



20-2299-1

SD-90MAC

Diesel Engine



GL011602

REV.021302



SD-90MAC Diesel Engine

Shell Parts

Name and Number	Part #	\$Price Per Unit	Name and Number	Part #	\$Price Per Unit
1.) Lens (clear)(windshield)(2 parts)	FA-2100019	1.00	29.) Gasket (black)	IB-0000015	1.00
2.) Lens (clear)	FA-2100020	1.00	(foam)(14.5x26.5mm)(for smoke unit)		
3.) Lens (clear)	FA-2100021	1.00	30.) Screw	IA-0000072	0.15
(both sides of cab)(front)(9.0x17.0x0.3mm)			(M3x8.0mm)(roundhead)(self-drilling threads)		
4.) Lens (clear)	FA-2100023	1.00	31.) Air horns (black)(3 chime)	FC-2100253	5.00
(right door on cab)(rear)(5.5x13.0x0.3mm)			(CP)(# 9111)(# 9126)(# 9159)		
5.) Lens (clear)	FA-2100024	1.00	32.) Lift ring (red)	FC-2100949	0.50
(left door on cab)(rear)(9.2x15.6x0.3mm)			(CP)(# 9111)(# 9126)(# 9159)(sides of shell)		
6.) Lens (clear)	FA-2100022	1.00	33.) Lift ring (black)	FC-2100189	0.50
(both sides of cab)(rear)(12.5x17.0x0.3mm)			(CP)(# 9111)(# 9126)(# 9159)(top of shell)		
7.) Fan shroud & grill (silver)	FC-2100951	4.00	34.) Steps (red, black)	FC-2100970	5.00
(CP)(# 9111)(# 9126)(# 9159)(rear)			(plastic)(right)(2 steps)		
8.) Fan shroud & grill (silver)	FC-2100950	4.00	(CP)(# 9111)(# 9126)(# 9159)		
(CP)(# 9111)(# 9126)(# 9159)(front three)			35.) Steps (red, black)	FC-2100971	10.00
9.) Fan (light gray)	FC-2100231	2.00	(plastic)(left)(3 steps w/ walkway)		
(large)(10 blades)(20.2mm diameter)			(CP)(# 9111)(# 9126)(# 9159)		
10.) Pin (black)(for fan)	FC-2100691	1.00	36.) Vent frame (red)	FC-2100967	4.00
(2.0x4.3mm)(1.4x1.2mm shank)(0.8x3.4mm flathead)			(plastic)(16.0x45.0mm)		
11.) Handrail (black)	FC-2100898	1.00	(CP)(# 9111)(# 9126)(# 9159)		
(5.6mm long)(CP)(# 9111)(# 9126)(# 9159)			37.) Screen (red)	FC-2100968	4.00
12.) Handrail (black)	FC-2101073	2.00	(metal)(12.8x41.8mm)(for vent frame)		
(7.0mm long)(mounts on top rear of shell)			(CP)(# 9111)(# 9126)(# 9159)		
(CP)(# 9111)(# 9126)(# 9159)			38.) Vent frame (red)	FC-2100967	4.00
13.) Handrail (red)(7.0mm long)	FC-2101074	2.00	(plastic)(16.0x45.0mm)		
(mounts on rear of shell)(CP)(# 9111)(# 9126)(# 9159)			(CP)(# 9111)(# 9126)(# 9159)		
14.) Handrail (red, white)	FC-2100964	8.00	39.) Screen (red)	FC-2100968	4.00
(front & rear)(CP)(# 9111)(# 9126)(# 9159)			(metal)(12.8x41.8mm)(for vent frame)		
15.) Lens (clear)(3.0x1.7mm)	FA-2100018	1.00	(CP)(# 9111)(# 9126)(# 9159)		
(ribbed for press fit)(for headlight/reverse light)			40.) Vent frame (red)	FC-2100967	4.00
16.) Sand fill cap (red)(rear)	FC-2101075	1.00	(plastic)(16.0x45.0mm)		
(CP)(# 9111)(# 9126)(# 9159)			(CP)(# 9111)(# 9126)(# 9159)		
17.) Sand fill cap (black)(top rear)	FC-2100900	1.00	41.) Screen (red)	FC-2100968	4.00
(CP)(# 9111)(# 9126)(# 9159)			(metal)(12.8x41.8mm)(for vent frame)		
18.) Handrail (red)	FC-2101076	2.00	(CP)(# 9111)(# 9126)(# 9159)		
(rear sides)(CP)(# 9111)(# 9126)(# 9159)			42.) Antenna (black)	FC-2100912	2.00
19.) Vent housing (red)	FC-2101077	3.00	(mounts on top, center & front of cab)		
(plastic)(9.0x34.0mm)(same on both sides)(rear)			(CP)(# 9111)(# 9126)(# 9159)		
(CP)(# 9111)(# 9126)(# 9159)			43.) Number board (CP)(# 9111)	FG-2100278	2.00
20.) Vent (red)(rear)(bottom)	FC-2100955	2.00	(black w/ clear numbers)(right front)(3.9x9.6mm)		
(metal)(6.8x32.0mm)(same on both sides)			Number board (CP)(# 9126)	FG-2100279	2.00
(CP)(# 9111)(# 9126)(# 9159)			(black w/ clear numbers)(right front)(3.9x9.6mm)		
21.) Vent (red)	FC-2100954	3.00	Number board (CP)(# 9159)	FG-2100280	2.00
(rear)(metal)(18.0x31.0mm)(same on both sides)			(black w/ clear numbers)(right front)(3.9x9.6mm)		
(CP)(# 9111)(# 9126)(# 9159)			44.) Number board (CP)(# 9111)	FG-2100281	2.00
22.) Intake vent housing (red)	FC-2100952	8.00	(black w/ clear numbers)(left front)(3.9x9.6mm)		
(plastic)(22.3x108.2mm)(same on both sides)			Number board (CP)(# 9126)	FG-2100282	2.00
(CP)(# 9111)(# 9126)(# 9159)			(black w/ clear numbers)(left front)(3.9x9.6mm)		
23.) Screen (red)	FC-2100953	3.00	Number board (CP)(# 9159)	FG-2100283	2.00
(metal)(same on both sides)(for intake vent housing)			(black w/ clear numbers)(left front)(3.9x9.6mm)		
(13.7x105.0mm)(CP)(# 9111)(# 9126)(# 9159)			45.) Windshield wipers (black)	FC-2100458	1.00
24.) Handrail (black, white)	FC-2100965	12.00			
(long)(right)(CP)(# 9111)(# 9126)(# 9159)			46.) Handrail (white)	FC-2100958	2.00
25.) Handrail (black, white)	FC-2100966	12.00	(8.2mm long)(top nose of cab)		
(long)(left)(CP)(# 9111)(# 9126)(# 9159)			(CP)(# 9111)(# 9126)(# 9159)		
26.) Exhaust manifold (black)	FC-2100972	10.00	47.) Side mirror (silver)	FC-2100914	2.00
(die-cast)(13.0x34.5mm)(mounting tabs on 1 side)			(7.1mm long)(mounts on both sides of cab)		
(for smoke unit)(CP)(# 9111)(# 9126)(# 9159)			48.) Handrail (white)	FC-2100962	2.00
27.) O ring (black)	IB-0000014	2.00	(25.0mm long)(right side of nose of cab)		
(rubber)(for exhaust manifold)			(CP)(# 9111)(# 9126)(# 9159)		
28.) Bracket (black)	IH-0000323	3.00	49.) Handrail (white)	FC-2100961	2.00
(plastic)(13.0x36.0mm)(mounts on each end)			(25.0mm long)(left side of nose of cab)		
(for mounting exhaust manifold to top of shell)			(CP)(# 9111)(# 9126)(# 9159)		

*Requires Exchange

All parts are priced as each



SD-90MAC Diesel Engine

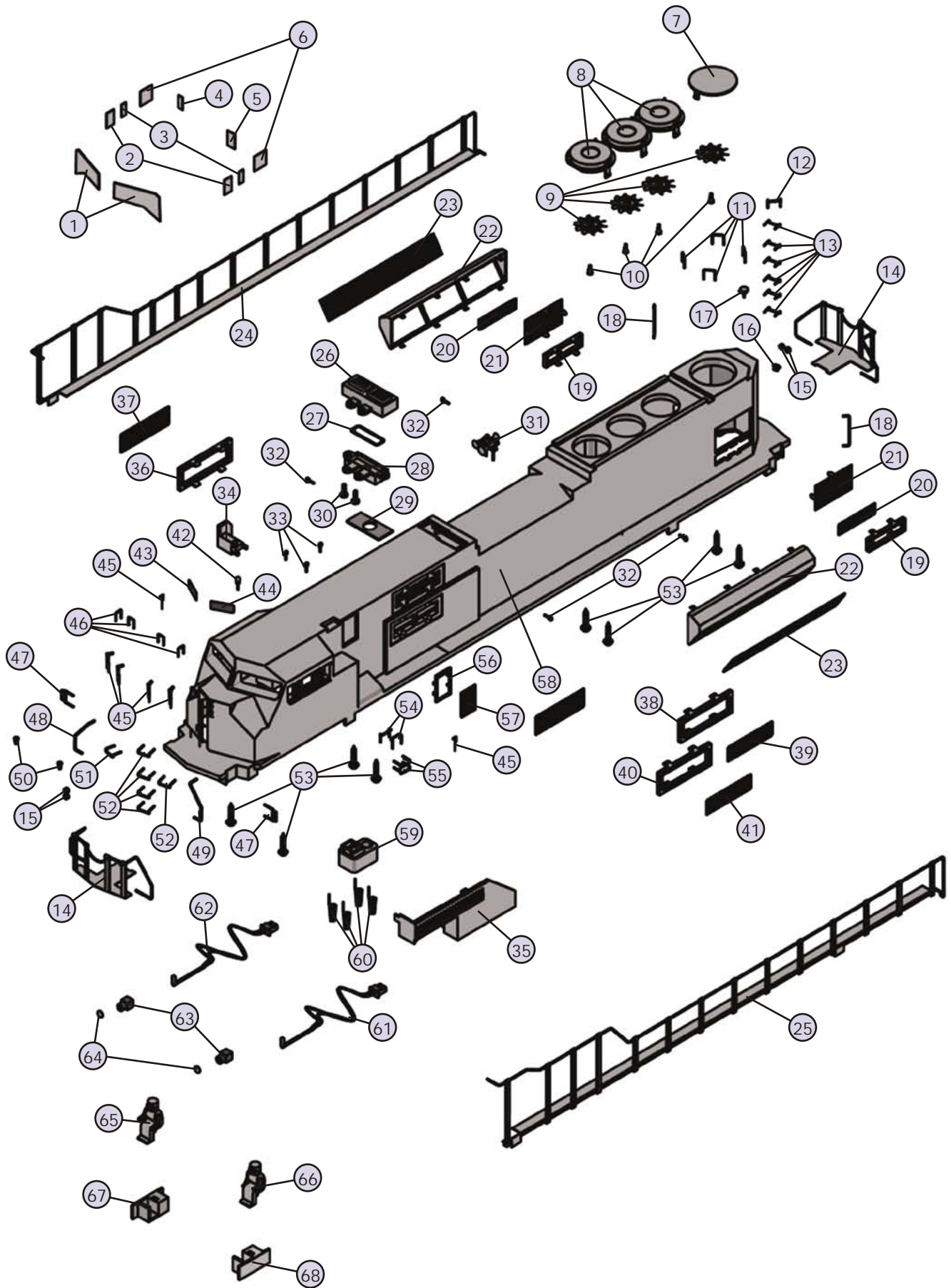
Shell Parts

Name and Number	Part #	\$Price Per Unit
50.) Sand fill cap (black)(front) (CP)(# 9111)(# 9126)(# 9159)	FC-2100957	1.00
51.) Handrail (red) (8.0mm long)(front right side of nose of cab) (CP)(# 9111)(# 9126)(# 9159)	FC-2100959	2.00
52.) Handrail (red) (8.0mm long)(front left side of nose of cab) (CP)(# 9111)(# 9126)(# 9159)	FC-2100959	2.00
53.) Screw (M3x16.0mm)(washer head)(self-drilling)	IA-0000025	0.15
54.) Handrail (black) (8.7mm long)(mounts behind left side top of cab) (CP)(# 9111)(# 9126)(# 9159)	FC-2100910	2.00
55.) Handrail (red) (8.7mm long)(mounts behind left side of cab) (CP)(# 9111)(# 9126)(# 9159)	FC-2100956	2.00
56.) Vent housing (red) (plastic)(12.8x21.8mm)(behind left side of cab) (CP)(# 9111)(# 9126)(# 9159)	FC-2101078	3.00
57.) Vent screen (red) (metal)(11.5x20.2mm)(behind left side of cab) (CP)(# 9111)(# 9126)(# 9159)	FC-2100969	3.00
58.) Shell (red, black, white) (CP)(# 9111)	FC-2100946	*120.00
Shell (red, black, white) (CP)(# 9126)	FC-2100947	*120.00
Shell (red, black, white) (CP)(# 9159)	FC-2100948	*120.00
59.) Contact spring base (black) (plastic)(for 2 male 2 pin plugs)	BH-0000056	3.00
60.) Contact spring (copper)	IE-0000015	0.50
61.) Bulb (clear)(6v)(1) (220.0mm long wires w/ yellow male 2 pin plug) (grain of wheat)(ditch light)	CD-0000010	3.00
62.) Bulb (clear)(6v)(1) (220.0mm long wires w/ blue male 2 pin plug) (grain of wheat)(ditch light)	CD-0000009	3.00
63.) Ditch light housing (red) (plastic)(CP)(# 9111)(# 9126)(# 9159)	FC-2100963	3.00
64.) Lens (clear)(ditch light lens) (1.5x2.7x3.7mm)(0.8x3.3mm lens head)	FA-2100017	1.00
65.) Engineer (black man)	FI-0000030	5.00
Engineer (white man)	FI-0000001	5.00
66.) Fireman/Brakeman/Conductor (white man)	FI-0000009	5.00
Fireman/Brakeman/Conductor (black man)	FI-0000033	5.00
67.) Engineer base (gray)(right side)	FI-0000025	1.00
68.) Brakeman base (gray)(left side)	FI-0000024	1.00
69.) Handrail (red) (9.4mm long)(front middle of nose of cab) (CP)(# 9111)(# 9126)(# 9159)	FC-2100960	2.00
NS.) Wire clip (white) (plastic)(4.0x9.0x3.5mm)	IH-0000313	1.00
NS.) Wire clip (white) (plastic)(4.0x4.6x4.0mm)	IH-0000314	1.00

*Requires Exchange
All parts are priced as each



SD-90MAC Diesel Engine Shell Parts



SD-90MAC Diesel Engine

Chassis Parts

Name and Number	Part #	\$Price Per Unit	Name and Number	Part #	\$Price Per Unit
1.) Grommet (black)(rubber) (holds 2 bulbs)(for headlight & reverse light bulbs)	IH-0000319	0.50	27.) Screw (4/40x6.0mm)(roundhead)	IA-0000003	0.15
2.) Screw (M3x3.0mm)(roundhead)	IA-0000296	0.15	28.) Smoke unit (Proto-Sound® 2.0)(9.0x12.0x3.2x8.0mm brass cup) (26.0mm long mounting posts)	AA-0000049	50.00
3.) Bracket (black) (metal)(8.3x55.5mm)(for reverse lights) (bulbs mount horizontally)	IH-0000324	5.00	29.) Insulator (black)(rubber) (22.0x30.0x17.0mm)(1.5mm thick)(for smoke unit)	IB-0000016	2.00
4.) Bracket (black) (metal)(8.0x7.7x41.0mm)(for headlight) (bulbs mount vertically)	IH-0000325	5.00	30.) Switch (large)(2 position)	BB-0000006	5.00
5.) Bulbs (clear)(6v)(2) (140.0mm long wires w/ green male 2 pin plug) (grain of wheat)(reverse light bulbs)	CA-0000060	4.00	31.) Screw (M2x4.0mm)(roundhead)(mounts switch to chassis)	IA-0000058	0.15
6.) Bulbs (clear)(6v)(2) (140.0mm long wires w/ blue male 2 pin plug) (grain of wheat)(headlight bulbs)	CA-0000032	4.00	32.) Battery charger jack (complete)	BG-0000001	3.00
7.) Rubber band	BI-4500004	0.50	33.) Bracket (black) (metal)(7.0x20.0x11.5mm)(3 mounting holes) (for mounting patch board)	IH-0000315	3.00
8.) Tach board (green)(standard) (no spacer between board and optical sensor)	AG-0000033	6.00	34.) Patch board (green) (front)(20.3x27.3mm) (blue, black, red, yellow female 2 pin plugs)	AG-0000065	8.00
9.) Motor (RS-385PH) (7.8x24.0mm worm gear)(15.0mm long threads) (9.0x30.0mm white flywheel w/ black stripes) (w/ black plastic tach board bracket)	BE-0000113	25.00	35.) Screw (M2.4x3.0mm)(roundhead)(plastic cutting threads)	IA-0000350	0.15
10.) Motor (RS-385PH) (7.8x24.0mm worm gear)(15.0mm long threads) (9.0x30.0mm black flywheel)	BE-0000114	25.00	36.) Bracket (gray) (metal)(34.0x42.0mm)(0.5mm thick) (holds # boards lights)(mounts on top of motor cover)	IH-0000318	4.00
11.) Motor mount (black) (for 3 axle diesel truck block)	BI-0000027	15.00	37.) Bulbs (clear)(6v)(2) (140.0mm long wires w/ red male 2 pin plug) (grain of wheat)(number boards lights)	CC-0000049	4.00
12.) Screw (yellow Zink) (M2.5x6.0mm)(roundhead)(w/ lock washer)	IA-0000001	0.15	38.) Grommet (black) (cupped)(rubber)	IH-0000144	0.50
13.) Screw (M3x14.0mm)(roundhead)(w/ lock washer)	IA-0000012	0.15	39.) Motor cover (gray) (has holes near bottom to mount interior lights brackets)	BI-0000064	7.00
14.) Battery leads (200.0mm long wires w/ small black 2 pin male plug) (270.0mm long wires w/ battery charger jack)	BC-0000134	6.00	40.) Bracket (black) (metal)(6.5x10.0mm (7.5mm step) (for mounting cab interior bulbs to motor cover)	IH-0000309	2.00
15.) Battery (white) (8.4 volts)(re-chargable)(nickel-cadium)	BG-4000001	10.00	41.) Grommet (black) (4.5x5.0mm)(rubber)	IH-0000010	0.50
16.) Screw (M3x4.0mm)(roundhead)	IA-0000010	0.15	42.) Bulbs (clear)(6v)(2) (150.0mm long wires w/ yellow male 2 pin plug) (grain of wheat)(cab interior lights)	CG-0000036	4.00
17.) Bracket (black) (battery)(flat mounted)(plastic)	IH-0000074	3.00	43.) Chassis (black) (57.0x48.0mm)(has holes for battery charger jack)	DH-2100034	*20.00
18.) Boards (Proto-Sound® 2.0) (w/ Rom memory)(5v board)	AE-0000001	*200.00	44.) Bell (black) (tapped for M2.5mm screw) (CP)(# 9111)(# 9126)(# 9159)	FC-2100945	3.00
19.) Bracket (Aluminum) (for Proto-Sound 2.0® boards)(tapped for 6/32 screw) (15.0x43.5mm)(10.5mm step-up)	IH-0000198	4.00	45.) Screw (M2.5x4.0mm)(roundhead)	IA-0000005	0.15
20.) Screw (6/32x12.0mm)(roundhead) (for mounting PS2 boards to Aluminum bracket)	IA-0000103	0.15	46.) Wire nut (yellow)	BI-4500003	0.25
21.) Bracket (Aluminum) (10.0x23.5x27.0mm)(11.0mm & 16.5mm steps) (supports the front of PS2 boards)	IH-0000317	4.00	47.) Volume pot (small volume pot)(blue w/ green board)	BI-0000040	5.00
22.) Screw (M3x6.0mm)(roundhead)	IA-0000016	0.15	48.) Bracket (brass) (speaker)(12.0x9.7mm)(5.0mm step) (rounded end by mounting hole)	IH-0000322	1.00
23.) Insulator (white) (washer)(3.0x6.0x3.0mm)(plastic)	ID-0000025	0.15	49.) Speaker (STAR) (FR-050-A1421)(16 ohms)(5W)(50.0mm speaker)	BF-0000022	10.00
24.) Insulator (clear) (13.0x19.0x0.1mm)(single hole)	ID-0000024	0.15	50.) Gasket (black)(speaker)(foam) (46.0x51.0mm)(4.5mm thick)(for 50.0mm speakers)	IB-0000011	1.00
25.) Voltage regulator (LM2937ET)	AG-0000032	3.00	51.) Gasket (black) (foam)(mounts on SD-80 & 90MAC fuel tanks)	IB-2200001	3.00
26.) Contact spring board (green) (front)(16.5x27.0mm)(3 silver pads)	BH-0000062	3.00	52.) Fuel tank (black w/ red markings & danger sign) (has holes for mounting small volume pot) (CP)(# 9111)(# 9126)(# 9159)	FC-2100944	*20.00

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SD-90MAC Diesel Engine

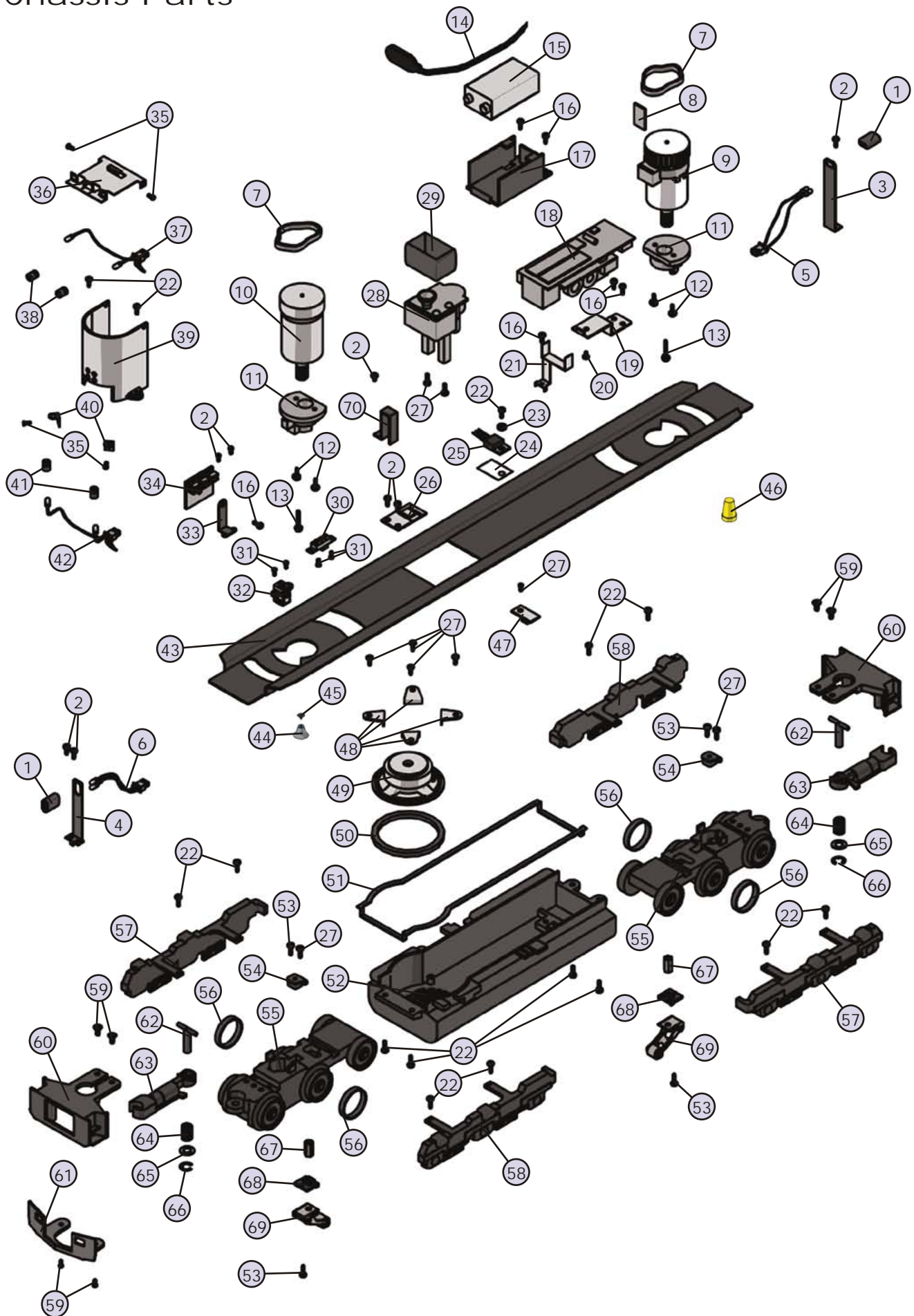
Chassis Parts

Name and Number	Part #	\$Price Per Unit
53.) Screw (nickel) (M3x6.0mm)(roundhead)	IA-0000015	0.15
54.) Insulator (black) (top)(square)(pick-up)	BD-0000015	2.00
55.) Truck (black) (powered)(3 axle)(2 screw holes for mounting pilot)	DA-2050016	*35.00
56.) Traction tire (black) (rubber)(4.0x17.0mm)	DE-0000018	0.75
57.) Truck side (black) (right front/left rear) (CP)(# 9111)(# 9126)(# 9159)	DB-2100044	9.00
58.) Truck side (black) (left front/right rear) (CP)(# 9111)(# 9126)(# 9159)	DB-2100045	9.00
59.) Screw (4/40x6.0mm)(flathead)	IA-0000038	0.15
60.) Pilot (black, w/ white steps) (pilot has 2 screw holes for mounting pilot) (CP)(# 9111)(# 9126)(# 9159)	DG-2150042	15.00
61.) Snow plow (black) (CP)(# 9111)(# 9126)(# 9159)	FH-2130001	4.00
62.) T-bar (black) (4.0x20.0mm)(plastic)(mounts coupler to truck)	IG-0000001	0.50
63.) Proto-Coupler® (black) (Proto-Coupler® 2.0)(51.0mm long)	DD-0000032	10.00
64.) Spring (nickel) (6.5x11.0mm)(w/ 0.4mm thick wire) (for mounting coupler)	IE-0000007	0.50
65.) Washer (black) (5.0x10.0x1.0mm)(for mounting coupler)	ID-0000026	0.15
66.) E-clip (black) (3.0x8.0x0.5mm)(for mounting coupler)	IF-0000002	0.15
67.) Nut (nickel) (2.5x5.0x10.0mm)(for mounting pick-up)	IC-0000005	0.50
68.) Insulator (black) (pick-up)(bottom)(flat)(square)	BD-0000024	2.00
69.) Pick-up (8.0x11.0mm roller)(28.0mm long)	BD-0000025	5.00
70.) Wire strap (black) (metal)(7.0x15.5mm)(15.0mm step) (holds wires behind front motor)	IH-0000316	2.00
NS.) Wire harness (black male 12 pin plug)	BC-2100028	18.00
NS.) Wire harness (black male 7 pin plug)	BC-2100024	10.00
NS.) Wire harness (black male 5 pin plug)(for motors)	BC-2100025	4.00
NS.) Wire harness (black male 4 pin plug)(smoke unit)	BC-2100026	4.00
NS.) Wire harness (for speaker) (70.0mm long wires w/ white male 2 pin plug)	BC-2100027	3.00
NS.) Wire harness (170.0mm long wires w/ black male 2 pin plug) (black wire shield on wires)(for Proto-Coupler®)	BC-0000135	3.00
NS.) Wire harness (220.0mm long red & black wires w/ eyelets) (black wire shield on wires)(for pick-up)	BC-0000136	4.00

*Requires Exchange
All parts are priced as each



SD-90MAC Diesel Engine Chassis Parts



Smoke Unit Proto-Sound® 2.0

Smoke Unit Parts

Name and Number	Part #	\$Price Per Unit
1.) Screw (4/40x6.0mm)(roundhead)	IA-0000003	0.15
2.) Gasket (burnt orange) (for standard smoke unit)(25.0x37.0mm)(0.5mm thick)	IB-0000006	2.00
3.) Screw (M1.4x3.0mm)(roundhead)	IA-0000120	0.15
4.) Fan impeller (black) (plastic)(for smoke unit)	AI-0000019	2.00
5.) Heating elements (for smoke unit)	AI-0000018	2.00
6.) Wick (white) (for smoke unit)(4" long)(sold as a pair) (requires 2 wicks per smoke unit)	AA-0000001	1.00
7.) Motor (for smoke unit)(wire harness not included)	BE-0000041	5.00

All parts are priced as each

