

Owner's Manual

Parts Manual

Twister
Hammerhead

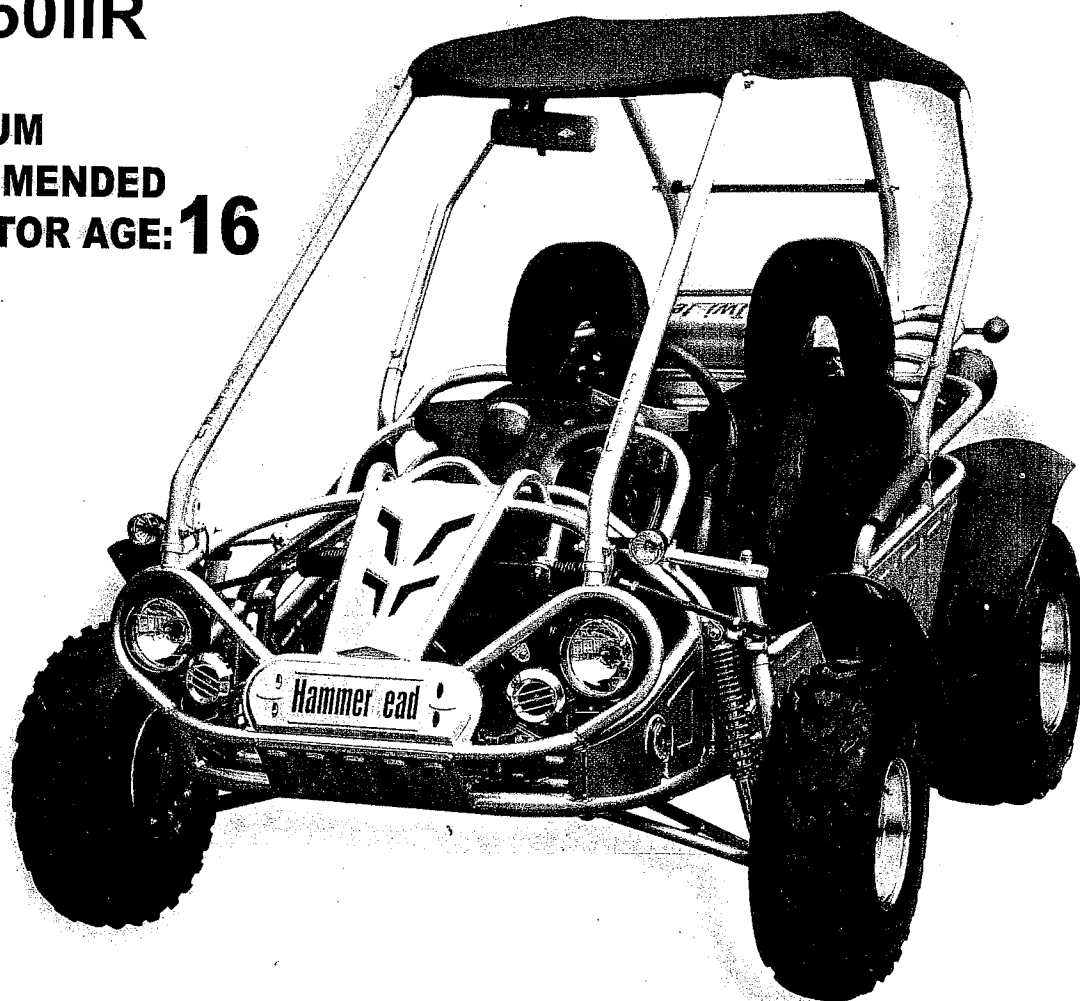
READ THIS MANUAL CAREFULLY,
IT CONTAINS IMPORTANT SAFETY INFORMATION.

EXTREME

SPORT

ES150IIR

MINIMUM
RECOMMENDED
OPERATOR AGE: **16**



FOR OFF-ROAD USE ONLY

This vehicle is designed and manufactured for off-road use only.

USA only:

It does not conform to Federal Motor Vehicle Safety Standards, and in regards to operation on public streets, roads, or highways is illegal.

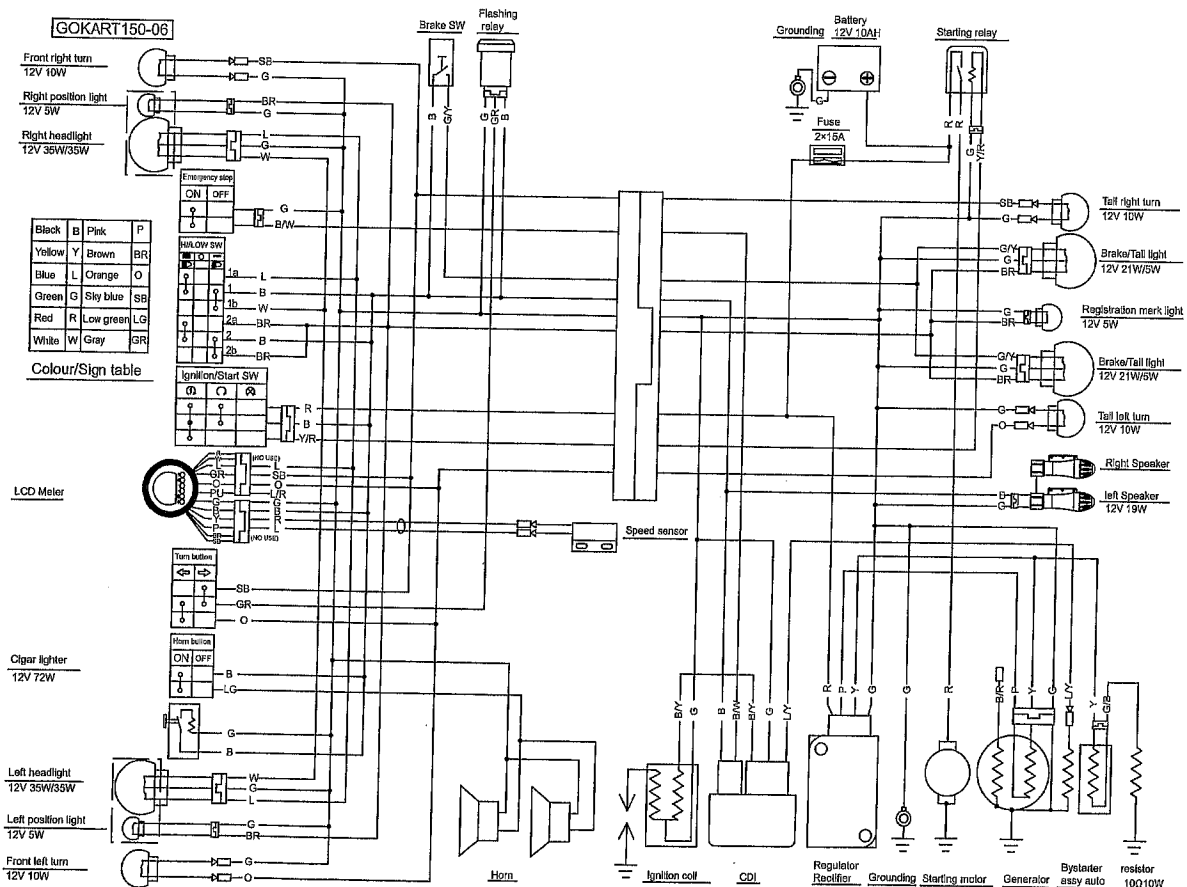
PERIODICAL CHECK AND SERVICES

The maintenance intervals in the following table are based upon average driving conditions. Driving in unusually dusty areas, require more frequent servicing.

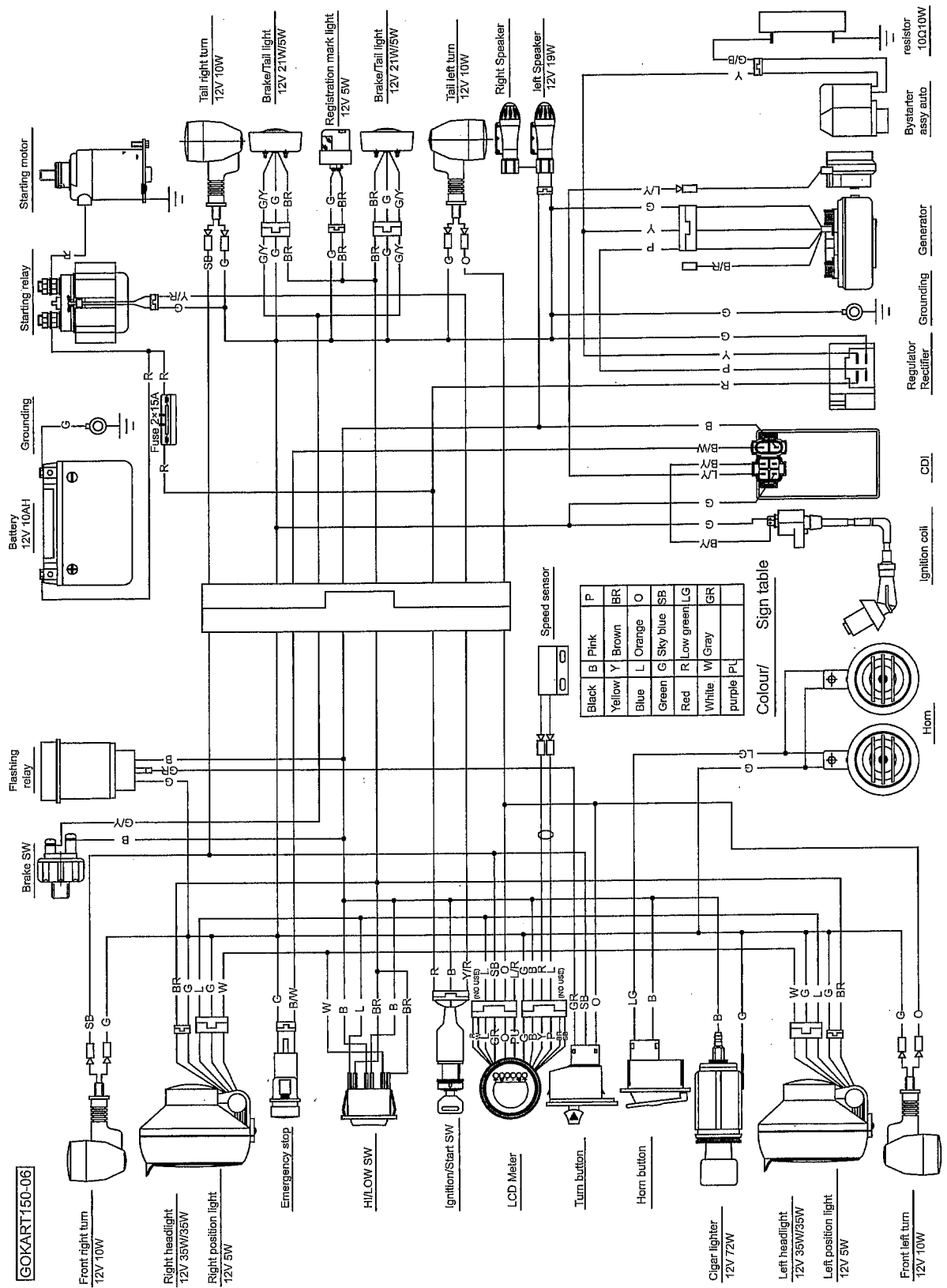
Items	Time of service	Initial service (first week)	Monthly	Quarterly	Yearly
Tire pressure/wear		I	I		
Brake performance		I	I		
Tightness of screws		I	I		
Air cleaner			C		R
Carburetor		I			C
Spark plug				C, A	
Coolent					
Brake oil		I	I	I	
Replace gearbox oil			C, I	R	
Chassis		I	I	L	
Fuel switch/fuel tank			I		C
Battery				I	
Valve clearance of engine				A	

A: adjust C: clean I: inspect, clean or replace if necessary. L: lubricate R: replace

WIRING DIAGRAM



WIRING DIAGRAM



COMPONENT LOCATIONS

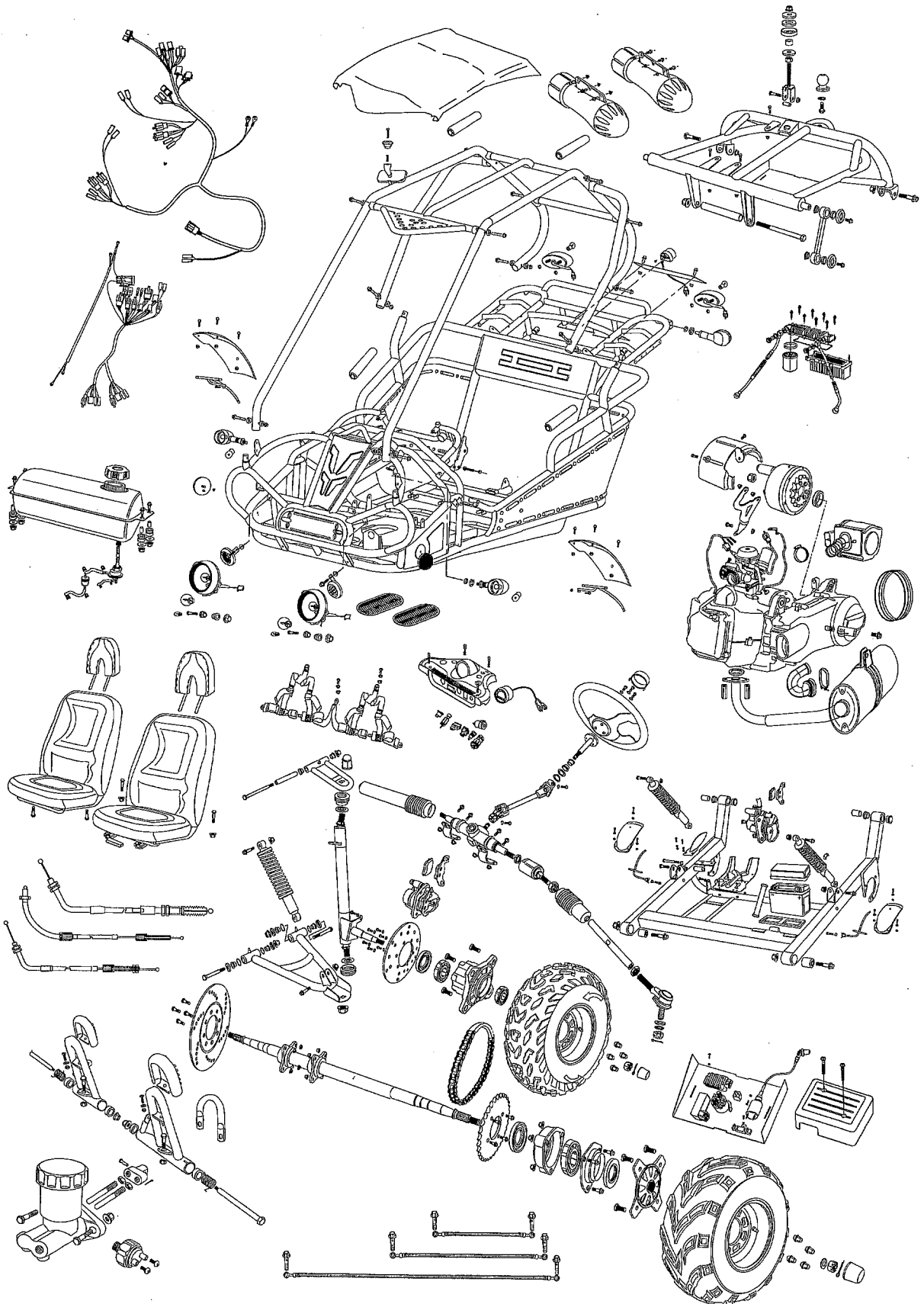
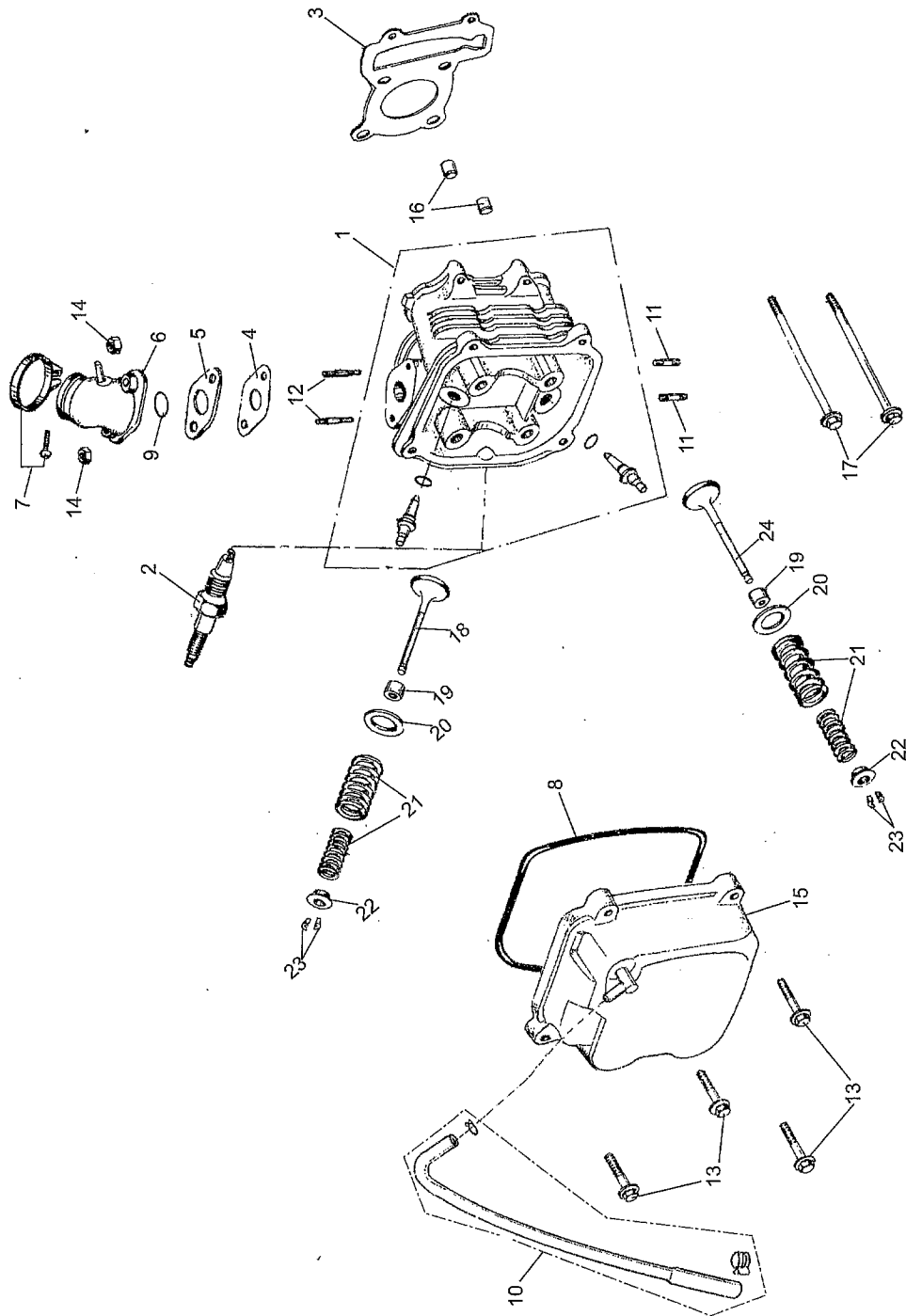
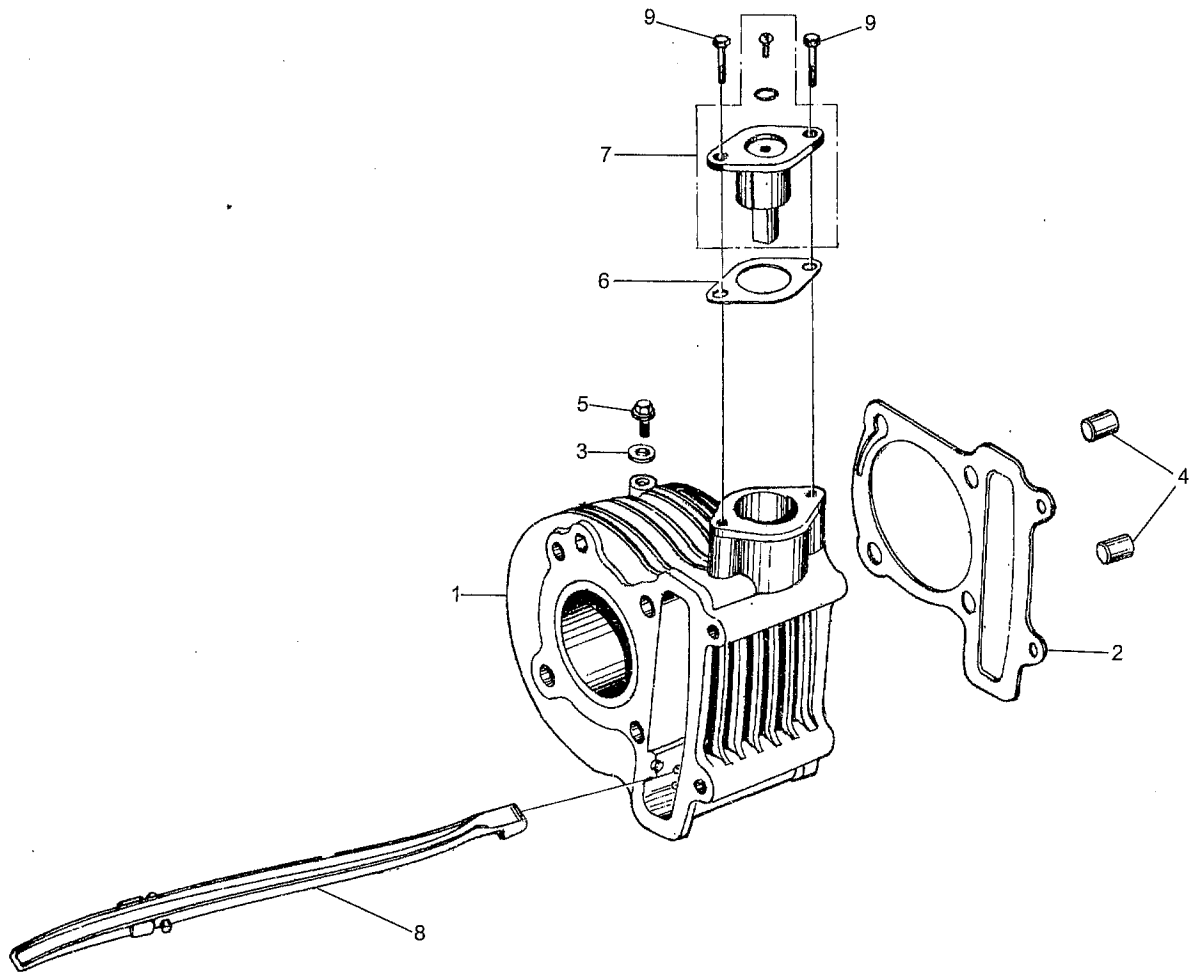


FIG. 1

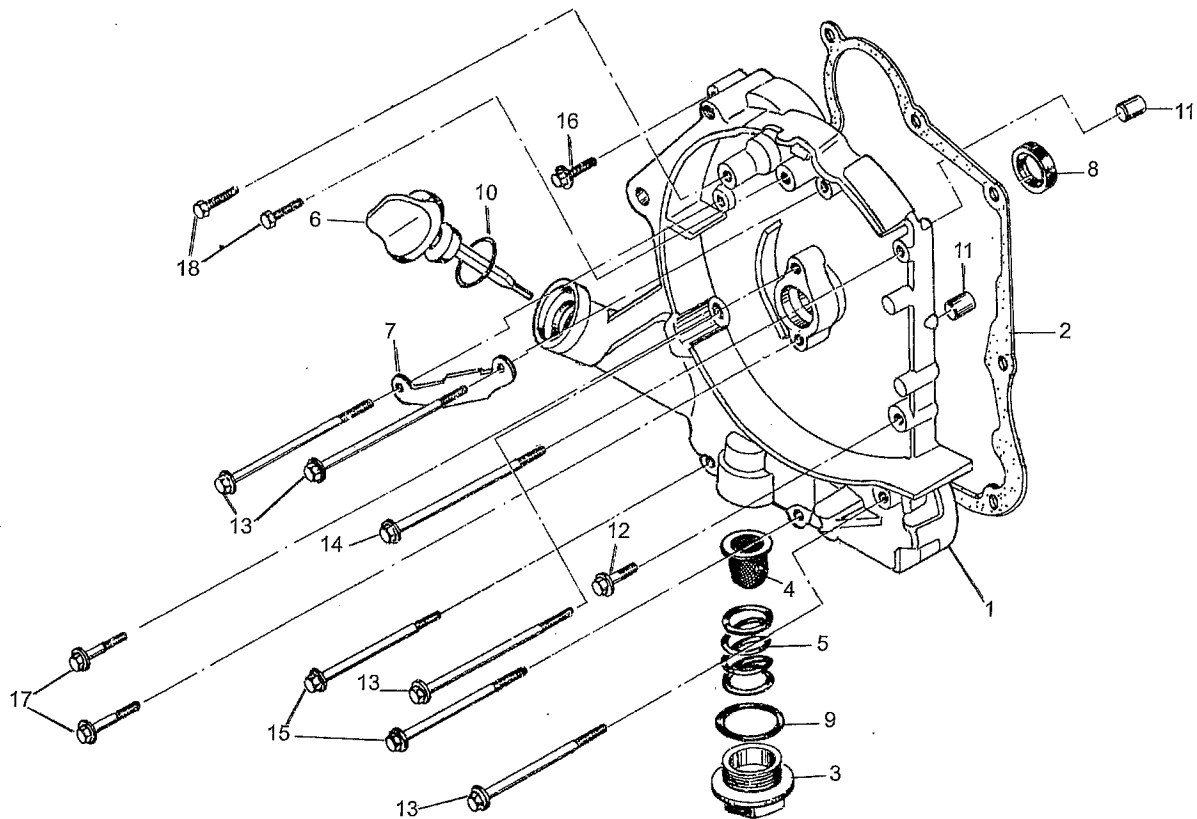
CYLINDER HEAD ASSY.



CYLINDER ASSY.



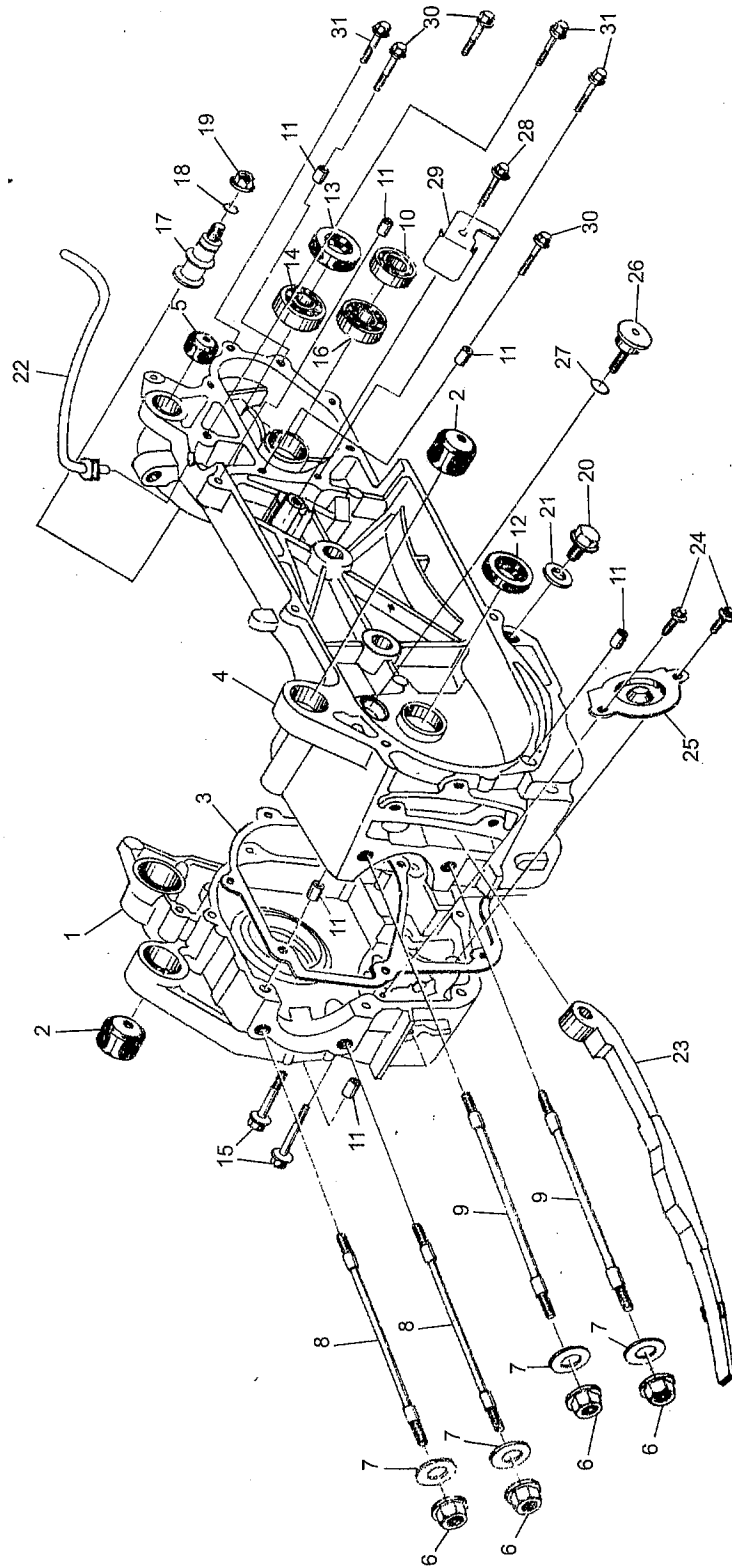
CYLINDER ASSY.			
REF NO.	PART NO.	DESCRIPTION	REGD NO.
1	M150-1002200	CYLINDER COMP.	1
2	M150-1002001	CYLINDER GASKET	1
3	90442-06000-KAT	WASHER SEALING 6	1
4	M150-1001007	DOWEL PIN 10X16	2
5	96001-06012-KAT	FLANGE BOLT M6X12-ZN. D	1
6	M150-1002002	GASKET TENSIONER LIFTER	1
7	M150-1002100	TENSIONER LIFTER ASSY.	1
8	M150-1002300	CAM CHAIN GUIDE COMP.	1
9	96001-06020-KAT	FLANGE BOLT 6X20	2

CRANKCASE ASSY. (1)**CRANKCASE ASSY.(1)**

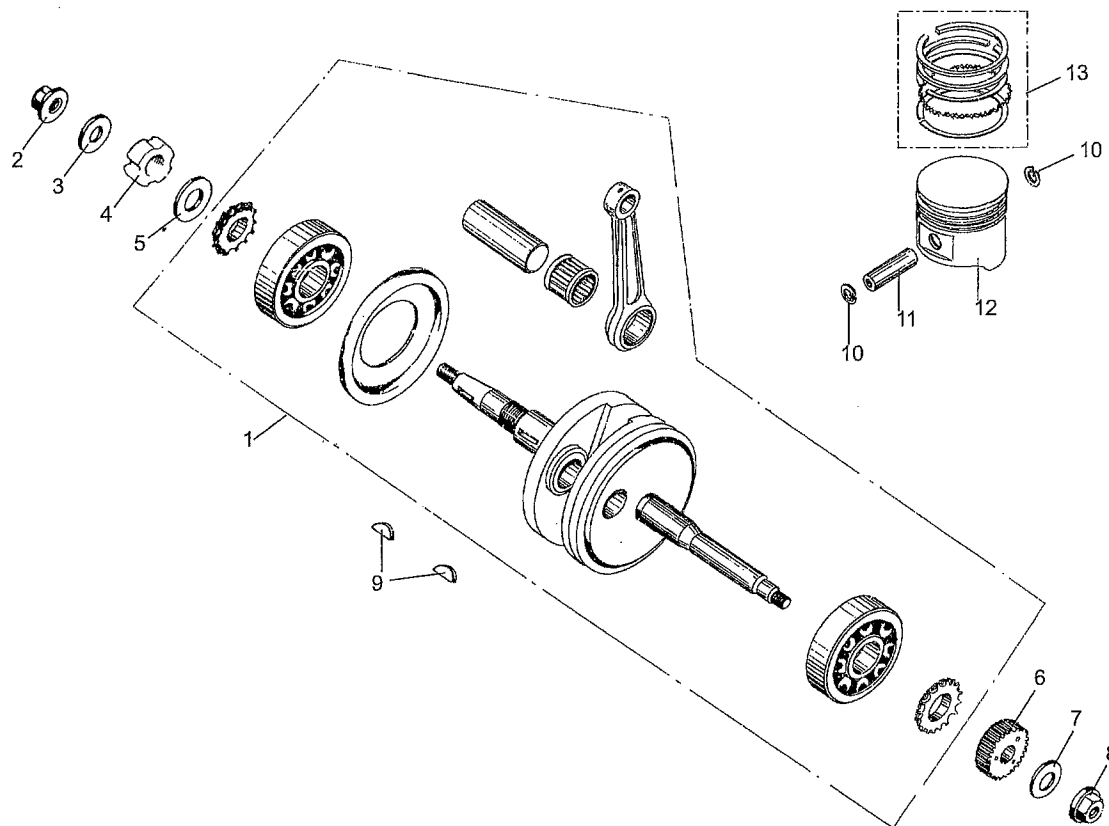
REF NO.	PART NO.	DESCRIPTION	REGD NO.
1	M150-1003101-B	R CRANKCASE COVER COMP.	1
2	M150-1003013	CRANKCASE COVER GASKET	1
3	M150-1003104	CAP TAPPET ADJUSTING HOLE	1
4	M150-1003120	OIL FILTING SCREEN	1
5	M150-1003102	OIL FILTING SCREEN SPRING	1
6	M150-1003105	OIL LEVEL GAUGE	1
7	M150-1003006	AC GENERATOR CORD CLAMPER	1
8	M150-1003110	OIL SEAL 19.8X30X5	1
9	M150-1003103	O-RING 30.8X3	1
10	M150-1003307	O-RING 18X3	1
11	M150-1003005	DOWEL PIN 8X14	2
12	96001-06032-KAT	FLANGE BOLT M6X28	1
13	M150-1003012	FLANGE BOLT M6X95	4
14	M150-1003007	FLANGE BOLT M6X100	1
15	M150-1003008	FLANGE BOLT M6X110	2
16	M150-1003034	FLANGE BOLT M6X35	1
17	M150-1003106	FLANGE BOLT M6X20	2
18	92101-05012-OH	HEX BOLT M5X12-ZN.D	2

FIG.4

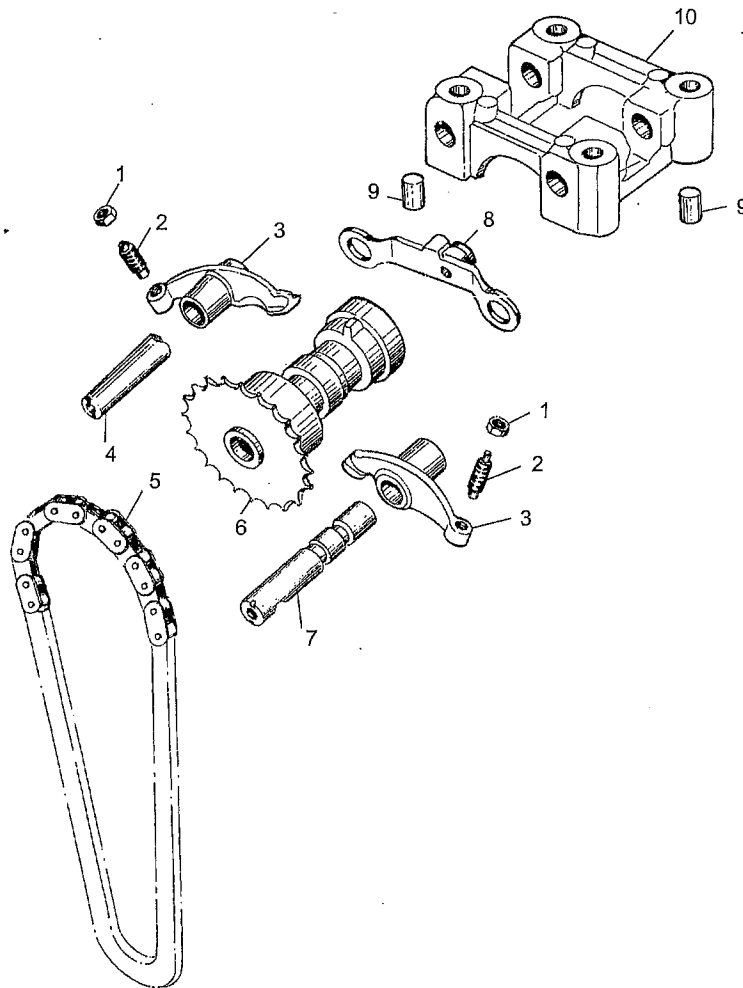
CRANKCASE ASSY. (2)



CRANKSHAFT CON'ROD & PISTON ASSY.

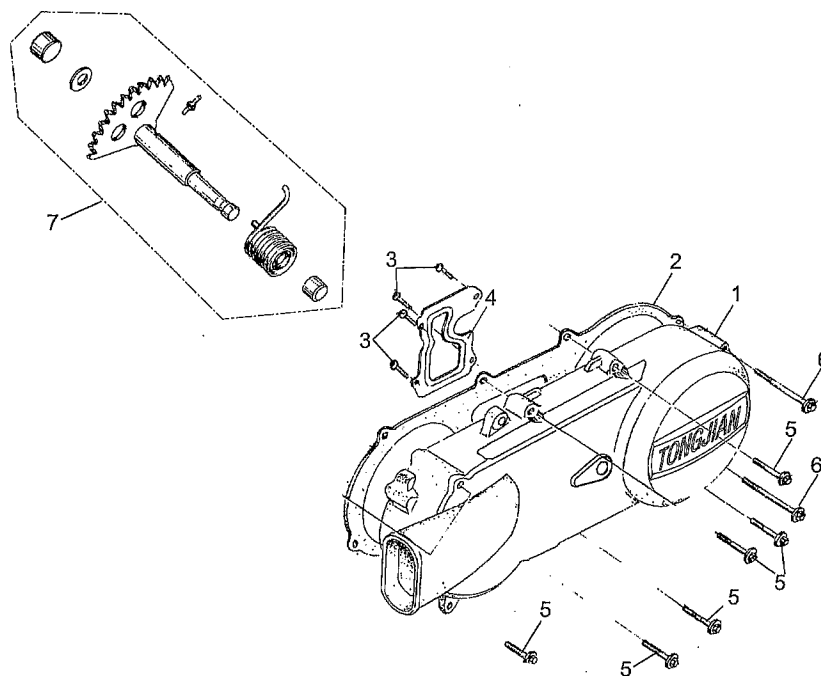


CRANKSHAFT CON'ROD & PISTON ASSY.			
REF NO.	PART NO.	DESCRIPTION	REGD NO.
1	M150-1004100	CRANKSHAFT & CONROD ASSY.	1
2	M150-1004007	NUT M12X1.25	1
3	M150-1004011	WASHER 12-149HV 12-140HV	1
4	M150-1004009	LOCKING NUT	1
5	M150-1004013	WASHER	1
6	M150-1004012	KICK DRIVE GEAR	1
7	M150-1040005	WASHER Φ 12	1
8	M150-1004008	NUT M12	1
9	M150-1004002	WOODRUFF KEY	2
10	M150-1004003	PISTON PIN CLIP	2
11	M150-1004006	PISTON PIN	1
12	M150-1004001	PISTON	1
13	M150-1004200	PISTON RING SET	1

CAMSHAFT ASSY.

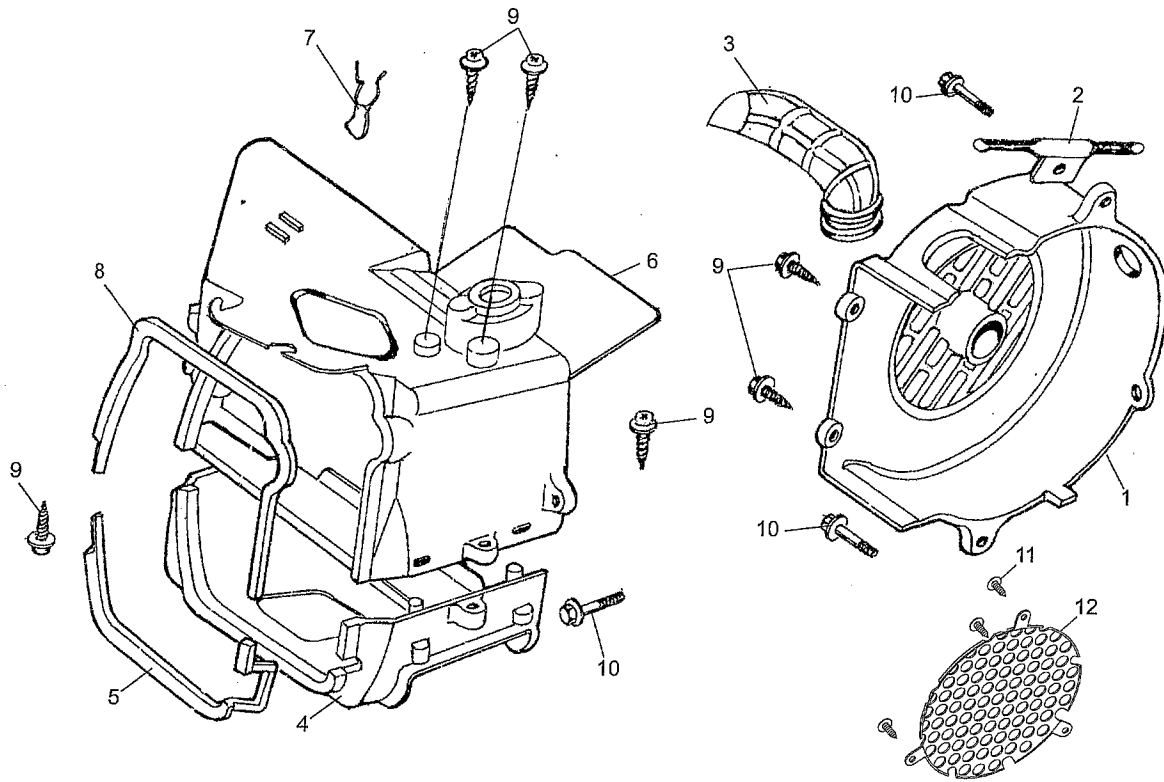
CAMSHAFT ASSY.			
REF NO.	PART NO.	DESCRIPTION	REGD NO.
1	M150-1005004	TAPPET ADJUSTING NUT	2
2	M150-1005003	TAPPET ADJUSTING SCREW	2
3	M150-1005002	VALVE ROCKER ARM	2
4	M150-1005005	EX ROCKER ARM SHAFT	1
5	M150-1005400	CAMSHAFT CHAIN	1
6	M150-1005300	CAMSHAFT COMP. 16T	1
7	M150-1005200	IN ROCK ARM SHAFT COMP.	1
8	M150-1005100	STOPPER PLATE COMP.	1
9	M150-1001007	DOWEL PIN 10X16	2
10	M150-1005001	CAMSHAFT HOLDER	1

LEFT COVER ASSY.



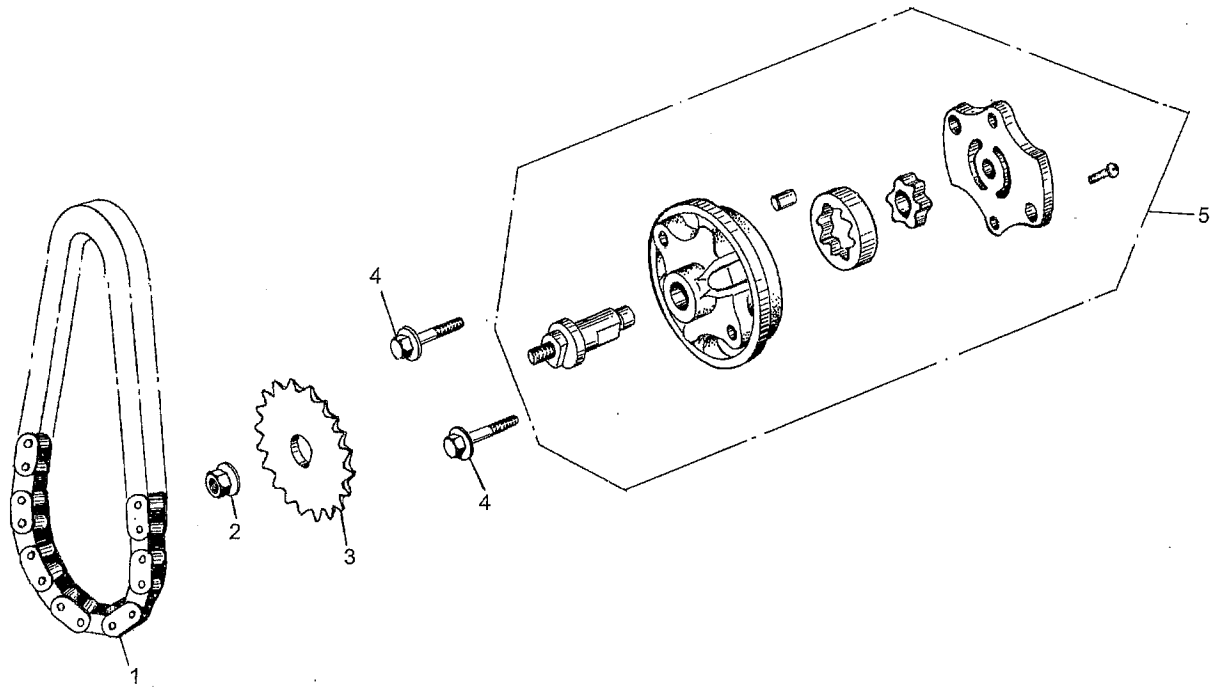
LEFT COVER ASSY.			
REF NO.	PART NO.	DESCRIPTION	REGD NO.
1	M150-1008101	COVER L	1
2	M150-1008005	L COVER GASKET	1
3	93903-00428-KAT	TAPPING SCREW ST4.2X8-F-H	4
4	M150-1008102	L COVER PLATE	1
5	M150-1003034	FLANGE BOLT M6X40	6
6	M150-1008006	FLANGE BOLT M6X65	2
7	M150-1008200	KICK STARTER ASSY. SPINDLE COMP.	1

FAN COVER AND SHROUD ASSY.



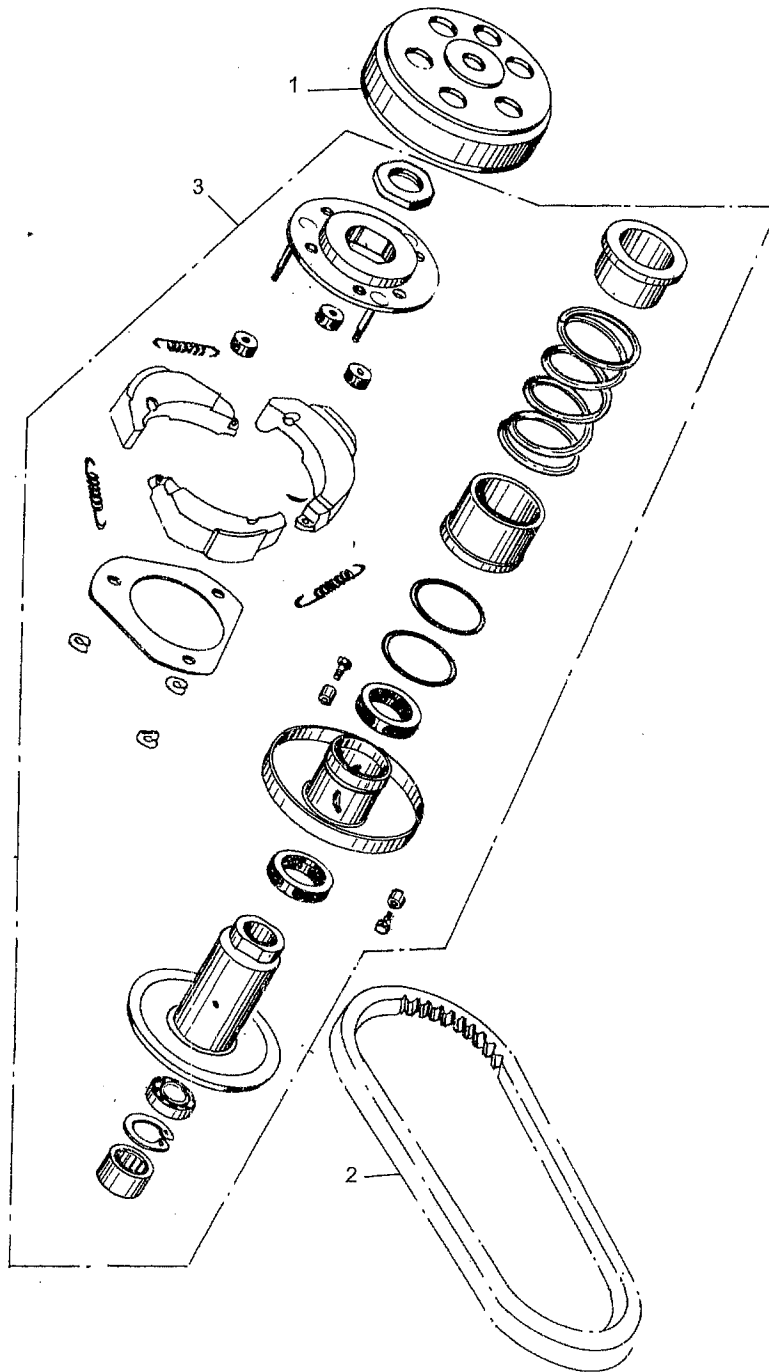
FAN COVER AND SHROUD ASSY.			
REF NO.	PART NO.	DESCRIPTION	REGD NO.
1	M150-1009410	FAN COVER COMP.	1
2	M150-1009002	STARTER CABLE CLAMPER	1
3	M150-1009401	CARBURETOR COOLING DUCT	1
4	M150-1009301	LOWER SHROUD	1
5	M150-1009302	LOWER SHROUD SEAL	1
6	M150-1009110	UPPER SHROUD COMP.	1
7	M150-1009103	HIGH TENSION CORD CLIP	1
8	M150-1009102	UPPER SHROUD SEAL	1
9	M150-1009402	SCREW ST4.8X16-F	6
10	M150-1003075	BOLT M6X25	3
11	ST3.5X13 GB845	SCREW ST3.5×13-F	3
12	8.020.179	DUST COVER	1

OIL PUMP ASSY.



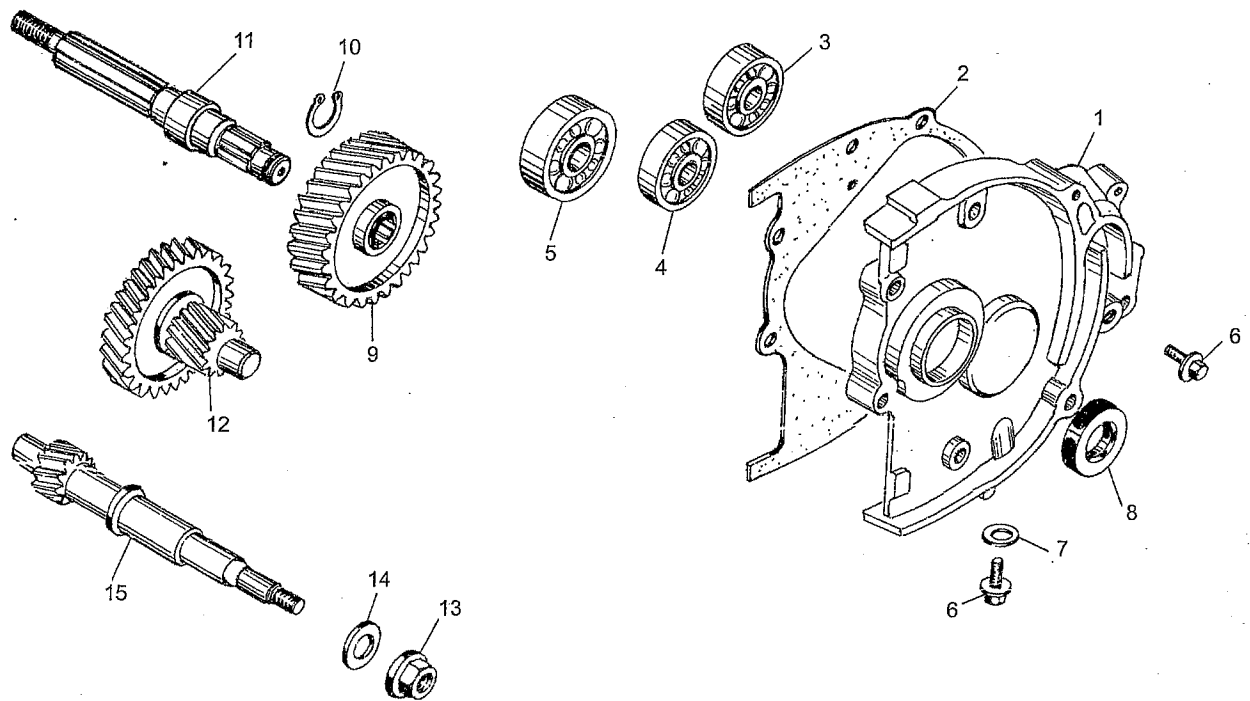
OIL PUMP ASSY.			
REF NO.	PART NO.	DESCRIPTION	REGD NO.
1	M150-1021000	OIL PUMP CHAIN	1
2	M150-1020002	FLANGE NUT M6	1
3	M150-1020001	OIL PUMP DRIVEN SPROCKET	1
4	M150-B-1003075	BOLT M6X25	2
5	M150-1022000	OIL PUMP SUBASSY.	1

DRIVEN PULLEY AND CLUTCH SUBASSY.



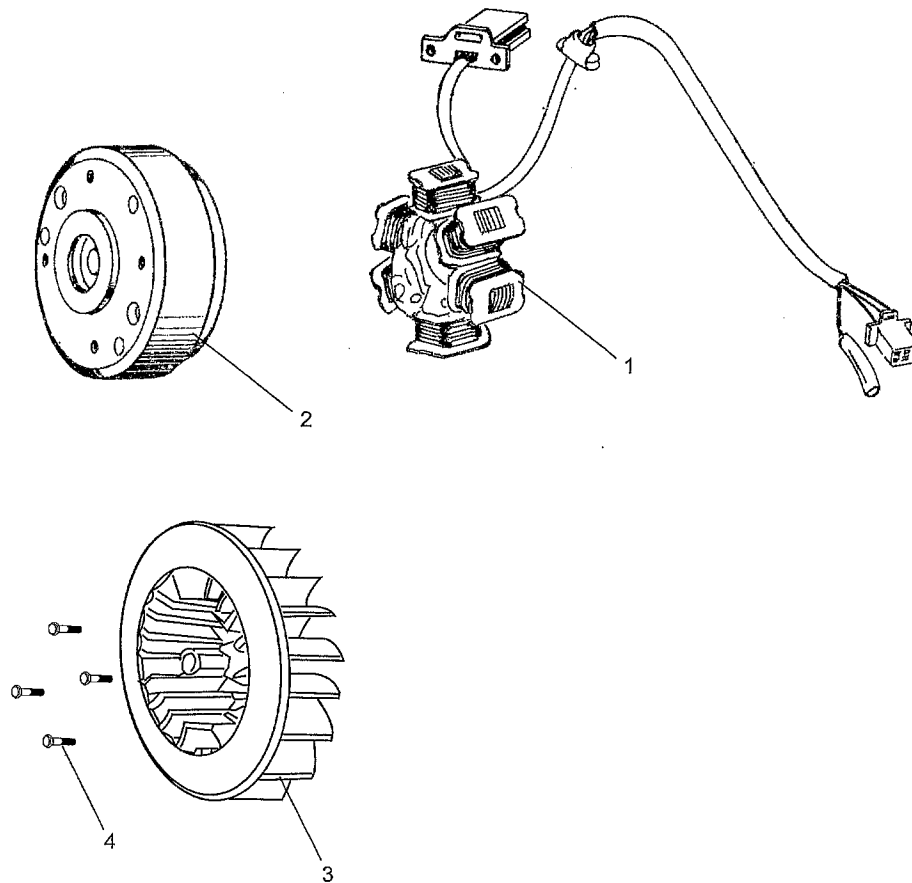
DRIVEN PULLEY AND CLUTCH SUBASSY.				
REF NO.	PART NO.	DESCRIPTION	REGD NO.	
1	M150-1032000	CLUTCH ASSY. OUTER	1	
2	M150-1033000	DRIVE BELT	1	
3	M150-1031000	DRIVEN PULLEY ASSY.	1	

TRANSMISSION ASSY.



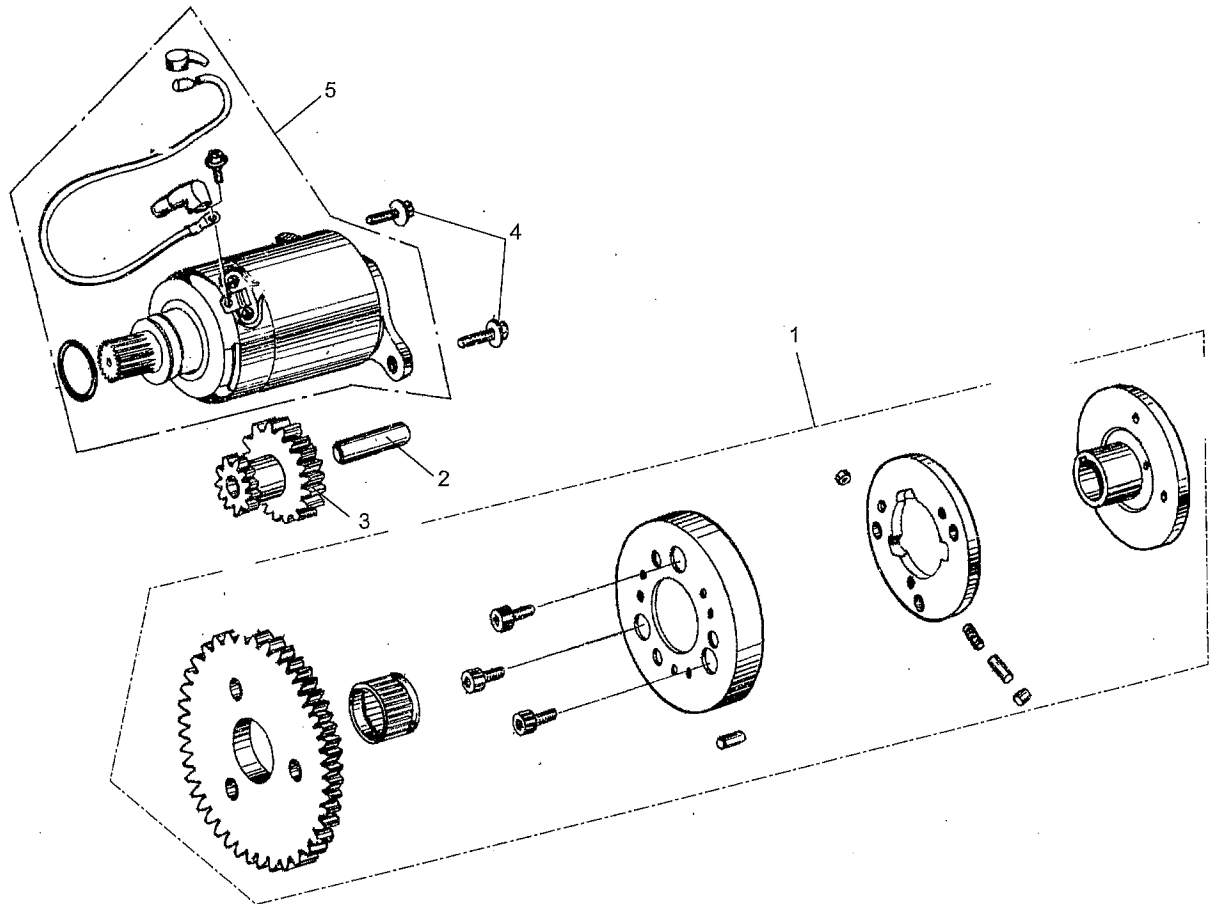
TRANSMISSION ASSY.			
REF NO.	PART NO.	DESCRIPTION	REGD NO.
1	M150-1040001	TRANSMISSION COVER	1
2	M150-1041000	TRANSMISSION COVER GASKET	1
3	91004-E6203-KAT	RADIAL BALL BEARING E6203	1
4	91004-E6202-KAT	RADIAL BALL BEARING E6202	1
5	91004-E6204-KAT	RADIAL BALL BEARING E6204	1
6	M150-1040008	SPECIAL BOLT M8X12	2
7	M150-1040002	WASHER Φ 8	1
8	M150-1042000	OIL SEAL 20X32X6	1
9	M150-1040004	FINAL GEAR	1
10	94510-20000	EXTERNAL CIRCLIP 20	1
11	M150-1040003	FINAL SHAFT	1
12	M150-1043000	COUNTER SHAFT COMP.	1
13	M150-1040007	COMPRESSOR FLANGE NUT M12	1
14	M150-1040005	WASHER Φ 12	1
15	M150-1040006	DRIVE SHAFT	1

ELECTRIC SYSTEM



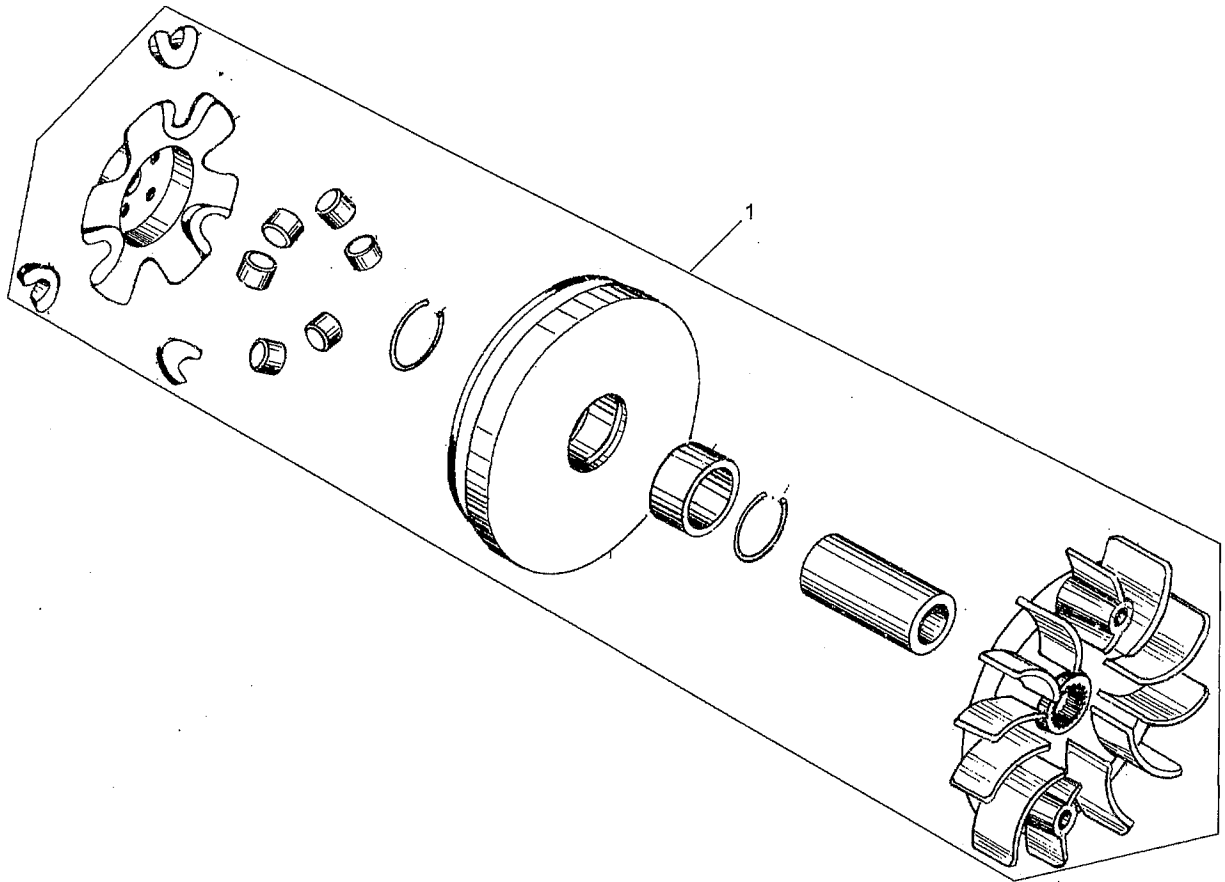
ELECTRIC SYSTEM			
REF NO.	PART NO.	DESCRIPTION	REGD NO.
1	M150-1051200-8	STATOR COMP.	1
2	M150-1051100	FLYWHEEL COMP.	1
	M150-1051100-3	COOLING FAN COMP.	1
	M150-1051100-4	FLANGE BOLT M6x18	4

ELECTRIC STARTER ASSY.



ELECTRIC STARTER ASSY.			
REF NO.	PART NO.	DESCRIPTION	REGD NO.
1	M150-1060001	FLANGE STARTING CLUTCH	1
2	M150-1060002	STARTER REDUCTION GEAR SHAFT	1
3	M150-1060003	STARTER REDUCTION GEAR	1
4	M150-1060005	FLANGE BOLT M6X16	2
5	M150-1064000	STARTER MOTOR ASSY.	1

DRIVE PULLEY SUBASSY.



DRIVE PULLEY SUBASSY.			
REF NO.	PART NO.	DESCRIPTION	REGD NO.
1	M150-1071000	MOVABLE DRIVE PULLEY ASSY.	1

FIG.15

CARBURETOR

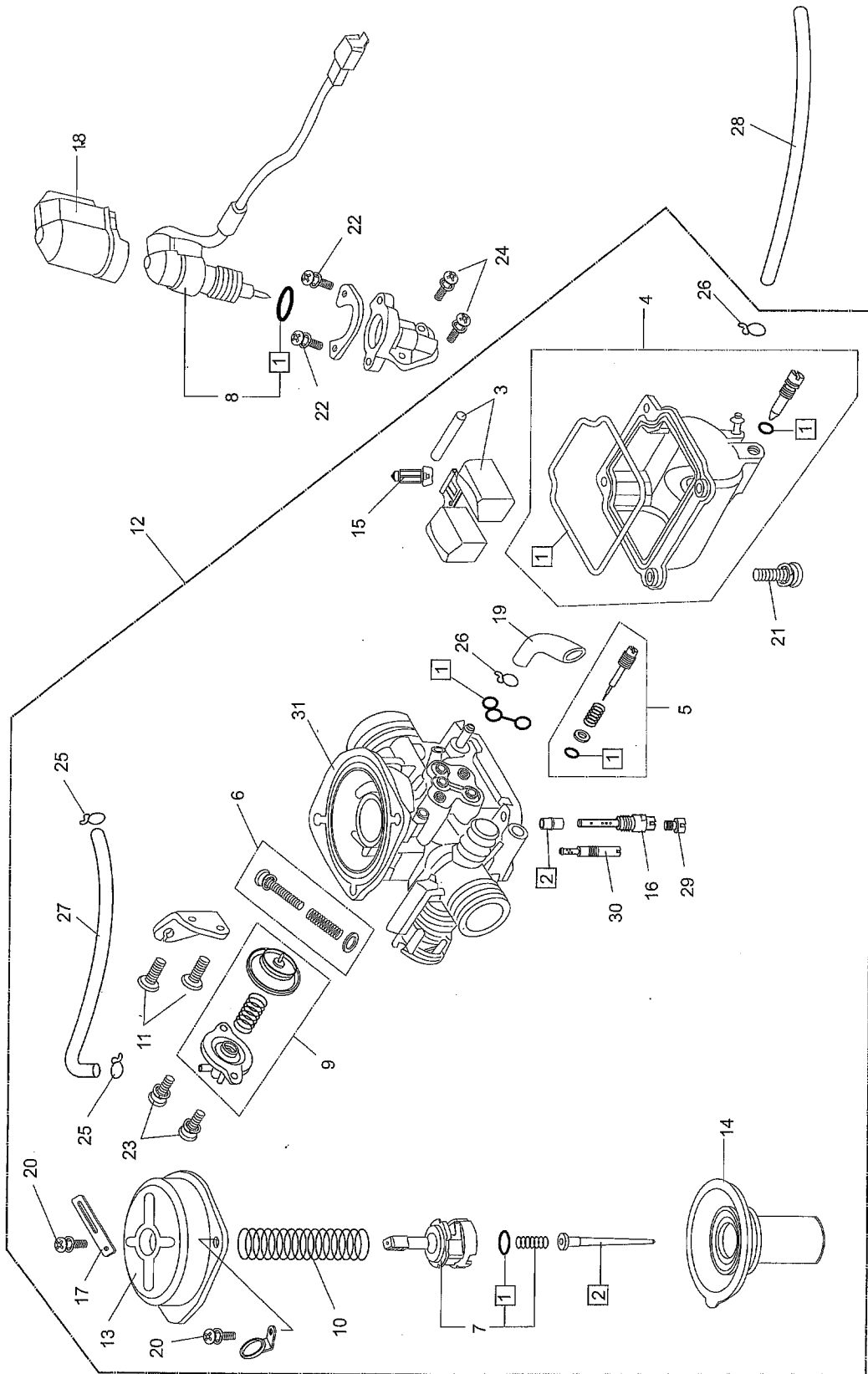
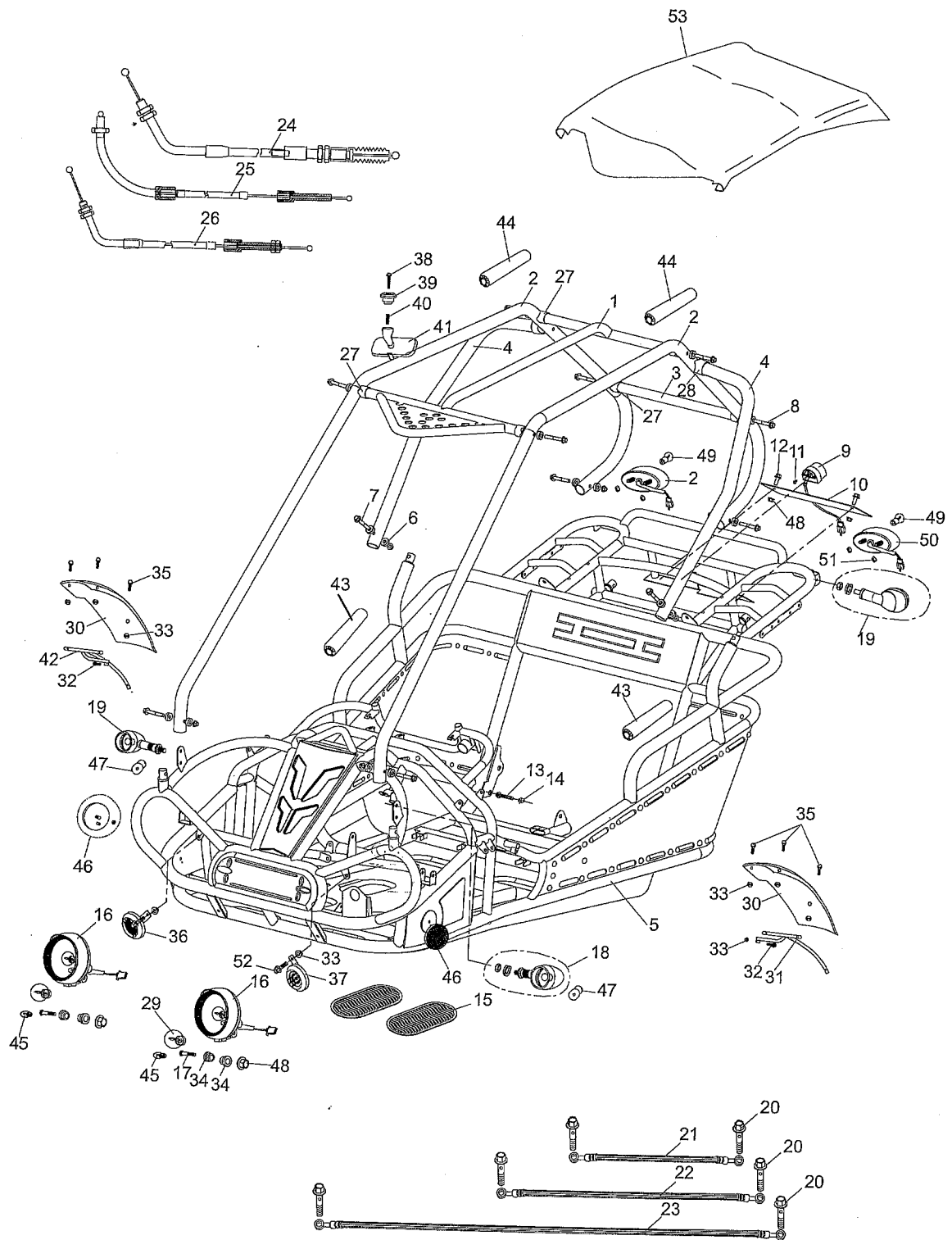


FIG. 16

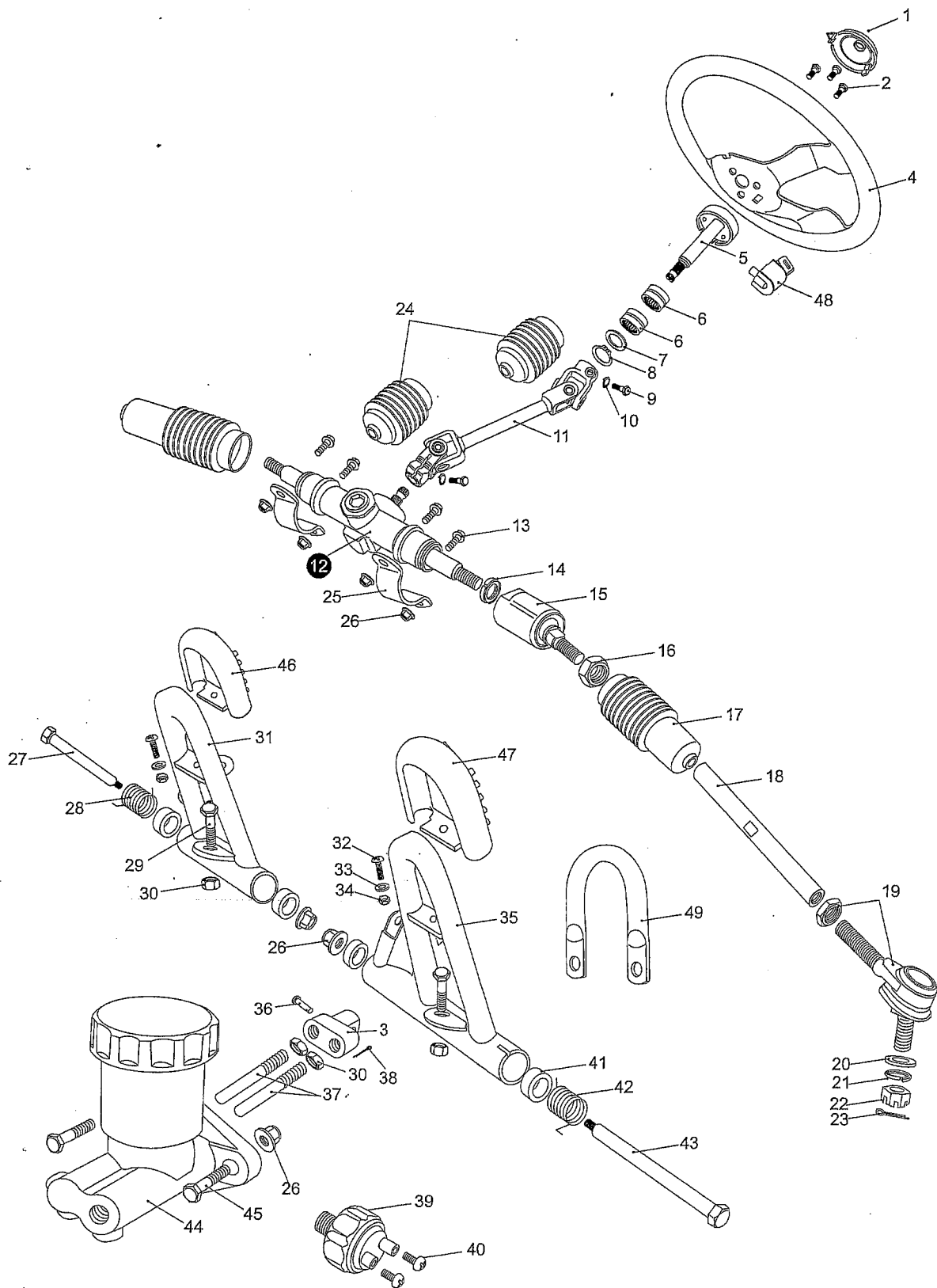
FRAME GROUP



FRAME GROUP			
REF NO.	PART NO.	DESCRIPTION	REGD NO.
1	6.000.261	C.B.C. CROSS BAR, FR (B.R.S.)	1
2	8.070.049	C.B.C. BAR CAGE (B.R.S.)	2
3	8.080.042	C.B.C. CROSS BAR, RR (B.R.S.)	1
4	8.070.048	C.B.C. BAR, L./R. SIDE (B.R.S.)	2
5	2.000.048	FRAME COMP. (B.R.S.)	1
6	8.010.047	R-WASHER	18
7	9.908.050N	SOCKET BOLT M8 x 1.25 x 50	6
8	9.908.055N	SOCKET BOLT M8 x 1.25 x 55	10
9	6.000.241	LICENSE LIGHT ASSY.	1
10	7.010.065	LICENSE PLATE	1
11	9.804.003	SCREW ST3.5x10	2
12	9.108.020	BOLT M8 x 20	2
13	9.112.025	BOLT-WASHER M12 x 1.25 x 25	2
14	9.220.012	LOCKING FLANGE NUT M12	2
15	7.020.012	RUBBER FOOT PLATE	2
16	6.000.104	HEADLIGHT UNIT	2
17	9.108.050	BOLT-WASHER M8 x 1.25 x 50	2
18	6.000.155	WINKER LIGHT ASSY. L. FR./R.RR.	2
19	6.000.156	WINKER LIGHT ASSY. R. FR./L.RR.	2
20	9.700.004	BANJO BOLT M10x24	6
21	6.000.089	BRAKE HOSE ASSY. L. 34"	1
22	6.000.090	BRAKE HOSE ASSY. R. 43"	1
23	6.000.230	BRAKE HOSE ASSY. RR. 80"	1
24	6.000.232	THROTTLE CABLE COMP.	1
25	6.000.040	REVERSE CABLE COMP.	1
26	6.000.231	PARKING BRAKE CABLE COMP.	1
27	7.010.017	TUBE SEAT Φ 25	6
28	7.010.016	TUBE SEAT Φ 32	2
29	9.090.003	HEADLIGHT BULB 35W/35W/ 12V	2
30	7.010.034	FENDER, FR.	2
31	6.000.067	FRONT FENDER BRACKET, L.	1
32	9.100.640	BOLT M6 x 40	2
33	9.210.008	LOCKING FLANGE NUT M6	10
34	7.020.049	HEADLIGHT RUBBER MOUNT	4
35	9.106.014	BOLT-WASHER M6 x 14	6
36	6.000.135	HORN, H.	1
37	6.000.136	HORN, L.	1
38	9.100.525	BOLT M5 x 25	1
39	8.010.086	REAR MIRROR MOUNT	1
40	8.040.005	REAR VIEW MIRROR SPRING	1
41	6.000.084	REAR MIRROR ASSY.	1
42	6.000.102	FRONT FENDER BRACKET, R.	1
43	6.000.083	FOAM PADDING-1	2
44	6.000.116	FOAM PADDING-2	2
45	9.000.004	POSITION LIGHT BULB 3W 12V	2
46	6.000.114	FRONT REFLECTOR	2
47	9.090.006	WINKER BULB 10W 12V	4
48	9.220.008	NUT M8	4
49	9.090.005	TAIL LIGHT BULB 21W/5W 12V	2
50	6.000.144	TAIL LIGHT	2
51	9.210.006	LOCK NYLON NUT M6	4
52	9.106.012	BOLT M6 x 12	2
53	6.000.269	BIKINI TOP	1

FIG.17

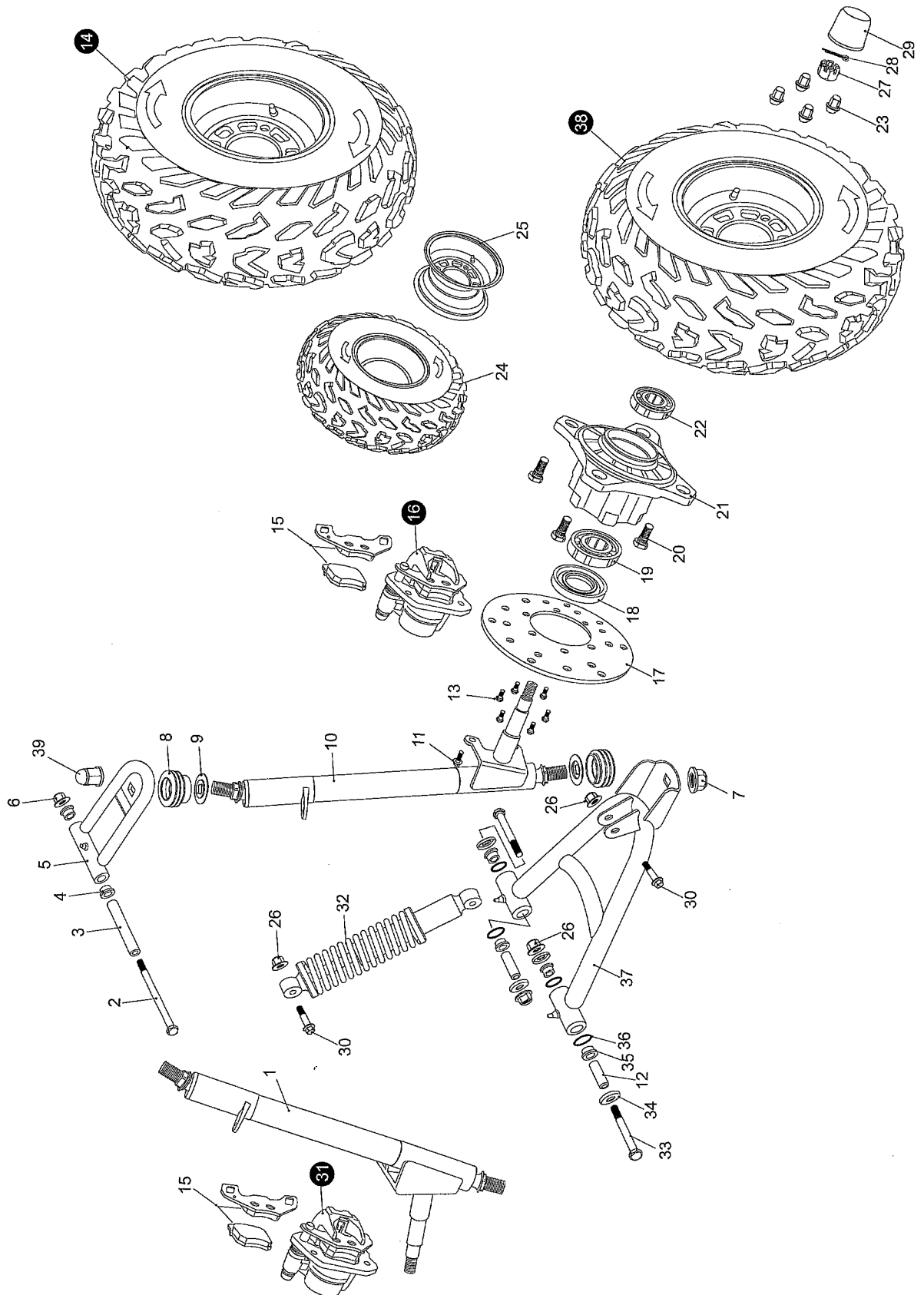
STEERING SHAFT ASSY.



STEERING SHAFT ASSY.			
REF NO.	PART NO.	DESCRIPTION	REGD NO.
1	7.010.041	STEERING BOLT COVER	1
2	9.100.612	BOLT STRAP M6x12	3
3	8.030.024	SPINDLE BRACKET	1
4	7.020.038	STEERING WHEEL	1
5	6.000.122	STEERING SHAFT	1
6	9.030.012	BEARING NK20/16	2
7	9.700.020	SPECIAL WASHER $\Phi 20$	1
8	9.700.120	CIRCLIP $\Phi 20$	1
9	9.100.825	BOLT M8x25	2
10	9.400.008	LOCKING WASHER $\Phi 8$	2
11	6.000.093	STEERING KNUCKLE	1
12	4.000.035	STEERING GEAR	1
13	9.108.025	BOLT-WASHER M8x1.25x25	4
14	9.900.016	ROUND NUT M16x1.5	2
15	4.000.008	STEERING BALL JOINT	2
16	9.200.010	NUT M10	2
17	7.020.002	BALL JOINT DUST COVER. L.	2
18	8.010.157	TIE ROD	2
19	6.000.062	ROD END	2
20	9.300.010	FLAT WASHER $\Phi 10$	2
21	9.400.010	LOCKING WASHER $\Phi 10$	2
22	9.800.010	CASTLE NUT M10	2
23	9.500.215	COTTER PIN $\Phi 2 \times 15$	2
24	7.020.066	BALL JOINT DUST COVER	2
25	8.020.014	STEERING GEAR BRACKET	2
26	9.220.008	LOCKING FLANGE NUT. M8	8
27	9.708.145	THROTTLE PEDAL BOLT M8x1.25x145	1
28	8.040.001	THROTTLE PEDAL RETURN SPRING, L	1
29	9.108.040	BOLT-WASHER M8x1.25x40	2
30	9.200.008	NUT M8	2
31	4.000.016	THROTTLE PEDAL COMP.	1
32	9.600.515	PAN SCREW M5x15	2
33	9.300.005	FLAT WASHER $\Phi 5$	2
34	9.210.005	NYLON LOCK NUT M5	2
35	4.000.015	BRAKE PEDAL COMP	1
36	9.700.624	PIN 6x24	1
37	8.010.081	SPINDLE PIN	2
38	9.500.212	COTTER PIN 2X12	1
39	6.000.063	BRAKE LAMP SWITCH ASSY.	1
40	9.600.306	PAN SCREW M3x6	2
41	7.010.004	PEDAL BUSH	4
42	8.040.007	BRAKE PEDAL RETURN SPRING, R	1
43	9.708.222	BRAKE PEDAL BOLT M8x1.25x222	1
44	6.000.076	MASTER CYLINDER	1
45	9.108.035	BOLT-WASHER M8x1.25x35	2
46	7.020.036	THROTTLE PEDAL PAD	1
47	7.020.037	BRAKER PEDAL PAD	1
48	6.000.134	STEERING WHEEL LOCK	1
49	8.070.044	MASTER CYLINDER BRACKET	1
			2

FIG.18

SUSPENSION ARM ASSY.



SUSPENSION ARM ASSY.			
REF NO.	PART NO.	DESCRIPTION	REGD NO.
1	2.000.028	STRUT AND SPINDLE SUPPORT, R	1
2	9.108.105	BOLT-WASHER M8x1.25x105	2
3	8.010.015	UPPER SUSPENSION ARM COLLAR	2
4	7.010.003	UPPER SUSPENSION ARM BUSH	4
5	4.000.004	UPPER SUSPENSION ARM	2
6	9.220.008	LOCKING FLANGE NUT. M8	2
7	7.010.140	LOCKING FLANGE NUT. M12	4
8	7.020.025	BALL HEAD DUST SEAL	4
9	8.020.053	BALL HEAD SPACER	4
10	2.000.027	STRUT AND SPINDLE SUPPORT, L	1
11	9.908.014	BOLT STRAP M8x14	4
12	8.010.014	LOWER SUSPENSION ARM COLLAR	4
13	9.906.012	BOLT STRAP M6x12	12
14	6.000.141	FR. WHEEL ASSY. R 20x7-8	1
15	7.020.016	PAD SET. FR. BRAKE CALIPER	2
16	6.000.028	FRONT BRAKE CALIPER. L	1
17	8.010.054	DISC. FR. BRAKE	2
18	9.040.002	DUST SEAL 47x25-7	2
19	9.030.002	BEARING 6204-Z	2
20	9.710.031	TIRE BOLT M10x1.25x31	8
21	8.010.085B	FR. WHEEL HUB	2
22	9.030.010	BEARING 6202-Z	2
23	8.010.118	CAP LUG NUT M10	8
24	7.020.050	TIRE. FR 20x7-8	2
25	6.000.142B	RIM. FR	2
26	9.220.010	LOCKING FLANGE NUT M10	16
27	9.800.012	CASTLE NUT M12	2
28	9.500.220	COTTER PIN Φ 2x20	2
29	7.020.039	FR. HUB COVER.	2
30	9.110.040	BOLT-WASHER M10x1.25x40	4
31	6.000.095	FRONT BRAKE CALIPER. R	1
32	6.000.325	CUSHION ASSY. FR L=325	2
33	9.110.080	BOLT-WASHER M10x1.25x80	4
34	8.020.034	LOWER SUSPENSION ARM DUST CAP	8
35	7.010.002	LOWER SUSPENSION ARM BUSH	8
36	9.040.001	O-RING Φ 21.2x2.65	8
37	4.000.023	LOWER SUSPENSION ARM ASSY.	2
38	6.000.140	FR. WHEEL ASSY. L 20x7-8	1
39	8.010.140	ACORN NUT M12	2

FIG.19

SPEAKER/SEAT/BELT

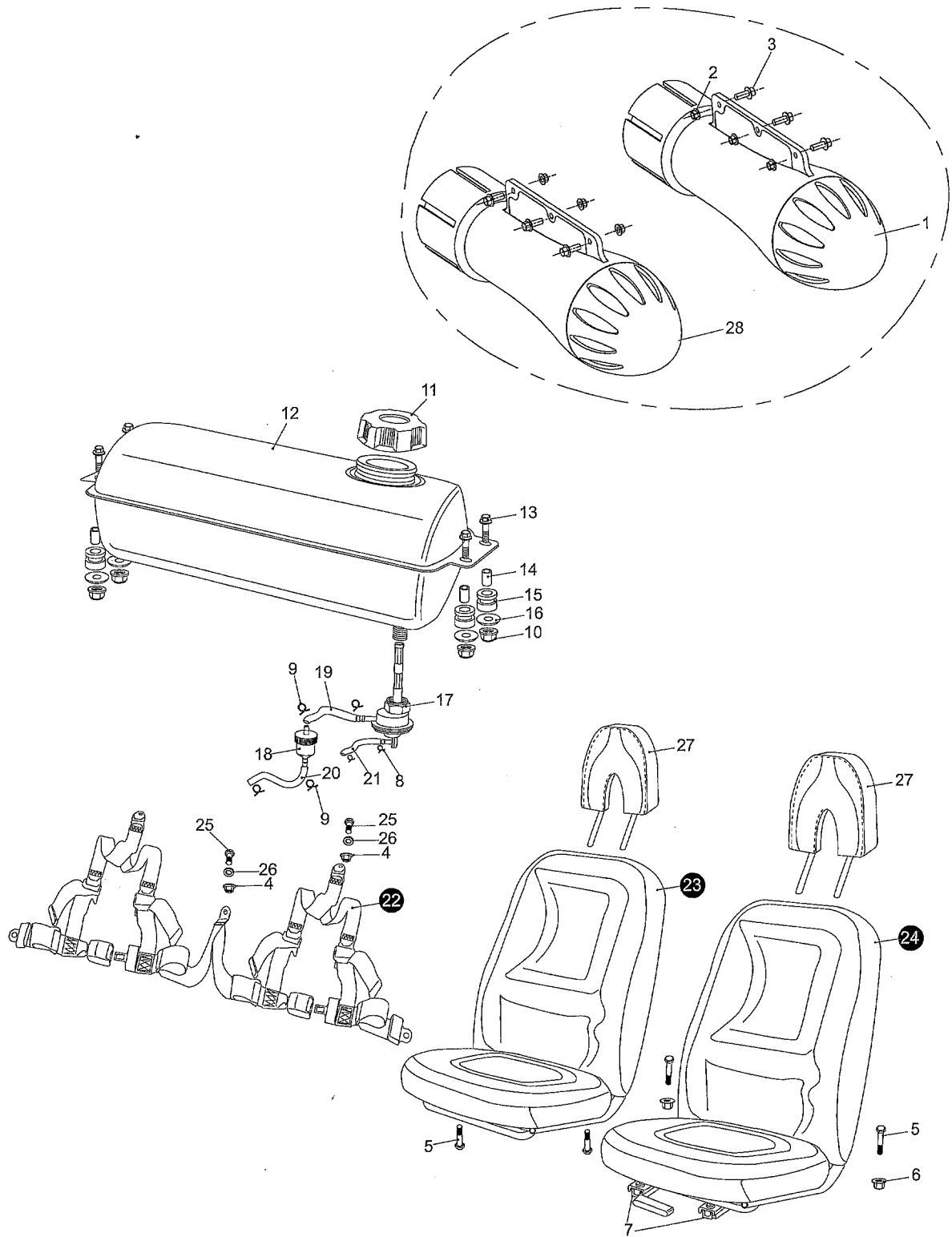


FIG.20

REAR SWING ARM ASSY. UPPER

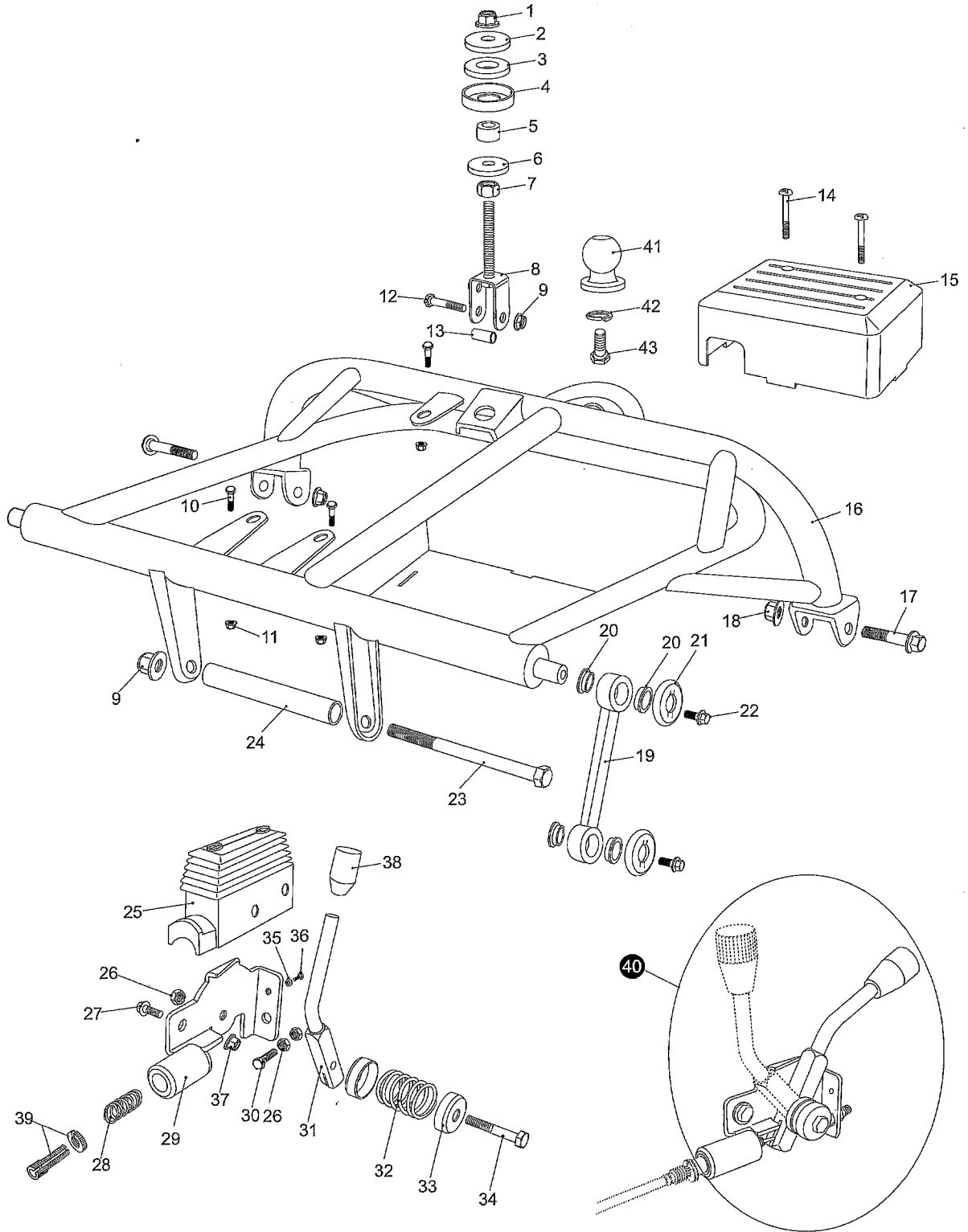


FIG.21

ENGINE/MUFFLER/AIR CLEANER

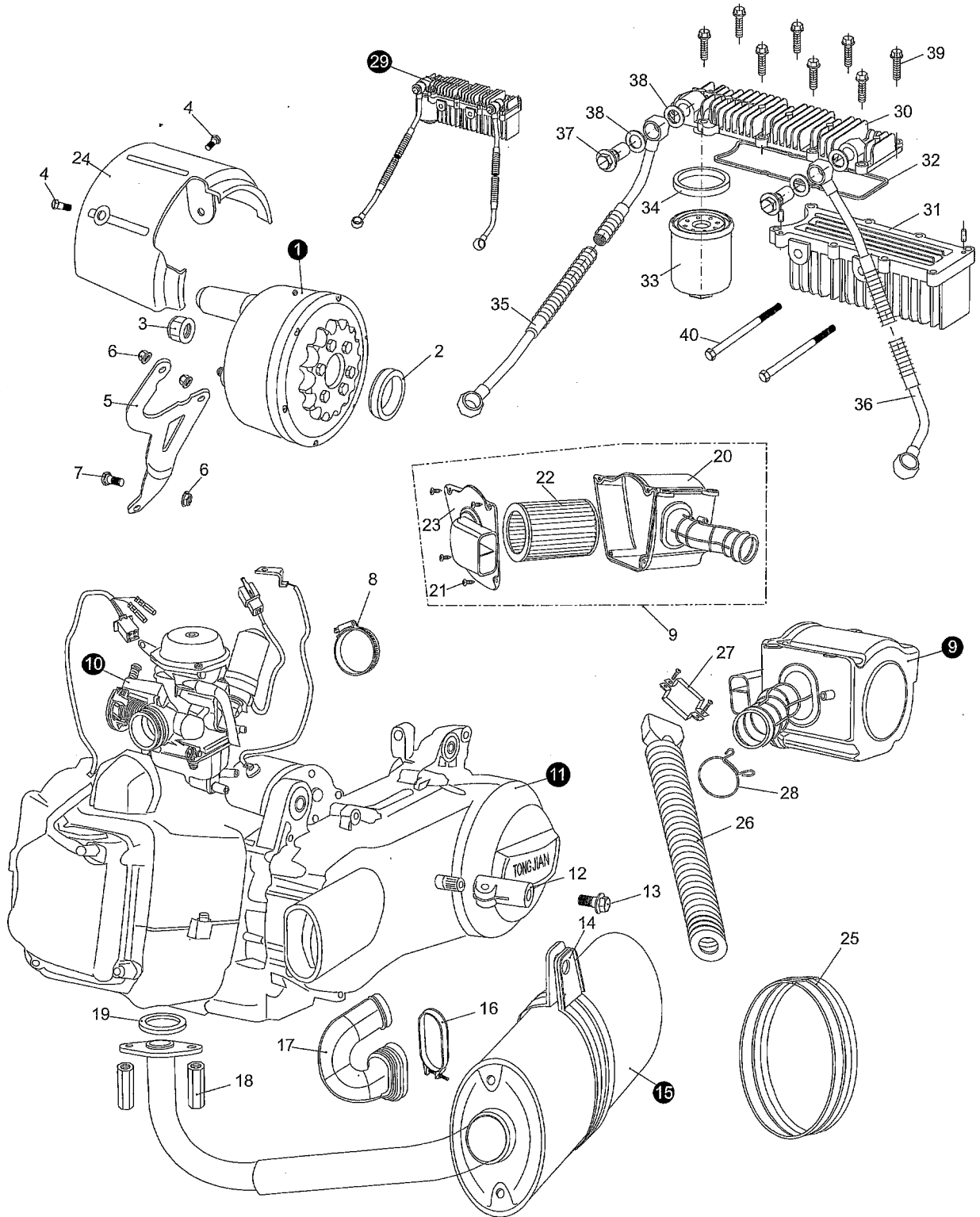


FIG.22

REAR SWING ARM

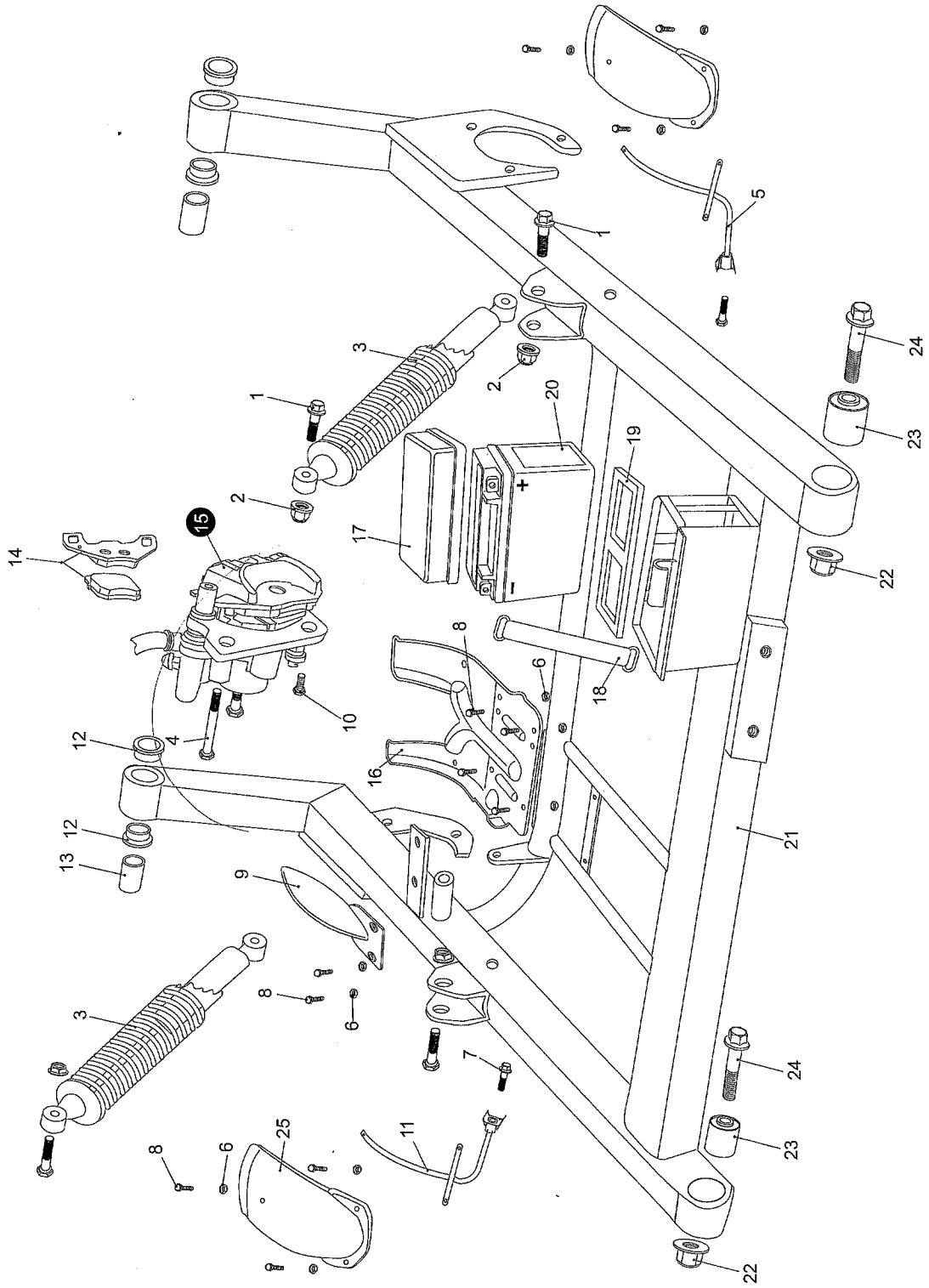
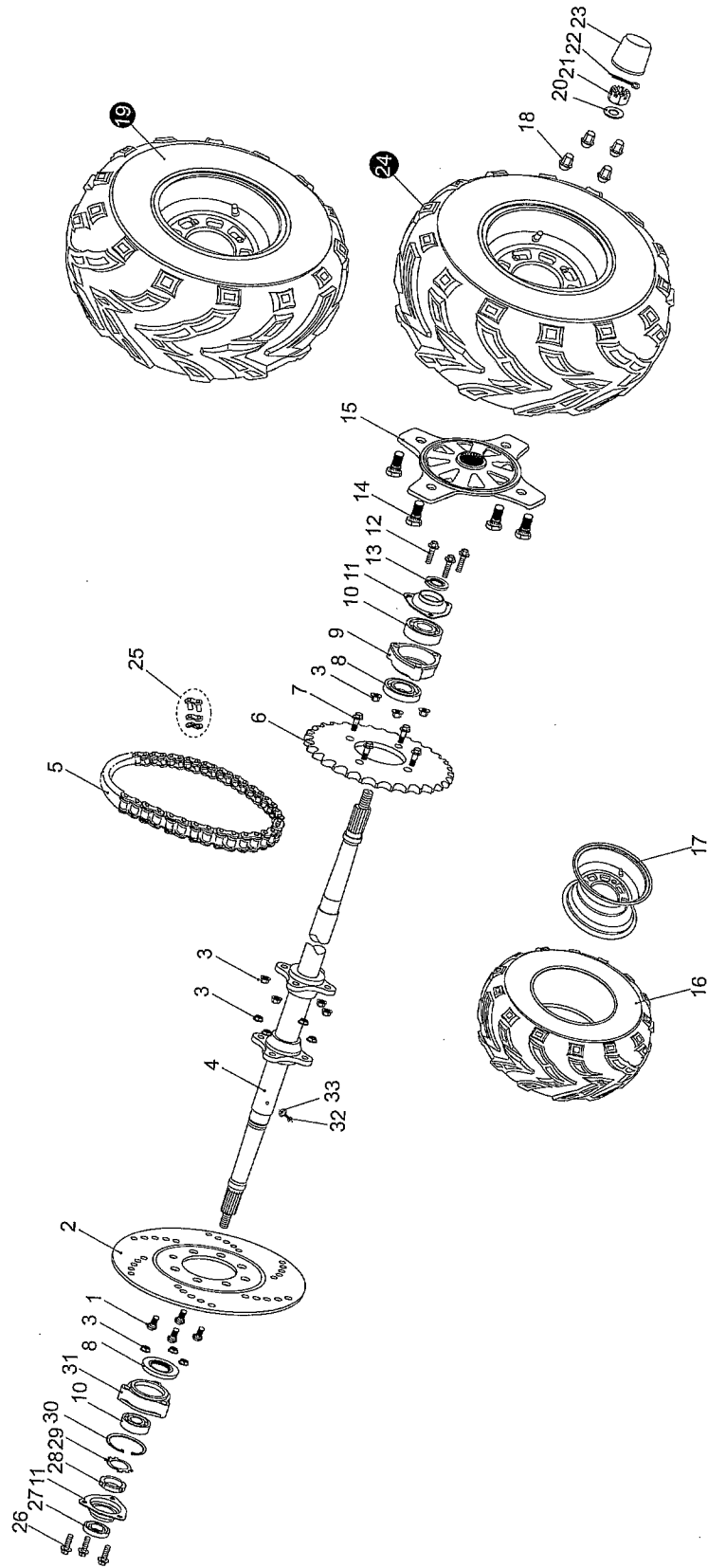


FIG.23

REAR HOUSING



REAR HOUSING			
REF NO.	PART NO.	DESCRIPTION	REGD NO.
1	9.108.022	BOLT-WASHER M8x1.25x22	4
2	8.010.053	BRAKE DISC. RR	1
3	9.220.008	LOCKING FLANGE NUT M8	14
4	8.010.057B	REAR AXLE	1
5	9.070.002	CHAIN O-RING DRIVE	1
6	8.010.077	REAR SPROCKET	1
7	9.108.027	BOLT-WASHER M8x1.25x27	4
8	9.040.006	DUST SEAL 50X34-7	2
9	8.030.008	AXLE BRG HOUSING COMP. RR	2
10	9.030.006	BEARING 6206	2
11	8.020.028	BEARING BASE	2
12	9.108.040	BOLT-WASHER M8x1.25x40	6
13	9.040.007	DUST SEAL 42X30-7	2
14	9.710.031	TIRE BOLT M10x1.25x31	8
15	8.010.089B	REAR AXLE HUB	2
16	7.020.052	TIRE. RR 22x10-10	2
17	6.000.143B	RIM. RR	2
18	8.010.118	CAP LUG NUT M10	8
19	6.000.148	REAR WHEEL ASSY. R	1
20	9.700.016	SPACER. RR. WHEEL Φ 16	2
21	9.800.016	CASTLE NUT M16	2
22	9.500.430	COTTER PIN Φ 4X30	2
23	7.020.039	COVER. RR. HUB	2
24	6.000.147	REAR WHEEL ASSY. L	1
25	6.000.149	CHAIN MASTER LINK	1
26	9.108.045	BOLT-WASHER M8x1.25x45	3
27	9.040.008	DUST SEAL 42X28-7	1
28	9.900.030	ROUND NUT M30X1.5	1
29	8.020.181	KEEPER	1
30	9.700.300	CIRCLIP Φ 62	1
31	8.030.033	AXLE BRG HOUSING COMP. RR	1
32	9.600.308	SCREW PAN M3X8	1
33	7.050.001	MAGNETIC STEEL	1

FIG.24

WIRE HARNESS/ELECTRICAL

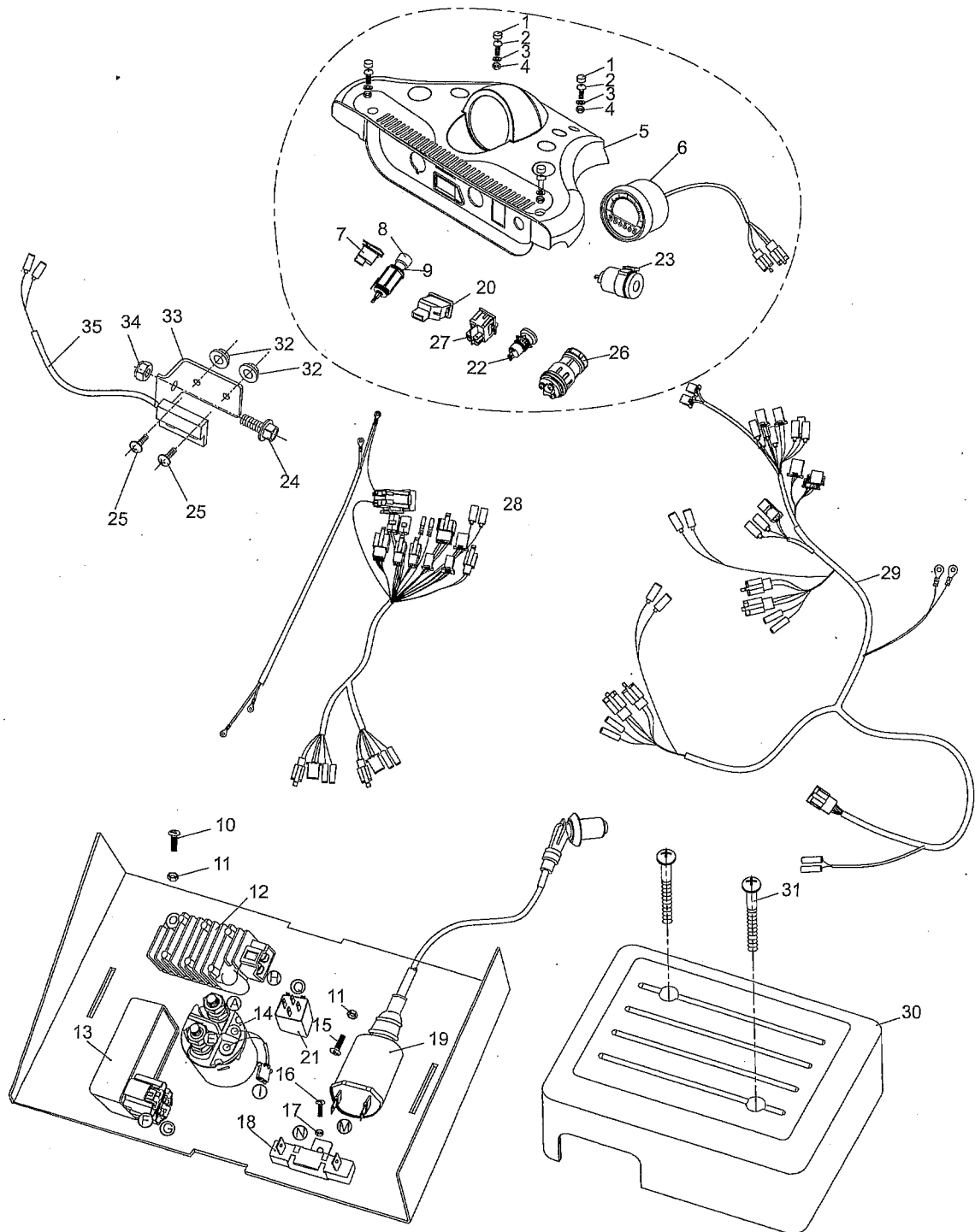
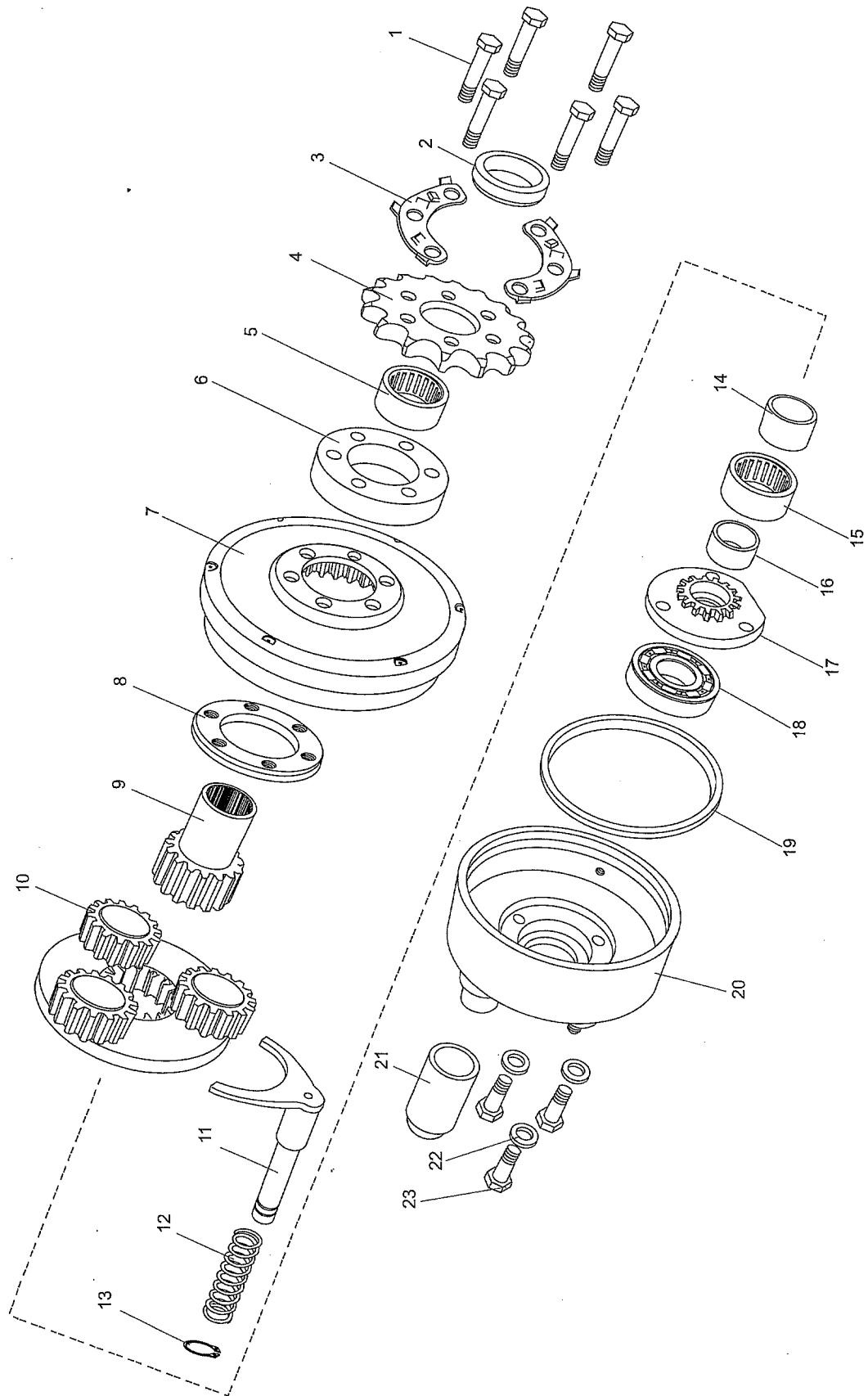


FIG.25

REVERSE ASSY.



WARNING STICKERS



WARNING STICKERS			
REF NO.	PART NO.	DESCRIPTION	REGD NO.
1	9.090.007	PARKING BRAKE LABEL	1
2	9.090.008	REVERSE LEVER LABEL	1
3	9.090.009	CHAIN GUARD LABEL	1
4	9.090.010	NO LONG HAIR LABEL	1
5	9.090.011	WARNING LABEL	1
6	9.090.012	NO CLIMBING LABEL	1
7	9.090.013	WARNING LABEL	1
8	9.090.014	SEAT BELT LABEL	1
9	9.090.015	HAMMERHEAD FR LABEL	1
10	9.090.016	TWISTER LABEL	3
11	9.090.017	WARNING LABEL	1
12	9.090.018	FUEL TANK LABEL	1
13	9.090.019	SIDE PLATE LABEL	1
14	9.090.020	SIDE PLATE LABEL	1