

YAMAHA 19 *eight fire*

YZ SERIES SERVICE GUIDE

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YAMAHA

technical training

FOREWORD

This service guide provides service information for new mechanism of the new YZ series and is intended for use in your new model service training school.

For detailed procedures, you can refer to the respective owner's service manual. This guide describes major changes and their points of note. It also serves as a guide for initial inspection steps.

It is our sincere hope and belief that this guide will help enhance the technical knowledge and servicing ability of all of you.

OVERSEAS SERVICE
MOTORCYCLE OPERATION
YAMAHA MOTOR CO., LTD.

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**YZ SERIES
SERVICE GUIDE**

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Second Edition, January 1985

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Printed in U.S.A.

MAJOR IMPROVEMENT POINTS

	YZ80	YZ125	YZ250	YZ490
INCREASED ENG. PERFORMANCE	○	○	○	
FRONT DISC BRAKE (1)		○	○	○
B.A.S.S.(2)		○	○	○
INCREASED STRENGTH OF SPOKES & NIPPLES		○	○	○

(1) Front disc brake and front wheels are same between YZ125, YZ250 and YZ490 except only tire.

(2) B.A.S.S.: BRAKE-ACTUATED SUSPENSION SYSTEM

— MEMO —

ENGINE

YZ80

SPARK PLUG GAP
0.6 ~ 0.7 mm
(0.024 ~ 0.028 in)

SPARK PLUG
N-84 . CHAMPION
QN-84 (for CANADA
S. Africa)

Engine improvement points are as follows:

- Dome shape & volume
 - Volume – 6.4 cm³
- Piston shape
 - Crown circle R100 → R150
 - Increased performance at high speed
- Cylinder port
 - Wider exhaust port
- Resin reed valve
 - Increased valve lift
 - Highly natural frequency

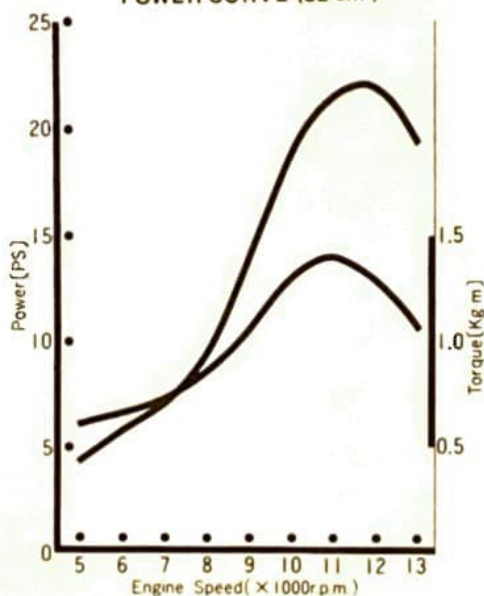
↓

Smooth mixture flow
- Carburetor
 - Main jet # 240 → #270
- Exhaust pipe
 - Large capacity

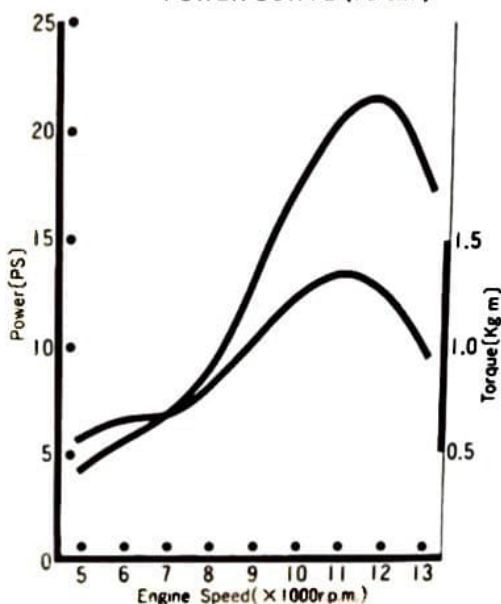
Piston Clearance:
0.060 ~ 0.065 mm
(0.024 ~ 0.026 in)

82 cm³ USA
79 cm³ Others

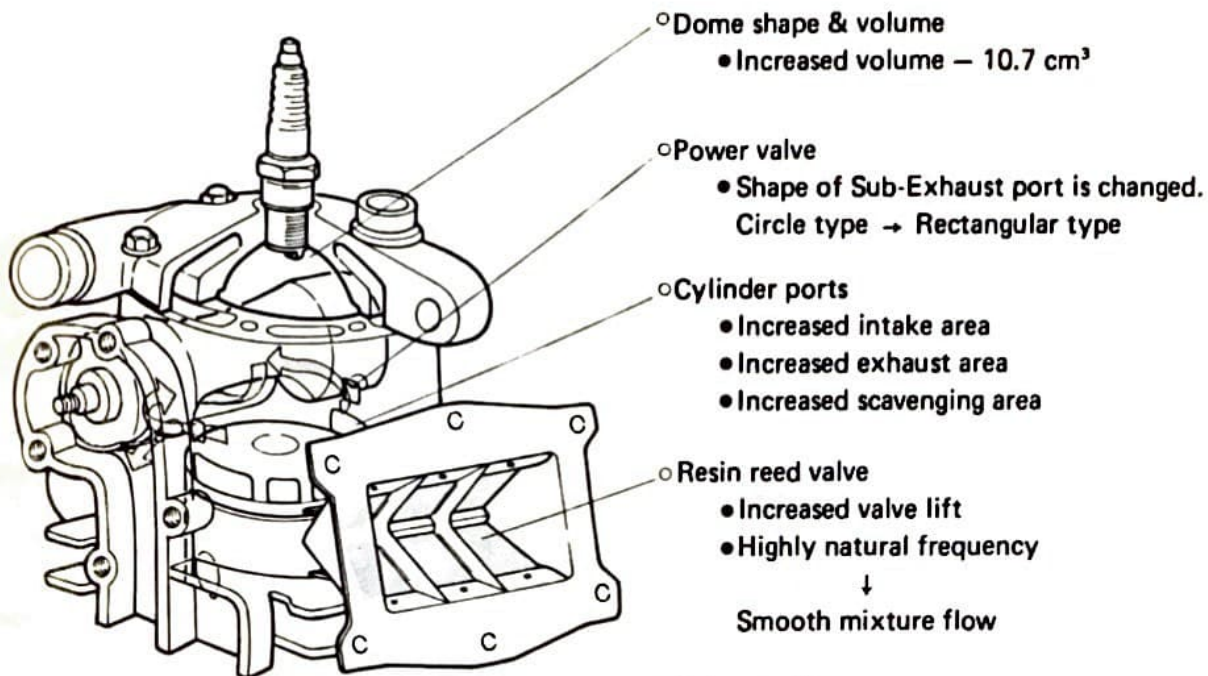
POWER CURVE (82 cm³)



POWER CURVE (79 cm³)



Engine improvement points are as follows:

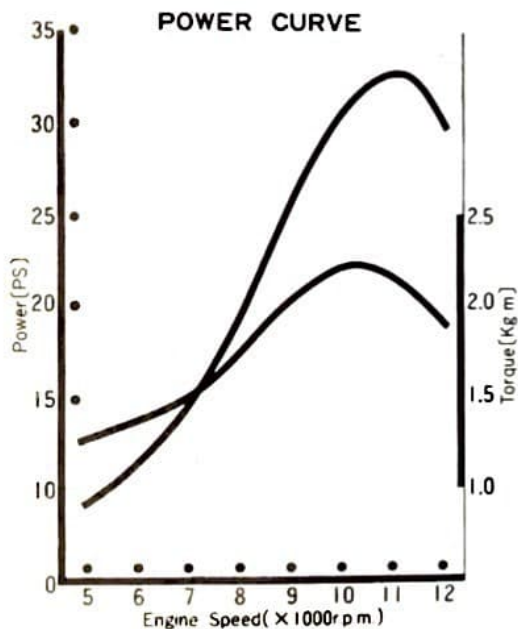


○ Exhaust pipe

- To provide high power at top speed
- Total length is reduced (16 mm)
- Design is same as '83 factory racer.

○ Carburetor

- Carb. size $\phi 36 \rightarrow \phi 34$
- A good compromise is provided between engine requirement of mixture flow and easy of carb. tuning (settings).



SERVICE DATA

Spark plug:

N-84, N-84G, N-59G (CHAMPION)
B9EG, B9EGV (NGK)

Spark plug gap:

0.5 ~ 0.6 mm (0.02 ~ 0.024 in)

Spark plug tightening torque:

25 Nm (2.5 m·kg, 18 ft·lb)

Cylinder head nut tightening torque:

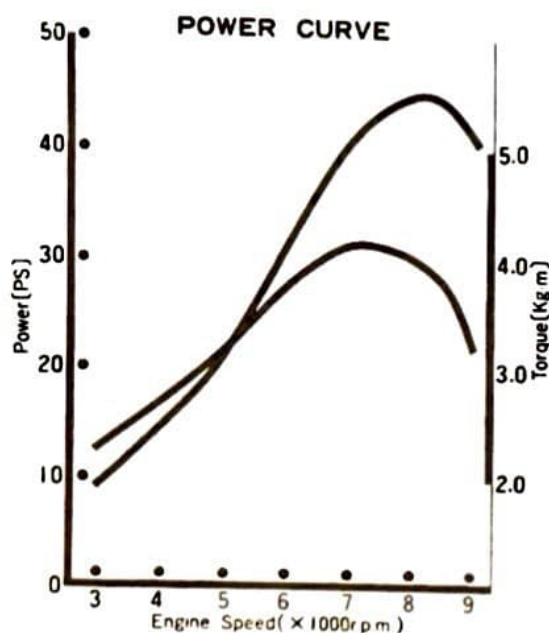
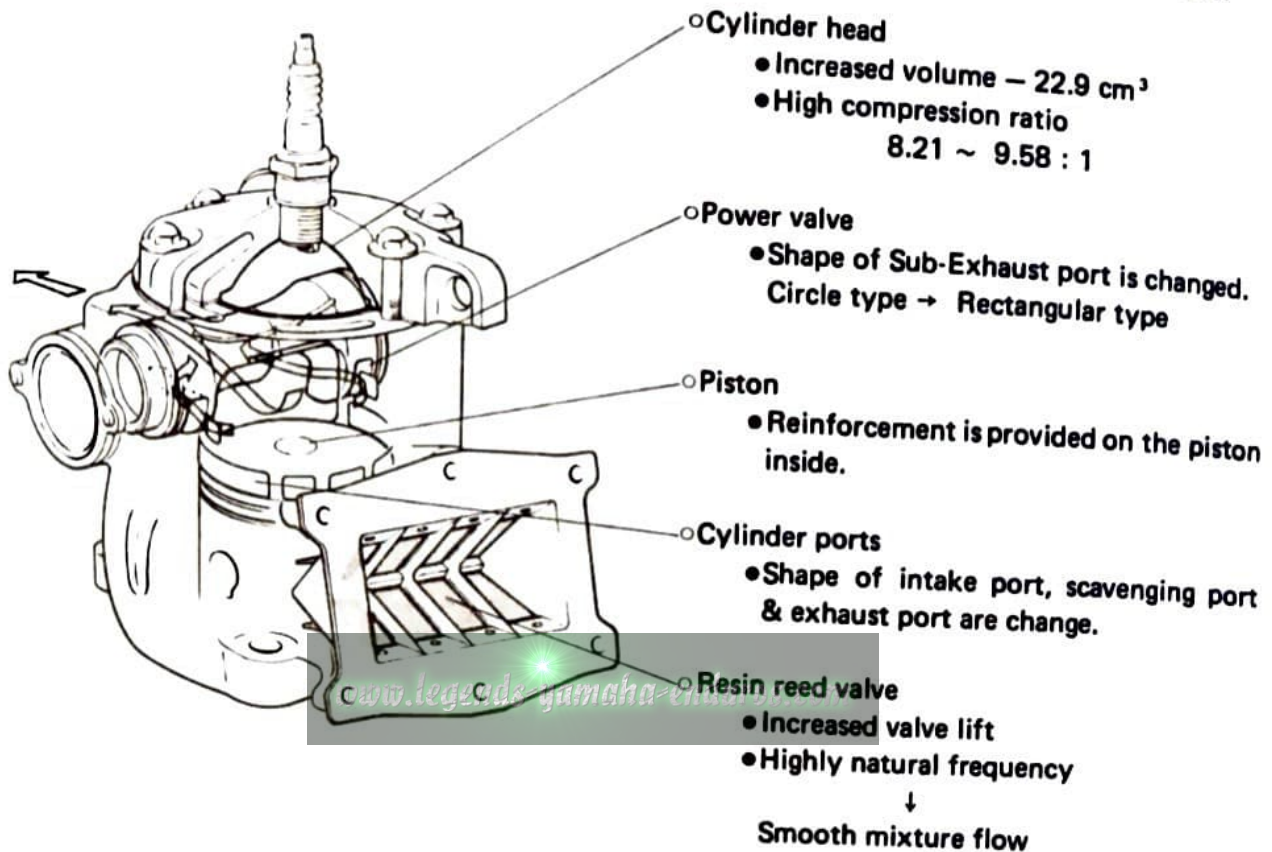
25 Nm (2.5 m·kg, 18 ft·lb)

Piston clearance:

0.065 ~ 0.070 mm (0.0026 ~ 0.0028 in)

YZ250

Engine improvement points are as follows:



SERVICE DATA

Spark plug:

N-86, N-86G, N-2G, N-2C (CHAMPION)
B8EG, B8EGV (NGK)

Spark plug gap:

0.5 ~ 0.6 mm (0.02 ~ 0.024 in)

Spark plug tightening torque:

25 Nm (2.5 m·kg, 18 ft·lb)

Cylinder head nut tightening torque:

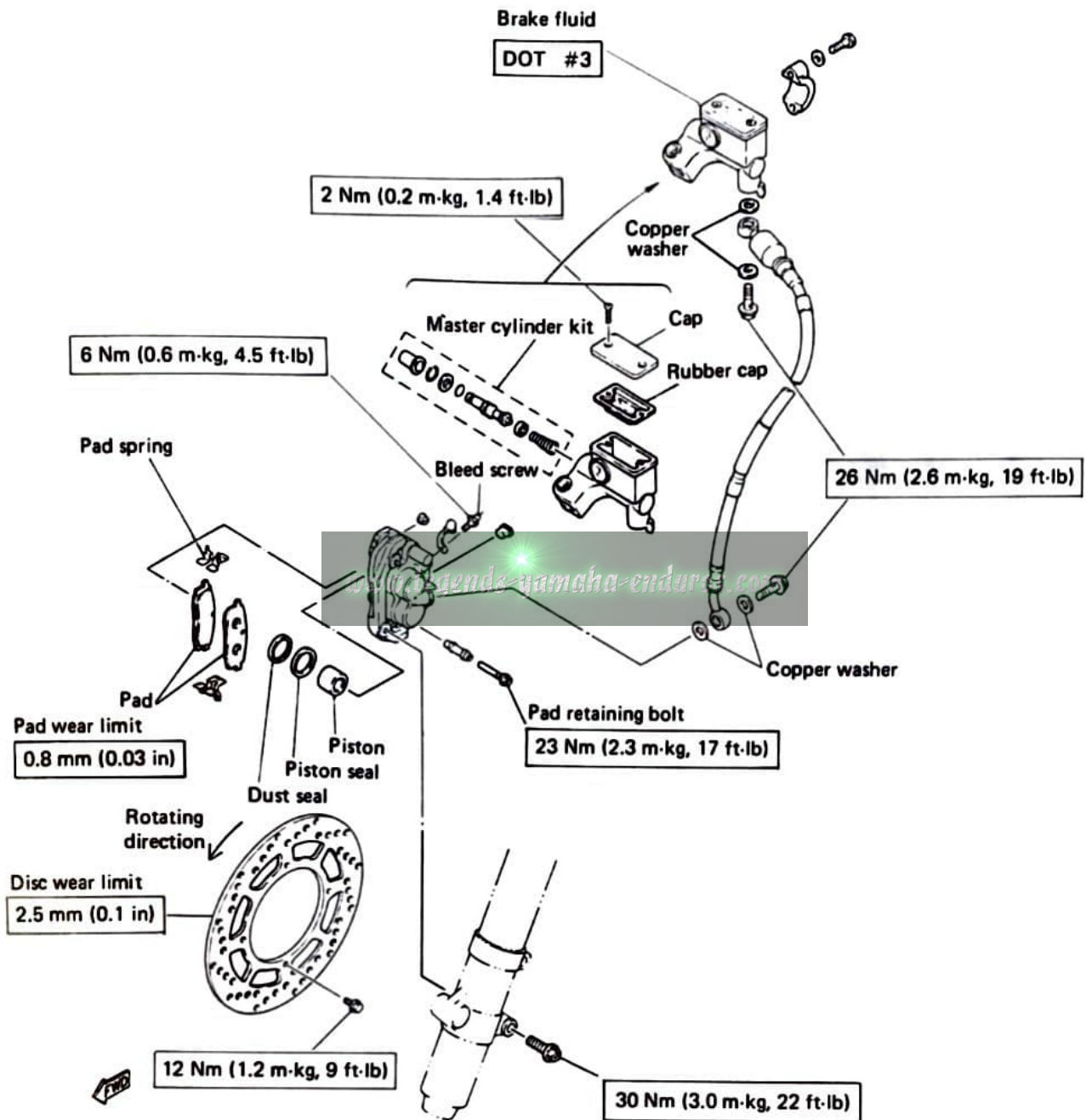
30 Nm (3.0 m·kg, 22 ft·lb)

Piston clearance:

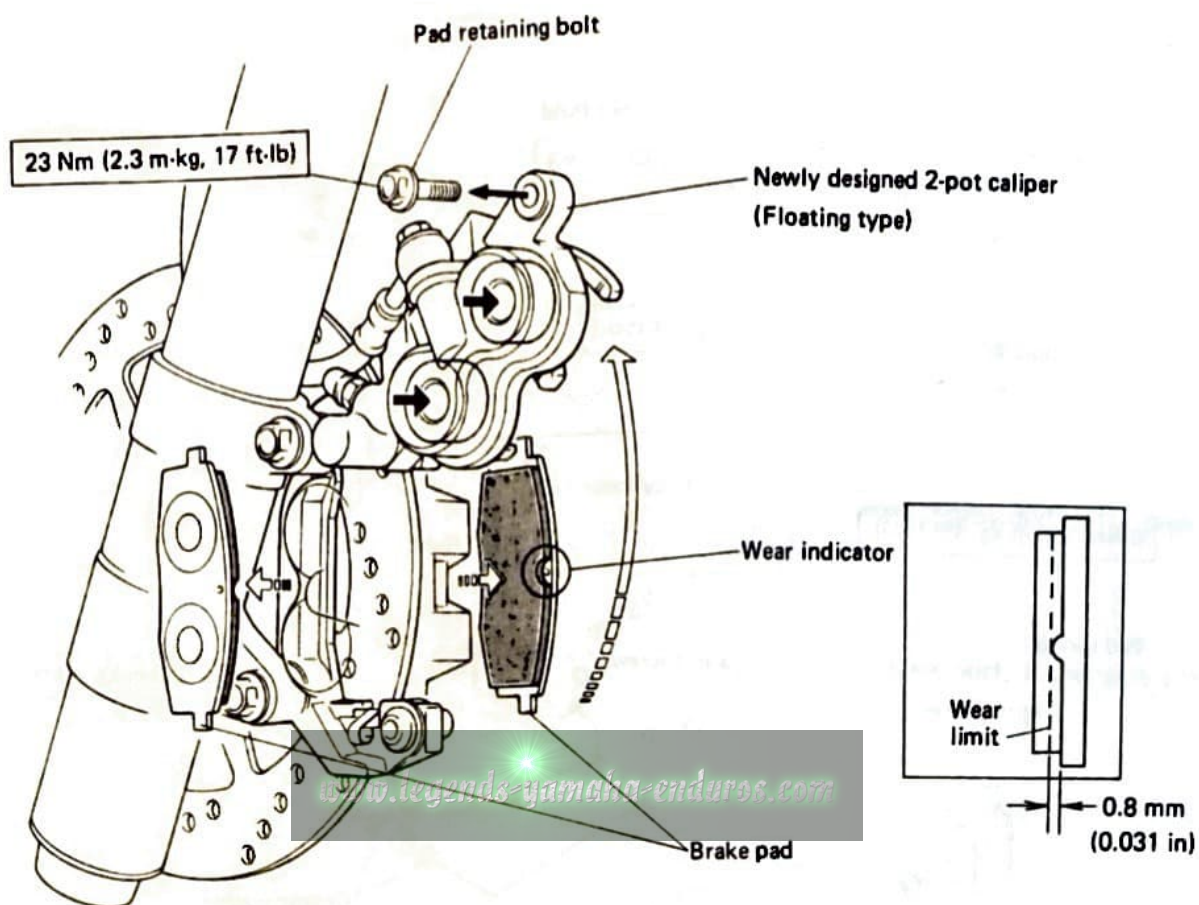
0.070~0.075 mm (0.0028~0.0030 in)

FRONT DISC BRAKE

○ Front disc brake is same between YZ125, YZ250 & YZ490.



Brake pad replacement:



Procedure

1. Remove the pad retaining bolt.
2. Turn the caliper body counterclockwise.
3. Remove the pads.

Wear limit: 0.8 mm (0.031 in)

NOTE: _____

It is not necessary to disassemble the brake caliper and brake hose to replacement the brake pads.

FRONT FORK SETTING CHART

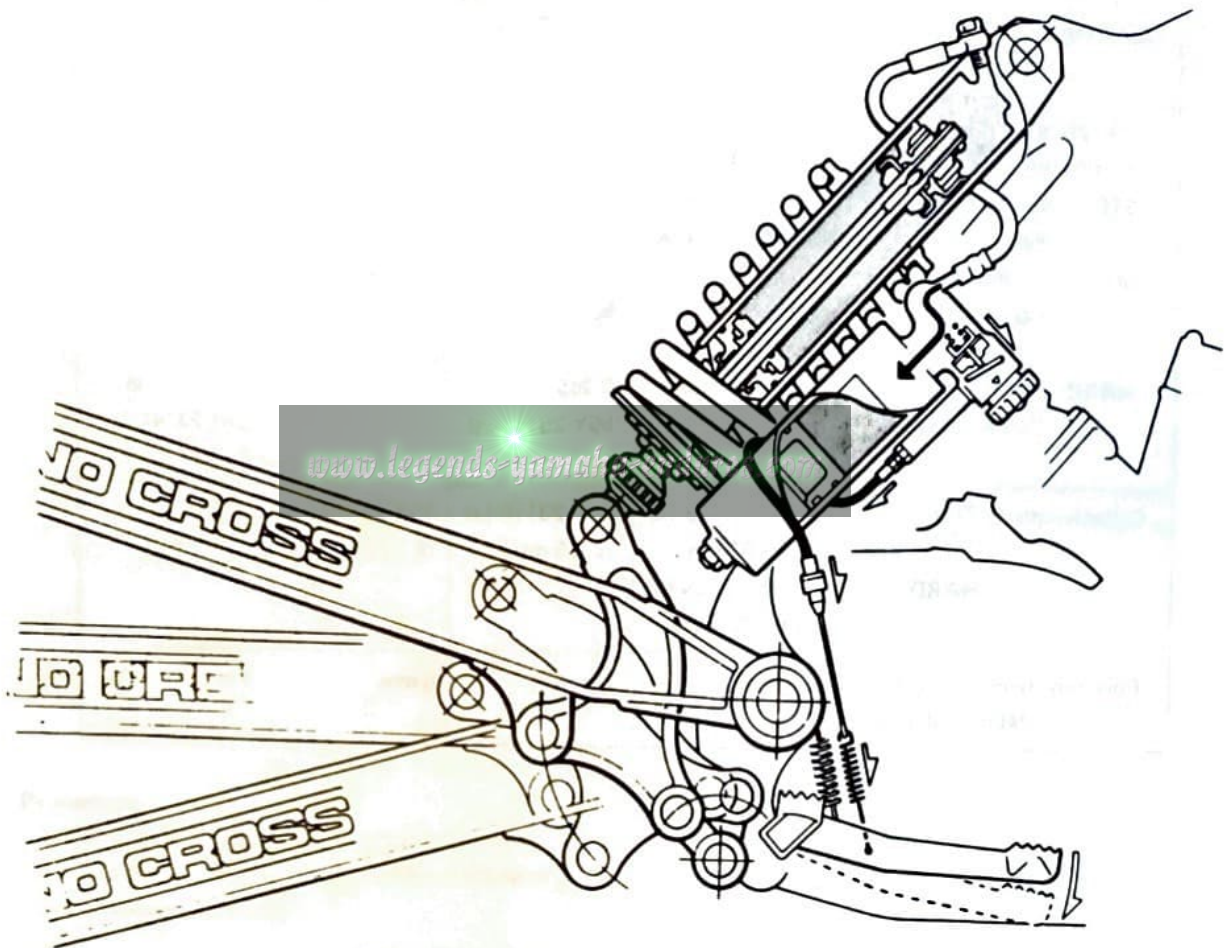
	YZ80	YZ125 (USA,CAN)	YZ250 (USA,CAN)	YZ490 (USA,CAN)
Fork oil: Quantity (STD) Oil level (STD) (MIN. – MAX.)	Fork oil 10 wt 272 cm ³ 157 mm 130 - 180 mm	Fork oil 15 wt 541 cm ³ 150 mm 115 - 186 mm	Fork oil 15 wt 528 cm ³ 180 mm ←	Fork oil 15 wt 528 cm ³ 180 mm ←
Compression damping: (STD) (MIN. – MAX.)	– –	0 click ←	4 clicks in ←	4 clicks in ←
Air pressure: (STD) (MIN. – MAX.)	0 kg/cm ² 0 - 1.2 kg/cm ²	← ←	← ←	← ←
Fork spring: Free length STD Spring rate Part number SOFT Spring rate Part number HARD Spring rate Part number	461 mm 0.23 kg/mm 39K-23141-00 – – 0.25 kg/mm 39K-23141-20 ℓ = 471 mm	581.5 mm 0.290 kg/mm 55Y-23141-L0 0.275 kg/mm 55Y-23141-10 ← 0.305 kg/mm 55Y-23141-20 ←	← ← ← ← ← ← ← ←	← 0.325 kg/mm 39X-23141-20 0.305 kg/mm 39X-23141-00 NOTHING 0.345 kg/mm 57H-23141-20 3 slits
Collar length: STD HARD	58T-23118-L0 (ℓ = 97 mm) 22N-23118-L0 (ℓ = 90 mm)	55Y-23118-L0 (ℓ = 5 mm)	39X-23118-00 (ℓ = 70 mm)	← ←
Fork tube height: (STD) (MIN. – MAX.)	–	8 mm ←	6 mm ←	6 mm ←

BRAKE-ACTUATED SUSPENSION SYSTEM (B.A.S.S.)

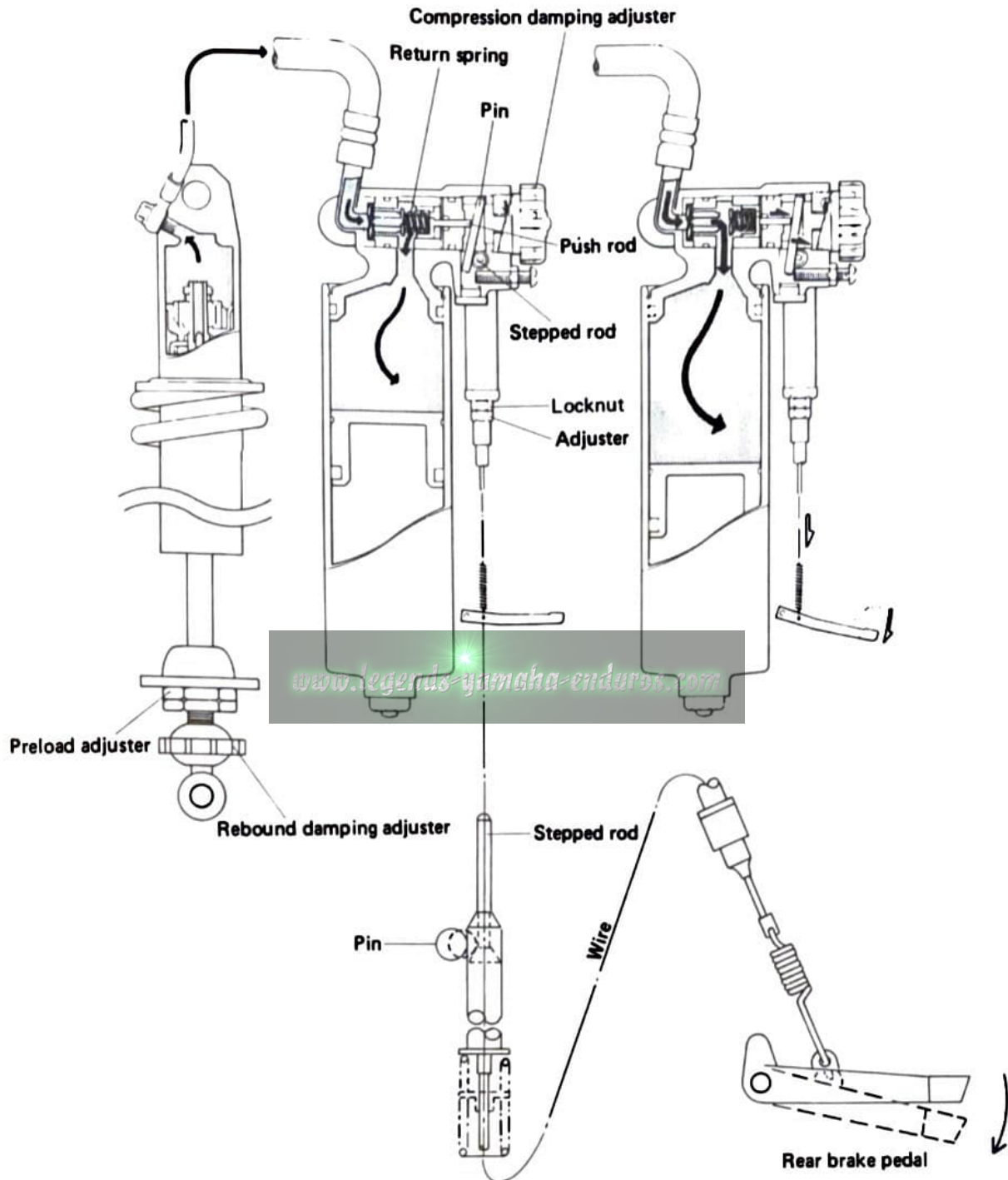
YZ series (except YZ80), are equipped with a rear brake actuated suspension for a smooth run both at acceleration and at deceleration.

This rear suspension is set a little stiffer for the compression damping to increase traction at acceleration. On the other hand, when the machine is braked, the rear brake decreases the compression damping, thereby preventing a rear end rebound (skittering) over bumps.

The effect of the rear brake actuated suspension shows itself when the machine takes a turn with the brake applied on rough terrain.



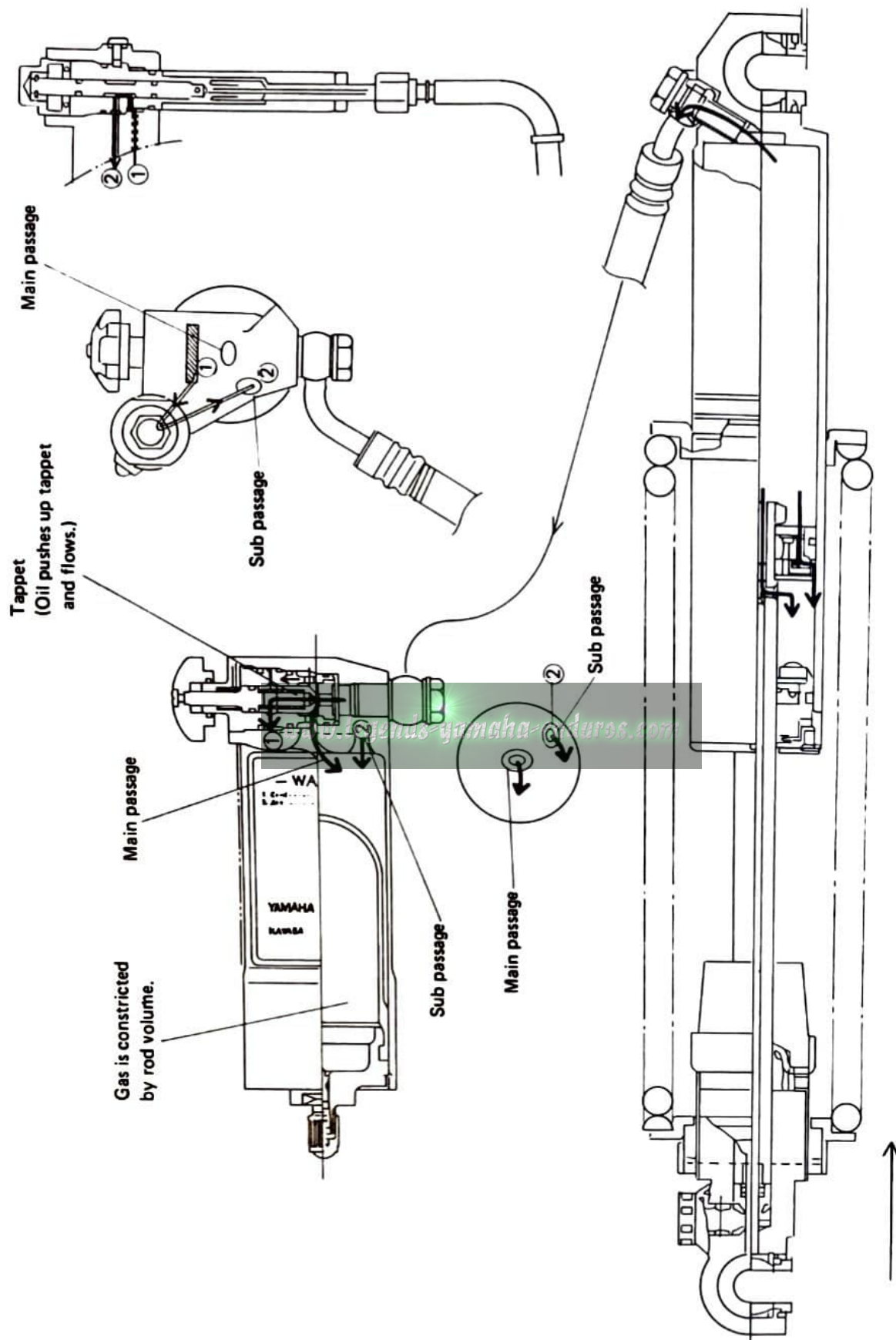
Operation: [YZ125 (USA, CAN), YZ250, YZ490]



If the rear brake is depressed, the stepped rod moves to downward.

Movement of the stepped rod causes the pin fulcrum to be transferred from the rod's larger to smaller dia. step, and the pin moves to the position as shown by arrow mark ().

As a result, the push rod moves toward the pin by the force of the return spring and the base valve preload decreases, causing the compression damping to go below that prior to braking.



Setting the variation range of damping force: [Only for YZ125 (USA, CAN), YZ250, YZ490]

Setting screw

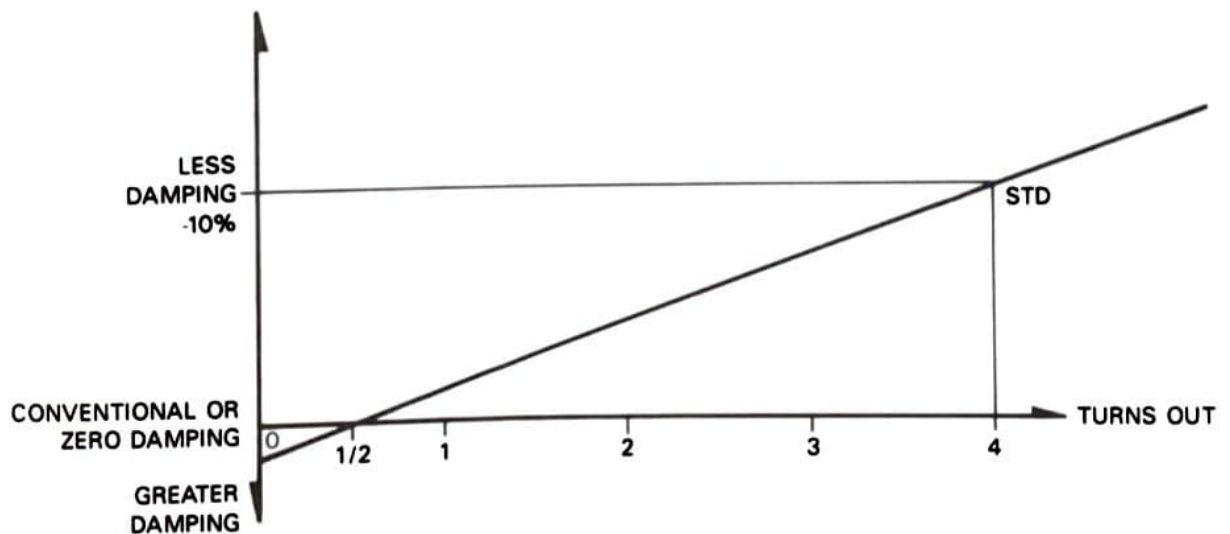
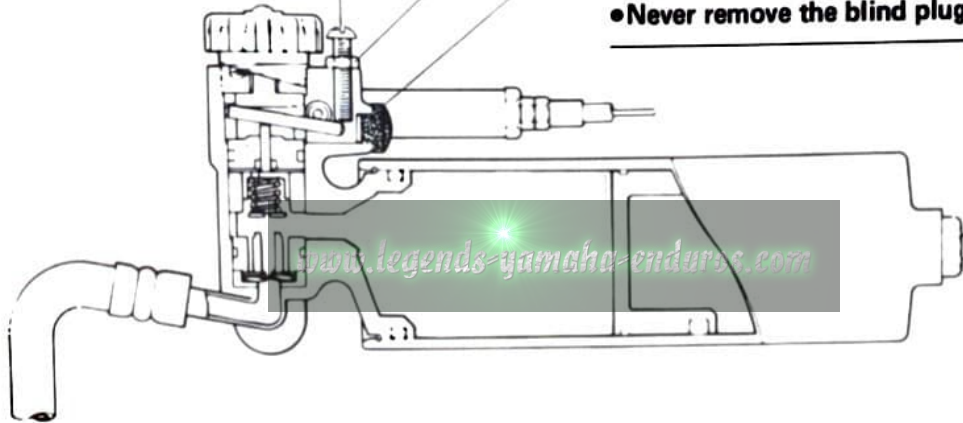
STD setting: 4 turns out
MIN setting: 0.5 turns out
(There is no change in damping force.)
MAX setting: 4 turns out
(Damping force can be minimized)

Locknut:
4 Nm (0.4 m·kg, 2.9 ft·lb)

Blind plug

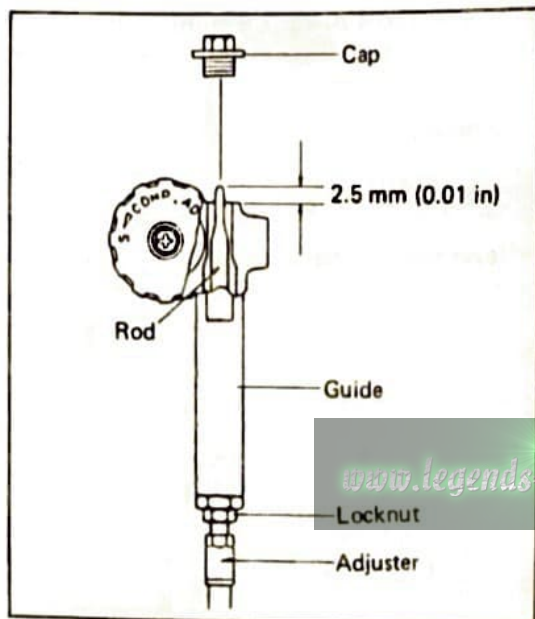
CAUTION:

• Never remove the blind plug.



Control wire adjustment: [YZ125 (USA, CAN), YZ250, YZ490]

1. Set the brake pedal height within ± 10 mm (0.4 in) from the footrest top and adjust the brake pedal play to 20~30 mm (0.8 ~ 1.2 in).
2. Remove the cap on top of the housing and turn the adjuster so that the top end of the rod in the housing projects out 2.5 mm (0.1 in).



3. Make sure the rod moves the moment that the brake pedal is depressed.
4. Install the cap carefully so that no mud or water enters the housing.

Locknut:

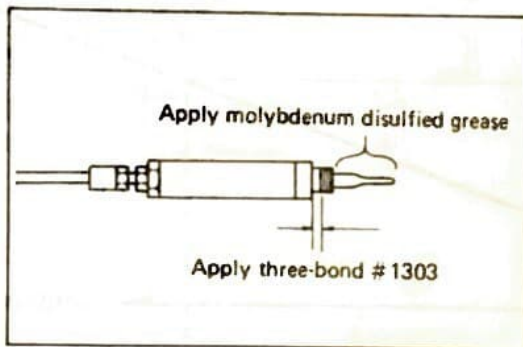
5 Nm (0.5 m·kg, 3.6 ft·lb)

Cap:

6 Nm (0.6 m·kg, 4.3 ft·lb)

Replacement of control wire:

When replacing the control wire, coat the threaded portion of the guide with Yamaha Three-Bond #1303 and the rod with molybdenum disulfide grease.



Guide: 12 Nm (1.2 m·kg, 8.7 ft·lb)

CAUTION:

Use care so the bond will not stick on the rod.

REAR SHOCK SETTING CHART

		YZ80	YZ125 (US, CAN)	YZ250 (US, CAN)	YZ490 (US, CAN)
Shock spring: Fitting length (STD) (mm) (MIN-MAX) (mm)		221 212 ~ 232	265 256 ~ 281	268 253 ~ 283	275 ←
STD	Spring rate (kg/mm)	3.6	4.50	4.5	4.75
	Color code Part No. (-22212-)	Blue 22W-20	— 39W-00	— 39X-00	Blue-Green 39X-20
SOFT	Spring rate (kg/mm)	3.25	4.25	4.25	4.50
	Color code Part No. (-22212-)	— 22W-00	White-Green 39W-10	White-Green 39X-10	— 39X-00
HARD	Spring rate (kg/mm)	3.8	4.75	4.75	5.00
	Color code Part No. (-22212-)	White 22W-30	Blue-Green 39W-20	Blue-Green 39X-20	Blue-Pink 57H-20
Damping adjuster	Rebound (STD) (MIN-MAX)	7 clicks out 10 ~ 0	6 clicks out 25 ~ 0	9 clicks out 28 ~ 0	14 clicks out 28 ~ 0
	Compression (STD) (MIN-MAX)	—	16 clicks out 0 ~ 28	15 clicks out 0 ~ 25	5 clicks out 0 ~ 25
Gas pressure (STD) (kg/cm ²) (MIN-MAX) (kg/cm ²)		12 11 ~ 14	12 7 ~ 15	12 7 ~ 15	← ←

HANDLING NOTES FOR REAR SUSPENSION

(IF YOU NEED MORE DETAILS, REFER TO "RACE PREPARATION AND TUNING MANUAL".)

1. STD Position of damping adjuster

	REBOUND	COMPRESSION
FACTORY SETTING	TWO STEPS SOFTER SIDE THAN STD	STD POSITION
AFTER BREAK-IN	RETURN TO ONE PUNCH MARK	NO REQUEST

* Location of compression adjuster is same as '84 years model.

2. Damping adjuster

Rebound damping adjuster:

* Don't loosen adjuster more than 25 clicks (10 clicks for YZ80) from lightly seated position.

Compression damping adjuster:

* Don't tighten the adjuster more than 20 clicks from fully loosen position.

3. Spring preload (See No. 6 Rear shock specs.)

* Adjusting procedure is same as '84.

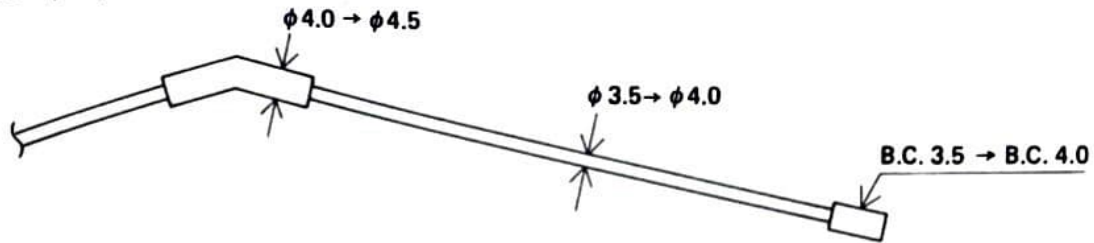
* 2 special 32 mm width wrenchs need for preload adjustment.

ADJUSTING RANGE	LOWER BRACKET SIDE	CYLINDER SIDE (CIRCLIP)
YZ125 (US, CAN)	10 mm	15 mm 3-WAY, 7.5 mm/PITCH Center groove is STD position.
YZ125		21 mm Third groove from upper bracket is STD position.
YZ250 490	15 mm	15 mm 3-WAY, 7.5 mm/PITCH Center groove is STD position.

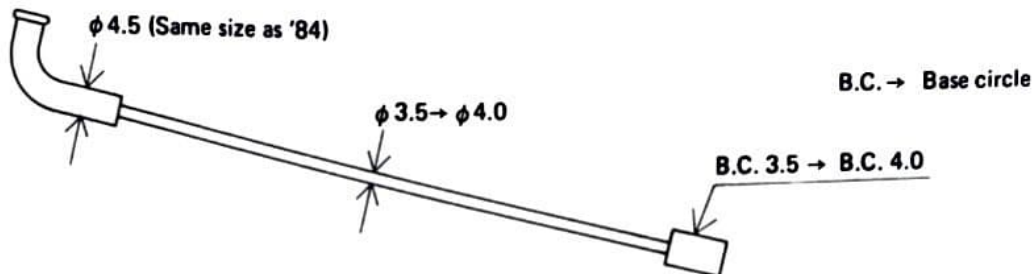
INCREASED STRENGTH OF SPOKES & NIPPLES (YZ125, YZ250, YZ490)

1. Size and screw thread of Z-shaped spoke and streight spoke are increased as following phase.

Z-Shape spoke



Sreight spoke



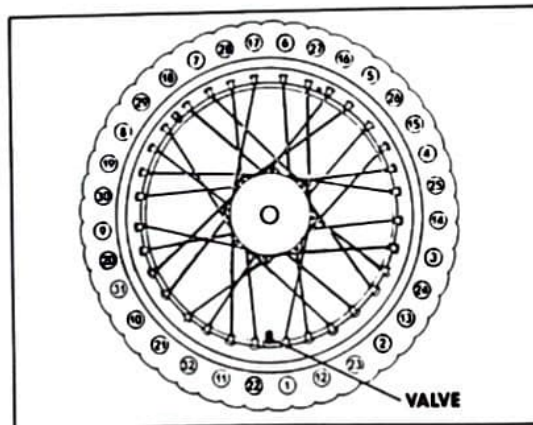
2. Material and screw thread of nipples are changed as follows.

Aluminum $\rightarrow$ Iron (SCM)

3. The spoke hole of the hub are enlarged due to the spoke modification.

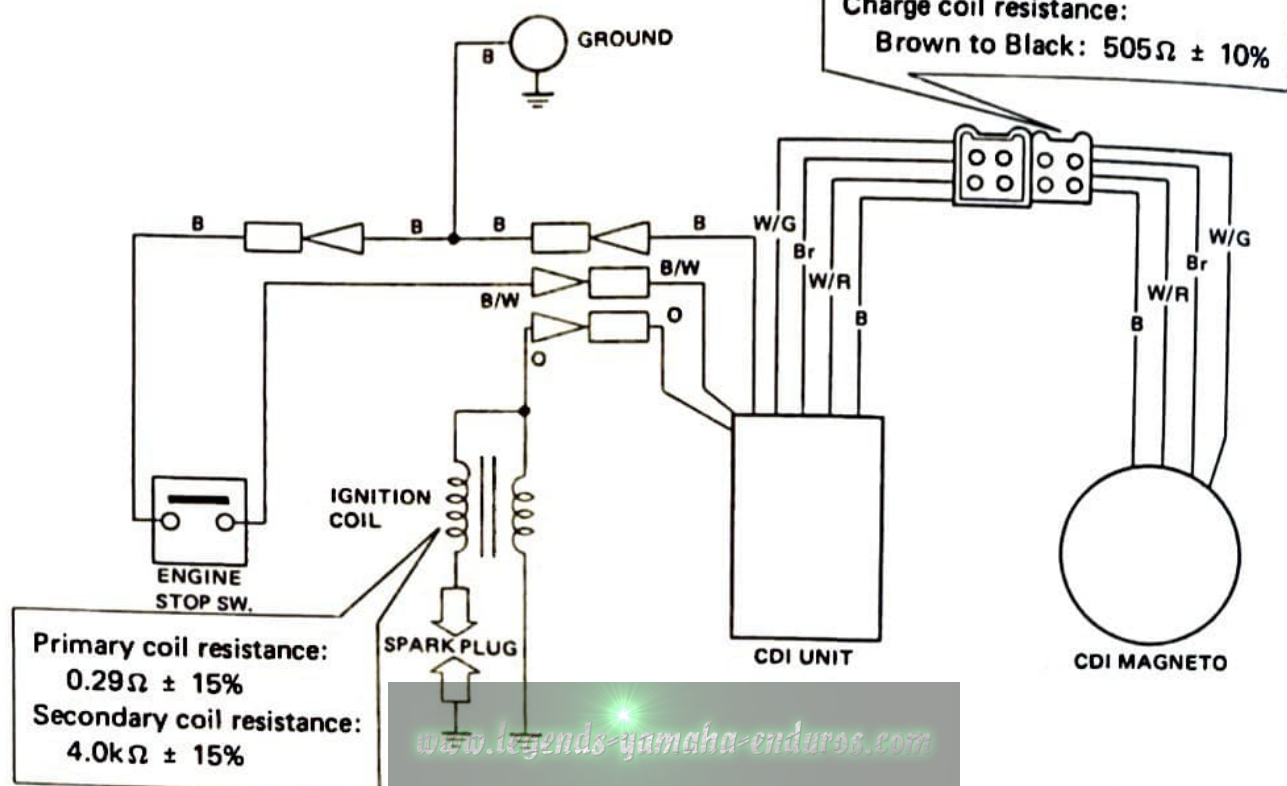
Retightening the Z-Type spoke

1. Tighten both front and rear spokes in the order indicated by the numbers in the illustration; that is, tighten spoke number 1 first, number 2 second, and so on. Notice that this interval is every third spoke. When tightening, do not turn the spoke nipple more than $1/4$ -turn at a time.
2. Whenever tightening spokes, do so as evenly as possible, tightening each spoke a little at a time around the entire wheel. This will ensure good wheel trueness. Always check wheel trueness after completing the job.

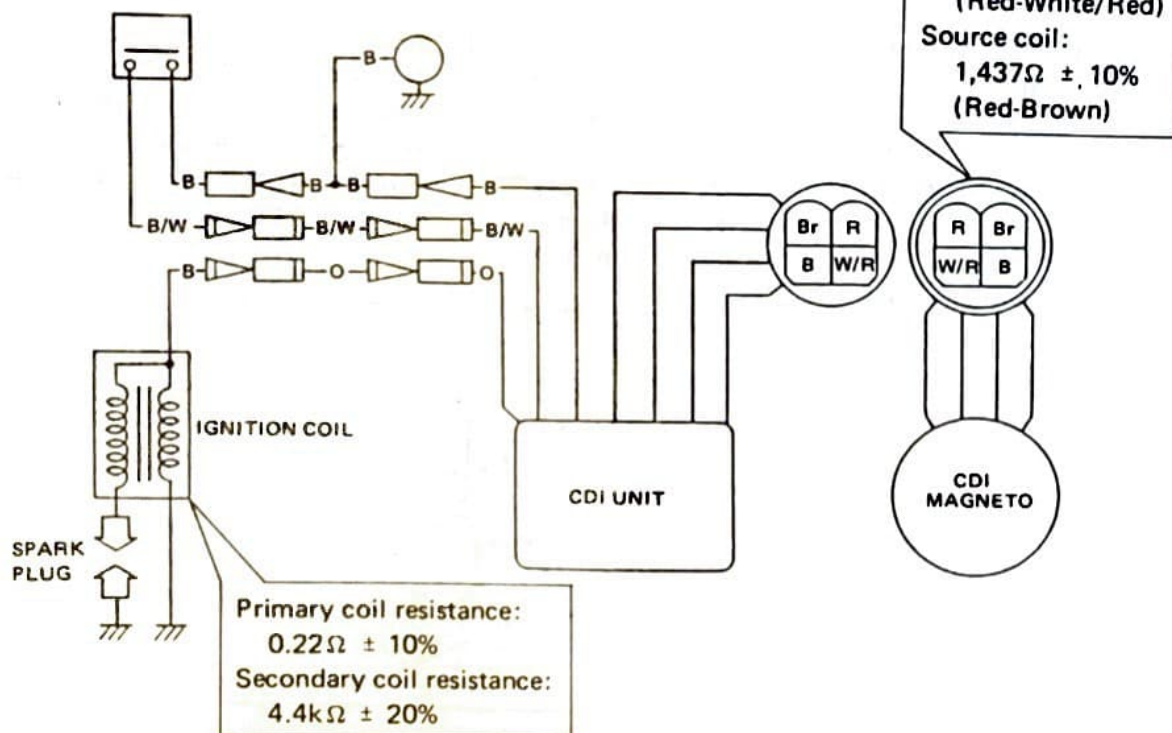


WIRING DIAGRAM

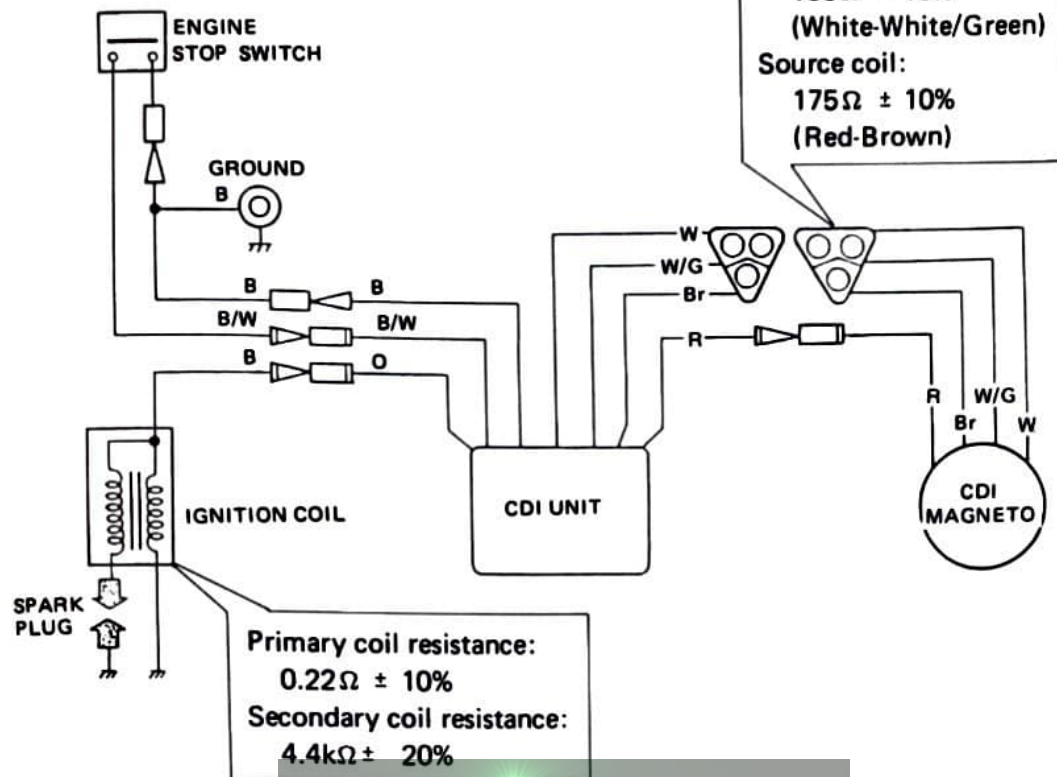
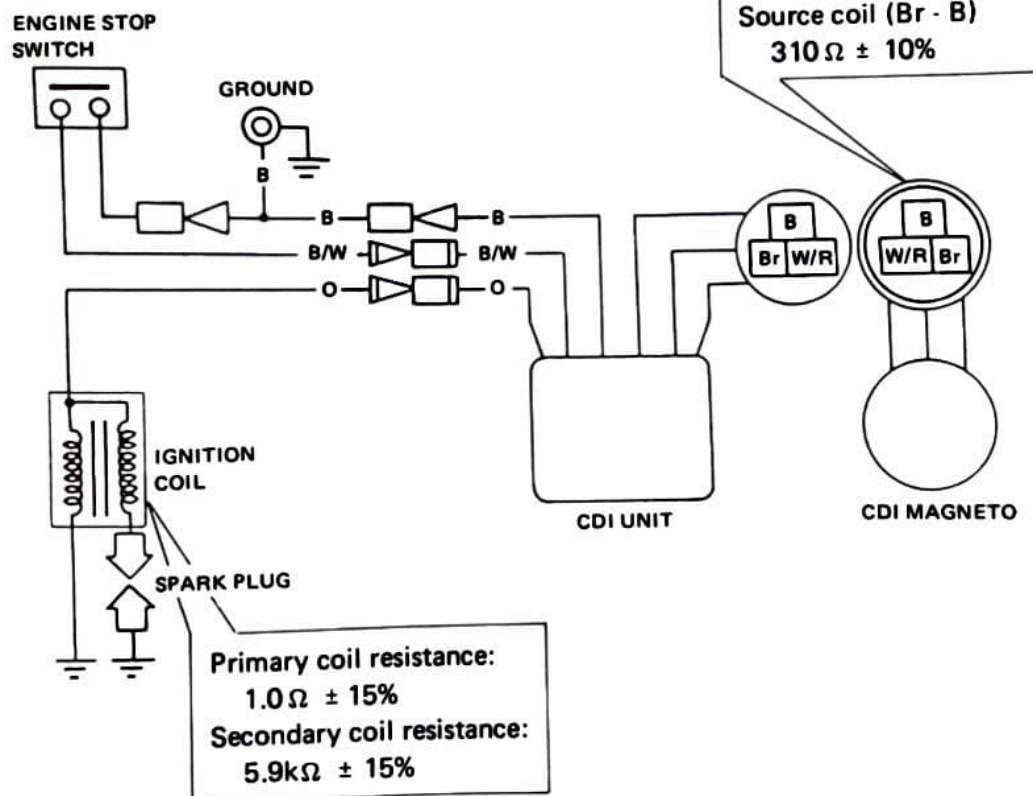
YZ80



YZ125



YZ250

**YZ490**

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