free spirit® MOPED

2B 80848
JANUARY, 1978

Sears

moped repair and parts manual

SEARS MOPEDS
MODEL NO'S

8080 8084
8081 8085
8082 8086
8083

PART NO. 80848

CONTENTS

PART 1

PART 2

SECTION I

LUBRICATION AND MAINTENANCE

LUBRICATION AND MAINTENANCE

ROUTINE MAINTENANCE SCHEDULE:

The general and periodic maintenance required for FREE SPIRIT Mopeds is clearly described in the following pages, and should be performed at the mileage intervals shown in the following chart.

LUBRICATION & MAINTENANCE CHART

		Frequency in miles				
	First	Every				
OPERATIONS TO PERFORM	300	600	900	1,800	3,600	7,200
Tire wear and condition	×	×		×	×	×
Throttle cable adjustment	×		×	×	×	×
Check tire pressure	×	×	×	×	×	×
Check gearbox oil level		×	×	×	×	×
Clean and lubricate chain	×		×	×	×	×
Clean air filter	×		×	×	×	×
Change gearbox oil	×				×	×
Check spark plug	×		×	×	×	×
Decarbonize engine				×	×	×
Clean exhaust baffle				×	×	×
Retighten screws, nuts (inc. head nuts)	×			×	×	×
Clean fuel valve and lines					×	×
Clean carburetor				×	×	×
Idle speed adjustment	×			×	×	×
Check ignition timing					×	×
Adjust clutch	×				×	×
Check brakes/linings	×		×	×	×	×
Check/lubricate hub bearings					×	×
Steering bearing adjust/lubrication						×
Lubricate control cables	×		×	×	×	×
Adjust chain tension	×			×	×	×
Lubricate front fork					×	

NOTE: Above time schedule applies to moped use on dry paved surfaces. If moped is used in wet, muddy or sandy areas, maintenance should be more frequent. Always check controls and lighting before any trip.

RECOMMENDED LUBRICANTS

GASOLINE-OIL MIX

1) Mixture of regular gasoline
2) Mixture ratio 50 : 1 with special two stroke oil

GEARBOX FLUID

1) 5.74 oz (170 cc) Automatic Transmission Fluid, Type "F"

MACHINE LUBRICATION

GREASE (TYPE) LUBRICATION

1) Lithium base grease

OIL (TYPE) LUBRICATION

1) SAE 90
2) SAE 30

LUBRICATION AND MAINTENANCE

LUBRICATION

Changing gear box oil

1) Warm up the engine. / Stop engine.
2) Remove the oil filling plug (figure 1/1) and oil drain plug (figure 1/2).
3) Drain oil.
4) Replace drain plug.
5) Fill with fresh automatic transmission fluid-TYPE F ONLY-(approx. 170 cc) to bottom of filling screw hole.
6) Replace oil filling plug.

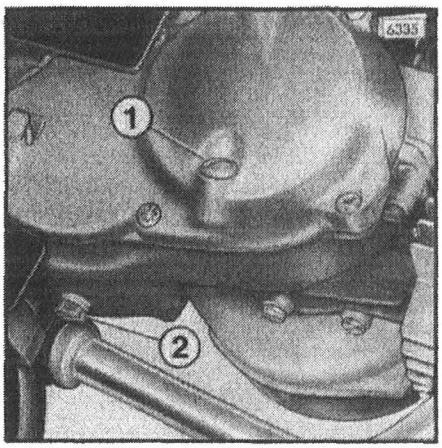


Fig. 1

Cleaning and oiling the chains

CAUTION: ENGINE SHOULD NOT BE RUNNING.

The long life of chains depends to a great extent on care and maintenance. Chains should always be cleaned and lubricated regulary. When refitting the chains, take care that the tension is correct and the connecting links are properly placed – with the closed end pointing in the direction of chain travel (figure 2).

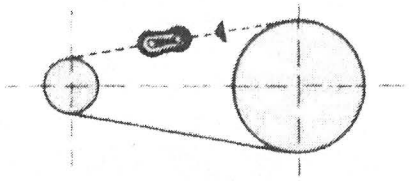


Fig. 2

Greasing cycle parts
By means of lubricating grease

(for quality see lubrication chart) (page 4)

Speedometer drive lubrication (Not model 8080)
1) At the lubrication nipple (figure 3/1) one or two strokes out of the grease gun.

Kick stand bearing
1) Remove the stand spring. Remove 3 hexagon bolts. Remove stand. Grease both halves of the stand pivot.

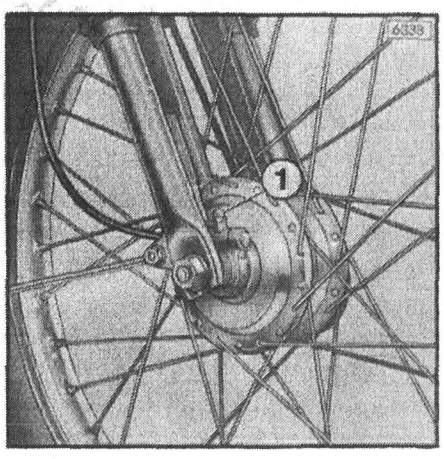


Fig. 3

By means of oil

1) Brake adjusting screw on front and rear wheel.
2) Adjusting screw for starting clutch cable.
3) Chain tensioning screws.
4) Working surfaces of both brake levers.
5) Bowden cables.

Lubricating the ignition cam:

Lubricate the grease felt. The lubricant must not reach the breaker points as this would cause premature and excessive wear.

MAINTENANCE

Please contact an authorized Sears Auto Center for work you do not wish to carry out yourself. The agent will be pleased to advise and help.

Checking spark plugs

Unscrew spark plug, connect to high tension lead and place plug body to earth, for instance on the cylinder head. A strong spark must be visible between the spark plug electrodes when operating the starter. Oiled up plugs or dirty electrodes do not spark and must be cleaned first with a piece of wood or a steel wire brush. Fit only replacement plugs having a heat value in accordance with the enclosed chart (page 18). The electrode gap should be from (.016– .020 in) 0.4 to 0.5 mm, if larger, adjust by bending the earth electrode. When replacing the spark plug ensure thread matches properly and the plug can be screwed in easily. Never apply force. Screw in plug by hand for 2 to 3 turns before using the spark plug spanner.
Appearance of the plug tip can tell you how your engine has been running.

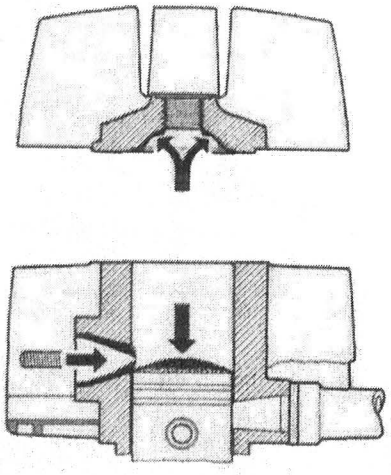


Fig. 4

MAINTENANCE

Decarbonizing the engine (figure 4)

Carbon deposits on the cylinder head, piston crown and in the exhaust ports are normal with all two-stroke engines and can eventually lead to trouble if not removed in time. Combustion deposits from oil as well as from fuel must therefore be removed regularly.

Cylinder head and piston head

Carbon deposits on the cylinder head and piston crown should be removed only with a soft, blunt edged instrument to avoid damage to the light alloy casting. Scratching should be avoided since every new scratch will harbour more carbon in future use.
Only scally deposits need be removed from the piston crown, there is no need to disturb the piston if it is covered only by a uniform layer of oil carbon. Before refitting the cylinder head, thoroughly remove all carbon deposits and scrapings from the cylinder wall with a nonfraying soft cloth and smear the surface lightly with motor oil. Before assembly, turn over the engine a few times to make sure it runs easily. Then clean the jointing surfaces with a clean rag. Tighten the four cylinder head nuts crosswise (7 ft/lb) (10 Nm).

Exhaust port

In order to clean the exhaust port, remove the exhaust pipe. By cranking, turn the engine over (with the spark plug removed to reduce compression) until the piston reaches its lowest point. Remove the oil carbon from the exhaust port. Cautiously take care not to damage the piston or cylinder working surfaces. When cleaning the exhaust port, it is also a good idea to clean out the muffler.

Cleaning the muffler (figure 5)

Unscrew and pull off the exhaust endpiece. Remove oil-carbon deposits from the inside of the muffler using a scraper. Also remove carefully the oil deposits from the fastening device and from the pipes of the exhaust endpiece. Replace the gaskets if necessary. The machine has been standardized with original mufflers only.

NOTE: For further break-down of exhaust system refer to diagram on page 40

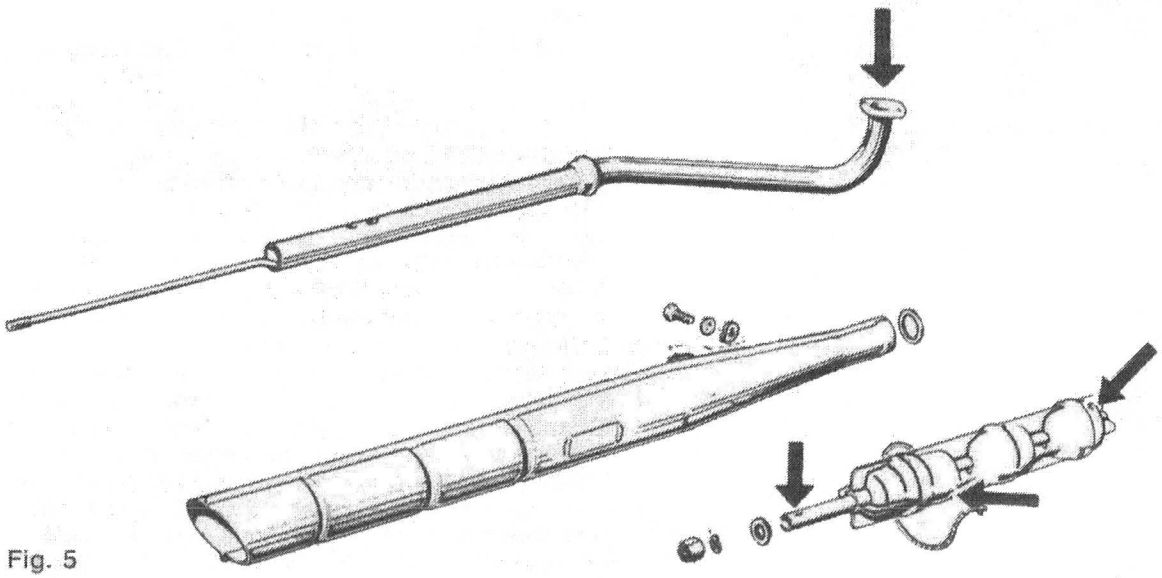


Fig. 5

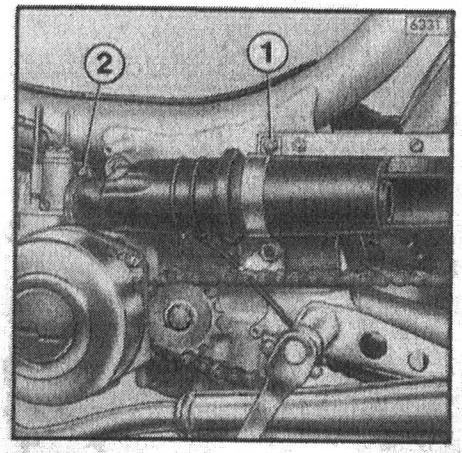


Fig. 6

Cleaning the air cleaner

Remove the left hand chain guard. Loosen screw (figure 6/1 and 6/2) of the clip on the intake silencer and pull air cleaner assembly from the carburetor. Remove front part of the air cleaner using a drift, carefully push out filter screen. Wash filter screen in gasoline or solvent and allow it to dry thoroghly before replacing. Fit again damper pipe, filter screen, and air cleaner assembly.

Cleaning the fuel pipes and lines

Empty fuel tank.
Pull the fuel pipe from the fuel valve and carburetor and blow it clear. Unscrew the fuel valve.
Clean the valve and strainer by means of gasoline.

Cleaning the carburetor

Maintenance operations on the carburetor are outlined in Section III, FUEL SYSTEM AND CARBURETION.

Cleaning the main jet, needle jet and float chamber.

1) Close the fuel valve.
2) Remove the left hand side covering.
3) Remove the intake silencer.
4) Loosen carburetor clamping screw (figure 7/1).
5) Pull the fuel pipe from the carburetor.
6) Turn the carburetor with its floats chamber (bottom) towards the clutch side and pull off.
7) Undo screws and pull out the top parts with throttle piston and choke (figure 7/2).
8) Screw off the float chamber.
9) Unscrew the main jet (figure 8/5) being screwed in the needle jet (figure 8/4) and clean by blowing through or by using a stiff bristle. Never use a piece of wire. Also, unscrew needle jet and clean.
10) Clean the float chamber (figure 8/8) with gasoline.
11) Wash carburetor body and blow through. Make sure that the bores are not clogged with dirt.
12) When refitting the jets, tighten them properly.

Adjusting the idling speed

1) Warm up the engine.
2) Completely close the twist grip (throttle down).
3) If the engine threatens to stall, screw in the adjuster (figure 7/3) until the engine, in warm condition, regains its even tickover.

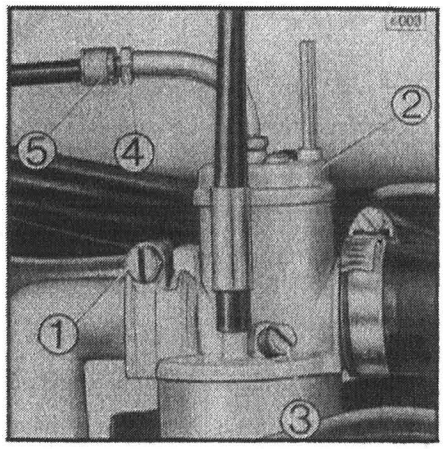


Fig. 7

Now, with the idling adjusted, adjust the play of the throttle control cable.

1) Loosen counter nut of the cable adjuster (figure 7/4).
2) Screw counter nut of the cable adjuster (figure 7/5) until there is a play on both the throttle cable and the throttle twist grip. The cover of the throttle cable can be pulled out from the cable adjuster by appr. .08 in. (2 mm), before the throttle slide is lifted, i. e. before the engine starts running faster.
3) Maintain position of the adjuster and tighten the counter nut.

Exploded view of the carburetor (see fig. 8)

1 Inlet manifold
2 Carburetor body
3 Throttle slide stop screw
4 Needle jet
5 Main jet
6 Float needle
7 Float
8 Float housing
9 Hose swivel connector
10 Throttle slider
11 Jet-needle
12 Choke valve
13 Choke lever
14 Top cover
15 Slide spring

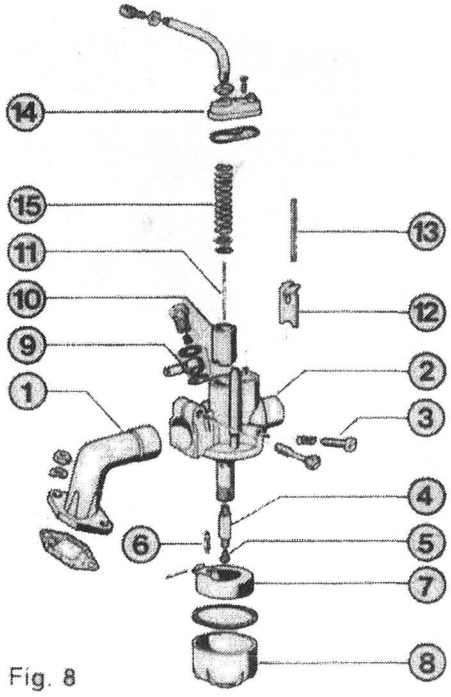


Fig. 8

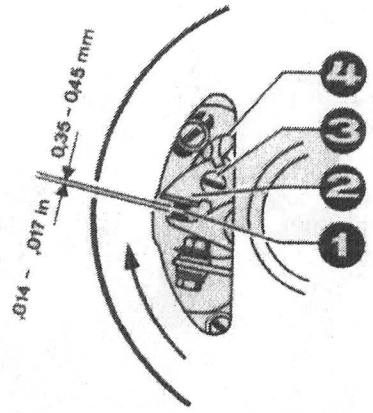


Fig. 9

Checking the ignition system

Ignition timing

The engine will reach maximum output if the ignition is correctly adjusted. This is a very specialized operation and should be left to your service station.
For correct ignitition timing, the following points should be taken into account:

1) Contact breaker points gap.
2) Firing point.

Contact breaker points gap (for recommended gap see fig. 9)

Check and adjust the gap through the windows in the flywheel magneto (after removing the cover). When adjusting the breaker gap (fig. 9/1) loosen the fastening screw (fig. 9/3) enabling the anvil (fixed contact) to be removed. For readjusting the position of the anvil, put a screwdriver into the setting seat (fig. 9/4). If the gap has been altered, it is necessary to check the ignition point.
For correct adjustment of the ignition timing see Section IV, page 42.

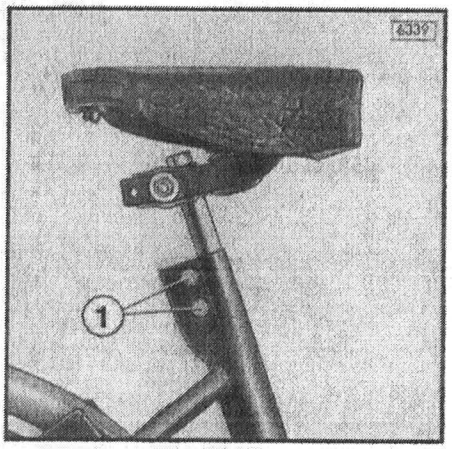


Fig. 10

Adjusting height of seat

Loosen screws (figure 10/1) and adjust seat and seat post as required. (Model 8080 ONLY)

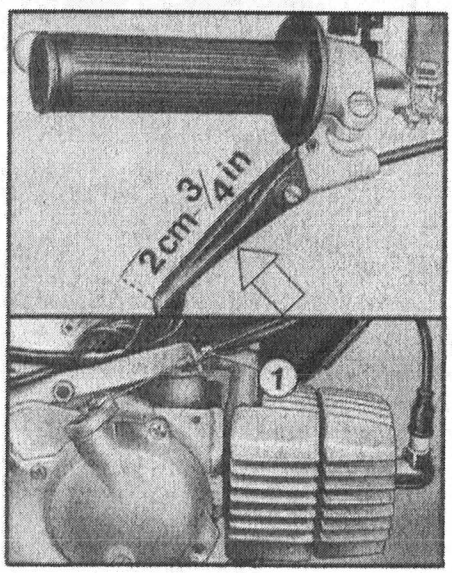


Fig. 11

Checking drive chain tension

The proper slack of the chain midway between the sprockets should be (3/4 in.) about 2 cm.
To readjust the chain, loosen both axle nuts and tighten both chain adjusters uniformly. This procedure enables the back wheel to be kept in track. Retighten both axle nuts. Refer to fig. 46, page 48.

Adjusting the starting lever

When originally adjusting or readjusting the control cables, necessary due to expanding of the cables, it is expedient to have this done in a service workshop. The play of the starting device lever (measured at the end of the lever) (figure 11, arrow), should be 2 cm (3/4 in). Correct play is achieved by the adjusting screw (figure 11/1).

Checking the brakes (figure 12 & 13)

Front brake
The correct adjusted travel measured at the end of the handbreake lever is 3/4 in. (fig. 12). For readjustment use the adjusting screws (12/1 or 12/2).

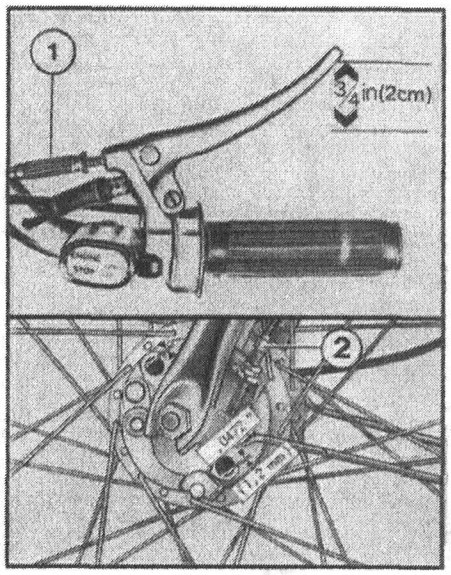


Fig. 12

Rear brake

The correct travel (measured at the end of the handbrake lever is 3/4 in. (2 cm). Readjust by means of the adjusting screw (figure 13/1 or 13/2).

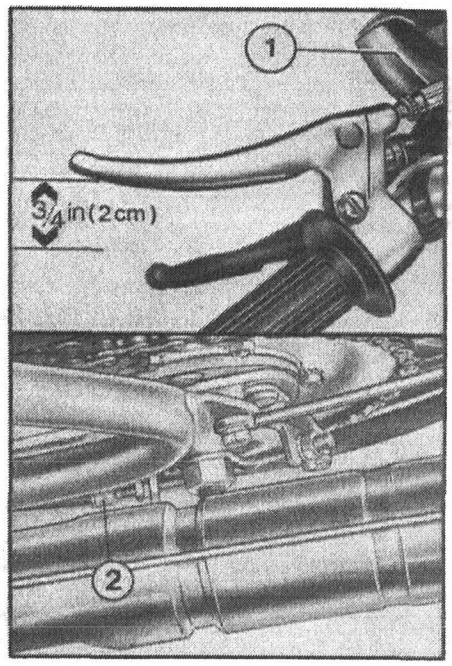


Fig. 13

Brake linings

Pry plastic inspection plugs from wheel hub. Disconnect brake cable from brake lever. Insert a feeler gauge between brake drum and brake lining. Gap should not exceed .047", at either inspection hole, see fig. 12. If gap exceeds this measurement, refer to Section VI on brake replacement. DO NOT OPERATE YOUR MOPED.

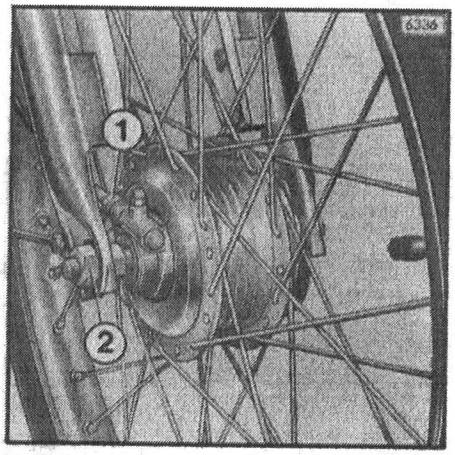


Fig. 14

Cecking and greasing the hub bearings
Refer to section VI Front and Rear Hubs.

Checking and greasing steering head bearings
Refer to Section V Steering Head.

Retighten nuts und bolts

Check nuts and bolts for tightness. Above all, be sure that the engine fixing bolts, the wheel axles and the shock absorbers are tight.

Removing the front wheel

Unscrew speedometer drive shaft (fig. 14/1, not model 8080). Disengage brake cable. If necessary, loosen set screw. Remove axle nuts (fig. 14/2).

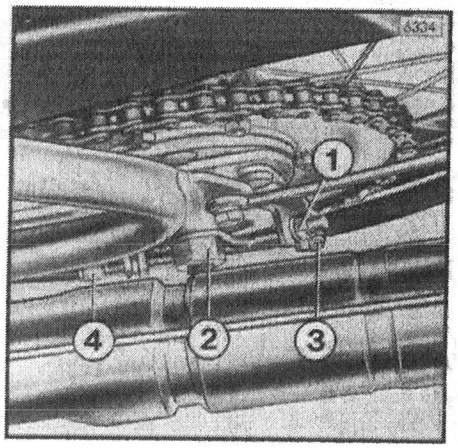


Fig. 15

Remove the rear wheel

Loosen chain adjusters (fig. 15/1). Loosen both axle nuts (fig. 15/2). Turn brake cable sleeve support (fig. 15/4). Disengage brake cable from brake lever (fig. 15/3). Remove chain adjusters. Push wheel forward. Remove driving chain and pedal chain from their sprockets. Incline the machine to the left, pull the rear wheel out, for this purpose, press pulley slightly forward.

Replacing the headlight bulb

Undo adjusting screw (fig. 16/1) to loosen the headlamp reflector. Open spring (fig. 16/2) and pull out bulb holder. Replace bulb.

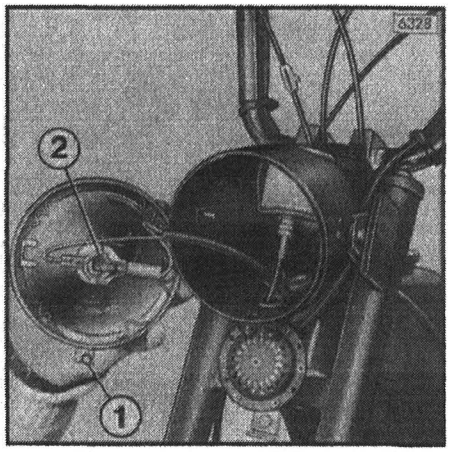


Fig. 16

Replacing rear light bulb and stop light bulb

Unscrew fixing screws (fig. 17/1) and remove lense. Replace bulb and fit in reverse procedure.

Stop light bulb (top)
and rear light bulb (bottom).

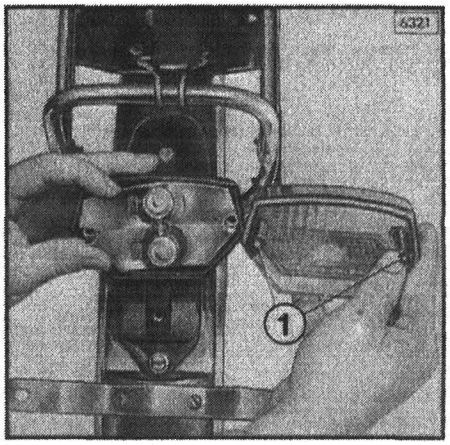


Fig. 17

Changing tires (fig. 18 and fig. 19)

To remove tire, unscrew valve cap, depress valve needle to let out the air, unscrew rim nut and completely press back valve. Loosen the steel wire reinforced tire section from the rim, and press the tire, opposite the valve, into the center groove of the rim. This gives sufficient space to lift the tire at the valve end over the rim with the tire lever. (For spider wheels see page 14, fig. 19.)
Hold the tire outside the rim with the tire lever, and work round the rim with the second lever until the whole circumference of the tire is outside the rim (Fig. 19/C).
Now, remove inner tube. When assembling, fit lightly pumped-up inner tube coated with chalk into the tire, having already fitted half of the tire over the rim. Ensure the tube is not jammed or twisted and make sure that the rim band separating the tube from the rim is flat in the rim center well.

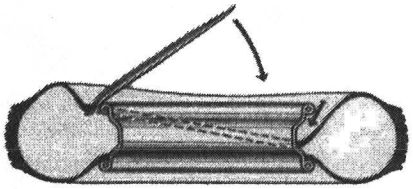
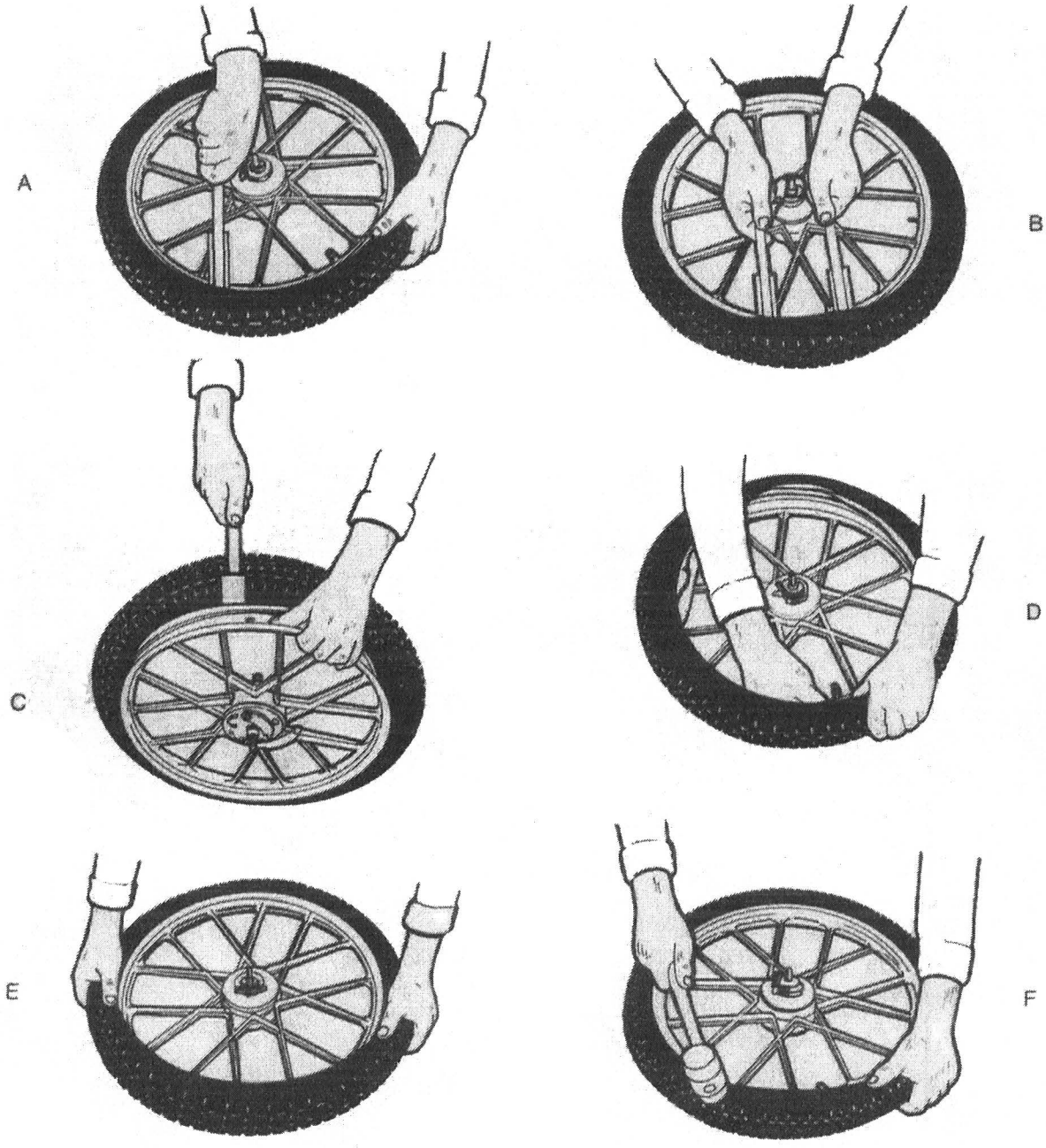


Fig. 18

TIRE CHANGING SCEMATIC (Fig. 19)



REMOVAL OF TIRE AND TUBE

CAUTION: It is essential when changing a tire to protect the aluminum rim from damage from the tire lever. Always use a leather or rubber strip between the lever and rim (fig. A and B). For final removal of the tire use a rubber hammer.

TIRE MOUNTING

Place lightly pumped-up tube into tire and over the rim as mentioned on page 13. But for the final stages of tire mounting use a rubber hammer to get tire over the rim (fig. D, E, F).

SECTION II

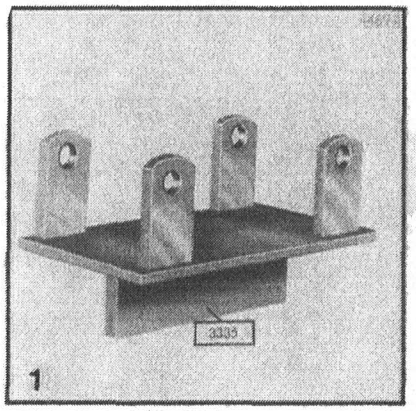
ENGINE, CLUTCH, REDUCTION GEAR

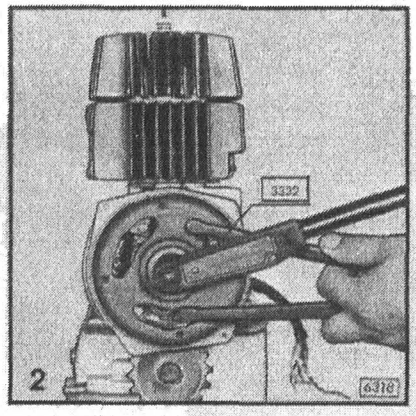
SPECIAL TOOLS

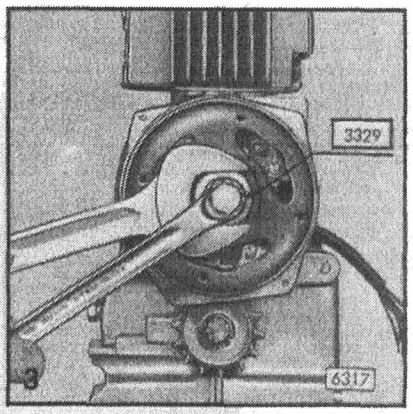
Fig.	Description	Part No.
	Tool Kit Compl.	3328*
1	Engine Holder	3335
2	Locking device for flywheel	3332*
3	Flywheel Puller	3329*
4	Main bearing puller	3338*
5	Clutch extractor	3337*
6	Pressing sleeve for main bearing	3330*
6	Support plate	3333*
7	Cup installer	normal workshop equipment
8	Ignition timing device	3331*
9	Sprocket tool (Idle Gear)	3341*
10	Dial indicator	normal workshop equipment
11	Hub Cone, thin spanner	3340
12	Spoke spanner	3339
	Pressing-device for connecting rod brush	3336
	Reaming and centring tool for connecting rod bush	3334
	Feeler gauge	normal workshop equipment
	Dial indicator	normal workshop equipment
	Caliper rule	normal workshop equipment
	Torque wrench	normal workshop equipment
	Assembly stand	local fabrication

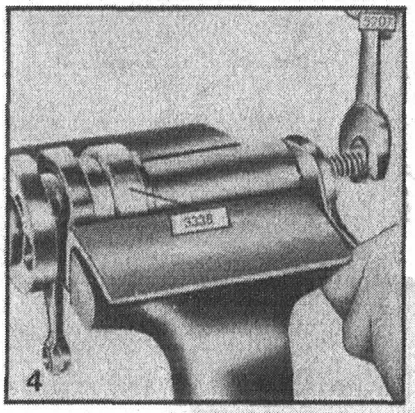
These items are included in the Tool Kit

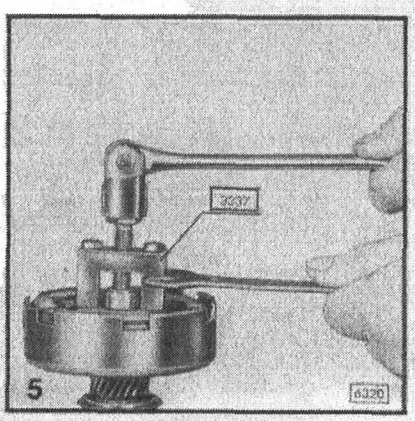
SPECIAL TOOLS

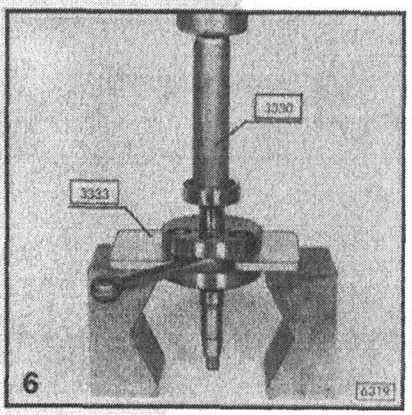


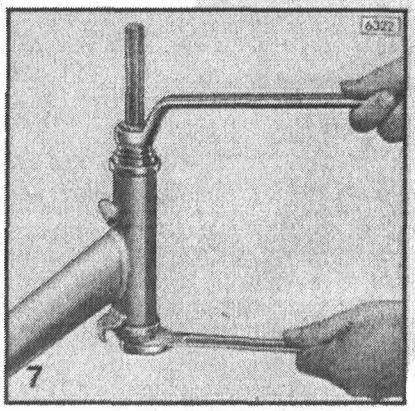


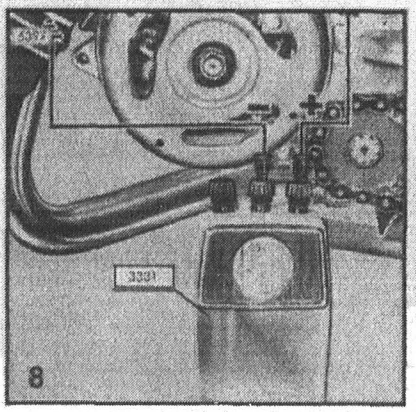


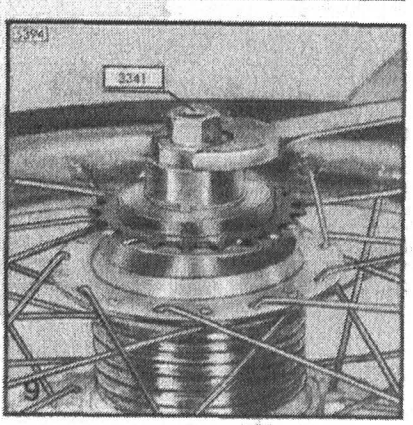


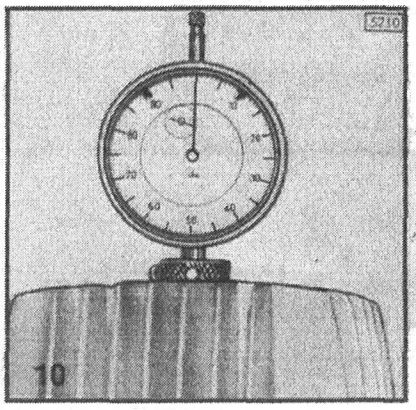


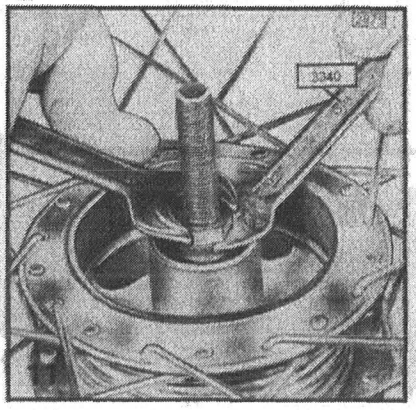


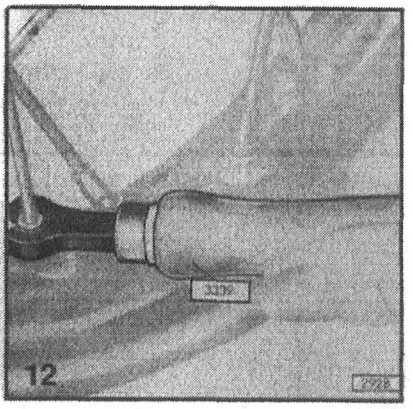












TUNE – UP SPECIFICATIONS

MODEL	SPARK PLUGS		BREAKER POINT GAP	IGNITION TIMING
	TYPE	GAP		
1 HP	Champion L90 Bosch W95-T1 (Bosch W10A)	.016"–.020" 0.40–0.50 mm	.014"–.018" 0.35–0.45 mm	.051"–.067"BTDC 1.3–1.7 mm
1,5 HP	Champion L-86 Bosch W175-T1 (Bosch W7A)	.016"–.20" 0.40–0.50 mm	.014"–.018" 0.35–0.45 mm	.051"–.067"BTDC 1.3–1.7 mm
2 HP	Champion L82 Bosch W200-T35 (Bosch W6B)	.016"–.020" 0.40–0.50 mm	.014"–.018" 0.35–0.45 mm	.051"–.067"BTDC 1.3–1.7 mm

TIRE PRESSURES
Front – 26 P.S.I.
Rear – 32 P.S.I.

CYLINDER HEAD TIGHTENING
Tighten all cylinder head nuts to 7 ft/lb (10 Newton-meter).

TECHNICAL DATA

ENGINE

Maximum output	1.0 hp	at 3,500 r.p.m.
Maximum torque		1.63 ft/lb (0.22 mpk) at 3,000 r.p.m.
Compression ratio		9.2 : 1 (7.1 : 1)
Maximum output	1.5 hp	at 4,500 r.p.m.
Maximum torque		1.79 ft/lb (0.248 mkp) at 3,000 r.p.m.
Compression ratio		9.2 : 1 (7.1 : 1)
Maximum output	2.0 hp	at 5,000 r.p.m.
Maximum torque		2.06 ft/lb (0.285 mkp) at 4,500 r.p.m.
Compression ratio		9.2 : 1 (7.1 : 1)

Bore	1.49 in. (38 mm)
Stroke	1.69 in. (43 mm)
Displacement	48.8 cc
Cooling	air cooled
Lubrication	petroil lubrication

Carburetor	1.0 hp	Bing 1/14/164
Main jet		52/50
Needle Jet		2.12 A
Needle position		1st notch from top
Carburetor	1.5 hp	Bing 1/14/164
Main jet		52/50
Needle jet		2.12 A
Needle position		1st notch from top
Carburetor	2.0 hp	Bing 1/14/163
Main jet		68/66
Needle jet		2.12 A
Needle position		1st notch from top

Ignition	magneto ignition
Breaker point gap	.0137–.0177 in. (0.35–0.45 mm)
Ignition timing	.051–.067 in (1.3–1.7 mm) B.T.D.C.

Spark plug	1.0 hp	Bosch W 95 T1 (Bosch W 10A) Champion L 90
Spark plug	1.5 hp	Bosch W 175 T1 (Bosch W 7A) Champion L 86
Spark plug	2.0 hp	Bosch W 200 T35 (Bosch W 6B) Champion L 82
Spark gap		.016–.020 in (0.4–0.5 mm)
Dynamo		Flywheel magneto Bosch RCP1 6 V 26-5/10 W
Ignition coil		outside the generator

POWER TRANSMISSION

Gearbox	single speed automatic
Clutch	centrifugal
Primary transmission	helical gears
Secondary transmission	chain 1/2" × 3/16"
Pedalling chain	chain 1/2" × 1/8"

TECHNICAL DATA

GEAR RATIOS

Engine gear	1.0 hp	106 : 21; i = 5.05
Gear-rear wheel		45 : 13; i = 3.46
Pedalling transmission		28 : 23; i = 1.217
Engine gear	1.5 hp	106 : 21; i = 5.05
Gear-rear wheel		45 : 13; i = 3.46
Pedalling transmission		28 : 23; i = 1.217
Engine gear	2.0 hp	106 : 21; i = 5.05
Gear-rear wheel		45 : 15; i = 3.00
Pedalling transmission		28 : 23; i = 1.217

CHASSIS

Frame	tubular frame
Front wheel suspension	telescopic fork; 2.95 in. (75 mm) spring travel
Rear wheel suspension	shock absorbers 1.96 in. (50 mm) spring travel (internal springs)
Rear wheel suspension	shock absorbers 2.36 in. (60 mm) spring travel (external springs)
Brakes	Internal expanding shoe brakes
Dia. of brake drum	3.15 in. (80 mm)
Dia. of brake drum (cast aluminum)	3.55 in. (90 mm)
Width of brake lining	.70 in. (18 mm)
Tire size front and rear	2.00 × 17
Tire size front and rear (cast aluminum)	2.25 × 17
Tire pressure front/rear	26/32 psi (1.8/2.25 kg/cm²)
Fuel tank	.93 US gal. (3.5 litres)
Reserve	.22 US gal. (1 litre)

WEIGHTS AND DIMENSIONS

	.8080	.8081/2/3	.8084/5/6
Wheelbase	44.7 in. (1,135 mm)	45.3 in. (1,150 mm)	45.0 in. (1,145 mm)
Overall length	68.0 in. (1,730 mm)	69.6 in. (1,770 mm)	69.0 in. (1,755 mm)
Overall width	24.6 in. (625 mm)	26.0 in. (660 mm)	26.0 in. (660 mm)
Overall height (no mirror)	41.2 in. (1,045 mm)	41.3 in. (1,050 mm)	42.5 in. (1,080 mm)
Ground clearance	5.9 in. (150 mm)	6.1 in. (155 mm)	6.7 in. (170 mm)
Dry weight	90.0 lb (41 kg)	97.0 lb (44 kg)	112.0 lb (51 kg)

ELECTRICAL EQUIPMENT

Headlamp bulb	6 V, 21 W
Taillamp/Stoplamp bulb	6 V, 5/10 W
Speedometer lamp	(not model .8080 6 V, 0.6 W
Warning device	buzzer

PERFORMANCE AND CONSUMPTION

Top speed	1.0 hp	20 mph (32 km/h)
	1.5 hp	25 mph (40 km/h)
	2.0 hp	30 mph (45 km/h)
Hill climbing ability		12–15 %
Standard fuel consumption (DIN 70030)	1.0 hp	160 m. p. g. (1,48 l/100 km)
	1.5 hp	153 m. p. g. (1,54 l/100 km)
	2.0 hp	148 m. p. g. (1,78 l/100 km)

TECHNICAL DATA

FUEL CONSUMPTION

Test commenses on a flat track in top gear at 3/4 top speed. The track length of 6.2 m (10 km) is used both ways and may have very short upward and downward gradients of a maximum of 1.5%. The vehicle must be adjusted to specification and tires must have correct pressure. The rider must not weigh more than 143.32 lb (65 kg). To compensate unfavourable conditions the measured consumption is increased by 10%. Production may differ up to 5% from this volume.

CAPACITY AND QUALITY OF LUBRICATION

ENGINE	Mixture of regular gasoline. Mixture ratio 50 : 1 with special two stroke oil.
GEARBOX	5.74 oz (170 cc) Automatic-Transmission-Fluid
GREASE NIPPLES, CABLES	Summer and winter grease. For lubrication of the grease nipples also SAE 90 can be used. For lubrication of the cables also SAE 30 can be used.
WHEEL BEARING	Summer and winter Lithium base grease.
CHAIN	Summer and winter SAE 90.

ENGINE LUBRICATION

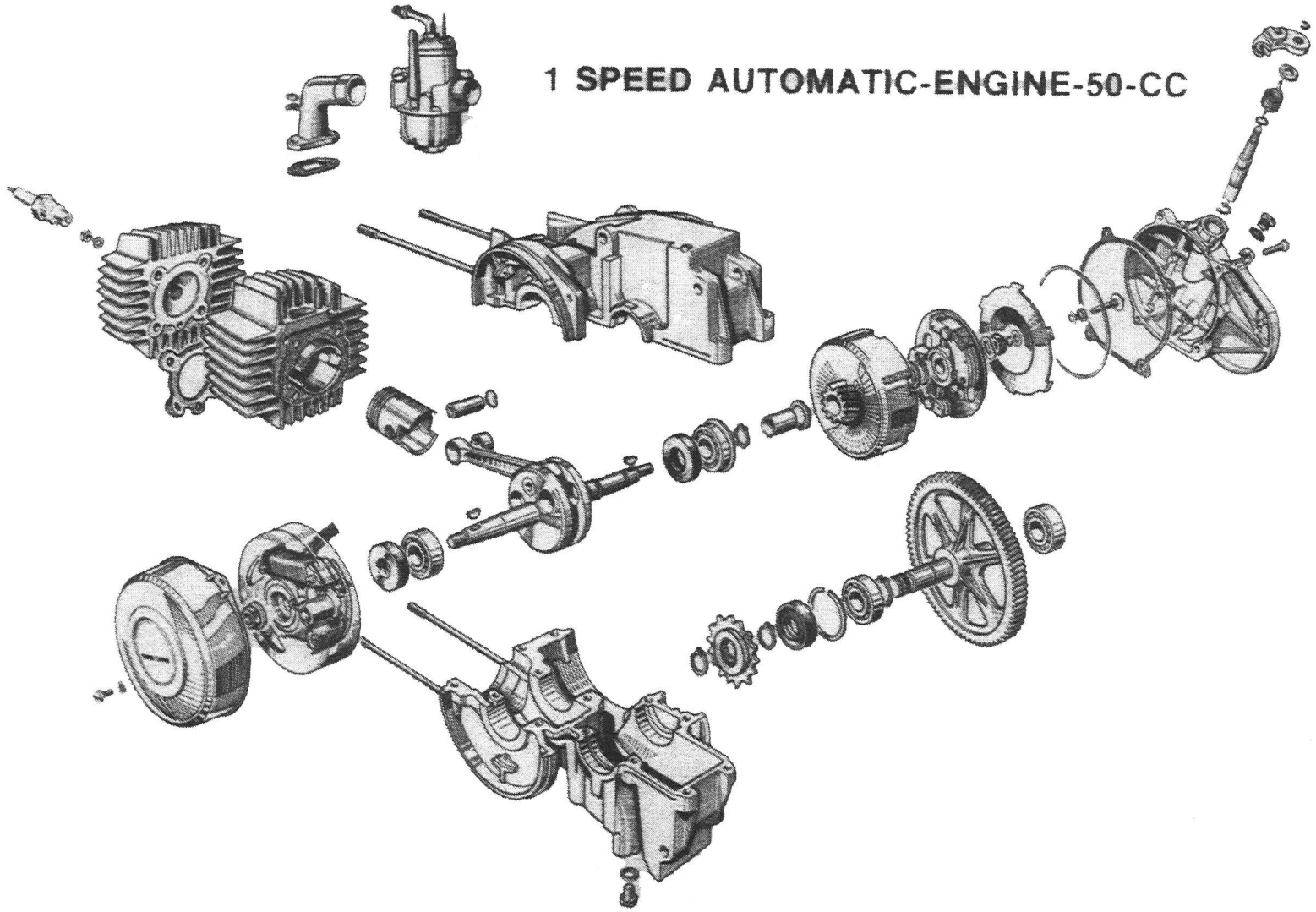
Gas/Oil mixing

Like most two cycle engines, oil must be added to the gasoline in pre-measured amounts, then both oil and gasoline should be thoroughly mixed together before fueling the tank. The correct gasoline is regular grade. Do not use unleaded gasoline. The correct oil is special two cycle oil which is physically formulated for a 50 : 1 mixture (1 filler cap of oil and 1 liquid quart of gasoline).

NOTE: When using pre-mixed fuel, always shake the container thoroughly as oil has tendency to settle out.

Warning: Gasoline is flammable and explosive under certain conditions. Always perform procedures in a well ventilated area. Do not smoke or allow open flames in the vicinity. Never add fuel while engine is running. Avoid spilling gasoline over hot surfaces as warm engine or muffler. Also avoid spilling over front brake, wheel and tire.

1 SPEED AUTOMATIC-ENGINE-50-CC



DISMANTLING THE ENGINE

ENGINE REMOVAL

Place the moped on a bench with the rear wheel supported in a stand (fig. 1).

NOTE: Center stand is clamped into crankcase, and is removed with engine. Frame must be supported before engine is removed.
Remove transmission drain plug and drain transmission oil.
Remove left and right chain guard covers.
Remove spark plug cap.
Remove carburetor from manifold.
Remove ignition wire from H. T. coil.
Remove engine wiring (magneto side) from T-block.
Remove exhaust system.
Disconnect fuel line.
Remove three (3) mounting bolts (fig. 2, arrows).
Remove engine.

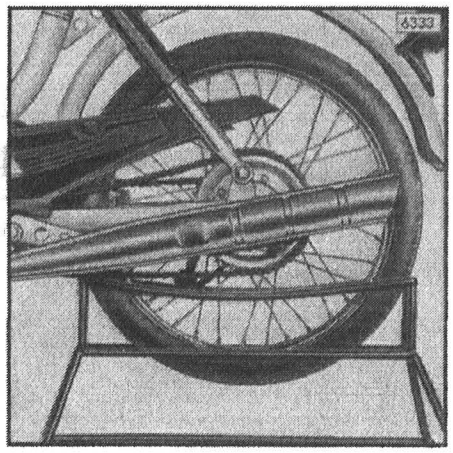


Fig. 1

ENGINE DISASSEMBLY

Remove kick stand and spring.
Fit engine into engine holder (3335).

Remove magneto cover, lock flywheel with locking tool (3332) and remove crankshaft nut.
Using puller (3329), remove flywheel (fig. 3).

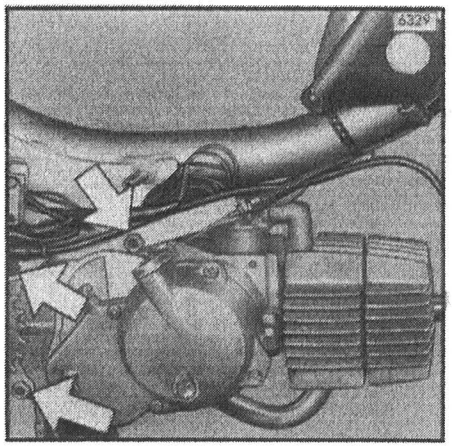


Fig. 2

NOTE: Do not lose woodruff key.
Remove magneto stator plate.

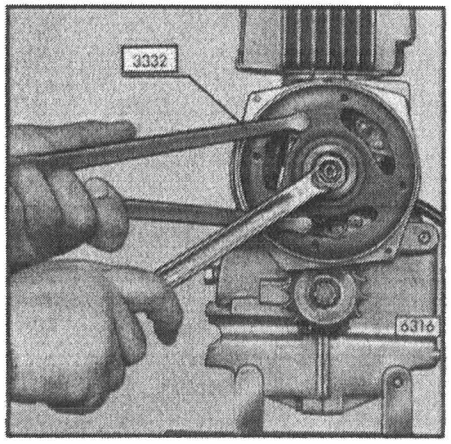


Fig. 3

Remove cylinder head, gaskets, cylinder and cylinder base gasket

DISMANTLING THE ENGINE

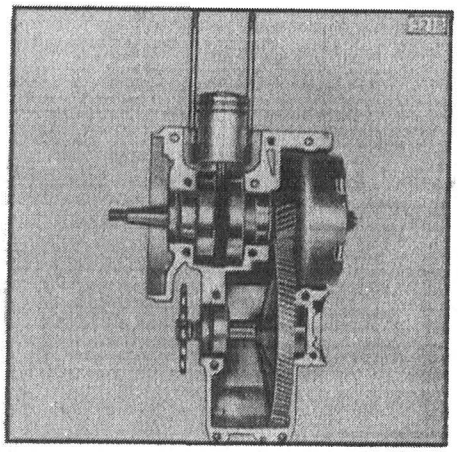


Fig. 4

Remove all clutch cover screws and clutch cover.
Remove all crankcase screws.
Tap crankcase lower half with a soft hammer to loosen sealant grip.
Remove lower crankcase half.
Crankshaft/clutch assembly and transmission main shaft assembly may now be removed (fig. 4).
Remove piston pin circlips from piston, press out the pin and remove the piston.

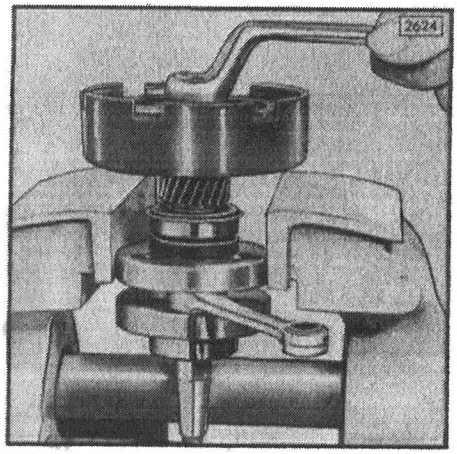


Fig. 5

Using aluminum jaws, clamp clutch side flywheel in a vise.

Remove large circlip retainer.
Remove cover plate.
Remove the clutch hub retaining nut (fig. 5).

CAUTION: Do not clamp crankshaft with both webs in vise. Clutch side only.

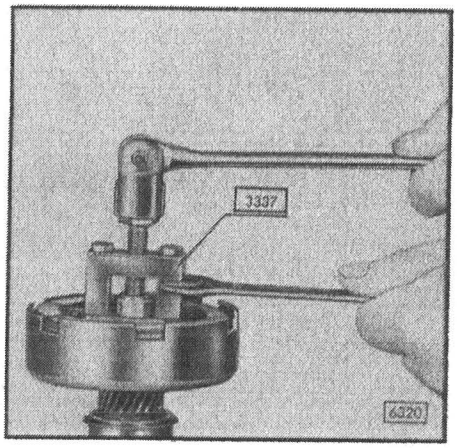


Fig. 6

Attach extractor and pull centrifugal clutch from the crankshaft (fig. 6). Using special tool 3337.

Using puller (3338), remove main bearings (fig. 7).

CAUTION: Only clamping crankshaft web from side bearing is being removed.

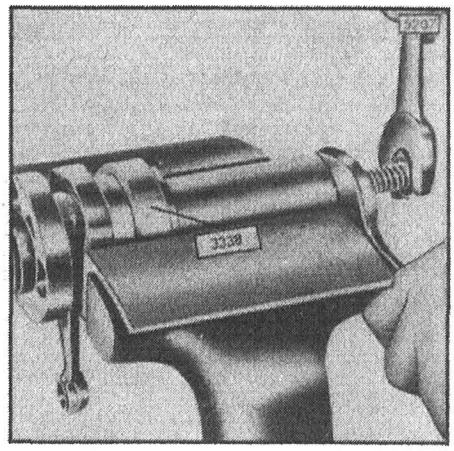


Fig. 7

NOTE: Transmission main shaft and primary drive gear are pressed together and must not be disassembled (fig. 8).
Remove retaining circlip and chain sprocket.
Remove second circlip, oil seal, snap-ring, bearing and third circlip.

NOTE: Remove all traces of sealing compound and gaskets, thoroughly clean all parts in degreasing solvent and visually inspect all parts for wear and damage.

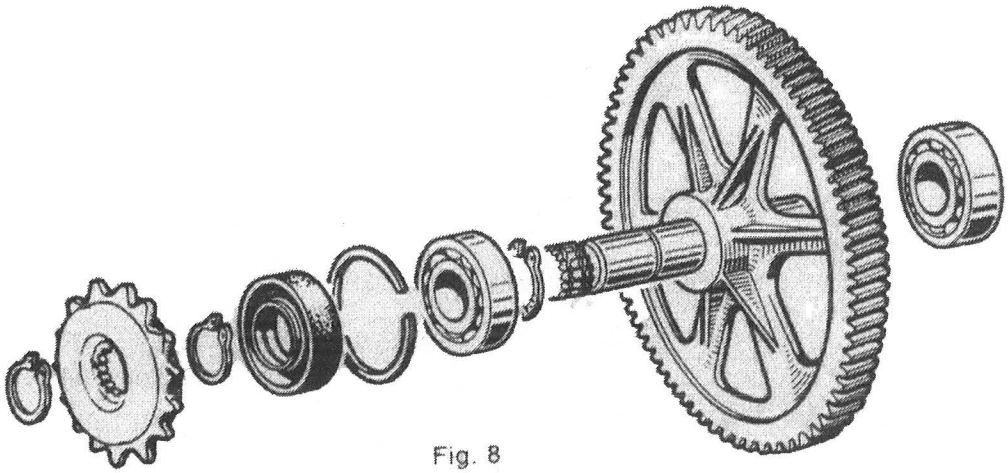


Fig. 8

ENGINE SPECIFICATIONS & TOLERANCES

GROUP	CYLINDER DIAMETER	PISTON DIAMETER
1	1.4950–1.4954 in. (37.975–37.985 mm)	1.4938–1.4942 in. (37.945–37.955 mm)
2	1.4954–1.4958 in. (37.985–37.995 mm)	1.4942–1.4946 in. (37.955–37.965 mm)
3	1.4958–1.4962 in. (37.995–38.005 mm)	1.4946–1.4950 in. (37.965–37.975 mm)
4	1.4962–1.4966 in. (38.005–38.015 mm)	1.4950–1.4954 in. (37.975–37.985 mm)
5	1.4966–1.4970 in. (38.015–38.025 mm)	1.4954–1.4958 in. (37.985–37.995 mm)

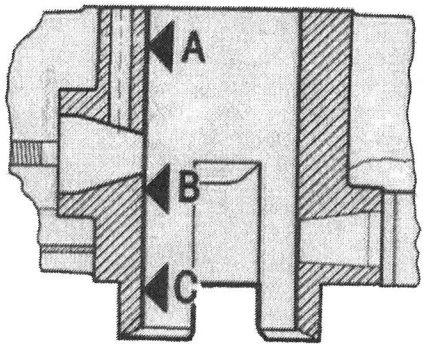


Fig. 9

Piston ring gap is
New .006 in. (0.15 mm)
Wear limit .020 in. (0.5 mm)

Using a cylinder bore gauge, measure bore side to side and front to back in the 3 positions shown (fig. 9).

Maximum permissible ovality is:
.00098 in. (0.025 mm)

For greatest accuracy cylinder temperature should be 68° F (20°C).

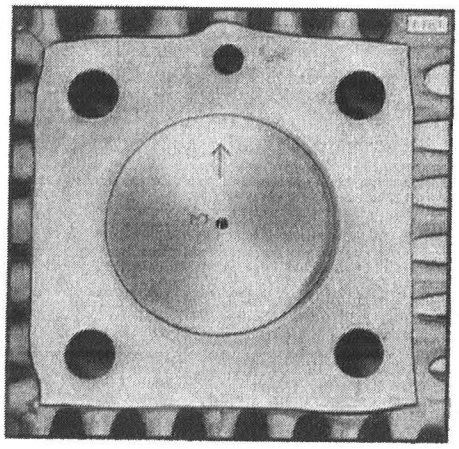


Fig. 10

Piston to cylinder fit is matched in 5 combinations and each part is stamped as follows:

1, 2, 3, 4, or 5 – on piston crown
1, 2, 3, 4 or 5 – on cylinder/head joint surface (fig. 10)

NOTE: Piston/cylinder clearance limits are:
Min. .0008 in. (0.020 mm)
Max. .0016 in. (0.040 mm)
CAUTION: Chromed cylinder cannot be bored.

ENGINE SPECIFICATIONS & TOLERANCES

SORTING TABLE				
Wrist pin boss		Wrist pin		Clearance
Group	Diameter	Group	Diameter	
yellow	.4728– .4727 in.	2	.4726– .4724 in.	.0001– .0003 in.
	12.008–12.006 mm		12.003–12.000 mm	0.0030–0.0085 mm
blue	.4727– .4726 in.	2	.4726– .4724 in.	.0001– .0002 in.
			12.003–12.000 mm	0.0005–0.0060 mm
	12.006–12.003 mm	3	.4725– .4723 in.	.0001– .0003 in.
			12.000–11.997 mm	0.0035–0.0090 mm

Wrist pin/piston fit is matched and coded as follows:
– yellow or blue dot inside piston
– 2 or 3 dots on end of wrist pin (fig. 11).

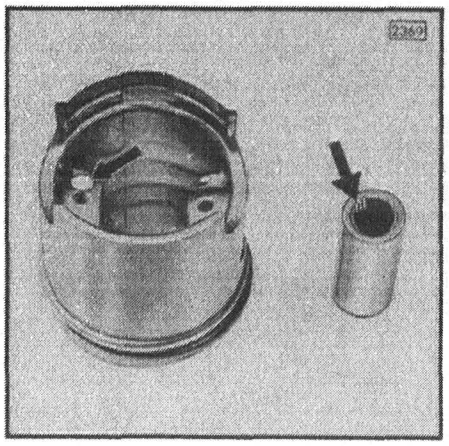


Fig. 11

Small end bush

Fitting limits
.473 – .474 in.
12.008–12.020 mm

Wear limit
.475 in.
12.025 mm

Firmly grasp connecting rod and check for big end bearing wear. If rod is free but no play is noticeable, big end bearing is in good condition (fig. 12).

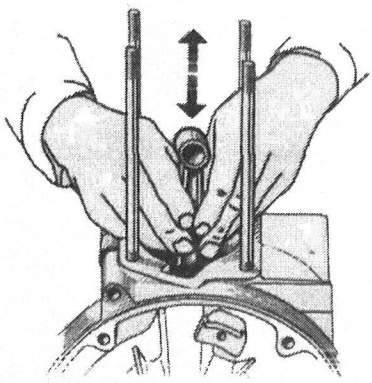


Fig. 12

CAUTION: If over-heating, jamming or wear is apparent, crankshaft assembly must be replaced.

Fit new oil seals

CAUTION: Oil seals must face as shown (fig. 13).

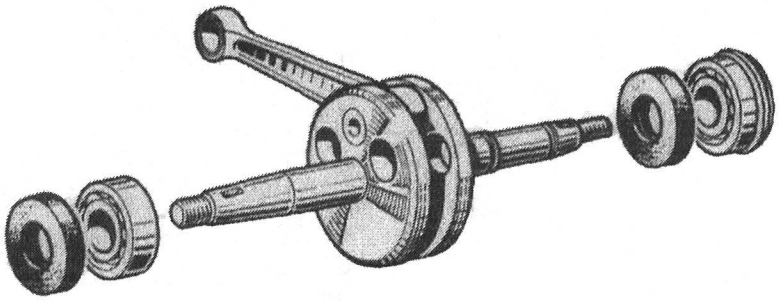


Fig. 13

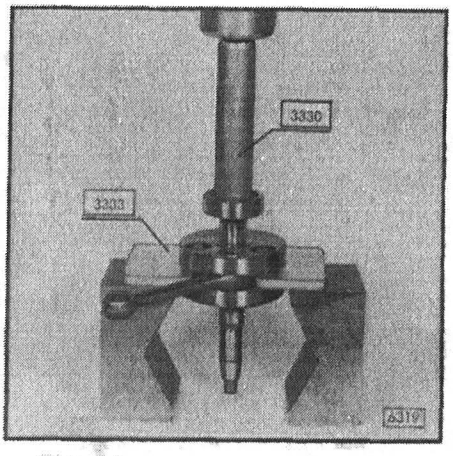


Fig. 14

Fit bearings (fig. 14)
CAUTION: Use special tools.
3330 and 3333

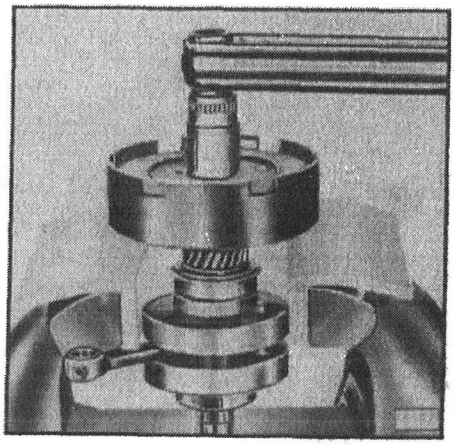


Fig. 15

Clamp crankshaft web (clutch side only) in a vise.
CAUTION: Use aluminum or plastic jaws to prevent crankshaft damage (fig. 15).

Fit all clutch parts except the 2 shim washers (fig. 16, arrows).

Torque clutch hex. nut to 20 ft/lb (27 Nm).

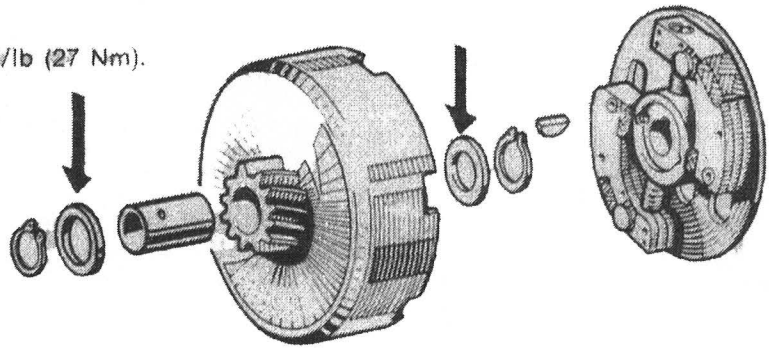


Fig. 16

Press clutch assembly towards crankshaft and measure gap between primary gear and circlip on crankshaft (not circlip on bearing).
Measure gap with a feeler gauge (fig. 17).

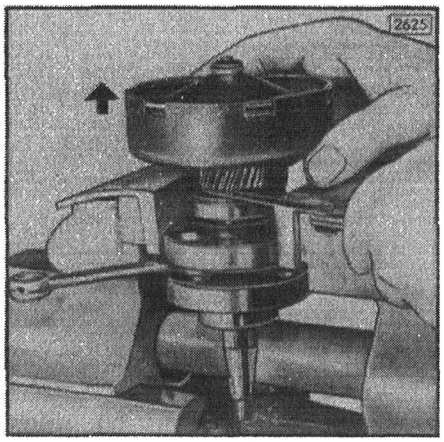
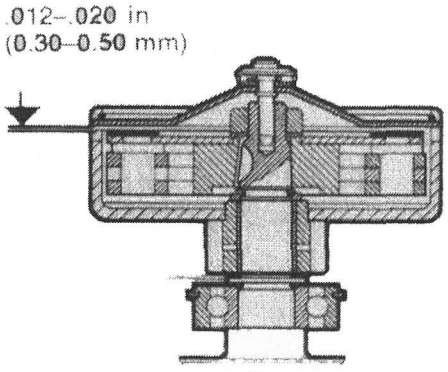


Fig. 17

Clutch assembly must be shimmed to allow .012–.020 in. (0.3–0.5 mm) gap between clutch cover and clutch hub friction surface (fig. 18).



EXAMPLE:

Primary gear/circlip gap	.0472 in. (1.2 mm)
Plus required gap	.0118 in. (0.3 mm)
Lower shim required	.0590 in. (1.5 mm)

NOTE: Lower shim (24/17 mm) is available as follows:

.043 in.	.051 in.	.059 in.	.067 in.
1.1 mm	1.3 mm	1.5 mm	1.7 mm

Fig. 18

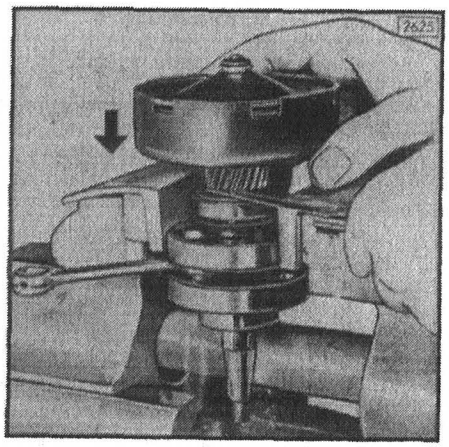


Fig. 19

Lift clutch housing and measure maximum gap between primary gear and circlip on crankshaft (fig. 19).
Clutch housing must be shimmed to allow .004–.008 in. (0.1 – 0.2 mm) end float (fig. 20).

EXAMPLE:

Primary gear/circlip gap	.142 in. (3.6 mm)
Less lower shim chosen	.059 in. (1.5 mm)
Less required end float	.008 in. (0.2 mm)
Upper shim required	.075 in. (1.9 mm)

NOTE: Upper shim (22/15 mm) is available as follows:

.043 in.	.051 in.	.059 in.	.067 in.
1.1 mm	1.3 mm	1.5 mm	1.7 mm
.070 in.	.075 in.	.083 in.	
1.8 mm	1.9 mm	2.1 mm	

.004–.008 in.
(0.10–0.20 mm)

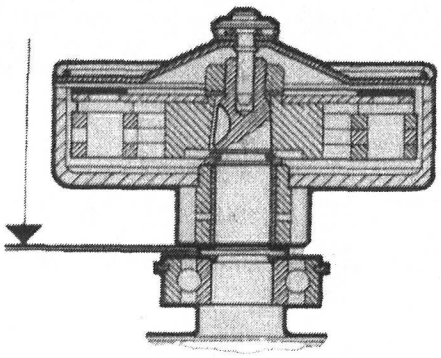


Fig. 20

Remove clutch hex nut and fit correct shims. Assemble clutch and torque hex nut to 20 ft/lb (27 Nm).

Clutch operating details: (fig. 21)

Clutch cover drives crankshaft to start engine when handlebar starting lever is pulled.

Centrifugal clutch starts to engage between 1,200–1,500 r.p.m.

Centrifugal clutch is fully engaged between 2,600–3,000 r.p.m.

Centrifugal clutch begins to disengage between 1,400–1,150 r.p.m. (when engine speed is reduced).

Minimum starter clutch lining thickness is .039 in. (1 mm).

Centrifugal clutch must be replaced when linings are worn and limit pins (on shoes) prevent drum contact.

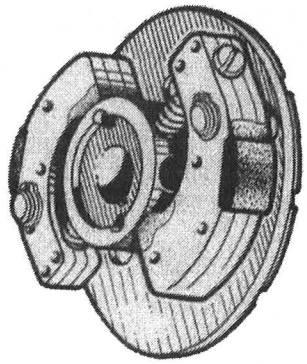


Fig. 21

CAUTION: Use only recommended lubricants in transmission or clutch slippage will occur.

ASSEMBLING THE ENGINE

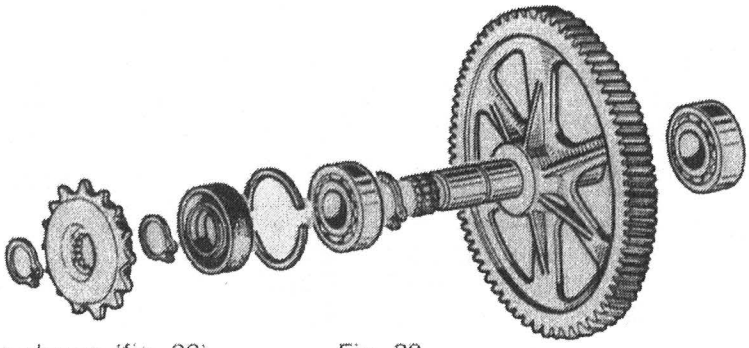


Fig. 22

Reassemble primary drive shaft as shown (fig. 22).

CAUTION: Grease oil seal lips before fitting seal.

Fit crankshaft assembly into crankcase.

CAUTION: Oil seal lips must be greased. Oil seals must be fitted straight. Ensure sufficient gap between magneto side bearing and oil seal to allow oil flow to bearing (see arrow, fig. 23).
Fit primary drive shaft into crankcase.

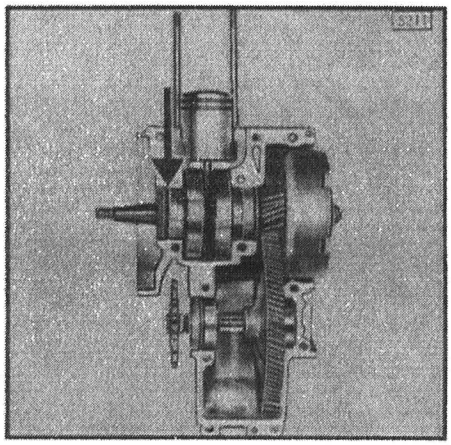


Fig. 23

Apply jointing compound (non-hardening) to crankcase joint, fit crankcase half into place and torque crankcase screws to 6 ft/lb (8 Nm).

Fit clutch cover gasket into place (lightly greased).

Fit clutch cover into place.
Note: Clutch activating lever on cover must be preloaded during installation.

Fit piston, wrist pin and 2 circlips.

CAUTION: Oil small end bushing. Fit piston with ring retaining pins facing exhaust side (bottom) of engine.

Fit a new base gasket into place.

Locate ring gaps to their respective locating pins.

Slide cylinder onto studs and piston.

CAUTION: Bore must be well oiled to prevent piston damage.

Fit a new head gasket into place. Fit head, washers and torque nuts to 7 ft/lb (10 Nm).

IGNITION SYSTEM (Fig. 24)
Inspect contact breaker points for burning, pitting or wear and replace if necessary. Inspect coils and wires for cuts or loose connections.

Feed magneto wires through crankcase opening and install base plate assembly, so that the 3 mounting screws are in the centre of the slots in the base plate. Push magneto wires through grommet and, using a screwdriver, gently push grommet into place.

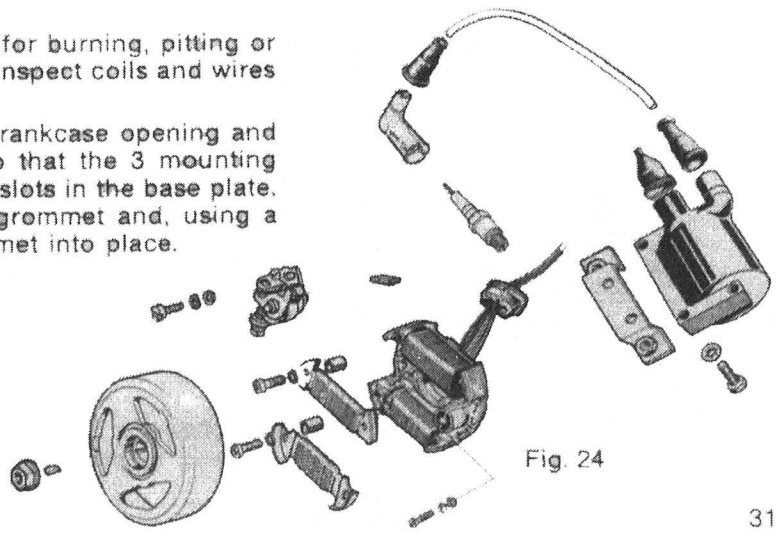


Fig. 24

ASSEMBLING THE ENGINE

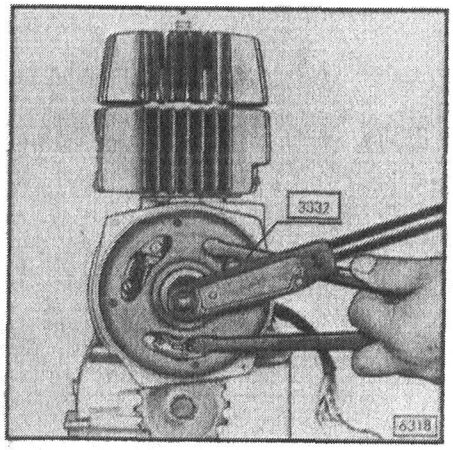


Fig. 25

Clean crankshaft taper, fit woodruff key into keyway. Using locking device (3332) install flywheel, torque nut to 25 ft/lb (35 Nm). Fig. 25.

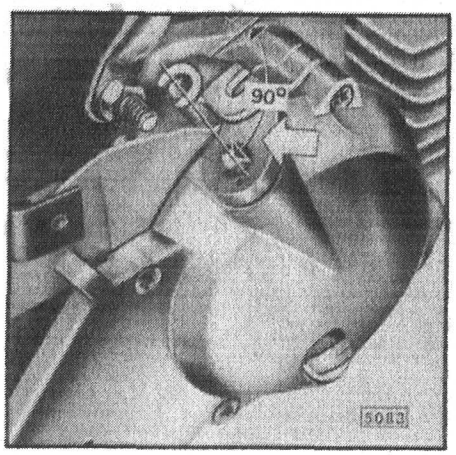


Fig. 26

INSTALL ENGINE

Place moped on a bench with rear wheel supported in a stand.

Fit engine into frame from below, and position with three (3) fixing bolts.

NOTE: Fit longest bolt in top front bolt hole.

Connect electrical wires (color to color) at terminal block.

Fit carburetor, air filter and gasoline line.

CAUTION: Push carburetor completely forward on manifold to prevent air leak.

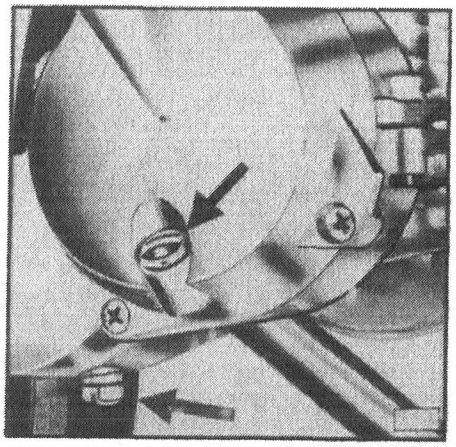


Fig. 27

Install exhaust system.

Connect starter clutch cable. Fig. 26.

Before the starter clutch engages fully, the lever should form a right angle with the starter cable.

Remove filler plug and fill transmission with automatic transmission fluid* (approximately 5 ¾ oz. – 170 cc) until fluid is level with filler hole. *TYPE "F". Fig. 27.

CAUTION: Any other oil may dissolve clutch friction material.

TROUBLE SHOOTING

TROUBLE SHOOTING CHECK CHART

ENGINE WON'T START

1. Check fuel system for operation
2. Check ignition for spark
3. Check engine compression by pulling starter lever and crank engine slowly

NO SPARK

1. Faulty ignition coil
2. Faulty breaker or condenser
3. Faulty spark plug
4. Faulty suppressor plug
5. Leaking leads or connections (ignition switch)

ENGINE KICKS BACK AND BACKFIRES

1. Improper timing
2. Faulty breaker points or condenser
3. Flywheel key sheared, or missing

DIFFICULTIES TO START FROM COLD

1. Choke not working
2. Improper timing
3. Spark plug improperly gapped
4. Spark plug wrong heat range
5. Wrong suppressor plug (suppressor for moped 1 ko resistance)

EXCESSIVE FUEL CONSUMPTION

1. Choke working all the time
2. Carburetor flooding (float valve leaky)
3. Leakage in fuel line

NO POWER

1. Faulty carburetor
2. Improper timing
3. Worn out cylinder and piston
4. Leaky oil seal on crankshaft
5. Choke sticking

STARTER CLUTCH DOES NOT RELEASE

1. Starter control cable incorrectly adjusted
2. Leaky oil seal on crankshaft

TROUBLE SHOOTING

ENGINE CAN BE STARTED BY CHOKING, BUT DIES WHEN CHOKE NOT USED

1. Clogged fuel line
2. Dirty carburetor
3. Contaminated fuel
4. Clogged main jet

RUNNING LOW SPEED
LOW SPEED MISS – DOES NOT IDLE SMOOTHLY

1. Defective spark plug
2. Leaking crankshaft seal
3. Improper ignition timing
4. Spark plug improperly gapped
5. Burnt or worn breaker points

HIGH SPEED MISS

1. Spark plug of wrong heat range
2. Improper ignition timing
3. Leaking head gasket
4. Exhaust port clogged
5. Exhaust system clogged
6. Improper breaker point gap

POOR ACCELERATION – LOW R. P. M.

1. Inlet needle and seat leaking or sticking
2. Timing out of adjustment
3. Improperly gapped spark plugs

ENGINE SEIZES (STOPS SUDDENLY)

1. No lubrication in gas
2. Rod on main bearing seized
3. Cylinder or piston scored or seized

VIBRATES EXCESSIVELY OR RUNS ROUGH AND SMOKES

1. Idle or high speed mixture too rich
2. Engine mounts loose

SECTION III

FUEL SYSTEM AND CARBURETION

CARBURETOR

CARBURETOR OPERATION TROUBLE SHOOTING TIPS

(The numbers quoted in the brackets refer to the illustration on page 37, fig. 28.)

The carburetor on your MOPED is a Bing variable venturi (slide type) carburetor. The term variable venturi comes from the fact that the slide varies the amount of the restriction of air through the throat of the carburetor and the term venturi denotes a restriction in an air passage.

The components in the carburetor are simple. Please, refer to the accompanying drawing for identification of each part number. The slide (ref. no. 11) is attached to a cable which is operated by the twist grip on the handlebar. Turning the twist grip either raises or lowers the slide and this in turn either increases or decreases the amount of air allowed to flow through the throat of the carburetor.

Protruding from the bottom of the slide is a tapered rod or "needle" (ref. no. 10). Its position in relation to the slide is determined by a small clip (ref. no. 9) which is inserted in one of four grooves at the top of the needle. This clip then rests on the inside of the bottom of the slide.

Underneath the slide in the body of the carburetor is a brass tube with a carefully selected inside diameter. This tube is called a "needle jet" (ref. no. 13). The needle hanging out of the slide hangs down into this needle jet.

Threaded into the bottom of the needle jet is a small brass plug called the "main jet" (ref. no. 14). The main jet has a precisely drill passage through it and is available in various sizes.

At the bottom of the carburetor is a removable aluminum fuel reservoir called the "float bowl" (ref. no. 19). The float bowl threads onto the base of the carburetor body. Inside the float bowl is a styrofoam ring which is called the "float" (ref. no. 17). There is a small brass arm attached to the float on one end and pinned to the carburetor on the other by the float pin (ref. no. 16). Underneath this arm is a steel "inlet needle" (ref. no. 15) which is inserted into a "needle seat" in the carburetor body.

The method of operation of the carburetor is as follows:

1. When the float bowl is empty and the fuel petcock on the fuel tank is opened, fuel flows through the fuel line and into the carburetor through the inlet banjo (ref. no. 20–22) and the filter screen (ref. no. 20a) to the top of the inlet needle. Because the float bowl is empty, the float is hanging down and the needle is off its seat allowing fuel to enter the bowl. As the bowl fills, the float rises to a predetermined level at which point the needle presses against its seat und the flow of the fuel is stopped. As fuel is consumed by the engine the float goes up and down to maintain a constant level of fuel in the float bowl.
2. In order to start a cold engine a very rich fuel air mixture is required. (A rich mixture would be 1 part of fuel to 5 parts of air or 5 : 1.) This can be accomplished by either increasing the amount of fuel or decreasing the amount of air. In the Bing carburetor there is a choke plate (ref. no. 25) which when pushed down cuts off most of the airflow through the throat of the carburetor and thus creates a very rich mixture.

NOTE: The numbers on carbaretor lay-out fig. 28 page 37 coinsides with the figure numbers in your spare parts manual.

CARBURETOR

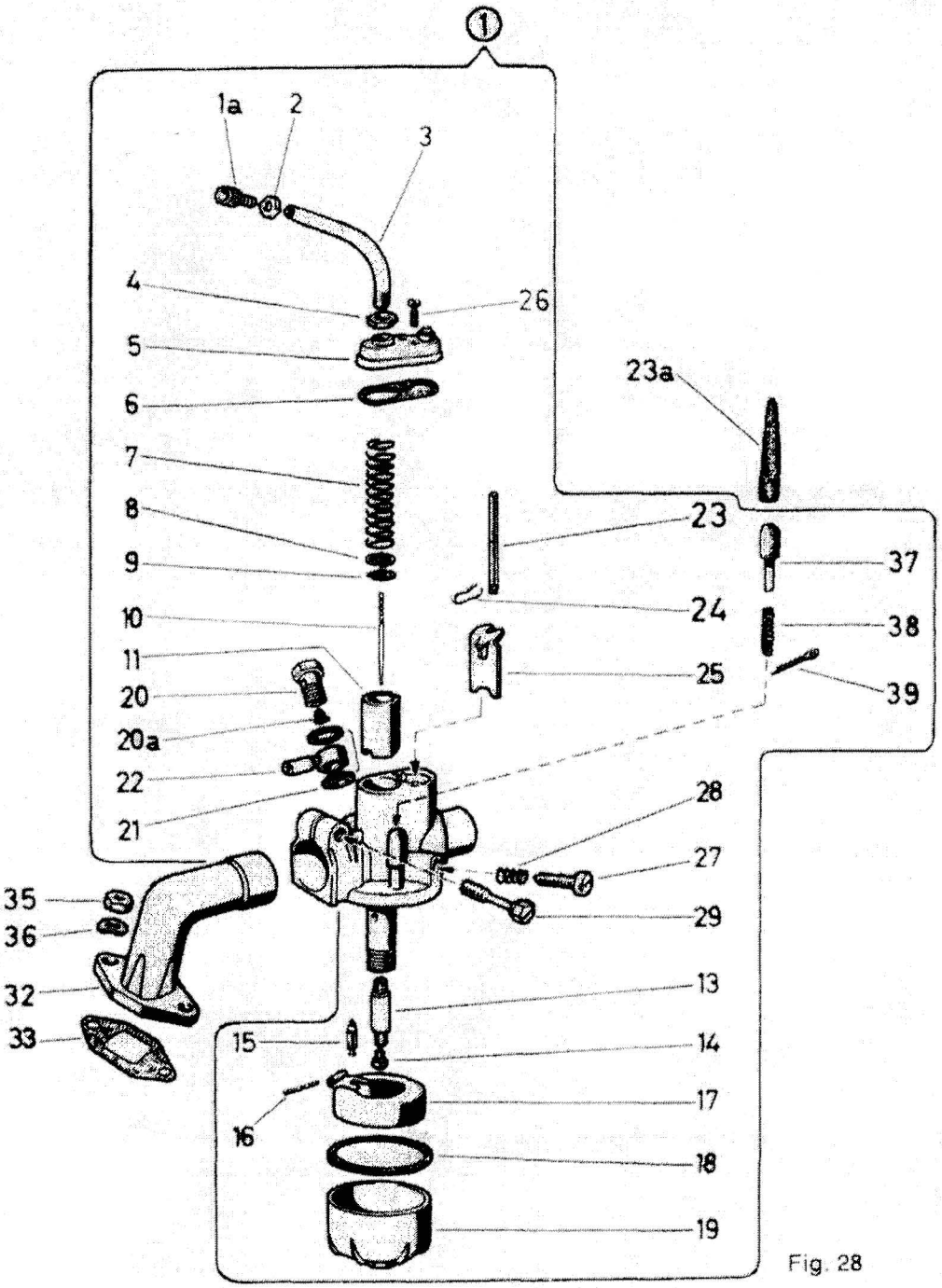


Fig. 28

When the engine starts and the throttle is opened, the slide pushes the choke plate up out of the caburetor throat removing the restriction.

3. Since the airflow at each throttle opening position is always constant, a means must be provided to obtain the proper amount of fuel for the right mixture. (The running mixture is 1 part of fuel to 50 parts of air or 50 : 1). From idle to approximately 3/4 throttle the fuel supply is determined by the needle jet.

   If the fuel mixture is too lean (not enough fuel) the clip on the needle should be lowered one notch in order to raise the needle farther out of the needle jet. This will result in more fuel being discharged at each throttle open position from idle to 3/4 throttle.

   If the fuel mixture is too rich (too much fuel) the clip on the needle should be raised one notch in order to lower the needle into the needle jet. This will result in less fuel being discharged at each throttle open position from idle to 3/4 throttle.

   From 3/4 to full throttle the fuel supply is determined by the size of the main jet. A larger main jet will richen the mixture from 3/4 to full throttle and a smaller main jet will lean the mixture in the same range.

   Needle setting and size of main jet are fixed at the factory and must not be changed.

4. The setting of the float can also have an effect on the mixture. If the float is too far from the bottom of the carburetor when the needle closes the fuel reserve will be limited and the engine could run lean. If the float is too close to the carburetor body when needle closes, the engine could run too rich and/or the carburetor could flood.

   To properly set the float level remove the float bowl and invert the carburetor. The float is properly adjusted when the top edge of the float is parallel with the gasket surface of the float bowl on the carburetor body. This setting is very important and should always be checked when mixture problems are encountered.

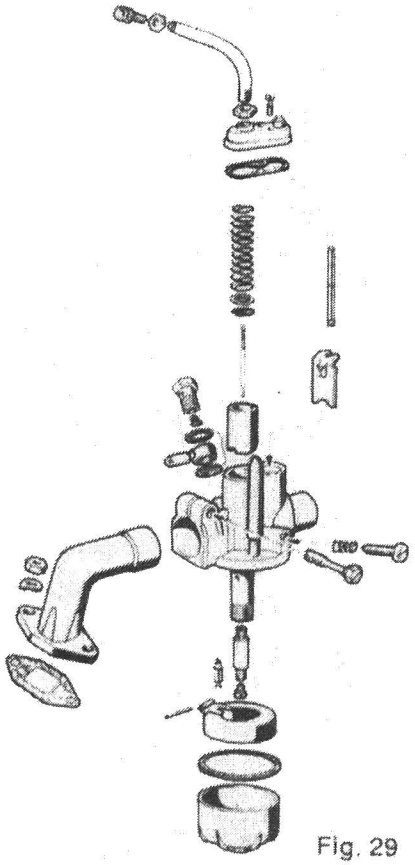


Fig. 29

CARBURETOR

The carburetor fitted to the SEARS MOPED is tuned to specifications established by intensive factory research: should not be altered in any way.

Dismantle carburetor, clean all components and reassemble. Fig. 29.

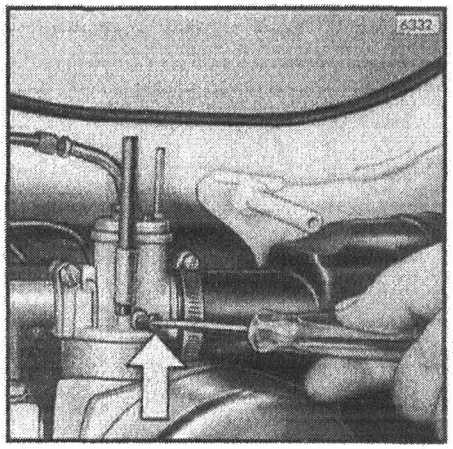


Fig. 30

Install carburetor and filter.

Start engine and run at moderate speed until operating temperature is reached.

Adjust idle speed to 800–1,200 r.p.m. by turning idle adjusting screw in or out as required. Fig. 30.

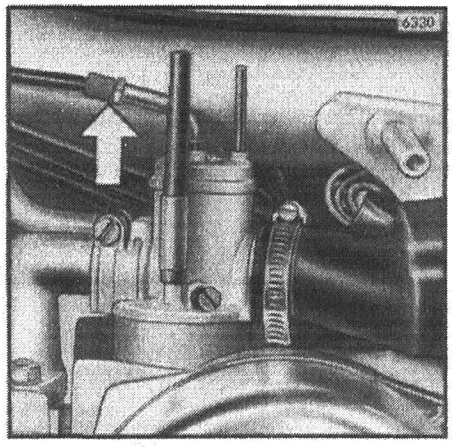


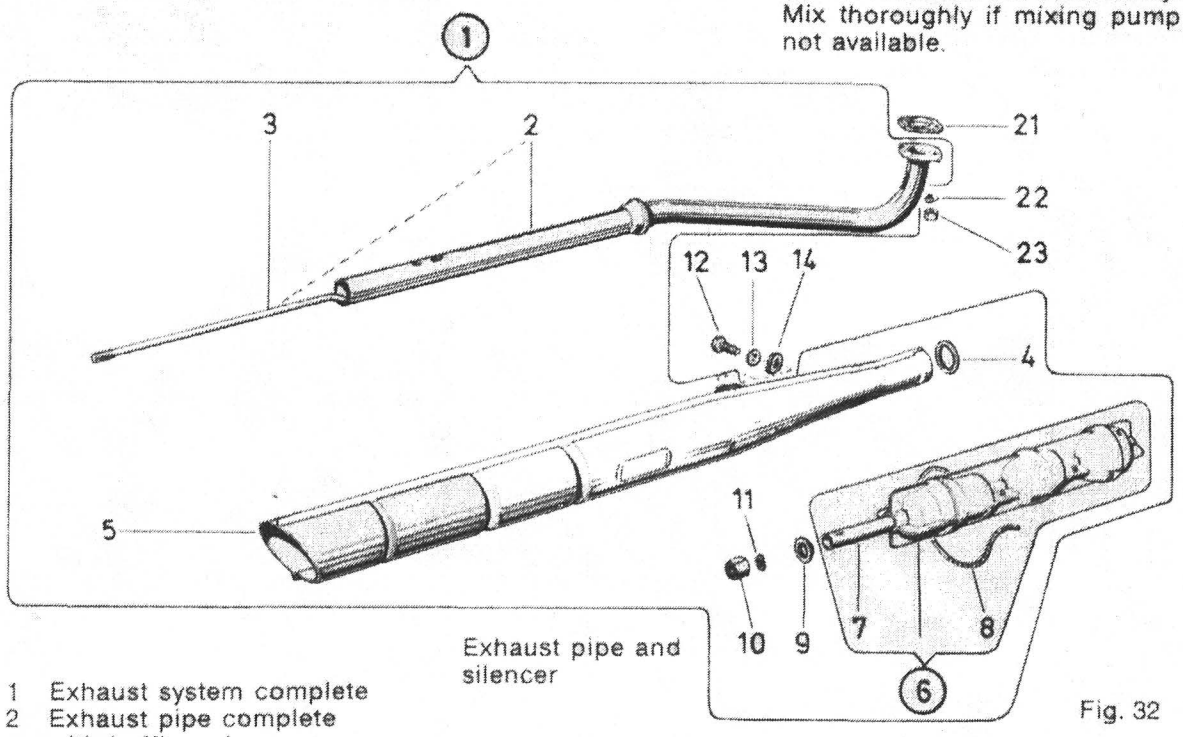
Fig. 31

Adjust throttle cable slack to .008 in. (0.2 mm) and tighten lock nut. Fig. 31 (Arrow).

CAUTION: Insufficient cable slack will hold throttle partially open and idle adjusting screw will not function.

TROUBLE SHOOTING – FUEL SYSTEM AND CARBURETION

Symptom	Reason/s	Remedy
Excessive fuel consumption	Air cleaner choked or restricted	Clean.
	Fuel leaking from carburetor.	Check all unions und gaskets.
	Float sticking	Float needle seat needs cleaning.
	Badly worn or distorted carburetor	Replace.
	Carburetor incorrectly adjusted	Tune and adjust as necessary.
	Incorrect silencer fitted to exhaust system	Do not deviate from manufacturer's original silencer design.
Idling speed too high	Throttle stop screw in too far	Adjust screw.
Engine does not respond to throttle	Carburetor top loose	Tighten top.
	Back pressure in silencer.	Check baffles in silencer.
	Float displaced or punctured	Check whether float is correctly located or has petrol inside.
	Use of incorrect silencer or baffles missing	See above. Do not run without baffles.
Engine dies after running for a short while	Blocked air hole in filler cap.	Clean.
	Dirt or water in carburetor	Remove and clean out.
General lack of performance	Weak mixture; float needle stuck in seat	Remove float chamber or float and clean.
	Air leak at carburetor joint or in crankcase	Check joints to eliminate leakage.
Excessive white smoke from exhaust	Too much oil in petrol, or oil has separated out	Mix in recommended ratio only. Mix thoroughly if mixing pump not available.



Exhaust pipe and silencer

Fig. 32

1 Exhaust system complete
2 Exhaust pipe complete with baffle rod
3 Baffle rod
4 Sealing ring
5 Silencer cover
6 Baffle assembly
7 Tail pipe
8 Asbestos cord
9 Washer for baffle rod
10 Nuts for baffle rod – 2 off
11 Belville washers for baffle rod
12 Bolt for mounting bracket
13 Washer for mounting bracket bolt
14 Spring washer for mounting bracket bolt
21 Exhaust flange gasket
22 Belville washers for flange studs – 2 off
23 Nuts for flange studs – 2 off

SECTION IV

IGNITION SYSTEM

IGNITION TIMING

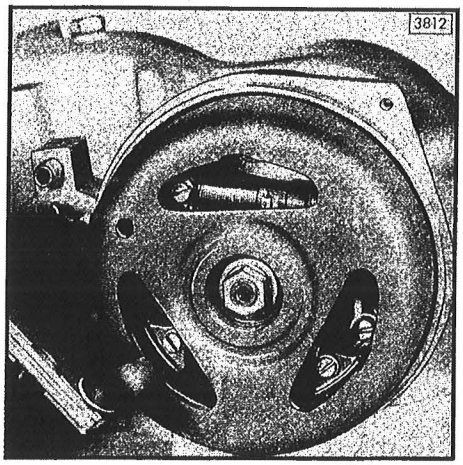


Fig. 33

If lighting coil/s have been replaced, measure air gap between coil pole shoes and flywheel. Gap should be .016–.024 in. (0.40–0.60 mm). If gap is incorrect, loosen coil mounting screws and adjust as necessary (fig. 33).

CAUTION: Always check and adjust ignition timing if flywheel has been removed.

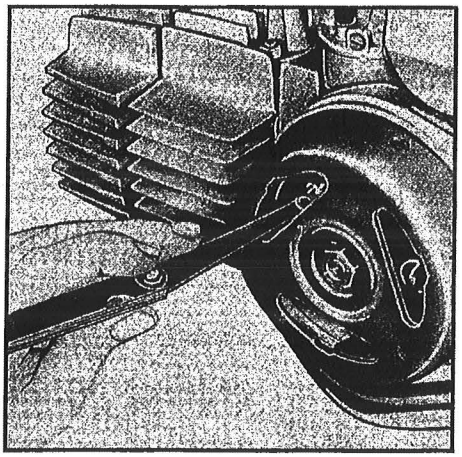


Fig. 34

ADJUSTING BREAKER POINTS (Fig. 34)

Rotate flywheel until fully opened point gap is visible through flywheel port.

Loosen fixing screw and adjust point gap to .014–.018 in. (0.35–0.45 mm)

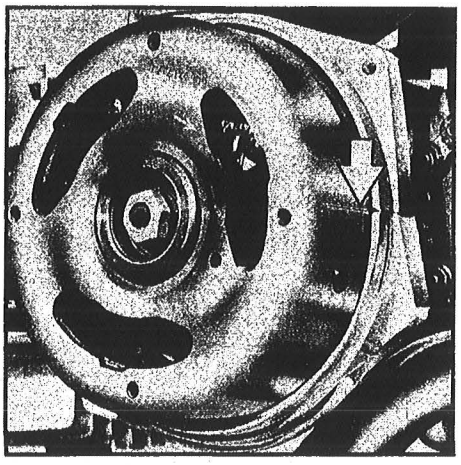


Fig. 35

CHECKING IGNITION TIMING

Connect ignition timing device 3331 to the blue lead of the H. T. coil and the other lead to earth. Turn flywheel in engine direction (see arrow fig. 35) till the buzzing noise on the timing device alters. At that point the ignition timing mark on the flywheel should coincide with the parting line of the housing halves.

IGNITION TIMING

If the timing is not correct recheck breaker point gap (fig. 36) or readjust till the correct ignition timing is achieved, providing the base plate has been correctly installed as mentioned with fig. 24 and the breaker point gap is within its tolerance.

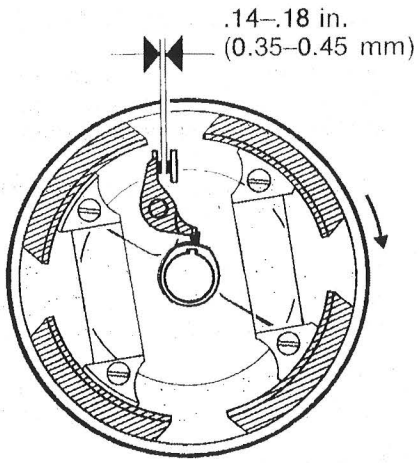


Fig. 36

FITTING NEW FLYWHEEL (WITHOUT TIMING MARK) Fig. 37

Adjust breaker point gap to correct setting (fig. 36). To find T. D. C. on piston travel insert a dial indicator into the plug hole (with holder). Find T. D. C. and turn engine 1.3–1.7 mm (.051–.067 in.) measured on the dial indicator, backwards (against engine direction) and mark flywheel in line with the parting line of the two housing halves. This is ignition timing mark. Recheck ignition timing as described with fig. 35.

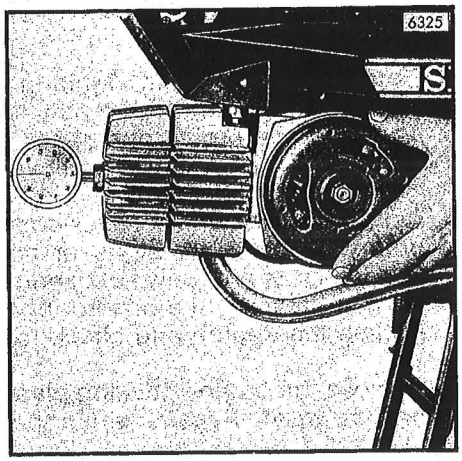


Fig. 37

ADJUST IGNITION TIMING WITH UNMARKED FLYWHEEL
(without dial indicator)

Adjust breaker point gap to correct setting (fig. 36). Find T. D. C. of piston travel (inserting a drift into plug hole). Make a pencil mark on the flywheel at the parting line of the two housing halves. From that pencil mark measure 18.5–21 mm (.7283–.8267 in.). Forward on flywheel (in engine direction) fig. 38 and mark the flywheel. This is ignition mark. Recheck ignition timing as described with fig. 35.

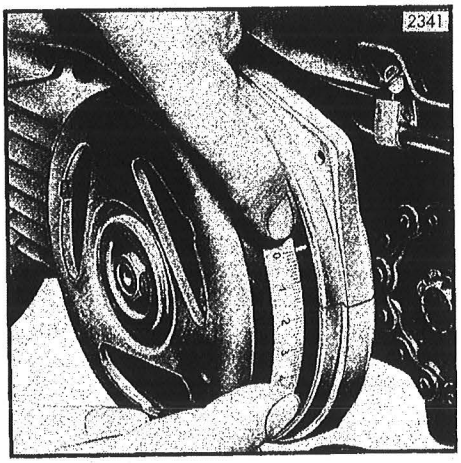


Fig. 38

TROUBLE SHOOTING

Ignition System Trouble Shooting Suggestions

When looking for problems in the ignition system, it is quickest and easiest to check and eliminate each item in the system completely before passing on to the next item.
The following sequence of checks should be helpful in finding the source of ignition problems.

1. Replace the spark plug. A spark plug that fires when laid against the cylinder head may not fire when subjected to engine compression. Check for spark.

2. Remove the R. H. chainguard and locate the black wire running from the engine stop switch to the junction block. Remove this wire and you eliminate the possibility of a faulty engine stop switch. Check for spark.

3. Verify the connections of the blue wire in terminal 1 and both ends of the ground wire in terminal 3. If faulty, repair and check for spark.

4. Remove the spark plug wire from the high tension post and inspect the wire end visually to see if the screw in the terminal has been in contact with the copper wire in the core. If not, repair and check for spark.

5. Check resistance in the suppressor plug using an Ohmmeter (for moped suppressor plug 1,000 Ohm resistance).

6. Obtain from stock a new ignition coil. Install the spark plug wire and the blue and brown wires from the old coil into the new coil.
Attach to spark plug and check for spark.
NOTE: It is necessary to remove old coil to perform test.

7. Remove the magneto cover and extract the flywheel. Inspect the condition of the breaker points. If there are signs of arcing (e. g. blued points, carbon colored spots, etc.) the condensor is probably faulty and both the breaker points and condensor should be replaced. (When replacing the breaker points and condensor follow steps 8 and 9 as well.)
Retime the engine and check for spark.

8. Remove the engine backing plate and check the wiring behind the plate for pinched, broken or bare wires. Repair, retime the engine and check for spark.

9. Insert a piece of cardboard (e. g. a matchbook cover) between the breaker point faces to insulate them. Attach one lead of an Ohmmeter to the wire terminal on the generating coil. Attach the other lead to a suitable ground on the ignition backing plate. The generating coil internal resistance should be 1.25 Ohm. If the coil is defective there will be a high resistance reading or an open circuit. Replace coil, retime engine and check for spark.
NOTE: All electrical connections should be made using a resin core, electrical type solder. Acid core solder will cause a repeat failure.

SECTION V

FRAME AND FORK ASSEMBLY

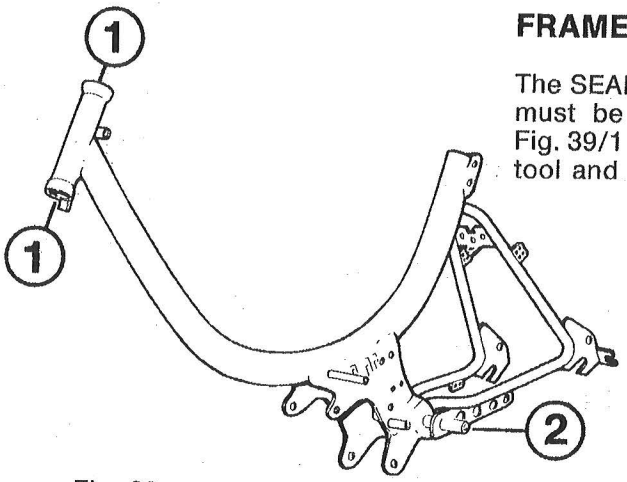


Fig. 39

FRAME

The SEARS frame is made of tubular steel and repairs must be limited to replacement of worn bearings. Fig. 39/1 and fig. 40/1. (To replace bearing caps use tool and crank axle bushes, fig. 39/2 and fig. 40/2.)

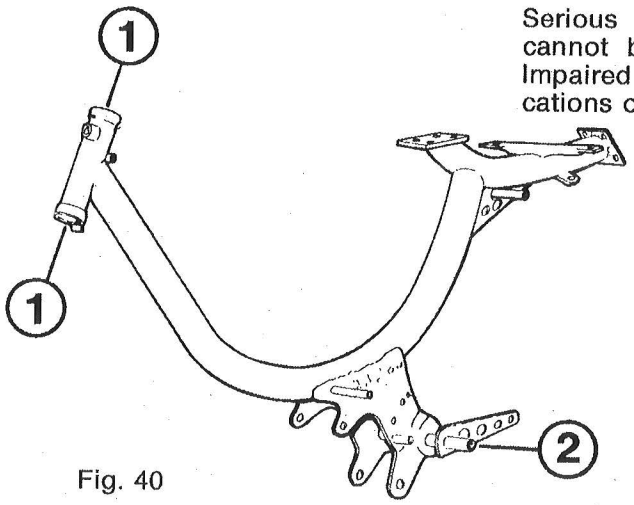


Fig. 40

Serious bends, cracks or other accidental damage cannot be repaired without weakening the frame. Impaired steering or wheel misalignment are indications of a twisted or damaged frame.

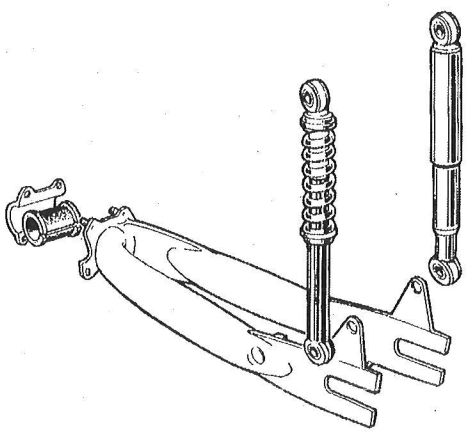


Fig. 41

REAR FORK OVERHAUL (Fig. 41)

Remove engine rear wheel and shock absorbers.
Unscrew four (4) retaining bolts and remove bearing cup, rear fork and rubber bearing.
Inspect rubber bearing and replace if worn.
Inspect rear fork and replace if twisted or bent.
Install new bearing, rear fork and bearing cup.

CAUTION: Do not tighten cup screws until shock absorbers are installed.
Install engine and rear wheel.

SHOCK ABSORBER (Fig. 41)

The SEARS shock absorbers are maintenance free. No spare parts are available and faulty units must be replaced.

FRONT SUSPENSION

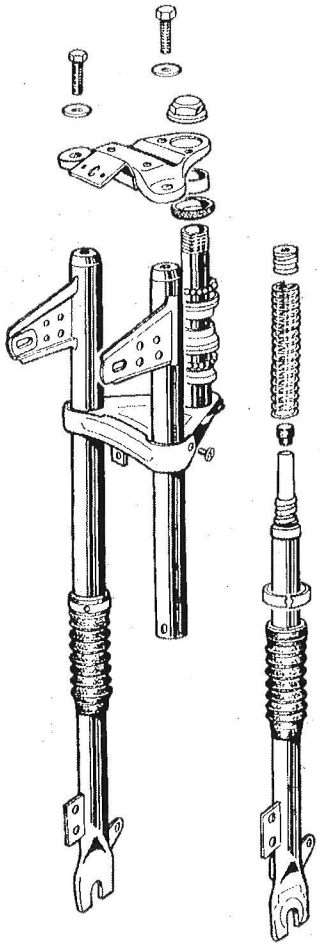


Fig. 42: Model 8084, 8085, 8086

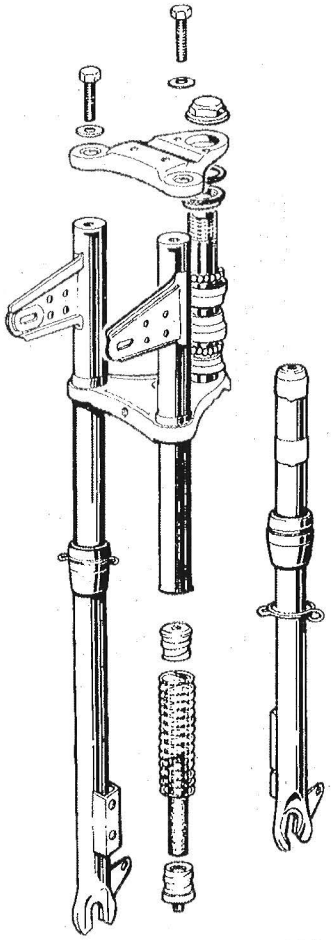


Fig. 43: Model 8081, 8082, 8083

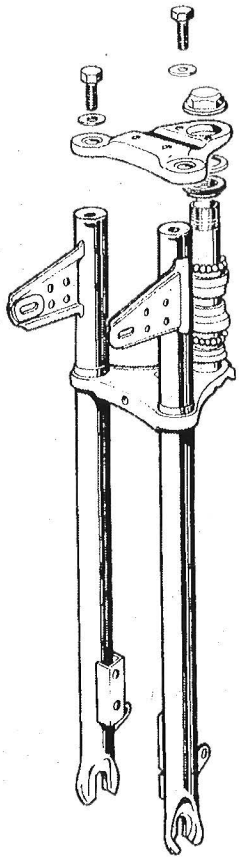


Fig. 44: Model 8080

DISMANTLE AND ASSEMBLE (Fig. 42 and fig. 43)
The SEARS front suspension is a trouble-free telescopic fork that requires periodic lubrication. Spare parts are available and any bent, worn or damaged parts must be replaced.

WARNING: Do not attempt to repair front suspension parts. Replace damaged items.

Remove front wheel, fender and handlebar assembly.

Remove two (2) fork top hexagonal screws, and pull fork slider assembly down and out of fork tube.

Clamp lower end of slider in a vise and remove spring.

Remove rubber sleeve.

Clean and inspect all parts for wear or damage and replace if necessary.

Check spring length and replace if necessary.

Remove fork stem nut, fork yoke and drop fork out of steering head.

Inspect fork and replace if bent or twisted.

Inspect steering stem bearing cups and cones, and replace if pitted or dented. Fig. 39/1 and 40/1.

NOTE: No replaecable bearing bushes fitted to front suspension. (Fig. 42 – Fig. 43.)

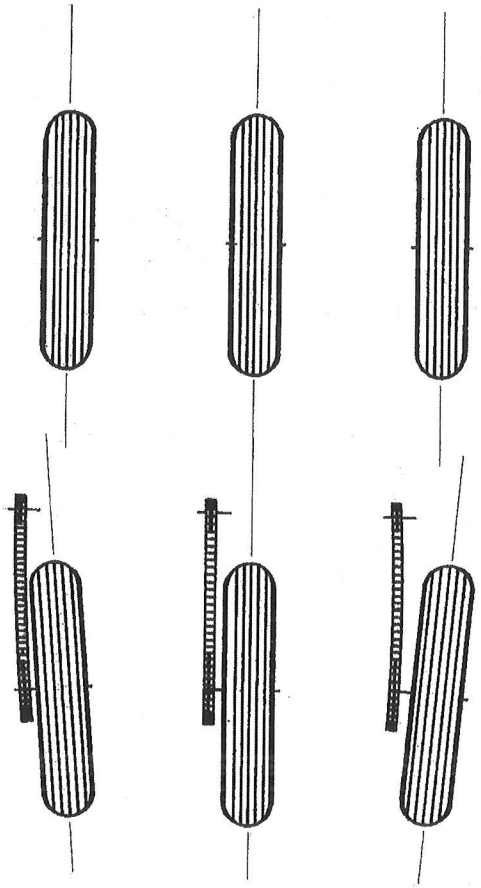


Fig. 45

NOTE: Remove cups and cones with drift or punch and use tool to install new bearing cups.
Grease steering bearings and install fork, yoke and top nut.
Grease guide bushes and springs and install slider assemblies in fork tubes. Tighten top hexagon screws.
Grease guide bushes and springs and install slider assemblies in fork tubes. Tighten top hexagon screws.
SPRING LENGTH

New: 7.480 in. (190 mm)
Limit: 7.086 in. (180 mm)

DISMANTLE AND ASSEMBLE (Fig. 44)

NOTE: Only steering stem bearing cups and cones to be replaced if pitted or dented. Inspect fork assembly for bends and twists. No repairs can be carried out on fork assembly. Steering head bearings and cups must be replaced as a unit.

ALIGNMENT OF WHEELS

When ever fitting a rear wheel make sure that both wheels are in alignment. i. e. on riding the vehicle in straight ahead direction. Checking and adjusting is easily carried out in any workshop.

The rear wheel is aligned by sighting from the rear (drive side) sprocket up to the engine sprocket. These two sprockets **must** fall within the same plane. Take two sightings down the chain to avoid error.
NOTE: Do not read the chain with the master link on top, as it tend to distort the reading.

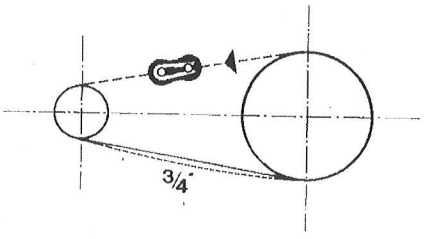


Fig. 46

Adjusting:

Loosen rear axle and adjust rear wheel as required by means of two chain tensioners left and right.

NOTE:
At any correction to the rear wheel always mind correct tension of driving chain. Further to the above said make sure that the wheels are vertical in the frame. Check both wheels using a plummet. Measure the distance from the plummet to the clinch at the top and bottom side of the wheel using a slide and a measuring type. If the measuring on both wheels results in unequal values the origin is mostly a distorted fork or rear swinging arm.

CHAIN TENSION

When refitting the chains take care that the tension is correct and the connecting links are properly placed (fig. 46) with the closed end pointing in the direction of chain travel. The designed slackness of the driving chain midway between the sprockets should be 3/4". Chain tension should be checked with laden weight (not model 8080).

TROUBLE SHOOTING – FRAME AND FORK ASSEMBLY

SYMPTOM	REASONS/S	REMEDY
Machine is unduly sensitive to road surface irregularities	Fork and/or rear suspension units damping ineffective	Check condition of springs in forks. Replace suspension units. Shock Absorbers
Machine rolls at low speeds	Steering head bearings over tight or damaged	Slacken bearing adjustment. If no improvement, dismantle and inspect head bearings
Machine tends to wander; steering is imprecise	Worn swinging arm suspension bearings	Check and if necessary replace pivot bolt and bushings
Forks judder when front brake is applied	Worn bushings in fork assembly. Steering head bearings too slack	Strip forks and replace either lower fork tube or fork assembly. Replace steering head bearing as a unit
Wheels seem out of alignment	Frame distorted as result of accident. Rear wheel not tracking properly	Check frame after stripping out. If bent, replacement is necessary. Sight down drive sprockets for proper alignment, adjust if necessary

SECTION VI

WHEELS, HUBS, AND BRAKES

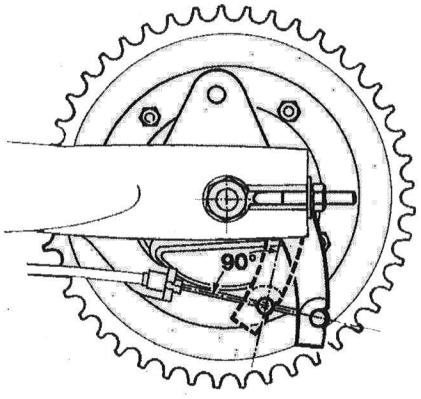


Fig. 47

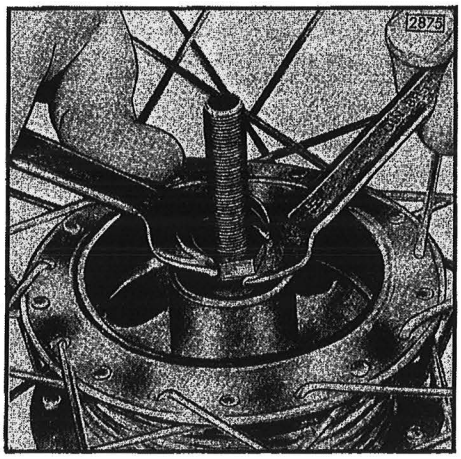


Fig. 48

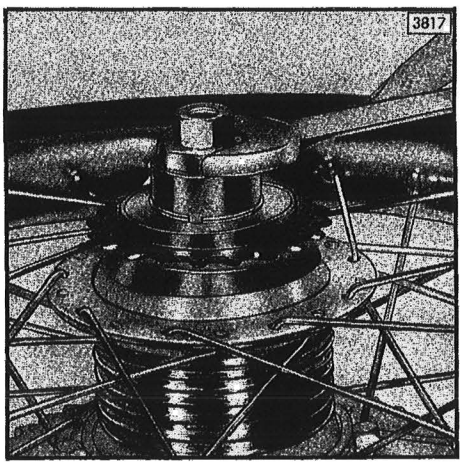


Fig. 49

Brakes

General

Glued-on linings are used on all brake shoes fitted to our machines. If linings are worn, replace complete shoes (fig. 50 and 51).

Oiled linings, usually due to over greasing of brake cam, must be cleaned with gasoline or a similar degreasant.

The position of the brake lever is particularly important for a properly working brake. If fully actuated the brake lever position is to be max. 90 degrees (see fig. 47). Upon wear of the lining the lever position changes. Correct the lever position as long as the wear of linings still allows readjusting. Readjust at the toothing between brake lever and brake cam.

Roughen brake surfaces of brake drums with emery cloth prior to fitting new shoes.

If hubs with decomposable bearing are worn, replace complete sets consisting of bearing rings, tapers and balls.
Hubs are greased for life. This means, that the original grease filling is sufficient for approx. 7,200 miles use. After this, hubs must be dismantled, cleaned and regreased.

Hubs (Leleu and cast aluminum)

Remove wheel and mount all in vise.

CAUTION: Use soft jaws in vise to prevent damage to axle.
Remove lock nut and lift brake plate assembly out of hub. Remove lock nut and bearing cone (fig. 48), using spanner 3340.
Remove hub from axle.

CAUTION: Ball bearings (22) are not caged. Do not lose any. Inspect bearing cups and cones and replace if pitted of worn.

NOTE: Cups may be drifted out, new cups pressed in.

INSTALLING

Back bearing cups with fibrous wheel bearing grease, fit ball bearings into place (11 per side) and reassemble hub on axle. Tighten bearing cone until axle movement is restricted, then back cone 1/8–1/4 turn.

DRIVE SPROCKET

It is not necessary to dismantle complete hub to replace idling or drive chain sprocket. Unscrew complete sprocket (fig. 49) with special tool 3341. Replace sprocket assembly if necessary.

LELEU HUB ASSEMBLY (Fig. 50)

Dismantling and assembling procedure is described on page 52. For measurements and wear limits see "Wear limit table" below. The same adjustments are made for front and rear hubs.

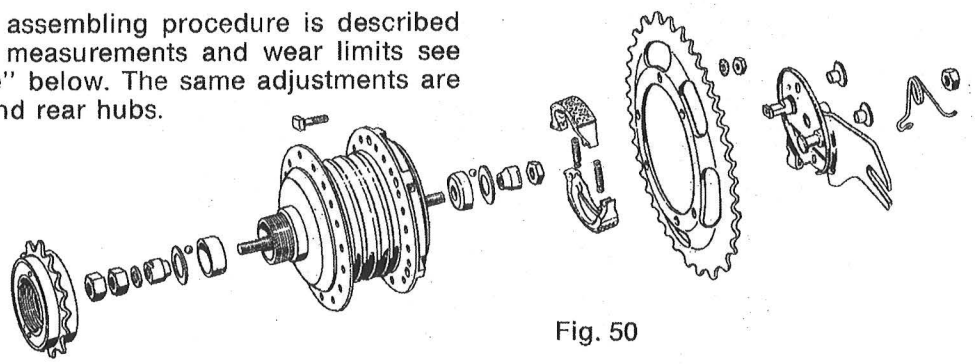


Fig. 50

WEAR LIMITS

Description	Drum diameter		Brake shoe pair assembled dia.	
	Nominal	Wear limit	New	Wear limit
Cast Aluminum	3.543 in.	3.590 in.	3.496–3.523 in.	3.425 in.
	90 mm	91.2 mm	88.8–89.5 mm	87 mm
LELEU Hub	3.149 in.	3.188 in.	3.110–3.129 in.	3.039 in.
	80 mm	81 mm	79–79.5 mm	77.2 mm

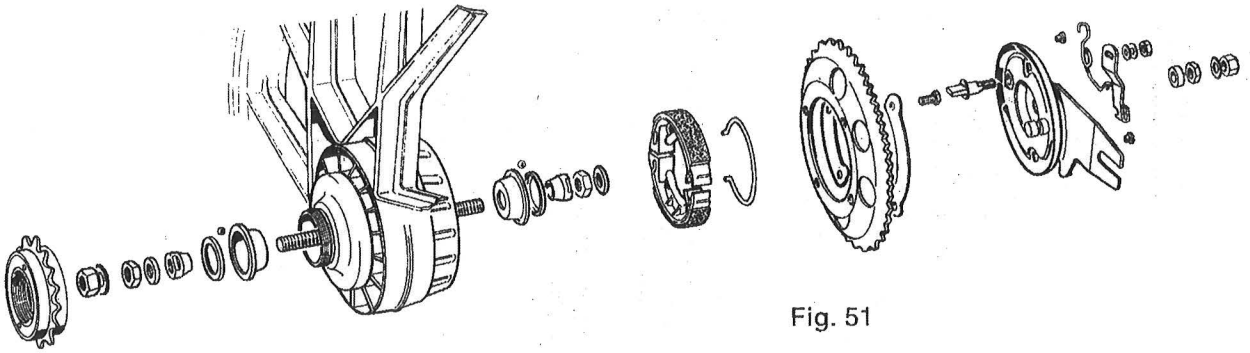


Fig. 51

Cast aluminum wheels (Fig. 51 and 52)

Dismantling and assembling procedure is described on page 52. For measurements and wear limits see "Wear limit table" above. Wheel bearing adjustments are identical for front and rear wheel.

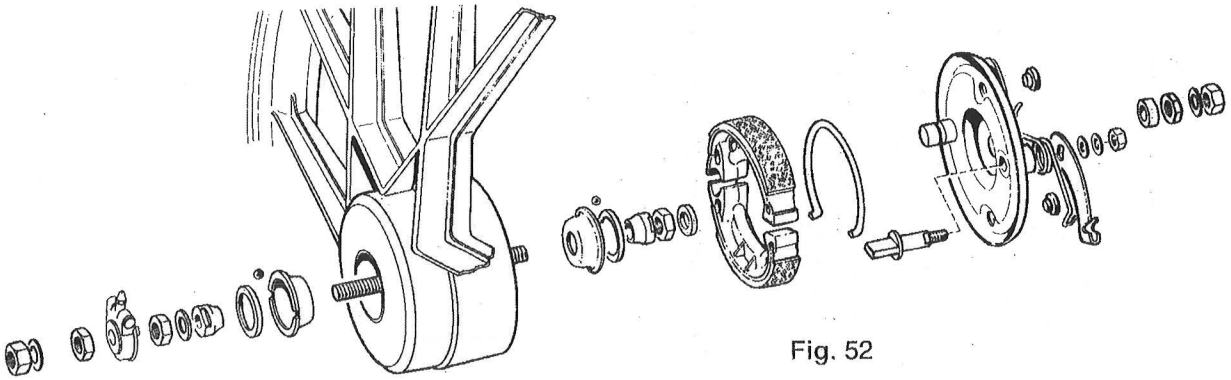


Fig. 52

TROUBLE SHOOTING – WHEELS, HUBS, AND BRAKES

SYMPTOM	REASONS/S	REMEDY
Handlebars oscillate at low speeds	Buckle or flat in wheel rim, probably front wheel Tire not straight on rim	Check rim alignment by spining wheel. Correct by retensioning spokes or having wheel rebuilt on new rim. Replace cast aluminum wheel Check tire alignment
Machine lacks power and accelerates poorly	Brakes binding	Warm brake drums provide evidence. Readjust brakes
Brakes grab when applied gently	Ends of brakes shoes not chamfered Elliptical brake drum	Chamfer with file. Lightly skim in lathe (specialist attention needed)
Brake pull-off slugish	Brake cam binding in housing. Weak brake shoe springs	Free and grease Replace, if brake springs not displaced
Harsh transmission	Worn or badly adjusted chains. Hooked or badly worn sprockets	Adjust or replace as necessary. Replace together as pair, chain as well

SECTION VII

ELECTRICAL SYSTEM

ELECTRICAL SYSTEM

General Description

The flywheel magneto generator fitted to the Sears FREE SPIRIT Moped models contains one ignition coil and three lighting coils. The coils supply a 6 volt alternating current for the electrical requirements of the unit. There is no provision for a battery; consequently the horn and lighting systems will only function when the engine is running. This is known as the direct lighting system.

Flywheel Generator – Checking Output

The output can only be checked with specialised test equipment of the multimeter type. If the generator is suspect, it should be checked by either a Sears Auto Center or an electrical expert.

Specifications

Headlamp Bulb	6 V – 26 Watts
Brake Light Bulb	6 V – 10 Watts
Tail Light Bulb	6 V – 5 Watts
Speedometer Bulb	6 V – .6 Watts

Horn Location and Adjustment

1. The horn is located on a bracket attached to the bottom yoke of the forks, immediately in front of the steering head.
2. There is no means of adjusting the horn tone.

Adjusting the Headlamp Beam

The headlamp is attached to the top bridge of the front fork by two retaining bolts. Backing off these two bolts a few turns permits the headlamp to be tilted upwards or downwards.

To adjust the beam place the machine on level ground at a distance of 20 feet from a vertical wall, with the rider seated. Chalk on the wall a vertical line corresponding to the center of the machine and a horizontal crossing line above ground level. The beam ist correct if the cut-off above the beam is 2 inches below the horizontal line of the adjusting cross.

Ignition System Trouble Shooting Suggestions

When looking for problems in the ignition system, it is quickest and easiest to check and eliminate each item in the system completely before passing on to the next item.
The following sequence of checks should be helpful in finding the source of ignition problems.

1. Replace the spark plug. A spark plug that fires when laid against the cylinder head may not fire when subjected to engine compression. Check for spark.

2. Remove the R. H. chainguard and locate the black wire running from the engine stop switch to the junction block. Remove this wire and you eliminate the possibility of a faulty engine stop switch. Check for spark.

3. Verify the connections of the blue wire in terminal 2 and both ends of the black wire in terminal 2. If faulty, repair and check for spark.

4. Remove the spark plug wire from the high tension post and inspect the wire end visually to see if the screw in the terminal has been in contact with the copper wire in the core. If not, repair and check for spark.

5. Check resistance in the suppressor plug using an Ohmmeter (for moped suppressor plug 1,000 Ohm resistance).

6. Obtain from stock a new ignition coil. Install the spark plug wire and the blue and brown wires from the old coil into the new coil. Attach to spark plug and check for spark.
   NOTE: It is not necessary to remove old coil to perform test.

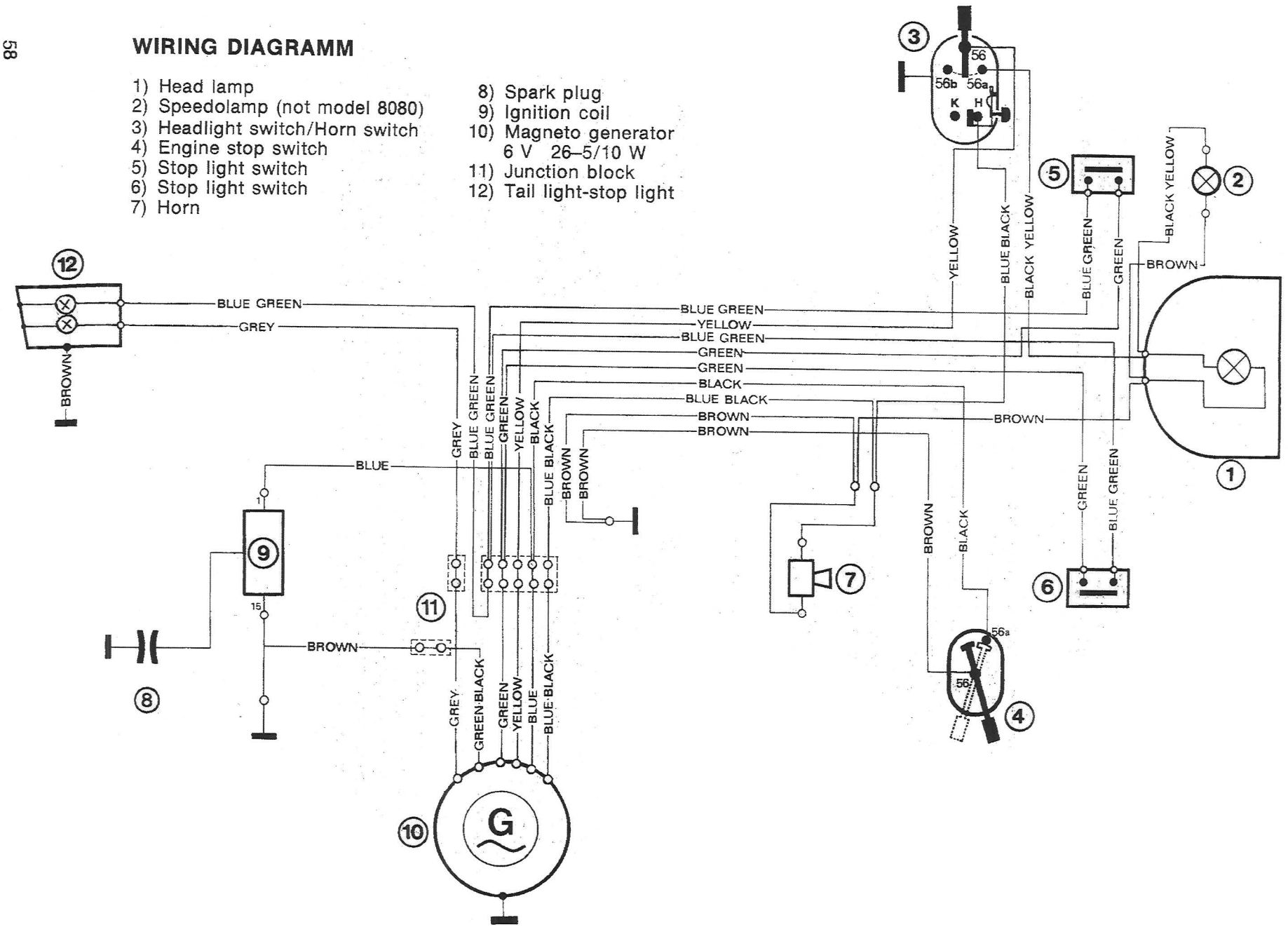
7. Remove the magneto cover and extract the flywheel. Inspect the condition of the breaker points. If there are signs of arcing (e. g. blued points, carbon colored spots, etc.) the condensor is probably faulty and both the breaker points and condensor should be replaced. (When replacing the breaker points and condensor follow steps 8 and 9 as well.) Retime the engine and check for spark.

8. Remove the engine backing plate and check the wiring behind the plate for pinched, broken or bare wire. Repair, retime the engine and check for spark.

9. Insert a piece of cardboard (e. g. a matchbook cover) between the breaker point faces to insulate them. Attach one lead of an Ohmmeter to the wire terminal on the generating coil. Attach the other lead to a suitable ground on the ignition backing plate. The generating coil internal resistance should be 1.25 Ohm. If the coil is defective there will be a high resistance reading or an open circuit. Replace coil, retime engine and check for spark.

WIRING DIAGRAMM

1) Head lamp
2) Speedolamp (not model 8080)
3) Headlight switch/Horn switch
4) Engine stop switch
5) Stop light switch
6) Stop light switch
7) Horn
8) Spark plug
9) Ignition coil
10) Magneto generator
    6 V 26–5/10 W
11) Junction block
12) Tail light-stop light



SECTION VIII

TECHNICAL DATA

INDEX

Sears

Parts Manual

Free Spirit Moped

78/1

Model No.: 8080
8081
8082
8083
8084
8085
8086

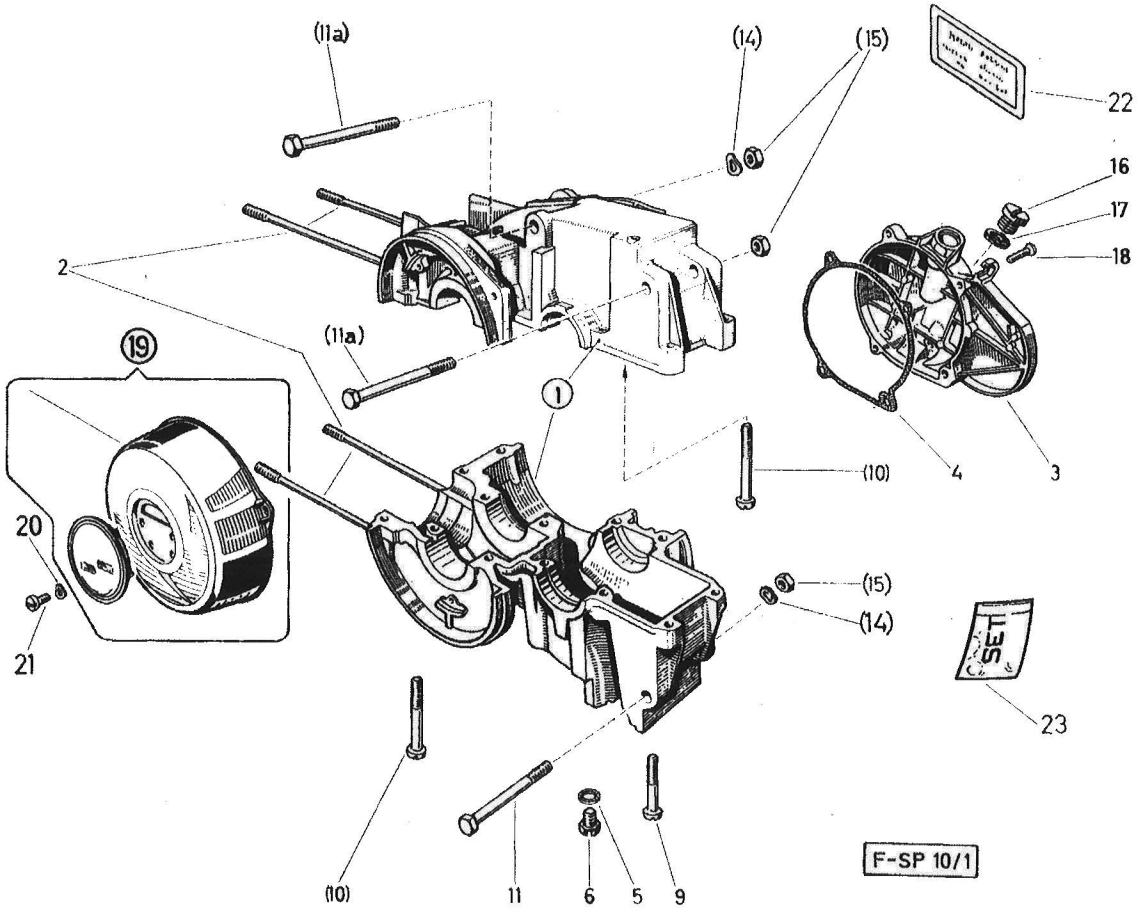
SEARS, ROEBUCK AND CO., Chicago, ILL. 60684

C O N T E N T S

To convert millimeters to inches, multiply by 0,03937.

C O N T E N T S

To convert millimeters to inches,
multiply by 0,03937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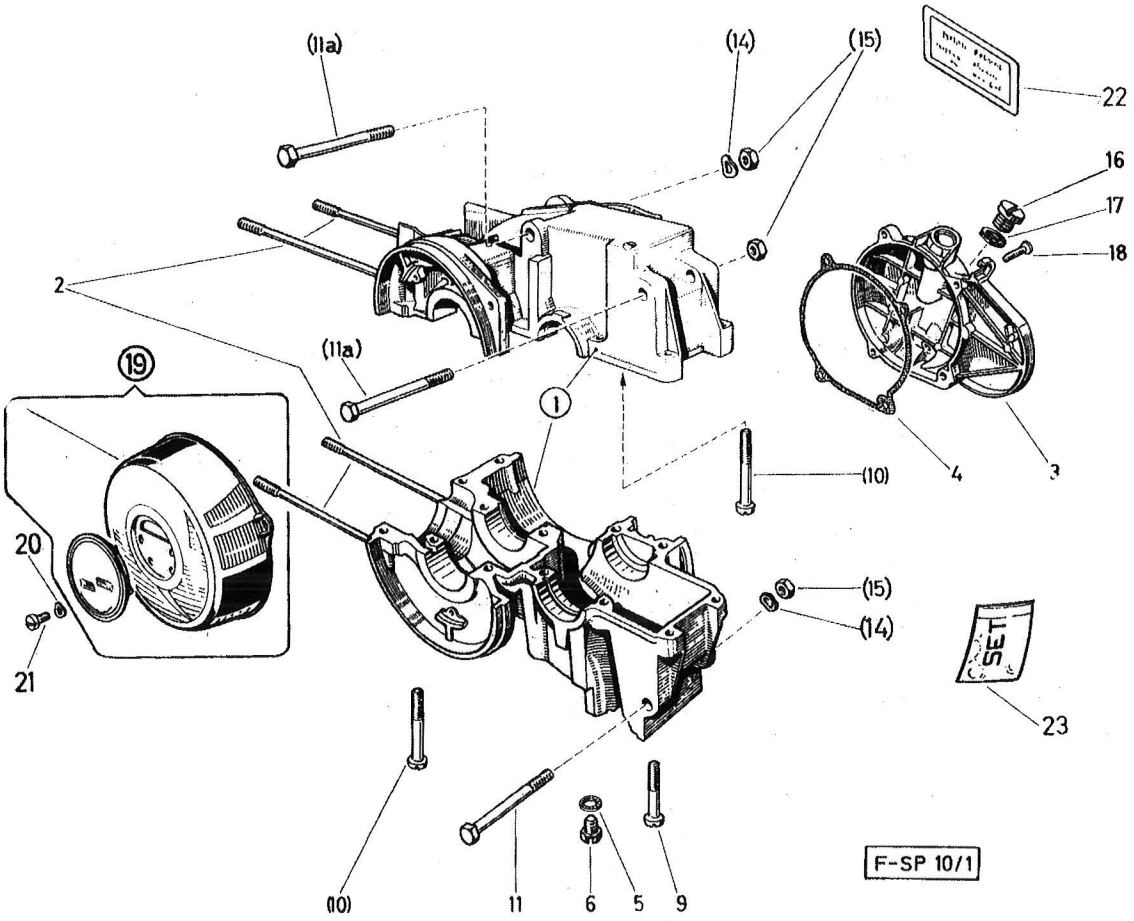
Free Spirit - Model-Nos.

1. CRANKCASE

Ref.-No.	Part-No.	Description		81780800	81780810	81780820	81780830	81780840	81780850	81780860
				Requd.No.						
1	3116	CRANKCASE compl.		1	1	1	1	1	1	1
2	3258	STUD BOLT M6, 103 long		4	4	4	4	4	4	4
3	3250	COVER		1	1	1	1	1	1	1
4	1089	COVER GASKET		1	1	1	1	1	1	1
5	3286 *	SEAL WASHER A8x14 DIN 7603	for oil drain	1	1	1	1	1	1	1
6	1086	HEXAGON BOLT M8x10 Sz DIN 933	for oil drain	1	1	1	1	1	1	1
9	2048	CHEESE HEAD SCREW M6x30 DIN 84-8.8	for crankcase assembly	8	8	8	8	8	8	8
10	3006	CHEESE HEAD SCREW CM6x50 DIN 84-8.8	for crankcase assembly	5	5	5	5	5	5	5
11	3003	HEXAGON BOLT M8x1x75 DIN 960-8.8	for engine suspension	1	1	1	1	1	1	1
11a	3004	HEXAGON BOLT M8x1x80 DIN 960-8.8	for engine suspension	2	2	2	2	2	2	2
14	2071	SPRING WASHER B8 DIN 137	for engine suspension	2	2	2	2	2	2	2
15	2059	HEXAGON NUT M8x1 DIN 934-8	for engine suspension	2	2	2	2	2	2	2
15	3034	HEXAGON NUT M8x1 DIN 985-8	for engine suspension	1	1	1	1	1	1	1
16	1085	OIL FILLER PLUG (M10)		1	1	1	1	1	1	1
17	2027 *	SEAL WASHER A10x14 DIN 7603		1	1	1	1	1	1	1
18	3000	PAN HEAD SCREW for cover fixing M6x25 DIN 966		4	4	4	4	4	4	4

* These parts are included in the Set under Ref.No.23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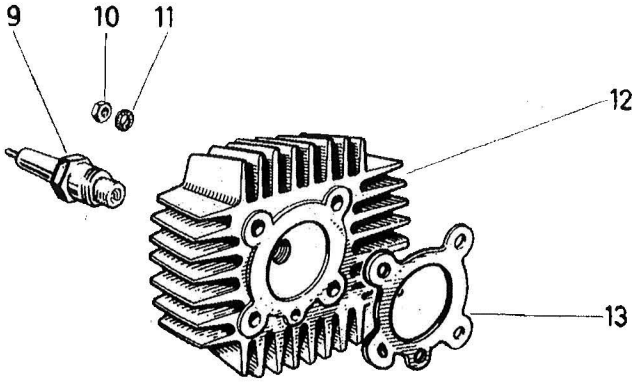
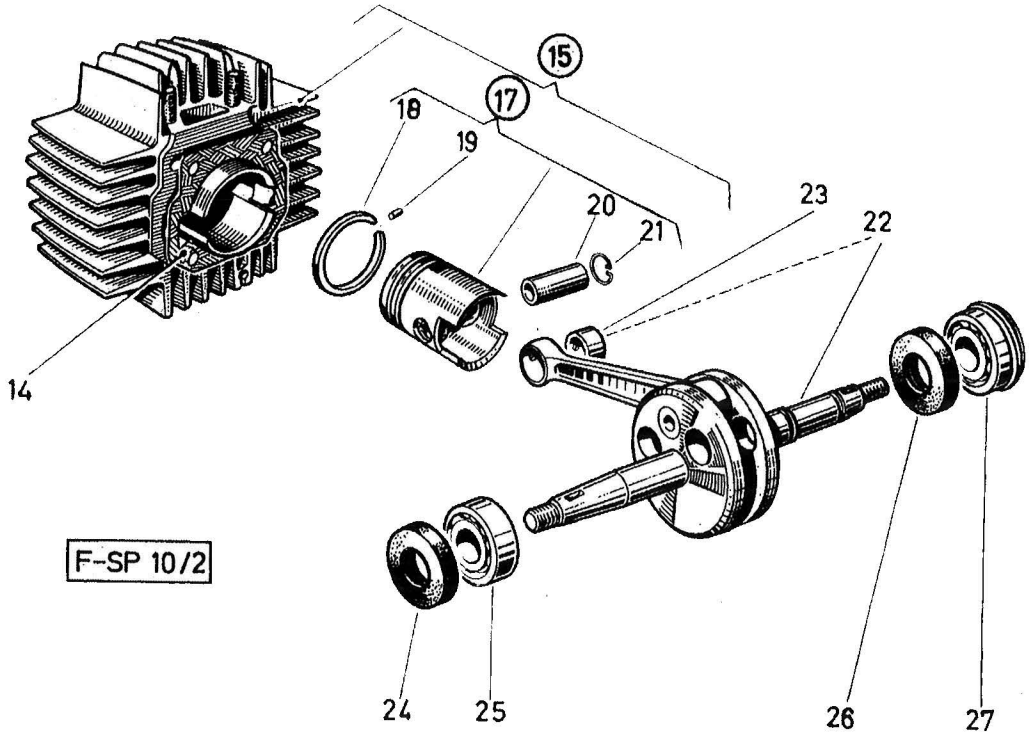
1. CRANKCASE (cont.)

Ref.-No.	Part-No.	Description	Free Spirit - Model-Nos. 881 771 780 800 880	881 771 780 800 881	881 771 780 800 882	881 771 780 800 883	881 771 780 800 884	881 771 780 800 885	881 771 780 800 886
			Requd. No.						
19	1065	GENERATOR COVER	1	1	1	1	1	1	1
20	2068	SPRING WASHER A4 DIN 137 } for generator cover fastening	2	2	2	2	2	2	2
21	2053	PAN HEAD SCREW AM4x10 DIN 85 } for generator cover fastening	2	2	2	2	2	2	2
22	3291	TRANSFER PICTRUE (Attention - before starting type "F" transmission fluid is to filled in Gear box)	1	1	1	1	1	1	1
23	80889	SEAL WASHER SET (consist of Ref.-No. 5 and 17)	1	1	1	1	1	1	1





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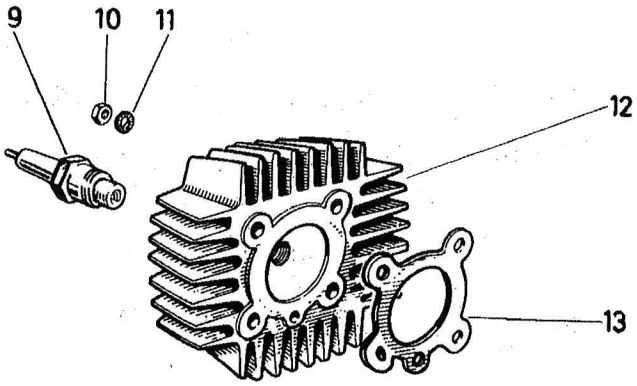
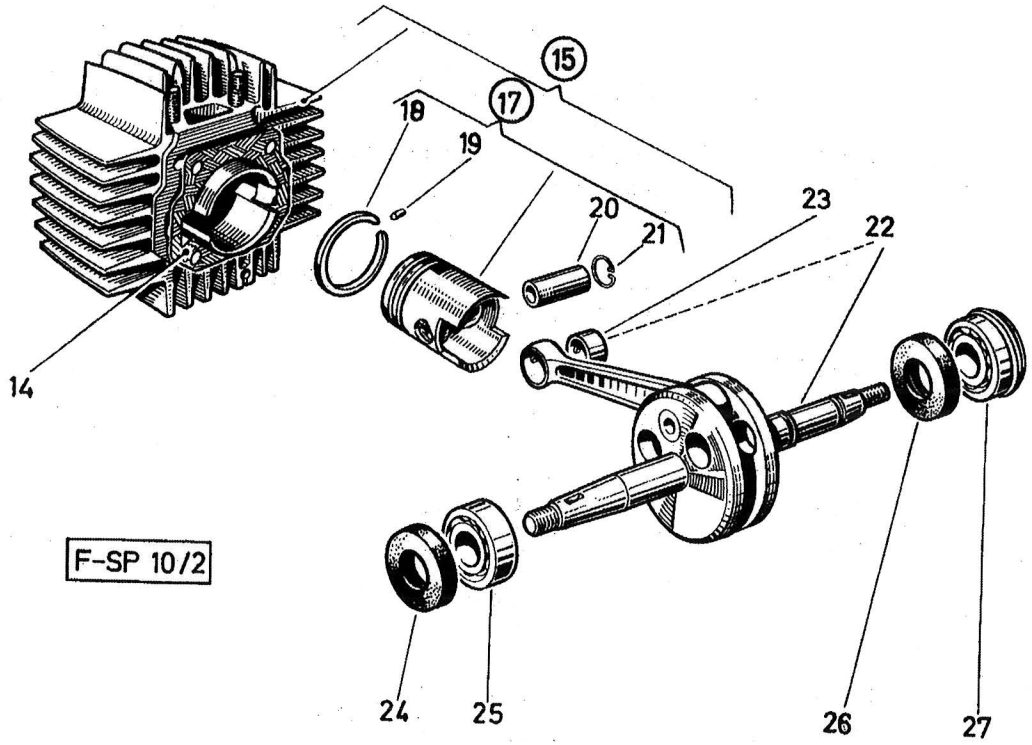
Free Spirit - Model-Nos.

2. CYLINDER, PISTON, CRANKSHAFT

Ref.-No.	Part-No.	Description	81780800	81780810	81780820	81780830	81780840	81780850	81780860
			Requd.No.						
9	3031	SPARK PLUG (Bosch W95T1)	1	1	-	-	1	-	-
or 9	60935	SPARK PLUG (Champion L90)	1	1	-	-	1	-	-
9	3030	SPARK PLUG (Bosch W175T1)	-	-	1	-	-	1	-
or 9	60941	SPARK PLUG (Champion L86)	-	-	1	-	-	1	-
9	3063	SPARK PLUG (Bosch W200T35)	-	-	-	1	-	-	1
or 9	3063	SPARK PLUG (Champion L82)	-	-	-	1	-	-	1
10	2057	HEXAGON NUT M6 DIN 934	4	4	4	4	4	4	4
11	2012	WASHER 6,4 DIN 433	4	4	4	4	4	4	4
12	1034	CYLINDER COVER	1	1	1	1	1	1	1
13	1084	CYLINDER COVER GASKET (Alu-foil 4-rows, 0,4 mm thick)	1	1	1	1	1	1	1
14	3107	CYLINDER BASE FLANGE GASKET (1 mm thick)	1	1	1	1	1	1	1
15	1023	CYLINDER compl. (with piston, wrist pin and wire retaining ring)	1	1	1	1	1	1	1
17	3109	PISTON compl. Ø38, sort.1 (as requd.)	1	1	1	1	1	1	1
17	3110	PISTON compl. Ø38, sort.2 (as requd.)	1	1	1	1	1	1	1
17	3111	PISTON compl. Ø38, sort.3 (as requd.)	1	1	1	1	1	1	1
17	3112	PISTON compl. Ø38, sort.4 (as requd.)	1	1	1	1	1	1	1
17	3113	PISTON compl. Ø38, sort.5 (as requd.)	1	1	1	1	1	1	1





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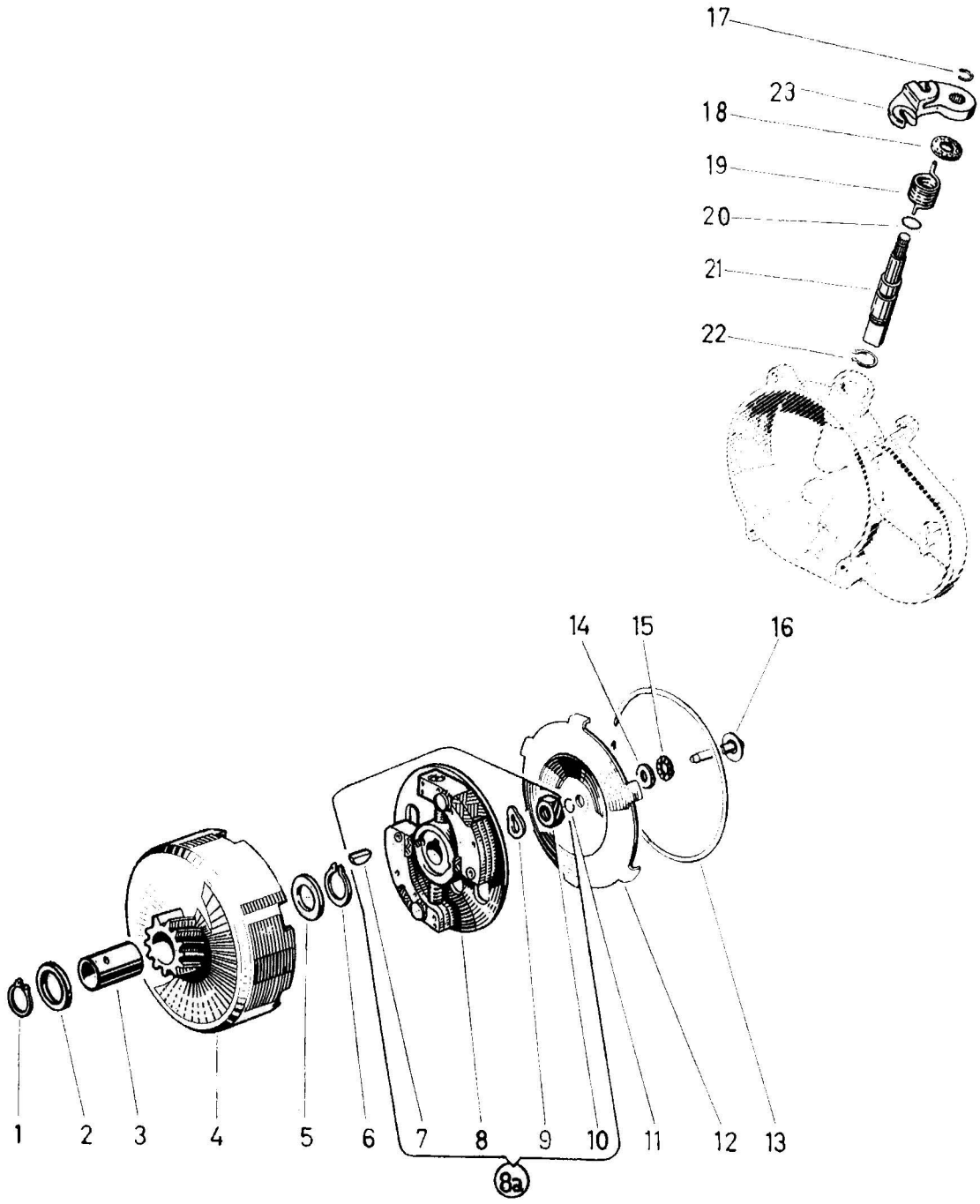
2. CYLINDER; PISTON, CRANKSHAFT (cont.)

Free Spirit - Model-Nos. (Requd.No.)

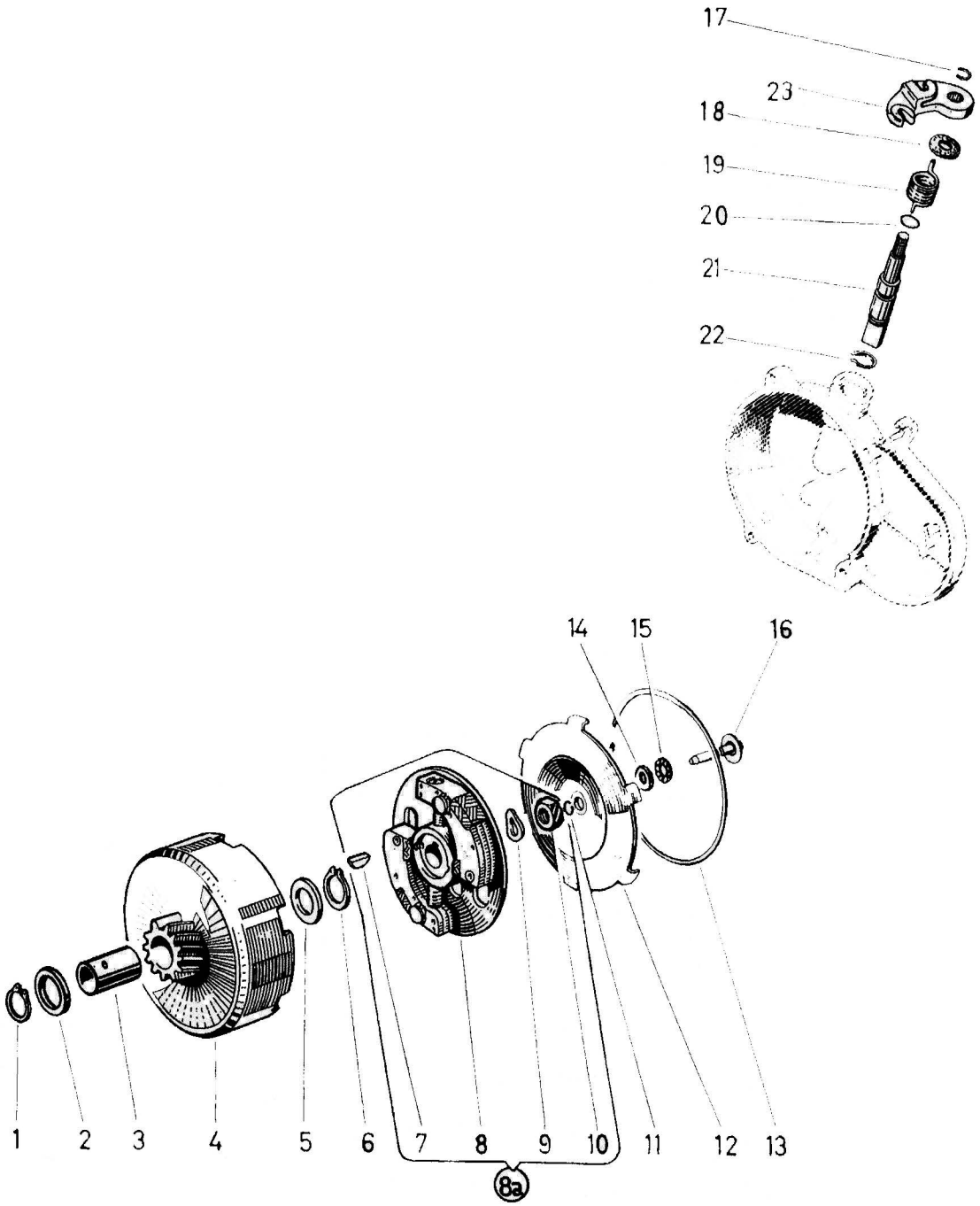
Ref.-No.	Part-No.	Description	81780800	81780810	81780820	81780830	81780840	81780850	81780860	
18	1024	PISTON RING (square ring FS 2-38/35x2 fz ka ki DIN 24919 with rounded edges for Alu-cylinder)	2	2	2	2	2	2	2	
19	2093	NOTCHED LOCKING PIN 2x6 DIN 1473	2	2	2	2	2	2	2	
20	3099	GUDGEON PIN Ø12x31, sort.2	1	1	1	1	1	1	1	as requd.
20	3100	GUDGEON PIN Ø12x31, sort.3	1	1	1	1	1	1	1	as requd.
21	3028	WIRE RETAINING RING B12 DIN 73123	2	2	2	2	2	2	2	
22	3114	CRANKSHAFT compl. with connecting rod, Ø12, with bevel 1:5	1	1	1	1	1	1	1	
23	3108	BUSH for connecting rod (for repair)	1	1	1	1	1	1	1	
24	3009	SEAL RING A17/40/7 NB N05043	1	1	1	1	1	1	1	for crankshaft mounting l.h.s.
25	2095	DEEP ROW BALL BEARING 40/17/12 6203 DIN 625	1	1	1	1	1	1	1	for crankshaft mounting l.h.s.
26	3036	SEAL RING A22/40/7 FP N 05043	1	1	1	1	1	1	1	for crankshaft mounting r.h.s.
27	2096	DEEP ROW BALL BEARING 40/17/12 Steyr 6203 ZNR	1	1	1	1	1	1	1	for crankshaft mounting r.h.s.



F-SP 12/1

3. CLUTCH

Ref.-No.	Part-No.	Description	Free Spirit - Model-Nos. 8 8 8 8 8 8 8 / 1 1 1 1 1 1 1 / 7 7 7 7 7 7 7 / 8 8 8 8 8 8 8 / 0 0 0 0 0 0 0 / 8 8 8 8 8 8 8 / 0 1 2 3 4 5 6 / 0 0 0 0 0 0 0 Requd. No.
1	2089	CIRCLIP Sg17x1 DIN 471	1 1 1 1 1 1 1
2	3019	WASHER 24/17/1,1	1 1 1 1 1 1 1
2	3012	WASHER 24/17/1,3	1 1 1 1 1 1 1
2	3010	WASHER 24/17/1,5	as required 1 1 1 1 1 1 1
2	3013	WASHER 24/17/1,7	1 1 1 1 1 1 1
3	3202	BEARING BUSHING 17/15/21,5	1 1 1 1 1 1 1
4	3232	CLUTCH DRUM (21 teeth)	1 1 1 1 1 1 1
5	3022	WASHER 22/15/1,1	1 1 1 1 1 1 1
5	3014	WASHER 22/15/1,3	1 1 1 1 1 1 1
5	3011	WASHER 22/15/1,5	1 1 1 1 1 1 1
5	3015	WASHER 22/15/1,7	1 1 1 1 1 1 1
5	2067	WASHER 22/15/1,8	1 1 1 1 1 1 1
5	3025	WASHER 22/15/1,85	as requd. 1 1 1 1 1 1 1
5	3018	WASHER 22/15/1,9	1 1 1 1 1 1 1
5	3026	WASHER 22/15/1,95	1 1 1 1 1 1 1
5	3020	WASHER 22/15/2,1	1 1 1 1 1 1 1
5	3023	WASHER 22/15/2	1 1 1 1 1 1 1
5	3024	WASHER 22/15/2,2	1 1 1 1 1 1 1
6	2090	CIRCLIP Sg15x1 DIN 471	1 1 1 1 1 1 1



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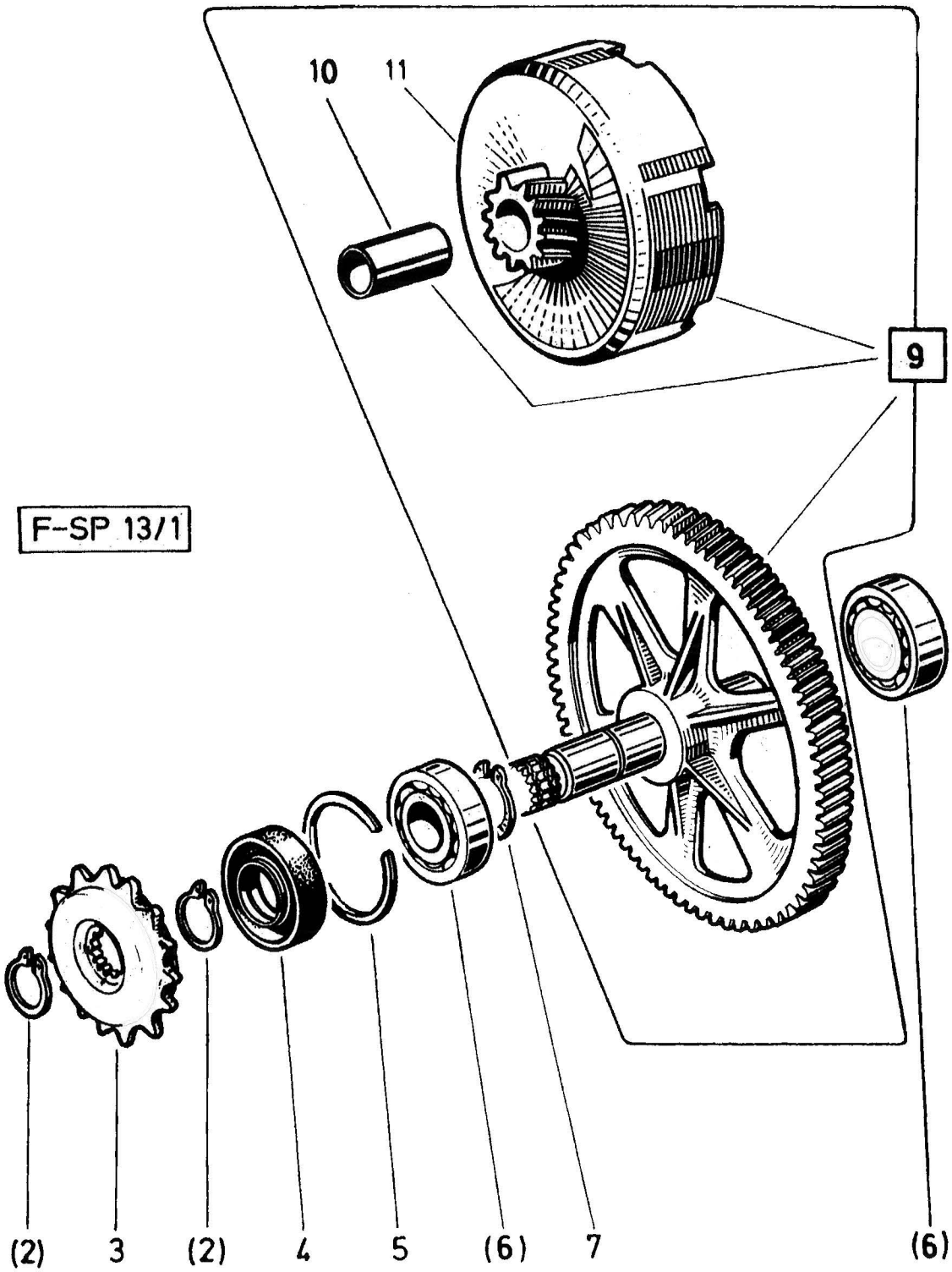
Free Spirit - Model-Nos.

3. CLUTCH (cont.)

Ref.-No.	Part-No.	Description	81780800	81780810	81780820	81780830	81780840	81780850	81780860
			Requd.No.						
7	3285*	WOODRUFF KEY 3x5 DIN 6888	1	1	1	1	1	1	1
8	*	CLUTCH HUB compl.	1	1	1	1	1	1	1
8a	1045	CLUTCH HUB SET compl.	1	1	1	1	1	1	1
9	2070*	SPRING WASHER B10 DIN 137	1	1	1	1	1	1	1
10	2056*	HEXAGON NUT M10x1 DIN 934-8	1	1	1	1	1	1	1
11	2091	SPRING RING 5 DIN 9045	1	1	1	1	1	1	1
12	1046	CLUTCH COVER	1	1	1	1	1	1	1
13	3117	RETAINING SPRING	1	1	1	1	1	1	1
14	3119	THRUST WASHER 15/5/1	1	1	1	1	1	1	1
15	2097	AXIAL NEEDLE BEARING 6,4x17,2x1,984	1	1	1	1	1	1	1
16	3118	THRUST BOLT, 25 long	1	1	1	1	1	1	1
17	2087	BZ-CIRCLIP 6 DIN 6799	1	1	1	1	1	1	1
18	2031	RUBBER WASHER 20/7,8/2	1	1	1	1	1	1	1
19	3230	RETURN SPRING	1	1	1	1	1	1	1
20	2082	RUBBER SEAL RDR 9,3x3,4 DIN 3770	1	1	1	1	1	1	1
21	3231	DECLUTCHING SHAFT, Ø14	1	1	1	1	1	1	1
22	2092	C-RING H14x1	1	1	1	1	1	1	1
23	3120	DECLUTCHING LEVER	1	1	1	1	1	1	1

* These parts are included in the Set under Ref.No.8a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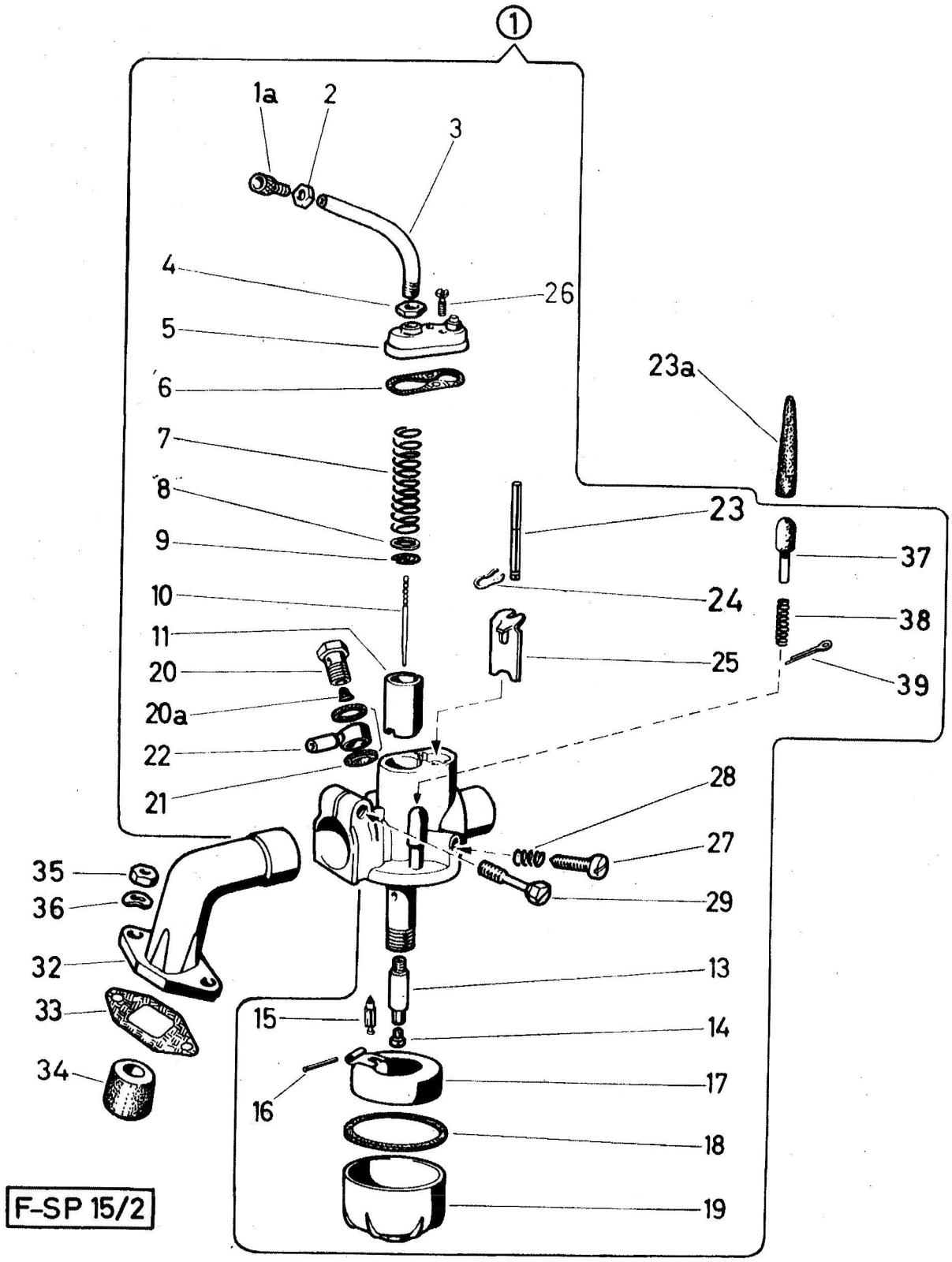
Free Spirit - Model-Nos.

4. GEARBOX

Ref.-No.	Part-No.	Description	81780800	81780810	81780820	81780830	81780840	81780850	81780860
			Requd.No.						
2	2088	SNAP RING	2	2	2	2	2	2	2
3	1026	GEARBOX CHAIN SPROCKET (13 teeth)	1	1	1	-	1	1	-
3	1027	GEARBOX CHAIN SPROCKET (15 teeth)	-	-	-	1	-	-	1
4	3009	SEAL RING BA 40/17/7 DIN 3760	1	1	1	1	1	1	1
5	3027	RETAINING RING SP 40 DIN 5417	1	1	1	1	1	1	1
6	2095	DEEP ROW BALL BEARING 40/17/12 6203 DIN 625	2	2	2	2	2	2	2
7	2089	SNAP RING Sg 17x1 DIN 471	1	1	1	1	1	1	1
9	3233	PRIMARY DRIVE compl. (21, 106 teeth) (consisting of clutch drum, bearing bush and gearshaft with pressed-on gear wheel)	1	1	1	1	1	1	1
10)) 11)		see group 3. CLUTCH	-	-	-	-	-	-	-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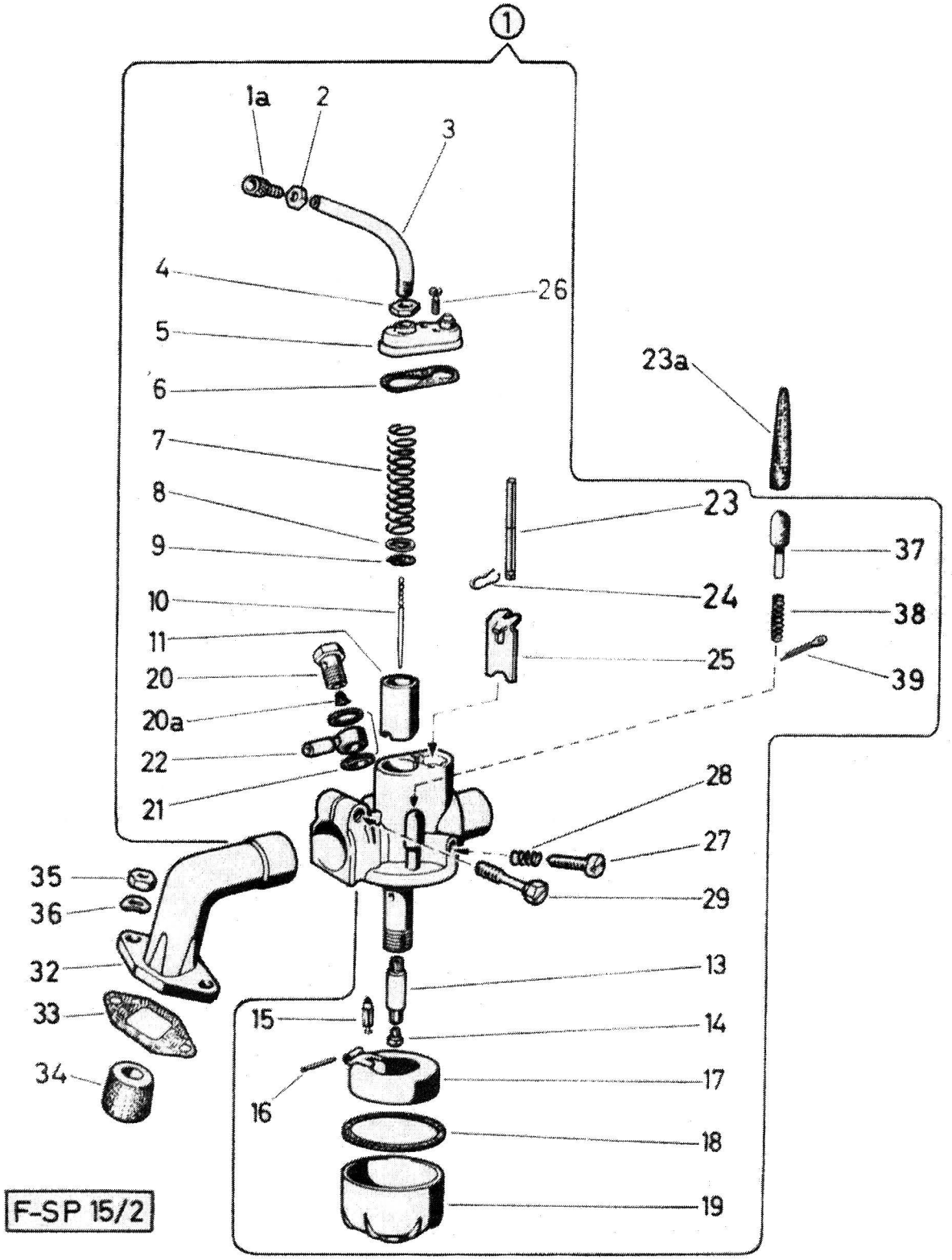
F-SP 15/2

5. CARBURETTOR

Ref.-No.	Part-No.	Description	Free Spirit – Model-Nos. 81780800	81780810	81780820	81780830	81780840	81780850	81780860
			Requd.No.						
1	1061	CARBURETTOR compl. (Bing 1/14/164)	1	1	1	-	1	1	-
1	1062	CARBURETTOR compl. (Bing 1/14/163)	-	-	-	1	-	-	1
1a	2032	BOWDEN CABLE ADJUSTING SCREW (M5)	1	1	1	1	1	1	1
2	2061	NUT BM5 DIN 439 for bowden cable adjusting screw	1	1	1	1	1	1	1
3	3128	PIPE ELBOW	1	1	1	1	1	1	1
4	2023	NUT BM6x0,75 similar DIN 934 for pipe elbow	1	1	1	1	1	1	1
5	3129	CARBURETTOR COVER	1	1	1	1	1	1	1
6	3130	GASKET for carburettor cover	1	1	1	1	1	1	1
7	3203	THRUST SPRING for throttle slide (reinforced)	1	1	1	1	1	1	1
8	3264	DISC Ø13x0,5	1	1	1	1	1	1	1
9	3263	CLAMP SPRING	1	1	1	1	1	1	1
10	3273	JET NEEDLE (36,5 long, with 2 grooves)	1	1	1	1	1	1	1
11	3127	THROTTLE SLIDE No.11	1	1	1	1	1	1	1
13	3123	NEEDLE JET No.2,12 A	1	1	1	1	1	1	1
14	3260	MAIN JET No.52	1	1	1	-	1	1	-
14	3261	MAIN JET No.68	-	-	-	1	-	-	1
14	3262	MAIN JET No. ..*	-	-	-	-	-	-	-

*Please indicate engraved number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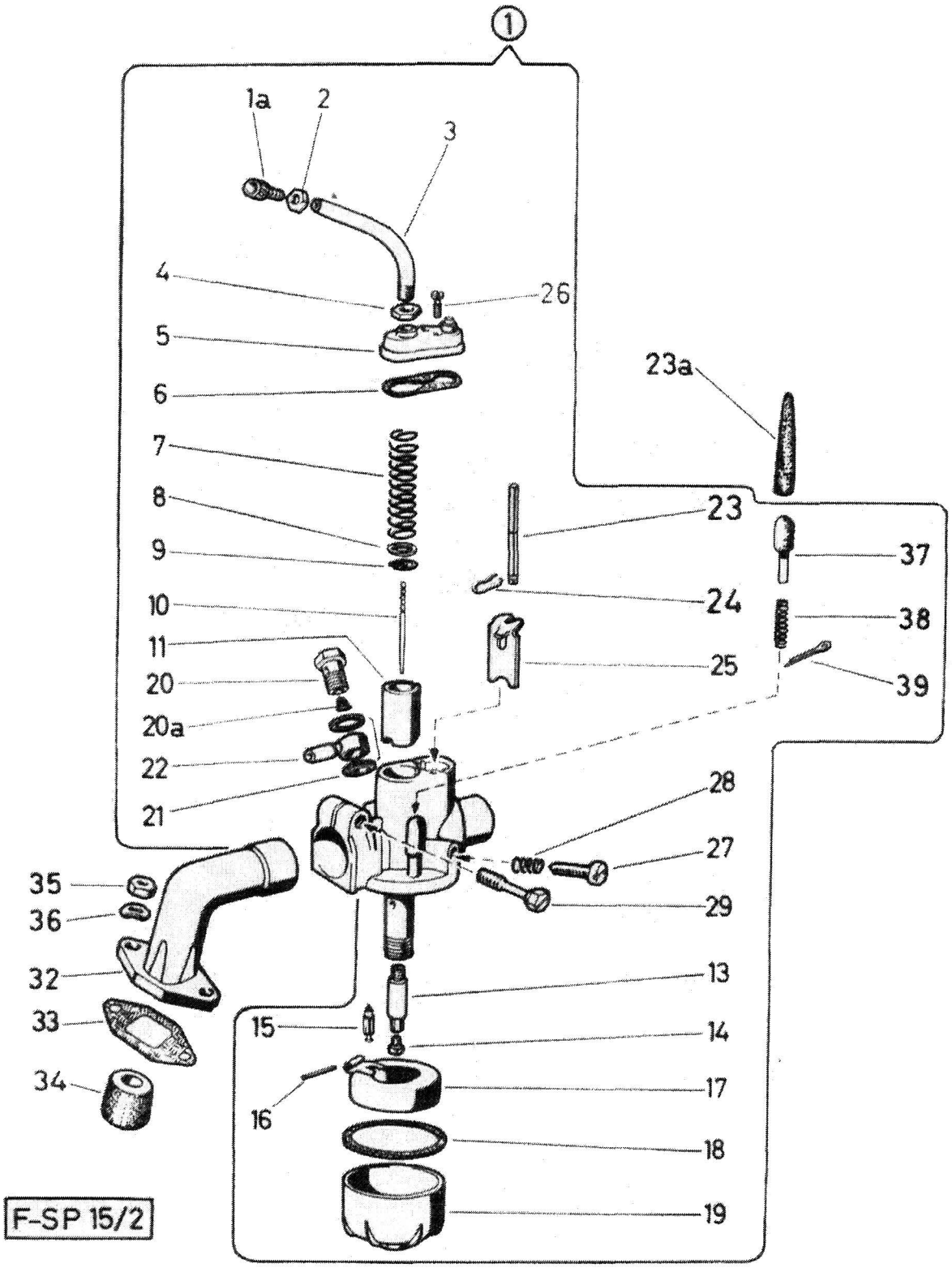
5. CARBURETTOR (cont.)

Ref.-No.	Part-No.	Description	81780800	81780810	81780820	81780830	81780840	81780850	81780860
			Requd.No.						
15	3270	FLOAT NEEDLE (with point of Viton)	1	1	1	1	1	1	1
16	3266	PIN for ring float (Ø1,5x17)	1	1	1	1	1	1	1
17	3269	RING FLOAT	1	1	1	1	1	1	1
18	80887	GASKET 45/41/1,5 for float	1	1	1	1	1	1	1
19	3265	FLOAT	1	1	1	1	1	1	1
20	3042	FIXING SCREW	1	1	1	1	1	1	1
20a	3267	SIEVE	as required						
21	2081	FIBRE WASHER A8x12 DIN 7603	2	2	2	2	2	2	2
22	3041	HOSE SWIVEL CONNECTOR	1	1	1	1	1	1	1
23	3131	THRUST PIN for start slide	1	1	1	1	1	1	1
23a	3204	LENGTHENING	1	1	1	1	1	1	1
24	3268	CLAMP SPRING for pressure pin	1	1	1	1	1	1	1
25	3132	START SLIDE	1	1	1	1	1	1	1
26	2034	HEAD SCREW (for carburettor cover)	2	2	2	2	2	2	2
27	3124	ADJUSTING SCREW (for throttle slide)	1	1	1	1	1	1	1
28	3125	THRUST SPRING for adjusting screw	1	1	1	1	1	1	1
29	3126	CLAMP SCREW (M6)	1	1	1	1	1	1	1
32	3135	CARBURETTOR CONNECTING SLEEVE	1	1	1	1	1	1	1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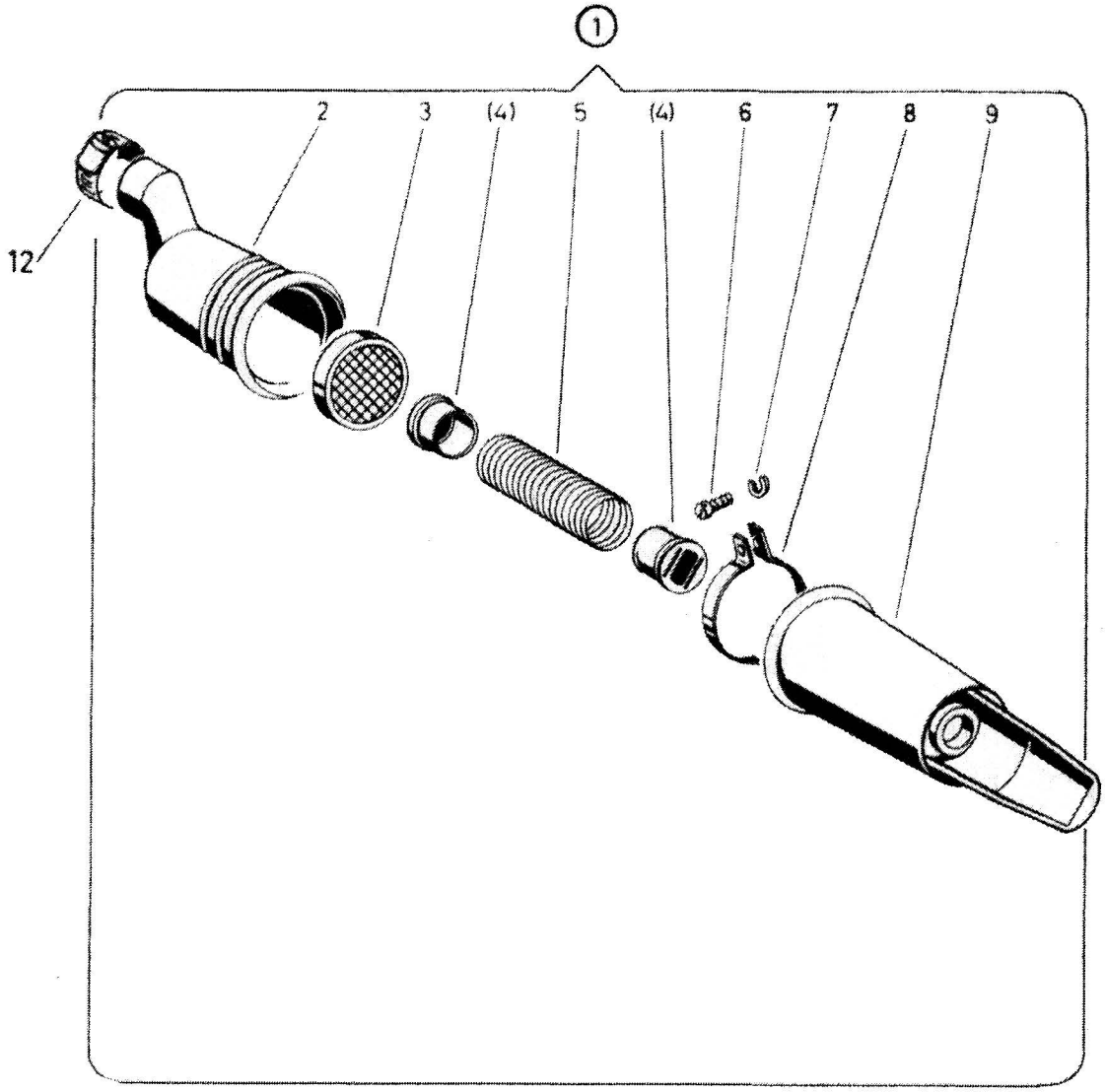
F-SP 15/2

5. CARBURETTOR (cont.)

Ref.-No.	Part-No.	Description	Free Spirit - Model-Nos. 81780800	81780810	81780820	81780830	81780840	81780850	81780860
			Requd.No.						
33	3134	PAPER GASKET (hard paper 0,5mm thick)	1	1	1	1	1	1	1
34	3205	THROTTLE Ø6,7	1	1	-	-	1	-	-
34	3206	THROTTLE Ø8,5	-	-	1	-	-	1	-
35	2007	HEXAGON NUT M6 DIN 934	2	2	2	2	2	2	2
36	2072	CURVED WASHER A6 DIN 137	2	2	2	2	2	2	2
37	3095	PRESSURE (with plastic-cap)	1	1	1	1	1	1	1
38	3271	SPRING FOR PRESSURE	1	1	1	1	1	1	1
39	3272	SPLIT PIN	1	1	1	1	1	1	1



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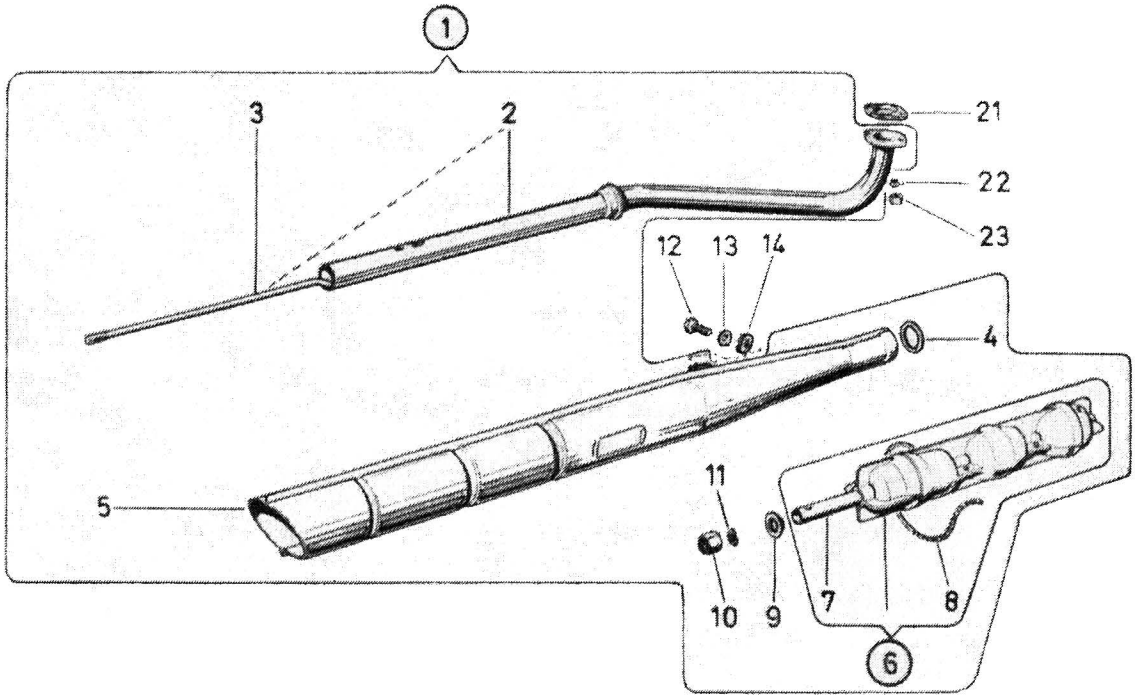
6. INTAKE SILENCER

Ref.-No.	Part-No.	Description	Free Spirit - Model-Nos. 81780800	81780810	81780820	81780830	81780840	81780850	81780860
			Requd.No.						
1	80894	INTAKE SILENCER compl.	-	-	-	1	-	-	1
1	80875	INTAKE SILENCER compl.	1	1	1	-	1	1	-
2	3047	FRONT INTAKE SILENCER	1	1	1	1	1	1	1
3	80842	AIR FILTER	1	1	1	1	1	1	1
4	3133	ORFICE for intake silencer	2	2	2	-	2	2	-
5	3045	DAMPER PIPE	1	1	1	1	1	1	1
6	2049	CHEESE HEAD SCREW AM6x12 DIN 84	1	1	1	1	1	1	1
7	2026	SPRING RING B6 DIN 127	1	1	1	1	1	1	1
8	3046	CLIP	1	1	1	1	1	1	1
9	3043	REAR INTAKE SILENCER	1	1	1	1	1	1	1
12	3002	SERFLEX HOSE CLIP	1	1	1	1	1	1	1



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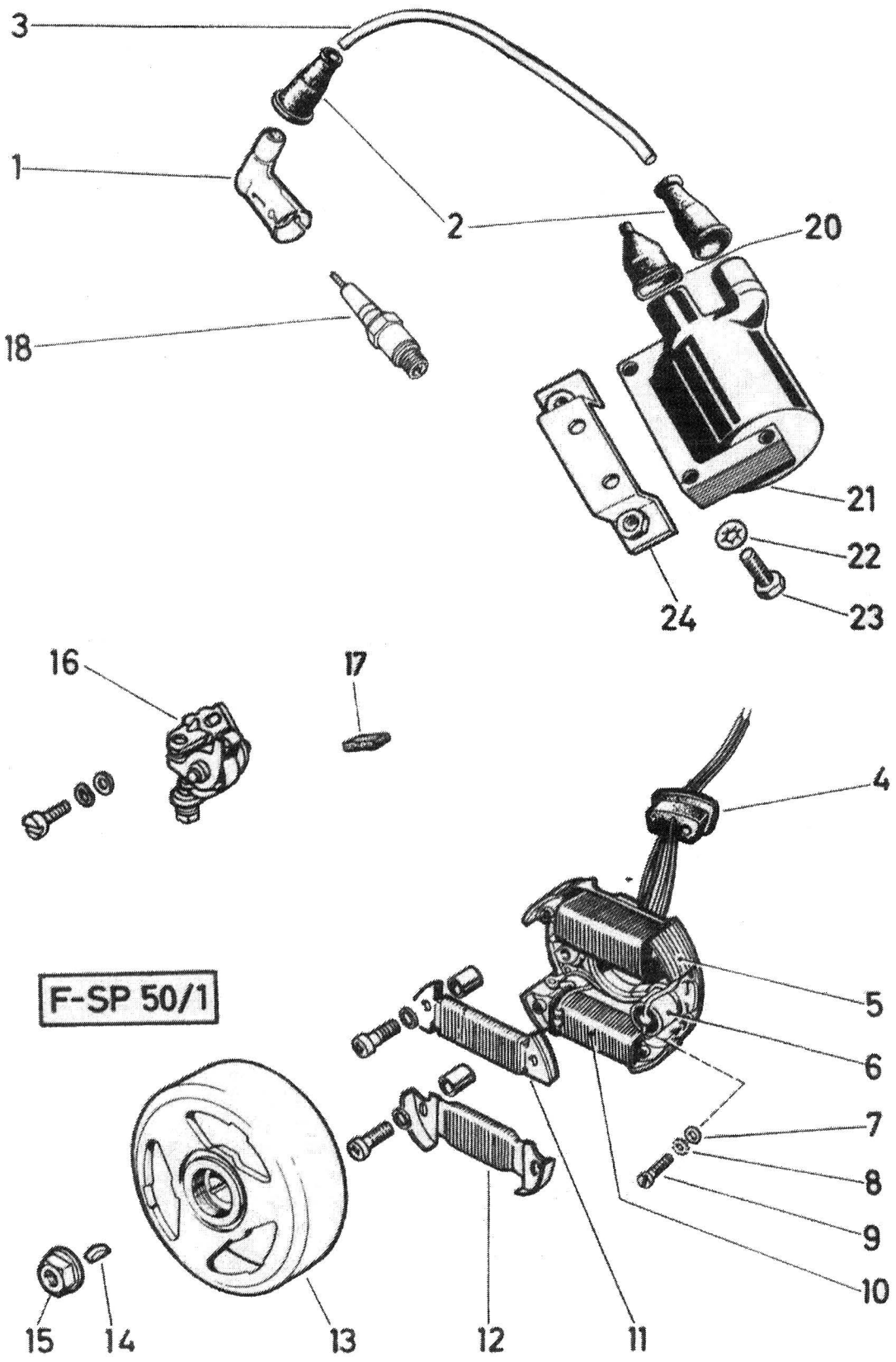
7. EXHAUST

Ref.-No.	Part-No.	Description	Free Spirit - Model-Nos. 81770800	81771800	81772800	81773800	81774800	81775800	81776800
			Requd. No.						
1	80871	EXHAUST compl. (with parts 2-11)	1	1	-	-	1	-	-
1	80872	EXHAUST compl. (with parts 2-11)	-	-	1	1	-	1	1
2	3049	EXHAUST PIPE (with part 3)	1	1	-	-	1	-	-
2	3091	EXHAUST PIPE (with part 3)	-	-	1	1	-	1	1
3	3234	PULL ROD (M7, 295 long)	1	1	1	1	1	1	1
4	80886	GASKET 34/26/2	1	1	1	1	1	1	1
5	3048	SILENCER COVER	1	1	1	1	1	1	1
6	80874	DAMPING INSERT compl. (with parts 7 and 8)	1	1	1	1	1	1	1
7	3136	END PIPE	1	1	1	1	1	1	1
8	80891	ASBESTOS CORD Ø3x165	p e r	m	e	t	e	r	
9	3137	WASHER 16/7,5/3	1	1	1	1	1	1	1
10	2065	HEXAGON NUT M7 (self-locking)	1	1	1	1	1	1	1
11	2069	SPRING WASHER A7 DIN 137	1	1	1	1	1	1	1
12	2046	HEXAGON HEAD SCREW M8x12 DIN 933-8.8	1	1	1	1	1	1	1
13	2010	PLAIN WASHER 8,4 DIN 12	1	1	1	1	1	1	1
14	2024	SPRING WASHER B8 DIN 127	1	1	1	1	1	1	1
21	1082	EXHAUST FLANGE GASKET	1	1	1	1	1	1	1
22	2073	SPRING WASHER B6 DIN 137	2	2	2	2	2	2	2
23	3035	HEXAGON NUT (M6,BRASS)	2	2	2	2	2	2	2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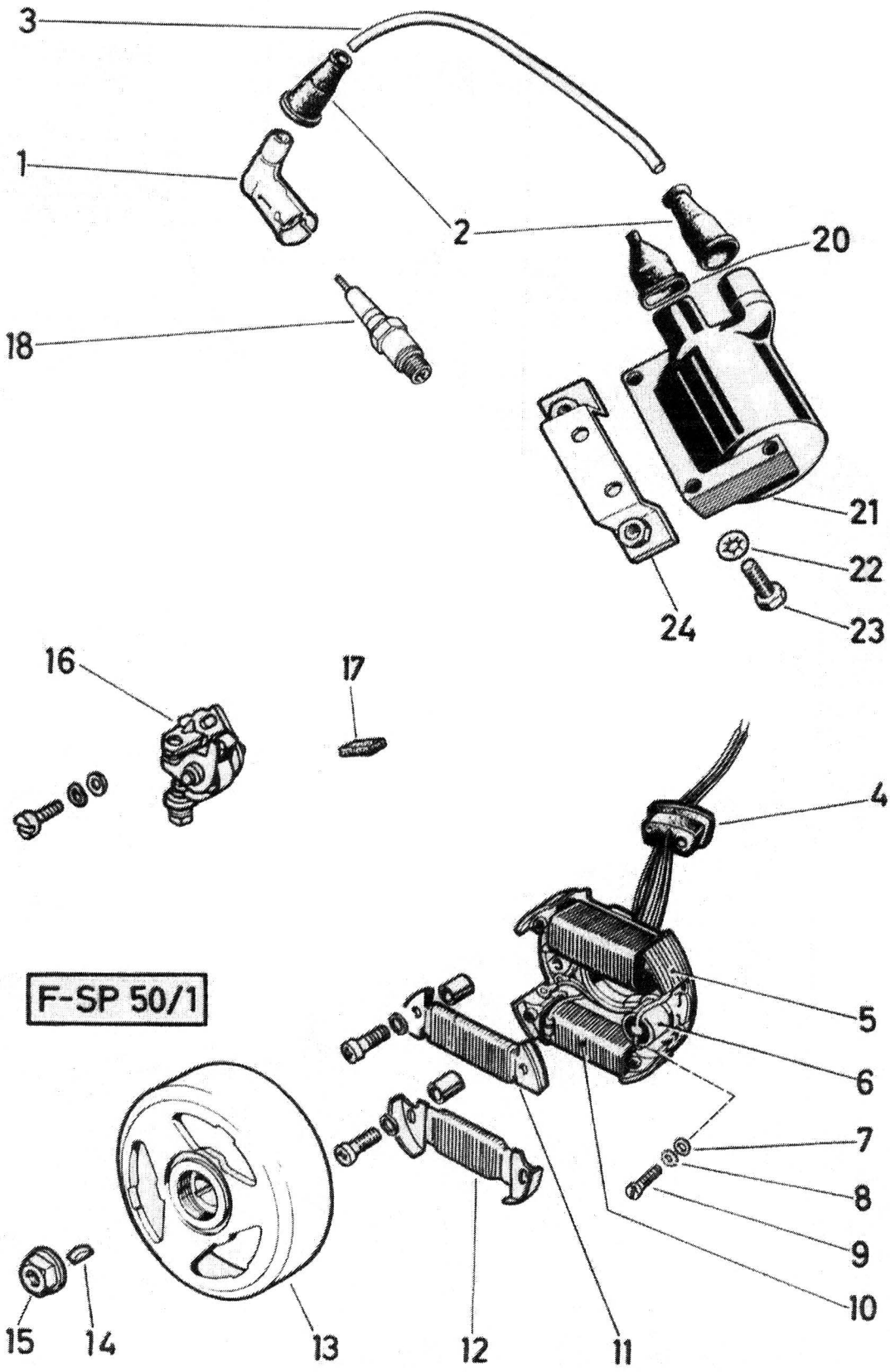
8. MAGNETO GENERATOR

Ref.-No.	Part-No.	Description	Free Spirit - Model-Nos. 881 881 881 881 881 881 881 / 700 700 700 700 700 700 700 / 880 881 882 883 884 885 886 / Requd. No.
--	1064	MAGNETO GENERATOR ASSY (Bosch 0 212 124 043 RDP 1 (R) 6V 26-5/10W)	1 1 1 1 1 1 1
1	1055	SPARK PLUG PROTECTOR	1 1 1 1 1 1 1
2	3281	PROTECTION CAP (Bosch 1 230 522 011)	2 2 2 2 2 2 2
3	2040	IGNITION CABLE (420 mm)p e r m e t e r	
4	3201	RUBBER SOCKET	1 1 1 1 1 1 1
5	3243	IGNITION ARMATURE (Bosch 1 214 210 554)	1 1 1 1 1 1 1
6	80881	CONDENSER (Bosch 1 237 330 037)	1 1 1 1 1 1 1
7	3017	WASHER 8/4,2/1	3 3 3 3 3 3 3
8	2074	SERRATED LOCK WASHER J4,3 DIN 6798	3 3 3 3 3 3 3
9	2028	PAN HEAD SCREW AM4x15 DIN 85	3 3 3 3 3 3 3
10	3242	GENERATOR ARMATURE, 26W (Bosch 1 214 210 556)	1 1 1 1 1 1 1
11	3244	GENERATOR ARMATURE, 10W (Bosch 1 214 210 555)	1 1 1 1 1 1 1
12	3245	GENERATOR ARMATURE, 5W (Bosch 1 214 210 557)	1 1 1 1 1 1 1
13	3241	FLYWHEEL (Bosch 1 215 254 658)	1 1 1 1 1 1 1
14	2086	WOODRUFF-KEY 3x3,7 DIN 6888	1 1 1 1 1 1 1
15	3008	HEXAGON NUT with band M10x1-8	1 1 1 1 1 1 1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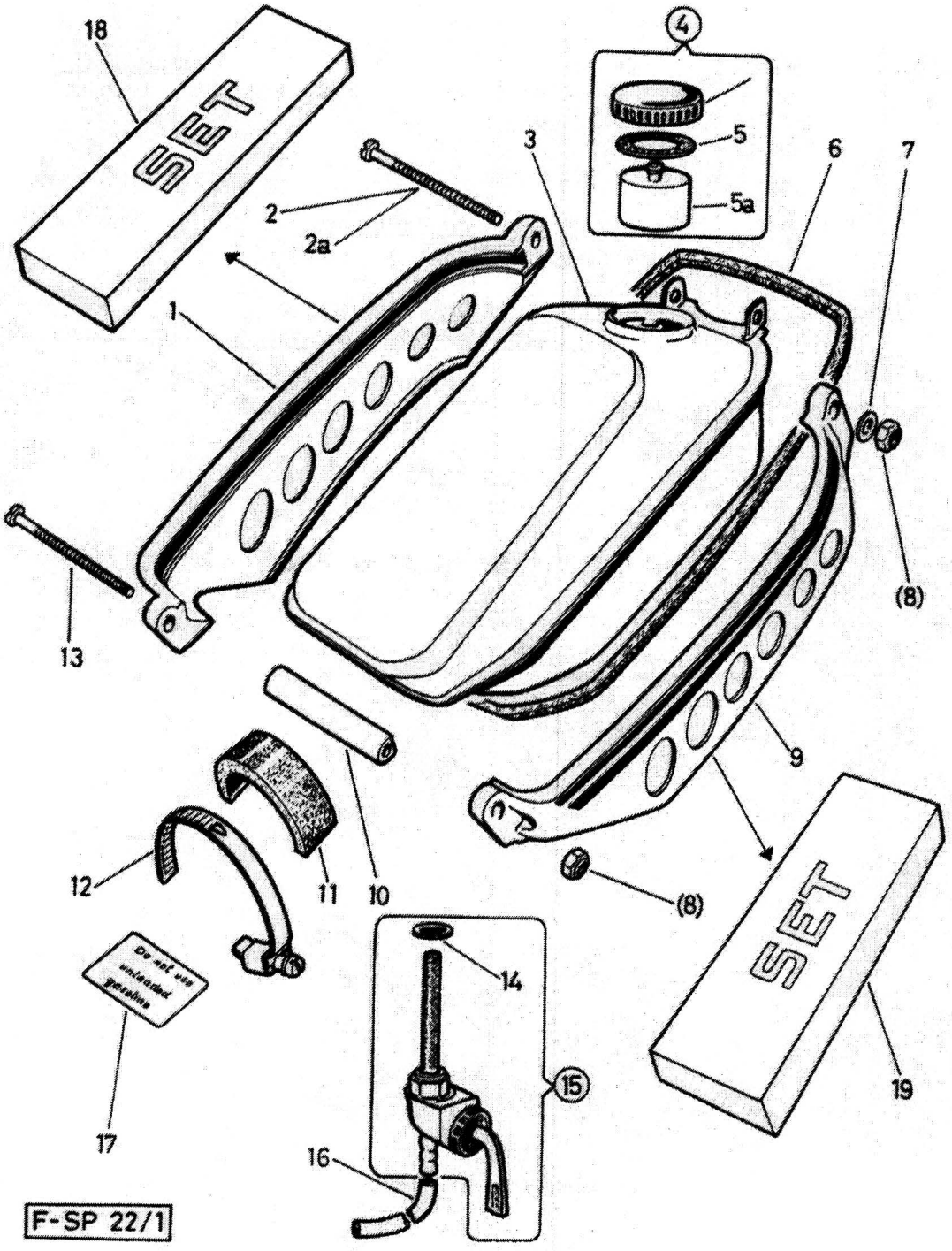
8. MAGNETO GENERATOR (cont.)

Ref.-No.	Part-No.	Description	Free Spirit - Model-Nos. 8811770 8811771 8811772 8811773 8811774 8811775 8811776 Requd. No. 0 0 0 0 0 0 0
16	80882	CONTACT-SET (Bosch 1 217 013 021)	1 1 1 1 1 1 1
17	3274	LUBRICATOR FELT PAD (Bosch 2 201 005 007)	1 1 1 1 1 1 1
18	----	PLUG - please see group CYLINDER, ENGINE PARTS	----------
20	3032	PROTECTION CAP (Bosch 2 200 522 002)	2 2 2 2 2 2 2
21	1066	IGNITION COIL (Bosch 0 212 940 001)	1 1 1 1 1 1 1
22	2076	SERRATED LOCK WASHER J5,3 DIN 6798	2 2 2 2 2 2 2
23	2047	HEXAGON HEAD SCREW M5x25 DIN 933	2 2 2 2 2 2 2
24	3225	BRACKET	1 1 1 1 1 1 1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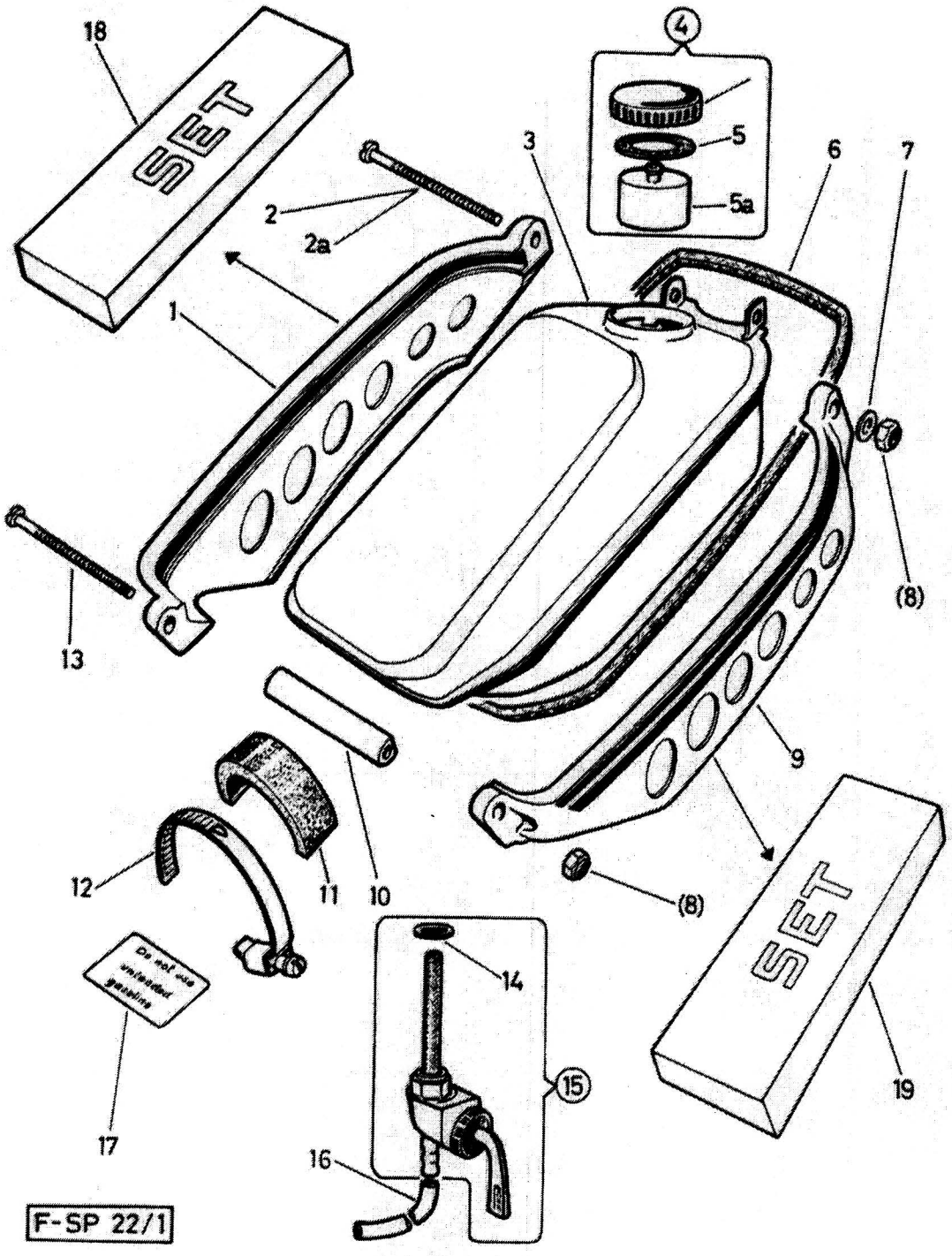
10. FUEL TANK, FUEL TAB

Ref.-No.	Part-No.	Description	Free Spirit - Model-Nos. 81780800	81780810	81780820	81780830	81780840	81780850	81780860
			Requd.No.						
1	*	COVERING l.h.	-	-	-	-	1	1	1
2	2051	CHEESE HEAD SCREW M5x55 DIN 84	1	1	1	1	-	-	-
2a	3007***	CHEESE HEAD SCREW M5x65 DIN 84	-	-	-	-	1	1	1
3	1011	FUEL TANK	1	1	1	1	1	1	1
4	80826	TANK CAP cpl. (with parts 5 and 5a)	1	1	1	1	1	1	1
5	3259	SEAL RING (rubber 58,5/38/2,5)	1	1	1	1	1	1	1
5a	3058	MEASURE CUP	1	1	1	1	1	1	1
6	2035	EDGING	1	1	1	1	-	-	-
7	2011	WASHER 5,3 DIN 433	1	1	1	1	-	-	-
8	2064***	HEXAGON NUT M5 DIN 985	1	1	1	1	2	2	2
9	**	COVERING r.h.	-	-	-	-	1	1	1
10	3061***	SPACER TUBE	-	-	-	-	1	1	1
11	3060	FUEL TANK SUPPORT	1	1	1	1	1	1	1
12	3029	HOSE CLIP (Serflex Minus 2)	1	1	1	1	1	1	1
13	2050***	CHEESE HEAD SCREW M5x60 DIN 84	-	-	-	-	1	1	1
14	3207	SEAL RING	1	1	1	1	1	1	1
15	80811	FUEL TAB compl.	1	1	1	1	1	1	1
16	2041	FUEL HOSE Ø9/5 (140 mm long)	per meter						

* These parts are included in the Set under Ref.No.18
** These parts are included in the Set under Ref.No.19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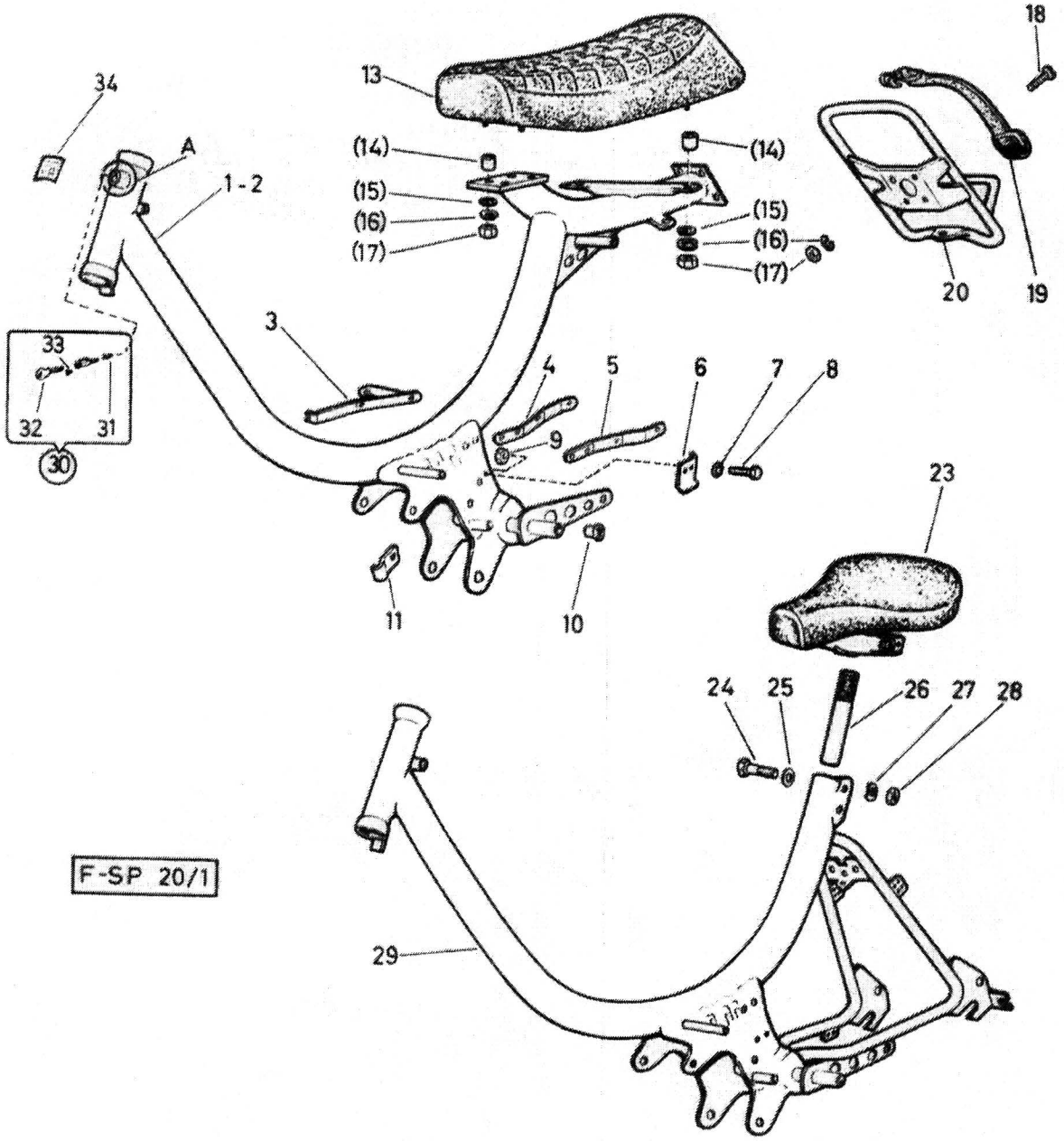
10. FUEL TANK, FUEL TAB (cont.)

Ref.-No.	Part-No.	Description	Free Spirit - Model-Nos. 81780800	81780810	81780820	81780830	81780840	81780850	81780860
			Requd.No.						
17	3297	TRANSFER PICTURE - black (do not use unleaded gasoline)	-	-	-	-	1	1	1
17	3298	TRANSFER PICTURE - white (do not use unleaded gasoline)	1	1	1	1	-	-	-
18	1052	COVERING SET l.h. (consist of Ref.No. 1,2a,10,13 - 1 piece Ref.No.8 - 2 pieces)	-	-	-	-	1	1	1
19	1051	COVERING SET r.h. (consist of Ref.No. 2a,9,10 and 13 - 1 piece Ref.No.8 - 2 pieces)	-	-	-	-	1	1	1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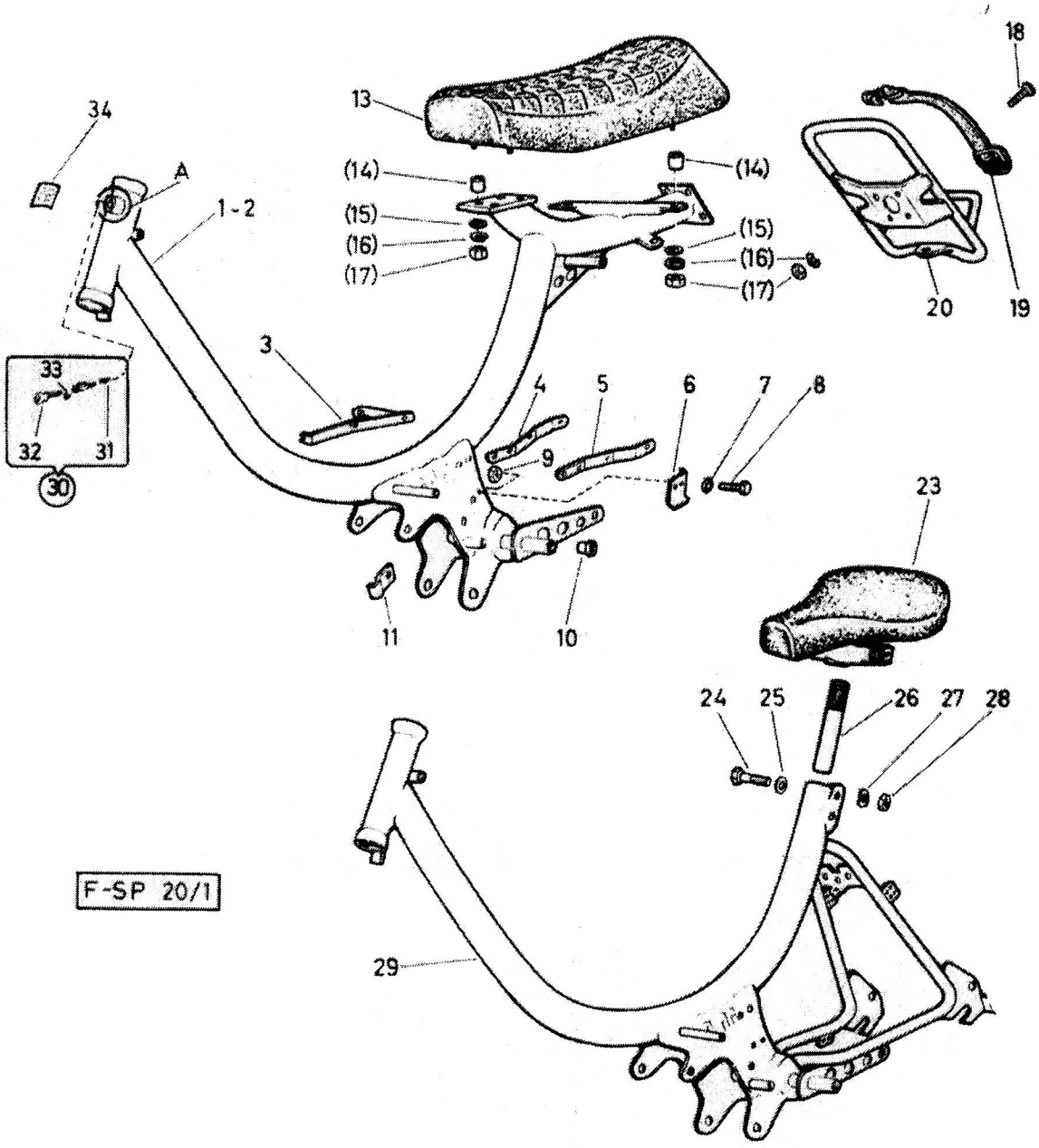
Free Spirit - Model-Nos.

11. FRAME, SADDLE, SEAT, LUGGAGE CARRIER

Ref.-No.	Part-No.	Description	81780800	81780810	81780820	81780830	81780840	81780850	81780860
			Requd.No.						
1	1043	FRAME compl. (with pressed-in bearing shells and bearing bushings) without detail "A"	-	1	1	1	-	-	-
2	1044	FRAME compl. (with pressed-in bearing shells and bearing bushings) with detail "A"	-	-	-	-	1	1	1
3	3054	SUPPORT for chain guard r.h.	1	1	1	1	1	1	1
4	3053	SUPPORT for chain guard r.h.	1	1	1	1	1	1	1
5	3052	SUPPORT for chain guard l.h.	1	1	1	1	1	1	1
6	3050	CHAIN GUIDE	1	1	1	1	1	1	1
7	2003	TOOTHED LOCK WASHER J5,3 DIN 6797	8	8	8	8	8	8	8
8	2022	HEXAGON HEAD SCREW M5x16 DIN 933	6	6	6	6	6	6	6
9	2006	HEXAGON NUT M5 DIN 934	6	6	6	6	6	6	6
10	3189	BEARING BUSHING 20/16/19	2	2	2	2	2	2	2
11	3051	CLAMP (for brake cable fixing)	1	1	1	1	1	1	1
13	1018	SEAT compl.	-	1	1	1	1	1	1
14	3081	SPACER	-	4	4	4	4	4	4
15	2012	WASHER 6,4 DIN 433	-	4	4	4	4	4	4
16	2026	SPRING WASHER B6 DIN 127	-	8	8	8	8	8	8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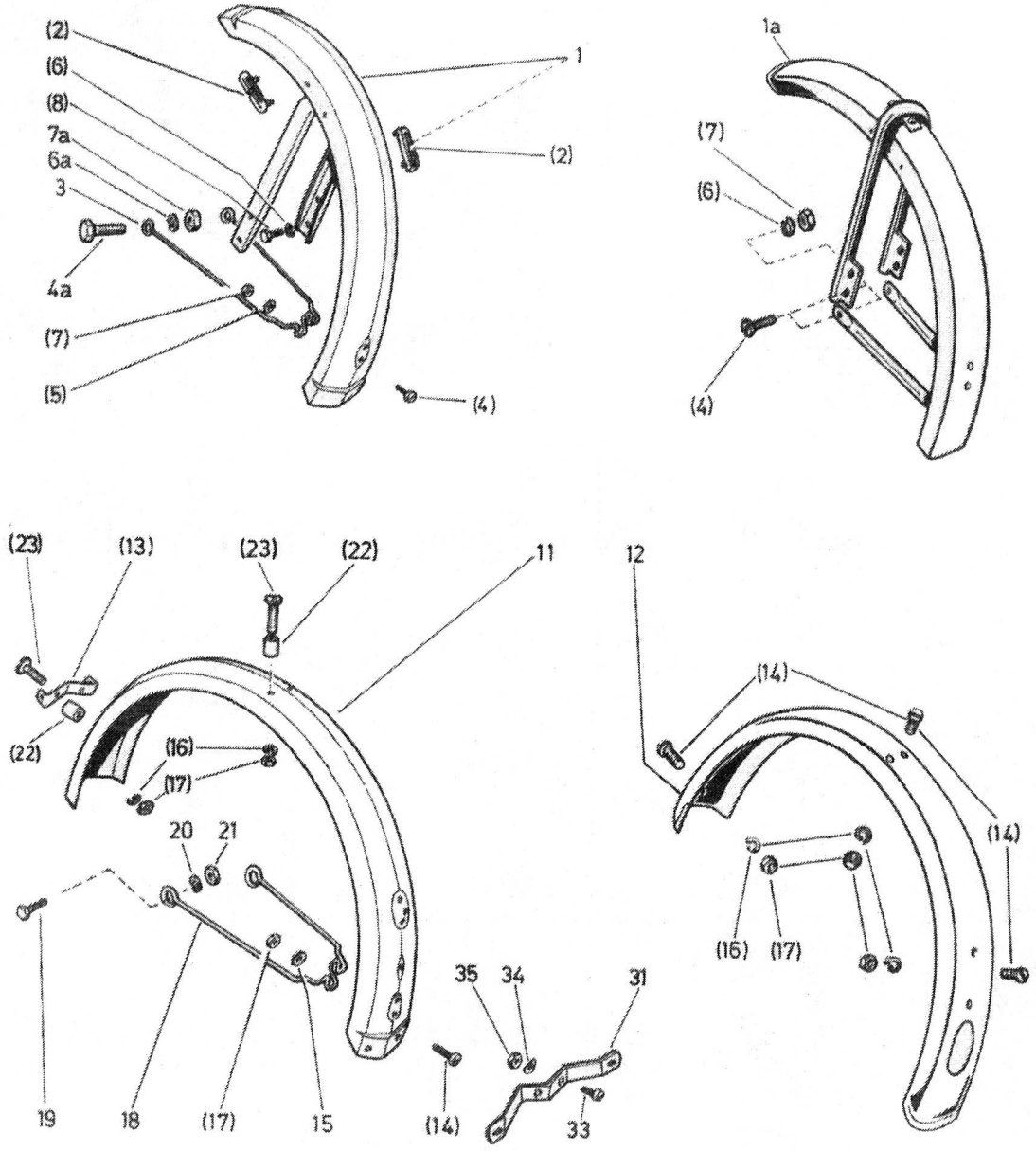
11.FRAME, SADDLE, SEAT, LUGGAGE CARRIER (cont.)

Ref.-No.	Part-No.	Description	Free Spirit - Model-Nos. 8 8 8 8 8 8 8 / 1 1 1 1 1 1 1 / 7 7 7 7 7 7 7 / 8 8 8 8 8 8 8 / 0 0 0 0 0 0 0 / 8 8 8 8 8 8 8 / 0 1 2 3 4 5 6 / 0 0 0 0 0 0 0 Requd.No.
17	2007	HEXAGON NUT M6 DIN 934	- 8 8 8 8 8 8
18	2005	PAN HEAD SCREW M6x10 DIN 85	- 4 4 4 4 4 4
19	3069	RUBBER STRAP compl.	- 1 1 1 1 1 1
20	3068	LUGGAGE CARRIER	- 1 1 1 1 1 1
23	1017	SADDLE compl.	1 - - - - - -
24	2044	HEXAGON SCREW M8x20 DIN 933	2 - - - - - -
25	2010	WASHER 8,4 DIN 125	2 - - - - - -
26	2036	BRACKET for saddle	1 - - - - - -
27	2071	CURVED WASHER B8 DIN 137	2 - - - - - -
28	2058	HEXAGON NUT M8 DIN 934	2 - - - - - -
29	1042	FRAME compl. (with pressed-in bearing shells and bearing bushings)	1 - - - - - -
30	1021	LOCK compl. "Neiman" (with parts 31-33)	- - - - 1 1 1
31	3257	TENSION SPRING	- - - - 1 1 1
32	3256	RESERVE KEY (please indicate key number)	- - - - 2 2 2
33	3098	NOTCHED ALUMINIUM PIN	- - - - 1 1 1
34	3299	NOMENCLATURE PLATE	1 1 1 1 1 1 1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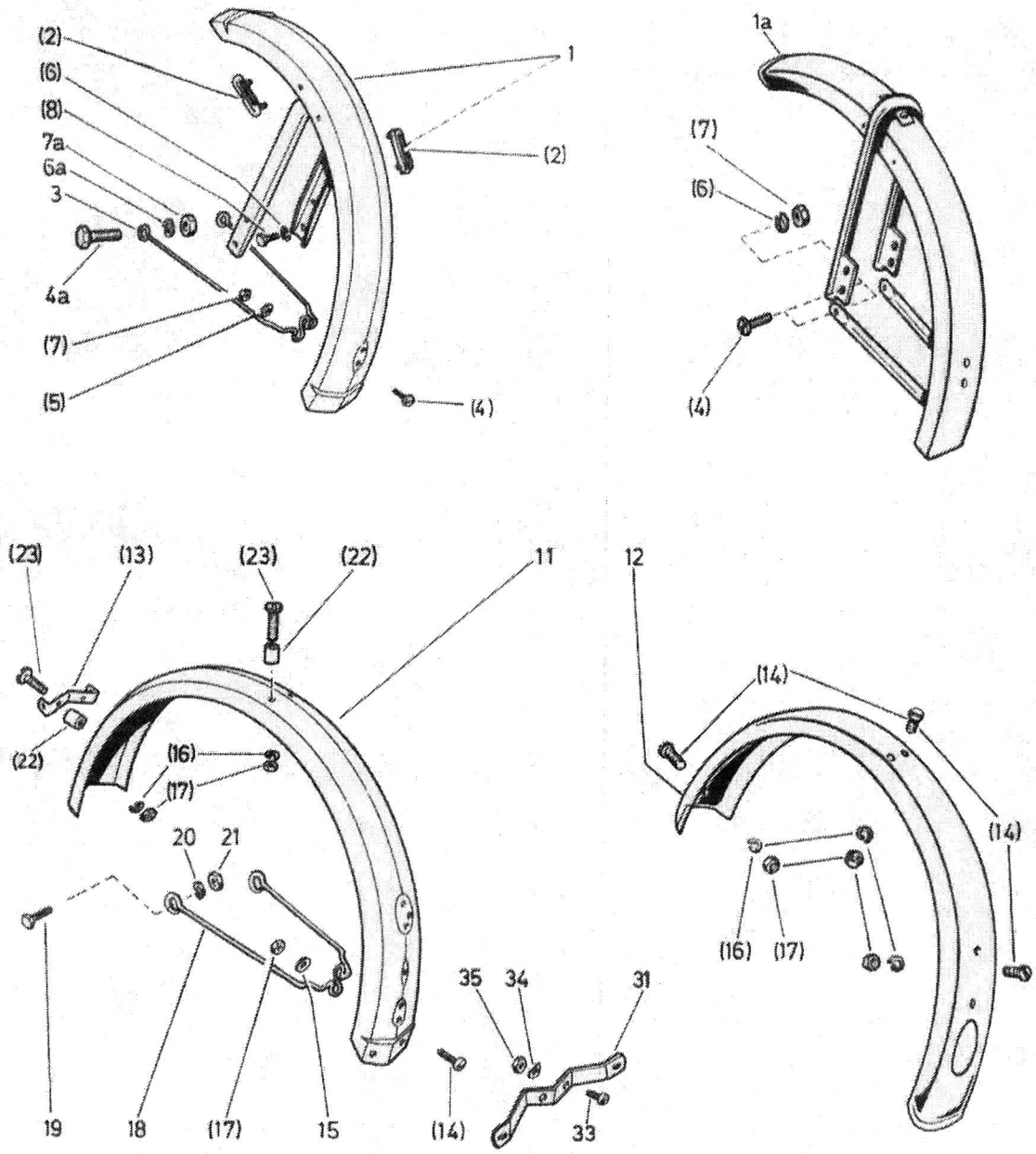
12. MUDGUARDS

Ref.-No.	Part-No.	Description	Free Spirit - Model-Nos. Requd. No. 81780800	81780810	81780820	81780830	81780840	81780850	81780860
1	1009	FRONT MUDGUARD compl. (with part 2)	1	-	-	-	-	-	-
1	1053	FRONT MUDGUARD compl. (with part 2)	-	1	1	1	-	-	-
1a	1007	FRONT MUDGUARD (INOX)	-	-	-	-	1	1	1
2	3255	CABLE GUIDE	1	1	1	1	-	-	-
3	1015	MUDGUARD BRACE front (269mm long)	1	1	1	1	-	-	-
4	2018	PAN HEAD SCREW AM5x12 DIN 85	2	2	2	2	6	6	6
4a	2014	HEXAGON SCREW M6x16 DIN 933	2	2	2	2	-	-	-
5	2080	SECURING WASHER JZC 5	2	2	2	2	-	-	-
6	2030	SPRING WASHER B5 DIN 127	4	4	4	4	6	6	6
6a	2026	SPRING WASHER B6 DIN 127	2	2	2	2	-	-	-
7	2006	HEXAGON NUT M5 DIN 934	2	2	2	2	6	6	6
7a	2007	HEXAGON NUT M6 DIN 934	2	2	2	2	-	-	-
8	2021	HEXAGON HEAD SCREW M5x10 DIN 933	4	4	4	4	-	-	-
11	1010	REAR MUDGUARD	1	-	-	-	-	-	-
11	1072	REAR MUDGUARD	-	1	1	1	-	-	-
12	1008	REAR MUDGUARD (INOX)	-	-	-	-	1	1	1
13	3064	MUDGUARD BRACKET	1	1	1	1	-	-	-
14	2018	PAN HEAD SCREW AM5x12 DIN 85	5	3	3	3	3	3	3
15	2080	SECURING WASHER JZC 5	2	-	-	-	-	-	-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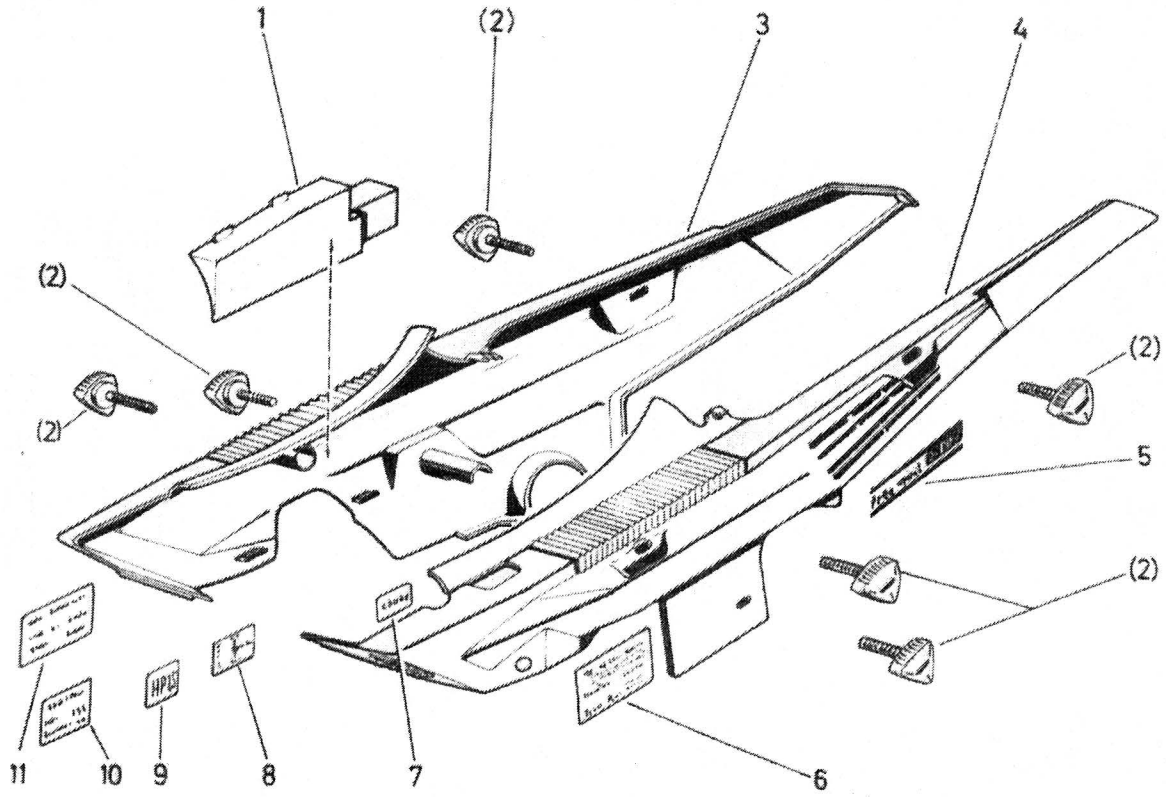
Free Spirit - Model-Nos.									
			1780800	1780810	1780820	1780830	1780840	1780850	1780860

12. MUDGUARDS (cont.)

Ref.-No.	Part-No.	Description	1780800	1780810	1780820	1780830	1780840	1780850	1780860
			Requd.No.						
16	2030	SPRING WASHER B5 DIN 127	3	5	5	5	5	5	5
17	2006	HEXAGON NUT M5 DIN 934	5	5	5	5	5	5	5
18	1016	MUDGUARD BRACE rear (278 mm long)	1	-	-	-	-	-	-
19	2014	HEXAGON SCREW M6x16 DIN 933	2	-	-	-	-	-	-
20	2026	SPRING WASHER B6 DIN 127	2	-	-	-	-	-	-
21	2007	HEXAGON NUT M6 DIN 934	2	-	-	-	-	-	-
22	3315	SPACER 14/5,5/5,5	-	4	4	4	-	-	-
23	2052	PAN HEAD SCREW M5x16 DIN 85	-	4	4	4	-	-	-
31	3316	LICENSE PLATE BRACKET	1	1	1	1	1	1	1
33	2018	PAN HEAD SCREW M5x12 DIN 84	2	2	2	2	2	2	2
34	2030	SPRING WASHER B5 DIN 127	2	2	2	2	2	2	2
35	2006	HEXAGON NUT M5 DIN 934	2	2	2	2	2	2	2



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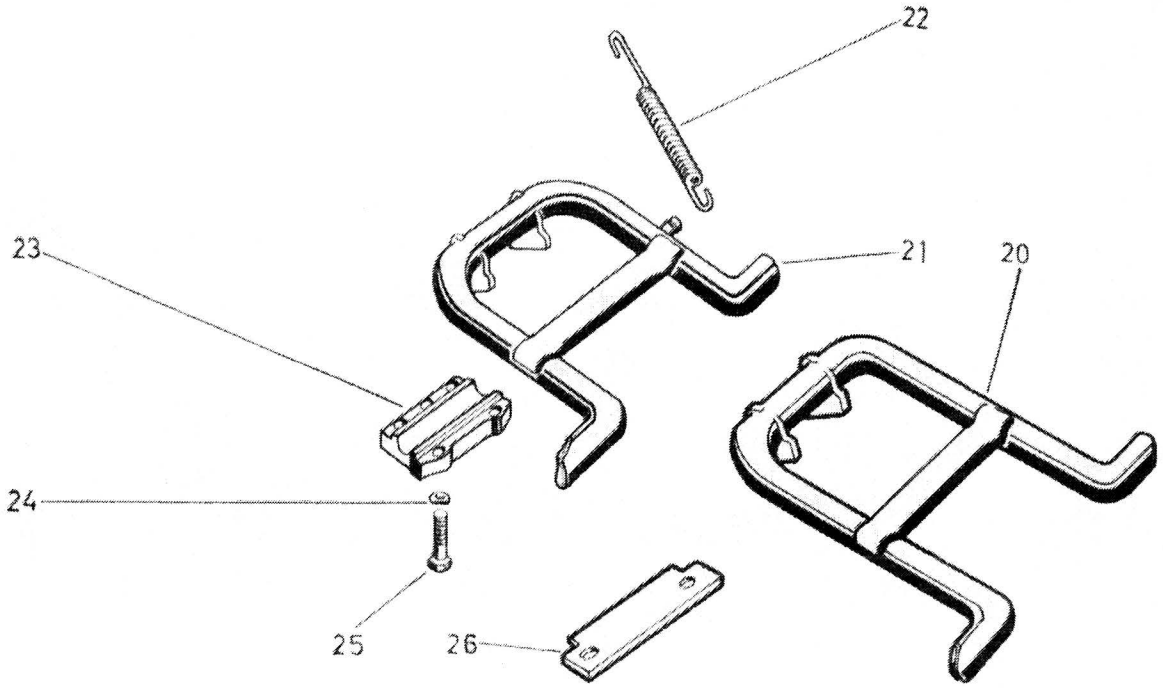
Free Spirit - Model-Nos.

13. CHAIN GUARD (fairings)

Ref.-No.	Part-No.	Description	81780800	81780810	81780820	81780830	81780840	81780850	81780860
			Requd.No.						
1	3089	SNAP COVER	1	1	1	1	1	1	1
2	80805*	CLAMPING SCREW (per pair) (M5, 13 long)	6	6	6	6	6	6	6
3	1031	CHAIN GUARD r.h.(black)	1	1	1	1	1	1	1
4	1073	CHAIN GUARD l.h.(black)	1	1	1	1	1	1	1
5	3290	TRANSFER PICTURE (FREE SPIRIT)	2	2	2	2	2	2	2
6	3292	INDICATION PLATE (Fuel, Gear box, Tire Pressure)	1	1	1	1	1	1	1
7	3235	INDICATION PLATE (choke)	1	1	1	1	1	1	1
8	3211	TRANSFER PICTURE (Fuel, Res, Off, On)	1	1	1	1	1	1	1
9	3208	TRANSFER PICTURE (1 HP)	1	1	-	-	1	-	-
9	3209	TRANSFER PICTURE (1,5 HP)	-	-	1	-	-	1	-
9	3210	TRANSFER PICTURE (2 HP)	-	-	-	1	-	-	1
10	3293	INDICATION PLATE (SPARK PLUG)	1	1	-	-	1	-	-
10	3294	INDICATION PLATE (SPARK PLUG)	-	-	1	-	-	1	-
10	3287	INDICATION PLATE (SPARK PLUG)	-	-	-	1	-	-	1
11	3295	INDICATION PLATE (suitable tire rim choice)	1	1	1	1	-	-	-
11	3296	INDICATION PLATE (suitable tire rim choice)	-	-	-	-	1	1	1

* This part will be delivered only in pairs.



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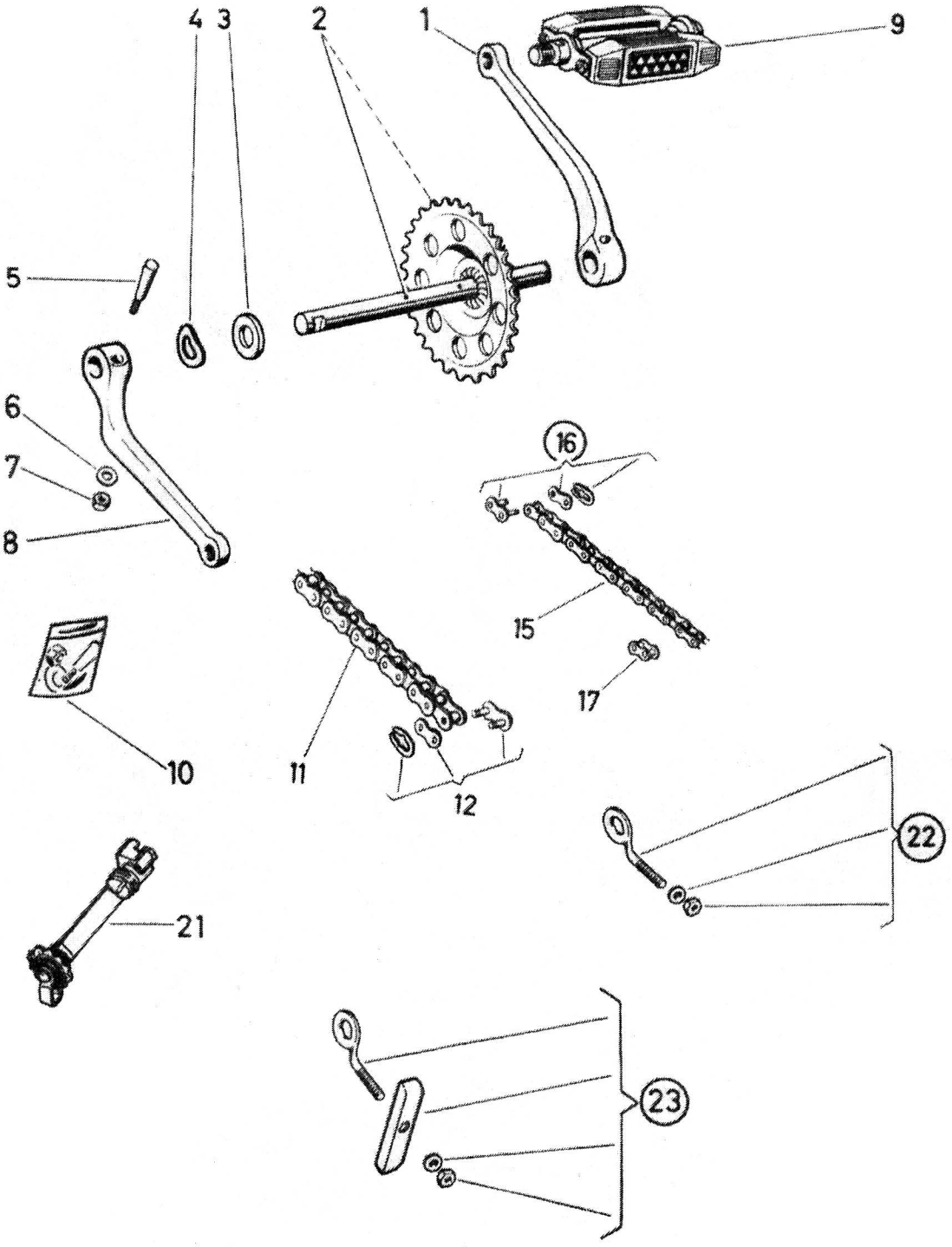
14. PROP STAND

Ref.-No.	Part-No.	Description	Free Spirit - Model-Nos. 81780800	81780810	81780820	81780830	81780840	81780850	81780860
			Requd.No.						
20	80884	PROP STAND	-	-	-	-	1	1	1
21	80883	PROP STAND	1	1	1	1	-	-	-
22	80801	PROP STAND SPRING	1	1	1	1	-	-	-
22	80857	PROP STAND SPRING	-	-	-	-	1	1	1
23	3237	PROP STAND BEARING CUP	1	1	1	1	1	1	1
24	2072	SPRING WASHER A6 DIN 137	3	3	3	3	3	3	3
25	2020	HEXAGON BOLT M6x35 DIN 931	3	3	3	3	3	3	3
26	3062	STOP SHEET	1	1	1	1	1	1	1



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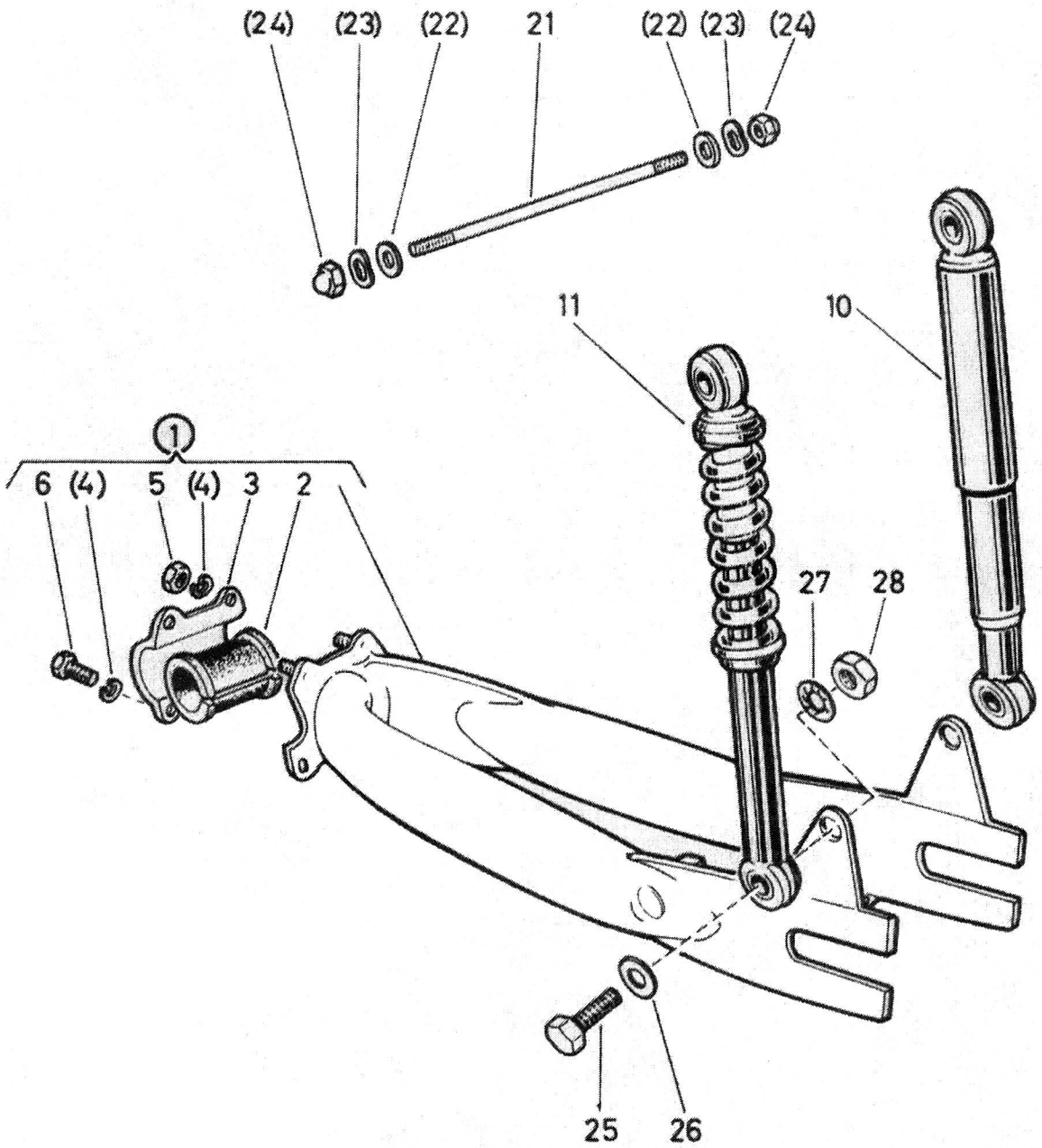
15. PEDALS, CHAINS, CHAIN TENSIONER

Ref.-No.	Part-No.	Description	Free Spirit - Model-Nos. 81770800 81770801 81770802 81770803 81770804 81770805 81770806 Requd. No.
1	80819	CRANK r.h.	1 1 1 1 1 1 1
2	1032	PEDAL SPINDLE (260mm lang) (28 teeth)	1 1 1 1 1 1 1
3	2066	SPACER 30/17/3	1 1 1 1 1 1 1
4	2085	SPRING WASHER 30/17/0,5	1 1 1 1 1 1 1
5	*	COTTER	2 2 2 2 2 2 2
6	2083	WASHER 14/6,5/2	2 2 2 2 2 2 2
7	*	HEXAGON NUT1/4"(26Gg/inch)	2 2 2 2 2 2 2
8	80821	CRANK l.h.	1 1 1 1 1 1 1
9	3279	PEDAL compl. (with rear reflector)	per p a i r
10	80893	COTTER AND NUT SET	1 1 1 1 1 1 1
11	1088	DRIVING CHAIN cpl.102 rollers (1/2"x3/16"x7,75)	1 1 1 - 1 1 -
11	1058	DRIVING CHAIN cpl.103 rollers (1/2"x3/16"x7,75)	- - - 1 - - 1
12	80846	CHAIN MASTER LINK compl.	1 1 1 1 1 1 1
15	1059	CHAIN for pedals (1/2"x1/8") 82 rollers	1 1 1 1 1 1 1
16	80847	CHAIN MASTER LINK compl.	1 1 1 1 1 1 1
17	2000	BLOCK (for lengthening the chain for pedals	as required
21	80804	CHAIN TENSIONER CLIP cpl.	1 1 1 1 1 1 1
22	80824	CHAIN TENSIONER compl.	2 - - - - - -
23	80803	CHAIN TENSIONER compl.	- 2 2 2 2 2 2

*These parts are be included in the Set under Ref.-No.10



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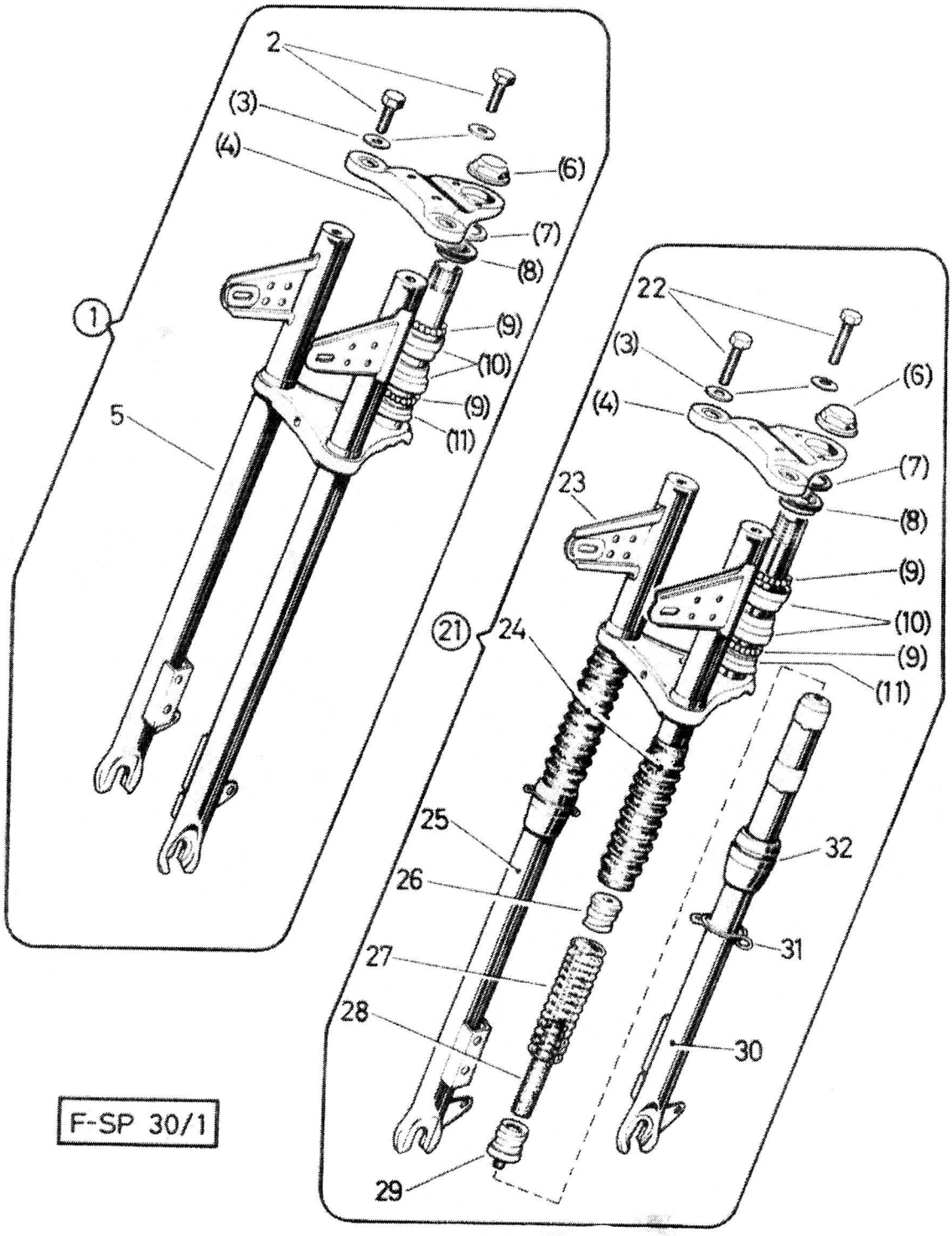
Free Spirit - Model-Nos.

15a. REAR WHEEL SUSPENSION
(Pivoted Fork, Suspension Unit)

Ref.-No.	Part-No.	Description	81780800	81780810	81780820	81780830	81780840	81780850	81780860
			Requd.No.						
1	3055	PIVOTED FORK compl. (with parts 2-6)	-	1	1	1	-	-	-
1	3056	PIVOTED FORK compl. (with parts 2-6)	-	-	-	-	1	1	1
2	3139	RUBBER BEARING for pivoted fork	-	1	1	1	1	1	1
3	3138	BEARING BUSH	-	1	1	1	1	1	1
4	2024	SPRING RING B8 DIN 127	-	4	4	4	4	4	4
5	2008	HEXAGON NUT M8 DIN 934	-	2	2	2	2	2	2
6	2044	HEXAGON SCREW M8x20 DIN 933-8.8	-	2	2	2	2	2	2
10	80877	SUSPENSION UNIT compl.	-	2	2	2	-	-	-
11	80876	SUSPENSION UNIT compl.	-	-	-	-	2	2	2
21	3057	BOLT (M8, 200 long)	-	1	1	1	1	1	1
22	3040	WASHER 20/8,5/2 (as req.)	-	4	4	4	4	4	4
23	2071	SPRING WASHER B8 DIN 137	-	2	2	2	2	2	2
24	2063	DOMED NUT M8 DIN 1587	-	2	2	2	2	2	2
25	2045	HEXAGON SCREW M8x35 DIN 933-8.8	-	2	2	2	2	2	2
26	2038	WASHER 20/8,5/1	-	4	4	4	4	4	4
27	2004	TOOTHED LOCK WASHER J8,4 DIN 6797	-	2	2	2	2	2	2
28	2008	HEXAGON NUT DIN 934	-	2	2	2	2	2	2



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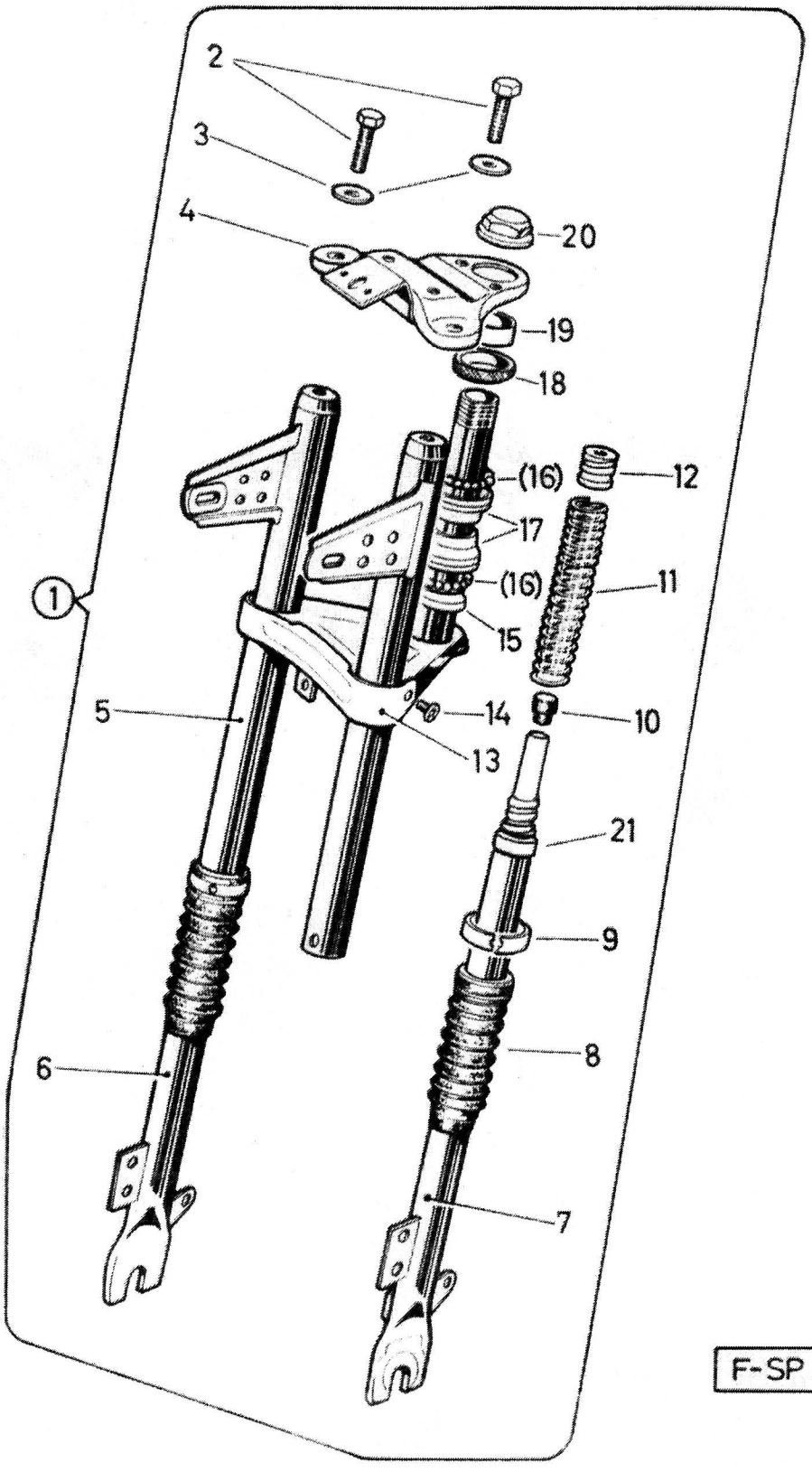
Free Spirit - Model-Nos.

16. FRONT FORK WITH STEERING

Ref.-No.	Part-No.	Description	81780800	81780810	81780820	81780830	81780840	81780850	81780860
			Requd.No.						
1	1006	FRONT FORK compl.	1	-	-	-	-	-	-
2	2019	HEXAGON HEAD SCREW M8x16 DIN 933-8.8	2	-	-	-	-	-	-
3	2010	WASHER 8,4 DIN 125	2	2	2	2	-	-	-
4	3071	TOP BRIDGE FOR FORK	1	-	-	-	-	-	-
4	3065	TOP BRIDGE FOR FORK	-	1	1	1	-	-	-
5	3070	BOTTOM BRIDGE FOR FORK	1	-	-	-	-	-	-
6	3144	FORK SHAFT NUT	1	1	1	1	-	-	-
7	3016	WASHER 32/26,2/2,5	1	1	1	1	-	-	-
8	3072	TOP GUIDE BUSHING	1	1	1	1	-	-	-
9	2017	BALL Ø5		42			-	-	-
10	2016	BEARING CUP	2	2	2	2	-	-	-
11	3073	BOTTOM GUIDE BUSHING	1	1	1	1	-	-	-
21	1005	FRONT FORK compl.	-	1	1	1	-	-	-
22	2045	HEXAGON HEAD SCREW M8x35 DIN 933-8.8	-	2	2	2	-	-	-
23	3074	BOTTOM BRIDGE FOR FORK	-	1	1	1	-	-	-
24	3300	RUBBER SLEEVE (as req.)	-	2	2	2	-	-	-
25	3076	SLIDING TUBE r.h.	-	1	1	1	-	-	-
26	3078	TOP THREADING COUPLING	-	2	2	2	-	-	-
27	3077	THRUST SPRING	-	2	2	2	-	-	-
28	3080	RUBBER SPRING	-	2	2	2	-	-	-
29	3301	BOTTOM THREADING COUPLING	-	2	2	2	-	-	-
30	3075	SLIDING TUBE l.h.	-	1	1	1	-	-	-
31	3302	FIXING CLIP	-	2	2	2	-	-	-
32	3079	GROOVED SHELL	-	2	2	2	-	-	-



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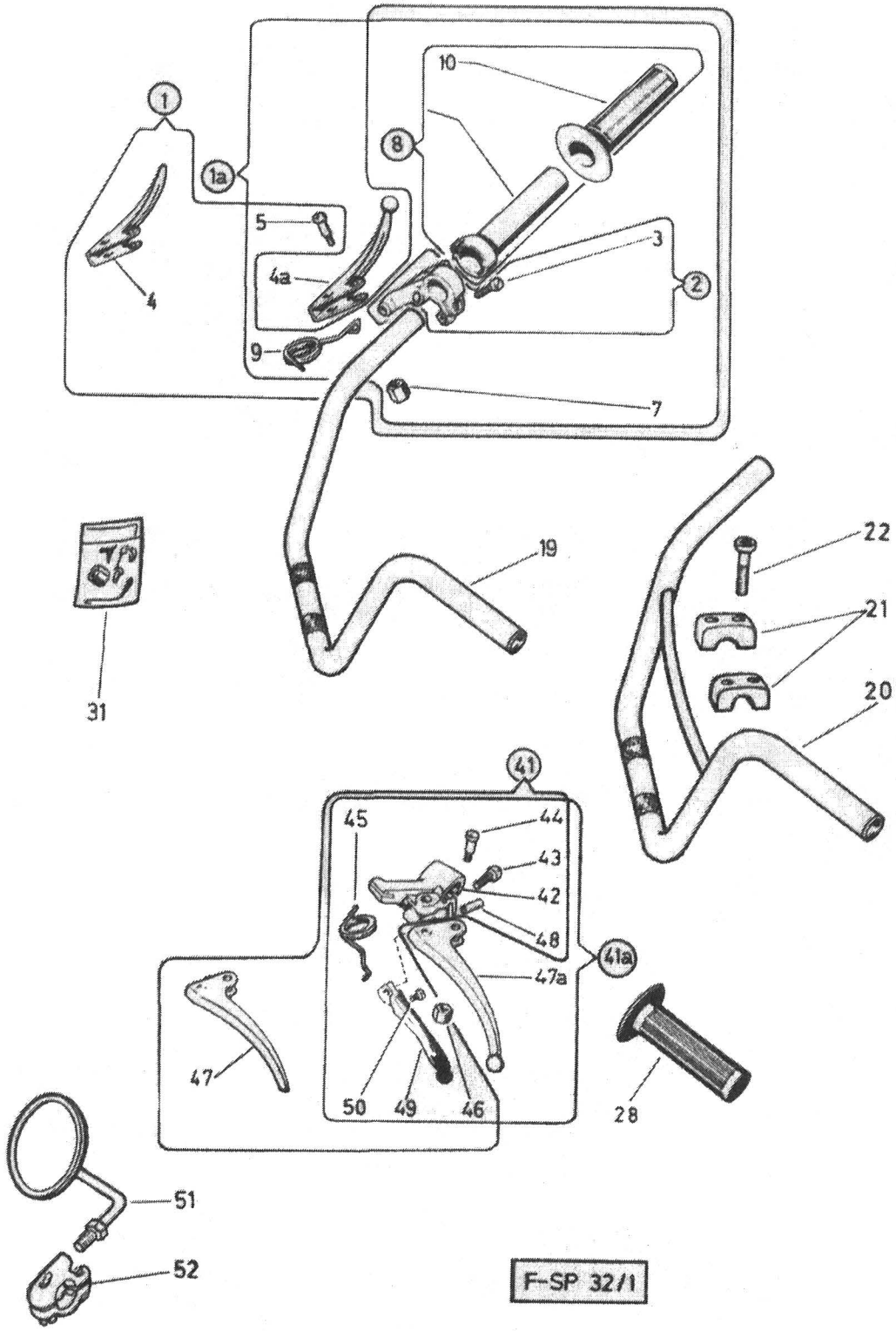
Free Spirit - Model-Nos.

16a. FRONT FORK WITH STEERING

Ref.-No.	Part-No.	Description	81780800	81780810	81780820	81780830	81780840	81780850	81780860
			Requd.No.						
1	1004	FRONT FORK compl.	-	-	-	-	1	1	1
2	2045	HEXAGON HEAD SCREW M8x35 DIN 933-8.8	-	-	-	-	2	2	2
3	2077	WASHER 8,4 DIN 9021	-	-	-	-	2	2	2
4	3303	TOP BRIDGE FOR FORK	-	-	-	-	1	1	1
5	3304	BOTTOM BRIDGE FOR FORK	-	-	-	-	1	1	1
6	3305	SLIDING TUBE r.h.	-	-	-	-	1	1	1
7	3306	SLIDING TUBE l.h.	-	-	-	-	1	1	1
8	3307	RUBBER SLEEVE	-	-	-	-	2	2	2
9	3308	FIXING CLIP	-	-	-	-	2	2	2
10	3309	RUBBER BUFFER	-	-	-	-	2	2	2
11	3310	THRUST SPRING	-	-	-	-	2	2	2
12	3311	THREADING COUPLING	-	-	-	-	2	2	2
13	3312	MOULDING FOR BOTTOM BRIDGE	-	-	-	-	1	1	1
14	2062	PAN HEAD SCREW M5x6 DIN 85	-	-	-	-	2	2	2
15	3073	BOTTOM GUIDE BUSHING	-	-	-	-	1	1	1
16	2017	BALL Ø5	-	-	-	-		42	
17	2016	BEARING CUP	-	-	-	-	2	2	2
18	3072	TOP GUIDE BUSHING	-	-	-	-	1	1	1
19	3313	SPACER 32/26/14	-	-	-	-	1	1	1
20	3144	FORK SHAFT NUT	-	-	-	-	1	1	1
21	3314	STOP RING	-	-	-	-	1	1	1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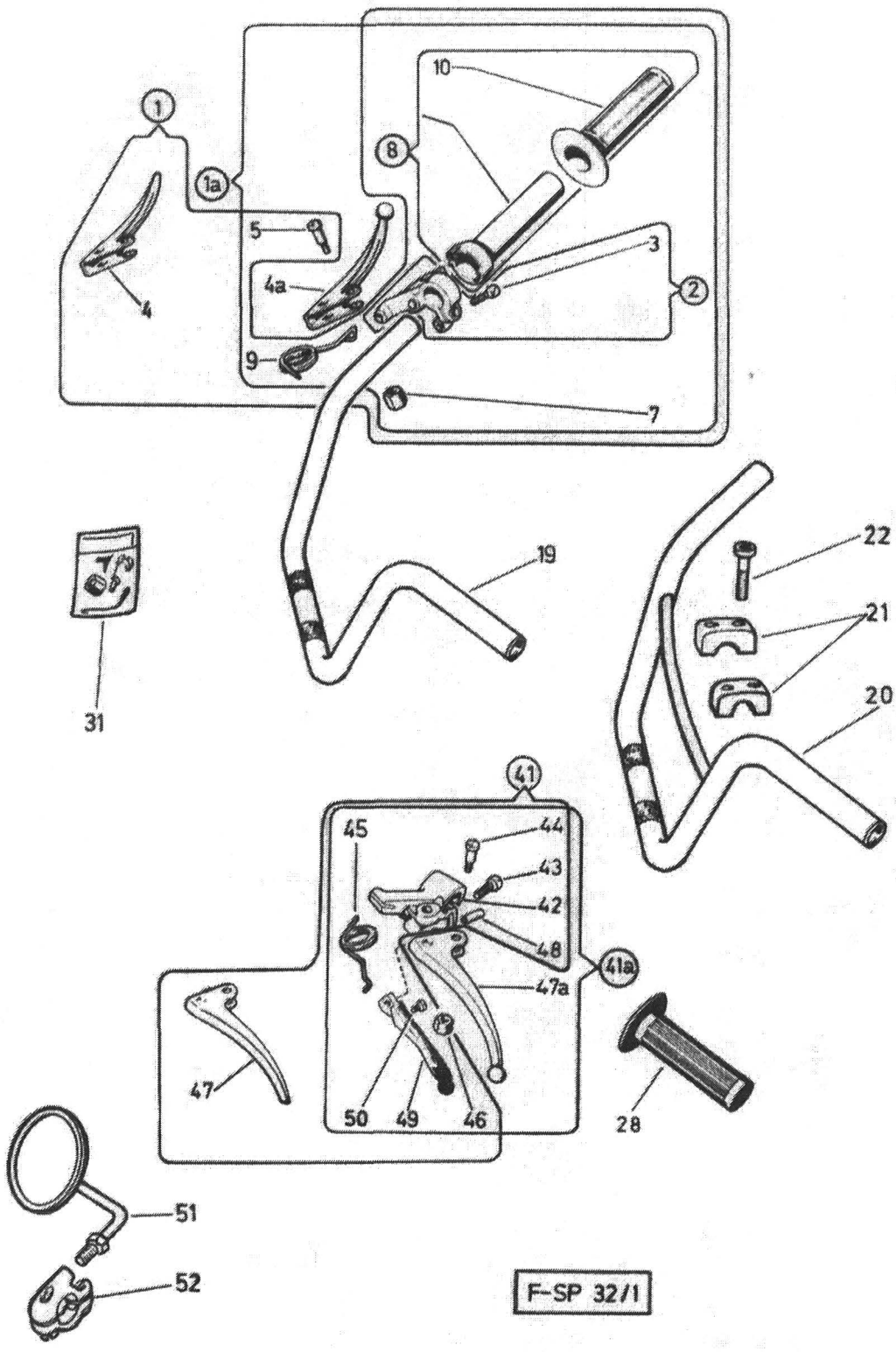
17. HANDLEBAR AND CONTROLS

Ref.-No.	Part-No.	Description	Free Spirit - Model-Nos. 8811770 8811771 8811772 8811773 8811774 8811775 8811776 Requd. No.
1	1087	THROTTLE TWIST GRIP cpl. (with parts 2-10)	1 1 1 1 - - -
1a	1074	THROTTLE TWIST GRIP cpl. (with parts 2-10)	- - - - 1 1 1
2	3146	HOUSING for throttle grip compl. (with part 3)	1 1 1 1 1 1 1
3	2037	PAN HEAD SCREW (M6x15)	1 1 1 1 1 1 1
4	3317	BRAKE LEVER	1 1 1 1 - - -
4a	80829	BRAKE LEVER	- - - - 1 1 1
5	*	PIVOT BOLT (M5)	1 1 1 1 1 1 1
7	*	PLASTIC NUT (self-locking for threading M5)	1 1 1 1 1 1 1
8	3249	THROTTLE TWIST GRIP TUBE compl. (with part 10)	1 1 1 1 1 1 1
9	3147	RETURN SPRING r.h.	1 1 1 1 1 1 1
10	3148	TWIST GRIP COVER Ø24 (black)	1 1 1 1 1 1 1
19	1013	HANDLEBAR TUBE	1 1 1 1 - - -
20	1012	HANDLEBAR TUBE	- - - - 1 1 1
21	1014	CLAMP	2 2 2 2 2 2 2
22	1033	HEXAGON SOCKET HEAD SCREW (M7x35)	4 4 4 4 4 4 4
28	3149	DUMMY RUBBER GRIP Ø22 (black)	1 1 1 1 1 1 1
31	80892	NUT AND BOLT SET for hand lever (consist of Ref.-No.5 and 7)	1 1 1 1 1 1 1
41	3318	BRAKE- AND ACTUATING LEVER compl. (with parts 42-50)	1 1 1 1 - - -

* These parts are included in the Set under Ref.-No.31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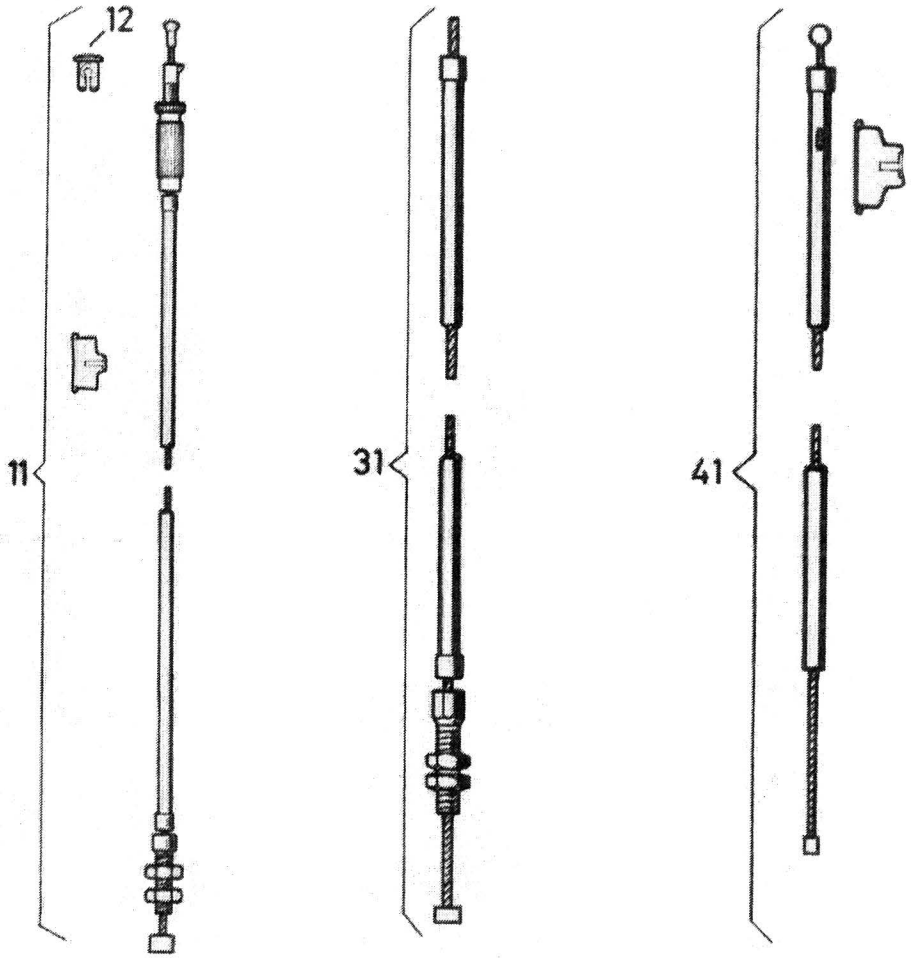
17. HANDLEBAR AND CONTROLS (cont.)

Ref.-No.	Part-No.	Description	Free Spirit - Model-Nos. 81780800	81780810	81780820	81780830	81780840	81780850	81780860
			Requd.No.						
41a	1075	BRAKE- AND ACTUATING LEVER compl. (with parts 42-50)	-	-	-	-	1	1	1
42	3150	SHACKLE	1	1	1	1	1	1	1
43	2037	PAN HEAD SCREW (M6x15)	1	1	1	1	1	1	1
44	*	PIVOT BOLT (M5)	1	1	1	1	1	1	1
45	3151	RETURN SPRING l.h.	1	1	1	1	1	1	1
46	*	PLASTIC NUT (for thread M5)	1	1	1	1	1	1	1
47	3319	HAND LEVER for brake	1	1	1	1	-	-	-
47a	80830	HAND LEVER for brake	-	-	-	-	1	1	1
48	3038	SPIRAL PIN 4,7x12 DIN 7343	1	1	1	1	1	1	1
49	80807	HAND LEVER for clutch (power)	1	1	1	1	1	1	1
50	3145	CABLE CLAMPING SCREW (M4x10)	1	1	1	1	1	1	1
51	3200	REAR MIRROR	1	1	1	1	1	1	1
52	3199	CLIP compl.	1	1	1	1	1	1	1

* These parts are included in the Set under Ref.-No.31



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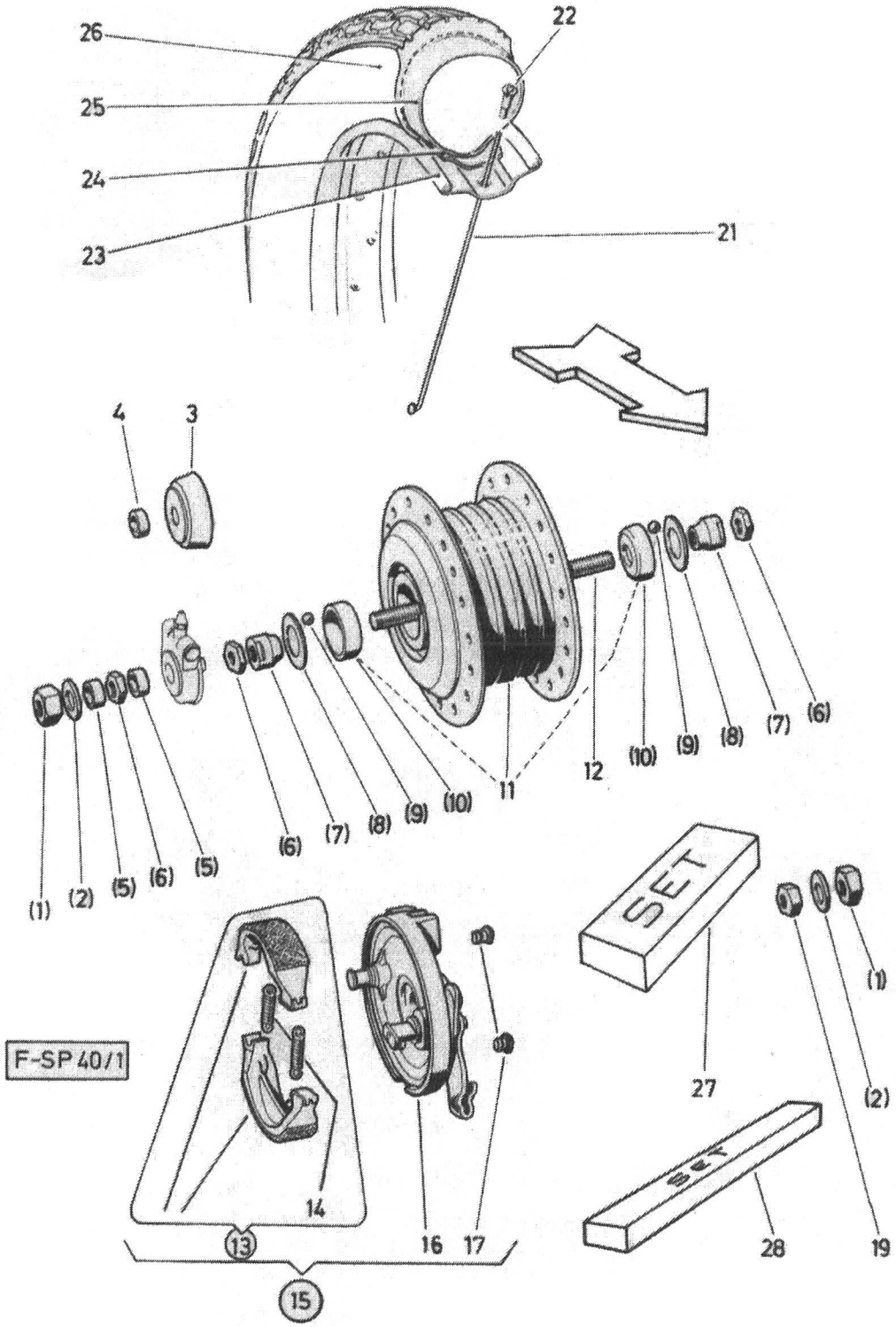
18. CABLES

Ref.- No.	Part- No.	Description	Free Spirit - Model-Nos. 81780800	81780810	81780820	81780830	81780840	81780850	81780860
			Requd.No.						
11	80816	FRONT BRAKE CABLE compl. (wire 1100/cover 940)	1	1	1	1	1	1	1
11	80817	REAR BRAKE CABLE compl. (wire 1648/cover 1500)	1	1	1	1	-	-	-
11	80823	REAR BRAKE CABLE compl. (wire 1650/cover 1490)	-	-	-	-	1	1	1
12	80895	CABLE RETAINER	2	2	2	2	2	2	2
31	80843	CLUTCH (Power) CABLE compl. (wire 1120/cover 960)	1	1	1	1	1	1	1
41	80815	THROTTLE (CARBURETTOR) CABLE compl. (wire 1026/cover/895)	1	1	1	1	1	1	1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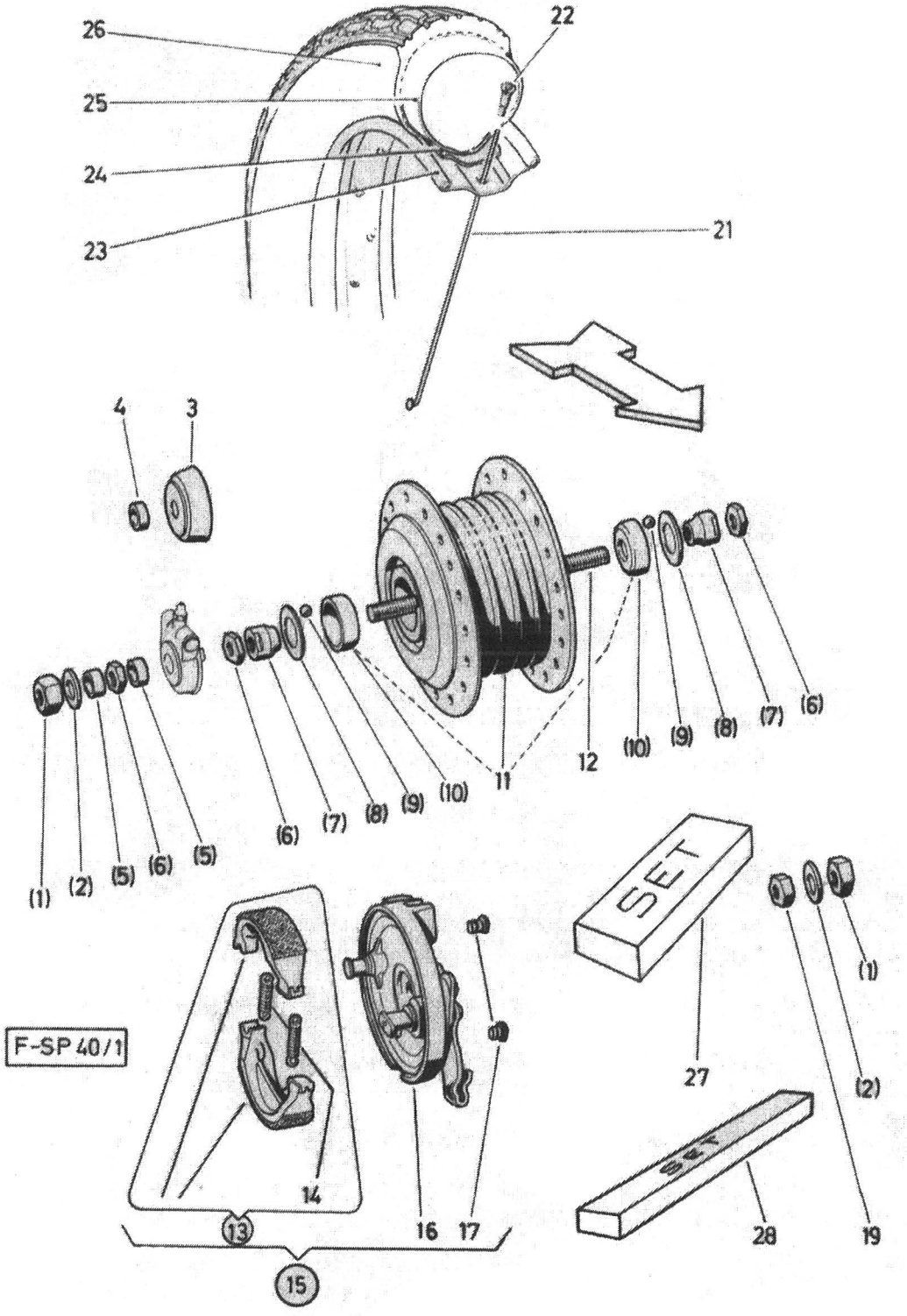
Free Spirit - Model-Nos.

19. FRONT WHEEL

Ref.-No.	Part-No.	Description	81780800	81780810	81780820	81780830	81780840	81780850	81780860
			Requd.No.						
--	1000	FRONT WHEEL compl. (with steel rim, without tire)	1	1	1	1	-	-	-
--	1036	FRONT WHEEL HUB compl. (Leleu Ø80mm)	1	1	1	1	-	-	-
1	80834*	HEXAGON NUT (axle nut) per pair (M11x1, 10mm high, 19 SW)	2	2	2	2	-	-	-
2	2039	WASHER 19/11,3/0,8	2	2	2	2	-	-	-
3	3161**	COVER CAP	1	-	-	-	-	-	-
4	3154**	SPACER RING 16/11,2/4,1	1	-	-	-	-	-	-
5	3153	SPACER RING 16/11,2/4,7	2	2	2	2	-	-	-
6	3156	HEXAGON NUT (M11x1,5mm high, SW 16)	3	3	3	3	-	-	-
7	3157***	CONE Ø18x13	2	2	2	2	-	-	-
8	3158***	COVER DISC 29,2/18,5/0,4	2	2	2	2	-	-	-
9	3284***	BALL 7/32"		22			-	-	-
10	3155***	BEARING CUP Ø29x10,5	2	2	2	2	-	-	-
11	3152	FRONT WHEEL BRAKE HUB (with pressed-in bearing cups)	1	1	1	1	-	-	-
12	1049	FRONT WHEEL AXLE, 156 long	1	1	1	1	-	-	-
13	80879	PAIR OF BRAKE SHOES with brake shoe spring	1	1	1	1	-	-	-
14	3162	BRAKE SHOE SPRING	2	2	2	2	-	-	-
15	3176	BRAKE COVER PLATE compl. (with parts 13,14,16 and 17)	1	1	1	1	-	-	-
16	3177	BRAKE COVER PLATE (with part 17)	1	1	1	1	-	-	-

* This part will be delivered only in pairs.
** These parts are omitting when mounting speedometer drive
*** These parts are included in the Set under Ref.No.27.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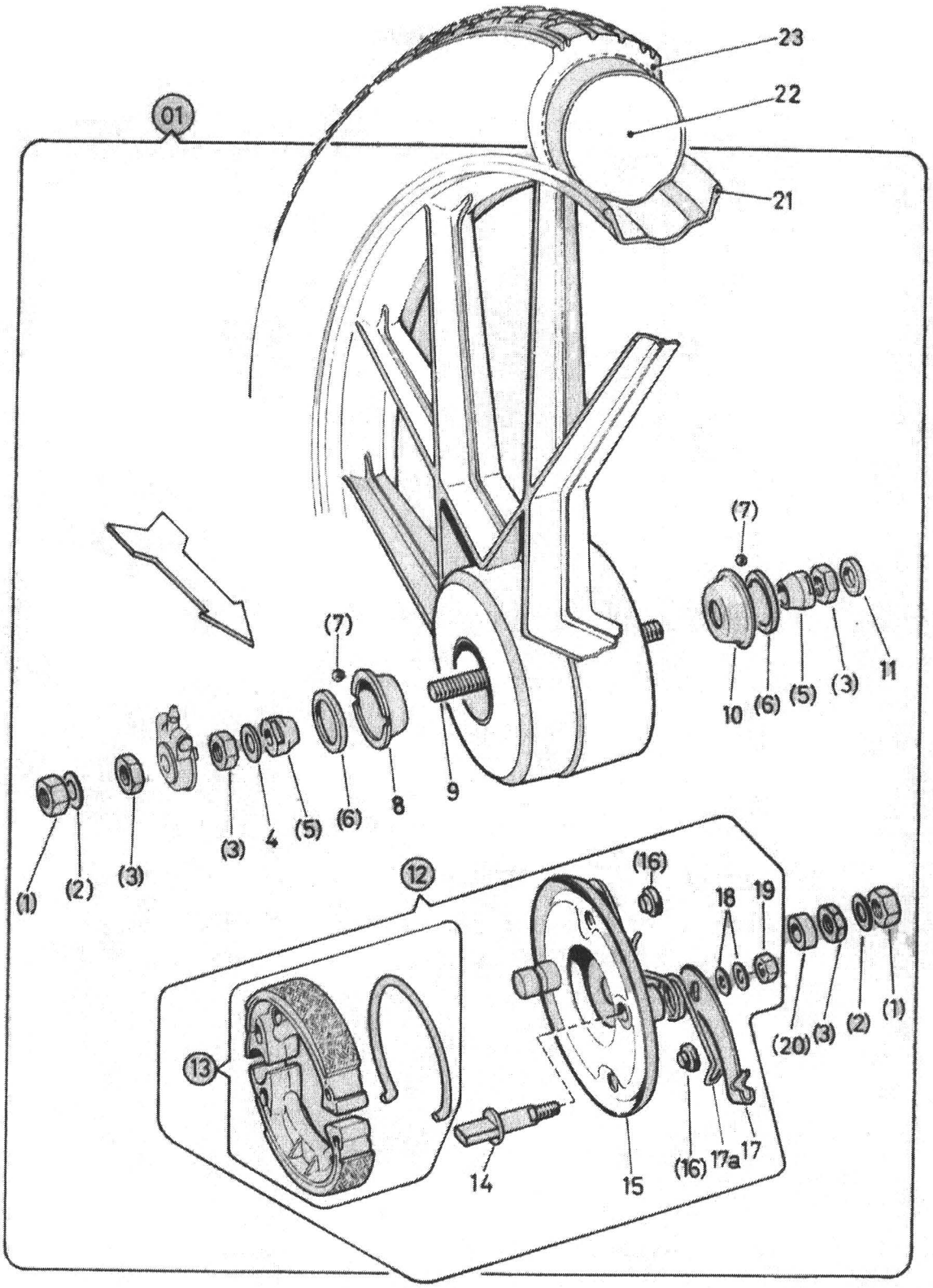
19. FRONT WHEEL (cont.)

Ref.-No.	Part-No.	Description	Free Spirit - Model-Nos. 8 8 8 8 8 8 8 / 1 1 1 1 1 1 1 / 7 7 7 7 7 7 7 / 8 8 8 8 8 8 8 / 0 0 0 0 0 0 0 / 8 8 8 8 8 8 8 / 0 1 2 3 4 5 6 / 0 0 0 0 0 0 0 Requd. No.
17	3178	PLUG	2 2 2 2 - - -
19	3159	HEXAGON NUT (M11x1,7mm high, SW 16)	1 1 1 1 - - -
21	1080*	SPOKE Ø2,6x188	36 - - -
22	*	NIPPLE M3	36 - - -
23	1035	RIM 17" (steel)	1 1 1 1 - - -
24	80854	CHAFING STRIP	1 1 1 1 - - -
25	80814	INNER TUBE 21"x2"	1 1 1 1 - - -
26	80812	TIRE 2-17 (21x2)	1 1 1 1 - - -
27	1047	FRONT WHEEL BEARING SET (consist of Ref.No.7,8,9 and 10)	1 1 1 1 - - -
28	80828	SPOKES and NIPPLES SET (consist of Ref.No.21 and 22)	1 1 1 1 - - -

* These parts are included in the Set (at 12 pieces) under Ref.No.28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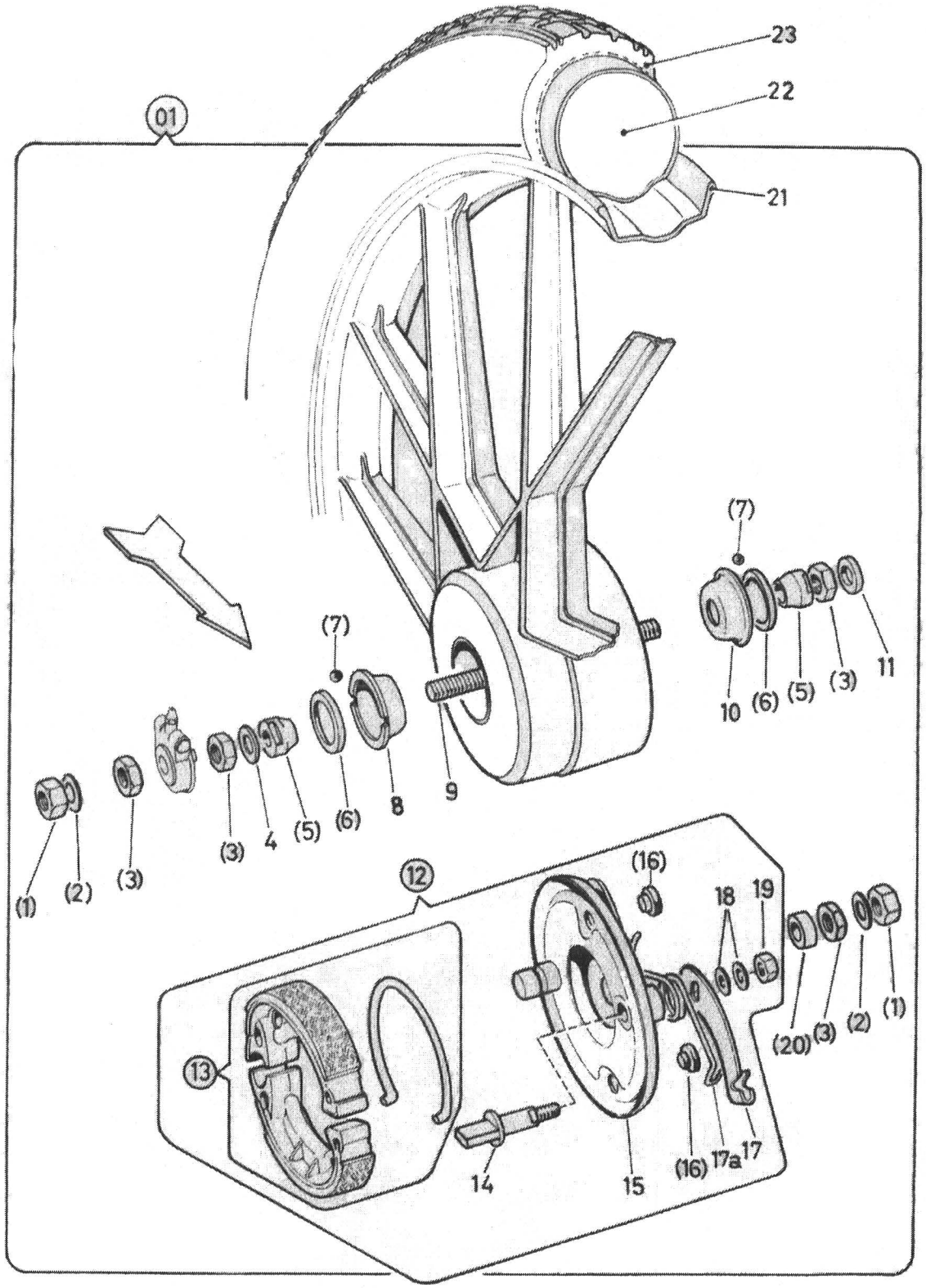
Free Spirit - Model-Nos.

19a. FRONT WHEEL

Ref.-No.	Part-No.	Description	81780800	81780810	81780820	81780830	81780840	81780850	81780860
			Requd.No.						
01	1002	FRONT WHEEL compl (without tire)	-	-	-	-	1	1	1
1	80851 *	HEXAGON NUT (axle nut, M11x1 10 high SW 17) per pair	-	-	-	-	2	2	2
2	2039	WASHER 19/11,3/0,8	-	-	-	-	2	2	2
3	3169	HEXAGON NUT M11x1,6 high, SW 17	-	-	-	-	4	4	4
4	2084	WASHER 18/12,3/1	-	-	-	-	1	1	1
5	3171	CONE Ø19x12	-	-	-	-	2	2	2
6	3172	DUST CAP 28,1/20/3,5	-	-	-	-	2	2	2
7	2002	BALL 1/4"	-	-	-	-		20	
8	3165	BEARING CUP r.h.	-	-	-	-	1	1	1
9	1049	FRONT WHEEL AXLE, 156 long	-	-	-	-	1	1	1
10	3166	BEARING CUP l.h.	-	-	-	-	1	1	1
11	3253	WASHER 18/12,5/2	-	-	-	-	1	1	1
12	3167	BRAKE COVER PLATE, compl.	-	-	-	-	1	1	1
13	80878	PAIR OF BRAKE SHOES with brake shoe spring	-	-	-	-	1	1	1
14	3170	BRAKE CAM, 46 long	-	-	-	-	1	1	1
15	3168	BRAKE COVER PLATE, loose	-	-	-	-	1	1	1
16	3174	PLUG	-	-	-	-	2	2	2
17	3173	BRAKE LEVER	-	-	-	-	1	1	1
17a	3175	RETURN SPRING	-	-	-	-	1	1	1

* This part will be delivered only in pairs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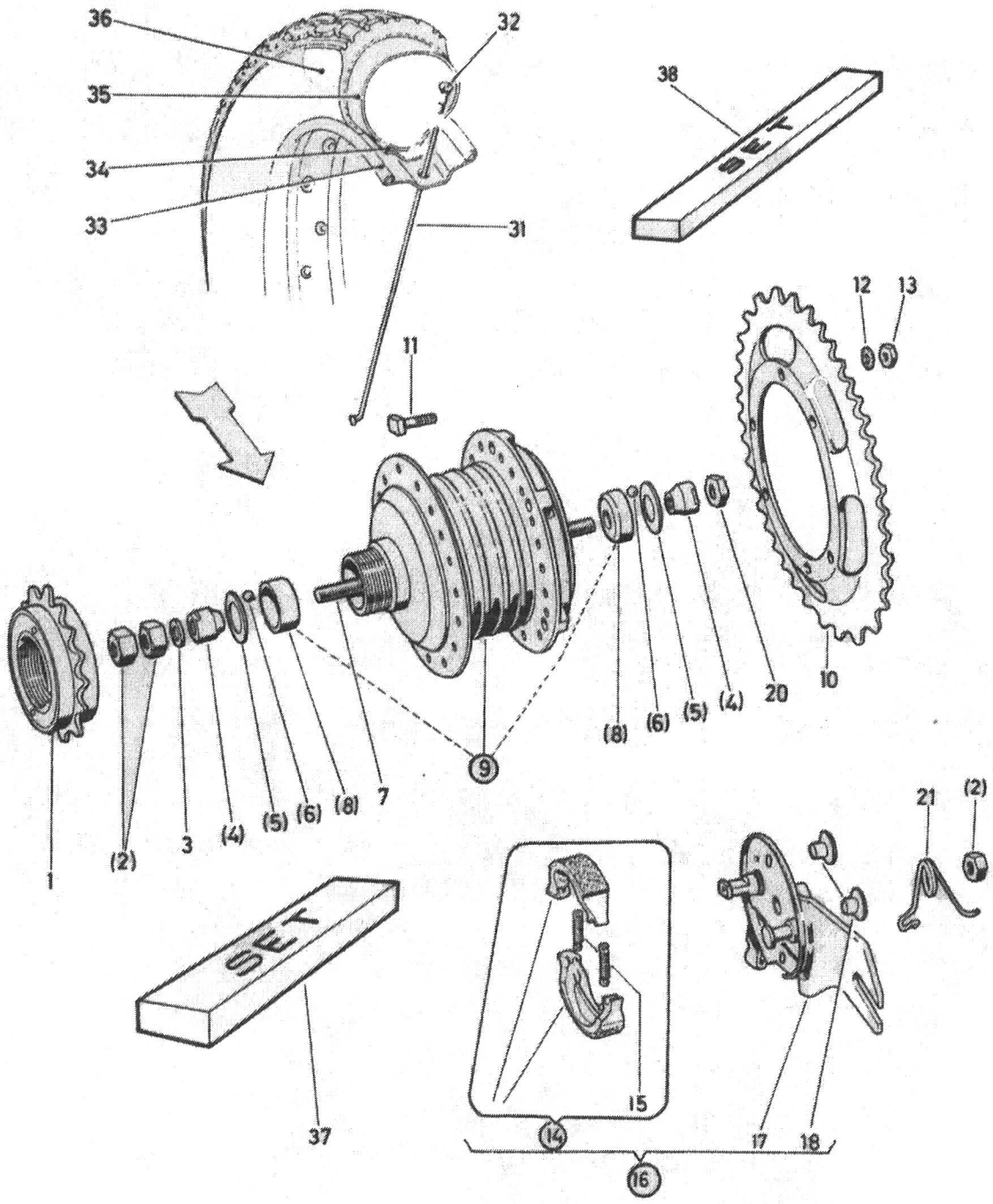
19a. FRONT WHEEL (cont.)

Ref.-No.	Part-No.	Description	Free Spirit - Model-Nos. 81780800	81780810	81780820	81780830	81780840	81780850	81780860
			Requd.No.						
18	2009	WASHER 6,4 DIN 125	-	-	-	-	2	2	2
19	2007	HEXAGON NUT M6 DIN 934	-	-	-	-	1	1	1
20	3164	DISTANCE RING 16/12/6	-	-	-	-	1	1	1
21	3163	FRONT WHEEL, loose, (with parts 8 and 10)	-	-	-	-	1	1	1
22	80814	INNER TUBE 21x2	-	-	-	-	1	1	1
23	80813	TIRE 2 1/4-17 (21x2,25)	-	-	-	-	1	1	1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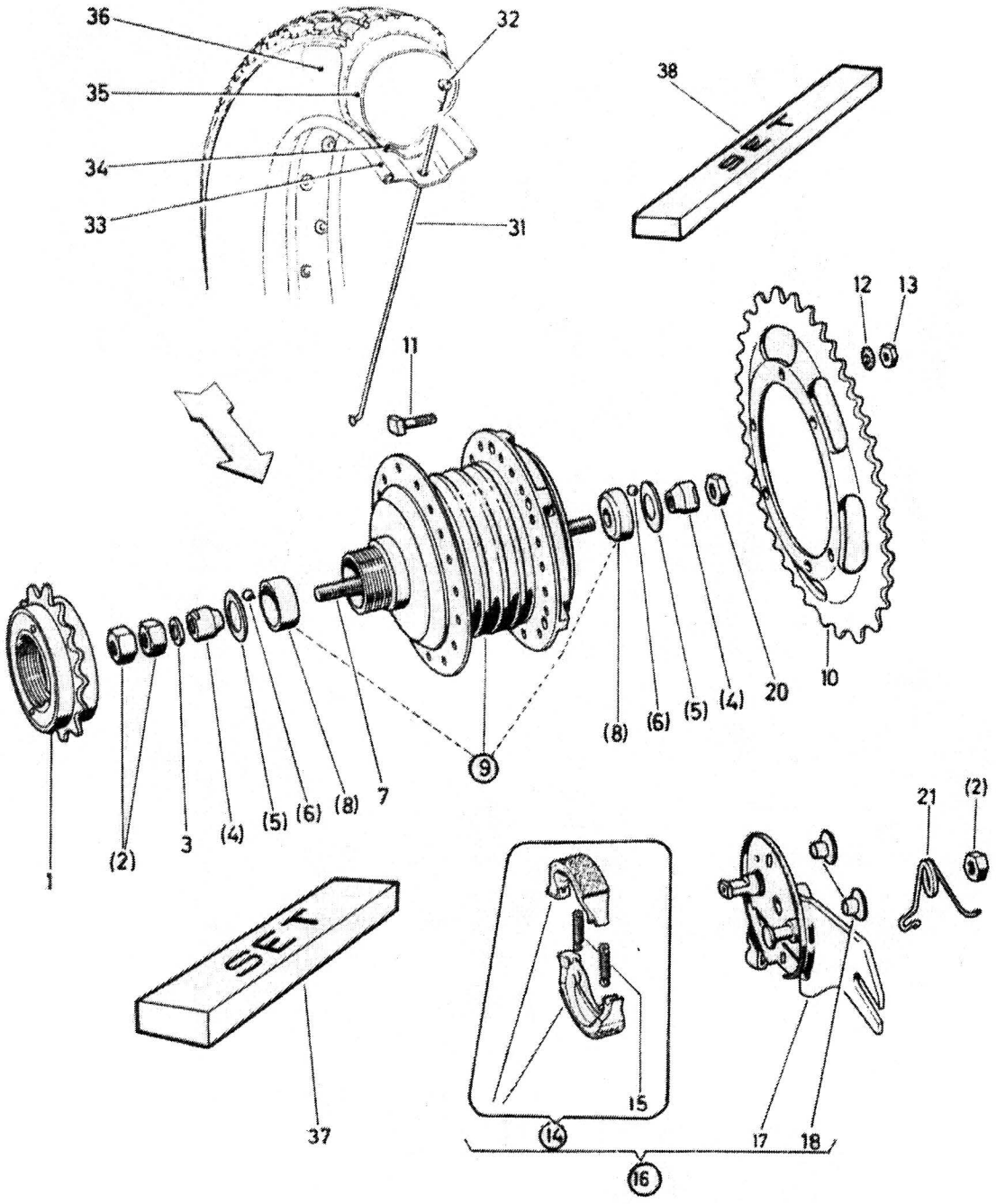
20. REAR WHEEL

Ref.-No.	Part-No.	Description	Free Spirit - Model-Nos. 8811780 8811781 8811782 8811783 8811784 8811785 8811786 Requd.No.
--	1083	REAR WHEEL compl. (45 and 23 teeth) (with steel rim, without tire)	1 1 1 1 - - -
--	1037	REAR WHEEL HUB compl. (Leleu Ø80) (with 45 toothed chain sprocket, without idle gear sprocket)	1 1 1 1 - - -
1	1067	IDLE GEAR SPROCKET compl. (23 teeth) (Messrs.Maillard)	1 1 1 1 - - -
2	80841*	HEXAGON NUT (axle nut M12x1 DIN 934)	per pair 3 3 3 3 - - -
3	3254	WASHER 18/12,5/1,8	1 1 1 1 - - -
4	3183**	CONE Ø20x13,5	2 2 2 2 - - -
5	3180**	COVER DISC 29,2/21/0,4	2 2 2 2 - - -
6	3283**	BALL 3/16"	26 - - -
7	1050	REAR WHEEL AXLE, 180 long	1 1 1 1 - - -
8	3182**	BEARING CUP Ø29	2 2 2 2 - - -
9	3179	REAR WHEEL BRAKE HUB (with pressed-in bearing cups)	1 1 1 1 - - -
10	1029	CHAIN SPROCKET (45 teeth)	1 1 1 1 - - -
11	3181	RETAINING BOLT (M6)	6 6 6 6 - - -
12	2078	SERRATED LOCK WASHER A6,4 DIN 6798	6 6 6 6 - - -
13	2007	HEXAGON NUT M6 DIN 934	6 6 6 6 - - -
14	80879	PAIR OF BRAKE SHOES with brake shoe spring	1 1 1 1 - - -
15	3162	BRAKE SHOE SPRING	2 2 2 2 - - -

*This part will be delivered only in pairs
**These parts are included in the Set under Ref.No.37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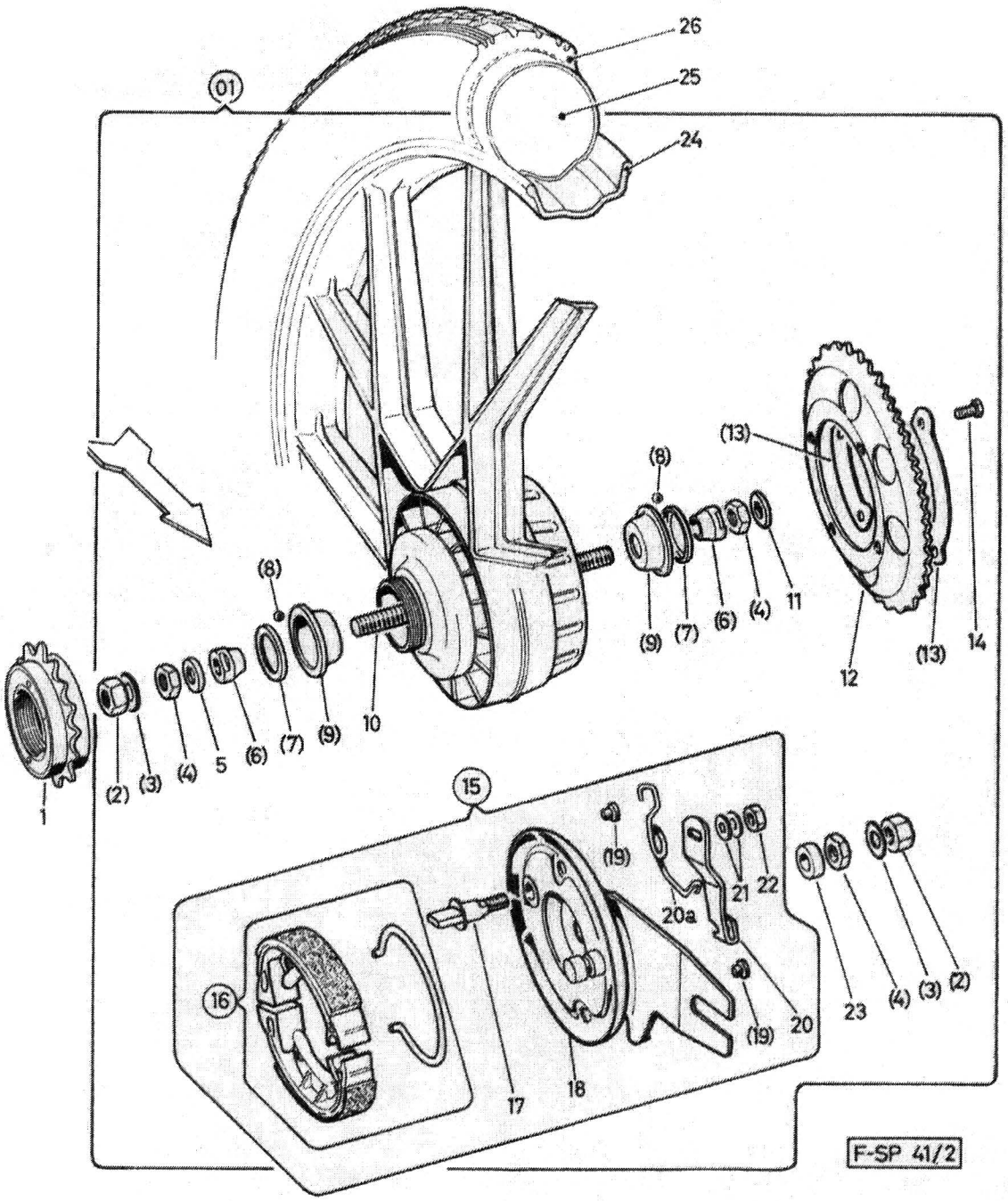
20. REAR WHEEL (cont.)

Ref.-No.	Part-No.	Description	Free Spirit - Model-Nos. 8811770 8811771 8811772 8811773 8811774 8811775 8811776 Requd. No.
16	3186	BRAKE COVER PLATE compl. (with parts 14,15,17a and 18)	1 1 1 1 - - -
17	3187	BRAKE COVER PLATE (with part 18)	1 1 1 1 - - -
18	3188	PLUG	2 2 2 2 - - -
20	3184	HEXAGON NUT (M12x1, 5mm high, 19 SW)	1 1 1 1 - - -
21	3240	RETURN SPRING	1 1 1 1 - - -
31	1080 *	SPOKE Ø2,6x188	36 - - -
32	*	NIPPLE M3	36 - - -
33	1035	RIM 17"(steel)	1 1 1 1 - - -
34	80854	RIM BAND	1 1 1 1 - - -
35	80814	INNER TUBE 21"x2"	1 1 1 1 - - -
36	80812	TIRE 2-17 (21x2)	1 1 1 1 - - -
37	1048	REAR WHEEL BEARING SET (consist of Ref.No. 4,5,6 and 8)	1 1 1 1 - - -
38	80828	SPOKES AND NIPPLES SET (consist of Ref.No. 31 and 32)	1 1 1 1 - - -

* These parts are included in the Set (at 12 pieces) under Ref.No.38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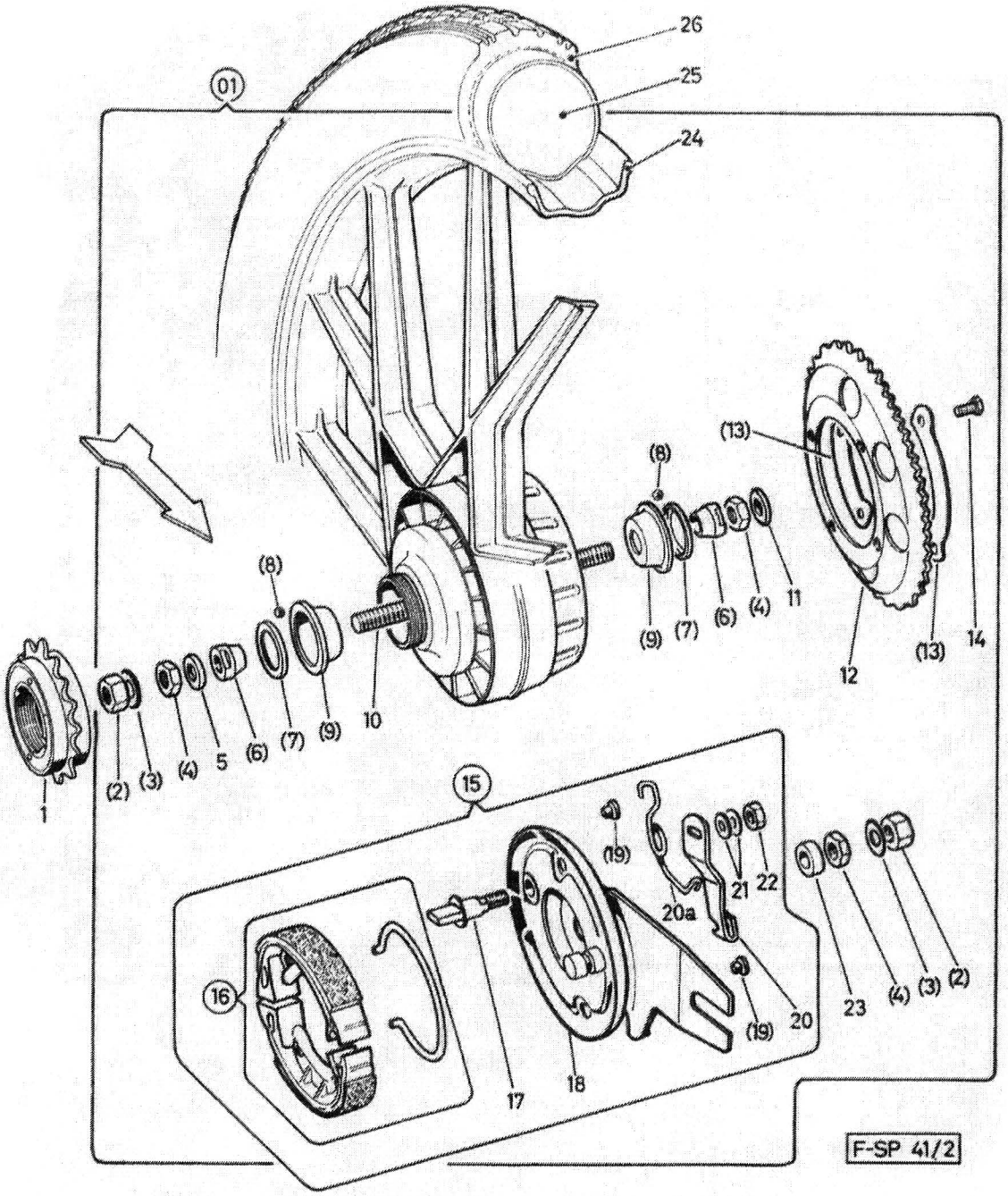
20a. REAR WHEEL

Ref.-No.	Part-No.	Description	Free Spirit - Model-Nos. 8811700 8811701 8811702 8811703 8811704 8811705 8811706 Requd.No.
01	1003	REAR WHEEL compl. (without tire) (45 teeth)	- - - - 1 1 1
1	1067	IDLE GEAR SPROCKET compl. (23 teeth) (Messrs.Maillard)	- - - - 1 1 1
2	80851 *	HEXAGON NUT (axle nut M11x1, 10 high SW 17)	- - - - 2 2 2 per pair
3	2039	WASHER 19/11,3/0,8	- - - - 2 2 2
4	3169	HEXAGON NUT M11x1, 6 high SW 17	- - - - 3 3 3
5	3213	DISTANCE RING 16/12/3	- - - - 1 1 1
6	3171	CONE Ø19x12	- - - - 2 2 2
7	3219	DUST CAP 25,9/20/3,5	- - - - 2 2 2
8	2094	BALL Ø5,5	- - - - 22
9	3215	BEARING CUP	- - - - 2 2 2
10	3222	REAR WHEEL AXLE, 180 long	- - - - 1 1 1
11	3253	WASHER 18/12,5/2	- - - - 1 1 1
12	1030	CHAIN SPROCKET, 45 teeth	- - - - 1 1 1
13	3185	LOCK PLATE for chain sprocket	- - - - 2 2 2
14	2043	HEXAGON SCREW M6x16 DIN 933-8.8	- - - - 4 4 4
15	3216	BRAKE COVER PLATE, compl.	- - - - 1 1 1
16	80878	PAIR OF BRAKE SHOES with brake shoe spring	- - - - 1 1 1
17	3218	BRAKE CAM, 40 long	- - - - 1 1 1

* This part will be delivered only in pairs.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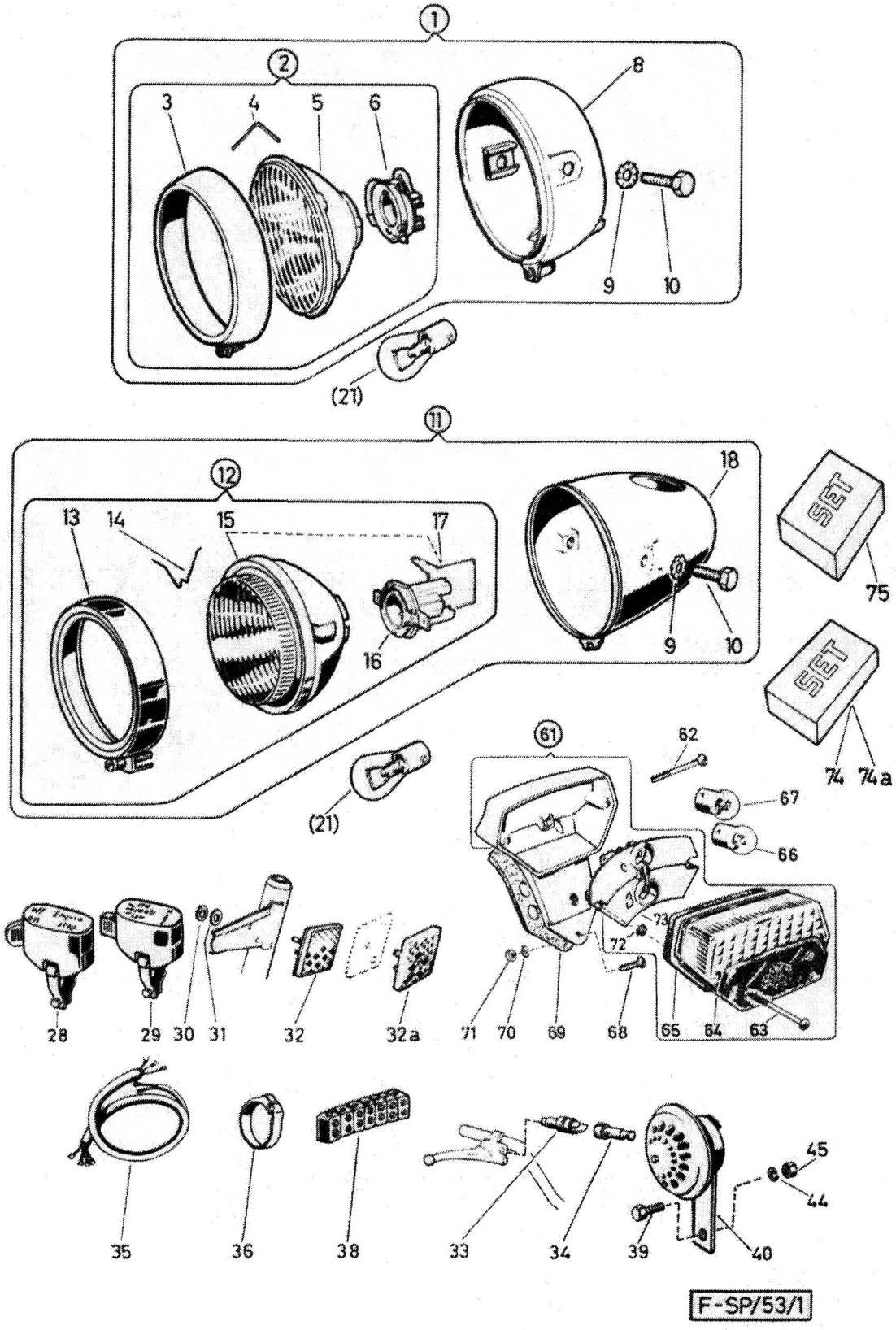
20a. REAR WHEEL (cont.)

Ref.-No.	Part-No.	Description	Free Spirit - Model-Nos. 81770800	81770801	81770802	81770803	81770804	81770805	81770806
			Requd. No.						
18	3217	BRAKE COVER PLATE, loose	-	-	-	-	1	1	1
19	3174	PLUG	-	-	-	-	2	2	2
20	3220	BRAKE LEVER	-	-	-	-	1	1	1
20a	3221	RETURN SPRING	-	-	-	-	1	1	1
21	2009	WASHER 6,4 DIN 125	-	-	-	-	2	2	2
22	2007	HEXAGON NUT M6 DIN 934	-	-	-	-	1	1	1
23	3214	DISTANCE RING 16/12/7	-	-	-	-	1	1	1
24	3223	REAR WHEEL, loose (with part 9)	-	-	-	-	1	1	1
25	80814	INNER TUBE 21x2	-	-	-	-	1	1	1
26	80813	TIRE 2 1/4-17 (21x2,25)	-	-	-	-	1	1	1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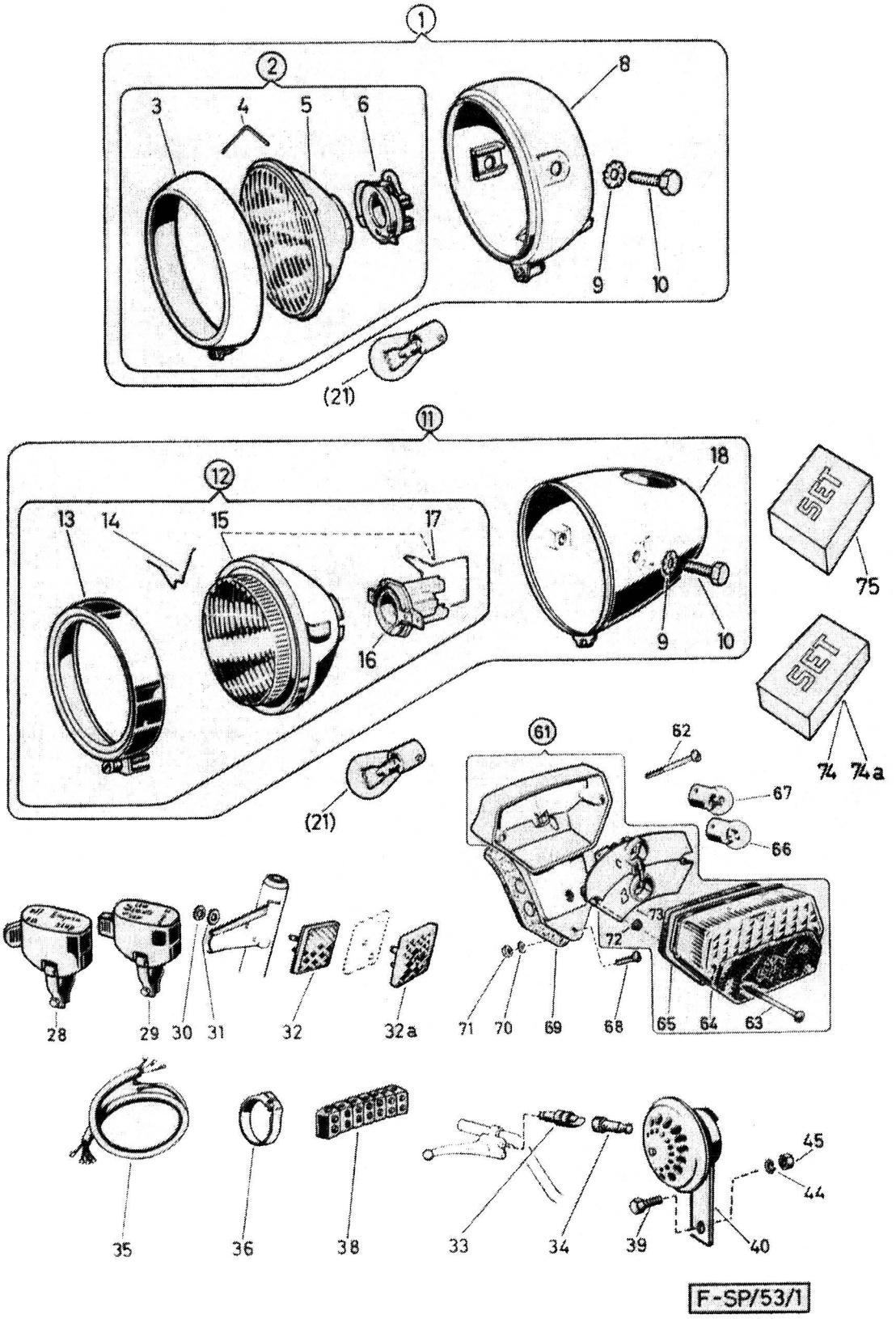
21. HEADLAMP, TAIL-, STOP-LIGHT, RATTLE, HARNESS

Ref.-No.	Part-No.	Description	Free Spirit - Model-Nos. 8811770 8811771 8811772 8811773 8811774 8811775 8811776 Requd.No.
1	1070	HEADLAMP compl. (with parts 2-10)	1 - - - 1 1 1
2	3320	HEADLAMP UNIT compl.	1 - - - 1 1 1
3	3321	HEADLAMP RIM compl.	1 - - - 1 1 1
4	3327	SPRING FOR REFLECTOR	4 - - - 4 4 4
5	3326	REFLECTOR with glued headlamp glas	1 - - - 1 1 1
6	3322	BULB HOLDER	1 - - - 1 1 1
8	3190	HEADLAMP BODY	1 - - - 1 1 1
9	2079	TOOTHED WASHER A6,4 DIN 6797	2 2 2 2 2 2 2
10	2014	HEXAGON HEAD SCREW M6x16 DIN 933	2 2 2 2 2 2 2
11	1071	HEADLAMP compl.(with parts 9,10 and 12-16)	- 1 1 1 - - -
12	1056	HEADLAMP UNIT compl.	- 1 1 1 - - -
13	3191	HEADLAMP RIM compl.	- 1 1 1 - - -
14	3082	SPRING FOR REFLECTOR	- 8 8 8 - - -
15	3227	REFLECTOR with glued headlamp glas (with part 17)	- 1 1 1 - - -
16	3228*	BULB HOLDER	- 1 1 1 - - -
17	3226*	CLIP for bulb holder	- 1 1 1 - - -
18	3194	HEADLAMP BODY	- 1 1 1 - - -
21	80832	BULB 21W BA 15S	1 1 1 1 1 1 1
28	80802	ENGINE - STOP-SWITCH cpl.	1 1 1 1 1 1 1
29	80809	SWITCH compl. (light and horn)	1 1 1 1 1 1 1

* These parts are included in the Set under Ref.No.75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SET
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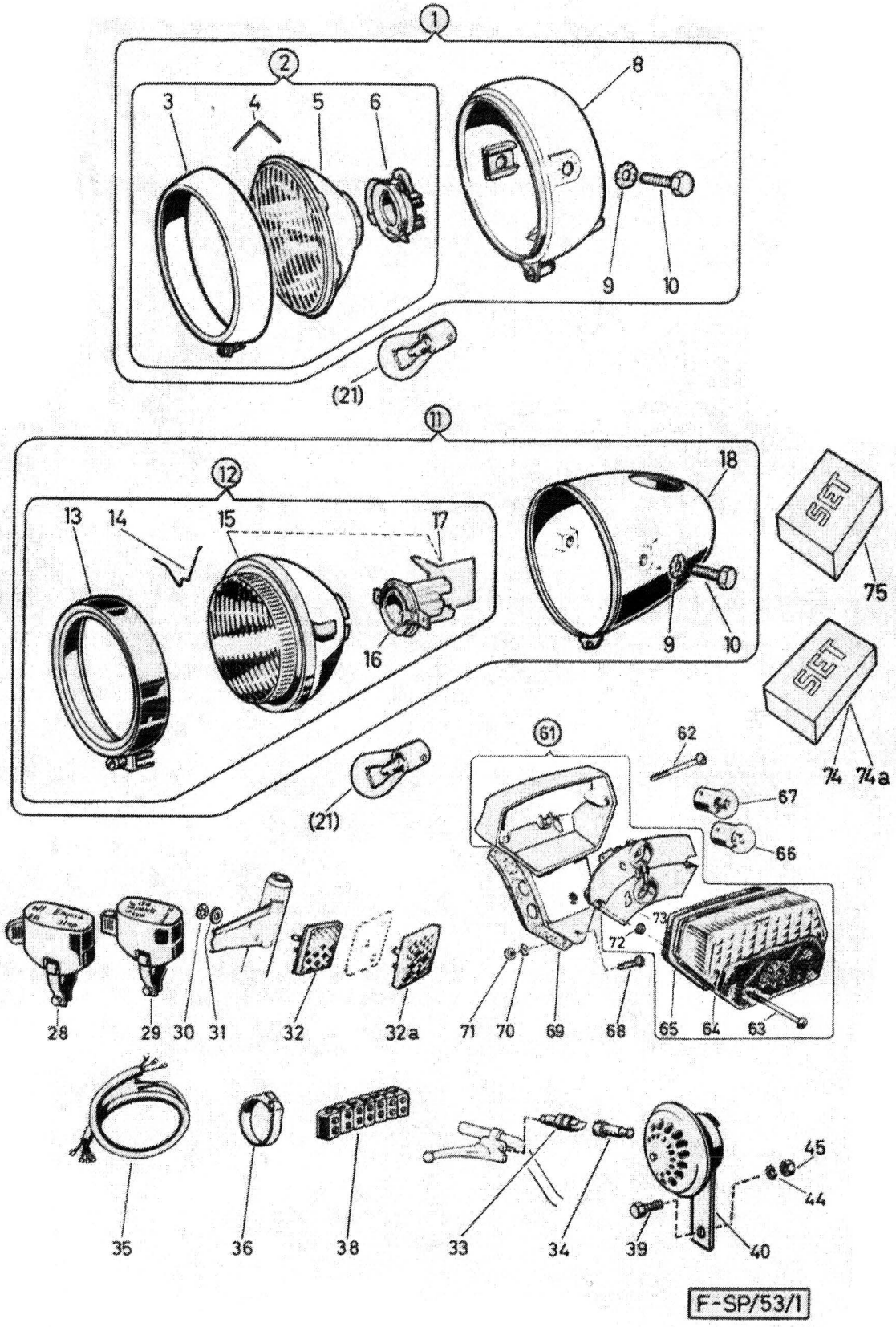
Free Spirit - Model-Nos.

21. HEADLAMP, TAIL-, STOP-LIGHT, RATTLE, HARNESS (cont.)

Ref.-No.	Part-No.	Description	81780800	81780810	81780820	81780830	81780840	81780850	81780860
			Requd.No.						
30	3037***	SPEED NUT (FC 050) Ø5	8	8	8	8	8	8	8
31	3021***	RUBBER WASHER 15/4,5/4	8	8	8	8	8	8	8
32	3193**	SIDE REFLECTOR (yellow)	2	2	2	2	2	2	2
32a	3229***	SIDE REFLECTOR (red)	2	2	2	2	2	2	2
33	80808	STOP SWITCH for brake levers	2	2	2	2	2	2	2
34	3278	RUBBER CAP	2	2	2	2	2	2	2
35	1039	HARNESS compl.	1	-	-	-	-	-	-
35	1040	HARNESS compl.	-	1	1	1	-	-	-
35	1041	HARNESS compl.	-	-	-	-	1	1	1
36	3275	CABLE BINDER	2	2	2	2	2	2	2
38	3280	SOFT RUBBER TERMINAL (7 rows)	1	1	1	1	1	1	1
39	2013	HEXAGON HEAD SCREW M6x12 DIN 933	1	1	1	1	1	1	1
40	80856	RATTLE (Pagani with faston plug connector)	1	1	1	1	1	1	1
44	2026	SPRING WASHER B6 DIN 127	1	1	1	1	1	1	1
45	2007	HEXAGON NUT M6 DIN 934	1	1	1	1	-	-	-

** These parts are included in the Set under Ref.No.74
*** These parts are indluded in the Set under Ref.No.74a.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(21)
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SET
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SET
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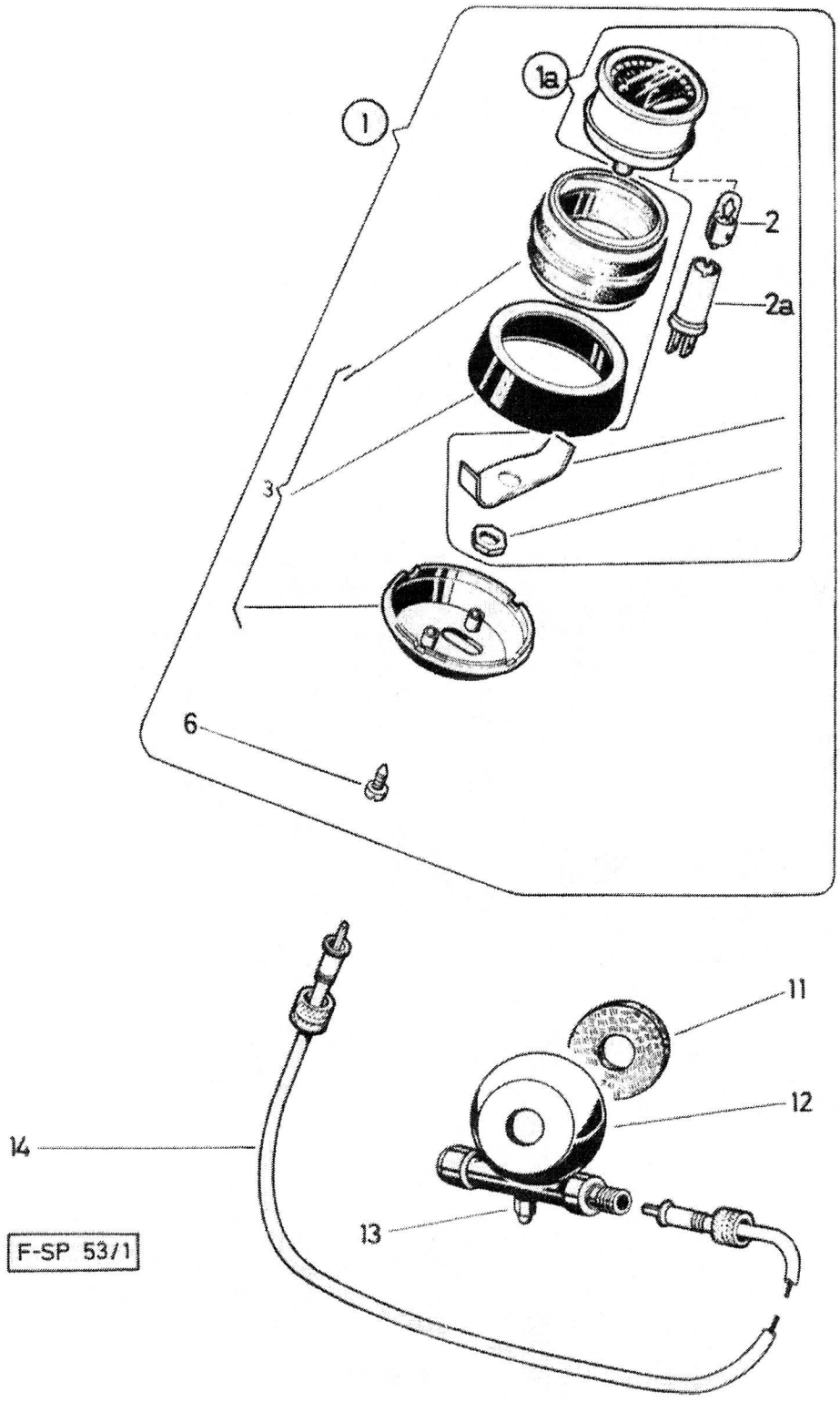
F-SP/53/1

21. HEADLAMP, TAIL-, STOP-LIGHT, RATTLE, HARNESS (cont.)

Ref.-No.	Part-No.	Description	Free Spirit - Model-Nos. 8811770 8811771 8811772 8811773 8811774 8811775 8811776 Requd. No.
61	1057	TAIL-,STOP-LIGHT compl. (ULO)	1 1 1 1 1 1 1
62	2054	PAN HEAD SCREW M5x30 DIN 85	1 1 1 1 1 1 1
63	3101	PAN HEAD SCREW M4,2x55	2 2 2 2 2 2 2
64	80845	LAMP HOUSING	1 1 1 1 1 1 1
65	3277	GASKET	1 1 1 1 1 1 1
66	80836	BULB 6V/5W BA 15s for tail-light	1 1 1 1 1 1 1
67	80835	BULB 6V/10W BA 15s for stop light	1 1 1 1 1 1 1
68	2018	PAN HEAD SCREW M5x12 DIN 85	1 1 1 1 1 1 1
69	3196	BASE PLATE	1 1 1 1 - - -
69	3195	BASE PLATE	- - - - 1 1 1
70	2075	SERRATED LOCK WASHER A5,3 DIN 6798	2 2 2 2 2 2 2
71	2006	HEXAGON NUT M5 DIN 934	2 2 2 2 2 2 2
72	3198	RUBBER RING	2 2 2 2 2 2 2
73	3197	REAR LIGHT REFLECTOR	1 1 1 1 1 1 1
74	80831	FRONT REFLECTOR SET (consist of Ref.No. 30,31 - 2 pieces Ref.No.32 - 1 piece)	1 1 1 1 1 1 1
74a	80833	REAR REFLECTOR SET (consist of Ref.No. 30,31 - 2 pieces Ref.No.32a- 1 piece)	1 1 1 1 1 1 1
75	80885	BULB HOLDER AND CLIP SET (consist of Ref.No. 16 and 17)	- 1 1 1 - - -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1a
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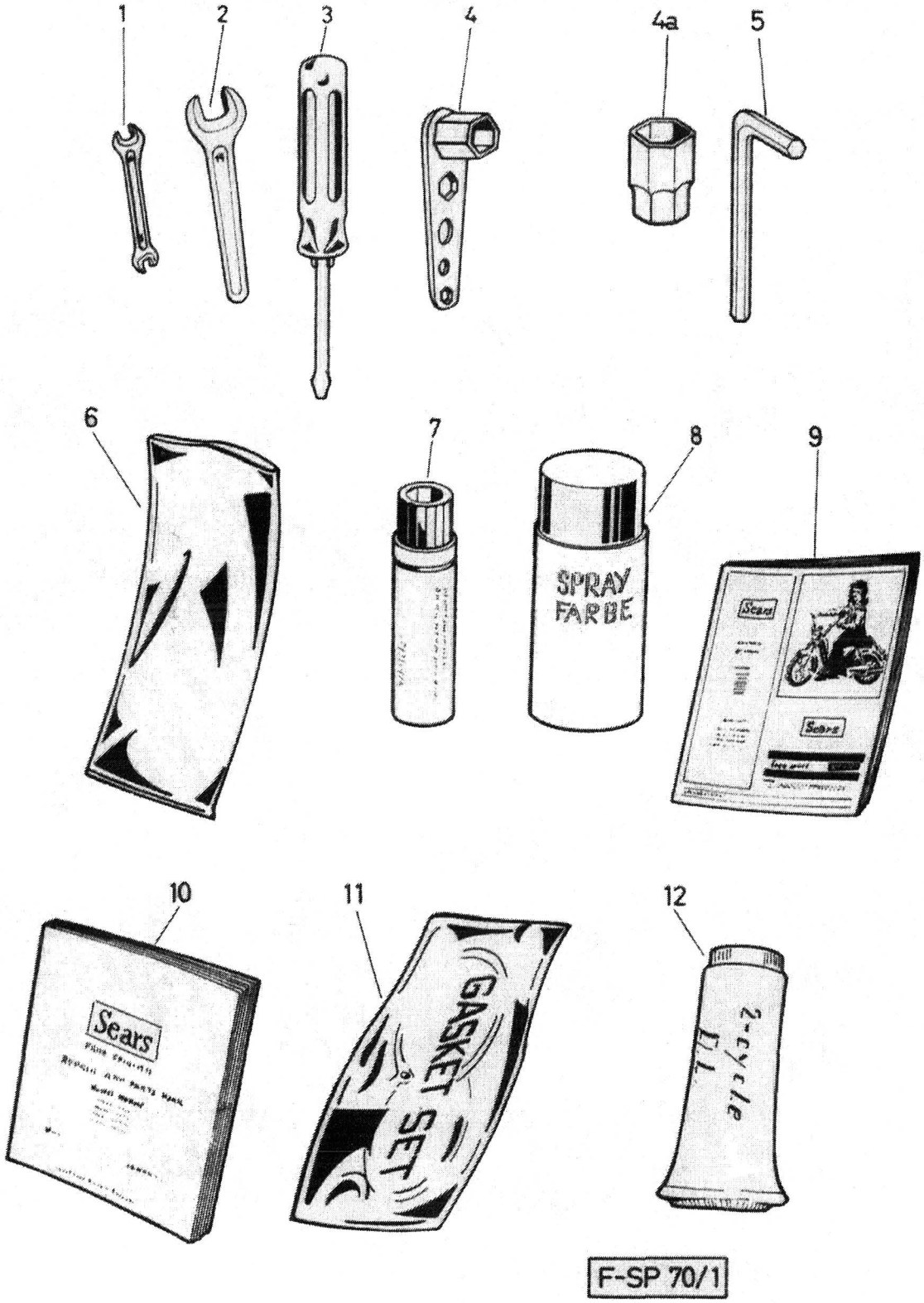
F-SP 53/1

21a. SPEEDOMETER WITH SPEEDOMETER DRIVE

Free Spirit - Model-Nos.

Ref.-No.	Part-No.	Description	81780800	81780810	81780820	81780830	81780840	81780850	81780860
			Requd.No.						
1	3246	SPEEDOMETER with fastening compl.	-	-	-	-	1	1	1
1a	1079	SPEEDOMETER compl. (30mph) Ø60	-	-	-	-	1	1	1
1a	3084	SPEEDOMETER compl. (30mph) Ø60	-	1	1	1	-	-	-
2	80844	BULB 6V 0,6W Sockel Ba7s	-	1	1	1	1	1	1
2a	3192	BULB HOLDER compl.	-	1	1	1	1	1	1
3	1068	SPEEDOMETER HOUSING with Damper compl.	-	-	-	-	1	1	1
6	3001	CHEESE HEAD SCREW Bz3,9x9,5 DIN 7971	-	-	-	-	2	2	2
11	3039	SEALING RING 36/18/5	-	1	1	1	1	1	1
12	1063	SPEEDOMETER DRIVE compl.	-	1	1	1	1	1	1
13	2025	GREASE NIPPLE	-	1	1	1	1	1	1
14	80849	DRIVING SHAFT compl. (625 long)	-	1	1	1	-	-	-
14	80827	DRIVING SHAFT compl. (790 long)	-	-	-	-	1	1	1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4a
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6
7
8
9
SPRAY
FARBE
Sears
Sears
10
11
12
Sears
GASKET
SET
2-cycle
Oil

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Free Spirit - Model-Nos.

22. TOOLS, PUMP

Ref.-No.	Part-No.	Description	81780800	81780810	81780820	81780830	81780840	81780850	81780860
			Requd.No.						
--	3248	TOOLS SET	1	1	1	1	-	-	-
--	3247	TOOLS SET	-	-	-	-	1	1	1
1	2001	WRENCH 8/10	1	1	1	1	1	1	1
2	2099	ONE END WRENCH 19	1	1	1	1	-	-	-
3	3323	SCREW DRIVER	1	1	1	1	1	1	1
4	3324	SOCKET WRENCH(spark plug)	1	1	1	1	-	-	-
4	3086	SOCKET WRENCH(spark plug)	-	-	-	-	1	1	1
4a	3325	SOCKET WRENCH	-	-	-	-	1	1	1
5	2098	SOCKET WRENCH 5 DIN 911	1	1	1	1	1	1	1
6	3276	TOOL BAG	1	1	1	1	1	1	1
7	80837	PAINT STIK, blue (P 5061)	as req.				-	-	-
7	80838	PAINT STIK, red (P 3056)	-	as req.			-	-	-
7	80839	PAINT STIK, silver (RAL 9006)	-	-	-	-	as req.		
8	1076	SPRAY PAINT, blue (P 5061)	as req.	-	-	-	-	-	-
8	1077	SPRAY PAINT, red (P 3056)	-	as req.			-	-	-
8	1078	SPRAY PAINT, silver (RAL 9006)	-	-	-	-	as req.		
9	1095	SEARS OWNERS MANUAL	as requd.						
10	80848	REPAIR and PARTS MANUAL	as requd.						
11	1025	GASKET SET	1	1	1	1	1	1	1
12	80806	2-CYCLE OIL (1,4 oz)	as requd.						
--	1054	NUTS AND BOLTS KIT	as requd.						

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