisi
62	2454 + 970	Lekhura	73		Maintenance	Khashuri - Tbilisi
63	2468 + 667	Ksani	80		Maintenance	Khashuri - Tbilisi
64	2468 + 667	Ksani	83		Maintenance	Khashuri - Tbilisi
65	2472 + 759	Mtkvari	123	needs renewal, constr. year 1896		Khashuri - Tbilisi
66	2472 + 759	Mtkvari	137	40 bridge sleepers renewal		Khashuri - Tbilisi
67	2483 + 357	underbridge	29		Maintenance	Khashuri - Tbilisi
68	2486 + 446	underbridge	27		Maintenance	Khashuri - Tbilisi
69	2488 + 642	Mtkvari	208		Maintenance	Khashuri - Tbilisi
70	2494 + 600	underbridge	50		Maintenance	Khashuri - Tbilisi
71	2499 + 529	underbridge	37		Maintenance	Khashuri - Tbilisi
72	2503 + 229	underbridge	50		Maintenance	Khashuri - Tbilisi
73	2503 + 927	underbridge	29		Maintenance	Khashuri - Tbilisi
74	2507 + 383	underbridge	35		Maintenance	Khashuri - Tbilisi
75	2508 + 135	underbridge	26		Maintenance	Khashuri - Tbilisi
76	1 + 642	underbridge	101		Maintenance	Tbilisi - Baku
77	2 + 755	underbridge	28		Maintenance	Tbilisi - Baku
78	6 + 110	underbridge	43		Maintenance	Tbilisi - Baku
79	10 + 144	Lotshino	81	needs renewal, constr. year 1896		Tbilisi - Baku
80	1044 + 144	Lotchino	88		Maintenance	Tbilisi - Baku
Total length of the main bridges			**7530**			

Annex 1.7-4

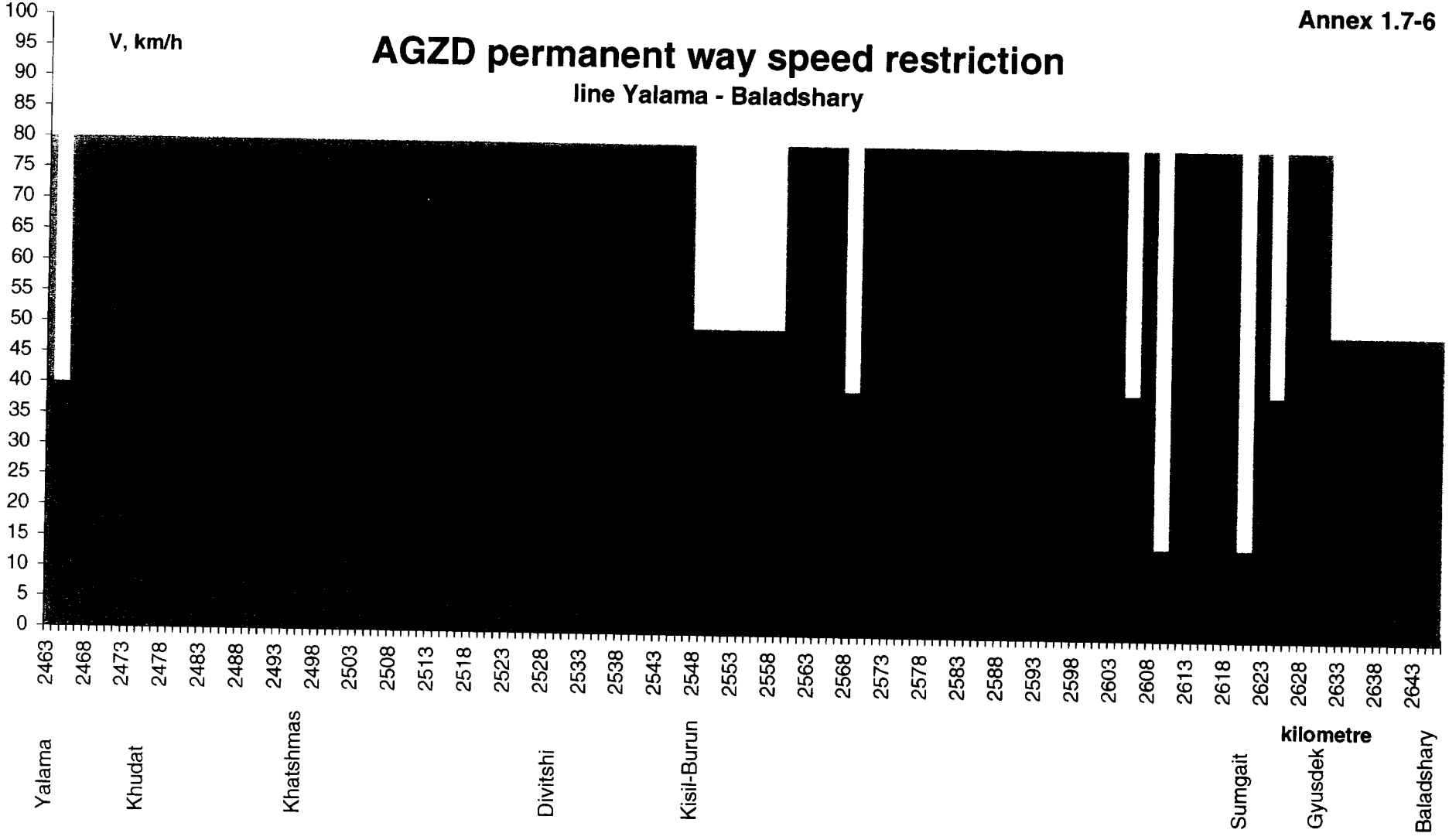
Demand for essential equipment of all districts of ARM

no.	designation	basic requirement of one gang	required	available	to supply
1	packing of sleepers EI	1 set x 60	60	0	60
2	rail saw EI RM 2	0.5 x 60	30	0	30
3	rail drilling machine EI 1024 B	0.5 x 60	30	0	30
4	rail grinding machine EI MRSh 3	0.5 x 60	30	0	30
5	coach screwing machine EI EK 1	0.5 x 60	30	0	30
6	coach screwing machine TS 2	0.5 x 60	30	0	30
7	hydraulic rail pinch	0.5 x 60	30	0	30
8	hydraulic track - lifter	4.0 x 60	240	0	240
9	hydraulic track - straightening set, one consists of 5 pieces	1.0 x 60	60	0	60
10	tongs for concrete and wooden sleepers	5.0 x 60 x 2	600	0	240
11	rail puller for long rails	0.5 x 60	30	0	30
12	rail lifting and slewing machine type RV 100	1 per district	5	0	5
13	generator AB - 2 kW generator AB - 4 kW	2 per gang 1 per gang	120 60	0 0	120 60
14	signal lamps	5 x 60	300	0	300
15	hammer sleeper spikes	5 x 60	240	0	300
16	slewing bars different kind	8 x 60	480	0	480
17	adjustable wrench	2 x 60	120	0	120
18	wrench sets track works	4 x 60	240	0	240
19	abrasive disks		10,000	0	10,000
20	rail thermometers	2 x 60	120	0	120
21	rail pulling rollers	2 x 60	120	0	120
22	tamping picks	20 x 60	1200	0	1200
23	wooden sleeper drilling machine	1 x 60	60	0	60
24	ballast forks OMW 111	20 x 60	1200	0	1200
25	personnel transport track	4 per district	20	0	20
26	leader ship cars	2 per district	10	0	0

Annex 1.7-5


AGZD permanent way speed restriction
line Baladshary - Yalama
V, km/h
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
2646
2641
2636
2631
2626
2621
2616
2611
2606
2601
2596
2591
2586
2581
2576
2571
2566
2561
2556
2551
2546
2541
2536
2531
2526
2521
2516
2511
2506
2501
2496
2491
2486
2481
2476
2471
2466
2461
kilometre
Baladshary
Gyusdek
Sumgait
Kisil-Burun
Divitshi
Khatshmas
Khudat
Yalama

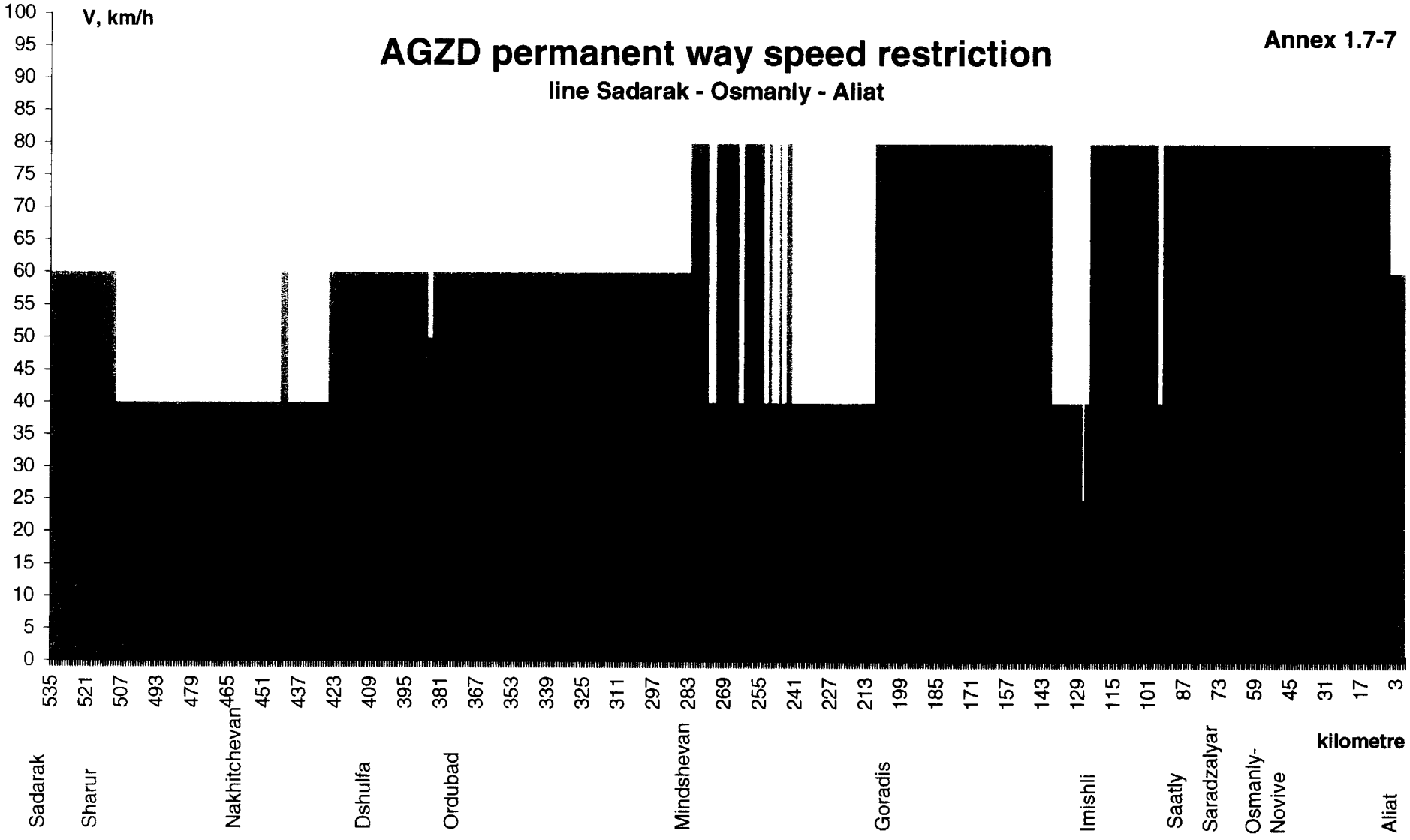
Annex 1.7-6


AGZD permanent way speed restriction
line Yalama - Baladshary
V, km/h
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
2463
2468
2473
2478
2483
2488
2493
2498
2503
2508
2513
2518
2523
2528
2533
2538
2543
2548
2553
2558
2563
2568
2573
2578
2583
2588
2593
2598
2603
2608
2613
2618
2623
2628
2633
2638
2643
kilometre
Yalama
Khudat
Khatshmas
Divitshi
Kisil-Burun
Sumgait
Gyusdek
Baladshary

Annex 1.7-7

AGZD permanent way speed restriction

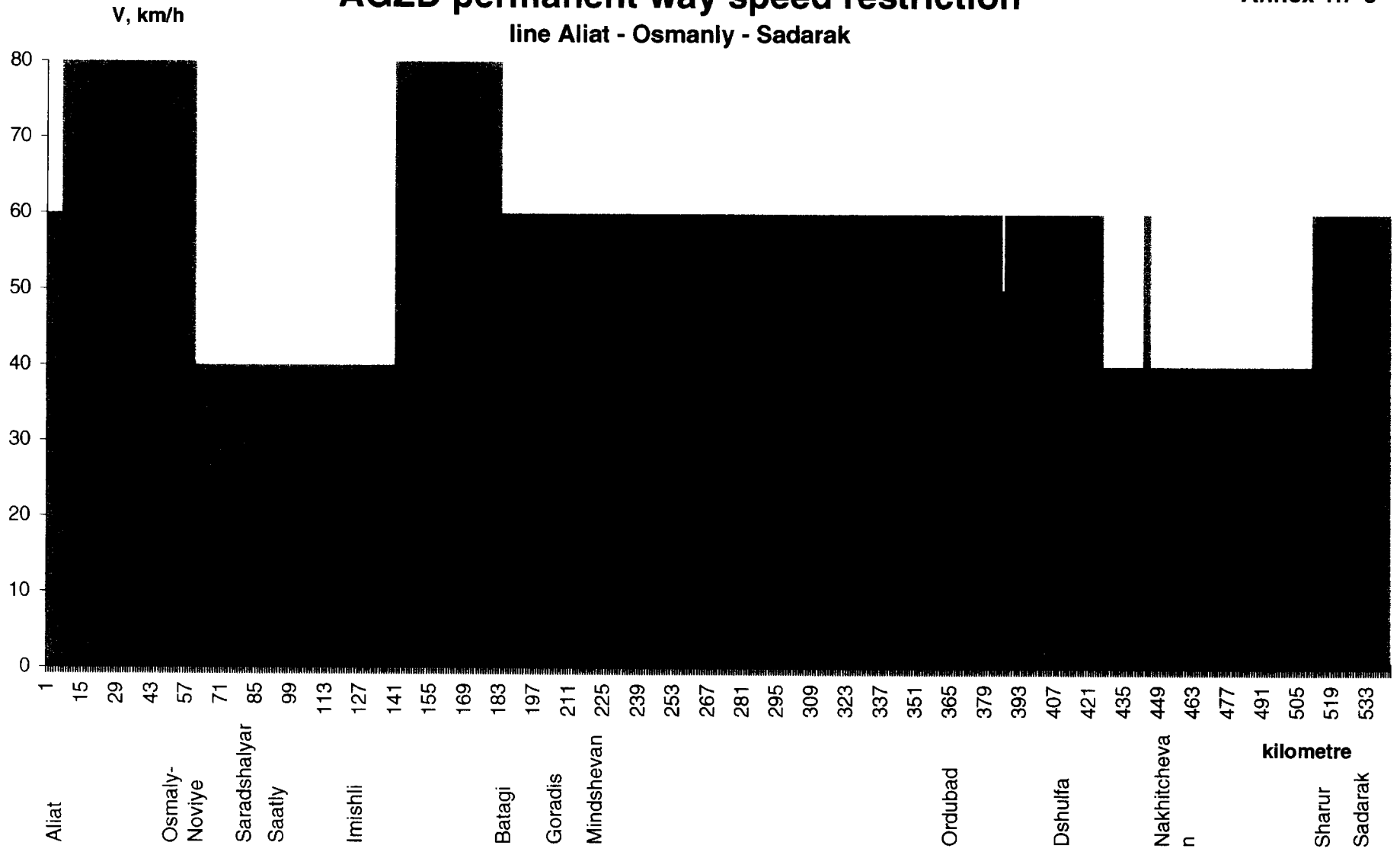
line Sadarak - Osmanly - Aliat



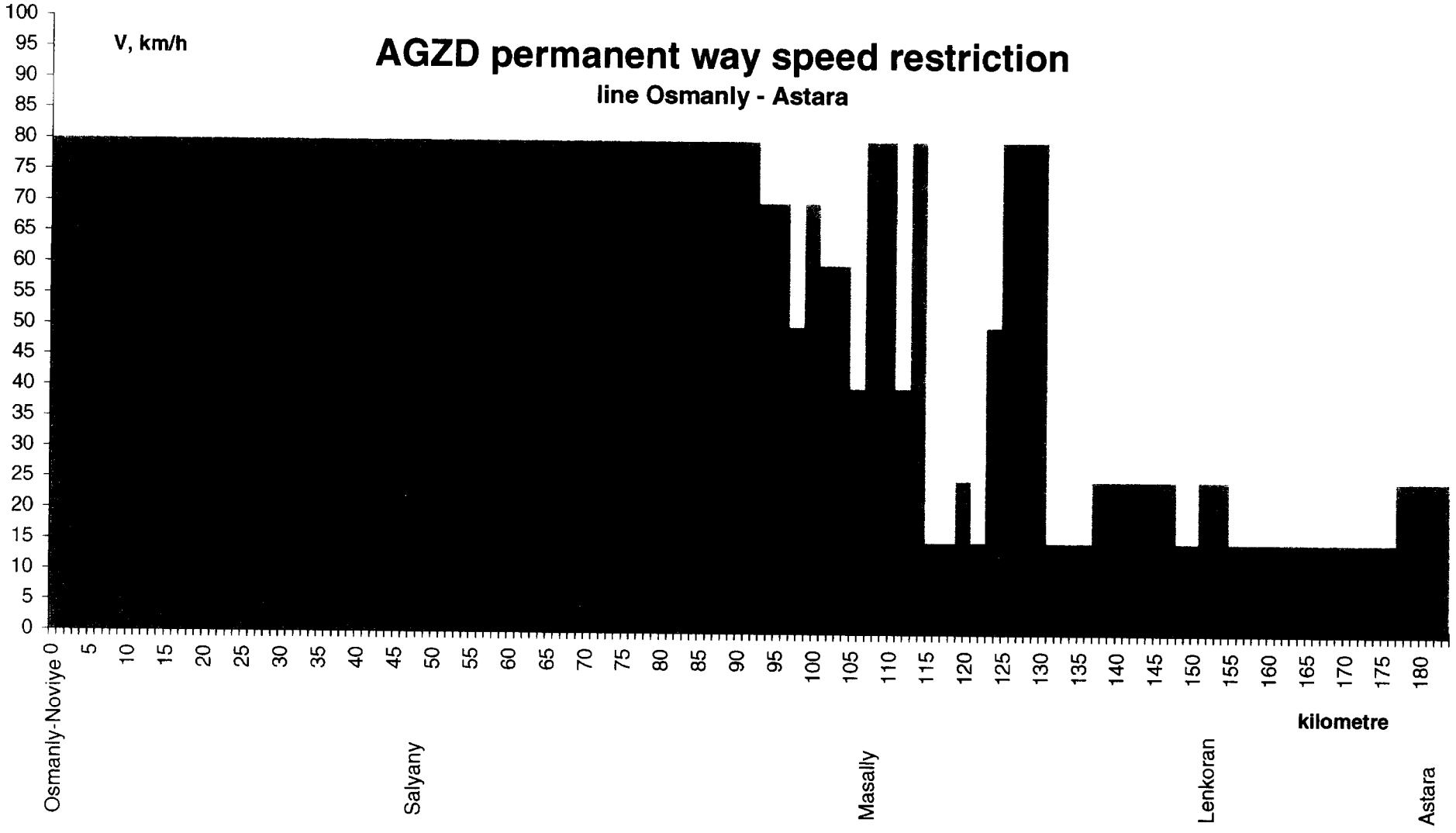
AGZD permanent way speed restriction

Annex 1.7-8

line Aliat - Osmanly - Sadarak



Annex 1.7-9


AGZD permanent way speed restriction
line Osmanly - Astara
V, km/h
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
105
110
115
120
125
130
135
140
145
150
155
160
165
170
175
180
kilometre
Osmanly-Noviye
Salyany
Masally
Lenkoran
Astara

Annex 1.7-10

Demand for essential equipment of all districts of AGZD

no.	designation	unit	quantity
1	Small track maintenance engines and tools for AGZD-Districts.		
2	tamping or packing units, type GB4 with Briggs and Stratton engine	piece	34
3	Rail saws, type SRN-E with electrical engine 220/380 V DC, 50 Hz	piece	5
	Supplement for hydraulically device	lumpsum	
4	Rail drilling machines, type PR 8- E-2V	piece	2
5	Rail grinding machines, type MP 12-E	piece	15
6	Coachscrewing machines, type T52-E	piece	31
7	Coachscrewing machines, type TS2 with gasoline engine Bernhard	piece	34
	Supplement for torque limiter		
8	Track lifting and slewing machines, type RV 100 for track 1520 mm	piece	2
9	Hydraulic jacks, type CH 65	piece	35
10	Wooden sleeper carrying tongues	piece	34
11	Concrete sleeper carrying tongues	piece	34
12	Hand operated rail pullers with chain	piece	10
13	Generators, type CR 2500 with Briggs and Stratton gasoline engine	piece	8
14	Generators, type RG 4500 T with Briggs & Stratton gasoline engine mounted on a hand pushed one wheel trolley, power 4 KW/220/380 V/50 Hz	piece	2
15	Signalling lamps, 3 colour lights	piece	129
16	Brigade carriers	piece	12
17	Four wheel drive cars, two per district	piece	2
18	Hammer for sleeper spice	piece	50
19	Slewing bars different kinds	piece	50
20	Adjustable wrenches	piece	10
21	Wrench sets for track works	piece	50
22	Abrasive discs	piece	5, 000
23	Rail thermometer	piece	24
24	Rail pulling rollers	piece	24
25	Tamping pick	piece	120
26	Wooden sleeper drilling machine	piece	12
27	Ballast forks	piece	240

Annex 1.7-11

Demand for essential equipment of all districts of GRZD

no.	designation	unit	quantity
1	Small track maintenance engines and tools for GRZD-Districts.		
2	tamping or packing units, type GB4 with Briggs and Stratton engine	piece	25
3	Rail saws, type SRN-E with electrical engine 220/380 V DC, 50 Hz	piece	5
	Supplement for hydraulically device	lump-sum	
4	Rail drilling machines, type PR 8- E-2V	piece	2
5	Rail grinding machines, type MP 12-E	piece	11
6	Coachscrewing machines, type T52-E	piece	20
7	Coachscrewing machines, type TS2 with gasoline engine Bernhard	piece	20
	Supplement for torque limiter		
8	Track lifting and slewing machines, type RV 100 for track 1520 mm	piece	2
9	Hydraulic jacks, type CH 65	piece	20
10	Wooden sleeper carrying tongues	piece	20
11	Concrete sleeper carrying tongues	piece	20
12	Hand operated rail pullers with chain	piece	10
13	Generators, type CR 2500 with Briggs and Stratton gasoline engine	piece	8
14	Generators, type RG 4500 T with Briggs & Stratton gasoline engine mounted on a hand pushed one wheel trolley, power 4 KW/220/380 V/50 Hz	piece	2
15	Signalling lamps, 3 colour lights	piece	130
16	Brigade carriers	piece	12
17	Four wheel drive cars, two per district	piece	2
18	Hammer for sleeper spice	piece	50
19	Slewing bars different kinds	piece	50
20	Adjustable wrenches	piece	10
21	Wrench sets for track works	piece	50
22	Abrasive discs	piece	5, 000
23	Rail thermometer	piece	24
24	Rail pulling rollers	piece	24
25	Tamping pick	piece	120
26	Wooden sleeper drilling machine	piece	12
27	Ballast forks	piece	240

Annex 1.7-12

List of materials required for the double-track equipment on stations

no.	Item	unit	area Gyumri	area Yerevan	total
1	impedance bonds with secondarry winding 0.2-1000	piece	54	152	206
2	impendance bonds with secondary winding 0.6-1000	piece	-	69	69
3	joining pieces for choke	piece	56	139	195
4	connection ropes for impedance bonds with secondary winding	piece	111	277	388
5	transformers POWS - 2A	piece	13	13	26
6	transformers PRT	piece	7	23	30
7	transformers RTE	piece	22	-	22
8	transformers ST-4	piece	326	485	811
9	transformers SOBS-„	piece	-	27	27
10	switch relay PPRE-5000	piece	20	19	39
11	selenium rectifier BWC	piece	-	10	10
12	resistors 2,2 Ω	piece	31	30	61
13	signal lenses pole signals - green	piece	4	48	52
14	signal lenses pole signals -yellow	piece	8	64	72
15	signal lenses pole signals - red	piece	2	58	60
16	signal lenses pole signals- white	piece	3	64	67
17	signal lenses dwarf signals - green	piece	13	40	53
18	signal lenses dwarf signals - yellow	piece	-	24	24
19	signal lenses dwarf signals- red	piece	11	46	57
20	signal lensesdwarf signals - blue	piece	-	67	67
21	signal lenses dwarf signals - moon white	piece	2	101	103
22	assembly line PMWG - 0.75 mm	m	4200	5000	9200
23	assembly line PMWG - 2.50 mm	m	2000	2000	4000
24	rectifier WAK 13	piece	17	27	44
25	accumulators ABN - 72 (1 cell)	piece	684	760	1444
26	cable SPPB 3 x 1	m	200	250	450
27	cable SPPB 7 x 1	m	400	500	900
28	cable SPPB 16 x 1	m	400	300	700
29	cable SPPB 24 x 1	m	450	500	950
30	cable SPPB 38 x 1	m	250	260	510
31	relay OMW - 2 / 40	piece	-	98	98

Annex 1.7-13

List of materials required for the complete equipment of the stations

no.	item	unit	area Gyumri	area Yerevan	total
1	impedance bonds with secondary winding 0.2-1000	piece	78	59	137
2	impedance bonds with secondary winding 0.6-1000	piece		80	100
3	joining pieces for choke	piece	50	70	120
4	connection ropes for impedance bonds with secondary winding	piece	78	139	217
5	transformers POWS - 2A	piece	74	32	106
6	transformers PRT	piece	12	53	65
7	transformers RTE	piece	60	-	60
8	transformers ST-4	piece	326	109	435
9	transformers SOBS-„	piece	50	33	83
10	switch relay PPRE-5000	piece	10	23	33
11	selenium rectifier BWC	piece	22	16	38
12	point mechanism SP - 6	piece	4	4	8
13	signal lenses pole signals - green	piece	63	40	103
14	signal lenses pole signals - yellow	piece	50	40	90
15	signal lenses pole signals - red	piece	63	40	103
16	signal lenses pole signals - white	piece	63	40	103
17	signal lenses dwarf signals - green	piece	362	161	523
18	signal lenses dwarf signals - yellow	piece	250	110	360
19	signal lenses dwarf signals- red	piece	350	188	538
20	signal lenses dwarf signals- blue	piece	200	159	359
21	signal lenses dwarf signals- moon white	piece	150	284	434
22	assembly line PMWG - 0.75 mm	m	2000	2000	4000
23	assembly line PMWG - 2.50 mm	m	1500	1500	3000
24	rectifier WAK 13	piece	17	15	32
25	accumulators ABN - 72 (1 Zelle)	piece	684	300	984
26	cable SPPB 3 x 1	m	500	1000	1500
27	cable SPPB 7 x 1	m	500	1000	1500
28	cable SPPB 16 x 1	m	500	1000	1500
29	cable SPPB 24 x 1	m	450	1000	1450
30	cable SPPB 38 x 1	m	350	1000	1350
31	relay OMW - 2 / 40	piece	30	50	80

Annex 1.7-14

Repair works of stations
Name of Railway: Armenian Railway (ARM)

1	2	3	4	5	6		
Number	Name of station	Route	Distance to the next station (km)	Type of station (main function) and category	Repair work to tracks and structures required or planned to be carried out		
					Tracks[1)]	Equipment and facilities for freight loading and unloading	Station building, platforms and other facilities for passenger traffic
1	**Ayrum**	**Ayrum - Gyumri - (Akhurian)**	12,8	Border station, Category 2	1.4 km track relaying work (tracks No. 1 and 3)	n/a	General repair: platform and fencing; Renovations: station building including renewal to the roof
2	Akhtala		7,9	Intermediate station, Category 4	•	•	•
3	Akhpat		5	Passenger station, Category 5; (in Russian named: Razjezd)	•	•	•
4	Alaverdi		6,2	Intermediate station, Category 3	•	•	•
5	**Sanain**		8,1	Intermediate station, Category 2	3.4 km track relaying work (tracks No. 1, 4, 5, 6 and 7)	n/a	General repairs: station building (including renewal to the roof), platform, fencing and staircases
6	Kober		9	Intermediate station, Category 4	•	•	•
7	Tumanyan		8,3	Intermediate station, Category 3	•	•	•
8	Shagali		7,7	Intermediate station, Category 4	•	•	•
9	Pambak		7,4	Passenger station, Category 5; (Razjezd)	•	•	•
10	**Vanadzor**		9,5	Freight and passenger station, Category 1	3.2 km track relaying work (tracks No. 1, 3, 4 and 6)	Repairs to the loading and unloading facilities and the duty room; Container terminal: General overhaul of the gantry crane; Repairs to storage area and fencing *(see also Annex 1.1.5-4)*	Renovations: station building and platform No. 1; Renewal: intermediate platform; General repairs: footbridge; Asphalting of the station forecourt
11	Archut		11	Passenger station, Category 5; (Razjezd)	•	•	•
12	Spitak		9,9	Intermediate station, Category 3	•	•	•
13	Nalband		9,8	Intermediate station, Category 3	•	•	•
14	Kaltakhtshi		9,6	Intermediate station, Category 4	•	•	•
15	Dshadshur		10,1	Intermediate station, Category 4	•	•	•
16	Maisyan		10	Intermediate station, Category 4	•	•	•

Annex 1.7-14

Repair works of stations
Name of Railway: Armenian Railway (ARM)

1	2	3	4	5	6		
Number	Name of station	Route	Distance to the next station (km)	Type of station (main function) and category	Repair work to tracks and structures required or planned to be carried out		
					Tracks[1)]	Equipment and facilities for freight loading and unloading	Station building, platforms and other facilities for passenger traffic
17	**Gyumri**		11,7	Intermediate station, Category Extra	Renewal of all sleepers	Repairs to the loading and unloading facilities ; General overhaul of various cranes; Container terminal: Repairs to fencing and road access; General overhaul of the gantry crane (*see also Annex 1.1.5-3*)	Renovations: station building incluing renewal to the roof; General repairs: pedestrian subway and intermediate platform; Asphalting of the station forecourt
18	**Akhurian**		at present end of the line	Border station (at present closed), Category 1; (Transhipment station)	1.3 km track relaying work (tracks No. 1 and 2)	Renovation of the loading and unloading facilities; General overhaul of the fork-lifters	General repair of the station building including renewal of the roof
19	**Artik**	**Gyumri - Maralik**	6,3	Intermediate station, Category 2	Renewal of all sleepers	Renovation work	General repairs: station building, platform and toilets
20	Pemzashen		6	Intermediate station, Category 4	•	•	•
21	Maralik		End of the line	Terminus, Category 3	•	•	•
22	Bayandur	**Gyumri - Masis / Arshaluis**	12,5	Intermediate station, Category 3	•	•	•
23	Agin		12,2	Intermediate station, Category 4	•	•	•
24	Bagravan		8,5	Passenger station, Category 5; (Razjezd)	•	•	•
25	Ani		8,9	Intermediate station, Category 3	•	•	•
26	Getap		8,9	Passenger station, Category 5; (Razjezd)	•	•	•
27	Aragatz		9	Intermediate station, Category 4	•	•	•
28	Arteni		8,2	Passenger station, Category 5; (Razjezd)	•	•	•
29	Kharakhert		6,7	Intermediate station, Category 4	•	•	•
30	**Dalarik**		7,5	Intermediate station, Category 2	2.1 km track relaying work (tracks No. 3, 4 and 5)	Renovation work	General repairs: station building including renewal of the roof, platform and toilets
31	Arakhs		10,6	Intermediate station, Category 4	•	•	•

Annex 1.7-14

Repair works of stations
Name of Railway: Armenian Railway (ARM)

1	2	3	4	5	6		
Number	Name of station	Route	Distance to the next station (km)	Type of station (main function) and category	Repair work to tracks and structures required or planned to be carried out		
					Tracks[1)]	Equipment and facilities for freight loading and unloading	Station building, platforms and other facilities for passenger traffic
32	**Armavir**		14	Intermediate station, Category 2	3.3 km track relaying work (tracks No. 2, 3, 4, 5 and 6)	General repairs to the loading and unloading facilities	General repairs: station building including renewal to the roof, platform and toilets
33	Arshaluis		End of the line	Terminus, Categry 5 (Razjezd)	*	*	*
34	Sovietakan		8,1	Intermediate station, Category 4	*	*	*
35	**Etshmiadzin**		12	Intermediate station, Category 2	3.0 km track relaying work (tracks No. 3, 4, 5 and 6)	Renovation work	General repairs: station building including renewal to the roof, two platforms and toilets
36	**Masis**		7	Marshalling yard, Category Extra	9.2 km track relaying work	no request	General repairs: station building including renewal of the roof, two platforms and toilets
37	Mkhtchyan	**Masis - Yeraskh**	10	Passenger station, Category 5; (Razjezd)	*	*	*
38	Artashat		12	Intermediate station, Category 3	*	*	*
39	Aygavan		7	Intermediate station, Category 4	*	*	*
40	**Ararat**		15	Intermediate station, Category 1	4.0 km track relaying work (tracks No. 2, 3, 4, 5, 6and 7)	no request	General repairs: station building including renewal to the roof, two platforms and toilets
41	Yeraskh		at present end of the line	Intermediate station, Category 3	*	*	*
42	Noragavit	**Yerevan - Masis**	6 (from Yerevan)	Intermediate station, Category 4	*	*	*
43	**Karmir Blur**		3 (to station No. 44)	Freight station, Category 1	2.4 km track relaying work (tracks No. 2, 3, 4 and 5)	Various repairs; Container terminal: General overhaul of the gantry crane; Procurement of a 40 ft spreader ; Rehabilitation of lighting installation and electrical supply system (*see also Annex 1.1.5-3*)	General repairs to the station building ; Renovation of platform
44	Km 9	**Yerevan - Sevan - Sotk**	5	Passenger station, Category 5; (Razjezd)	*	*	*
45	Spandaryan		9	Passenger station, Category 5; (Razjezd)	*	*	*
46	Proshyan		8	Passenger station, Category 5; (Razjezd)	*	*	*

Annex 1.7-14

Repair works of stations
Name of Railway: Armenian Railway (ARM)

1	2	3	4	5	6		
Number	Name of station	Route	Distance to the next station (km)	Type of station (main function) and category	Repair work to tracks and structures required or planned to be carried out		
					Tracks[1)]	Equipment and facilities for freight loading and unloading	Station building, platforms and other facilities for passenger traffic
47	Yegvard		7	Intermediate station, Category 5	*	*	*
48	Nor Achin		5 to Nurnus	Intermediate station, Category 5	*	*	*
49	**Yerevan**	**Yerevan - Sotk (via Abovian)**	8	Passenger and freight station / Marshalling yard, Category Extra	Track relaying work: 1.7 km passenger station (No. 4, 5, 6 and 7); Marshalling yard: 3.0 km of departure tracks (No. 1, 3 and 4)and 2.9 km of sorting lines (No. 5, 6, 7 and 8) ;	Repairs to the loading and unloading facilities ; General overhaul of the handling equipment	Renovation work including renewal of the roof
50	Arabkir		9	Intermediate station, Category 4	*	*	*
51	Kanaker		6	Intermediate station, Category 3	*	*	*
52	**Abovian**		6	Intermediate station, Category 1	2.8 km track relaying work (tracks No. 1, 2, 3 and 4) / USD 354,141	Renovation work / USD 8,000	General repair: station building including renewal of the roof, platforms and toilets / USD 12,000
53	Nurnus		9.3 to Charentsavan	Intermediate station, Category 5	*	*	*
54	Km 51			Branching-off station, Category 4 (Razjezd)	*	*	*
55	**Charentsavan**		7	Intermediate station, Category 2	Renewal of 3.6 km (tracks No. 1, 2, 3 and 4)	Renovation work	General repairs: station building including renewal of the roof, platforms and toilets
56	Solak		10	Passenger station, Category 5; (Razjezd)	*	*	*
57	**Razdan**		16	Intermediate station, Category 2	2.4 km track relaying work (tracks No. 1, 3 and 4)	Renovation work	General repairs: station building including renewal of the roof, platforms and toilets
58	Tsakhkunk		8,1	Intermediate station, Category 4	*	*	*
59	**Sevan**		14,1	Intermediate station, Category 2	3.0 km track relaying work (tracks No. 1, 2, 3 and 4)	Repairs to the loading and unloading facilities	Renovation of the staion building; General repairs to platform and fencing
60	Tsovagyukh		31	Intermediate station, Category 4	*	*	*
61	Shorsha		57	Intermediate station, Category 4	*	*	*
62	Vardenis		18,5	Intermediate station, Category 3	*	*	*

Annex 1.7-14

Repair works of stations
Name of Railway: Armenian Railway (ARM)

1	2	3	4	5	6		
Number	Name of station	Route	Distance to the next station (km)	Type of station (main function) and category	Repair work to tracks and structures required or planned to be carried out		
					Tracks[1]	Equipment and facilities for freight loading and unloading	Station building, platforms and other facilities for passenger traffic
63	Sotk		End of the line	Terminus, Category 4	*	*	*
64	**Kakavadsor**	**Razdan - Ijevan** (Due to land slipppage, the section from Diljan to Ijevan has been closed for some years)	8,4	Intermediate station, Category 2	4.0 km track relaying work (tracks No. 7, 8, 9, 10 and 11)	no request	General repairs: station building including renewal of the roof
65	Megradsor		14,9	Intermediate station, Category 4	*	*	*
66	Fioletovo		17	Passenger station, Category 5; (Razjezd)	*	*	*
67	**Diljan**		28	Intermediate station, Category 2	**	Repairs to the loading and unloading facilities	General repairs to station building and platform
68	Goyavan		16,1	Passenger station, Category 5; (Razjezd)	*	*	*
69	**Ijevan**		End of the line	Border station, Category 1	**	no request	General repairs: station building including renewal of the roof, platform

Annex 1.7-15

Repair work of stations
Name of Railway: Azerbaijan State Railways (AGZD)

1	2	3	4	5	6		
Number	Name of station	Route	Distance to the next station (km)	Type of station (main function) and category	Repair work to tracks and structures required or planned to be carried out		
					Tracks [2]	Equipment and facilities for freight loading and unloading	Station buildings, platforms and other facilities for passenger traffic
1	**Baku Pass.**	**Baku - Beyuk-Kyasik**	2	Passenger station, Category "Extra"	Renewal of 5.0 km track ; Replacement of 3.965 km sleepers; Replacement of 8 turnouts; Replacement of 10 sets of turnout and crossing sleepers	n/a	Repairs to the roof and maintenance of the heating
2	**Baku Tovarnaya**		4	Freight station, Category "Extra"	Renewal of 1.375 km track ; Replacement of 6 turnouts; Replacement of 19 sets of turnout and crossing sleepers	Repairs to the loading and unloading facilities	n/a
3	**Kishli-Baku**		8	Freight station/ Container terminal, Categeory "Extra"	Renewal of 4.118 + 3.755[c] km track; Replacement of 4.289 km sleepers; Replacement of 22 turnouts; Replacement of 26 sets of turnout and crossing sleepers [c] Container terminal	Repairs to the storage facilities and loading ramp; Replacement of loading equipment ; Container terminal: Various repairs (see also Annex 1.1.4-5)	Repairs to the platform and asphalt work
4	**Baladshary**		12	Marshalling yard/ Freight station, Category "Extra"	Renewal of 7.028 km track; Replacement of 23.3 km sleepers; Replacement of 20 turnouts; Replacement of 25 sets of turnout and crossing sleepers	Repairs to the loading and unloading facilities ; General overhaul of loading equipment	**
5	Eybat		8	Freight station	*	*	*
6	Puta		12	Freight station	*	*	*
7	Karadag		14	Freight station	*	*	*
8	Sangachhali		9	Freight station	*	*	*
9	Duvanniy		14	Freight station	*	*	*
10	**Allat**		14	Marshalling yard/ Freight station, Category 1	Replacement of 4.765 km sleepers; Replacement of 2.006 km ballast; Replacement of 12 turnouts; Replacement of 9 sets of turnout and crossing sleepers	n/a	**
11	Atbulak		12	Freight station	*	*	*
12	Navagi		8	Freight station	*	*	*
13	Pirsagat		10	Freight station	*	*	*
14	**Kasl-Magomed**		12	Freight station, Category 1	Renewal of 4.475 km track ; Replacement of 0.946 km sleepers and 1.691 km sleepers including ballast; Replacement of 22 turnouts; Replacement of 24 sets of turnout and crossing sleepers	n/a	Repairs to the station building, especially to the roof, and to the platform including asphalt work
15	Mugan		14	Freight station	*	*	*
16	Gadshlevo		12	Overtaking station	*	*	*
17	Padar		13	Overtaking station	*	*	*

Annex 1.7-15

Repair work of stations
Name of Railway: Azerbaijan State Railways (AGZD)

1	2	3	4	5	6		
Number	Name of station	Route	Distance to the next station (km)	Type of station (main function) and category	Repair work to tracks and structures required or planned to be carried out		
					Tracks [2]	Equipment and facilities for freight loading and unloading	Station buildings, platforms and other facilities for passenger traffic
18	Sagiri		14	Overtaking station	•	•	•
19	Kerar		10	Overtaking station	•	•	•
20	Kyrdamir		11	Freight station	•	•	•
21	Karabudshak		10	Overtaking station	•	•	•
22	Mysysli		13	Freight station	•	•	•
23	Bargusheti		13	Freight station	•	•	•
24	Udshari		9	Overtaking station	•	•	•
25	Alikent		11	Overtaking station	•	•	•
26	Lyaki		11	Freight station	•	•	•
27	Malai		14	Freight station	•	•	•
28	**Yevlakh**		12	Freight station, Category 1	Renewal of 1.662 km track ; Replacement of 12 turnouts ; Replacement of 18 sets of turnout and crossing sleepers	Repairs to the loading and unloading facilities; General overhaul of loading equipment	Various repairs
29	Mingetshaur Main Sation		13	Freight station	•	•	•
30	Mingetshaur City		18	Passenger station station	•	•	•
31	Geran		11	Freight station	•	•	•
32	Kyurok-Tshai		14	Freight station	•	•	•
33	Dalimamedli		7	Freight station	•	•	•
34	Sasali		10	Freight station	•	•	•
35	**Gyandsha**		13	Freight station, Category 1	Replacement of 10 turnouts; Replacement of 10 sets of turnout and crossing sleepers	Repairs to the loading and unloading facilities; General overhaul of loading equipment ; Purchase of one reach stacker for the container terminal (see also *Annex 1.1.4-6*)	General building maintenance including repairs to the roof
36	Alabashli		11	Freight station	•	•	•
37	Shamkhor		10	Freight station	•	•	•
38	Dollyar		13	Freight station	•	•	•
39	Dsegam		7	Freight station	•	•	•
40	Dyugarli		7	Overtaking station	•	•	•
41	Kovlyar		13	Freight station	•	•	•
42	Taus		11	Freight station	•	•	•
43	Tatlu		10	Freight station	•	•	•
44	**Akstafa**		6	Freight station, Category 1	Renewal of 1.985 km track; Replacement of 2 turnouts; Replacement of 7 sets of turnout and crossing sleepers	n/a	Repairs to the roof and fencing
45	Shakarlyi		8	Overtaking station	•	•	•

Annex 1.7-15

Repair work of stations
Name of Railway: Azerbaijan State Railways (AGZD)

1	2	3	4	5	6		
Number	Name of station	Route	Distance to the next station (km)	Type of station (main function) and category	Repair work to tracks and structures required or planned to be carried out		
					Tracks [2]	Equipment and facilities for freight loading and unloading	Station buildings, platforms and other facilities for passenger traffic
46	Polli		9	Freight station	*	*	*
47	Salakhli		9	Freight station	*	*	*
48	Soyuk-Bulak		11	Freight station	*	*	*
49	**Beyuk-Kyasik**		-	Border station, Category 1	Renewal of 4.264 km track; Replacement of 2 turnouts; Replacement of 7 sets of turnout and crossing sleepers	Construction of a new building for border at and customs control	Asphalt work
50	**Yalama**	**Yalama - Baku - Goradis**	9	Border station/ Freight station, Category 1	Replacement of 8 turnouts ; Replacement of 11 sets of turnout and crossing sleepers	n/a	Asphalt work
51	Ledshet		8	Freight station	*	*	*
52	Khudat		8	Freight station	*	*	*
53	Kusar-Tshai		13	Freight station	*	*	*
54	Khatshmas		10	Freight station	*	*	*
55	Chartli		12	Freight station	*	*	*
56	Sarvan		11	Freight station	*	*	*
57	**Divitshi**		9	Freight station, Category 1	Replacement of 13 turnouts; Replacement of 27 sets of turnout and crossing sleepers	n/a	Asphalt work
58	Gilgil-Tshai		10	Freight station	*	*	*
59	Kisil-Burun		11	Freight station	*	*	*
60	Siasan		9	Freight station	*	*	*
61	Zorat		10	Freight station	*	*	*
62	Kilyasi		7	Freight station	*	*	*
63	Sital-Tshai		10	Freight station	*	*	*
64	Yashma		11	Freight station	*	*	*
65	**Shirvan**		1	Marshalling yard / Freight station, Category "Extra"	Replacement of 35 turnouts ; Replacement of 30 sets of turnout and crossing sleepers	n/a	Repairs to the platform and station building
66	Seynalabdin		9	Freight station	*	*	*
67	Sumgait		11	Freight station	*	*	*
68	Gyuzdek		8	Freight station	*	*	*
69	Khirdalan		2	Freight station;Container terminal	*	*see also Annex 1.1.4-7*	*
	Baladshary		12	**see No. 4**			
	Eybat		8	**see No. 5**			
	Puta		12	**see No. 6**			
	Karadag		14	**see No. 7**			
	Sangatshali		9	**see No. 8**			
	Duvanni		14	**see No. 9**			

Repair work of stations

Annex 1.7-15

Name of Railway: Azerbaijan State Railways (AGZD)

1	2	3	4	5	6		
Number	Name of station	Route	Distance to the next station (km)	Type of station (main function) and category	Repair work to tracks and structures required or planned to be carried out		
					Tracks [2]	Equipment and facilities for freight loading and unloading	Station buildings, platforms and other facilities for passenger traffic
	Aliat		5		see No. 10		
70	Aliat Nov.		16	Overtaking station	•	•	•
71	Snoini		15	Overtaking station	•	•	•
72	Garakyuna		8	Overtaking station	•	•	•
73	**Ali-Bairamly Sort.**		4	Marshalling yard, Category 1	Renewal of 1.499 km track ; Replacement of 20 turnouts; Replacement of 20 sets of turnout and crossing sleepers	n/a	Various repairs
74	Ali-Bairamly Glav. (Main Station)		12	Freight station	Renewal of 3.371 km track; Replacement of 0.894 km sleepers; Replacement of 10 turnouts; Replacement of 10 sets of turnout and crossing sleepers	•	•
75	Osmanli		14	Overtaking station	•	•	•
76	Myursali		11	Freight station	•	•	•
77	Saradshalyar		11	Freight station	•	•	•
78	Saatly		13	Freight station	•	•	•
79	Bedshari		16	Overtaking station	•	•	•
80	**Imishli**		14	Freight station, Category 1	Renewal of 5.602 km track ; Replacement of 25 turnouts ; Replacement of 20 sets of turnout and crossing sleepers	n/a	Repairs to the platforms and station building
81	Vatagi		12	Freight station	•	•	•
82	Khalash		14	Freight station	•	•	•
83	Dashburun		11	Freight station	•	•	•
84	Begmanli		10	Freight station	•	•	•
85	Bala-Begmanli		5	Overtaking station	•	•	•
86	Gashily		13	Overtaking station	•	•	•
87	**Goradiz**		at present end of the line	Freight station, Category 1	Replacement of 3 turnouts; Replacement of 10 sets of turnout and crossing sleepers	General of overhaul of the crane and asphalt work	Repairs to the platforms and station building; asphalt work
88	**Salyany**	**Ali-Bayramli - Astara**	47 from Ali-Bayramli	Freight station; Category 1	Renewal of 0.905 km track ; Replacement of 8 turnouts; Replacement of 15 sets of turnout and crossing sleepers	Repairs to the crane	Repairs to the platforms and station building
89	**Astara**		136 from Salyany	Border station	Renewal of 10.069 km track; Replacement of 4 turnouts; Replacement of 10 sets of turnout and crossing sleepers	n/a	Repairs to the platforms and station building

Repair work of main stations
Name of Railway: Georgian Railways (GRZD)

1	2	3	4	5	6		
Number	Name of station	Route	Distance to the next station listed (km)	Type of station (main function)	Repair work to tracks and structures required or planned to be carried out		
					Tracks	Equipment and facilities for freight loading and unloading	Station buildings, platforms and other facilities for passenger traffic[1)]
1	Poti	**Poti - Tbilisi - Gardabani - (Baku)**	67.9 from Poti Port; 65.2 from Poti	Freight station	Rehabiltation	1 storeroom for part load traffic (at present under construction); Construction of an area for handling 20 ft and 40 ft containers	
2	Samtredia		61,0	Combination of the former seperated stations Samtredia and Samtredia 2: Marshalling yard / Freight station / Container terminal	Rehabilitation	Container terminal: Repairs to the craneway and the contact wire ; Purchase of 300 m wire for the crane *(see also Annex 1.1.4-9)*	
3	Zestafoni		63,1	Freight station	Rehabiltation	Repair of the contact wire of the crane ; Repairs to the warehouse	
4	Khashuri		44,1	Freight station	Rehabilitation	Repairs to the warehouse (roof and doors); Installation of the new crane (already available); Repair of the craneway and the contact wire;	
5	Gori		73,3	Passenger station / Container terminal	Rehabilitation	Repairs to the warehouse ; Repairs to the roof of the covered loading ramp Container terminal: Repairs to the crane and the craneway each (see also Annex 1.1.4-11)	
6	Tbilisi Tov.		2,3	Freight station / Container terminal	Rehabiltation	Restoration of the loading areas Container terminal: Repairs to 3 cranes; Repairs to craneways; Repair and paint of the gantry crane *(see also Annex 1.1.4-10)*	
7	Tbilisi Pass.		6,3	Passenger station	Rehabilitation	not applicable (n/a)	(rehabiltation started in 1987; but, has not been finished yet)
8	Tbilisi Usl.		0,8	Branch-off station / Freight station	Rehabiltation	n/a	
9	Tbilisi Sort.		20,2	Marshalling yard	Rehabilitation	n/a	
10	Gardabani		28,5	Border station	Rehabiltation	n/a	
11	Batumi	**Batumi - Samtredia**	105.6 to Samtredia	Combination of the former seperatad passenger and freight station (under rebuilding since 1996)	Rehabiltation	Repairs to the roof of the warehouse; Repairs to the craneway, asphalt work ; Construction of a new area for handling 20 ft and 40 ft containers (project already exists)	(new buildings and facilities have been under construction since 1996)
12	Marneuli	**Tbilisi - Sadakhlo - (Yerevan)**	29.9 from Tbilisi Usl.	Freight station	Rehabilitation	Construction of an area for handling containers, a transshipment yard for heavy goods, a warehouse and a loading ramp might be necessary in future.	
13	Sadakhlo		59.1 from Tbilisi Usl.	Border station	Rehabiltation	-	

Annex 1.7-17

List of spare parts urgently needed for ARM rolling stock

No	terms	specification	volume
1) Wagon maintenance			
1	miner´s lamps for wagon revisors		120 p
2	plywood	5 mm	100 m³
3	plywood	3 mm	50 m³
4	wheelsets for wagons		200 p
5	safety glass	99 x 88	1,000 m²
6	upholstery fabric		500 m
7	floor covering		500 m
8	toilet bowls for ZMO		50 p
9	window frames for ZMK		200 p
10	window frames for ZMO		200 p
11	lubrication grease	ShT-72	200 kg
12	lubrication grease	L3ZNII	200 kg
13	foam mat		400 kg
2) Locomotive maintenance			
2.1 Brake equipments			
1	KT-6 compressor spring for valve	06.033-2	100 p
2	KT-6 non-return valve	I/4-2	100 p
3	KT-6 valve casing	6,011	100 p
4	sleeve for dummy piston of driver´s brake valve 222		100 p
5	feed check-valve		50 p
6	paranit	0.5 - 1.0 mm	50 kg
7	asbest twin		20 kg
8	sleeve for valve 31/1		100 p
9	sand valve	R-32	100 p
10	flexible connection	3/4"	60 p
11	blocking valves	3/4"	20 p
12	blocking valves	1/2"	20 p
13	sealings for valve EK 7-A	4,014	100 p
14	piston ring EK-7	EK-4.03.012	30 p
15	sleeve for doors ER-2		100 p
2.2 Mechanic parts			
1	bolster suspension		5 sets
2	socket for bolster suspension	4TN.211.518	15 p
3	support disk		50 p
4	nut E-1735.00.01	8TN 946.310	50 p
5	sphere	8TN.259.004	30 p
6	bronze socket for sphere connection		50 p
7	brake shoes		1500 p
8	packing hemp		75 kg
9	casing for transmission		40 p
10	skid		300 p
2.3 Electric equipments			
1	set BRN		20 p
2	set B3		20 p
3	voltmeter RSh-75V		30 p
4	amperemeter RSh-75 A		30 p
5	shunt amperemeter 75 A		30 p
6	spark-suppressor coil BV		10:00 PM
7	electric-magnetic interrupter MK-31OA		20 p
8	pneumatic interrupter PK-2		20 p
9	cam element of brake switch TK-36T	TK-8B	100 p
10	cam element of brake air bottle RK-022T		500 p
11	electric oven PET-2		200 p
12	heating element PET		1000 p
13	overload relais RP-280, PT-502		30 p
14	return-feeding relais RR-498		20 p

Annex 1.7-17

List of spare parts urgently needed for ARM rolling stock

No	terms	specification	volume
15	accumulators	40NC-125	20 sets
16	leach		200 kg
17	roof circuit-breaker	R VN-004	35 p
18	damping resistance	DS-520	50 sets
19	electric meter	SKVTD-600m	35 p
20	voltage regulator	BRN-10	20 p
21	voltage regulator	B3-06	20 p
2.4 Materials and spares			
1	lac	NZ-929	50 kg
2	cupper for electr.-pneum. contuctor PK-2126		50 kg
3	sliding bow P-5		40 p
4	trolley head		40 p
5	insulating tape		150 kg
6	plumbum		100 kg
7	babbit B-16		100 kg
8	diod	VL-200	20 p
9	textil mat 2 - 6 mm		10 plates
10	graphit lubrication	SGS-D600m	1,200 kg
11	chrom-nickel 0.3 - 1mm		200 kg
12	cupper shunt		200 kg
13	damping resistance for motor-compressor PP-107A		50 p
14	damping resistance for ventilator PP-107		50 p
15	pipes for sliding contacts	32 mm	1,200 m
16	conic pipe for sliding contacts		130 p
17			

Annex 1.7-18

Urgent needed spare parts for AGZD rolling stock

specification	units (pieces)
1 components for locomotive repair	
traction motor HB 406	50
motor for the compressor HB 431	50
motor for the ventilator HB 430	50
wheelsets for VL-8	100
2 material and elements for locomotives	
brake shoes for locomotives	25,000
brake shoes for wagons	30,000
working cylinders bush	30
bearing shell main- 1,2,3,5,6 rest, 0,1,2,3,4 degree	180
bearing shell main - 4-5 rest, 0,1,2,3,4 degree	40
bearing shell main - 7 rest	40
bearing shell of stick 0,1,2,3,4,6,9 degree	180
piston of the working cylinder	30
sealing	100
blow pipe	50
cleaner for blow pipe	240
cylinder with socket	30
middle bearing shell	20
basic bearing shell	40
disc connector	800
long cross-beam connector	10
short cross-beam connector	10
cardan GAS-51 vertical	10
cardan GAS-51 horizontal	20
bearing shell MOP under ED118A	30
main bearing shell 4,5,6,7 degree	200
main bearing shell	100
main bearing shell	200
main bearing shell	200
main bearing shell	400
main bearing shell	400
main bearing shell	400
blow pipe	160
needle cleaner	200
plunger with socket	100
pinion	100
pinion	50
disc connector	600
head of cardan	120
vee belt GOST 1284-68	100
vee belt GOST 1284-68	100

Annex 1.7-18

Urgent needed spare parts for AGZD rolling stock

specification	units (peces)
flap	60
flap	60
diaphragma	400
little flap plate	200
big flap plate	200
flap spring	600
carbon brush 2(12,5x32x50) TE-006	1,000
carbon brush 2(12,5x50x52) QRT-200B	1,600
carbon brush 12,5x44x40	600
carbon brush 12,5x32x64	1,000
carbon brush 2(12,5x32x65,5)	2,000
carbon brush 10x25x40	5,000
carbon brush 2(10x50x60)	16,000
carbon brush 10x25x50	6,000
carbon for sliding contacts type A	10 tons
alkali accumulators	100 sets
bearing shell for engine axles	240 sets
retaining frame for sliding bows compl.	250
conical pipe for sliding contacts	800
sliding contacts	800
profile for contact bar	500
babbit B - 16	3,000
toothed gear	100
toothed gear	100
quick operating switch BVP - 3A	30
spark quencher chamber	50
electric oven PQT	200
heating element TQN-44	2,000
spark quencher chamber	50
spark quencher chamber	200
spark quencher chamber	50
spark quencher chamber	50
power leading-in wire SL TQM2 (flexible with protection) Type V-124-2000	150
brush 8x25x50	3,000
brush 16x32x32	2,000
brush 16x32x50	3,000
brush 2(8x50x60)	3,000

Annex 1.7-19

Urgent needed spare parts for GRZD rolling stock

1 material and elements for locomotive repair	
specification	**units (pieces)**
compressor NB-431	100
wheelset VL-10	100
wheelset VL-8	40
wheel tire	200
accumulators NK-120	10
sliding contacts P 5	50
traction motors TL-2k, NB-406	40
brake shoes	10,000
electropneumatic contactors	25
electromagnetic contactors	25
carbon brushes	2,500
ventilators NB-430, TL-110	10
quick circuit switch BWP-5, BWP-3a	15
profiled coppering device for contactors 10x34x41	200 kg
plating for sliding contacts	1,000
trolley for sliding contacts	each per 60 pieces
inductive rheostat Isch-2k, Isch-406	100
group switch PKG-4a, PKF-6b	10
insulating paint NU - 929	150 kg
spring VL-8	40
coupling gears VL-8	10
spark quencher chamber BWP-5, BWP-3a	10
suspension of cradle, complete	3
safety fuse PK 6/75	120
babbit B-16, B-83	1,500 kg
electric oven PET-IUZ	150

Annex 1.7-19

Urgent needed spare parts for GRZD rolling stock

2 spare parts for wagon repair	
specification	units (pieces)
wooden material	3,000 v2
wheelsets	500
bogies type ZNII-H3	200
composed brake shoe inserts	18,000
lubricating grease for axle boxes	25 tons
lubricating grease for brakes	1 tons
lubricating grease for slide bearing	60 tons
corner bracings 50x50	5 tons
corner bracings 63x45	10 tons
auxiliary reservoir	50
distributor valve 483, bracket	800
distributor valve 483	200
air brake hose	1,000
pins M12x50	5 tons
pins M12x70	10 tons
pins M12x100	10 tons
doors for covered wagons	500
doors for open wagons	120
auto coupler with draft gear	20
brake slack adjuster	50
automatic brake position device	50
welding electrode	5
miner's lamp	300
diesel fuel	200 tons
diesel lubrication	50 tons
freon (cooling liquid) special for 8-axle tank wagons	10 tons
automatic coupler	100
auxiliary reservoir	50

Annex 1.7-20

Development of transport means for ARM freight traffic

Optimistic variant

Armenia-Transits

Year	Freight volume in (tons)	Transport distance (km)	Transport performance (tkm)	daily net needed wagons	net needed wagons	net needed locomotives for transits
2000/2005	685.000	310	212.350.000	55	1.098	7
2010	856.000	310	265.360.000	69	1.235	8
2015	1.070.000	310	331.700.000	86	1.458	10

Armenia-Import

Year	Freight volume in (tons)	Transport distance (km)	Transport performance (tkm)	daily net needed wagons	net needed wagons	net needed locomotives
2000/2005	715.000	310	221.650.000	25	178	5
2010	1.072.000	310	332.320.000	38	191	7
2015	1.286.000	310	398.660.000	46	183	8

Armenia-Export

Year	Freight volume in (tons)	Transport distance (km)	Transport performance (tkm)	daily net needed wagons	net needed wagons	net needed locomotives
2000/2005	176.000	310	54.560.000	17	338	2
2010	316.000	310	97.960.000	30	547	3
2015	474.000	310	146.940.000	46	775	5

Armenia-Domestic traffic

Year	Freight volume (tons)	Transport distance (km)	Transport performance (tkm)	daily net needed wagons	net needed wagons	net needed locomotives
2000/2005	693.000	310	214.830.000	74	518	4
2010	1.113.000	310	345.030.000	119	595	7
2015	1.407.000	310	436.170.000	150	601	9

Rolling stock development for freight traffic

Wagons	total net	reserve	total gross
2000/2005	2.133	427	2.559
2010	2.567	513	3.080
2015	3.017	603	3.620

Locomotives	total net	reserve	total gross
2000/2005	35	10	45
2010	51	15	66
2015	64	19	83

Annex 1.7-20

Development of transport means for ARM freight traffic

Pessimistic variant

Armenia-Transits

Year	Freight volume in (tons)	Transport distance (km)	Transport performance (tkm)	daily net needed wagons	net needed wagons	net needed locomotives for transits
2000/2005	170.000	310	52.700.000	18	363	2
2010	360.000	310	111.600.000	38	692	3
2015	541.000	310	167.710.000	58	983	5

Armenia-Import

Year	Freight volume in (tons)	Transport distance (km)	Transport performance (tkm)	daily net needed wagons	net needed wagons	net needed locomotives
2000/2005	617.000	310	191.270.000	22	154	4
2010	832.000	310	257.920.000	30	148	5
2015	957.000	310	296.670.000	34	136	6

Armenia-Export

Year	Freight volume in (tons)	Transport distance (km)	Transport performance (tkm)	daily net needed wagons	net needed wagons	net needed locomotives
2000/2005	142.000	310	44.020.000	14	273	1
2010	213.000	310	66.030.000	20	369	2
2015	320.000	310	99.200.000	31	523	3

Armenia-Domestic traffic

Year	Freight volume (tons)	Transport distance (km)	Transport performance (tkm)	daily net needed wagons	net needed wagons	net needed locomotives
2000/2005	606.000	310	187.860.000	65	453	4
2010	836.000	310	259.160.000	89	447	5
2015	908.000	310	281.480.000	97	388	6

Rolling stock development for freight traffic

Wagons	total net	reserve	total gross
2000/2005	1.243	249	1.492
2010	1.656	331	1.987
2015	2.030	406	2.436
Locomotives	total net	reserve	total gross
2000/2005	22	7	28
2010	32	10	42
2015	40	12	53

Development of transport means for AGZD freight traffic

Annex 1.7-21

Optimistic variant

Azerbaijan-Transits

Year	Freight volume in (tons)	Transport distance (km)	Transport performance (tkm)	daily net needed wagons	net needed wagons	net needed locomotives for transits
2000/2005	4.187.000	438	1.833.906.000	34	671	42
2010	5.150.000	438	2.255.700.000	41	743	33
2015	6.438.000	438	2.819.844.000	52	825	42

Azerbaijan-Import

Year	Freight volume in (tons)	Transport distance (km)	Transport performance (tkm)	daily net needed wagons	net needed wagons	net needed locomotives
2000/2005	1.162.000	438	508.956.000	12	99	8
2010	1.743.000	438	763.434.000	19	130	8
2015	2.265.000	438	992.070.000	24	145	10

Azerbaijan-Export

Year	Freight volume in (tons)	Transport distance (km)	Transport performance (tkm)	daily net needed wagons	net needed wagons	net needed locomotives
2000/2005	6.454.000	438	2.826.852.000	372	7.447	65
2010	10.668.000	438	4.672.584.000	615	11.078	69
2015	11.201.000	438	4.906.038.000	646	10.986	73

Azerbaijan-Domestic traffic

Year	Freight volume (tons)	Transport distance (km)	Transport performance (tkm)	daily net needed wagons	net needed wagons	net needed locomotives
2000/2005	8.462.000	310	2.623.220.000	542	4.339	57
2010	12.129.000	310	3.759.990.000	778	5.443	52
2015	14.921.000	310	4.625.510.000	956	5.739	65

Rolling stock development for freight traffic

Wagons	total net	reserve	total gross
2000/2005	12.557	2.511	15.068
2010	17.394	3.479	20.873
2015	17.695	3.539	21.234
Locomotives	total net	reserve	total gross
2000/2005	172	52	224
2010	163	49	211
2015	189	57	246

Annex 1.7-21

Development of transport means for AGZD freight traffic

Pessimistic variant

Azerbaijan-Transits						
Year	Freight volume in (tons)	Transport distance (km)	Transport performance (tkm)	daily net needed wagons	net needed wagons	net needed locomotives for transits
2000/2005	2.005.000	438	878.190.000	16	321	20
2010	3.810.000	438	1.668.780.000	31	550	25
2015	4.763.000	438	2.086.194.000	38	611	31

Azerbaijan-Import						
Year	Freight volume in (tons)	Transport distance (km)	Transport performance (tkm)	daily net needed wagons	net needed wagons	net needed locomotives
2000/2005	1.151.000	438	504.138.000	12	98	8
2010	1.611.000	438	705.618.000	17	120	7
2015	2.014.000	438	882.132.000	22	129	9

Azerbaijan-Export						
Year	Freight volume in (tons)	Transport distance (km)	Transport performance (tkm)	daily net needed wagons	net needed wagons	net needed locomotives
2000/2005	1.965.000	438	860.670.000	113	2.267	20
2010	4.456.000	438	1.951.728.000	257	4.627	29
2015	4.912.000	438	2.151.456.000	283	4.818	32

Azerbaijan-Domestic traffic						
Year	Freight volume (tons)	Transport distance (km)	Transport performance (tkm)	daily net needed wagons	net needed wagons	net needed locomotives
2000/2005	7.871.000	310	2.440.010.000	505	4.036	53
2010	10.642.000	310	3.299.020.000	682	4.775	46
2015	11.997.000	310	3.719.070.000	769	4.614	52

Rolling stock development for freight traffic			
Wagons	total net	reserve	total gross
2000/2005	6.723	1.345	8.068
2010	10.073	2.015	12.087
2015	10.172	2.034	12.206
Locomotives	total net	reserve	total gross
2000/2005	101	30	131
2010	107	32	139
2015	123	37	160

Annex 1.7-22

Development of transport means for GRZD freight traffic

Optimistic variant

Georgian-Transits						
Year	Freight volume in (tons)	Transport distance (km)	Transport performance (tkm)	daily net needed wagons	net needed wagons	net needed locomotives for transits
2000/2005	6.011.000	340	2.043.740.000	161	2.890	104
2010	10.525.000	340	3.578.500.000	281	4.554	121
2015	12.104.000	340	4.115.360.000	323	4.946	140

Georgian-Import						
Year	Freight volume in (tons)	Transport distance (km)	Transport performance (tkm)	daily net needed wagons	net needed wagons	net needed locomotives
2000/2005	943.000	340	320.620.000	101	806	11
2010	1.179.000	340	400.860.000	126	882	9
2015	1.267.000	340	430.780.000	135	812	10

Georgian-Export						
Year	Freight volume in (tons)	Transport distance (km)	Transport performance (tkm)	daily net needed wagons	net needed wagons	net needed locomotives
2000/2005	494.000	340	167.960.000	32	570	6
2010	815.000	340	277.100.000	52	846	6
2015	1.019.000	340	346.460.000	65	1.058	8

Georgian-Domestic traffic						
Year	Freight volume (tons)	Transport distance (km)	Transport performance (tkm)	daily net needed wagons	net needed wagons	net needed locomotives
2000/2005	2.076.000	340	705.840.000	133	1.065	24
2010	2.748.000	340	934.320.000	176	1.233	21
2015	3.079.000	340	1.046.860.000	197	1.184	24

Rolling stock development for freight traffic			
Wagons	total net	reserve	total gross
2000/2005	5.331	1.066	6.397
2010	7.515	1.503	9.018
2015	8.001	1.600	9.601
Locomotives	total net	reserve	total gross
2000/2005	145	43	188
2010	158	47	205
2015	181	54	235

Annex 1.7-22

Development of transport means for GRZD freight traffic

Pessimistic variant

Georgian-Transits						
Year	Freight volume in (tons)	Transport distance (km)	Transport performance (tkm)	daily net needed wagons	net needed wagons	net needed locomotives for transits
2000/2005	1.758.000	340	597.720.000	47	845	30
2010	4.192.000	340	1.425.280.000	112	1.814	48
2015	5.220.000	340	1.774.800.000	139	2.133	60

Georgian-Import						
Year	Freight volume in (tons)	Transport distance (km)	Transport performance (tkm)	daily net needed wagons	net needed wagons	net needed locomotives
2000/2005	620.000	340	210.800.000	66	530	11
2010	715.000	340	243.100.000	76	535	8
2015	805.000	340	273.700.000	86	516	9

Georgian-Export						
Year	Freight volume in (tons)	Transport distance (km)	Transport performance (tkm)	daily net needed wagons	net needed wagons	net needed locomotives
2000/2005	367.000	340	124.780.000	24	423	6
2010	606.000	340	206.040.000	39	629	7
2015	787.000	340	267.580.000	50	817	9

Georgian-Domestic traffic						
Year	Freight volume (tons)	Transport distance (km)	Transport performance (tkm)	daily net needed wagons	net needed wagons	net needed locomotives
2000/2005	1.732.000	340	588.880.000	111	888	20
2010	2.099.000	340	713.660.000	135	942	16
2015	2.323.000	340	789.820.000	149	893	18

Rolling stock development for freight traffic			
Wagons	total net	reserve	total gross
2000/2005	2.687	537	3.224
2010	3.920	784	4.704
2015	4.360	872	5.232
Locomotives	total net	reserve	total gross
2000/2005	67	20	88
2010	80	24	104
2015	96	29	125

Annex 1.7-23

Development of transport means for ARM passenger traffic

Optimistic scenario

Armenia Domestic short-distance traffic					
Year	Passenger volume in (pers)	Transport distance (km)	Transport performance (perskm)	net needed coaches of EMU/DMU	net needed EMU/DMU sets
2000	1.868.000	40	75.000.000	24	4
2010	2.333.000	40	93.300.000	29	5
2015	2.576.000	40	103.000.000	33	5

Armenia Domestic long-distance traffic					
Year	Passenger volume in (pers)	Transport distance (km)	Transport performance (perskm)	net needed coaches of EMU/DMU	net needed EMU/DMU sets
2000	42.000	207	8.700.000	3	2
2010	63.000	210	13.200.000	5	2
2015	71.000	210	14.900.000	5	3

Armenia-International traffic					
Year	Passenger volume in (pers)	Transport distance (km)	Transport performance (perskm)	net needed coaches	net needed locomotives
2000	66.000	250	16.500.000	14	2
2010	136.000	250	34.000.000	30	4
2015	154.000	250	38.500.000	33	4

Rolling stock development for passenger traffic			
EMU	total net	reserve	total gross
2000	6	2	8
2010	7	3	10
2015	8	3	11
Coaches	total net	reserve	total gross
2000	14	6	20
2010	30	12	42
2015	33	13	46
Locomotives	total net	reserve	total gross
2000	2	1	3
2010	4	1	5
2015	4	1	5

Annex 1.7-23

Development of transport means for ARM passenger traffic

Pessimistic scenario

Armenia Domestic short-distance traffic					
Year	Passenger volume in (pers)	Transport distance (km)	Transport performance (perskm)	net needed coaches of EMU/DMU	net needed EMU/DMU sets
2000	1.600.000	47	75.000.000	20	3
2010	1.897.000	49	93.300.000	24	4
2015	1.994.000	52	103.000.000	25	4

Armenia Domestic long-distance traffic					
Year	Passenger volume in (pers)	Transport distance (km)	Transport performance (perskm)	net needed coaches of EMU/DMU	net needed EMU/DMU sets
2000	35.000	249	8.700.000	3	1
2010	42.000	314	13.200.000	3	2
2015	45.000	331	14.900.000	3	2

Armenia-International traffic					
Year	Passenger volume in (pers)	Transport distance (km)	Transport performance (perskm)	net needed coaches	net needed locomotives
2000	30.000	550	16.500.000	7	0
2010	74.000	459	34.000.000	16	1
2015	84.000	458	38.500.000	18	1

Rolling stock development for passenger traffic			
EMU	total net	reserve	total gross
2000	5	2	7
2010	6	2	8
2015	6	2	8
Coaches	total net	reserve	total gross
2000	7	3	9
2010	16	6	42
2015	18	7	46
Locomotives	total net	reserve	total gross
2000	0	1	2
2010	1	1	3
2015	1	1	3

Annex 1.7-24

Development of transport means for AGZD passenger traffic

Optimistic scenario

Azerbaijan Domestic short-distance traffic					
Year	Passenger volume in (pers)	Transport distance (km)	Transport performance (perskm)	net needed coaches of EMU/DMU	net needed EMU/DMU sets
2000	3.298.000	25	82.000.000	42	7
2010	5.372.000	25	134.300.000	68	11
2015	6.078.000	25	151.900.000	77	13

Azerbaijan Domestic long-distance traffic					
Year	Passenger volume in (pers)	Transport distance (km)	Transport performance (perskm)	net needed coaches of EMU/DMU	net needed EMU/DMU sets
2000	1.820.000	250	455.000.000	139	23
2010	3.741.000	250	935.300.000	287	48
2015	4.233.000	250	1.058.200.000	324	54

Azerbaijan-International traffic (regional)					
Year	Passenger volume in (pers)	Transport distance (km)	Transport performance (perskm)	daily net needed coaches	net needed locomotives
2000	29.000	890	25.800.000	6	1
2010	94.333	884	83.400.000	20	3
2015	135.333	885	119.800.000	29	4

Azerbaijan-International traffic (long-distance)					
Year	Passenger volume in (pers)	Transport distance (km)	Transport performance (perskm)	daily net needed coaches	net needed locomotives
2000	58.000	445	25.800.000	44	2
2010	188.667	442	83.400.000	143	5
2015	270.667	443	119.800.000	206	7

Rolling stock development for passenger traffic			
EMU/DMU	total net	reserve	total gross
2000	30	12	42
2010	59	24	83
2015	67	27	94
Coaches	total net	reserve	total gross
2000	50	20	70
2010	164	66	229
2015	235	94	329
Locomotives	total net	reserve	total gross
2000	2	1	3
2010	8	3	11
2015	11	4	15

Annex 1.7-24

Development of transport means for AGZD passenger traffic

Pessimistic scenario

Azerbaijan Domestic short-distance traffic					
Year	Passenger volume in (pers)	Transport distance (km)	Transport performance (perskm)	net needed coaches of EMU/DMU	net needed EMU/DMU sets
2000	1.975.000	42	82.000.000	25	4
2010	2.348.000	57	134.300.000	30	5
2015	2.468.000	62	151.900.000	31	5

Azerbaijan Domestic long-distance traffic					
Year	Passenger volume in (pers)	Transport distance (km)	Transport performance (perskm)	net needed coaches of EMU/DMU	net needed EMU/DMU sets
2000	1.269.000	359	455.000.000	97	16
2010	1.995.000	469	935.300.000	153	25
2015	2.097.000	505	1.058.200.000	161	27

Azerbaijan-International traffic (regional)					
Year	Passenger volume in (pers)	Transport distance (km)	Transport performance (perskm)	daily net needed coaches	net needed locomotives
2000	15.667	1647	25.800.000	3	1
2010	38.000	2195	83.400.000	8	1
2015	48.333	2479	119.800.000	10	1

Azerbaijan-International traffic (long-distance)					
Year	Passenger volume in (pers)	Transport distance (km)	Transport performance (perskm)	daily net needed coaches	net needed locomotives
2000	31.333	823	25.800.000	24	1
2010	76.000	1097	83.400.000	58	2
2015	96.667	1239	119.800.000	73	3

Rolling stock development for passenger traffic			
EMU/DMU sets	total net	reserve	total gross
2000	20	8	29
2010	30	12	43
2015	32	13	45
Coaches	total net	reserve	total gross
2000	27	11	38
2010	66	26	92
2015	84	34	117
Locomotives	total net	reserve	total gross
2000	2	1	3
2010	3	1	6
2015	4	2	6

Annex 1.7-25

Development of transport means for GRZD passenger traffic

Optimistic scenario

Georgian Domestic short-distance traffic					
Year	Passenger volume in (pers)	Transport distance (km)	Transport performance (perskm)	net needed coaches of EMU/DMU	net needed EMU/DMU sets
2000	1.868.000	45	84.000.000	24	4
2010	2.451.000	45	110.300.000	31	5
2015	2.773.000	45	124.800.000	35	6

Georgian Domestic long-distance traffic					
Year	Passenger volume in (pers)	Transport distance (km)	Transport performance (perskm)	net needed coaches of EMU/DMU	net needed EMU/DMU sets
2000	1.683.000	185	311.400.000	129	21
2010	3.084.000	185	570.500.000	236	39
2015	3.936.000	185	728.200.000	301	50

Georgian-International traffic					
Year	Passenger volume in (pers)	Transport distance (km)	Transport performance (perskm)	net needed coaches	net needed locomotives
2000	81.000	209	16.900.000	70	4
2010	166.000	210	34.800.000	144	9
2015	211.000	210	44.400.000	183	11

Rolling stock development for passenger traffic			
EMU/DMU	total net	reserve	total gross
2000	25	10	36
2010	45	18	62
2015	56	22	79
Coaches	total net	reserve	total gross
2000	70	28	98
2010	144	58	202
2015	183	73	256
Locomotives	total net	reserve	total gross
2000	4	1	5
2010	9	2	11
2015	11	1	12

Annex 1.7-25

Development of transport means for GRZD passenger traffic

Pessimistic scenario

Georgian Domestic short-distance traffic					
Year	Passenger volume in (pers)	Transport distance (km)	Transport performance (perskm)	net needed coaches of EMU/DMU	net needed EMU/DMU sets
2000	1.526.000	55	84.000.000	19	3
2010	1.719.000	64	110.300.000	22	4
2015	1.898.000	66	124.800.000	24	4

Georgian Domestic long-distance traffic					
Year	Passenger volume in (pers)	Transport distance (km)	Transport performance (perskm)	net needed coaches of EMU/DMU	net needed EMU/DMU sets
2000	1.348.000	231	311.400.000	52	9
2010	2.441.000	234	570.500.000	93	16
2015	2.762.000	264	728.200.000	106	18

Georgian-International traffic					
Year	Passenger volume in (pers)	Transport distance (km)	Transport performance (perskm)	net needed coaches	net needed locomotives
2000	33.000	512	16.900.000	29	2
2010	101.000	345	34.800.000	88	5
2015	114.000	389	44.400.000	99	6

Rolling stock development for passenger traffic			
EMU	total net	reserve	total gross
2000	12	5	17
2010	19	8	27
2015	22	9	30
Coaches	total net	reserve	total gross
2000	29	11	40
2010	88	35	123
2015	99	40	139
Locomotives	total net	reserve	total gross
2000	2	1	3
2010	5	1	7
2015	6	1	7