

REPAIR OPERATIONS (4600 SOLEX)



MOTOBECANE

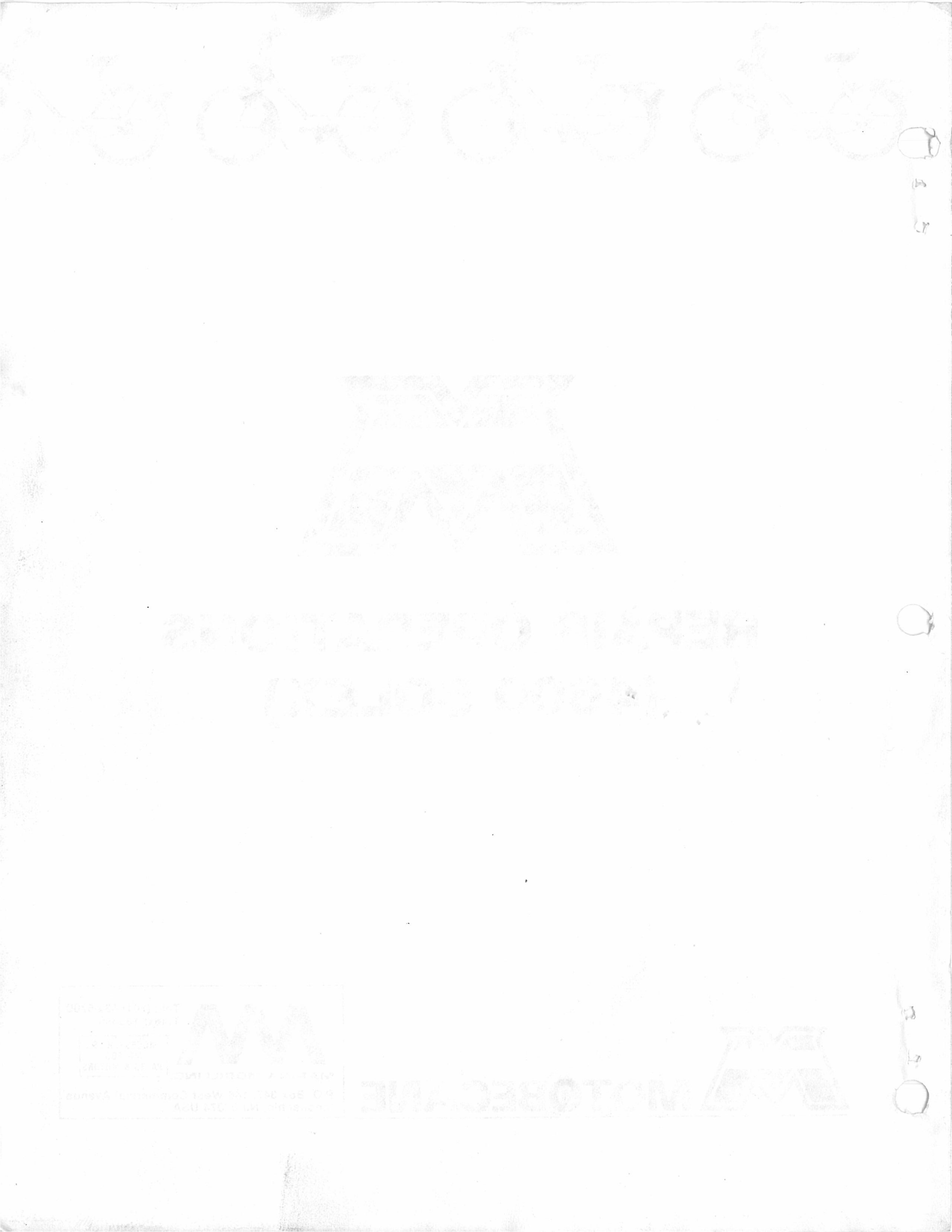


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ACCESSORIES,
MOPEDS,
PARTS & MOTORS



REPAIR OPERATIONS
14500 0004



WESTERN MOTORCYCLE
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TABLE OF CONTENTS

<u>DESCRIPTION</u>	<u>PAGE</u>
Technical Data	1
Theory of a Two-Stroke	2-3
Theory of Ignition	4
Theory of Carburetor	5-6
Carburetor Diagram	7
Clutch and Drive Roller Diagram	8
Theory of Clutch	9
Special Service Tools	10-12
Muffler (Removal and Installation)	13
Engine Guard Rail (Removal and Installation)	14
Engine (Removal and Installation)	15
Magneto Rotor (Removal and Installation)	16-17
Stator Plate Bearing	17-18
Clutch (Removal and Installation)	18
Drive Roller Assembly (Removal and Installation)	19
Fuel Tank (Removal and Installation)	20
Air Filter (Removal and Installation)	21
Cylinder Head (Removal and Installation)	21-22
Cylinder (Removal and Installation)	23-24
Carburetor (Removal and Installation)	24
Crankcase End Cover (Removal and Installation)	25
Connecting Rod (Removal and Installation)	26
Fuel Pump (Removal and Installation)	27
Engine Support Plate (Removal and Installation)	28
Engine Engagement Lever (Removal and Installation)	28
Decarbonizing the Engine	29
Decompression Valve Cable Adjustment	30
Throttle Cable Adjustment	30
Ignition Timing (Check and Adjustment)	31
Engine Component Parts (Diagram)	32-34
Electrical Connections	35-36
Trouble Shooting Guide	37-41
Front Wheel (Removal and Installation)	42
Front Wheel Bearing Service	42-43
Front Brake Assembly (Removal and Installation)	43
Front Brake (Adjustment)	44
Front Fender (Removal and Installation)	45
Steering Races (Removal and Installation)	46
Front Fork (Removal and Installation)	47
Kickstand (Removal and Installation)	47
Pedal Crank Assembly (Removal and Installation)	48
Handlebar (Removal and Installation)	49
Throttle Grip Assembly (Removal and Installation)	49
Hand Grip Assembly (Left) (Removal and Installation)	50
Saddle Assembly (Removal and Installation)	50
Rear Wheel (Removal and Installation)	50
Rear Brake (Removal and Installation)	51
Rear Brake Shoes (Removal and Installation)	51
Rear Brake (Adjustment)	52
Rear Wheel Bearing (Replacement)	52
Rear Fender (Removal and Installation)	52
Rear Carrier (Removal and Installation)	53
Headlamp Assembly (Removal and Installation)	54

TABLE OF CONTENTS

CONT'D.

DESCRIPTION	PAGE
Taillight Assembly (Removal and Installation)	54
Brake Cables (Removal and Installation)	55-56
Throttle Cable (Removal and Installation)	56
Decompression Cable (Removal and Installation)	56-57
Engine (Torque Diagrams)	58-60
Chassis (Torque Diagrams)	61-63
Electrical Schematic (Wiring Diagram)	64

ALPHABETICAL INDEX

<u>DESCRIPTION</u>	<u>PAGE</u>
Air Filter (Removal and Installation)	21
Brakes, Front (Removal and Installation)	43
Brakes, Front (Adjustment)	44
Brakes, Rear (Removal and Installation)	51
Brakes, Rear Shoes (Removal and Installation)	51
Brakes, Rear (Adjustment)	52
Brake Cables (Removal and Installation)	55-56
Carburetor Theory	5-6
Carburetor Schematic	7
Carburetor (Removal and Installation)	24
Carrier, Rear (Removal and Installation)	53
Chassis (Torque Diagrams)	61-63
Clutch Theory	9
Clutch and Roller Schematic	8
Clutch (Removal and Installation)	18
Connecting Rod (Removal and Installation)	26
Crankcase End Cover (Removal and Installation)	25
Cylinder (Removal and Installation)	23-24
Cylinder Head (Removal and Installation)	21-22
Decarbonizing the Engine	29
Decompression Cable (Removal and Installation)	56-57
Decompression Cable (Adjustment)	30
Drive Roller Assembly (Removal and Installation)	19
Electrical Connections	35-36
Electrical Schematic (Wiring Diagram)	64
Engine Guard Rail (Removal and Installation)	14
Engine (Removal and Installation)	15
Engine Support Plate (Removal and Installation)	28
Engine Engagement Lever (Removal and Installation)	28
Engine Component Parts (Schematic)	32-34
Engine (Torque Diagrams)	58-60
Fender, Front (Removal and Installation)	45
Fender, Rear (Removal and Installation)	52
Fork, Front (Removal and Installation)	47
Fuel Pump (Removal and Installation)	27
Fuel Tank (Removal and Installation)	20
Grip, R.H. (Removal and Installation)	49
Grip, L.H. (Removal and Installation)	50
Handlebar Assembly (Removal and Installation)	49
Headlamp Assembly (Removal and Installation)	54
Ignition Theory	4
Ignition Timing (Check and Adjustment)	31
Kickstand (Removal and Installation)	47
Magneto Rotor (Removal and Installation)	16-17
Muffler (Removal and Installation)	13
Pedal Crank Assembly (Removal and Installation)	48
Saddle Assembly (Removal and Installation)	50
Stator Plate Bearing (Removal and Installation)	17-18
Steering Races (Removal and Installation)	46
Taillight Assembly (Removal and Installation)	54
Technical Data	1
Throttle Cable Adjustment	30
Throttle Cable (Removal and Installation)	56

ALPHABETICAL INDEX
CONT'D.

<u>DESCRIPTION</u>	<u>PAGE</u>
Tools, Special Service	10-12
Trouble Shooting Guide	37-41
Two-Stroke Theory	2-3
Wheel, Front (Removal and Installation)	42
Wheel, Front Bearing Service	42-43
Wheel, Rear (Removal and Installation)	50
Wheel, Rear Bearing Service	52

TECHNICAL DATA

DIMENSIONS

Overall Length:	66 inches
Overall Width:	24 inches
Overall Height:	41-3/4 inches
Weight:	68 pounds

FRAME

Type:	Pressed Steel
Brakes - Front:	Caliper
- Rear:	Internal Expansion
Tire - Size:	1.75 X 19
- Pressure	
Front and Rear:	28 p.s.i.
Fuel Capacity:	1/3 U.S. gallons
Fuel Mixture:	Mix four ounces of a high quality two-stroke oil with one gallon of unleaded gasoline.

ENGINE

Type:	Single Cylinder, Two-stroke
Power:	0.8 H.P.
Capacity:	49 cc

ELECTRICAL SYSTEM

Ignition and Lighting:	Flywheel
Spark Plug:	Champion L86, Autolite AE32, Bosch W175 T1
Headlamp:	Sealed Beam 6 volt
Tail/Stop light:	Trade No. 1154 6 volt

PERFORMANCE

20 MPH

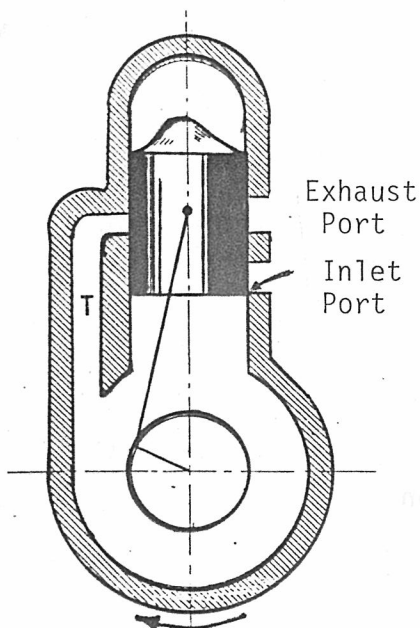
IDENTIFICATION

Engine Number:	Seven digit number engraved on the rear of the engine housing. 9.6
Serial Number:	Located on the Frame Steering. 9.1

FINISH

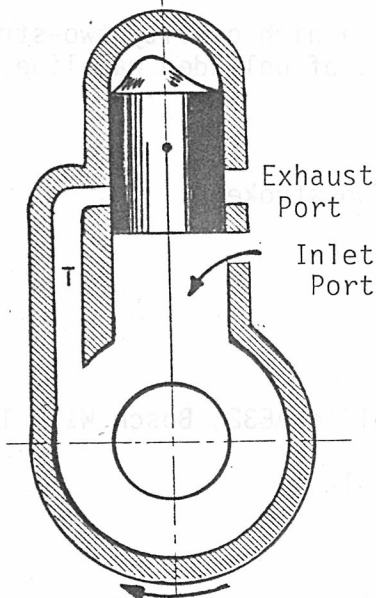
Optional:	Prior to January 1, 1978 - orange, yellow, blue. After January 1, 1978 - Black, yellow
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PRINCIPLE OF OPERATION OF THE 2-CYCLE ENGINE

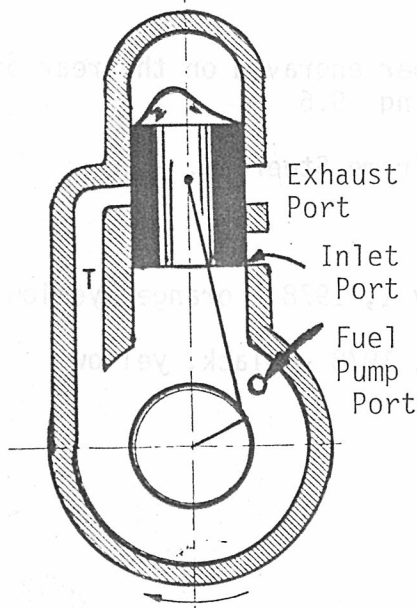


As the piston rises, it opens the inlet port and begins to draw a fresh mixture into the crankcase.

This is because the increasing crankcase volume lowers the crankcase air pressure below atmosphere. At the same time, combustion chamber pressure begins to increase.



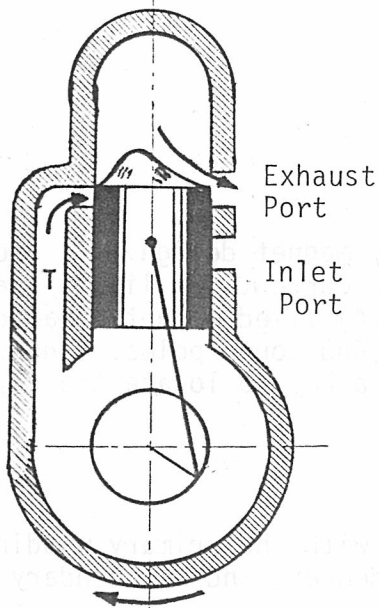
Piston reaches top of its stroke, spark plug ignites the mixture.



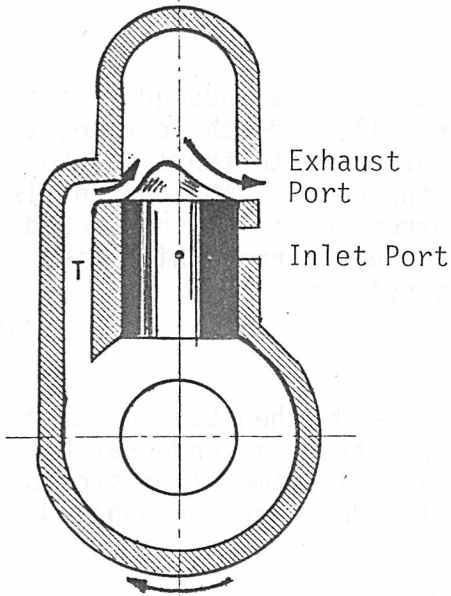
Rapid expansion of ignited mixture pushes the piston down. Inlet port closes.

1. Fuel Supply - As piston descends in cylinder, it creates air pressure in the crankcase which escapes through the fuel pump port in crankcase to the fuel pump causing the fuel pump membrane to expand. As piston rises in cylinder, a vacuum is created inside the crankcase causing the fuel pump membrane to contract. This process now creates a pumping action in the fuel pump, and to keep the gas flowing in an upward direction to the carburetor, the pump has two check balls which act as one way valves.

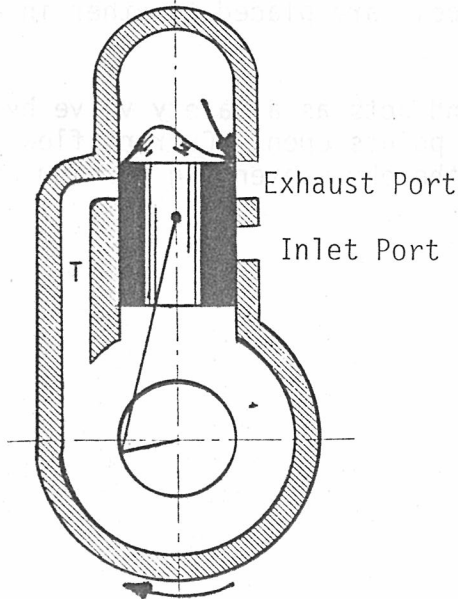
PRINCIPLE OF OPERATION OF THE 2-CYCLE ENGINE
CONT'D.



Exhaust begins. The burned gas is forced out due to high pressure in the combustion chamber.



Transfer port opens. Descending piston forces fresh mixture through transfer port to combustion chamber. The incoming fresh mixture help to push exhaust mixture out.



Exhaust port closes. Compression begins.

IGNITION SOLEX 4600

FLYWHEEL MAGNETO

The Solex ignition magneto is of a compact, rotary magnet design. It provides a high voltage for the spark plug and low voltage current for lights and horn. Facing each other inside the flywheel are four (4) fixed magnets spaced at 90 degrees. Alternate magnets show alternate north and south poles. Inside the flywheel there is a cam which opens the points and a key to locate the flywheel on the crankshaft.

IGNITION CIRCUIT

The ignition circuit consists of an ignition coil with the primary winding, contact points to interrupt the primary circuit, a condenser, and a secondary winding.

OPERATION

As the flywheel magnets rotate past the coil, a current is induced in the primary winding. The primary winding of the ignition coil sends the current to the moving contact which, at the closed position, is grounded to the fixed contact. As the flywheel rotor revolves, the cam opens the points; the current is no longer grounded and, therefore, must move. The current moves to the secondary winding of the ignition coil, producing a high tension current which goes to the spark plug lead and ignites the mixture in the cylinder.

THE CONDENSER

A condenser is a tight roll of two strips of foil sandwiched between three insulator strips. Because of its large metallic surface area, a condenser has the ability to store small amounts of electrical energy. The amount of stored energy depends on the condenser size (rated in micro-farads), and the applied voltage.

Furthermore, electrical oscillations, a phenomenon known as resonance, occurs whenever a charged condenser and matched inductive coil are placed together in a closed circuit.

The condenser is in parallel with the points and acts as a safety valve by providing a path for the current to follow when the points open. Current flows to the condenser instead of jumping the point gap, thereby preventing burning of the points.

CARBURETOR SOLEX 4600

1 - PRINCIPLE

The Solex carburetor is supplied with fuel by a crankcase pressure activated fuel pump. Fuel is pumped from the fuel tank through the fuel pump to the carburetor at which time the fuel needed is metered through the fuel jet, combined with air. This mixture goes to the cylinder.

The Solex carburetor consists of 13 parts:

1. Carburetor body with diffuser
2. Air jet
3. Fuel jet
4. Inlet manifold olive
5. Inlet manifold nut
6. Choke assembly
7. Choke lever
8. Throttle barrel
9. Cable bracket
10. Carburetor slide
11. Slide fixing bolt
12. Slide spring
13. Carburetor filter

2 - OPERATION

The fuel is delivered to the carburetor through the fuel supply pipe, at which time it is filtered (A). The amount of fuel needed is then metered by the fuel jet (B) into the cylinder, and the surplus fuel delivered by the pump is returned to the fuel tank through the overflow pipe (C). This principle avoids the need of a float because there is always the proper amount of fuel at the jet.

After the fuel is metered through the fuel jet, it combines with air from the air jet (D) through the choke assembly (E) to the mixing chamber (F) and proceeds through the diffuser (G) which vaporizes the fuel mixture. This vaporized fuel mixture proceeds through the air horn (H), through the throttle barrel (I), to the inlet pipe, then to the cylinder when the inlet port is opened. (See action of piston.) (Page 2 and 3)

CARBURETOR
SOLEX 4600

CONT'D.

3 - THROTTLE BARREL

The throttle barrel controls the amount of the vaporized fuel entering into the cylinder.

When completely opened, it draws more air through the air horn, which in turn increases the fuel mixture in the diffuser, which in turn causes the motor to turn faster.

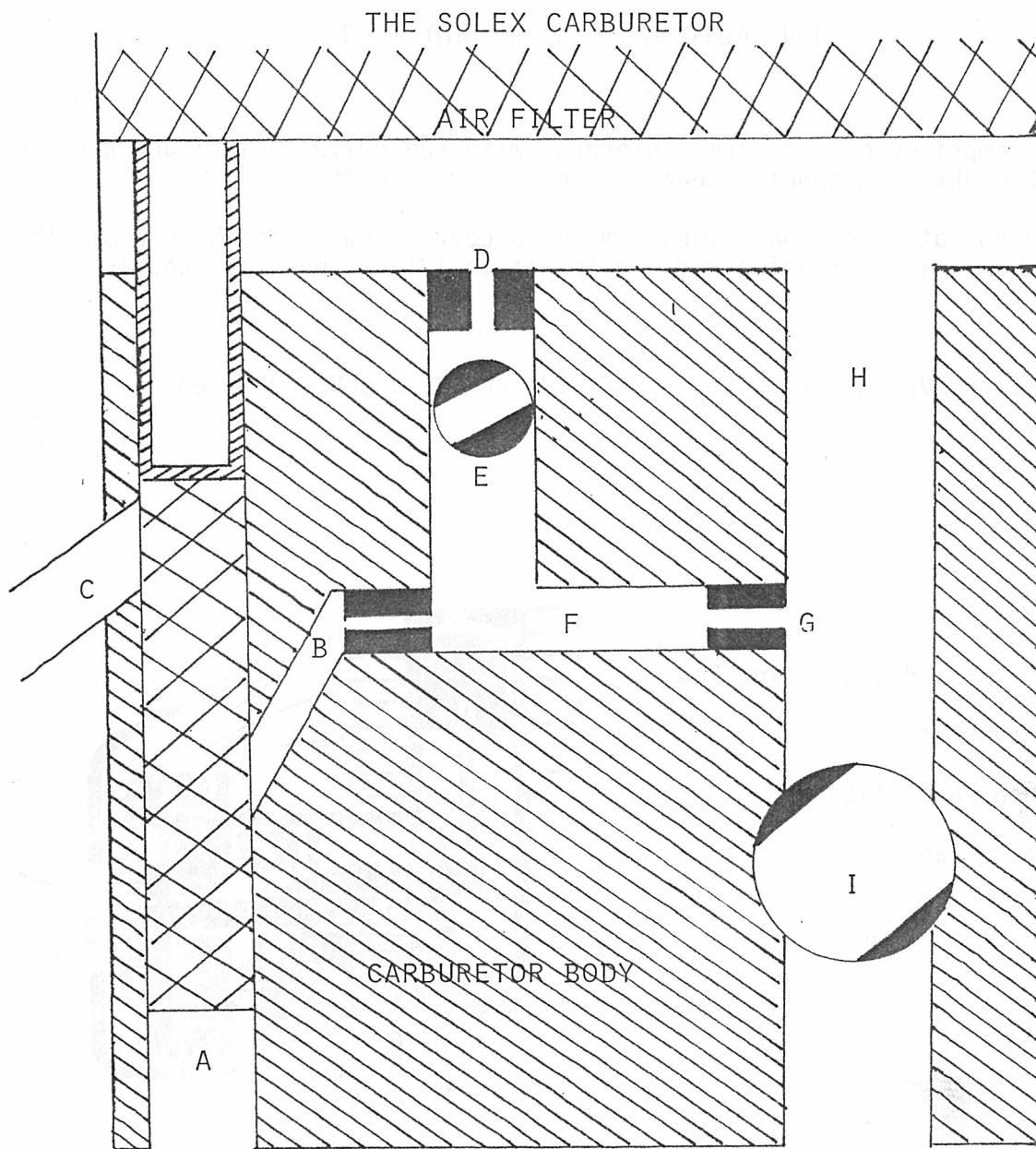
As the throttle barrel closes, the amount of air drawn through the air horn decreases, which in turn decreases the fuel mixture in the diffuser, which in turn causes the motor to turn slower.

4 - IDLE

The throttle barrel has been modified by the factory to give a proper control when idling. There is a special manufactory control on this modified barrel indicated by a blue spot on the carburetor body. This modification is so critical that the company does not wish you making this operation, but suggests you replace this part if the carburetor does not have this control mark.

5 - CHOKE

The choke lever controls the amount of air entering through the air jet. By closing the choke lever, you decrease the amount of air, thereby enriching the fuel mixture in the mixing chamber, which in turn creates more combustion in the cylinder; thus, allowing your engine to start more easily when cold.



- A - Fuel Filter
- B - Fuel Jet
- C - Overflow Pipe
- D - Air Jet
- E - Choke Assembly
- F - Mixing Chamber
- G - Diffuser
- H - Air Horn
- I - Throttle Barrel

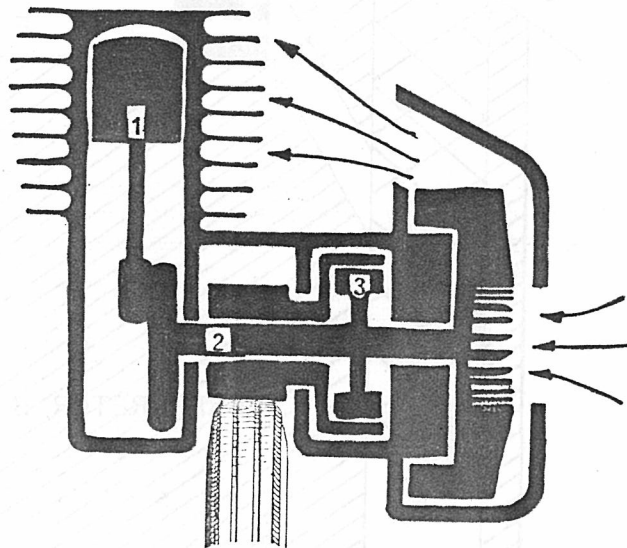
THE AUTOMATIC COMPOUND CLUTCH

It is comprised of: a drum, integral with the drive roller, and a system of bobweights and shoes integral with the crankshaft.

The vaned rotor and the flywheel magneto cover form a fan which cools the engine when it is running and enables it to idle without overheating.

WARNING: NEVER RUN THE ENGINE WITH THE FLYWHEEL COVER REMOVED.

- 1 Piston and Connecting Rod
- 2 Crankshaft
- 3 Shoe Base Plate
- 4 Rotor Fan

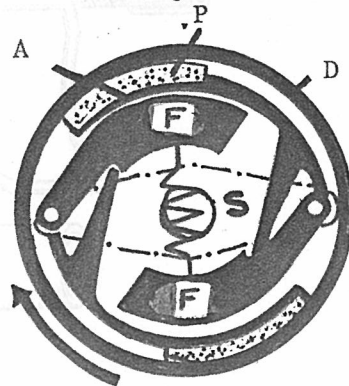


SOLEX CLUTCH

The compound clutch is a single action, centrifugal clutch that starts the engine as well as propels the machine.

STARTING THE ENGINE

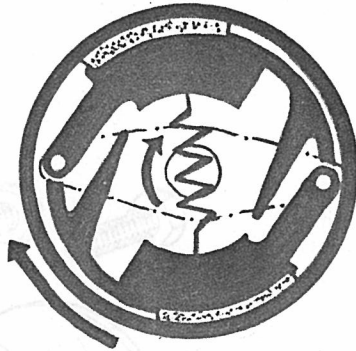
When stationary, the flyweights (F), due to the action of the springs (S), press the centrifugal clutch arms (A) and pads (P) against the drive roller drum (D). When the front wheel begins to revolve, the engine is turned.



NORMAL RUNNING

When the throttle is opened the speed of the engine increases, forcing the flyweights further away from each other, thus forcing the centrifugal clutch arms and pads further against the drive roller drum transmitting power from the crankshaft to wheel through the drum and the drive roller.

Normal RPM at full speed is 3800 RPM.

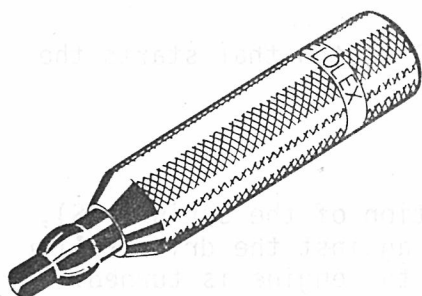


SLOW DOWN AND IDLE

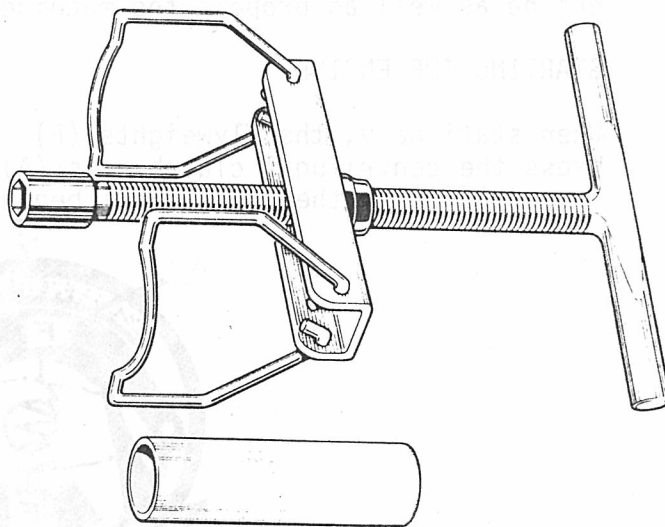
When the engine reached idling speed (1500 RPM), the flyweights move outwards due to centrifugal force. During this time, the centrifugal force is overridden by the power of the springs. The pressure of the pads on the drum is reduced by the contraction of the centrifugal clutch arms allowing the clutch pads to slip while the engine continues to run. Power is now discontinued from the drive roller drum and drive roller allowing the engine to idle.



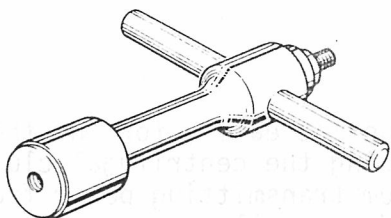
SPECIAL SERVICE TOOLS



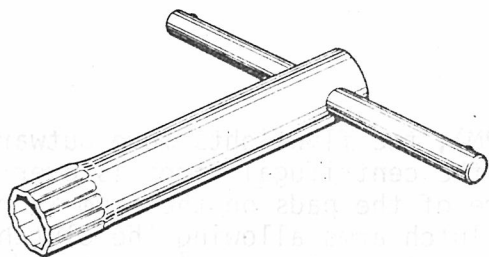
PART NO. 200001
VALVE REAMER



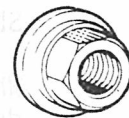
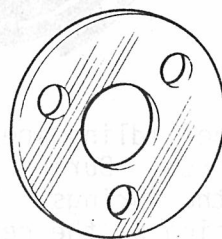
PART NO. 200004
STATOR PLATE EXTRACTOR
AND INSTALLER



PART NO. 200002
STUD EXTRACTOR

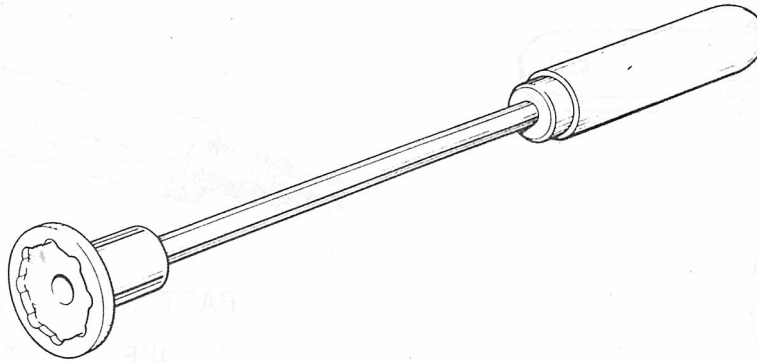


PART NO. 200003
21MM DEEP SOCKET

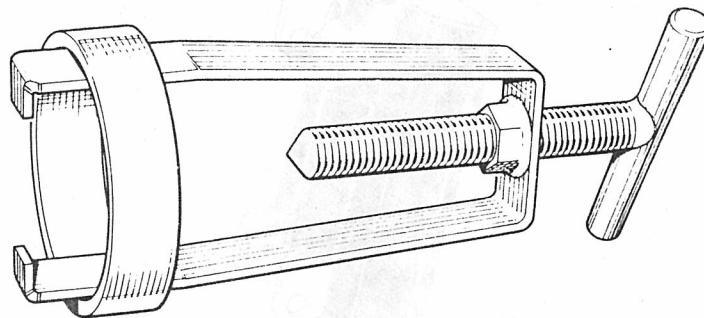


PART NO. 200005
FLYWHEEL PULLER

SPECIAL SERVICE TOOLS
CONT'D.

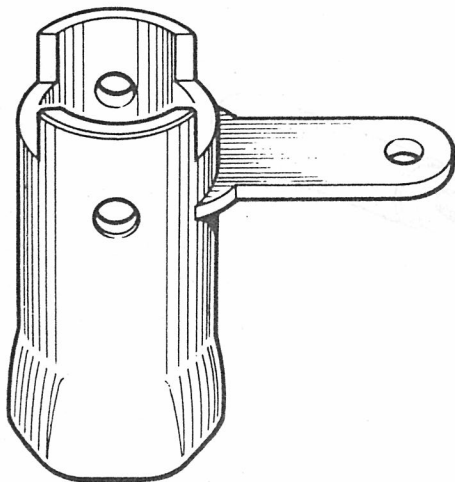


PART NO. 200006
BRAKE TOOL

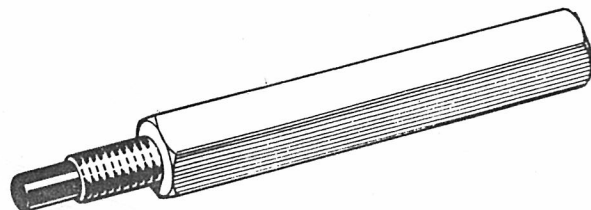


PART NO. 200007
BEARING EXTRACTOR

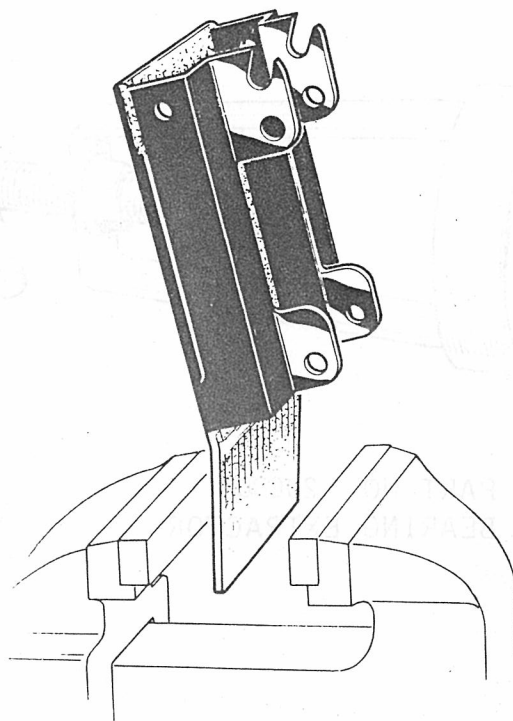
SPECIAL SERVICE TOOLS
CONT'D.



PART NO. 200008
CLUTCH LIMITER



PART NO. 200009
STROKE LIMITER



PART NO. 200010
ENGINE MOUNT PLATE

REPAIR OPERATIONS THE ENGINE

The following operations are described in a sequence which results in complete disassembly of the engine, if reassembly of each operation is not carried out.

REMOVAL OF THE MUFFLER (fig. 1)

Loosen, but do not remove, the nut securing the muffler to the mudguard.

Loosen the nut securing the exhaust pipe to the right hand engine support (9mm wrench).

Pull on the muffler to remove it from the mudguard.

Pull the muffler outwards, while pulling down on the exhaust pipe near the engine support, and free the pipe from the upper section of the exhaust pipe.

Solex owners are advised to consult their dealer at each 3600 miles for muffler inspection.

The muffler should be replaced at this interval if restricted at all.

When fitting a new muffler, check that no obstruction enters the exhaust pipe.

REASSEMBLING THE MUFFLER

Reassemble in reverse sequence.

NOTE: THE MUFFLER STAY MUST BE INSERTED BETWEEN THE MUDGUARD SUPPORT AND THE MUDGUARD AND PUSHED IN FULLY TO PREVENT VIBRATION. LEAVE A SPACE BETWEEN THE EXHAUST PIPE AND THE FRONT FORK TO PREVENT NOISE VIBRATION. IF THE MUFFLER COMES IN CONTACT WITH THE FRONT FORK AFTER TIGHTENING THE MUFFLER MOUNTS, PRY IT AWAY USING A HEAVY SCREWDRIVER.

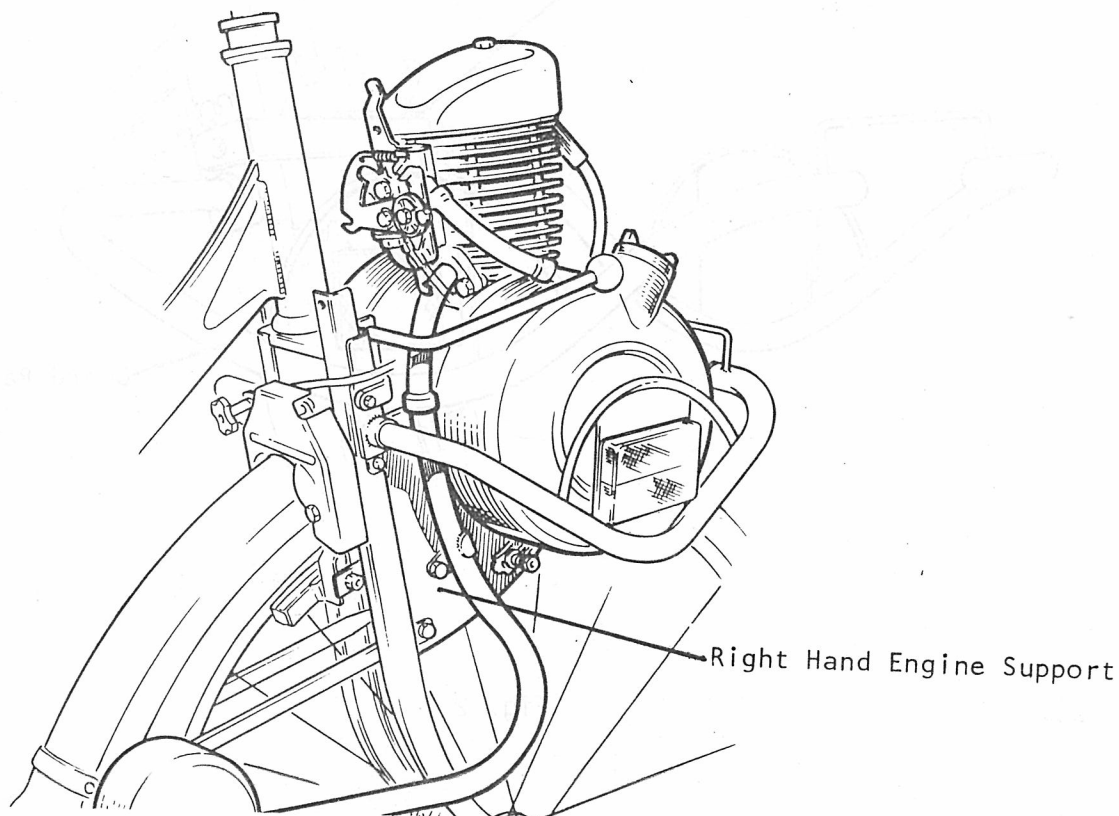


Fig. 1

REPAIR OPERATIONS THE ENGINE

CONT'D.

REMOVAL OF THE ENGINE GUARD RAIL (fig. 2)

Loosen the bolt securing the engine guard rail to the fork assembly (9mm wrench).

Remove the clamp.

Pull gently on each side of the engine guard rail at the clamp position and lift the rail forward and over the engine.

REASSEMBLING THE ENGINE GUARD RAIL

Reverse the procedure.

NOTE: THERE ARE TWO CAPS INSIDE OF THE ENGINE GUARD RAIL TUBE.

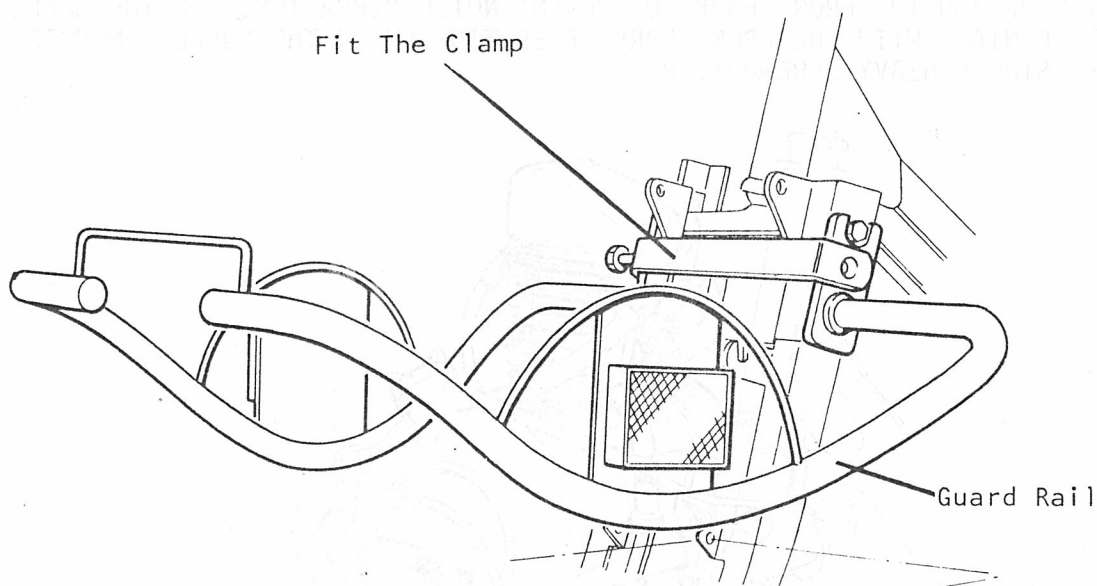


Fig. 2

REPAIR OPERATIONS THE ENGINE

CONT'D.

REMOVAL OF THE ENGINE (fig. 1)

Set the machine on the support stand.
Loosen the front brake (Tool No. 200006).
Remove the front wheel (14mm wrench).
Remove the flywheel cover.
Remove the engine cover.
Disconnect the lighting wires.
Disconnect the throttle and decompressor cable (7 and 9mm wrench).
Loosen the nuts on each side of the engine supports and remove the bolts (9mm wrench).

Loosen, but do not remove, the upper nuts on each side of the engine supports (9mm wrench).
Lift the engine from the fork support slots and remove.

INSTALLATION OF THE ENGINE

Reverse the procedure.

NOTE: AFTER REASSEMBLING, CHECK AND ADJUST:

THROTTLE (Page 30)

DECOMPRESSOR (Page 30)

FRONT BRAKE ADJUSTMENT (Page 44)

CHECK LIGHTING AND HORN

REMOVAL OF THE ROTOR (fig. 4)

Remove the stroke limiter plug and insert the stroke limiter as described.
Unscrew the stroke limiter slowly while turning the flywheel and stop as soon as the flyweight just catches the stroke limiter (Tool No. 200009).

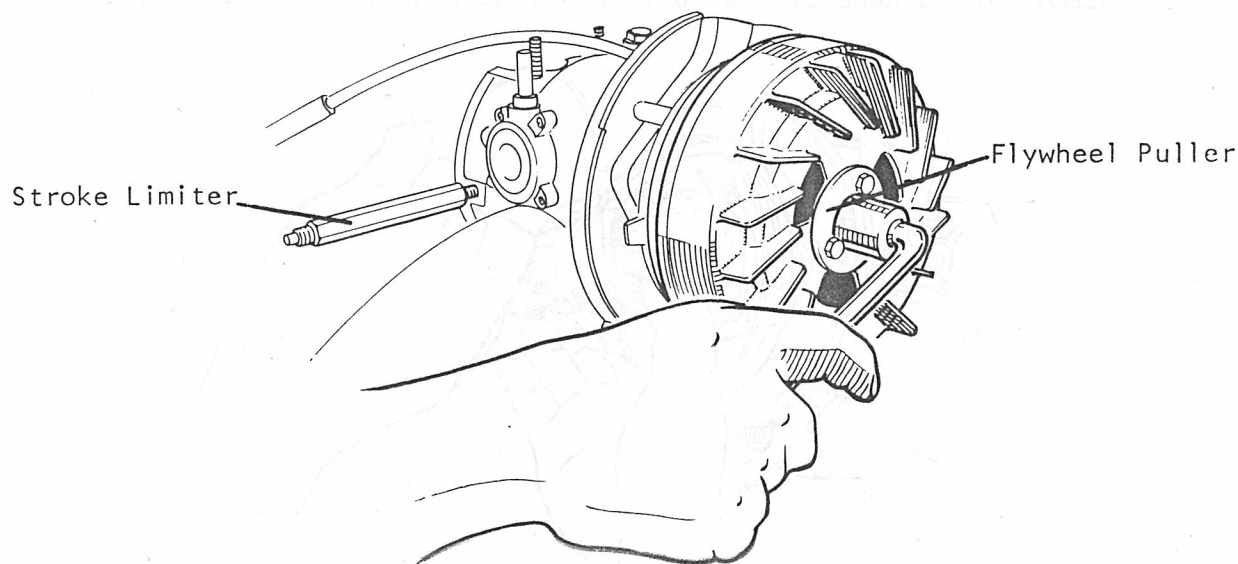


Fig. 4

REPAIR OPERATIONS THE ENGINE

CONT'D.

Loosen the flywheel cover plate nut and remove the plate and rubber seal (14mm wrench).

Remove the rotor nut (14mm wrench).

Install the flywheel puller nut with the flange of the nut to the rear (Tool No. 200005).

Install the flywheel puller plate on the flywheel and tighten the three fixing bolts (9mm socket) (fig. 4).

Loosen the flywheel puller nut until a cracking noise is heard (14mm socket). Continue to loosen the flywheel puller nut and remove the rotor.

Remove the flywheel puller plate and the nut from the rotor (9mm wrench).

Place the rotor on the workbench with the open side up to prevent foreign metal objects connecting with the magnets.

REASSEMBLING THE ROTOR

Lightly oil the felt pad on the stator plate assembly.
Reverse the removal procedure.

NOTE: THE KEY ON THE ROTOR BUSHING ALIGNS WITH THE SLOT ON THE CRANKSHAFT.

REMOVAL OF THE STATOR AND STATOR BEARING (fig. 5)

Loosen the two bolts securing the top left horn coil and remove (7mm wrench). Turn the coil to one side and reinstall the bolts (7mm wrench).

Loosen the drive roller cleaning bolt and disconnect the spark plug lead from the stator plate and wires (fig. 5).

Loosen the bolt securing the engine engagement lever. Do not remove (9mm wrench).

Loosen the two stator plate fixing bolts and install the stator plate puller tool on the crankshaft (Tool No. 200004).

NOTE: REMOVE THE STROKE LIMITER BUT DO NOT REPLACE THE STROKE LIMITER PLUG.

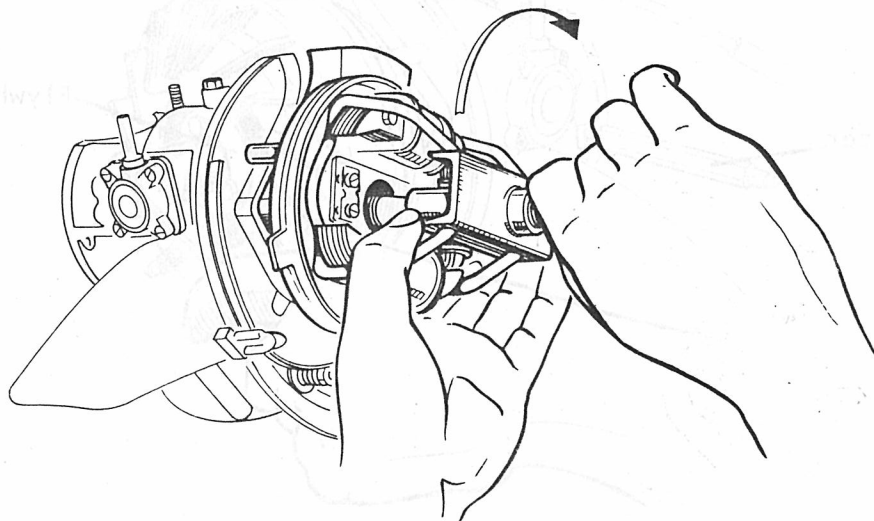


Fig. 5

REPAIR OPERATIONS THE ENGINE
CONT'D.

Screw in the stator plate puller wings until each wing fits over the corners of the ignition and lighting coils. Hold wings firmly and screw in the stator plate puller until stator plate is free of the crankshaft (fig. 5).

Remove the stator plate puller.
Remove the stator.

REMOVAL OF THE STATOR BEARING

Insert the stroke limiter (Tool No. 200009).
Install the bearing extractor tool with the tool flanges over the bearing (Tool No. 200007).
Screw in the extractor and remove the bearing.

REASSEMBLING THE STATOR BEARING

Lightly spray lubricate the inside lips of the bearing.
Heat the stator housing and insert the bearing with the open side of the bearing in the stator housing.

REASSEMBLING THE STATOR (fig. 6)

Insert the stator plate bolts.
Align the stator plate with the engine engagement lever bolt.
Fit the stator plate puller extension pipe on the tool and install the puller on the crankshaft (Tool No. 200004).

Turn the wings of the stator plate puller clockwise until the stator is installed on the crankshaft.

NOTE: INSTALL THE STATOR ON THE CRANKSHAFT TO WITHIN 1/8 INCH OF ITS SEATING.

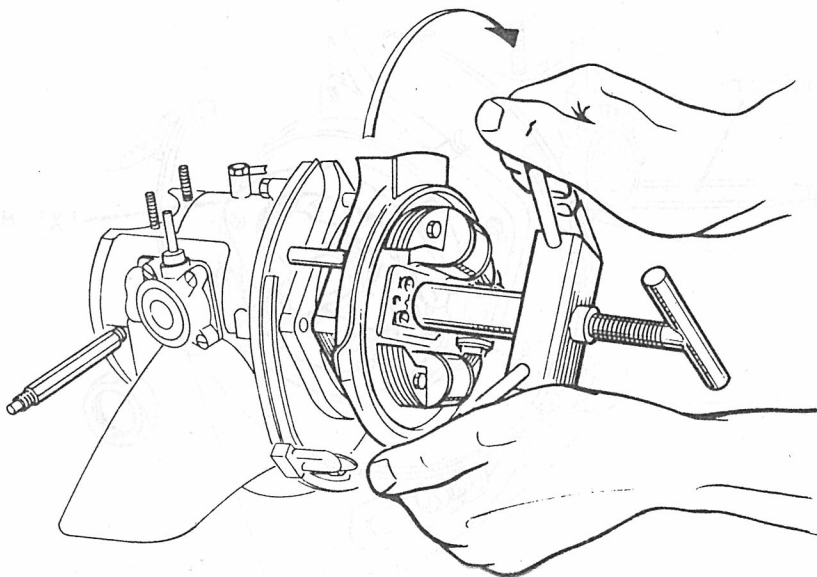


Fig. 6

REPAIR OPERATIONS THE ENGINE

CONT'D.

Tighten the engine engagement lever bolt by hand. Tap on the stator to correctly align.

Tighten the stator plate puller wings until the stator is fully seated.

Tighten the engine engagement lever bolt fully (9mm wrench).

Remove the stator plate puller.

Tighten stator plate bolts (9mm wrench).

REMOVAL OF THE CLUTCH (fig. 7)

Loosen the nut securing the clutch assembly to the crankshaft (Tool No. 200003).

Using both index fingers, expand the flyweights and withdraw the clutch assembly from the drive roller housing.

NOTE: INSPECT THE CLUTCH LININGS AND REPLACE THE CLUTCH ASSEMBLY IF WORN.

REASSEMBLING THE CLUTCH

NOTE: THE "X" MARKED ON THE CLUTCH ARMS INDICATES THE OUTWARD FACING SIDE OF THE CLUTCH WHEN MOUNTED (FIG. 7).

Squeeze the flyweights together and insert in the drive roller housing.

Install the nut on the crankshaft.

Fit the clutch wrench over the nut with the arm of the wrench aligned with the front side of the engine engagement lever bolt hole. Insert a bolt through the arm of the wrench into the bolt hole to hold the clutch wrench firmly (Tool No. 200008).

Tighten the crankshaft nut fully.

Remove the bolt and clutch wrench (Tool No. 200008).

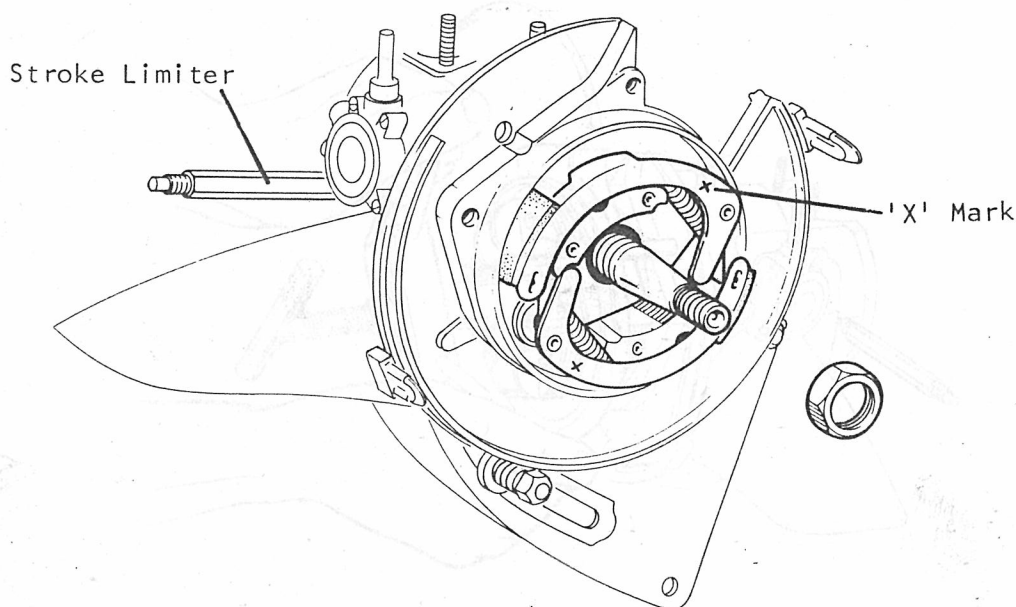


Fig. 7

REPAIR OPERATIONS THE ENGINE

CONT'D.

REMOVING THE DRIVE ROLLER ASSEMBLY (fig. 8)

With the left index finger, press one side of the oil seal while rocking the seal on the other side with the right index finger. Gradually withdraw the oil seal over the thread of the crankshaft and remove.

Remove the drive roller nut and washer (Tool No. 200003).
Remove the drive roller.

REASSEMBLING THE DRIVE ROLLER ASSEMBLY

Lightly grease drive roller between the roller and crankcase flanges.
Align the flange of the drive roller with the engine engagement lever bolt hole and insert a bolt.
Fit the washer and drive roller nut and tighten slightly (Tool No. 200003).
Fit the oil seal.

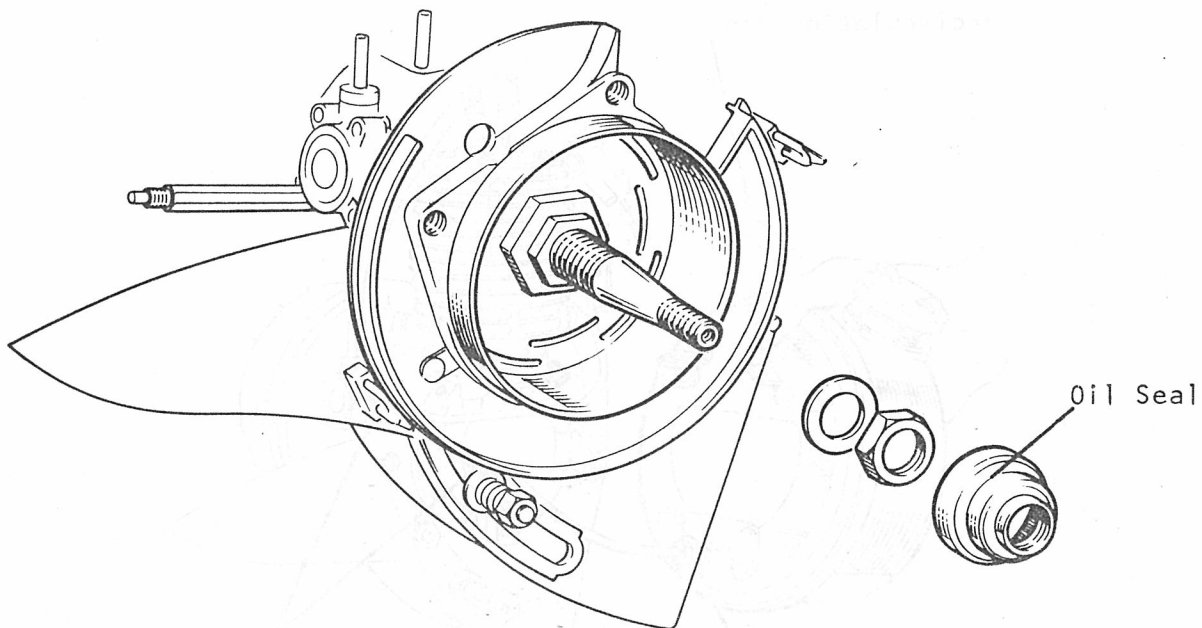


Fig. 8

REPAIR OPERATIONS THE ENGINE

CONT'D.

REMOVAL OF THE FUEL TANK (fig. 9)

Disconnect the fuel recirculation pipe from the carburetor.

Loosen the fuel inlet pipe nut on the fuel pump (9mm wrench).

Loosen the fuel tank mounting bolts (9mm wrench).

Remove the fuel tank (fig. 9).

Loosen the fuel outlet pipe nut.

A fuel filter is located at the fuel outlet. To remove the filter, insert a 2", #6 or 8 sheet metal screw in the fuel outlet. Screw into the filter and pull.

Replace the gas tank filter if fouled.

REASSEMBLING THE FUEL TANK

Reverse the procedure.

NOTE: NEVER TIGHTEN THE FUEL OUTLET PIPE EXCESSIVELY.

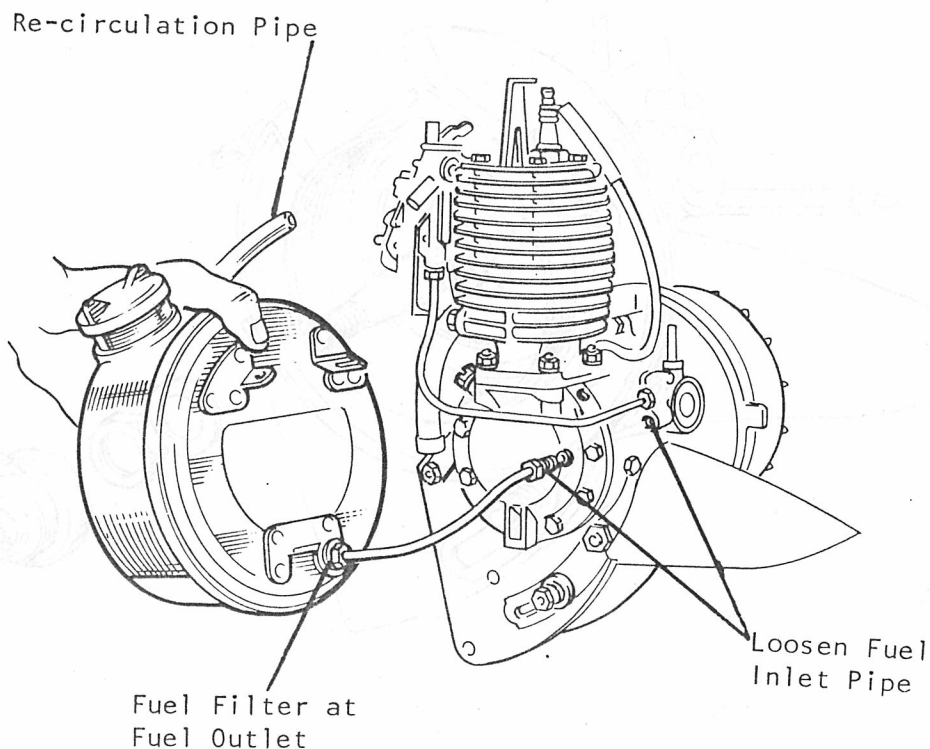


Fig. 9

REPAIR OPERATIONS THE ENGINE

CONT'D.

REMOVAL OF THE AIR FILTER (fig. 10)

Loosen the air filter cover and remove the air filter unit (9mm wrench). Hold the cover and tap lightly on the protruding lip of the air filter housing until the cover is free of the housing. Pry the filter ring loose and remove the filter (screwdriver).

REPLACING THE AIR FILTER

Reverse the procedure.

NOTE: CHECK THAT THE GASKET ON THE CARBURETOR INLET IS IN POSITION.

REMOVAL OF THE CYLINDER HEAD (fig. 11)

Disconnect the lead to the spark plug and remove the spark plug lead (9mm wrench).

Loosen the spark plug (Tool No. 200003).

Loosen the cylinder head bolts and remove the cylinder head (9mm wrench).

Remove the air filter support bracket.

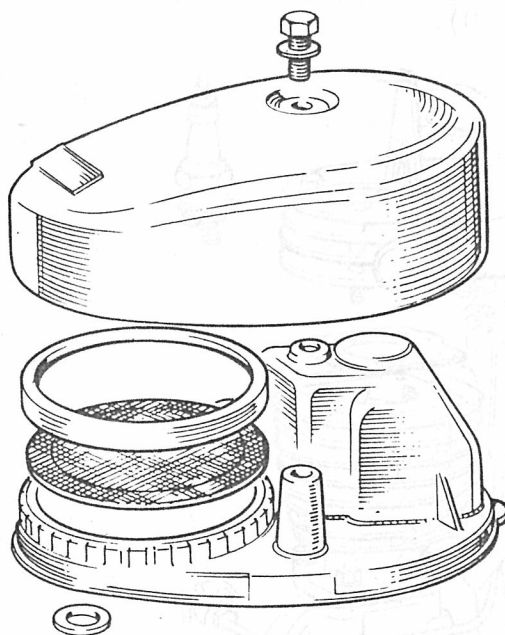
Remove the decompressor cylinder head plate.

Remove cylinder head spacers.

Loosen and remove the brass nut connecting the decompressor valve assembly.

Scrape all carbon deposits from the cylinder head. Do not scrape the decompressor valve seat (scraper).

Place a little oil in the decompressor valve port and insert the valve reamer to clean the port (Tool No. 200001).



Carburetor Inlet Gasket

Fig. 10

REPAIR OPERATIONS THE ENGINE

CONT'D.

REASSEMBLING THE CYLINDER HEAD

NOTE: ALWAYS FIT A NEW DECOMPRESSOR VALVE AFTER HAVING REAMED THE CYLINDER HEAD VALVE SEAT.

Insert the decompression valve in the cylinder head with the slot on the valve end facing a 1 o'clock direction (screwdriver).

Place the valve spring on the valve and fit the decompressor valve brass nut.

Tighten the nut also aligning the slot in the nut to the 1 o'clock direction (9mm wrench).

Hold the decompressor valve and loosen the nut counter clockwise one complete turn.

NOTE: ALWAYS FIT A NEW CYLINDER HEAD GASKET.

Fit the gasket, and place the cylinder head in position in the cylinder.

Insert the air filter support bracket in the slots on the cylinder head with the screw hole facing to the front of the motor.

Insert the cylinder head spacers.

Fit the decompressor cylinder head plate in position and connect the engine decompressor lever in the slot in the decompressor valve.

Insert the cylinder head bolts placing one washer on the top of the plate on the cylinder head bolt at the decompressor lever.

Tighten the cylinder head bolts progressively at opposite corners to 8.5 - 9 ft. lbs. (9mm wrench).

NOTE: NEVER TIGHTEN THE CYLINDER HEAD BOLTS EXCESSIVELY.

If the decompressor cable has been disconnected, connect and adjust the decompressor as described (Page 30).

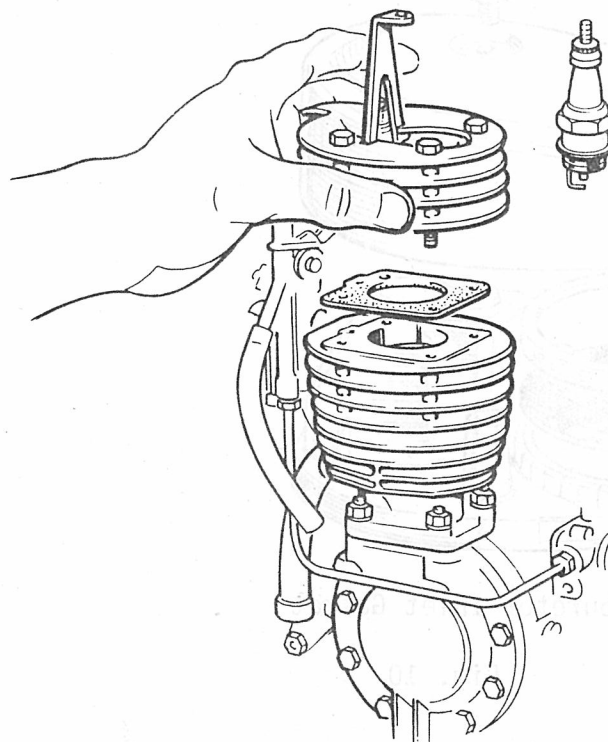


Fig. 11

REPAIR OPERATIONS THE ENGINE

CONT'D.

REMOVAL OF THE CYLINDER (fig. 12)

Disconnect the fuel recirculation pipe on the fuel pump.
Loosen but do not remove the fuel inlet pipe nut on the carburetor and turn it (14mm wrench).

Loosen the lower cylinder mounting nuts and take off the lockwashers (9mm wrench).

Remove the stroke limiter plug and insert the stroke limiter (Tool No. 200009).
Turn the flywheel in a counterclockwise direction until the crankshaft flyweight catches against the stroke limiter.

Turn the flywheel in the opposite direction until the other end of the crank flyweight catches the stroke limiter.

Unscrew the stroke limiter slightly.

Turn the flywheel in a clockwise direction about $\frac{1}{2}$ inch and screw in the stroke limiter fully.

The piston will be held in the T.D.C position.

Remove the cylinder and gasket (fig. 12).

Loosen the bolts securing the exhaust manifold and remove the manifold, gasket and carburetor (fig. 13) (9mm wrench).

Scrape carbon deposits from the cylinder exhaust port and clean the decompressor vertical port on top of the cylinder (scraper).

Clean the manifold exhaust port (scraper).

REASSEMBLING THE CYLINDER

Reverse the procedure.

NOTE: ALWAYS FIT NEW EXHAUST MANIFOLD AND CYLINDER BASE GASKETS AFTER REMOVAL.

Place the slots on the stop and bottom piston rings facing to the front and the slot on the center piston ring facing the 11 o'clock direction. Oil the piston.

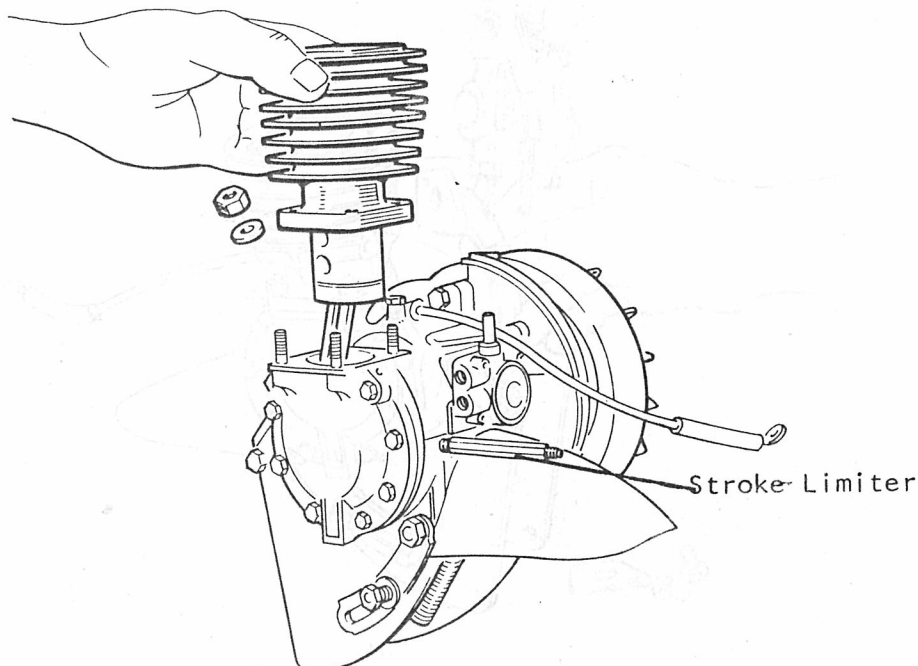


Fig. 12

REPAIR OPERATIONS THE ENGINE

CONT'D.

Check the condition of the cylinder mounting studs. If bent or damaged, extract and fit new studs with the stud extractor (Tool No. 200002). Tighten the cylinder mounting nuts progressively at opposite corners to 8.5 - 9 ft. lbs. (9mm wrench).

NOTE: NEVER TIGHTEN THE CYLINDER MOUNTING NUTS EXCESSIVELY.

After assembly, check the compression.

Place the left hand flat on the cylinder and turn the flywheel back and forth.

Adequate compression will be visible by the suction on the hand.

REMOVAL OF THE CARBURETOR.

Unhook the cable pulley spring.

Loosen the nut connecting the carburetor to the intake manifold (14mm wrench).

Remove the fuel jet and the air jet and clean (9mm wrench and screwdriver).

Clear all passages with an air stream giving special attention of the calibrated hole of the jets.

Remove the fuel filter and replace if fouled.

Remove the throttle pulley slide nut and disconnect the slide (9mm wrench).

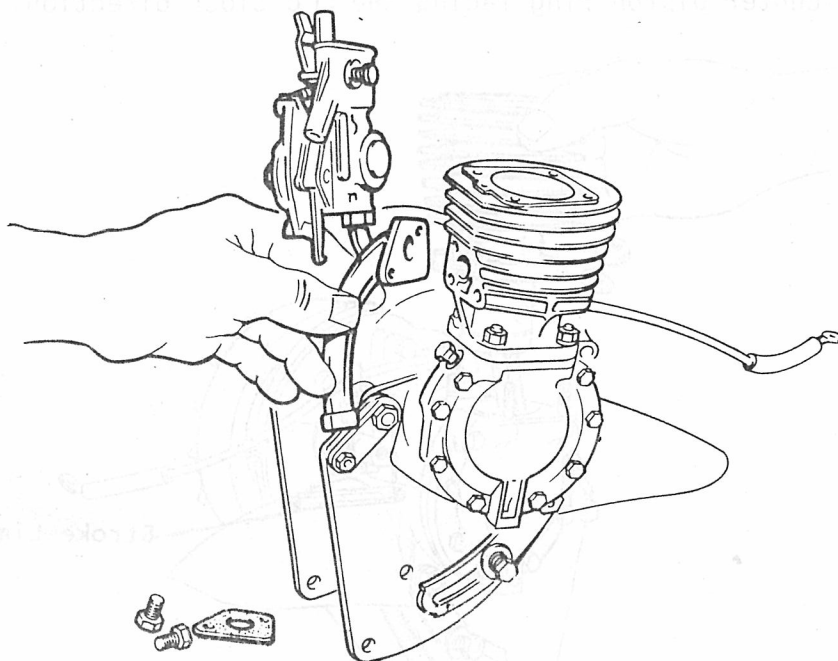
Withdraw the throttle barrel and clean.

To remove the choke assembly:

Press down on the choke barrel on the spring loaded side and remove the choke lever. Remove the choke barrel from the carburetor.

REASSEMBLING THE CARBURETOR

Reverse the procedure.



REPAIR OPERATIONS THE ENGINE
CONT'D.

REMOVAL OF THE CRANKCASE END COVER (fig. 14)

Loosen and remove the eight bolts securing the crankcase end cover (9mm wrench).

Remove the cover and gasket.

REASSEMBLING THE CRANKCASE END COVER

Oil a new gasket and place in position. Secure the gasket by inserting the two upper bolts and tightening slightly (9mm wrench).

Cut the gasket carefully to the form of the crankcase end.

Insert the remaining six bolts and tighten slightly (9mm wrench).

Fit the cylinder.

Tighten first the two cylinder mounting nuts on the crankcase fully (9mm wrench).

Tighten the other two cylinder mounting nuts on the crankcase end cover fully, and then unscrew them 1/6 turn (9mm wrench).

Tighten the crankcase end cover bolts progressively commencing at the lower bolt (9mm wrench).

Then tighten the two cylinder mounting nuts on the crankcase end cover fully (9mm wrench).

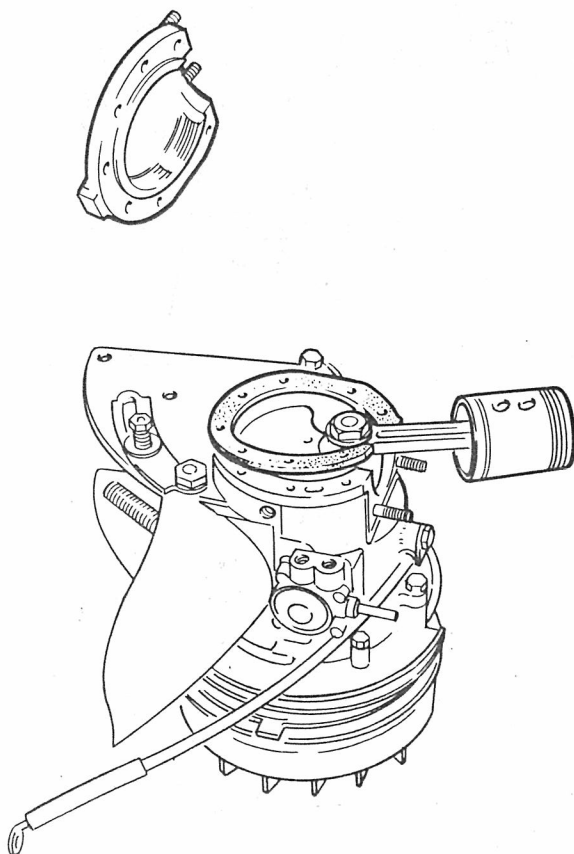


Fig. 14

REPAIR OPERATIONS THE ENGINE
CONT'D.

REMOVAL OF THE CONNECTING ROD ASSEMBLY (fig. 15)

Insert the stroke limiter as described (Tool No. 200009).
Remove the crankshaft end nut and washer (14mm wrench).
Remove the connecting rod assembly and bushing.

REASSEMBLING THE CONNECTING ROD ASSEMBLY

Change bushing and washer if necessary.
Reverse the procedure.

NOTE: CHECK THAT THE PISTON IS FACING THE SAME DIRECTION AS ON THE REMOVAL.
(FLAT SIDE OF THE BEARING AGAINST THE CRANKSHAFT COUNTERWEIGHT.)

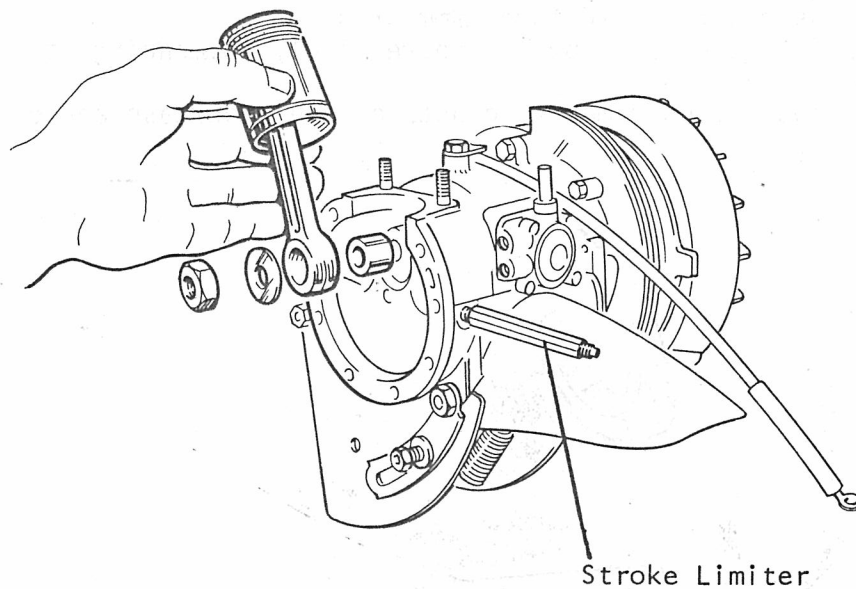


Fig. 15

REPAIR OPERATIONS THE ENGINE

CONT'D.

REMOVAL OF THE FUEL PUMP (fig. 16)

Loosen the four bolts securing the fuel pump housing to the engine (7mm wrench).

Remove the fuel pump.

If the fuel pump has been removed with the plastic pump seating piece, pry the seating piece loose and remove the diaphragm.

REASSEMBLING THE FUEL PUMP

Clean the plastic pump seating and place in position on the crankcase air port with the concave side facing the fuel pump.

Tap the center on to the air port lug.

NOTE: ALWAYS FIT A NEW DIAPHRAGM AFTER HAVING REMOVED THE FUEL PUMP.

Check that the plastic fuel pump ball is correctly seated in the fuel port of the pump.

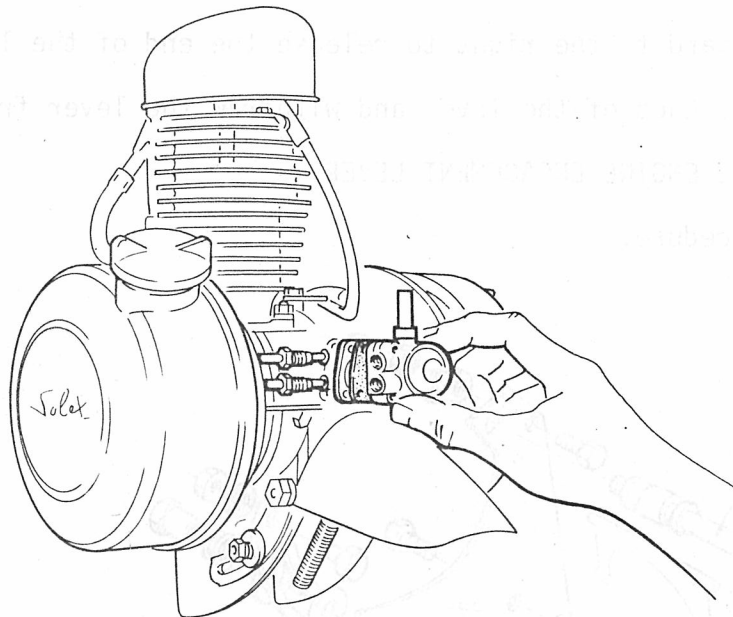


Fig. 16

REPAIR OPERATIONS THE ENGINE CONT'D.

REMOVING THE ENGINE SUPPORTS AND AXLE (fig. 17)

Unhook the suspension springs on each support and remove with the engine mudguard.

Release the engine pivot pin nut locks.

Loosen the engine pivot nuts (14mm wrench).

Loosen the front nuts and remove the bolts and spacer (14mm wrench).

Remove the engine support.

Loosen the suspension friction plate tension nuts and remove the springs and guides (9mm wrench).

Remove the engine axle.

REASSEMBLING THE ENGINE SUPPORTS AND AXLE

Before tightening the engine axle nuts when reassembling the engine axle with the crankcase and the engine supports, these parts must be in the same position as the motor on the front fork against the wheel.

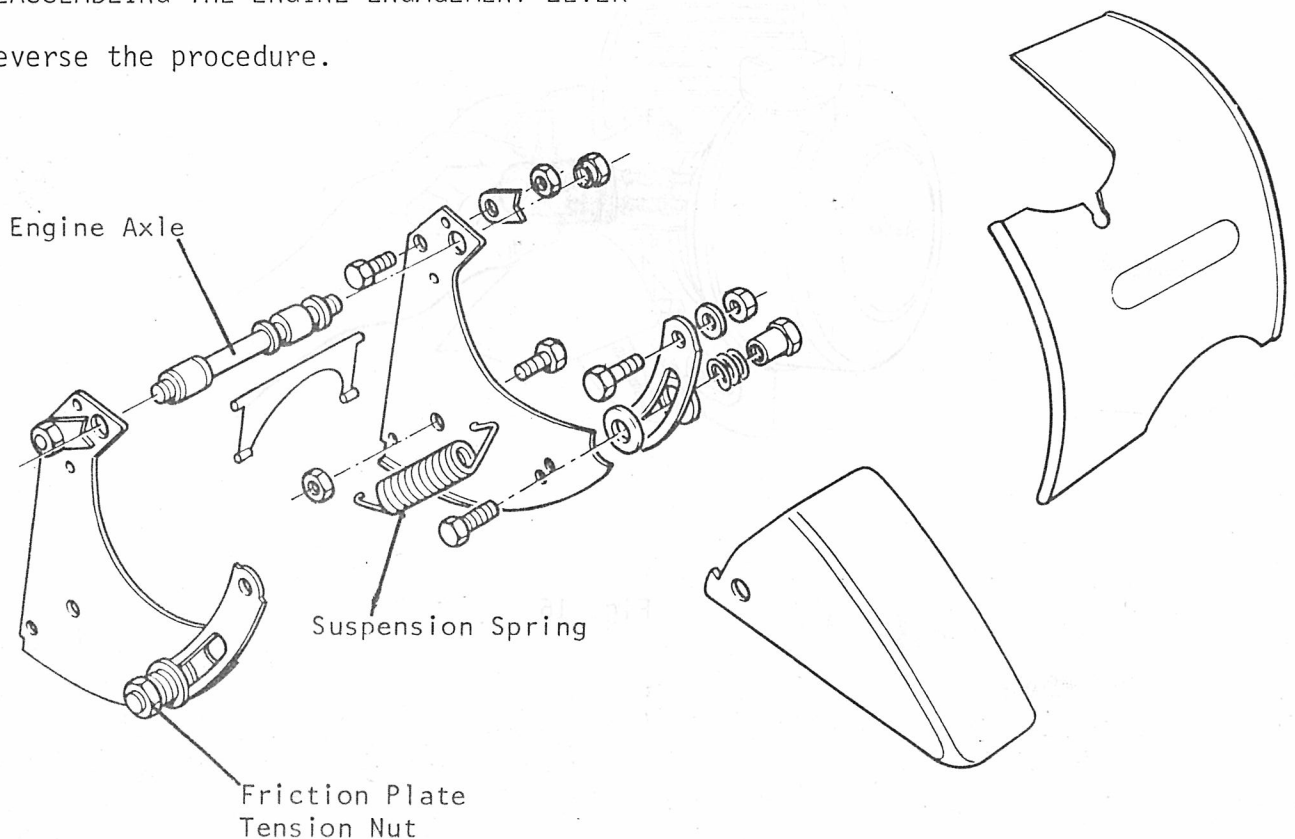
REMOVING THE ENGINE ENGAGEMENT LEVER

Pull the lever hard to the right to release the end of the lever from the socket.

Unscrew the ball knob of the lever and withdraw the lever from the left.

REASSEMBLING THE ENGINE ENGAGEMENT LEVER

Reverse the procedure.



REPAIR OPERATIONS THE ENGINE

CONT'D.

DECARBONIZING (fig. 18)

After a number of miles, carbon obstructs the various passages in the engine, and hinders its efficient running. To remove this carbon, first dismantle:

1. The cylinder head, after taking off the air cleaner body.
2. The carburetor and the manifold.

Scrape the carbon deposit off the cylinder head and the top of the piston. Clean the exhaust port thoroughly, as well as the manifold and check that no carbon deposit obstructs the latter at any point.

Pass a 5mm drill through the vertical hole of the decompressor and a 3.5mm drill through the angular hole on the cylinder head. Clean and lap the valve; change it, as well as the spring, every time.

The exhaust system cannot be dismantled; it should be changed after 5000 miles.

When fitting a new exhaust pipe, pass a 6mm drill through the outlet pipe, as it may be obstructed by a drop of paint.

NOTE: WHEN REASSEMBLING: USE NEW GASKETS. CHECK THE IGNITION TIMING ON THE FLYWHEEL MAGNETO. ADJUST THE PLUG GAP TO 5/10MM (0.020"). CLEAN OR CHANGE THE AIR FILTER IF NECESSARY. ADJUST THE THROTTLE CONTROL.

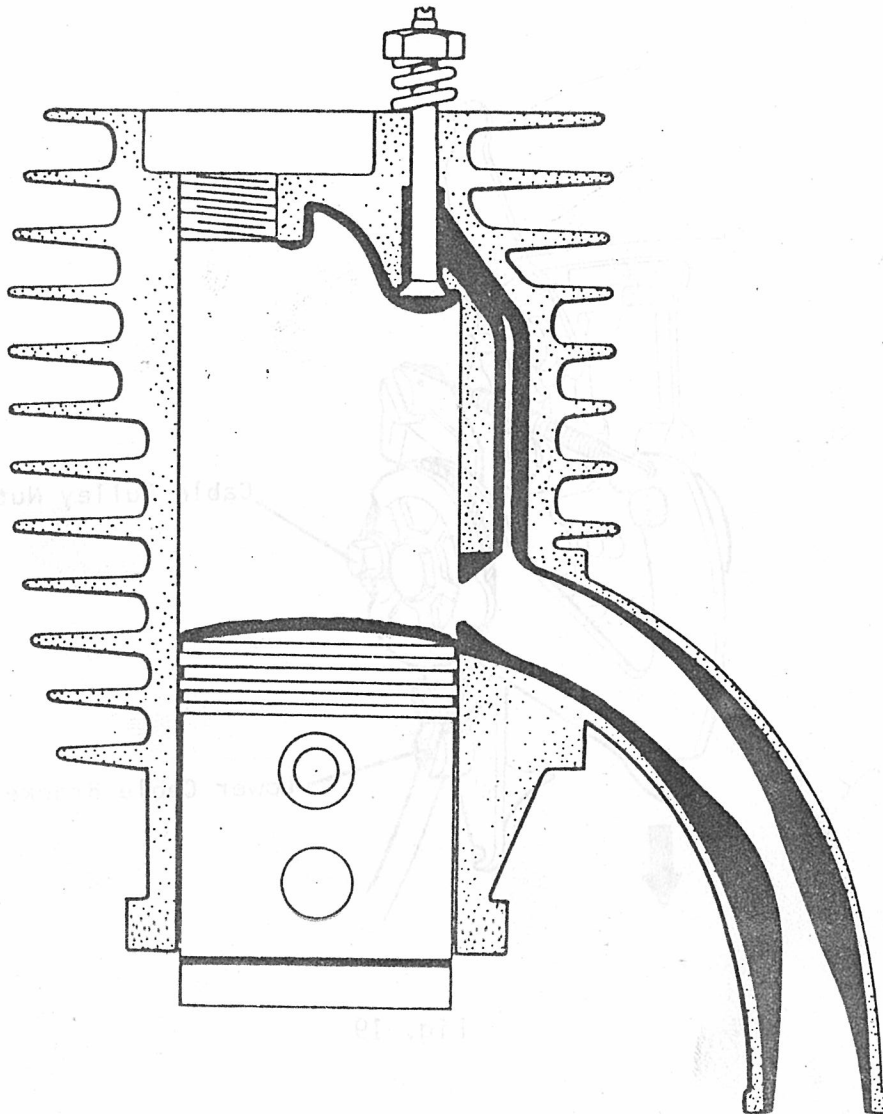


Fig. 18

REPAIR OPERATIONS THE ENGINE

CONT'D.

ADJUSTING THE DECOMPRESSOR

The decompressor valve opens correctly when the travel of the decompressor engine lever is between 1/8 inch and 1/32 inch.

Loosen the cable guide nut and adjust the tension on the cable until correct adjustment is reached (7mm wrench).

Tighten the cable guide nut (7mm wrench).

ADJUSTING THE THROTTLE (fig. 19)

Insert the throttle cable cover end in the lower cable holder on the throttle arm.

Loosen the cable pulley nut and wind the cable from left to right over the pulley and under the washer of the cable pulley nut.

Tension the cable.

Tighten the cable pulley nut.

Start the engine.

With the throttle twist grip rolled to the front and the throttle off, the engine should idle smoothly. If the engine runs too fast, loosen the cable pulley nut and adjust the position of the cable on the pulley until correct idling speed is reached. The correct engine idle is 1500 RPM.

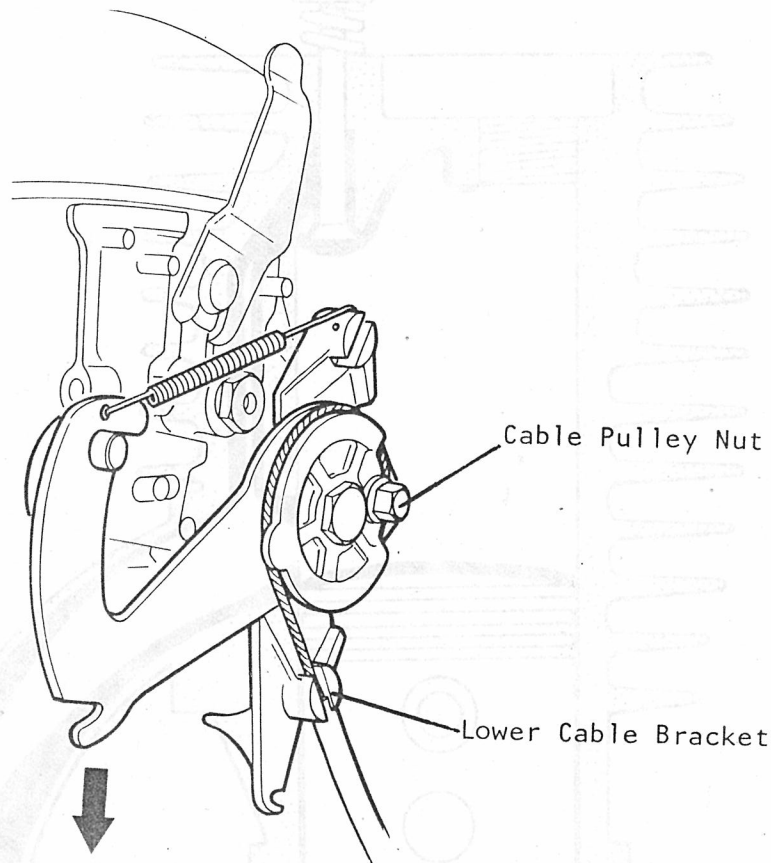


Fig. 19

REPAIR OPERATIONS THE ENGINE
CONT'D.

ADJUSTING THE IGNITION TIMING

Remove the engine and flywheel covers (14mm wrench).

Remove the rotor cover plate and rubber seal (14mm wrench).

Turn the flywheel rotor until the contact mark on the rotor is aligned with the stator plate "rupture" mark.

Connect the red lead of a timing light to the grey wire of the ignition coil.

Connect the black lead of the timing light to ground.

The light should be on when the rotor contact mark is in alignment with the stator plate "rupture" mark.

To adjust the timing, loosen the fixed contact holding screws and adjust the cam screw until the light goes off.

Turn the flywheel slightly counterclockwise and the light should go off.

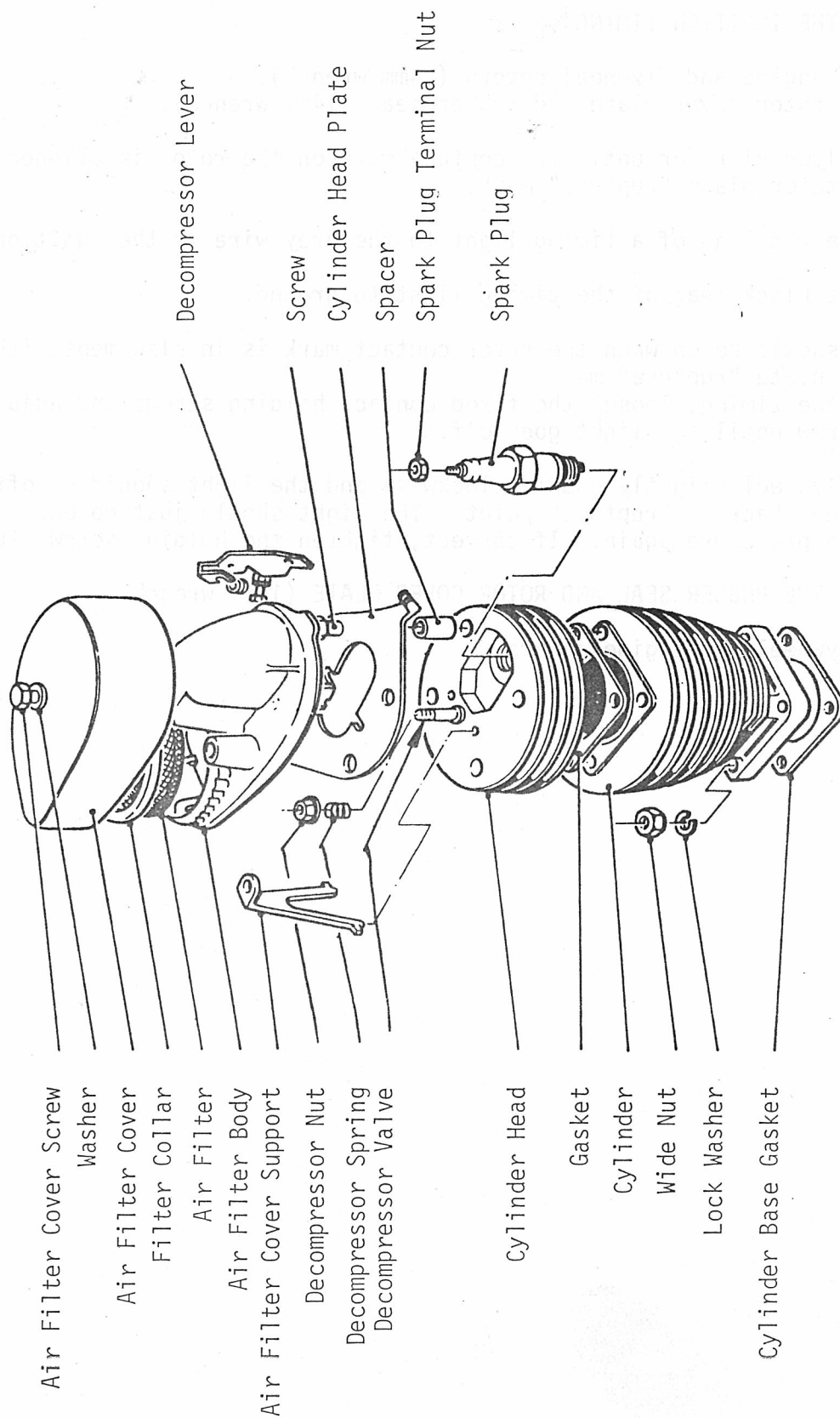
Turn flywheel back to "rupture" point. The light should just go on.

Check above procedure again. If correct, tighten the holding screws fully.

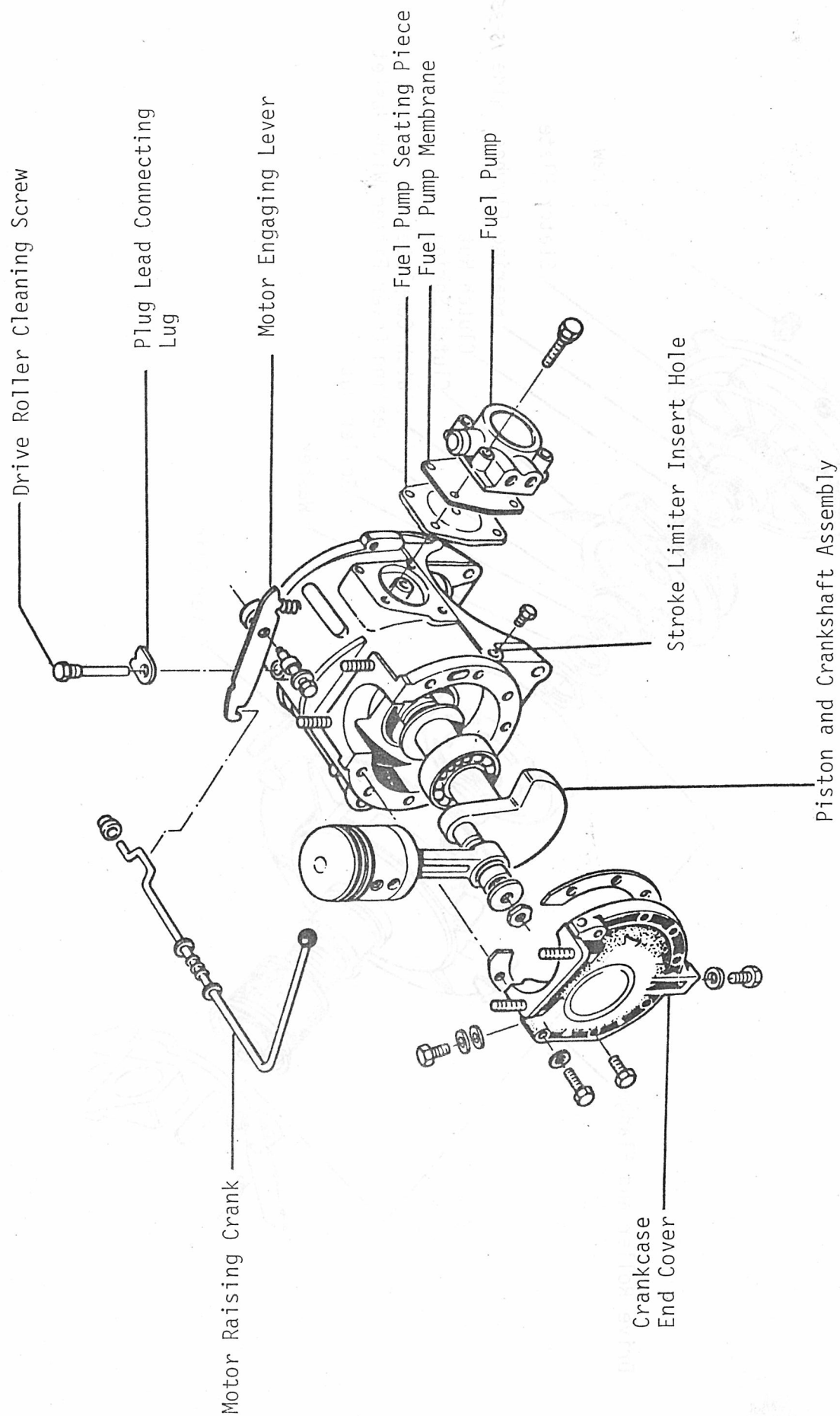
REASSEMBLE THE RUBBER SEAL AND ROTOR COVER PLATE (14mm wrench).

Fit the flywheel and engine covers.

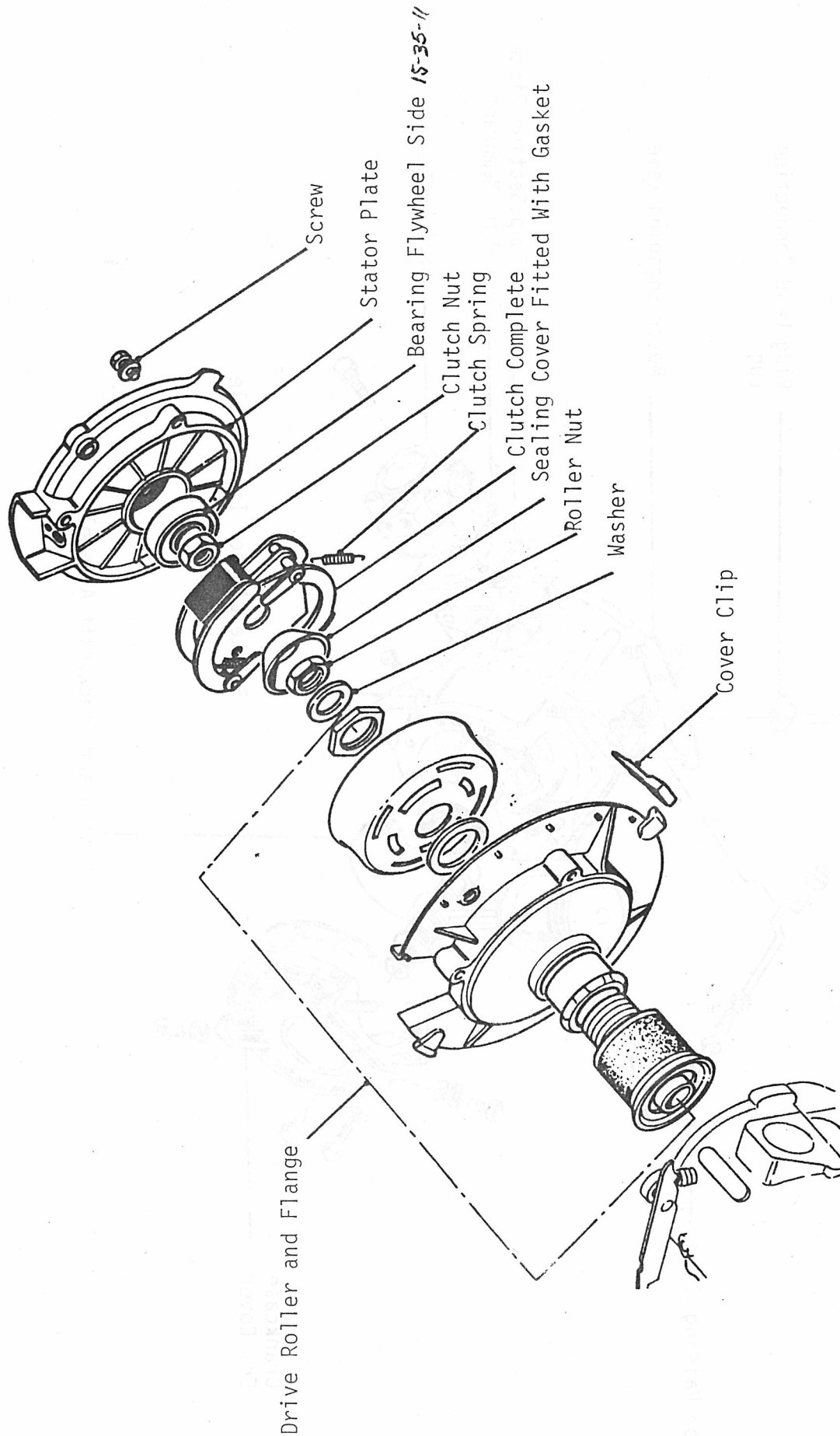
ENGINE COMPONENT PARTS



ENGINE COMPONENT PARTS



ENGINE COMPONENT PARTS



ELECTRICAL CONNECTIONS

SOLEX 4600 D.O.T

I. LIGHT COIL

A. Black wire with large male connection

B. Yellow female connector - large

1. Powers

a) Headlight switch - brown wire

b) Horn - yellow wire

HORN

A. Power from coil yellow wire

B. Grey wire horn switch - ground

1. Press the button to complete circuit

Headlight Switch and Light Connections

A. Power from coil - brown wire

B. Power to headlight and taillight - black wire

1. Headlight grounded - black

2. Taillight grounded - black

a) "G" middle or upper post - ground (black wire)

b) "T" R/H post - taillight power (black wire)

II. STOP LIGHT COIL

A. Black wire with little male connector

B. Red female connector - little

1. Powers stoplight switch - red wire to each brake lever switch

2. From switch to taillight assembly - green wires

a) "S" on taillight L/H post - stop light

b) "G" middle or upper - ground

ELECTRICAL CONNECTIONS

SOLEX 4600 D.O.T

III. IGNITION COIL

A. Power to spark plug lead

1. Points interrupt circuit in the ignition coil
2. Coil produces current
3. To spark plug lead
4. And spark plug

B. Engine cut-out switch

1. Lead from upper post of the condenser - grey wire - small female connector
2. Lead from engine cut-out switch - purple wire - small purple male connector
3. Switch when closed grounds the ignition coil, condenser and points, stopping the engine.

ENGINE TROUBLE SHOOTING GUIDE

WARNING: Put the engine cut out switch in "ON" position. To find out if the cause of the trouble is due to bad ignition setting or a faulty part, take out the spark plug, keep it connected to the plug lead, hold it against the cylinder and turn the engine over.

ENGINE WILL NOT START

SYMPTOMS

There is a regular spark between the electrodes

POSSIBLE CAUSES

Spark plug fouled.

Incorrect spark plug gap.

Incorrect timing

CHECKS AND REMEDIES

Brush the electrodes, clean and adjust the gap to 5/10mm (.5mm). Replace the spark plug if necessary.

Remove the flywheel cover, align the contact point on the flywheel with the rupture point on the stator plate and check with a lamp (ground and grey wire).

Remove the engine cover, unscrew the plug lead retaining plate. Disconnect the plug lead from the stator plate and replace with a new one.

Check by substitution.

Check by substitution.

Check for good connections.

Magnets should not move or come in contact with magneto coils. If loose replace flywheel.

There is an intermittent spark or no spark

Spark plug lead unscrewed from stator plate or the insulator is faulty (R=6 Ω).

Ignition coil (R=3 Ω).

Condenser (R=150 Ω).

Faulty wiring connections in the magneto.

Loose flywheel magnets or warped flywheel

ENGINE TROUBLE SHOOTING GUIDE

CONT'D.

SYMPTOMS

The engine runs in 4-stroke cycle or lacks power

At idle, the engine stalls

Fuel supply

POSSIBLE CAUSES

Ignition timing

Excessive carbon build-up

Contact breaker

Clogged air cleaner

Carbon build-up

Carburetor jetted too rich

Loose fuel lines

Rotor hitting magneto coils

Fuel pump

Carburetor

CHECKS AND REMEDIES

Check the spark plug and timing.

Decarbonize.

Defective, replace it.

Faulty, replace it.

Decarbonize

Lean out the air and fuel jet.

Check for tightness.

Center the magneto coils, or if necessary, replace rotor.

Check fuel tank for fuel supply.
Check fuel flow at overflow pipe.
Check fuel pump:

A) fittings

B) pump membrane

C) pump check balls

Check fuel suction line and clean or replace.

Check fuel tank filter and replace.

Check fuel supply pipe and clean or replace.

Check fuel filter - replace if needed.

Check fuel jet - replace if needed.

Check air jet - replace if needed.

Check throttle barrel - replace if needed.

ENGINE TROUBLE SHOOTING GUIDE

CONT'D.

SYMPTOMS

POSSIBLE CAUSES

CHECKS AND REMEDIES

Ignition

Spark plug

Check spark plug gap - clean or replace plug.

Check spark plug lead:

- A) contact at plug - clean and tighten
- B) contact at coil - clean and tighten
- C) spark plug lead - replace if necessary

Stator plate

Timing:

- A) check
 - B) check fixed contact - clean or replace
 - C) check moving contact - clean or replace
- Check condenser - substitution.
Check ignition coil - substitution.
Check cut-out switch ground connection.

Engine is noisy or runs poorly

Carburetor

Fuel jet too big - replace.
Air jet too small - replace.

Fuel pump

Fuel pump membrane is porous - replace.

Ignition

Timing - advanced too far - retune.

ENGINE TROUBLE SHOOTING GUIDE

CONT'D.

SYMPTOMS

POSSIBLE CAUSES

Compression

CHECKS AND REMEDIES

Loss of compression, check and tighten:

- A) crankcase cover bolts - if loose, check and replace gasket.
- B) cylinder base - if loose, check and replace cylinder base gasket.
- C) cylinder head - if loose, check and replace cylinder head gasket.
- D) decompression valve - (see carbonization).

Carbonization

Cylinder head - decarbonize.

- A) decompression valve - replace.
- B) clean and ream valve seat - valve reamer.

Exhaust port - decarbonize

- A) decompressor valve port - ream or drill.
- B) exhaust manifold gasket - replace.

Exhaust pipe and muffler - clean or replace.

Engine runs with choke partly closed

Fuel supply too lean

Fuel jet too small - change.
Air jet too big - change

Partial air leak:

Check the following for restrictions:

- A) fuel tank
- B) fuel pump
- C) carburetor
- D) fuel jet

ENGINE TROUBLE SHOOTING GUIDE

CONT'D.

SYMPTOMS

Engine runs and stalls

POSSIBLE CAUSES

Carburetor

Fuel supply

Ignition

CHECKS AND REMEDIES

Carburetor obstructed:

- A) fuel jet - remove and clean
- B) barrel - remove and clean.
- C) air filter - clean
- D) fuel filter - replace.

Fuel pump faulty - replace:

- A) fuel pump membrane - replace.
- B) fuel pump seating piece - replace.

Spark plug faulty - regap or replace.

Spark plug lead faulty:

- A) connector not making contact with carbon lead - tighten.
- B) carbon lead broken - replace.

REPAIR OPERATIONS CYCLE, FRAME, CONTROLS

Use of the recommended workshop support stand is advised for the majority of the following operations (Tool No. 100030).

FRONT WHEEL ASSEMBLY

REMOVAL OF THE FRONT WHEEL

Raise the front wheel off the ground.

Loosen the axle nuts (14mm wrench).

Pull the wheel downwards to remove from the fork brackets.

If white wall tires are fitted, deflate the tire before removing the wheel to prevent the brake shoes from scraping the side walls.

Reassemble in reverse sequence.

NOTE: CHECK THAT THE WHEEL IS CORRECTLY ALIGNED IN THE FORKS.

REMOVAL OF THE WHEEL AXLE (fig. 1)

Remove the wheel.

Remove the axle nuts, washers, and dust caps (14mm wrench).

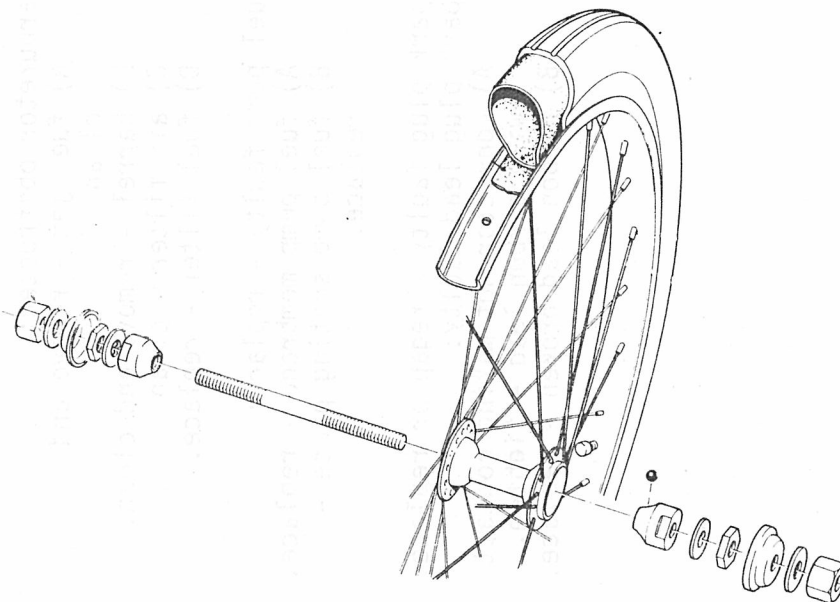
Place the wheel in a vise securing on the cone counter nut.

Hold the upper cone with a cone wrench and remove the cone counter nut (15 and 17mm wrench).

Loosen and remove the hub cone.

Lift the wheel to the end of the axle to expose the ball bearings. Inspect the ball bearings and the condition of the axle. Replace if necessary.

If the axle is to be replaced, lift the wheel off the axle and secure the new axle with the hub cone and washer cone counter nut in the vise. Then replace the wheel.



REPAIR OPERATIONS CYCLE, FRAME, CONTROLS
CONT'D.

If the ball bearings on the opposite side of the hub are to be replaced, first assemble one side of the hub and turn the wheel over, repeating the procedure.

Grease the axle and pack the ball bearing races with grease.

Replace the hub cone. Tighten and release $\frac{1}{4}$ turn.

Continue to reassemble in reverse sequence.

ADJUSTING WHEEL BEARING PLAY

Loosen the axle nuts and the cone counter nuts.

Adjust the hub cones. To reduce play, tighten the hub cones. To increase play, loosen the hub cones.

When correct adjustment is reached, hold the hub cones with a cone wrench and tighten the cone counter nuts (15 and 17mm wrench).

Tighten the axle nuts (14mm wrench).

REMOVAL OF THE FRONT BRAKE MECHANISM (fig. 2)

Disconnect the brake cable from the brake bar assembly at the brake mechanism.

Loosen the nuts securing the brake mechanism to the forks (14mm wrench).

Loosen the nuts attaching the brake mechanism to the mudguard (9mm wrench).

Remove the brake mechanism and brake shoe blocks (9mm wrench).

REASSEMBLE IN REVERSE SEQUENCE

NOTE: CHECK THE CONDITION OF THE BRAKE SHOES AND REPLACE IF NECESSARY.
CHECK THE FRONT BRAKE ADJUSTMENT.

When replacing the brake mechanism cover plate, make sure that the protruding flange on the inside of the plate locks into the brake mechanism spring.

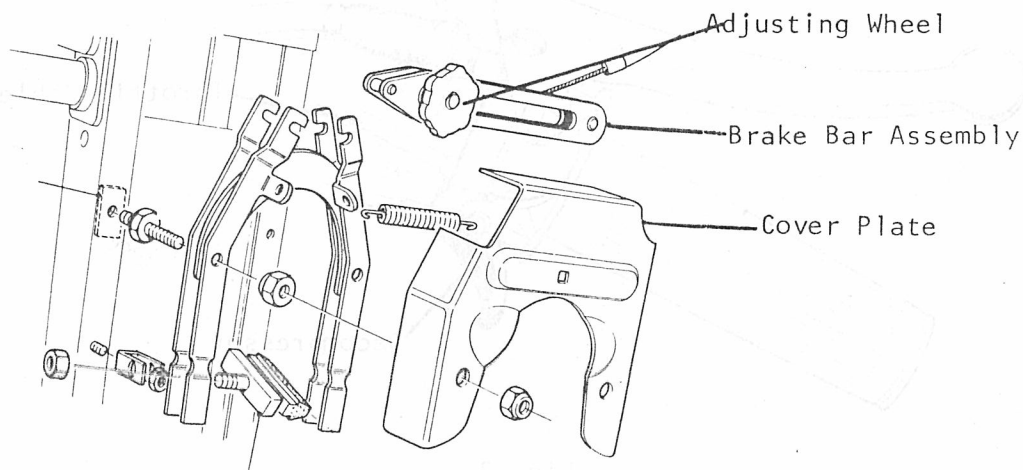


Fig. 2

REPAIR OPERATIONS CYCLE, FRAME, CONTROLS

CONT'D.

ADJUSTING THE FRONT BRAKES (fig. 3)

Minor adjustment to compensate for wear of the brake shoes and play at the brake levers is carried out at the right handlebar lever.

Check that the engine engagement lever is pulled to the rear.

Unscrew the locking nut and the adjusting nut slightly (9mm wrench).

Spin the wheel by hand, adjusting the amount of free play on the brake lever until the brake shoes take hold and stop the spin, by turning the adjusting nut and applying the brake lever.

The amount of free play at the end of the brake lever should be about $\frac{1}{2}$ inch.

Tighten the locking nut (9mm wrench).

If further adjustment is necessary or after replacing the brake shoes, proceed as follows. (fig. 2).

Turn the handlebar to the right for easy access.

Remove the brake mechanism cover plate (9mm wrench).

Grip the brake shoe blocks and pull to the left until the right brake shoe is touching the rim of the wheel.

Fit the brake tool on the brake bar adjusting wheel, push and turn to the left, tensioning the brake cable until the space between the left brake shoe and the rim of the wheel is about $\frac{1}{4}$ inch.

Remove the brake tool (Tool No. 200006).

NOTE: CHECK THAT THE ADJUSTING WHEEL RETURNS TO THE LOCKED POSITION AFTER REMOVING THE BRAKE TOOL.

Push on the left brake shoe block until the space between the left and right brake shoes and the rim of the wheel is equal.

Replace the brake mechanism cover plate, ensuring that the protruding flange on the inside of the plate locks into the brake mechanism spring.

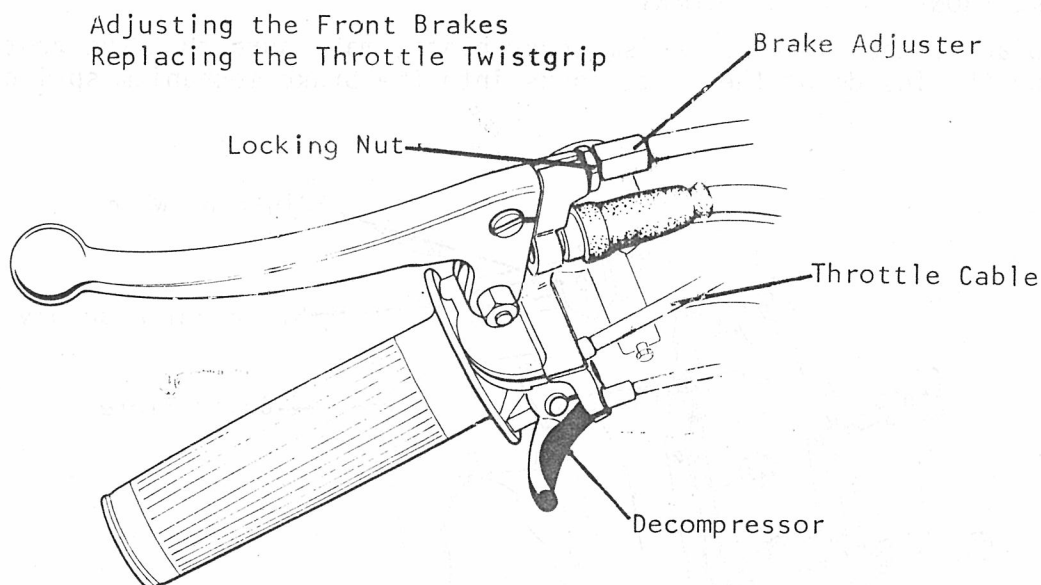


Fig. 3

REPAIR OPERATIONS CYCLE, FRAME, CONTROLS
CONT'D.

REMOVING THE FRONT MUDGUARD (fig. 4)

Remove the front wheel (Page 42).

Loosen the brake mechanism cover plate nuts and remove the cover plate (9mm wrench) (fig. 2).

Loosen the nuts securing the brake mechanism to the mudguard and withdraw the bolts from the inside of the mudguard (9mm wrench).

Loosen the two lower mudguard nuts and remove the splashguard (9mm wrench).

Pull the mudguard from the mudguard support bolts and remove.

Reassemble in reverse sequence.

NOTE: CHECK THAT THE MUFFLER BRACKET IS FULLY INSERTED BETWEEN THE MUDGUARD AND MUDGUARD SUPPORT.

REMOVING THE MUDGUARD SUPPORTS (fig. 4)

Loosen the two lower mudguard support nuts and remove the bolts (9mm wrench). Remove the splashguard.

Loosen the nut attaching the horn and mudguard supports to the engine supports (9mm wrench).

Remove the supports.

Reassemble in reverse sequence.

NOTE: CHECK THAT THE MUFFLER BRACKET IS FULLY INSERTED BETWEEN THE MUDGUARD AND MUDGUARD SUPPORT. CHECK THAT THE MUDGUARD SUPPORTS ARE SECURED TO THE ENGINE SUPPORTS AS DESCRIBED UNDER "Mounting the Engine" (Page 15).

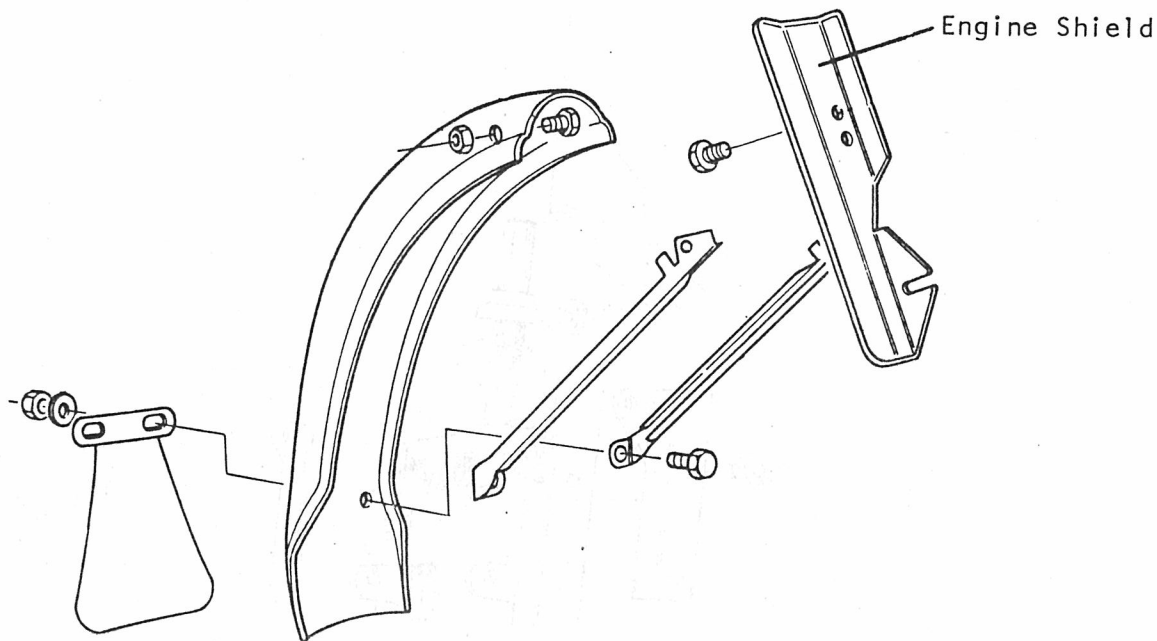


Fig. 4

REPAIR OPERATIONS CYCLE, FRAME, CONTROLS
CONT'D.

REMOVING THE STEERING RACES (fig. 5)

Remove the front wheel (Page 42).

Remove the handlebar with cables and wires attached and draw to the front over the engine.

Loosen the bearing cup lock nut (32mm wrench).

Remove the serrated washer.

Remove the threaded seat holding the fork and engine assemblies in the frame steering tube.

Remove the ball cage and upper bearing cup.

Raise the steering tube and frame and withdraw the fork assembly from the steering tube.

Replace the bearings as necessary, grease the upper and lower ball cages and the threaded seat.

Reassemble in reverse sequence.

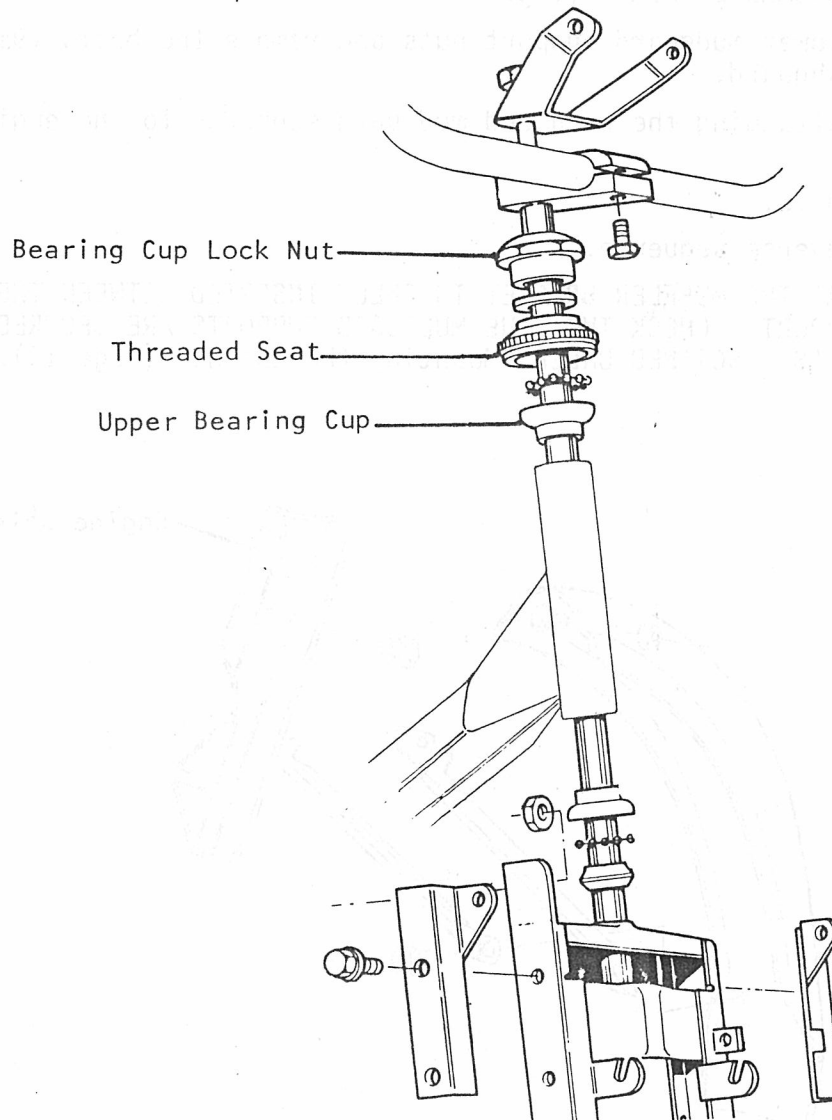


Fig. 5

REPAIR OPERATIONS CYCLE, FRAME, CONTROLS
CONT'D.

REMOVING THE FRONT FORKS (fig. 5)

Remove the engine guard rail (Page 14).

Remove the front wheel and mudguard supports (Page 42 and 45).

Remove the engine and engine supports (Page 15).

Remove the engine engagement lever (Page 28).

Remove the front brake mechanism (Page 43).

Remove the engine shield (fig. 4, Page 45).

Loosen the nuts on the left and right hand fork legs which secure the engine engagement lever crank support plates and the fork legs to the steering assembly (14mm wrench).

Remove the fork legs.

Reassemble in reverse sequence.

REMOVING THE KICKSTAND (fig. 6)

Tilt the machine and empty the fuel from the fuel tank into a can.

Turn the machine over and support the frame in the recommended workshop support stand (Tool No. 100030).

According to model; drive out the rivets or loosen the nuts and remove the bolts on each side of the kickstand (14mm wrench).

Unhook the spring.

Lower the kickstand and lift from the frame.

REASSEMBLING THE KICKSTAND

Hook the end of the spring to the kickstand.

Hook the other end of the spring into the frame and insert the kickstand into the frame.

Lower the kickstand and rivet, or insert the bolt, in the right hand side of the frame from the inside.

Fit the washer and nut (14mm wrench).

Raise the kickstand and rivet, or insert the bolt, in the left hand side of the frame from the inside.

Fit the washer and nut (14mm wrench).

Lightly lubricate the bolts.

Tighten the nuts and punch lock.

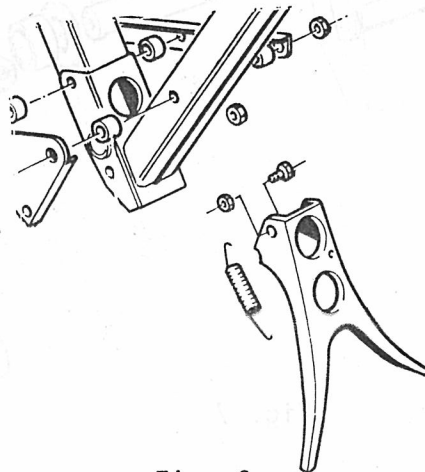


Fig. 6

REPAIR OPERATIONS CYCLE, FRAME, CONTROLS
CONT'D.

REMOVING THE CRANK SPINDLE (fig. 7)

Slip the cycle chain from the crank sprocket wheel.

Loosen the cotter pin nut and tap out the cotter pin on the sprocket wheel pedal crank (13mm wrench).

Pull on the left hand pedal crank and remove the crank spindle from the crank assembly with the left pedal crank.

To replace the crank spindle, loosen the cotter pin nut and tap out the cotter pin on the left pedal crank (13mm wrench).

Reassemble in reverse sequence.

NOTE: GREASE THE CRANK SPINDLE BEFORE INSERTING INTO THE CRANK ASSEMBLY. CHECK THAT THE SPACER IS FITTED TO THE CRANK SPINDLE BEFORE ATTACHING THE WASHER AND INSERTING INTO THE CRANK ASSEMBLY FROM THE LEFT.

REMOVING THE CRANK ASSEMBLY (fig. 7)

Remove the kickstand (Page 47).

Remove the rear wheel (Page 50).

Slip the cycle chain from the crank sprocket wheel.

Loosen the rear brake adjuster nut and remove the adjuster (9mm wrench).

Loosen and remove the bolts securing the crank assembly to the main frame (14mm wrench).

Loosen the nut on the right hand lower rear fork blade (18mm socket).

Withdraw the bolt from the left hand lower rear fork blade.

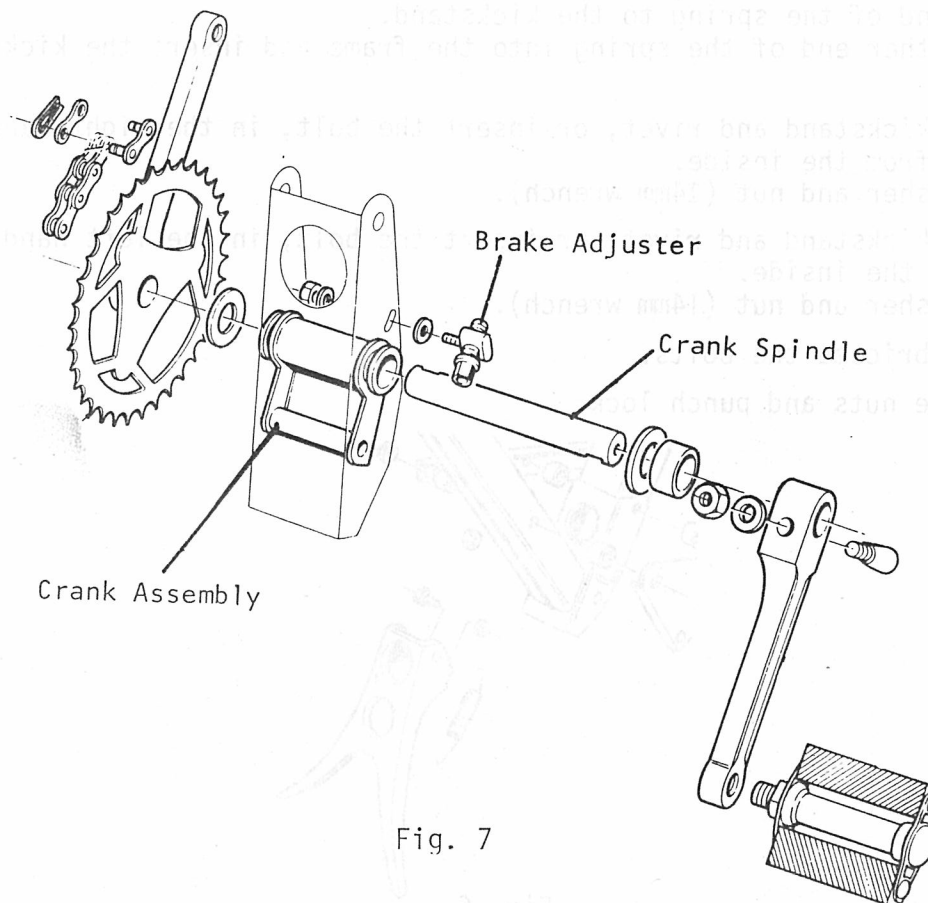


Fig. 7

REPAIR OPERATIONS CYCLE, FRAME, CONTROLS
CONT'D.

Remove the crank assembly.

To replace the crank assembly, remove the crank spindle as described.

Reassemble in reverse sequence.

NOTE: CHECK THAT THE SPACERS ARE IN POSITION ON THE BOLT OF THE LOWER FORK BLADES. PUNCH LOCK THE NUTS AFTER TIGHTENING.

REMOVING AND REPLACING THE HANDLEBAR (fig. 8)

Remove the headlamp (9mm wrench).

Remove the headlamp support bracket (12mm wrench).

Loosen the throttle twist grip collar screw and remove the grip with cables and wires attached (screwdriver).

Remove the left handgrip (Page 50).

Loosen the left handgrip collar screw and remove with cables and wires attached (screwdriver).

Loosen the screw securing the light switch bracket and remove the light switch (screwdriver).

Loosen the screw securing the engine stop switch bracket and remove the switch (screwdriver).

Loosen the handlebar support bracket bolt and remove the handlebar from the bracket (12mm wrench).

Reassemble in reverse sequence.

REPLACING THE THROTTLE TWIST GRIP (fig. 3)

Loosen the throttle twist grip collar screw and remove the grip with cables and wires attached (screwdriver).

Pull back the shouldered end of the throttle outer cable cover and remove the cable from the cable guide.

Pry back the rubber twist grip flange and remove the cable end ball.

Pull on the rubber grip and remove the grip sleeve or cut the length of the rubber grip with a razor or knife and remove.

Replace parts as necessary.

Reassemble in reverse sequence.

NOTE: NEVER REFIT A FRAYED CABLE. FIT A NEW ONE. WHEN TIGHTENING THE TWIST GRIP COLLAR SCREW, USE CAUTION TO AVOID BREAKAGE.

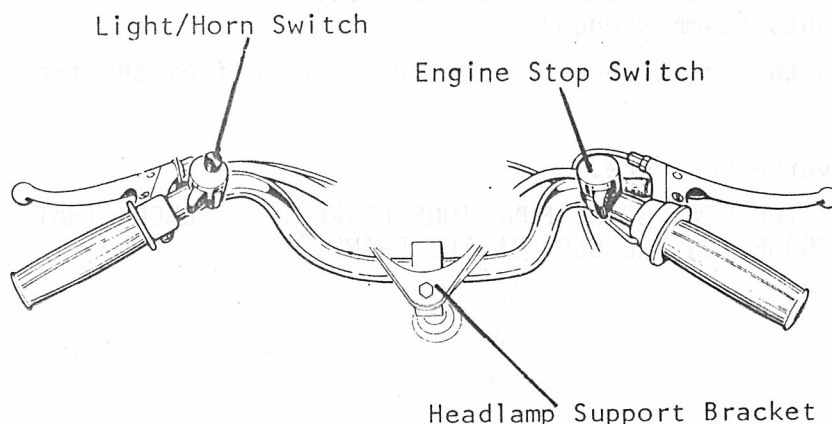


Fig. 8

REPAIR OPERATIONS CYCLE, FRAME, CONTROLS

CONT'D.

REPLACING THE LEFT HANDGRIP

Cut the length of the handgrip with a razor or knife and remove.

To fit a new handgrip, first soak the open end of the grip in gasoline. Tap the grip into position on the handlebar.

REMOVING THE SADDLE ASSEMBLY

Loosen and remove the nut and washer of the support bolt connecting the luggage carrier to the frame (14mm wrench).

Withdraw the support bolt from the opposite side of the machine and remove the spacers.

Loosen the nuts on the upper mounting bolts and remove the washers and bolts (14mm wrench).

Withdraw the saddle and seat post from the frame seat support.

Loosen the nut and remove the two washers on the bolt securing the main saddle spring to the seat post (14mm wrench).

Withdraw the bolt and remove the third washer from the spring side.

Remove the spring from the saddle cradle with a twisting action.

Reassemble in reverse sequence.

NOTE: ENSURE THAT THE THREE WASHERS OF THE BOLT SECURING THE MAIN SADDLE SPRING TO THE SEAT POST ARE CORRECTLY LOCATED.

The height of the saddle can be adjusted to three different positions. Raise or lower the seat post to the next higher or lower position aligning the mounting holes.

Insert the two upper bolts and fit the washers and nuts.

Do not tighten.

Insert the support bolt, washers and spacers.

Fit the nut, but do not tighten.

To adjust the angle of the saddle, grip the saddle at the front and rear, press down firmly or lift, either the front or rear until the desired angle is reached.

Tighten the two upper nuts and the nut of the support bolt (14mm wrench).

REAR WHEEL ASSEMBLY

REMOVAL OF THE REAR WHEEL

Raise the rear wheel off the ground.

Disconnect the brake cable from the hub assembly.

Loosen the axle nuts (14mm wrench).

Pull the wheel to the front and slip the cycle chain from the free wheel.

Remove the wheel.

Reassemble in reverse sequence.

NOTE: CHECK THAT THE REAR BRAKE FUNCTIONS CORRECTLY. CHECK THAT THE ANCHOR LUG ON THE HUB ENGAGES IN THE SLOT IN THE FRAME.

REPAIR OPERATIONS CYCLE, FRAME, CONTROLS
CONT'D.

REMOVING THE REAR BRAKE DRUM (fig. 9)

Remove the wheel as described.

Remove the axle nut on the brake drum side of the wheel (14mm wrench).

Remove the spacer and withdraw the brake drum.

NOTE: DO NOT TOUCH THE BRAKE SHOES OR BRAKING SURFACE OF THE BRAKE DRUM WITH GREASE.

Reassemble in reverse sequence.

REPLACING THE BRAKE SHOES (fig. 9)

Remove the wheel and brake drum as described (Page 50).

Set the brake drum in a vise.

Lift first one brake shoe and with a turning movement, detach the spring and remove the shoe.

Remove the second shoe.

Attach the springs to the new shoes.

Fit one shoe in position while holding the second shoe upright.

Fit the second shoe with a slight turning movement in the opposite direction to removal.

NOTE: CHECK THAT THE BRAKE MECHANISM FUNCTIONS CORRECTLY BY OPERATING THE REAR BRAKE LEVER.

Lightly grease between the cam and the backing plate of the brake shoe.

Reassemble in reverse sequence.

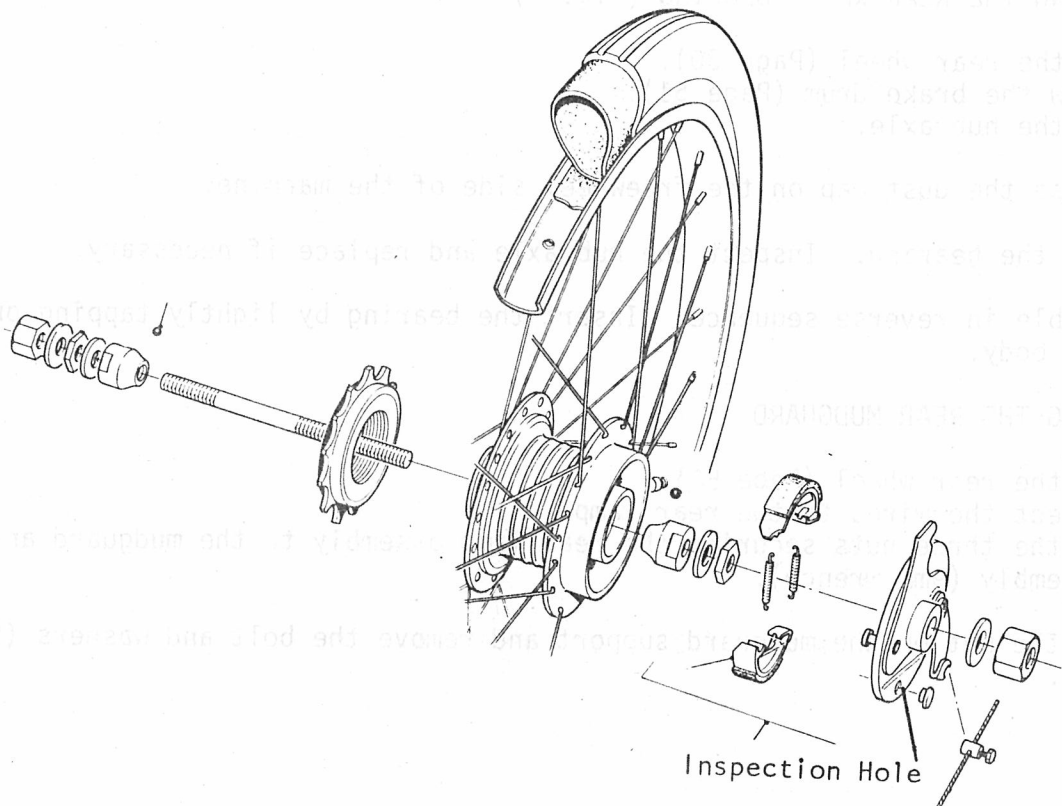


Fig. 9

REPAIR OPERATIONS CYCLE, FRAME, CONTROLS

CONT'D.

ADJUSTING THE REAR BRAKE

Minor adjustment to compensate for wear of the brake shoes and play at the brake lever is carried out at the left handlebar brake lever.

Check that the engine engagement lever is pulled to the rear.

Unscrew the locking nut and the knurled adjusting nut slightly (9mm wrench). Spin the wheel, adjusting the amount of free play on the brake lever until the brake takes hold and stops the spin, by turning the knurled adjusting nut and applying the brake lever.

The amount of free play at the end of the brake lever should be about $\frac{1}{2}$ inch.

Tighten the locking nut (9mm wrench).

If further adjustment is necessary or after replacing the brake shoes, proceed as follows.

Loosen the locking nut on the rear brake adjuster attached to the crank assembly (9mm wrench).
Adjust the rear brake by turning the adjusting screw.

Tighten the locking nut (9mm wrench).

On the rear hub assembly an inspection hole is provided to permit inspection of brake linings. Replace the dust cap after the inspection is made (fig. 9).

REPLACING THE REAR WHEEL BEARING (fig. 9)

Remove the rear wheel (Page 50).
Withdraw the brake drum (Page 51).
Remove the hub axle.

Pry loose the dust cap on the freewheel side of the machine.

Extract the bearing. Inspect the hub axle and replace if necessary.

Reassemble in reverse sequence. Insert the bearing by lightly tapping on the bearing body.

REMOVING THE REAR MUDGUARD

Remove the rear wheel (Page 50).
Disconnect the wires to the rear lamp.
Loosen the three nuts securing the rear lamp assembly to the mudguard and remove the assembly (9mm wrench).

Loosen the nut on the mudguard support and remove the bolt and washers (9mm wrench).

REPAIR OPERATIONS CYCLE, FRAME, CONTROLS
CONT'D.

Withdraw the wires through the hole in the mudguard and loosen the clips retaining the wires to the inside of the mudguard.
Loosen the two nuts securing the mudguard to the luggage carrier and remove the bolts (9mm wrench).

Withdraw the mudguard to the rear.

Reassemble in reverse sequence.

REMOVING THE MUDGUARD SUPPORT

Remove the rear wheel (Page 50).
Loosen the nut securing the mudguard support to the mudguard and remove the bolt and washers (9mm wrench).

Loosen the nuts on the luggage carrier supports at the hub and withdraw the bolts from the inside (14mm wrench).

Remove the mudguard support to the rear.

Reassemble in reverse sequence.

REMOVING THE LUGGAGE CARRIER AND SUPPORTS

Remove the rear wheel (Page 50).
Loosen the nuts on the luggage carrier supports at the hub (14mm wrench).

Pull gently on the mudguard supports and remove from the bolts.
Pull gently on the luggage carrier supports and remove from the bolts.

Loosen and remove the nut and washer of the support bolt securing the luggage carrier to the frame and seat post.
Withdraw the support bolt from the opposite side and remove the spacers (14mm wrench).

Loosen the two nuts connecting the mudguard to the luggage carrier and remove the bolts (9mm wrench).

Remove the luggage carrier.

To remove the luggage carrier supports, loosen the two nuts on the inside of the luggage carrier and remove the bolts (9mm wrench).

Reassemble in reverse sequence.

REPAIR OPERATIONS CYCLE, FRAME, CONTROLS
CONT'D.

REMOVING THE HEADLAMP (fig. 10)

Remove the headlamp bezel (screwdriver).
Disconnect wire from the sealed beam.
Loosen and remove the mounting bolts on each side of the headlamp (9mm wrench).
Withdraw the light switch wire.

Reassemble in reverse sequence.

REMOVING THE REAR LAMP (fig. 11)

Loosen the screws and remove the lens (Phillips screwdriver).

Remove the gasket.

Remove the bulb.

Disconnect the wires.

Loosen the mounting bolts from the rear of the rear lamp bracket (9mm wrench).

Remove the rear lamp body.

Reassemble in reverse sequence.

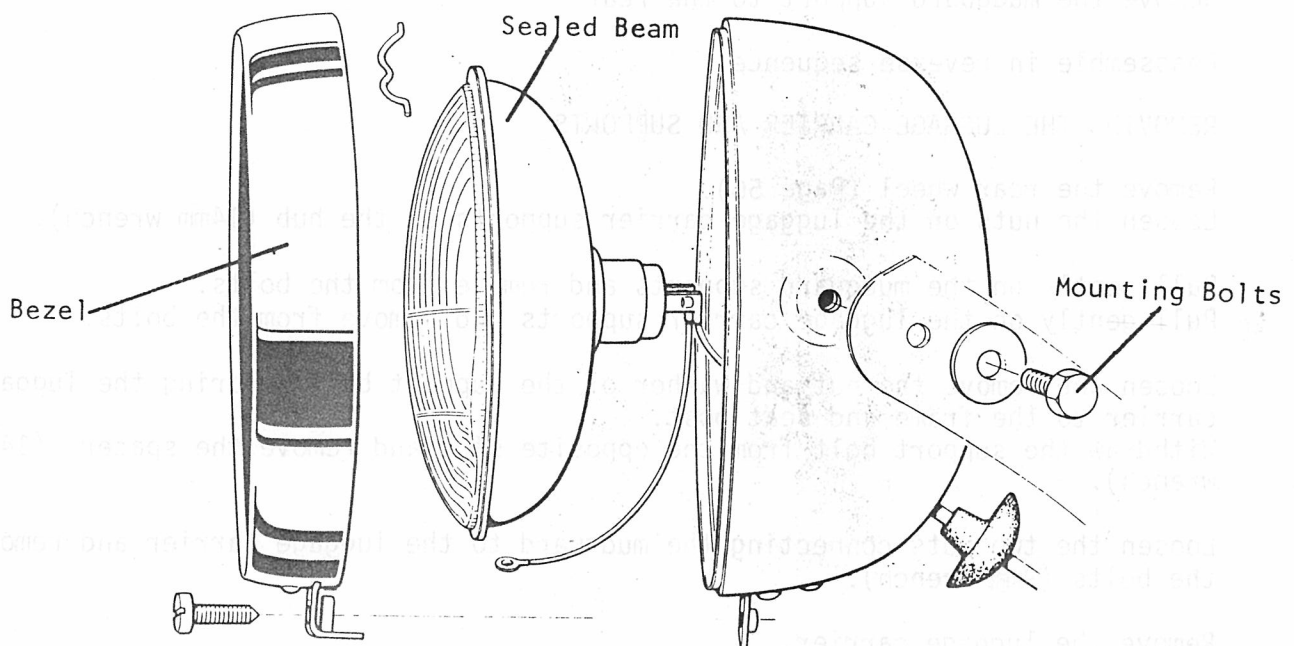


Fig. 10

REPAIR OPERATIONS CYCLE, FRAME, CONTROLS
CONT'D.

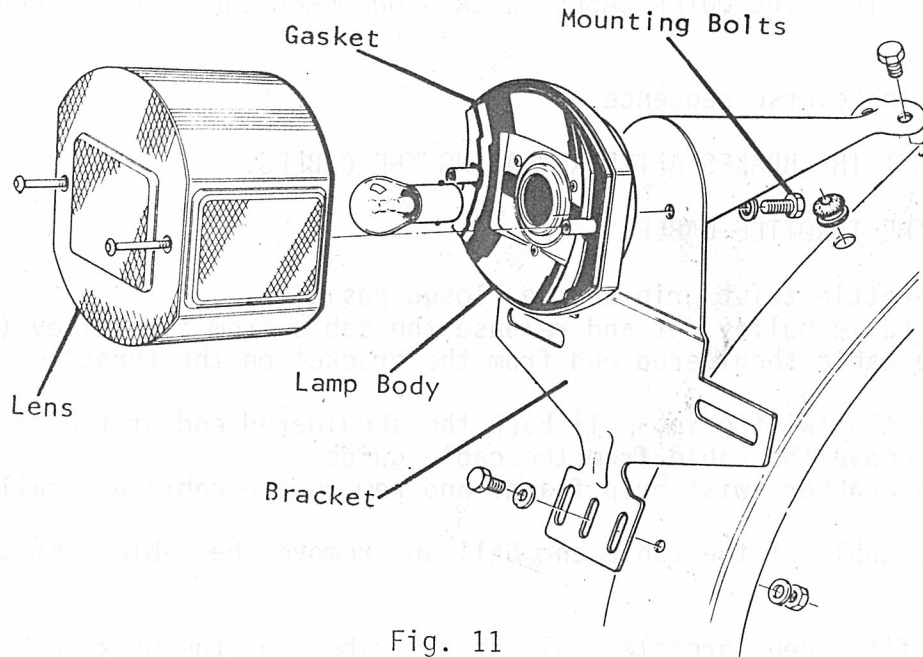


Fig. 11

THE CONTROL CABLES

REPLACING THE BRAKE CABLES

Push on the cable pivots at the brake levers and detach the cable end balls from the brake levers.

Front Brake:

Disconnect the brake cable from the brake bar assembly at the brake mechanism.

Rear Brake:

Loosen the nut of the cable clamp (7mm wrench).

Pull on the cables at the cable end balls and remove the cables from the outer cable covers.

REPAIR OPERATIONS CYCLE, FRAME, CONTROLS

CONT'D.

Grease the new cable(s) and slide in and out of the outer covers to ensure that the entire length of the cable and inside of the outer covers are well lubricated.

NOTE: CHECK THAT THE OUTER CABLE COVER SHOULDERED END IS WELL LOCATED IN POSITION.

Reassemble in reverse sequence.

NOTE: ADJUST THE BRAKES AFTER REPLACING THE CABLES.

REPLACING THE THROTTLE CABLE

Roll the throttle twist grip to the closed position.
Loosen the cable pulley nut and release the cable from the pulley (7mm wrench).
Release the cable shouldered end from the bracket on the throttle arm.

At the throttle twist grip, pull back the shouldered end of the cable outer cover and remove the cable from the cable guide.

Pry back the rubber twist grip flange and remove the cable end ball.

Pull on the cable at the cable end ball and remove the cable from the outer cover.

Grease and fit a new throttle cable as described for the brake cables.

Reassemble in reverse sequence.

NOTE: CHECK THAT THE THROTTLE CABLE SHOULDERED END AT THE THROTTLE ARM IS CORRECTLY SEATED IN THE BRACKET ON THE THROTTLE ARM.

Start the engine and check for correct throttle operation (Page 30).

If the engine runs too fast when the throttle twist grip is in the closed position, loosen the pulley nut and adjust the tension on the cable until smooth idling is reached.

Tighten the pulley nut (7mm wrench).

REPLACING THE DECOMPRESSOR CABLE

Loosen the cable clamp at the decompressor lever cylinder head bracket (7mm wrench).

Pull back the shouldered end of the outer cable cover at the decompressor lever on the throttle twist grip.

Remove the cable from the guide in the decompressor lever bracket and remove the cable end ball from the lever.

Pull on the cable at the cable end ball and remove the cable from outer cover.

REPAIR OPERATIONS CYCLE, FRAME, CONTROLS
CONT'D.

Grease and fit a new decompressor cable as described for the brake cables.

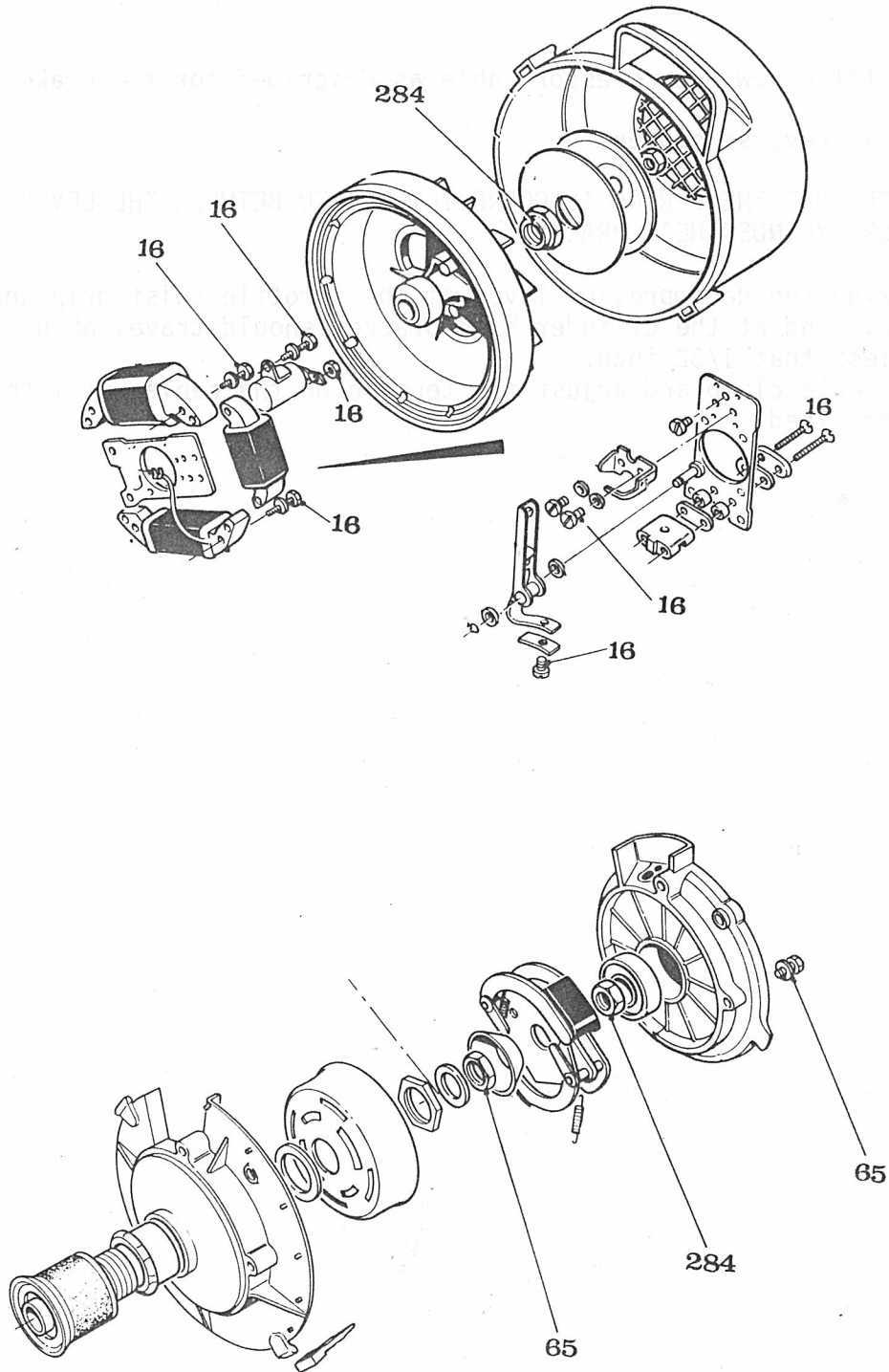
Reassemble in reverse sequence.

NOTE: CHECK THAT THE SPRING IS CORRECTLY PLACED BETWEEN THE LEVER AND THE DECOMPRESSOR CYLINDER HEAD BRACKET.

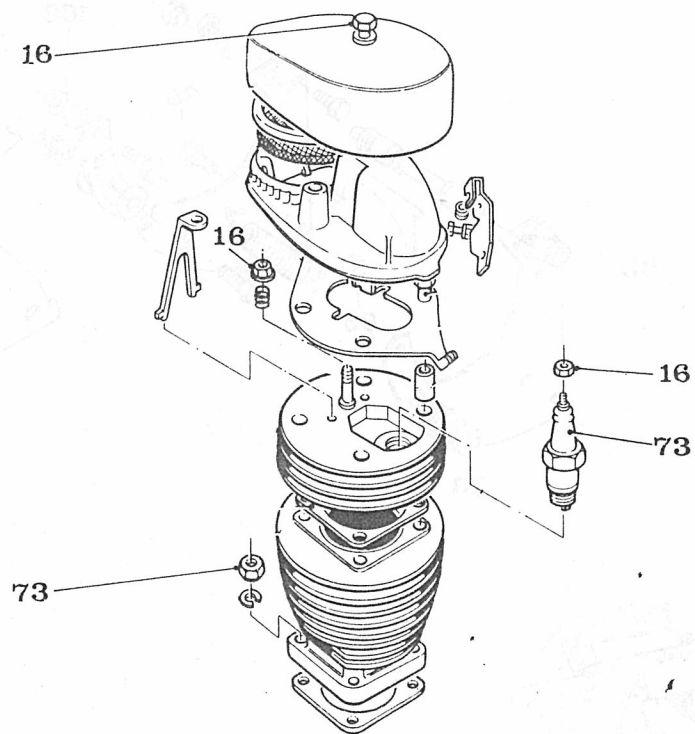
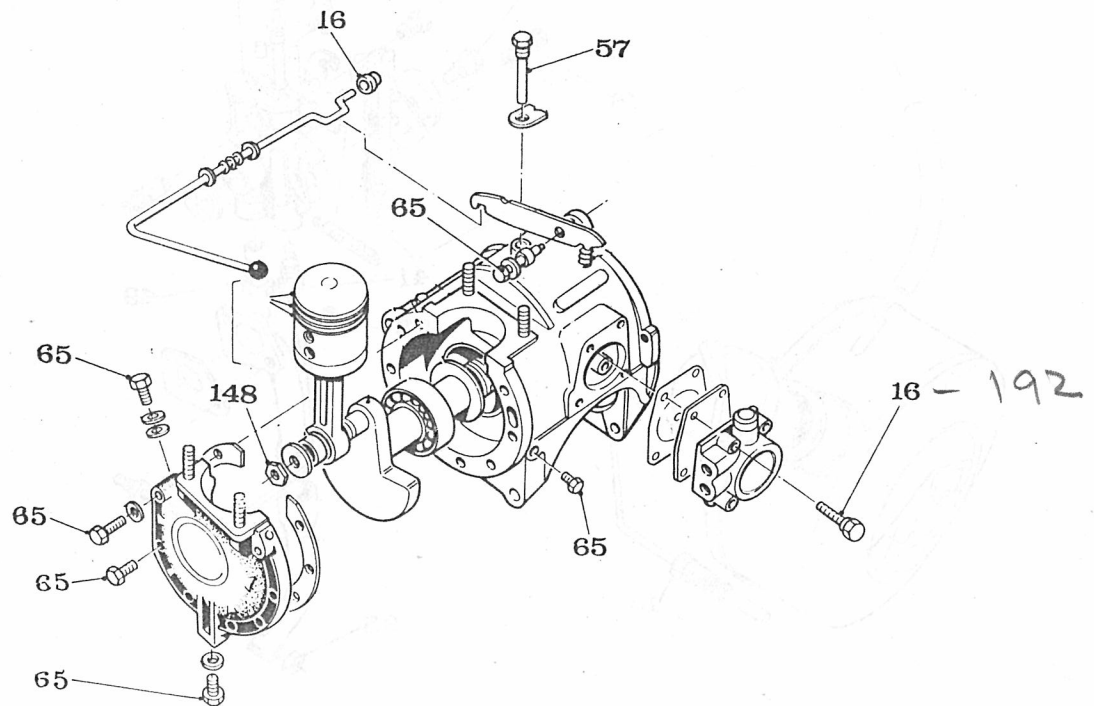
When squeezing the decompressor lever at the throttle twist grip and decompressor cable end at the cylinder head bracket should travel about 1/8 inch and never less than 1/32 inch.

Loosen the cable clamp and adjust the tension on the cable until the correct travel is obtained.

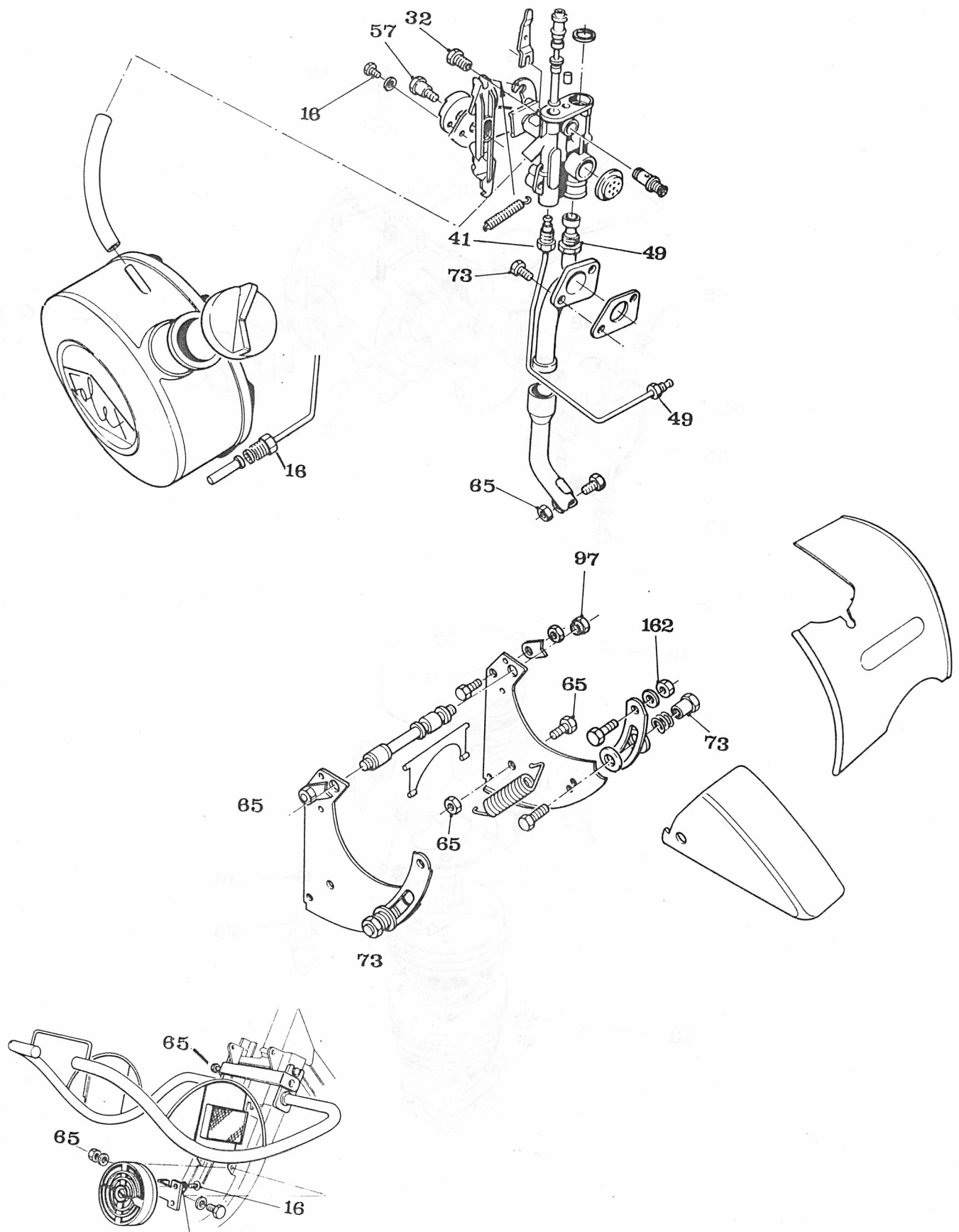
TORQUE DIAGRAM



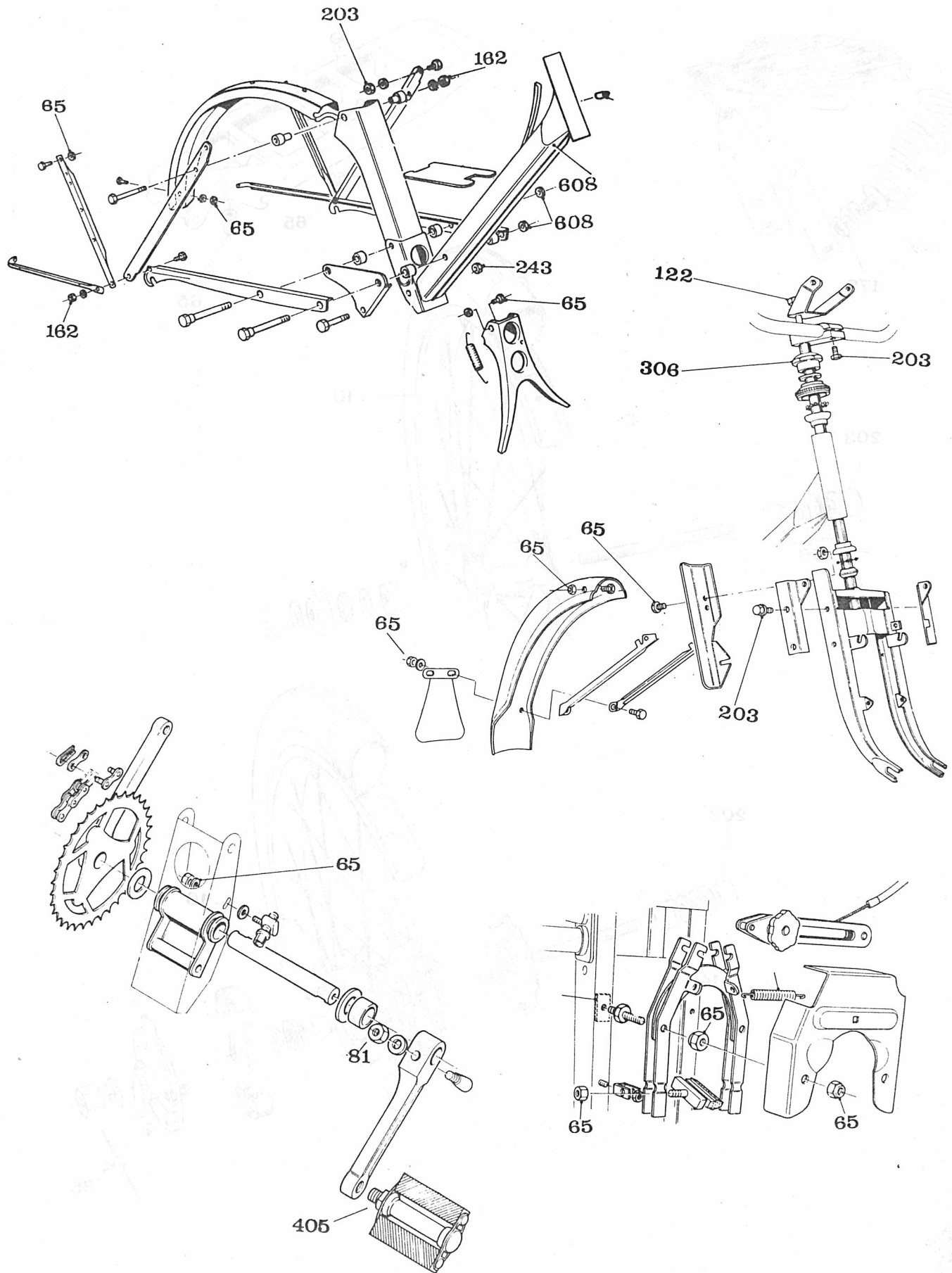
TORQUE DIAGRAM



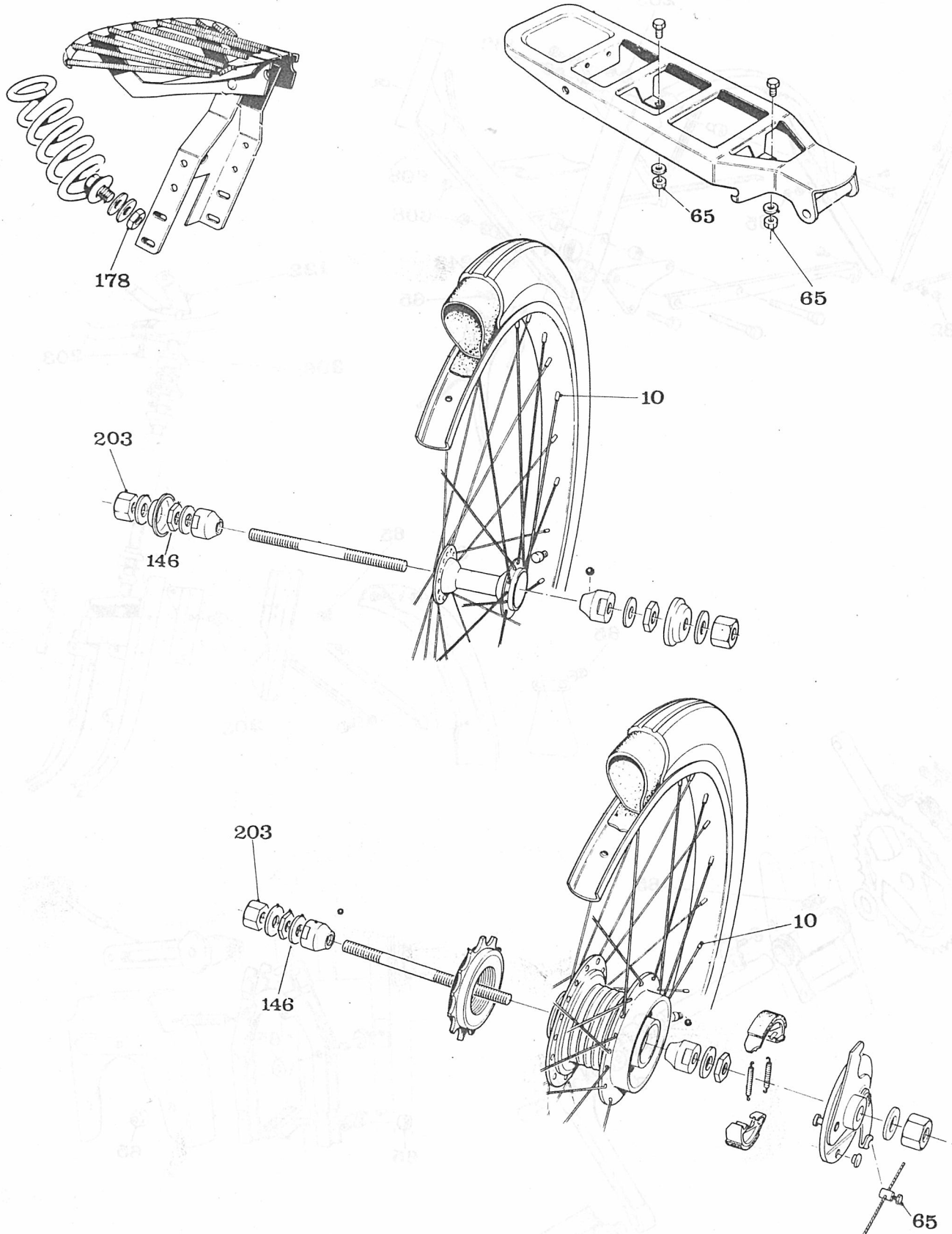
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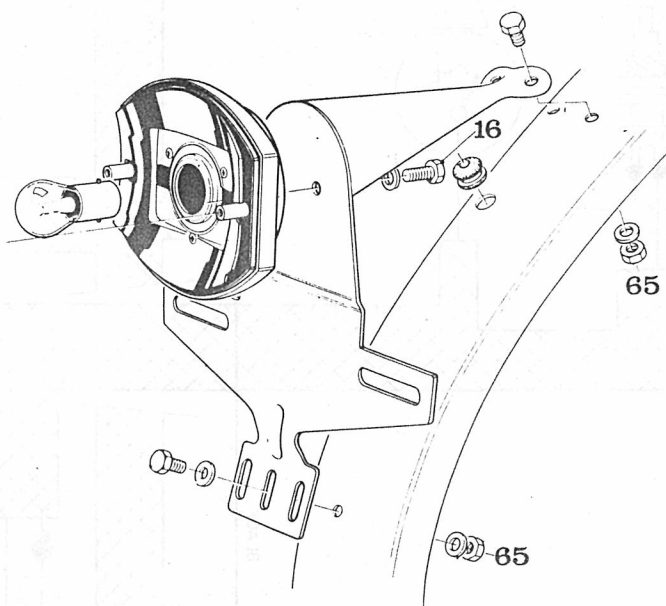
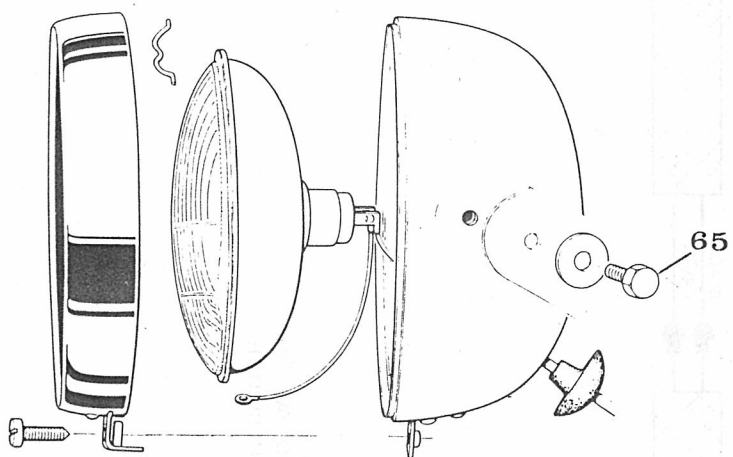
TORQUE DIAGRAM



TORQUE DIAGRAM



TORQUE DIAGRAM





SOLEX WIRING DIAGRAM

