

0 - GENERAL INFORMATION

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.

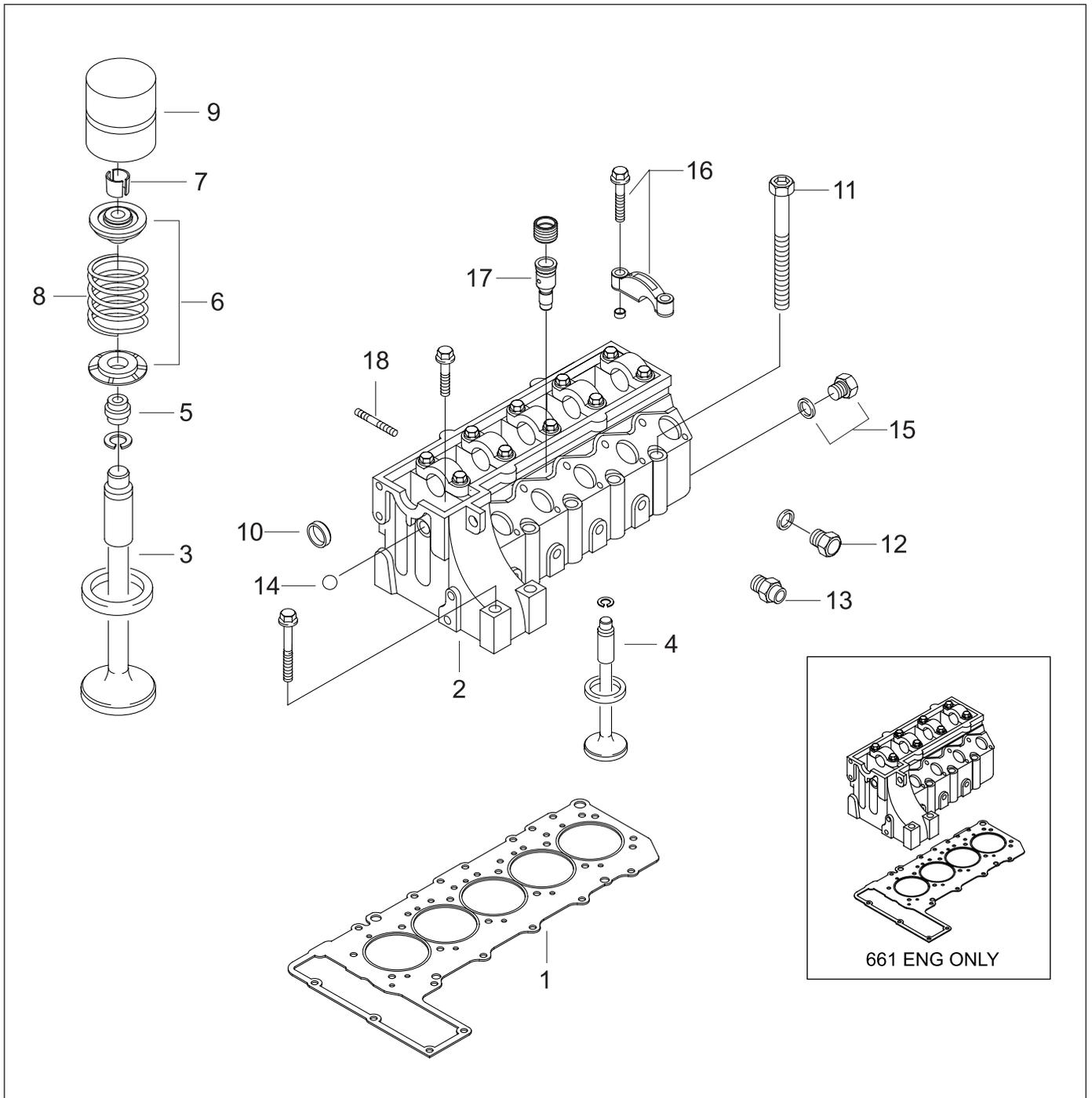
1-3. TIME ALLOWANCES

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



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.

		7	6	1	ENGINE 1C - 15			
		ENGINE MECH. - CYLINDER HEAD (131)						
NO.	OPERATION DESCRIPTION	OPERATION CODE	CM		MU/KO/RX			
			2.0/ 2.3	2.8/ 3.2	2.0/ 2.3	2.8/ 3.2		
1	GASKET, CYLINDER HEAD - REPLACE	1312300	6.3	6.3	5.6	6.0		
2	HEAD, CYLINDER - REPLACE	1312500	6.3	6.3	8.4	8.6		
3	HEAD, CYLINDER - OVERHAUL	1312600	8.4	8.6	8.4	8.6		
4	VALVE - REPLACE	1312700	6.8	7.0	8.4	8.6		
	C - Valves (each additional)	131270C	0.1	0.1	0.1	0.1		

2	3B	3A	4	5
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③ Operation Description

3A. Major Operation

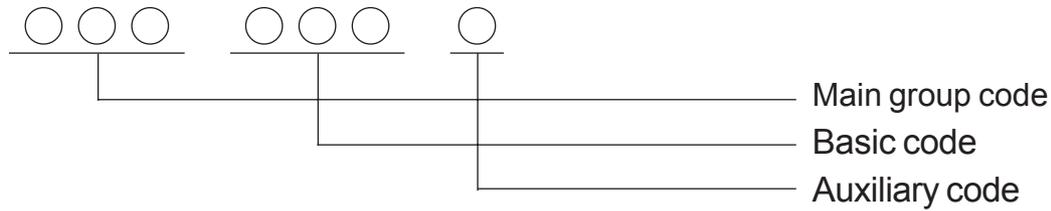
The description corresponding to each operation number names the parts or component concerned, and describes what kind of operation is to be performed.

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.



1) Main Group Code

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

2) Basic Code

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

3) Auxiliary Code

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

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

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 1 hour 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

KO : Korando

RX : Rexton

⑦ Engine Type

This designation represents engine types.

2.0 : M161 Gasoline Engine (E20)

2.3 : M161 Gasoline Engine (E23)

2.8 : M162 Gasoline Engine (E28)

3.2 : M162 Gasoline Engine (E32)

661 NA/LA : OM 661 Diesel Engine

662 NA/LA : OM 662 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
<hr/>		
	Operation Time Total	7.1

ENGINE 1C - 15

ENGINE MECH. - CYLINDER HEAD (131)

NO.	OPERATION DESCRIPTION	OPERATION CODE	CM		MU/KO/RX	
			2.0/ 2.3	2.8/ 3.2	2.0/ 2.3	2.8/ 3.2
1	GASKET, CYLINDER HEAD - REPLACE	1312300	6.3	6.3	5.6	6.0
2	HEAD, CYLINDER - REPLACE	1312500	6.3	6.3	8.4	8.6
3	HEAD, CYLINDER - OVERHAUL	1312600	8.4	8.6	8.4	8.6
4	VALVE - REPLACE C - Valves (each additional)	1312700	6.8	7.0	8.4	8.6
		131270C	0.1	0.1	0.1	0.1

Major operation : VALVE - REPLACE → 1312700 → 7.0

Supplementary Work : C - Valves (each additional) → 131270C → 0.1

Operation Code 1312700 & 131270C

Operation Time Total 7.0 + 0.1 = 7.1

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".

- 1-1. After dents have been removed from sheet metal parts and the parts welded they are stored to their neutral shape.
- 1-2. Welding and soldering joints, overlapping seams formed by partial replacement and surfaces smoothed with fillers are ground down using P80-120 grain sandpaper.
- 1-3. 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	<p>PAINT EXPOSED SURFACES</p> <p>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.</p>
REFINISH	<p>PAINT NEW PART</p> <p>This operation involves sanding out a defect to expose a local area of bare metal, prime locally and then apply color coat.</p> <p>This applies to those paint repairs that require a repair to the prime coat before the color coat is applied.</p>
POLISHING	<p>POLISH THE SURFACES</p>

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;

PF	OPERATION CODE	HOUR
P	9836080	3.1

5. DEFECT CODE

5-1. NATURE CODE

N01	Hard start, no start	N33	Stalling during sudden braking
N02	Poor idle	N34	Fails to reach normal operating temperature
N03	Surge, hesitate, stumble	N35	RPM too low
N04	Engine noise, engine knocking noise	N36	RPM too high
N05	Choke malfunction	N37	Jumping-out
N06	Engine stalled (general)	N38	Improper synchronizing
N07	Excessive fuel consumption	N39	Oil diluted
N08	Excessive oil consumption	N40	Misfire
N09	Overheated	N41	Sponge pedal
N10	Shift shock	N42	Unstable steering
N11	Engine run-on	N43	Excessive shock
N12	Flooded, overflowing	N44	Poor release
N13	Poor acceleration, uneven acceleration	N45	Unusual tire wear
N14	Abnormal combustion	N46	Misaligned or mismatched
N15	Lack of engine power	N47	Weak
N16	Percolation	N48	Hard to turn
N17	Improper exhaust gas (black smoke, white smoke)	N49	Impossible to turn
N18	Backfire, afterfire	N50	Vehicle bouncing
N19	Vapor lock	N51	Deteriorated
N20	Blocked	N52	Distorsion, rainbow, waving
N21	Shuddering, pulsation, vibration, chattering	N53	Color mismatched
N22	Slippage (slipping)	N54	Defective chrom plate, defective painting
N23	Difficult engagement	N55	Rust, corrosion, perforation
N24	Difficult disengagement	N56	Glazed
N25	Abnormal shifts	N57	Loose, poor fit
N26	Impossible shifts	N58	Bubbles
N27	Squeaking, squealing, abnormal(wind)noise	N59	Vehicle vibration
N28	Dragging	N60	Excessive vibration
N29	Pulls	N61	Dead battery
N30	Stalled while driving	N62	Inaccurate (meter, gauge, etc.)
N31	Stalled while idling	N63	Poor sound (horn, radio, etc.)
N32	Stalled between shifts	N64	Overcharged, discharged

5-1. NATURE CODE

N65	Electrical failures	N83	Gas leak, gas entering
N66	Blown fuse	N84	Improper opening and/or closing
N67	Warning light on	N85	Grabbed
N68	Intermittent operation	N86	Poor maneuverability
N69	Pulls to left or right	N87	Insufficient brake
N70	Poor AM reception / interference	N88	Brake judder
N71	Oil leak, oil entering	N90	Color rainbow, color waving
N72	Water leak, water entering	N91	Interference or hitting
N73	Leaks-other (air, fuel, refrigerant, vacuum)	N92	Inoperative
N74	Poor FM reception / interference	N93	High/low operating effort
N75	Radio / CD does not operate properly	N94	Special policy
N76	Tape deck does not operate properly	N95	Glass cracked
N77	Improper memory	N96	Glass broken
N78	Improper volume control	N97	Glass chipped
N80	Head lamp improperly aimed	N98	Glass scratched
N82	Loosening, failing-off, sagged	N99	Undefined

5-2. CAUSE CODE

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

5-2. CAUSE CODE

R33	Improperly routed	R36	Contaminants
R34	Missing part	R99	Undefined
R35	Flaw in material		

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 Diesel Engine Mech.	111 Diesel engine unit	1B-1
		113 Belt system	
		121 Engine block	
		122 Crankshaft & piston	
		123 Oil pan & pump	
		131 Cylinder head	
		132 Cam support & shaft	
		133 Timing cover & chaindrive	
		136 Injection pipe	
		138 Engine & transaxle mount	
		139 Vacuum system	
	1C Gasoline Engine Mech.	111 Gasoline engine unit	1C-1
		113 Belt system	
		121 Engine block	
		122 Crankshaft & piston	
		123 Oil pan & pump	
		131 Cylinder head	
		132 Cam support & shaft	
		133 Timing cover & chaindrive	
		138 Engine & transaxle mount	
	1D Engine Cooling	141 Radiator	1D-1
		143 Cooling fan	
		144 Oil cooler	
		145 Radiator hose & pipe	
		148 Thermostat & water pump	
	1E Engine Electrical	151 Ignition cable	1E-1
		154 Alternator	
		156 Starter	
		157 Battery	
		158 Fuse & relay	

SECTION	SUB - SECTION		MAIN GROUP CODE		PAGE
1. ENGINE	1F	Engine Controls	171	Fuel tank	1F-1
			172	Fuel line	
			173	Canister & fuel vacuum	
			174	Injection pump	
			181	Fuel injection	
			182	Accelerator control	
			186	Emission control	
	1G	Engine Intake & Exhaust	191	Air intake system	1G-1
			193	Intake manifold	
			194	Exhaust manifold	
196			Exhaust pipe line		
197			Turbo charger assembly		
2. SUSPENSION	2C	Front Suspension	213	Knuckle & hub	2C-1
			214	Front shock absorber	
			215	Control arm	
			216	Torsion bar	
			217	ECS	
	2D	Rear Suspension	231	Rear axle & stabilizer	2D-1
			232	Rear shock absorber	
			233	Steering damper	
			234	Sub frame	
	2E	Tires & Wheel	241	Wheels	2E-1
3. DRIVE LINE/ AXLE	3	Drive Line Axle	321	Axle shaft parts	3-1
			323	Propeller shaft	
4. BRAKES	4A	Hydraulic Brake	425	Brake pipe	4A-1
			428	Brake pedal & mount	
	4B	Master Cylinder & Booster	431	Master cylinder & booster	4B-1
	4D	Front Brakes	445	Front brake	4D-1
	4E	Rear Brakes	456	Rear brake	4E-1
	4F	Anti-Lock Brake System	462	Anti-Lock brake system	4F-1
4G	Parking Brake	478	Parking brake	4G-1	
5. TRANSMISSION / TRANSAXLE	5A	Transmission/Transaxle	519	Automatic transaxle controls	5A-1
	5B	BTR M74 Auto Transaxle	541	BTR M74 A/T I	5B-1
			542	BTR M74 A/T II	
			543	BTR M74 A/T III	
			544	BTR M74 A/T IV	

SECTION	SUB - SECTION		MAIN GROUP CODE		PAGE
5. TRANSMISSION / TRANSAXLE	5C	W4A040 Auto Transaxle	546	W4A040 A/T I	5C-1
			547	W4A040 A/T II	
			548	W4A040 A/T III	
			549	W4A040 A/T IV	
	5D	W5A330 Auto Transaxle	551	W5A330 A/T I	5D-1
			556	W5A330 A/T II	
			557	W5A330 A/T III	
			558	W5A330 A/T IV	
			559	W5A330 A/T V	
	5E	Five-Speed Manual Transaxle	561	Manual transaxle	5E-1
			563	Transaxle gear	
			566	Gear shift cover & fork	
			569	Shift control	
	5F	Clutch	581	Clutch parts	5F-1
			582	Hydraulic clutch	
			583	Clutch pedal	
5G	Transfer Case	592	Transfer case (part time)	5G-1	
		593	T.O.D		
		595	Transfer case (full time)		
6. STEERING	6A	Power Steering System	621	Power steering gear	6A-1
			623	Power steering pipe line	
	6E	Steering Wheel & Column	641	Steering wheel	6E-1
			643	Steering column	
			647	Tie rod	
7. HVAC (Heating, Ventilation & Air Conditioning)	7A	Heating & Ventilation	711	Air distribution	7A-1
			713	Evaporator	
			714	Blower	
	7B	HVAC Control	732	Compressor	7B-1
			733	Compressor mount	
			734	A/C hose & pipe line	
			735	A/C control switch & sensor	
8. RESTRAINTS	8A	Seat Belts	812	Front seat belt	8A-1
			822	Rear seat belt	
	8B	S.R.S (Supplemental Inflatable Restraints)	832	Air bag system	8B-1
			833	Immobilizer	

SECTION	SUB - SECTION		MAIN GROUP CODE		PAGE
9. BODY & ACCESSORIES	9A	Body Wiring System	911	Wiring harness	9A-1
	9B	Lighting System	916	Front lamp	9B-1
			918	Rear lamp	
	9D	Wiper/Washer System	921	Windshield wiper	9D-1
			923	Windshield washer	
	9E	Inst. Driver System	925	Instrument cluster	9E-1
	9F	Audio & Anti-theft System	928	Electrical parts	9F-1
			929	Antenna	
	9G	Interior Trim	931	Instrument panel	9G-1
			932	Switch	
			933	Instrument parts	
			934	Console	
			935	Front door trim	
			936	Rear door trim	
			938 939	Pillar trim Floor carpet	
	9H	Seats	941	Front seat	9H-1
942			Rear seat		
9L	Glass & Fascias	946	Glass & outside mirrors	9L-1	
9M	Exterior Parts	951	Emblem & lettering	9M-1	
		952	Mud guard		
9O	Bumpers & Fascias	956	Front bumper	9O-1	
		957	Rear bumper		
9P	Doors	961A	Front door & lock	9P-1	
		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		
		967 968	Trunk lid lock & tailgate lock Car lock		

SECTION	SUB - SECTION		MAIN GROUP CODE		PAGE
9. BODY & ACCESSORIES	9Q	Roof	971	Headlining & roof panel	9R-1
			972A	Sunshade & inside mirror	
			972B	Sun roof	
	9R	Body Front End	973	Hood panel	9S-1
			974	Front panel	
			975	Fender panel	
976			Dash panel & cowl		
977			Grille		
9S	Body Rear End	978	Trunk lid panel & spoiler		
		979	Side trim		