


Labor Time Guide

(Chairman, Korando, Musso, Musso sports, Rexton, Stavic)

<p style="text-align: center;">FOREWORD</p> <p>This Labor Time Guide has been prepared for the purpose of implementing the terms of the current Dealer Sales and Service Agreement and is intended solely for the purpose of computing the compensation payable by SsangYong Motor Co.,Ltd. to the authorized SsangYong dealers for the performance of warranty, policy and campaign adjustment and other work authorized and performed for the account of SsangYong Motor Co., Ltd.</p> <p>This use of this guide for any other purpose is neither intended not authorized by SsangYong Motor Co., Ltd. Please read the introduction of this guide thoroughly to acquaint with SsangYong warranty system.</p> <p>All time allowances in this guide are subject to change at any time by SsangYong Motor Co., Ltd. based on time studies by the company related to improved methods, techniques or equipment or other advances in the industry.</p> <p style="text-align: center;"> SsangYong Motor CO., LTD. PYUNGTAEK, KOREA</p>	SECTION INDEX	
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GENERAL INFORMATION

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1. INTRODUCTION

1-1. PAGE LAYOUT

This Labor Time Guide is designed for convenient and accurate use. In order to provide easy location of operations, the layout has been structured in reading sequence with the corresponding illustration.

1-2. TYPES OF OPERATION

Major Operation

The Labor Operation Codes consist of seven digits. All operation numbers having "0" in the seven digit of operation number are classified as "major" operations. A major operation time allowance is sufficient to do the work described as a single operation.

Supplementary Operation (Adds)

All operation numbers having an alphabetical letter in the seventh digit of the operation number are classified as "Supplementary" operations. These operations cannot be used as single operation and must be used as additions to the major operation.

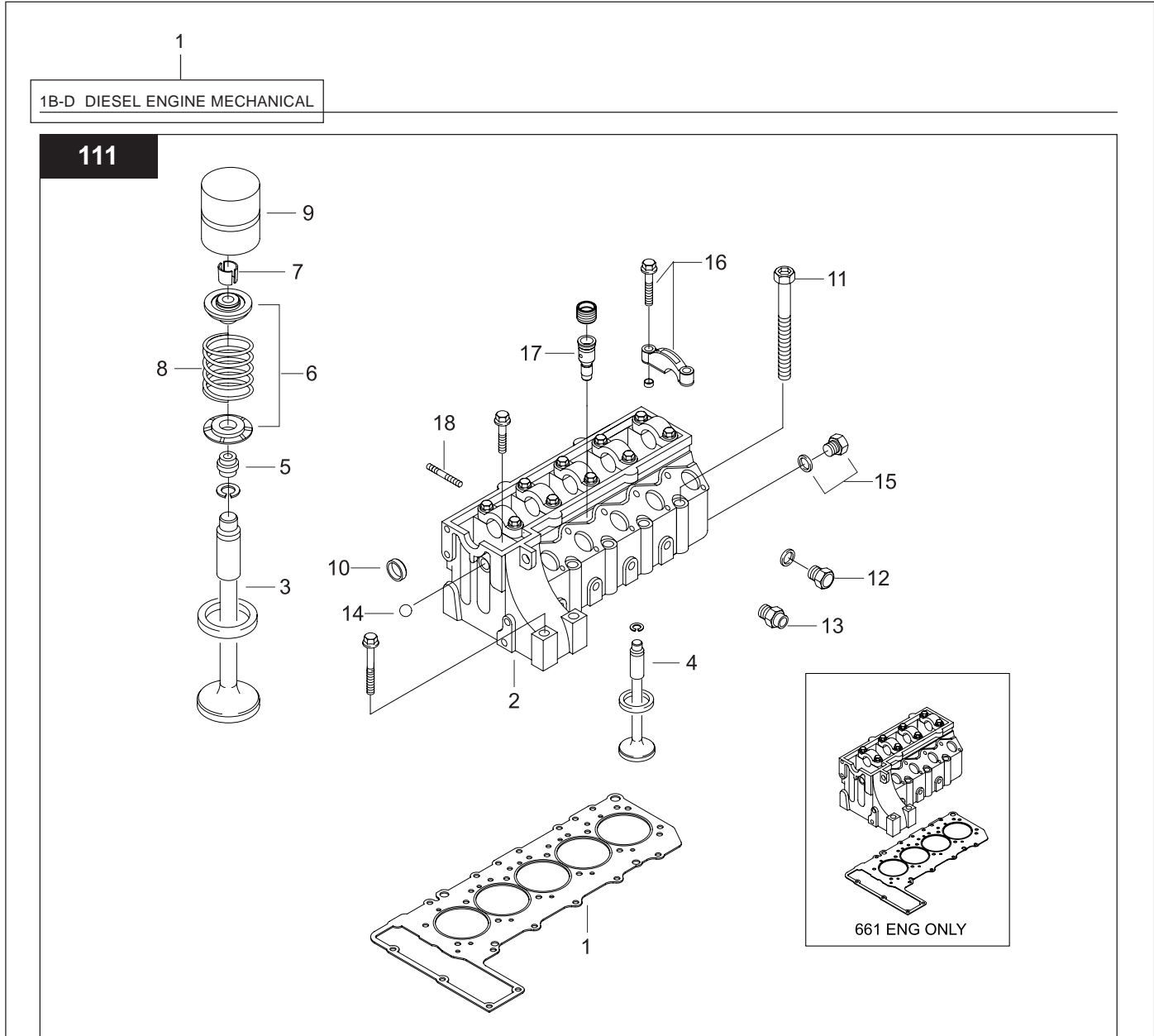
1-3. TIME ALLOWANCES

The time allowances published in this guide have been determined by performing the operation a sufficient number of times to establish an average time or to determine that a fair and equitable time has been developed. Standard technician's hand tools and dealer essential and available tools are used in performing time studies. No power operated tools are used for time studies. Procedures outlined in Service Manuals, other Service Publications and standard shop practices are used as a guide when performing the work necessary to establish time allowances.

The time allowance includes the actual time required to perform the operation plus an additional allowance to provide for operating variables. Time allowances include time to remove and reinstall manufacturer options and accessories but do not include time to remove and reinstall special or aftermarket equipment.

"Repair diagnosis" time is include in all published labor time operations when it is required to perform the operation. It is the responsibility of the dealer's qualified service staff to assist technicians in "customer problem analysis" and "symptom diagnosis".

2. HOW TO READ THIS MANUAL



6

ENGINE UNIT				111						
NO.	Opertion Description	Operation Code	CM		MU/MU-S/KO		RX		ST	
			-	-	661 NA,LA	662 NA,LA	661 NA,LA	662 NA,LA	XDi	XDi
1	GASKET, CYLINDER HEAD - REPLACE	1312300	-	-	5.0	5.0	5.0	5.0	-	-
2	HEAD, CYLINDER - REPLACE	1312500	-	-	5.0	5.0	5.0	5.0	-	-
	HEAD, CYLINDER - OVERHAUL	1312600	-	-	7.6	7.6	7.6	7.6	-	-
3	VALVE (ONE CYLINDER) - REPLACE	1312700	-	-	7.6	7.6	7.6	7.6	-	-
	C - Valves (each additional)	131270C	-	-	0.1	0.1	0.1	0.1	-	-

1) Section

Refer to the main group code in this chapter.

2) Illustration Number

The illustration number corresponds to the reference number on the illustration.

3) Operation Description

3A. Major Operation

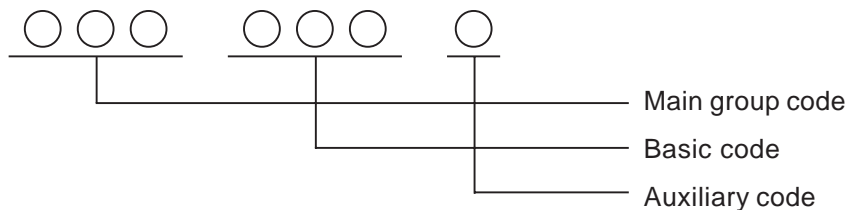
The description corresponding to each operation number names the parts or component concerned, and describes what kind of operation is to be performed.

3B. Supplementary Operation

The description corresponding to each operation number names the parts or component concerned, and describes the additional operation for removing and reinstalling optional equipment such as power steering, air conditioning, etc., when major operation is performed on the vehicle with optional equipment.

4) Operation Code

The operation code consist of seven digits.



Main Group Code

The main group code consists of 3 digits which indicates the area of the vehicle where the repair was performed.

Basic Code

The basic code is a 3-digit serial number to each specific operation.

Auxiliary Code

The Auxiliary Code indicates the type of repairs as shown below :

Auxiliary Code	Description
0	Major operation
A	Supplementary operation
B	
▪	
▪	
R	

Major Operation

The numeric code “0” represents a major operation.

Supplementary Operation (ADD)

The numerical code “A”~“R” represents supplementary work of where time is required additionally for the incidental repair work of the parts or components related to the originally intended repair.

5) Operation Times

The operation times in this manual are provided in hours and tenths of hours (e.g. 1.1 hours for 1hour and 6 minutes). Enter the operation time on the warranty claim in the same manner.

6) Model Code

This code represents the vehicle model.

Vehicle model

CM : Chairman
MU : Musso
MU-S : Musso Sports
KO : Korando
RX : Rexton
ST : STAVIC

7) Engine Type

This designation represents engine types.

2.0 : M161 Gasoline Engine (G20D)
2.3 : M161 Gasoline Engine (G23D)
2.8 : M162 Gasoline Engine (G28D)
3.2 : M162 Gasoline Engine (G32D)
661 NA/LA : OM 661 Diesel Engine
662 NA/LA : OM 662 Diesel Engine
XDi : D27DT(Direct Injection Diesel Engine)

3. HOW TO USE THIS MANUAL

The operation time in this manual are provided in hours and tenths of hours (e.g. 1.1 hours for 1 hour and 6 minutes). Enter the operation time on the warranty claim in this manner.

Example : (When supplementary work is performed in addition to the intended repair)

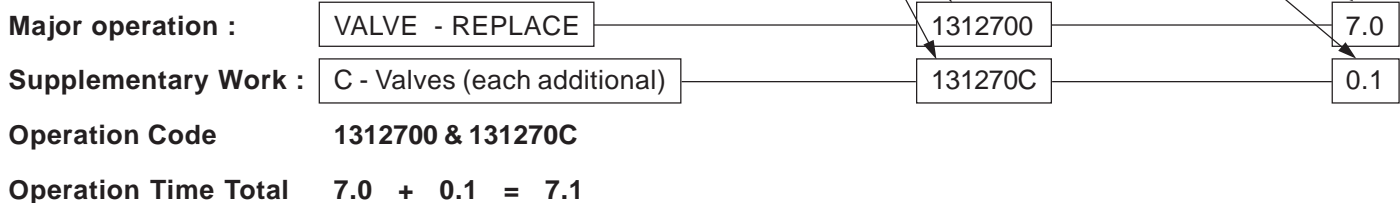
Model : CM
Major operation : Valve replacement
Supplementary Work : Valves (Each Additional)

Step 1 : First find ENGINE MECHANICAL – CYLINDER HEAD in MAIN GROUP INDEX and then the page (Engine 1C-15) for valve from among them.

Step 2 : On page Engine 1C-15, note the operation code for Valve. (Replacement)

1312700	VALVE - REPLACE	7.0
131270C	VALVES (EACH ADDITIONAL)	0.1
Operation Time Total		7.1

NO.	Opertion Description	Operation Code	CM		MU/MU-S/KO		RX		ST	
			2.0/2.3	2.8/3.2	2.0/2.3	2.8/3.2	2.0/2.3	2.8/3.2	2.3	3.2
1	GASKET, CYLINDER HEAD - REPLACE	1312300	6.3	6.3	5.6	6.0	5.6	6.0	-	-
2	HEAD, CYLINDER - REPLACE	1312500	6.3	6.3	6.3	6.3	6.3	6.3	-	-
	HEAD, CYLINDER - OVERHAUL	1312600	8.4	8.6	8.4	8.6	8.4	8.6	-	-
3	VALVE (ONE CYLINDER) - REPLACE C - Valves (each additional)	1312700	6.8	7.0	8.4	8.6	8.4	8.6	-	-
		131270C	0.1	0.1	0.1	0.1	0.1	0.1	-	-



4. PAINT REPAIR

4-1. INSTRUCTION

The time allowances herein for painting operations are established on the basis of techniques and material required for quality work both in appearance and durability.

The basis for determining the paint time allowances is a "Paintable Surface".

1. After dents have been removed from sheet metal parts and the parts welded they are stored to their neutral shape.
2. Welding and soldering joints, overlapping seams formed by partial replacement and surfaces smoothed with fillers are ground down using P80-120 grain sandpaper.
3. And when the painter does not need to apply more than 3 coats of knife-edge putty to the surfaces to be painted.

4-2. LABOR TIME

The time allowances for paint work consider all cases such as material preparation time, actual working process, and material allowances, which are necessary for a proper and professional paint job. It shall be noted material allowances are converted to hours and included in the operation time, also.

According to the character of paint process and size of area to be painted, the kinds and quantity of the material will be varied in the course of paint.

The material allowances consist of mixed paint and additional material such as masking tape, sanding paper, cleaning solvent and etc. needed for the operation of each step.

INCLUDES ; moving the vehicle / mixing all materials / color blending / equipment cleaning / color spray sample / repainting time on clear coat / masking / sanding / cleaning / spraying / removing of the masking and polishing.

EXCLUDES ; removal and reinstallation of body attaching parts.

4-3. REPAIR TYPE

Type	Description
COLOR COAT	PAINT EXPOSED SURFACES Top-coat entire surface, including small dents that have been straightened(without filling in). Its operation should be used when correcting painting conditions such as thin paint, color mismatch or surface scratches not extending beyond the prime coat.
REFINISH	PAINT NEW PART This operation involves sanding out a defect to expose a local area of bare metal, prime locally and then apply color coat. This applies to those paint repairs that require a repair to the prime coat before the color coat is applied.
POLISHING	POLISH THE SURFACES

4-4. HOW TO USE OPERATION CODE ON PARTIAL PAINTING

Use the operation code of the relevant part and enter "P" on PF column in Ssangyong Claim Report.

For example, in case of partial painting on hood in CHAIRMAN model, make out Ssangyong Claim Report as follows;

<u>PF</u>	<u>OPERATION CODE</u>	<u>HOUR</u>
P	9836080	3.1

5. DEFECT CODE

5-1. NATURE CODE

N01	Hard start, no start	N43	Excessive shock
N02	Poor idle	N44	Poor release
N03	Surge, hesitate, stumble	N45	Unusual tire wear
N04	Engine noise, engine knocking noise	N46	Misaligned or mismatched
N05	Choke malfunction	N47	Weak
N06	Engine stalled (general)	N48	Hard to turn
N07	Excessive fuel consumption	N49	Impossible to turn
N08	Excessive oil consumption	N50	Vehicle bouncing
N09	Overheated	N51	Deteriorated
N10	Shift shock	N52	Distorsion, rainbow, waving
N11	Engine run-on	N53	Color mismatched
N12	Flooded, overflowing	N54	Defective chrom plate, defective painting
N13	Poor acceleration, uneven acceleration	N55	Rust, corrosion, perforation
N14	Abnormal combustion	N56	Glazed
N15	Lack of engine power	N57	Loose, poor fit
N16	Percolation	N58	Bubbles
N17	Improper exhaust gas (black smoke, white smoke)	N59	Vehicle vibration
N18	Backfire, afterfire	N60	Excessive vibration
N19	Vapor lock	N61	Dead battery
N20	Blocked	N62	Inaccurate (meter, gauge, etc.)
N21	Shuddering, pulsation, vibration, chattering	N63	Poor sound (horn, radio, etc.)
N22	Slippage (slipping)	N64	Overcharged, discharged
N23	Difficult engagement	N65	Electrical failures
N24	Difficult disengagement	N66	Blown fuse
N25	Abnormal shifts	N67	Warning light on
N26	Impossible shifts	N68	Intermittent operation
N27	Squeaking, squealing, abnormal(wind)noise	N69	Pulls to left or right
N28	Dragging	N70	Poor AM reception / interference
N29	Pulls	N71	Oil leak, oil entering
N30	Stalled while driving	N72	Water leak, water entering
N31	Stalled while idling	N73	Leaks-other (air, fuel, refrigerant, vacuum)
N32	Stalled between shifts	N74	Poor FM reception / interference
N33	Stalling during sudden braking	N75	Radio / CD does not operate properly
N34	Fails to reach normal operating temperature	N76	Tape deck does not operate properly
N35	RPM too low	N77	Improper memory
N36	RPM too high	N78	Improper volume control
N37	Jumping-out	N80	Head lamp improperly aimed
N38	Improper synchronizing	N82	Loosening, failing-off, sagged
N39	Oil diluted	N83	Gas leak, gas entering
N40	Misfire	N84	Improper opening and/or closing
N41	Sponge pedal	N85	Grabbed
N42	Unstable steering	N86	Poor maneuverability

A GENERAL INFORMATION

N87	Insufficient brake	N94	Special policy
N88	Brake judder	N95	Glass cracked
N90	Color rainbow, color waving	N96	Glass broken
N91	Interference or hitting	N97	Glass chipped
N92	Inoperative	N98	Glass scratched
N93	High/low operating effort	N99	Undefined

5-2. CAUSE CODE

R01	Scored, scratched or chipped	R19	Improperly machined
R02	Frozen (temperature)	R20	Faulty casting
R03	Peeling, coming-off	R21	Improper clearance, back lash, free play
R04	Rusty, corroded	R22	Lack of lubricants
R05	Split, cut or torn	R23	Improper welding or soldering, welding or soldering omitted
R06	Broken or cracked	R24	Improper tightening, fit or assembly
R07	Porous, pin holes, cavity	R25	Sticks, binds, seized
R08	Bent, kinky, twisted, distorted, wrapped or wrinkled	R26	Foreign material, clogged
R09	Stripped - bolts, holes, nuts	R27	Improper sealing, sealer omitted or skipped
R10	Soiled	R28	Improper adjustment
R11	Weakened, loss of tension or resilience (spring, cushion, etc.)	R31	Incorrect part
R12	Abnormal wear	R32	Improperly installed
R13	Out of balance	R33	Improperly routed
R14	Out of round	R34	Missing part
R15	Loose or improper connection	R35	Flaw in material
R16	Open circuit or short circuit	R36	Contaminants
R17	Burnt or burned - out	R99	Undefined
R18	Grounded or shorted		

5-3. PAINT CODE

P01	Oversprayed, drip	P19	Atmospheric fallout
P02	Undersprayed, bare	P20	Polishing mark, sanding mark
P03	Color mismatched	P21	Touch up
P04	Low Gloss	P22	Dust, dirt
P05	Mottled, cloudy	P23	Poor welding
P06	Sags or runs	P24	Rust
P07	Pin hole	P25	Blistered
P11	Peeling, scaling	P26	Chipped
P12	Orange peel	P27	Cracked
P13	Slow drying	P30	Surface scratch
P14	Thin no paint	P31	Scab corrosion
P15	Wavy	P32	Dent
P16	Tape mark, touch mark	P33	Rust perforation
P17	Chemical damage	P34	Discolored, faded
P18	Acid rain	P99	Undefined

6. ABBREVIATION

A/C	Air conditioning	MAP	Manifold absolute pressure
ABD	Antilock brake differential	MAT	Manifold air temperature
ADJ	Adjust	M/T	Manual transaxle
ASSY	Assembly	OH	Overhaul
A/T	Auto transaxle	PLA	Plating
CC	Color coat print	POL	Polishing
CHK	Check	RAD	Radiator
CLN	Clean	REF	Refinish paint
DOHC	Double overhead camshaft	REKES	Remote keyless entry system
ECS	Electrical control system	RI	Reinstall
EGR	Exhaust gas recirculation	RP	Replacement
IAC	Idle air control	TPS	Throttle position sensor
I/P	Instrument panel	T/C	Transfer case
L.C.R.V	Load conscious reducing valve	T.O.D	Torque on demand

7. MAIN GROUP CODE

The first 3 digits of 7 digit code classify the units to be serviced into main groups.

SECTION	SUB - SECTION		MAIN GROUP CODE		PAGE
1. ENGINE	1B-D	Diesel Engine Mech.	111	Engine unit	(21p)
			113	Belt system	
			121	Engine block	
			122	Crankshaft & piston	
			123	Oil pan & pump	
			131	Cylinder head	
			132	Cam support & shaft	
			133	Timing cover & chain drive	
			136	Injection pipe	
			138	Engine & transaxle mount	
	139	Vacuum system			
	1D-D	Engine Cooling	141	Radiator	(47p)
			143	Cooling fan	
			144	Oil cooler	
			145	Radiator hose & pipe	
			148	Thermostat & water pump	
	1E-D	Engine Electrical	154	Alternator unit	(59p)
			156	Starter	
			157	Battery	
			158	Fuse & relay	
	1F-D	Engine Controls	170	Fuel filter line	(69p)
171			Fuel tank		
172			Fuel line		
174			Injection pump		
182			Accelerator control		
1G-D	Engine Intake & Exhaust	190	Common rail system	(83p)	
		191	Air intake system		
		193	Intake manifold		
		194	Exhaust manifold		
		196	Exhaust pipe line		
		197	Turbo charger assembly		
		198	Sensors		
1G-G	Gasoline Engine Mech.	111	Engine unit	(105p)	
		113	Belt system		
		121	Engine block		
		122	Crankshaft & piston		
		123	Oil pan & pump		
		131	Cylinder head		
		132	Cam support & shaft		
		133	Timing cover & chain drive		
		138	Engine & transaxle mount		
		139	Vacuum system		

SECTION	SUB - SECTION		MAIN GROUP CODE		PAGE
1. ENGINE	1D-G	Engine Cooling	141	Radiator	(127p)
			143	Cooling fan	
			144	Oil cooler	
			145	Radiator hose & pipe	
			148	Thermostat & water pump	
	1E-G	Engine Electrical	151	Ignition cable	(139p)
			154	Alternator unit	
			156	Starter	
			157	Battery	
			158	Fuse & relay	
	1F-G	Engine Controls	171	Fuel tank	(151p)
			172	Fuel line & oil line	
			173	Canister & fuel vacuum	
181			Fuel injection		
182			Accelerator control		
186			Emission control		
1G-G	Engine Intake & Exhaust	191	Air intake system	(167p)	
		193	Intake manifold		
		194	Exhaust manifold		
		196	Exhaust pipe line		
2. SUSPENSION	2C	Front Suspension	213	Knuckle & hub	(179p)
			214	Front shock absorber	
			215	Control arm	
			216	Torsion bar	
			217	ECS	
			218	Sub frame	
			219	EAS	
	2D	Rear Suspension	231	Rear axle & stabilizer	(197p)
			232	Rear shock absorber	
233			Steering damper		
2E	Tires & Wheel	241	Wheels	(209p)	
		242	TPMS		
3. DRIVE LINE & AXLE	3A	Drive Line & Axle	321	Axle shaft parts	(215p)
			323	Propeller shaft	
4. BRAKES	4A	Hydraulic Brake	425	Brake pipe	(223p)
			428	Brake pedal & mount	
	4B	Master Cylinder & Booster	431	Master cylinder & booster	(229p)
	4D	Front Brake	445	Front brake	(233p)
	4E	Rear Brake	456	Rear brake	(237p)
	4F	Anti-Lock Brake System	462	ABS system	(243p)
4G	Parking Brake	478	Parking brake	(247p)	
		479	EPB		

A GENERAL INFORMATION

SECTION	SUB - SECTION		MAIN GROUP CODE		PAGE
5. TRANSMISSION & TRANSFER CASE	5A	Auto Transmission Controls	519	Auto Transmission Controls	(255p)
	5B	BTR M74 Auto Transmission	541	BTR M74 I	(259p)
			542	BTR M74 II	
			543	BTR M74 III	
			544	BTR M74 IV	
	5C	W4A040 Auto Transmission	546	W4A040 A/T I	(269p)
			547	W4A040 A/T II	
			548	W4A040 A/T III	
549			W4A040 A/T IV		
5D	W5A330 Auto Transmission	551	W5A330 A/T I	(281p)	
		556	W5A330 A/T II		
		557	W5A330 A/T III		
		558	W5A330 A/T IV		
		559	W5A330 A/T V		
5E	Five-Speed Manual Transmission	561	Manual Transmission	(293p)	
		563	Transmission gear		
		566	Gear shift cover & fork		
		569	Shift control		
5F	Clutch	581	Clutch parts	(303p)	
		582	Hydraulic clutch		
		583	Clutch pedal		
5G	Transfer Case	592	Transfer case (part time)	(311p)	
		593	T.O.D		
		595	Transfer case (full time)		
6. STEERING	6A	Power Steering System	621	Power steering gear	(321p)
			623	Power steering pipe line	
6E	Steering Wheel & Column	641	Steering wheel	(327p)	
		643	Steering column		
		647	Tie rod		
7. H.V.A.C (Heating, Ventilation & Air Conditioning)	7A	H.V.A.C (Air Distribution)	711	Air distribution	(337p)
			713	Evaporator	
			714	Blower	
	7B	H.V.A.C (Control)	732	Compressor	(345p)
			733	Compressor mount	
			734	A/C hose & pipe line	
			735	A/C control switch & sensor	
8. RESTRAINTS	8A	Seat Belts	812	Front seat belt	(357p)
			822	Rear seat belt	
	8B	S.R.S (Supplemental Inflatable Restraints)	832	Air bag system	(363p)
			833	Immobilizer	
9. BODY & ACCESSORIES	9A	Body Wiring System	911	Wiring harness	(371p)
	9B	Lighting System	916	Front lamp	(377p)
			918	Rear lamp	

SECTION	SUB - SECTION		MAIN GROUP CODE		PAGE
9. BODY & ACCESSORIES	9D	Wiper & Washer System	921	Washer system	(383p)
			923	Wiper system	
	9E	Inst. Driver System	925	Instrument cluster	(389p)
	9F	Audio & Anti-theft System	928	Electrical parts	(393p)
			929	Stics & auto cruise	
	9G	Interior Trim	931	Instrument panel	(407p)
			932	Switch	
			933	Instrument parts	
			934	Console	
			935	Front door trim	
			936	Rear door trim	
			938	Pillar trim	
	9H	Seats	941	Front seat	(431p)
			942	Rear seat	
	9L	Glass & Mirrors	946	Glass & outside mirrors	(437p)
	9M	Exterior Parts	951	Emblem & lettering	(443p)
			952	Mud guard	
9O	Bumpers & Fascias	956	Front bumper	(451p)	
		957	Rear bumper		
9P	Doors	961A	Front door & lock	(457p)	
		961B	Front window lifter		
		961C	Front weatherstrip		
		963A	Rear door & lock		
		963B	Rear window lifter		
		963C	Rear weatherstrip		
		965	Electric door lock		
		966	Fuel filler lock		
		967	Trunk lid lock & tailgate lock		
9Q	Roof	971	Headlining & roof panel	(479p)	
		972A	Sunshade & inside mirror		
		972B	Sun roof		
9R	Body Front End	973	Hood panel	(489p)	
		974	Front panel		
		975	Fender panel		
		976	Dash panel & cowl		
		977	Grille		
9S	Body Rear End	978	Trunk lid panel & spoiler	(503p)	
		979	Side trim		
10. PAINT	10A	PAINT	-	CHAIRMAN LIMOUSINE, CHAIRMAN MUSSO & MUSSO SPORTS KORANDO REXTON STAVIC	(515p)
11. OTHERS	11	Others		Others	(526p)

DIESEL ENGINE

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132. CAM SUPPORT & SHAFT	36
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138. ENGINE & TRANSAXLE MOUNT	42
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