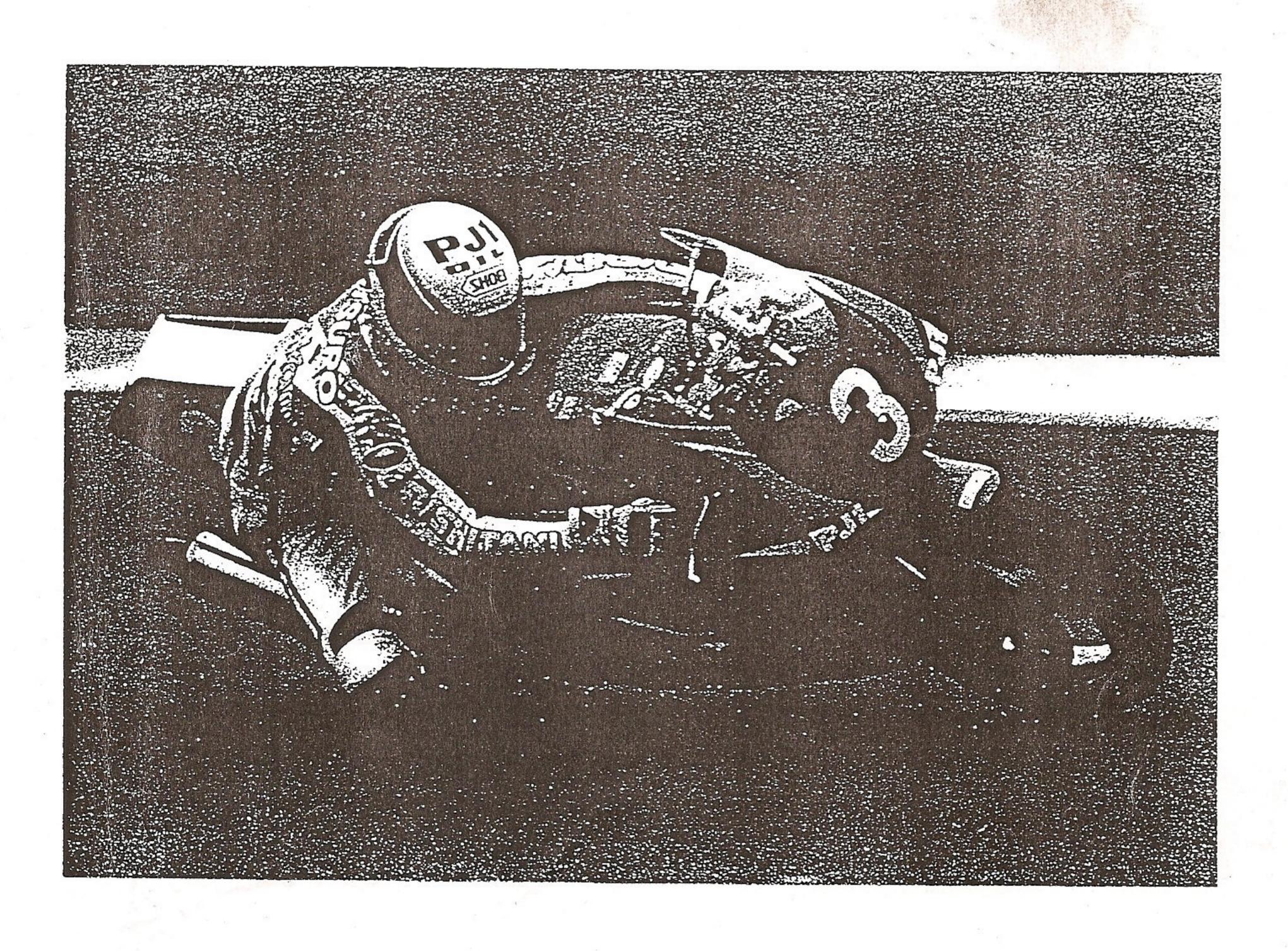
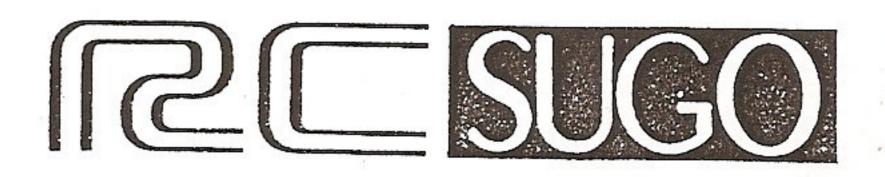
Race Kit Manual For FZR400RR (4DX1) '93 KIT PARTS





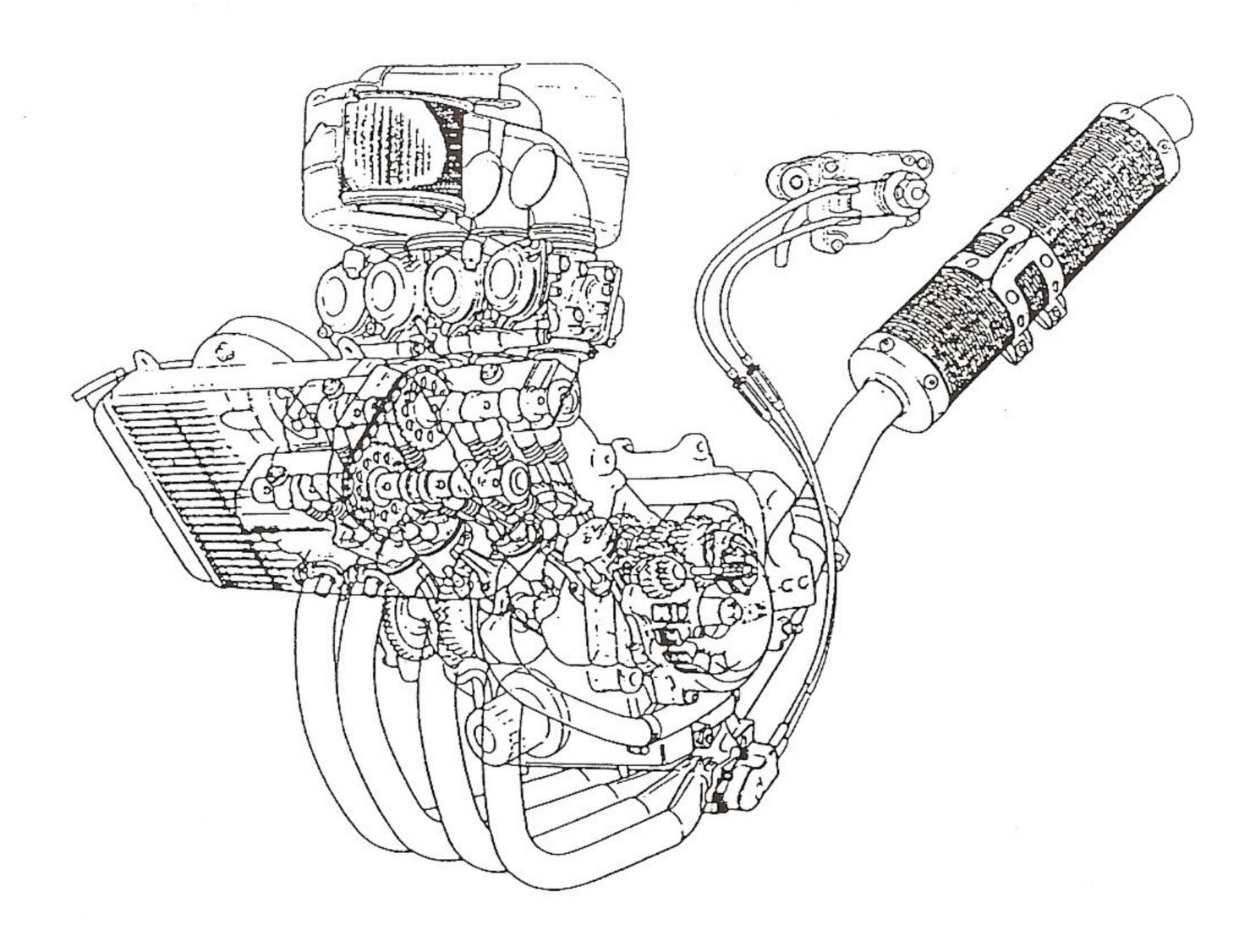
Please note:

O These parts are intended exclusively for racing purposes. You are strictly requested not to use them for a public road ride.

Please abide by the laws of your own country.

No warranty allowed:

O These parts are prepared for the specific purpose of racing. Thus, please understand that they are not covered under warranty.



Specifications are subject to change without notice for improvement.

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KIT SET

1 PISTON

One of the techniques to improve the performance of four-stroke engines is to increase their compression ratio. This piston increases the compression ratio of the standard by about 1.0. It allows the torque to be increased by about 0.1 kg·m over the entire range.

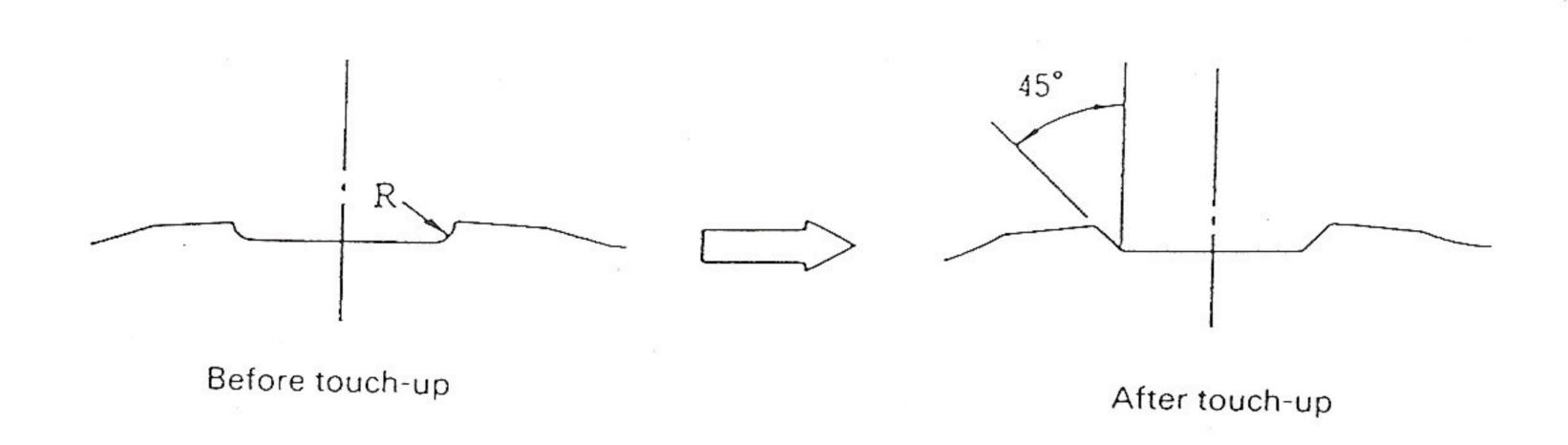
Parts list

No.	Part No.	Part name	Q'ty	Remarks
① 3TJ-11	631-70	Piston	4	

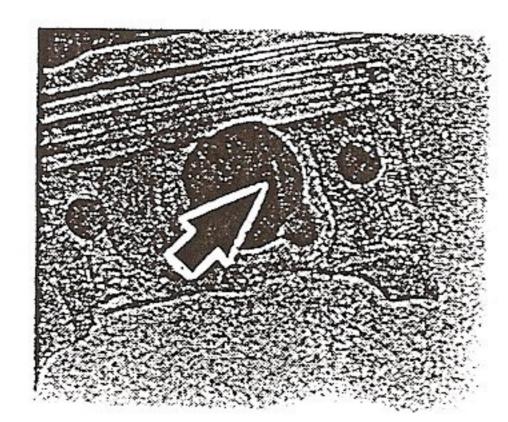
CAUTION:

For installing the piston, refer to the service manual and also keep the following points in mind.

- 1. Before installing the piston, remove sharp edges from each part. Particularly, be sure to secure a relief for the valve.
- 2. Touch up the relief for the plug as shown below.



3. Check that there are no chips or burrs in the oil hole in the pin boss. Be sure to remove burrs toward the inner side of the pin boss.



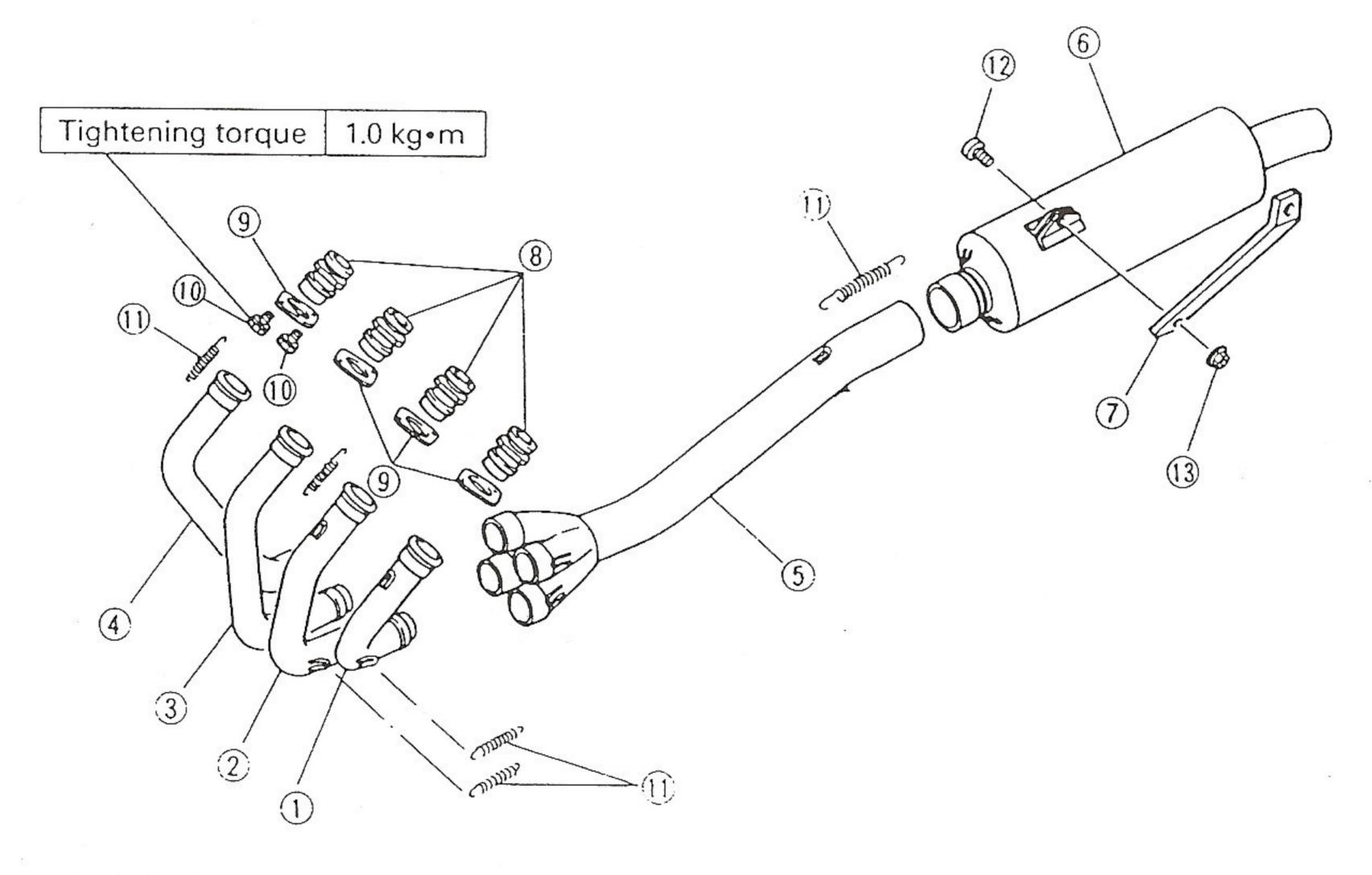
- 4. Use the standard piston ring, piston pin, and circlip.
- 5. Assemble the second ring with the side marked with "RN" up.

2 MUFFLER ASS'Y

Parts list

	No.	Part No.	Part name	Q'ty	Remarks
	1	3TJ-14611-80	Pipe, exhaust 1	1	***************************************
	2	3TJ-14621-80	Pipe, exhaust 2	1	
	3	3TJ-14631-80	Pipe, exhaust 3	1	
	4	3TJ-14641-80	Pipe, exhaust 4	1	
	(5)	3TJ-14785-82	Diffuser	1	
	6	3HE-14720-70	Silencer ass'y	1	
	7	1WG-21445-70	Stay	1	
	8	3TJ-14612-80	Nut, ring 1	4	
	9	3TJ-14622-80	Nut, ring 2	4	
☆	10	91311-06012	Bolt	8	
☆	11)	90507-20030	Spring	10	
☆	12	90101-08710	Bolt	1	
☆	13	95611-08200	Nut	1	

The parts marked with "☆" are also contained in the kit set. They are also available as Yamaha captive parts at our dealers.



Installation

- 1. Remove the muffler ass'y of the base motorcycle and remove the stud bolts of the head cylinder.
- 2. Holding ® ring nut 1 with ⑨ ring nut 2, assemble them with ⑩ bolt. At this time, check that nut, ring 1 does not become loose or turn. If it is found loose, replace the gasket.
- 3. Assemble the exhaust pipes and the diffuser and assemble them to the ring nuts.
- 4. Mount the silencer.

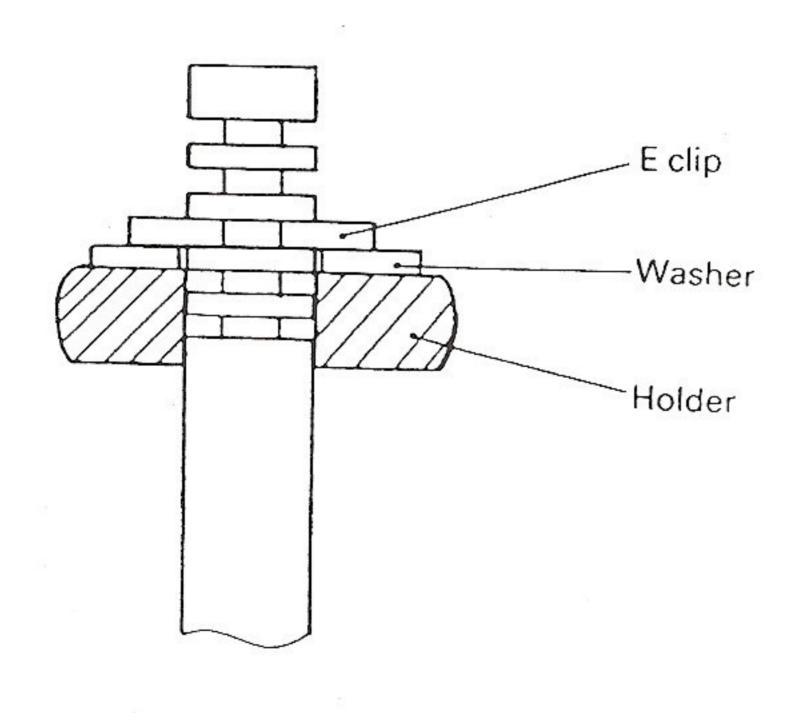
3 CARBURETOR SETTING PARTS AND STANDARD SETTINGS

Parts list

No.	Part No.	Part name	Q'ty	Remarks
①		Main jet # 122.5	4	TIOTHATICS
2		Main jet #125	4	
3		Main jet # 127.5	4	
4		Main jet #130	4	
(5)		Main jet # 132.5	4	
6		Main jet #135	4	
7		Needle jet Y-0 (637)	4	
8		Jet needle 5CT1	4	
③ 3TJ	-14933-70	Suction spring	4	
10		Main air jet #120	4	
11		Washer	4	
12		Eclip	4	

<Standard Settings>

Main jet	#127.5
Needle jet	Y-0
Number of needle steps	3.5 steps counted from top
Main air jet	#120
Pilot screw	21/2.
Pilot jet	STD (#32.5)
Starter jet	STD
Oil level	STD
Air funnel	ℓ=20 mm

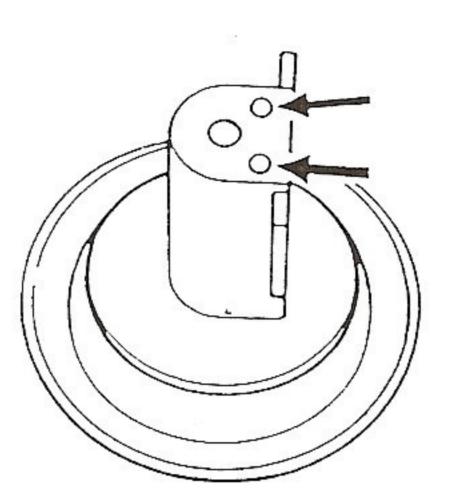


In the case of 3.5 steps:

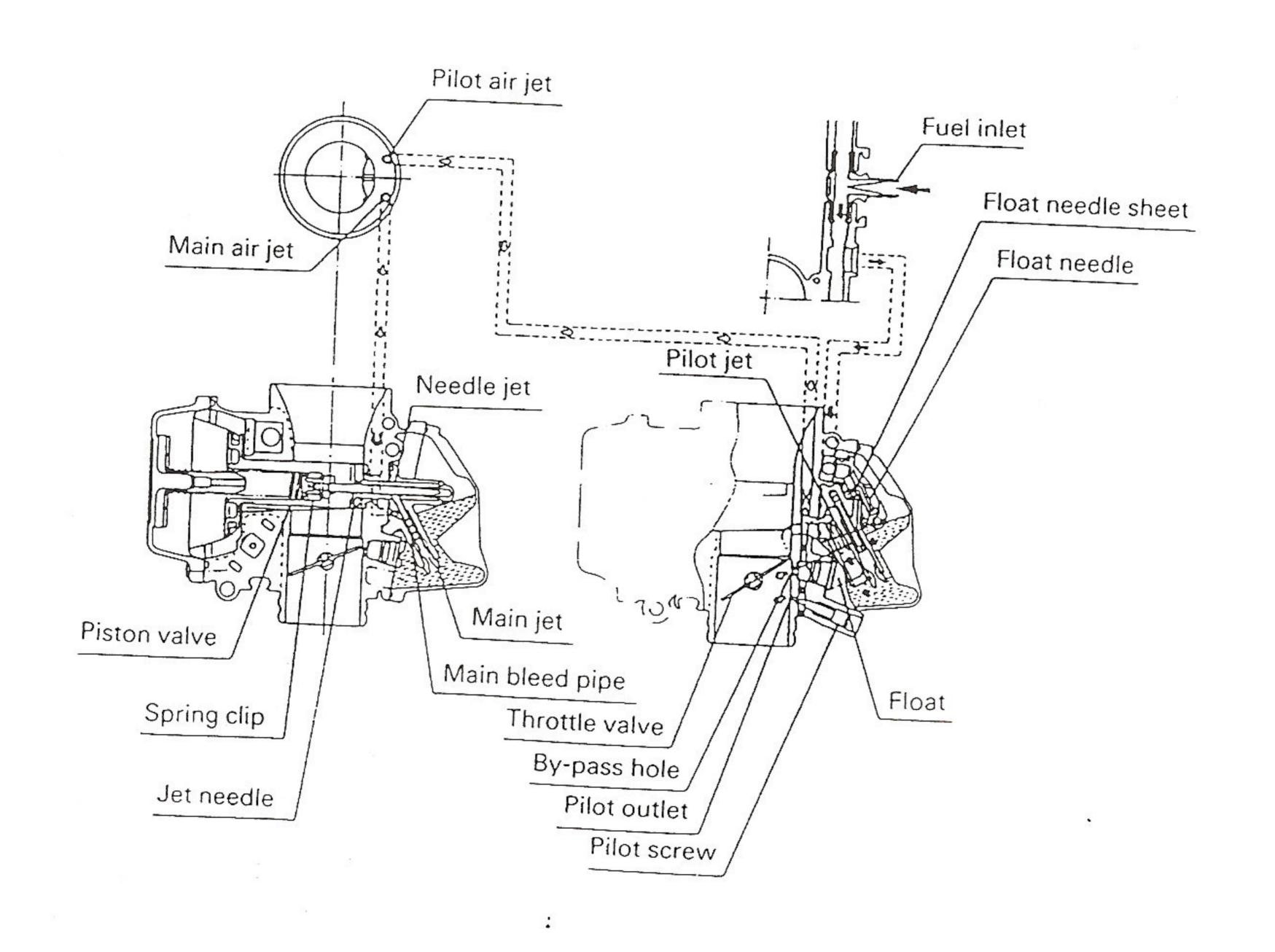
- ① Insert an E clip in the third step.
- ② Place the washer of the kit set under the E clip.
- 3 Place the holder in position.
- ☆ Three steps means a state in which the washer is removed from the 3.5 steps.

O Modifying the Suction Piston

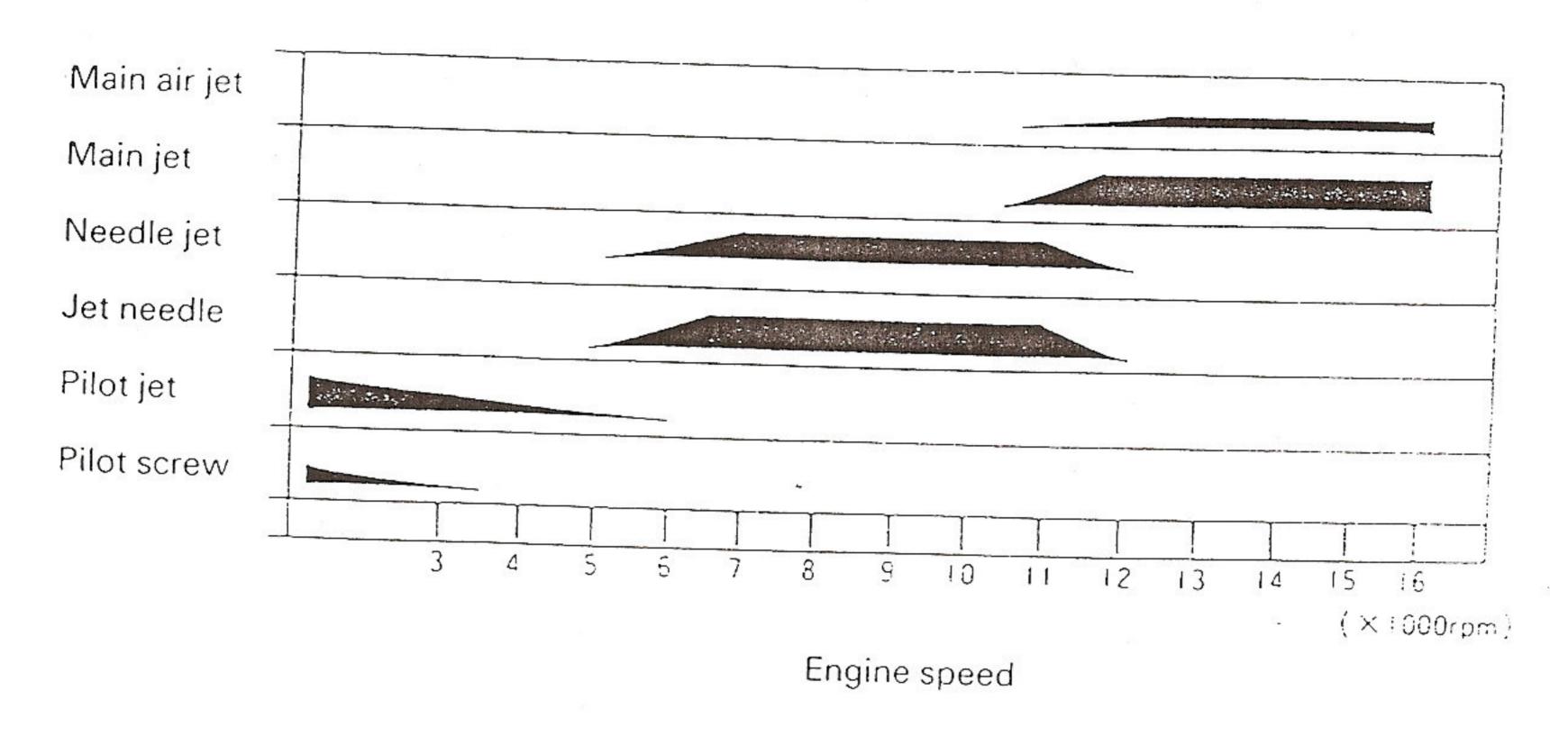
To improve the response of the suction piston, replace the suction spring and also enlarge the negative pressure holes (2 places) in the suction piston to a diameter of 3.0, using the drill.



O The use of a 5 mm precision screwdriver is recommended to remove or assemble the main air jet. Remove beforehand the filter mounted at the fuel inlet.



O The range in which each jet of the carburetor operates is almost as shown in the figure below. Before changing any carburetor setting, check each rotational range for bad condition.



O The following air funnels are available optionally.

Parts list

No.	Part No.	Part name	Q'ty	D
1	2TK-14453-70		U ty	Remarks
		Joint 1		Aluminum-made ℓ=20 mm
2	3TJ-14453-70	Joint 1		
3	3TJ-14453-71	Joint 1		Rubber-made ℓ=20 mm
(4)	3TJ-14453-72			Rubber-made ℓ=30 mm
	010 14400-72	Joint 1		Rubber-made ℓ=10 mm

The parts from ② to ④ are designed considering the use of the air cleaner box and induction box.

4 FRICTION PLATES AND CLUTCH SPRINGS

The friction plates are made of a material which is not easily burnt in an incompletely clutched state such as clutch start, as compared with the standard parts. Use them in combination with clutch springs.

The load of the clutch spring has been increased by 10% from the standard part.

Parts list

No.	Part No.	Part name	Qʻty	Remarks
1	3TJ-16321-70	Plate, friction	8	
2	1WG-90501-70	Spring, clutch	5	Color: Yellow, Free length: 30.6 mm

CAUTION:

- 1. For installation, refer to the service manual.
- 2. Check the friction plates and clutch plates as often as possible. (Refer to page 4-28 in the service manual.)
 - Replace any friction plate which is less than 2.8 mm in thickness or whose surface is carbonized. Replace any clutch plate burnt bluish purple because its thermal strain may cause the clutch to slip.
- 3. At clutch start, avoid gripping the clutch lever for long with the transmission in. Particularly with the engine speed increased, oil fails to be supplied to each plate. In such a case, the plates may be burnt before start and the motorcycle may fail to be started in the worst case.
- 4. Be careful not to mix up the spring with 3TJ-90501-70 (color code of yellow, free length of 31.7).
- 5. To further strengthen the clutch, replace the following parts.

Parts list

	No.	Part No.	Part name	Q'ty	Remarks
☆	1	2TK-16150-00	Primary driven gear	1	
☆	2	2TK-16371-00	Boss, clutch	1	
☆	3	2TK-16351-00	Plate, pressure	1	
	4	3TJ-90501-70	Spring, clutch	5	

- O 3HE-16371-00 can also be used for ②.
- One each of the friction plate and clutch plate must be added.

5 IGNITOR

Parts list

No. Part No.	Part name	Q'ty	Remarks
① 3TJ-82305-71	Ignitor unit	1	

This part is exclusively used in races and meets the characteristics applicable when the muffler is used. It is common to the optional EXUP muffler.

CAUTION:

- 1. The EXUP's opening characteristic is different from that of mass-produced motorcycles. Therefore, the part cannot be used for the EXUP of mass-production specifications.
- 2. The over revolution limit is 15,400rpm. This meets the engine for motorcycles of the SP-specifications. To use the engine of the standard specifications, change the valve spring and lifter (*1) to those of the SP specifications or set the upper limit to 14,500rpm.

(*1)

Parts list

	No.	Part No.	Part name	Q'ty	Remarks
众	1	3TJ-12113-10	Spring, valve inner	16	
☆	2	3FV-12153-10	Lifter, valve	.16	

Parts marked with ☆ are stamped YAMAHA parts and available through the general parts sales channel.

6 WIREHARNESS

This wire harness kit has a self starter circuit and a charging circuit. It is also equipped with a stop switch for the fuel pump to meet the race rules.

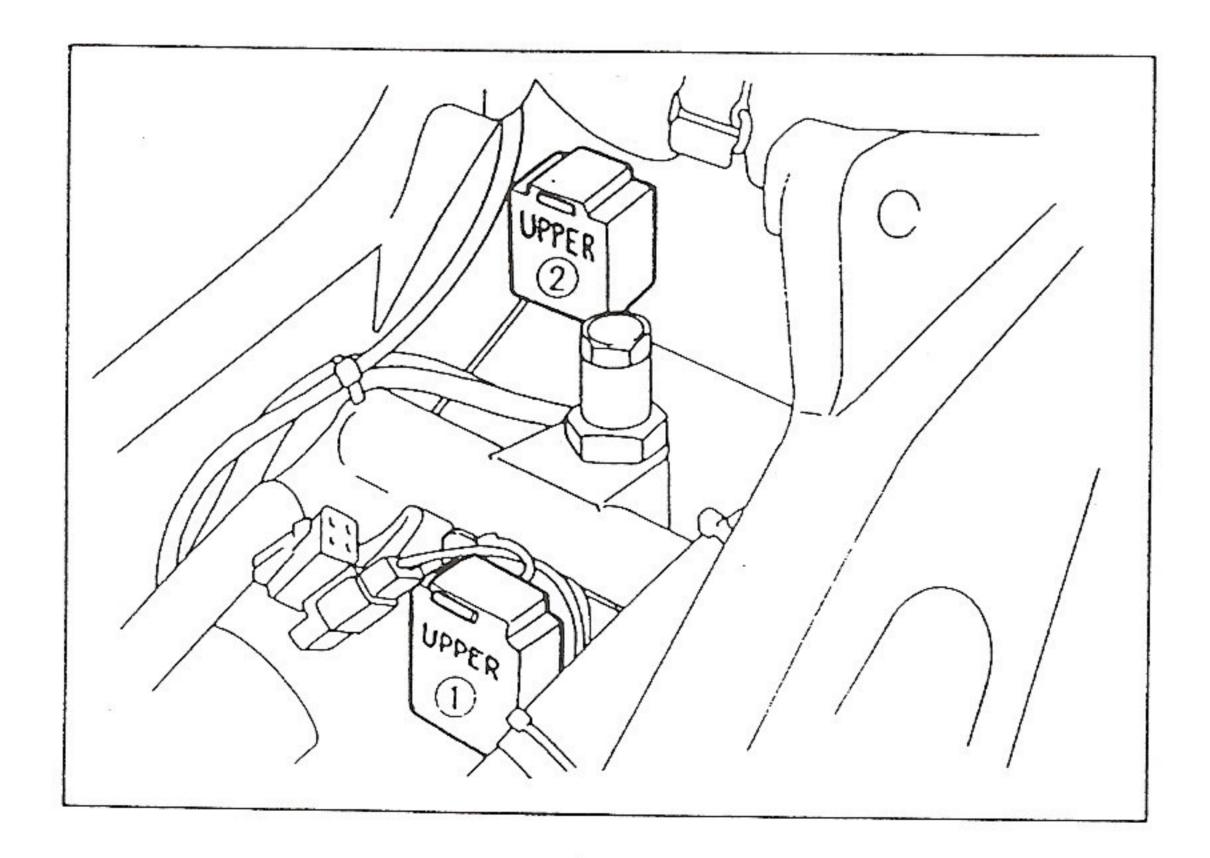
Parts list

	No.	Part No.	Part name	Q'ty	Remarks
	1	3TJ-82590-70	Wire harness	1	
☆	2	4U8-81950-02	Relay	1	
☆	3	2H7-82576-00	Engine stop switch	1	
	4	3TJ-2117J-70	Stay	1	

The parts marked with "☆" are also contained in the kit set. They are also available as Yamaha captive parts at our dealers.

CAUTION:

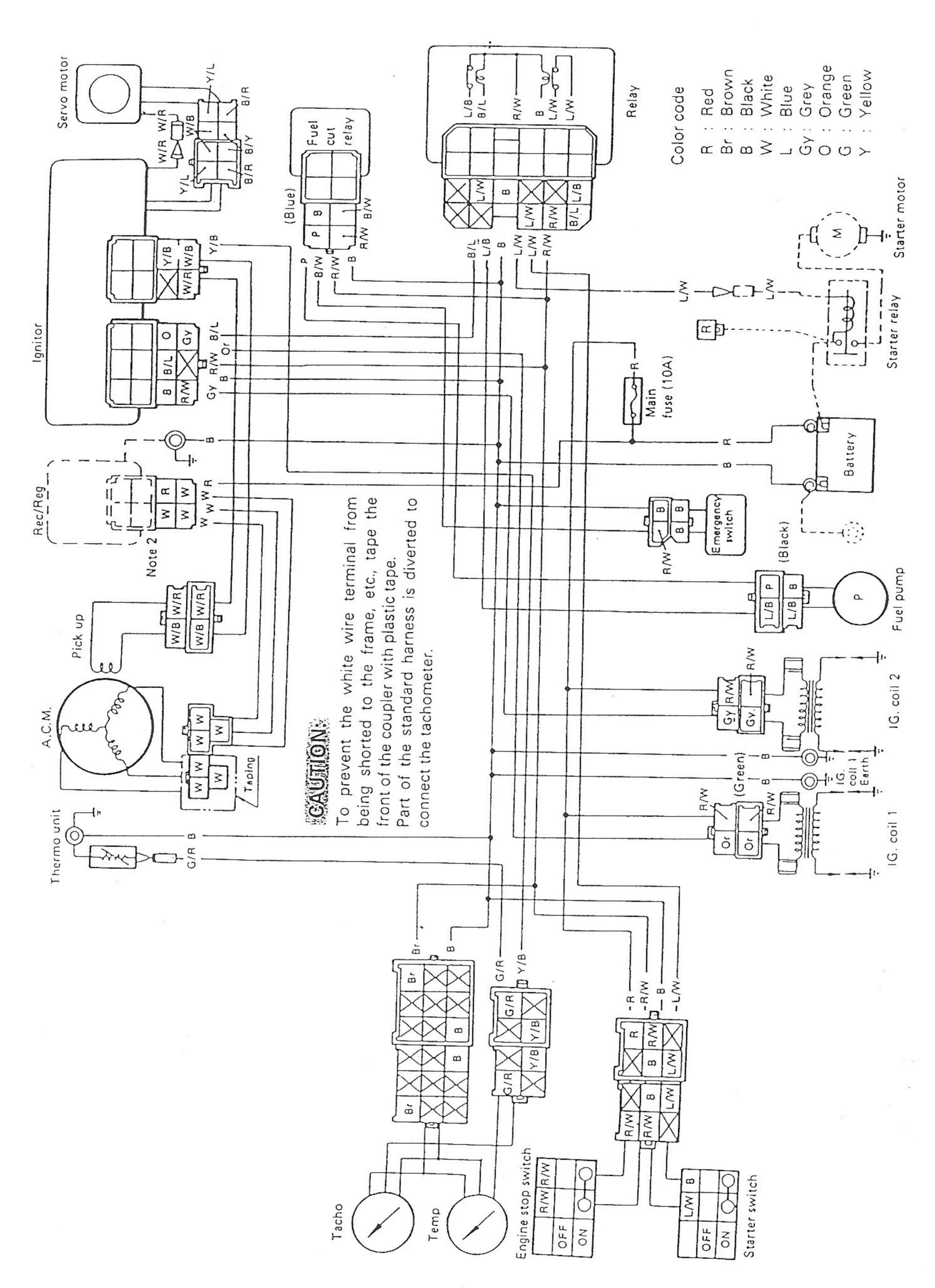
- 1. Connect the coupler and route the wire harness in the same manner as the base motorcycle.
- The fuel pump is stopped when the engine stop switch senses inclination of the stumbling motorcycle causing the relay to cut off the drive circuit of the fuel pump.
 The engine stop switch should be mounted at either of the following two locations.



After removing the rectifier regulator for ① sprints, bolt the stay at that position. When requiring a rectifier regulator for ② long-distance races, rivet the rectifier regulator to the battery case.

When determining the mounting position of the engine switch, note the following points:

- ⓐ It is preferable to mount the switch near the center of gravity of the motorcycle.
- (b) Be sure to mount the switch with the "UPPER" arrow up and the "UPPER" marking facing the front.
- 3. Connect the relay to the blue coupler of the wire harness and secure it to the rear frame.
- 4. Be sure to connect a ground wire to the ignition coil (see the condition of the base motorcycle). However, if the coil is directly attached to the body by changing the coil position, no ground wire may be attached.
- 5. When mounting the rectifier regulator for long- distance-race specifications, be sure to tighten the bolt together with the ground wire.
- 6. This wire harness serves an engine stop switch and a main switch. Before storing the motor-cycle, always try to remove the battery.



7 SPROCKET

Parts list

No.	Part No.	Part name	Q'ty	Remarks
1	1WG-17461-74	Sprocket drive 14T	1	
2	1WG-17461-75	Sprocket drive 15T	1	
3	1WG-17461-76	Sprocket dirve 16T	1	Manage Transport
4	1WG-25441-70	Sprocket driven 41T	1	
(5)	1WG-25442-70	Sprocket driven 42T	1 1	
6	1WG-25443-70	Sprocket driven 43T	1	
7	1WG-25444-70	Sprocket driven 44T	1 1	
8	1WG-25445-70	Sprocket driven 45T		
9	2TK-18167-70	Nut	1	

CAUTION:

- O Tighten the nut to the extent that it can be tightened with the rear brakes applied. Be sure to use a lock washer to prevent the nut from turning. Do not use an impact wrench.
- O These sprockets are for use with the 520 chain.

<Gear ratio conversion table>

Front Rear	14T	15T	16T	
40T	2.857	2.667	2.500	Secondary _ <u>Driven sprocket</u>
41T	2.929	2.733	2.563	reduction ratio Drive sprocket
42T	3.000	2.800	2.625	
43T	3.071	2.867	2.688	
44T	3.143	2.933	2.750	* The
45T	3.214	3.000	2.813	* The smaller the value, the higher the speed ratio becomes.
46T	3.286	3.667	2.875	The larger the value, the lower
47T	3.357	3.133	2.938	the speed ratio becomes.

OPTION

1 JOINT CARBURETOR SET

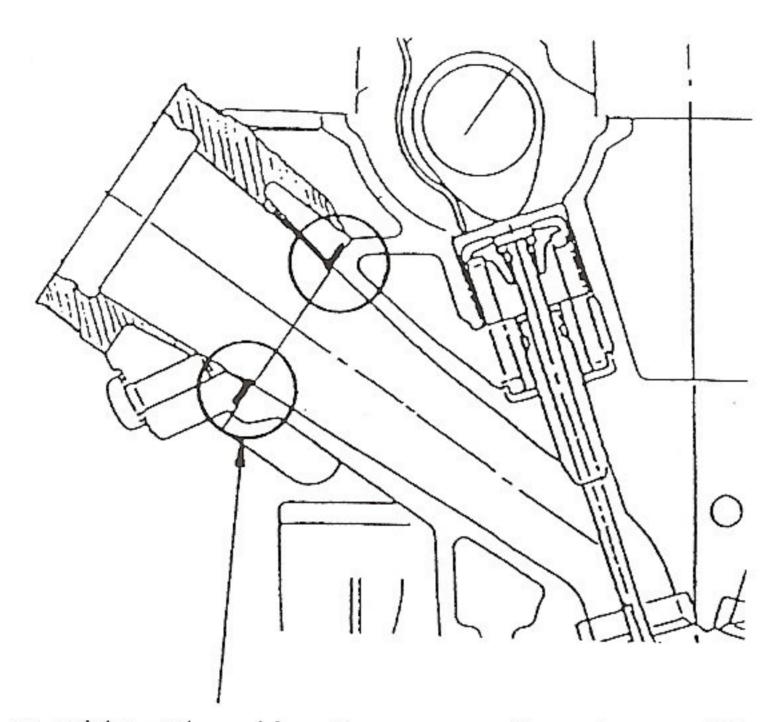
The length of the joint carburetor is one of the factors to determine the engine characteristics. The overall length of this part is shorter than the standard part, thus more reducing a fall in torque in the high speed range than the standard part.

Parts list

No.	Part No.	Part name	Q'ty	Remarks
1	3TJ-Y1350-70	Joint carburetor set		

CAUTION:

- 1. Mount the joint carburetor set from the left, as viewed when you ride the motorcycle, in the order as indicated on the carburetor mounting surface.
- 2. After mounting, remove the step on the mating surface with the head cylinder. If it is neglected, the full performance cannot be expected. For touch-up, it is preferable to use a rubber rubstone for grinding ports.



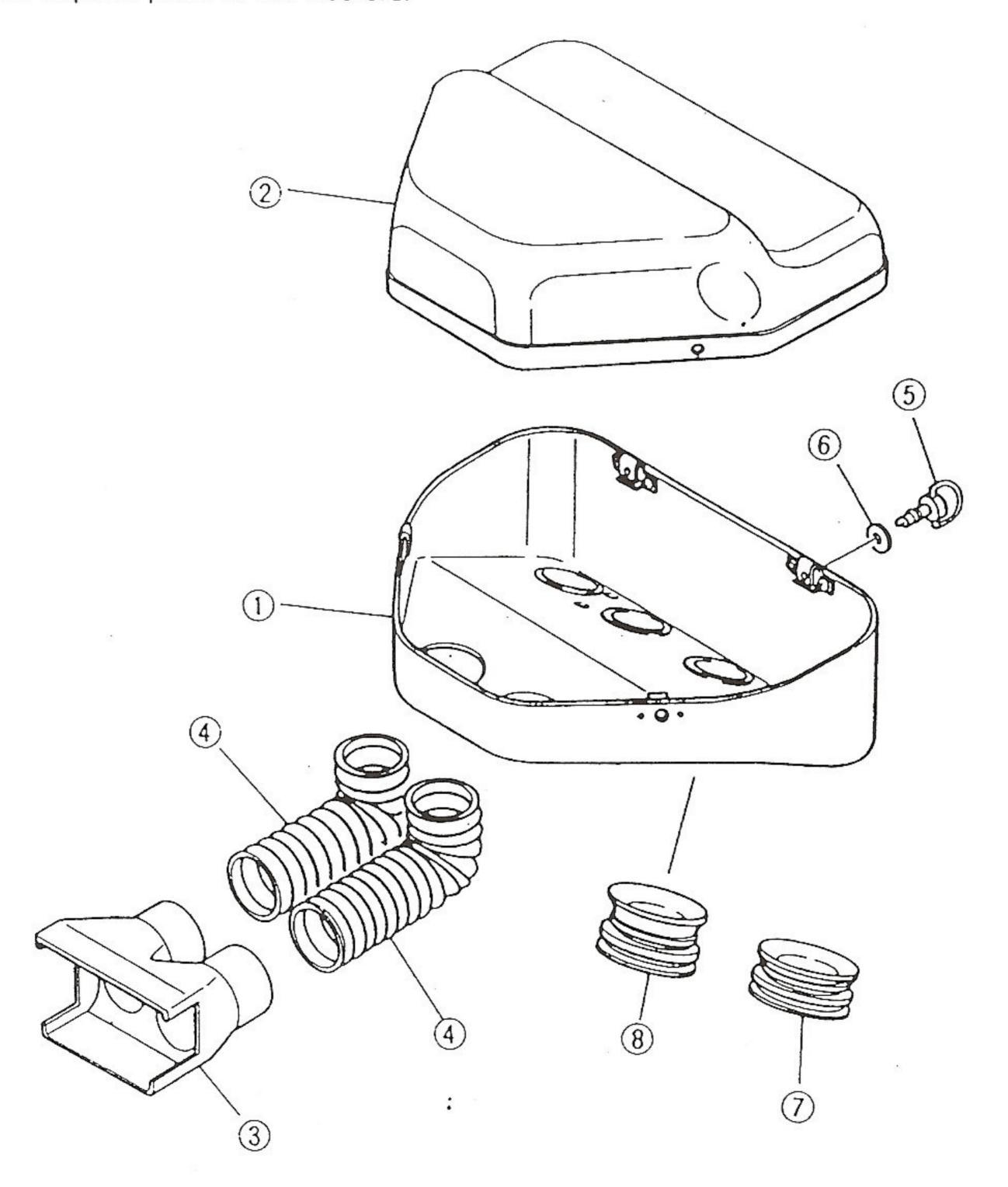
Touch up without breaking the connecting shape with the port.

2 INDUCTION BOX SET

This set is used to stably supply the sucked air of the carburetor. It is effective over the entire range. It increase the torque by about 0.2 kg·m in the middle and high speed ranges.

Parts list

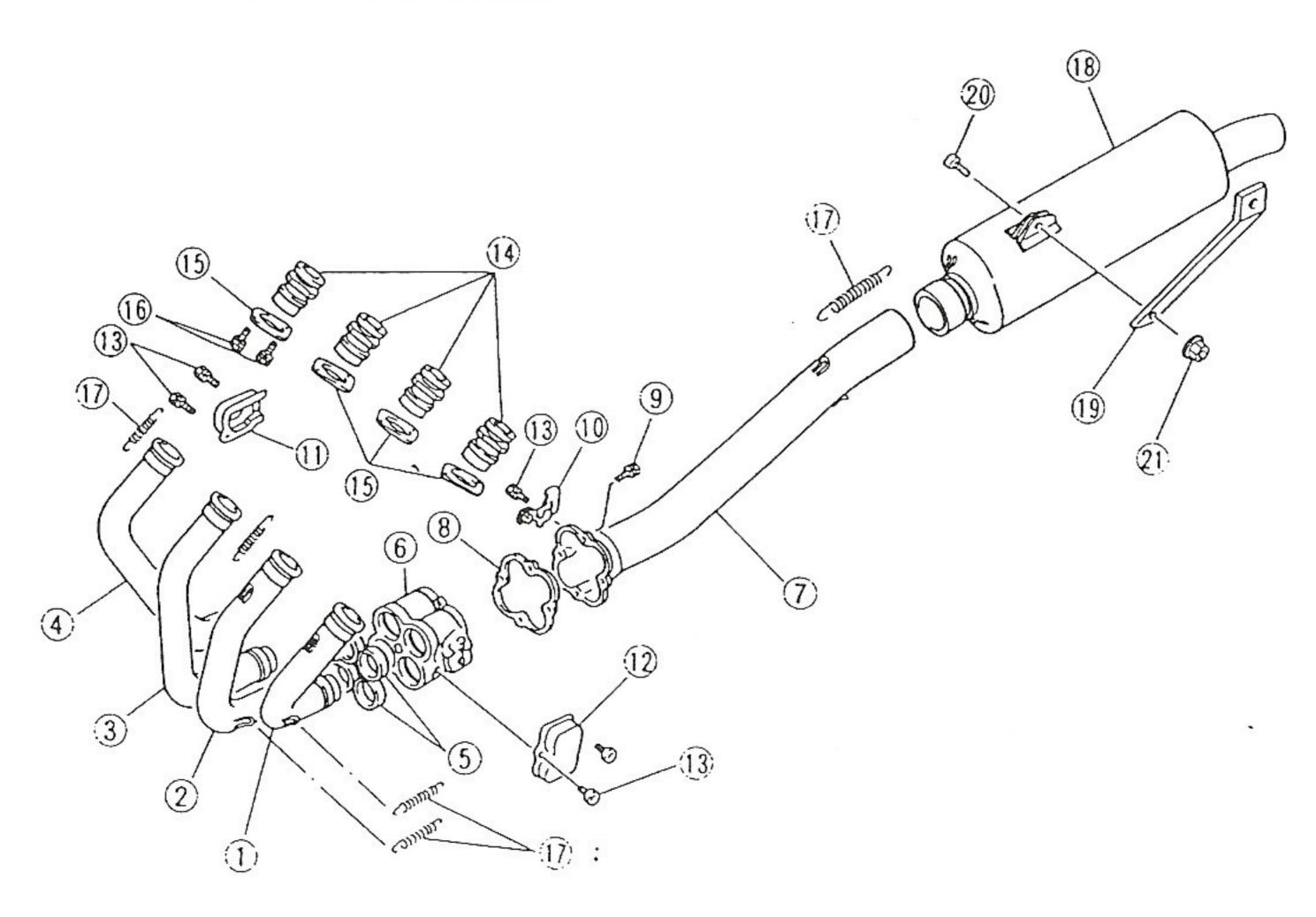
	No.	Part No.	Part name	Q'ty	Remarks
	1	3TJ-14411-70	Case 1	1	
	2	3TJ-14421-70	Case 2	1	
	3	3TJ-2838J-70	Duct 5	1	
	4		Hose	2	50(ID) × 300(L)
☆	(5)	3FV-28386-00	Head ·	4	
☆	6	2TK-21757-00	Washer	8	
	7	3TJ-14453-70	Joint 1 (A/H)	4	20(L) STD
	8	3TJ-14453-72	Joint 1 (A/H)	4	10(L) Option
	9	3TJ-82310-70	Coil 1	1	
	10	3TJ-82320-70	Coil 2	1	
公	(1)	1WG-82370-00	Plug cap ass'y	4	



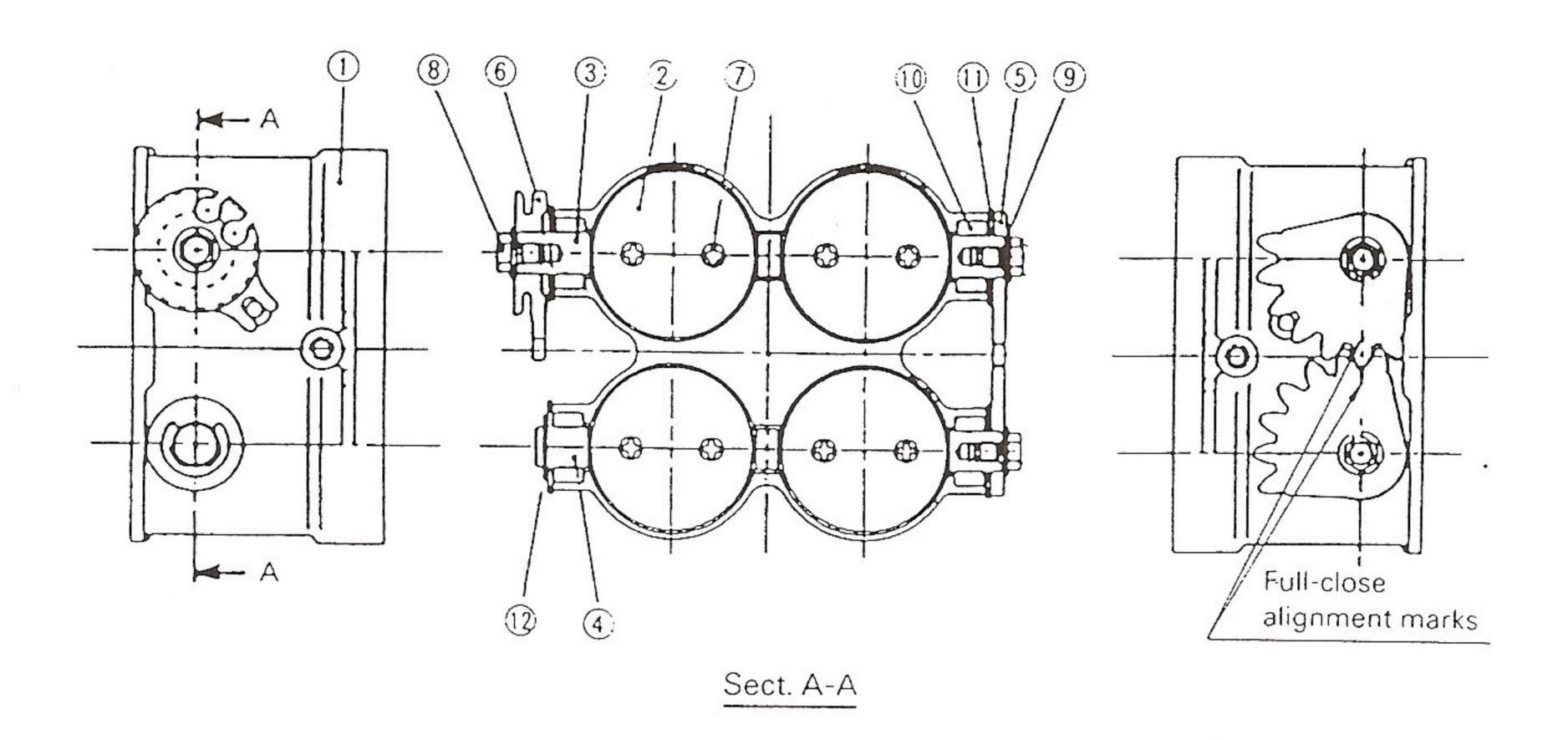
3 MUFFLER ASS'Y (EXUP SPECIFICATIONS)

Parts list

	No.	Part No.	Part name	Q'ty	. Remarks
	1	3TJ-14611-70	Pipe, exhaust 1	1	
	2	3TJ-14621-70	Pipe, exhaust 2	1	
	3	3TJ-14631-70	Pipe, exhaust 3	1	
	4	3TJ-14641-70	Pipe, exhaust 4	1	
☆	(5)	3FV-14855-00	Seal, dust	4	
	6	2TK-14810-71	Exhaust valve ass'y	1	
	7	3TJ-14785-72	Diffuser .	1	
☆	8	3FV-14815-00	Gasket	1	
☆	9	90119-06115	Bolt	4	
☆	10	3FV-14867-00	Bracket	1	
☆	11	3FV-14624-00	Cover	1	
☆	12	3FV-14826-00	Protector	1	
☆	13	90119-06131	Bolt	5	
	14	2TK-14612-71	Nut, ring 1	4	
	15	2TK-14622-71	Nut, ring 2	4	
☆	16	91311-06012	Bolt	8	
☆	17)	90503-20030	Spring	10	
	18	3HE-14720-70	Silencer ass'y	1	
	19	1WG-21445-70	Stay	1	
☆	20	90101-08718	Bolt	1	
☆	21)	95611-08200	Nut	1	



Details of No. 6 Exhaust Valve Ass'y Parts

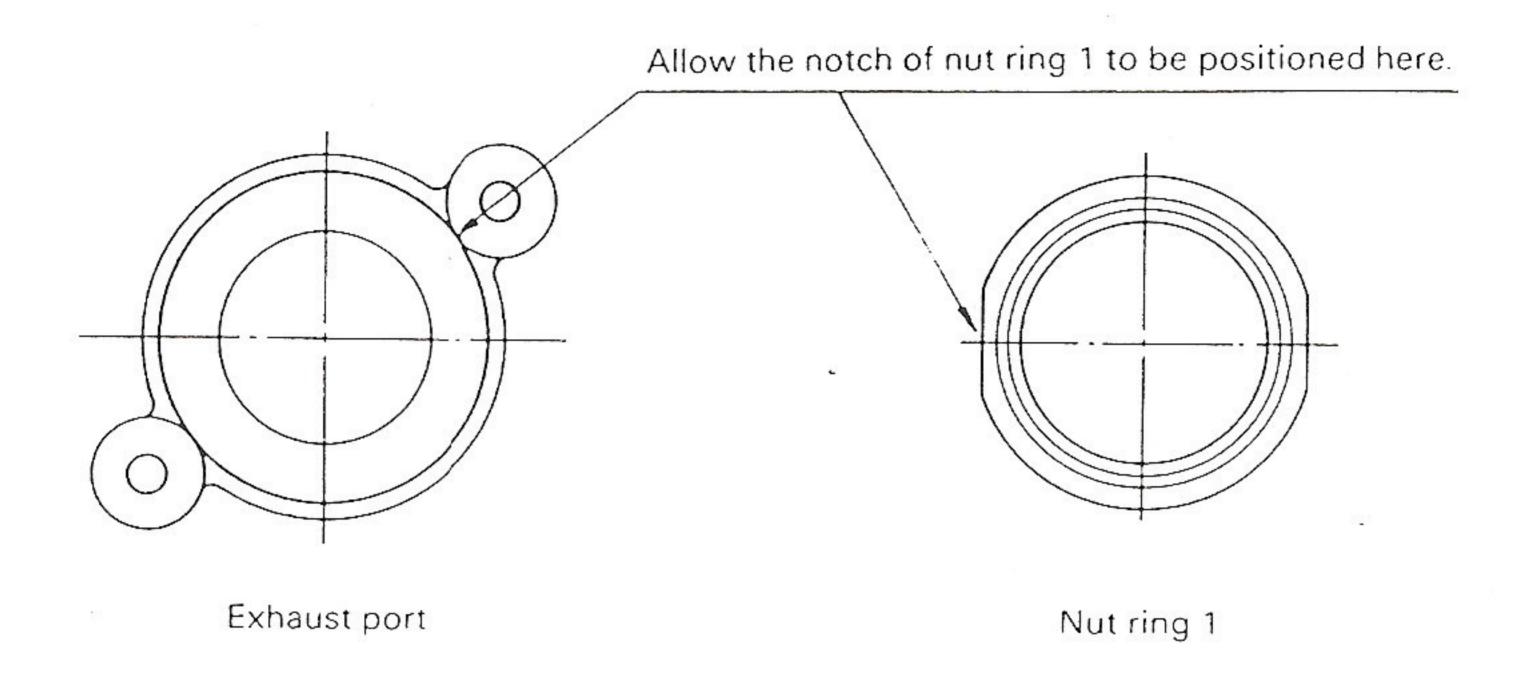


Parts list

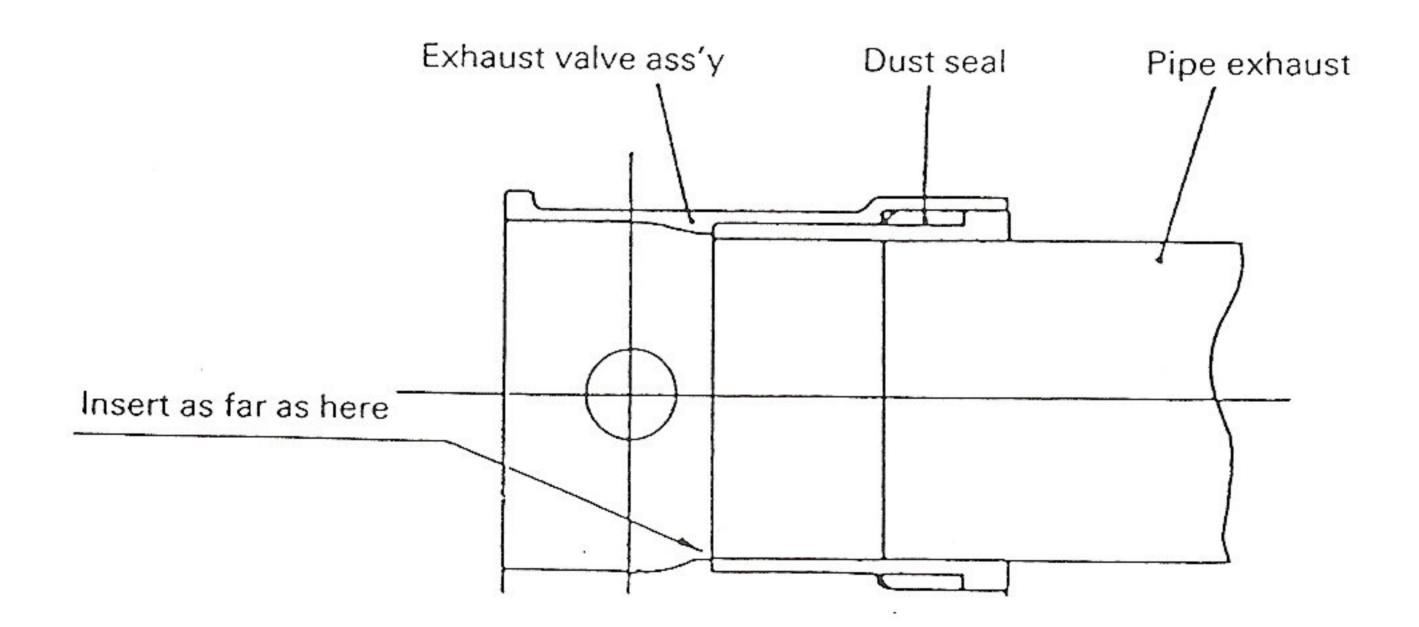
	No.	Part No.	Part name	Q'ty	Remarks
☆	1	3FV-14615-00	Joint, exhaust	1	
☆	2	3FV-14812-00	Valve	4	
☆	3	3FV-14821-00	Arm, shaft 1	1	
☆	4	3FV-14822-00	Arm, shaft 2	1	
☆	(5)	3FV-14863-00	Disk	2	
☆	6	2TK-14863-01	Pulley	1	
☆	7	98580-03008	Screw	8	M3
☆	8	97080-05008	Bolt	3	M5, Tightening torque
☆	9	92990-05200	Washer	3	- Januaring torque
☆	10	90380-10172	Push	4	
☆	11)	90201-106M5	Washer	4	
☆	12	99001-08600	Circlip	1	

Installation

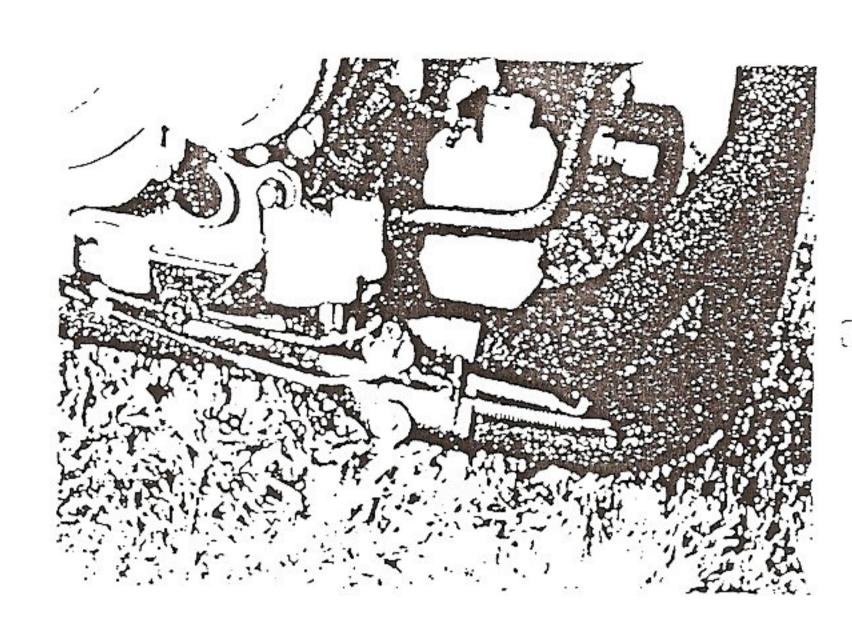
- 1. Remove the muffler ass'y of the base motorcycle and remove the stud bolts from the head cylinder.
- 2. Install nut rings 1 and 2.

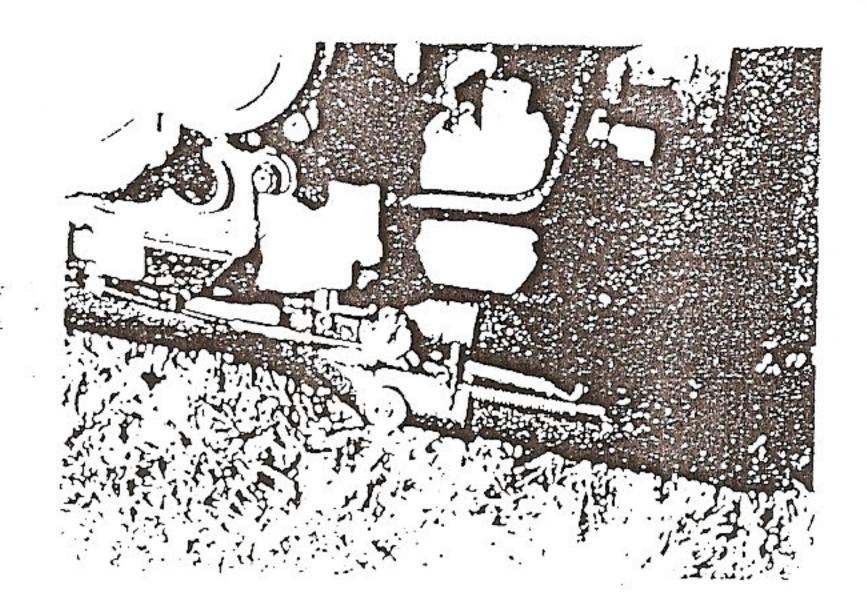


3. Assemble the pipe exhaust, exhaust valve ass'y, and diffuser as a subassembly, then assemble it to the motorcycle.



- 4. Install the silencer.
- 5. Align the alignment marks of the gears of the exhaust valve ass'y and install the EXUP drive wire. You should hook the wire over the pulley before mounting the bracket.





- Adjust the position of the pulley. When the kill switch is turned on the mitia meritar takes place. After the initial operation, check that the pulley position or the alignment marks of the drive gears (part name: disk) are aligned as shown in the figure on page 15. If misaligned, adjust with the adjuster of the wire (refer to page 4-80 in the service manual). After adjustment, perform the initial operation two or three times and check that they are not misaligned.
- 7 Start the engine and check that the EXUP functions incling Then install the and the protector

4 MISSION ASS'Y

The ratio and dog shape are changed from the standard and SP cross missions.

Parts list

No.	Part No.	Part name	Q'ty	Remarks
1	3TJ-A7400-70	Mission ass'y	1	

<Comparison of ratios>

	STD	SP Specifications	New cross ratio
1st Speed	3,307 (43/13)	2,461 (32/13)	2,571 (36/14)
2nd Speed	2,222 (40/18)	1,941 (33/17)	2,066 (31/15)
3rd Speed	1,714 (36/21)	1,631 (31/19)	1,777 (32/18)
4th Speed	1,434 (33/23)	1,500 (27/18)	1,562 (25/16)
5th Speed	1,272 (28/22)	1,368 (26/19)	1,411 (24/17)
6th Speed	1,173 (27/23)	1,250 (25/20)	1,300 (26/20)

3TJ-142108 OUR G/80X

2.466 37/19 -947 31/20 -550 31/20 -333 31/26 -111 30/27

5 HIGH THROTTLE ASS'Y

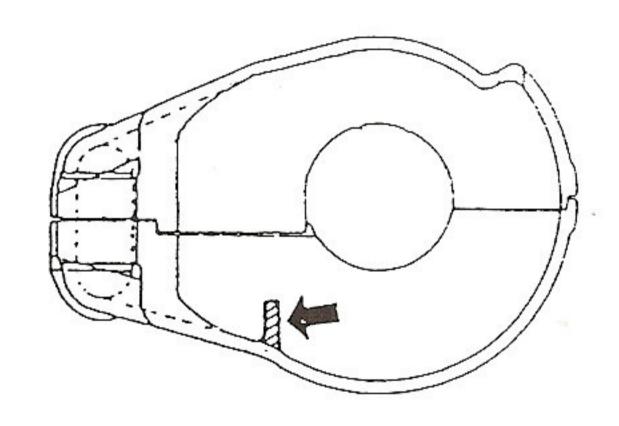
This assembly reduces the operational angle to facilitate throttle control (from standard 70° to 60°).

Parts list

	No.	Part No.	Part name	Q'ty	Remarks
	1	3TJ-26243-70	Tube, guide	1	
☆	2	47X-26242-00	Grip 2	1	
	3	3TJ-26302-70	Throttle wire	1	
☆	4	34K-26281-00	Cap, grip 1	1 1	
☆	5	1VJ-26282-00	Cap, grip 2	1	
☆	6	98506-05020	Screw	1	***************************************
众	1	98506-05025	Screw	1	***************************************

The parts marked with "☆" are also contained in the kit set. They are also available as Yamaha captive parts at our dealers.

Before using part 4, cut off the stopper inside.



MAINTENANCE

1 MAINTENANCE AND PARTS REPLACEMENT INTERVALS AS A GUIDE

For periodic maintenance for the engine, maintain around the head cylinder and piston every 8 to 10 hours of operation (2 to 3 races). Maintain inside the case once every two times of maintenance around the head cylinder. Refer to the service manual for other than information given below.

Part name	Inspection Interval and Description	Replacement Interval		
Piston	8 to 10 hours (every 2 to 3 races) Removing carbon on top Removing excess part on top land Checking side clearance (Refer to pages 4-27 in service manual.)	At the time when the side clearance exceeds the standard value. It is preferable to replace the piston every 20 to 25 hours of operation as a guide. Also replace the piston pin if possible.		
Piston ring		8 to 10 hours		
Piston pin		At the time when the use limits in the ervice manual are exceeded.		
Connecting rod	8 to 10 hours Check the nut for looseness.			
****	After replacement, check every 8 to 10 hours of operation. After that, check once every two times of inspection. Check for burns, seizure, and large flaws.	Periodically replace every season.		
Crank	At the time of inspecting the plane bearings	At the time when the use limits in the service manual are exceeded.		
Valve	8 to 10 hours Check each part. Adjusting clearance of valve			
Camshaft	8 to 10 hours	At the time when the use limits in the service manual are exceeded. The use limits of dimensions A and B of the kit cam are as follows:		
		A B		
		INT 32.61 mm 25.03 mm		
		EXT 32.21 mm 25.00 mm		
Friction plate Clutch plate	Every race Check for burns and wear.	At the time when the use limits in the service manual are exceeded.		

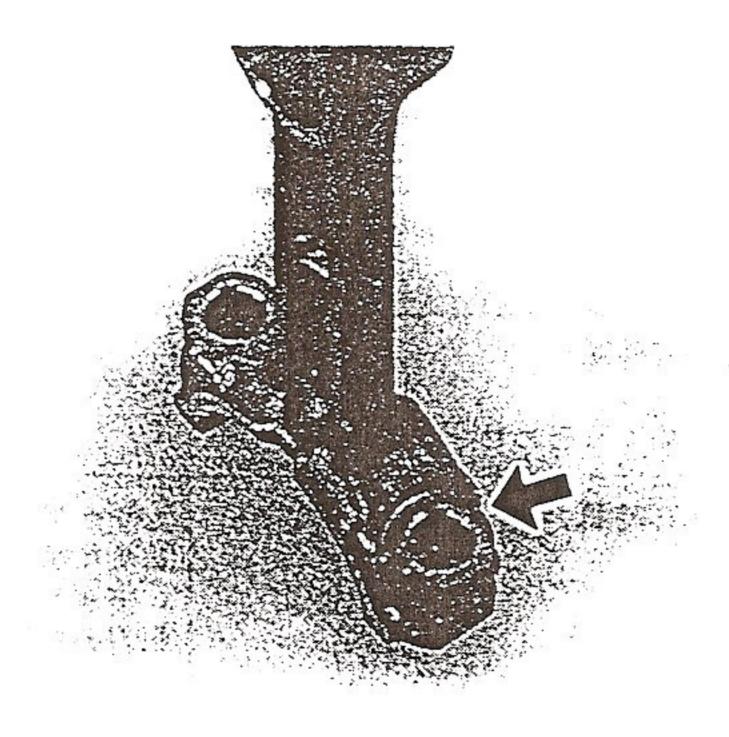
2 NOTES ON USING THE CONNECTING ROD

- ① The nut is mounted on the top of the large end in the illustrations in the service manual and parts catalog. Correctly, the nut must be mounted on the cap side. Note that mounting the nut at the incorrect place may cause trouble.
- ② Before tightening, thoroughly apply molybdenum grease to the bolts, nuts, and bearing surfaces of the nuts. Then tighten to 2.3 kg·m ~ 2.5 kg·m

Tightening torque	2.3 kg·m ~ 2.5 kg·m

When tightening, increase the torque in stages by tightening the two bolts alternately. Example: $1.5 \text{ kg} \cdot \text{m} \rightarrow 2.0 \text{ kg} \cdot \text{m} \rightarrow 2.5 \text{ kg} \cdot \text{m}$

- 3 Be sure to use new connecting rod bolts and nuts. Do not reuse those parts which come with a connecting rod purchased as a single part.
- ① Be sure to chamfer the sharp edges around the bearing surfaces of the bolt nuts to remove burrs (grind if possible).



OPTIONAL KITS

For optional kits, a combination of a SS400 kit allows to bring more potential out of the basic kit.

- CAMSHAFT INTAKE

3TJ-12171-80

Increased the working angle to 280 degrees to improve the basic performance. standard working angle is 276 degrees.

- CAMSHAFT EXHAUST

3TJ-12181-80

Working angle is 276 degrees, standard is 268 degrees.

- EXHAUST ASSY'S

3TJ-Y4600-72

4-1 collective type with EXUP provides well balanced specifications to permit good performance and response in the middle and high RPM zones as well as controllability. Exhaust pipe outer size is 38mm.

- JOINT CARBURETOR KIT

3TJ-14453-71

This kit is made lighter by using carbon fiber. Effective length of air funnel is 10mm.

- CLOSE RATIO TRANSMISSION

3TJ-Y7400-70

This transmission has even closer gearsteps than the standard standard gearbox.

- OIL CATCH TANK KIT

3TJ-Y2175-70

- HIGH THROTTLE KIT

3TJ-Y2630-70

The throttle rotation angle is reduced to 60 degrees.

- WATER TEMPERATURE ASSY'S

2TK-83590-71

This kit can be used with every radiator. Consider on installing that the cable is longer than that of the TZ250.

YZF750SP kit tachometer can be used for the FZR400.