YAMAHA

YX600 (S-A)



Service Manual

LIT-11616-06-16

www.badrad600.com

NOTICE

This manual was written by the Yamaha Motor Company primarily for use by Yamaha dealers and their qualified mechanics. It is not possible to put an entire mechanic's education into one manual, so it is assumed that persons using this book to perform maintenance and repairs on Yamaha motorcycles have a basic understanding of the mechanical concepts and procedures inherent in motorcycle repair technology. Without such knowledge, attempted repairs or service to this model may render it unfit to use and/or unsafe.

Yamaha Motor Company, Ltd. is continually striving to improve all models manufactured by Yamaha. Modifications and significant changes in specifications or procedures will be forwarded to all Authorized Yamaha dealers and will, where applicable, appear in future editions of this manual.

TECHNICAL PUBLICATIONS
SERVICE DIVISION
MOTORCYCLE OPERATIONS
YAMAHA MOTOR CO., LTD.

HOW TO USE THIS MANUAL

PARTICULARLY IMPORTANT INFORMATION

This material is distinguished by the following notation.

NOTE: A NOTE provides key information to make procedures easier or clearer.

CAUTION: A CAUTION indicates special procedures that must be followed to avoid damage to the motorcycle.

WARNING: A WARNING indicates special procedures that must be followed to avoid injury to a motorcycle operator or person inspecting or repairing the motorcycle.

MANUAL FORMAT

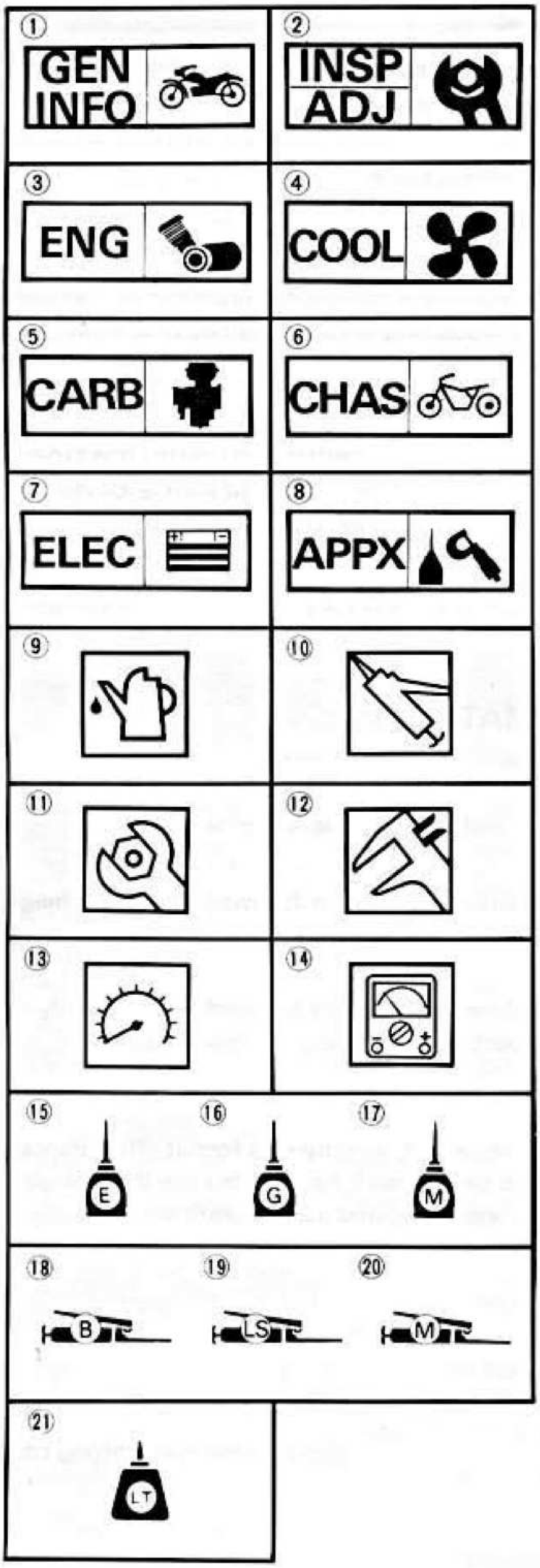
All of the procedures in this manual are organized in a sequential, step-by-step format. The information has been compiled to provide the mechanic with an easy to read, handy reference that contains comprehensive explanations of all disassembly, repair, assembly, and inspection operations.
In this revised format, the condition of a faulty component will precede an arrow symbol and the course of action required will follow the symbol, e.g.,

- Bearings
  Pitting/Damage→Replace.

EXPLODED DIAGRAM

Each chapter provides exploded diagrams before each disassembly section for ease in identifying correct disassembly and assembly procedures.

www.badrad600.com



ILLUSTRATED SYMBOLS (Refer to the illustration)

Illustrated symbols ① to ⑧ are designed as thumb tabs to indicate the chapter's number and content.

① General information
② Periodic inspection and adjustment
③ Engine
④ Cooling system
⑤ Carburetion
⑥ Chassis
⑦ Electrical
⑧ Appendices

Illustrated symbols ⑨ to ⑭ are used to identify the specifications appearing in the text.

⑨ Filling fluid
⑩ Lubricant
⑪ Tightening
⑫ Wear limit, clearance
⑬ Engine speed
⑭ Ω, V, A

Illustrated symbols ⑮ to ㉑ in the exploded diagram indicate grade of lubricant and location of lubrication point.

⑮ Apply engine oil
⑯ Apply gear oil
⑰ Apply molybdenum disulfide oil
⑱ Apply wheel bearing grease
⑲ Apply lightweight lithium-soap base grease
⑳ Apply molybdenum disulfide grease
㉑ Apply locking agent (LOCTITE®)

www.badrad600.com

INDEX

GENERAL INFORMATION — GEN INFO 1

PERIODIC INSPECTIONS AND ADJUSTMENTS — INSP ADJ 2

ENGINE OVERHAUL — ENG 3

CARBURETION — CARB 4

CHASSIS — CHAS 5

ELECTRICAL — ELEC 6

APPENDICES — APPX 7

www.badrad600.com

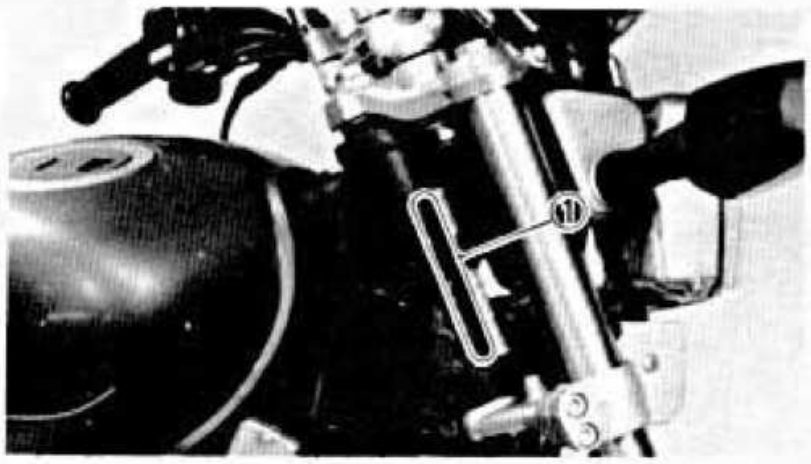
CHAPTER 1
GENERAL INFORMATION

MOTORCYCLE IDENTIFICATION 1-1
VEHICLE IDENTIFICATION NUMBER 1-1
ENGINE SERIAL NUMBER 1-1

IMPORTANT INFORMATION 1-2
ALL REPLACEMENT PARTS 1-2
GASKETS, OIL SEALS, AND O-RINGS 1-2
LOCK WASHERS/PLATES AND COTTER PINS 1-2
BEARINGS AND OIL SEALS 1-2

SPECIAL TOOLS 1-3
FOR TUNE UP 1-3
FOR ENGINE SERVICE 1-4
FOR CHASSIS SERVICE 1-7
FOR ELECTRICAL COMPONENTS 1-7

www.badrad600.com



GENERAL INFORMATION

MOTORCYCLE IDENTIFICAITON

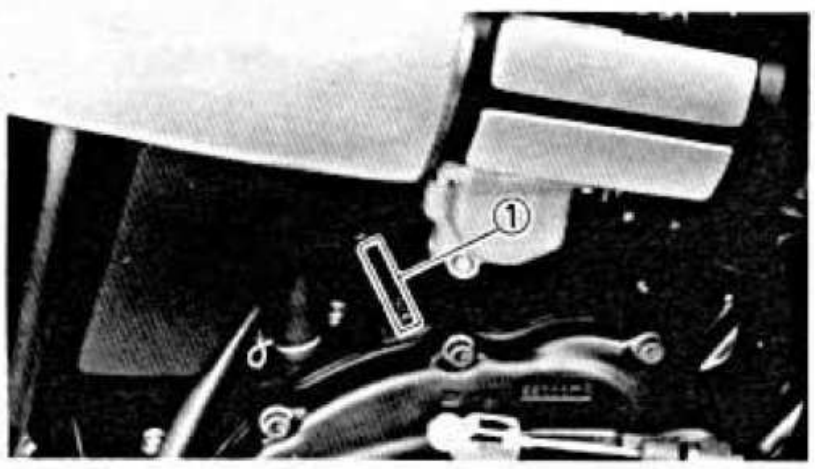
VEHICLE IDENTIFICATION NUMBER

The vehicle identification number (1) is stamped into the right side of the steering head pipe.

Starting Serial Number:
YX600S (Except for California)
JYA1UJ00*GA000101
YX600SC (For California)
JYA1UL00*GA000101

NOTE:

The vehicle identification number is used to identify your motorcycle and may be used to register your motorcycle with the licensing authority in your state.



ENGINE SERIAL NUMBER

The engine serial number (1) is stamped into the elevated part of the left rear section of the engine.

Starting Serial Number:
YX600S (Except for California)
1UJ-000101
YX600SC (For California)
1UL-000101

NOTE:

- The first three digits of these numbers are for model identifications; the remaining digits are the unit production number.
- Designs and specifications are subject to change without notice.

www.badrad600.com

IMPORTANT INFORMATION

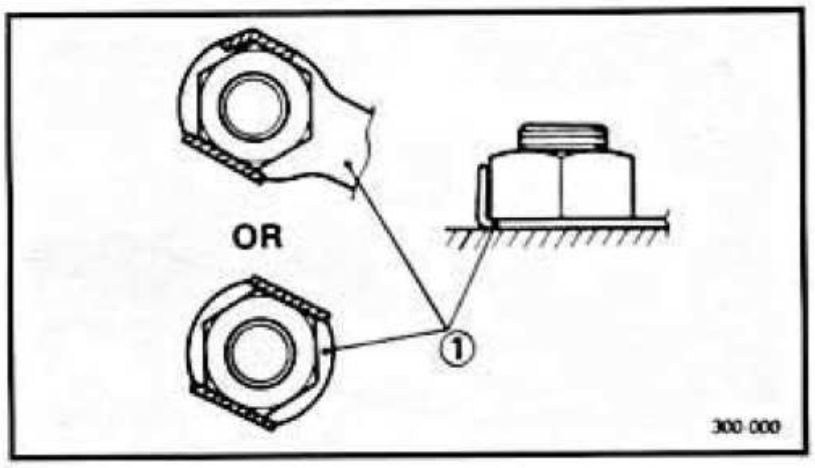
ALL REPLACEMENT PARTS

1. Use only genuine Yamaha parts for all replacements. Use oil and/or grease recommended by Yamaha for assembly and adjustment. Other brands may be similar in function and appearance, but inferior in quality.

GASKETS, OIL SEALS, AND O-RINGS

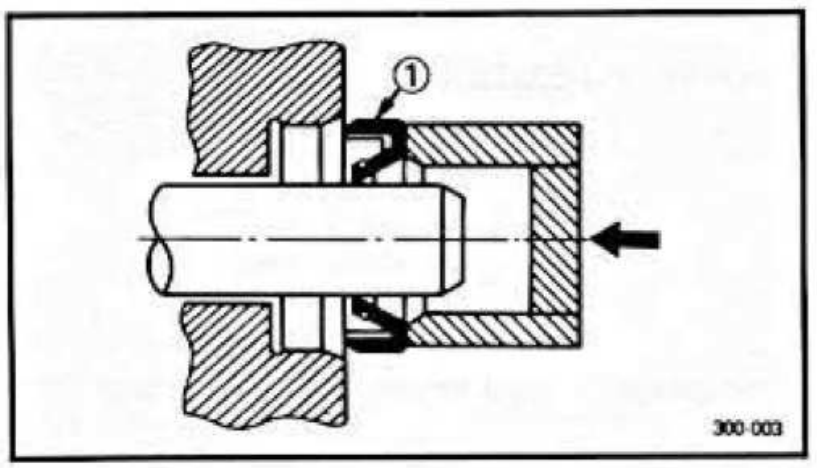
1. All gaskets, seals and O-rings should be replaced when an engine is overhauled. All gasket surfaces, oil seal lips and O-rings must be cleaned.

2. Properly oil all mating parts and bearings during reassembly. Apply grease to the oil seal lips.



LOCK WASHERS/PLATES AND COTTER PINS

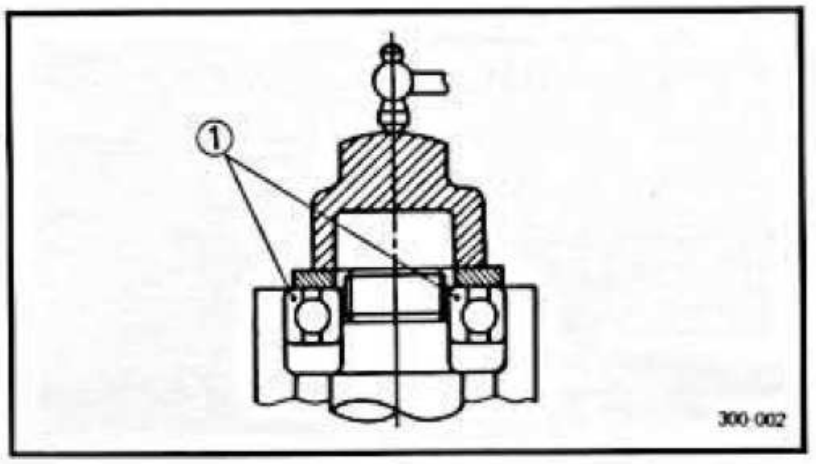
1. All lock washers/Plates ① and cotter pins must be replaced when they are removed. Lock tab(s) should be bent along the bolt or nut flat(s) after the bolt or nut has been properly tightened.



BEARINGS AND OIL SEALS

1. Install the bearing(s) and oil seal(s) with their manufacturer's marks or numbers facing outward. (In other words, the stamped letters must be on the side exposed to view.) When installing oil seal(s), apply a light coating of light-weight lithium base grease to the seal lip(s). Oil the bearings liberally when installing.

① Oil seal



CAUTION:

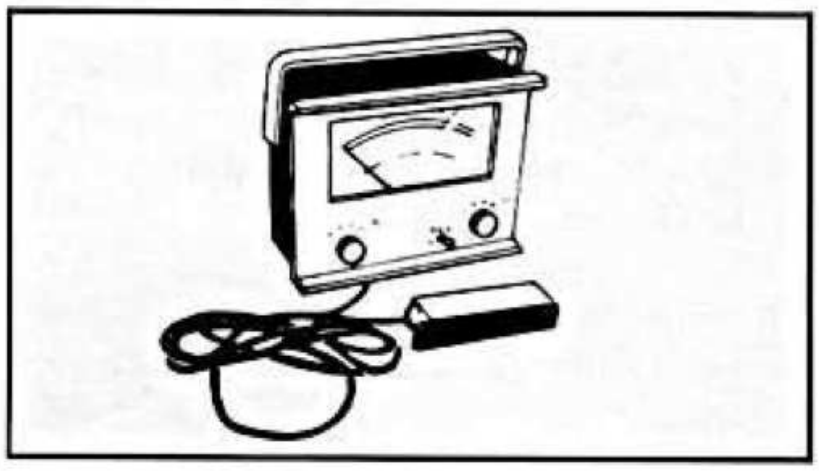
Do not use compressed air to spin the bearings dry. This causes damage to the bearing surfaces.

① Bearing

www.badrad600.com

SPECIAL TOOLS

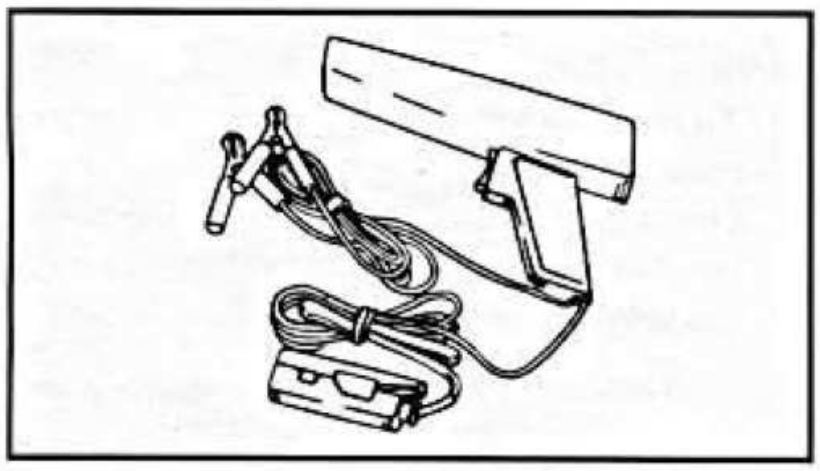
The proper special tools are necessary for complete and accurate tune-up and assembly. Using the correct special tool will help prevent damage caused by the use of improper tools or improvised techniques.



FOR TUNE UP

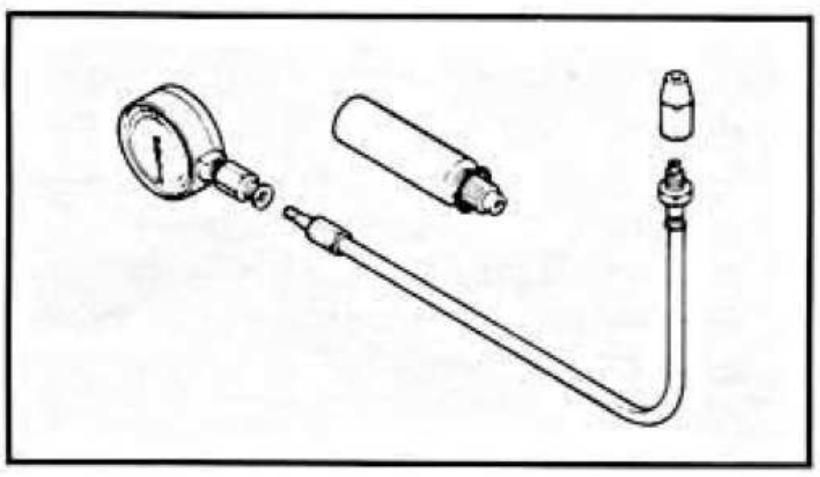
1. Inductive Tachometer
   P/N. YU-08036

This tool is needed for detecting engine rpm.



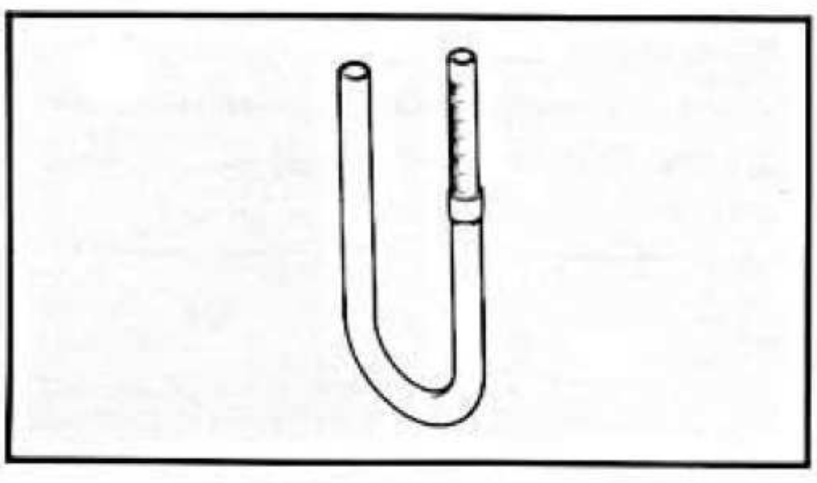
2. Inductive Timing Light
   P/N. YU-08037

This tool is necessary for adjusting timing.



3. Compression Gauge
   P/N. YU-33223

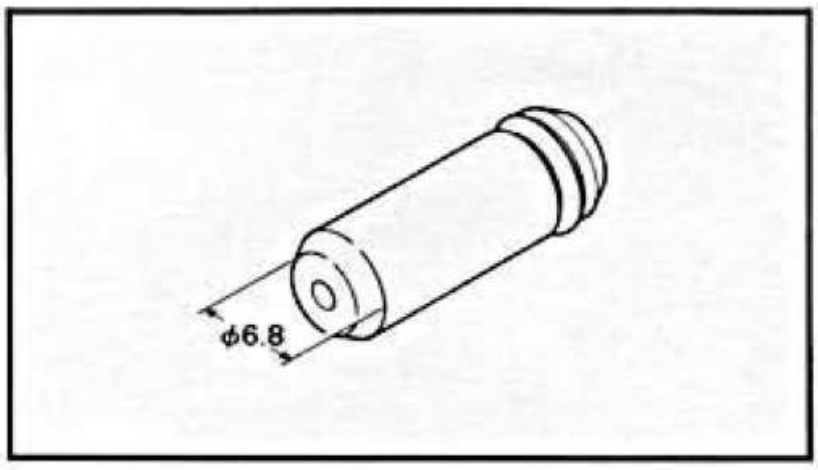
This gauge is used to measure the engine compression.



4. Fuel Level Gauge
   P/N. YM-01312

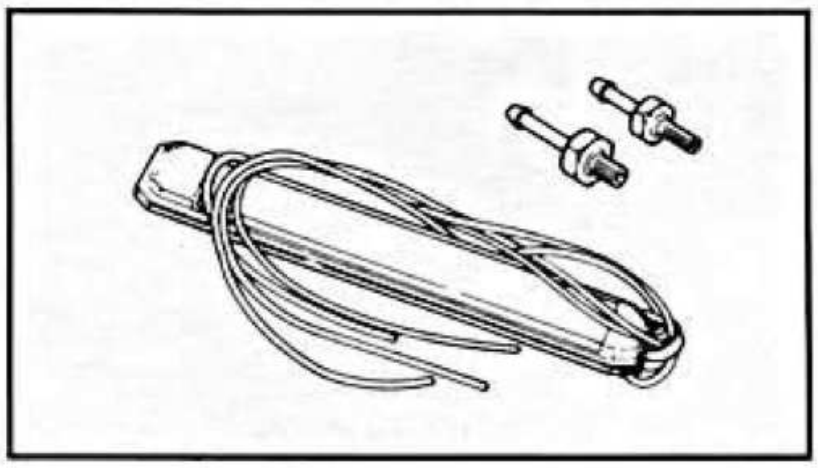
This gauge is used to measure the fuel level in the float chamber.

www.badrad600.com



5. Fuel Level Gauge Adapter
P/N. YM-01329

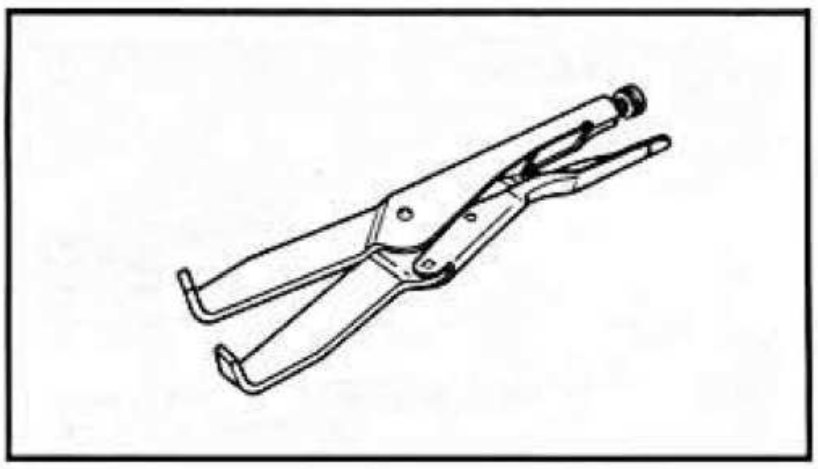
This tool is needed when measuring the carburetor fuel level together with fuel level gauge.



6. Vacuum Gauge
P/N. YU-08030

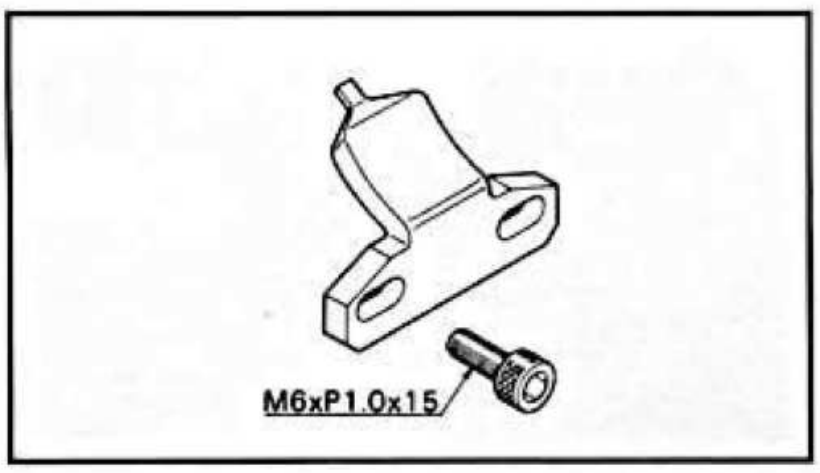
This gauge is needed for carburetor synchronization.

FOR ENGINE SERVICE



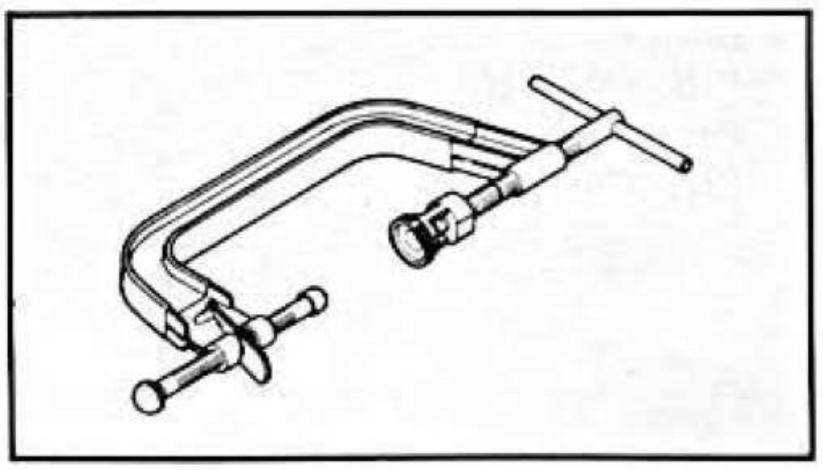
1. Universal Clutch Holder
P/N. YM-91042

This tool is used to hold the clutch when removing or installing the clutch boss locknut.



2. Tappet Adjusting Tool
P/N. YM-01245

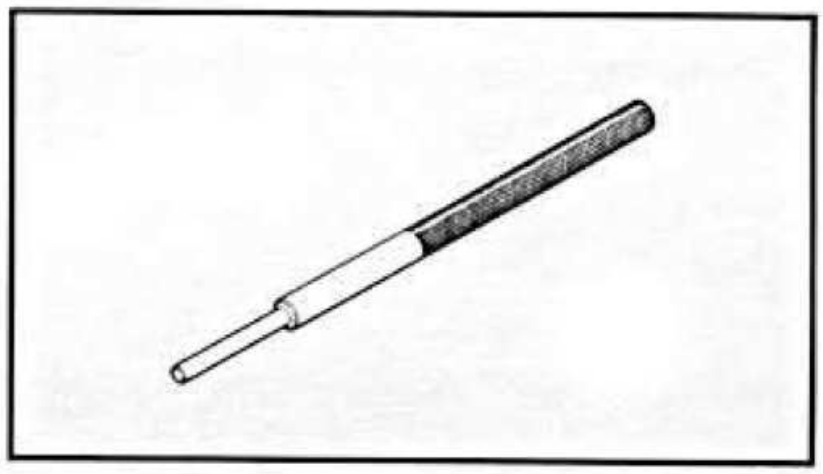
This tool is necessary to replace valve adjusting pads.



3. Valve Spring Compressor
P/N. YM-04019

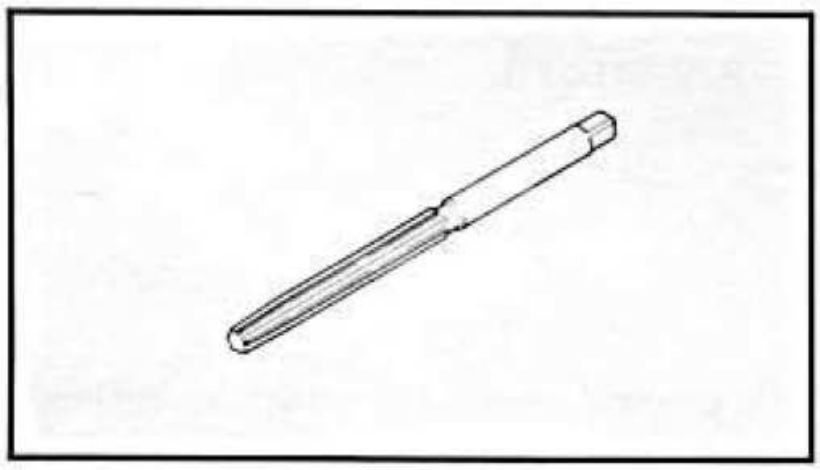
This tool is needed to remove and install the valve assemblies.

www.badrad600.com



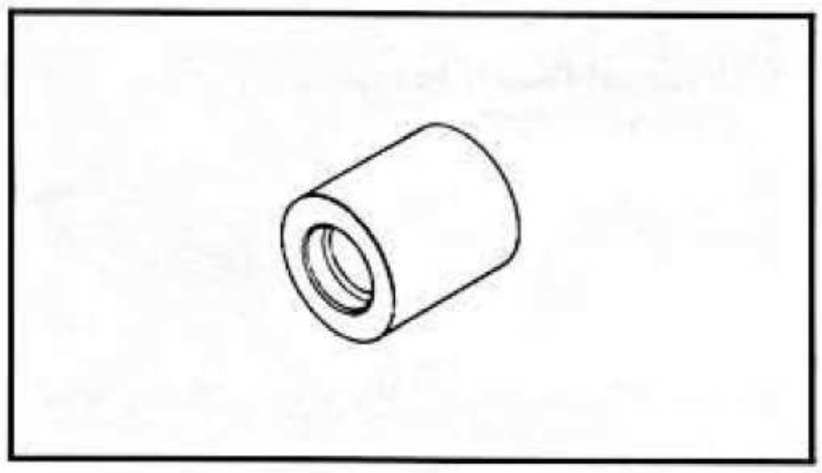
4. Valve Guide Remover
P/N. YM-04064

This tool is used to remove the valve guides.



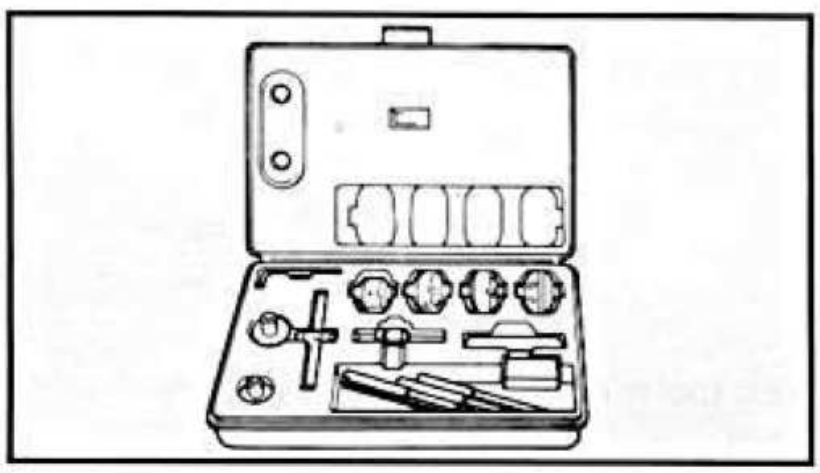
5. Valve Guide Reamer
P/N. YM-04066

This tool is used to rebore the new valve guide.



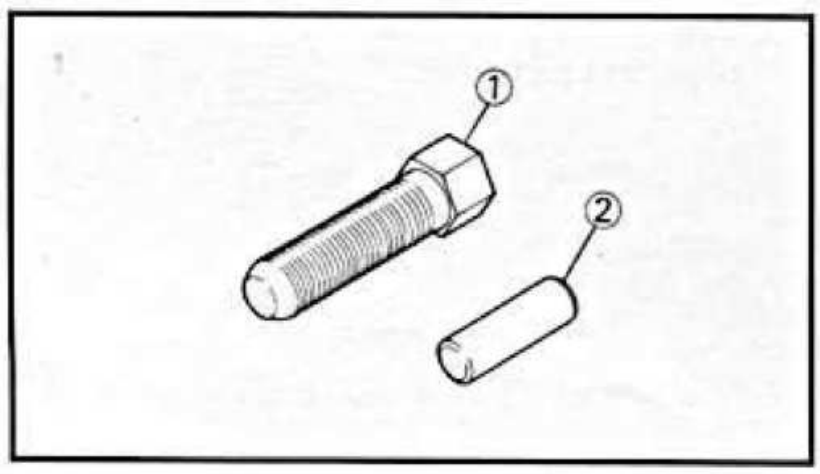
6. Valve Guide Installer
P/N. YM-04065

This tool is needed to install the valve guides properly together with valve guide remover.



7. Valve Seat Cutter Set
P/N. YM-91043

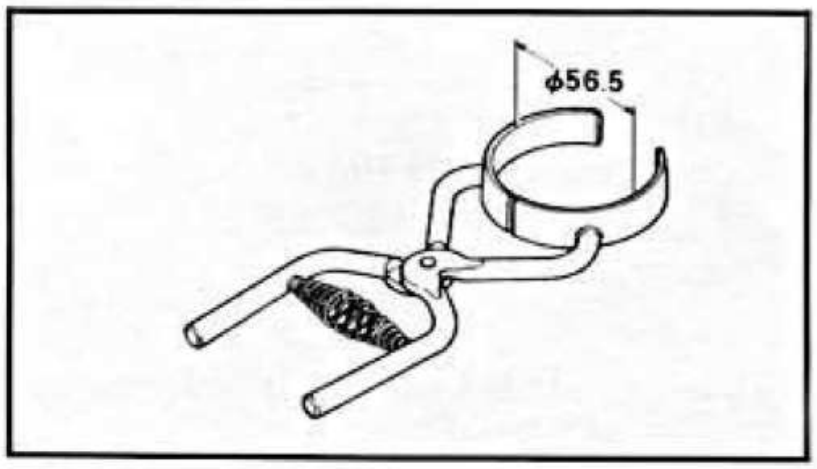
This tool is needed to resurface the valve seat.



8. Rotor Puller ..... ①
P/N. YM-01080
Pin ..... ②
P/N. YM-04052

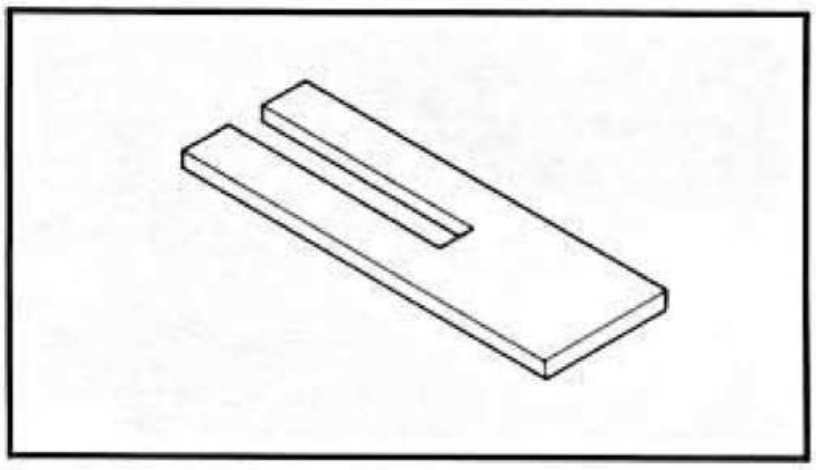
This tool is needed to remove the A.C. Generator rotor.

www.badrad600.com



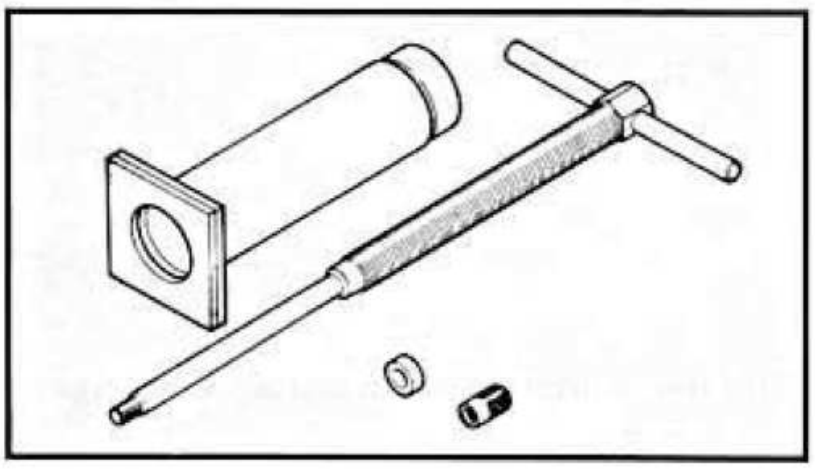
9. Piston Ring Compressor
P/N. YM-04047

This tool is used when installing the piston into the cylinder.



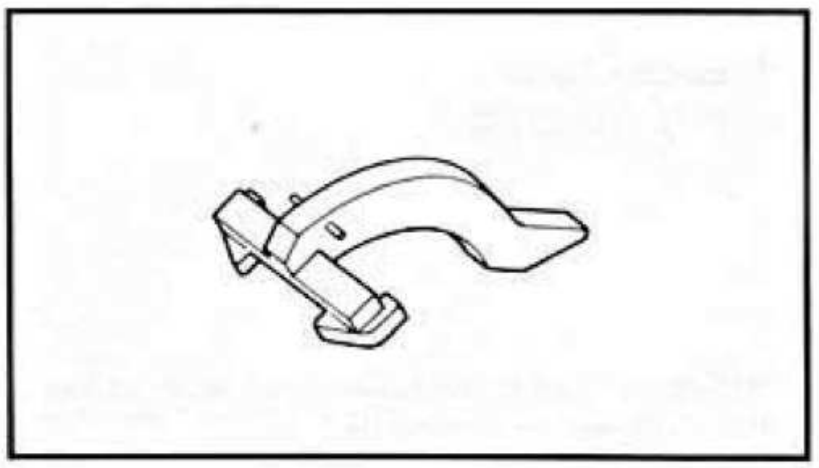
10. Piston Base
P/N. YM-01067

Use 4 of these to hold the pistons during cylinder installation.



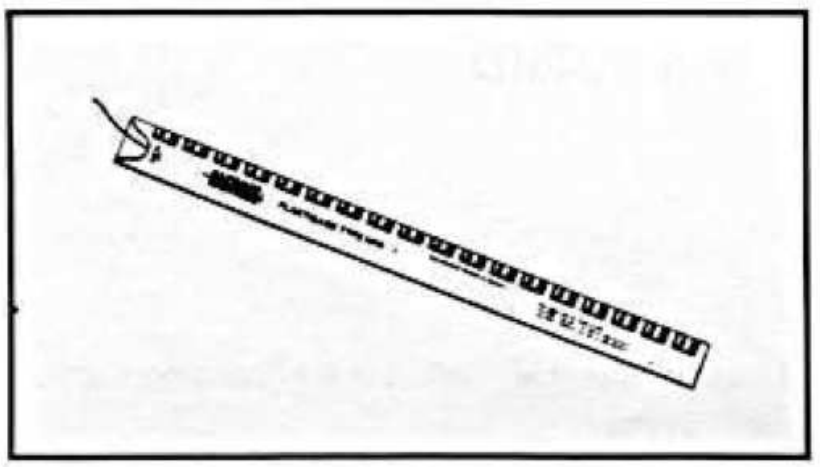
11. Piston Pin Puller
P/N. YU-01304

This tool is used to remove the piston pin.



12. Rotor Holding Tool
P/N. YM-04043

This tool is used to hold the A.C. Generator rotor during removal and installation.

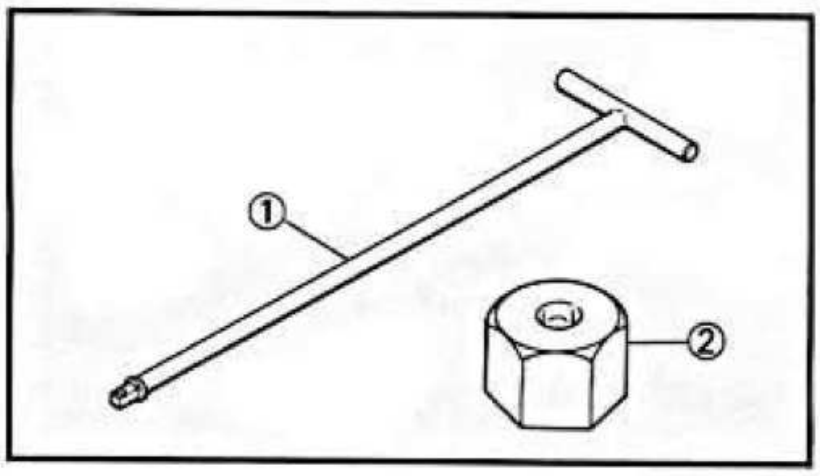


13. Plastigage® Set "Green"
P/N. YU-33210

This gauge is needed to measure the clearance for the connecting rod bearing.

www.badrad600.com

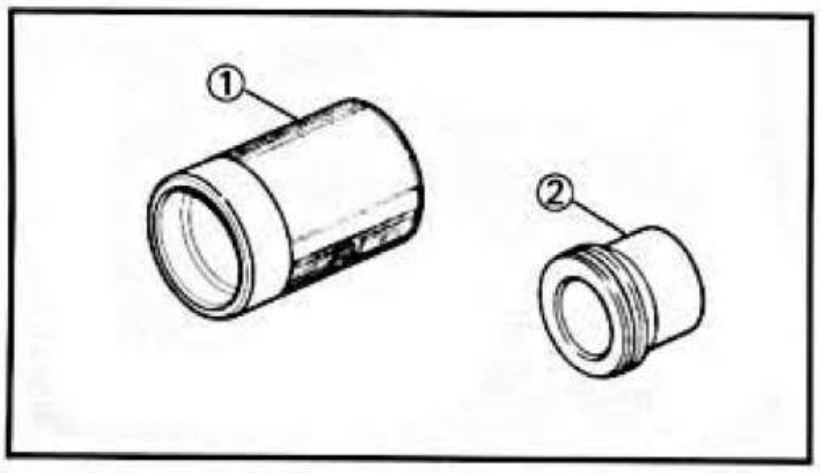
SPECIAL TOOLS



FOR CHASSIS SERVICE

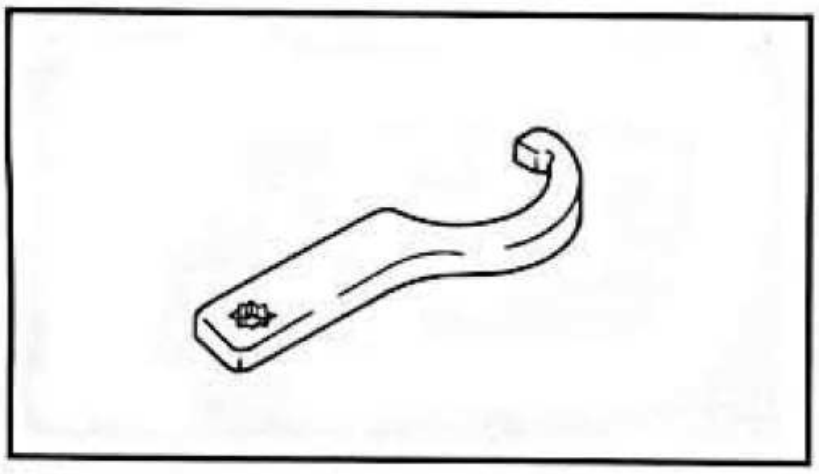
1. T-Handle ..... ①
   P/N. YM-01326
   Front Fork Cylinder Holder ..... ②
   P/N. YM-33298

This tool is used to loosen and tighten the front fork cylinder holding bolt.



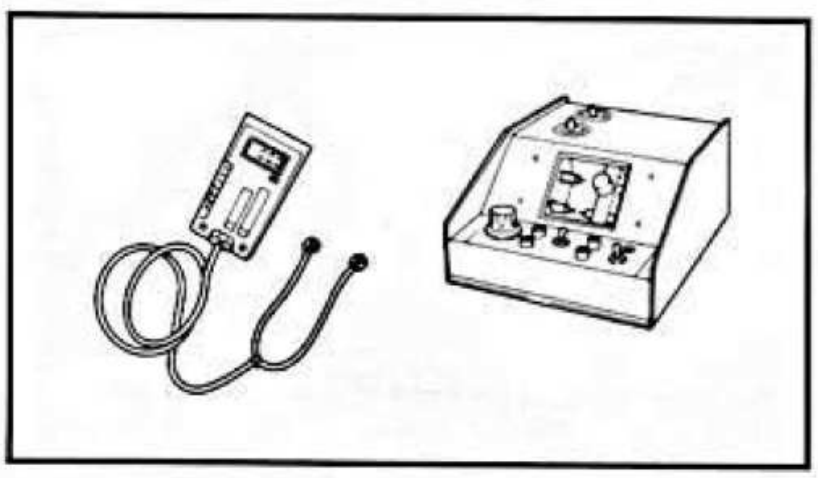
2. Front Fork Seal Driver (Weight) ..... ①
   P/N. YM-33963
   Adapter ..... ②
   P/N. YM-08010

These tools are used when installing the fork seal.



3. Ring Nut Wrench
   P/N. YU-33975

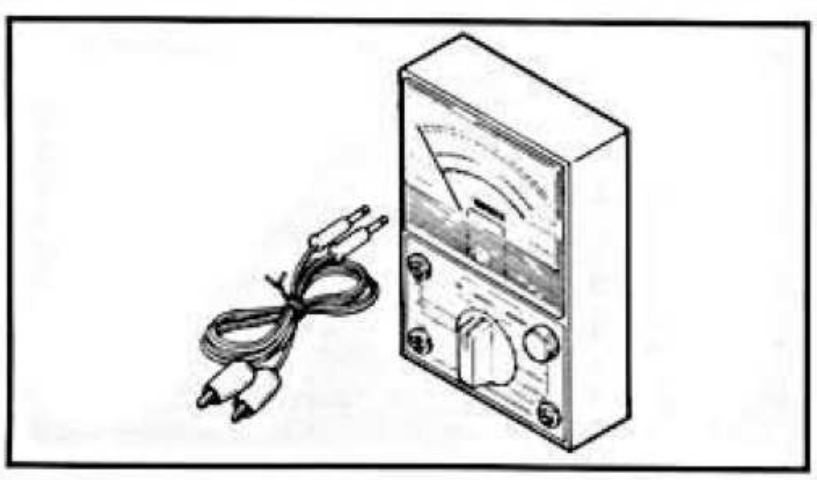
This tool is used to loosen and tighten the steering ring nut.



FOR ELECTRICAL COMPONENTS

1. Electro Tester
   P/N. YU-33260

This instrument is necessary for checking the ignition system components.



2. Pocket Tester
   P/N. YU-03112

This instrument is invaluable for checking the electrical system.

www.badrad600.com

CHAPTER 2
PERIODIC INSPECTIONS AND ADJUSTMENTS

INTRODUCTION 2-1

MAINTENANCE INTERVALS CHART 2-1
- PERIODIC MAINTENANCE EMISSION CONTROL SYSTEM 2-1
- GENERAL MAINTENANCE/LUBRICATION 2-2

ENGINE 2-4
- VALVE CLEARANCE ADJUSTMENT 2-4
- CAM CHAIN ADJUSTMENT 2-9
- CARBURETOR SYNCHRONIZATION 2-10
- IDLE SPEED ADJUSTMENT 2-12
- ENGINE OIL LEVEL INSPECTION 2-12
- ENGINE OIL REPLACEMENT 2-13
- CLUTCH LEVER FREE PLAY ADJUSTMENT 2-16
- COMPRESSION PRESSURE MEASUREMENT 2-16
- FUEL LINE INSPECTION 2-18
- CARBURETOR JOINT INSPECTION 2-18
- CRANKCASE VENTILATION PIPE INSPECTION 2-19
- EXHAUST SYSTEM INSPECTION 2-19
- AIR FILTER CLEANING 2-20

CHASSIS 2-20
- FUEL COCK CLEANING 2-20
- FRONT BRAKE FLUID INSPECTION 2-21
- FRONT BRAKE PAD INSPECTION 2-22
- FRONT BRAKE LEVER FREE PLAY ADJUSTMENT 2-22
- REAR BRAKE PEDAL HEIGHT ADJUSTMENT 2-23
- BRAKE PEDAL FREE PLAY ADJUSTMENT 2-23
- REAR BRAKE LINING INSPECTION 2-24
- REAR BRAKE LIGHT SWITCH ADJUSTMENT 2-24
- DRIVE CHAIN SLACK CHECK 2-25
- DRIVE CHAIN SLACK ADJUSTMENT 2-25
- DRIVE CHAIN LUBRICATION 2-26
- CABLE INSPECTION AND LUBRICATION 2-26
- LEVER AND PEDAL LUBRICATION 2-27
- CENTERSTAND AND SIDESTAND LUBRICATION 2-27
- FRONT FORK OIL CHANGE 2-27
- REAR SHOCK ABSORBER ADJUSTMENT 2-29
- STEERING HEAD INSPECTION 2-29
- STEERING HEAD ADJUSTMENT 2-30
- FRONT WHEEL BEARING INSPECTION 2-30
- REAR WHEEL BEARING INSPECTION 2-31
- TUBELESS TIRES AND ALUMINUM WHEELS INSPECTION 2-31
- THROTTLE CABLE ADJUSTMENT 2-33

www.badrad600.com

ELECTRICAL 2-33
IGNITION TIMING CHECK 2-33
SPARK PLUG INSPECTION 2-34
BATTERY INSPECTION 2-35
FUSE INSPECTION 2-37
HEADLIGHT BEAM ADJUSTMENT 2-38
HEADLIGHT BULB REPLACEMENT 2-39
TAILLIGHT BULB REPLACEMENT 2-40
CARBURETOR AIR VENT SYSTEM INSPECTION
(CALIFORNIA ONLY) 2-40

www.badrad600.com

PERIODIC INSPECTIONS AND ADJUSTMENTS

INTRODUCTION

This chapter includes all information necessary to perform recommended inspections and adjustments. These preventive maintenance procedures, if followed, will ensure more reliable vehicle operation and a longer service life. The need for costly overhaul work will be greatly reduced. This information applies to vehicles already in service as well as new vehicles that are being prepared for sale. All service technicians should be familiar with this entire chapter.

MAINTENANCE INTERVALS CHART

Proper periodic maintenance is important. Especially important are the maintenance services related to emissions controls. These controls not only function to ensure cleaner air but are also vital to proper engine operation and maximum performance. In the following maintenance tables, the services related to emissions control are grouped separately.

PERIODIC MAINTENANCE EMISSION CONTROL SYSTEM

No.	Item	Remarks	Initial	Odometer readings				
			1,000 km or 1 month (600 mi)	**1 7,000 km or 7 months (4,400 mi)	**2 13,000 km or 13 months (8,200 mi)	19,000 km or 19 months (12,000 mi)	**3 25,000 km or 25 months (15,800 mi)	31,000 km or 31 months (19,600 mi)
1*	Cam chain	Adjust chain tension.	*○	○	○	○	○	○
2*	Valve clearance	Check and adjust valve clearance when engine is cold.					○	
3*	Spark plug	Check condition. Adjust gap and clean. Replace at 13,000 km (or 13 months) and thereafter every 12,000 km (or 12 months).		○	Replace	○	Replace	○
4*	Crankcase ventilation system	Check ventilation hose for cracks or damage. Replace if necessary.		○	○	○	○	○
5*	Fuel line	Check fuel hose and vacum pipe for cracks or damage. Replace if necessary.		○	○	○	○	○
6*	Exhaust system	Check for leakage. Retighten if necessary. Replace gasket(s) if necessary.		○	○	○	○	○
7*	Carburetor synchronization	Adjust synchronization of carburetors.	*○	○	○	○	○	○
8*	Idle speed	Check and adjust engine idle speed. Adjust cable free play.		○	○	○	○	○

* It is recommended that these items be serviced by a Yamaha dealer or other qualified mechanic.

NOTE:

For father odometer reading, repeat the above maintenance at the period established; **1: Every 6,000 km (3,800 mi), **2: Every 12,000 km (7,600 mi), and **3: Every 30,000 km (19,000 mi) intervals.

www.badrad600.com

MAINTENANCE INTERVALS CHART

GENERAL MAINTENANCE/LUBRICATION

No.	Item	Remarks	Type	Initial	Odometer readings				
				1,000 km or 1 month (600 mi)	**1 7,000 km or 7 months (4,400 mi)	**2 13,000 km or 13 months (8,200 mi)	19,000 km or 19 months (12,000 mi)	**3 25,000 km or 25 months (15,800 mi)	31,000 km or 31 months (19,600 mi)
1	Engine oil	Warm-up engine before draining	*1) Yamalube 4-cycle oil or SAE 20W40 type "SE" motor oil *2) SAE 10W30 type "SE" motor oil	○	○	○	○	○	○
2	Oil filter	Replace.	–	○		○		○	
3*	Air filter	Clean with compressed air. Replace if necessary.	–		○	○	○	○	○
4*	Brake system	Adjust free play. Replace pads if necessary. (Front) Replace shoes if necessary. (Rear)	–	○	○	○	○	○	○
5*	Clutch	Adjust free play.	–	○	○	○	○	○	○
6	Drive chain	Check chain condition. Adjust and lubricate chain thoroughly.	SAE 30W-50W motor oil.	Every 500 km (300 mi)					
7	Control and meter cable	Apply chain lube thoroughtly.	Yamaha chain and cable lube or SAE 10W30 motor oil.	○	○	○	○	○	○
8*	Rear arm pivot bearing	Check bearing assembly for looseness. Moderately repack every 24,000 km (15,200 mi).	Midium weight wheel bearing grease.					Repack	
9	Brake/ Clutch lever pivot shaft	Apply chain lube lightly.	Yamaha chain and cable lube or SAE 10W30 motor oil.		○	○	○	○	○
10	Brake pedal and change pedal shaft	Lubricate. Apply chain lube lightly.	Yamaha chain and cable lube or SAE 10W30 motor oil.		○	○	○	○	○
11*	Center/ Side stand pivots	Check operation and lubricate. Apply chain lube lightly.	Yamaha chain and cable lube or SAE 10W30 motor oil.		○	○	○	○	○

www.badrad600.com

INSP ADJ

MAINTENANCE INTERVALS CHART

No.	Item	Remarks	Type	Initial	Odometer readings				
				1,000 km or 1 month (600 mi)	**1 7,000 km or 7 months (4,400 mi)	**2 13,000 km or 13 months (8,200 mi)	19,000 km or 19 months (12,000 mi)	**3 25,000 km or 25 months (15,800 mi)	31,000 km or 31 months (19,600 mi)
12*	Front fork oil	Check operation and leakage.	Yamaha Fork Oil 10WT or equivalent		○	○	○	○	○
13*	Steering bearing	Check bearings assembly for looseness. Moderately repack every 24,000 km (15,000 mi).	Medium weight wheel bearing grease.		○	○	○	Repack	○
14*	Wheel bearings	Check bearings for smooth rotation.	Medium weight wheel bearing grease		○	○	○	○	○
15	Battery	Check specific gravity and breather pipe for proper operation.	—		○	○	○	○	○
16*	A.C. Generator	Replace generator brushes.	—			○		○	
17*	Sidestand switch	Check and clean or replace if necessary.	—	○	○	○	○	○	○

*1) If ambient temperature does not go below 5°C (41°F).
*2) If ambient temperature does not go below 15°C (59°F).
* It is recommended that these items be serviced by a Yamaha dealer or other qualified mechanic.

NOTE:

For father odometer reading, repeat the above maintenance at the period established, **1: Every 6,000 km (3,800 mi), **2: Every 12,000 km (7,600 mi) and **3: Every 24,000 km (15,200 mi) intervals.

www.badrad600.com

ENGINE

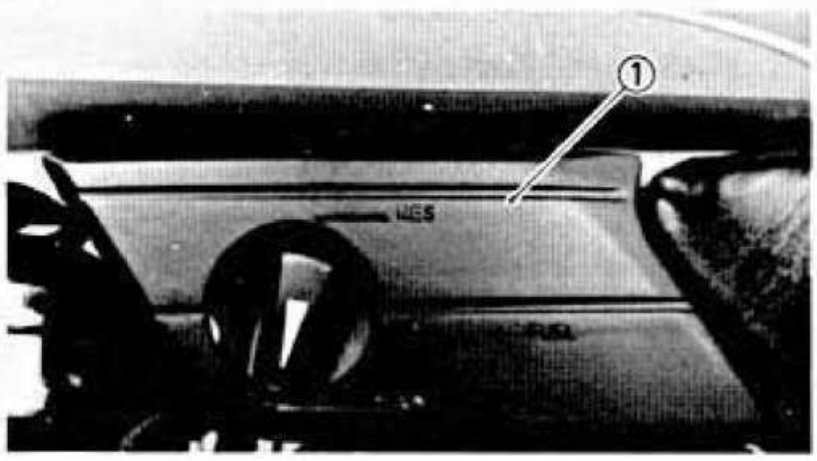
VALVE CLEARANCE ADJUSTMENT

NOTE:

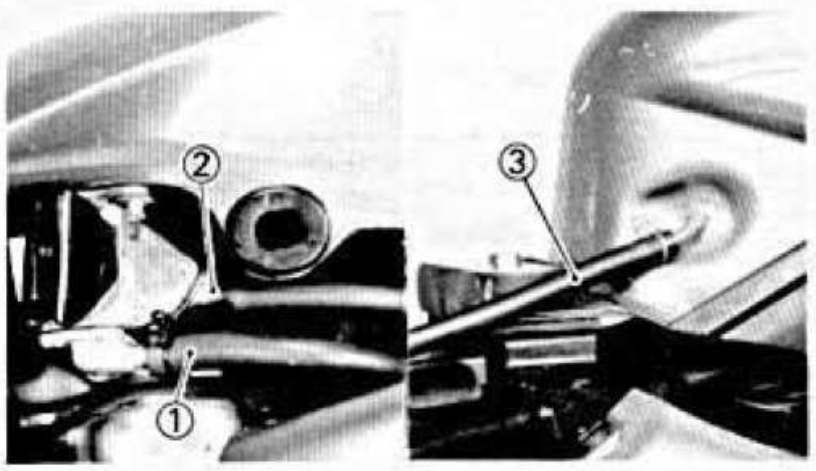
- Valve clearance must be measured and adjusted when the engine is cool to the touch.
- Measure and adjust valve clearance when piston is at TDC on compression stroke.

1. Remove:
   - Seat

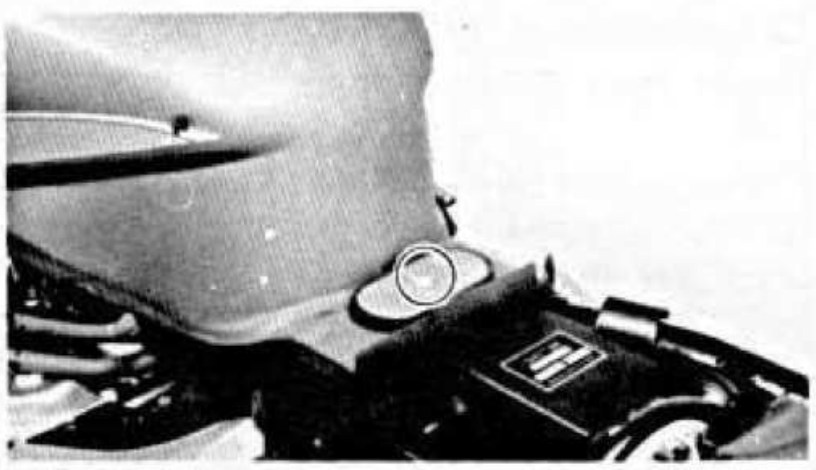
2. Turn the fuel cock to "ON" position.



3. Remove:
   - Cover ①



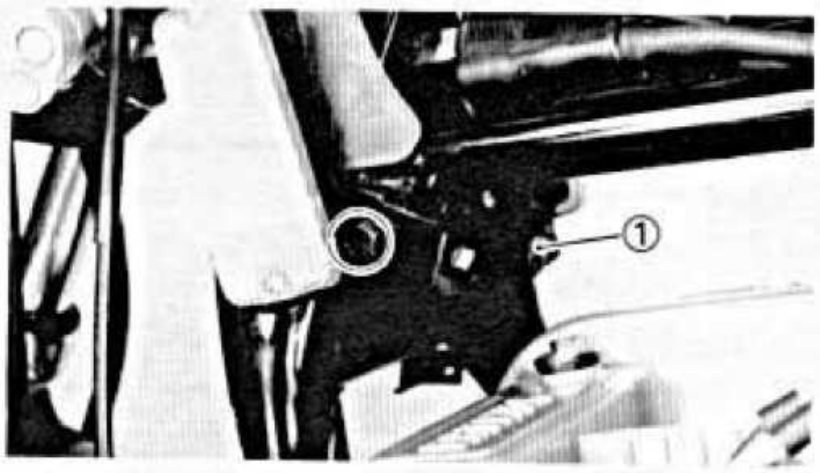
4. Disconnect:
   - Fuel pipe ①
   - Vacuum pipe ②
   - Fuel tank breather pipe ③



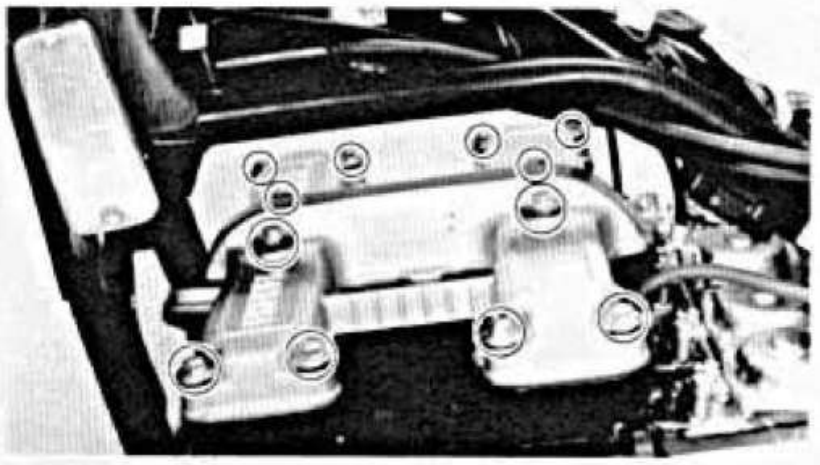
5. Remove:
   - Fuel tank

www.badrad600.com

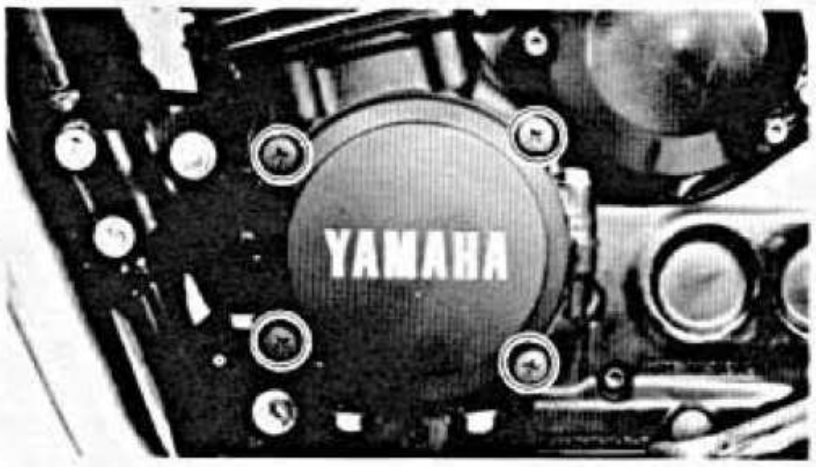
VALVE CLEARANCE ADJUSTMENT



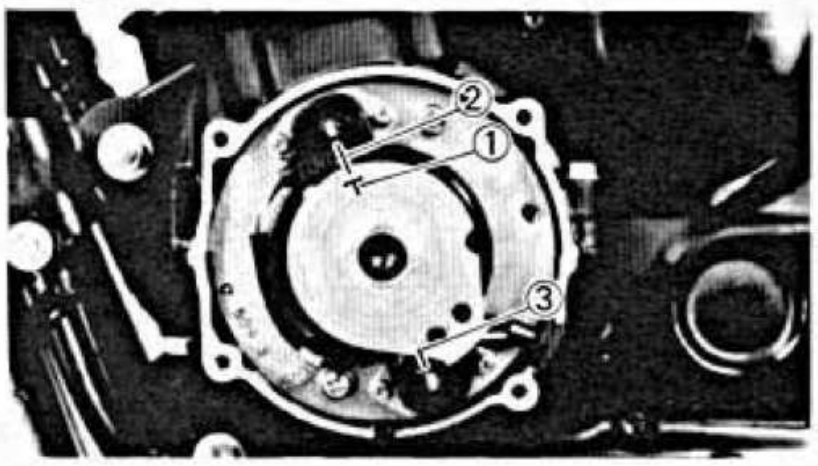
6. Remove:
   - Spark plugs
   - Horn ①



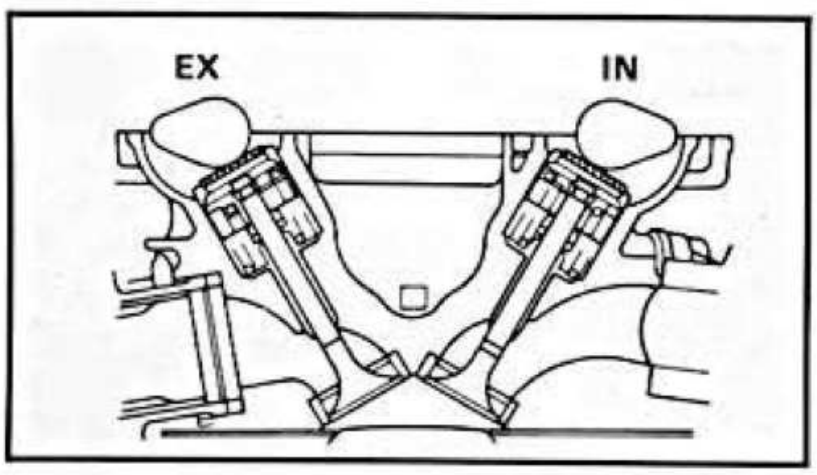
7. Remove:
   - Cylinder head cover



8. Remove:
   - Crankcase cover



9. Measure:
   - Valve clearance



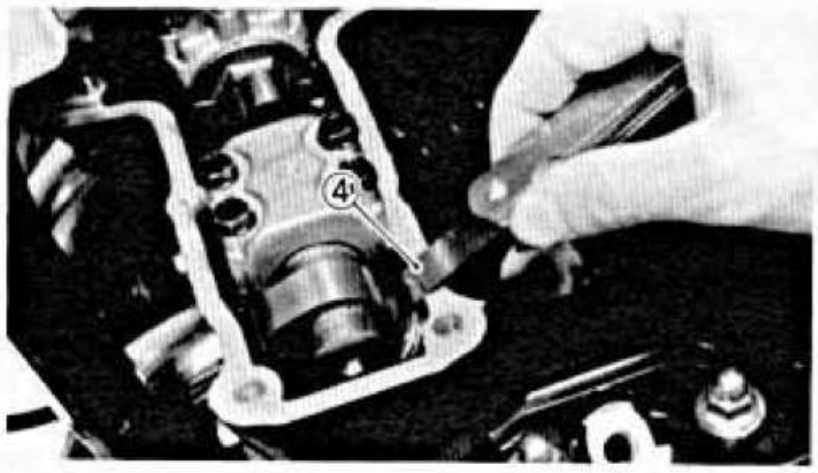
Valve clearance measurement steps:

- Turn the crankshaft counterclockwise.
- Align the "T" mark ① on the timing plate with the pickup coil mark (② or ③) when the piston is at Top Dead Center (T.D.C.) on compression stroke.

NOTE:

- Compression T.D.C. can be found when the cam lobes are apart from each other, as shown.
- Measure the valve clearance by aligning the "T" mark with the upper pickup coil mark ② for the #1 and #4 cylinders and with the lower pickup coil mark ③ for the #2 and #3 cylinders.

www.badrad600.com



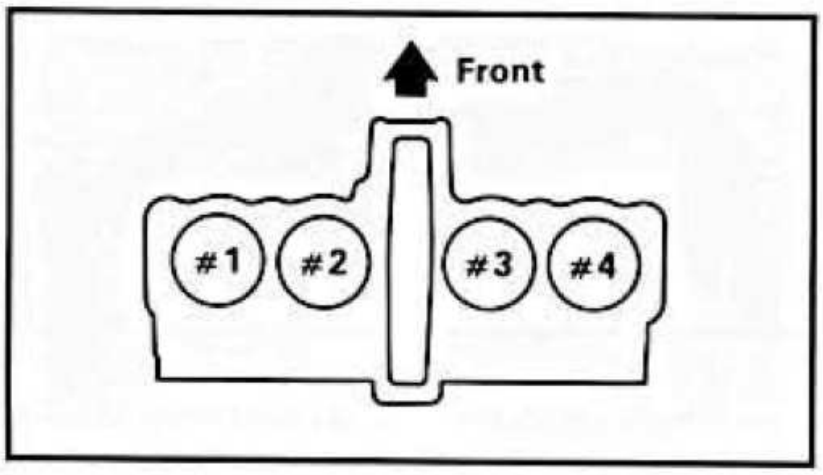
•Measure the valve clearance using feeler gauge ④.
Out of specification→Adjust valve clearance.

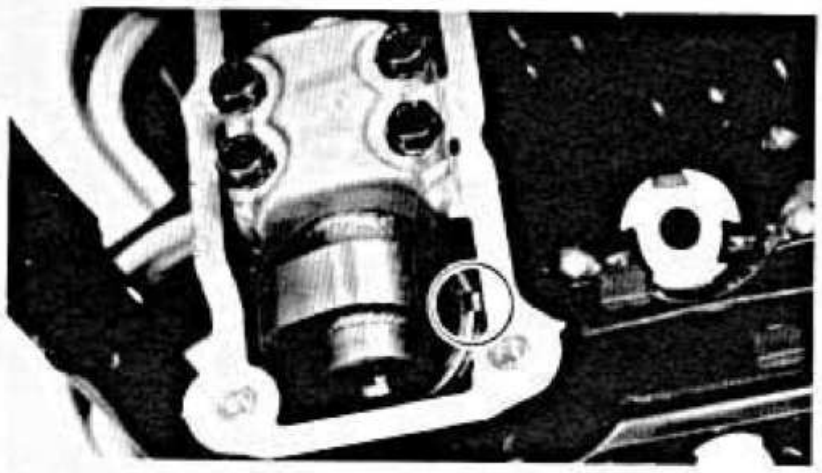
Intake Valve (Cold):
0.11~0.15 mm (0.004~0.006 in)
Exhaust Valve (Cold):
0.16~0.20 mm (0.006~0.008 in)

NOTE:

•Record the measured amount if the clearance is incorrect.
•Measure valve clearance in sequence.

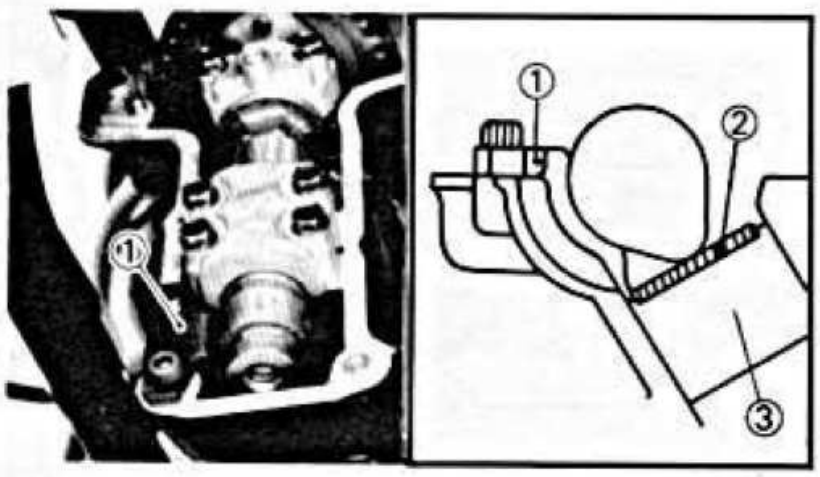
Measuring Sequence:
#1→#2→#4→#3





10. Adjust:
•Valve clearance

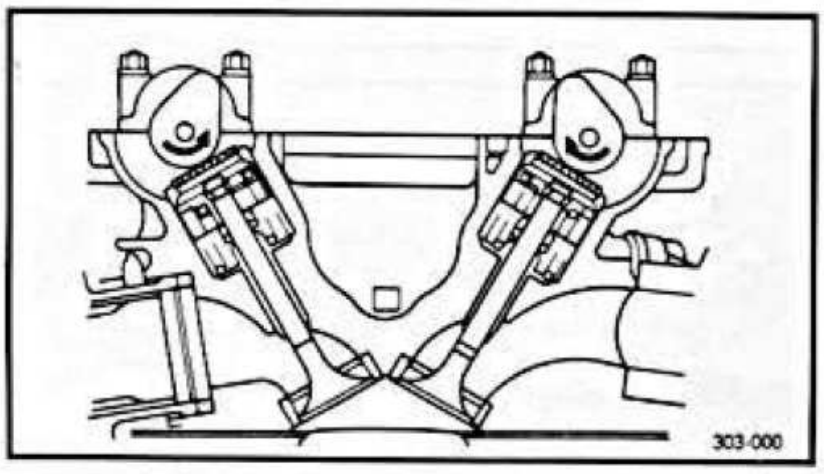
Valve clearance adjustment steps:
•Position the valve lifter slots (intake and exhaust) opposite each other.



•Turn the camshaft until the lobe fully depresses the valve lifter and opens the valve.
•Attach the Tappet Adjusting Tool ① (YM-01245) onto the cylinder head.

NOTE:

Make sure that the tool contacts the lifter ③ only, and not the pad ②.

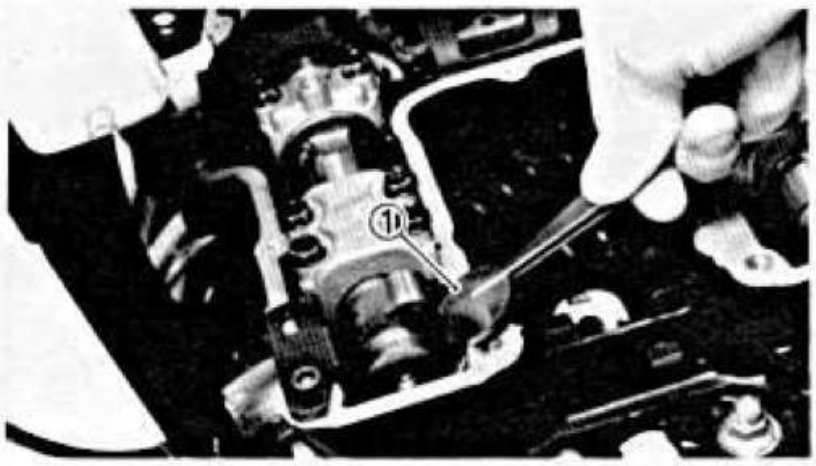


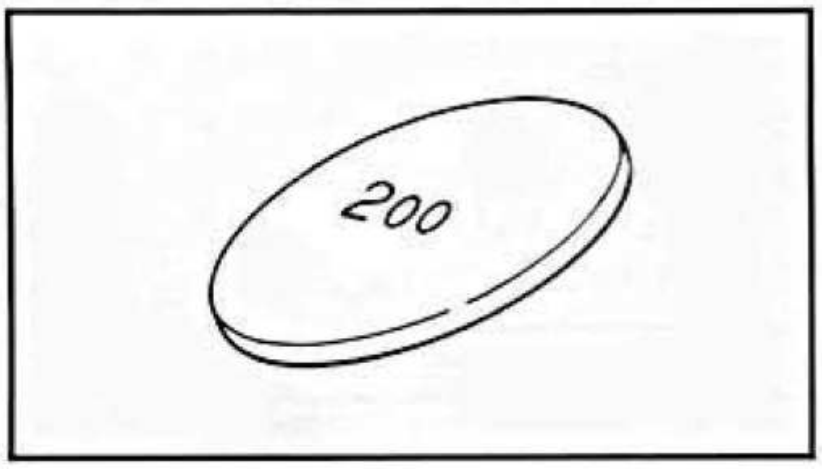
•Carefully rotate the camshaft so that the pads can be removed. To avoid cam touching the adjusting tool, turn cams as shown.

Intake: Carefully rotate CLOCKWISE.
Exhaust:
Carefully rotate COUNTER-CLOCKWISE.

www.badrad600.com

VALVE CLEARANCE ADJUSTMENT





2

- Remove the pads ① from the lifters. Use a small screwdriver and a pair of tweezers for removal.
  Note pad numbers.
- Select the proper valve adjusting pad from the chart below:

Pad range		Pad availability: 25 increments
No. 200 ~ No. 320	200 mm (0.079 in) 320 mm (0.130 in)	Pads stepped in 0.05 mm (0.002 in) increments

NOTE:
Thickness of each pad is marked on the pad face that contacts the valve lifter (not the cam).

- Round off the hundredths digit of the original pad number to the nearest 0.05 mm increment.

Hundredths digit	Rounded valve
0 or 2	0
5	(NOT ROUNDED OFF)
8	10

EXAMPLE:
Original pad number = 258 (2.58 mm)
Rounded off digit = 260

NOTE:
Pads can only be selected in 0.05 mm (0.002 in) increments.

- Locate the "Installed Pad Number" on the chart, and then find the measured valve clearance. The point where these coordinates intersect is the new pad number.

NOTE:
Use the new pad number as a guide only as the number must be verified.

www.badrad600.com

INTAKE

[B] MEASURED CLEARANCE	[A] INSTALLED PAD NUMBER																								
	200	205	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320
0.00 – 0.05			200	205	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310
0.06 – 0.10		200	205	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315
0.11 – 0.15																									
0.16 – 0.20	205	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320	
0.21 – 0.25	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320		
0.26 – 0.30	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320			
0.31 – 0.35	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320				
0.36 – 0.40	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320					
0.41 – 0.45	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320						
0.46 – 0.50	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320							
0.51 – 0.55	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320								
0.56 – 0.60	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320									
0.61 – 0.65	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320										
0.66 – 0.70	255	260	265	270	275	280	285	290	295	300	305	310	315	320											
0.71 – 0.75	260	265	270	275	280	285	290	295	300	305	310	315	320												
0.76 – 0.80	265	270	275	280	285	290	295	300	305	310	315	320													
0.81 – 0.85	270	275	280	285	290	295	300	305	310	315	320														
0.86 – 0.90	275	280	285	290	295	300	305	310	315	320															
0.91 – 0.95	280	285	290	295	300	305	310	315	320																
0.96 – 1.00	285	290	295	300	305	310	315	320																	
1.01 – 1.05	290	295	300	305	310	315	320																		
1.06 – 1.10	295	300	305	310	315	320																			
1.11 – 1.15	300	305	310	315	320																				
1.16 – 1.20	305	310	315	320																					
1.21 – 1.25	310	315	320																						
1.26 – 1.30	315	320																							
1.31 – 1.35	320																								

VALVE CLEARANCE (cold):
0.11 – 0.15 mm (0.004 – 0.006 in)
Example: Installed is 250
Measured clearance is 0.32 mm (0.013 in)
Replace 250 pad with 270 pad
Pad number: (example)
Pad No. 250 = 2.50 mm (0.098 in)
Pad No. 255 = 2.55 mm (0.100 in)
Always install pad with number down.

EXHAUST

[B] MEASURED CLEARANCE	[A] INSTALLED PAD NUMBER																								
	200	205	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320
0.00 – 0.05				200	205	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305
0.06 – 0.10			200	205	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310
0.11 – 0.15		200	205	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315
0.16 – 0.20																									
0.21 – 0.25	205	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320	
0.26 – 0.30	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320		
0.31 – 0.35	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320			
0.36 – 0.40	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320				
0.41 – 0.45	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320					
0.46 – 0.50	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320						
0.51 – 0.55	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320							
0.56 – 0.60	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320								
0.61 – 0.65	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320									
0.66 – 0.70	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320										
0.71 – 0.75	255	260	265	270	275	280	285	290	295	300	305	310	315	320											
0.76 – 0.80	260	265	270	275	280	285	290	295	300	305	310	315	320												
0.81 – 0.85	265	270	275	280	285	290	295	300	305	310	315	320													
0.86 – 0.90	270	275	280	285	290	295	300	305	310	315	320														
0.91 – 0.95	275	280	285	290	295	300	305	310	315	320															
0.96 – 1.00	280	285	290	295	300	305	310	315	320																
1.01 – 1.05	285	290	295	300	305	310	315	320																	
1.06 – 1.10	290	295	300	305	310	315	320																		
1.11 – 1.15	295	300	305	310	315	320																			
1.16 – 1.20	300	305	310	315	320																				
1.21 – 1.25	305	310	315	320																					
1.26 – 1.30	310	315	320																						
1.31 – 1.35	315	320																							
1.36 – 1.40	320																								

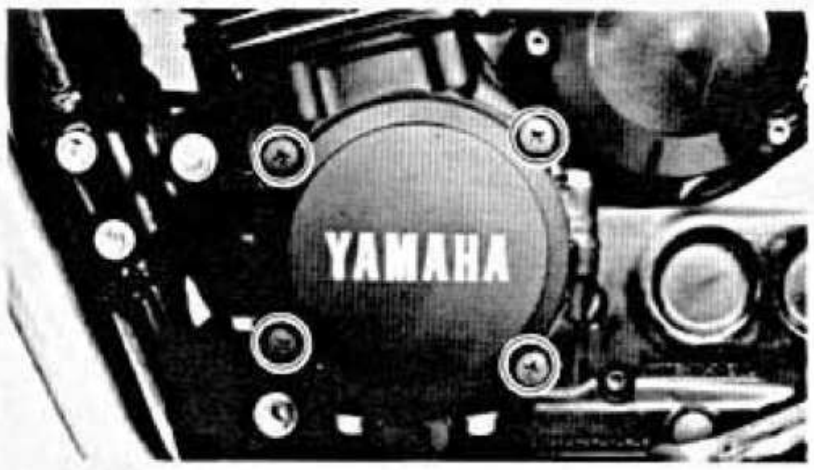
VALVE CLEARANCE (cold):
0.16 – 0.20 mm (0.006 – 0.008 in)
Example: Installed is 250
Measured clearance is 0.32 mm (0.013 in)
Replace 250 pad with 265 pad
Pad number: (example)
Pad No. 250 = 2.50 mm (0.098 in)
Pad No. 255 = 2.55 mm (0.100 in)
Always install pad with number down.

www.badrad600.com

Pad number verification steps:
- Install the new pad with the number down.
- Remove the adjusting tool.
- Recheck the valve clearance.
- If the clearance is incorrect, repeat all of the clearance adjustment steps until the proper clearance is obtained.

11. Install:
    Reverse removal steps.
    - Crankcase cover (Left)
    - Cylinder head cover
    - Horn
    - Spark plugs
    - Fuel tank

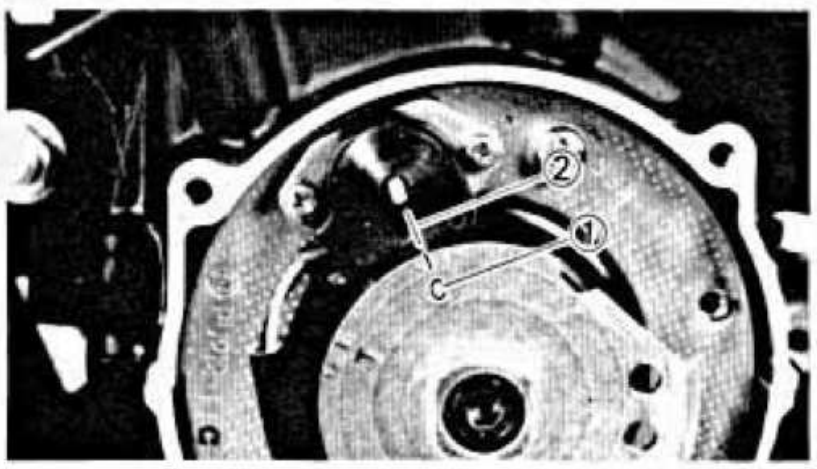
Screw (Crankcase Cover):
10 Nm (1.0 m•kg, 7.2 ft•lb)
Bolt (Cylinder Head Cover):
10 Nm (1.0 m•kg, 7.2 ft•lb)
Spark Plug:
18 Nm (1.8 m•kg, 13 ft•lb)



CAM CHAIN ADJUSTMENT

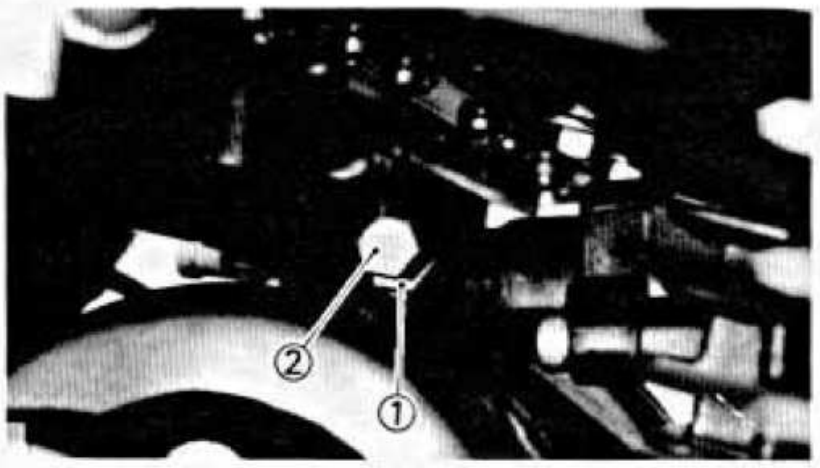
1. Remove:
   - Crankcase cover (Left)

2. Turn crankshaft counterclockwise.



3. Align the timing plate "C" mark ① with the upper pickup coil mark ②.

www.badrad600.com



4. Loosen:
   - Locknut (Chain tensioner) ①
   - Stopper bolt (Chain tensioner) ②

5. Tighten:
   - Locknut (Chain tensioner)
   - Stopper bolt (Chain tensioner)

Locknut:
6 Nm (0.6 m•kg, 4.3 ft•lb)
Stopper Bolt:
9 Nm (0.9 m•kg, 6.5 ft•lb)

6. Install:
   - Crankcase cover (Left)

Screw (Crankcase Cover):
10 Nm (1.0 m•kg, 7.2 ft•lb)

CARBURETOR SYNCHRONIZATION

Carburetors must be adjusted to open and close simultaneously.

NOTE:

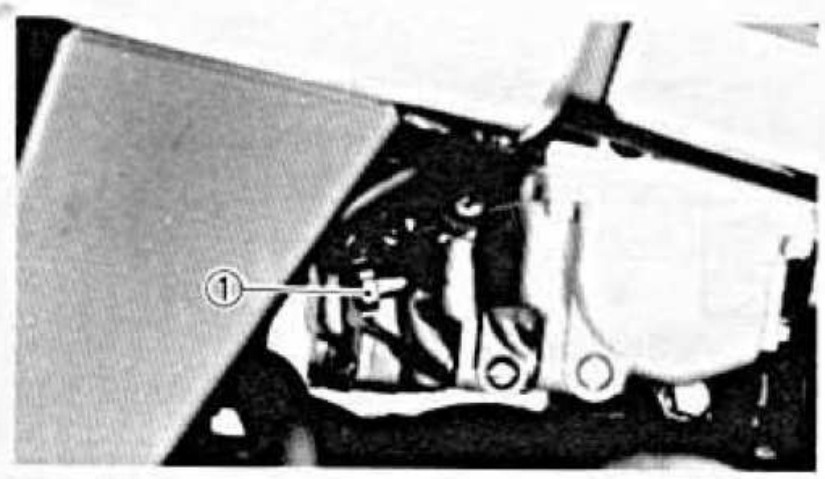
Valve clearance must be set properly before synchronizing the carburetors.

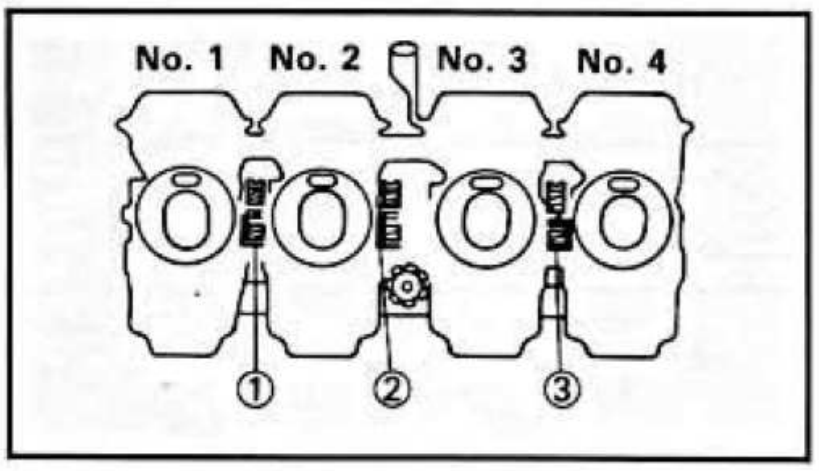


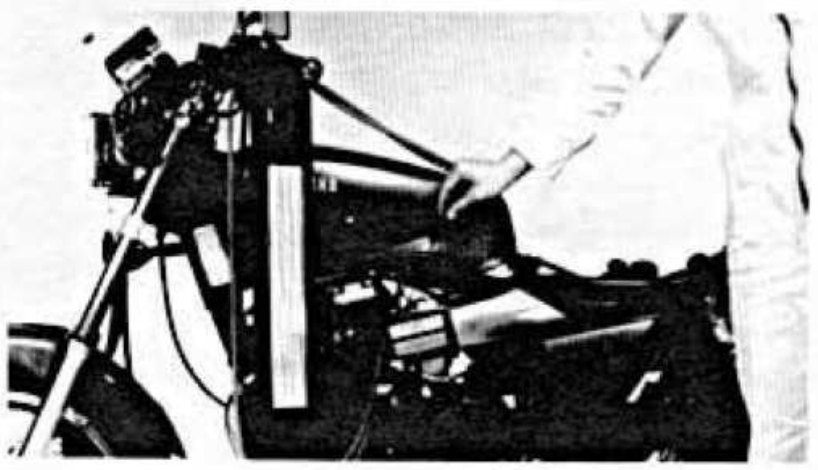
1. Remove:
   - Vacuum plugs ①

www.badrad600.com

CARBURETOR SYNCHRONIZATION







2. Remove:
   - Seat
   - Side covers (Fuel tank)
   - Bolt (Fuel tank)

3. Install:
   - Vacuum Gauge (YU-08030)

4. Start the engine and let it warm up.

5. Adjust:
   - Idle speed

   Turn the throttle stop screw ①.

Turn in	**Engine speed is increased.**
Turn out	**Engine speed is decreased.**

Idle Speed: 1,250 ~ 1,350 r/min

6. Adjust:
   - Carburetors

Carburetor adjustment steps:
- Lift up the rear of fuel tank
- Synchronize carburetor No. 1 to carburetor No. 2 by turning synchronizing screw ① until both gauges read the same.
- Rev the engine for a fraction of a second, two or three times, and check the synchronization again.

Vacuum Pressure at Idle Speed:
22.7 ~ 24.0 kPa
(170 ~ 180 mm Hg, 6.69 ~ 7.09 in Hg)
Vacuum Synchronous Difference:
1.33 kPa (10 mm Hg, 0.4 in Hg)

- Repeat the above steps to synchronize carburetor No. 4 to carburetor No. 3 by turning synchronizing screw ③ until both gauges read the same.
- Repeat the same steps to synchronize No. 2 carburetor to No. 3 carburetor by turning synchronizing screw ② until both gauges read the same.

www.badrad600.com

7. Adjust:
   - Idle speed

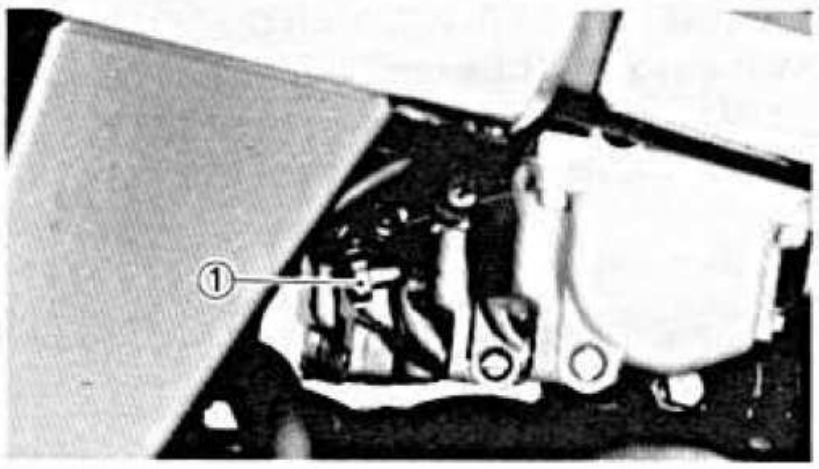
8. Install:
   - Bolt (Fuel tank)
   - Side covers (Fuel tank)
   - Seat
   - Vacuum plugs

IDLE SPEED ADJUSTMENT

1. Inspect:
   - Idle speed

   Out of specification → Adjust.

	1,250 ~ 1,350 r/min



2. Adjust:
   - Idle speed

   Turn the throttle stop screw ①.

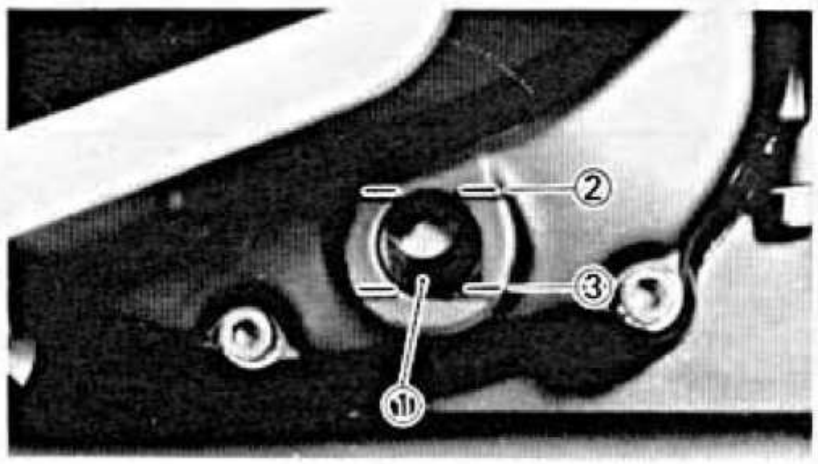
Turn in	**Engine speed is increased.**
Turn out	**Engine speed is decreased.**

ENGINE OIL LEVEL INSPECTION

1. Place the motorcycle on its centerstand and warm up the engine for several minutes.

NOTE:

Position motorcycle straight up when checking oil level, a slight tilt to the side can produce false readings.



2. Stop the engine and visually check the oil level throught the level window ①.

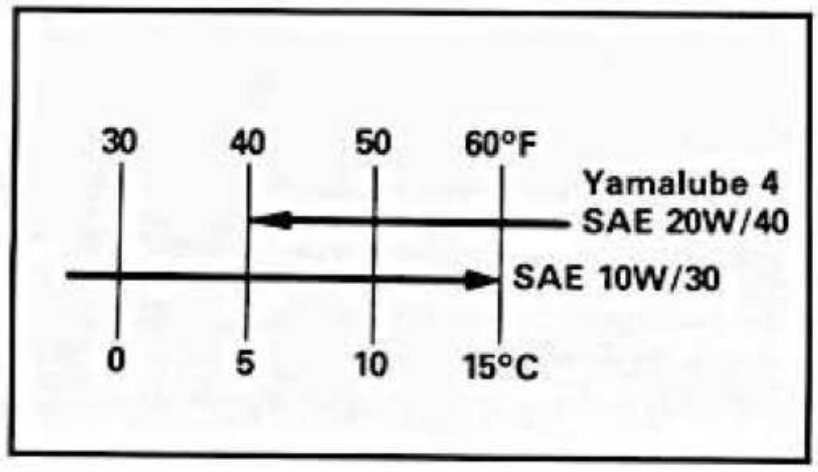
3. Inspect:
   - Oil level

   Oil level should be between maximum ② and minimum ③ marks.

   Oil level low → Add oil to proper level.

www.badrad600.com

ENGINE OIL REPLACEMENT



NOTE:

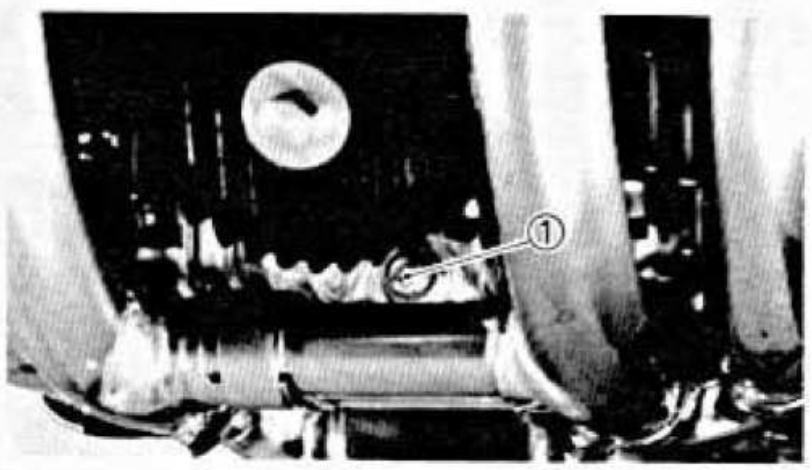
Wait a few minutes until level settles before inspecting.

Recommended Oil:
At 5°C (40°F) or Higher:
Yamalube 4-cycle Oil or
SAE 20W40 Type SE Motor Oil
At 15°C (60°F) or Lower:
SAE 10W30 Type SE Motor Oil

ENGINE OIL REPLACEMENT

Without Filter Change

1. Warm up the engine for several minutes, then place a receptacle under the engine.
2. Remove:
   - Oil filler cap



3. Remove:
   - Drain plug ①

   Drain the engine oil.
4. Install:
   - Drain plug ①

43 Nm (4.3 m•kg, 31 ft•lb)

5. Fill:
   - Crankcase

2.2 L (1.9 Imp qt, 2.3 US qt)

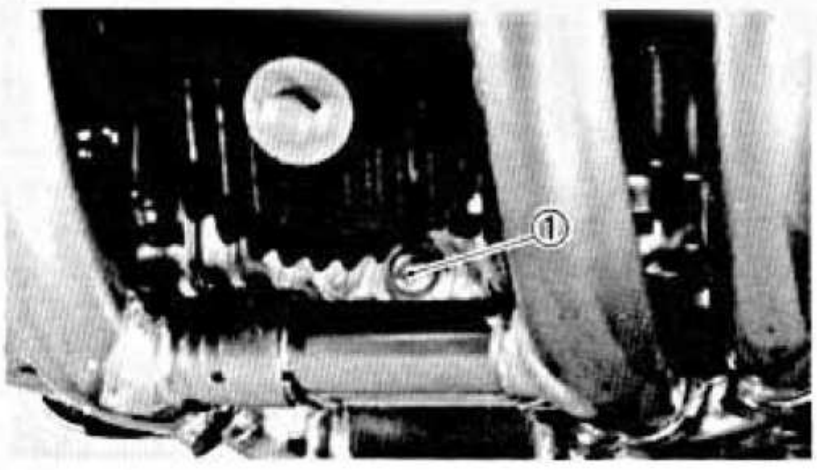
CAUTION:

Do not allow foreign material to enter the crankcase.

www.badrad600.com

Recommended Oil:
At 5°C (40°F) or Higher:
Yamalube 4-cycle Oil or
SAE 20W40 Type SE Motor Oil
At 15°C (60°F) or Lower:
SAE 10W30 Type SE Motor Oil

6. Install:
   - Oil filler cap

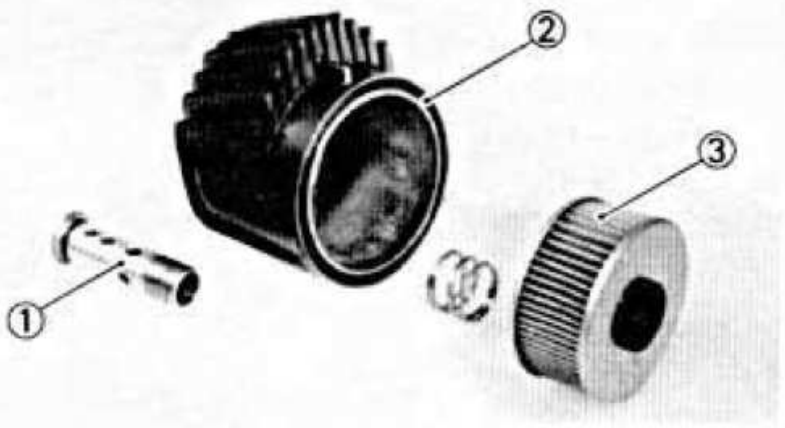


With Filter Change

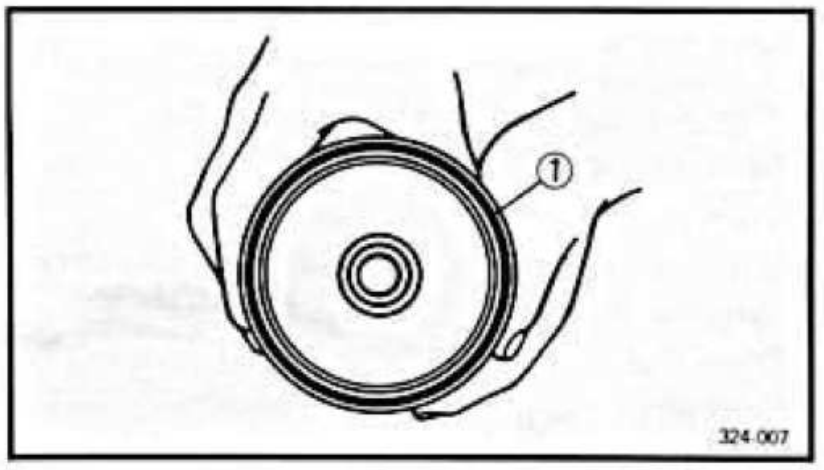
1. Warm up the engine for several minutes, then place a receptacle under the engine.

2. Remove:
   - Oil filler cap
   - Drain plug ①

   Drain the engine oil.



3. Remove:
   - Oil filter bolt ①
   - Filter cover ②
   - Oil filter ③



4. Install:
   - Drain plug
   - Oil filter (New)
   - Plain washer
   - Spring
   - Filter cover
   - Oil filter bolt

NOTE:
Be sure the O-ring ① is positioned properly.

Drain Plug:
43 Nm (4.3 m•kg, 31 ft•lb)
Oil Filter Bolt:
15 Nm (1.5 m•kg, 11 ft•lb)

www.badrad600.com

5. Fill:
   • Crankcase

	2.5 L (2.2 Imp qt, 2.6 US qt)

CAUTION:

Do not allow foreign material to enter the crankcase.

	Recommended Oil: **At 5°C (40°F) or Higher:** **Yamalube 4-cycle Oil or** **SAE 20W40 Type SE Motor Oil** **At 15°C (60°F) or Lower:** **SAE 10W30 Type SE Motor Oil**

6. Install:
   • Oil filler cap

7. Warm up engine and check for oil leaks.
   Stop engine instantly if leaking occurs.
   Leaks → Check cause.



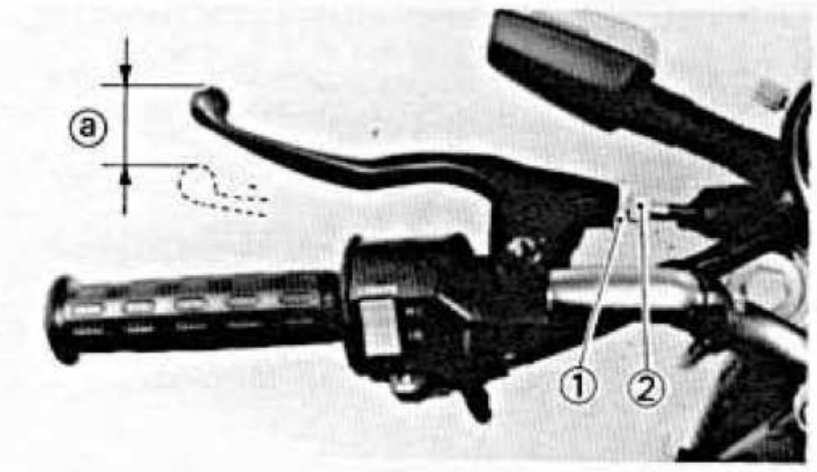
CAUTION:

After replacing the engine oil, be sure to check the oil flow in the following procedures:

- **Slightly loosen the oil gallery bolt ① in the cylinder head.**
- **Start the engine and keep it idling until oil begins to seep from the oil gallery bolt. If no oil comes out after one minute, turn the engine off so it will not seize.**
- **Restart the engine after solving the problem(s), and recheck the oil pressure.**
- **After checking, tighten the oil gallery bolt to specification.**

	Oil Gallery Bolt: **7 Nm (0.7 m•kg, 5.1 ft•lb)**

www.badrad600.com



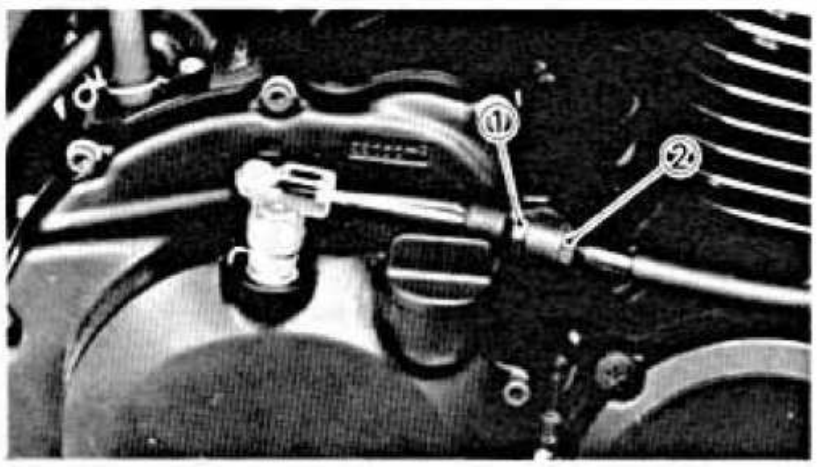
CLUTCH LEVER FREE PLAY ADJUSTMENT

1. Loosen:
   - Locknut ①

2. Adjust:
   - Clutch lever free play ⓐ
     Turn the adjuster ② in or out.

Turn in	**Free play is increased.**
Turn out	**Free play is decreased.**

Free Play:
10 ~ 15 mm (0.4 ~ 0.6 in)



3. If free play can not be adjusted, adjust free play by the adjuster ① at right side of the crankcase.

4. Loosen:
   - Locknut ②

5. Adjust:
   - Clutch lever free play
     Turn the adjuster in or out.

Turn in	**Free play is increased.**
Turn out	**Free play is decreased.**

6. Tighten:
   - Locknut

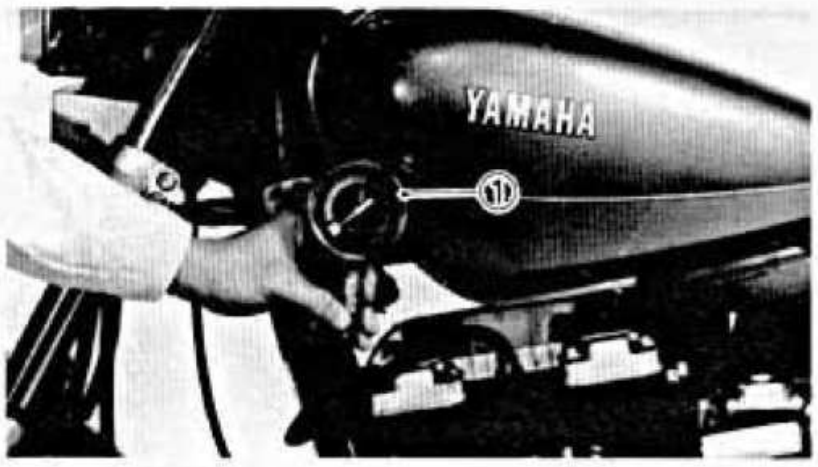
COMPRESSION PRESSURE MEASUREMENT

NOTE:

Insufficient compression pressure will result in performance loss.

www.badrad600.com

COMPRESSION PRESSURE MEASUREMENT



1. Measure:
   - Valve clearance
     Out of specification → Adjust.
     Refer to "VALVE CLEARANCE ADJUSTMENT" section.

2. Warm up the engine.

3. Remove:
   - Spark plugs

4. Measure:
   - Compression pressure

Compression pressure measurement steps:

- Install the Compression Gauge (YU-33223) ① using an adapter.
- Crank over the engine with the electric starter (be sure the battery is fully charged) with the throttle wide open until the compression reading on the gauge stabilizes.
- Check readings with specified levels (See chart).

Compression Pressure
(At sea level):
Standard:
1,079 kPa (11 kg/cm², 156 psi)
Minimum:
980 kPa (10 kg/cm², 142 psi)
Maximum:
1,128 kPa (11.5 kg/cm², 164 psi)

WARNING:

When cranking the engine, ground spark plug lead to prevent sparking.

- Repeat the previous steps for the other cylinders.
- If pressure falls bellow the minimum level:

1. Squirt a few drops of oil into the affected cylinder.
2. Measure the compression again.

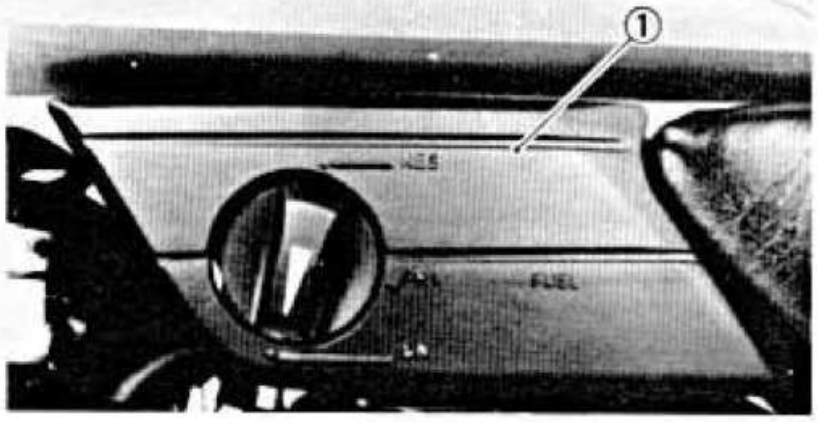
www.badrad600.com

Compression Pressure (with oil introduced into cylinder)	
Reading	Diagnosis
Higher than without oil	Worn or damaged pistons
Same as without oil	Defective ring(s), valves, cylinder head gasket or piston is possible.
Above maximum level	Inspect cylinder head, valve surfaces, or piston crown for carbon deposits.

NOTE:

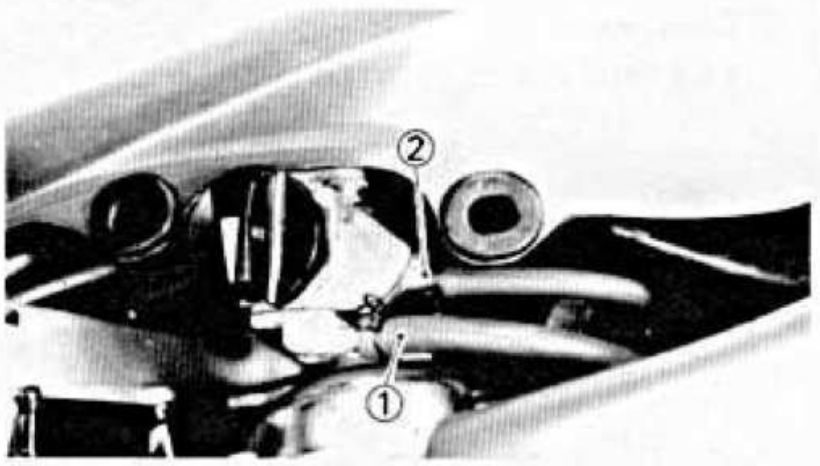
The difference between the highest and lowest cylinder compression readings must not vary more than the specified value.

Difference Between Each Cylinder:
Less than 98 kPa (1 kg/cm², 14 psi)



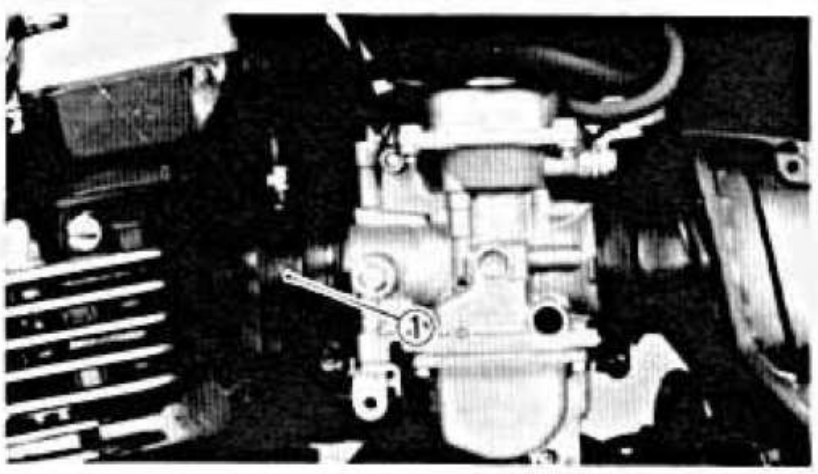
FUEL LINE INSPECTION

1. Remove:
   - Cover ①



2. Inspect:
   - Fuel pipe ①
   - Vacuum pipe ②

   Cracks/Damage → Replace.



CARBURETOR JOINT INSPECTION

1. Inspect:
   - Carburetor joint ①

   Cracks/Damage → Replace.

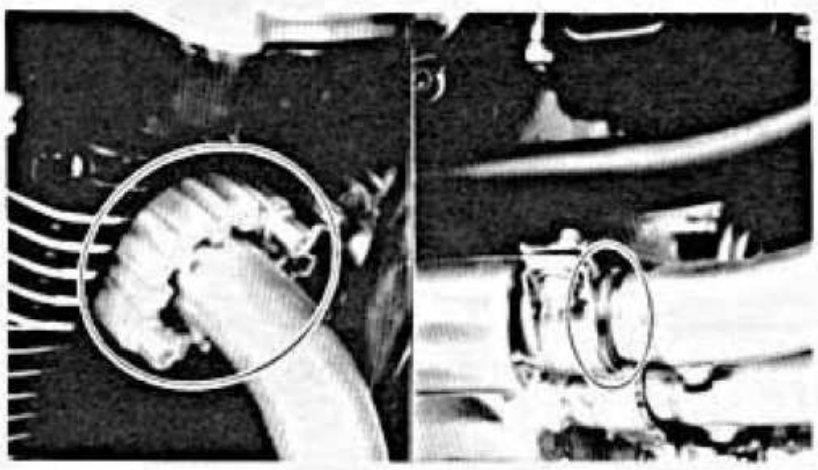
www.badrad600.com

CRANKCASE VENTILATION PIPE INSPECTION/ EXHAUST SYSTEM INSPECTION/ AIR FILTER CLEANING



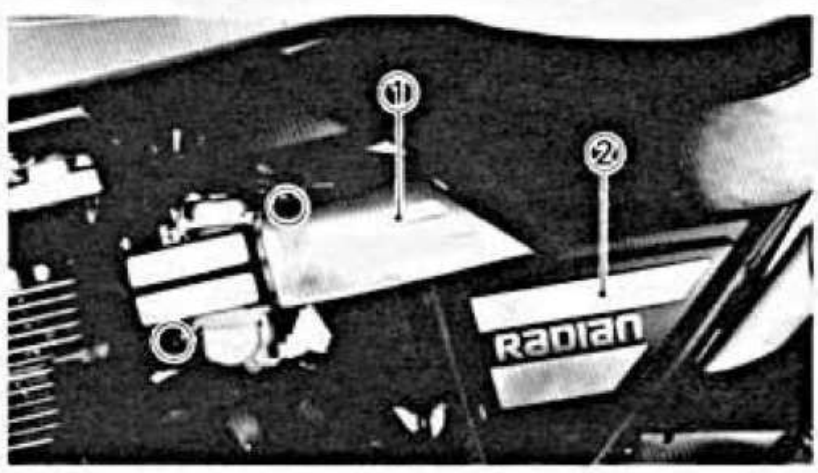
CRANKCASE VENTILATION PIPE INSPECTION

1. Inspect:
   - Crankcase ventilation pipe ①
     Cracks/Damage → Replace.



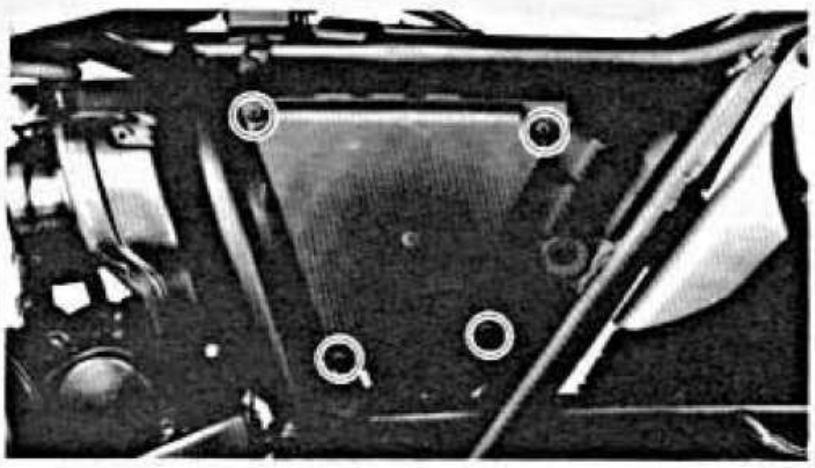
EXHAUST SYSTEM INSPECTION

1. Inspect:
   - Exhaust pipe
   - Muffler
     Cracks/Damage → Replace.
   - Gaskets
     Exhaust gas leaks → Replace.

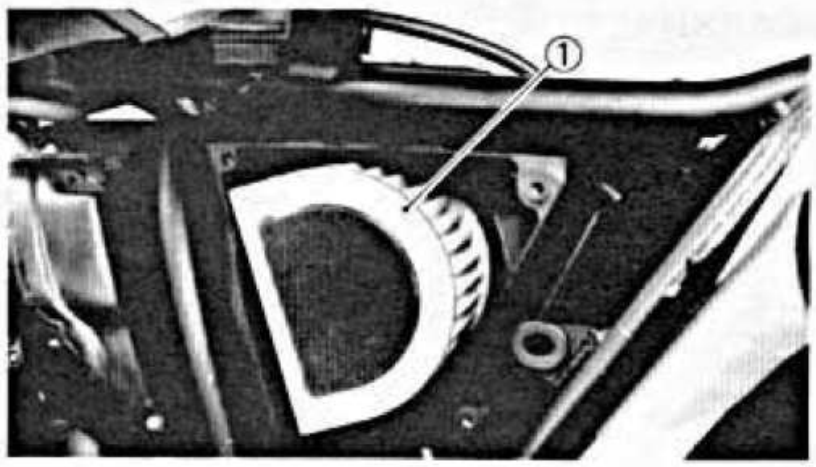


AIR FILTER CLEANING

1. Remove:
   - Cover (Carburetor) ①
   - Side cover (Left) ②



2. Remove:
   - Air filter case cover (Left)

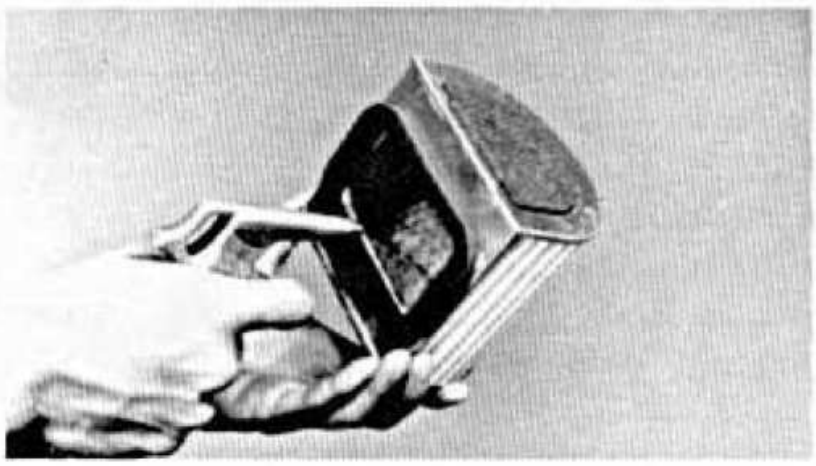


3. Remove:
   - Air filter element ①

CAUTION:

The engine should never be run without the air filter element; excessive piston and cylinder wear may result.

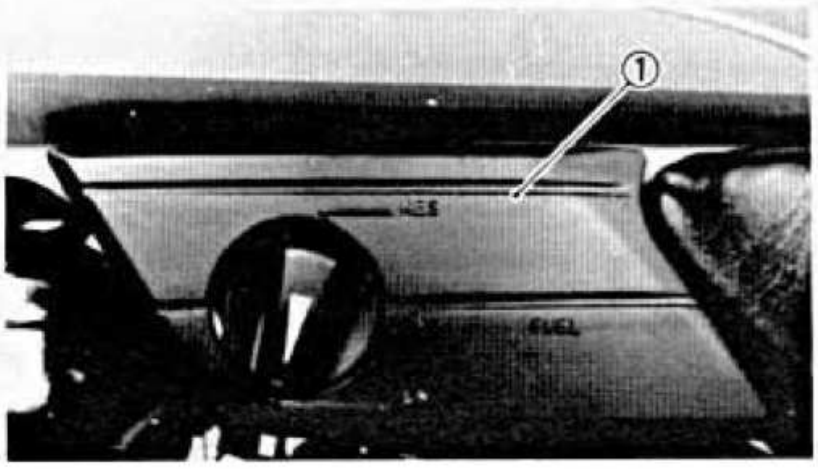
www.badrad600.com



4. Clean:
   - Air filter element
     Blow out dust in the element from the inner surface using compressed air.

5. Inspect:
   - Air filter element
     Damage→Replace.

6. Install:
   - Air filter element
   - Air filter case cover (Left)
   - Side cover (Left)
   - Cover (Carburetor)

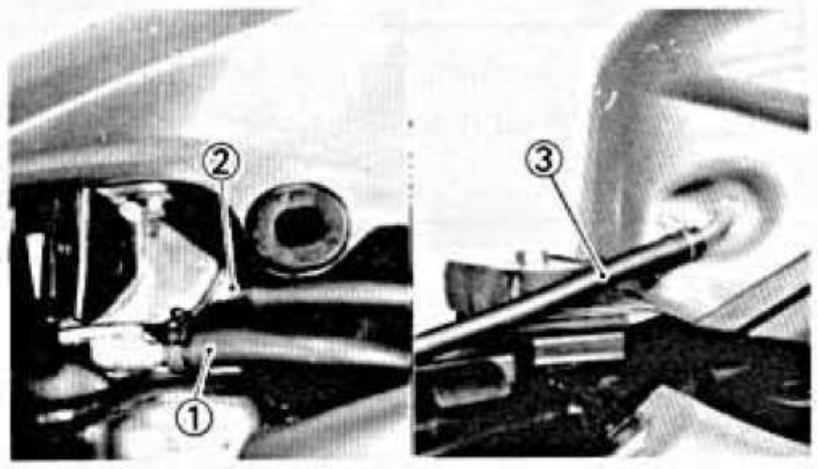


CHASSIS

FUEL COCK CLEANING

1. Turn the fuel cock to "ON" position.

2. Remove:
   - Cover (Fuel tank) ①
   - Seat



3. Disconnect:
   - Fuel pipe ①
   - Vacuum pipe ②
   - Fuel tank breather pipe ③

4. Remove:
   - Fuel tank

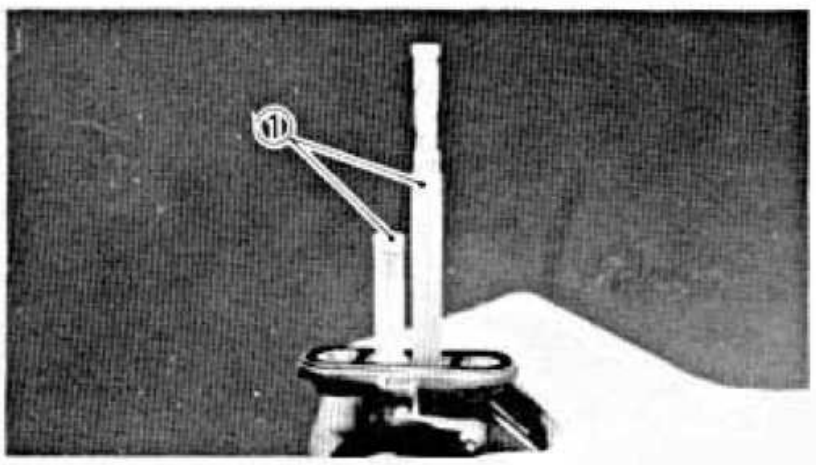
5. Drain
   - Fuel

www.badrad600.com

FRONT BRAKE FLUID INSPECTION

WARNING:

FUEL IS HIGHLY FLAMMABLE:
- **Always turn off the engine when draining.**
- **Take care not to spill any fuel on the engine or exhaust pipe/muffler when draining.**
- **Never drain fuel while smoking or in the vicinity an open flame.**



6. Remove:
   - Fuel cock

7. Clean:
   - Filter screen ①

   Clean it with solvent.

8. Inspect:
   - Filter screen
   - O-ring

   Damage → Replace.

9. Install:
   - Fuel cock
   - Fuel tank
   - Seat
   - Cover (Fuel tank)

NOTE:

Be careful not to clamp the fuel cock too tightly as this may unseat the O-ring and lead to a fuel leak.



FRONT BRAKE FLUID INSPECTION

1. Inspect:
   - Brake fluid level

   Fluid at lower level → Replenish.

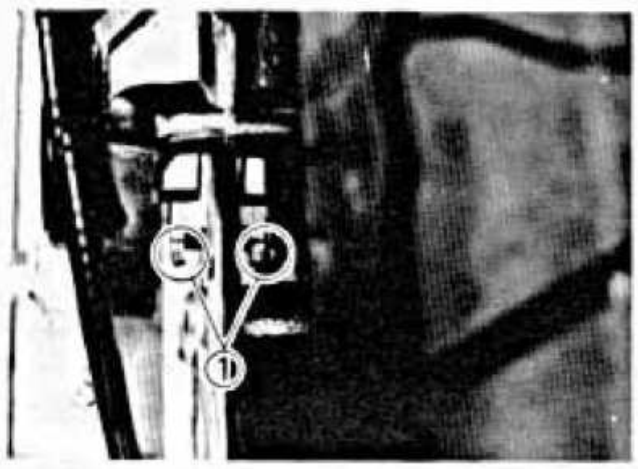
① Front brake fluid lower level

Brake Fluid: DOT #3

www.badrad600.com

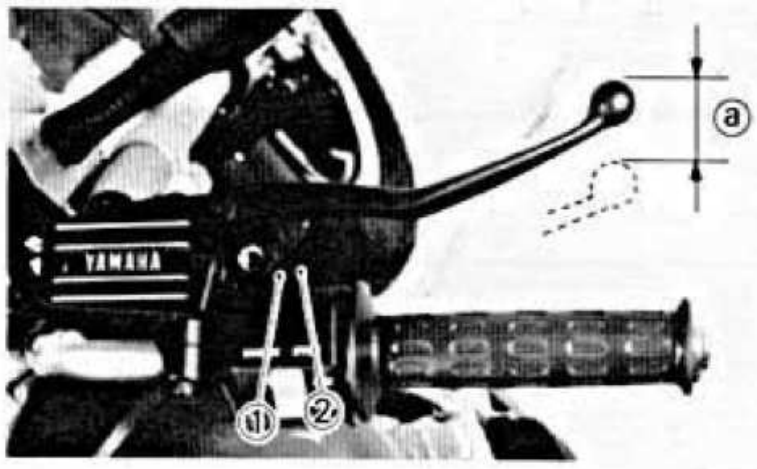
WARNING:

- **Use only designated qualty brake fluid to avoid poor brake performance.**
- **Refill with same type and brand of brake fluid; mixing fluids could result in poor brake performance.**
- **Be sure that water or other contaminants do not enter master cylinder when refilling.**
- **Clean up spilled fluid immediately to avoid erosion of painted surfaces or plastic parts.**



FRONT BRAKE PAD INSPECTION

1. Depress the brake lever.
2. Inspect:
   - Wear indicator ①
     Indicator almost contacts disc → Replace pads.



FRONT BRAKE LEVER FREE PLAY ADJUSTMENT

1. Loosen:
   - Locknut ①

2. Adjust:
   - Free play ⓐ
     Turn the adjuster ② in or out.

Turn in	**Free play is decreased.**
Turn out	**Free play is increased.**

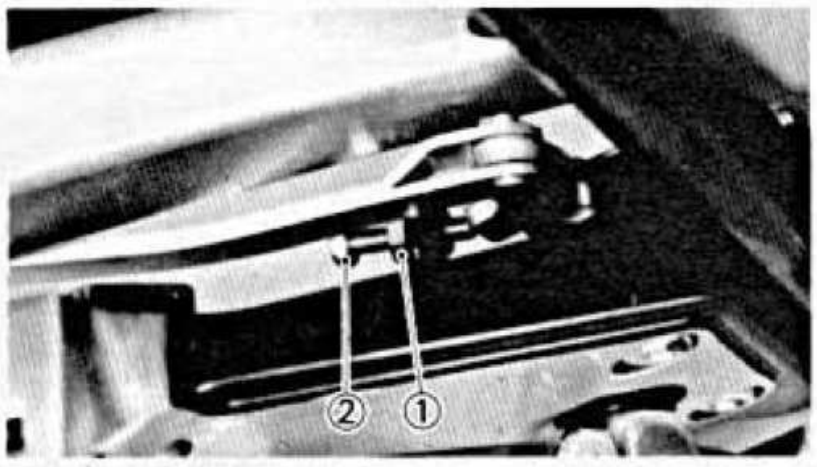
Free Play:
2 ~ 5 mm (0.08 ~ 0.20 in)

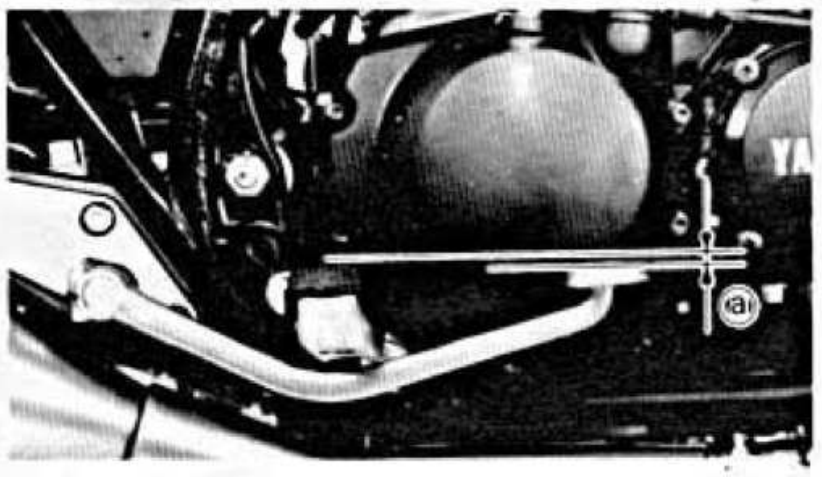
CAUTION:

Proper lever free play is essential to avoid excessive brake drag.

www.badrad600.com

3. Tighten:
   • Locknut





REAR BRAKE PEDAL HEIGHT ADJUSTMENT

1. Loosen:
   • Locknut ①

② Adjuster

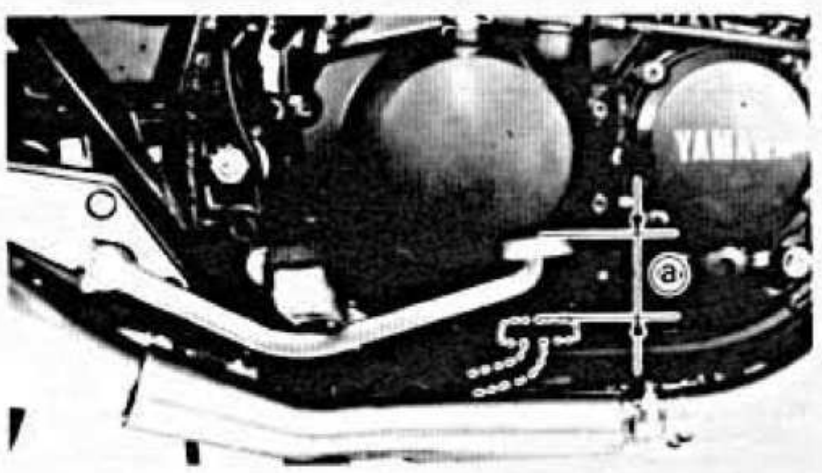
2. Adjust:
   • Brake pedal height ⓐ
   Turn the adjuster in or out.

Turn in	Pedal height is increased.
Turn out	Pedal height is decreased.

Pedal Height:
15 mm (0.6 in)
Below the top of the footrest.

WARNING:

After adjusting the pedal height, adjust brake pedal free play.



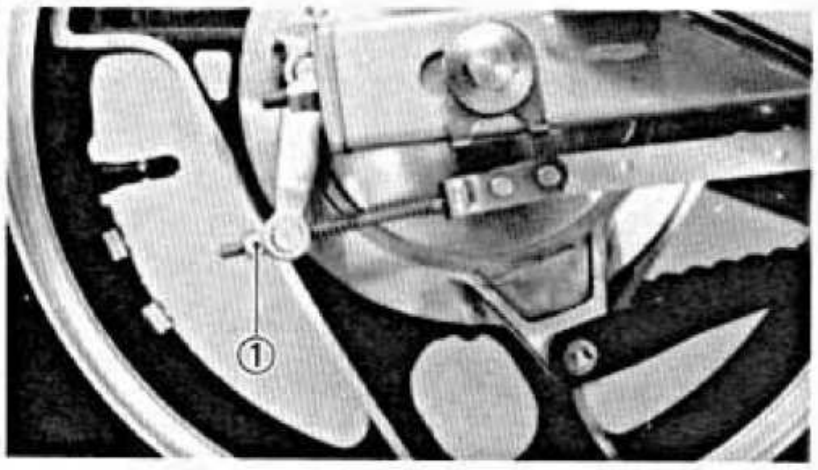
BRAKE PEDAL FREE PLAY ADJUSTMENT

1. Adjust:
   • Free play ⓐ
   Turn the adjuster ① in or out.

Turn in	Free play is decreased.
Turn out	Free play is increased.

www.badrad600.com

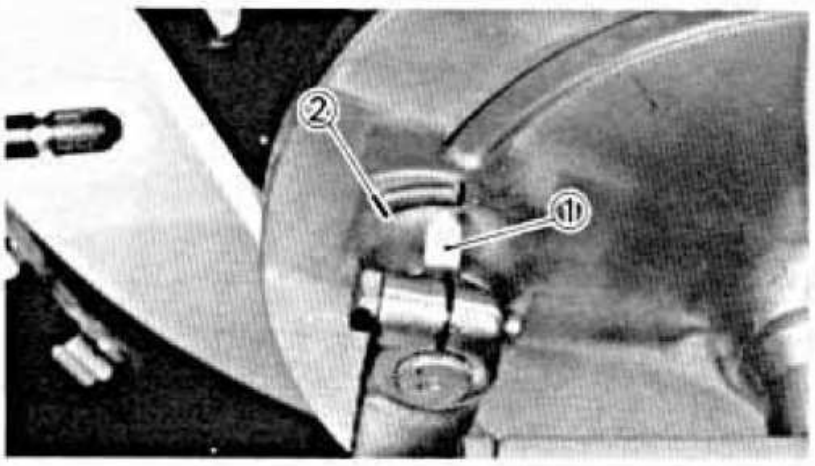
REAR BRAKE LINING INSPECTION/ REAR BRAKE LIGHT SWITCH ADJUSTMENT



Free Play:
20 ~ 30 mm (0.8 ~ 1.2 in)

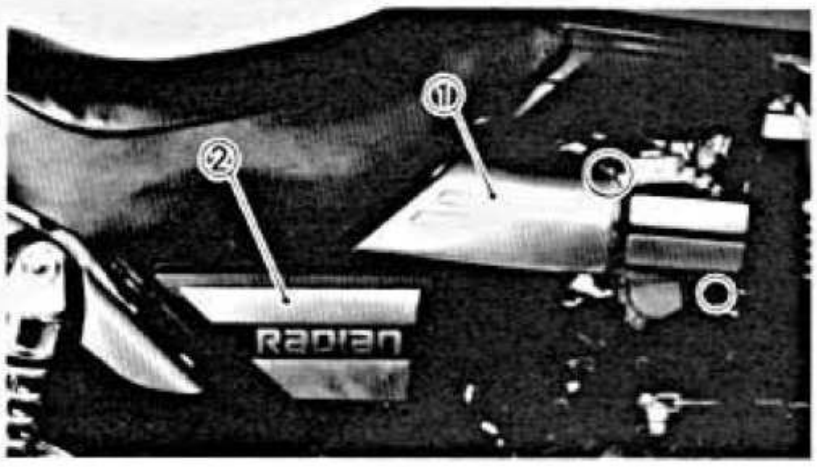
WARNING:

Check the operation of the brake light after adjusting the rear brake.



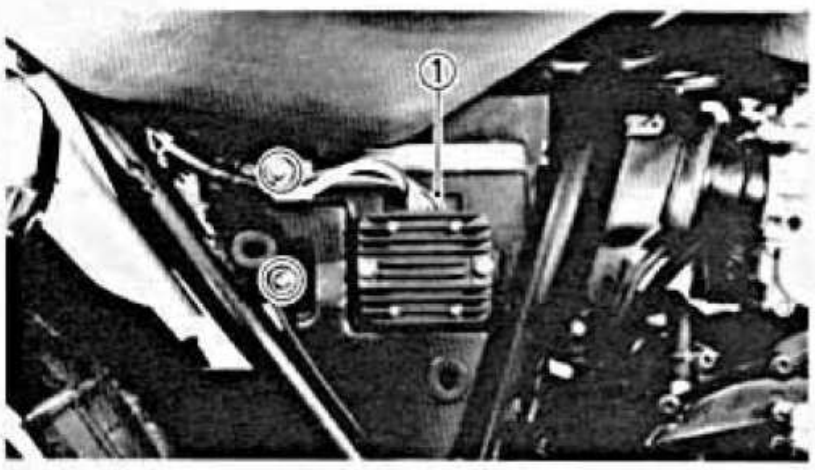
REAR BRAKE LINING INSPECTION

1. Depress the brake pedal.
2. Inspect:
   - War indicator ①
     Indicator reaches the wear limit line ②→ Replace shoes.

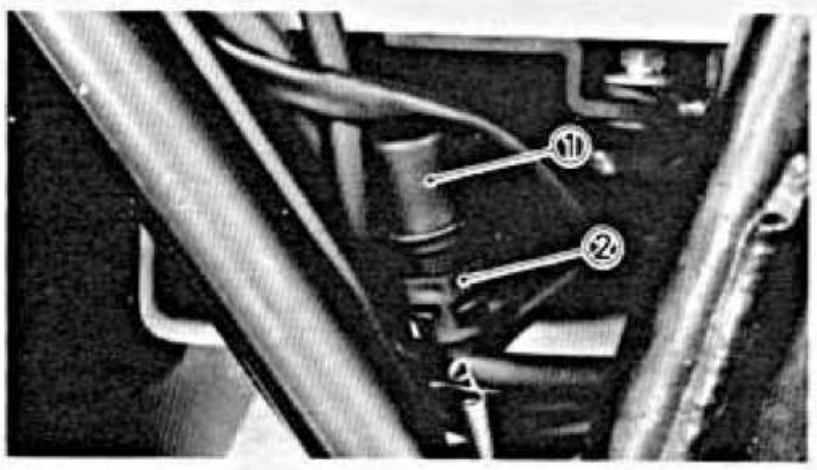


REAR BRAKE LIGHT SWITCH ADJUSTMENT

1. Remove:
   - Cover (Carburetor) ①
   - Side cover (Right) ②



2. Remove:
   - Battery case cover ①



3. Adjust:
   - Rear brake light switch
     Hold the switch body ① with your hand so it does not rotate and turn the adjuster ②.

NOTE:

Proper adjustment is achieved when the brake light comes on just before the brake begins to take effect.

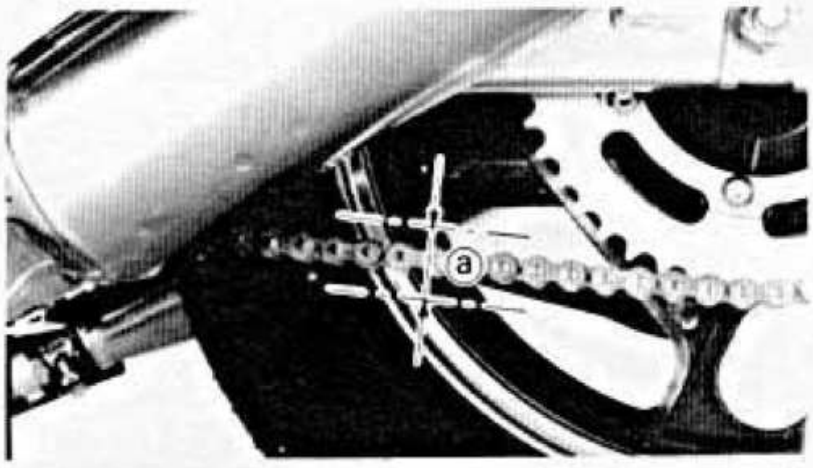
www.badrad600.com

DRIVE CHAIN SLACK CHECK
DRIVE CHAIN SLACK ADJUSTMENT

DRIVE CHAIN SLACK CHECK

NOTE:

Before checking and/or adjusting the chain slack, rotate the rear wheel through several revolutions. Check the chain slack several times to find the point where the chain is the tightest. Check and/or adjust the chain slack where the rear wheel is in this "tight chain" position.

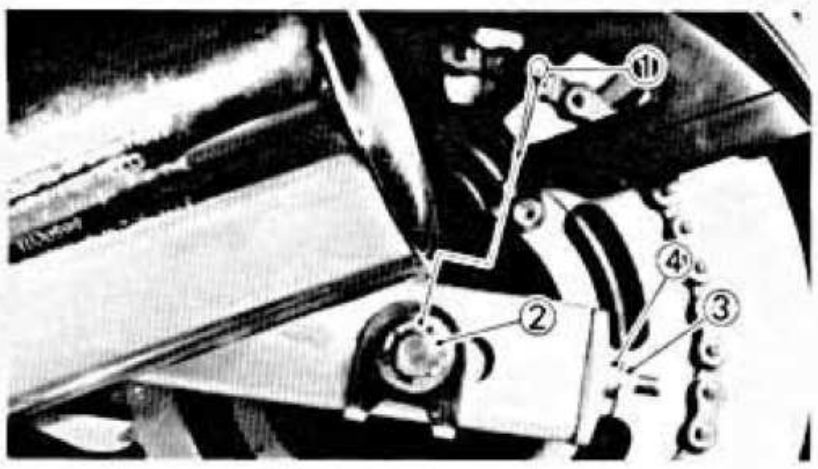


1. Place the motorcycle on the centerstand.

2. Measure:
   - Drive chain slack ⓐ
     Out of specification → Adjust.

Drive Chain Slack:
20 ~ 30 mm (0.8 ~ 1.2 in)

DRIVE CHAIN SLACK ADJUSTMENT



1. Remove:
   - Cotter pin ①

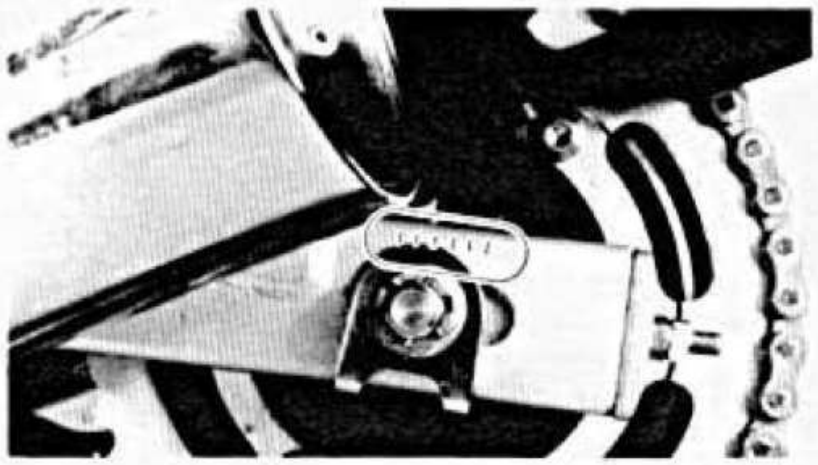
2. Loosen:
   - Nut (Rear axle) ②
   - Locknut ③

3. Adjust:
   - Chain slack
     Turn the adjuster ④ in or out.

Turn in	Chain slack is decreased.
Turn out	Chain slack is increased.

NOTE:

There are marks on each side of rear arm and on each chain puller; use them to check for proper alignment.



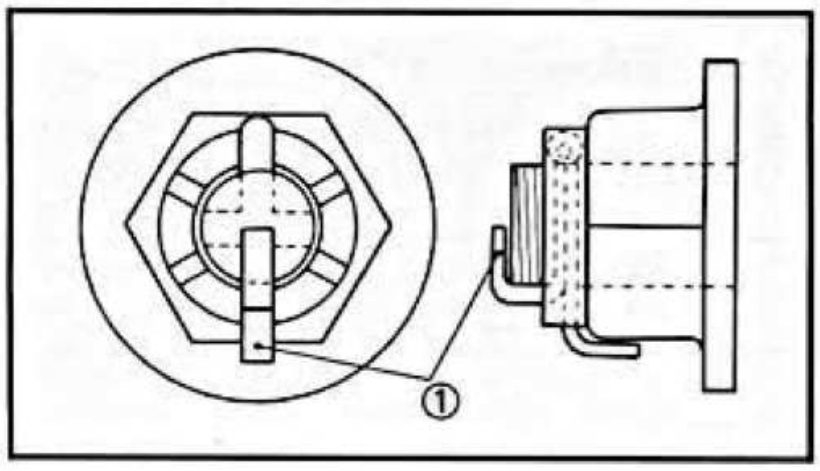
CAUTION:

Too small chain slack will overload the engine and other vital parts; keep the slack within the specified limits.

www.badrad600.com

4. Tighten:
   - Locknut
   - Nut (Rear axle)

	Nut (Rear Axle): **105 Nm (10.5 m•kg, 75 ft•lb)**



5. Install:
   - Cotter pin ① (New)

NOTE:

Do not loosen the axle nut after torque tightening. If the axle nut groove is not aligned with the wheel shaft cotter pin hole, align groove to hole by tightening up on the axle nut.

2

DRIVE CHAIN LUBRICATION

The chain consists of many parts which work against each other. If the chain is not maintained properly, it will wear out rapidly, therefore, form the habit of periodically servicing the chain. This service is especially necessary when riding in dusty conditions.

	SAE 10W30 Motor Oil

CABLE INSPECTION AND LUBRICATION

Cable inspection and lubrication steps:
- Hold cable end high and apply several drops of lubricant to cable.
- Coat metal surface of disassembled throttle twist grip with suitable all-purpose grease to minimize friction.
- Check for damage to cable insulation. Replace any corroded or obstructed cables.
- Lubricate any cables that do not operate smoothly.

	Yamaha Chain and Cable Lube or SAE 10W30 Motor Oil

www.badrad600.com

LEVER AND PEDAL LUBRICATION/ CENTERSTAND AND SIDESTAND LUBRICATION/ FRONT FORK OIL CHANGE

LEVER AND PEDAL LUBRICATION

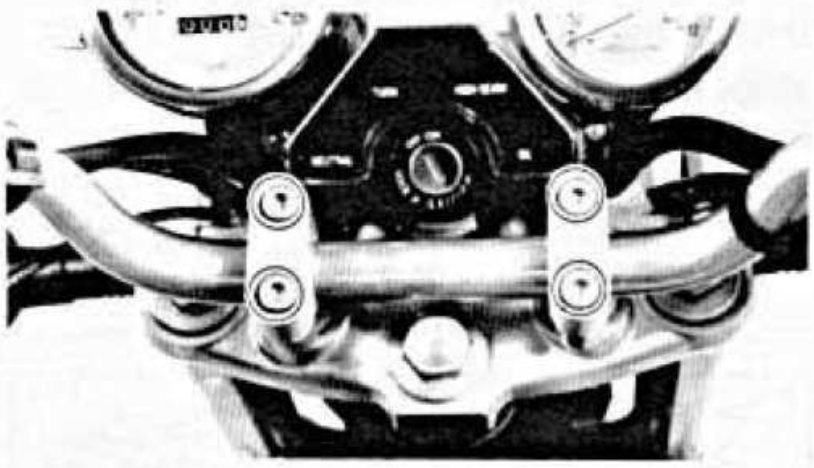
Lubricate pivoting parts of each lever and pedal.

Yamaha Chain and Cable Lube or SAE 10W30 Motor Oil

CENTERSTAND AND SIDESTAND LUBRICATION

Lubricate centerstand and sidestand at their pivot points.

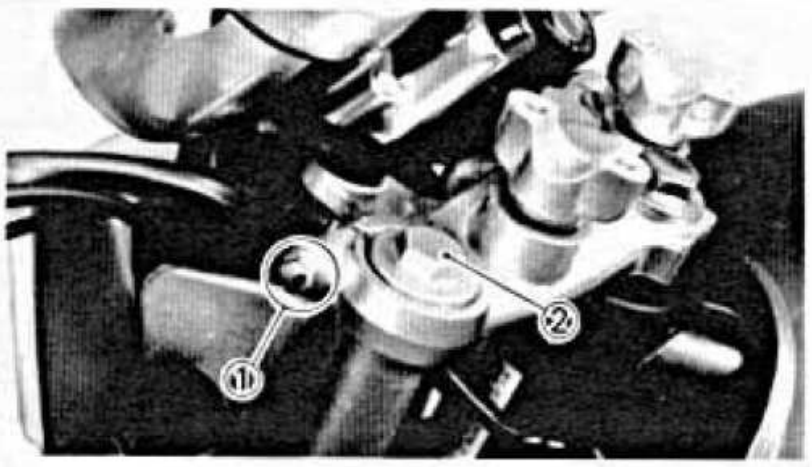
Yamaha Chain and Cable Lube or SAE 10W30 Motor Oil



FRONT FORK OIL CHANGE

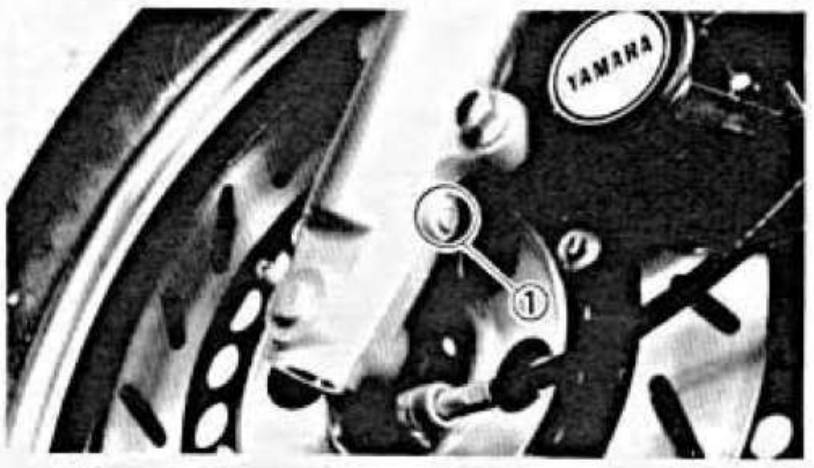
1. Place the motorcycle on the centerstand.

2. Remove:
   - Handlebar



3. Loosen:
   - Bolt ① (Handle crown)

4. Remove:
   - Cap bolt ②



5. Place a receptacle under the drain hole.

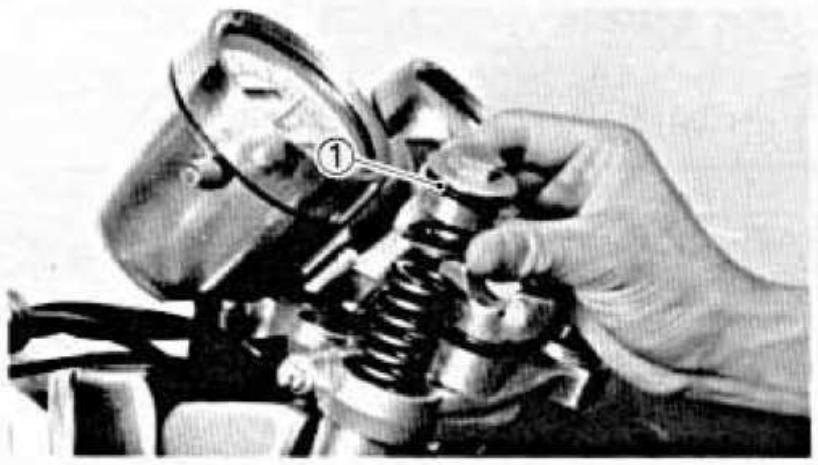
6. Remove:
   - Drain screw ①

   Drain the fork oil

www.badrad600.com

WARNING:

Do not allow any oil to contact the disc brake components. If oil is discovered, be sure to remove it, otherwise diminished braking capacity and damage to the rubber components of the brake assembly will occur.



7. Inspect:
   - O-ring (Cap bolt) ①
   - Gasket (Drain screw)
   Wear/Damage→Replace.

8. Install:
   - Drain screw
   - Gasket

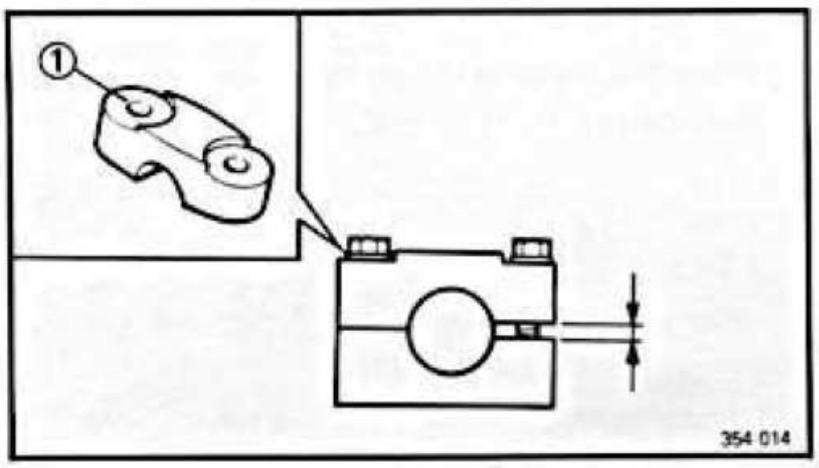
9. Fill:
   - Front fork

Recommended Oil:
Yamaha Fork Oil 10WT or Equivalent
For Oil Capacity (Each Fork):
320 cm³ (11.3 Imp oz, 10.8 US oz)

10. After filling pump the forks slowly up and down to distribute the oil.

11. Tighten:
   - Cap bolt
   - Bolt (Handle crown)

Cap Bolt:
23 Nm (2.3 m•kg, 17 ft•lb)
Bolt (Handle Crown):
23 Nm (2.3 m•kg, 17 ft•lb)



12. Install:
   - Handlebar

NOTE:

The upper handlebar holder should be installed with the punched mark ① forward.

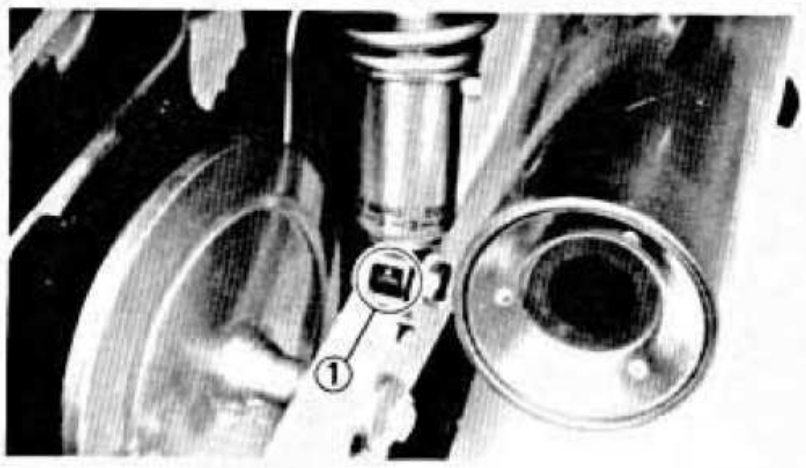
www.badrad600.com

REAR SHOCK ABSORBER ADJUSTMENT/ STEERING HEAD INSPECTION

CAUTION:

First tighten the bolts on the front side of the handlebar holder, and then tighten the bolts on the rear side.

	Bolt (Handlebar): 20 Nm (2.0 m•kg, 14 ft•lb)



REAR SHOCK ABSORBER ADJUSTMENT

1. Adjust:
   - Shock absorber preload

	←Stiffer			Std.	Softer
Adjusting position	5	4	3	2	1

① Match mark

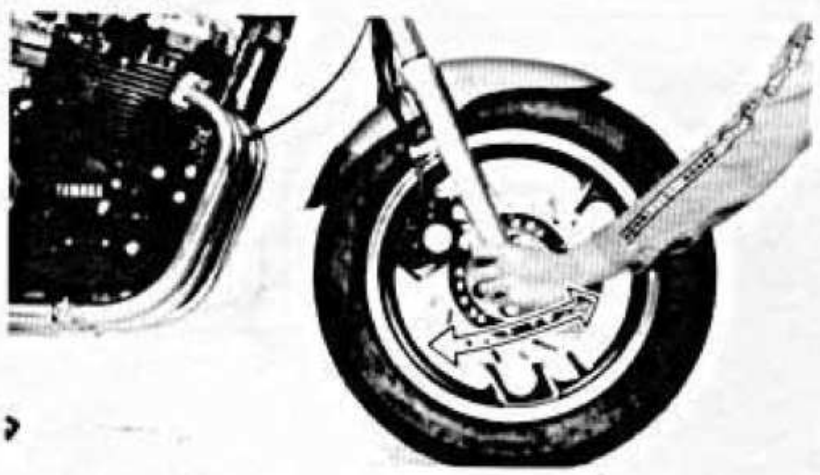
WARNING:

Always adjust each shock absorber to the same setting. Uneven adjustment can cause poor handling and loss of stability.

Recommended Rear Shock Absorber Settings

Use this table as a guide for specific riding and motorcycle load conditions.

Rear shock absorber	Loading condition			
◀HARD SOFT▶ 1 – 2 – 3 – 4 – 5 ▲ SPRING ADJUSTER	Solo rider	With passenger	With accessories and equipment	With accessories, equipment, and passenger
Position	1~2	3~5	3~5	5

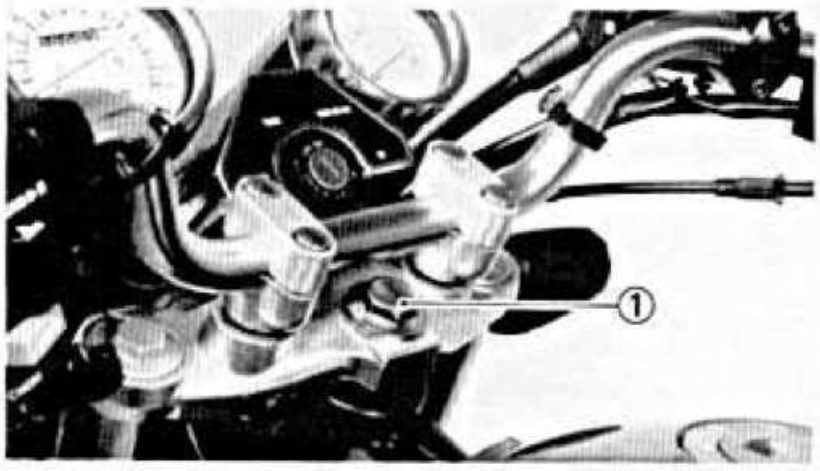


STEERING HEAD INSPECTION

1. Place the motorcycle on its centerstand, then elevate the front wheel.

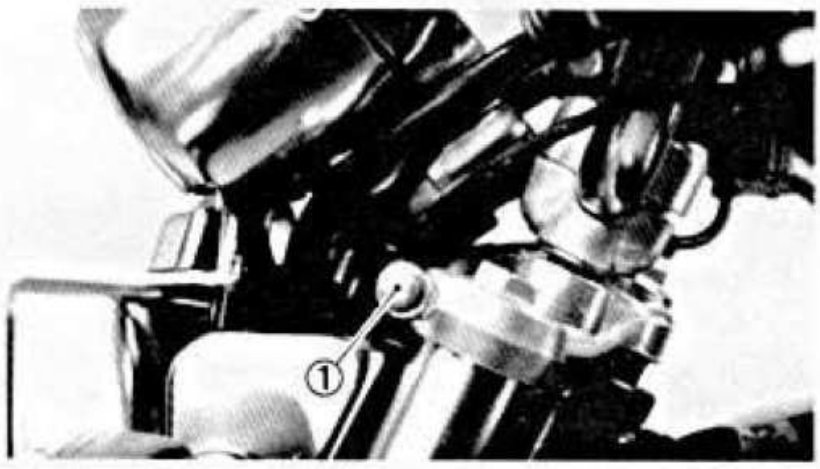
2. Check:
   - Steering assembly bearings
     Grasp the bottom of the forks and gently rock the fork assembly back and forth.
     Looseness→Adjust steering head.

www.badrad600.com

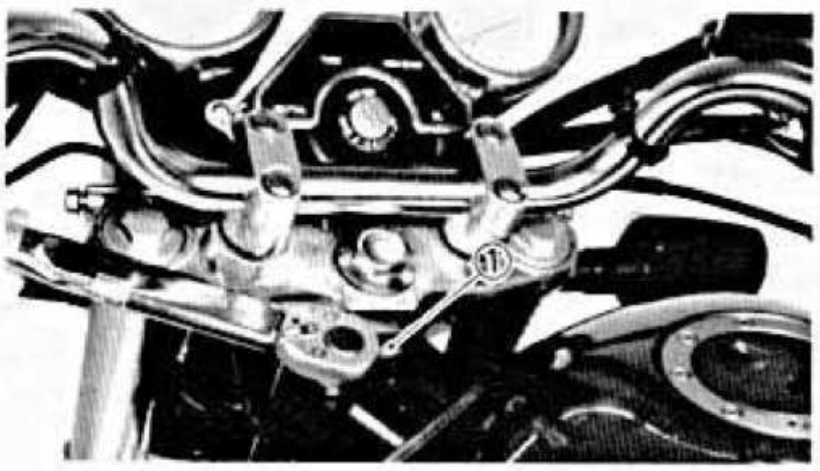


STEERING HEAD ADJUSTMENT

1. Loosen:
   - Bolt (Steering stem) ①



2. Loosen:
   - Bolts (Handle crown) ①
3. Lift the handle crown and handlebar assembly.



4. Tighten:
   - Ring nut

   Use the Ring Nut Wrench ① (YU-33975).

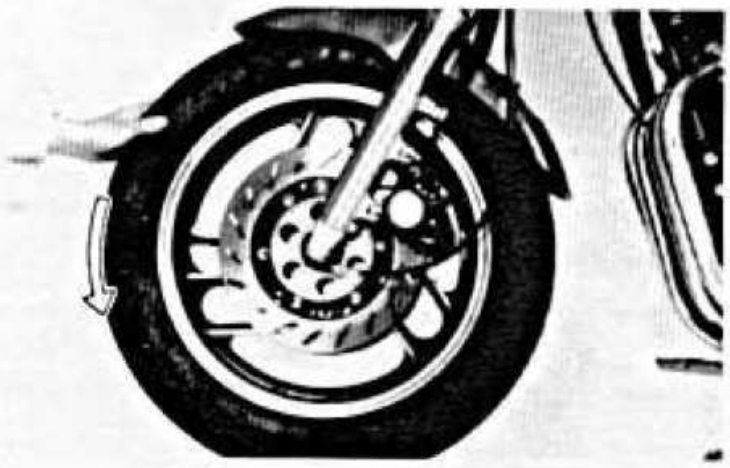
	Ring Nut: **38 Nm (3.8 m•kg, 27 ft•lb)**

NOTE:

If steering is binded, loosen the ring nut so that there is no free play on bearing.

5. Install:
   - Handle crown

	Bolt (Steering Stem): **54 Nm (5.4 m•kg, 39 ft•lb)** **Bolt (Handle Crown):** **20 Nm (2.0 m•kg, 14 ft•lb)**



FRONT WHEEL BEARING INSPECTION

1. Raise the front end of the motorcycle, and spin the wheel by hand. Touch the axle or front fender while spinning the wheel.
   Excessive vibration → Replace bearings.

www.badrad600.com

REAR WHEEL BEARING INSPECTION/TUBELESS TIRES AND ALUMINUM WHEELS INSPECTION



REAR WHEEL BEARING INSPECTION

1. Remove:
   - Cotter pin
   - Rear wheel

2. Check:
   - Bearing movement
     With the fingers.
     Roughness/Wear→Replace.

3. Install:
   - Rear wheel

4. Adjust:
   - Drive chain slack
     Refer to "DRIVE CHAIN SLACK ADJUSTMENT" section.

5. Tighten:
   - Nut (Rear axle)

	Nut (Rear axle): 105 Nm (10.5 m•kg, 75 ft•lb)

6. Install:
   - Cotter pin (New)

TUBELESS TIRES AND ALUMINUM WHEELS INSPECTION

WARNING:

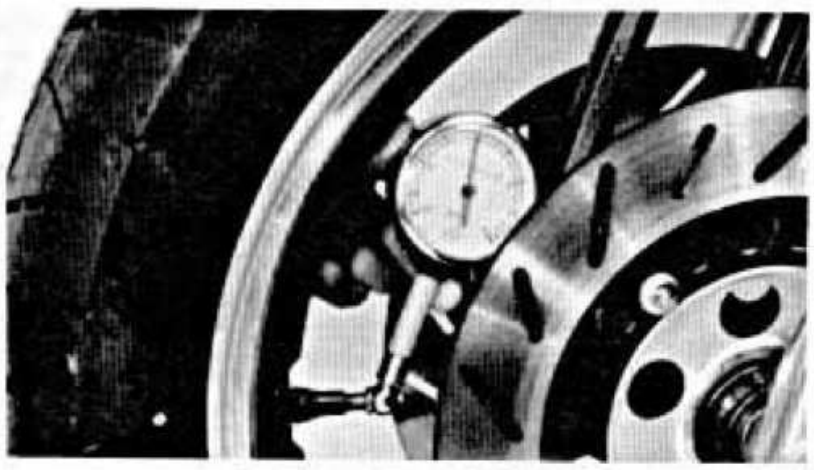
Do not attempt to use tubeless tires on a wheel designed for tube type tires only. Tire failure and personal injury may result from sudden deflation.

Wheel	Tire
Tube type	Tube type only
Tubeless	Tube type or tubeless

Be sure to install the correct tube when using tube type tires.

Always perform the following steps to ensure safe operation, maximum tire performance, and long service.

www.badrad600.com

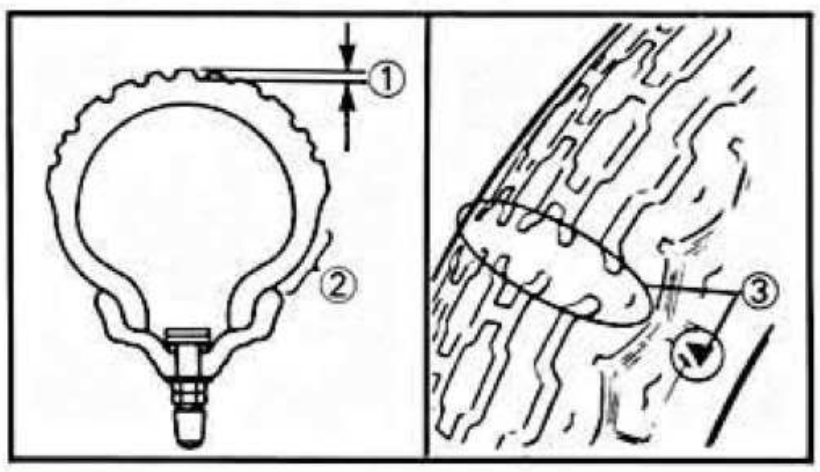


1. Measure:
   - Tire pressure

   Out of specification → Adjust.

Basic weight: With oil and full fuel tank	197 kg (434 lb)	
Maximum load*	258 kg (569 lb)	
Cold tire pressure	Front	Rear
Up to 90 kg (198 lb) load*	177 kPa (1.8 kg/cm², 26 psi)	196 kPa (2.0 kg/cm², 28 psi)
90 kg (198 lb) ~ 160 kg (353 lb) load*	196 kPa (2.0 kg/cm², 28 psi)	226 kPa (2.3 kg/cm² 32 psi)
160 kg (353 lb) ~ Maximum load*	196 kPa (2.0 kg/cm², 28 psi)	245 kPa (2.5 kg/cm², 36 psi)
High speed riding	196 kPa (2.0 kg/cm², 28 psi)	226 kPa (2.3 kg/cm², 32 psi)

* Load is the total weight of cargo, rider, passenger, and accessories.



2. Inspect:
   - Tire surfaces

   Wear/Damage → Replace.

Minimum Tire Tread Depth:
(Front and Rear)
0.8 mm (0.03 in)

① Tread depth
② Side wall
③ Wear indicator

3. Inspect:
   - Aluminum wheels

   Damage/Bends → Replace.

   Never attempt even small repairs to the wheel.

NOTE:

Always balance the wheel when a tire or wheel has been changed or replaced.

www.badrad600.com

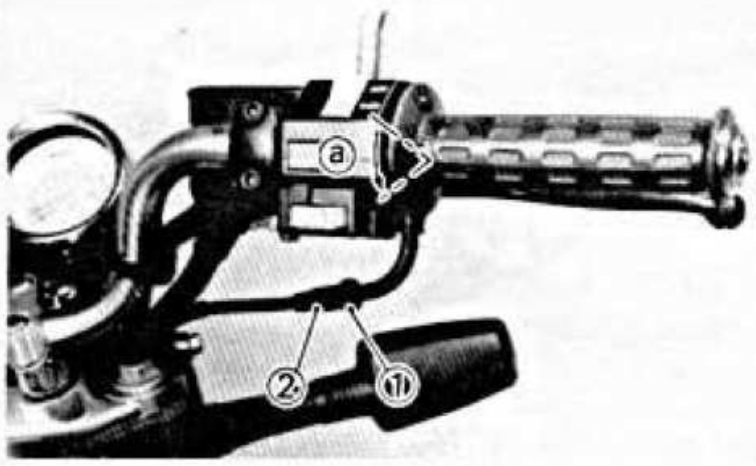
IGNITION TIMING CHECK

4. Tighten:
   •Valve stem locknut

	1.5 Nm (0.15 m•kg, 1.1 ft•lb)

WARNING:

Ride conservatively after installing a tire to allow it to seat itself properly on the rim.



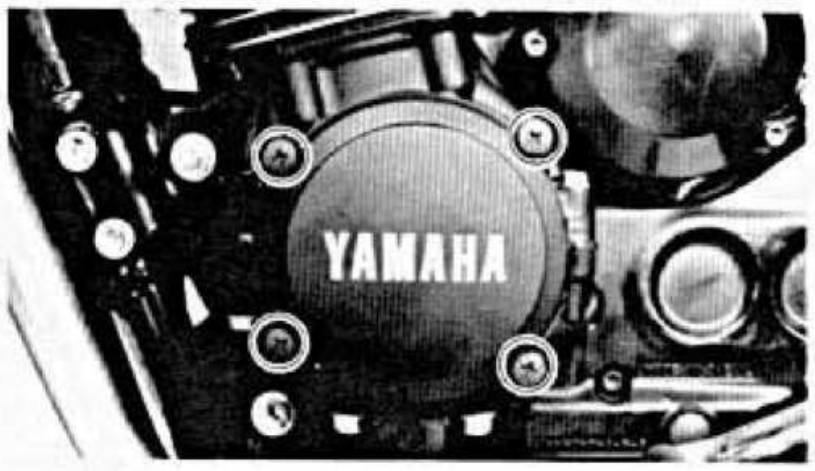
THROTTLE CABLE ADJUSTMENT

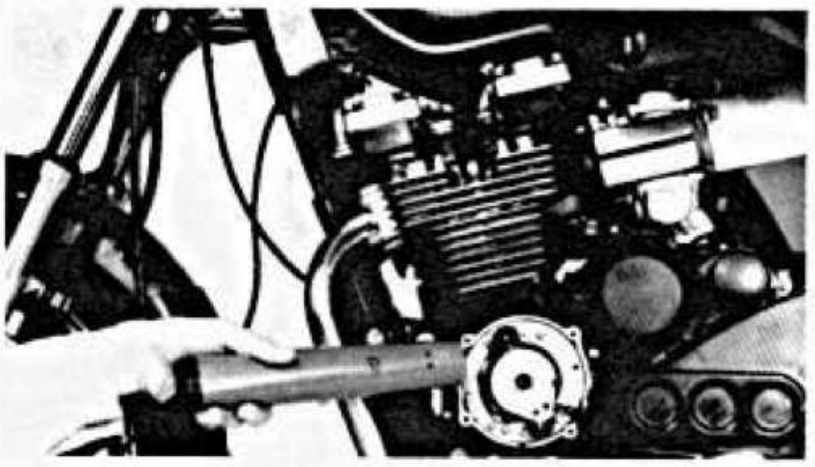
1. Loosen:
   •Lock nut ①

2. Adjust:
   •Throttle cable free play ⓐ
   Turn the adjuster ② in or out.

Turn in	**Free play is increased.**
Torn out	**Free play is decreased.**

	Free play: **2 ~ 5 mm (0.08 ~ 0.20 in)**





ELECTRICAL

IGNITION TIMING CHECK

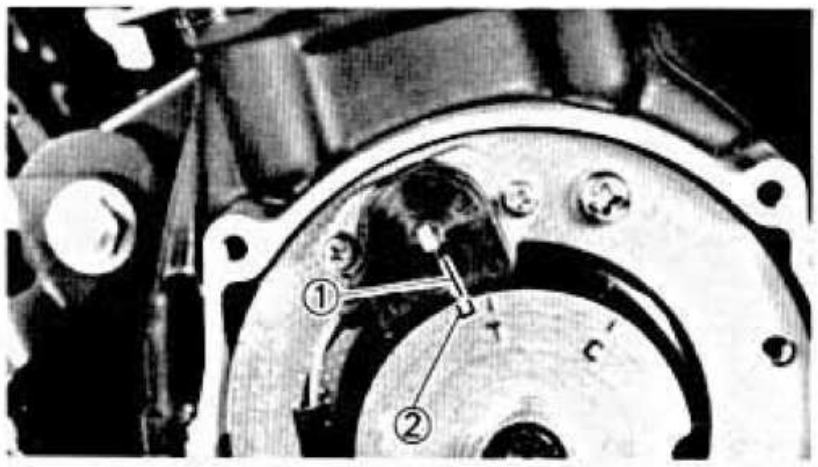
1. Remove:
   •Crankcase cover (Left)

2. Connect:
   •Timing light (YM-33277)
   (To the #1 spark plug lead)

3. Warm up the engine and allow it to idle at the specified speed.

	Engine Idle Speed: **1,250 ~ 1,350 r/min**

www.badrad600.com

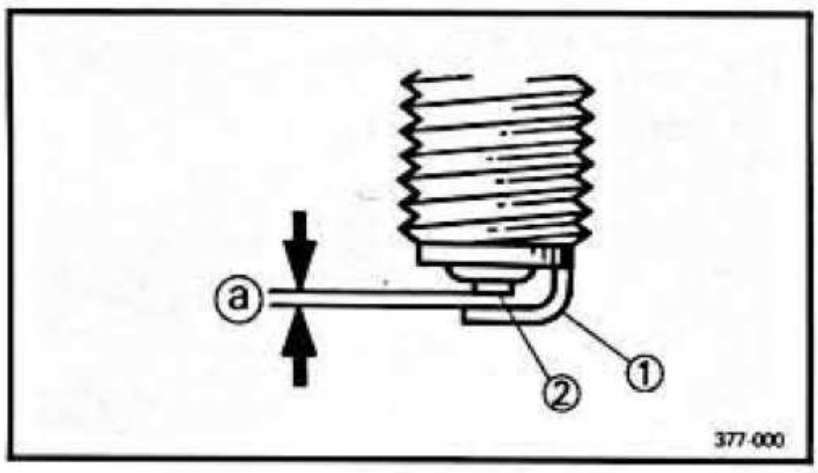


4. Check:
   - Ignition timing

   Visually check the upper pickup coil mark ① is within the firing range ② indicated on timing plate.

   Incorrect firing range→Check flywheel and/or pickup assembly (tightness damage) Refer to Chapter 6, "ELECTRICAL" for further information.

5. Install:
   - Crankcase cover



SPARK PLUG INSPECTION

1. Inspect:
   - Electrode ①

   Wear/Damage→Replace.
   - Insulator color ②

   Normal condition is a medium to light tan color.

   Distinctly different color→Check the engine condition.

ⓐ Spark plug gap

2. Clean:
   - Spark plug

   Clean the spark plug with a spark plug cleaner or wire brush.

3. Inspect:
   - Spark plug type

   Incorrect→Replace.

Standard Spark Plug:
D8EA (NGK), X24ESU (N.D.)

4. Measure:
   - Spark plug gap

   Out of specification→Regap.

   Use a wire gauge.

Spark Plug Gap:
0.6 ~ 0.7 mm (0.024 ~ 0.028 in)

www.badrad600.com

5. Tighten:
   •Spark plug

NOTE:

Before installing a spark plug, clean the gasket surface and plug surface.

Spark Plug:
18 Nm (1.8 m•kg, 13 ft•lb)

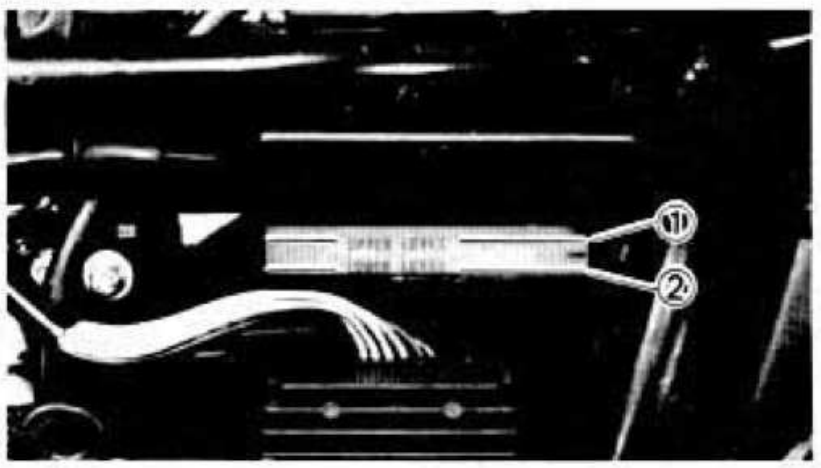
NOTE:

If a torque wrench is not available when you are installing a spark plug, a good estimate of the correct torque is 1/4 to 1/2 turns part finger tight. Have the spark plug torqued to the correct value as soon as possible with a torque wrench.



BATTERY INSPECTION

1. Remove:
   •Side cover (Right) ①

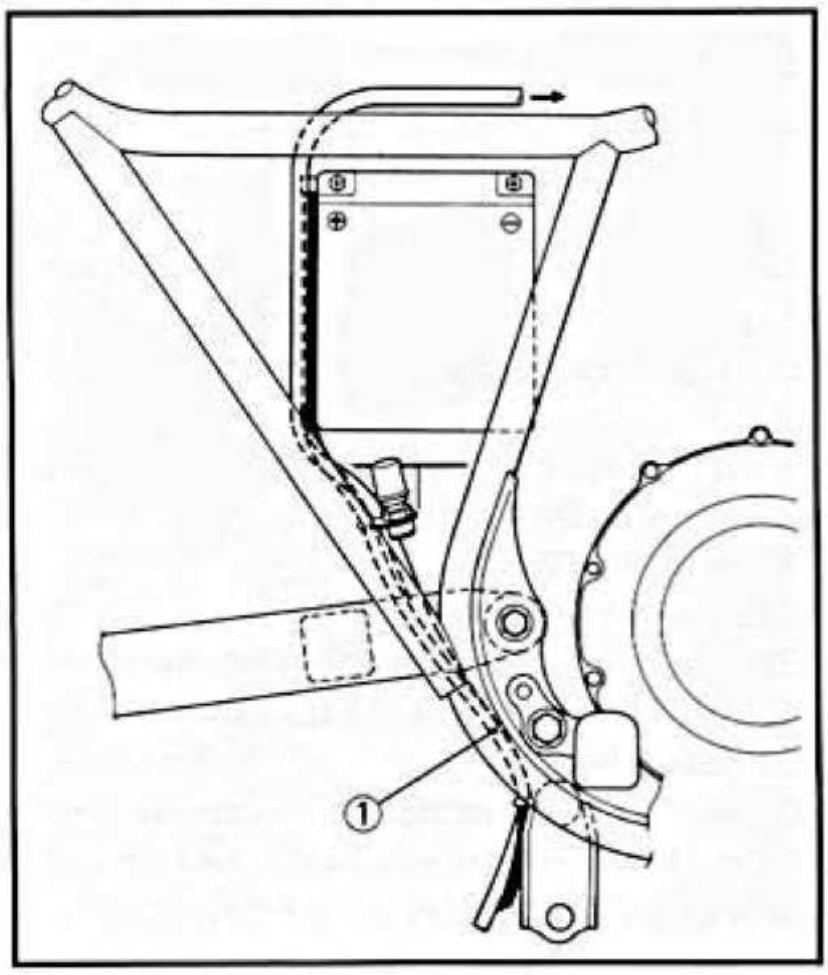


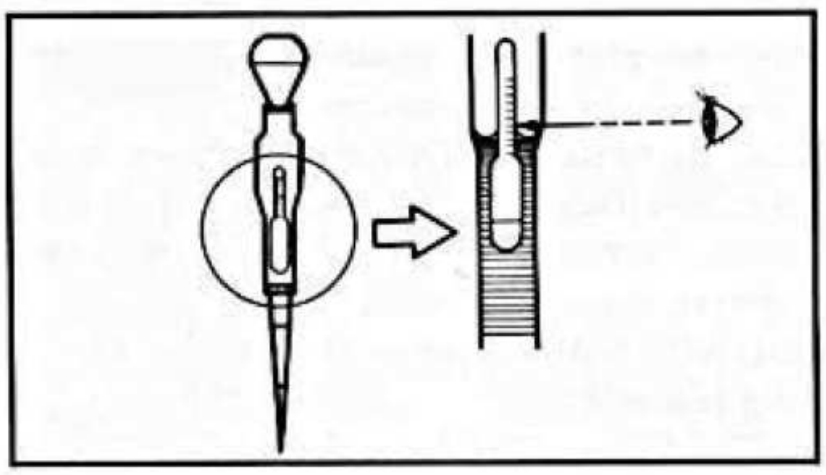
2. Inspect:
   Fluid level should be between upper ① and lower ② level marks.
   Incorrect→Refill.

CAUTION:

Refill with distilles water only; tap water contains minerals harmful to a battery.

www.badrad600.com





3. Connect:
   - Breather pipe ①

   Be sure the hose is properly attached and routed.

4. Inspect:
   - Breather pipe

   Obstruction → Remove.
   Damage → Replace.

CAUTION:

When inspecting the battery, be sure the breather pipe is routed correctly. If the breather pipe touches the frame or exits in such a way as to cause battery electrolyte or gas to exit onto the frame, structural and cosmetic damage to the motorcycle can occur.

5. Check:
   - Specific gravity:

   Less than 1.280 → Recharge battery.

Charging Current:
1.2 amps/10 hrs
Specific Gravity:
1.280 at 20°C (68°F)

Replace the battery if:
- Battery voltage will not rise to a specific value or bubbles fail to rise even after many hours of charging.
- Sulfation of one or more cells occurs, as indicated by the plates turning white, or an accumulation of material exists in the bottom of the cell.
- Specific gravity readings after a long, slow charge indicate one cell to be lower than the rest.
- Warpage or buckling of plates or insulators is evident.

CAUTION:

Always charge a new battery before using it to ensure maximum performance.

www.badrad600.com

FUSE INSPECTION



WARNING:

Battery electrolyte is dangerous; it contains sulfuric acid and therefore is poisonous and highly caustic.

Always follow these preventive measures:

- **Avoid bodily contact with electrolyte as it can cause servere burns or permanent eye injury.**
- **Wear protective eye gear when handling or working near batteries.**

Antidote (EXTERNAL):

- **SKIN—Flush with water.**
- **EYES—Flush with water for 15 minutes and get immediate medical attention.**

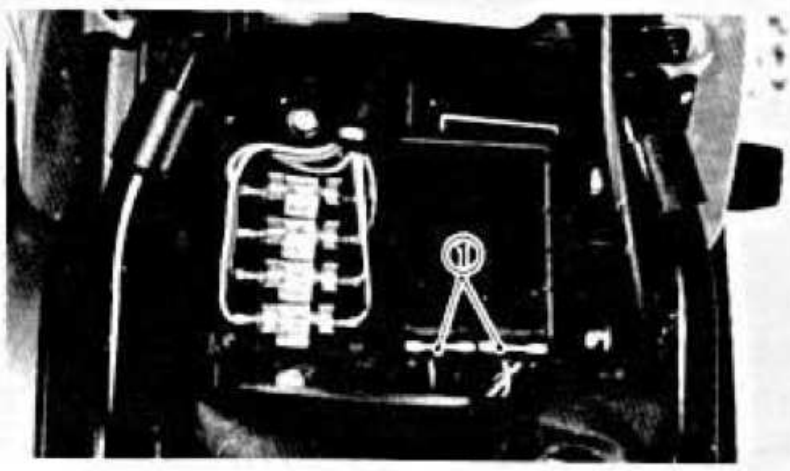
Antidote (INTERNAL):

- **Drink large quantities of water or milk follow with milk of magnesia, beaten egg, or vegetable oil. Get immediate medical attention.**

Batteries also generate explosive hydrogen gas, therefore you should always follow these preventive measures:

- **Charge batteries in a well-ventilated area.**
- **Keep batteries away from fire, sparks, or open flames (e.g., welding equipment, lighted cigarettes, etc.)**
- **DO NOT SMOKE when charging or handling batteries.**

KEEP BATTERIES AND ELECTROLYTE OUT OF REACH OF CHILDREN.



FUSE INSPECTION

The fuse panel is located under the seat.

1. Inspect:
   - Fuses
     Defective→Replace.
     Blown fuse (New)→Inspect circuit.

NOTE:

Install new fuses of proper amperage.

① Spare fuses

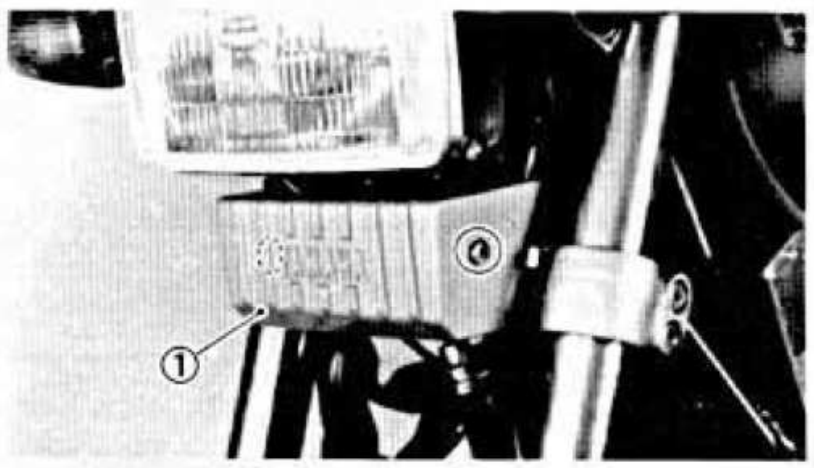
www.badrad600.com

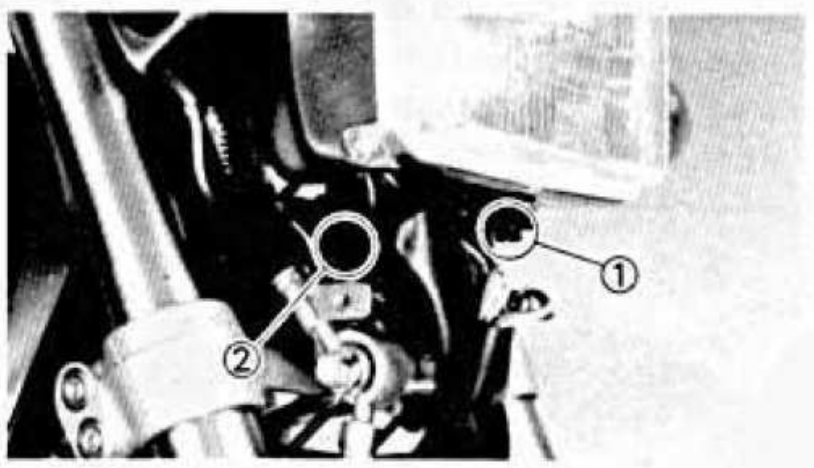
Description	Amperage	Quantilty
Main	20A	1
Headlight	10A	1
Signal	10A	1
Ignition	10A	1
Reserve	10A	1
	20A	1

Blown fuse replacement steps:
- Turn off ignition and the circuit.
- Install a new fuse of proper amperage.
- Turn on switches to verify operation of electrical device.
- If fuse blows immediately again, check circuit in question.

WARNING:

Do not use fuses of higher amperage rating than recommended. Extensive electrical system damage and fire could result from substitution of a fuse of improper amperage.





HEADLIGHT BEAM ADJUSTMENT

1. Remove:
   - Cover ①

2. Adjust:
   - Horizontal beam direction

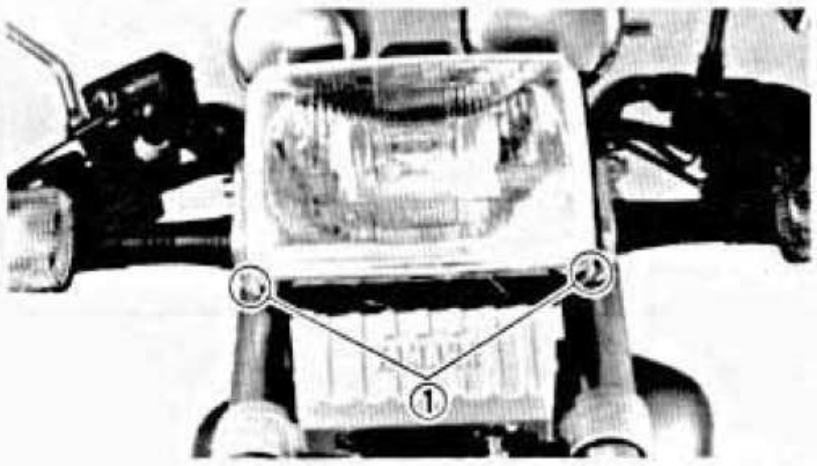
   Loosen the adjusting screw ① and move the headlight body right or left.
   When proper adjustment is achieved, retighten the adjusting screw.

www.badrad600.com

HEADLIGHT BULB REPLACEMENT

3. Adjust:
   - Vertical beam direction
     Loosen the adjusting screw ② and move the headlight body up or down.
     When proper adjustment is achieved, retighten the adjusting screw.

4. Install:
   - Cover



HEADLIGHT BULB REPLACEMENT

1. Remove:
   - Screw ①

2. Disconnect:
   - Headlight leads





3. Remove:
   - Bulb
     Turn the bulb holder counterclockwise to release bulb.

WARNING:

Keep flammable products or your hands away from the bulb while it is on, it will be hot. Do not touch the bulb until it cools down.

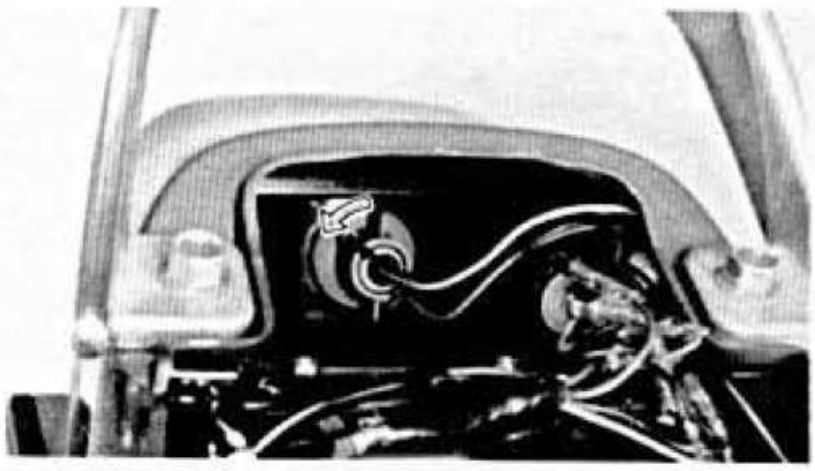
4. Install:
   - Bulb (New)
     Secure the new bulb with the bulb holder.

CAUTION:

Avoid touching glass part of bulb. Also keep it free from oil otherwise, transparency of glass, bulb life and illuminous flux will be adversely affected. If oil gets on bulb, clean it with a cloth moistened thoroughly with alcohol or lacquer thinner.

5. Install:
   - Headlight lens unit

www.badrad600.com



TAILLIGHT BULB REPLACEMENT

1. Remove:
   - Seat
2. Remove:
   - Bulb socket

   Turn the bulb socket approximately 30° counterclockwise.
3. Replace:
   - Defective bulb
4. Install:
   - Bulb socket
   - Seat

CARBURETOR AIR VENT SYSTEM INSPECTION (CALIFORNIA ONLY)

1. Inspect:
   - Hoses
   - Air vent control valve

   Refer to "CHAPTER 6-CARBURETOR AIR VENT SYSTEM" section.

www.badrad600.com

CHAPTER 3
ENGINE OVERHAUL

ENGINE REMOVAL 3-1
PREPARATION FOR REMOVAL 3-1
SEAT AND FUEL TANK 3-2
CARBURETOR 3-3
EXHAUST PIPES AND MUFFLERS 3-5
DRIVE CHAIN 3-5
CABLE AND PIPE 3-6
LEADS 3-6
CANISTER (CALIFORNIA ONLY) 3-7
ENGINE REMOVAL 3-7

ENGINE DISASSEMBLY 3-8
CYLINDER HEAD AND CAMSHAFT 3-8
PISTON AND INTAKE SIDE CAM CHAIN GUIDE 3-10
PICKUP COIL AND GENERATOR 3-11
CLUTCH 3-12
OIL PUMP AND SHIFT SHAFT 3-13
CRANKCASE DISASSEMBLY 3-14
UPPER CRANKCASE 3-15
LOWER CRANKCASE 3-16

INSPECTION AND REPAIR 3-17
CYLINDER HEAD 3-17
VALVE, VALVE GUIDE, VALVE SEATS AND VALVE SPRING 3-18
CAMSHAFT, CAM CHAIN AND CAM SPROCKET 3-25
CYLINDER 3-27
PISTON, PISTON RING AND PISTON PIN 3-28
CRANKSHAFT AND CONNECTING ROD 3-31
OIL PUMP 3-35
PRIMARY DRIVE 3-36
STARTER DRIVES 3-36
CLUTCH 3-37
TRANSMISSTION 3-39
HY-VO CHAIN GUIDE AND TENSIONER 3-40
RELIEF VALVES 3-40
CRANKCASE 3-40
BEARINGS AND OIL SEALS 3-41
CIRCLIPS AND WASHERS 3-41

www.badrad600.com

ENGINE ASSEMBLY AND ADJUSTMENT 3-44
LOWER CRANKCASE 3-44
UPPER CRANKCASE 3-48
CRANKCASE ASSEMBLY 3-49
OIL PUMP AND SHIFT SHAFT 3-54
CLUTCH 3-56
PICKUP COIL AND GENERATOR 3-60
PISTON AND INTAKE SIDE CAM CHAIN GUIDE 3-62
CYLINDER 3-64
CYLINDER HEAD 3-66
CAMSHAFT 3-68
REMOUNTING ENGINE 3-73

www.badrad600.com

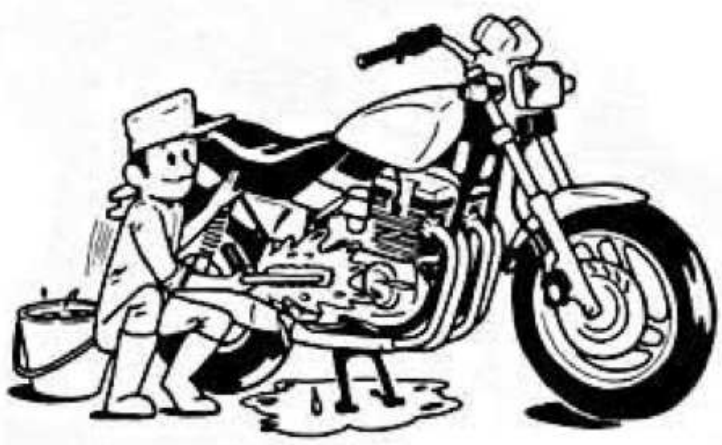
ENGINE OVERHAUL

ENGINE REMOVAL

NOTE:

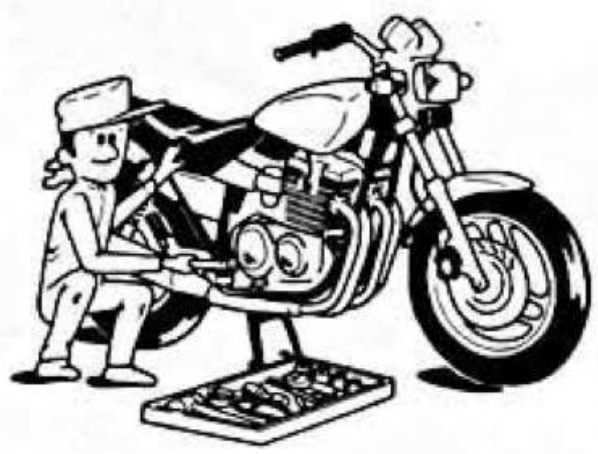
It is not necessary to remove the engine in order to remove the following components:

- Cylinder head
- Cylinder
- Piston
- Clutch
- AC magneto



PREPARATION FOR REMOVAL

1. Remove all dirt, mud, dust and foreign material before removal and disassembly.



2. Use proper tools and cleaning equipment. Refer to "CHAPTER 1. GENERAL INFORMATION-SPECIAL TOOLS" section.



NOTE:

When disassembling the engine, keep mated parts together. This includes gears, cylinder, piston and other parts that have been "mated" through normal wear. Mated parts must be reused as an assembly or replaced.



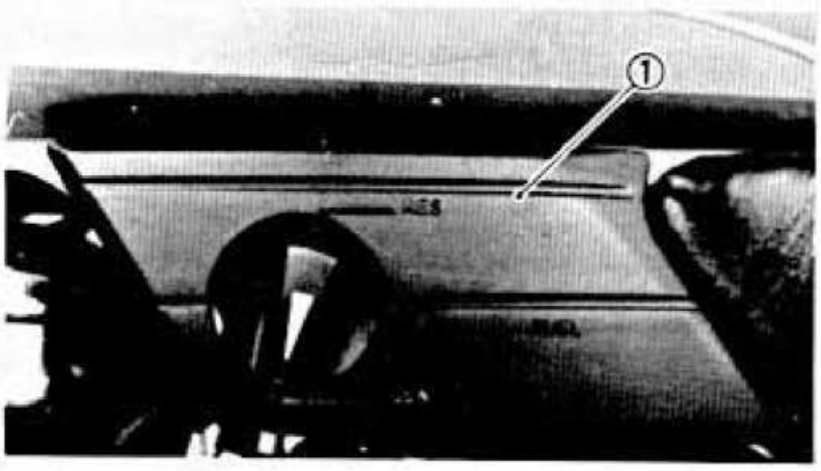
3. During engine disassembly, clean all parts and place them in trays in the order of disassembly. This will speed up assembly time and help assure that all parts are correctly reinstalled in the engine.

www.badrad600.com

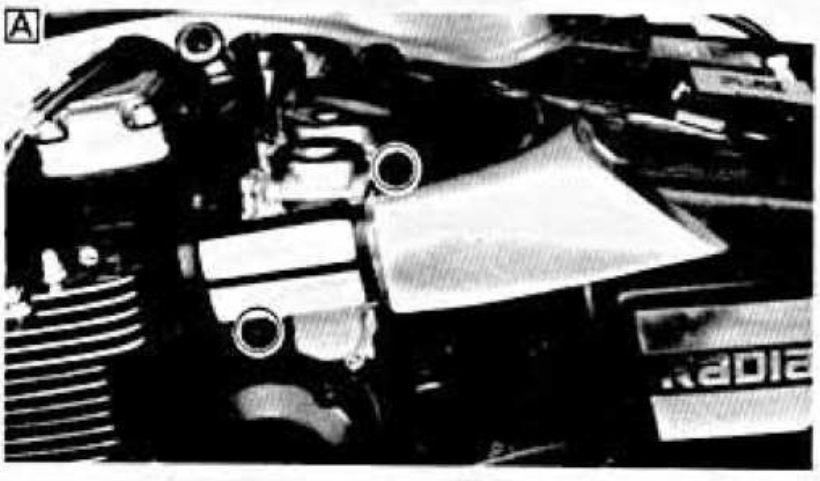
4. Start the engine and allow it to warm up.
5. Drain the transmission oil completely. Refer to "CHAPTER 2. PERODIC INSPECTIONS AND ADJUSTMENTS—ENGINE OIL REPLACEMENT" section.

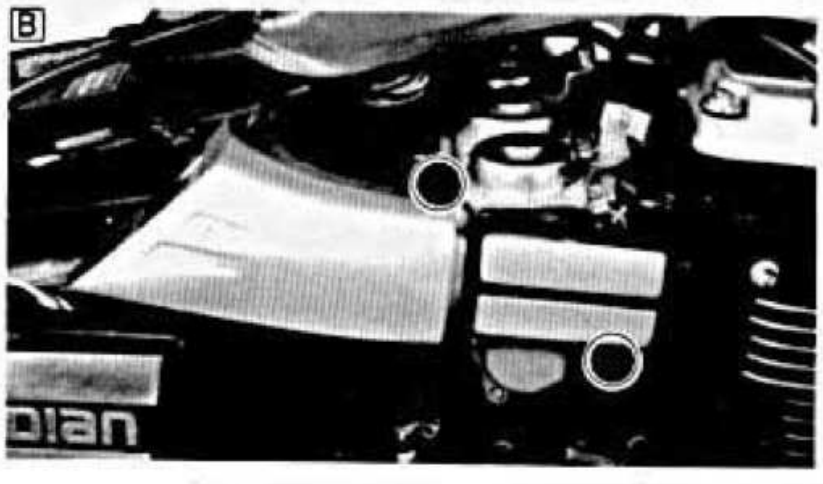
SEAT AND FUEL TANK

1. Place the motorcycle on its centerstand.
2. Turn the fuel cock to "ON" position.



3. Remove:
   - Seat
   - Cover (Fuel cock) ①



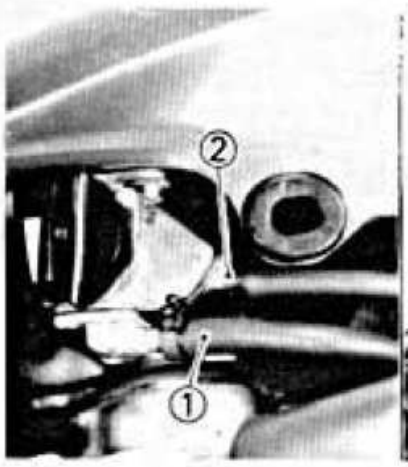


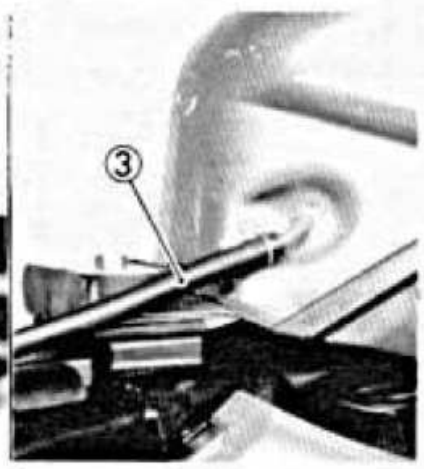
4. Remove:
   - Cover (Carburetor)

A Left side
B Right side

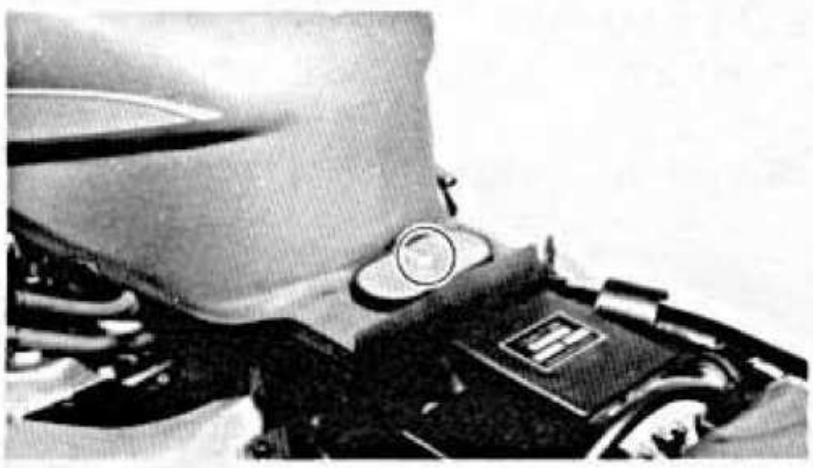
www.badrad600.com

ENGINE REMOVAL





5. Disconnect:
   - Fuel pipe ①
   - Vacuum pipe ②
   - Fuel tank breather pipe ③



6. Remove:
   - Fuel tank

3



CARBURETOR

1. Remove:
   - Side cover

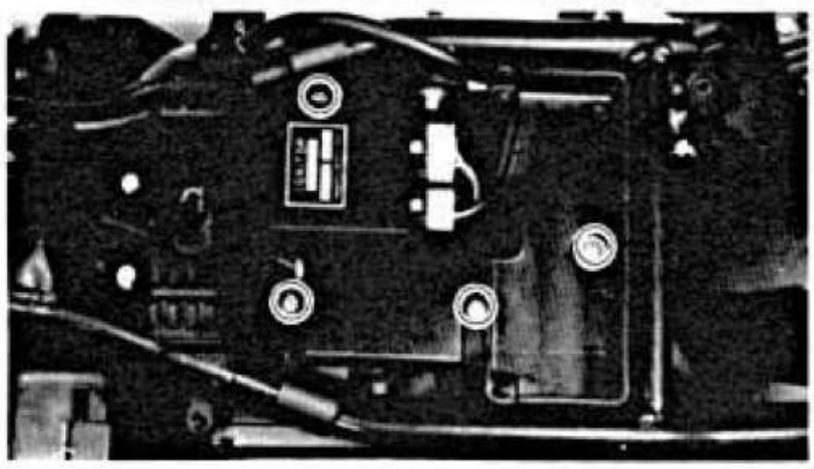
Ⓐ Left side
Ⓑ Right side



2. Remove:
   - Battery case cover ①
   - Battery

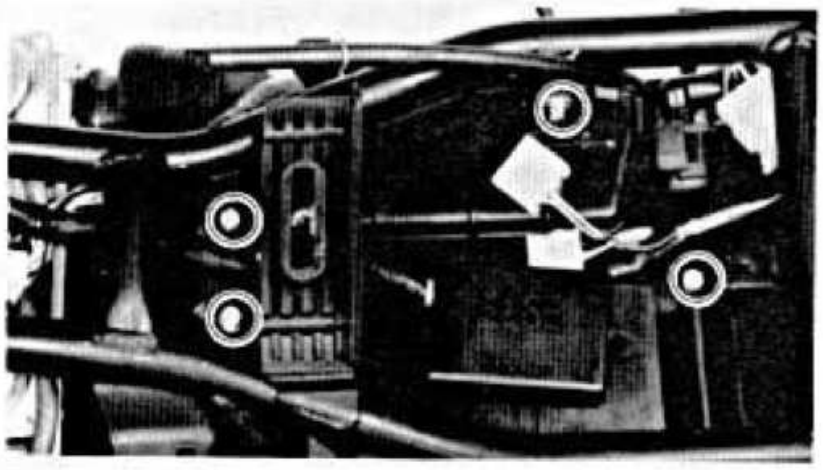
CAUTION:

Disconnect the negative lead first, and then disconnect the positive lead.

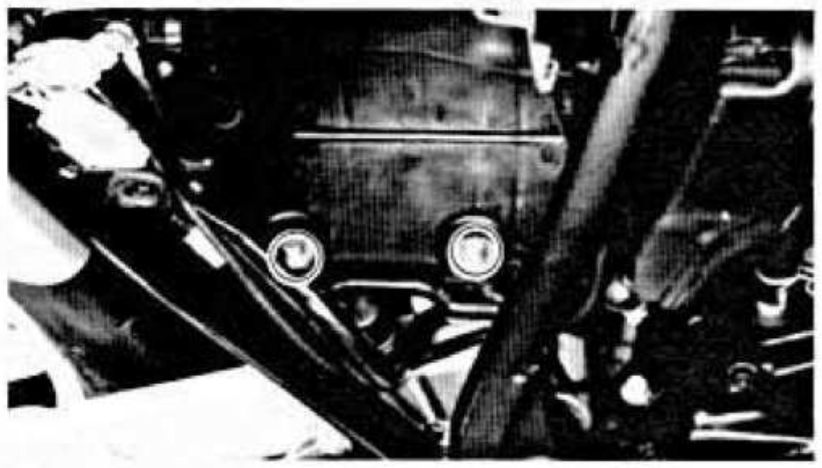


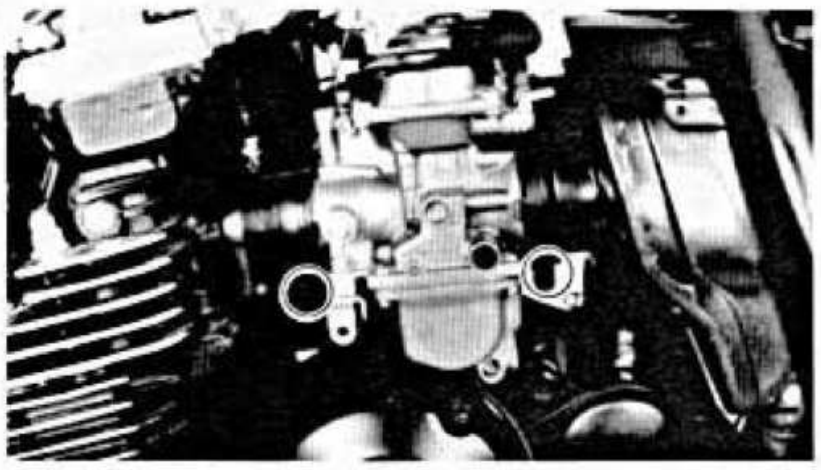
3. Remove:
   - Screws (Fuse box)
   - Ignitor unit

www.badrad600.com

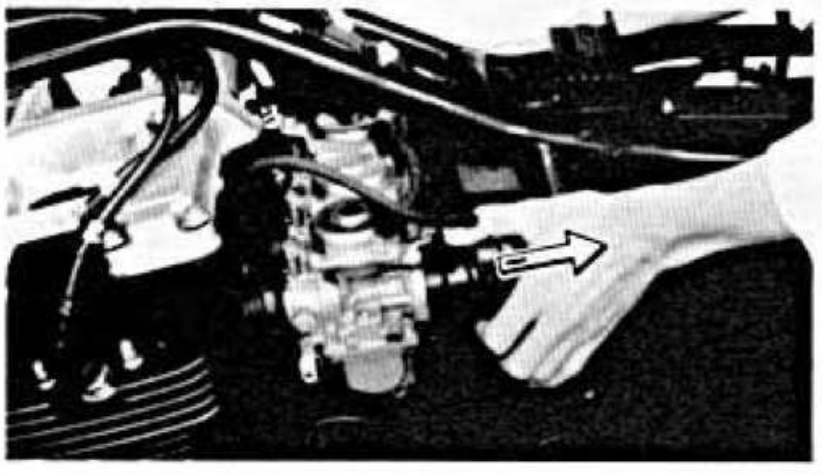


4. Remove:
   - Bolts (Air cleaner case)
   - Bolts (Battery case)

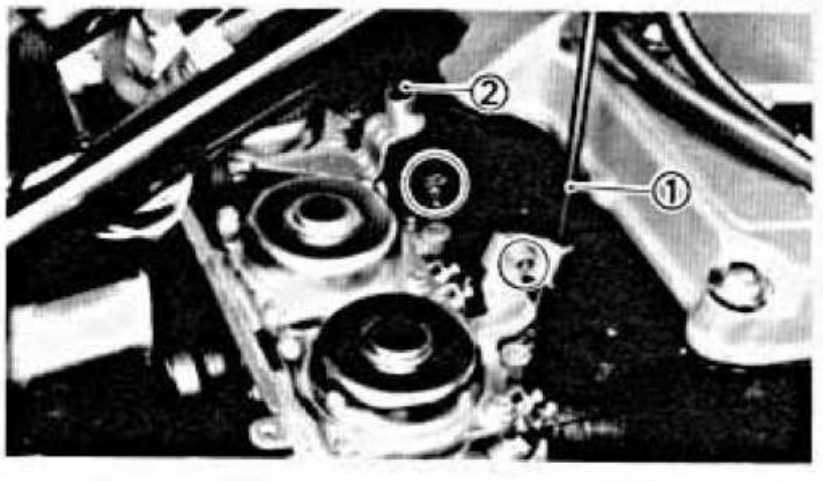




5. Loosen:
   - Screws (Carburetor joints)



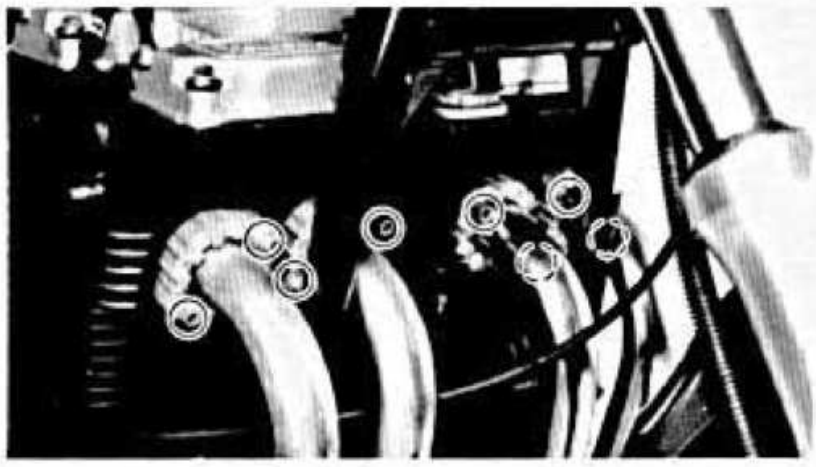
6. Slide the air cleaner case and the battery case backward.



7. Remove:
   - Starter cable ①
   - Throttle cable ②
   - Air vent hoses
   - Carburetor assembly

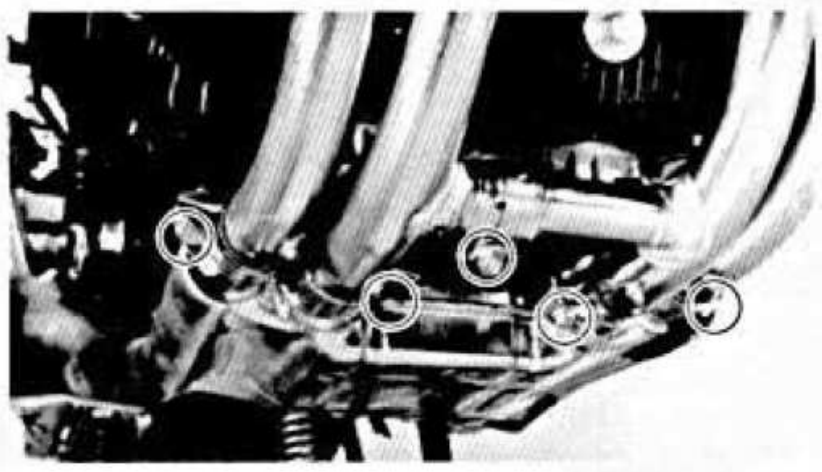
www.badrad600.com

ENGINE REMOVAL

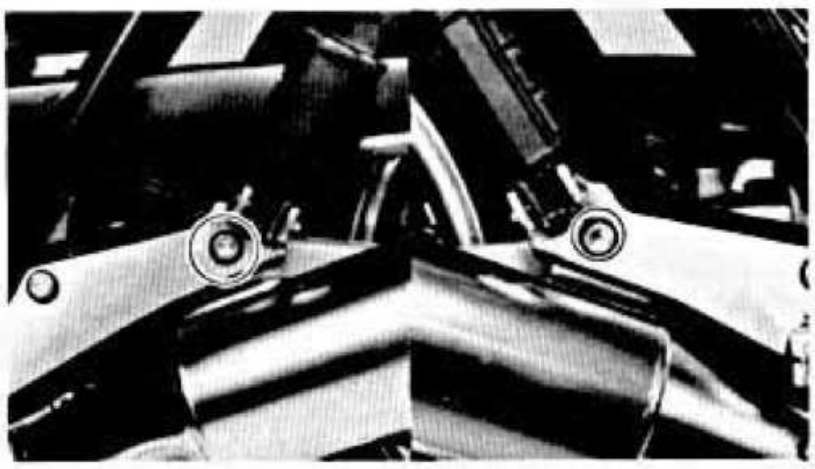


EXHAUST PIPES AND MUFFLERS

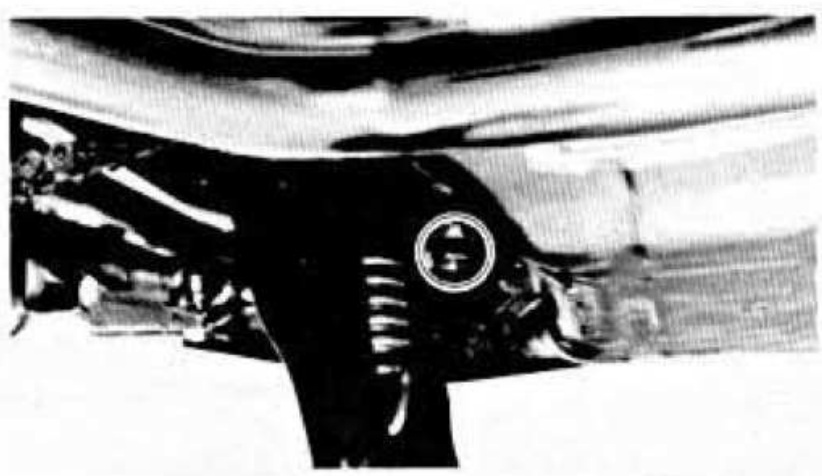
1. Remove:
   - Nuts (Exhaust pipes)

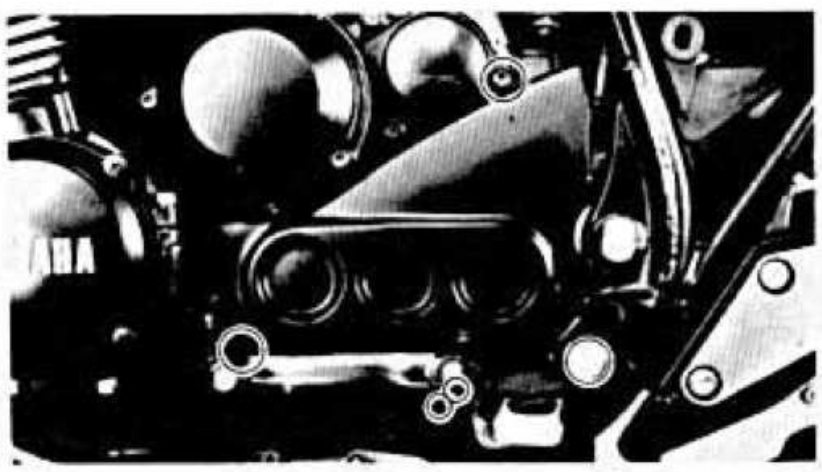


2. Loosen:
   - Bolts (Exhaust pipes)
3. Remove:
   - Exhaust pipes



4. Remove:
   - Mufflers

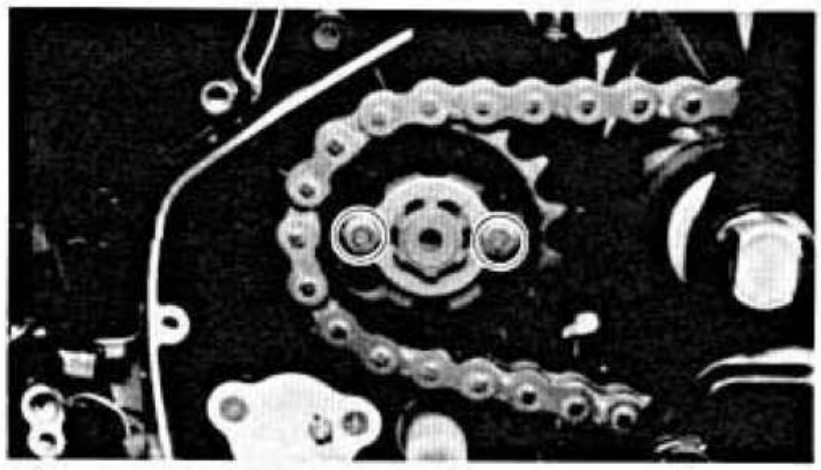




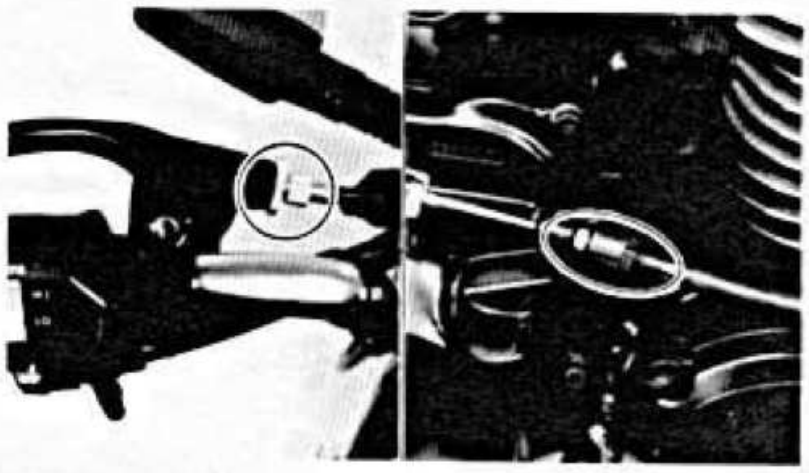
DRIVE CHAIN

1. Remove:
   - Footrest (Left)
   - Change pedal
   - Drive sprocket cover

www.badrad600.com



2. Remove:
   - Drive sprocket
   - Drive chain



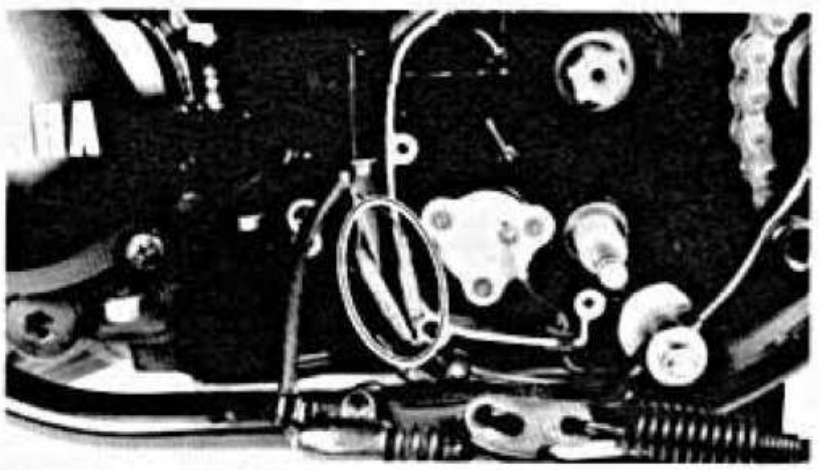
CABLE AND PIPE

1. Loosen:
   - Adjusters (clutch cable)

2. Remove:
   - Clutch cable

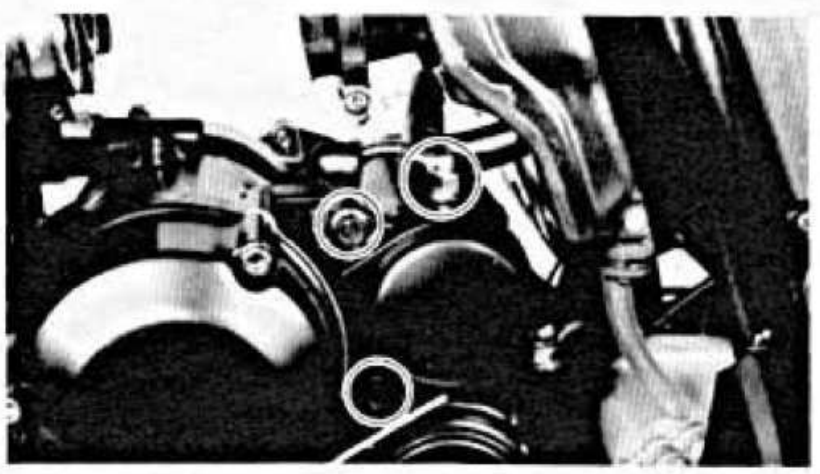


3. Disconnect:
   - Crankcase ventilation hose ①



LEADS

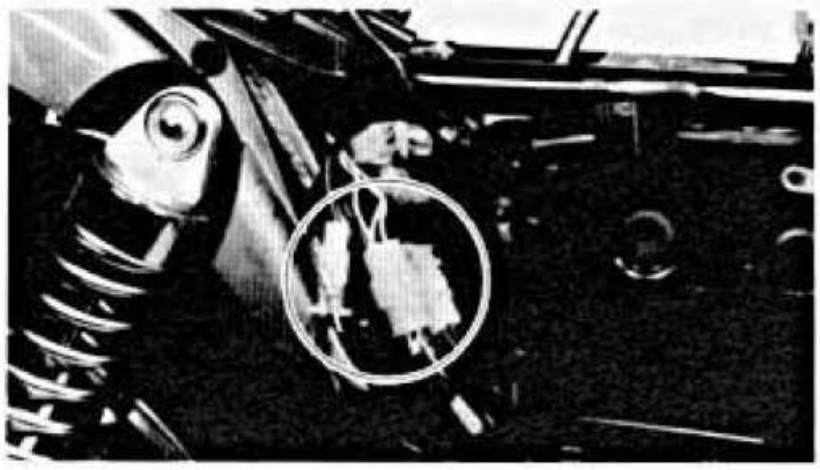
1. Disconnect:
   - Sidestand switch leads



2. Remove:
   - Starter motor lead
   - Starter motor

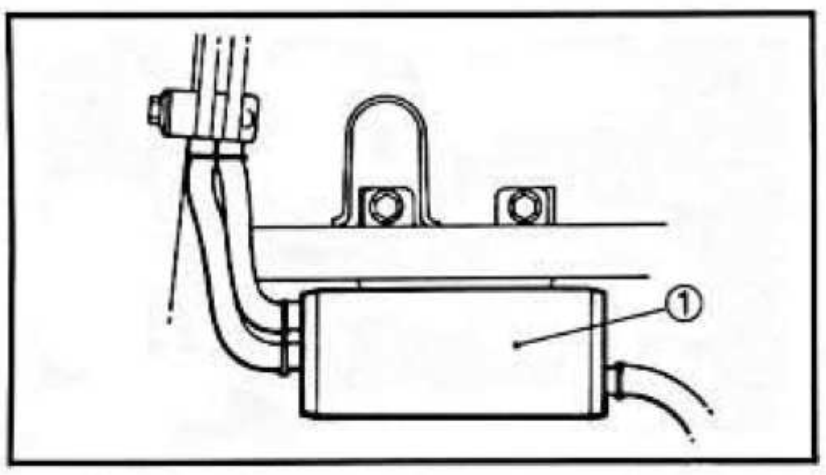
www.badrad600.com

ENGINE REMOVAL



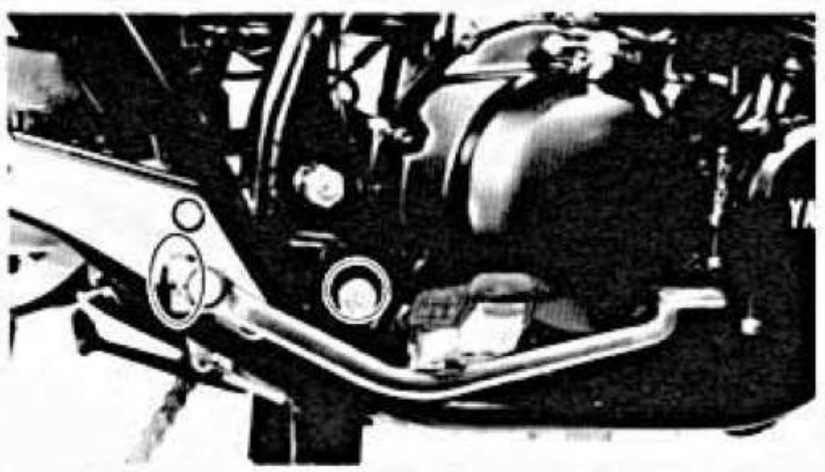
3. Disconnect:
   - Pickup coil leads
   - Oil level switch leads
   - Neutral switch leads
   - AC magneto leads

4. Remove:
   - Spark plug leads



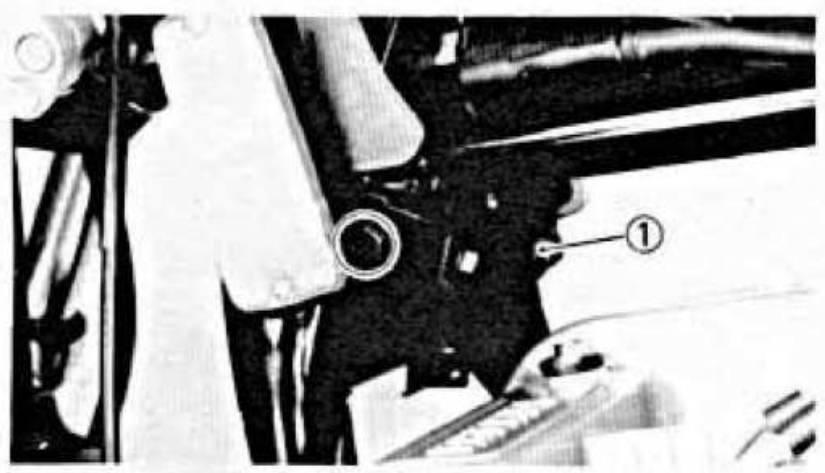
CANISTER (CALIFORNIA ONLY)

1. Remove:
   - Canister ①
     (at front of the engine)



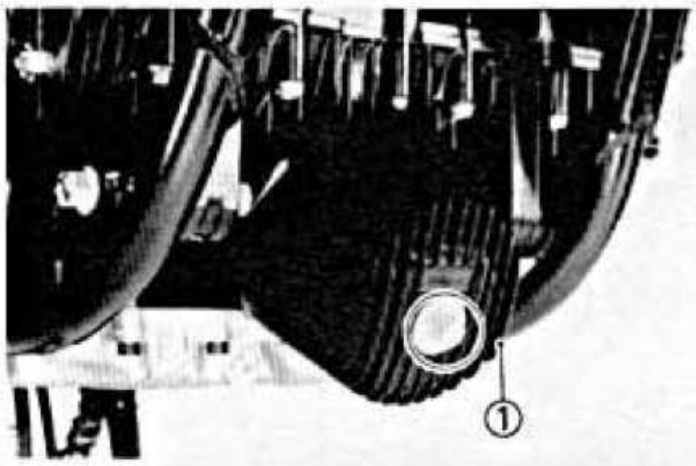
ENGINE REMOVAL

1. Remove:
   - Footrest (Right)
   - Brake pedal

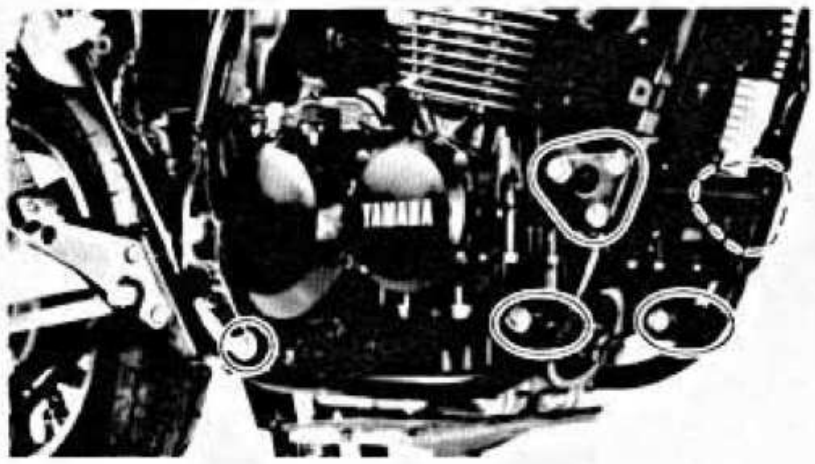


2. Remove:
   - Horn ①

www.badrad600.com

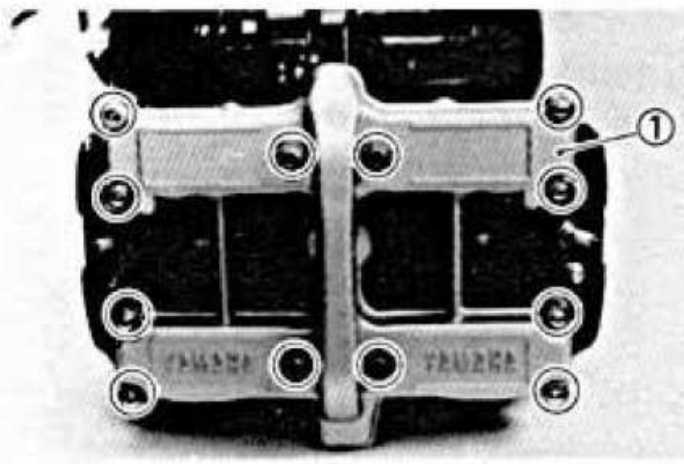


3. Remove:
   •Oil filter ①



4. Place a suitable stand under the engine.

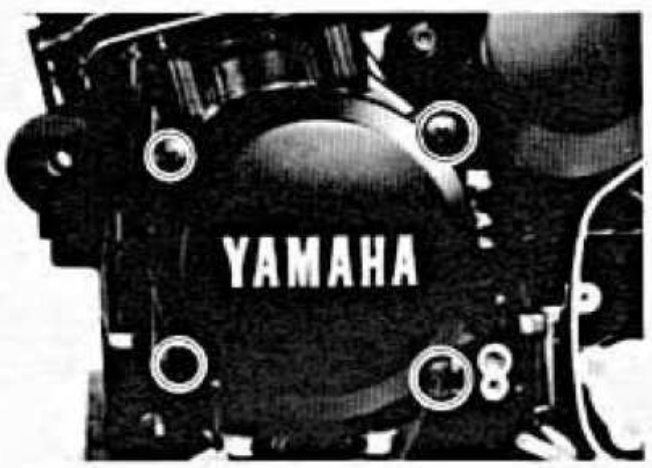
5. Remove:
   •Mounting bolts
   •Engine assembly
   (from right chassis)



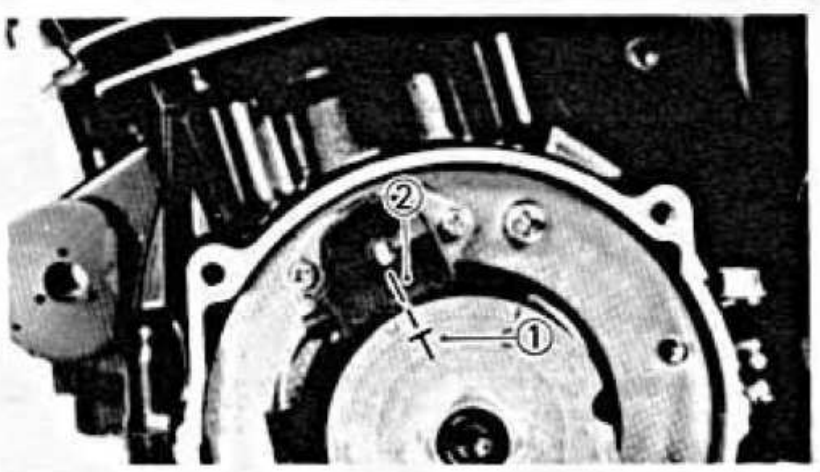
ENGINE DISASSEMBLY

CYLINDER HEAD AND CAMSHAFT

1. Remove:
   •Cylinder head cover ①
   •Spark plugs



2. Remove:
   •Crankcase cover (Left)

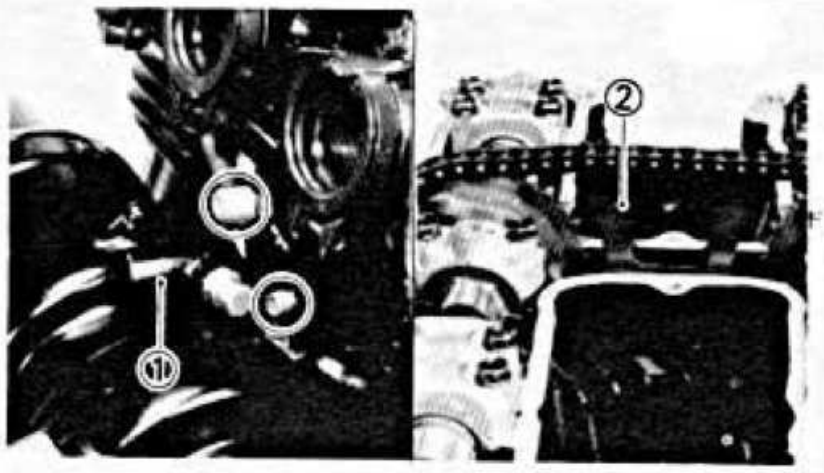


3. Turn:
   •Crankshaft
   (Counterclockwise)

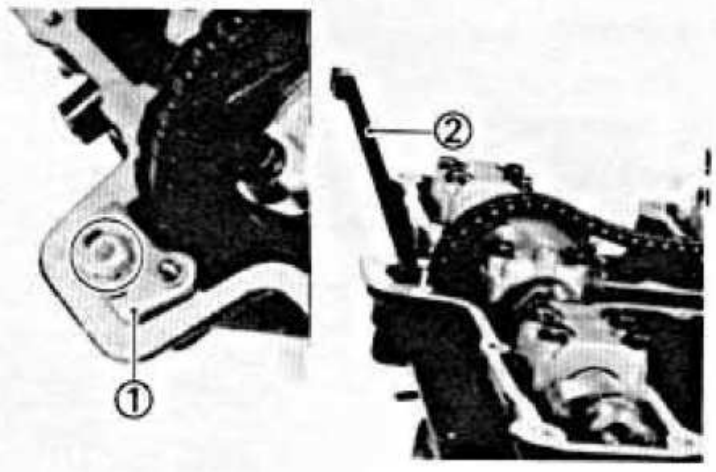
4. Align:
   •Timing plate "T" mark ①
   (with the upper pickup coil mark ②)

www.badrad600.com

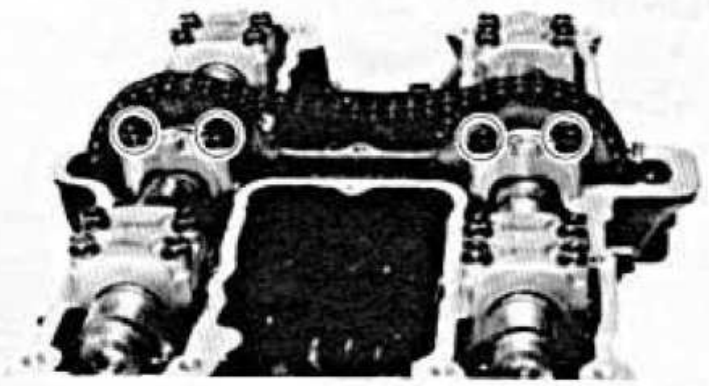
ENGINE DISASSEMBLY



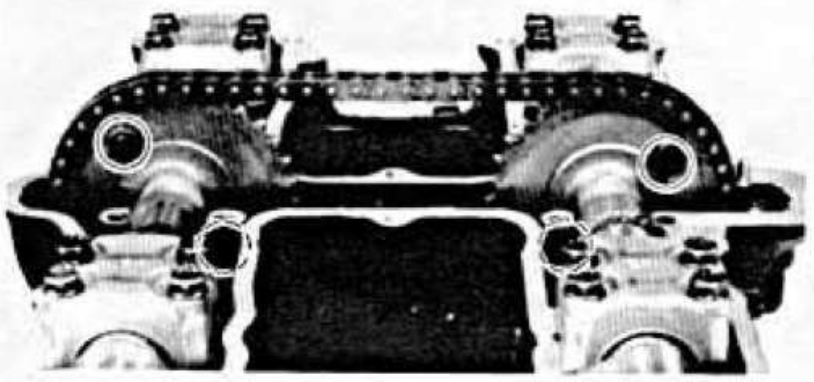
5. Remove:
   - Tensioner assembly ①
   - Upper chain guide ②



6. Remove:
   - Chain guide stopper ①
   - Chain guide (Exhaust side) ②

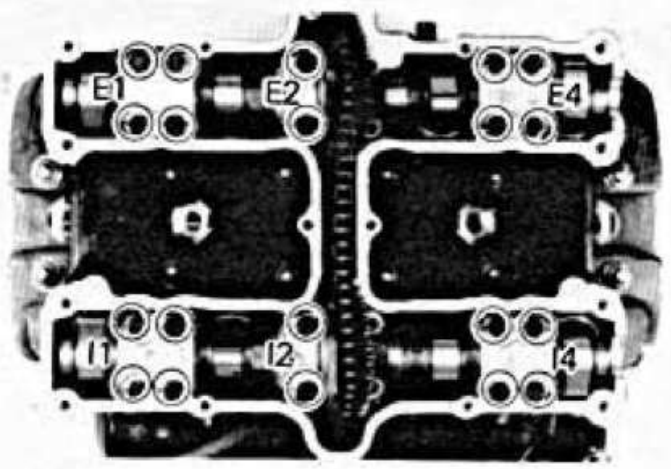


7. Remove:
   - Intake cam cap (#3)
   - Exhaust cam cap (#3)



8. Remove:
   - Bolts (Camshaft sprocket)

9. Dismount the sprockets from camshaft sprocket seats.

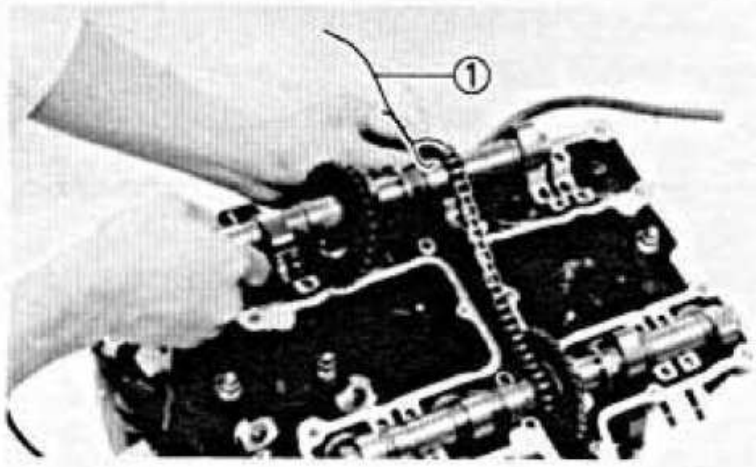


10. Remove:
    - Cam caps
    - Dowel pins

CAUTION:

Do not rotate the camshaft or valve damage may occur.

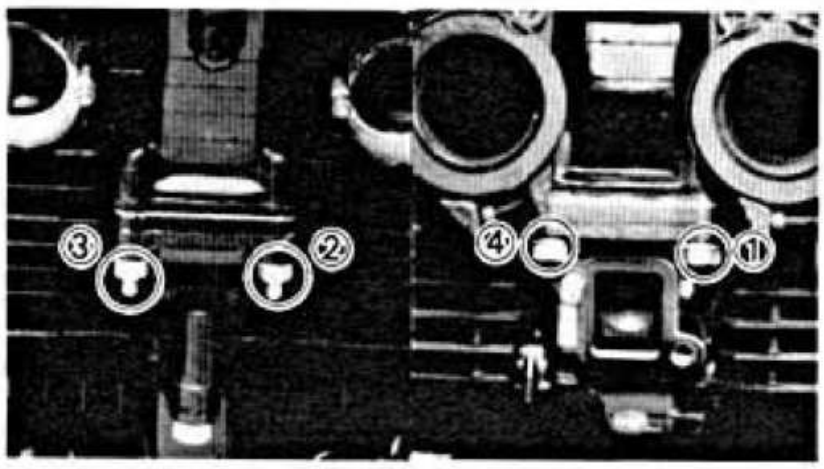
www.badrad600.com



11. Remove:
    • Camshafts

NOTE:

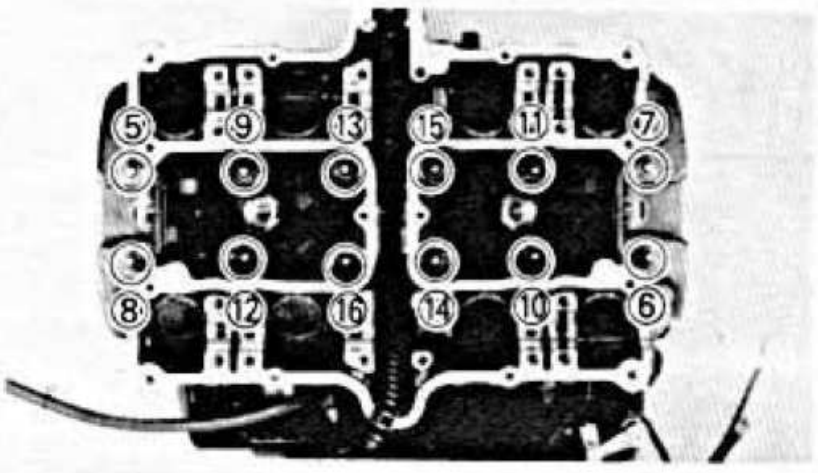
Fasten safety wire ① to the cam chain to prevent it from falling into the crankcase.

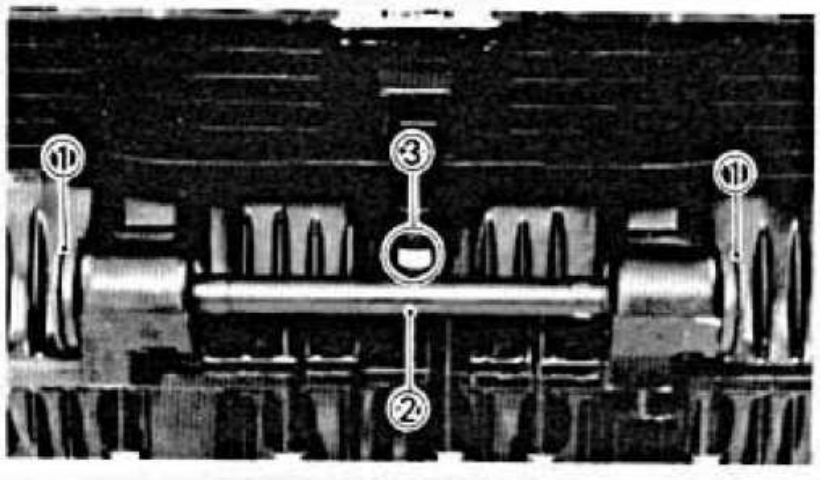


12. Remove:
    • Cylinder head

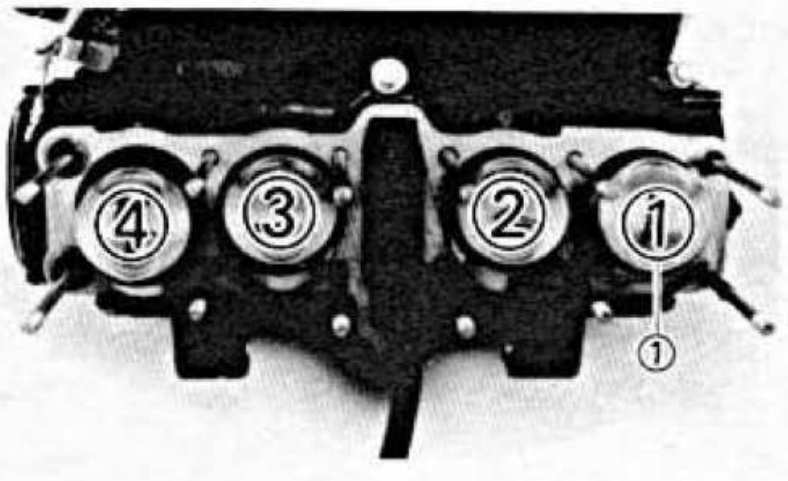
NOTE:

Loosen the nuts in their proper loosening sequence.





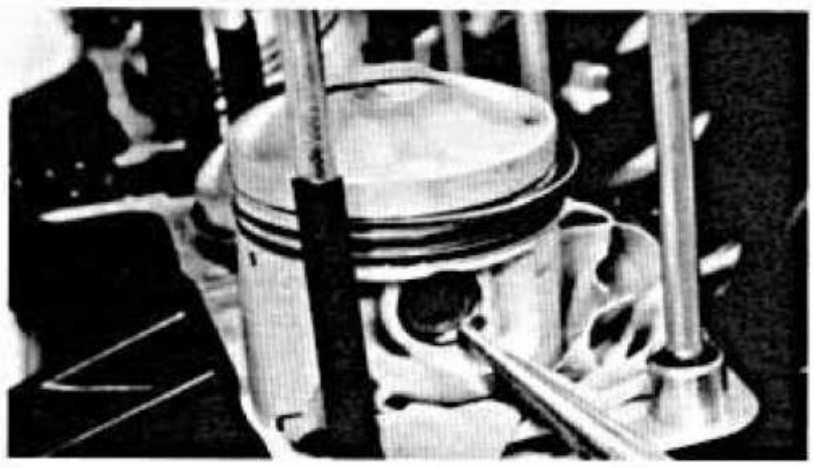
13. Remove:
    • Damper ①
    • Front engine mount spacer ②
    • Nut ③
    • Cylinder



PISTON AND INTAKE SIDE CAM CHAIN GUIDE

1. Mark:
    • Pistons
    (with piston number ① designations as shown.)

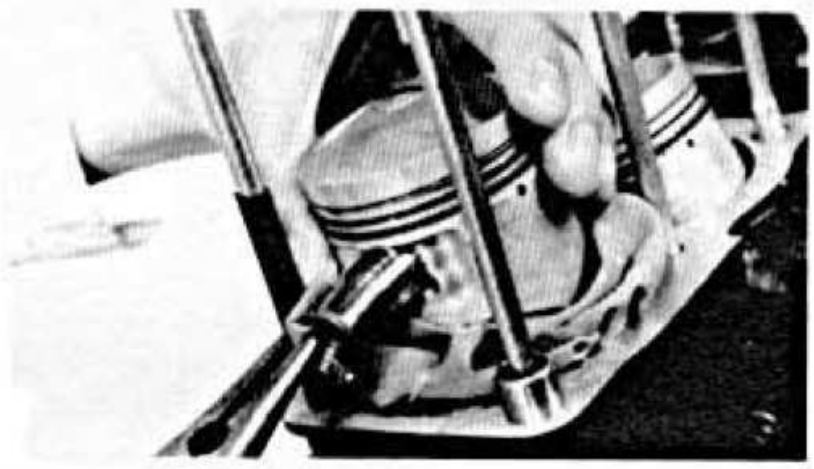
www.badrad600.com



2. Remove:
   - Piston pin circlips

NOTE:

Before removing piston pin circlip, cover crankcase with a clean rag to prevent circlip from falling into crankcase cavity.



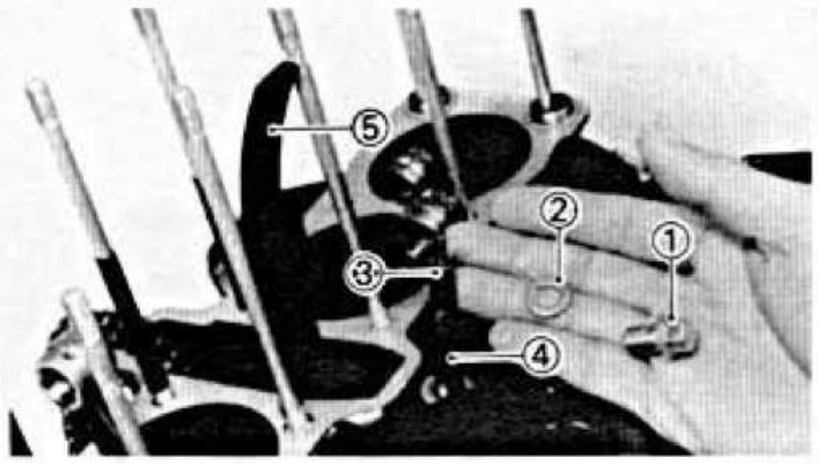
3. Remove:
   - Piston pins
   - Pistons

NOTE:

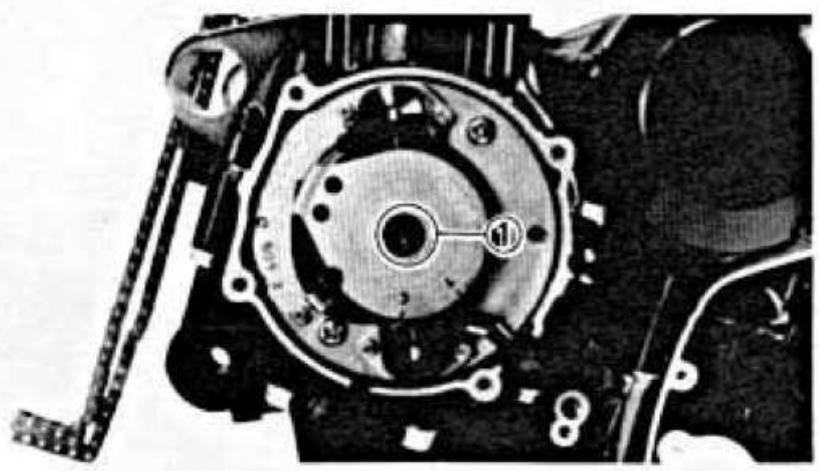
Before removing the piston pin, deburr the clip grooved and pin hole area. If the piston pin groove is deburred and piston pin is still difficult to remove, use Piston Pin Puller (YU-01304).

CAUTION:

Do not use a hammer to drive the piston pin out.



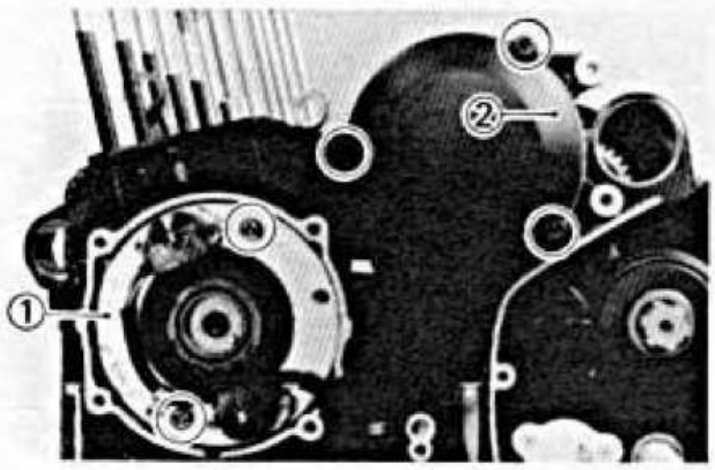
4. Remove:
   - Bolt ①
   - Plate washer ②
   - Spring ③
   - Stopper shaft ④
   - Intake side cam chain guide ⑤



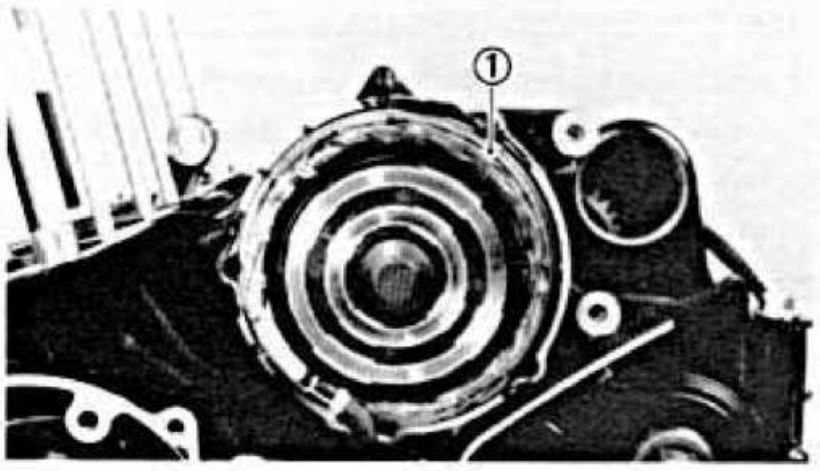
PICKUP COIL AND GENERATOR

1. Remove:
   - Bolt ① (Timing plate)

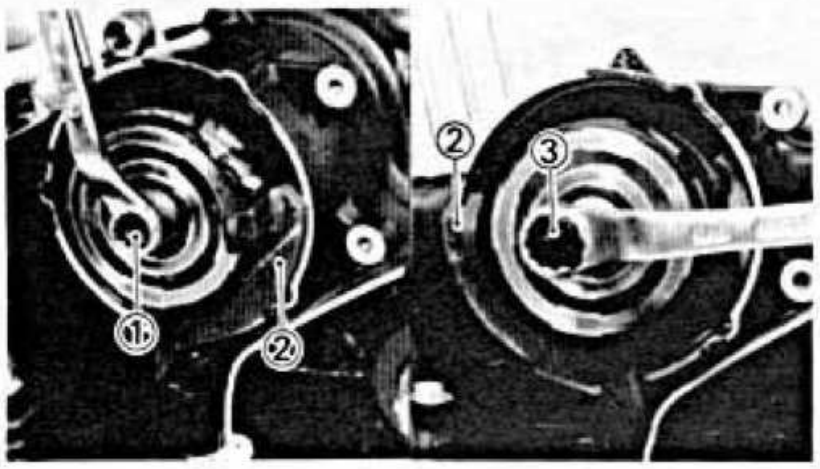
www.badrad600.com



2. Remove:
   - Pickup coil assembly ①
   - Generator cover ②



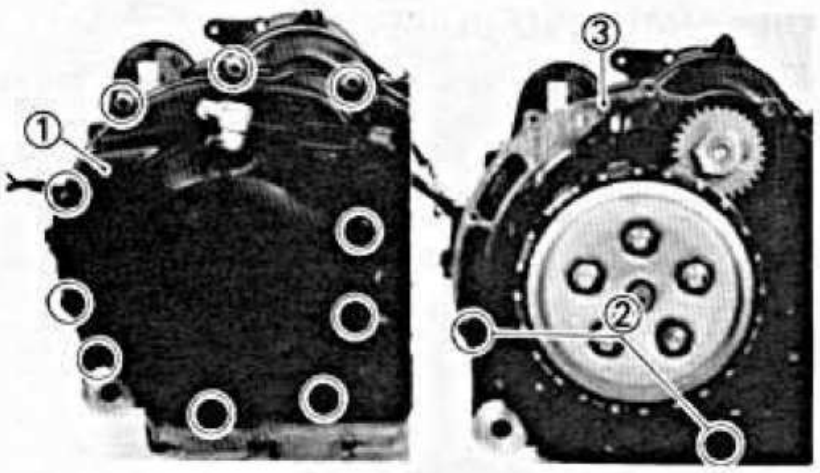
3. Remove:
   - Stator coil ①



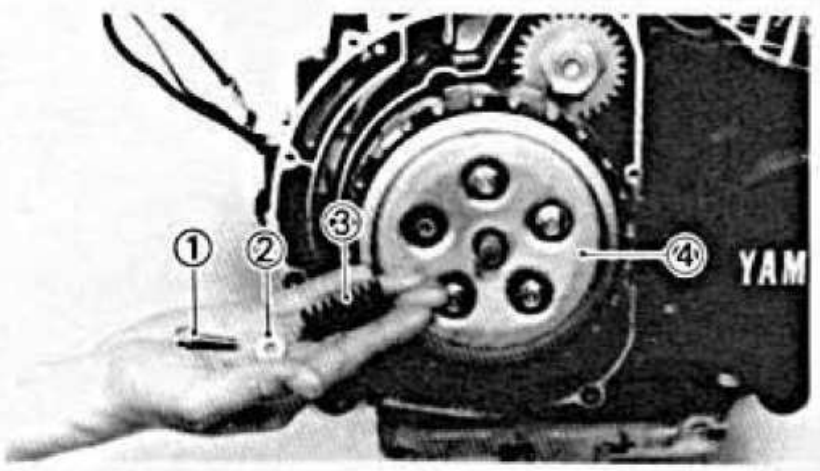
4. Remove:
   - Rotor securing bolt ①
   - Rotor

   Use Rotor Holding Tool ② (YM-04043), Rotor Puller ③ (YM-01080) and Pin (YM-04052).

CLUTCH

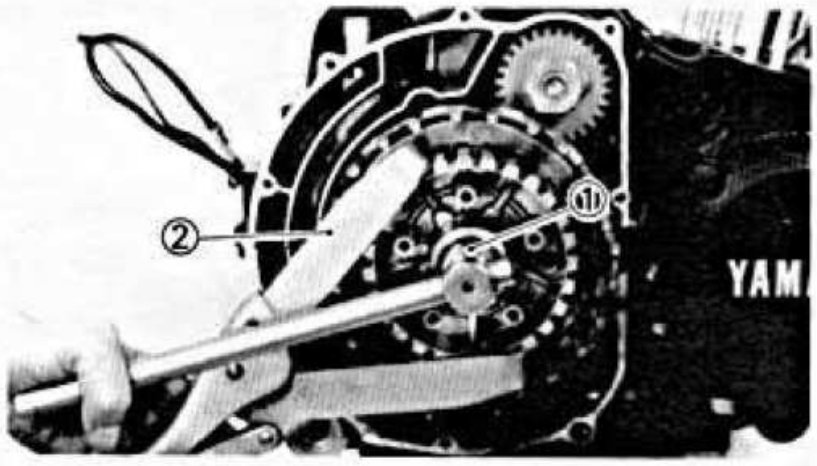


1. Remove:
   - Right crankcase cover ①
   - Dowel pins ②
   - Gasket ③

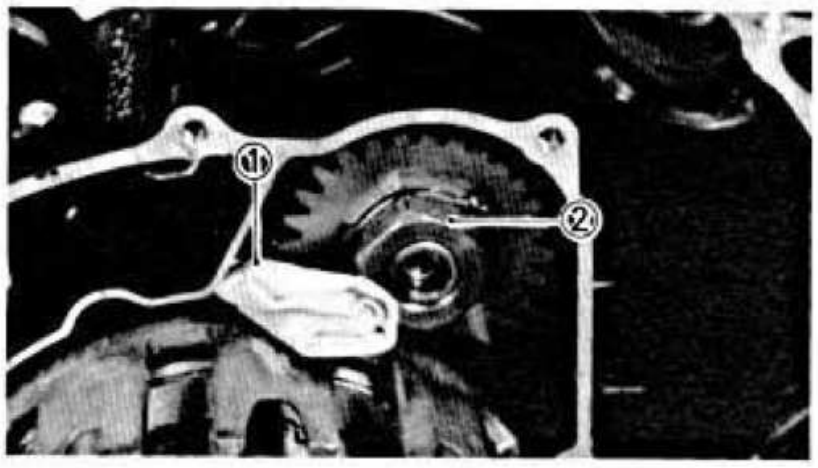


2. Remove:
   - Bolts ①
   - Plate washers ②
   - Springs ③
   - Pressure plate ④
   - Friction plates
   - Clutch plates

www.badrad600.com

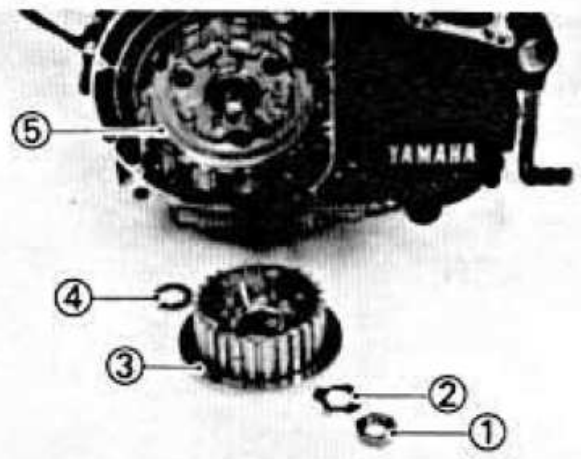


3. Loosen:
   - Nut ①
   Use Universal Clutch Holder ② (YM-91042).

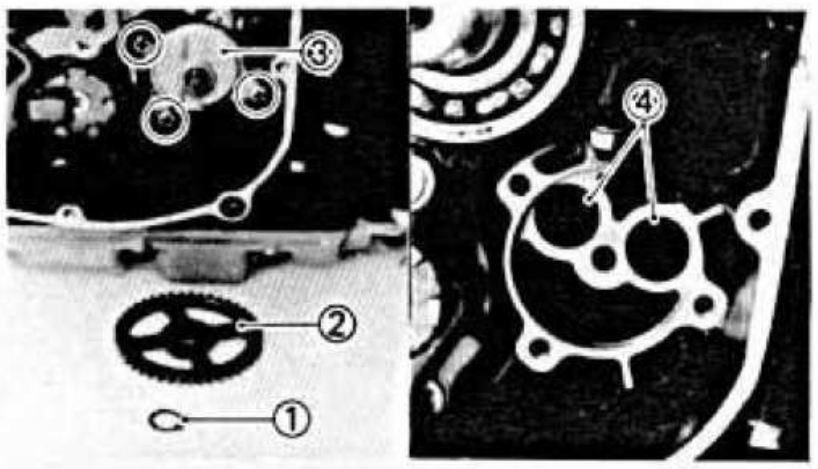


NOTE:

If you need to remove the primary drive gear at this stage, place a piece of rolled rag ① or lead between the primary drive gears.
Then loosen the drive gear nut ②.

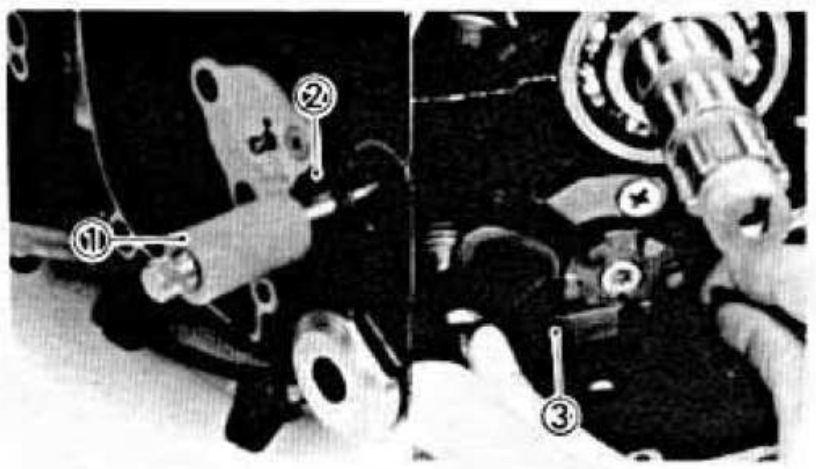


4. Remove:
   - Nut ①
   - Lock washer ②
   - Clutch boss ③
   - Thrust washer ④
   - Clutch housing ⑤



OIL PUMP AND SHIFT SHAFT

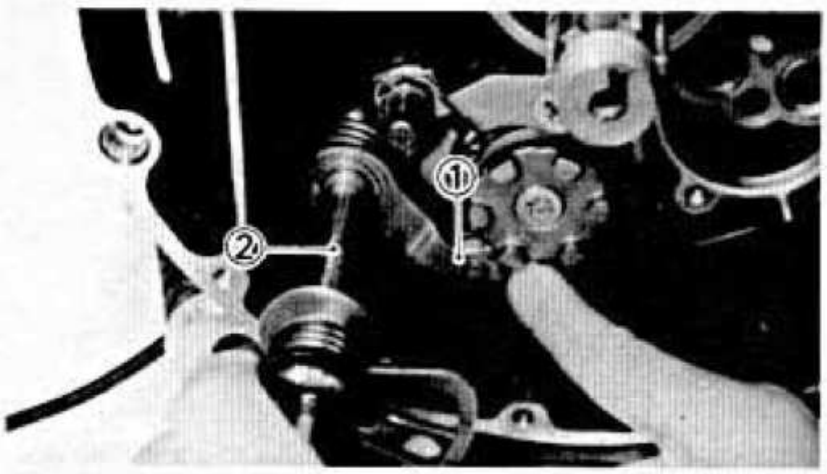
1. Remove:
   - Circlip ①
   - Oil pump driven gear ②
   - Oil pump assembly ③
   - O-rings ④



2. Remove:
   - Collar ①
   - Plate washer ②
   (from left side shift shaft.)

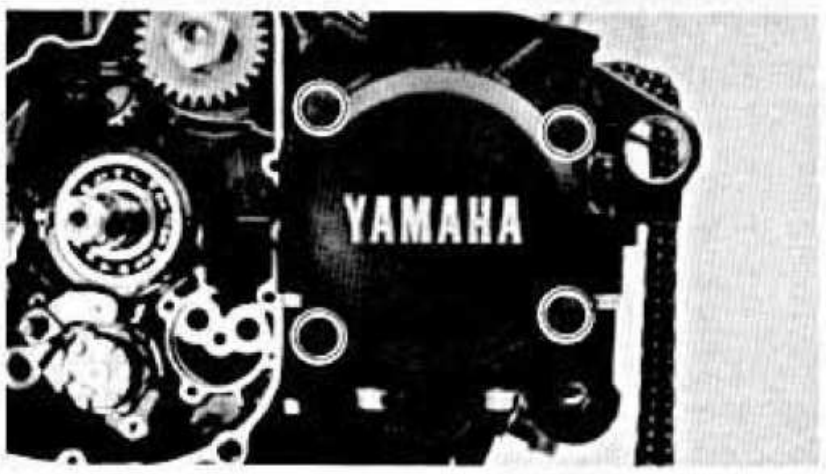
3. Unhook the shift lever 2 ③ and pull the shift shaft.

www.badrad600.com



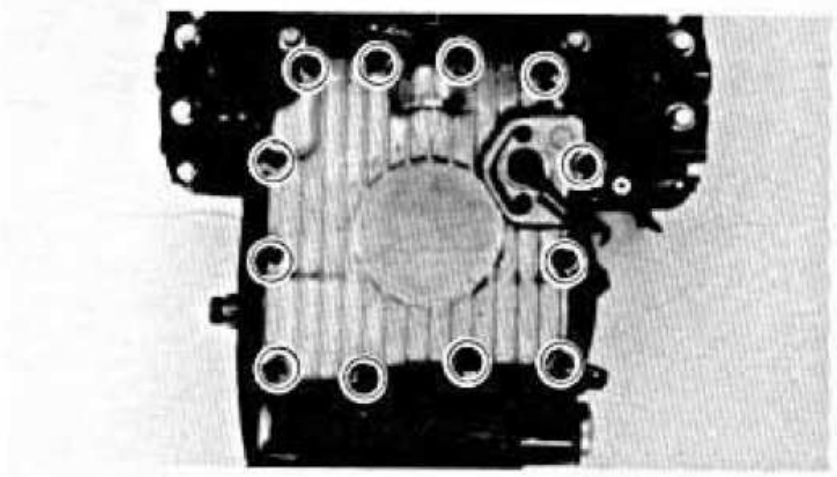
4. Unhook the stopper lever ①

5. Remove:
   • Shift shaft assembly ②

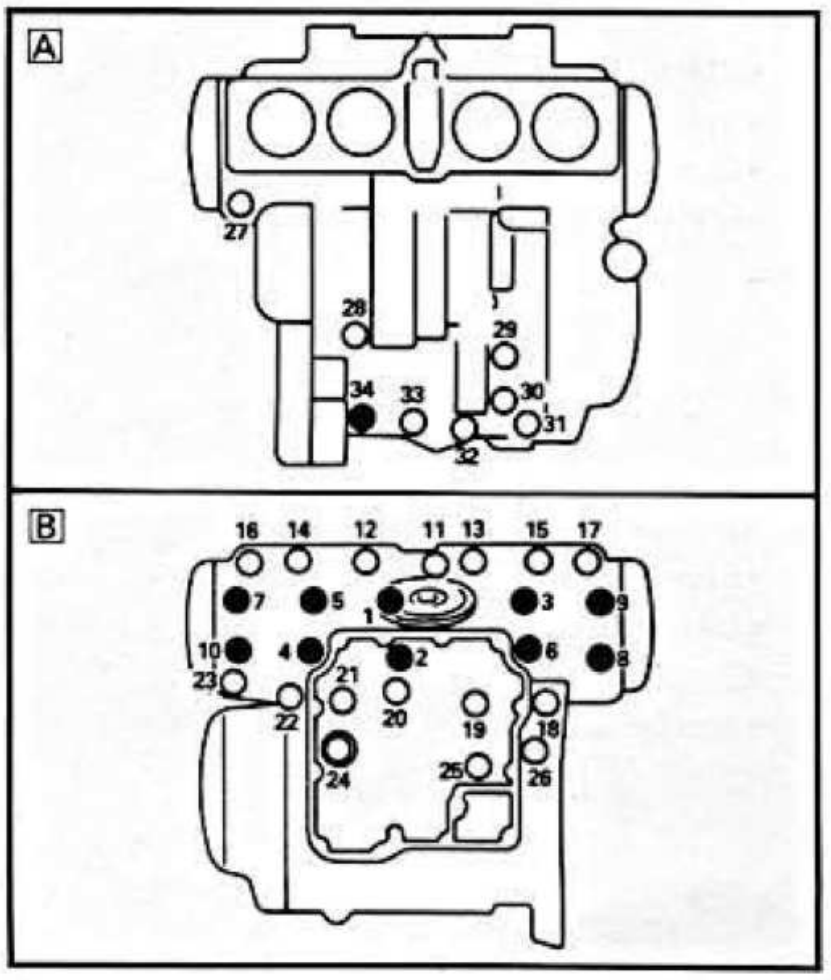


CRANKCASE DISASSEMBLY

1. Remove:
   • Right-front crankcase cover



2. Remove:
   • Oil pan



3. Remove:
   • Upper crankcase bolts [A]
   • Lower crankcase bolts [B]

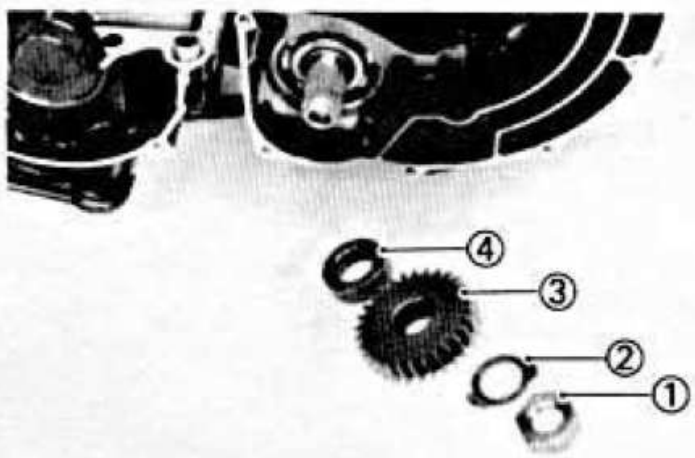
NOTE:

- Remove the bolts starting with the highest numbered one.
- The embossed numbers in the crankcase designate the crankcase tightening sequence.

● 8 mm (0.32 in) Bolt
○ 6 mm (0.24 in) Bolt

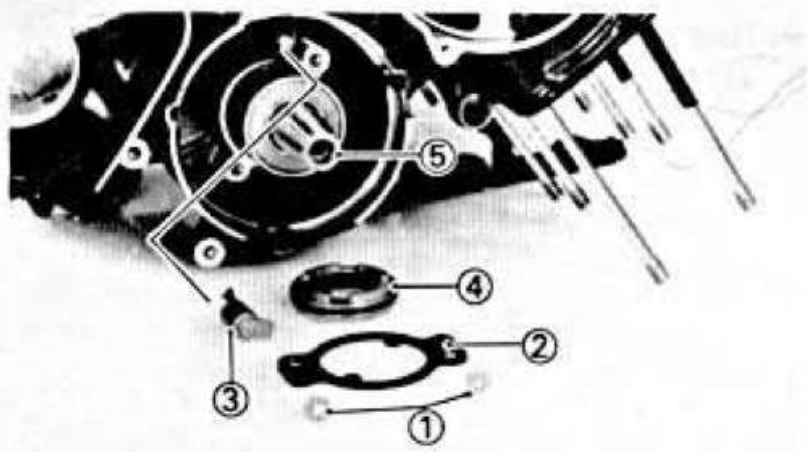
www.badrad600.com

4. Remove:
   - Lower crankcase
     Use a rubber hammer.

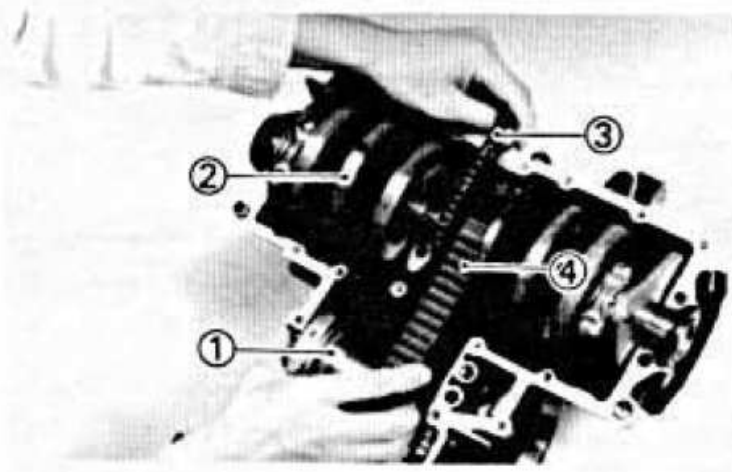


UPPER CRANKCASE

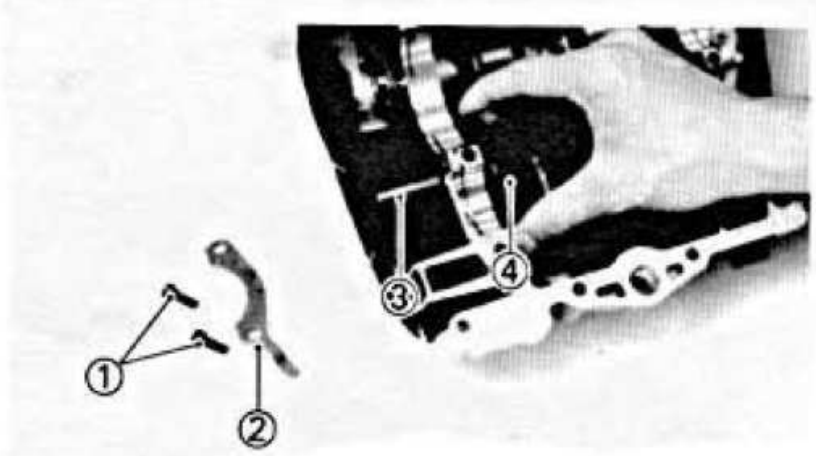
1. Remove:
   - Nut ①
   - Lock washer ②
   - Primary drive gear ③
   - Collar ④



2. Remove:
   - Screw ①
   - Cover plate ②
   - Oil spray nozzle ③
   - Bearing housing ④
   - A.C.G. shaft ⑤

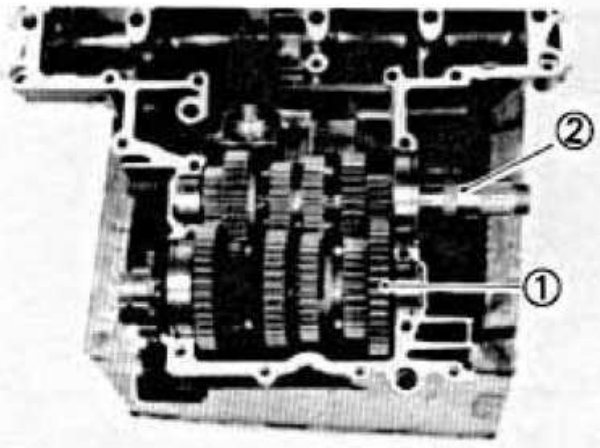


3. Remove:
   - Starter clutch damper assembly ①
   - Crankshaft assembly ②
   - Cam chain ③
   - HY-VO chain ④



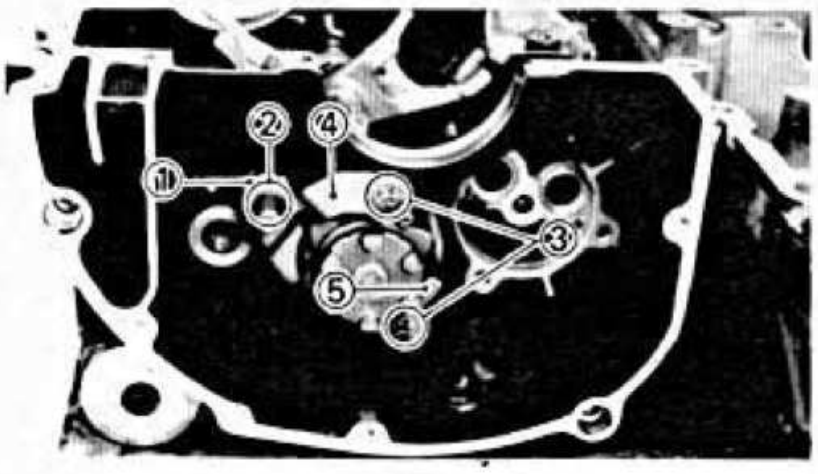
4. Remove:
   - Screws ①
   - Bearing stopper ②
   - Shaft ③
   - Starter idler gear ④

www.badrad600.com

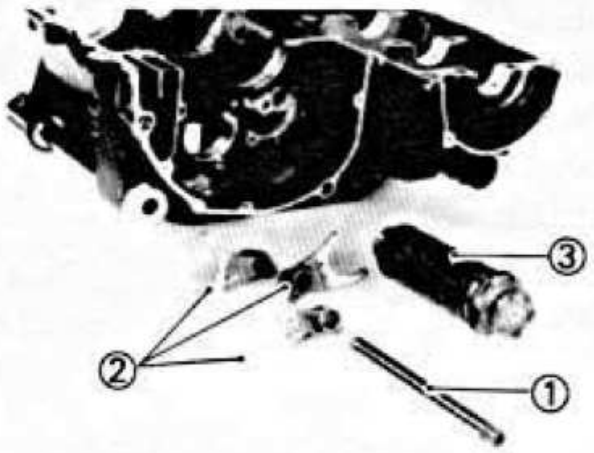


LOWER CRANKCASE

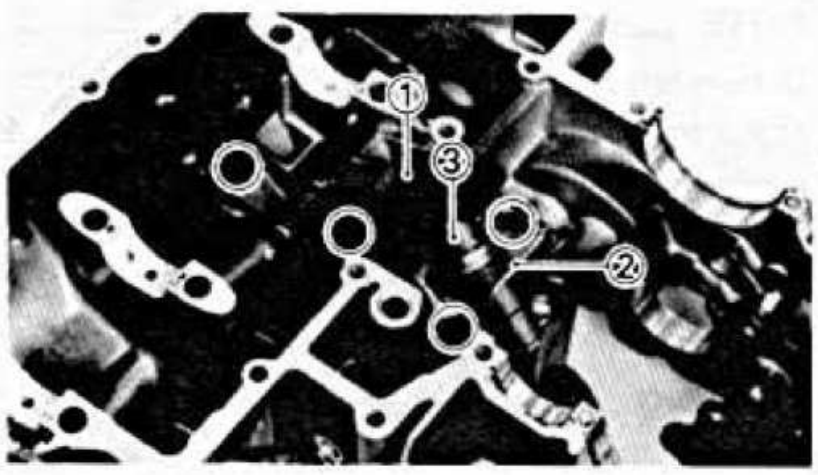
1. Remove:
   - Drive axle assembly ①
   - Main axle assembly ②



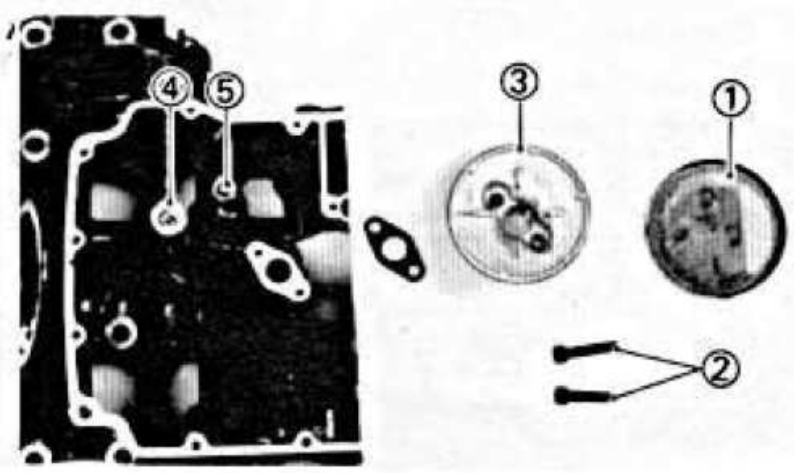
2. Remove:
   - Lock washer ①
   - Stopper screw ②
   - Screws ③
   - Guide bar stopper ④
   - Bearing stopper ⑤



3. Remove:
   - Guide bar ①
   - Shift forks ②
   - Shift cam assembly ③

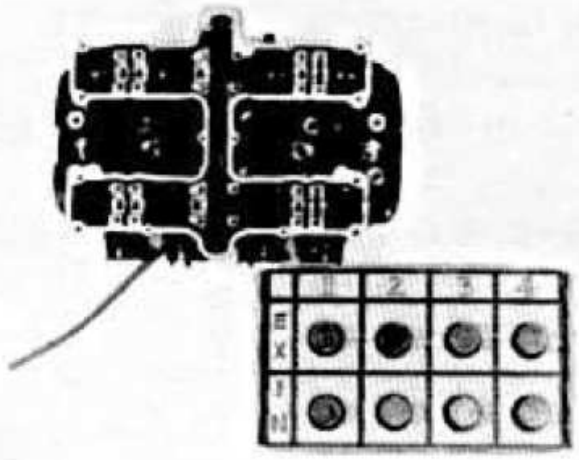


4. Remove:
   - HY-VO chain guide ①
   - HY-VO chain tensioner ②
   - Tensioner plunger ③
   - Spring



5. Remove:
   - Oil strainer ①
   - Screw ②
   - Strainer housing ③
   - Relief valve ④
   - Tensioner side relief valve ⑤

www.badrad600.com



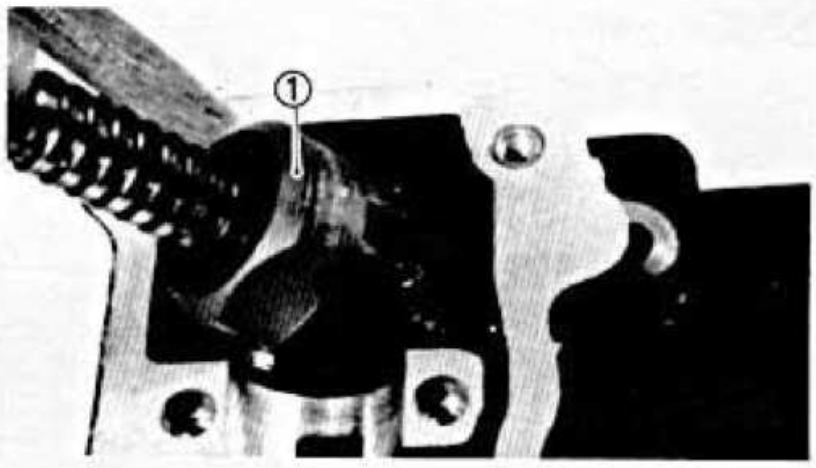
INSPECTION AND REPAIR

CYLINDER HEAD

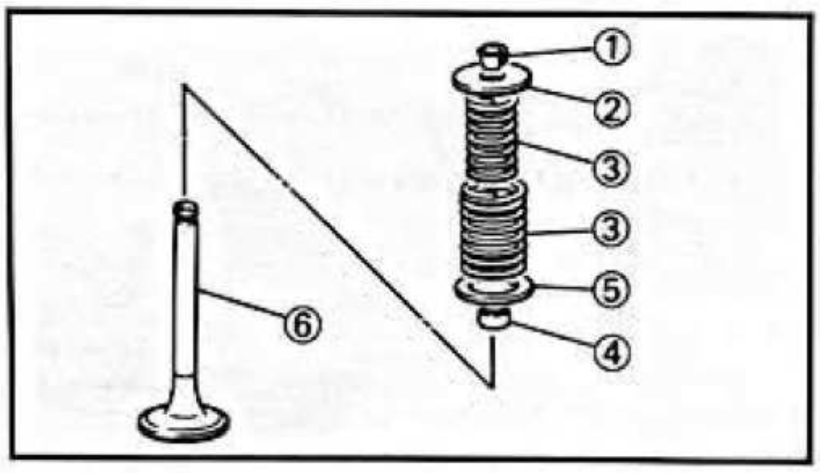
1. Remove:
   - Valve pads
   - Lifters
   - Spark plugs

NOTE:

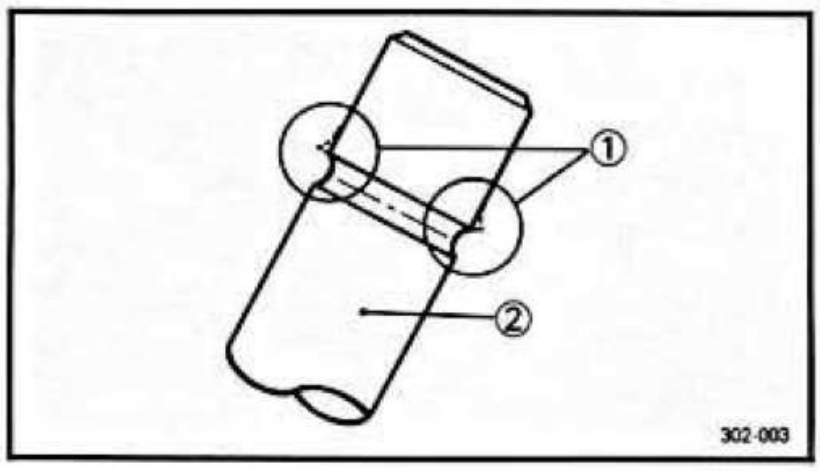
Identify each lifter and pad position very carefully so that it can be reinstalled in its original place.



2. Attach:
   - Valve Spring Compressor (YM-04019) ①



3. Remove:
   - Valve retainers ①
   - Valve spring seat ②
   - Valve springs ③
   - Oil seal ④
   - Valve spring seat ⑤
   - Valve ⑥



NOTE:

Deburr any deformed valve stem end. Use an oil stone to smooth the stem end.

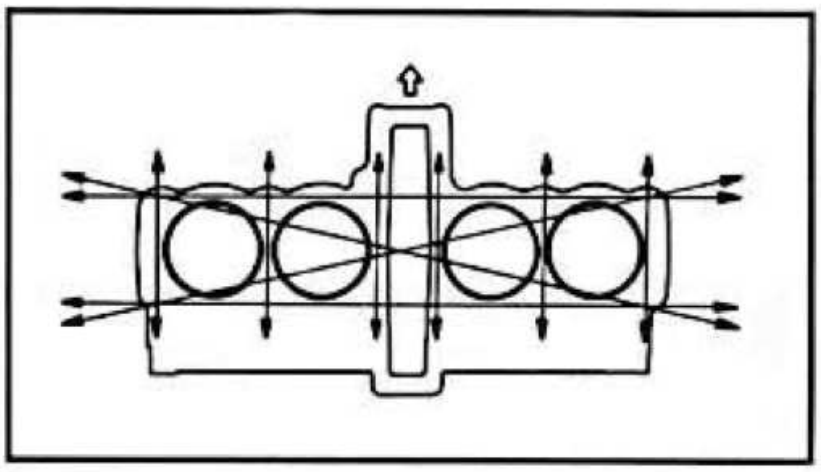
① Deburr
② Valve stem

4. Eliminate:
   - Carbon deposit
     (from combustion chamber)
     Use rounded scraper.

NOTE:

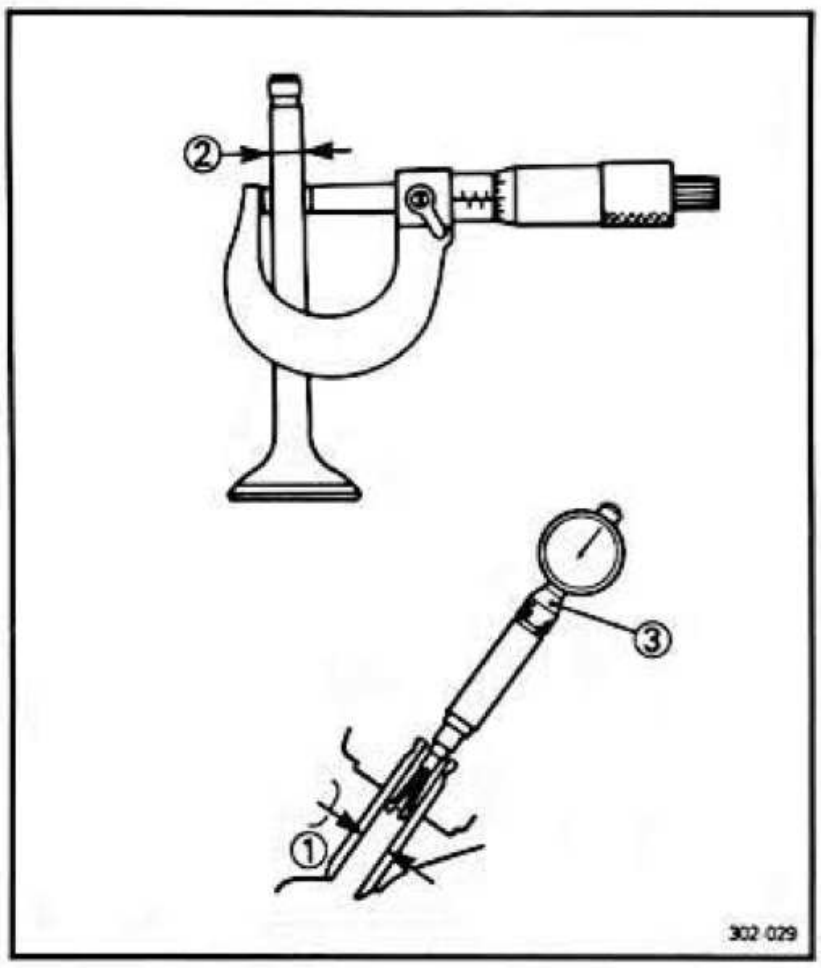
Do not use a sharp instrument and avoid damaging or scratching:
- Spark plug threads
- Valve seat
- Aluminum

www.badrad600.com



5. Measure:
   •Warpage
   Exceeds allowable limit→Resurface.

Cylinder Head Warpage:
Less than 0.03 mm (0.0012 in)
Allowable Limit:
0.25 mm (0.010 in)



VALVE, VALVE GUIDE, VALVE SEATS AND VALVE SPRING

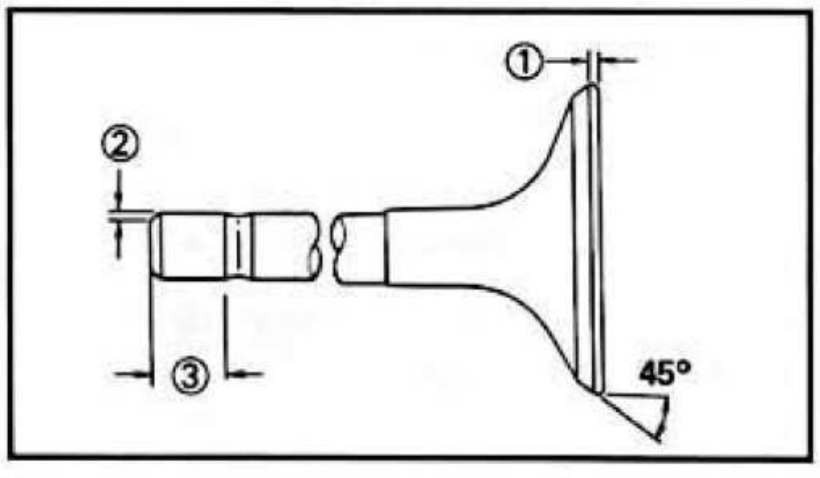
1. Measure:
   •Valve stem clearance

Valve Stem Clearance =
Valve Guide Inside Diameter ①
— Valve Stem Diameter ②

Out of specification→Replace valve or guide.

	Valve Stem Clearance	Maximum
Intake	0.010 ~ 0.037 mm (0.0004 ~ 0.0015 in)	0.10 mm (0.004 in)
Exhaust	0.025 ~ 0.052 mm (0.0010 ~ 0.0020 in)	0.12 mm (0.005 in)

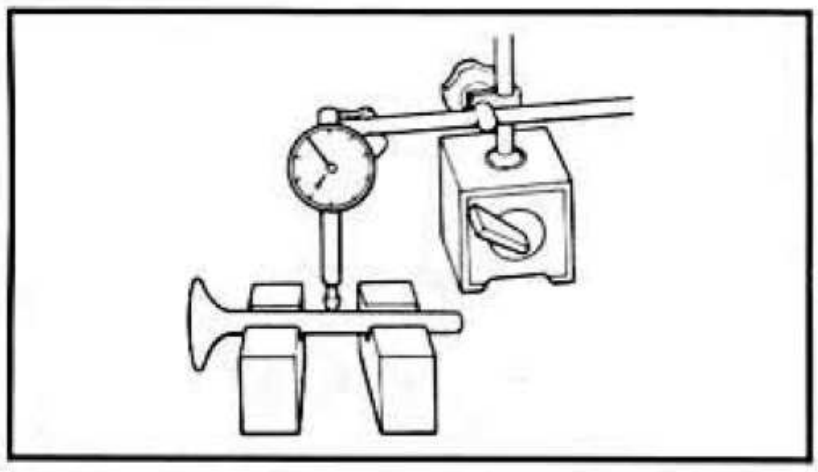
③ Bore gauge



2. Measure:
   •Valve face
   Pitting/Wear→Regrind.
   Out of specification→Replace.

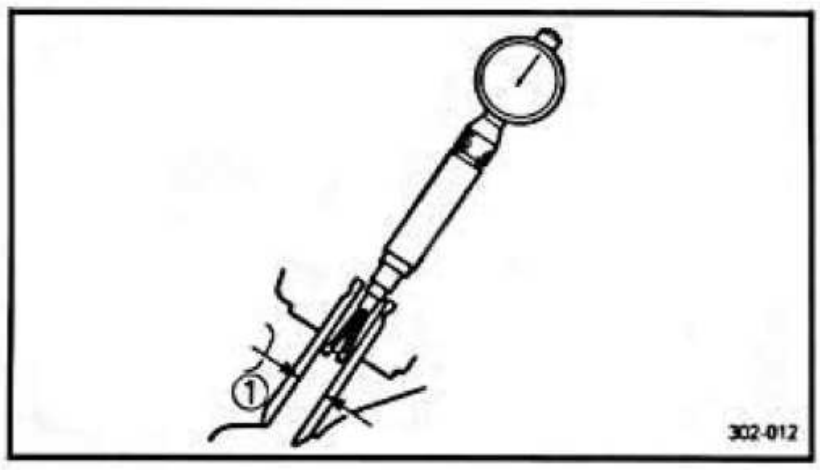
Minimum Thickness
(Service Limit) ①:
0.7 mm (0.0276 in)
Beveled ②: 0.5 mm (0.020 in)
Minimum Length
(Service Limit) ③:
4.0 mm (0.157 in)

www.badrad600.com



3. Check:
   - Valve stem end
     Mushroom shape or diameter larger than rest of stem→Replace.
   - Runout
     Out of specification→Replace.

Valve Stem Runout Limit:
0.03 mm (0.0012 in)



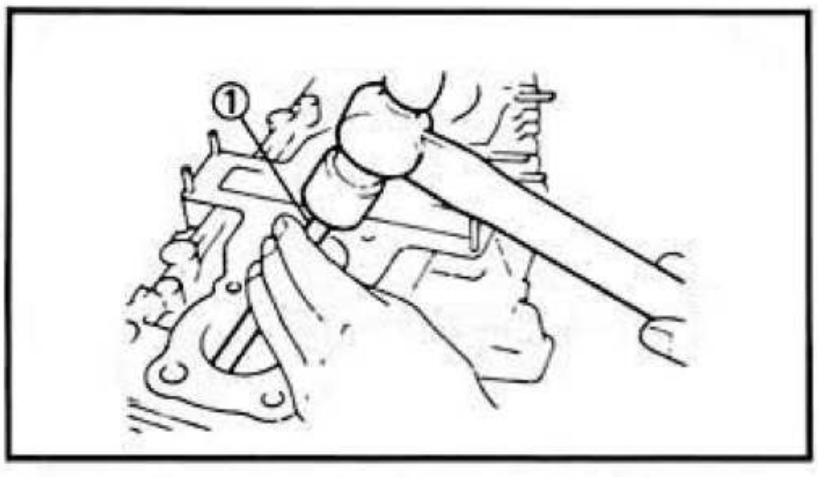
4. Measure:
   - Valve guide (inside diameter) ①
     Out of specification→Replace.

Guide Inside Diameter Limit:
IN. 6.045 mm (0.238 in)
EX. 6.020 mm (0.237 in)

5. Inspect:
   - Valve guide
     Wear/Oil leakage→Replace.

NOTE:

Heat the cylinder head in an oven to 100°C (212°F) to ease valve guide removal and reinstallation and to maintain correct interference fit.

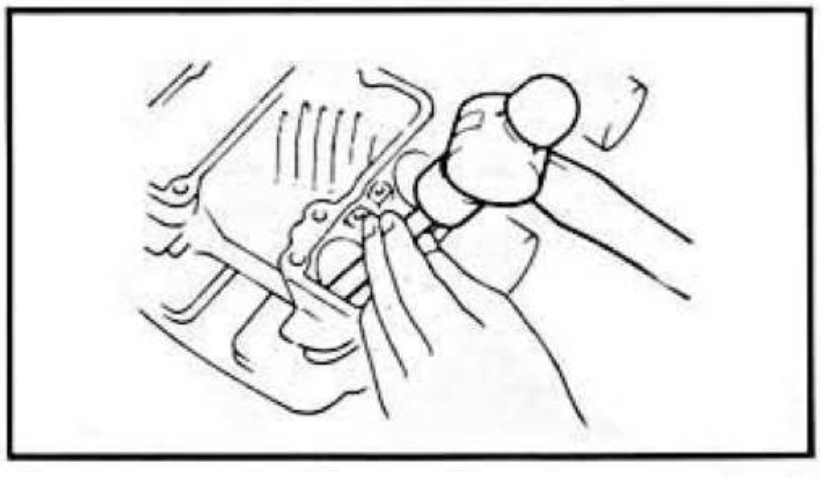


Valve Guide Replacement

1. Remove:
   - Valve guide
     Use Valve Guide Remover (YM-04064) ①.

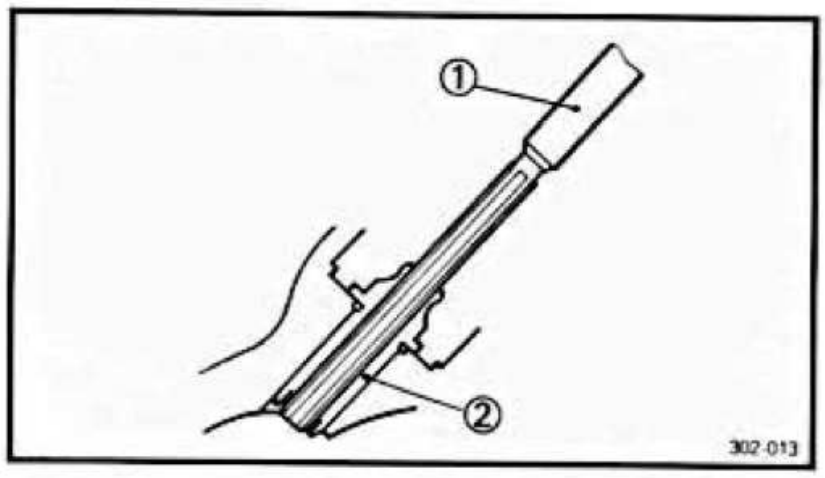
NOTE:

- Always replace valve guide if valve is replaced.
- Always replace oil seal if valve is removed.

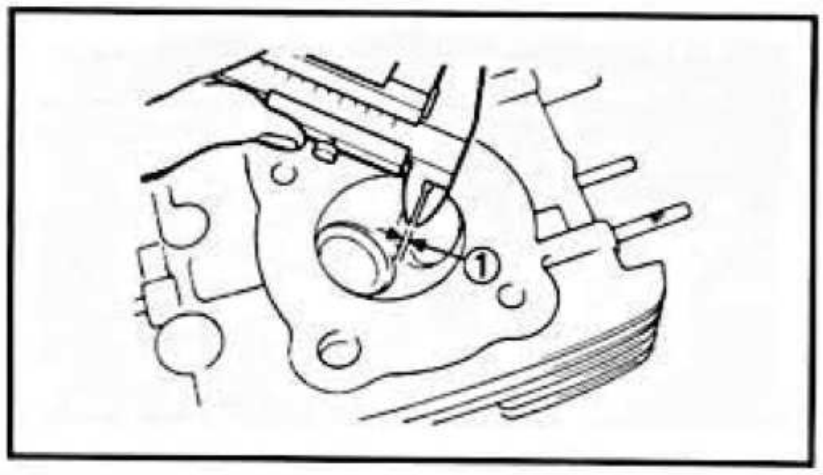


2. Install:
   - Valve guide (new)
     Use Valve Guide Installer (YM-04065) and Valve Guide Remover (YM-04064).

www.badrad600.com



3. Bore valve guide ② to obtain proper valve stem clearance.
   Use 6 mm (0.24 in) Reamer (YM-04066) ①



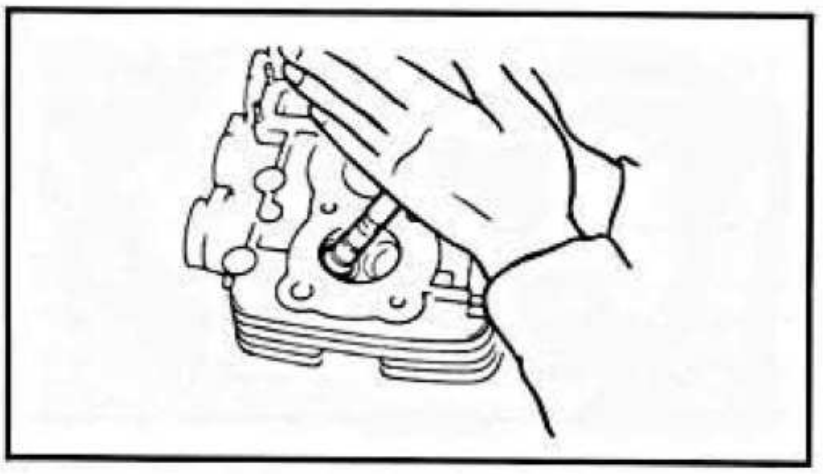
Valve Seat

1. Inspect:
   •Valve seat
   Pitting/Wear→Cut.

2. Measure:
   •Valve seat width ①
   Out of specification→Follow next steps.

	Standard width	Wear limit
Valve seat width	1.0±0.1 mm (0.039±0.0039 in)	2.0 mm (0.078 in)

3. Apply:
   •Mechanic's bluing dye (Dykem)
   (to valve and seat)



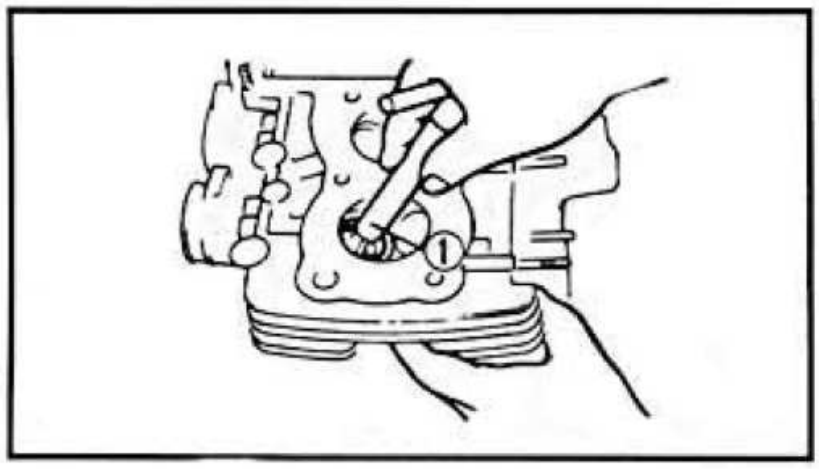
4. Position:
   •Valve
   (into cylinder head)

5. Spin it rapidly back and forth, then lift valve and clean off all grinding compound.

6. Inspect:
   •Valve seat surface
   Wherever valve seat and valve face made contact, bluing will have been removed.

7. Measure:
   •Valve seat width
   Valve seat width must be uniform in contact area.
   Out of specification→Cut.

www.badrad600.com



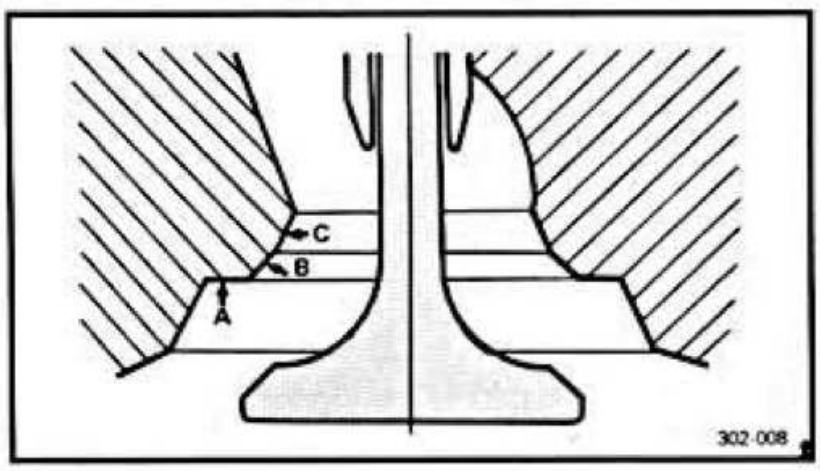
8. Cut valve seat.

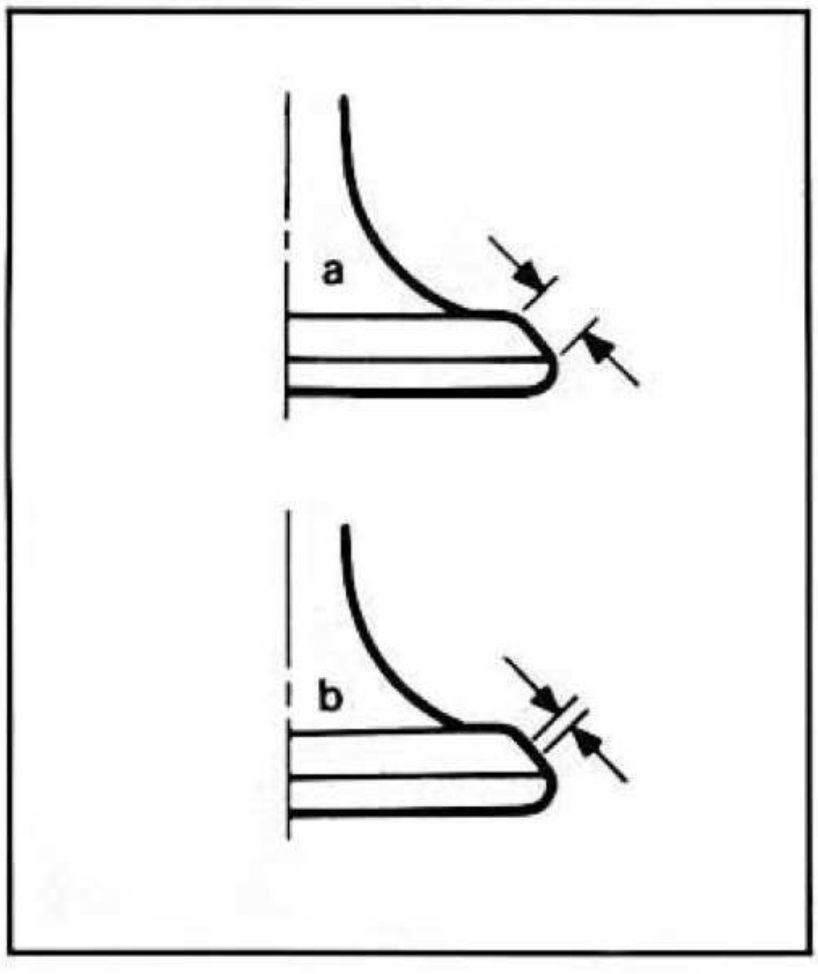
NOTE:

Cut valve seat using valve seat cutter (1) if valve seat width exceeds limit or if valve seat is pitted or worn.

CAUTION:

When twisting cutter, keep an even downward pressure to prevent cutter marks.





Valve seat recutting steps are necessary if:

- Valve seat is uniform around perimeter of valve face but too wide or too narrow or not centered on valve face.

Cut Valve Seat As Follows:	
Section A	0° Cutter
Section B	45° Cutter
Section C	60° Cutter

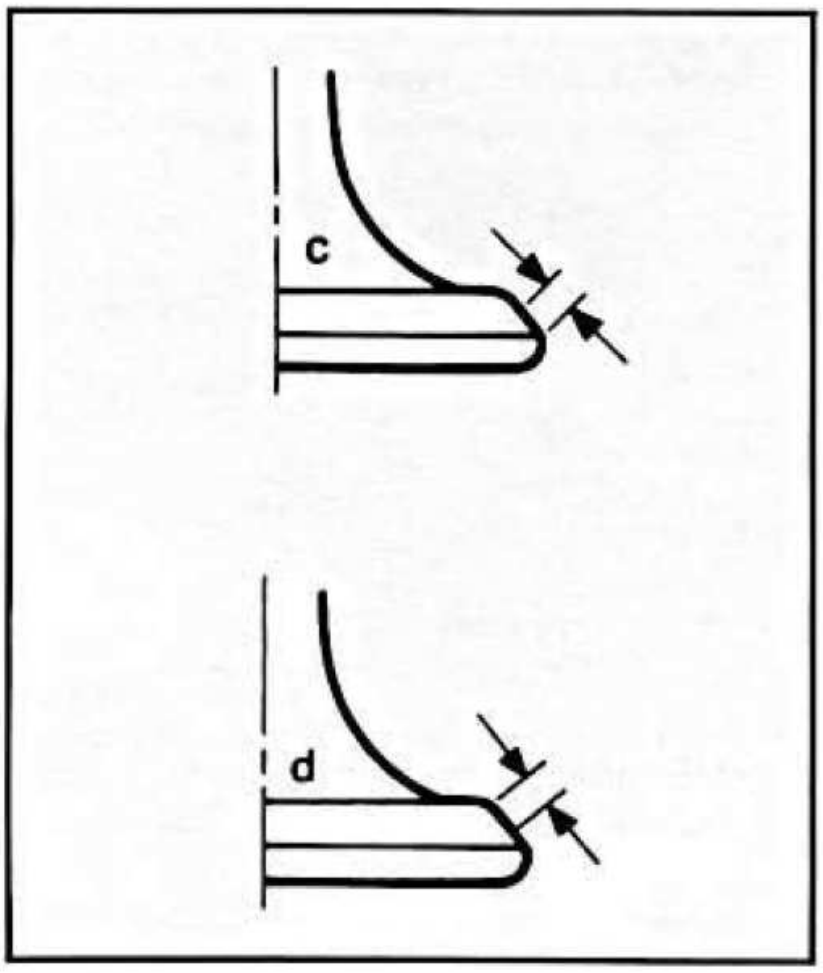
- Valve face indicates that valve seat is centered on valve face but is wide (See "a" diagram).

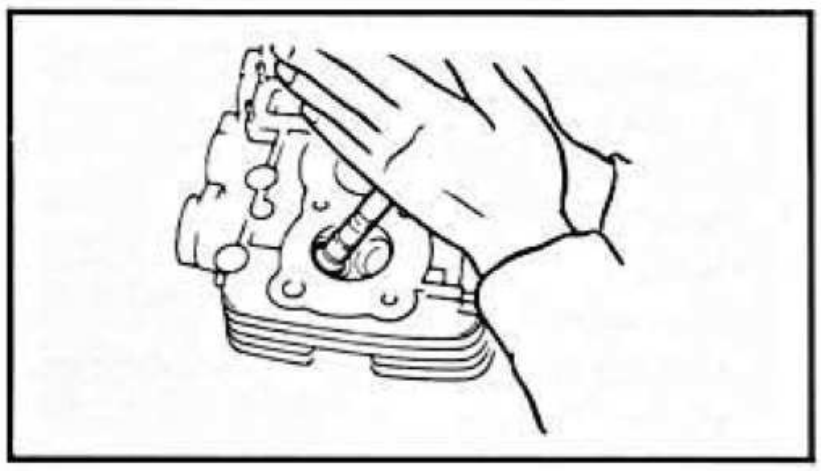
Valve Seat Cutter Set		Desired Result
Use	0° Cutter	to reduce valve seat width.
	60° Cutter	

- Valve seat is in the middle of the valve face but too narrow (See "b" diagram).

Valve Seat Cutter Set		Desired Result
Use	45° Cutter	to achieve a uniform valve seat width (Standard specification).

www.badrad600.com





•Valve seat is too narrow and right up near valve margin (See "c" diagram).

Valve Seat Cutter Set		Desired Result
Use	0° Cutter, first	to obtain correct seat width.
	45° Cutter	

•Valve seat is too narrow and is located down near the bottom edge of the valve face (See "d" diagram).

Valve Seat Cutter Set		Desired Result
Use	60° Cutter, first	to obtain correct seat width.
	45° Cutter	

NOTE:

Lap valve/valve seat assembly if:
- Valve face/valve seat are used or severely worn.
- Valve and valve guide has been replaced.
- Valve seat has been cut.

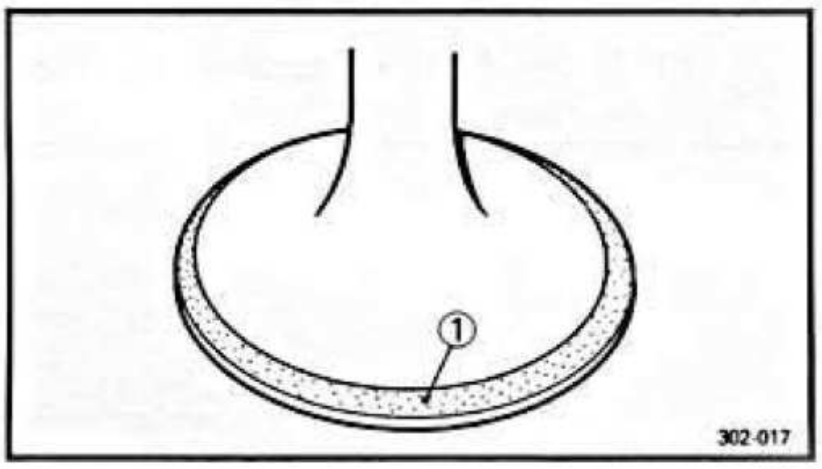
Valve/Valve Seat Assembly Lapping

1. Apply:
   - Coarse lapping compound (Small amount) (to valve face)
2. Position:
   - Valve (in cylinder head)
3. Rotate:
   - Valve

   Turn until valve and valve seat are evenly polished, then clean off compound.

www.badrad600.com

4. Repeat above steps with fine compound and continue lapping until valve face shows a completely smooth surface uniformly.



5. Eliminate:
   - Compound
     (from valve face)

6. Apply:
   - Mechanic's bluing dye (Dykem) ①
     (to valve face and seat)

7. Rotate:
   - Valve
     Valve must make full seat contact indicated by grey surface all around valve face where bluing was removed.

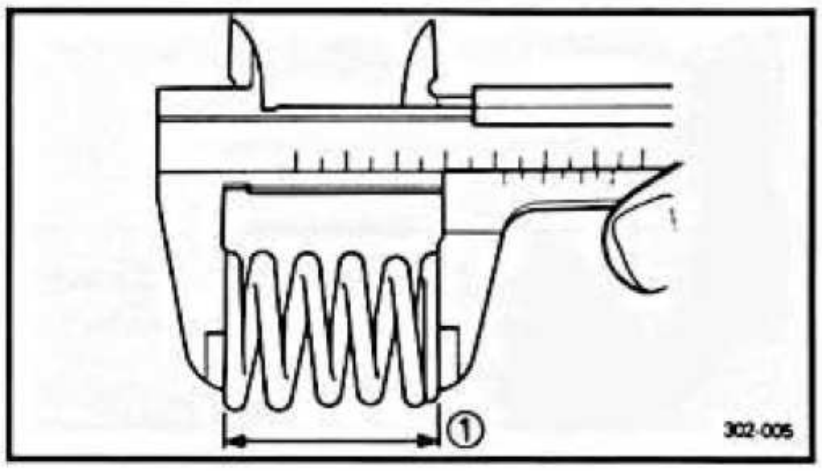
8. Apply:
   - Solvent
     (into each intake and exhaust port)
     Leakage past valve seat → Replace valve until seal is complete.

NOTE:

Pour solvent into intake and exhaust ports only after completion of all valve work and assembly of head parts.

Relapping steps:
- Disassemble head parts.
- Repeat lapping steps using fine lapping compound.
- Clean all parts throughly.
- Reassemble and check for leakage again using solvent.
- Repeat steps as often as necessary to effect a satisfactory seal.

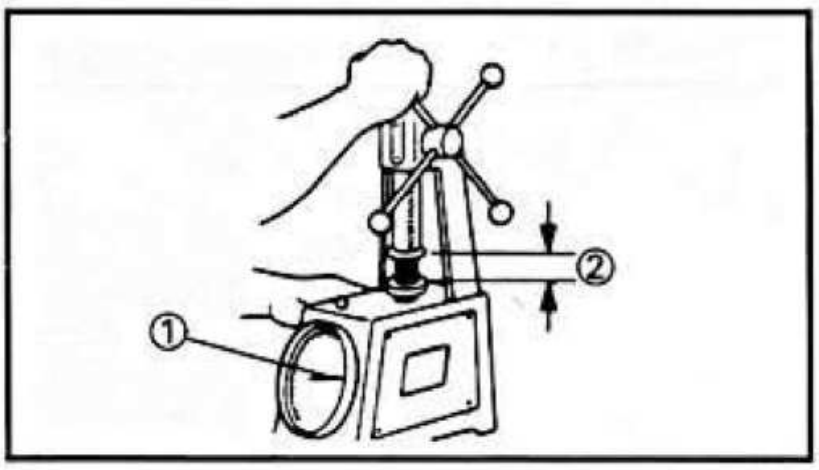
www.badrad600.com



Valve Spring Measurement

1. Measure:
   - Valve spring free length ①
     Out of specification → Replace.

Valve Spring Free Length			
Inner spring		Outer spring	
Standard	Wear limit	Standard	Wear limit
35.5 mm (1.398 in)	33.5 mm (1.319 in)	37.2 mm (1.465 in)	35.2 mm (1.386 in)

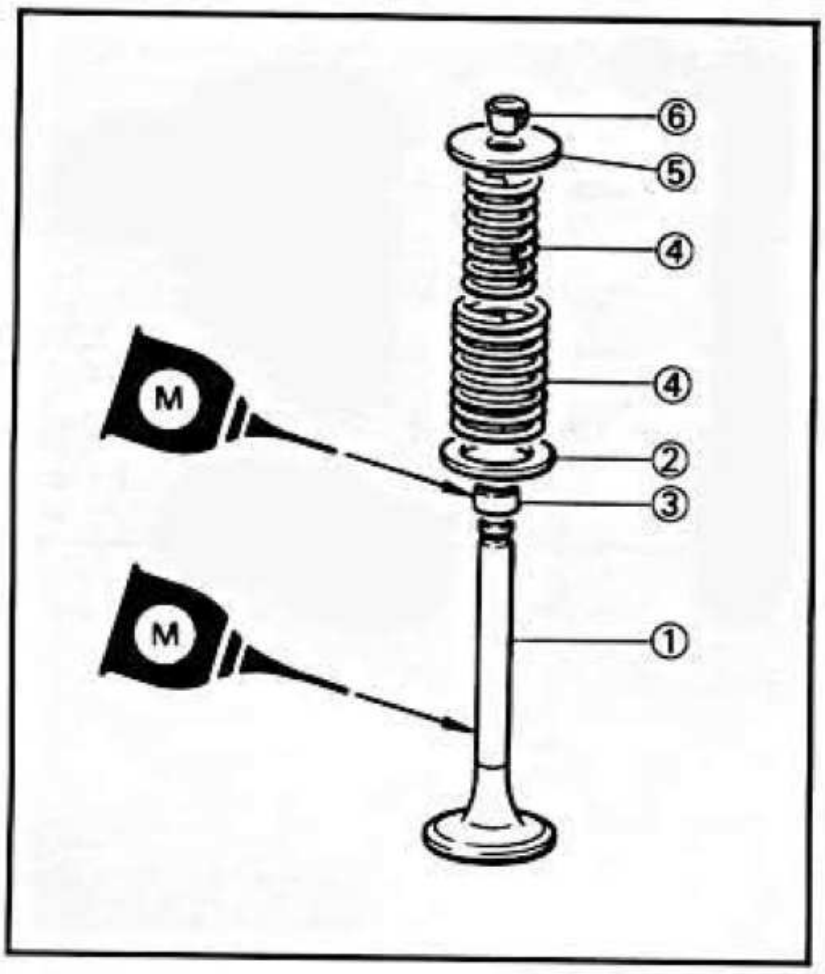


2. Measure:
   - Valve spring installed force ①
     Out of specification → Replace.

Valve Spring Installed Force			
Inner spring		Outer spring	
②	①	②	①
30.5 mm (1.20 in)	9.3 kg (20.5 lb)	32.0 mm (1.26 in)	18.5 kg (40.8 lb)

② Installed length

www.badrad600.com



Valve Installation

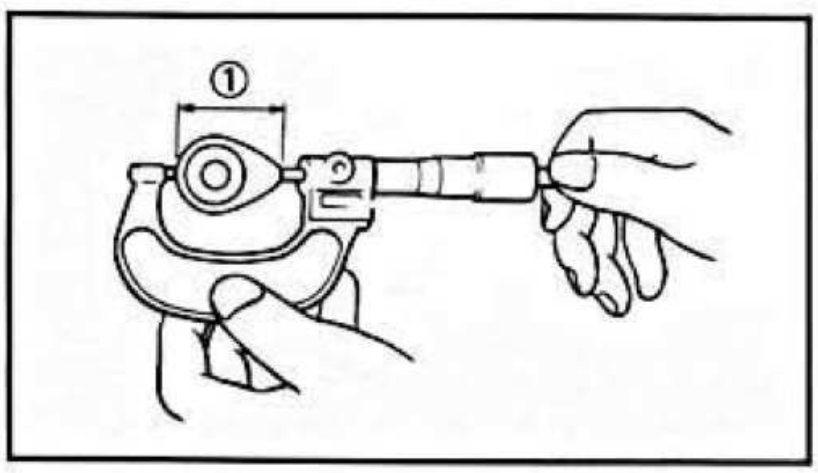
1. Lubricate:
   - Valve stem
   - Oil seal

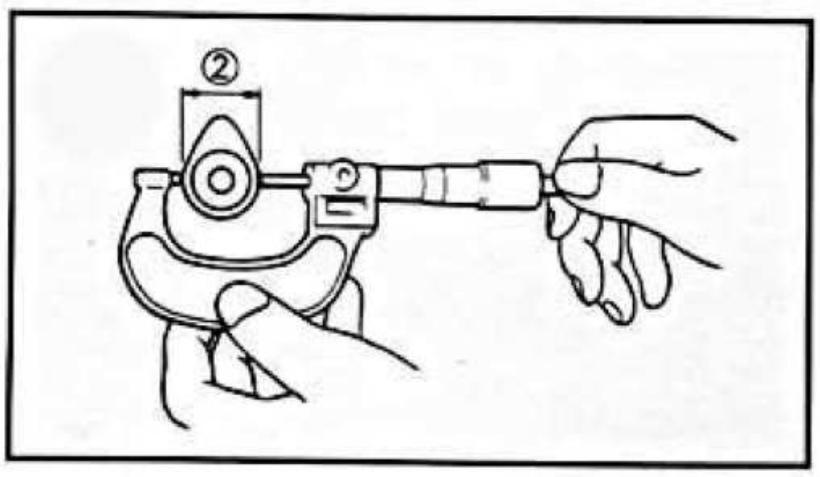
	High-Quality Molybdenum Disulfide Motor Oil or Molybdenum Disulfide Grease

2. Install:
   - Valve ①
   - Valve spring seat ②
   - Oil seal ③
   - Valve springs ④
   - Valve spring seat ⑤
   - Valve retainers ⑥

NOTE:

Install all springs with wider-gapped coils facing upwards as shown.





CAMSHAFT, CAM CHAIN AND CAM SPROCKET

Camshaft

1. Measure:
   - Large cam lobe length ①
   - Small cam lobe length ②

   Use a micrometer.

   Out of specification → Replace.

	Intake	Exhaust
①	36.25 ~ 36.35 mm (1.427 ~ 1.431 in)	35.75 ~ 35.85 mm (1.408 ~ 1.411 in)
②	28.10 ~ 28.20 mm (1.106 ~ 1.110 in)	28.05 ~ 28.15 mm (1.104 ~ 1.108 in)

www.badrad600.com

Camshaft/Cap Clearance Measurement

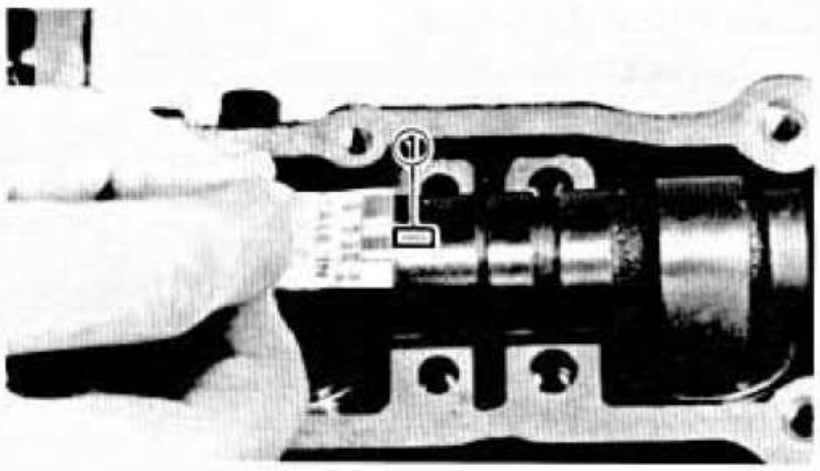
1. Install:
   - Camshaft
2. Position:
   - Strip of Plastigage® (YU-33210) (onto camshaft.)
3. Install:
   - Dowel pins
   - Camshaft caps

10 Nm (1.0 m•kg, 7.2 ft•lb)

NOTE:

Do not turn the camshaft when measuring clearance with Plastigage®

4. Remove:
   - Camshaft caps



5. Measure:
   - Width of Plastigage® ①

   Out of specification → Follow step 6.

Camshaft-to cap Clearance:
Standard: 0.020 ~ 0.054 mm (0.0008 ~ 0.0021 in)
Maximum: 0.160 mm (0.006 in)

6. Measure:
   - Camshaft bearing surface diameter

   Use micrometer.

   Out of specification → Replace camshaft.

   Within specification → Replace cylinder head.

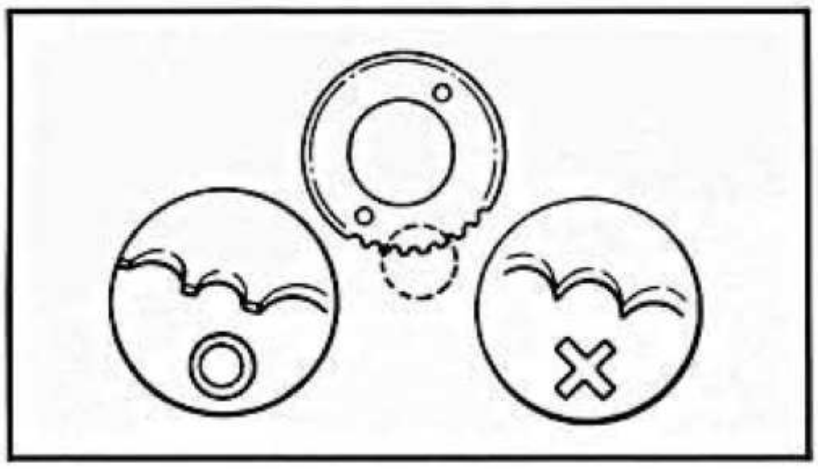
Bearing Surface Diameter:
Standard: 24.967 ~ 24.980 mm (0.9830 ~ 0.9835 in)

Cam Chain

1. Inspect:
   - Cam chain

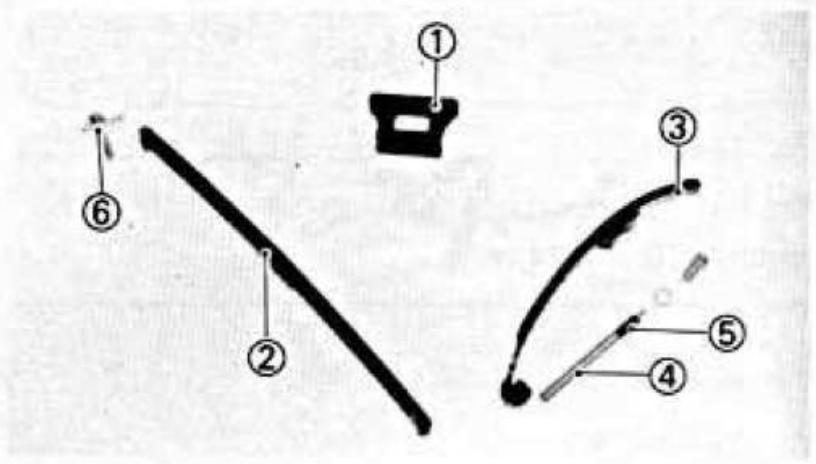
   Chain stretch/Cracks → Replace.

www.badrad600.com



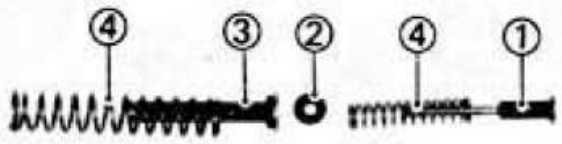
Cam Sprockets

1. Inspect:
   - Cam sprockets
     Wear/Damage→Replace.



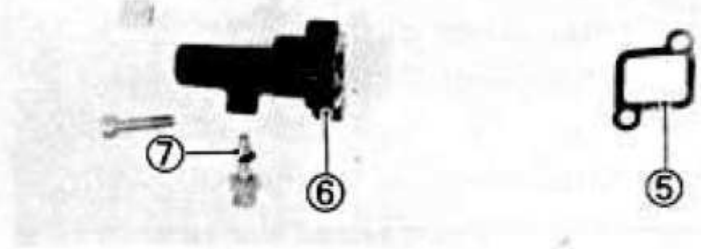
Cam Chain Dampers

1. Inspect:
   - Upper damper ①
   - Exhaust side chain guide ②
   - Intake side chain guide ③
   - Chain guide stopper ④
   - Spring ⑤
   - Guide stopper plate ⑥
     Wear/Damage→Replace.



Cam Chain Tensioner

1. Inspect:
   - All parts
     Damage/Wear→Replace.

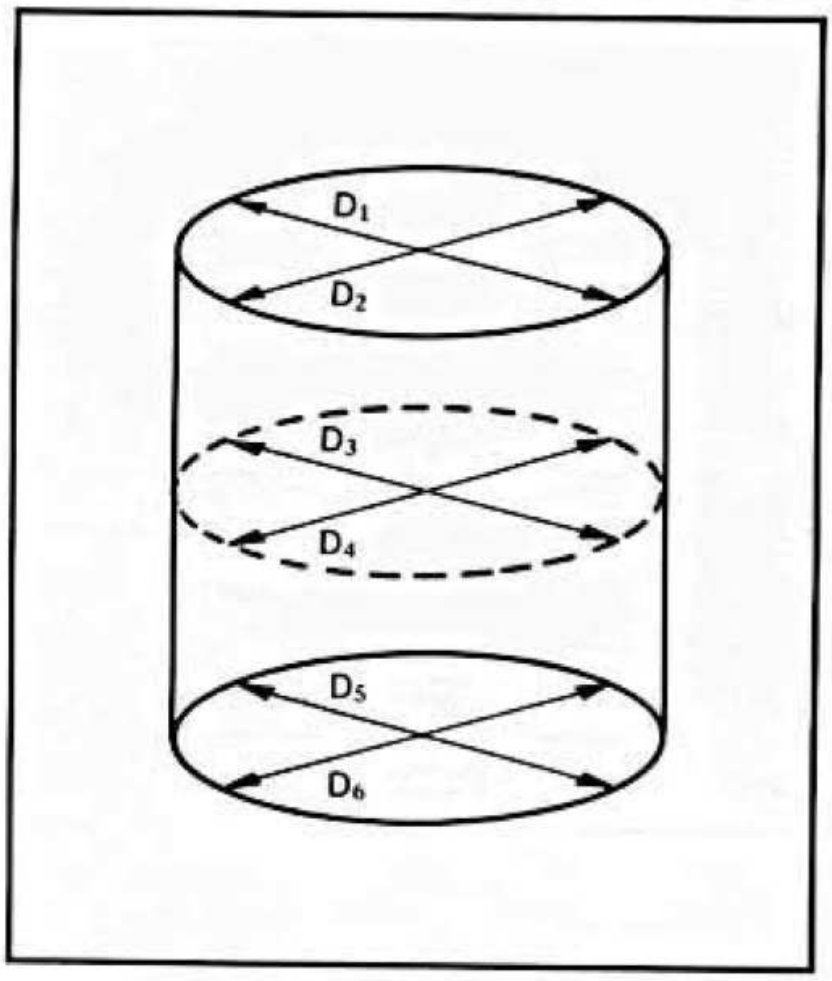


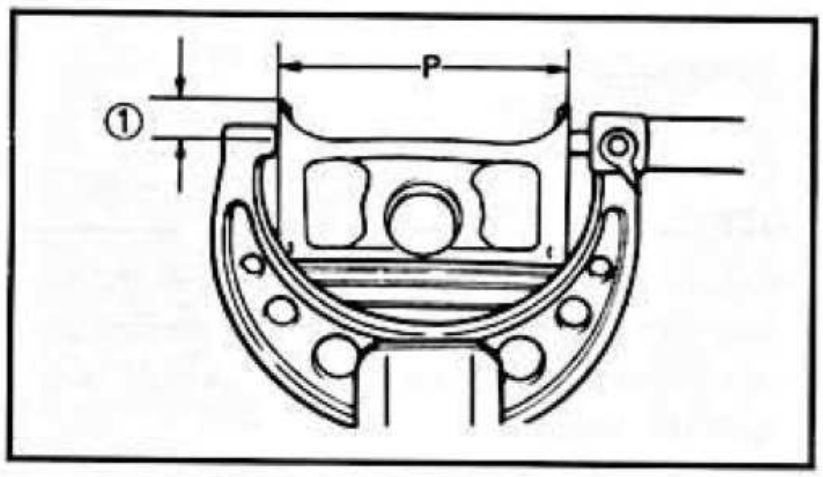
① Tensioner rod (Small)
② Damper
③ Tensioner rod (Large)
④ Spring
⑤ Gasket
⑥ Tensioner body
⑦ O-ring

CYLINDER

1. Inspect:
   - Cylinder walls
     Vertical scratches→Rebore or Replace cylinder.

www.badrad600.com





2. Measure:
   •Cylinder inside diameter

NOTE:

Obtain measurements at three depths by placing measuring instrument paralle to and at right angles to crankshaft.

Out of specification→Rebore cylinder, and replace piston and piston rings.

	Standard	Wear limit
Cylinder bore: C	58.5 mm (2.303 in)	58.6 mm (2.307 in)
Cylinder taper: T	—	0.05 mm (0.002 in)

C = Maximum D
T = Maximum D_1, D_2 − Minimum D_5, D_6

PISTON, PISTON RING AND PISTON PIN

Piston

1. Measure:
   •Piston skirt diameter "P"

NOTE:

Measure the piston skirt diameter where the distance 7.0 mm (0.276 in) ① from the piston bottom edge.

	Piston size
Standard	58.50 mm (2.303 in)
Oversize 2	59.00 mm (2.323 in)
Oversize 4	60.00 mm (2.362 in)

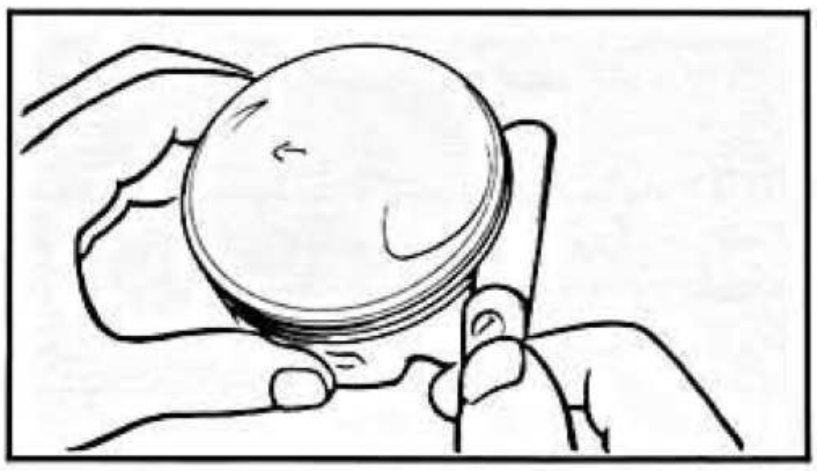
2. Measure:
   •Piston clearance

Out of specification→Rebore cylinder or replace piston.

Piston Clearance = C − P:
0.025 ~ 0.045 mm
(0.0010 ~ 0.0019 in)

C: Cylinder bore P: Piston outside diameter

www.badrad600.com



Piston Ring

1. Measure:
   - Ring side clearance

   Use a feeler gauge.

   Out of specification → Replace piston.

NOTE:

Clean carbon from piston ring grooves and rings before measuring side clearance.

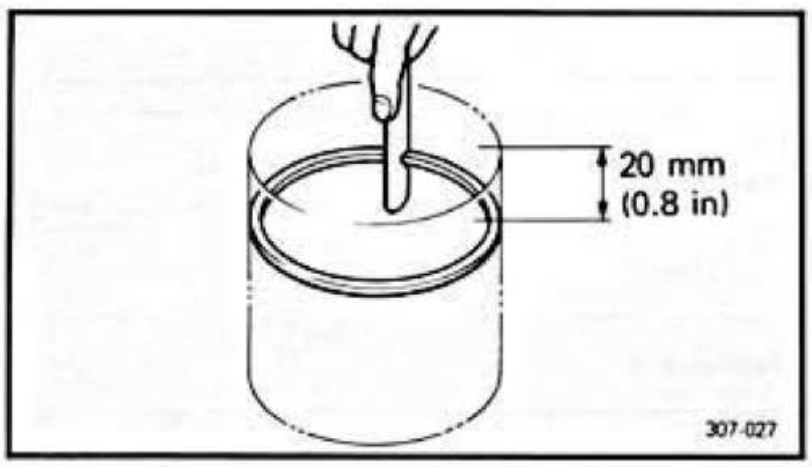
	Piston Ring Side Clearance:
Top	0.03 ~ 0.07 mm (0.0012 ~ 0.0028 in)
2nd	0.02 ~ 0.06 mm (0.0008 ~ 0.0024 in)

2. Position:
   - Piston ring

   (in cylinder)

NOTE:

Insert a ring into cylinder, and push it approximately 20 mm (0.8 in) into cylinder. Push ring with piston crown so that ring will be at a right angle to cylinder bore.



3. Measure:
   - Ring end gap

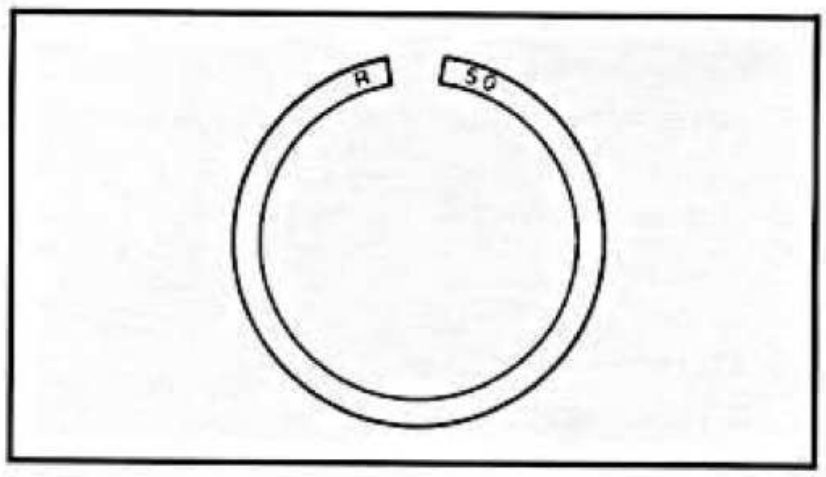
   Out of specification → Replace.

NOTE:

You cannot measure end gap on expander spacer of oil control ring. If oil control ring rails show excessive gap, replace all three rings.

	Standard	Limit
Top ring	0.15 ~ 0.30 mm (0.0059 ~ 0.0118 in)	0.70 mm (0.0276 in)
2nd ring	0.15 ~ 0.30 mm (0.0059 ~ 0.0118 in)	0.70 mm (0.0276 in)
Oil control (Rails)	0.2 ~ 0.7 mm (0.008 ~ 0.028 in)	–

www.badrad600.com

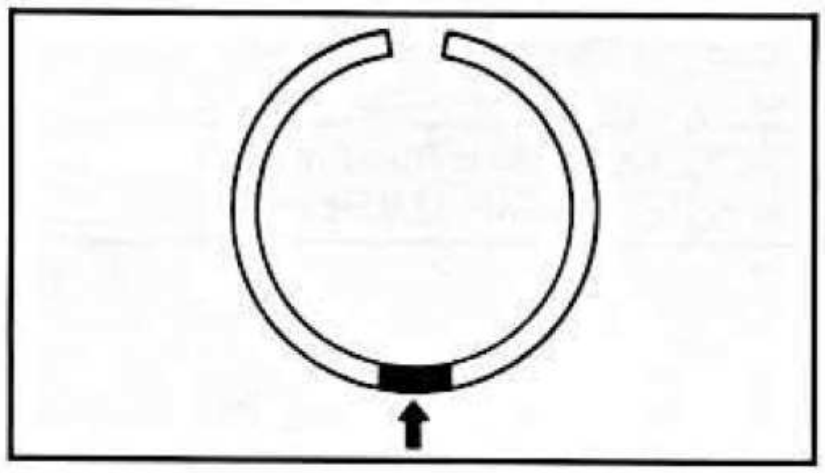


Piston Ring Oversize

- Top and 2nd piston ring

Oversize top and middle ring sizes are stamped on top of ring.

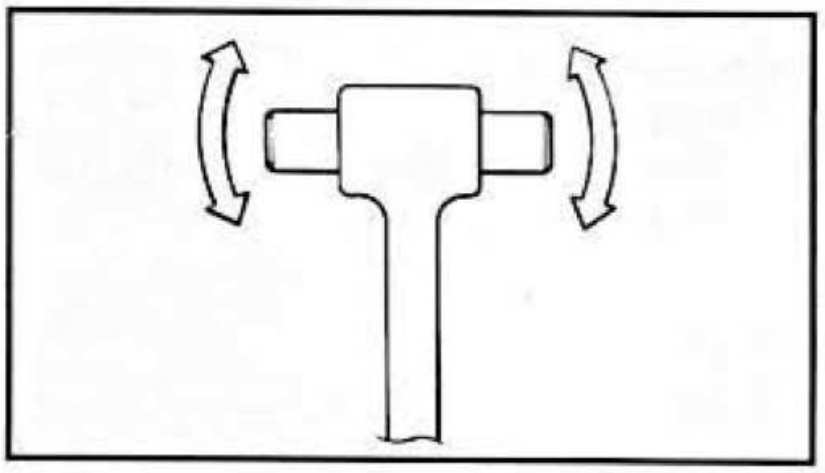
Oversize 2	50
Oversize 4	100



- Oil control ring

Expander spacer of bottom ring (oil control ring) is color-coded to identify sizes.

Size	Color
Oversize 2	Blue
Oversize 4	Yellow



Piston Pin

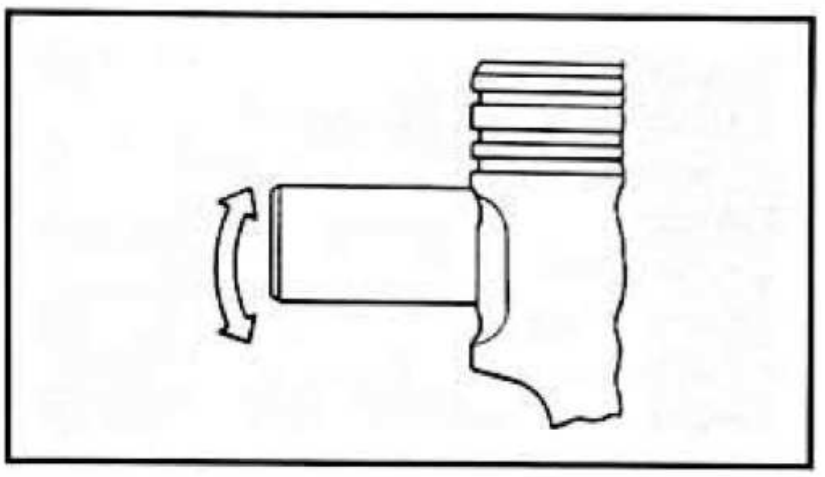
1. Lubricate:
   - Piston pin (Lightly)

2. Install:
   - Piston pin
   (into small end of connecting rod)

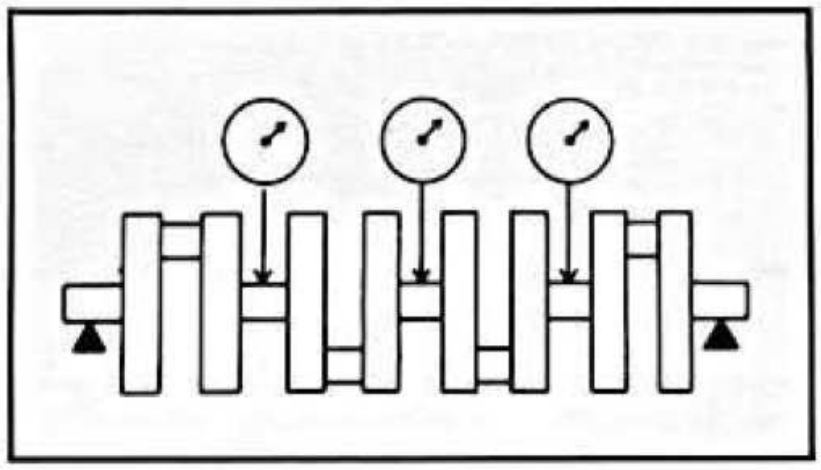
3. Check:
   - Free play
   Free play → Inspect connecting rod for wear.
   Wear → Replace connecting rod and piston pin.

4. Position:
   - Piston pin
   (into piston)

5. Check:
   - Free play
   (into piston)
   Free play → Replace piston pin and/or piston.



www.badrad600.com



CRANKSHAFT AND CONNECTING ROD

Crankshaft Runout

1. Place both ends of crankshaft on V-blocks.
2. Rotate:
   - Crankshaft
3. Measure:
   - Crankshaft runout
     (at main journal bearings)
     Use a Dial Gauge.

Crankshaft Runout Limit:
0.03 mm (0.0012 in)

Connecting Rod Bearings

1. Inspect:
   - Bearings
     Burns/Flaking/Roughness/Scratches→
     Replace.

Connecting Rod Bearing Clearance

1. Clean all parts throughly.
2. Install:
   - Connecting rod bearings
     (into connecting rod and cap)
3. Attach:
   - Plastigage®
     (onto crankpin)
4. Position:
   - Connecting rod
     (onto crankshaft)
   - Connecting rod cap
5. Apply:
   - Molybdenum disulfide grease
     (to bolt threads)
     Torque both ends of rod cap evenly.

NOTE:

Do not move connecting rod until a clearance measurement has been completed.

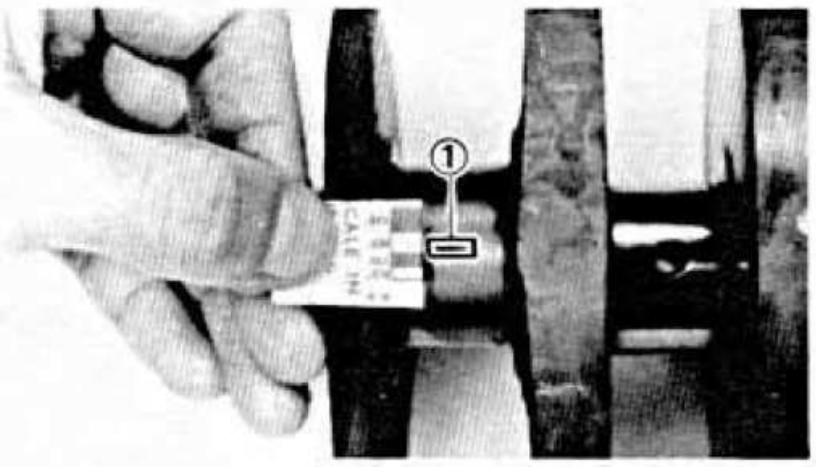
www.badrad600.com

CAUTION:

Tighten to full torque specification without pausing. Apply continuous torque between 2.0 and 2.5 m•kg. Once you reach 2.0 m•kg DO NOT STOP TIGHTENING until final torque is reached. If tightening is interrupted between 2.0 and 2.5 m•kg, loosen nut to less than 2.0 m•kg and start again.

25 Nm (2.5 m•kg, 18 ft•lb)

6. Remove:
   - Connecting rod cap
     Remove carefully.



7. Measure:
   - Plastigage® width ①
     Out of specification→Replace connecting rod bearing.

Connecting Rod Bearing Clearance:
0.016 ~ 0.040 mm
(0.0006 ~ 0.0016 in)

Crankshaft Main Bearing Clearance Measurement

1. Clean all parts.
2. Position:
   - Upper crankcase half
     Place on a bench in an upside down position.
3. Install:
   - Bearings
     (into the upper crankcase)
4. Attach:
   - Plastigage® (YU-33210)
     (onto the crankshaft journal surface)

NOTE:

Do not move crankshaft until clearance measurement has been completed)

www.badrad600.com

5. Install:
   - Bearings
     (into lower crankcase)
   - Lower crankcase

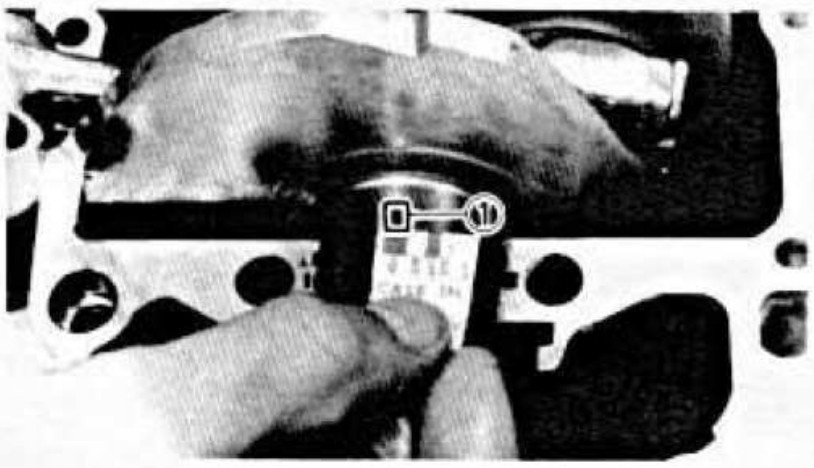
6. Tighten:
   - Bolts

CAUTION:

Tighten to full torque in torque sequence cast on the crankcase.

8 mm (0.3 in) Bolt:
24 Nm (2.4 m•kg, 17 ft•lb)

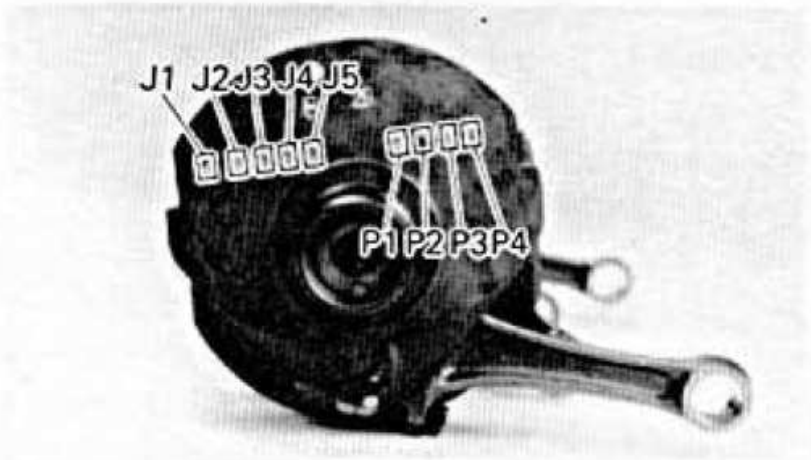
7. Remove:
   - Bolts
     Reverse assembly order
   - Lower crankcase
     Use care in removing.



8. Measure:
   - Plastigage® width ① (YU-33210)
     Out of specification→Replace bearings; replace crankshaft if necessary.

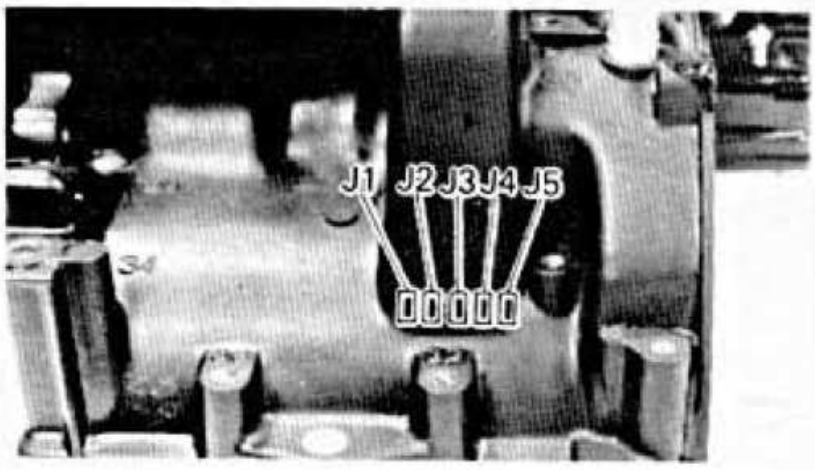
Main Bearing Oil Clearance:
0.021 ~ 0.044 mm
(0.0008 ~ 0.0017 in)

www.badrad600.com

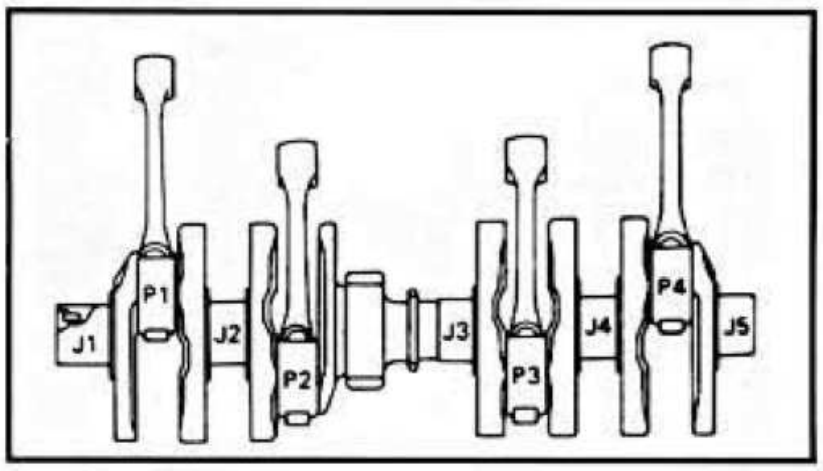


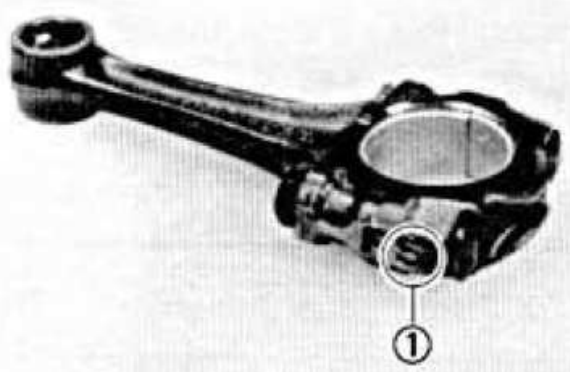
Crankshaft Main and Connecting Rod Bearing Selection

- Numbers used to indicate crankshaft journal sizes are stamped on the LH crankweb. The first five (5) are main bearing journal numbers, starting with the left journal. The four (4) rod bearing journal numbers follow in the same sequence.



- The upper crankcase half is numbered J1, J2, J3, J4, and J5 on the rear right bosse as shown.





- The connecting rods are numbered 4 or 5. The numbers are stamped in ink on the rod cap ①.

Bearing color code	
No. 1	Blue
No. 2	Black
No. 3	Brown
No. 4	Green
* No. 5	Yellow

*** No. 5 applies only to the crankshaft main bearing selection.**

www.badrad600.com

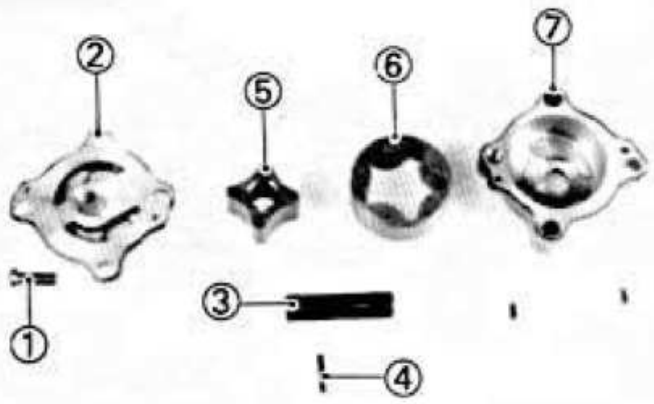
Example 1: Selection of the crankshaft main bearing; If the crankcase J1 and crankshaft J1 sizes are No. 4 and No. 1, respectively, the bearing size No. is:

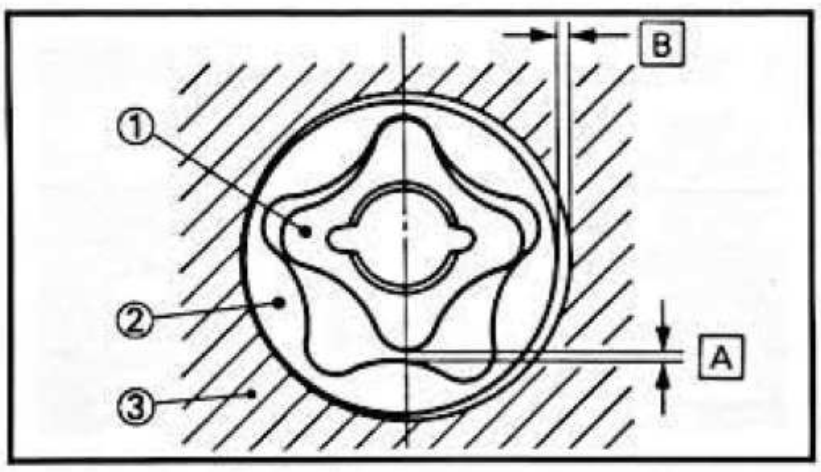
Bearing size No. =
Crankcase No. – Crankshaft No. =
4 – 1 = 3 (Brown)

Example 2: Selection of the connecting rod bearing; If the connecting rod P1 and crankshaft P1 sizes are No. 4 and No. 1, repectively, the bearing size No. is:

Bearing size No. =
Connecting rod No. – crankshaft No. =
4 – 1 = 3 (Brown)

3





OIL PUMP

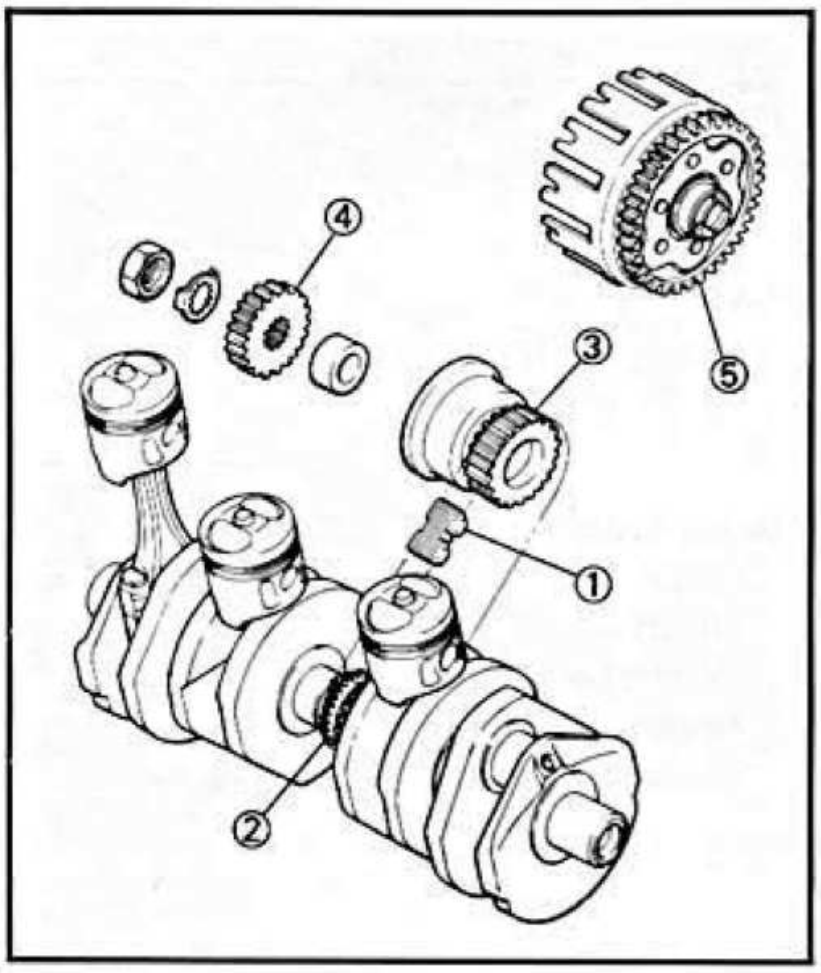
1. Remove:
   - Screw ①
   - Pump cover ②
   - Shaft ③
   - Pin ④
   - Inner rotor ⑤
   - Outer rotor ⑥
   - Pump housing ⑦
2. Measure:
   - Clearance "A"
     (between inner rotor ① and outer rotor ②)
   - Clearance "B"
     (between outer rotor ② and pump housing ③)

Oil Pump Clearance:	
Clearance "A"	0.09 ~ 0.15 mm (0.0035 ~ 0.0059 in)
Clearance "B"	0.03 ~ 0.08 mm (0.0012 ~ 0.0031 in)

www.badrad600.com

3. Install:
   • Oil pump parts
4. Tighten:
   • Screw

	7 Nm (0.7 m•kg, 5.1 ft•lb)



PRIMARY DRIVE

1. Inspect:
   • HY-VO chain ①
   • Crankshaft drive sprocket ②
   • Clutch damper driven sprocket ③
   • Primary drive gear ④
   • Primary driven gear ⑤
   Wear/Damage → Replace both gears.
   Excessive noises during operation → Replace both gears.

Primary reduction ratio		
No. of teeth		Ratio
③/②	⑤/④	
22/21	65/28	2.431



STARTER DRIVES

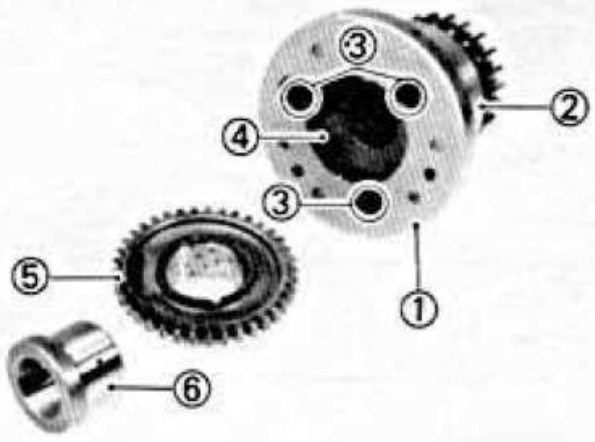
Electric Starter Clutch

1. Check:
   • Ball operation
   • Spring operation
   • Spring cap operation
   Unsmooth operation → Replace one-way clutch.

2. Inspect:
   • Surface of the idle gear
   Pitting/Wear/Damage → Replace.



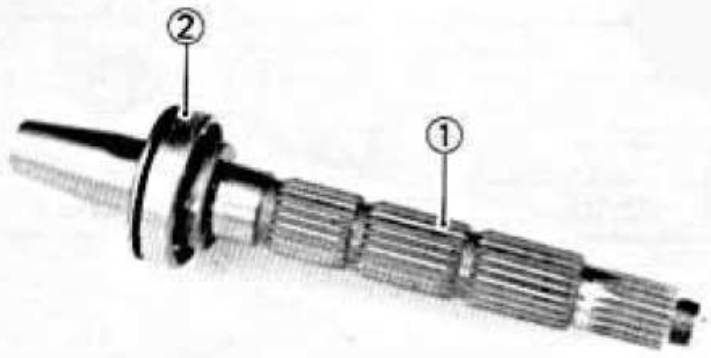
www.badrad600.com



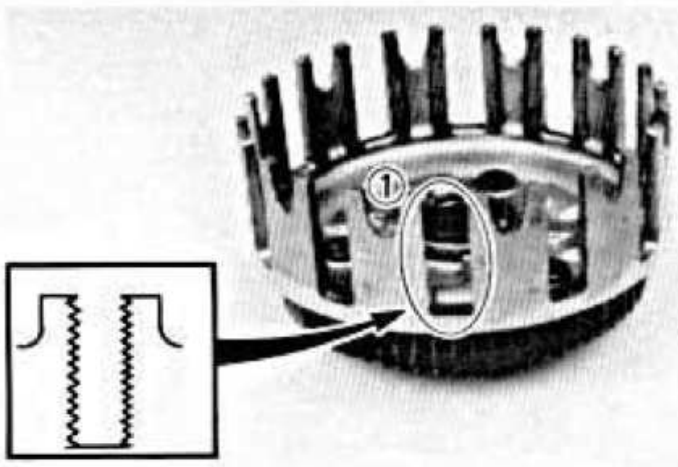
3. Installation:
a. Install:
   •Cover ①
   •Outer starter clutch ②
b. Tighten:
   •Bolts ③

24 Nm (2.4 m•kg, 17 ft•lb)
LOCTITE®
Stake Over the End of the Bolt

c. Install:
   •Spring
   •Spring cap
   •Ball ④
   •Idle gear ⑤
   •Collar ⑥



Starter Clutch Shaft
1. Check:
   •Shaft ①
   Wear/Damage→Replace.
   •Bearing ②
   Unsmooth operation→Replace.

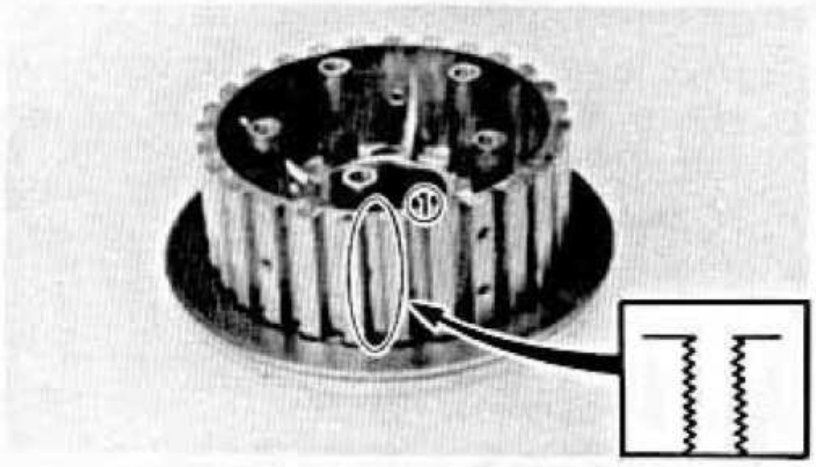


CLUTCH
1. Inspect:
   •Clutch housing dogs ①
   Cracks/Pitting (edges):
   Moderate→Deburr.
   Severe→Replace clutch housing.

NOTE:
Pitting on friction plate dogs of clutch housing will cause erratic operation.

2. Inspect:
   •Clutch housing bearing
   Damage→Replace.

www.badrad600.com

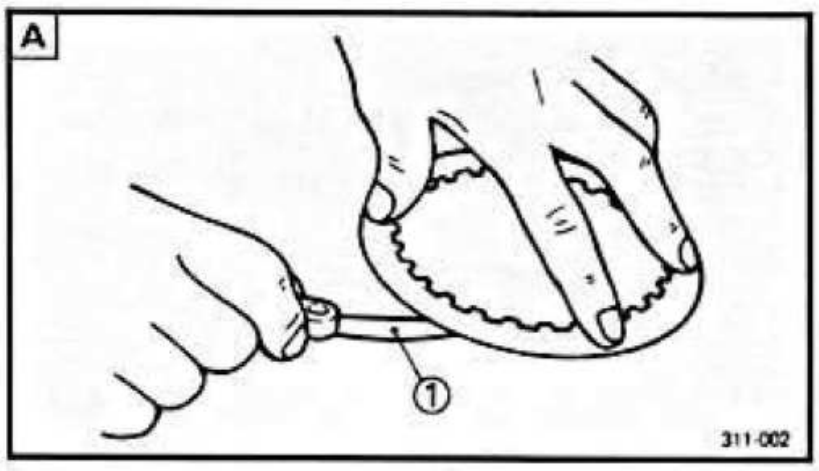


3. Inspect:
   - Clutch boss spline ①

   Pitting:
   Moderate → Deburr.
   Severe → Replace.

NOTE:

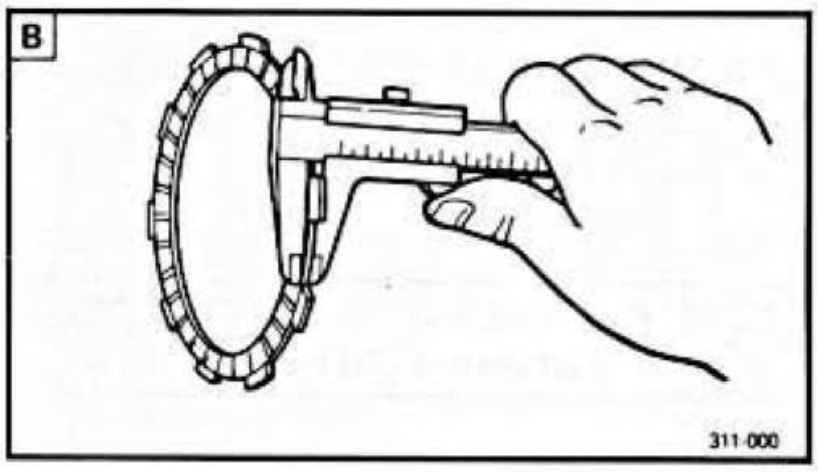
Pitting on clutch plate splines of clutch boss will cause erratic operation.

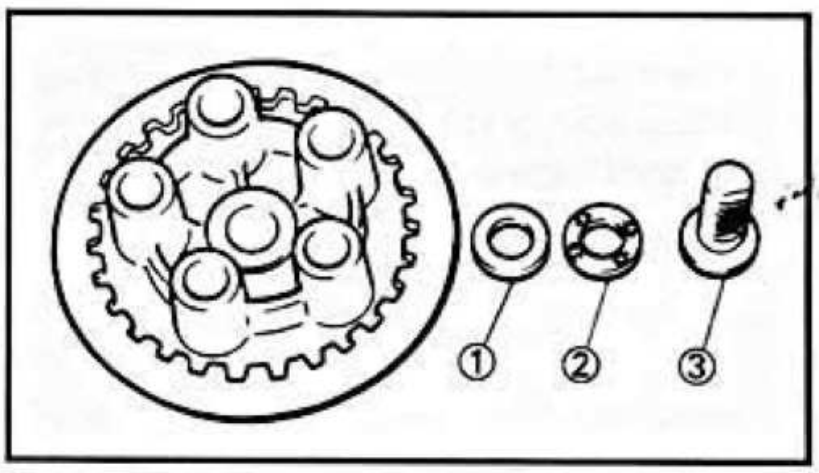


4. Measure:
   - Clutch plate warpage [A]
   - Friction plate thickness [B]

   Out of specification → Replace.
   Clutch or friction plate as a set.

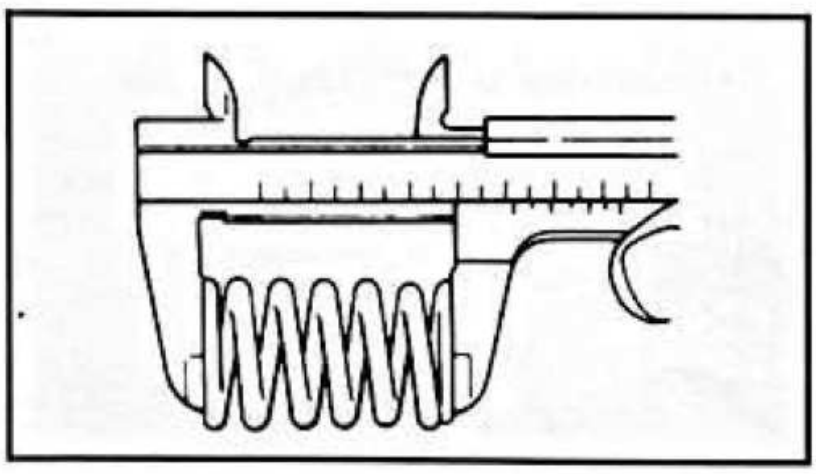
	Standard	Wear limit
Friction plate thickness	2.9 ~ 3.1 mm (0.114 ~ 0.122 in)	2.7 mm (0.106 in)
Clutch plate warp limit	———	0.15 mm (0.006 in)





5. Inspect:
   - Washer ①
   - Thrust bearing ②
   - Pull rod ③

   Damage → Replace.

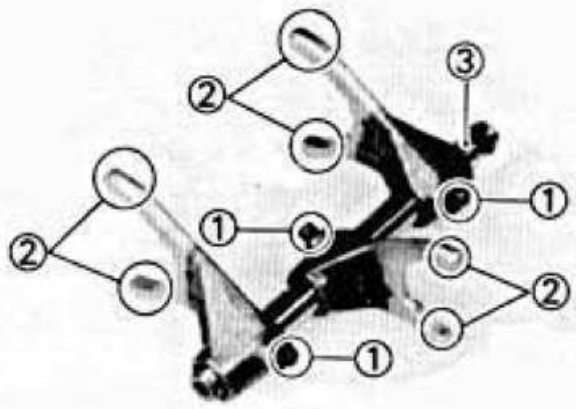


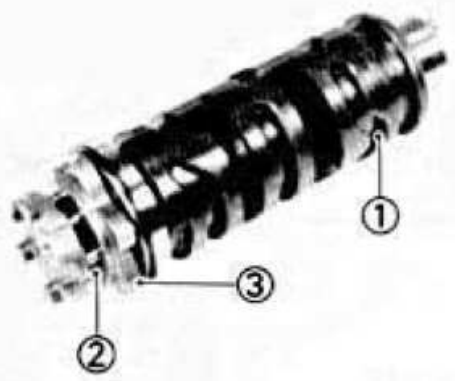
6. Measure:
   - Clutch spring free play

   Out of specification → Replace spring as a set.

Clutch Spring Minimum Free Length:
41.8 m (1.64 in)

www.badrad600.com





TRANSMISSION

1. Inspect:
   - Shift fork cam follower ①
   - Shift fork pawl ②

   Scoring/Bends/Wear → Replace.

2. Check:
   - Guide bar ③

   Roll across a surface plate.
   Bends → Replace.

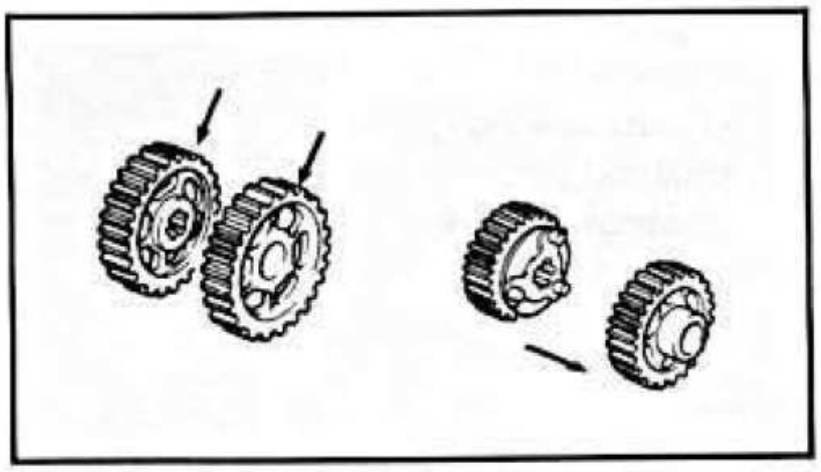
3. Inspect:
   - Shift cam groove ①
   - Shift cam dowel ② and side plate
   - Shift cam stopper plate ③ circlip and stopper.

   Wear/Damage → Replace.

4. Measure:
   - Transmission shaft runout.

   Use centering device and dial gauge.
   Out of specification → Replace bent shaft.

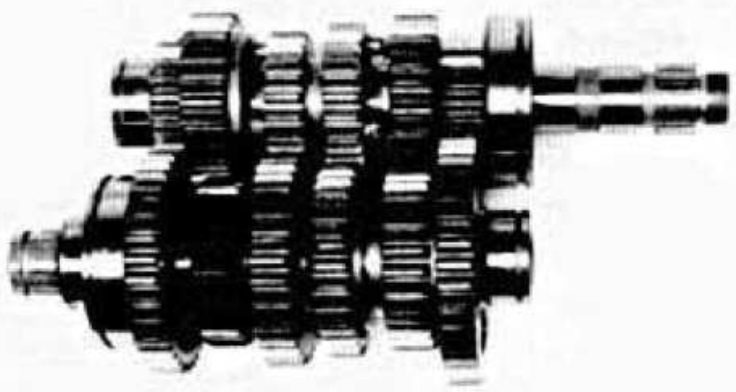
Runout Limit:
0.08 mm (0.0031 in)



5. Inspect:
   - Gear teeth

   Blue discoloration/Pitting/Wear → Replace.
   - Mated dogs

   Rounded edges/Cracks/Missing portions → Replace.

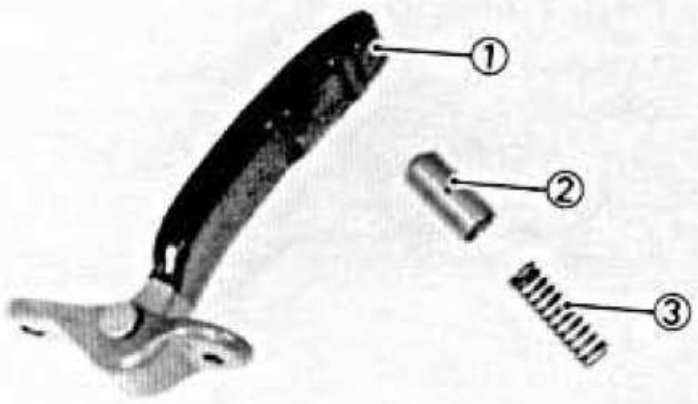


6. Check:
   - Proper gear engagement (Each gear) (to its counter part)

   Incorrect → Reassemble.
   - Gear movement

   Roughness → Replace.

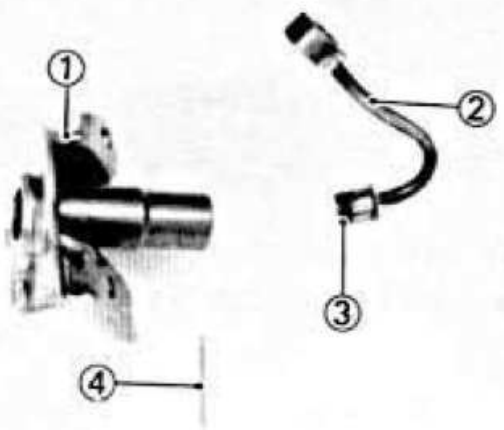
www.badrad600.com



HY-VO CHAIN GUIDE AND TENSIONER

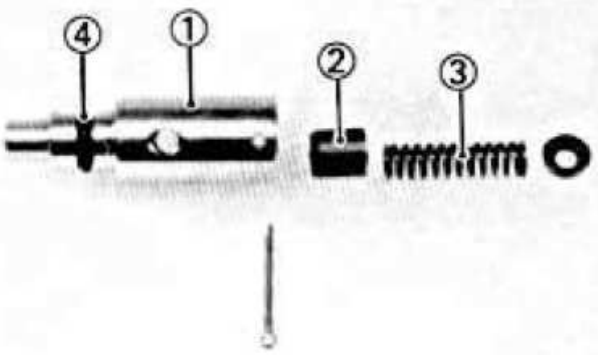
1. Check:
   - HY-VO chain guide ①
   - Tensioner plunger ②
   - Spring ③

   Damage/Wear → Replace.



2. Check:
   - HY-VO chain tensioner ①
   - Oil delivery pipe ②
   - O-ring ③
   - Cotter pin ④

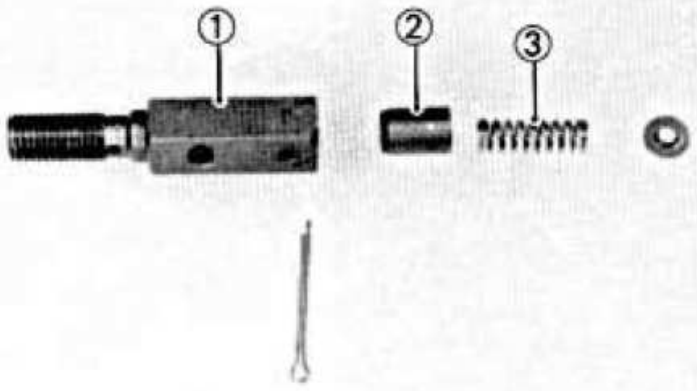
   Damage → Replace.



RELIEF VALVES

1. Check:
   - Relief valve body ①
   - Plunger ②
   - Spring ③
   - O-ring ④

   Damage/Wear → Replace.



2. Check:
   - Tensioner side relief valve body ①
   - Plunger ②
   - Spring ③

   Damage/Wear → Replace.

CRANKCASE

1. Inspect:
   - Case halves
   - Bearing seat
   - Fitting

   Damage → Replace.

www.badrad600.com

BEARINGS AND OIL SEALS

1. Inspect:
   - Bearing

   Clean and lubricate, then rotate inner race with finger.
   Roughness → Replace bearing (see Removal).

2. Inspect:
   - Oil seals

   Damage/Wear → Replace (see Removal).

CIRCLIPS AND WASHERS

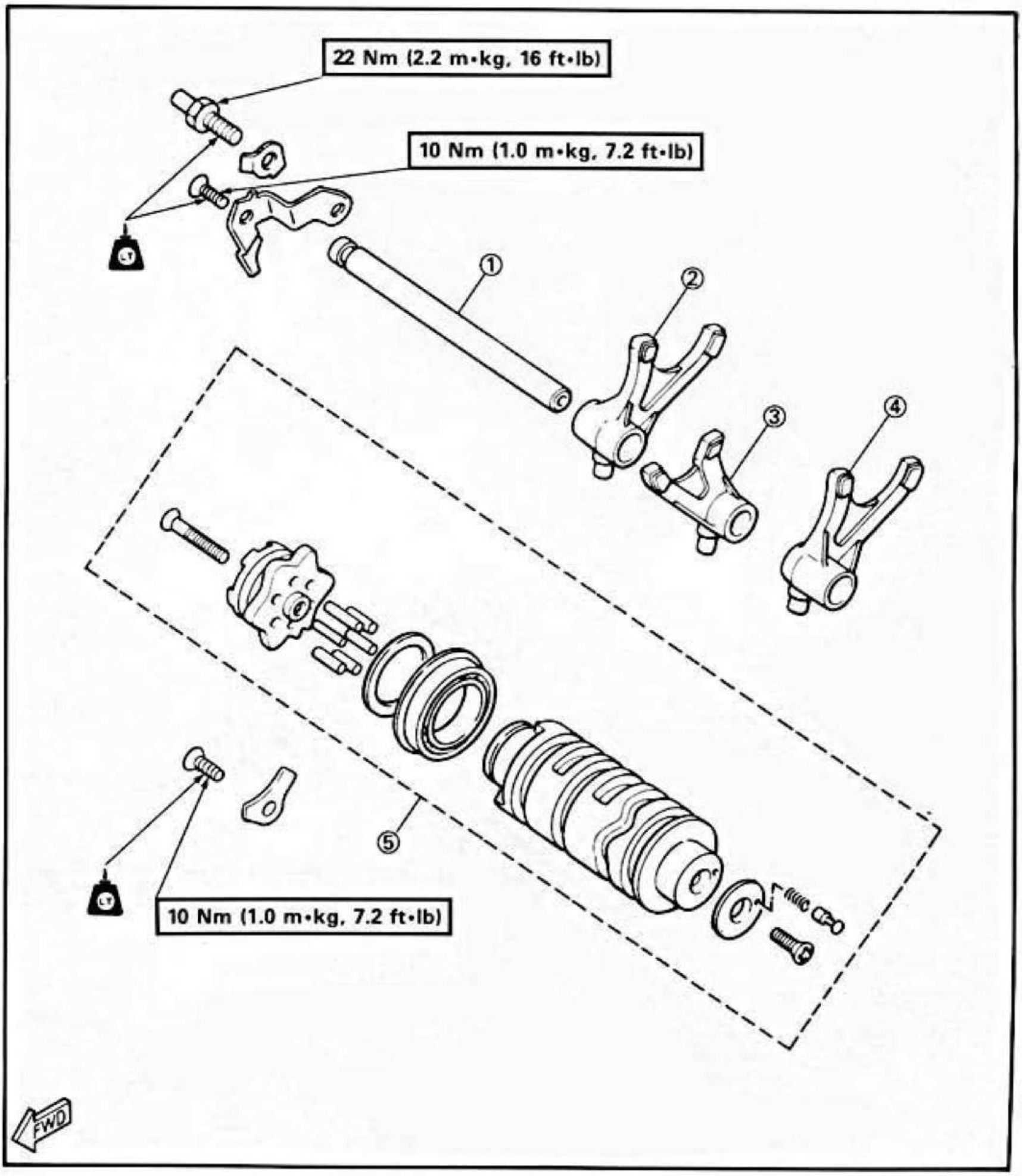
1. Inspect:
   - Circlips
   - Washers

   Damage/Looseness/Bends → Replace.

www.badrad600.com

SHIFTER

① Guide bar
② Shift fork (#3)
③ Shift fork (#2)
④ Shift fork (#1)
⑤ Shift cam assembly

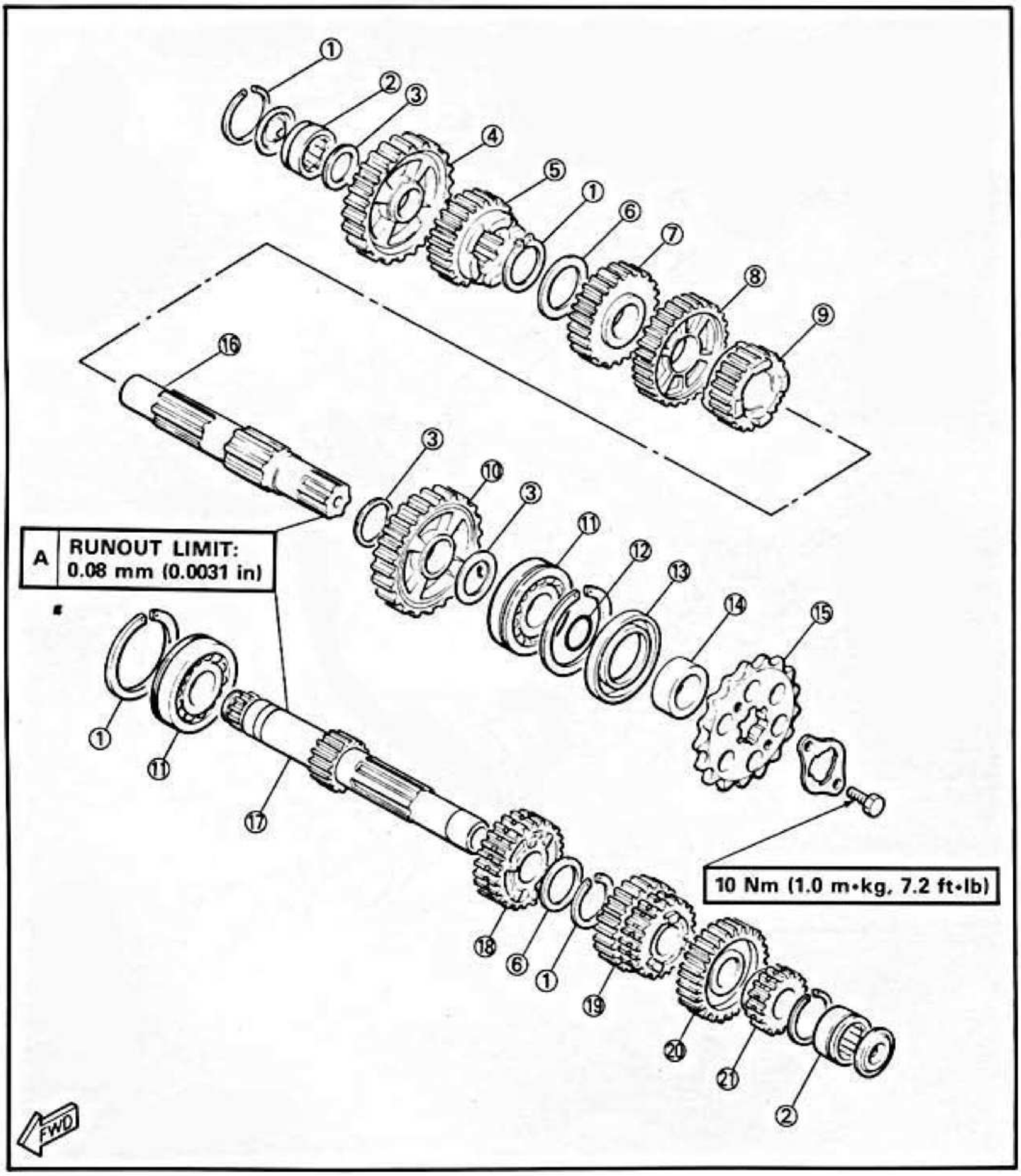


www.badrad600.com

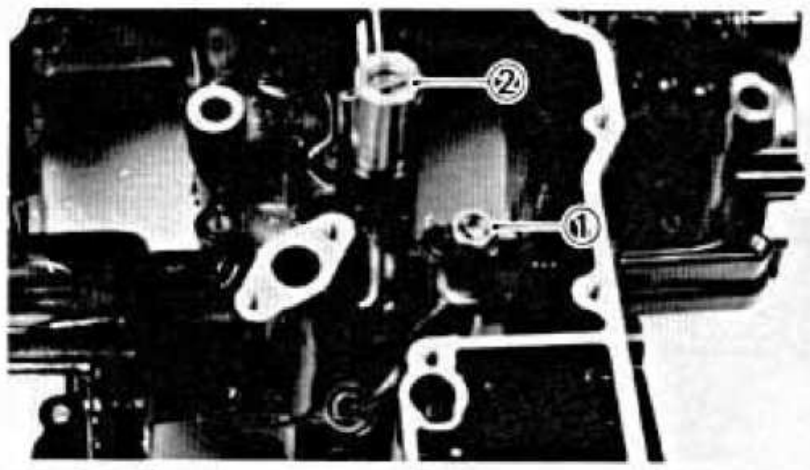
ENGINE ASSEMBLY AND ADJUSTMENT

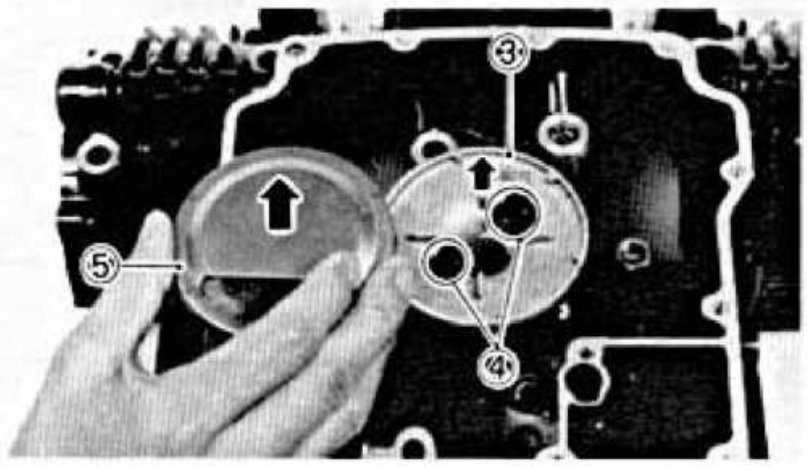
TRANSMISSION

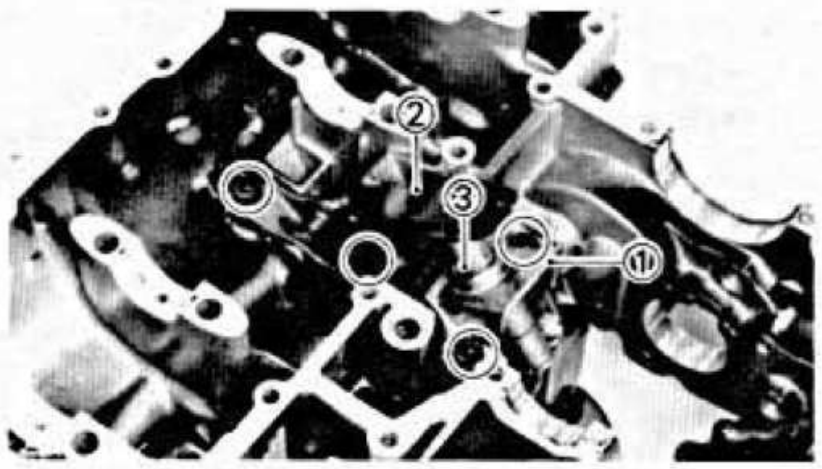
① Circlip
② Cylindrical bearing
③ Plate washer
④ 1st wheel gear
⑤ 5th wheel gear
⑥ Washer
⑦ 4th wheel gear
⑧ 3rd wheel gear
⑨ 6th wheel gear
⑩ 2nd wheel gear
⑪ Bearing
⑫ O-ring
⑬ Oil seal
⑭ Collar
⑮ Drive sprocket
⑯ Drive axle
⑰ Main axle
⑱ 5th pinion gear
⑲ 3rd/4th pinion gear
⑳ 6th pinion gear
㉑ 2nd pinion gear

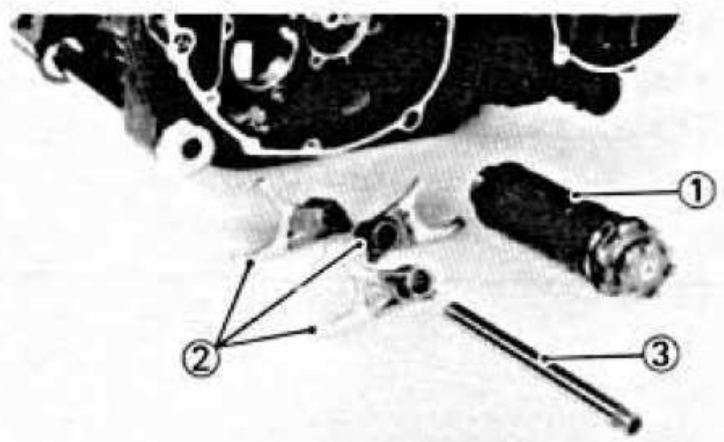


www.badrad600.com









ENGINE ASSEMBLY AND ADJUSTMENT

LOWER CRANKCASE

1. Install:
   - Tensioner side relief valve ①
   - Copper washers

20 Nm (2.0 m•kg, 14 ft•lb)

   - Relief valve ②
   - Strainer housing ③
   - Screws ④

10 Nm (1.0 m•kg, 7.2 ft•lb)

   - Oil strainer ⑤

2. Install:
   - HY-VO chain tensioner ①

Screw:
10 Nm (1.0 m•kg, 7.2 ft•lb)
Apply LOCTITE®

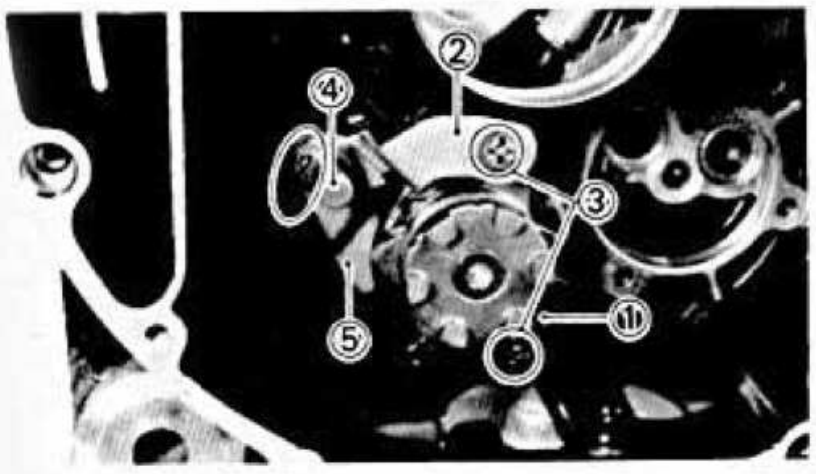
   - HV-VO chain guide ②
   - Spring
   - Tensioner plunger ③

3. Install:
   - Shift cam assembly ①
   - Shift forks ②
   - Guide bar ③

NOTE:

All shift fork numbers should face the right side and be in sequence (1,2,3) beginning from the right.

www.badrad600.com



4. Install:
   - Bearing stopper ①
   - Guide bar stopper ②
   - Screws ③

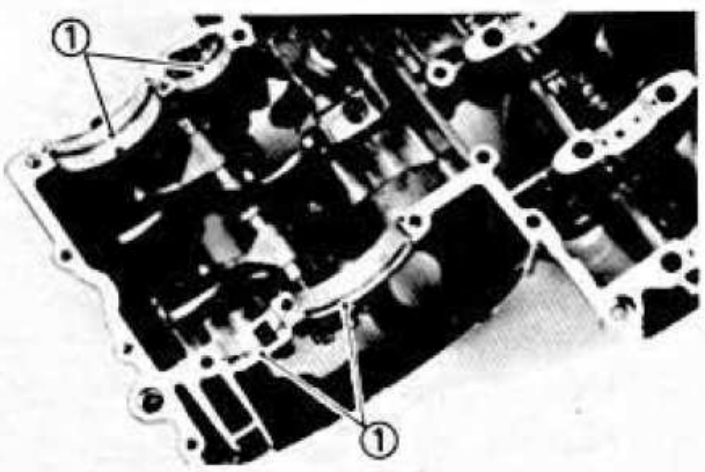
10 Nm (1.0 m•kg, 7.2 ft•lb)
Apply LOCTITE®.

- Stopper screw ④

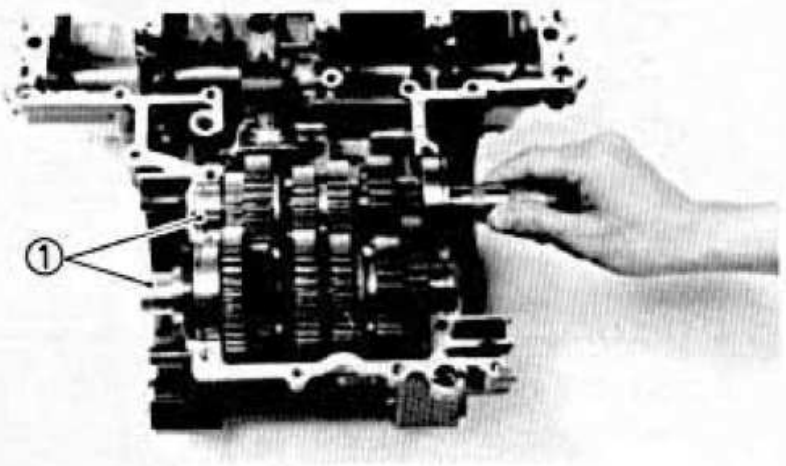
22 Nm (2.2 m•kg, 16 ft•lb)
Apply LOCTITE®.

- Lock washer ⑤

NOTE:
Bend lockwasher tab along nut flat.



5. Install:
   - Circlips ①
   - Oil seal



6. Install:
   - Transmission assembly ①

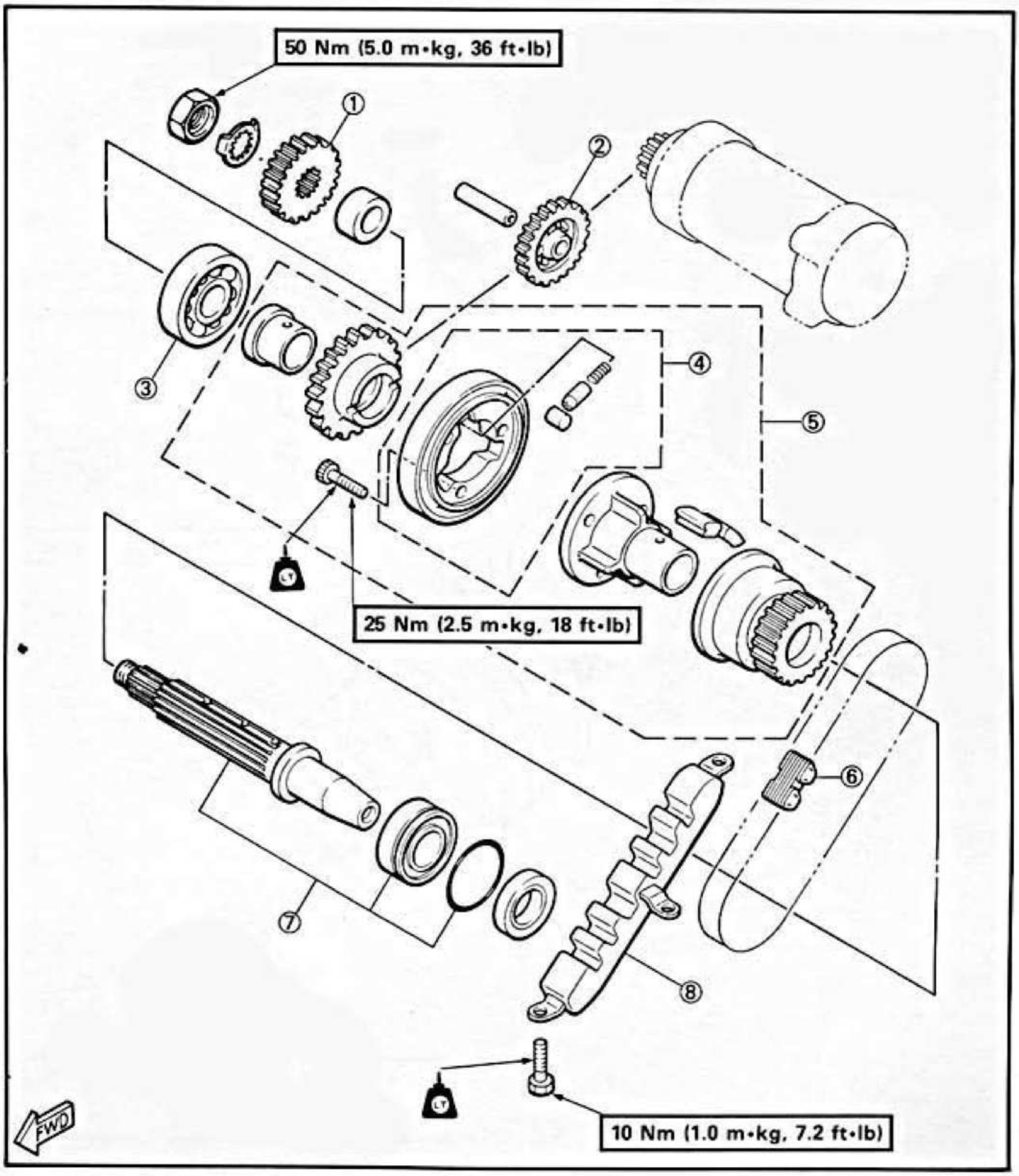
NOTE:
Be sure axle circlips are fitted to bearings and circlips have been positioned in circlip grooves.

7. Check:
   - Shifter operation.
     Unsmooth operation → Repair.
   - Transmission operation
     Unsmooth operation → Repair.

www.badrad600.com

STARTER

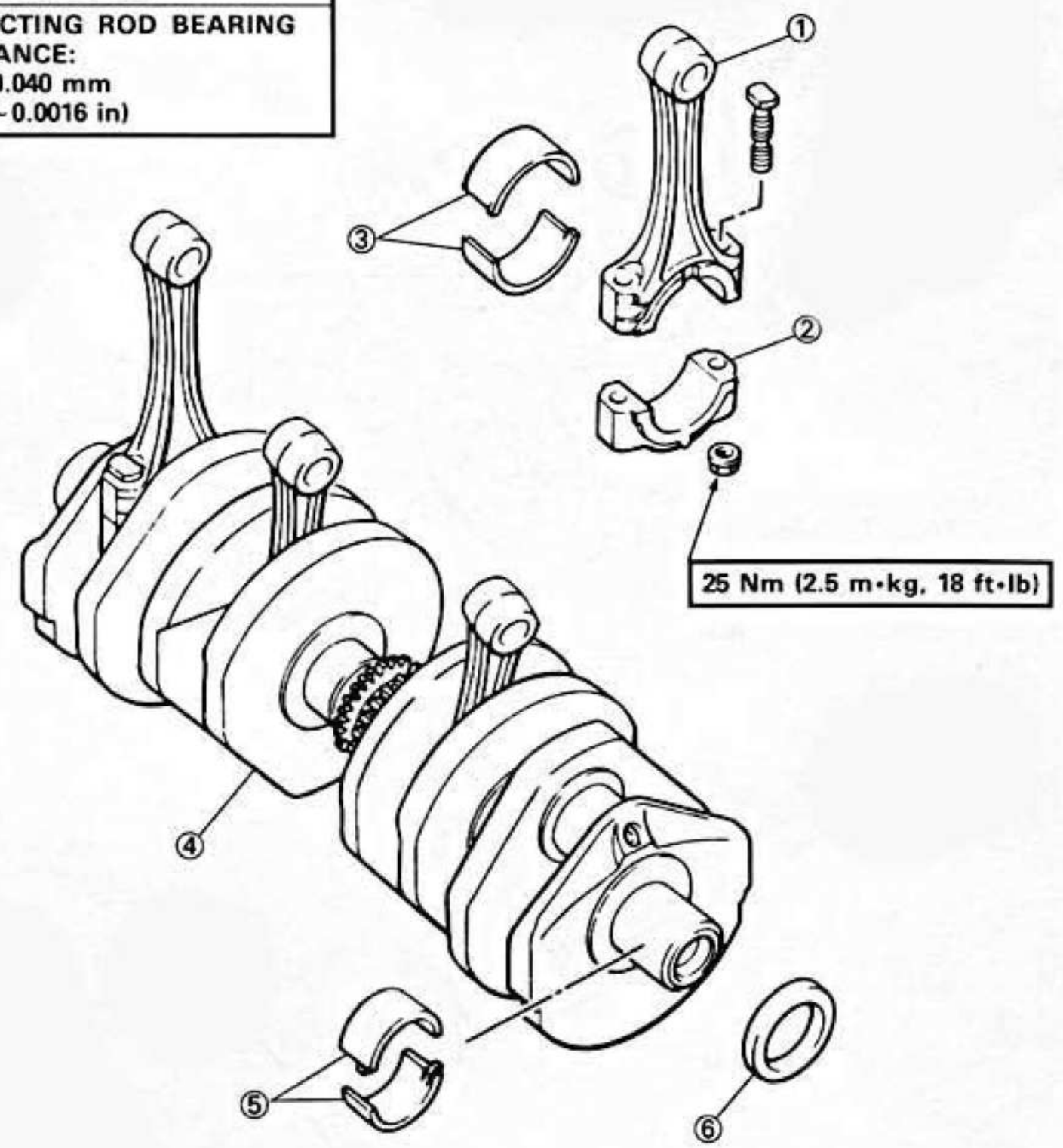
① Primary drive gear
② Starter idle gear
③ Bearing
④ Starter clutch
⑤ Starter clutch damper assembly
⑥ HY-VO chain
⑦ A.C.G. shaft
⑧ HY-VO chain guide



CRANKSHAFT

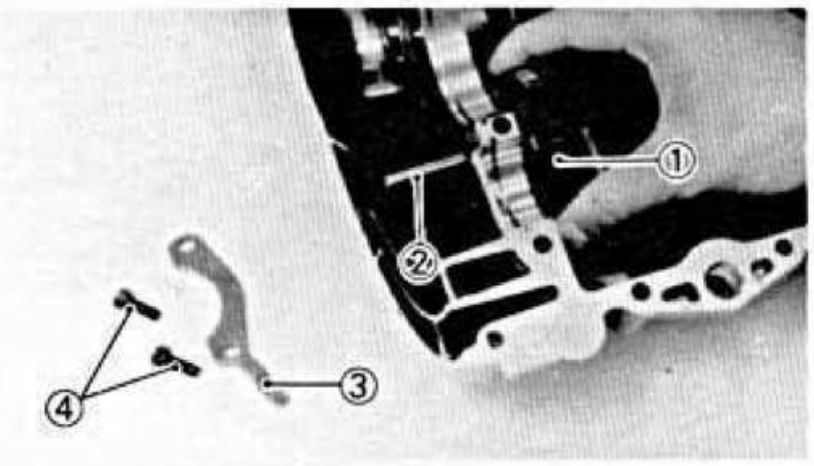
① Connecting rod
② Big end cap
③ Bearing
④ Crankshaft assembly
⑤ Bearing
⑥ Oil seal

A	CRANKSHAFT RUNOUT LIMIT: 0.03 mm (0.0012 in)
B	CONNECTING ROD BEARING CLEARANCE: 0.016 ~ 0.040 mm (0.0006 ~ 0.0016 in)



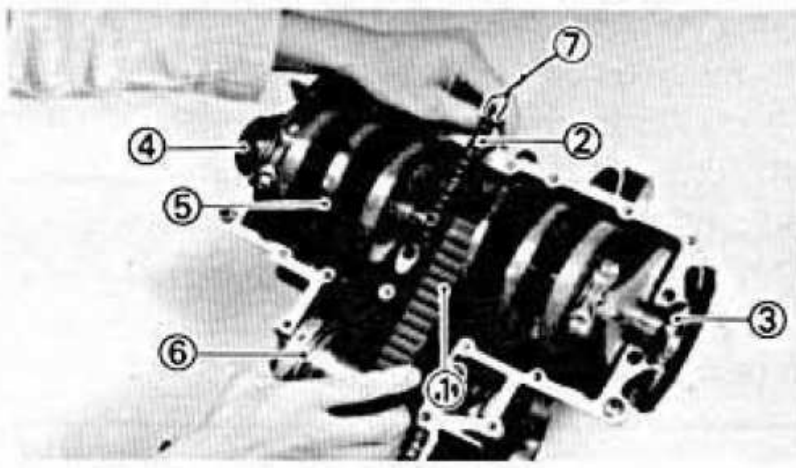
C	MAIN BEARING OIL CLEARANCE: 0.021 ~ 0.044 mm (0.0008 ~ 0.0017 in)

www.badrad600.com



UPPER CRANKCASE

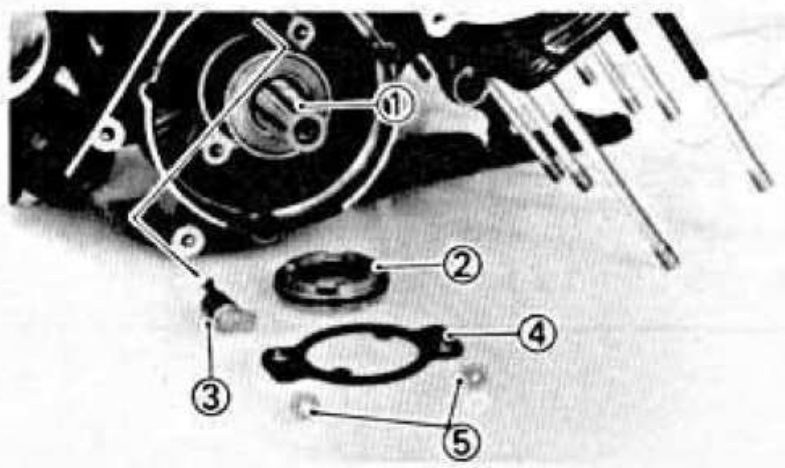
1. Install:
   - Starter idle gear ①
   - Shaft ②
   - Bearing stopper ③
   - Screws ④



2. Install:
   - HY-VO chain ①
   - Cam chain ②
   - Oil seal ③
   - Plug ④
     (onto crankshaft)
   - Crankshaft assembly ⑤
   - Starter clutch damper assembly ⑥

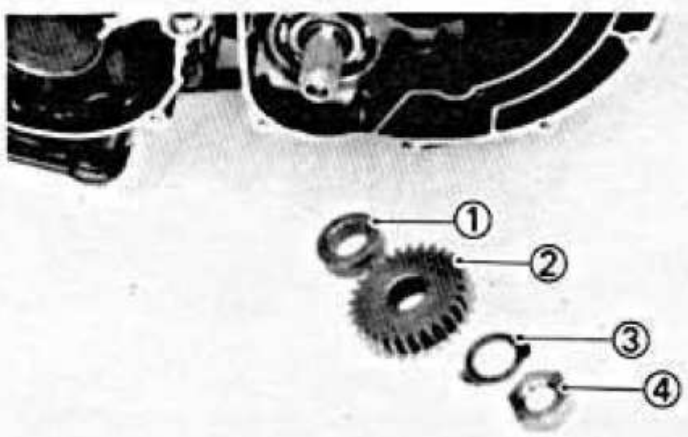
NOTE:

- The crankshaft pin (timing plate stopper pin) should face to the left.
- Pass the cam chain through the cam chain cavity. Be sure to attach a retaining wire ⑦ to the cam chain.



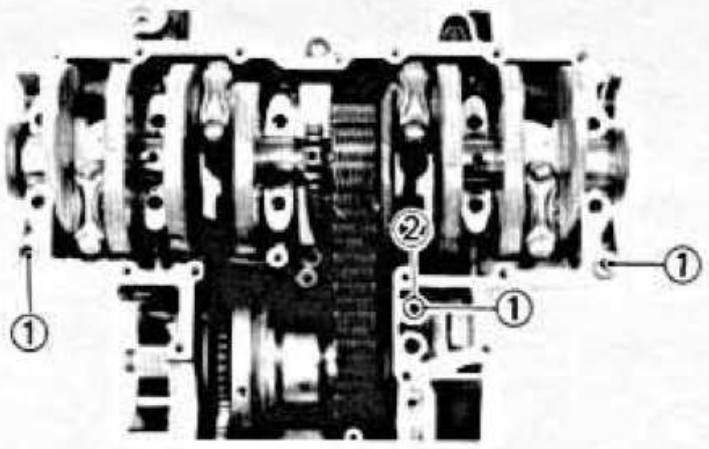
3. Install:
   - A.C.G shaft ①
   - Bearing housing ②
   - Oil spray nozzle ③
   - Cover plate ④
   - Screw ⑤

	10 Nm (1.0 m•kg, 7.2 ft•lb) **Apply LOCTITE®.**

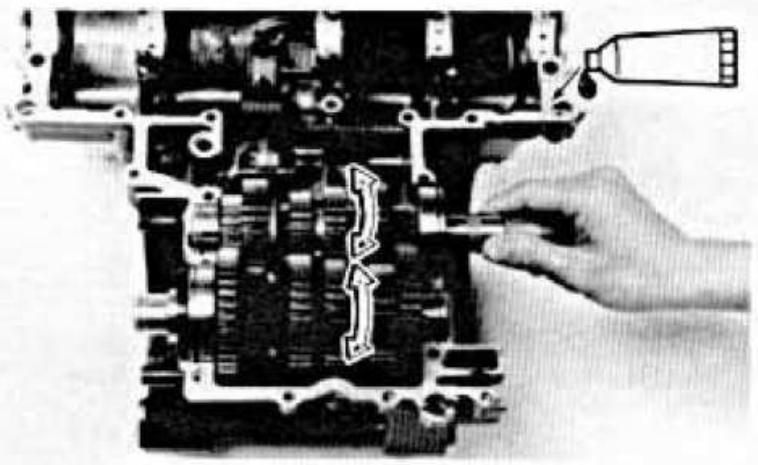


4. Install:
   - Collar ①
   - Primary drive gear ②
   - Lock washer ③
   - Nut ④

www.badrad600.com



5. Install:
   - Dowel pins ①
   - O-ring ②

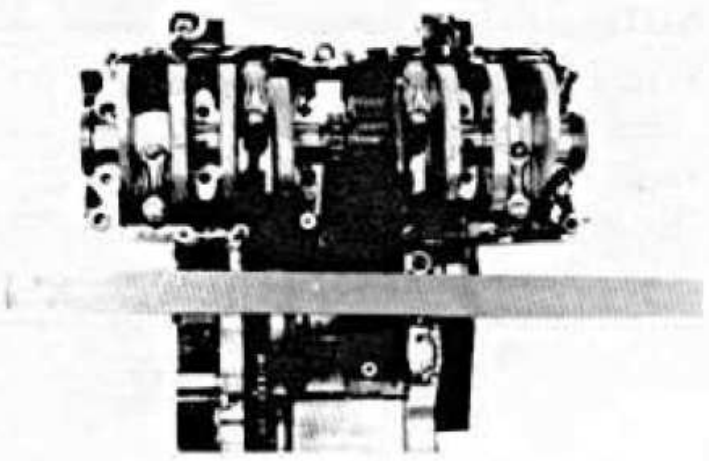


CRANKCASE ASSEMBLY

1. Apply Quick Gasket® (ACC-11001-05-01) to crankcase matching surfaces.

NOTE:

DO NOT ALLOW any sealant to come in contact with the oil gallery O-ring, or crankshaft bearings. Do not apply sealant to within 2 ~ 3 mm (0.08 ~ 0.12 in) of the bearings.

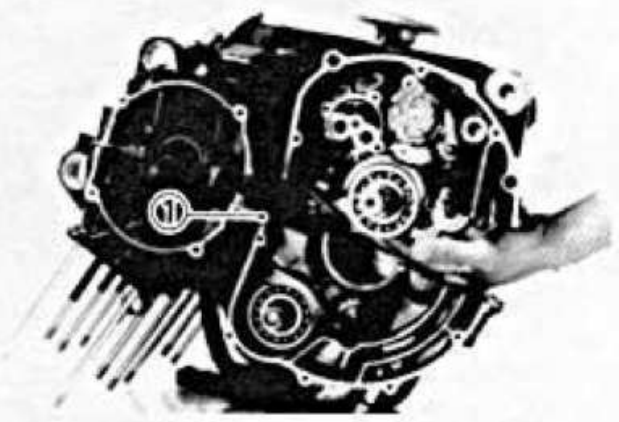


2. Set shift cam and transmission gears in NEUTRAL position.
3. Place suitable bar on the upper crankcase.

4. Place lower crankcase assembly on the upper crankcase assembly.

NOTE:

Push HY-VO chain damper to prevent tensioner plunger from falling into crankcase cavity.



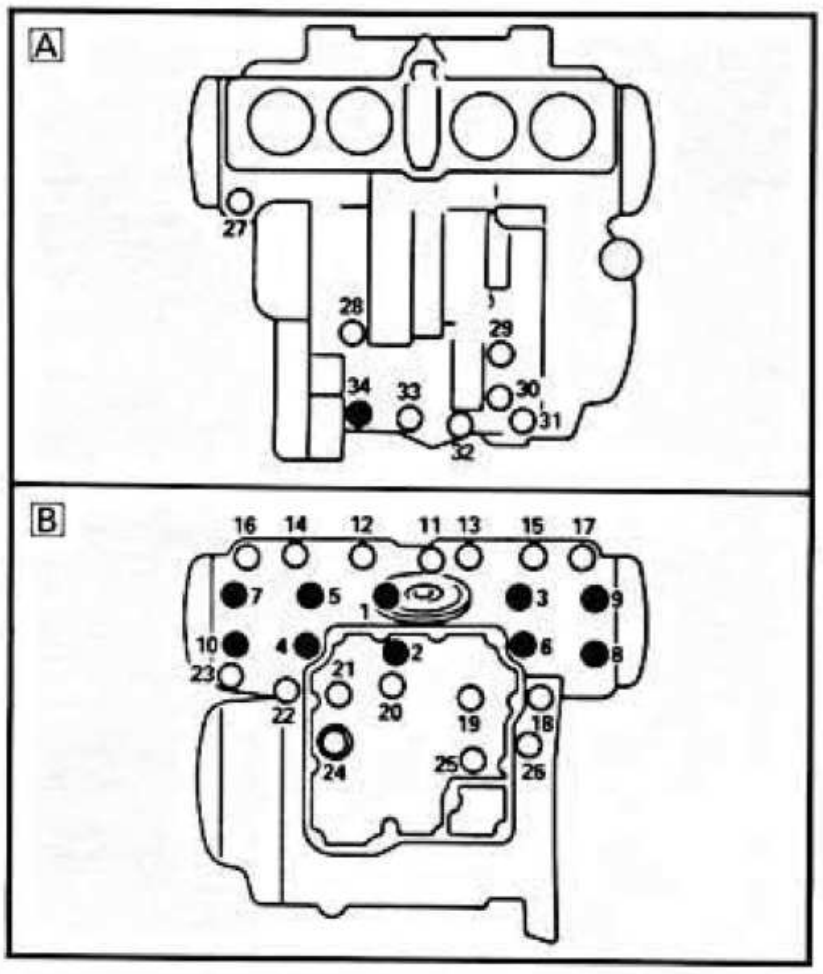
5. Install:
   - Lower crankcase

www.badrad600.com

CAUTION:

Before tightening the crankcase bolts, check the following points:

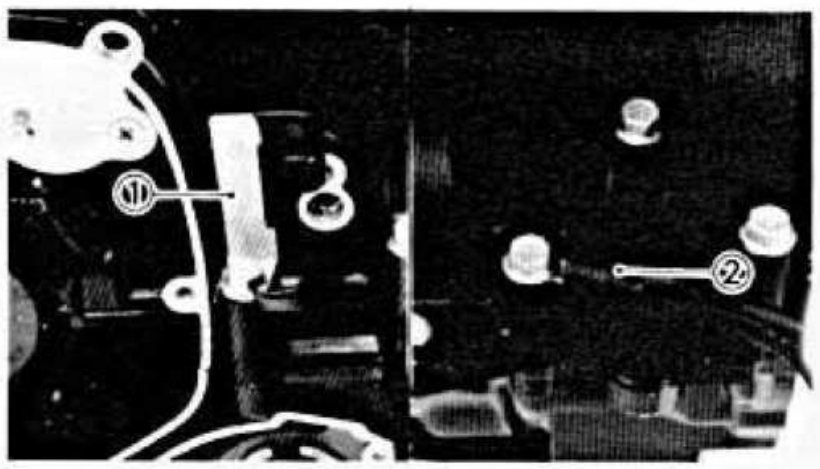
- **Remove bar ①.**
- **Be sure the gear shifts correctly while hand-turning the shift cam.**



6. Tighten:
   - Lower crankcase bolt B
   - Upper crankcase bolt A

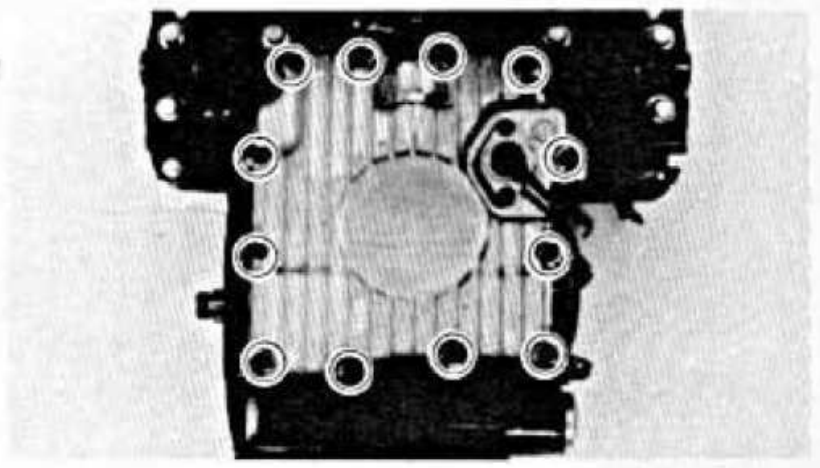
   (Follow proper tightening sequence.)

	○6 mm (0.24 in): 12 Nm (1.2 m•kg, 8.7 ft•lb) ●8 mm (0.31 in): 24 Nm (2.4 m•kg, 17 ft•lb)



NOTE:

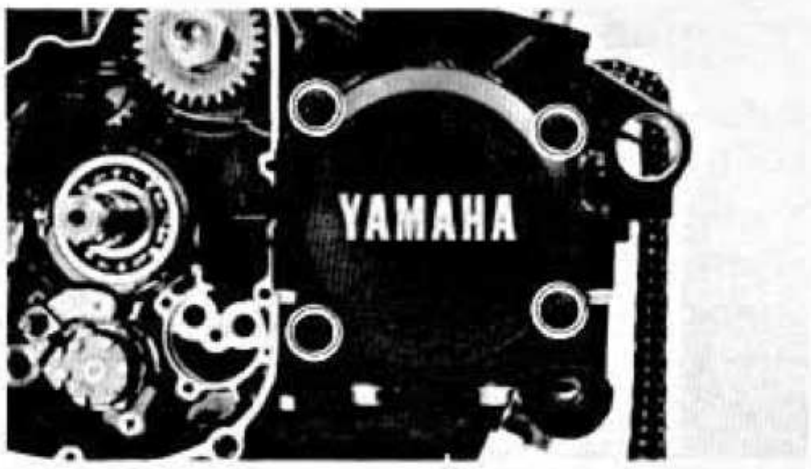
- Install the clamp ① on Bolt No. 26.
- Install the ground lead ② on Bolt No. 32.



7. Install:
   - Oil pan

	10 Nm (1.0 m•kg, 7.2 ft•lb)

www.badrad600.com



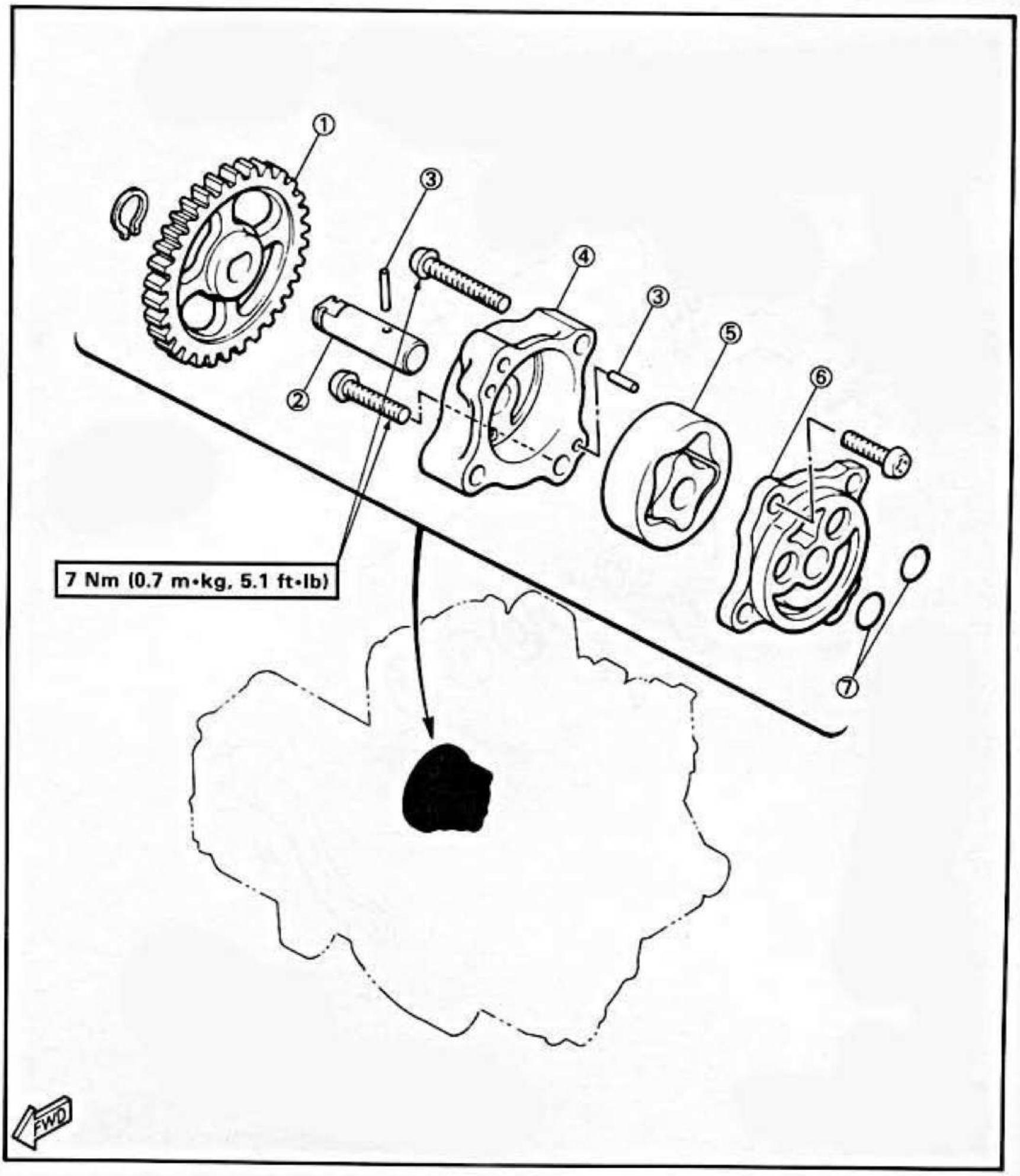
8. Install:
   • Right-front crankcase cover

	10 Nm (1.0 m•kg, 7.2 ft•lb)

www.badrad600.com

OIL PUMP

① Oil pump drive gear
② Shaft
③ Pin
④ Oil pump housing
⑤ Rotor
⑥ Pump cover
⑦ O-ring

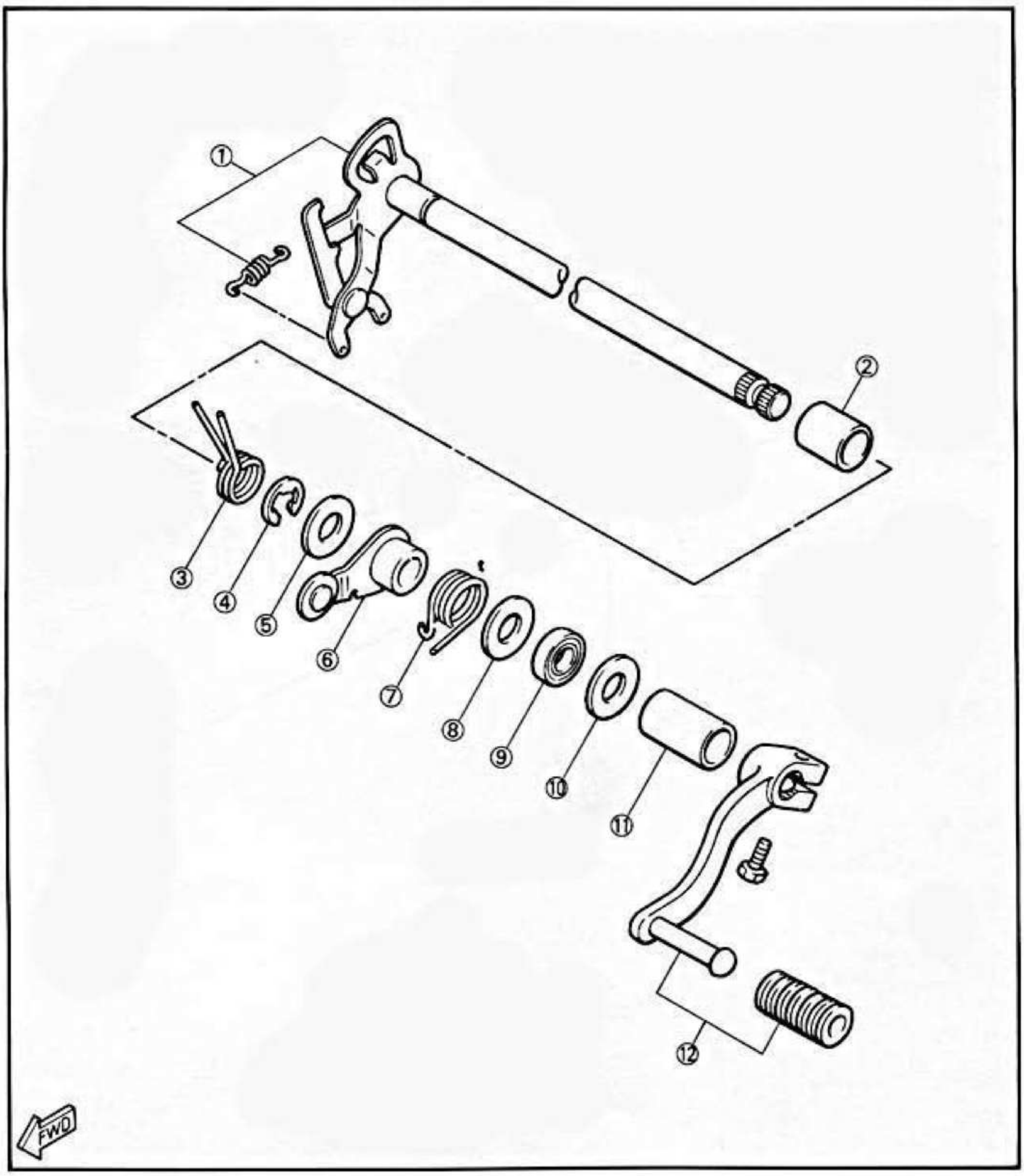


www.badrad600.com

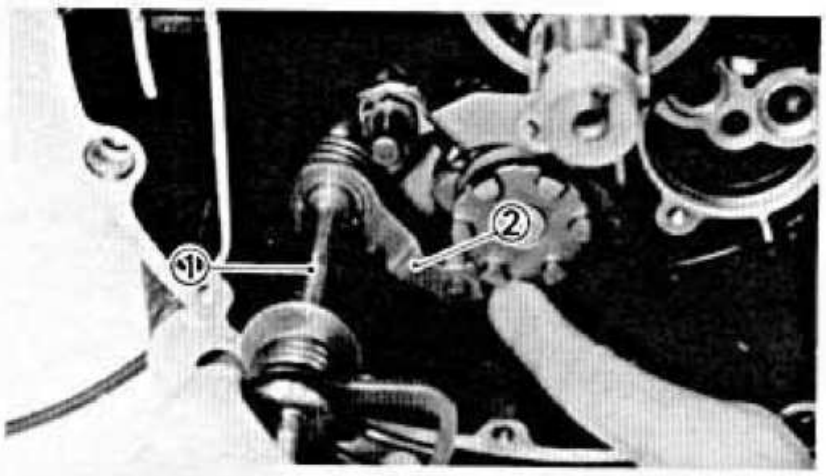
ENGINE ASSEMBLY AND ADJUSTMENT

SHIFT SHAFT

① Shift shaft
② Collar
③ Spring
④ Circlip
⑤ Plain washer
⑥ Stopper lever
⑦ Spring
⑧ Plain washer
⑨ Oil seal
⑩ Plain washer
⑪ Collar
⑫ Change pedal



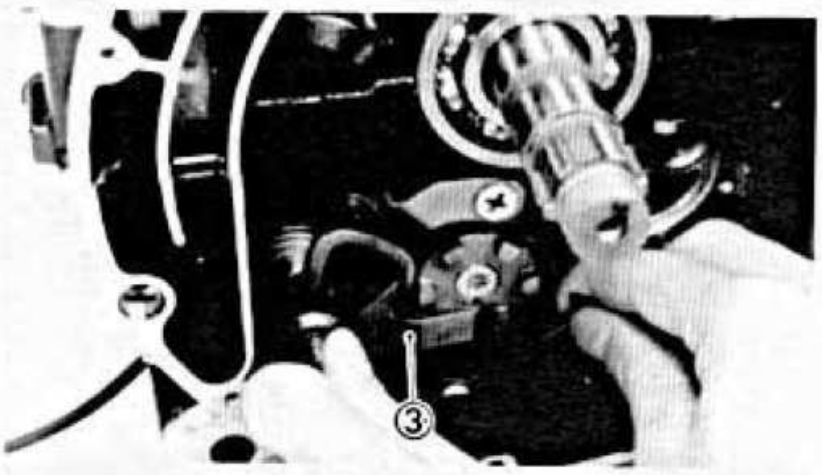
www.badrad600.com



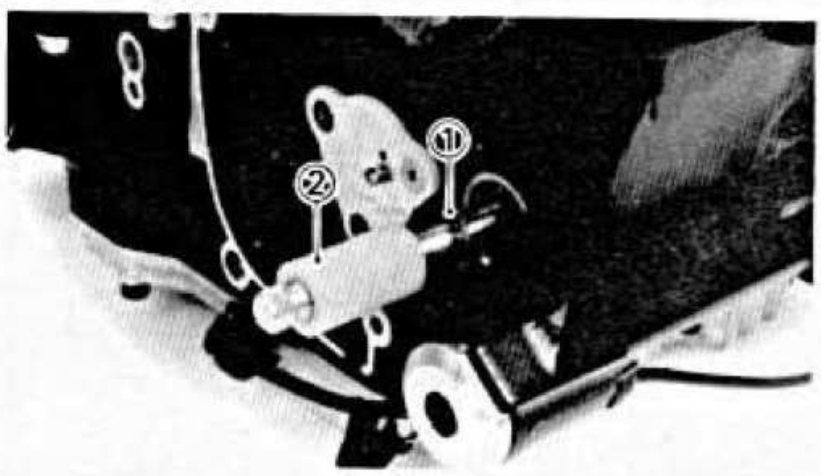
OIL PUMP AND SHIFT SHAFT

1. Install:
   - Shift shaft assembly ①

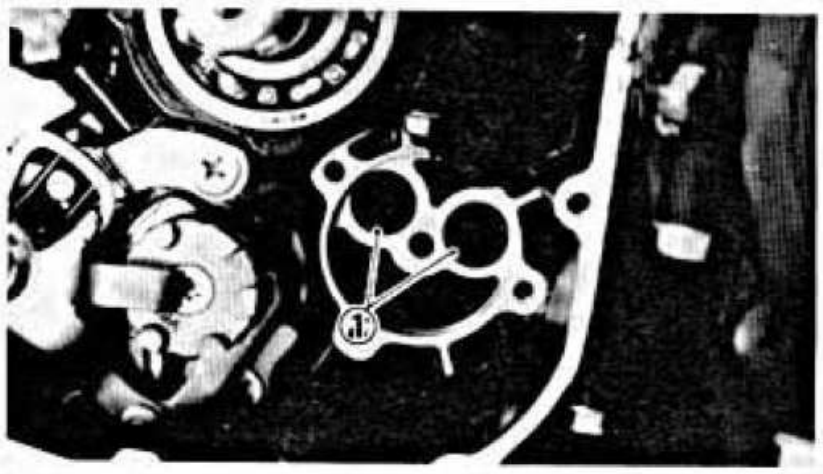
2. Mesh the stopper lever ② with shift cam stopper.



3. Pull the shift lever 2 ③ and push shift shaft assembly.



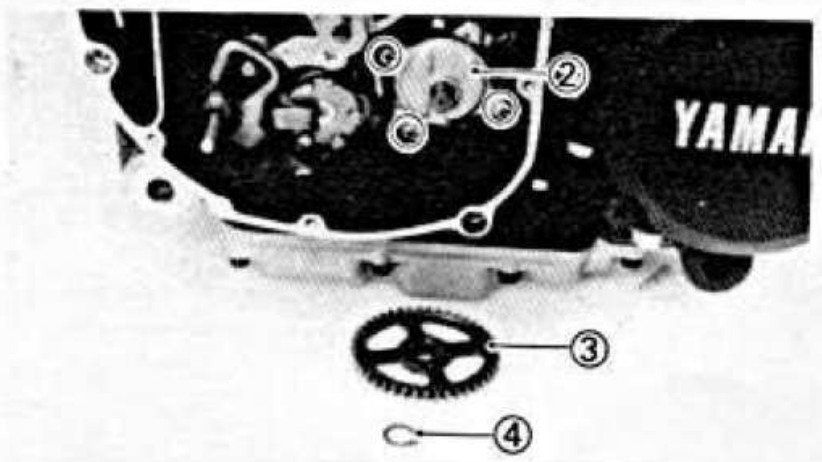
4. Install:
   - Plate washer ①
   - Collar ②
     (on left side shift shaft)



5. Install:
   - O-rings ①
   - Oil pump assembly ②

	7 Nm (0.7 m•kg, 5.1 ft•lb)

   - Oil pump driven gear ③
   - Circlip ④

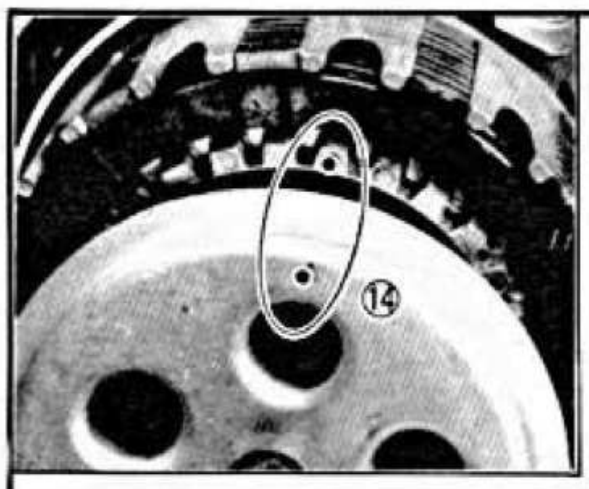


www.badrad600.com

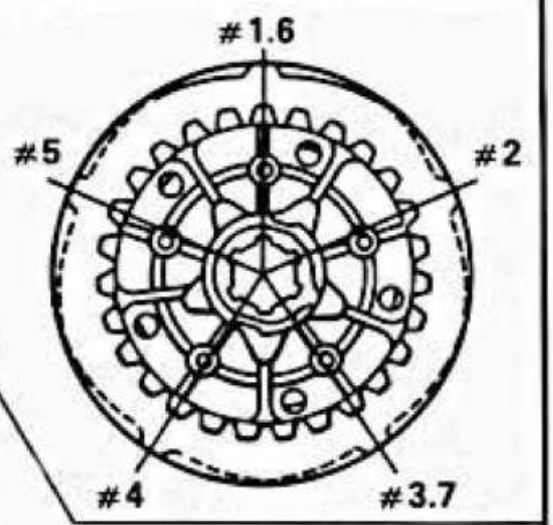
ENGINE ASSEMBLY AND ADJUSTMENT

CLUTCH

① Plate washer
② Oil seal
③ Circlip
④ Lock washer
⑤ Clutch plate (#1)
⑥ Friction plate (#1)
⑦ Wire clip
⑧ Clutch plate
⑨ Clutch boss spring
⑩ Seat
⑪ Thrust plate
⑫ Bearing
⑬ Pull rod
⑭ Match mark



D | CLUTCH PLATE POSITION



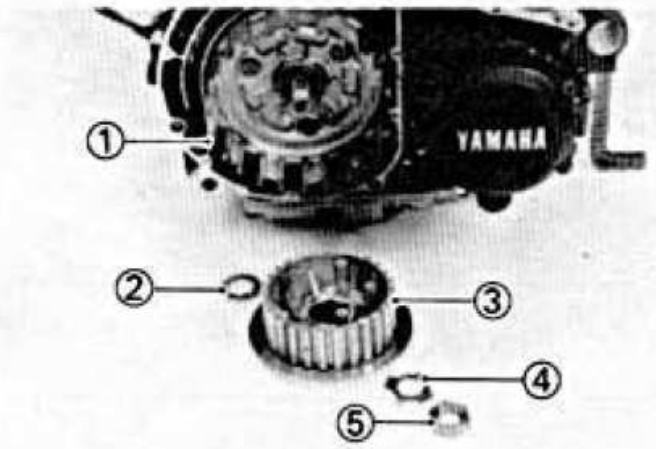
70 Nm (7.0 m•kg, 50 ft•lb)

8 Nm (0.8 m•kg, 5.8 ft•lb)

A	SPRING FREE LENGTH LIMIT: 41.8 mm (1.64 in)
B	CLUTCH PLATE WARP LIMIT: 0.15 mm (0.006 in)
C	FRICTION PLATE WEAR LIMIT: 2.7 mm (0.106 in)

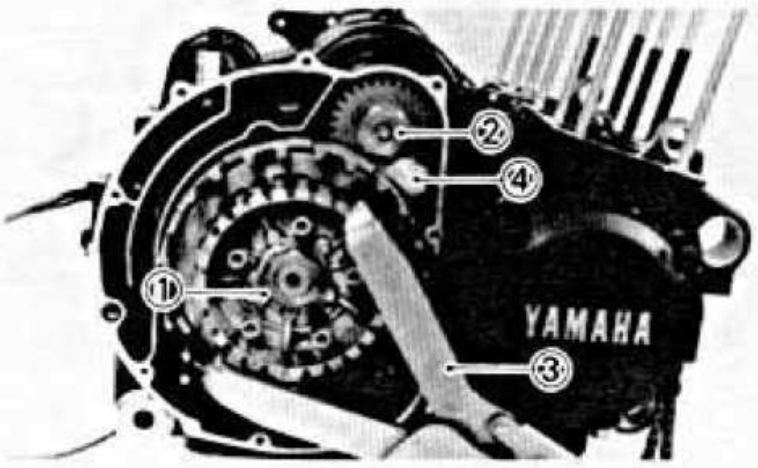
FWD

www.badrad600.com

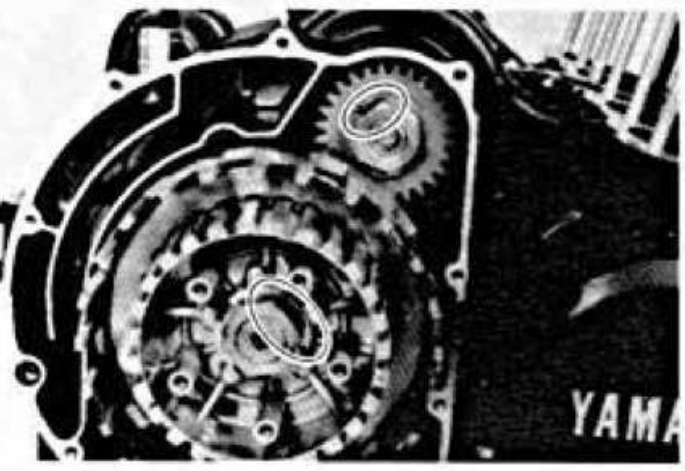


CLUTCH

1. Install:
   - Clutch housing ①
   - Thrust washer ②
   - Clutch boss ③
   - Lock washer ④
   - Nut ⑤



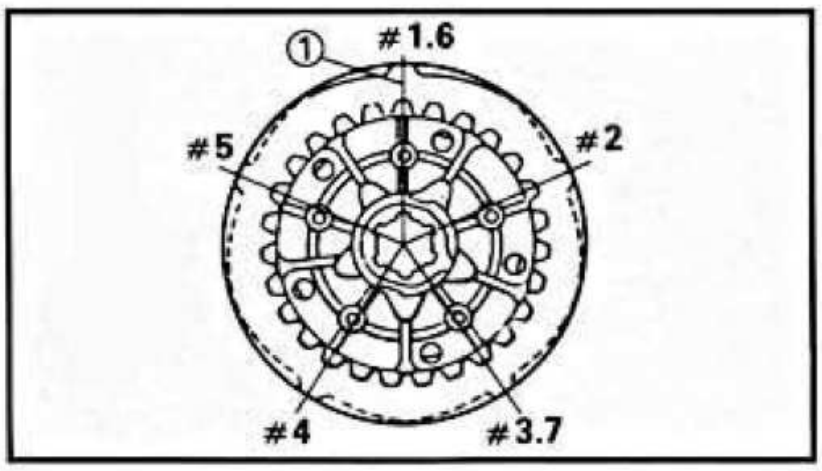
2. Tighten:
   - Nut ① (clutch boss)
     Use Universal Clutch Holder (YM-91042) ③.
   - Nut ② (Primary drive gear)
     Place the folded rag ④ between the teeth of the drive gear and driven gear to lock them.



Nut (Clutch Boss):
70 Nm (7.0 m•kg, 50 ft•lb)
Nut (Primary Drive Gear):
50 Nm (5.0 m•kg, 36 ft•lb)

NOTE:

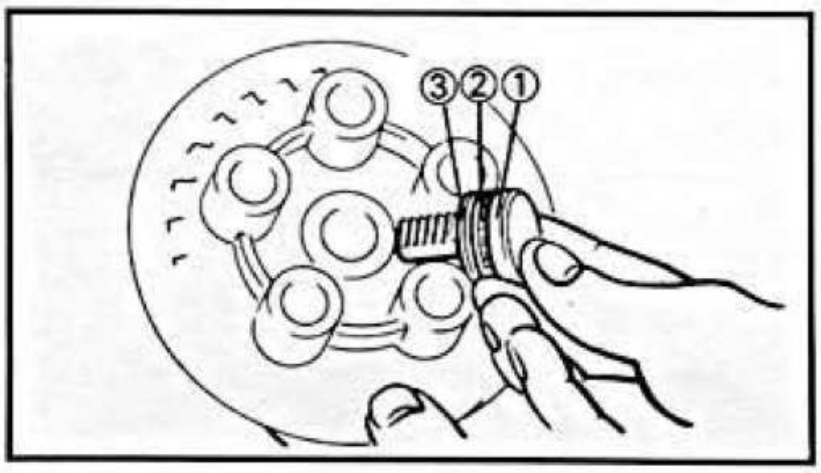
Bend the lock washer tab along the nut flat.



3. Install:
   - Friction plates
   - Clutch plates

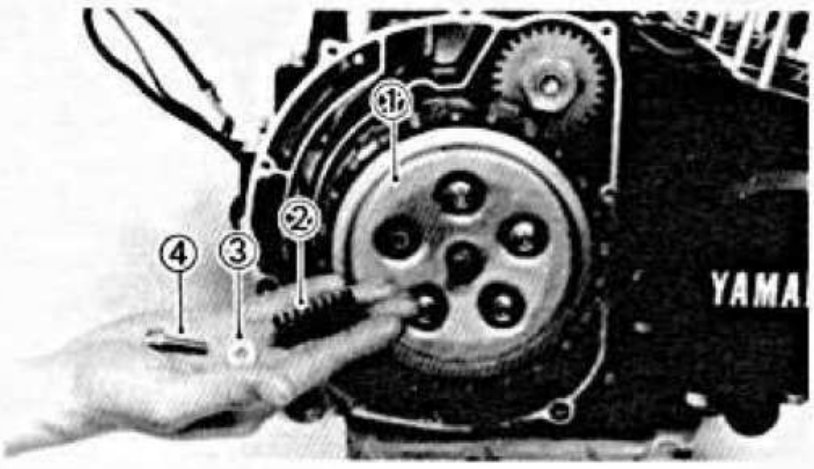
NOTE:

- Mount friction and clutch plates alternately.
- Align the clutch plate mark ① as shown.



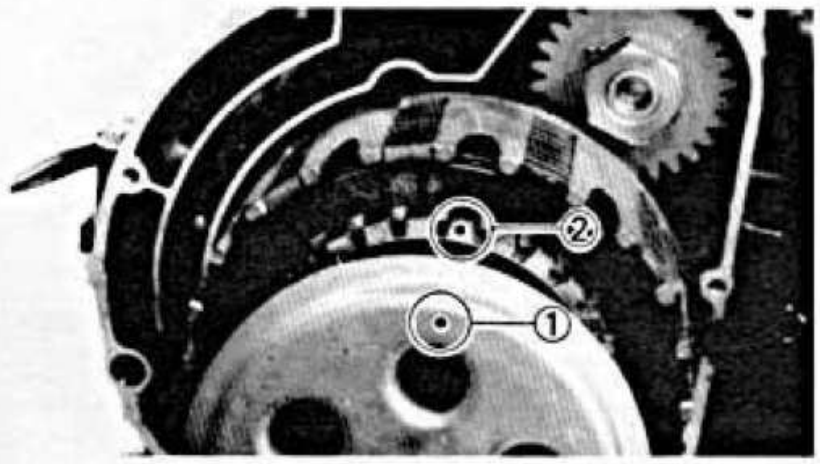
4. Install:
   - Thrust bearing ②
   - Plate washer ③
     (on the pull rod)
   - Pull rod ①
     (into the pressure plate)

www.badrad600.com

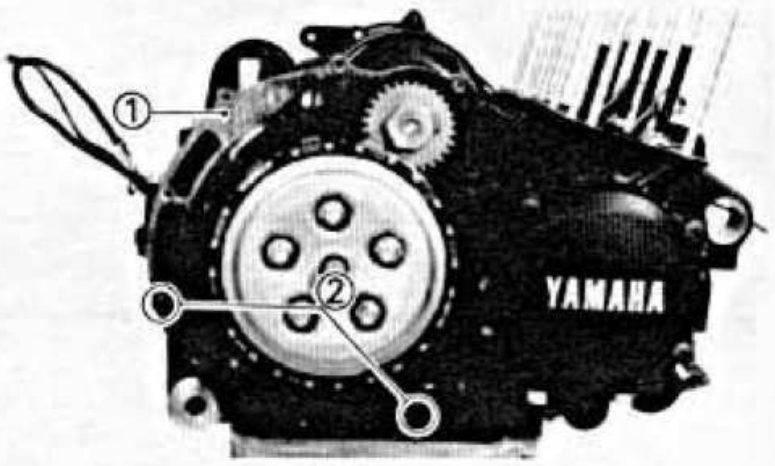


5. Install:
   - Pressure plate ①
   - Spring ②
   - Plate washer ③
   - Bolt ④

	8 Nm (0.8 m•kg, 5.8 ft•lb)

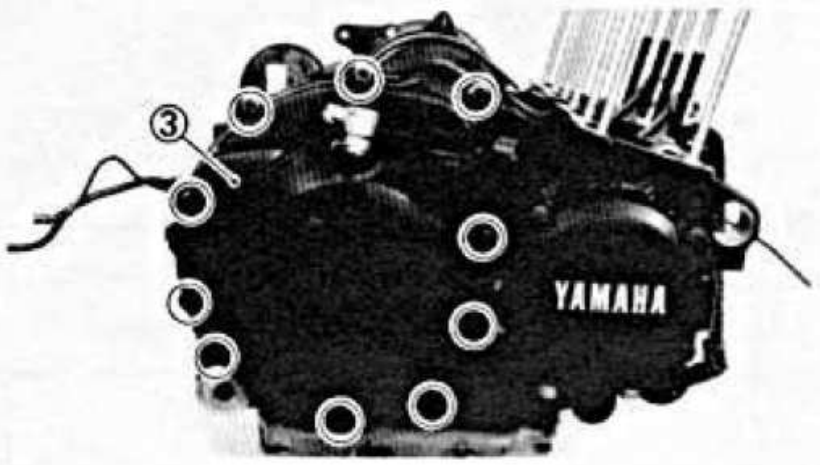


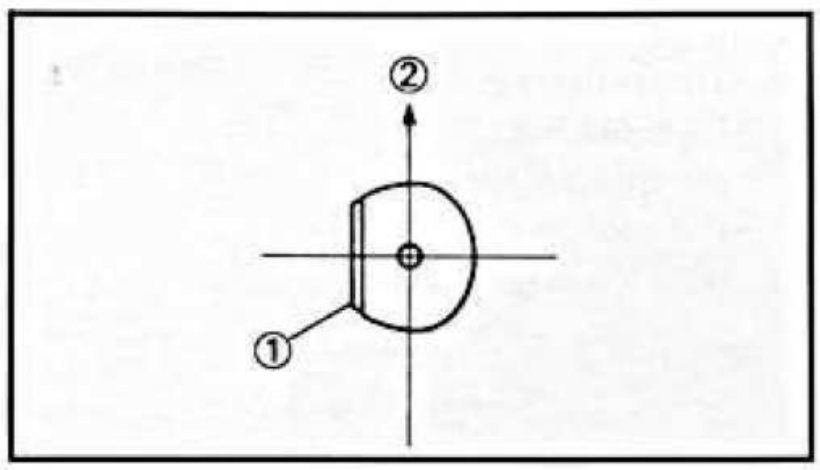
NOTE:
Align the pressure plate mark ① with the clutch boss mark ②.



6. Install:
   - Gasket ①
   - Dowel pins ②
   - Right crankcase cover ③

	10 Nm (1.0 m•kg, 7.2 ft•lb)





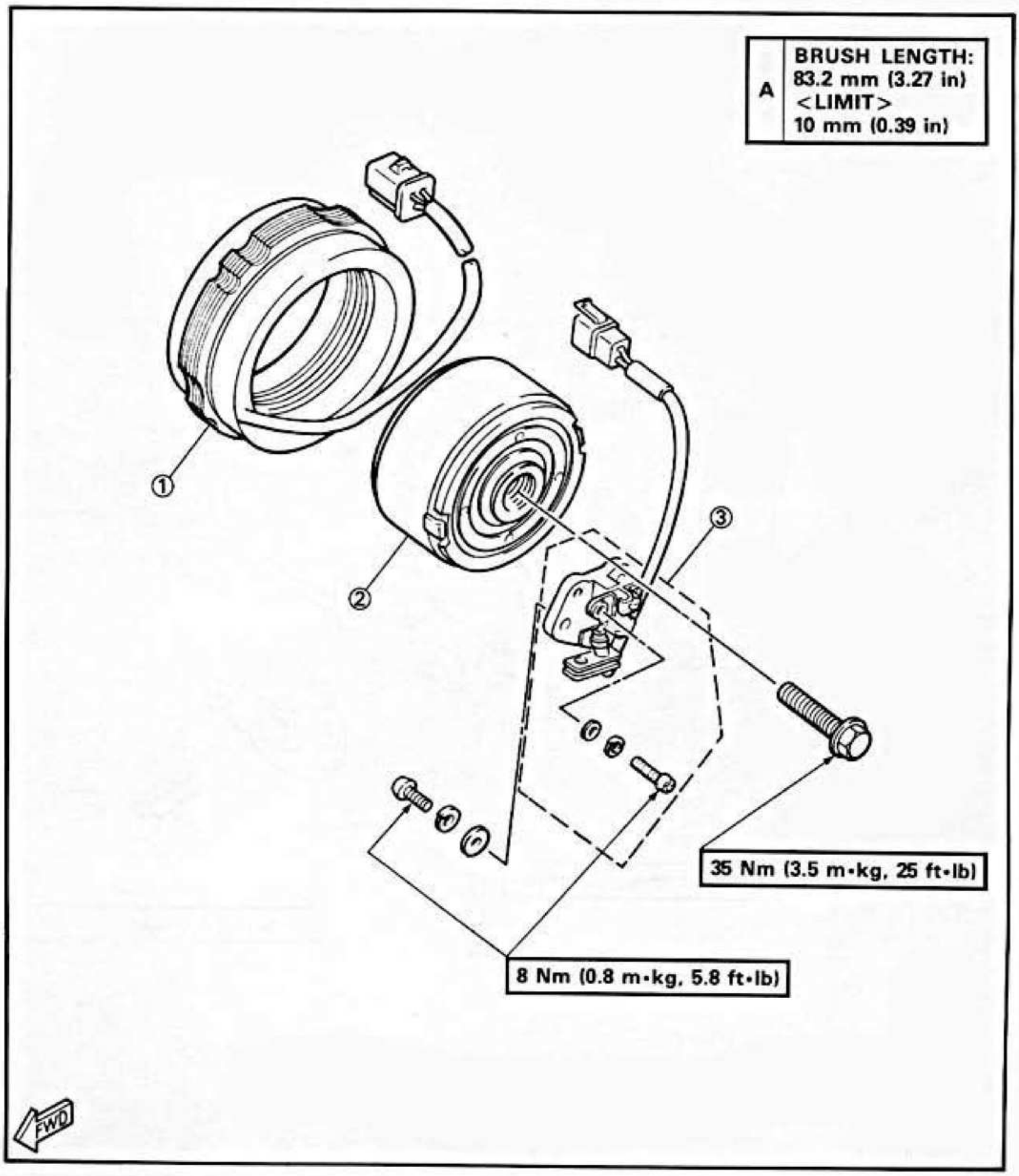
NOTE:
Be sure the pull rod gear ① face to rear of engine.

② Upper

www.badrad600.com

GENERATOR

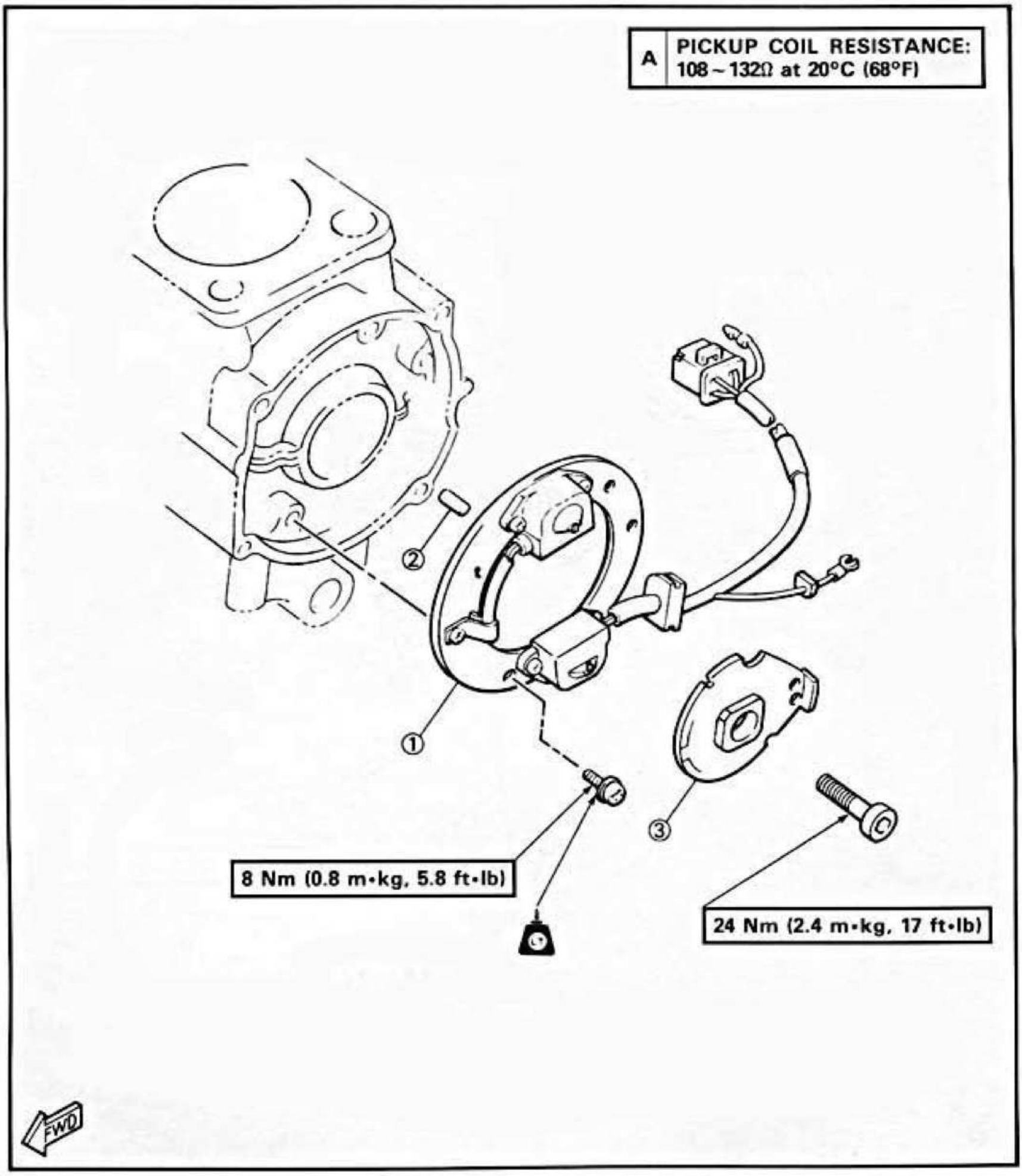
① Startor coil
② Rotor
③ Brush assembly



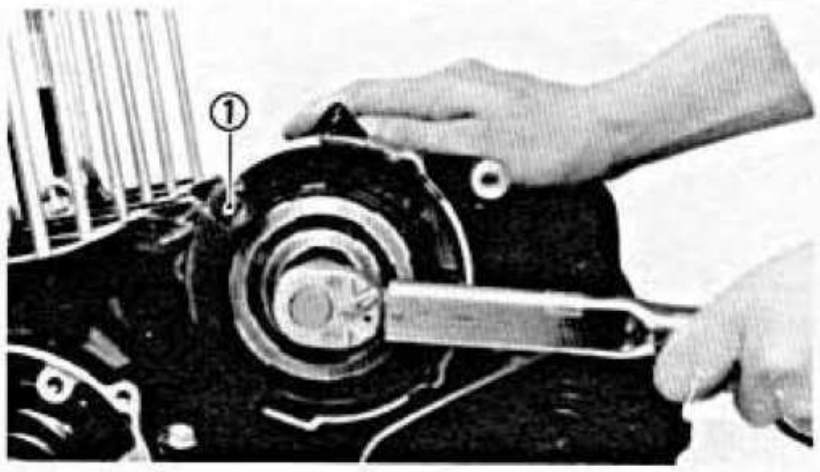
www.badrad600.com

PICKUP COIL

① Pickup coil assembly
② Pin
③ Timing plate



www.badrad600.com

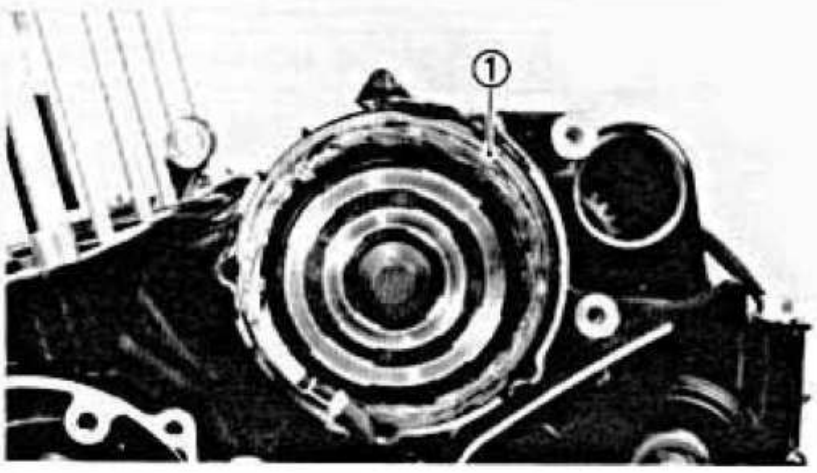


PICKUP COIL AND GENERATOR

1. Install:
   - Rotor
   - Bolt

   Use Rotor Holding Tool (YM-04043) ①.

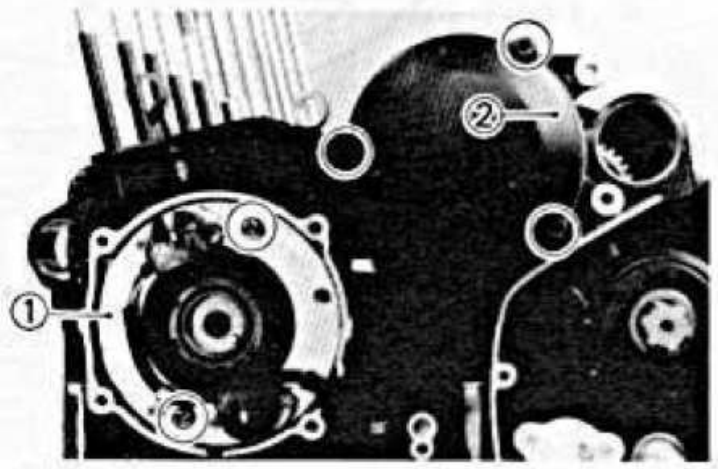
	35 Nm (3.5 m•kg, 25 ft•lb)



2. Install:
   - Stator coil ①

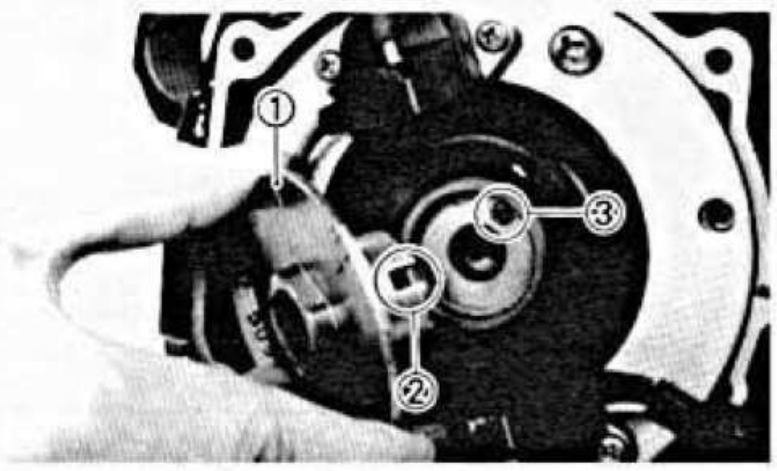
NOTE:

Align the stator core grooves with the bolt holes.



3. Install:
   - Generator cover ②
   - Pickup coil assembly ①

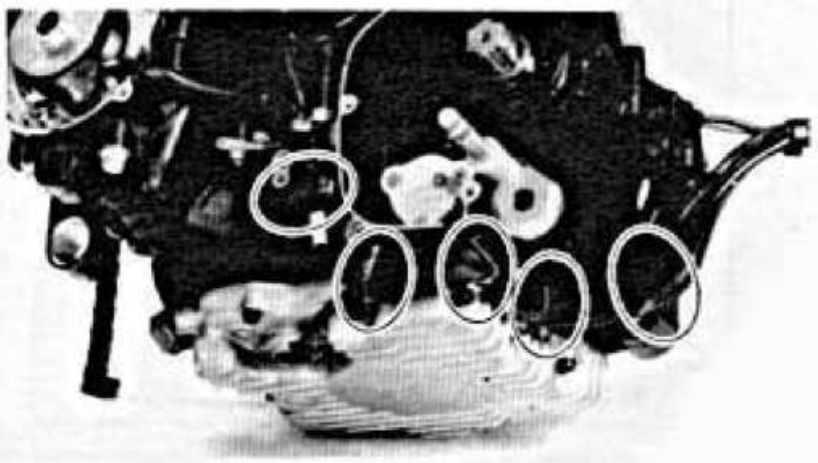
	Screw (Pickup Coil Assembly): **8 Nm (0.8 m•kg, 5.8 ft•lb)** **Apply LOCTITE®.**



4. Install:
   - Timing plate ①
   - Screw

	24 Nm (2.4 m•kg, 17 ft•lb)

Mesh the timing plate groove ② with the crankshaft pin ③.

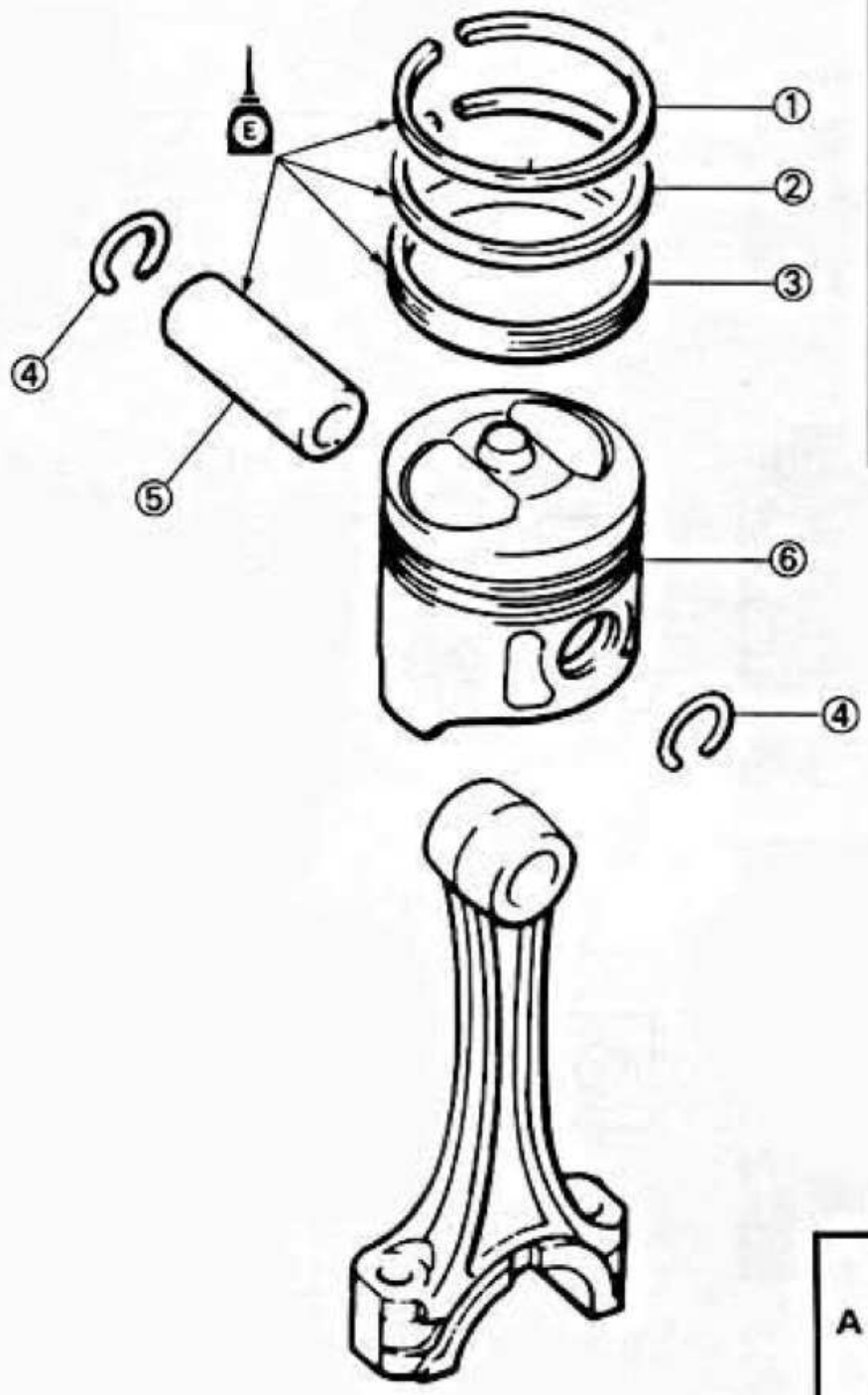


5. Clamp the A.C.G leads and pickup leads.

www.badrad600.com

PISTON

① Top ring
② Second ring
③ Oil ring
④ Circlip
⑤ Piston pin
⑥ Piston
⑦ Top ring
⑧ Oil ring (Lower rail)
⑨ Second ring
⑩ Oil ring (Upper rail)

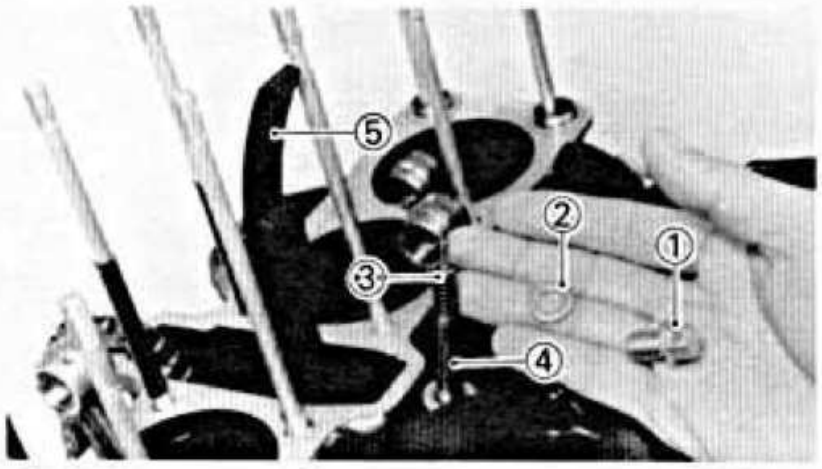


D PISTON RING INSTALLATION



A	PISTON RING END GAP: TOP AND 2nd: 0.15 ~ 0.30 mm (0.0059 ~ 0.0118 in) OIL: 0.2 ~ 0.7 mm (0.008 ~ 0.028 in)
B	PISTON RING SIDE CLEARANCE: TOP: 0.03 ~ 0.07 mm (0.0012 ~ 0.0028 in) 2nd: 0.02 ~ 0.06 mm (0.0008 ~ 0.0024 in)
C	PISTON CLEARANCE: 0.025 ~ 0.045 mm (0.0010 ~ 0.0019 in)

www.badrad600.com

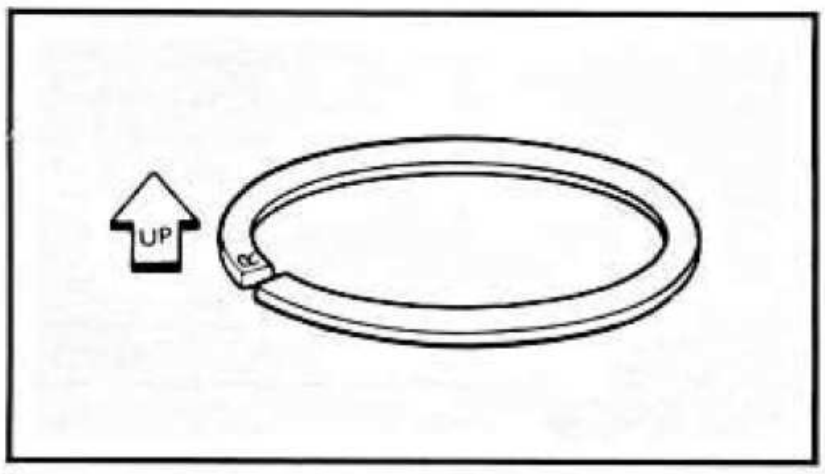


PISTON AND INTAKE SIDE CAM CHAIN GUIDE

1. Install:
   - Intake side cam chain guide ①
   - Stopper shaft ②
   - Spring ③
   - Plate washer
   - Bolt ④

NOTE:

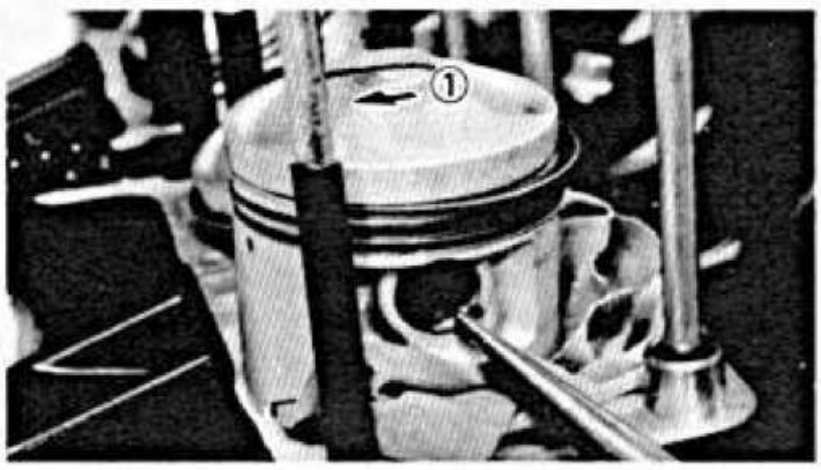
The lower and of chain guide must rest in the cam chain guide slot in the crankcase.



2. Install:
   - Piston rings

NOTE:

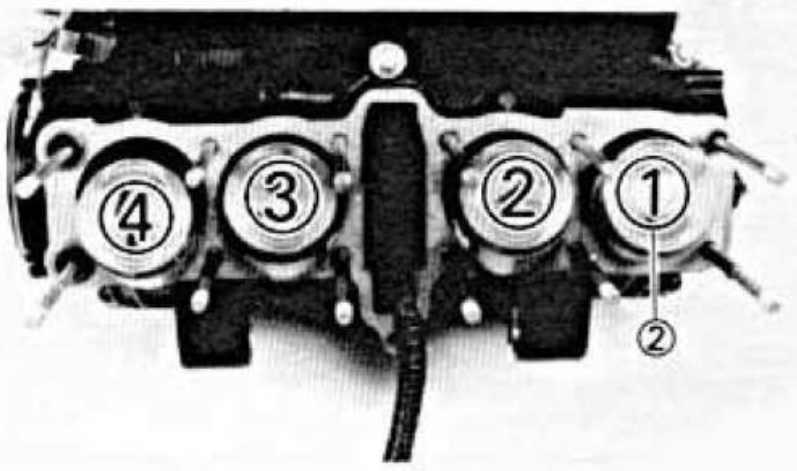
Be sure to install rings so that Manufacturer's marks or numbers are located on the top side of the rings. Oil the pistons and rings liberally.



3. Install:
   - Piston pin
   - Piston
   - Piston pin circlip (New)

NOTE:

- Be sure the piston arrow mark ① face to exhaust side.
- Before installing piston pin circlip, cover crankcase with a clean rag to prevent circlip from falling into crankcase cavity.
- Be sure the marked piston numbers ② should be in sequence (1,2,3,4) beginning from the left.

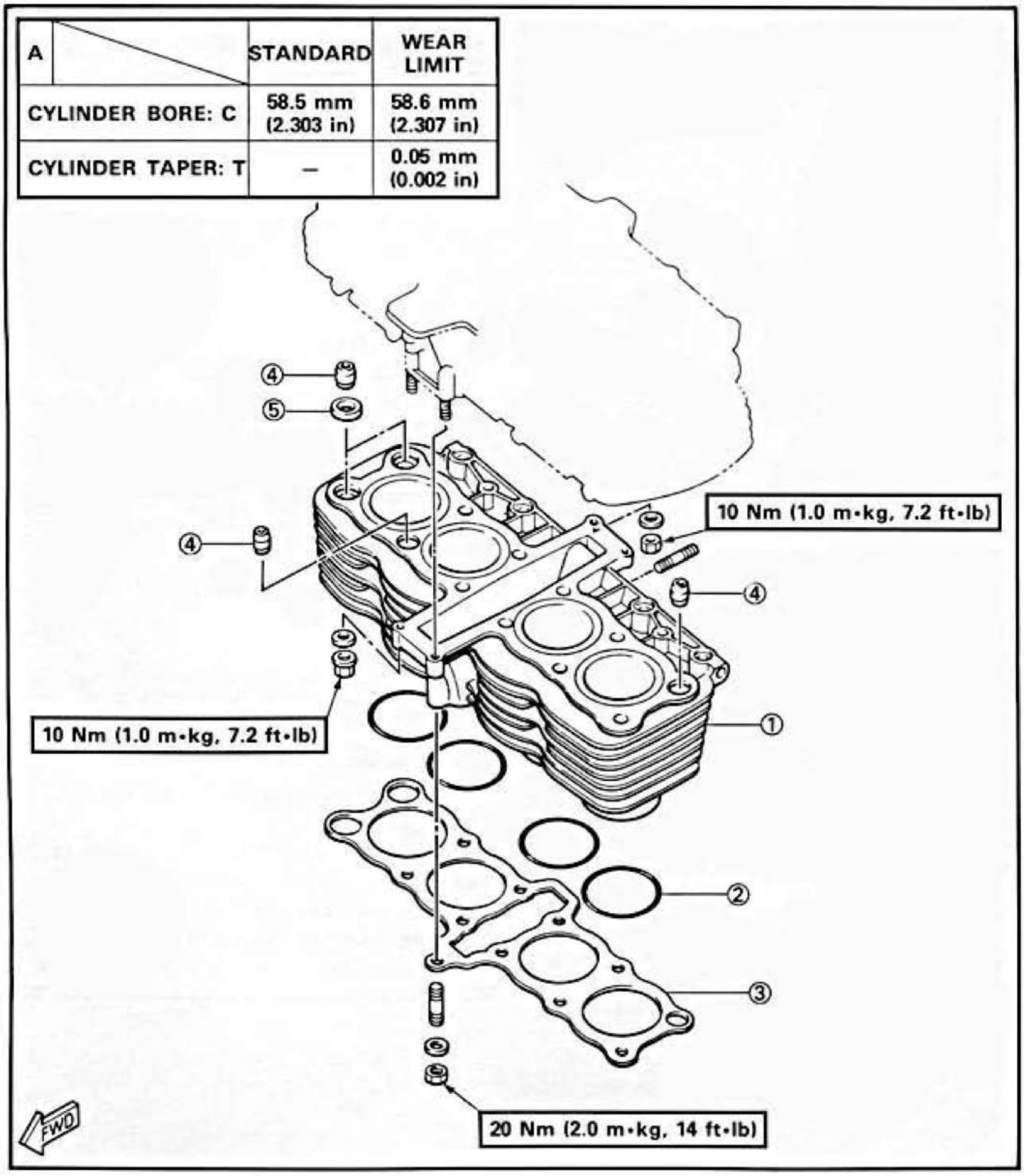


www.badrad600.com

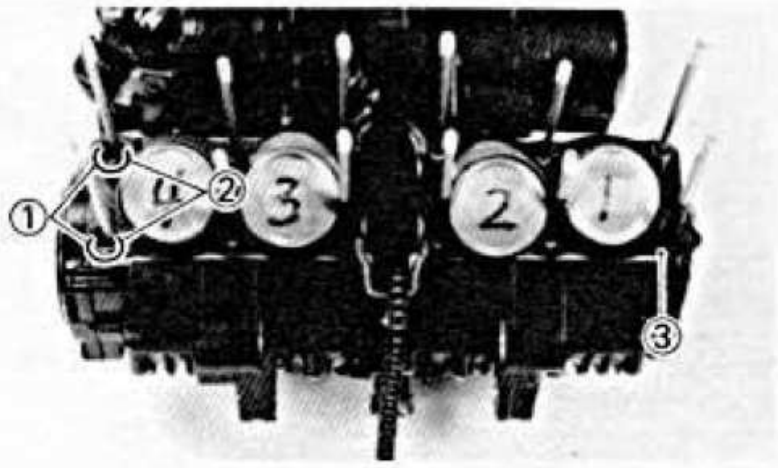
CYLINDER

① Cylinder
② O-ring
③ Gasket
④ Dowel pin
⑤ O-ring

A	STANDARD	WEAR LIMIT
CYLINDER BORE: C	58.5 mm (2.303 in)	58.6 mm (2.307 in)
CYLINDER TAPER: T	—	0.05 mm (0.002 in)

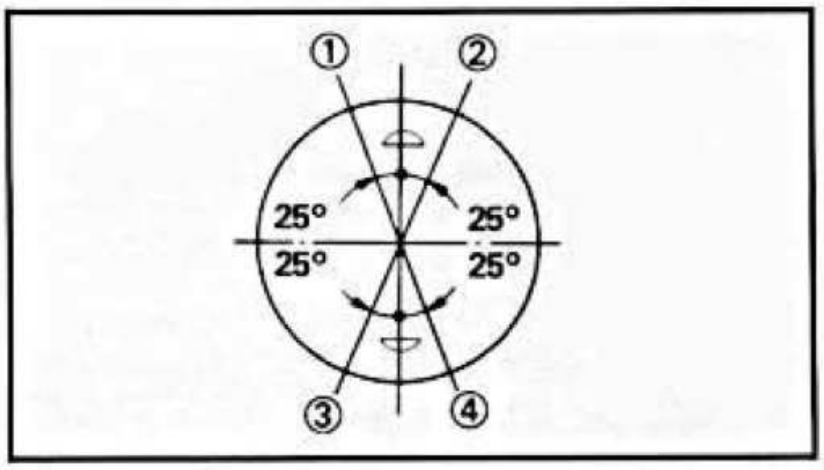


www.badrad600.com



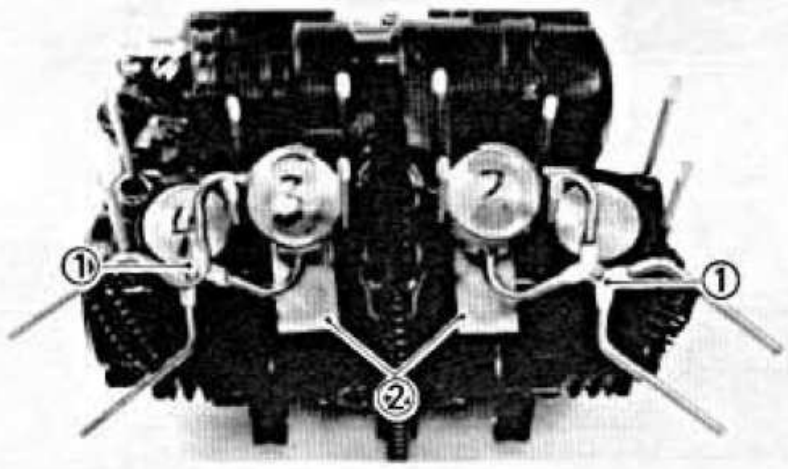
CYLINDER

1. Install:
   - Dowel pins ①
   - O-rings ②
   - Cylinder gasket ③



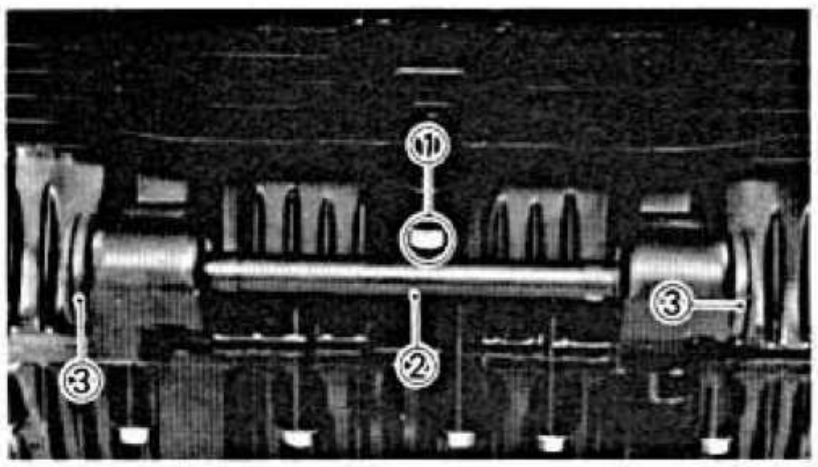
2. Oil liberally:
   - Piston
   - Rings
   - Cylinders

3. Set:
   - Top ring end ①
   - Oil ring end (Lower) ②
   - Oil ring end (Upper) ③
   - 2nd ring end ④



4. Install:
   - Cylinder

   Use Piston Ring Compressor ① (YM-04047) and Piston Base ② (YM-01067).
   Pass the cam chain and exhaust side cam chain guide through cam chain cavity.



5. Tighten:
   - Cylinder nut ①

	20 Nm (2.0 m•kg, 14 ft•lb)

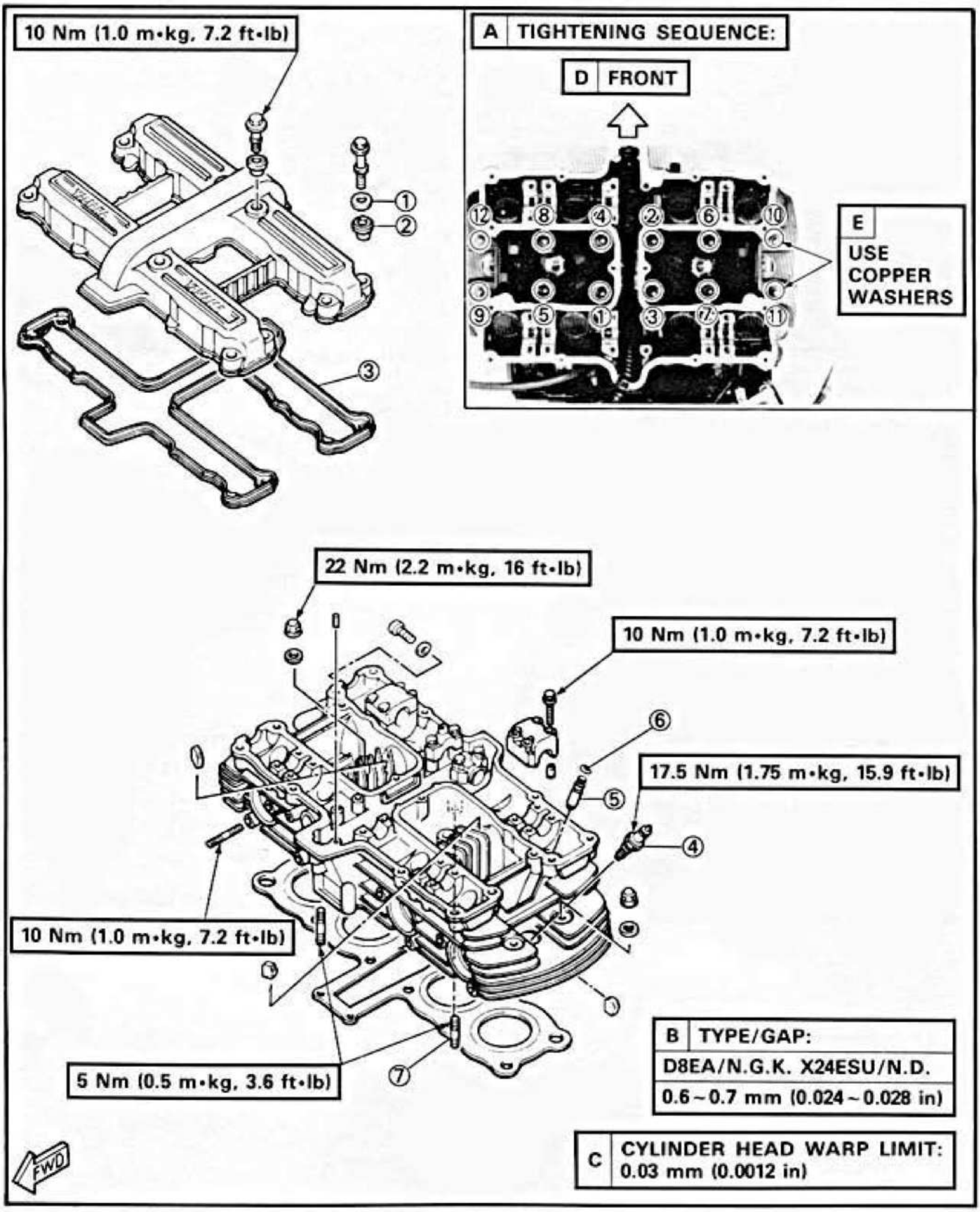
6. Install:
   - Front engine mount spacer ②
   - Damper ③

www.badrad600.com

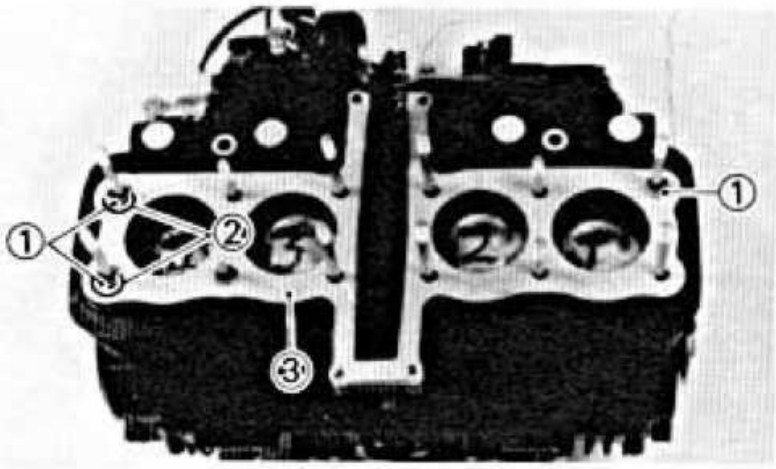
ENGINE ASSEMBLY AND ADJUSTMENT

CYLINDER HEAD

① Washer
② Rubber washer
③ Gasket
④ Spark plug
⑤ Valve guide
⑥ Circlip
⑦ Stud bolt

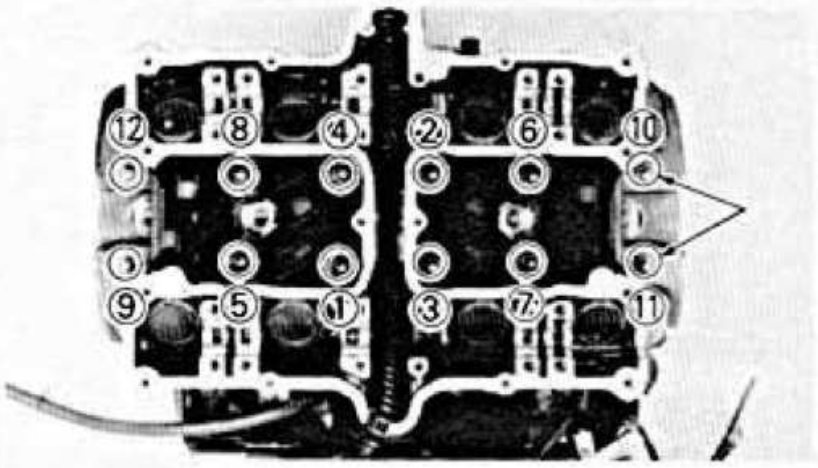


www.badrad600.com



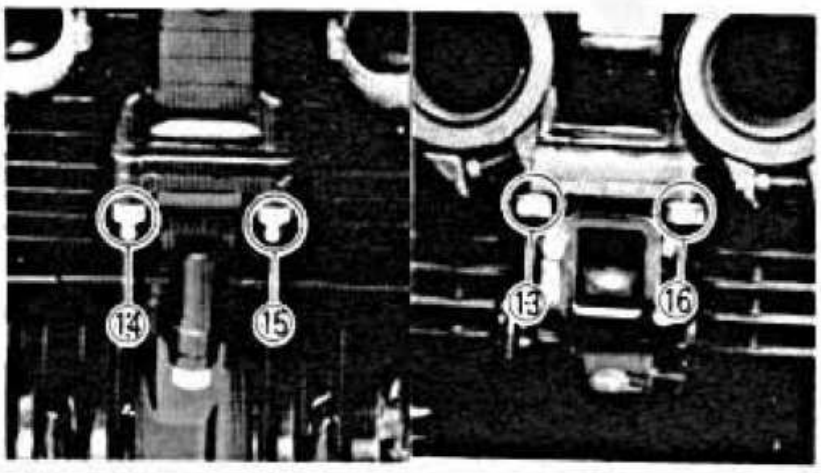
CYLINDER HEAD

1. Install:
   - Dowel pins ①
   - O-rings ②
   - Head gasket ③ (New)
   - Cylinder head

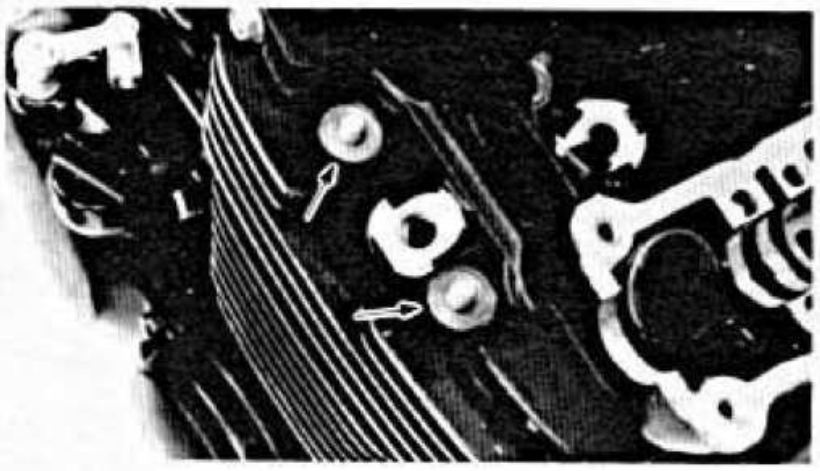


2. Tighten:
   - Cylinder head nuts

   In sequence as shown and torque nuts in two stages.



Nut No. ①~⑫:
22 Nm (2.2 m•kg, 16 ft•lb)
Nut No. ⑬~⑯:
10 Nm (1.0 m•kg, 7.2 ft•lb)



NOTE:

Use copper washers.

www.badrad600.com

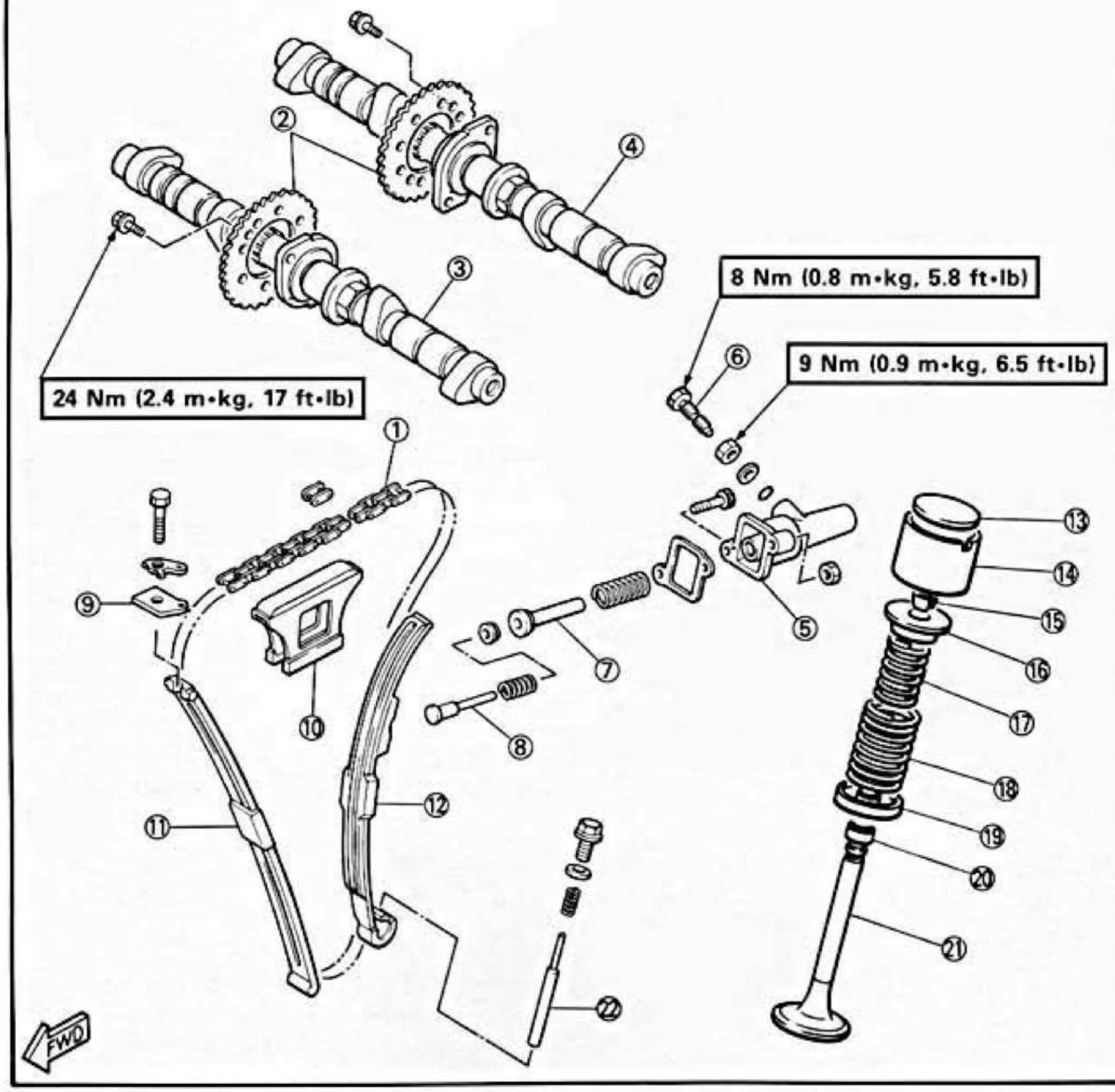
ENGINE ASSEMBLY AND ADJUSTMENT

CAMSHAFT

① Cam chain
② Cam sprocket
③ Camshaft (Exhaust)
④ Camshaft (Intake)
⑤ Chain tensioner body
⑥ Tensioner lock bolt
⑦ Tensioner rod (Large)
⑧ Tensioner rod (Small)
⑨ Guide stopper plate
⑩ Upper chain guide
⑪ Exhaust side chain guide
⑫ Intake side chain guide
⑬ Adjusting pad
⑭ Valve lifter
⑮ Valve retainer
⑯ Spring seat
⑰ Inner spring
⑱ Outer spring
⑲ Spring seat
⑳ Oil seal
㉑ Valve
㉒ Chain guide stopper
㉓ Match mark



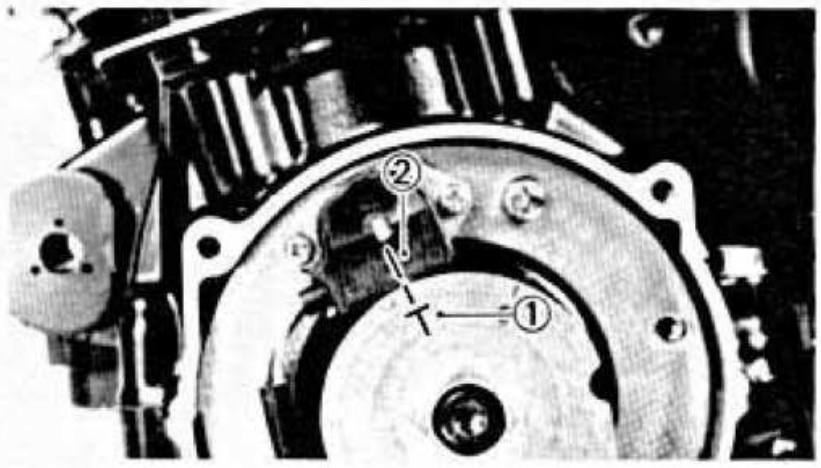
A	VALVE CLEARANCE (COLD):	
B	INTAKE	0.11 ~ 0.15 mm (0.004 ~ 0.006 in)
C	EXHAUST	0.16 ~ 0.20 mm (0.006 ~ 0.008 in)



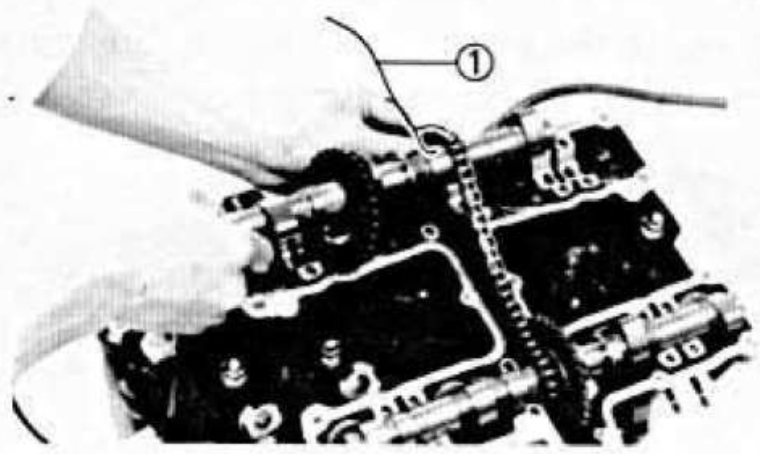
www.badrad600.com

CAMSHAFT

1. Rotate:
   - Crankshaft
     Counterclockwise

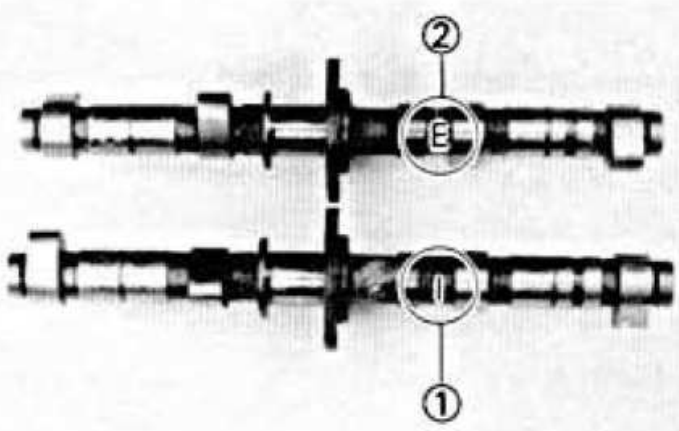


2. Align:
   - "T" mark ①
     On the timing plate with the upper pickup coil mark ② when No. 1 piston is at TDC on compression stroke.



3. Install:
   - Cam chain sprockets
     (on the camshafts)
   - "I" and "E" camshafts
     Apply engine oil to camshaft bearing surfaces before installing camshafts.

4. Remove:
   - Retaining wire ①



NOTE:

- "I" mark ① for intake camshaft
- "E" mark ② for exhaust camshaft

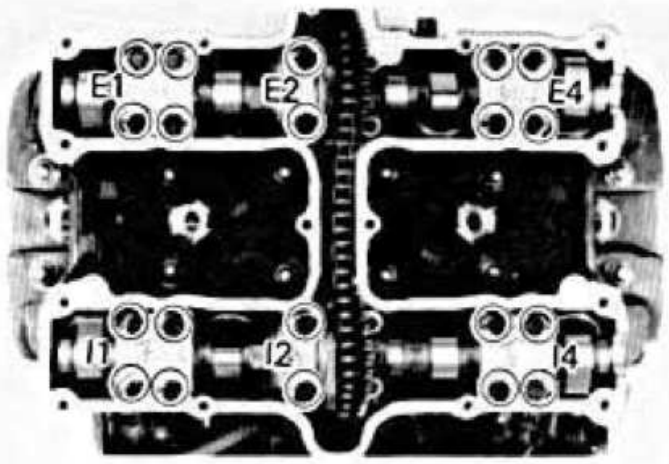
5. Install:
   - Dowel pins
   - Cam caps

	10 Nm (1.0 m•kg, 7.2 ft•lb)

NOTE:

Do not install No. 3 intake (I-3) and No. 3 exhaust (E-3) cam caps at in this stage.

www.badrad600.com



CAUTION:

The cam caps must be tightened evenly or damage to the cylinder head, cam caps and cam will result. The spaces between the caps and cylinder head should be equal.

Cam Chain

1. Rotate:
   - Exhaust camshaft

2. Align:
   - Exhaust camshaft timing mark
     (with the "E-2" cam cap arrow mark)

CAUTION:

Do not rotate the camshaft over 1/2 turn or damage to the piston and valve will result.

3. Position:
   - Cam chain
     (onto sprockets)

4. Install:
   - Sprockets
     (onto camshafts)

5. Force the exhaust sprocket clockwise (viewing from left side engine) to remove all cam chain slack.

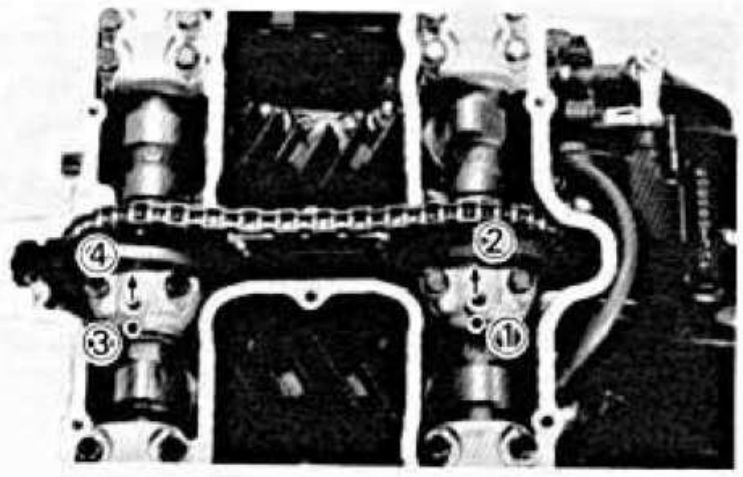
6. Align:
   - Sprocket, hole
     (with the exhaust camshaft thread hole)

NOTE:

If the sprocket hole do not align with the camshaft hole, adjust chain links between crankshaft and exhaust camshaft.

7. Install:
   - Exhaust sprocket bolt
     (temporarily tighten)

www.badrad600.com



8. Rotate:
   • Intake camshaft

9. Align:
   • Intake camshaft timing mark ①
     (with the "I-2" cam cap arrow mark ②)

③ Exhaust camshaft timing mark
④ "E-2" cam cap arrow mark

CAUTION:

Do not rotate the camshaft over 1/2 turn or damage to the piston and valve will result.

10. Force the intake sprocket clockwise (viewing from left side engine) to remove all cam chain slack.

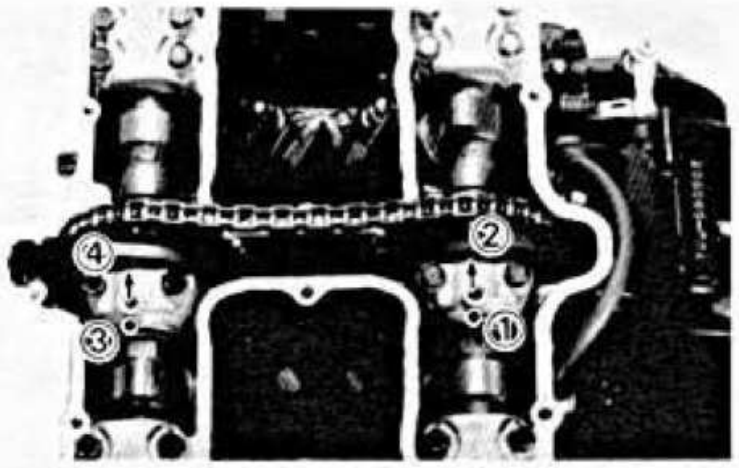
11. Align:
   • Intake sprocket hole
     (with the intake camshaft thread hole)

NOTE:

If the sprocket hole do not align with the camshaft thread hole, adjust chain links between exhaust and intake camshafts.

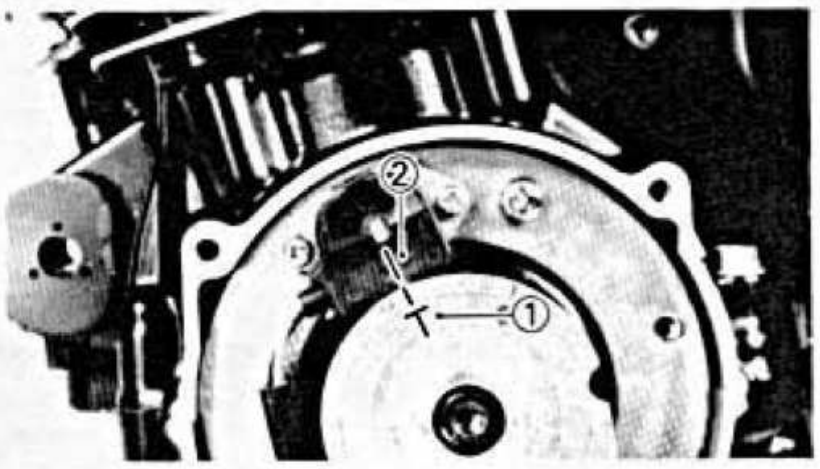
12. Install:
   • Intake sprocket bolt
     (temporarily tighten)

www.badrad600.com



NOTE:

- Be sure the camshaft timing marks (① or ③) align with the cam cap arrow mark (② or ④).
- Be sure the "T" mark on the timing plate align with the upper pickup coil mark.

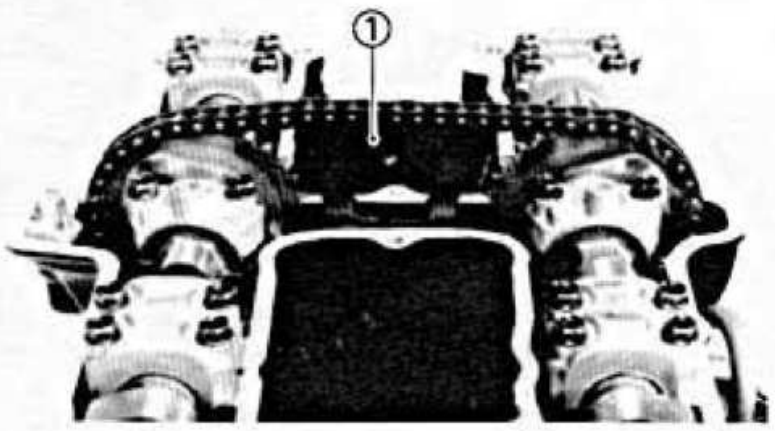


13. Rotate:
    - Crankshaft
      Counterclockwise
14. Align:
    - Timing plate "T" mark ①
      (with the upper pickup coil mark ②)



15. Install:
    - Exhaust side chain guide ①
    - Chain guide stopper ②
    - Bolt
    - Lock washer

16. Bend the lock washer tab against bolt flat.



17. Install:
    - Upper chain guide ①



18. Install:
    - Cam chain tensioner ①

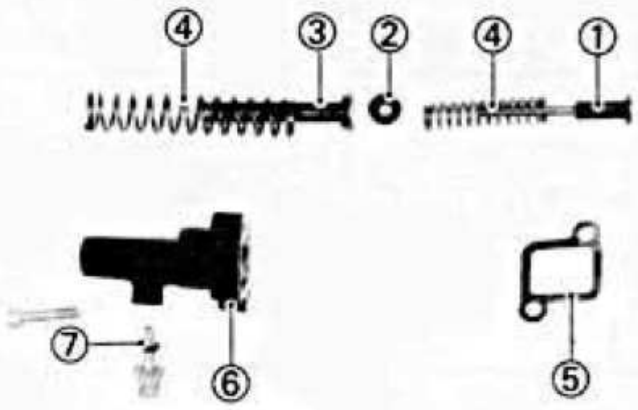
	10 Nm (1.0 m•kg, 7.2 ft•lb)

19. Loosen:
    - Locknut ②
    - Tensioner lock bolt ③

www.badrad600.com

20. Tighten:
    - Tensioner lock bolt
    - Locknut

Bolt:
8 Nm (0.8 m•kg, 5.8 ft•lb)
Locknut:
9 Nm (0.9 m•kg, 6.5 ft•lb)

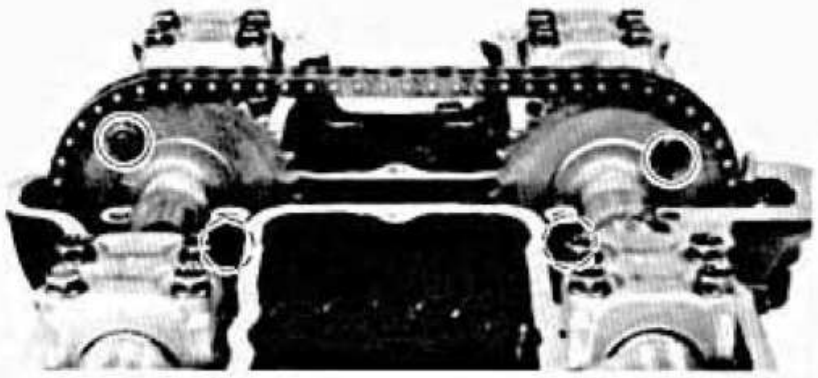


Cam chain tensioner installation steps:
- Install the spring ④, large tensioner rod ③, damper ②, small spring ④, and small tensioner rod ① into the tensioner body ⑥.
- Push the tensioner rod assembly into the body.

NOTE:
Face the large rod surface to the lock bolt ⑦.

- Tighten lock bolt.
- Lock the locknut.

⑤ Gasket



21. Rotate:
    - Crankshaft
      Counterclockwise
22. Install:
    - Sprocket bolts (all)

24 Nm (2.4 m•kg, 18 ft•lb)

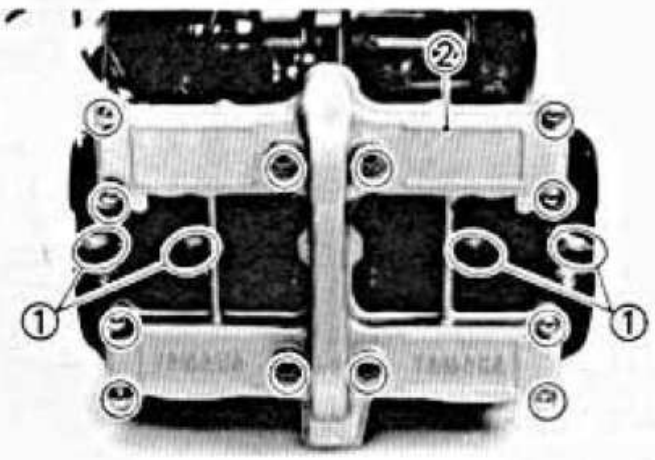
www.badrad600.com

23. Install:
    - No. 3 intake cam cap
    - No. 3 exhaust cam cap

Bolts (Cam Cap):
10 Nm (1.0 m•kg, 7.2 ft•lb)

24. Install:
    - Left crankcase cover

Screw:
10 Nm (1.0 m•kg, 7.2 ft•lb)



25. Install:
    - Spark plug ①

17.5 Nm (1.75 m•kg, 12.7 ft•lb)

    - Head cover gasket
    - Head cover ②

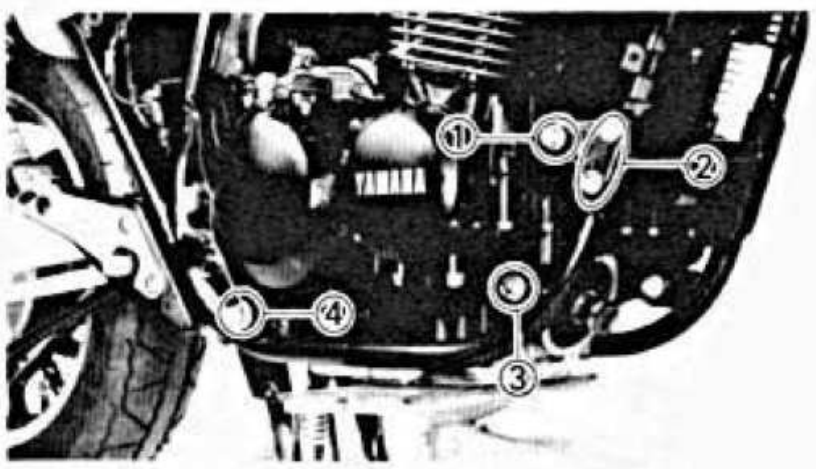
Bolt:
10 Nm (1.0 m•kg, 7.2 ft•lb)

3

REMOUNTING ENGINE

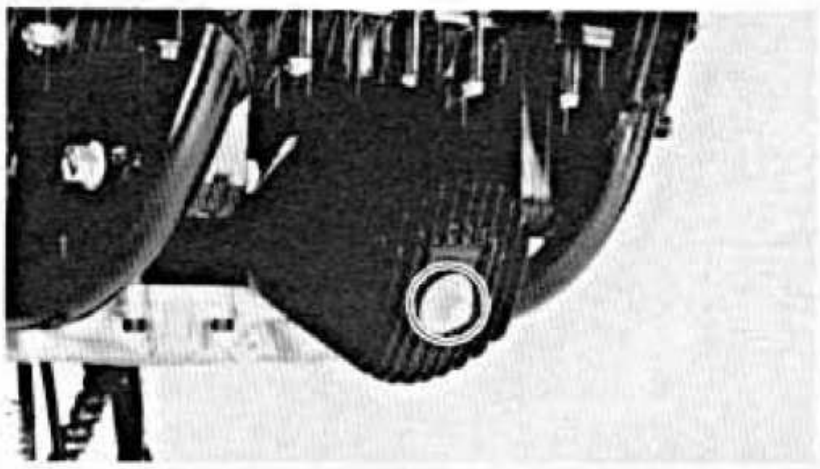
Reverse the removal procedure. Note the following points.

1. Tighten:
    - Engine mounting bolts



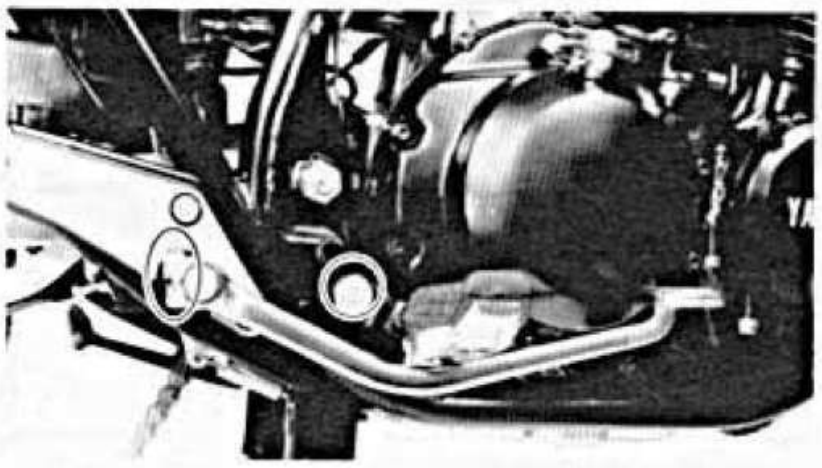
Front Upper Bolts ①:
42 Nm (4.2 m•kg, 30 ft•lb)
Front Bracket Bolt ②:
32 Nm (3.2 m•kg, 23 ft•lb)
Front Lower Bolts ③:
42 Nm (4.2 m•kg, 30 ft•lb)
Rear Bolts ④:
90 Nm (9.0 m•kg, 65 ft•lb)

www.badrad600.com



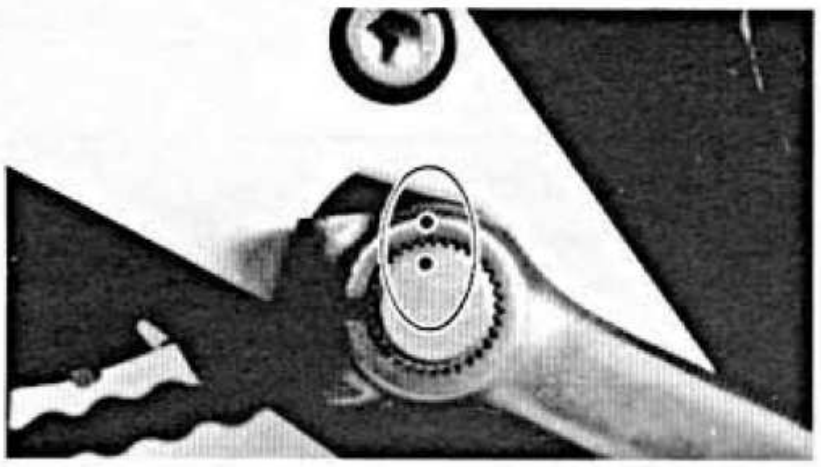
2. Tighten:
   • Oil filter bolt

15 Nm (1.5 m•kg, 11 ft•lb)



3. Tighten:
   • Bolt (Footrest)

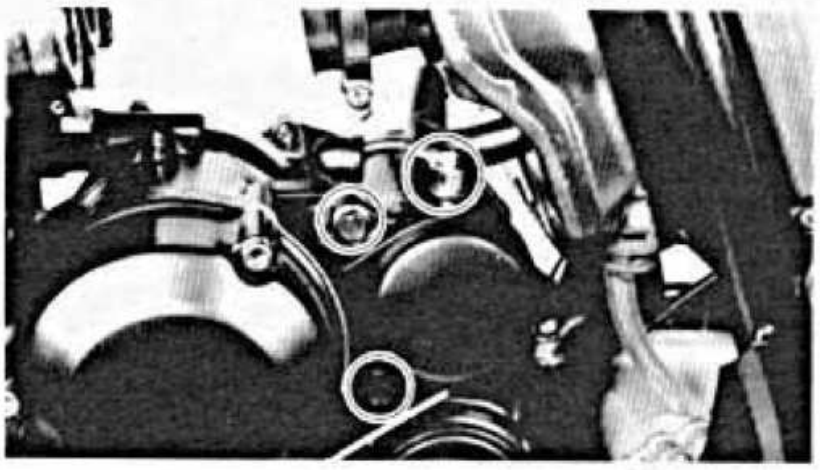
70 Nm (7.0 m•kg, 50 ft•lb)



4. Install:
   • Brake pedal

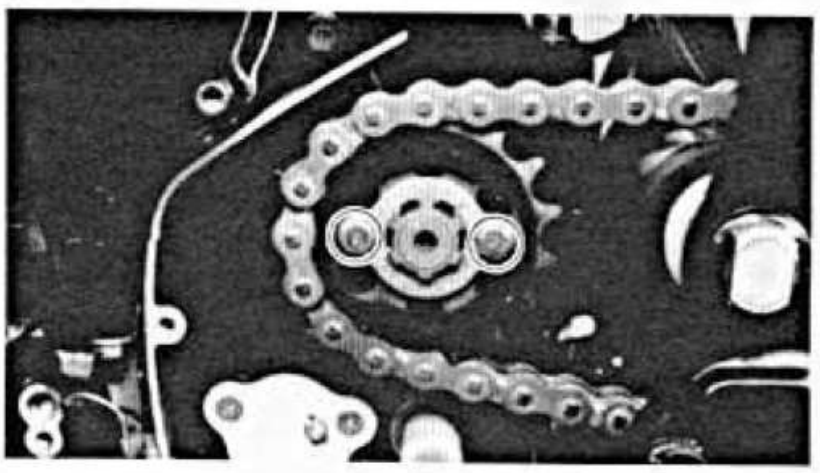
NOTE:

Align the punch marks on the brake shaft and the pedal.



5. Install:
   • Starter motor

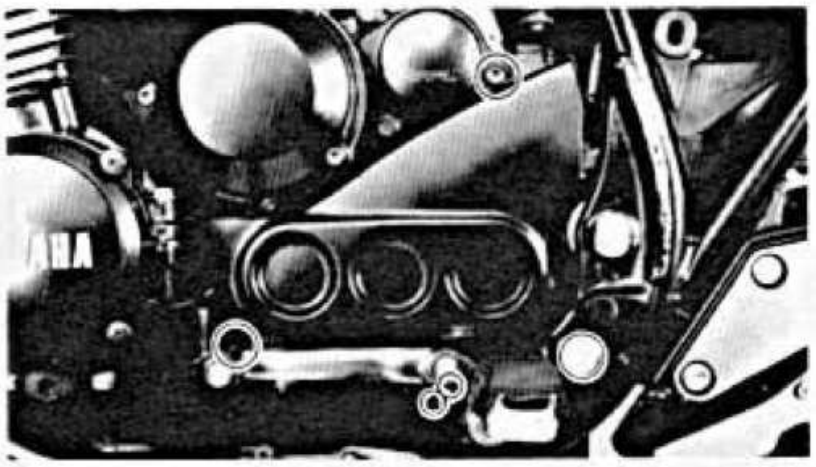
Bolt (Starter Motor):
10 Nm (1.0 m•kg, 7.2 ft•lb)



6. Install:
   • Drive chain
   • Drive sprocket

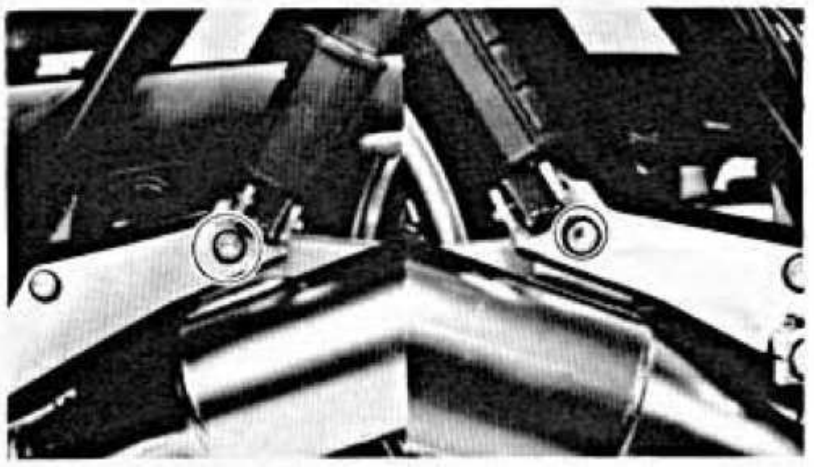
Bolts (Drive Sprocket):
10 Nm (1.0 m•kg, 7.2 ft•lb)

www.badrad600.com



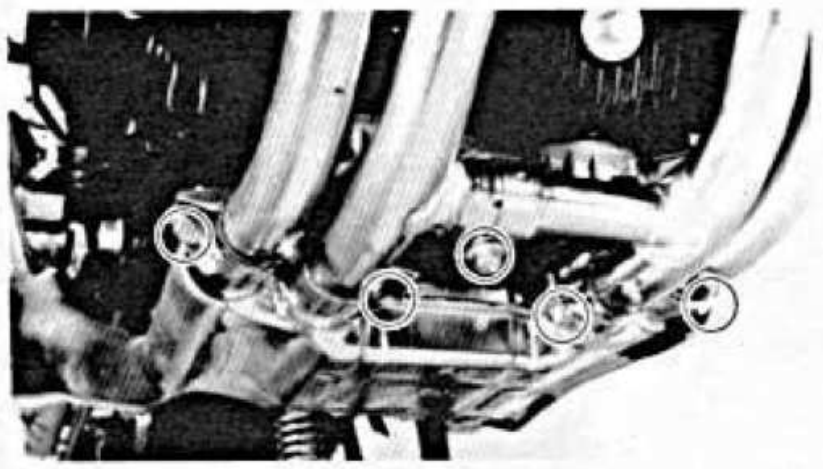
7. Install:
   - Drive sprocket cover
   - Change pedal
   - Footrest

Bolt (Change Pedal):
10 Nm (1.0 m•kg, 7.2 ft•lb)
Bolt (Footrest):
70 Nm (7.0 m•kg, 50 ft•lb)



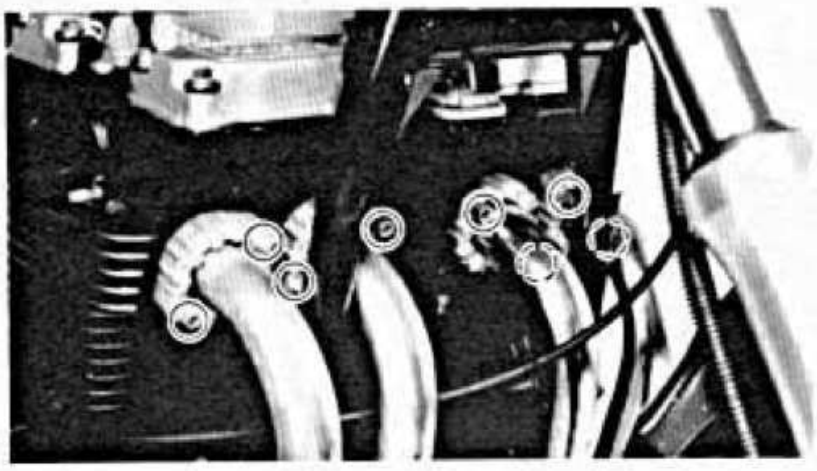
8. Install:
   - Mufflers

Bolt:
25 Nm (2.5 m•kg, 18 ft•lb)
Bolt:
25 Nm (2.5 m•kg, 18 ft•lb)



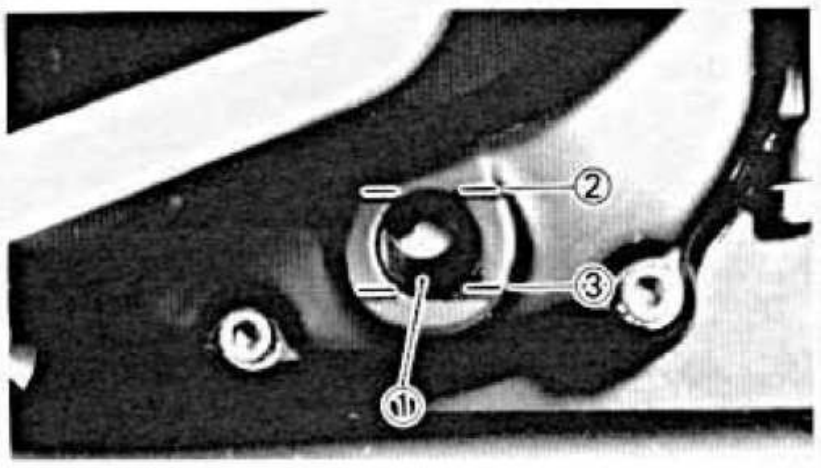
9. Install:
   - Exhaust pipes

Nuts (Exhaust Pipe):
10 Nm (1.0 m•kg, 7.2 ft•lb)
Bolts (Exhaust Pipe Joint):
20 Nm (2.0 m•kg, 14 ft•lb)



10. Fill:
    - Crankcase

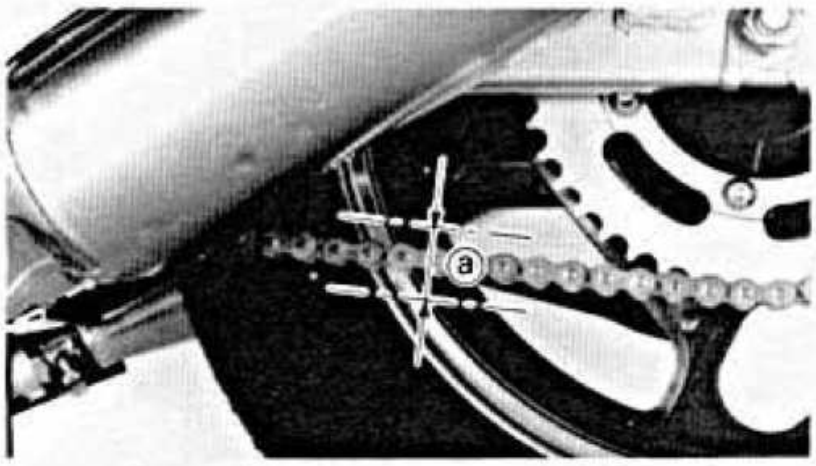
Recommended Oil:
Yamalube 4, SAE 20W40 Type SE Motor oil or SAE 10W30 Type SE Motor oil



Refer to "CHAPTER 2—ENGINE OIL LEVEL INSPECTION" section.

① Level window
② Maximum mark
③ Minimum mark

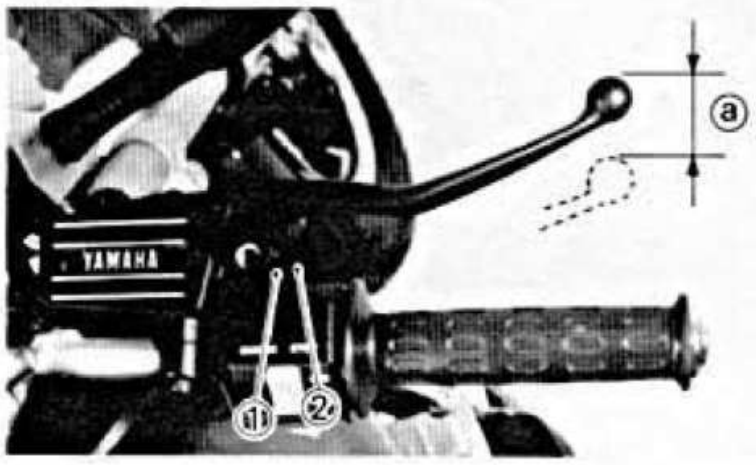
www.badrad600.com



11. Adjust:
    • Drive chain slack ⓐ

Drive Chain Slack:
20 ~ 30 mm (0.8 ~ 1.2 in)

Refer to "CHAPTER 2—DRIVE CHAIN SLACK ADJUSTMENT" section.

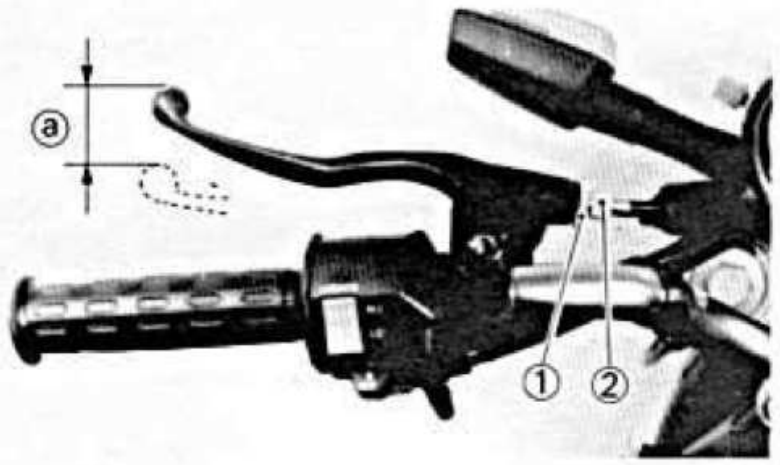


12. Adjust:
    • Brake lever free play ⓐ

Free Play:
2 ~ 5 mm (0.08 ~ 0.20 in)

Refer to "CHAPTER 2—BRAKE LEVER FREE PLAY ADJUSTMENT" section.

① Locknut
② Adjuster



13. Adjust:
    • Clutch lever free play ⓐ

Free Play:
10 ~ 15 mm (0.4 ~ 0.6 in)

Refer to "CHAPTER 2—CLUTCH LEVER FREE PLAY ADJUSTMENT" section.

① Locknut
② Adjuster

14. Adjust:
    • Cam chain
    Refer to "CHAPTER 2—CAM CHAIN ADJUSTMENT" section.

15. Adjust:
    • Idle speed

1,250 ~ 1,350 r/min

Refer to "CHAPTER 2—IDLE SPEED ADJUSTMENT" section.

www.badrad600.com

CHAPTER 4
CARBURETION

CARBURETOR 4-1
SECTION VIEW 4-2
REMOVAL 4-3
DISASSEMBLY 4-5
INSPECTION 4-7
ASSEMBLY 4-8
INSTALLATION 4-9
ADJUSTMENT 4-10

AIR CLEANER AND CRANKCASE VENTILATION SYSTEM 4-13

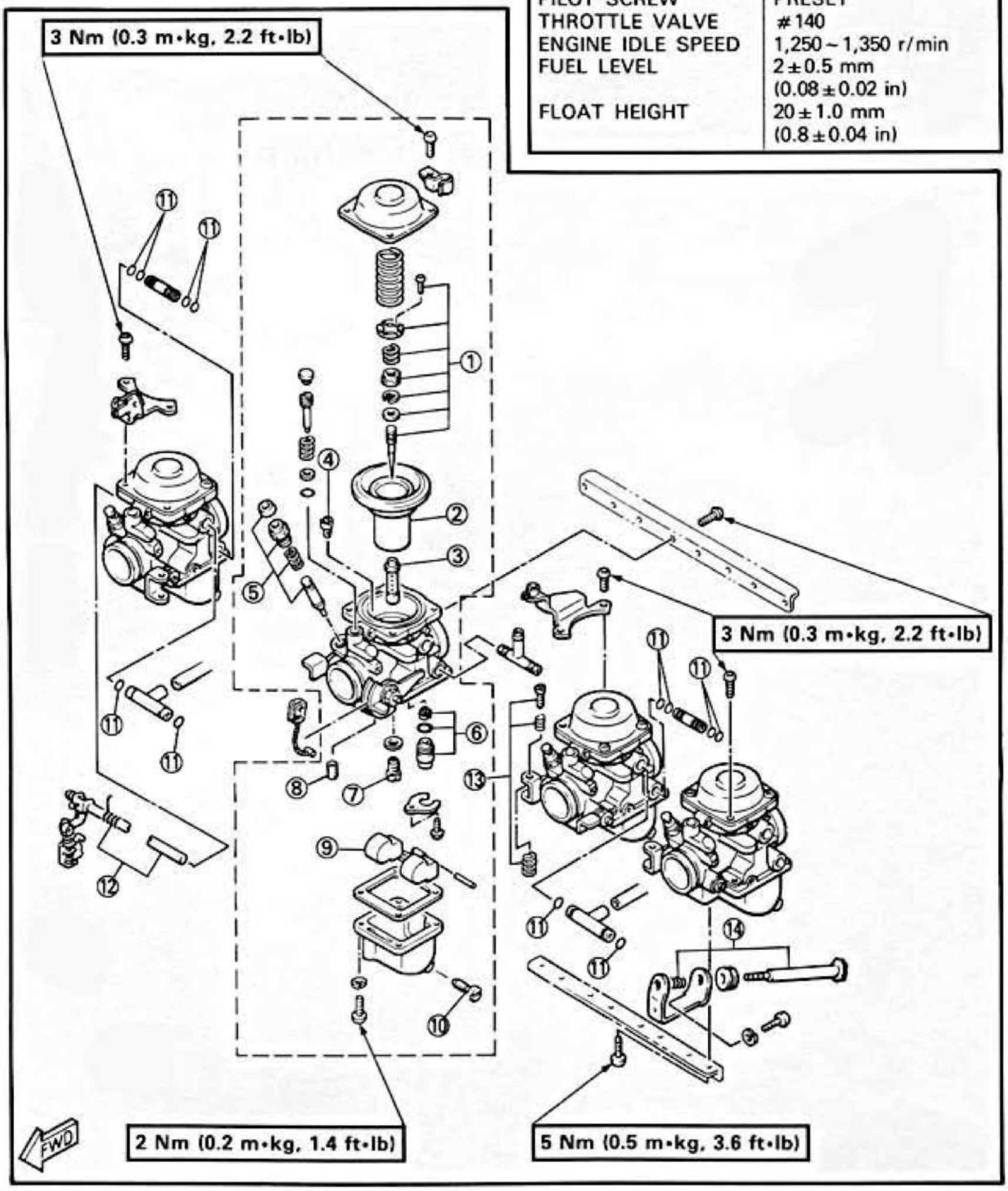
www.badrad600.com

CARBURETION

CARBURETOR

① Jet needle set
② Throttle valve
③ Main nozzle
④ Pilot air jet
⑤ Starter plunger set
⑥ Valve seat set
⑦ Main jet
⑧ Pilot jet
⑨ Float
⑩ Drain screw
⑪ O-ring
⑫ Starter lever
⑬ Synchronizing screw
⑭ Throttle stop screw

SPECIFICATIONS	
MAIN JET	#97.5
MAIN AIR JET	#140
PILOT JET	#30
PILOT AIR JET	#135
JET NEEDLE	
#1 AND #4	4CHP2
#2 AND #3	4CHP4
PILOT SCREW	PRESET
THROTTLE VALVE	#140
ENGINE IDLE SPEED	1,250 ~ 1,350 r/min
FUEL LEVEL	2 ± 0.5 mm (0.08 ± 0.02 in)
FLOAT HEIGHT	20 ± 1.0 mm (0.8 ± 0.04 in)



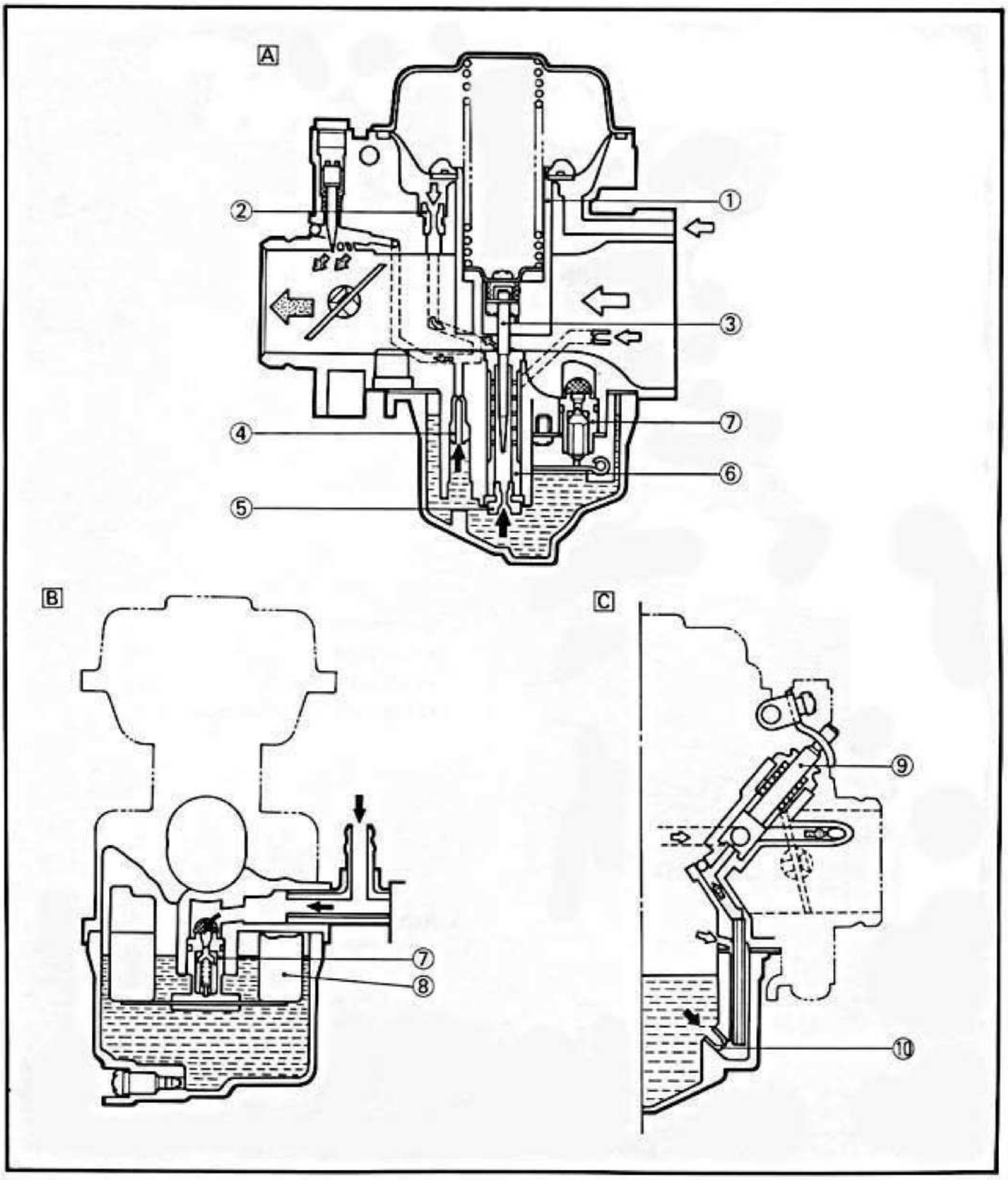
www.badrad600.com

SECTION VIEW

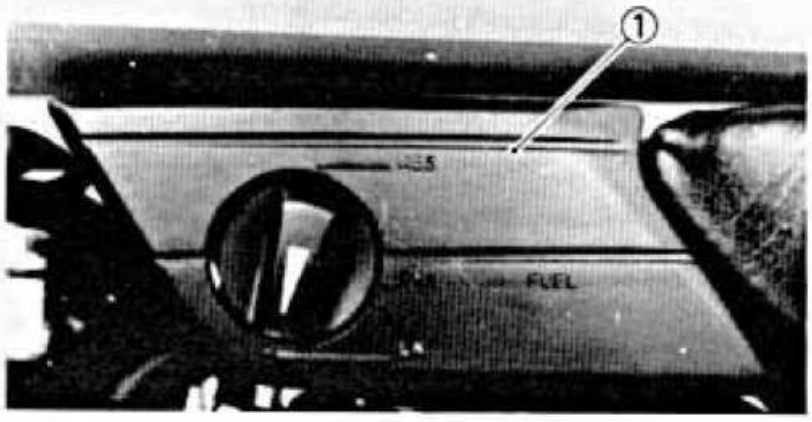
① Throttle valve
② Pilot air jet
③ Jet needle
④ Pilot jet
⑤ Main jet
⑥ Main nozzle
⑦ Valve seat
⑧ Float
⑨ Starter plunger
⑩ Starter jet

Ⓐ Main metering system
Ⓑ Float system
Ⓒ Starter system

⇦ Air
⬅ Fuel
⇦ Mixture



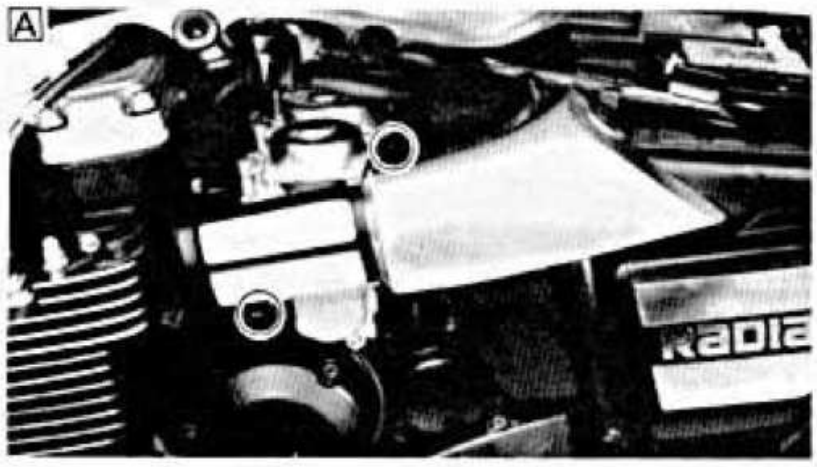
www.badrad600.com



REMOVAL

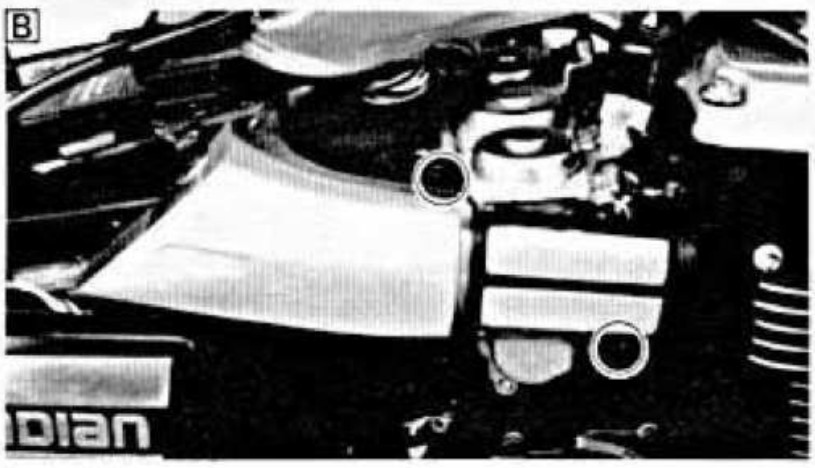
1. Turn the fuel cock to "ON" position.

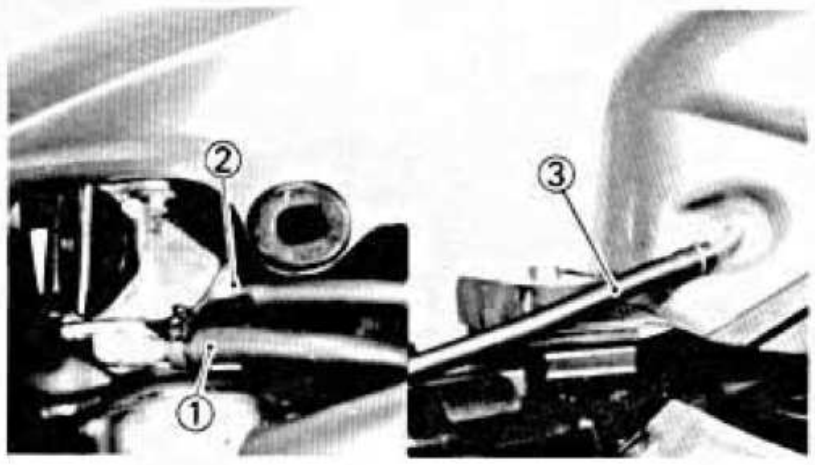
2. Remove:
   - Seat
   - Cover (Fuel cock) ①



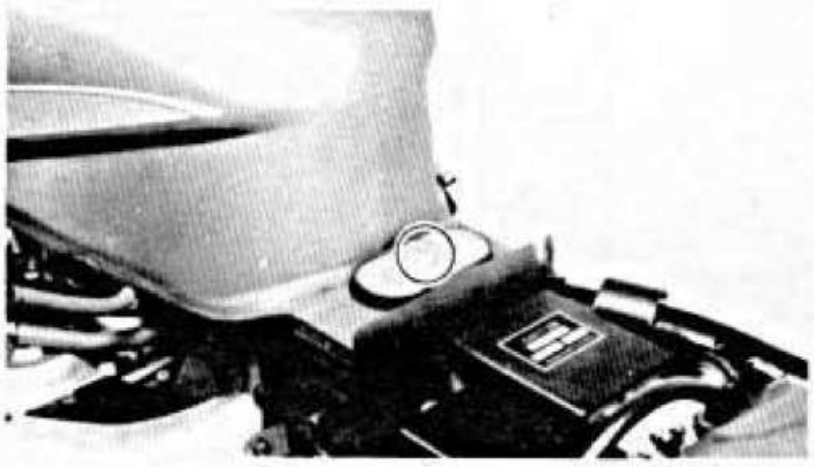
3. Remove:
   - Cover (Carburetor)

A Left side
B Right side



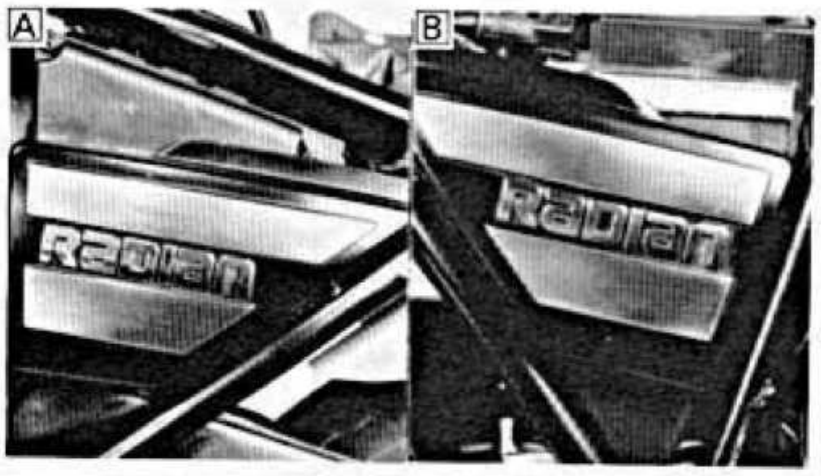


4. Disconnect:
   - Fuel pipe ①
   - Vacuum pipe ②
   - Fuel tank breather pipe ③



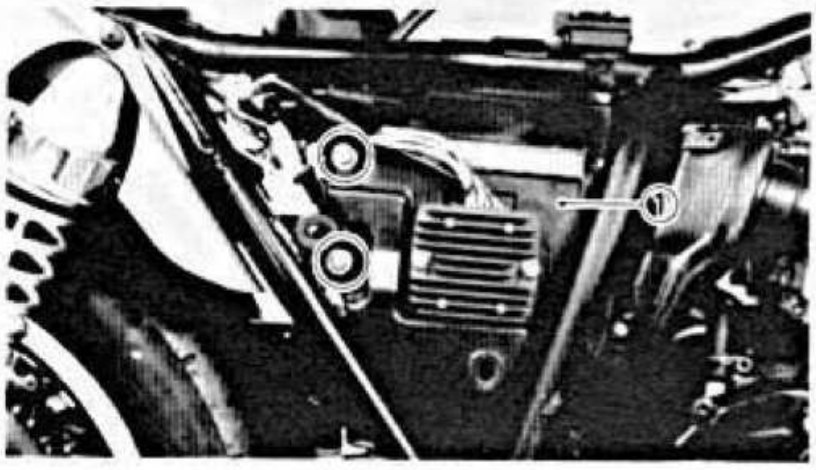
5. Remove:
   - Fuel tank

www.badrad600.com



6. Remove:
   - Side cover

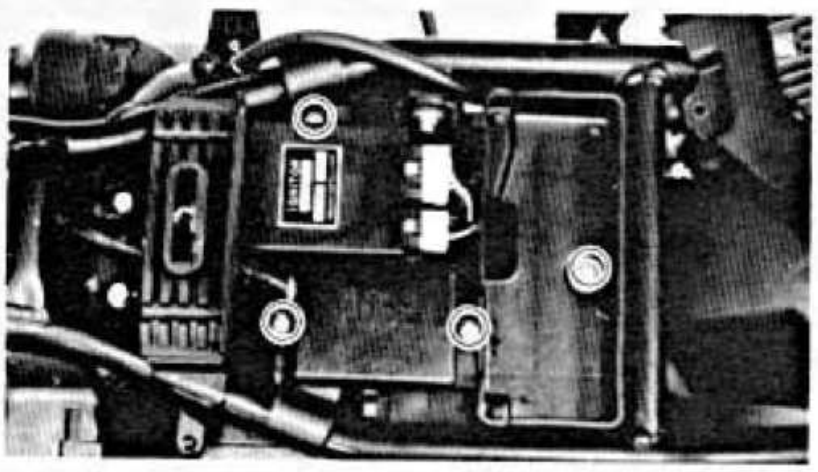
A Left side
B Right side



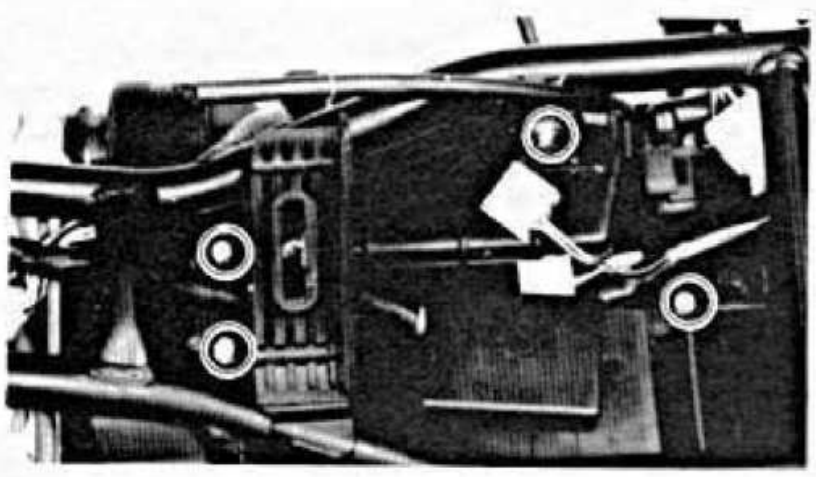
7. Remove:
   - Battery case cover ①
   - Battery

CAUTION:

Disconnect the negative lead first, and then disconnect the positive lead.



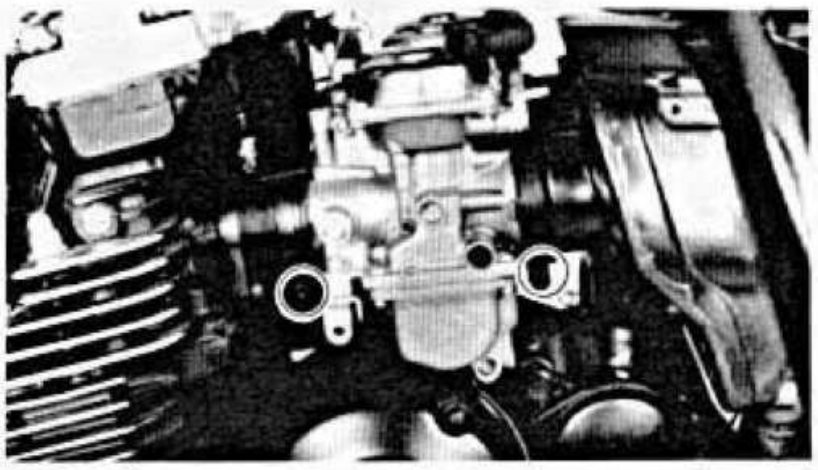
8. Remove:
   - Screws (Fuse box)
   - Ignitor unit



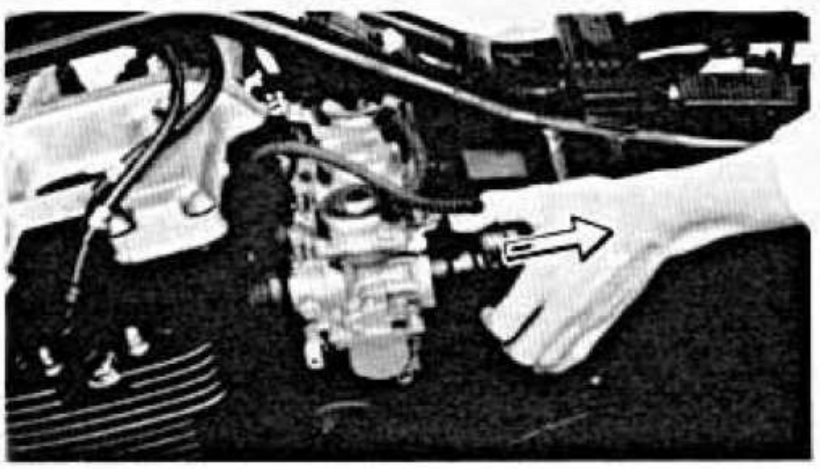
9. Remove:
   - Bolts (Battery case)
   - Bolts (Air cleaner case)



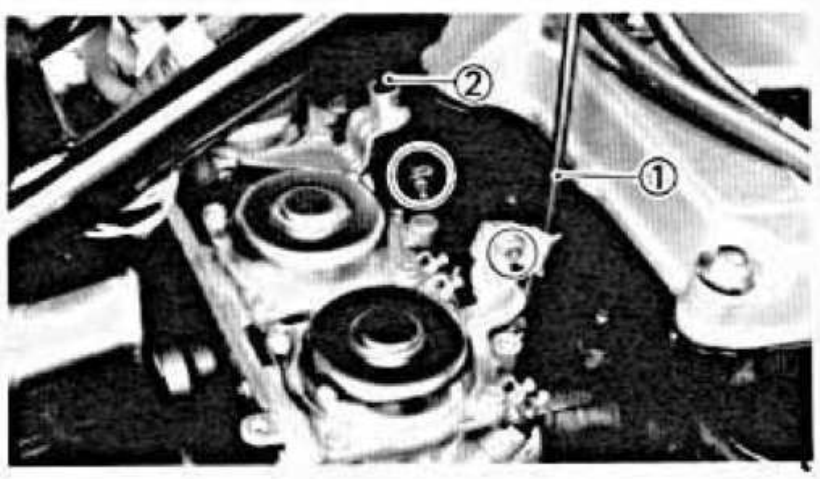
www.badrad600.com



10. Loosen:
    - Screws (Carburetor joints)



11. Slide the air cleaner case and the battery case backward.



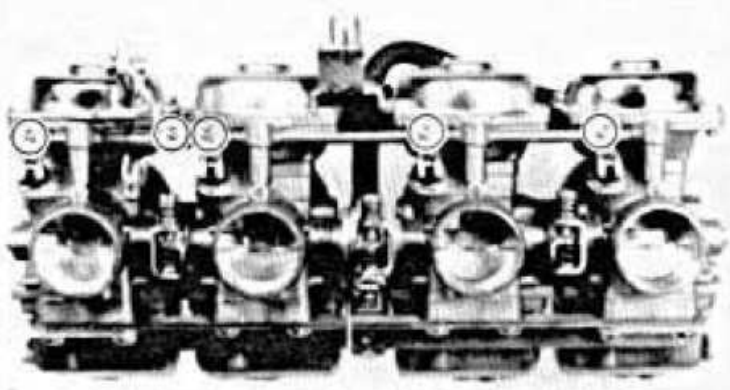
12. Remove:
    - Starter cable ①
    - Throttle cable ②
    - Air bent hoses
    - Carburetor assembly

4

DISASSEMBLY

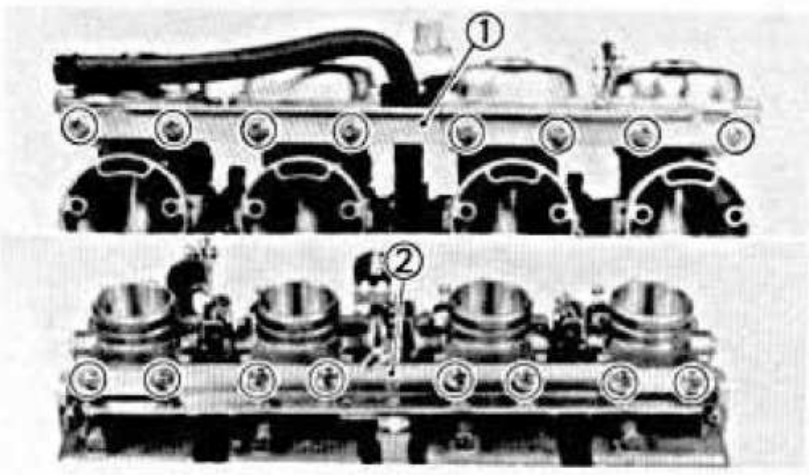
NOTE:

The following parts can be cleaned and inspected without carburetor separation.
- Throttle valve
- Starter plunger
- Float chamber components

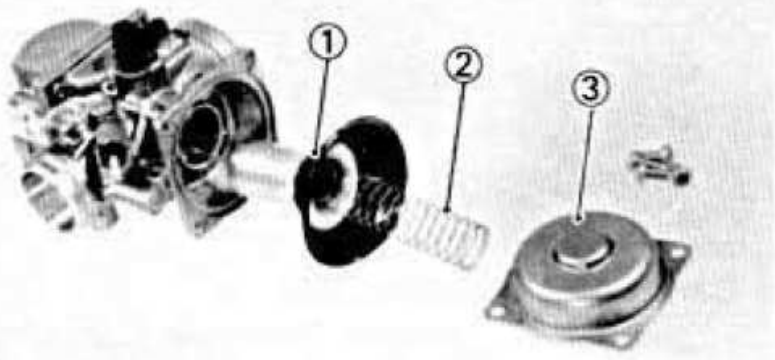


1. Remove:
    - Starter lever shaft

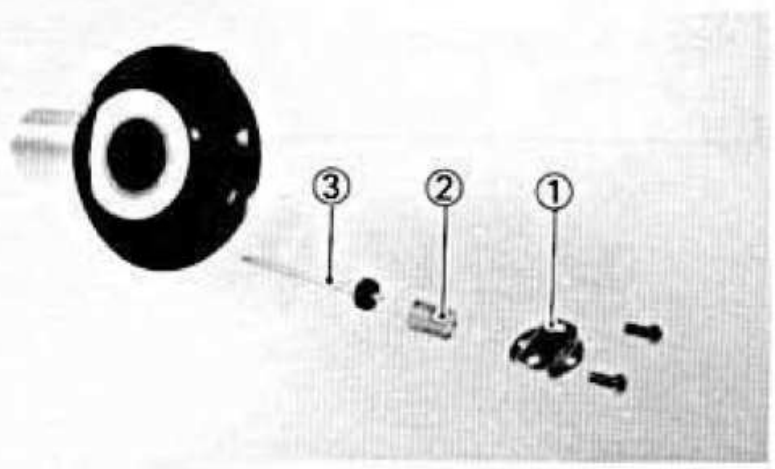
www.badrad600.com



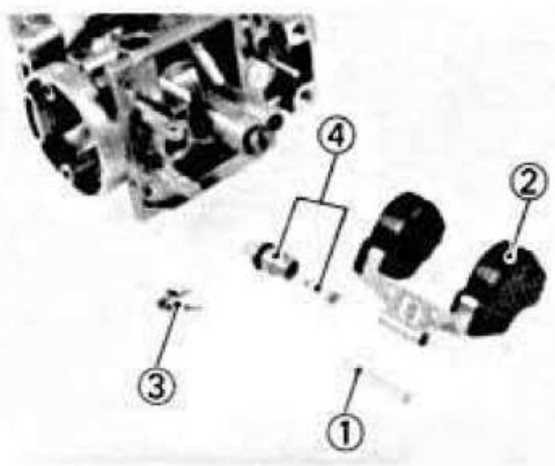
2. Remove:
   - Upper bracket ①
   - Lower bracket ②



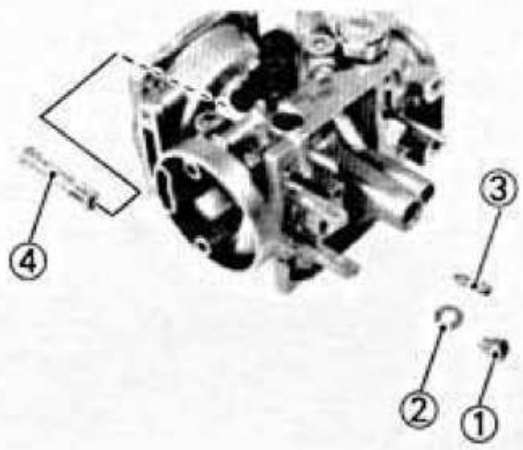
3. Remove:
   - Vacuum chamber cover ①
   - Spring ②
   - Throttle valve assembly ③



4. Remove:
   - Jet needle cover ①
   - Spring ②
   - Jet needle ③

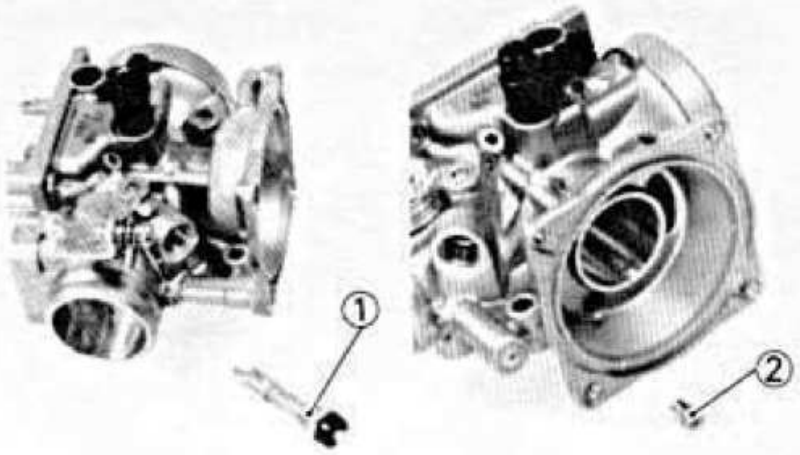


5. Remove:
   - Float chamber cover
   - Gasket
   - Float pin ①
   - Float ②
   - Valve seat plate ③
   - Valve seat assembly ④

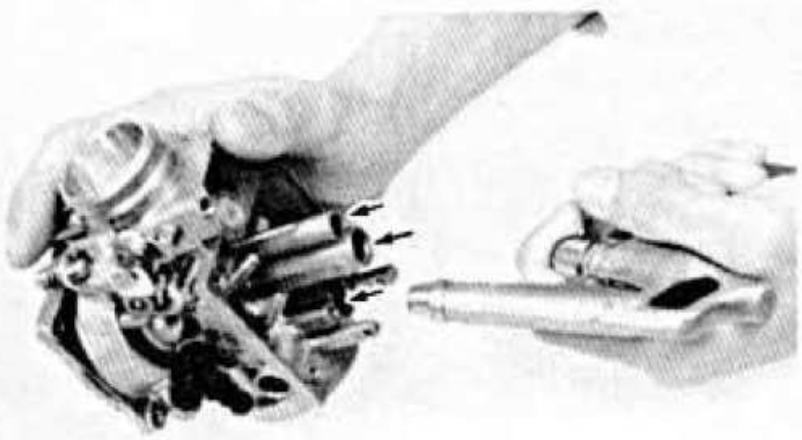


6. Remove:
   - Main jet ①
   - Washer ②
   - Pilot jet ③
   - Main nozzle ④

www.badrad600.com



7. Remove:
   - Starter plunger ①
   - Pilot air jet ②



INSPECTION

1. Inspect:
   - Carburetor body
   - Fuel passage

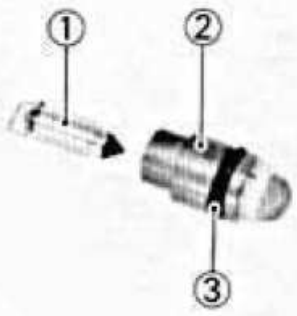
   Contamination → Clean as indicated.

Carburetor cleaning steps:
- Wash carburetor in petroleum based solvent. (Do not use any caustic carburetor cleaning solution.)
- Blow out all passages and jets with compressed air.



2. Inspect:
   - Floats

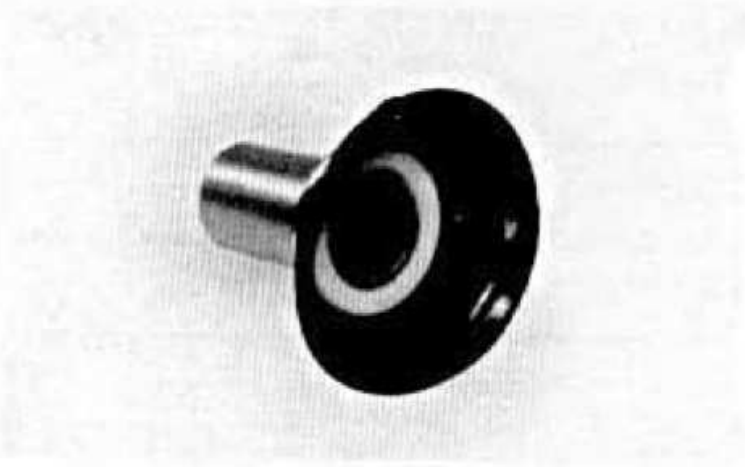
   Damage → Replace.



3. Inspect:
   - Float needle valve ①
   - Seat ②
   - O-ring ③

   Damage/Wear/Contamination → Replace as a set.

www.badrad600.com



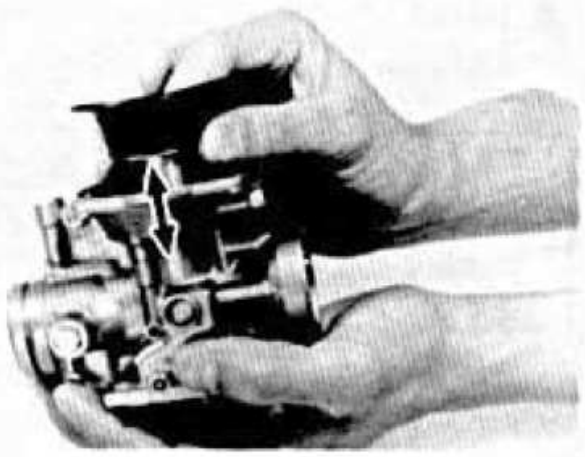
4. Inspect:
   - Throttle valve
     Scratches → Replace.
   - Rubber diaphragm
     Tears → Replace.



5. Inspect:
   - Jet needle
     Bends/Wear → Replace.



6. Inspect:
   - Starter plunger
     Wear/Damage → Replace.



7. Check:
   - Free movement
     Insert the throttle valve into the carburetor body, and check for free movement.
     Stick → Replace.

ASSEMBLY

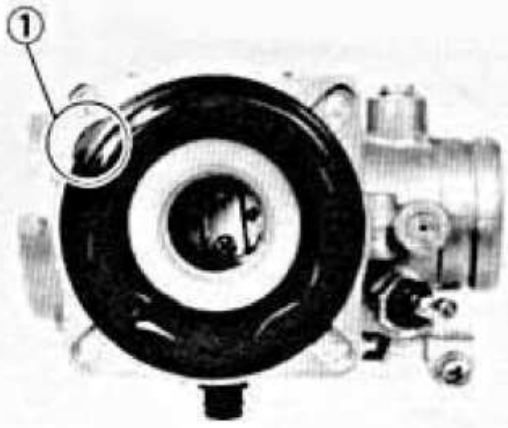
To assemble the carburetor, reverse the disassembly procedures. Note the following points.

CAUTION:

- **Before reassembling, wash all parts in clean gasoline.**
- **Always use a new gasket.**

www.badrad600.com

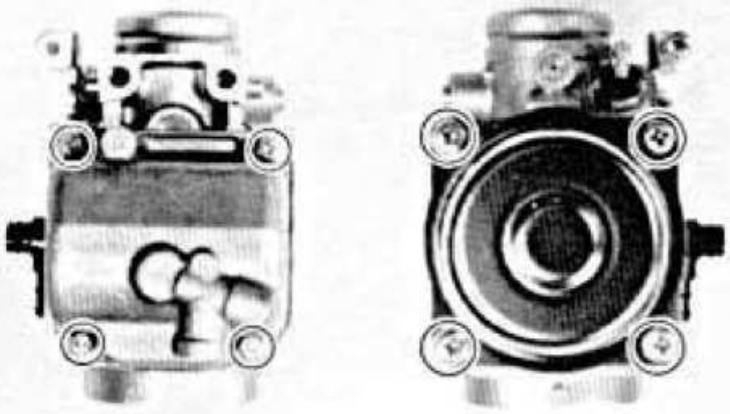
CARBURETOR



1. Install:
   - Throttle valve

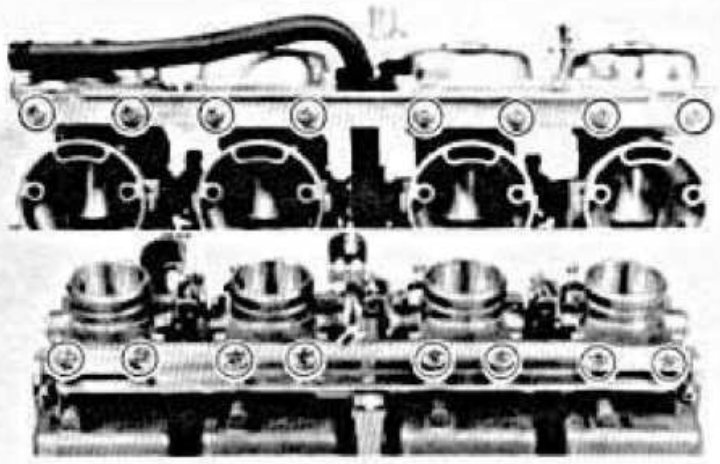
NOTE:

Note position of tab (1) on diaphragm. This tab must be placed in the cavity of the carburetor body during reassembly.



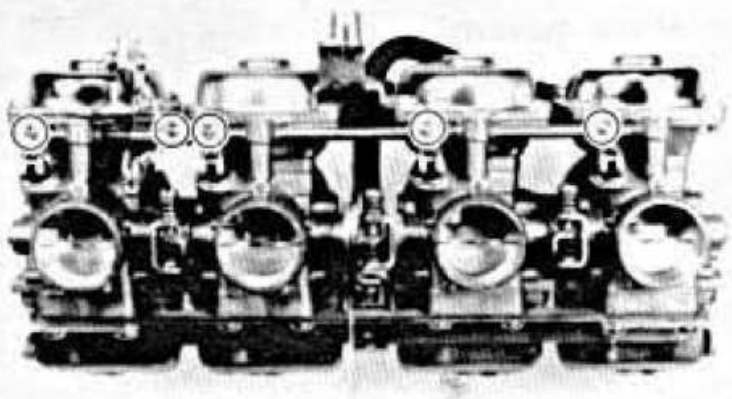
2. Install:
   - Float chamber cover
   - Vacuum chamber cover

Screw (Float Chamber Cover):
2 Nm (0.2 m•kg, 1.4 ft•lb)
Screw (Vacuum Chamber Cover):
3 Nm (0.3 m•kg, 2.2 ft•lb)



3. Install:
   - Upper bracket
   - Lower bracket

Screw (Upper Bracket):
3 Nm (0.3 m•kg, 2.2 ft•lb)
Screw (Lower Bracket):
5 Nm (0.5 m•kg, 3.6 ft•lb)



4. Install:
   - Starter lever shaft

Screw (Starter Lever Shaft):
3 Nm (0.3 m•kg, 2.2 ft•lb)
Apply LOCTITE®.

INSTALLATION

1. Install:
   - Carburetor assembly

   Reserve the removal procedure.

www.badrad600.com

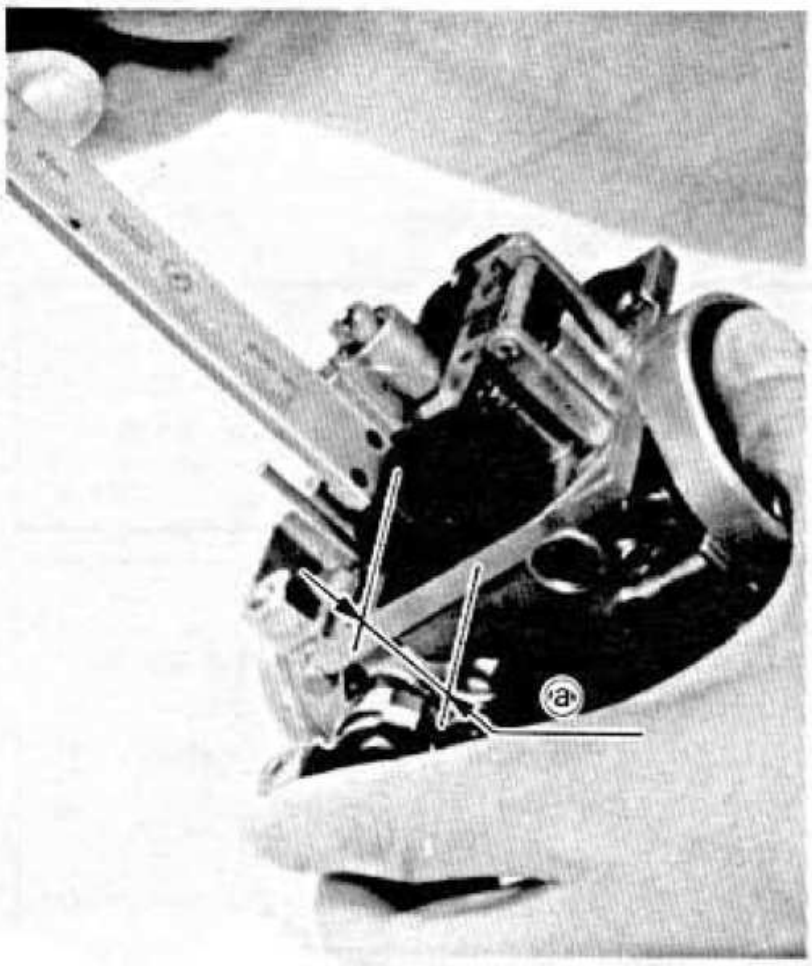
ADJUSTMENT

NOTE:

Before adjusting the fuel level, the float height should be adjusted.

CAUTION:

The pilot screw settings are adjusted for maximum performance at the factory. Any attempt to change these settings will decrease engine performance.



Float Height Adjustment

1. Measure:
   - Float height ⓐ

   Out of specification → Adjust it by the following adjustment steps.

Float Height:
20.0 ± 1.0 mm (0.8 ± 0.04 in)

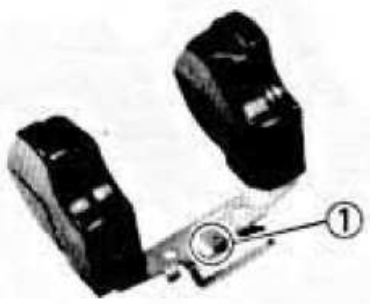
Float height measurement steps:

- Hold the carburetor in an upside down position.
- Incline the carburetor at 60 ~ 70° (so that the end of the float valve does not hang down as a result of float weight).
- Measure the distance from the mating surface of the float chamber (gasket removed) to the top of the float.

NOTE:

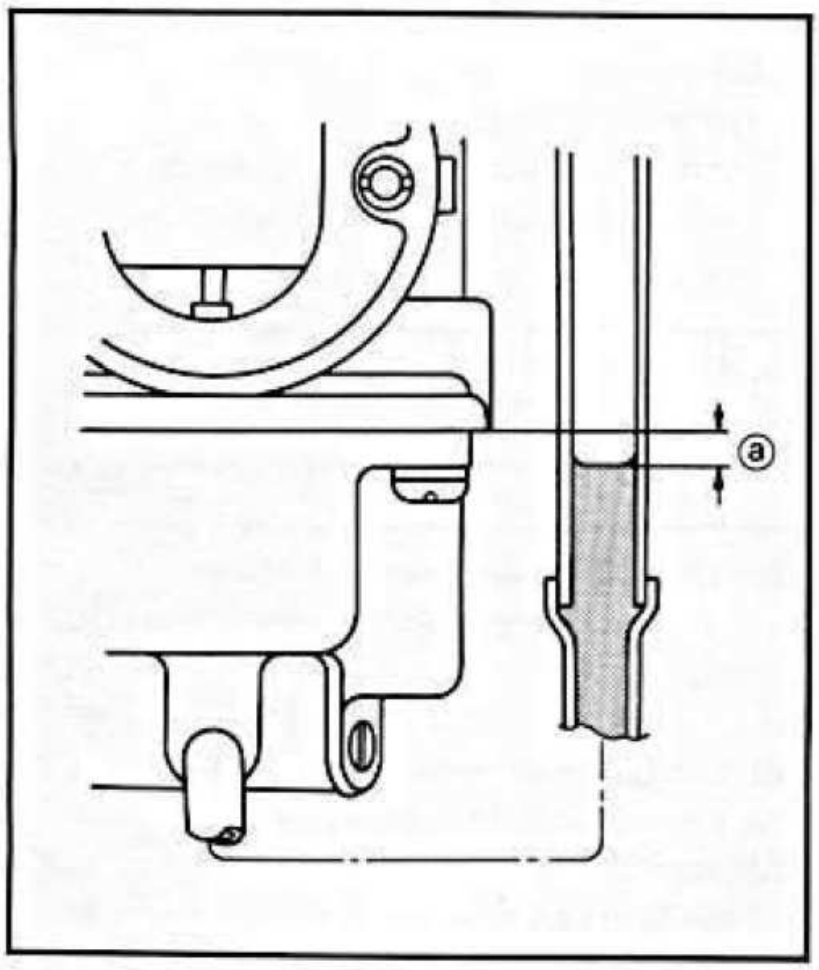
The float should be just resting on, but not depressing, the spring loaded inlet needle.

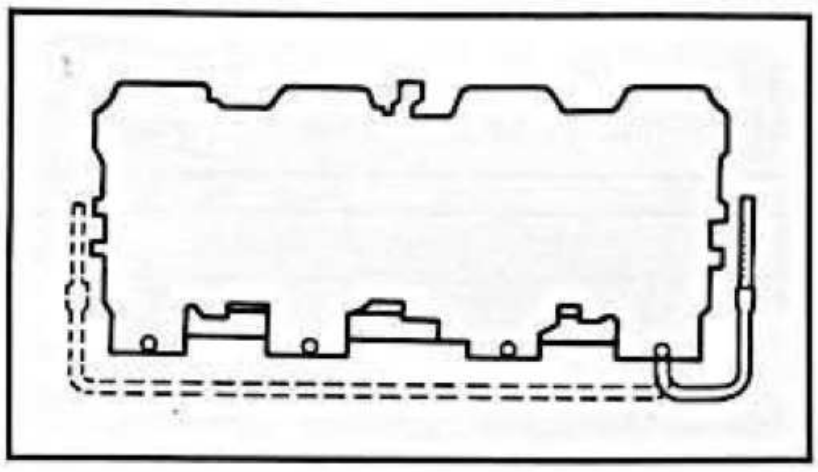
www.badrad600.com



2. Adjust:
   • Float height

Float height adjustment steps:
- Remove the float, valve seat and the needle valve.
- Inspect the valve seat and the needle valve. If either is worn, replace as a set.
- If both are fine, adjust the float height by bending the float tang ①.
- Recheck the float height.





Fuel Level Adjustment

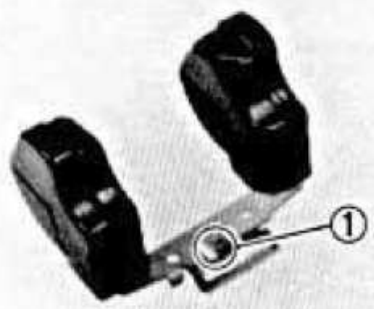
1. Measure:
   • Fuel level ⓐ
   Out of specification → Adjust it by the following adjustment steps.

Fuel Level ⓐ:
2.0 ± 0.5 mm (0.08 ± 0.02 in)
Below the Carburetor Body Edge.

Fuel level measurement steps:
- Place the motorcycle on the level place.
- Install the Fuel Level Gauge Adapter (YM-01329) to the drain hole of the carburetor.
- Connect the Fuel Level Gauge (YM-01312) to the Adapter.
- Place the Gauge vertically next to the center of the mating line of the mixing body and float chamber cover.
- Loosen the drain screw.
- Warm up the engine, then shut it off after a few minutes.
- Measure the fuel level. It should be within the specified range.

NOTE:
Fuel level readings of both side of carburetor line should be equal.

www.badrad600.com



2. Adjust:
   • Fuel level

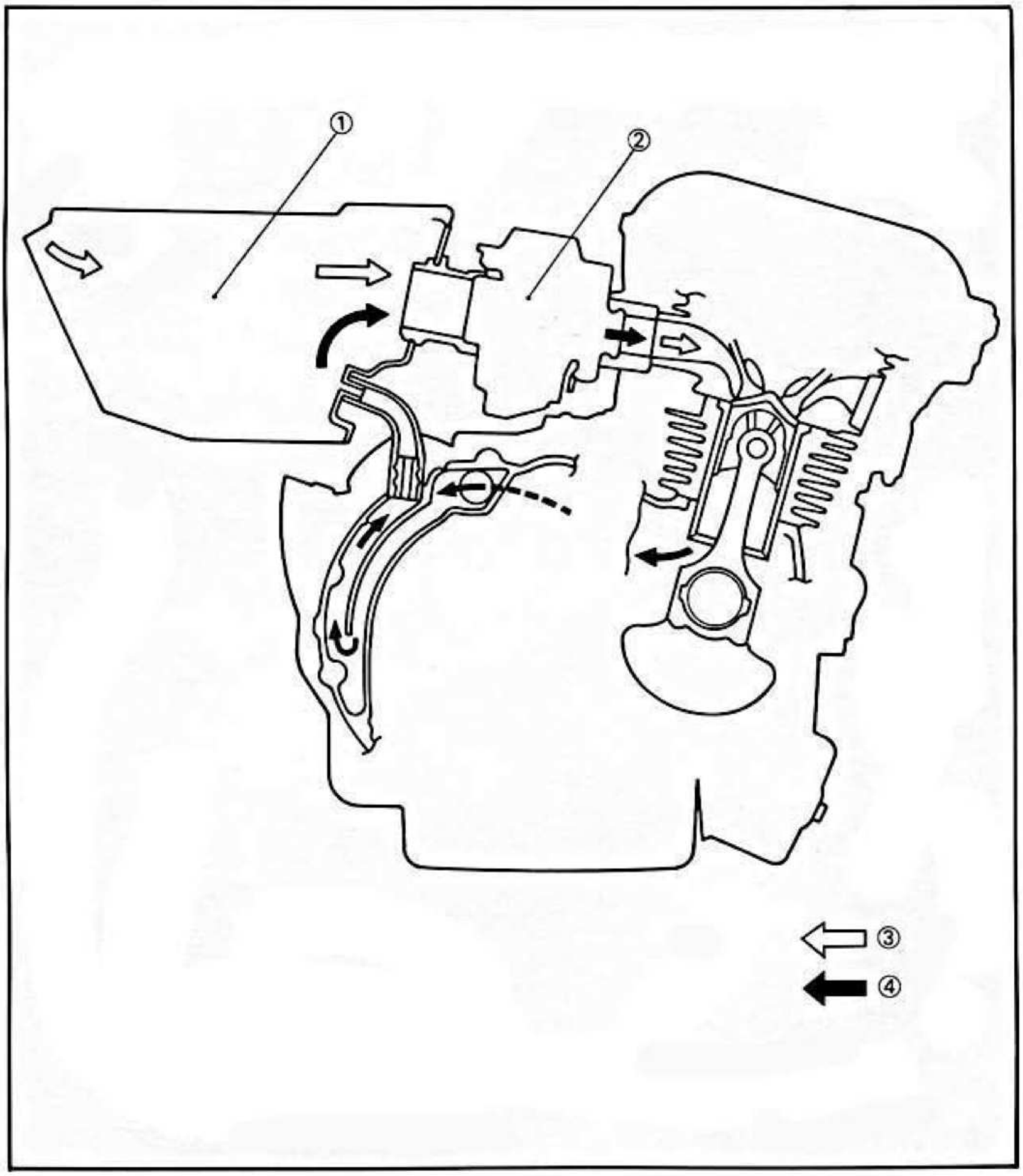
Fuel level adjustment steps:
- Remove the carburetor assembly. Refer to "REMOVAL" section.
- Remove the float, valve seat and the needle valve.
- Inspect the valve seat and the needle valve. If either is worn, replace as a set.
- If both are fine, adjust the float height by bending the float tang ①.
- Recheck the fuel level.

www.badrad600.com

AIR CLEANER AND CRANKCASE VENTILATION SYSTEM

Refer to "CHAPTER2—AIR CLEANER CLEANING" for air cleaner maintenance.

① Air cleaner
② Carburetor
③ Fresh air
④ Blow by gas



www.badrad600.com

CHAPTER 5
CHASSIS

FRONT WHEEL 5-1
REMOVAL 5-2
INSPECTION 5-2
INSTALLATION 5-4

REAR WHEEL AND BRAKE 5-7
REMOVAL 5-8
INSPECTION 5-9
ASSEMBLY (BRAKE SHOE PLATE) 5-10
INSTALLATION 5-11

FRONT BRAKE 5-13
CALIPER PAD REPLACEMENT 5-15
CALIPER DISASSEMBLY 5-16
INSPECTION 5-17
INSTALLATION 5-17
MASTER CYLINDER DISASSEMBLY 5-18
INSPECTION 5-19
INSTALLATION 5-20
AIR BLEEDING 5-21

FRONT FORK 5-23
REMOVAL 5-24
DISASSEMBLY 5-25
INSPECTION 5-26
REASSEMBLY 5-27
INSTALLATION 5-29

STEERING HEAD 5-31
REMOVAL 5-32
INSPECTION 5-35
INSTALLATION 5-36

REAR SHOCK ABSORBER 5-39
REMOVAL 5-40
INSPECTION 5-40
INSTALLATION 5-40

SWINGARM 5-41
REMOVAL 5-42
INSPECTION 5-43
ADJUSTMENT 5-44
INSTALLATION 5-45

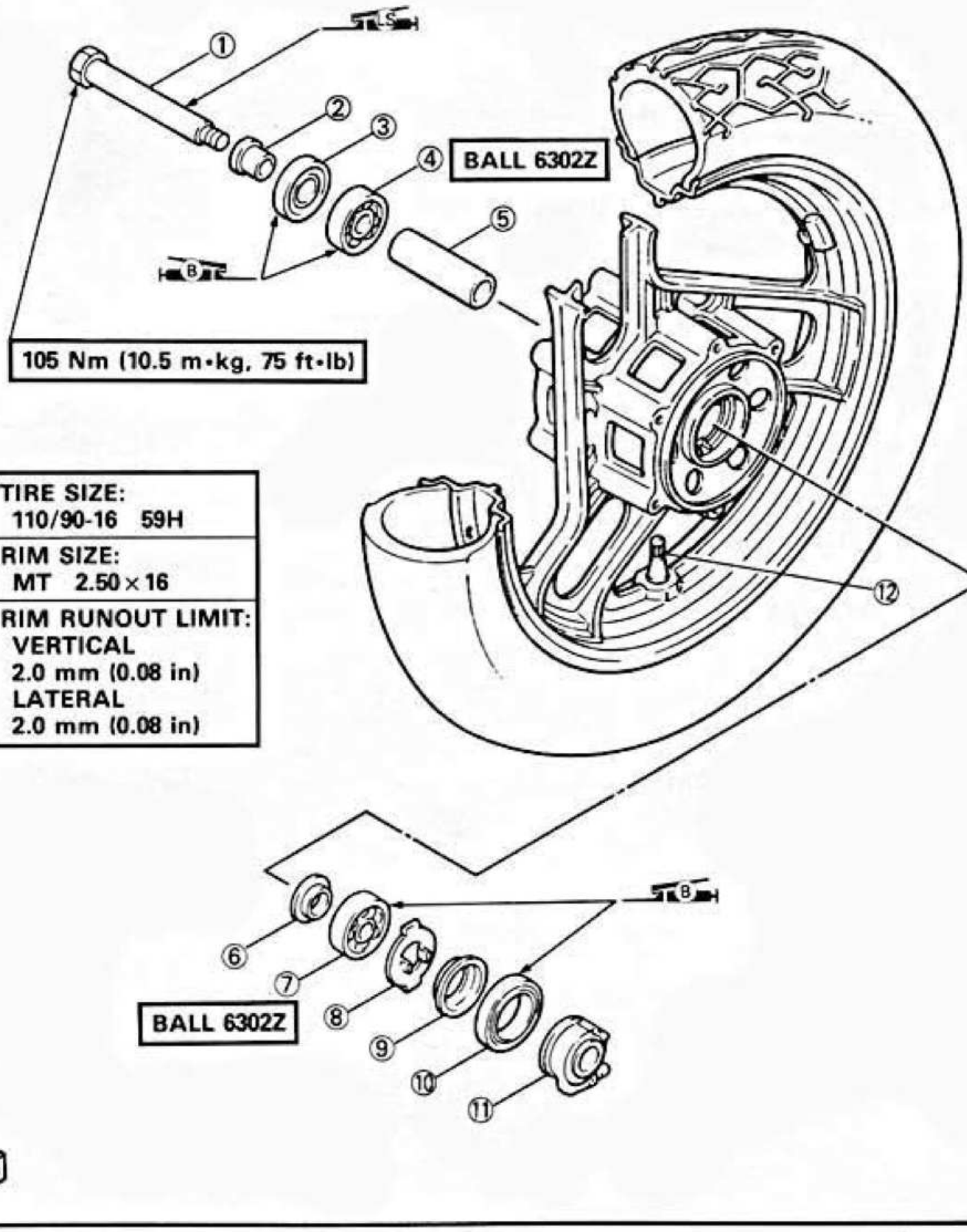
DRIVE CHAIN AND SPROCKETS 5-47
REMOVAL 5-47
INSPECTION 5-47
ASSEMBLY 5-48

www.badrad600.com

CHASSIS

FRONT WHEEL

① Front axle
② Collar
③ Oil seal
④ Bearing
⑤ Spacer
⑥ Flange spacer
⑦ Bearing
⑧ Meter clutch
⑨ Clutch retainer
⑩ Oil seal
⑪ Gear unit assembly
⑫ Front wheel



A	TIRE SIZE: 110/90-16 59H
B	RIM SIZE: MT 2.50 × 16
C	RIM RUNOUT LIMIT: VERTICAL 2.0 mm (0.08 in) LATERAL 2.0 mm (0.08 in)

5

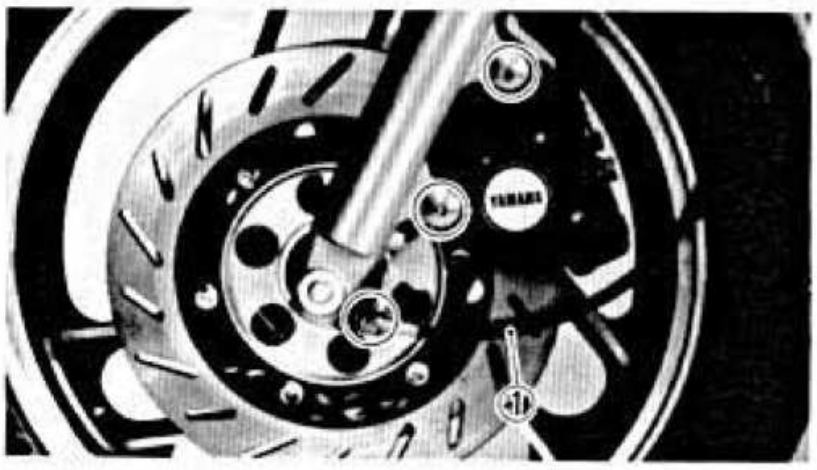
www.badrad600.com

REMOVAL

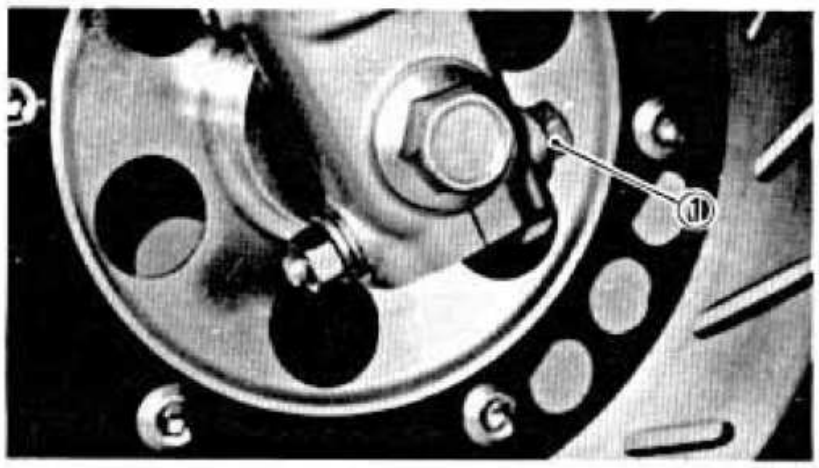
1. Place the motorcycle on its centerstand.

WARNING:

Support the motorcycle securely so there is no danger of it falling over.



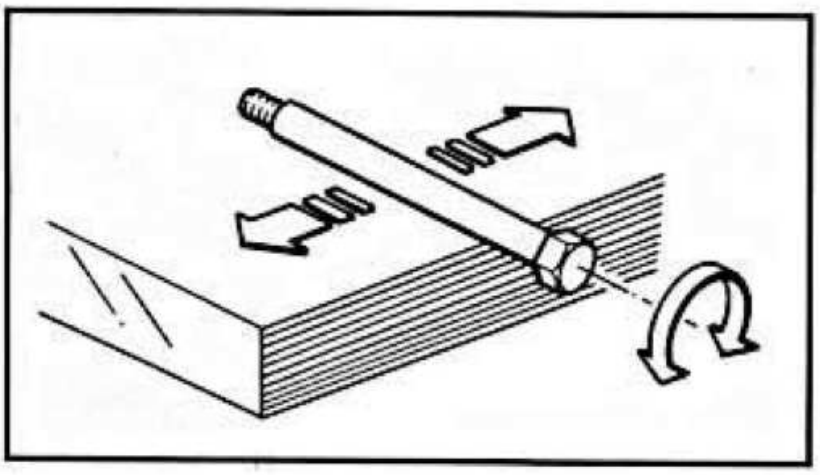
2. Remove:
   - Speedometer cable ①
   - Brake caliper (Left and right)



3. Loosen:
   - Pinch bolt ①
4. Remove:
   - Axle
   - Front wheel

NOTE:

Do not depress the brake lever when the wheel is off the motorcycle otherwise the brake pads will be forced shut.



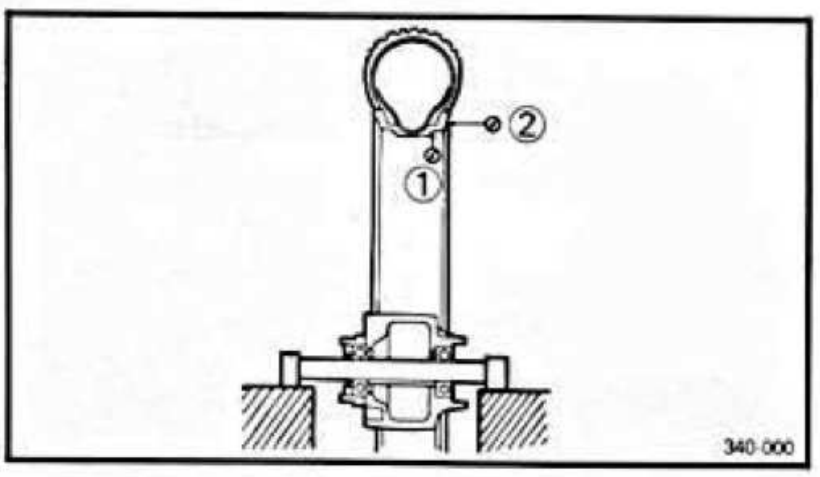
INSPECTION

1. Eliminate any corrosion from parts.
2. Inspect:
   - Front axle

   Roll the axle on a flat surface.
   Bends→Replace.

WARNING:

Do not attempt to straighten a bent axle.



3. Measure:
   - Wheel runout

   Out of specification→Check the wheel and the bearing play.

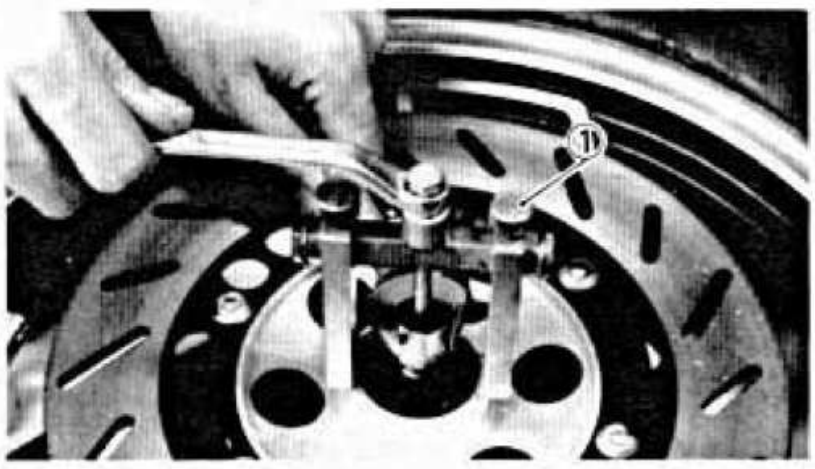
Rim Runout Limits:
Radial ①: 2.0 mm (0.08 in)
Lateral ②: 2.0 mm (0.08 in)

5

www.badrad600.com

4. Inspect:
   •Wheel
   Cracks/Bends/Warpage→Replace.

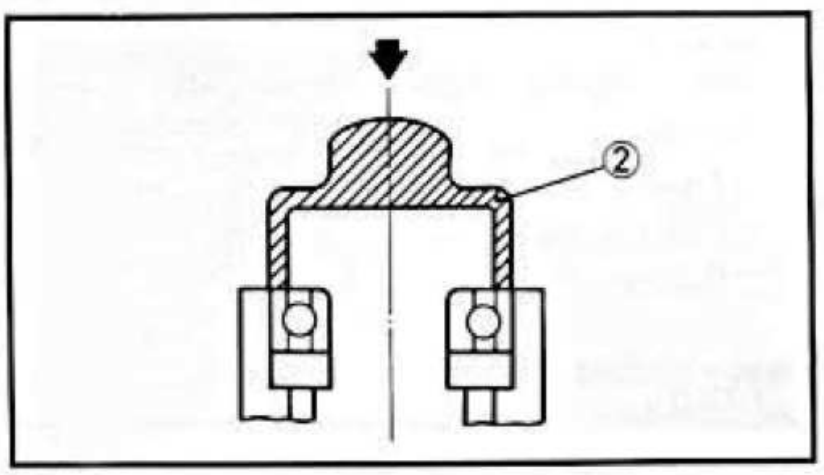
5. Check:
   •Wheel bearings
   Bearings allow play in the wheel hub or wheel turns roughly→Replace.

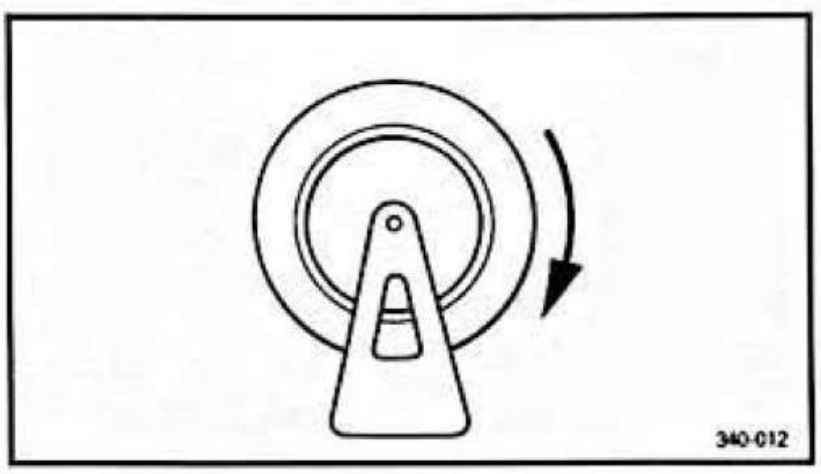


Wheel bearing replacement steps:
- Clean the out side of the wheel hub.
- Remove the bearing using a general bearing puller ①.
- Install the new bearing.

NOTE:
Use a socket ② that matches the outside diameter of the race of the bearing.

CAUTION:
Do not strike the inner race of balls of the bearing. Contact should be made only with the outer race.



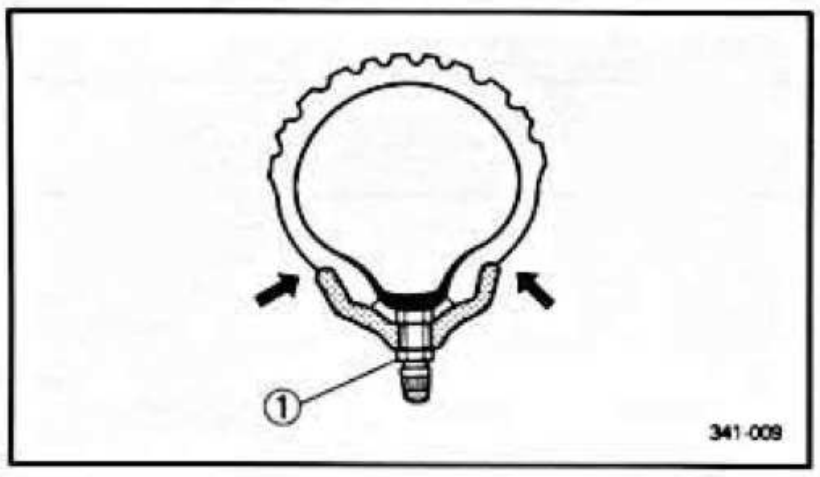


6. Check:
   •Wheel balance
   Wheel is not statically balanced if it comes to rest at the same point after several light rotations.
   Out of balance→Install appropriate balance weight at lightest point (on top).

www.badrad600.com

NOTE:
- Balance wheel with brake disc installed.

WARNING:
- **After mounting a tire, ride conservatively to allow proper tire to rim seating. Failure to do so may cause an accident resulting in motorcycle damage and possible operator injury.**
- **After a tire repair or replacement, be sure to torque tighten the valve stem locknut ① to specification.**



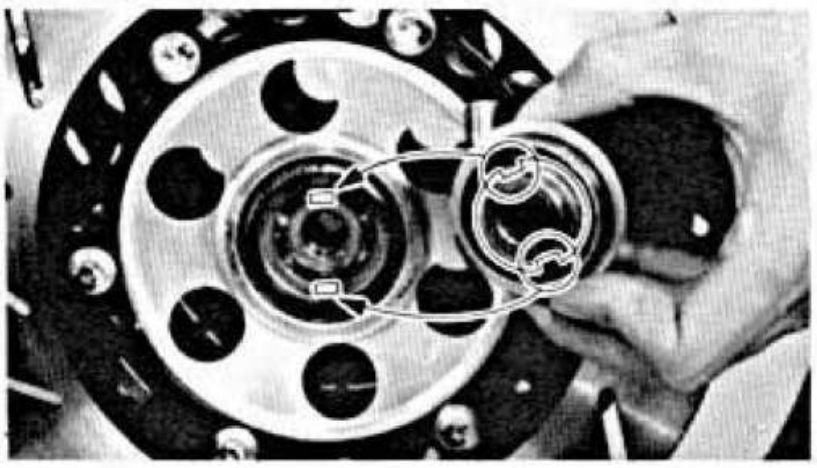
	Valve-Stem Locknut: 1.5 Nm (0.15 m•kg, 1.1 ft•lb)

INSTALLATION

When installing the front wheel, reverse the removal procedure. Note the following points.

1. Apply:
   - Lithium base grease

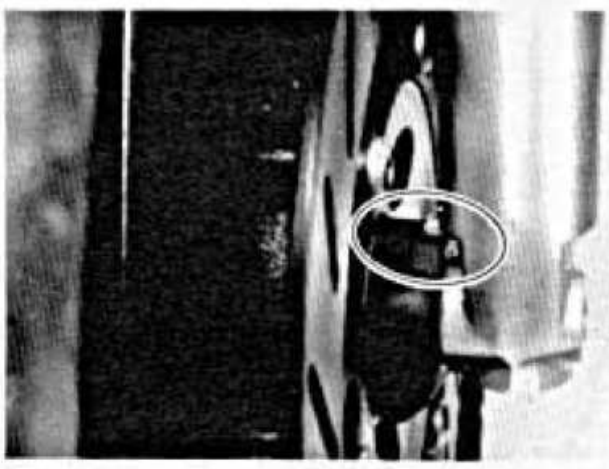
   Lightly grease to the oil seal and gear unit.



2. Install:
   - Gear unit assembly

NOTE:

Make sure the projections inside the gear unit are meshed with the flats in the wheel hub.



3. Install:
   - Front wheel assembly

NOTE:

Be sure the boss on the outer fork tube correctly engages with the locating slot on the gear unit assembly.

5

www.badrad600.com

4. Tighten:
   - Axle nut

105 Nm (10.5 m•kg, 75 ft•lb)

   - Bolts (Brake caliper)

35 Nm (3.5 m•kg, 25 ft•lb)

   - Pinch bolt

20 Nm (2.0 m•kg, 14 ft•lb)

5

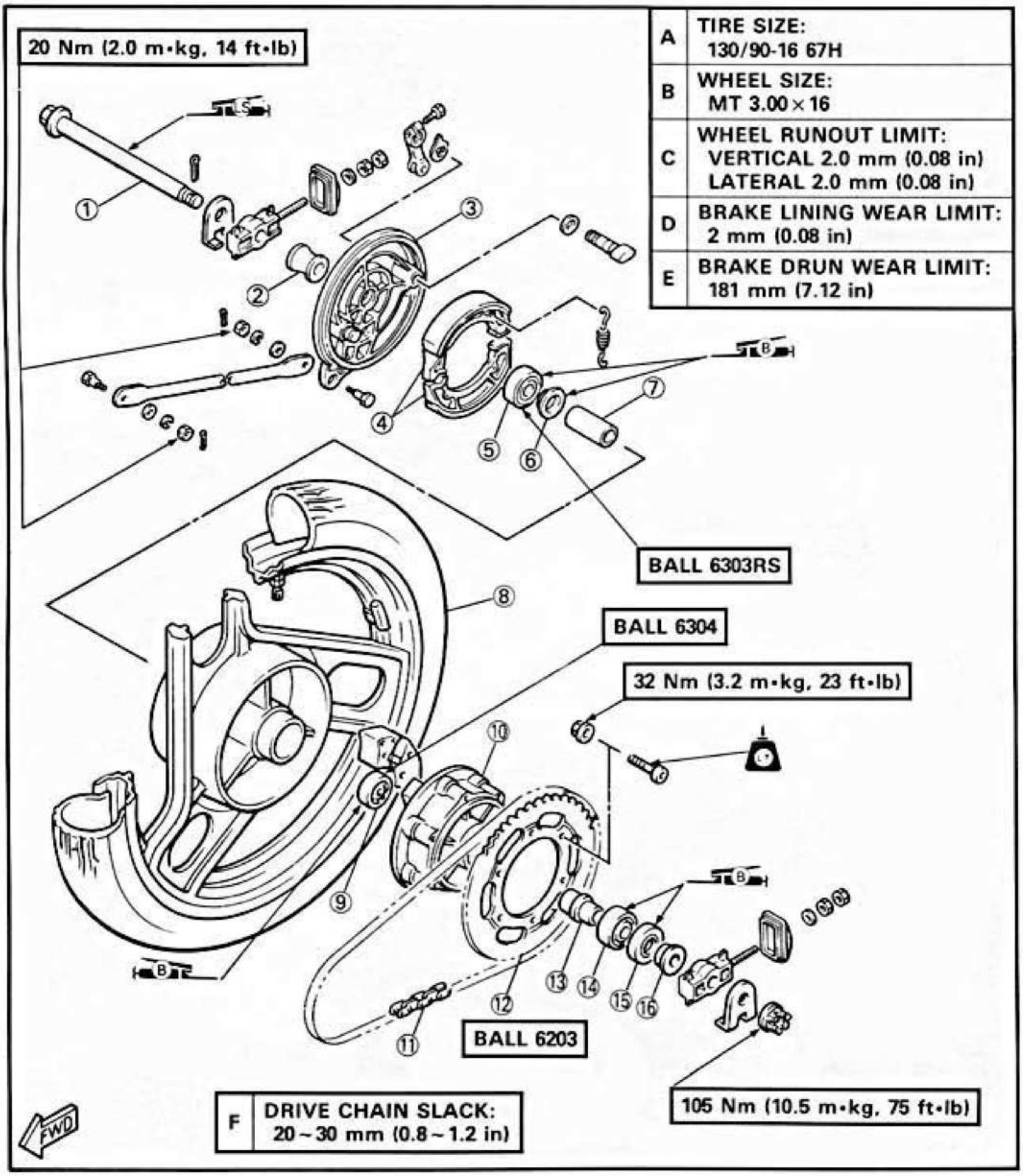
www.badrad600.com

MEMO

www.badrad600.com

REAR WHEEL AND BRAKE

① Rear axle
② Collar
③ Brake shoe plate
④ Brake shoes
⑤ Bearing
⑥ Flange spacer
⑦ Collar
⑧ Rear wheel
⑨ Bearing
⑩ Hub
⑪ Drive chain
⑫ Driven sprocket
⑬ Collar
⑭ Bearing
⑮ Oil seal
⑯ Collar



5

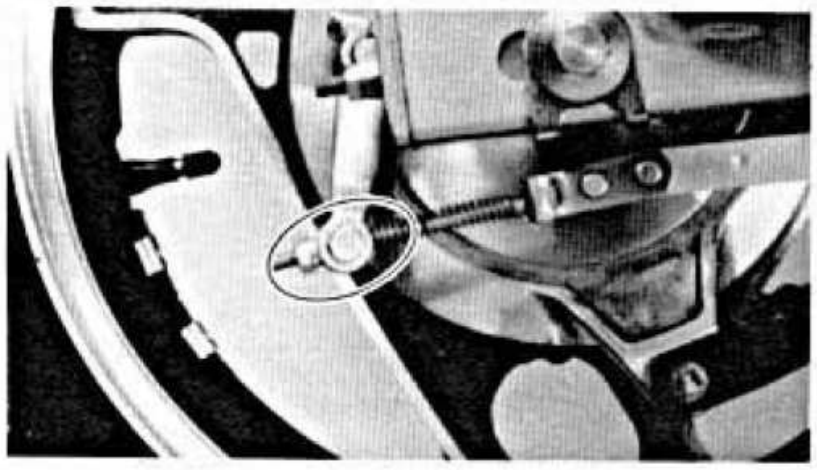
www.badrad600.com

REMOVAL

1. Place the motorcycle on its centerstand.

WARNING:

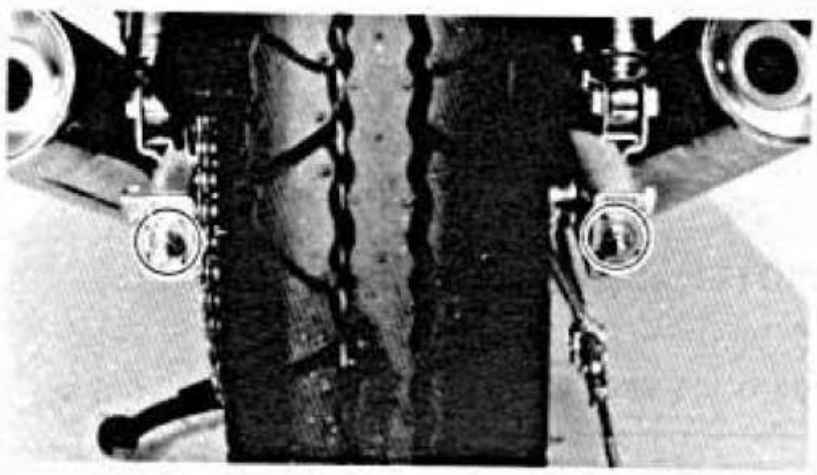
Support the motorcycle securely so there is no danger of it falling over.



2. Remove:
   - Adjuster
   - Spring
   - Pin



3. Remove:
   - Cotter pin
   - Nut
   - Spring washer
   - Plain washer
   - Bolt



4. Loosen:
   - Lock nuts (Drive chain)
   - Adjuster (Drive chain)



5. Remove:
   - Cotter pin
   - Nut
   - Rear axle
   - Rear wheel

5

www.badrad600.com

INSPECTION

1. Inspect:
   - Rear axle
   Refer to "FRONT WHEEL-INSPECTION" section.

2. Inspect:
   - Wheel runout
   Refer to "FRONT WHEEL-INSPECTION" section.

3. Inspect:
   - Wheel
   Refer to "FRONT WHEEL-INSPECTION" section.

4. Check:
   - Wheel bearings
   Refer to "FRONT WHEEL-INSPECTION" section.

5. Check:
   - Wheel balance
   Refer to "FRONT WHEEL-INSPECTION" section.

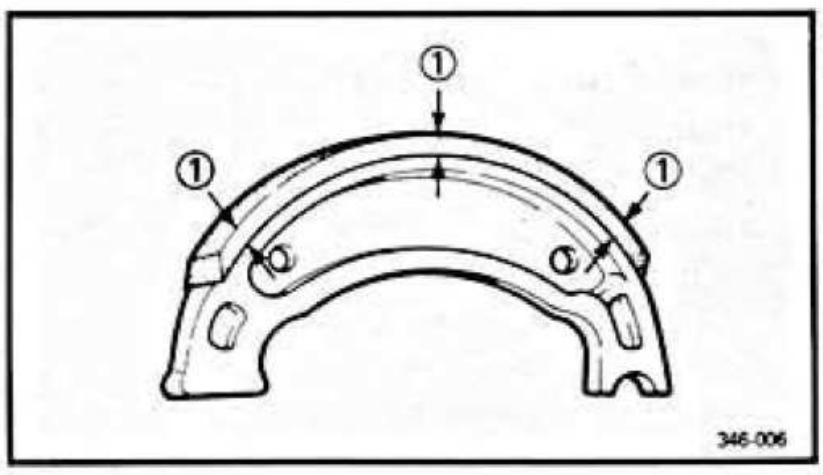
5



6. Inspect:
   - Brake lining surface
   Glazed areas → Remove.
   Use a coarse sand paper.

NOTE:

After using the sand paper, clean of the polished particles with cloth.



7. Measure:
   - Brake lining thickness
   Out of specification → Replace.

① Measuring points

Brake Lining Thickness:
4 mm (0.16 in)
Wear Limit:
2 mm (0.08 in)

www.badrad600.com

NOTE:

Replace the brake shoes as a set if either is found to be worn to the wear limit.

8. Inspect:
   - Brake drum inner surface
     Oil/Scratches → Remove.

Oil	**Use a rag soaked in lacquer thinner or solvent.**
Scratches	**Use a emery cloth (lightly and evenly polishing)**



9. Measure:
   - Brake drum inside diameter
     Out of specification → Replace rear wheel.

Brake Drum Inside Diameter:
180 mm (7.08 in)
Wear Limit:
181 mm (7.12 in)

10. Inspect:
    - Camshaft face
      Wear → Replace.

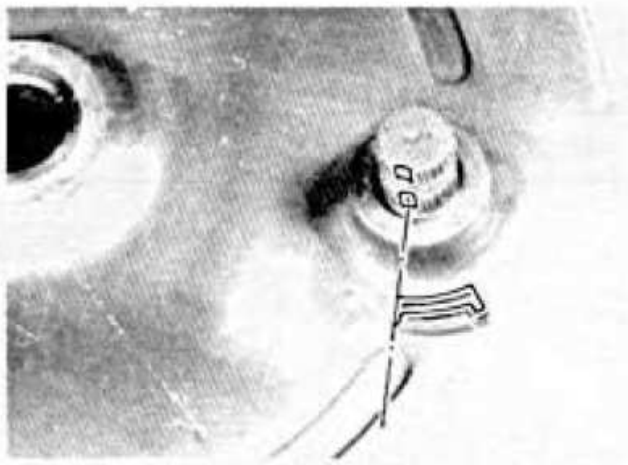
5

ASSEMBLY (BRAKE SHOE PLATE)

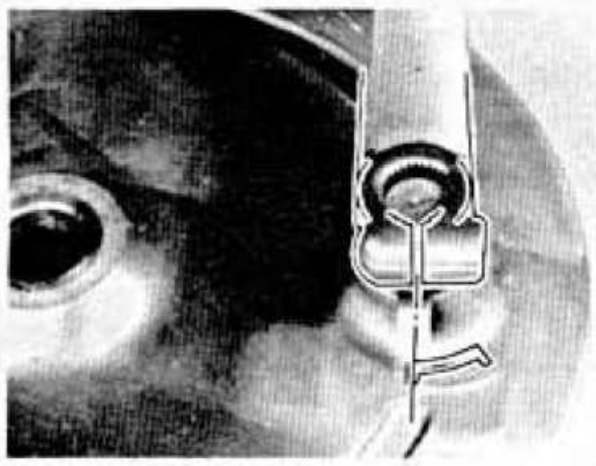
When assemblying the brake shoe plate, reverse the disassembly procedure.
Note the following points.

1. Apply:
   - Lithium-soap base grease
     (to the brake cam shaft)

www.badrad600.com



2. Install:
   • Brake cam shaft



3. Install:
   • Cam shaft lever

INSTALLATION

When installing the rear wheel, reverse the removal procedure.

Note the following points.

1. Apply:
   • Lithuim base grease
   Lightly gerase to the oil seal lips.

2. Adjust:
   • Drive chain slack

	Drive Chain Slack: 20 ~ 30 mm (0.8 ~ 1.2 in)

   • Refer to "CHAPTER 2-DRIVE CHAIN SLACK ADJUSTMENT" section.

3. Tighten:
   • Axle nut

	105 Nm (10.5 m•kg, 75 ft•lb)

   • Nut (Tension bar)

	20 Nm (2.0 m•kg, 14 ft•lb)

www.badrad600.com

4. Install:
   • Cotter pin

WARNING:

Always use a new cotter pin on the axle nut.

5. Adjust:
   • Brake pedal free play

Free Play:
20 ~ 30 mm (0.8 ~ 1.2 in)

Refer to "CHAPTER 2-BRAKE PEDAL FREE PLAY ADJUSTMENT" section.

WARNING:

Check the operation of the brake light after adjusting the rear brake.

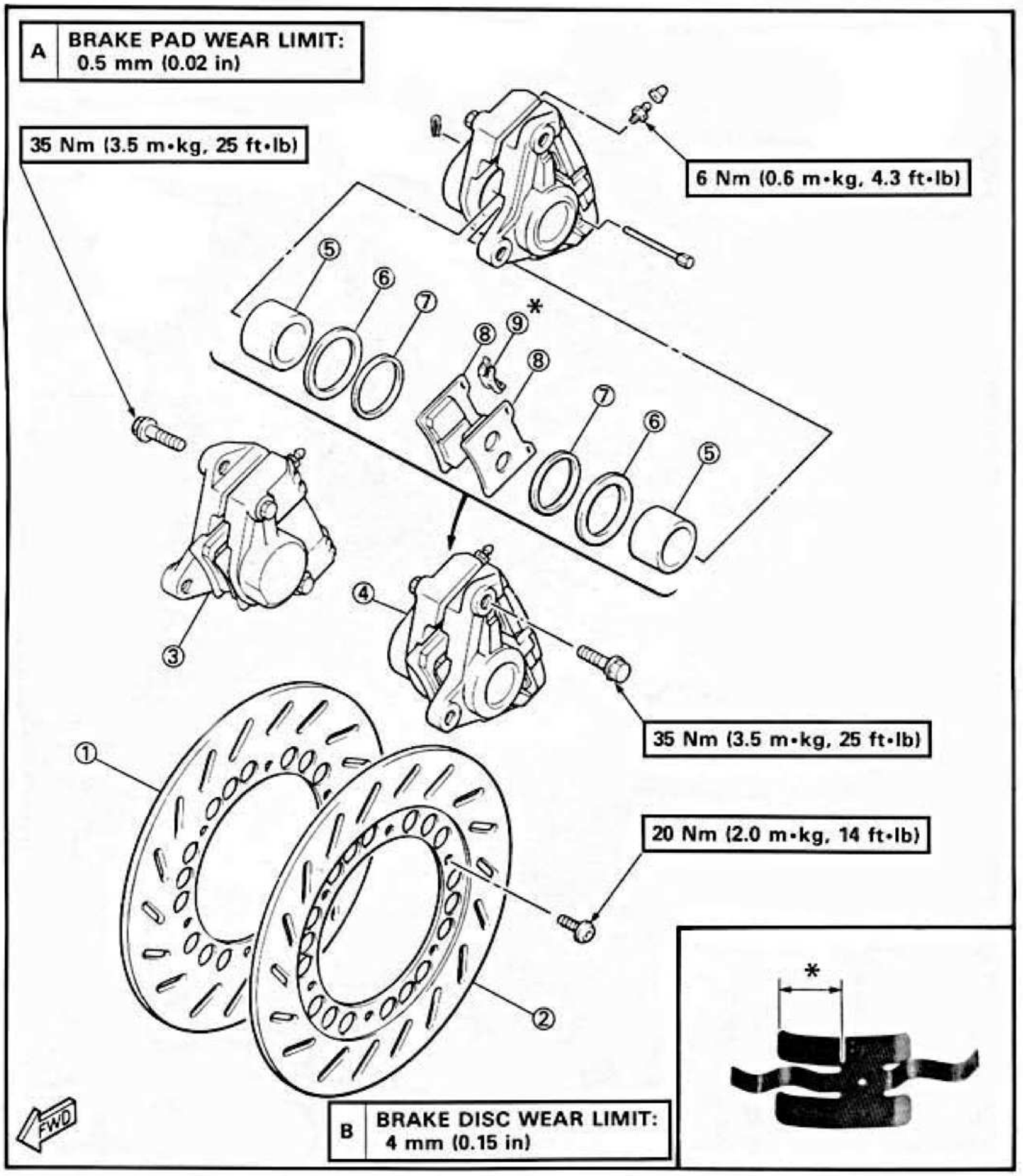
www.badrad600.com

FRONT BRAKE

BRAKE CALIPER

① Brake disc (Right)
② Brake disc (Left)
③ Brake caliper (Right)
④ Brake caliper (Left)
⑤ Piston
⑥ Piston seal
⑦ Dust seal
⑧ Brake pad
⑨ Pad spring

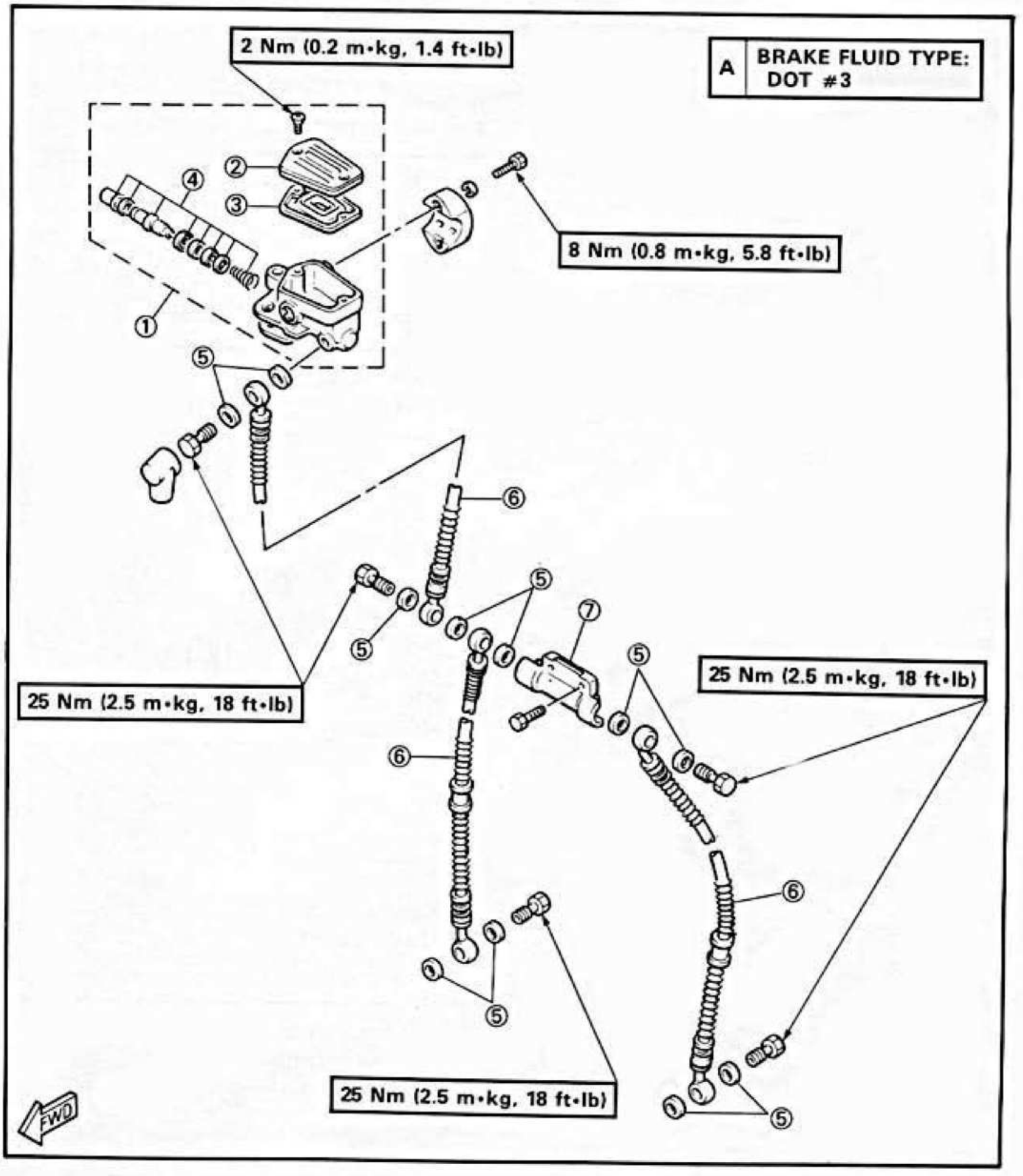
* Install the pad spring with its longer tangs facing towards the disc rotation direction.



www.badrad600.com

BRAKE MASTER CYLINDER

① Master cylinder assembly
② Master cylinder cap
③ Rubber seal
④ Master cylinder kit
⑤ Copper washer
⑥ Brake hose
⑦ Joint



www.badrad600.com

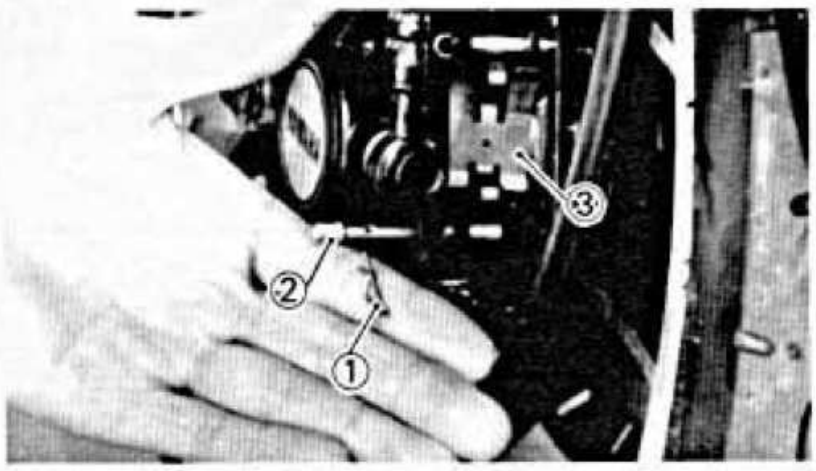
CAUTION:

Disc brake components rarely require disassembly. Do not disassemble components unless absolutely necessary. If any hydraulic connection in the system is opened, the entire system should be disassembled, drained, cleaned and then properly filled and bled upon reassembly. Do not use solvents on brake internal components. Solvents will cause seals to swell and distort. Use only clean brake fluid for cleaning. Use care with brake fluid. Brake fluid is injurious to eyes and will damage painted surfaces and plastic parts.

CALIPER PAD REPLACEMENT

NOTE:

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



1. Remove:
   - Cover
   - Clips ①
   - Pins ②
   - Pad spring ③

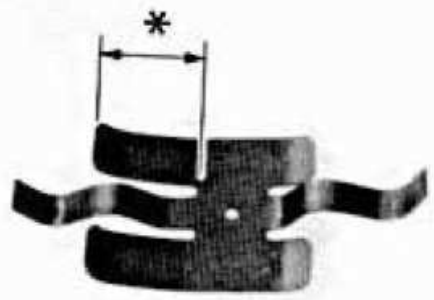


2. Replace:
   - Brake pads ①

NOTE:

Replace the pads as a set if either is found to be worn to the wear limit.

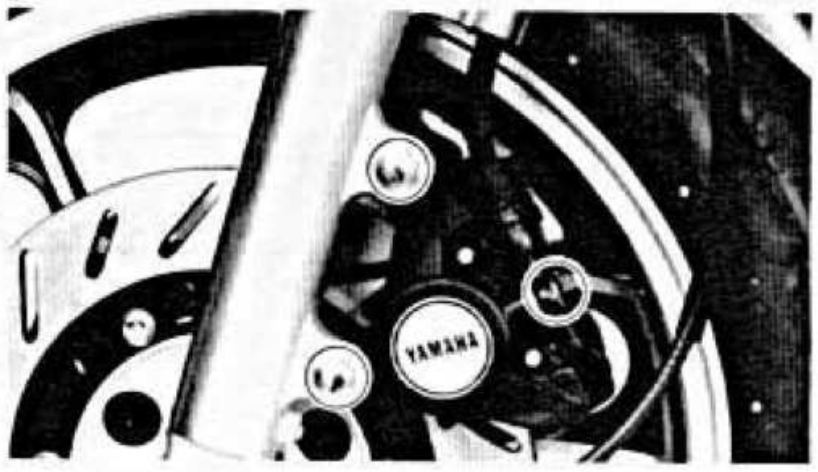
www.badrad600.com



3. Install:
   - Pad spring
   - Pins
   - Clips
   - Cover

NOTE:

Install the pad spring with its longer tangs facing towards the disc rotation direction.



CALIPER DISASSEMBLY

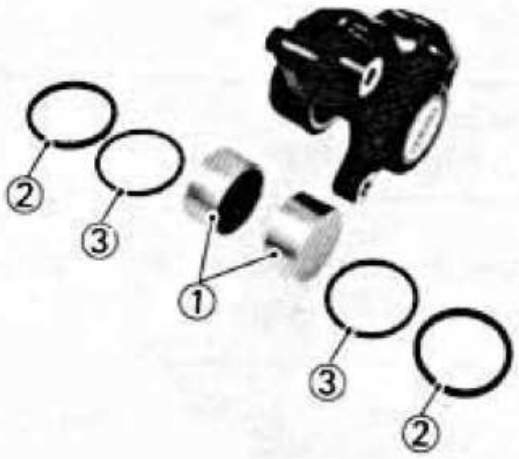
NOTE:

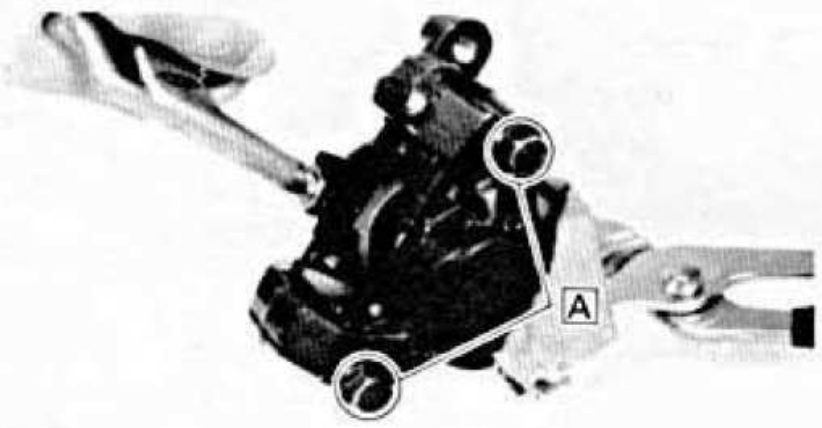
Before disassemblying the caliper, drain the brake fluid.

1. Remove:
   - Brake caliper

2. Remove:
   - Brake pad

   Refer to "CALIPER PAD REPLACEMENT" section.





3. Remove:
   - Piston ①
   - Piston seal ②
   - Dust seal ③

Caliper piston removal steps:
- Using a rag, lock the right side piston.
- Blow compressed air into the hose joint opening to force out the left side piston from the caliper body.
- Remove the dust and piston seals and reinstall the piston.
- Repeat previous step to force out the right side piston from the caliper body.

A DO NOT LOOSEN

5

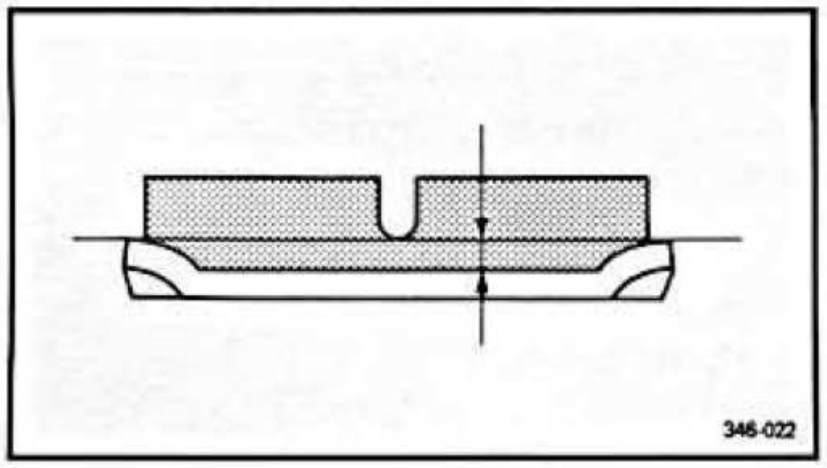
www.badrad600.com

FRONT BRAKE



INSPECTION

1. Inspect:
   - Caliper piston
     Rust/Wear → Replace.
   - Caliper cylinder body
     Wear/Scratches → Replace.



   - Brake pads
     Out of specification → Replace.

Pad Wear Limit:
0.5 mm (0.02 in)

INSTALLATION

1. Assemble:
   - Brake caliper
     Reverse disassembly steps.

WARNING:

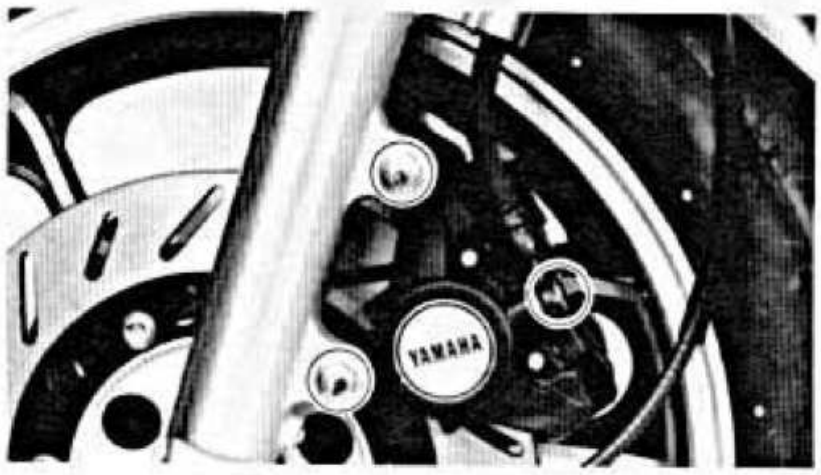
- **All internal parts should be cleaned in new brake fluid only.**
- **Internal parts should be lubricated with brake fluid when installed.**

Brake Fluid:
DOT #3

- **Replace the dust and piston seals whenever a caliper is disassembled.**

2. Install:
   - Brake caliper
   - Brake hose

www.badrad600.com



3. Tighten:
   - Bolt (Brake hose)
   - Bolts (Caliper)

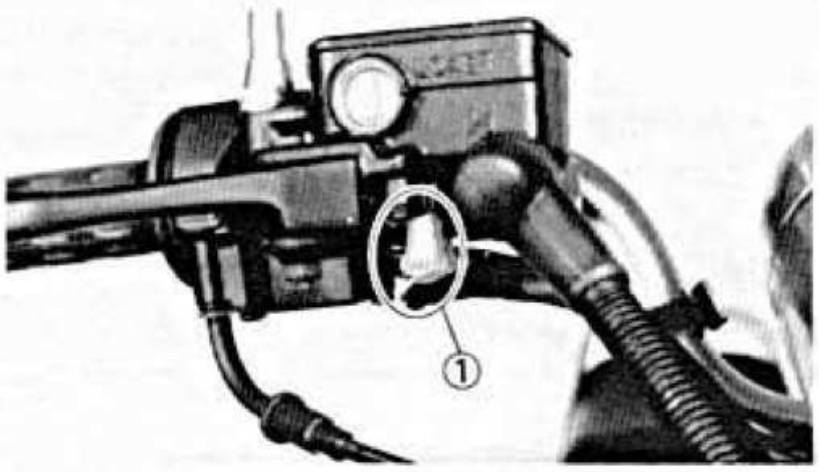
Bolt (Brake hose):
25 Nm (2.5 m•kg, 18 ft•lb)
Bolts (Caliper):
35 Nm (3.5 m•kg, 25 ft•lb)

4. Fill:
   - Brake system

Recommended Brake Fluid:
DOT #3

5. Bleed the air completely from the brake system.
   Refer to "AIR BLEEDING" section.

6. Check:
   - Brake fluid level
   Refer to "CHAPTER 2-FRONT BRAKE FLUID INSPECTION' section.





MASTER CYLINDER DISASSEMBLY

NOTE:

Before disassemblying the master cylinder, drain the brake fluid.

1. Disconnect:
   - Brake switch leads ①

2. Remove:
   - Brake hose ①
   - Brake lever ②
   - Spring ③

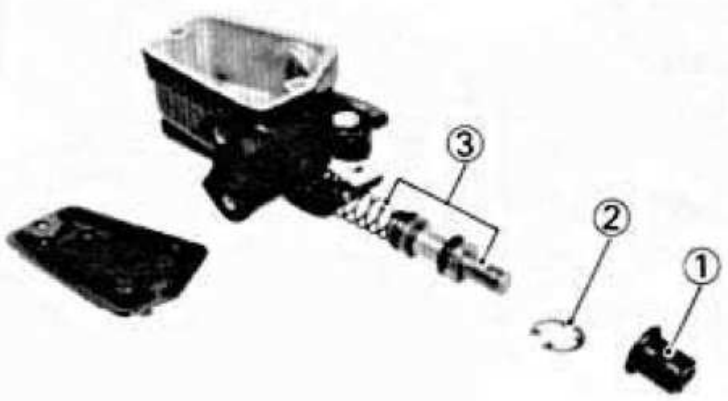
www.badrad600.com



3. Remove:
   - Master cylinder assembly



4. Remove:
   - Master cylinder cap
   - Rubber seal



5. Remove:
   - Dust boot ①
   - Circlip ②
   - Master cylinder kit ③

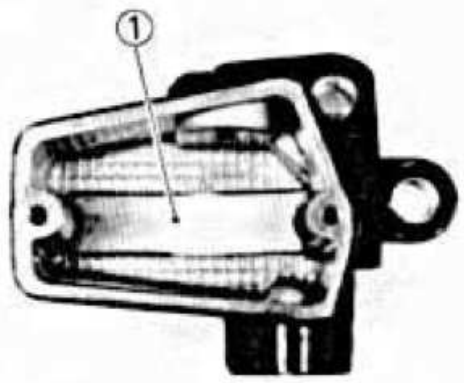
5

INSPECTION

1. Inspect:
   - Master cylinder body
     Scratches/Wear → Replace.

NOTE:

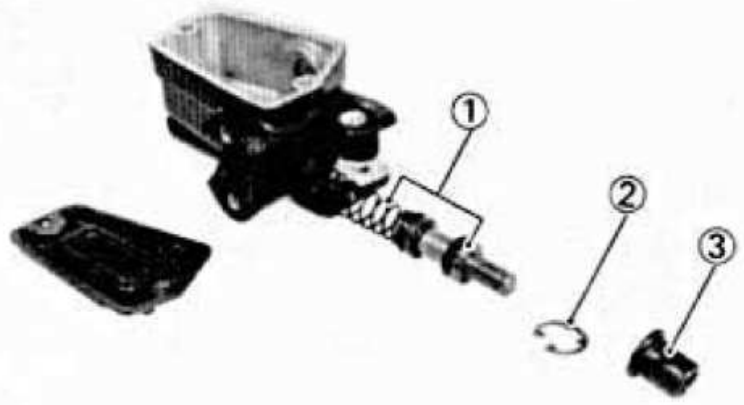
Claen all passages with new brake fluid.



   - Brake hoses
     Cracks/Wear/Damage → Replace.
   - Master cylinder kit
     Scratches/Wear → Replace.

① Oil baffle plate

www.badrad600.com



INSTALLATION

1. Install:
   - Master cylinder kit ①

WARNING:

Internal parts should be lubricated with brake fluid when installed.

   - Circlip ②
   - Dust boot ③

2. Install:
   - Master cylinder
   - Brake hose (With copper washers)
   - Brake lever

NOTE:

Grease the pivot point.

3. Tighten:
   - Bolts (Master cylinder bracket)
   - Bolt (Brake hose)

Bolts (Master cylinder bracket):
8 Nm (0.8 m•kg, 5.8 ft•lb)
Bolt (Brake hose):
25 Nm (2.5 m•kg, 18 ft•lb)

4. Connect:
   - Brake switch leads

5. Fill:
   - Brake system

Recommended Brake Fluid:
DOT #3

6. Bleed the air completely from the brake system.
   Refer to "AIR BLEEDING" section.

7. Check:
   - Brake fluid level
   Refer to "CHAPTER 2-FRONT BRAKE FLUID INSPECTION" section.

www.badrad600.com



AIR BLEEDING

WARNING:

Bleed the brake system if:
- **The system has been disassembled.**
- **A brake hose has been loosened or removed.**
- **The brake fluid is very low.**
- **The brake operation is faulty.**

A dangerous loss of braking performance may occur if the brake system is not properly bled.

1. Air bleeding

Air bleeding steps:
a. Add proper brake fluid to the reservoir.
b. Install diaphragm.
   Be careful not to spill any fluid or allow the reservoir to over flow.
c. Connect the clear plastic tube (4.5 mm, 3/16 in inside dia.) tightly to the caliper bleed screw (1).
d. Place the other end of the tube into a container.
e. Slowly apply the brake lever several times.
f. Pull the lever in. Hold the lever in position.
g. Loosen the bleed screw and allow the lever to travel towards its limit.
h. Tighten the bleed screw when the lever limit has been reached; then release the lever.
i. Repeat steps (e) to (h) until of the air bubles have been removed from the system.

NOTE:

If bleeding is difficult, it may be necessary to let the brake fluid system stabilize for a few hours. Repeat the bleeding procedure when the tiny bubbles in system have disappeared.

2. Tighten:
   - Bleed screw
   - Screws (Master cylinder cap)

Bleed Screw:
6 Nm (0.6 m•kg, 4.3 ft•lb)
Screws (Master cylinder cap):
2 Nm (0.2 m•kg, 1.4 ft•lb)

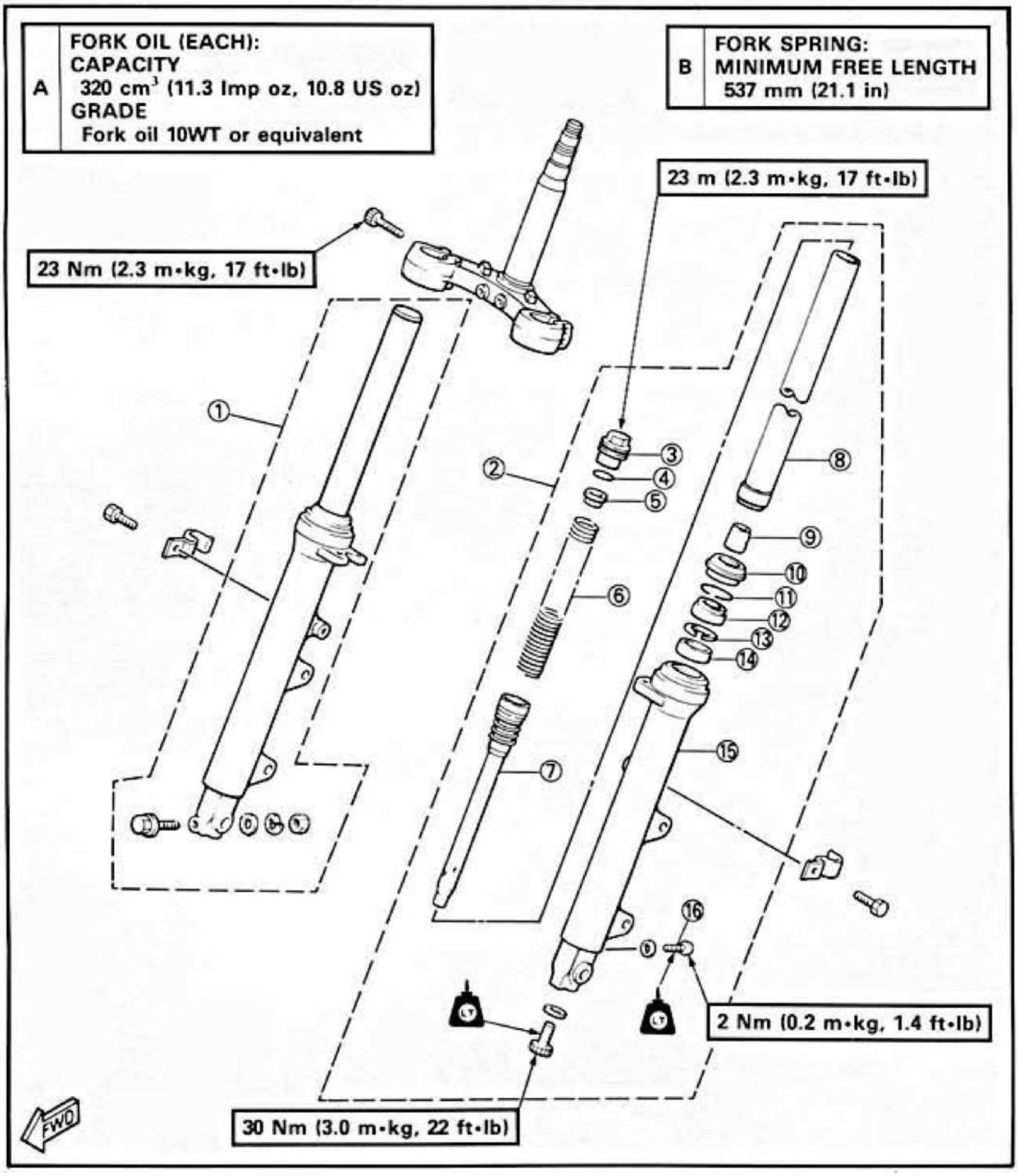
www.badrad600.com

MEMO

www.badrad600.com

FRONT FORK

① Front fork assembly (Right)
② Front fork assembly (Left)
③ Cap bolt
④ O-ring
⑤ Spring seat
⑥ Fork spring
⑦ Damper rod
⑧ Inner fork tube
⑨ Oil lock piece
⑩ Dust seal
⑪ Retaining clip
⑫ Oil seal
⑬ Plain washer
⑭ Guide bush
⑮ Outer fork tube
⑲ Drain screw



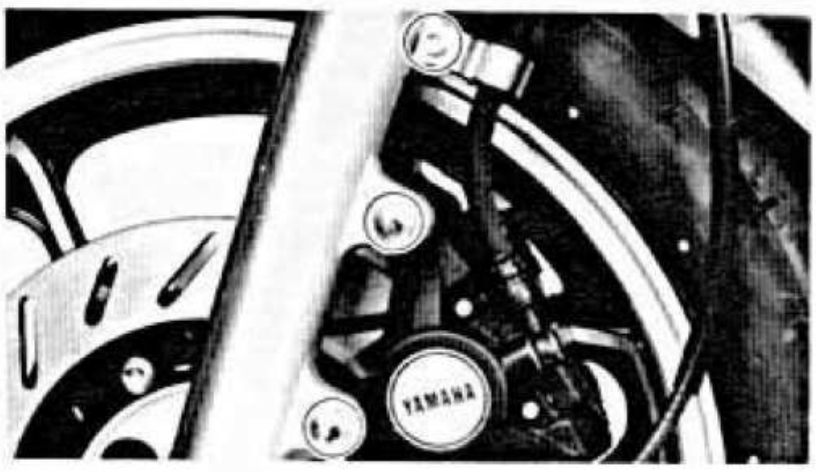
www.badrad600.com

REMOVAL

1. Place the motorcycle on its centerstand.

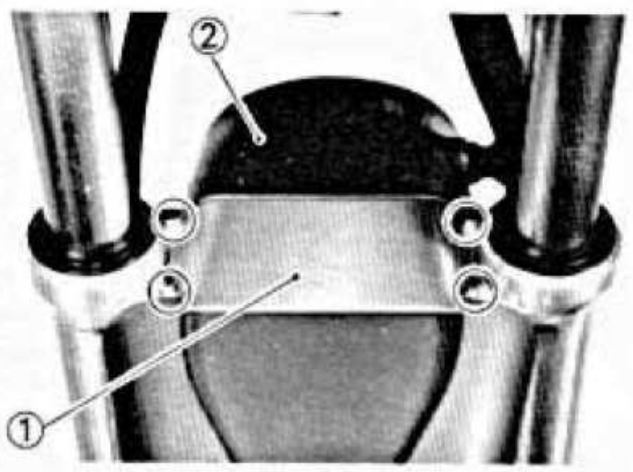
WARNING:

Support the motorcycle securely so there is no danger of it falling over.

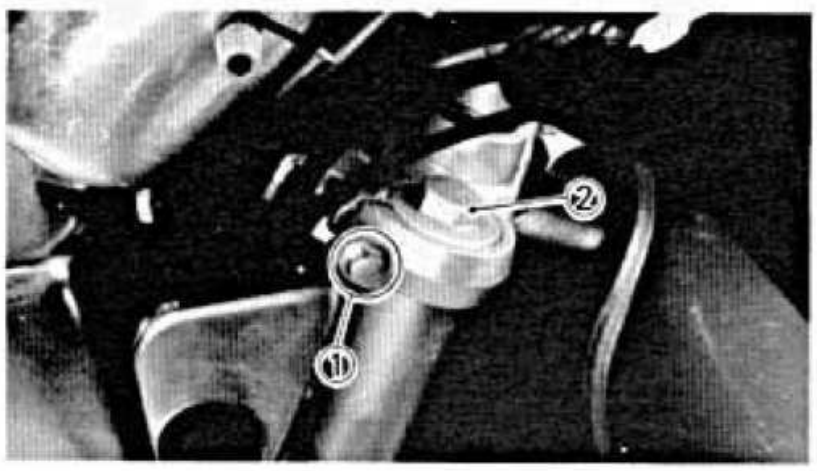


2. Remove:
   - Bolts (Brake caliper)

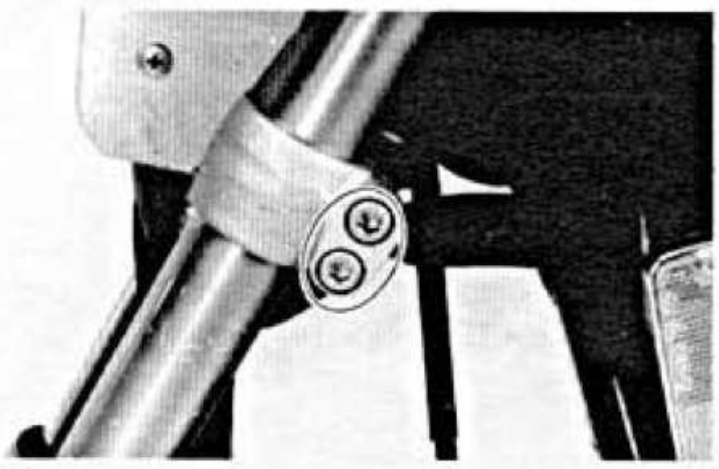
3. Remove:
   - Front wheel
   Refer to "FRONT WHEEL-REMOVAL" section.



4. Remove:
   - Front fork brace ①
   - Front fender ②



5. Loosen:
   - Pinch bolt (Handle crown) ①
   - Cap bolt ②



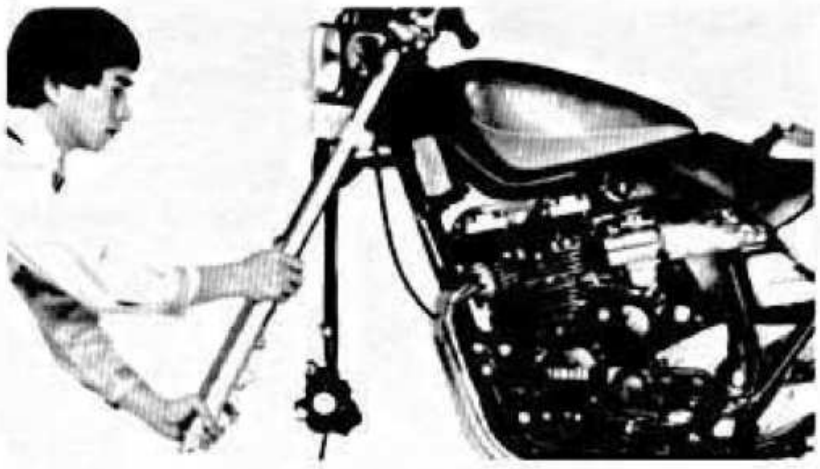
6. Loosen:
   - Pinch bolts (Urider bracket)

CAUTION:

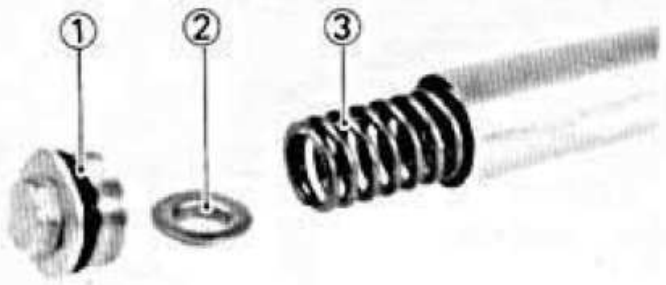
Support the fork before loosening the pinch bolts.

5

www.badrad600.com



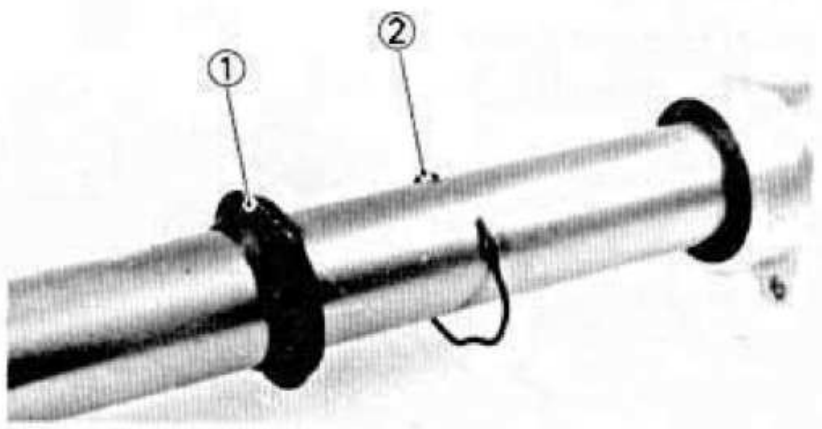
7. Remove:
   - Front fork



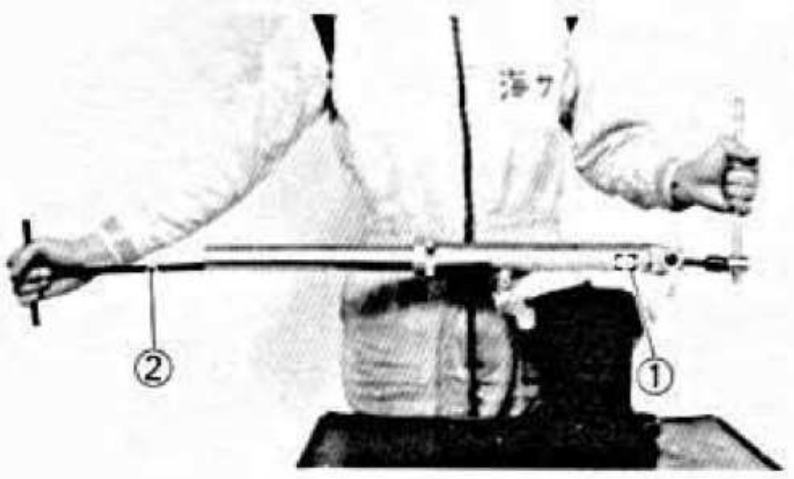
DISASSEMBLY

1. Remove:
   - Cap bolt ①
   - Spring seat ②
   - Fork spring ③

2. Drain:
   - Fork oil



3. Remove:
   - Dust seal ①
   - Retaining clip ②



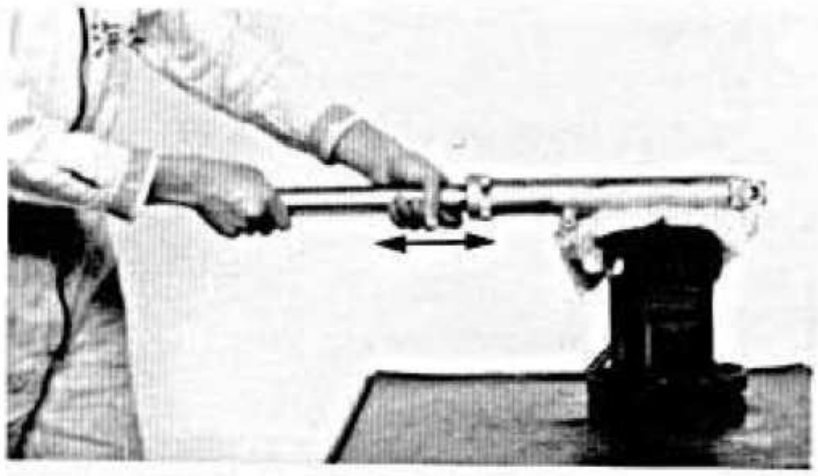
4. Remove:
   - Cylinder securing bolt

   Use the Holder (YM-33298) ① and T-Handle (YM-01326) ② to lock the damper rod.



5. Remove:
   - Damper rod

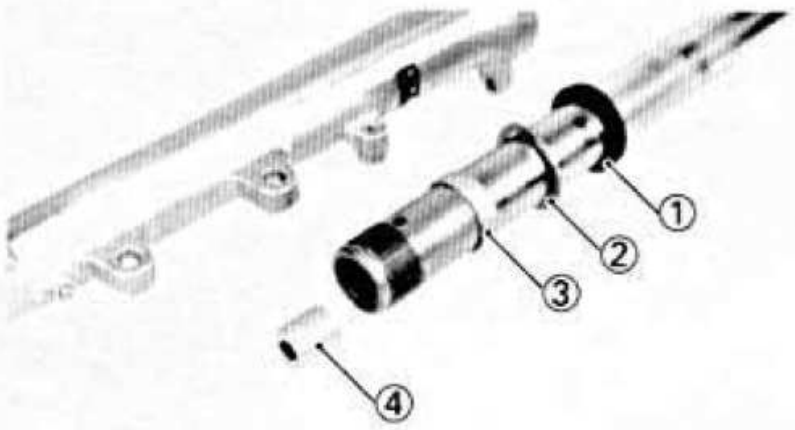
www.badrad600.com



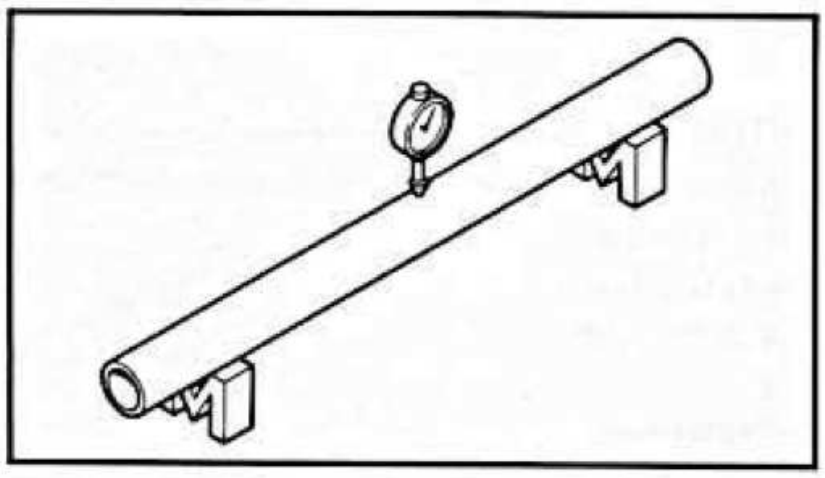
6. Remove:
   - Inner fork tube

Inner fork tube removal steps:
- Hold the fork leg horizontally.
- Pull out the inner fork tube from the outer tube by forcefully, but carefully, withdrawing the inner fork tube.

NOTE:
- Excessive force will damage the oil seal, plain washer and/or bushings. The oil seal and bushings must be replaced.
- Avoid bottoming the inner tube in the outer tube during the above procedure, as the oil lock piece will be damaged.



7. Remove:
   - Oil seal ①
   - Plain washer ②
   - Guide bush ③
   - Oil lock piece ④



INSPECTION

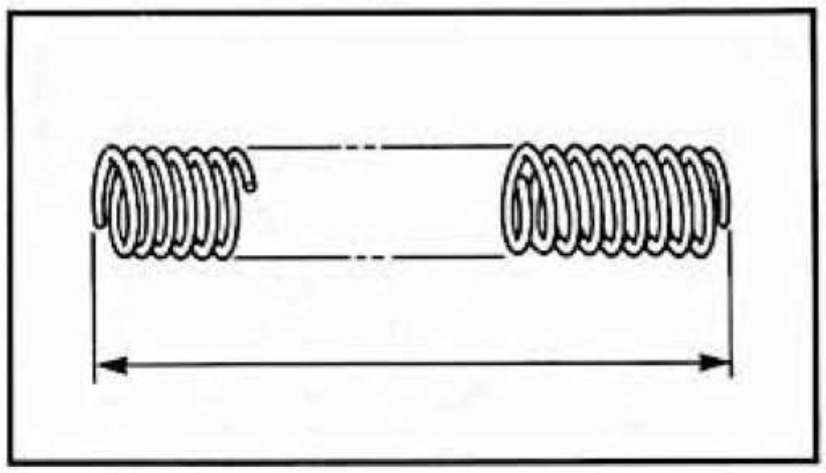
1. Inspect:
   - Inner fork tube
     Scratches/Bends→Replace.

WARNING:

Do not attempt to straighten a bent inner fork tube as this may dangerously weaken the tube.

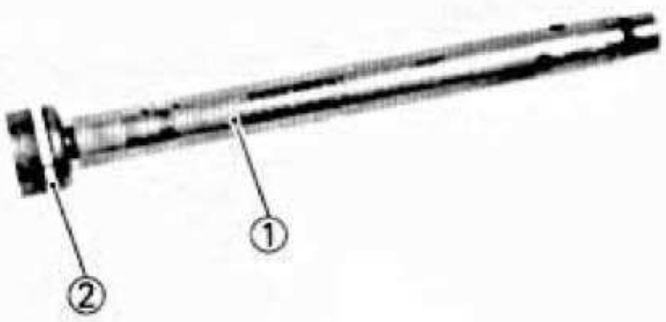
2. Inspect:
   - Outer fork tube
     Scratches/Bends/Damage→Replace.

www.badrad600.com



3. Measure:
   • Fork spring
   Out of specification → Repalce.

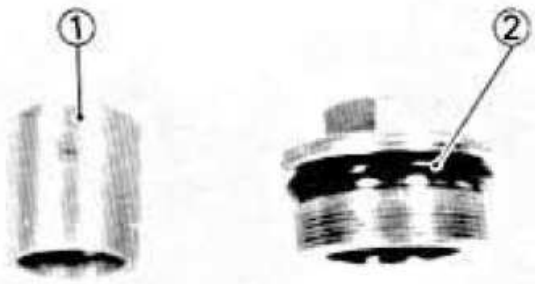
Fork Spring Free Length:
542 mm (21.3 in)
Minimum Free Length:
537 mm (21.1 in)



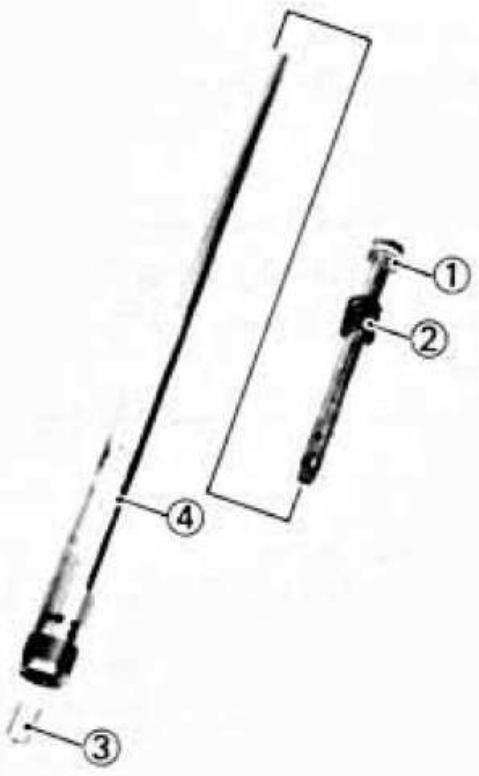
4. Inspect:
   • Damper rod ①
   • Ring ②
   Wear/Damage → Replace.

NOTE:

Blow out all oil passages with compressed air.



5. Inspect:
   • Oil lock piece ①
   • O-ring ②
   Damage → Replace.



REASSEMBLY

NOTE:

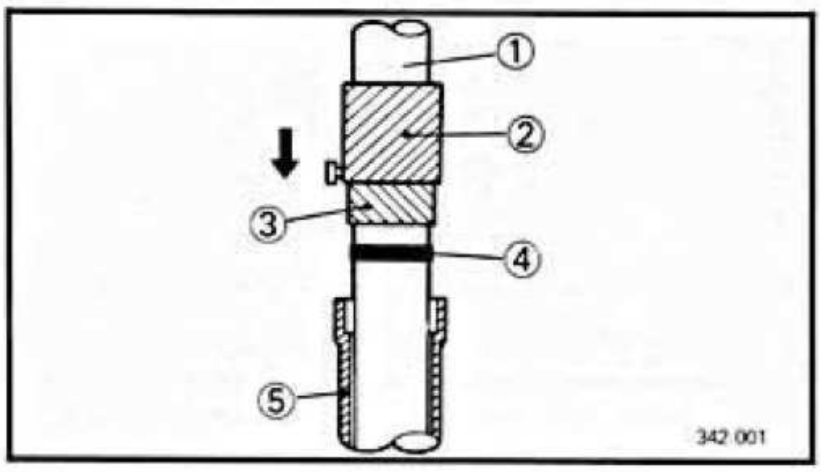
- In front fork reassembly, be sure to use following new parts.
  * Guide bush
  * Slide bush
  * Oil seal
  * Dust seal
- Make sure all components are clean before reassembly.

1. Install:
   • Damper rod ①
   • Rebound spring ②
   • Oil lock piece ③
   • Inner fork tube ④

www.badrad600.com

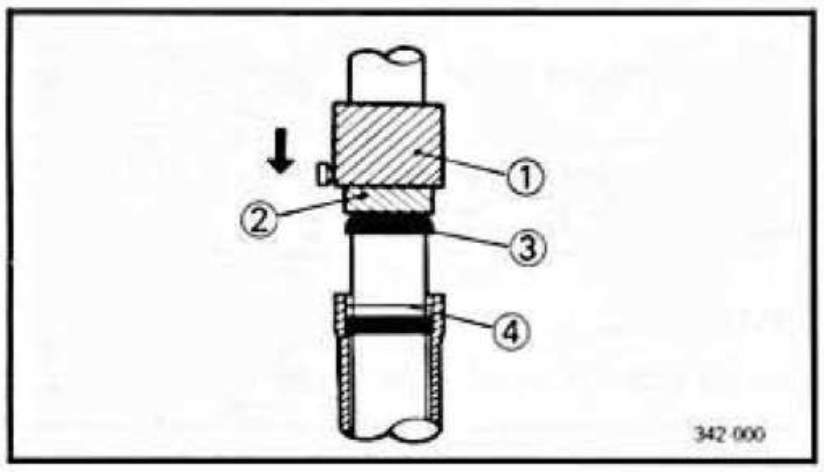
2. Install:
   - Cylinder securing bolt
     Use the Holder (YM-33298) and T-Handle (YM-01326) to lock the damper rod.

	30 Nm (3.0 m•kg, 22 ft•lb) **Apply LOCTITE®.**



3. Install:
   - Guide bush ④
     Use the Fork Seal Driver Weight (YM-33963) ② and Adapter (YM-08010) ③.

① Inner tube
⑤ Outer tube



4. Install:
   - Plain washer ④
   - Oil seal ③ (New)
     Use the Fork Seal Driver Weight (YM-33963) ① and Adapter (YM-08010) ②.
   - Retaining clip
   - Dust seal

5. Fill:
   - Front fork

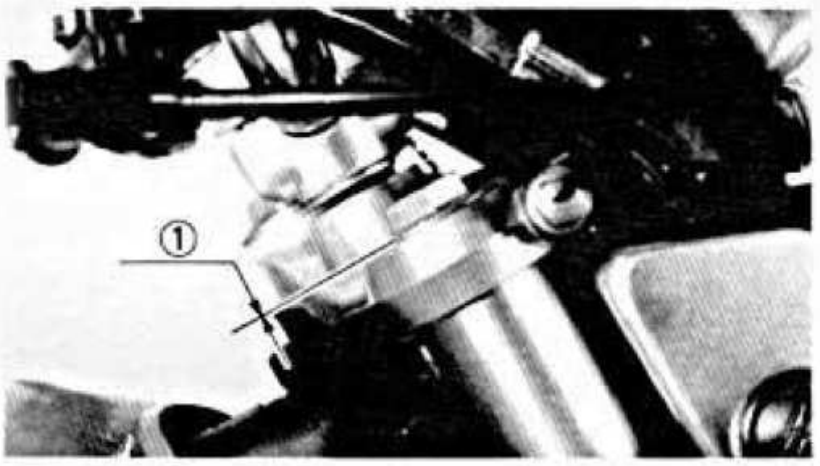
	Each Fork: **320 cm³ (11.3 Imp oz, 10.8 US oz)** **Fork Oil 10 WT or equivalent** **After filling, slowly pump the fork up and down to distribute oil.**

6. Install:
   - Fork spring
     (with smaller pitch side up)
   - Spring seat
   - Cap bolt (Temporarily)

www.badrad600.com

INSTALLATION

When installing the front fork, reverse the removal procedure.
Note the following points.



1. Install:
   - Front fork(s)
     Temporarily tighten the pinch bolts.

NOTE:
Level the top of the cap bolt with the top of the handle crown.

① Flush

2. Tighten:
   - Pinch bolts (Under bracket)

	Pinch Bolt (Under Bracket) **23 Nm (2.3 m•kg, 17 ft•lb)**

NOTE:
Do not tighten the handle crown pinch bolt.

3. Tighten:
   - Cap bolt
   - Pinch bolt (Handle crown)

	Cap Bolt: **23 Nm (2.3 m•kg, 17 ft•lb)** **Pinch Bolt (Handle crown):** **20 Nm (2.0 m•kg, 14 ft•lb)**

4. Install:
   - Front fender
   - Front fork brace

	Bolts (Front Fender): **8 Nm (0.8 m•kg, 5.8 ft•lb)**

www.badrad600.com

5. Install:
   - Front wheel
   - Brake caliper

   Refer to "FRONT WHEEL-INSTALLATION" section.

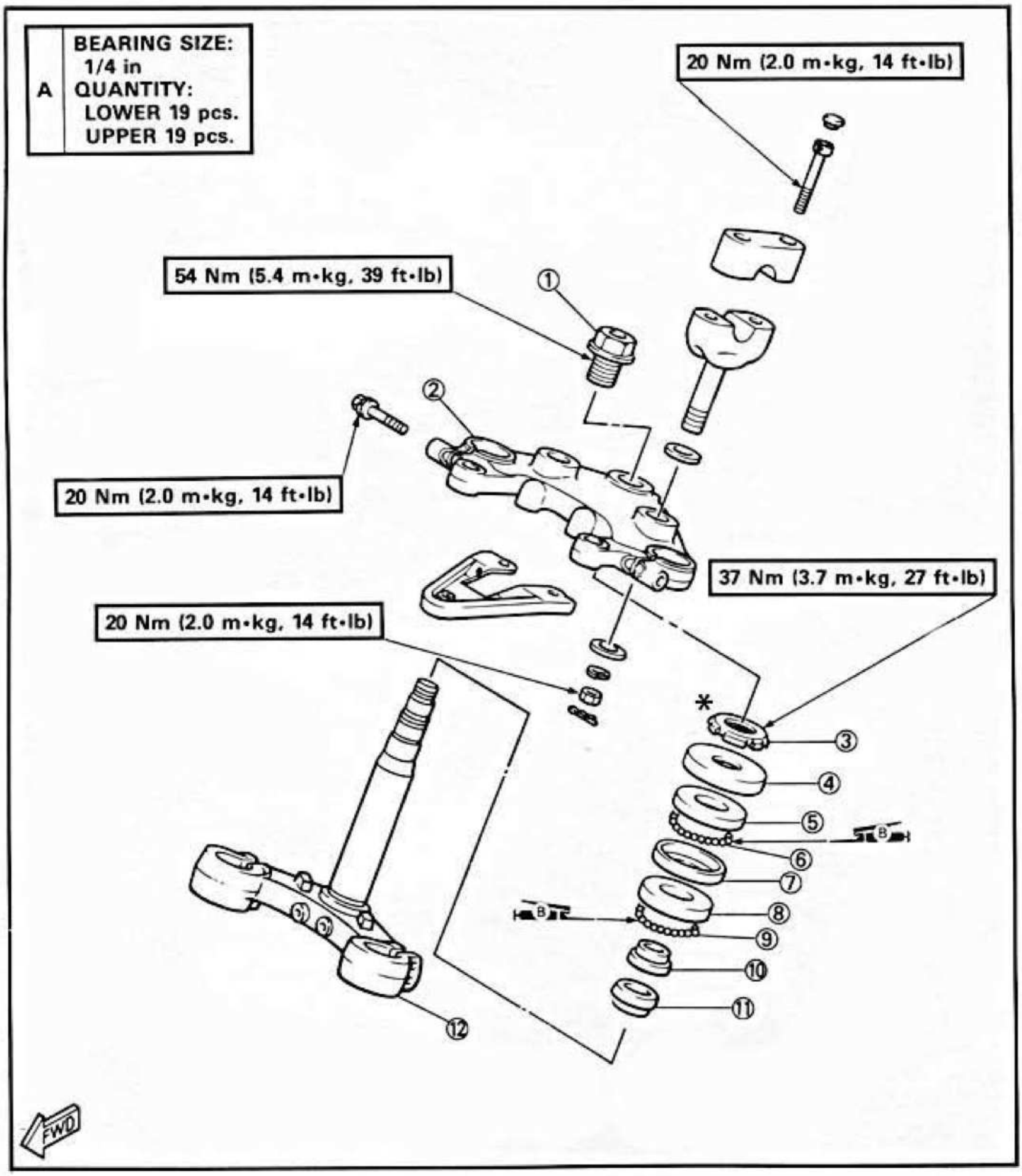
Nut (Front Axle):
105 Nm (10.5 m•kg, 75 ft•lb)
Bolts (Brake Caliper):
35 Nm (3.5 m•kg, 25 ft•lb)

www.badrad600.com

STEERING HEAD

① Steering stem bolt
② Handle crown
③ Ring nut
④ Bearing race cover
⑤ Bearing race
⑥ Bearing
⑦ Bearing race
⑧ Bearing race
⑨ Bearing
⑩ Bearing race
⑪ Dust seal
⑫ Under bracket

* Tighten to specified torque.
If steering is binded, loosen the ring nut so that there is no free play on bearing.



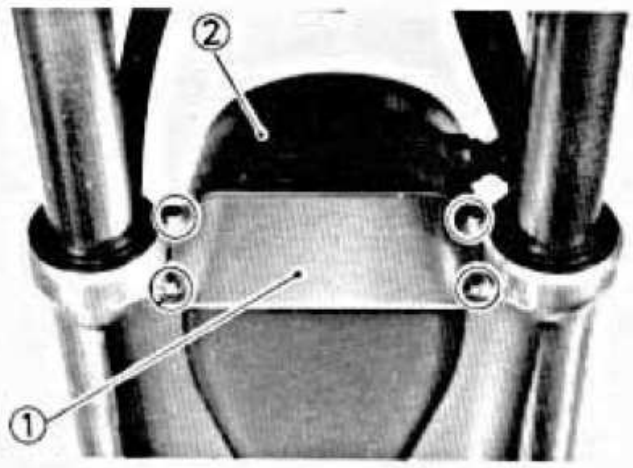
www.badrad600.com

REMOVAL

1. Place the motorcycle on the centerstand.

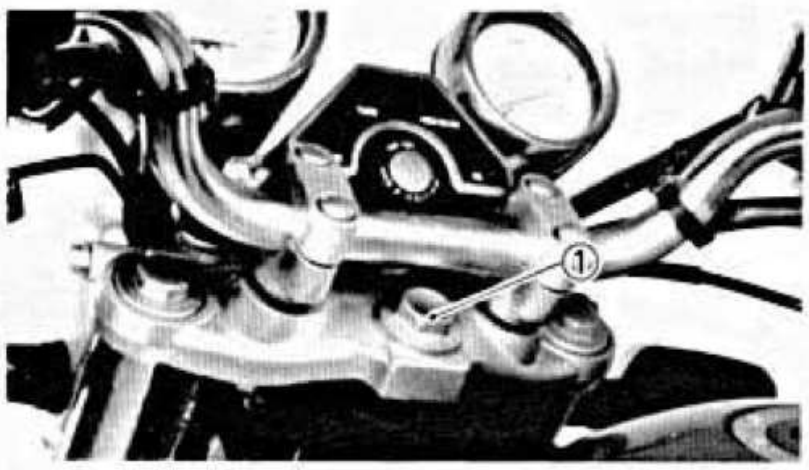
WARNING:

Securely support the motorcycle so there is no danger of it falling over.

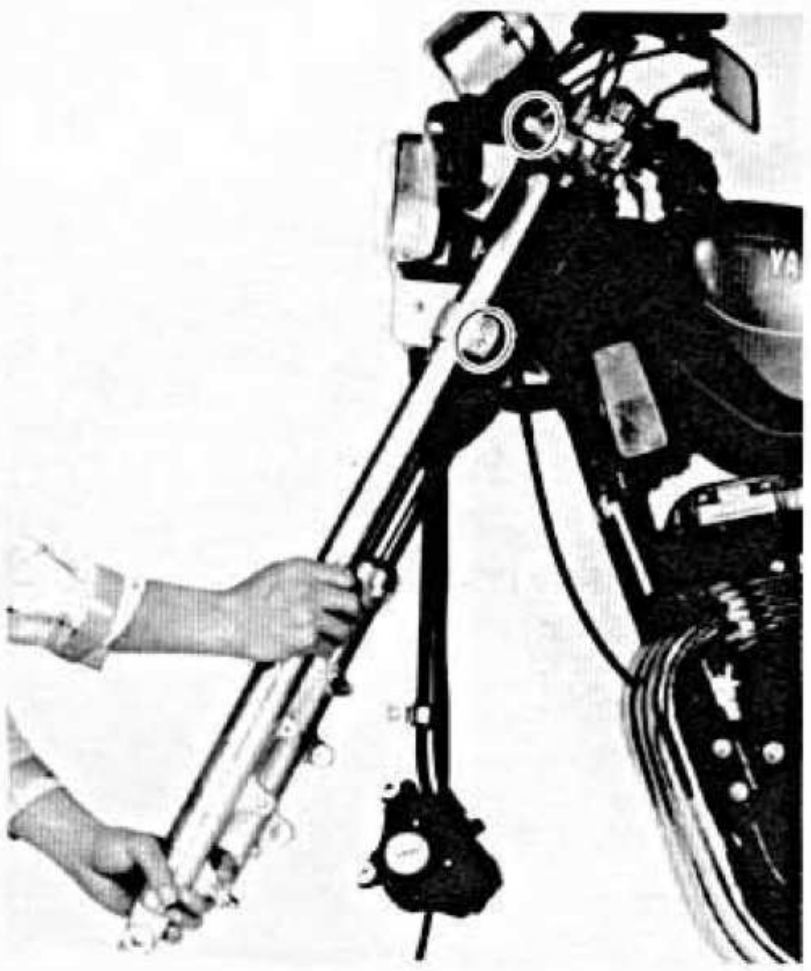


2. Remove:
   - Front wheel
     Refer to "FRONT WHEEL-REMOVAL" section.

3. Remove:
   - Front fork brace ①
   - Front fender ②



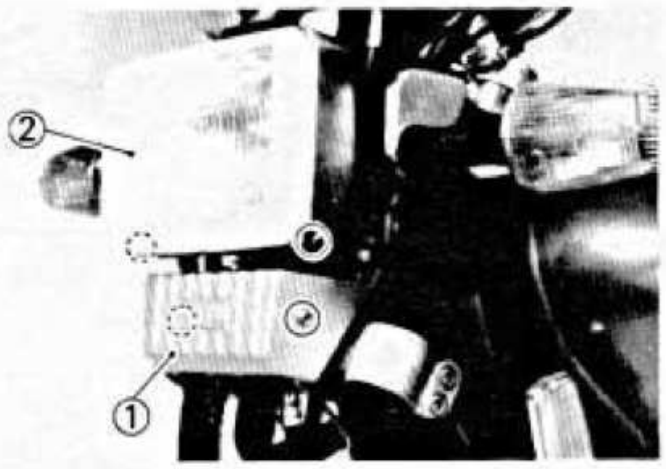
4. Loosen:
   - Steering stem bolt ①



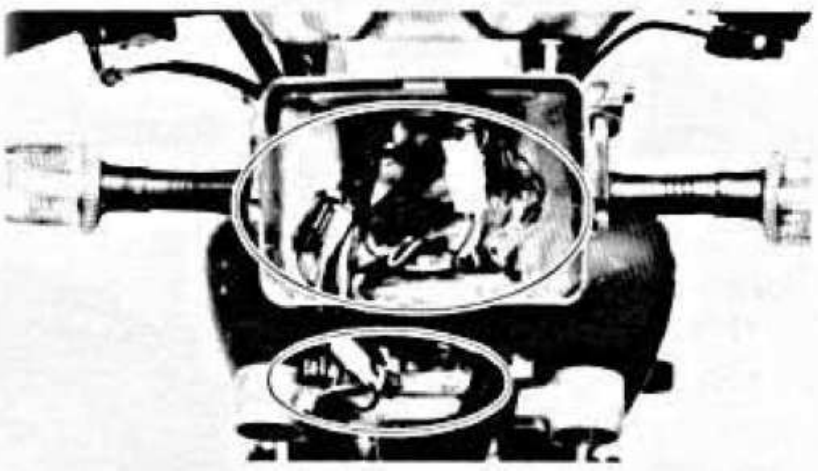
5. Remove:
   - Front forks

5

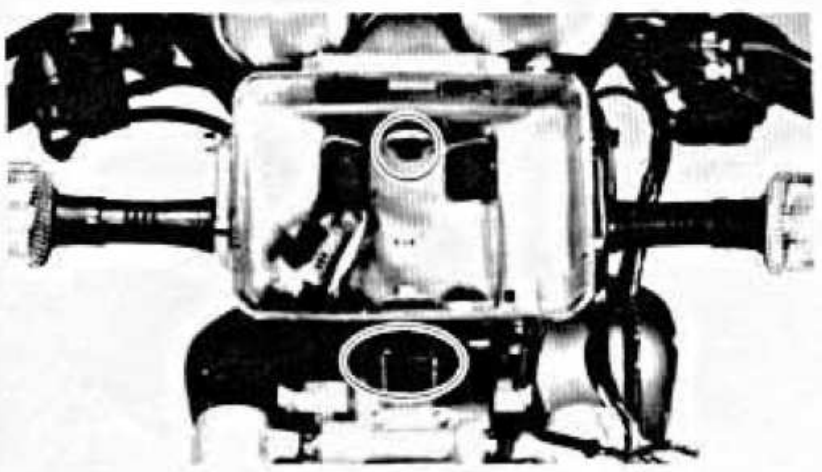
www.badrad600.com



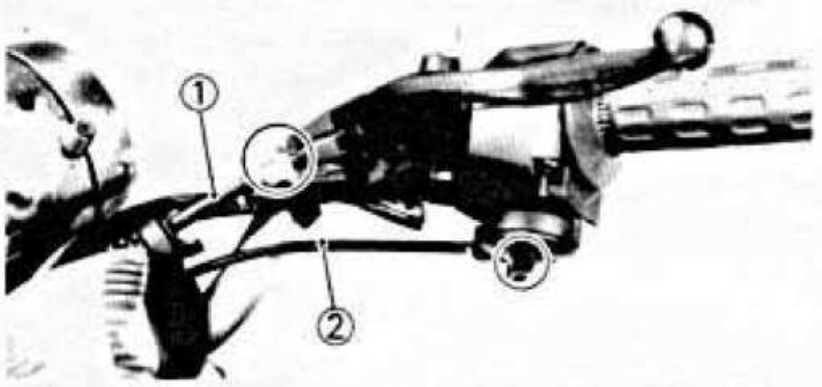
6. Remove:
   - Front cover ①
   - Headlight lens unit ②



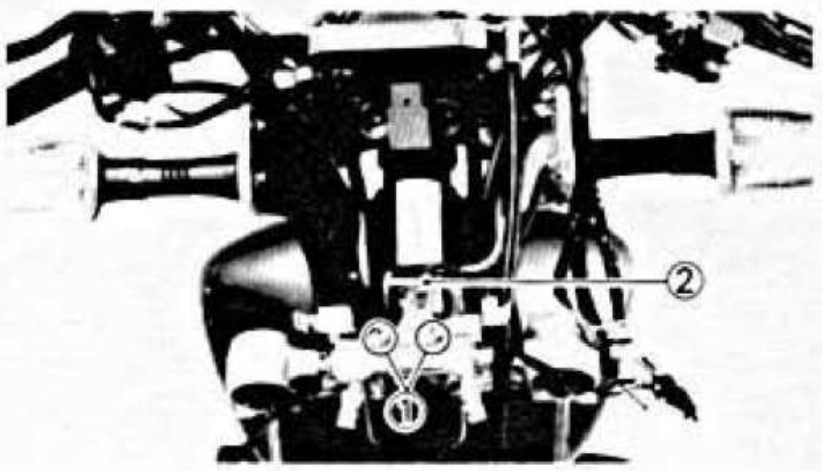
7. Disconnect:
   - Meter leads
   - Handlebar switch leads
   - Flasher light leads



8. Remove:
   - Headlight body



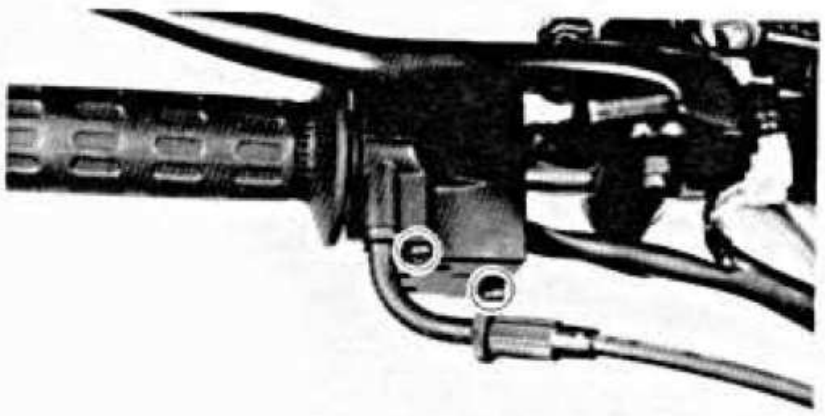
9. Remove:
   - Clutch cable ①
   - Starter cable ②



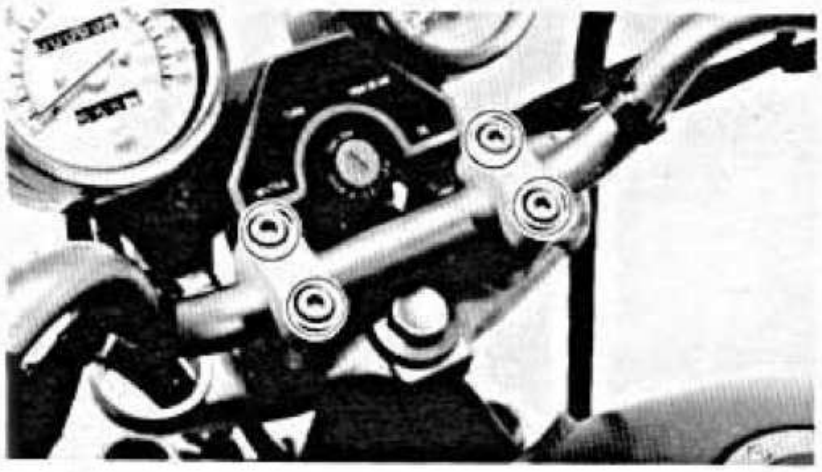
10. Remove:
    - Bolts (Brake hose joint) ①
    - Headlight stay ②

5

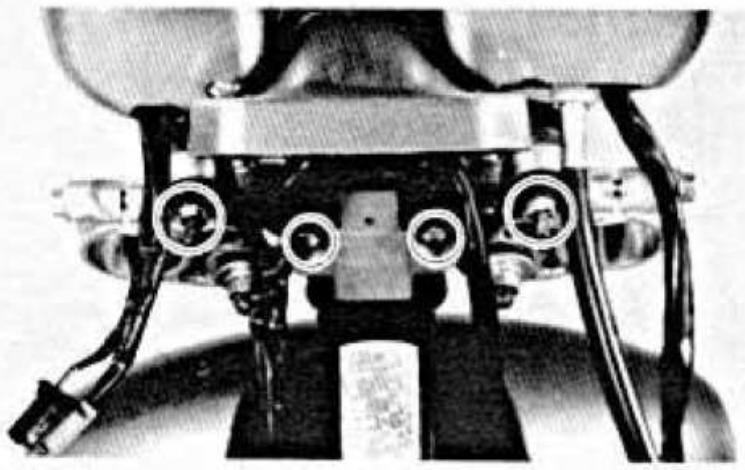
www.badrad600.com



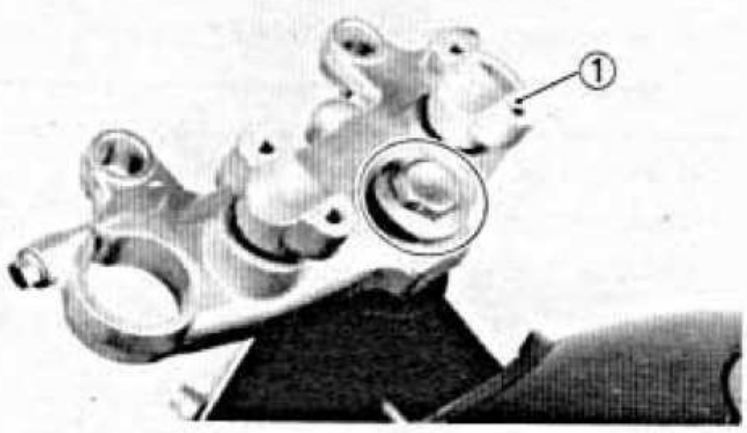
11. Loosen:
    - Screws (Right handlebar switch)



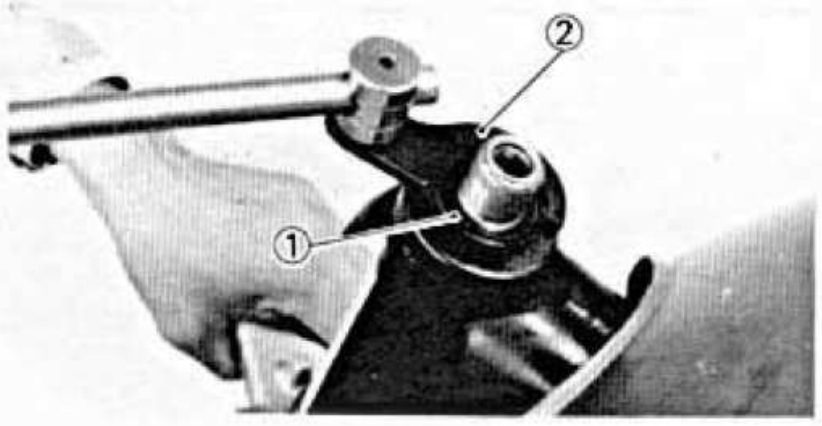
12. Remove:
    - Handlebar



13. Remove:
    - Meter assembly
    - Main switch



14. Remove:
    - Handle crown ①



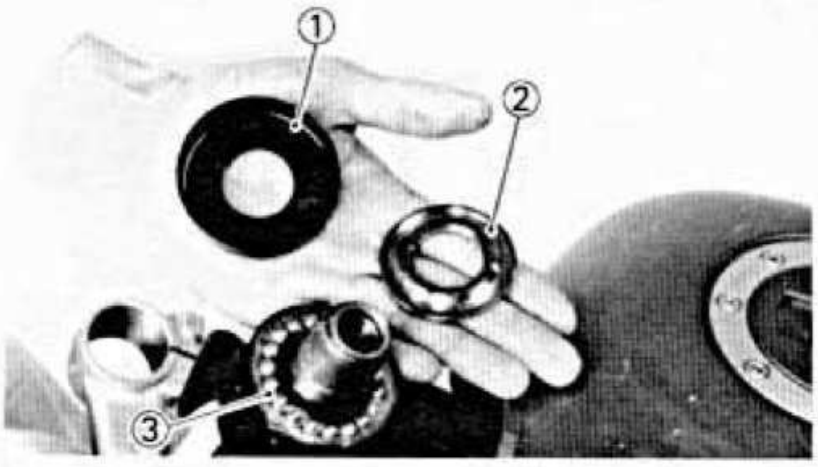
15. Remove:
    - Ring nut ①
      Use Ring Nut Wrench (YU-33975) ②.

WARNING:

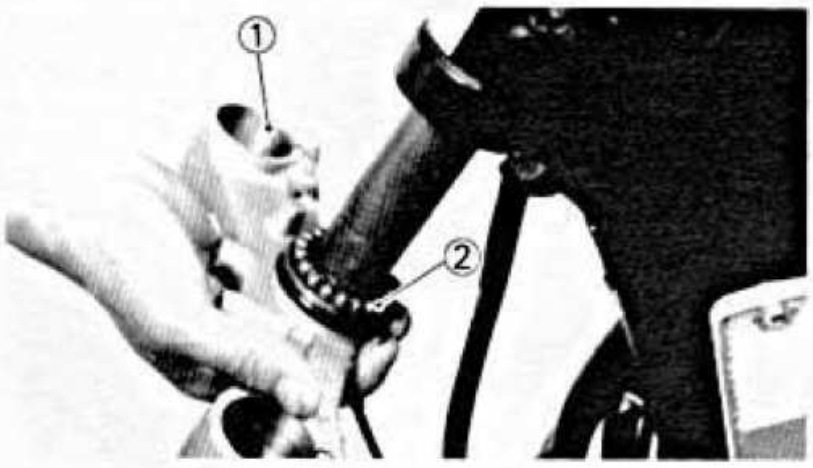
Support the under bracket so that it may not fall down.

5

www.badrad600.com



16. Remove:
    - Bearing race cover ①
    - Bearing race ②
    - Bearings ③



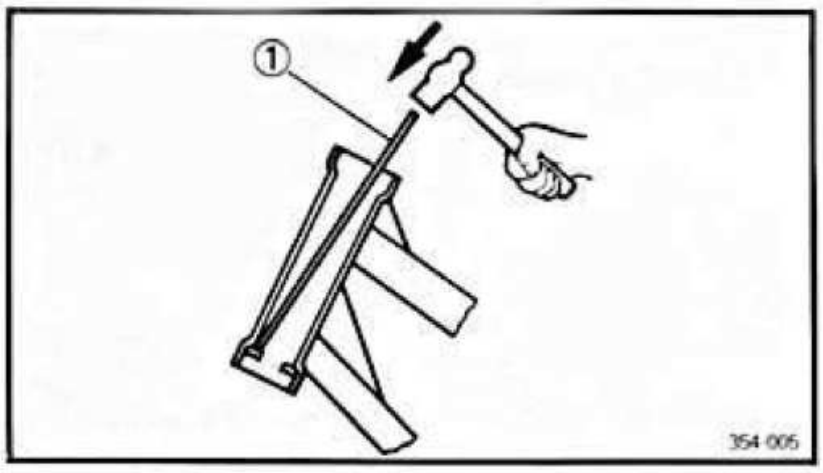
17. Remove:
    - Under bracket ①
    - Bearings ②

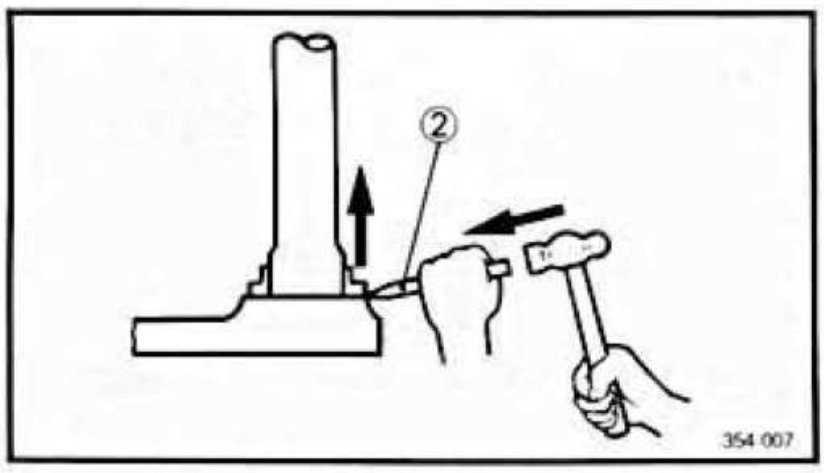
INSPECTION

1. Wash the bearings in a solvent.

2. Inspect:
    - Bearings
    - Ball races

    Pitting/Damage → Replace.





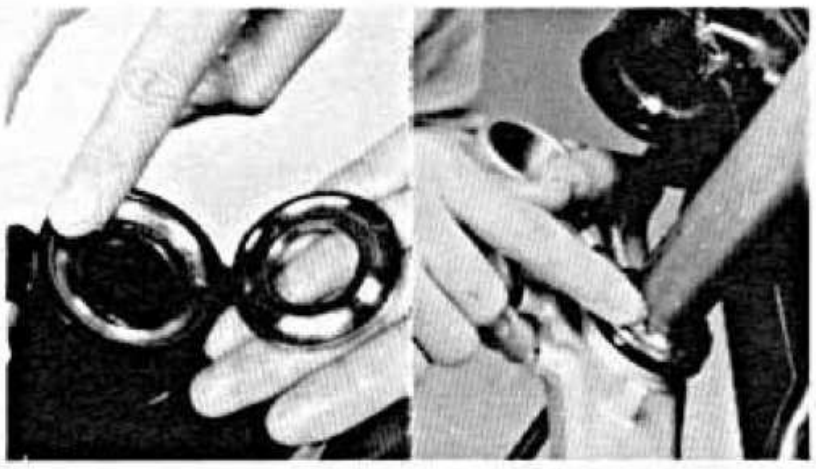
NOTE:

Always replace bearings and races as a set.

Bearing race replacement steps:

- Remove the bearing races using long rod ① and the hammer as shown.
- Remove the bearing race on the under bracket using the floor chisel ② and the hammer as shown.
- Install the new dust seal and races.

www.badrad600.com





INSTALLATION

Reverse the removal procedure.
Note the following points.

1. Apply:
   - Grease

   To bearing races.

Wheel Bearing Grease

2. Install:
   - Bearings

   Arrange the bearings around race, and apply more grease.

Ball Quantity/Size
Upper 19 pcs./1/4 in
Lower 19 pcs./1/4 in

3. Install:
   - Under bracket

CAUTION:

Hold the under bracket until it is secured.



4. Tighten:
   - Ring nut

   Use Ring Nut Wrench (YU-33975).

37 Nm (3.7 m•kg, 27 ft•lb)

NOTE:

If steering is binded, loosen the ring nut so that there is no free play on bearings.

5. Tighten:
   - Bolts (Handlebar)

20 Nm (2.0 m•kg, 14 ft•lb)

5

www.badrad600.com

6. Pass the meter leads, handlebar switch leads and the flasher light leads through the headlight body holes.
   Refer to "CHAPTER 7-CABLE ROUTING" section.

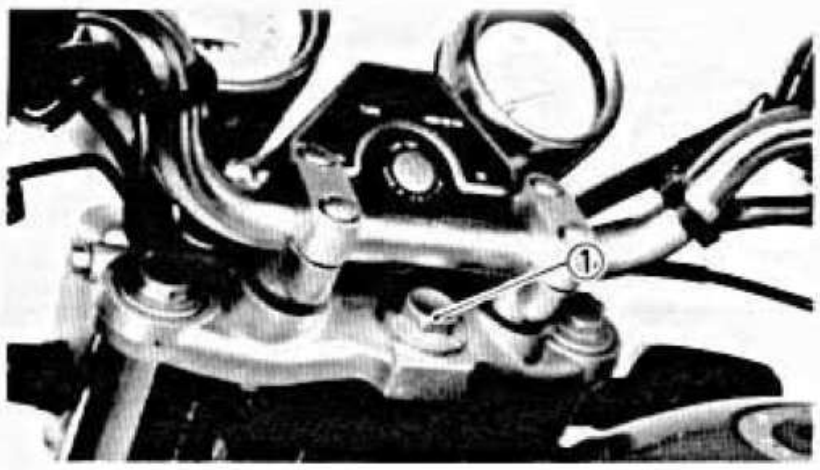
7. Connect:
   - Meter leads
   - Handlebar switch leads
   - Flasher light leads

NOTE:
The leads of identical colors should be connected.

8. Install:
   - Front forks
   Refer to "FRONT FORK-INSTALLATION" section.

Pinch Bolts (Under Bracket):
23 Nm (2.3 m•kg, 17 ft•lb)
Pinch Bolts (Handle Crown):
20 Nm (2.0 m•kg, 14 ft•lb)

5



9. Tighten:
   - Steering stem bolt ①

54 Nm (5.4 m•kg, 39 ft•lb)

10. Install:
    - Front fender
    - Front fork brance

Bolt (Front Fender):
8 Nm (0.8 m•kg, 5.8 ft•lb)

www.badrad600.com

11. Install:
    - Front wheel
    - Brake caliper

    Refer to "FRONT WHEEL-INSTALLATION" section.

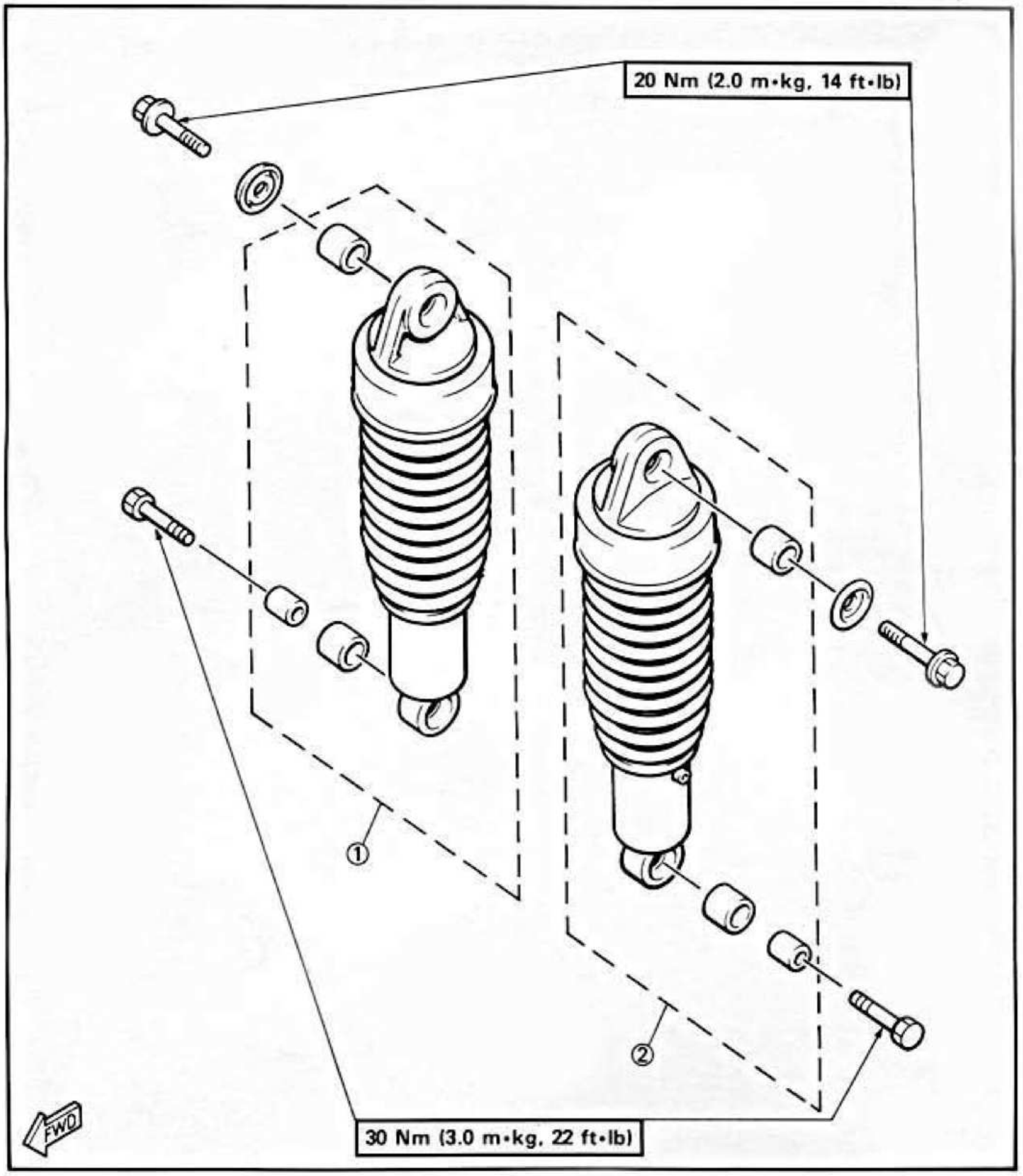
Nut (Front Axle):
105 Nm (10.5 m•kg, 75 ft•lb)
Bolts (Brake Caliper):
35 Nm (3.5 m•kg, 25 ft•lb)

12. Bleed the air completely from the brake system.
    Refer to "FRONT BRAKE-AIR BLEEDING" section.

www.badrad600.com

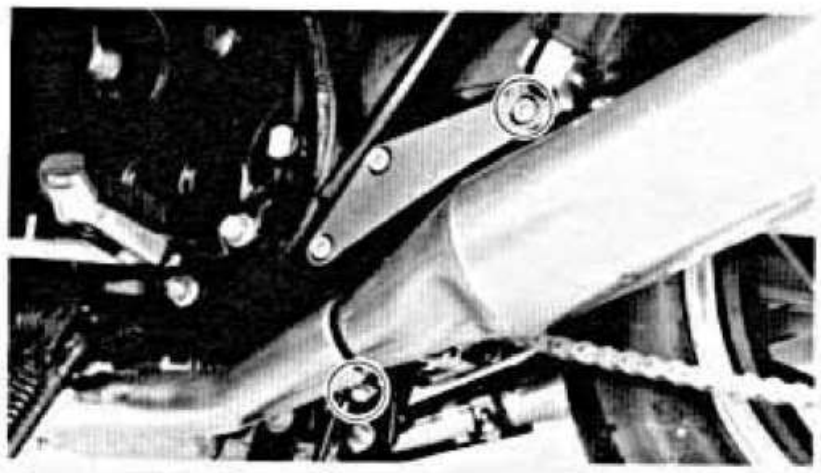
REAR SHOCK ABSORBER

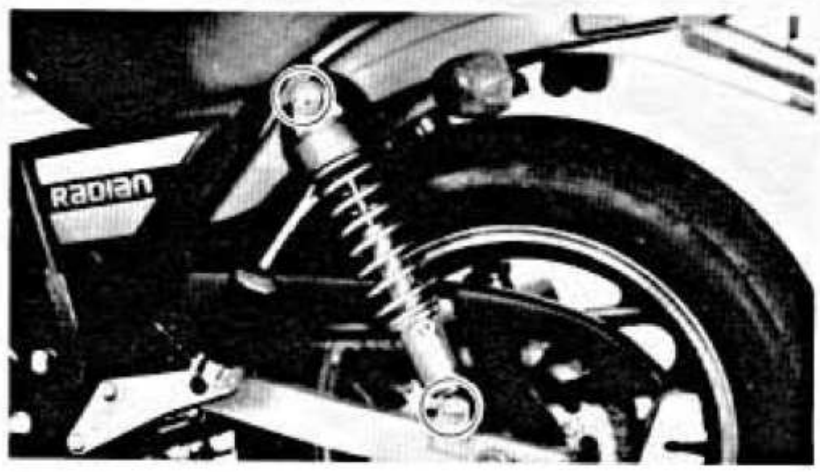
① Rear shock absorber (Right)
② Rear shock absorber (Left)



5

www.badrad600.com







REMOVAL

1. Place the motorcycle on its centerstand.
2. Remove:
   - Muffler
3. Remove:
   - Rear shock absorber

INSPECTION

1. Inspect:
   - Rear shock absorber

   Oil leaks/Damage → Replace.

INSTALLATION

Reverse the removal procedure.
Note the following points.

1. Install:
   - Rear shock absorber

Bolt (Shock Absorber and Frame):
20 Nm (2.0 m•kg, 14 ft•lb)
Bolt (Shock Absorber and Swingarm):
30 Nm (3.0 m•kg, 22 ft•lb)

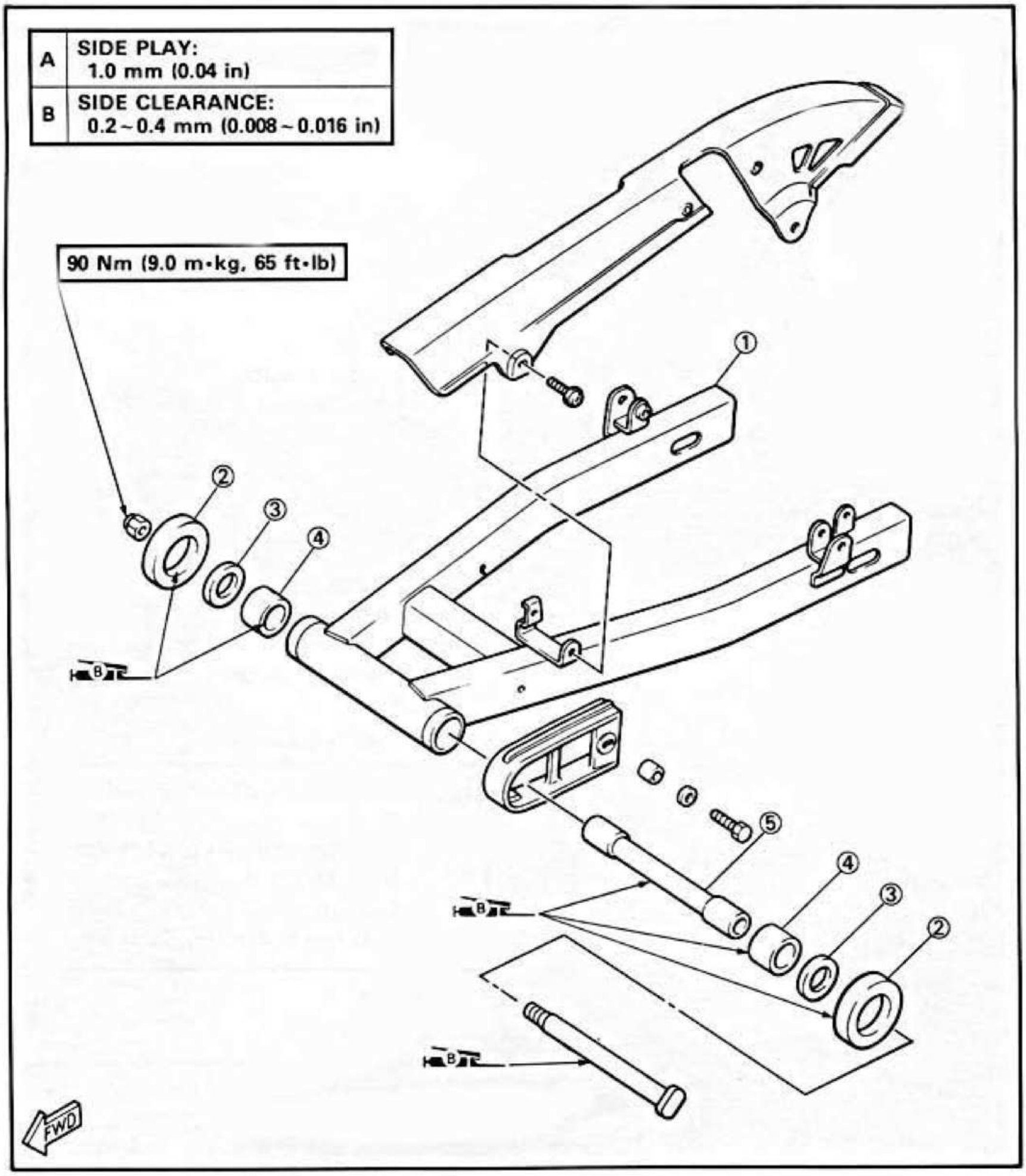
2. Install:
   - Muffler

Bolt (Muffler and Footrest Bracket):
25 Nm (2.5 m•kg, 18 ft•lb)

www.badrad600.com

SWINGARM

① Swingarm
② Thrust cover
③ Shim
④ Bearing
⑤ Bush



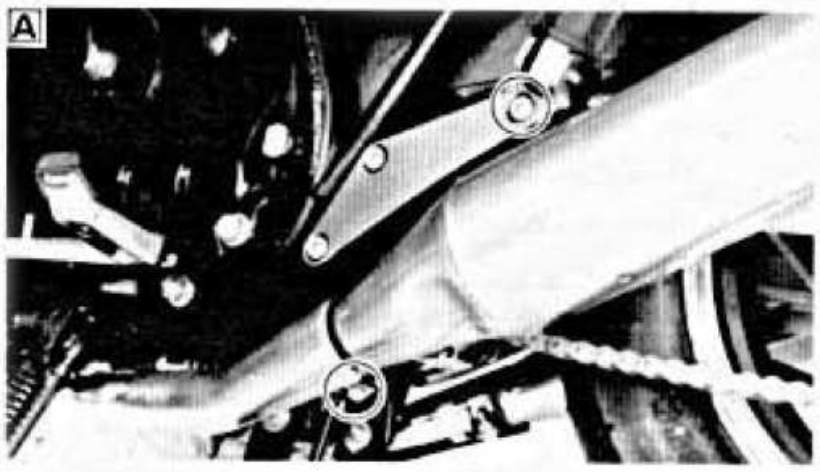
www.badrad600.com

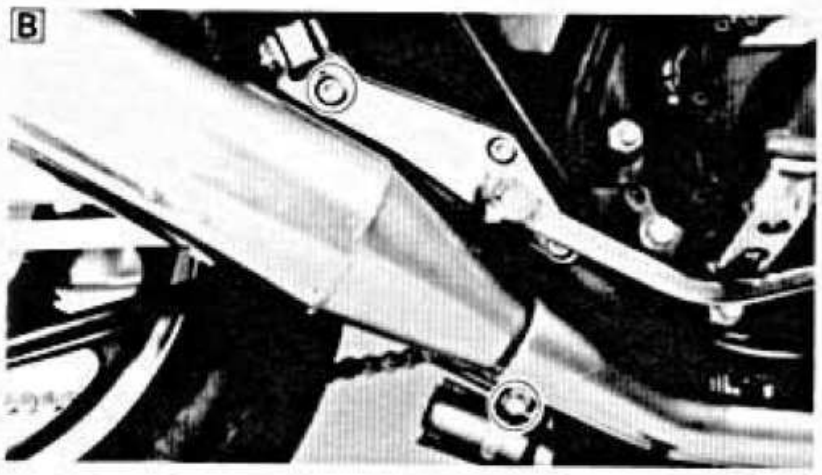
REMOVAL

1. Place the motorcycle on its centerstand.

WARNING:

Support the motorcycle securely so there is no danger of it falling over.



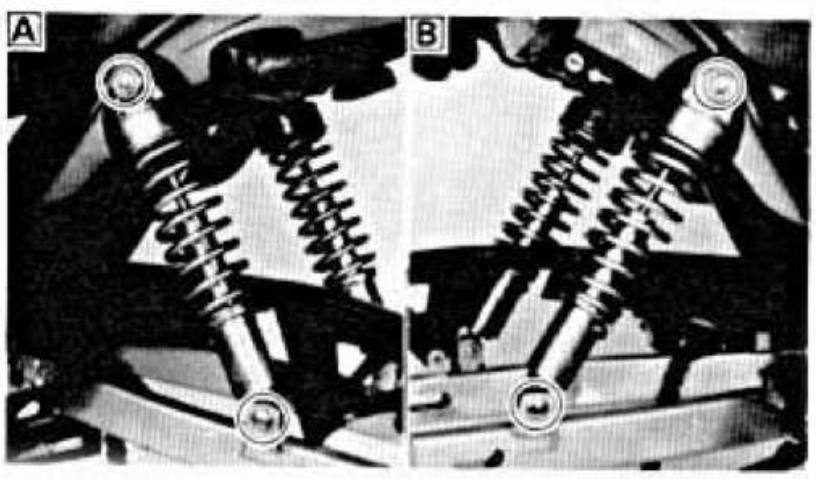


2. Remove:
   - Mufflers

A Left side
B Right side

3. Remove:
   - Rear wheel

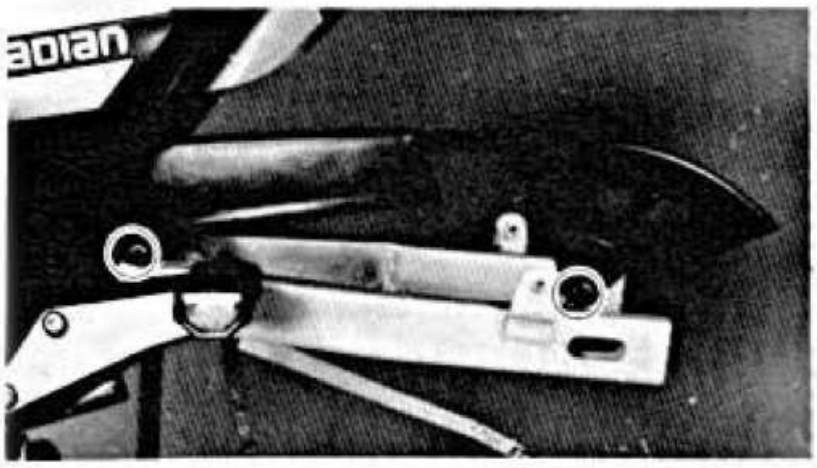
   Refer to "REAR WHEEL-REMOVAL" section.



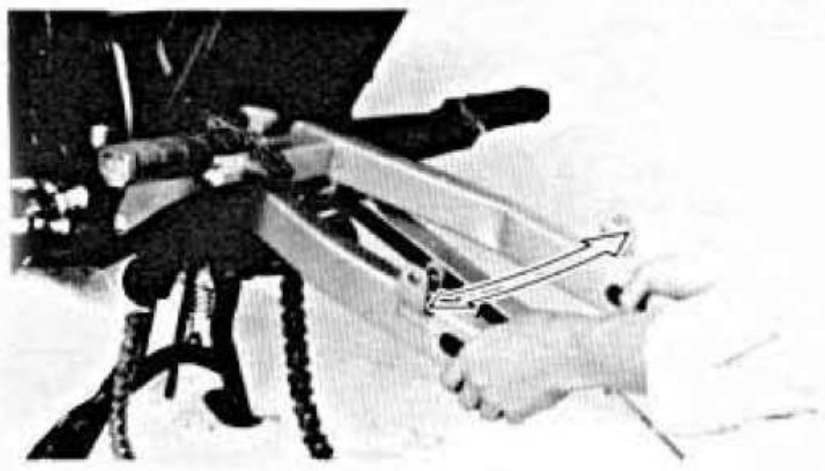
4. Remove:
   - Rear shock absorbers

A Left side
B Right side

www.badrad600.com

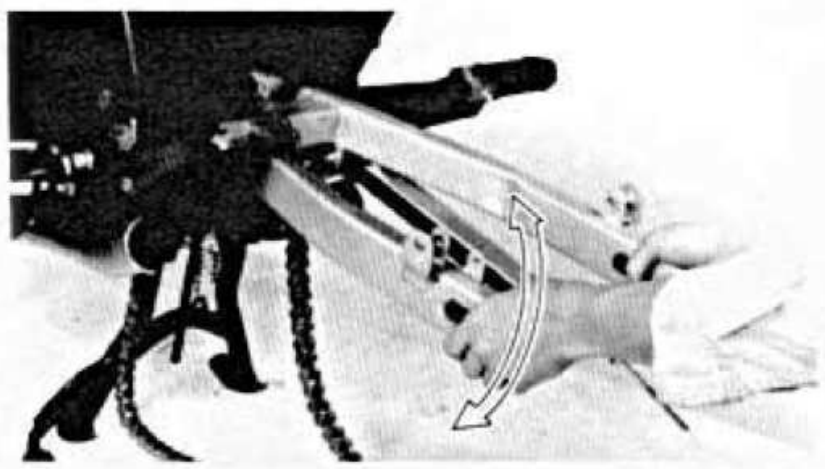


5. Remove:
   • Chain cover



6. Check:
   • Swingarm (Side play)
   Over specified limit → Inspect bush length and adjust side play using shims.
   Move swingarm from side to side.

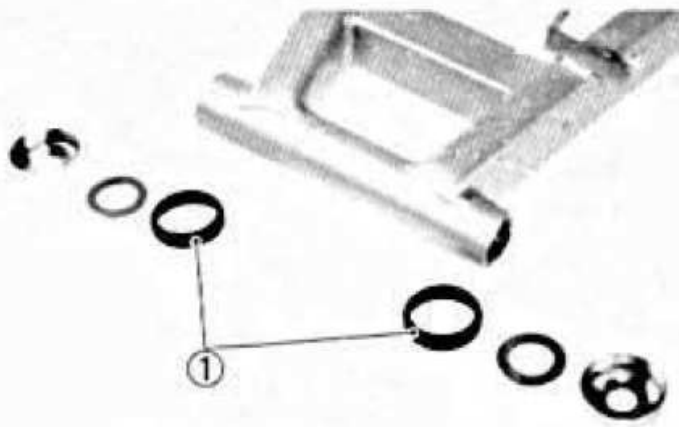
Side Play (At End of Swingarm):
1.0 mm (0.04 in)



7. Check:
   • Swingarm (Vertical movement)
   Tightness/Binding/Rough Sports → Replace bearings.
   Move swingarm up and down.



8. Remove:
   • Swingarm



INSPECTION

1. Inspect:
   • Oil seal ①
   Damage → Replace thrust cover.

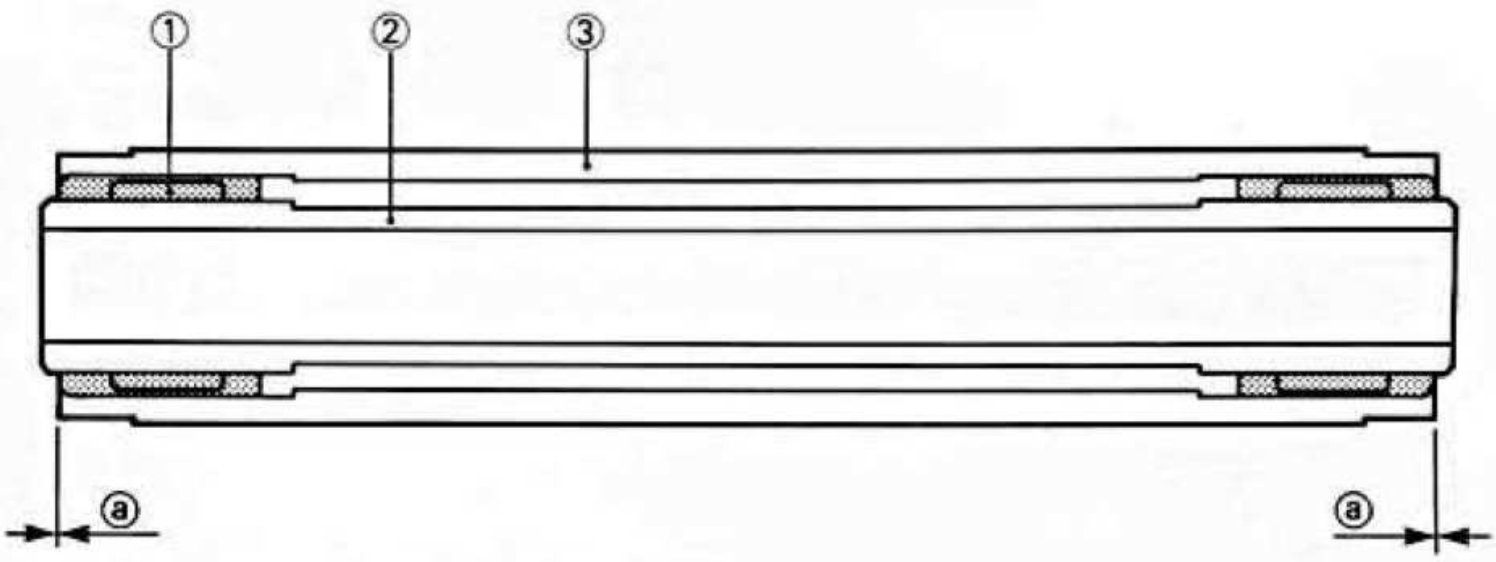
www.badrad600.com

ADJUSTMENT

NOTE:

When replacing the bush and bearings, note attention to the following points;

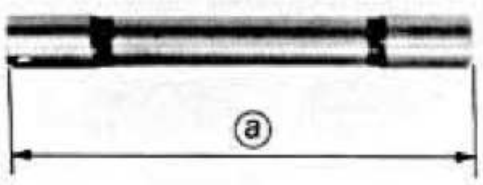
- Bearings should be exactly located as shown in the illustration.
- Grease them liberally with wheel bearing grease.



① Bearing
② Bush
③ Swingarm
ⓐ Flash

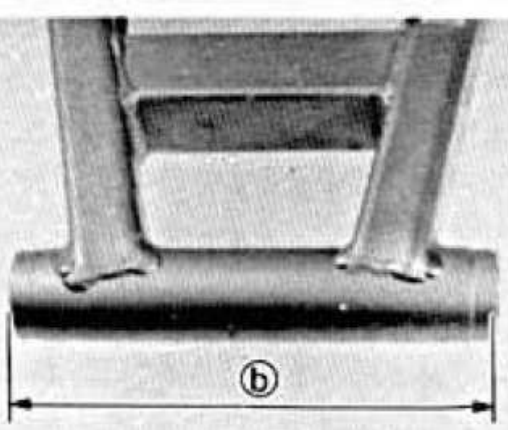
1. Measure:
   - Bush length ⓐ

   Out of specification → Replace bush.



Standard Length:
197.4 ~ 197.6 mm (7.77 ~ 7.78 in)

2. Measure:
   - Swingarm end length ⓑ

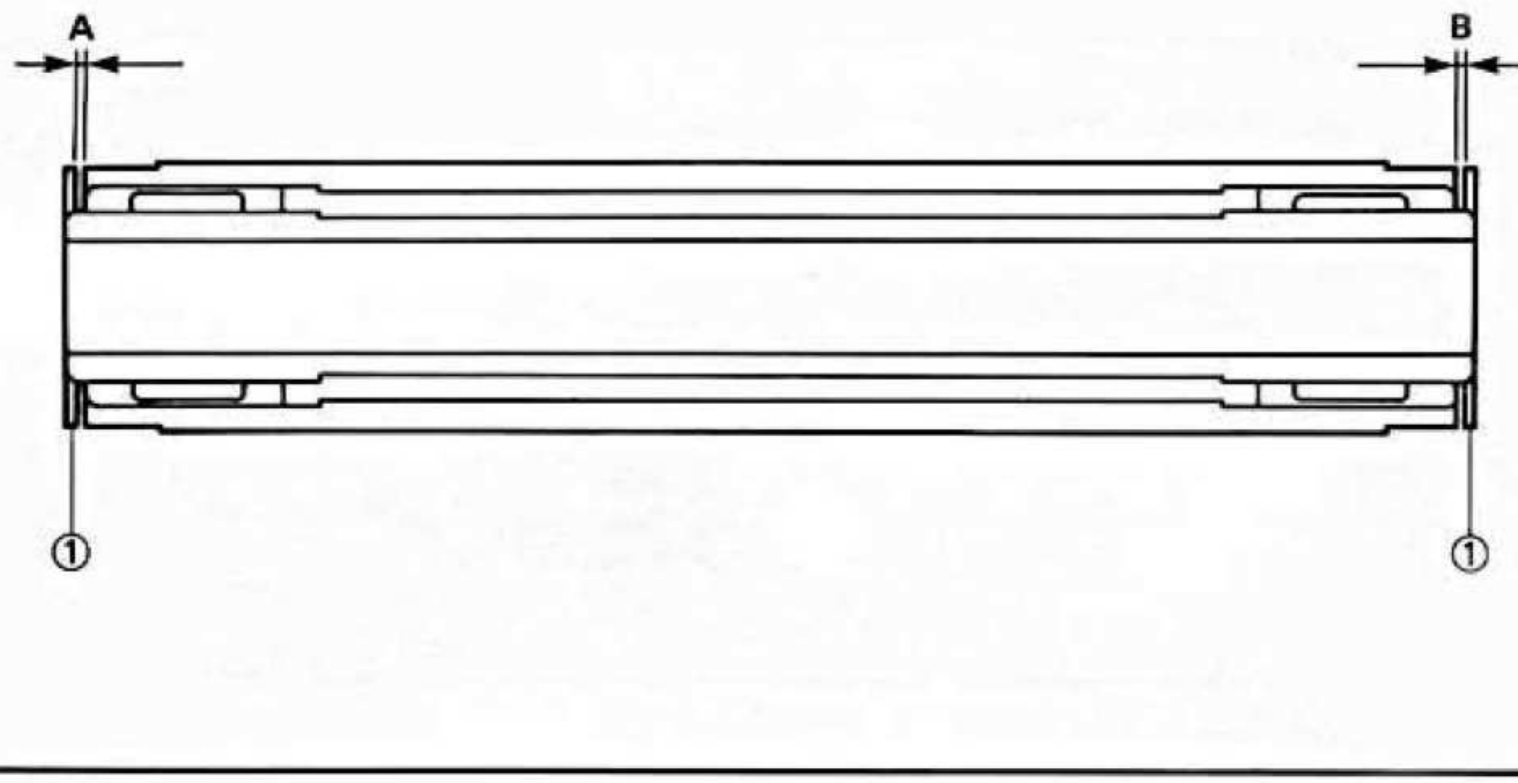


www.badrad600.com

3. Select the proper shim ① thickness to obtain standard swingarm side play (A + B).

Standard Side Play (A + B):
0.2 ~ 0.4 mm (0.008 ~ 0.016 in)

Available Shim Thickness:
1.9 ~ 2.0 mm (0.0748 ~ 0.0787 in)
2.0 ~ 2.1 mm (0.0787 ~ 0.0826 in)
2.1 ~ 2.2 mm (0.0826 ~ 0.0866 in)



5

INSTALLATION

Reverse the removal procedure.
Note the following points.

1. Install:
   - Swingarm

Nut (Pivot Shaft):
90 Nm (9.0 m•kg, 56 ft•lb)

www.badrad600.com

2. Install:
   • Rear shock absorbers

	**Bolt (Shock Absorber and Frame):** **20 Nm (2.0 m•kg, 14 ft•lb)** **Bolt (Shock Absorber and Swingarm):** **30 Nm (3.0 m•kg, 22 ft•lb)**

3. Install:
   • Rear wheel
   Refer to "REAR WHEEL-INSTALLATION" section.

	**Axle Nut:** **105 Nm (10.5 m•kg, 75 ft•lb)**

4. Install:
   • Mufflers

	**Bolt (Muffler and Footrest Bracket):** **25 Nm (2.5 m•kg, 18 ft•lb)**

5

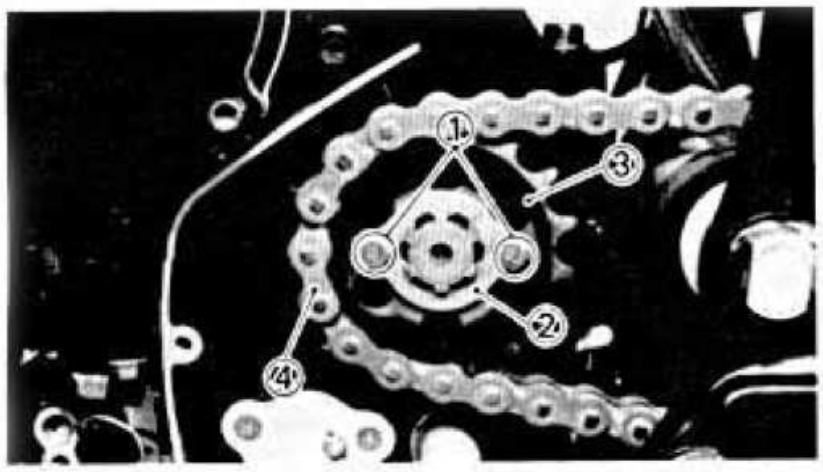
www.badrad600.com

DRIVE CHAIN AND SPROCKETS

REMOVAL

Drive Sprocket

1. Removal:
   - Footrest (Left)
   - Change pedal
   - Drive sprocket cover



2. Remove:
   - Bolts (drive sprocket) ①
     Apply the rear brake.
   - Holding plate ②
   - Drive sprocket ③
   - Drive chain ④

Drive Sprocket

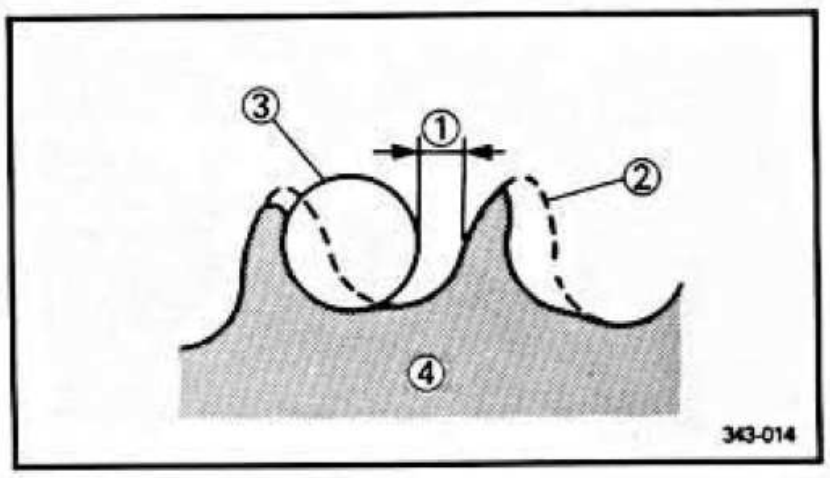
1. Remove:
   - Rear wheel
     Refer to "REAR WHEEL-REMOVAL" section.

2. Remove:
   - Nuts (drive sprocket)
   - Driven sprocket

INSPECTION

Drive Chain

1. Inspect:
   - O-rings
     Damage/Miss → Replace.
   - Rollers and side plates
     Damage/Wear → Replace.



Drive and Driven Sprockets

1. Inspect:
   - Drive and driven sprockets
     Wear/Damage → Replace.

① 1/4 tooth
② Correct
③ Roller
④ Sprocket

www.badrad600.com

ASSEMBLY

When assembling the sprockets, reverse the removal procedure. Note the following points.

1. Tighten:
   - Bolts (drive sprocket)
   - Nuts (driven sprocket)

Bolts (Drive Sprocket):
10 Nm (1.0 m·kg, 7.2 ft·lb)
Nuts (Driven Sprocket):
32 Nm (3.2 m·kg, 23 ft·lb)
Apply LOCTITE®.

2. Adjust:
   - Drive chain slack
   - Rear brake free play

   Refer to "CHAPTER 2-DRIVE CHAIN SLACK ADJUSTMENT and BRAKE PEDAL FREE PLAY ADJUSTMENT" section.

Drive Chain Slack:
20 ~ 30 mm (0.8 ~ 1.2 in)
Rear Brake Free Play:
20 ~ 30 mm (0.8 ~ 1.2 in)

www.badrad600.com

CHAPTER 6
ELECTRICAL

YX600S/SC CIRCUIT DIAGRAM 6-1

ELECTRICAL COMPONENTS 6-3

ELECTRICAL STARTING SYSTEM 6-5
- CIRCUIT DIAGRAM 6-5
- STARTING CIRCUIT OPERATION 6-7
- TROUBLESHOOTING 6-8
- STARTER MOTOR 6-18

IGNITION SYSTEM 6-25
- CIRCUIT DIAGRAM 6-25
- DESCRIPTION 6-27
- OPERATION 6-27
- PICKUP UNIT 6-27
- TROUBLESHOOTING 6-28

CHARGING SYSTEM 6-37
- CIRCUIT DIAGRAM 6-37
- TROUBLESHOOTING 6-39

LIGHTING SYSTEM 6-45
- CIRCUIT DIAGRAM 6-45
- TROUBLESHOOTING 6-47
- LIGHTING SYSTEM TEST AND CHECKS 6-52

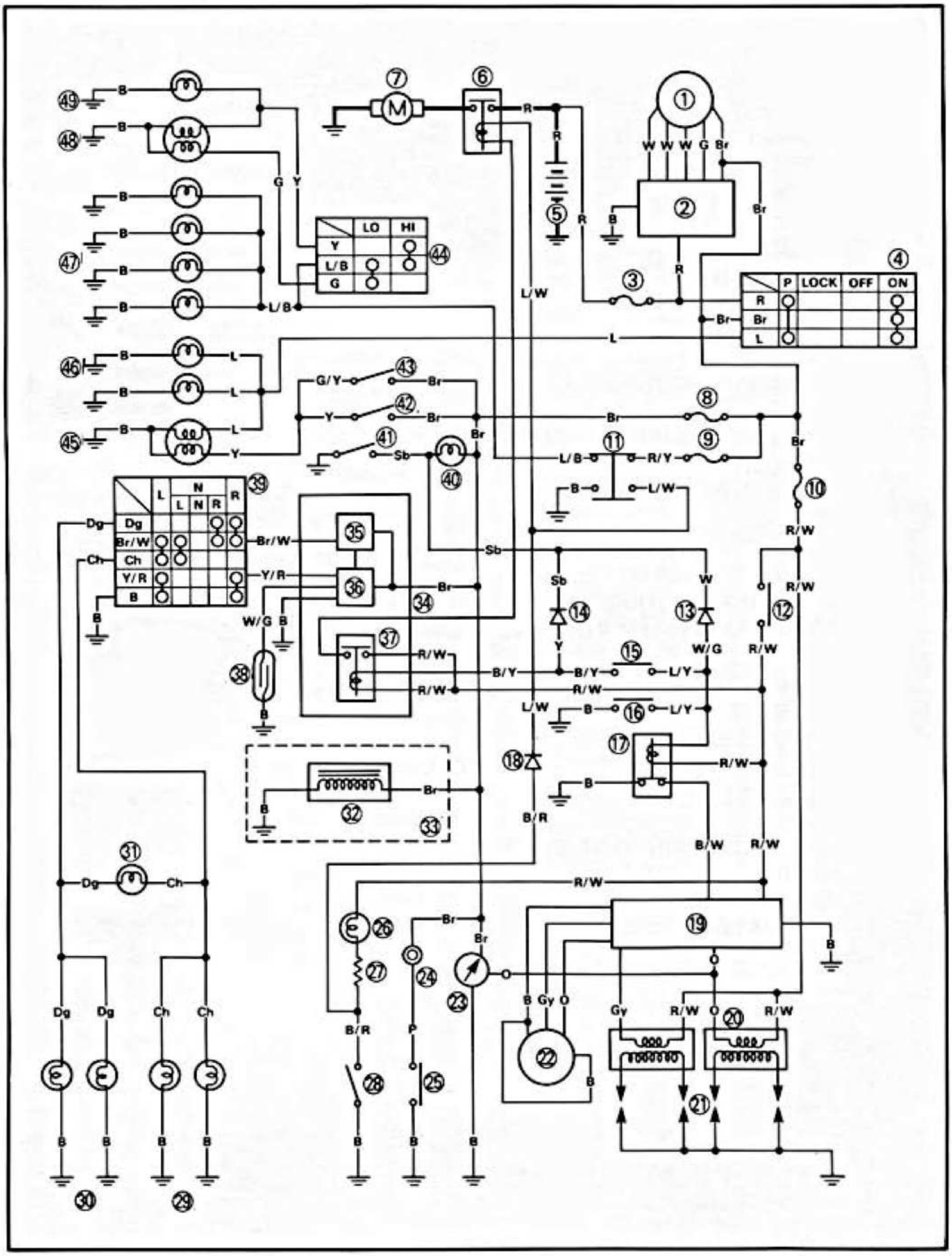
SIGNAL SYSTEM 6-55
- CIRCUIT DIAGRAM 6-55
- TROUBLESHOOTING 6-57
- SIGNAL SYSTEM TEST AND CHECKS 6-61
- OIL LEVEL SWITCH TEST 6-64

CARBURETOR AIR VENT SYSTEM 6-65
- CIRCUIT DIAGRAM 6-65
- DESCRIPTION 6-67
- OPERATION 6-67
- TROUBLESHOOTING 6-68

www.badrad600.com

ELECTRICAL

YX600S/SC CIRCUIT DIAGRAM



www.badrad600.com

① AC Magneto
② Rectifier/Regulator
③ Fuse (MAIN)
④ Main switch
⑤ Battery
⑥ Starter relay
⑦ Starter motor
⑧ Fuse (SIGNAL)
⑨ Fuse (HEAD)
⑩ Fuse (IGNITION)
⑪ "START" switch
⑫ "ENGINE STOP" switch
⑬ Diode
⑭ Diode
⑮ Clutch switch
⑯ Sidestand switch
⑰ Sidestand relay
⑱ Diode
⑲ Ignitor unit
⑳ Ignition coil
㉑ Spark plug
㉒ Pickup coil
㉓ Tachometer
㉔ Horn
㉕ "HORN" switch
㉖ "OIL" indicator light
㉗ Resistor
㉘ Oil level switch
㉙ Flasher light (Left)
㉚ Flasher light (Right)
㉛ "TURN" indicator light
㉜ Air vent control valve
㉝ California only
㉞ Relay assembly
㉟ Flasher relay
(Included in relay assembly)
㊱ Flasher cancelling unit
(Included in relay assembly)
㊲ Starting circuit cut-off relay
(Included in relay assembly)
㊳ Reed switch
㊴ "TURN" switch
㊵ "NEUTRAL" indicator light
㊶ Neutral switch
㊷ Rear brake switch
㊸ Front brake switch
㊹ "LIGHTS" (Dimmer) switch
㊺ Tail/Brake light
㊻ License light
㊼ Meter light
㊽ Headlight
㊾ "HIGH BEAM" indicator light

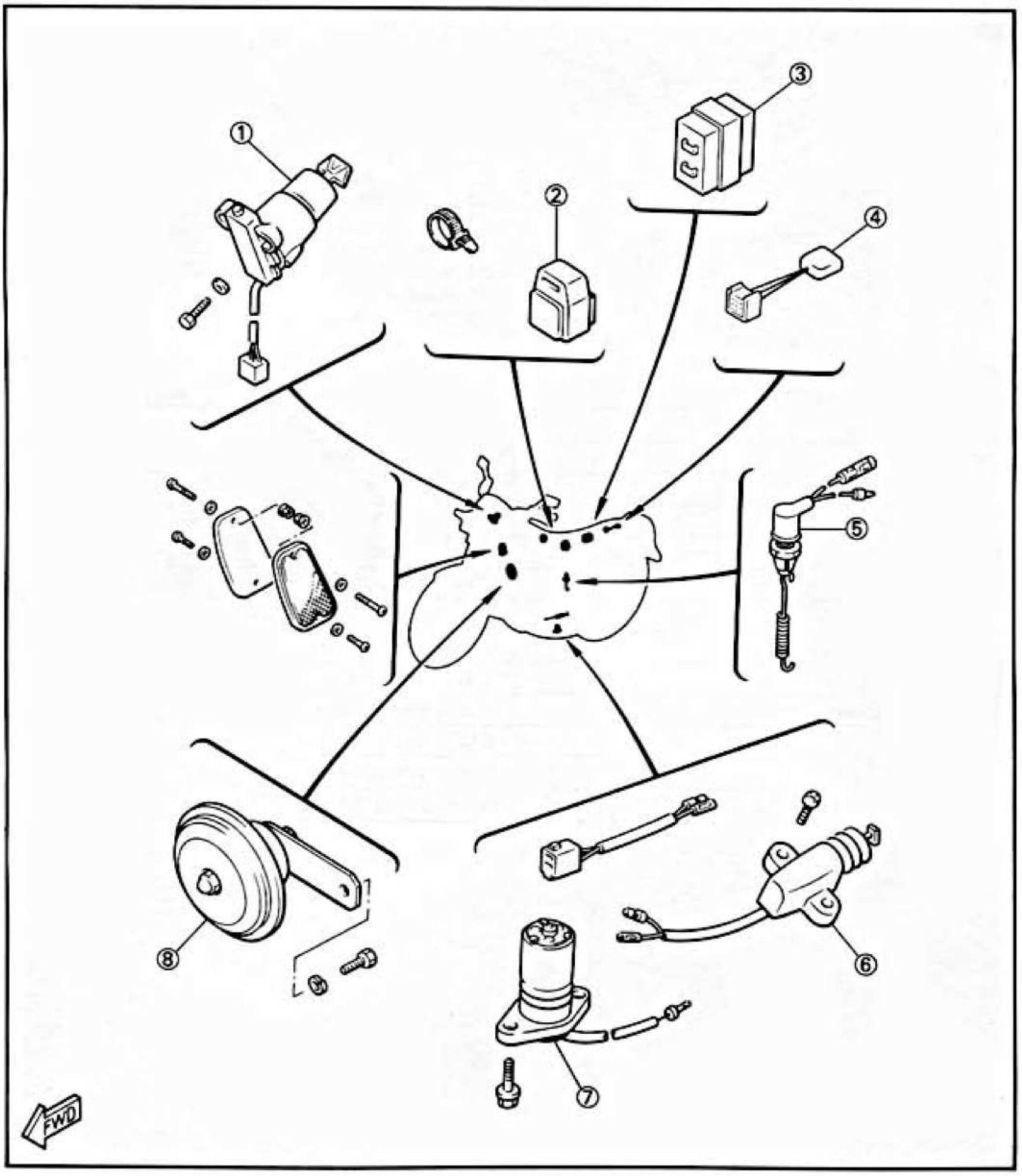
COLOR CODE

O	Orange	Y/R	Yellow/Red
R	Red	Br/W	Brown/White
L	Blue	R/W	Red/White
Br	Brown	R/Y	Red/Yellow
B	Black	B/R	Black/Red
Y	Yellow	B/W	Black/White
W	White	B/Y	Black/Yellow
G	Green	L/W	Blue/White
P	Pink	L/B	Blue/Black
Dg	Dark green	L/Y	Blue/Yellow
Ch	Chocolate	G/Y	Green/Yellow
Gy	Gray	W/R	White/Red
Sb	Sky blue	W/G	White/Green

www.badrad600.com

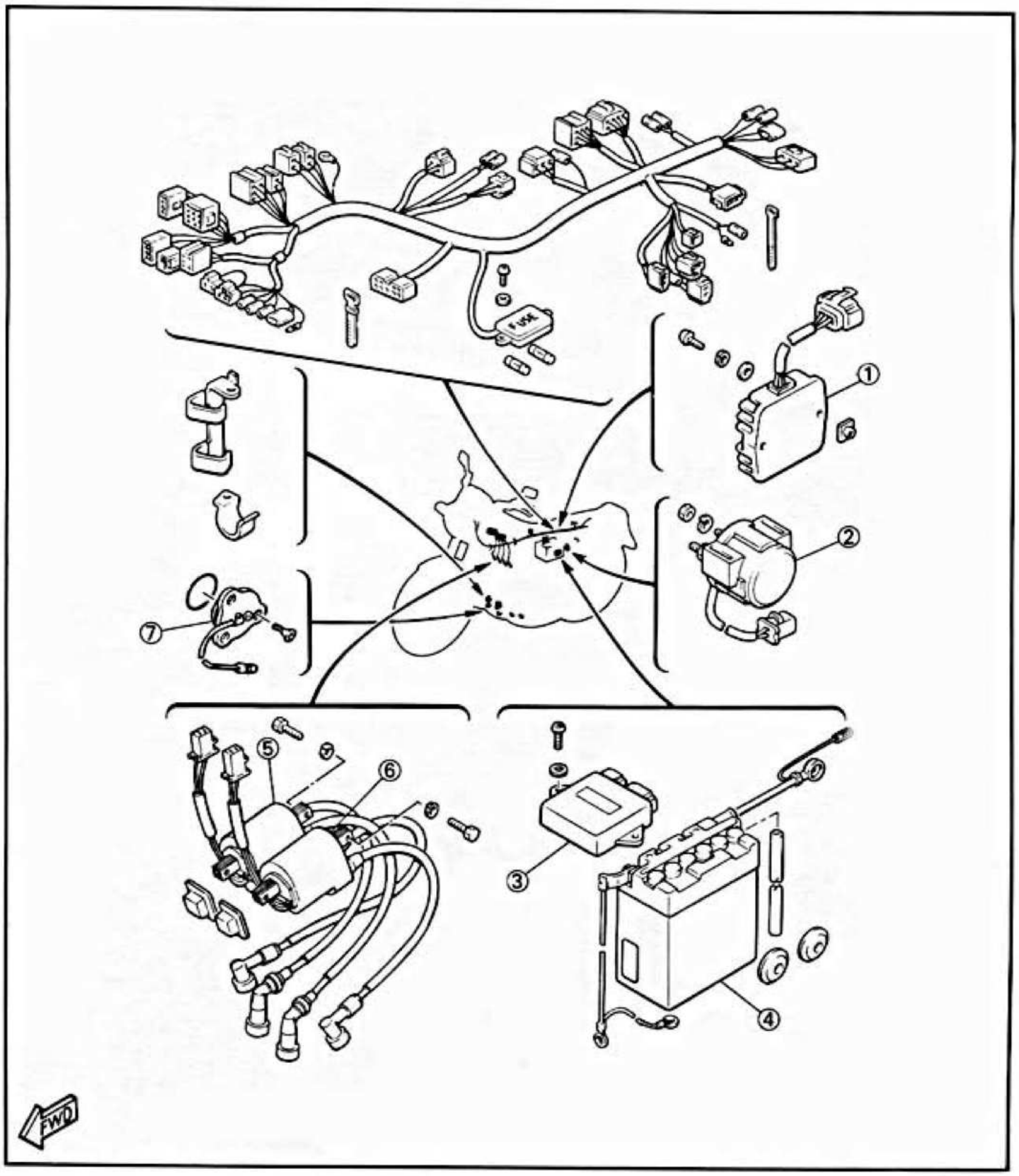
ELECTRICAL COMPONENTS

① Main switch
② Sidestand relay
③ Relay assembly
④ Diode assembly
⑤ Rear brake switch
⑥ Sidestand switch
⑦ Oil level switch
⑧ Horn



www.badrad600.com

① Rectifier/Regulator
② Starter relay
③ Ignitor unit
④ Battery
⑤ Ignition coil (For #1, #4 cylinder)
⑥ Ignition coil (For #2, #3 cylinder)
⑦ Neutral switch

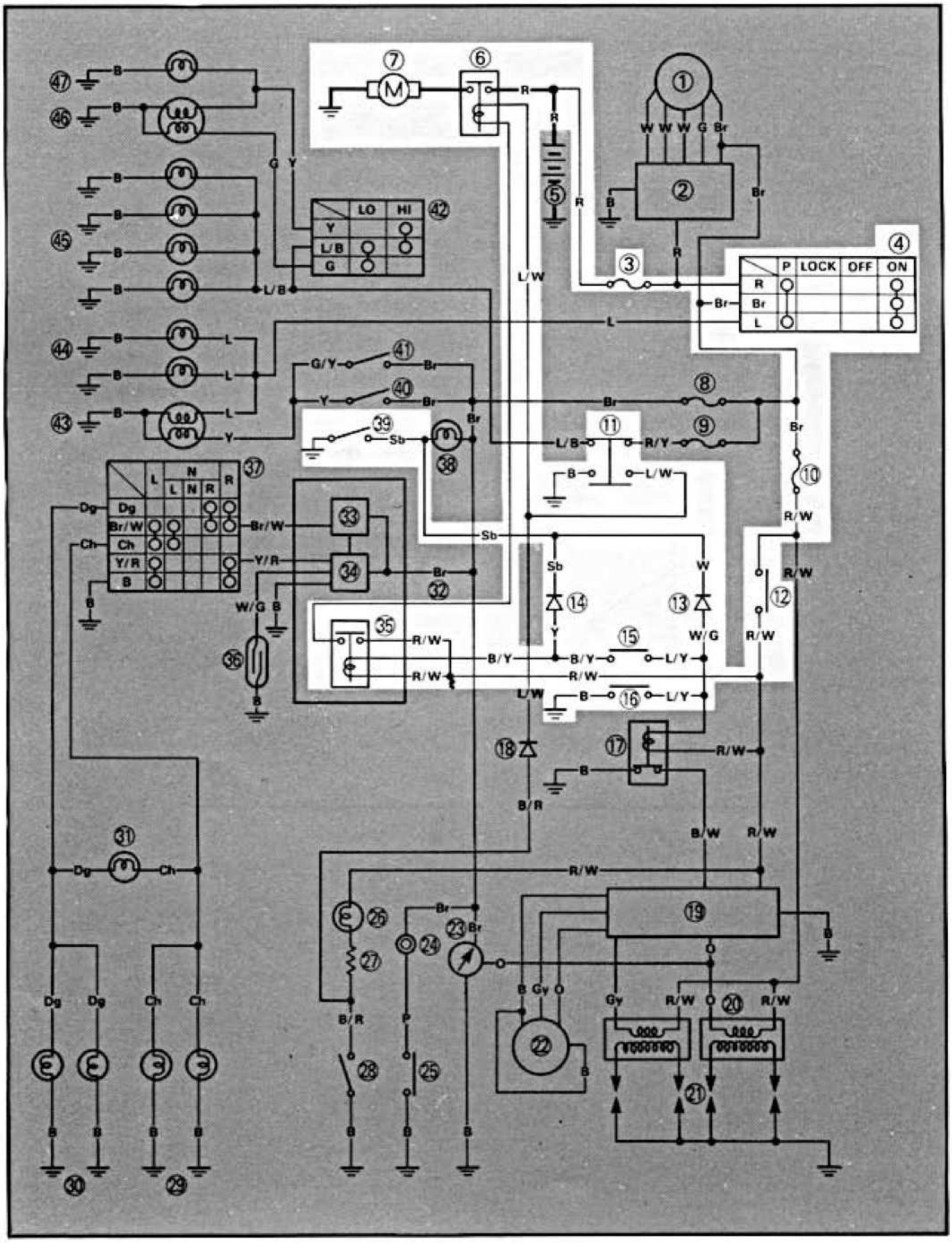


www.badrad600.com

ELECTRICAL STARTING SYSTEM

CIRCUIT DIAGRAM

Below circuit diagram shows starter circuit.

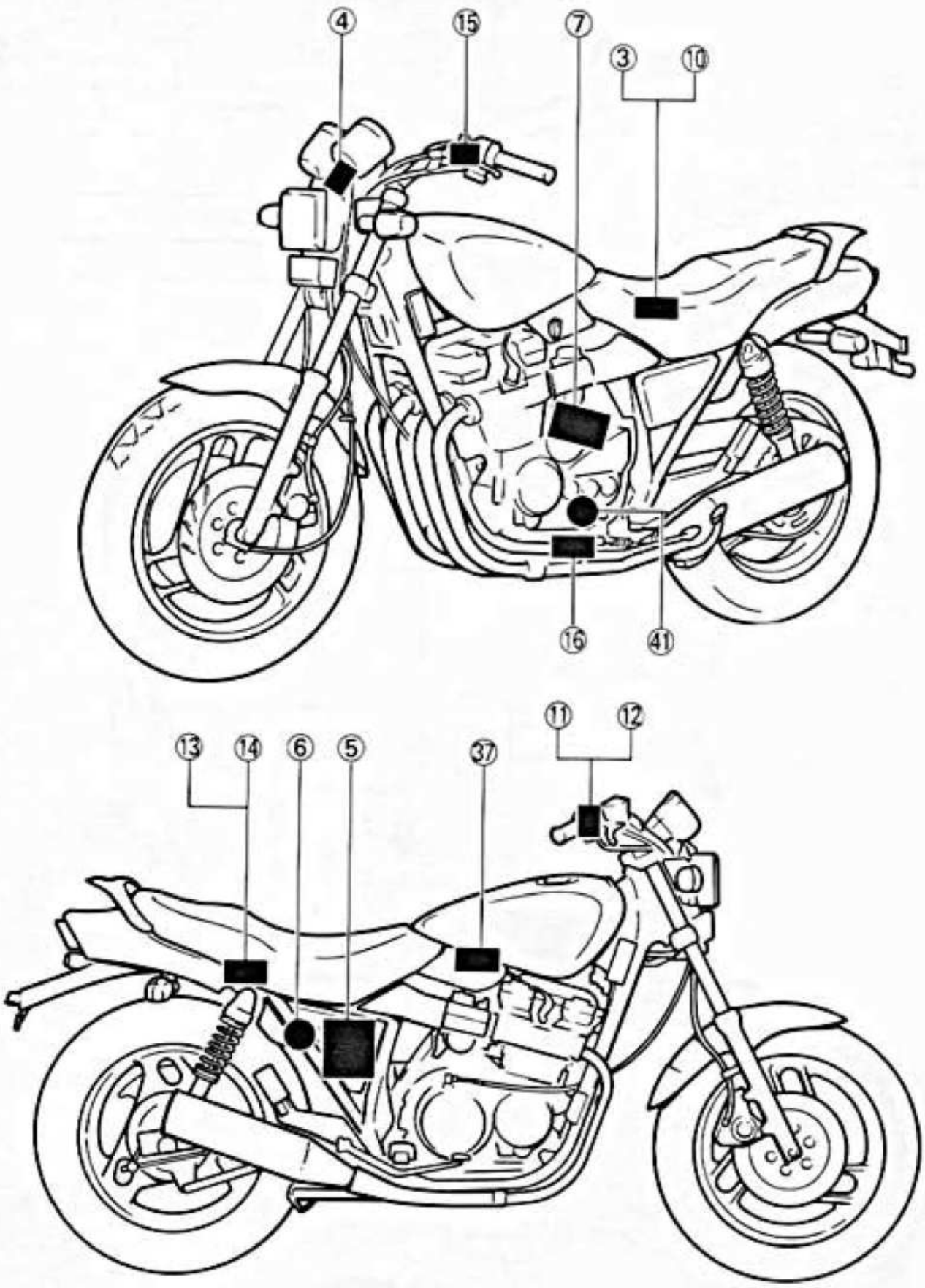


www.badrad600.com

NOTE:

For the color codes, see page 6-2.

③ Fuse (MAIN)
④ Main switch
⑤ Battery
⑥ Starter relay
⑦ Starter motor
⑩ Fuse (IGNITION)
⑪ "START" switch
⑫ "ENGINE STOP" switch
⑬ Diode
⑭ Diode
⑮ Clutch switch
⑯ Sidestand switch
㊲ Starting circuit cut off relay (Included in relay assembly)
㊶ Neutral switch



www.badrad600.com

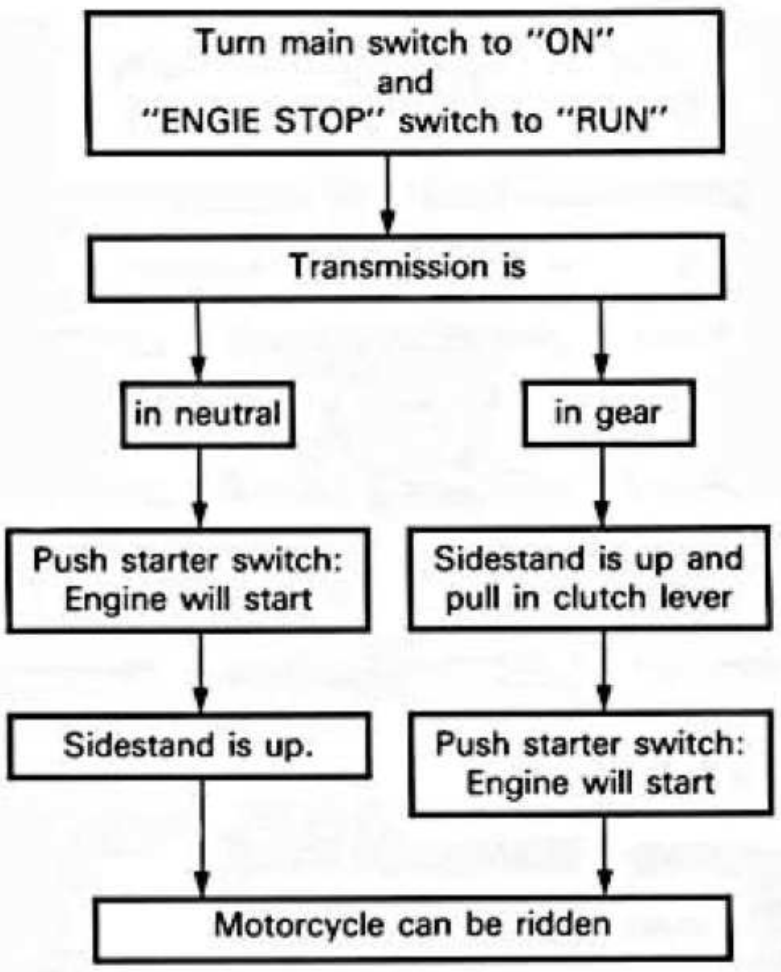
ELECTRICAL STARTING SYSTEM

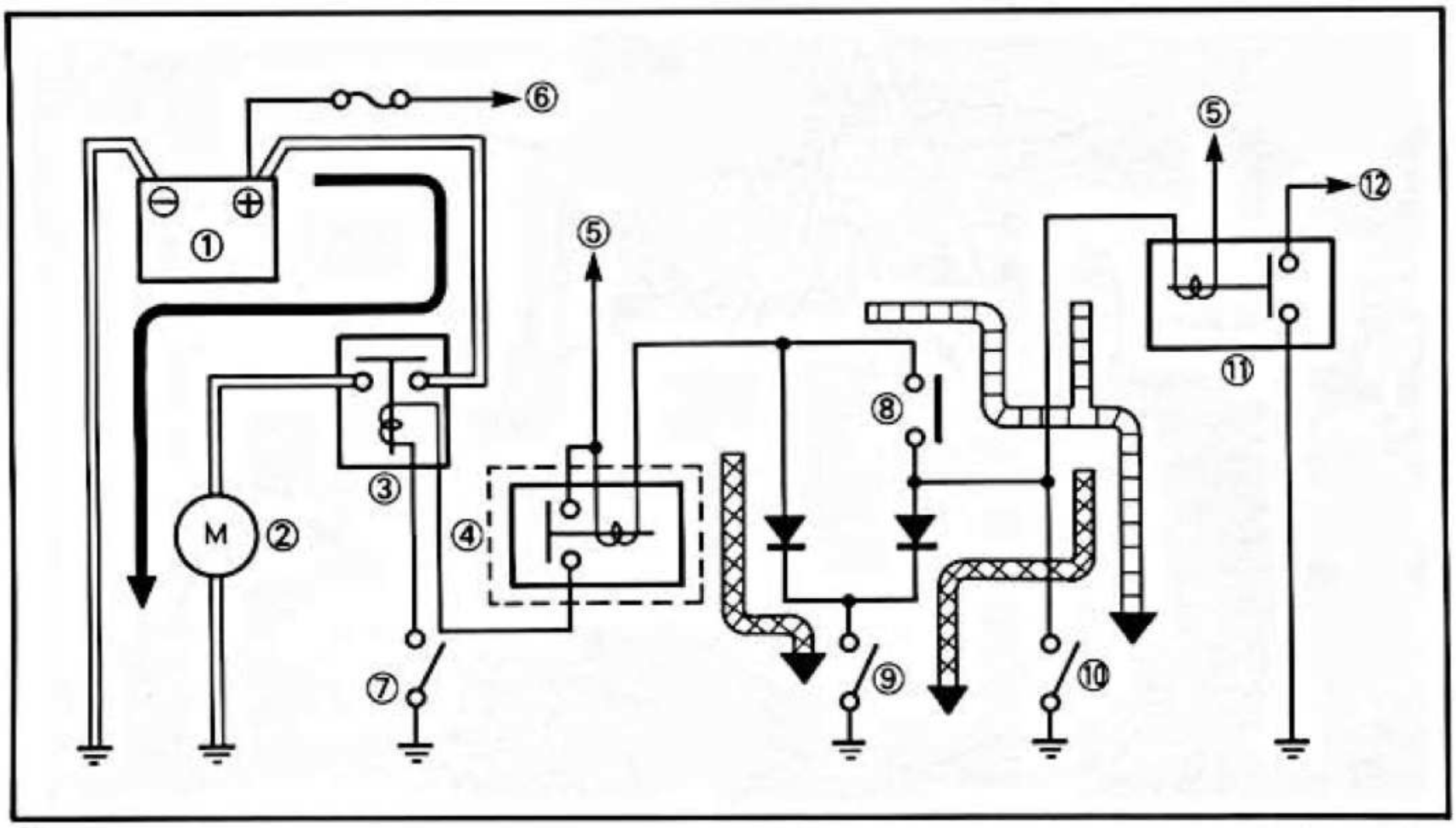
STARTING CIRCUIT OPERATION

The starting ciurcuit on this model consists of the starter moter, starter relay, starting circuit cut-off relay, and sidestand relay.

If the engine stop switch and the main switch are both on, the starter motor can operate only if:

- The transmission is in neutral (the neutral switch is on).
- The sidestand is up (the sidestand switch is on) and clutch lever is pulled in (clutch switch is on).





① Battery
② Starter motor
③ Starter relay
④ Starting circuit cut-off relay
⑤ To "ENGINE STOP" switch
⑥ To main switch
⑦ "START" switch
⑧ Clutch switch
⑨ Neutral switch
⑩ Sidestand switch
⑪ Sidestand relay
⑫ To ignitor unit

WHEN THE TRANSMISSION IS IN NEUTRAL.

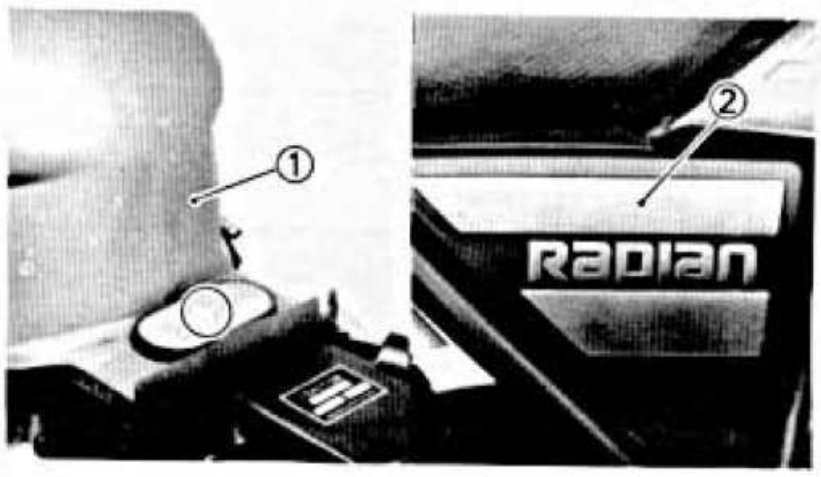
WHEN THE SIDESTAND IS UP AND CLUTCH LEVER IS PULLED IN.

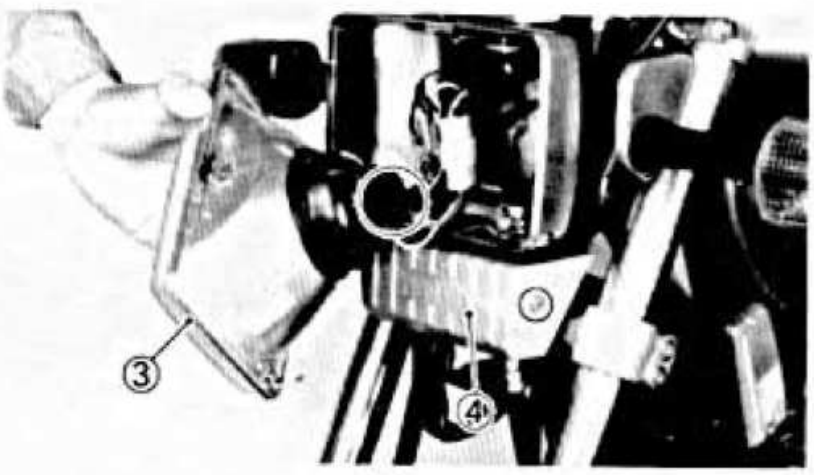
www.badrad600.com

TROUBLESHOOTING

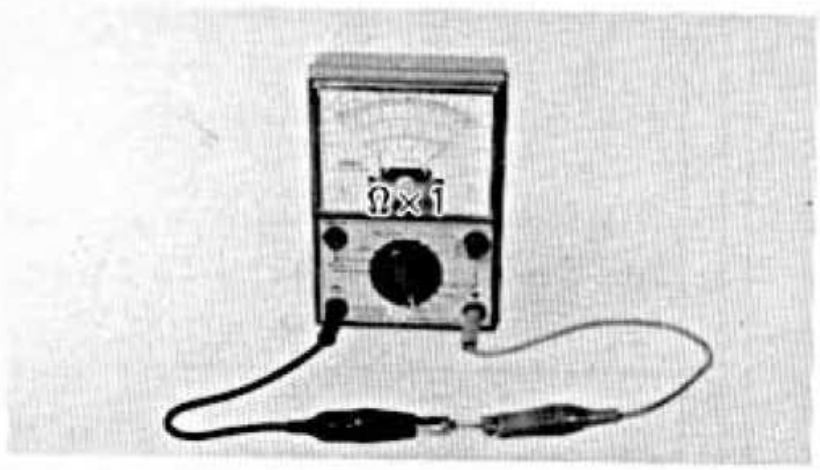
STARTER MOTOR DOES NOT OPERATE.

Before this troubleshooting, remove following parts.





- Seat
- Fuel tank ①
- Side cover (Right) ②
- Headlight lens unit ③
- Cover (Front) ④



1. Fuse inspection
   - Remove fuse (MAIN) and fuse (IGNITION).
   - Connect Pocket Tester (YU-03112) to fuse and check it for continuity.

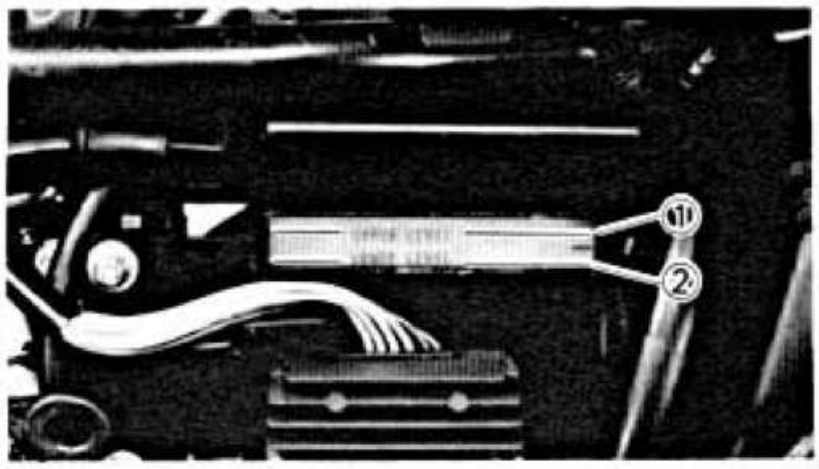
NOTE:

Set tester selector to "Ω×1" position.

Continuity (0Ω) → Discontinuity (∞)

Replace fuse.

www.badrad600.com



2. Battery fluid level inspection
   - Fluid level should be between upper ① and lower ② level mark.

Correct

Incorrect

- Refill battery fluid.

CAUTION:

Refill with distilled water only; tap water contains minerals harmful to a battery.



3. Battery terminal inspection
   - Inspect battery terminal and connections.

OK

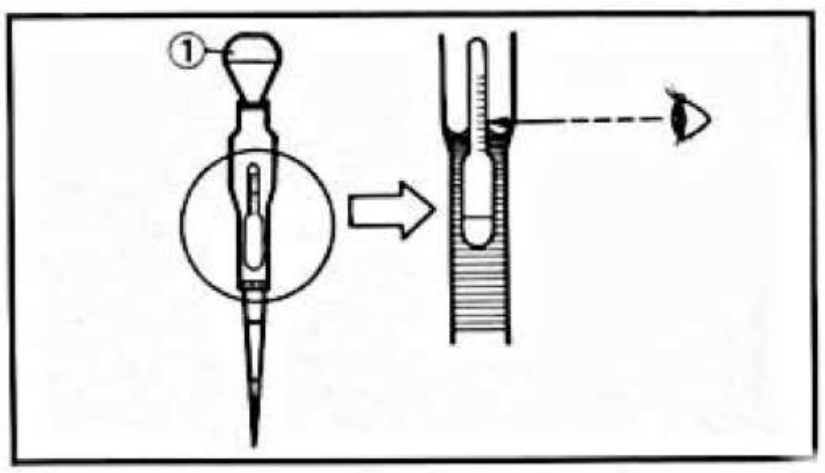
Dirty or poor connection

- Clean battery terminals using wire brush.

NOTE:

After cleaning terminals, apply grease lightly to both terminals.

- Connect battery leads correctly.



4. Battery fluid specific gravity inspection
   - Remove caps.
   - Inspect specific gravity of all cell using Battery Hydrometer ①.

Specific Gravity:
1.280 ± 0.01 at 20°C (68°F)

www.badrad600.com



WARNING:

Battery electrolyte is poisonous and dangerous, causing severe burns, etc. It contains sulfuric acid. Avoid contact with skin, eyes or clothing. Antidote: EXTERNAL-Flush with water. INTERNAL-Drink large quantities of water or milk. Follow with milk of magnesia, beaten egg, or vegetable oil. Call a physician immediately.
Eyes: Flush with water for 15 minutes and get prompt medical attention. Batteries produce explosive gases. Keep sparks, flame, cigarettes etc., away. Ventilate when charging or using in an enclosed space. Always shield your eyes when working near batteries.
KEEP OUT OF REACH OF CHILDREN.

OK

Low specific gravity

- Recharge battery

Charging Current:
1.2 amps/10 hrs

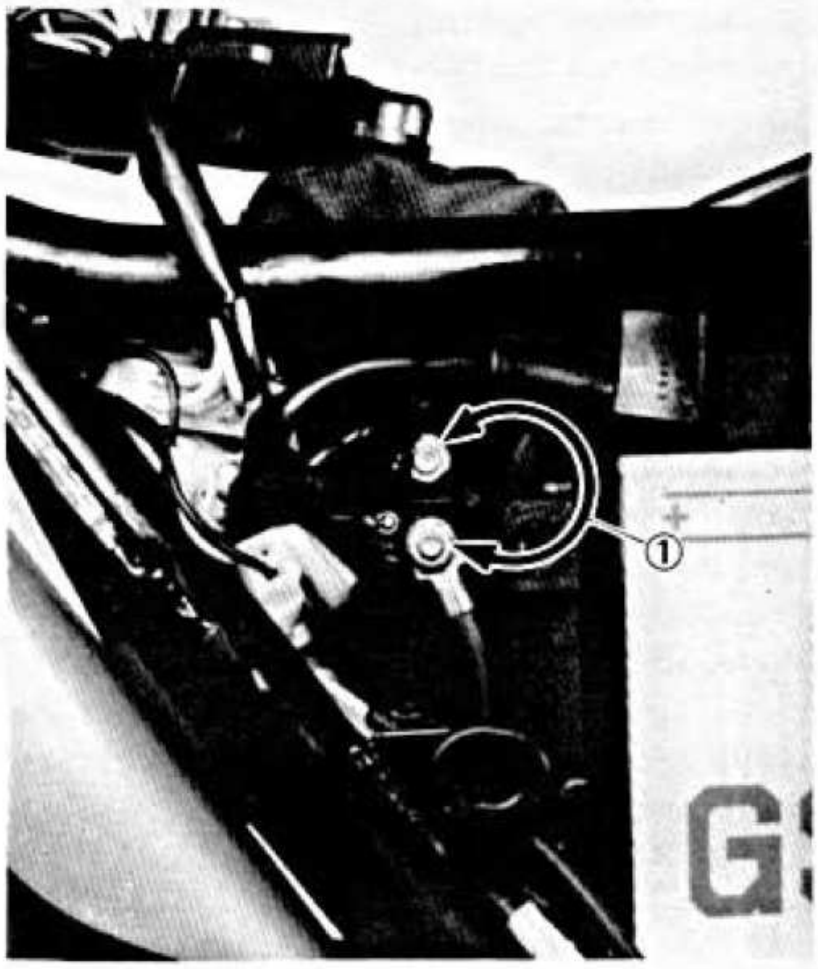
NOTE:

Replace the battery if:

- Battery voltage will not rise to a specific value or bubbles fail to rise even after many hours of charging.
- Sulfation of one or more cells occurs, as indicated by the plates turning white, or an accumulation of material exists in the bottom of the cell.
- Specific gravity readings after a long, slow charge indicate on cell to be lower than the rest.
- Warpage or buckling of plates or insulators is evident.

6

www.badrad600.com



5. Connect battery positive (+) lead and starter motor lead; use heavy duty jumper lead ①.

WARNING:

This test should be perfomed within a few seconds to prevent further damage. Also, there should be no flammables close to the starter relay.

Starter motor runs ↓ Starter motor does not run

→ Inspect and repair the starter motor. Refer to "STARTER MOTOR" section.

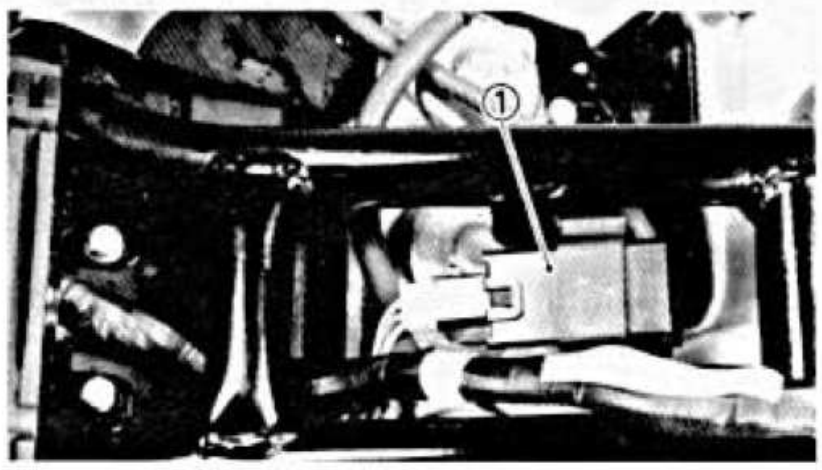


① Positive lead
② Negative lead

6. Starter relay conduct check
   - Disconnect starter relay leads (Blue/White, Red/White) and connect them to battery positive and negative lead use a jumper leads.

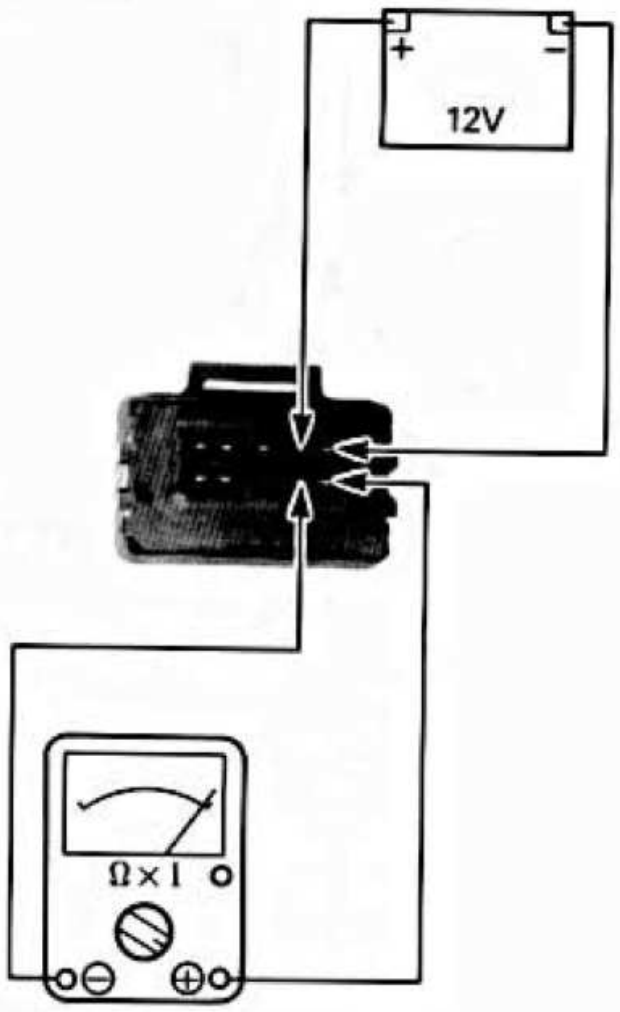
Starter motor runs ↓ Starter motor does not run

→ Starter relay is faulty, replace it.



7. Starting circuit cut-off relay conduct check
   - Remove relay assembly ①.

www.badrad600.com



•Connect 12V battery and Pocket Tester (YU-03112) to starting circuit cut-off relay terminals as shows.

NOTE:

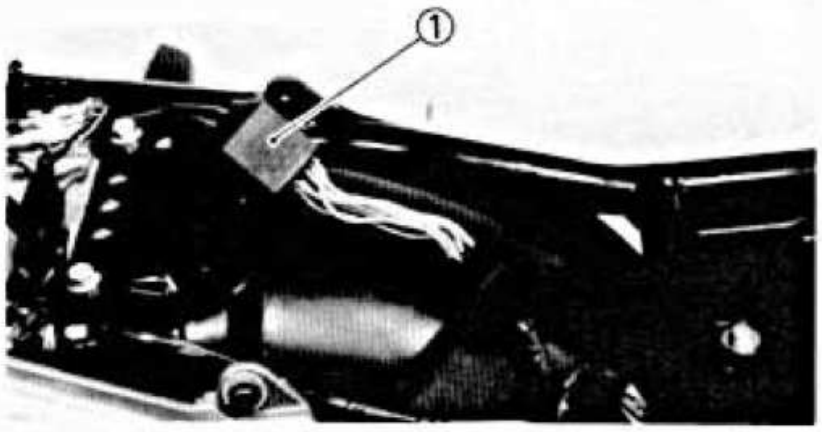
- Use full charge battery.
- Set tester selector to "Ω×1" position.

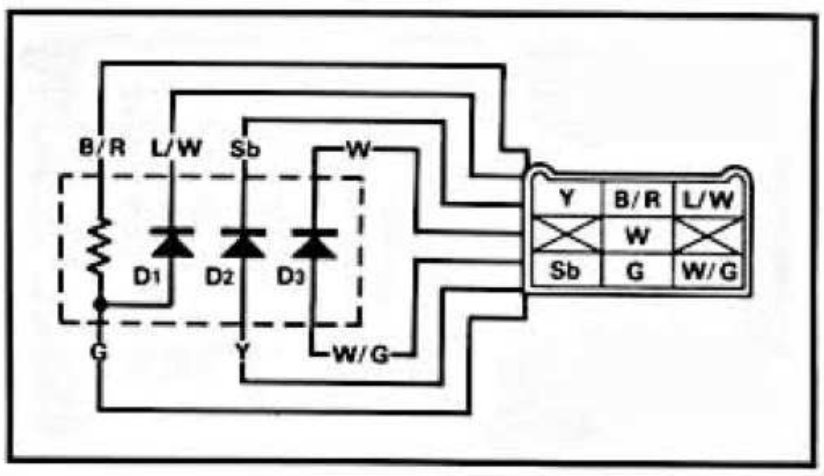
Continuity (0Ω)

Discontinuity (∞)

Starting circuit cut-off relay is faulty, replace relay assembly.

8. Diode assembly condition check
   •Remove diode assembly ①.





•Connect Pocket Tester (YU-03112) to diode assembly terminals and check diode D_2 and D_3 condition.
Refer to following table.

NOTE:

Set tester selector to "Ω×1" position.

6

www.badrad600.com

Element	Pocket tester		Good
	(+)	(−)	
D_2	Y	Sb	○
	Sb	Y	×
D_3	W/G	W	○
	W	W/G	×

○: Continuity (0Ω)
×: Discontinuity (∞)

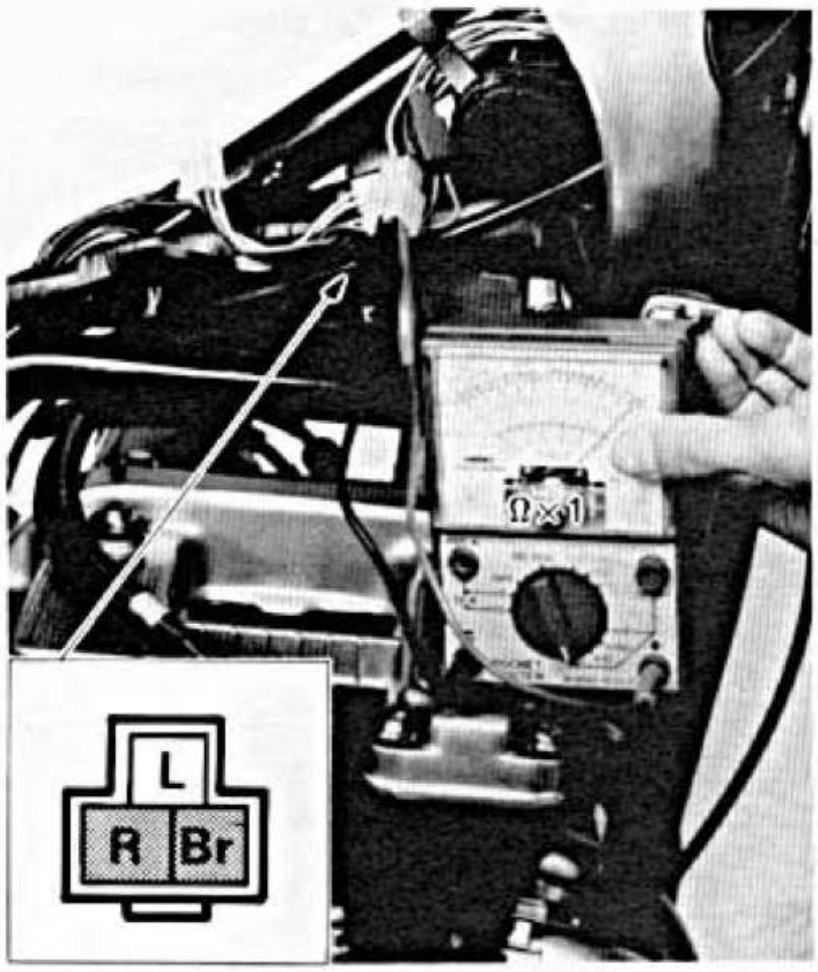
NOTE:

The results "○" or "×" should be reversed according to the pocket tester polarity.

OK

Defective element

Replace diode assembly.



9. Main switch conduct check
   - Disconnect main switch coupler (Brown, Red, Blue).
   - Connect Pocket Tester (YU-03112) to main switch leads (Brown, Red).

Tester (+) lead→Red lead
Tester (−) lead→Brown lead

NOTE:

Set tester selector to "Ω×1" position.

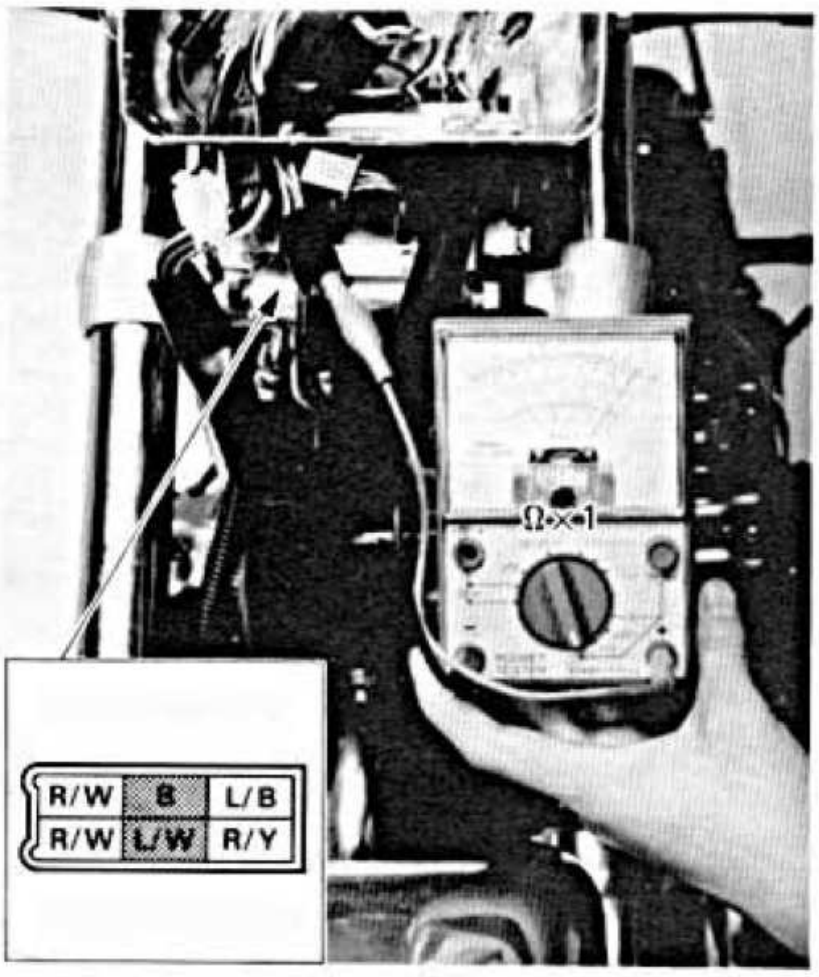
   - Turn main switch to "ON" position and check it for continuity.

www.badrad600.com

Continuity (0Ω)

Discontinuity (∞)

Main switch is faulty, replace it.



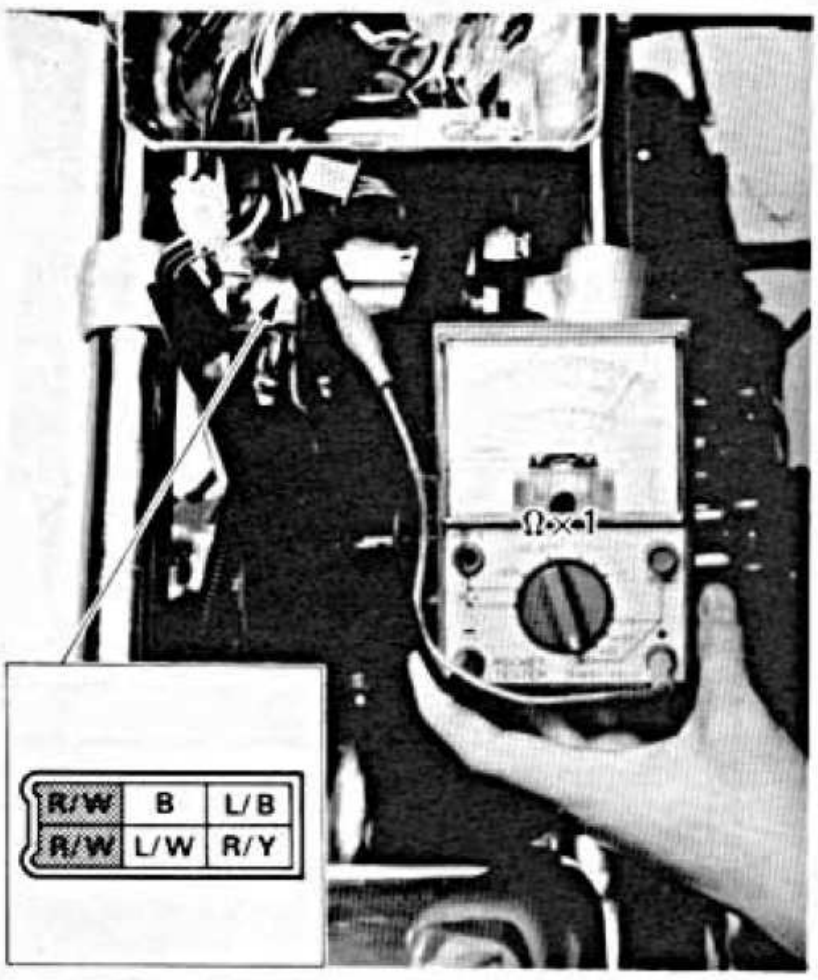
10. "START" switch conduct check
- Disconnect handlebar switch (Right) leads (Red/White, Red/White, Red/Yellow, Blue/Black, Blue/White, Black).
- Connect Pocket Tester (YU-03112) to handlebar switch leads (Blue/White, Black).

Tester (+) lead→Blue/White lead
Tester (−) lead→Black lead

NOTE:

Set tester selector to "Ω×1" position.

- Push on "START" switch and check it for continuity.



Continuity (0Ω)

Discontinuity (∞)

"START" switch is faulty, replace handlebar switch.

11. "ENGINE STOP" switch conduct check
- Disconnect handlebar switch (Right) leads (Red/White, Red/White, Red/Yellow, Blue/Black, Blue/White, Black).
- Connect Pocket Tester (YU-03112) to handlebar switch leads (Red/White, Red/White).

6

www.badrad600.com

Tester (+) lead→Red/White lead
Tester (−) lead→Red/White lead

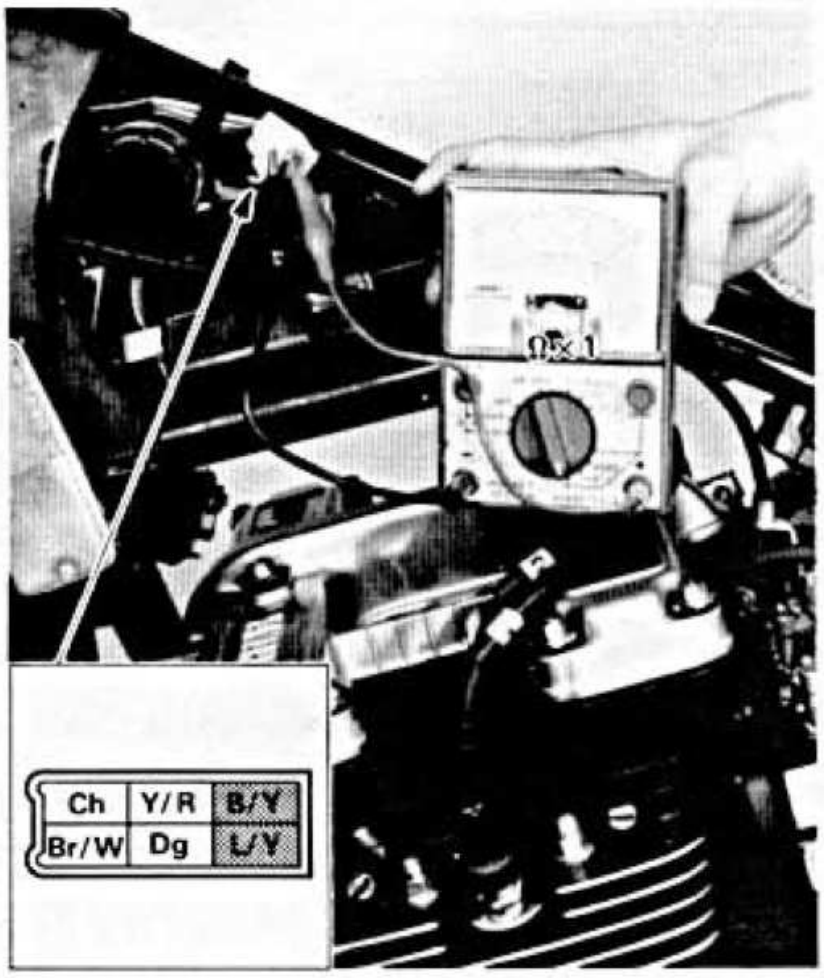
NOTE:

Set tester selector to "Ω×1" position.

- Turn "ENGINE STOP" switch to "RUN" position.

Continuity (0Ω) ↓ Discontinuity (∞)

"ENGINE STOP" switch is faulty, replace handlebar switch.



12. Clutch switch conduct check
    - Disconnect handlebar switch (Left) leads (Chocolate, Yellow/Red, Black/Yellow, Brown/White, Dark Green, Blue/Yellow).
    - Connect Pocket Tester (YU-03112) to clutch switch leads (Black/Yellow, Blue/Yellow).

Tester (+) lead→Black/Yellow lead
Tester (−) lead→Blue/Yellow lead

NOTE:

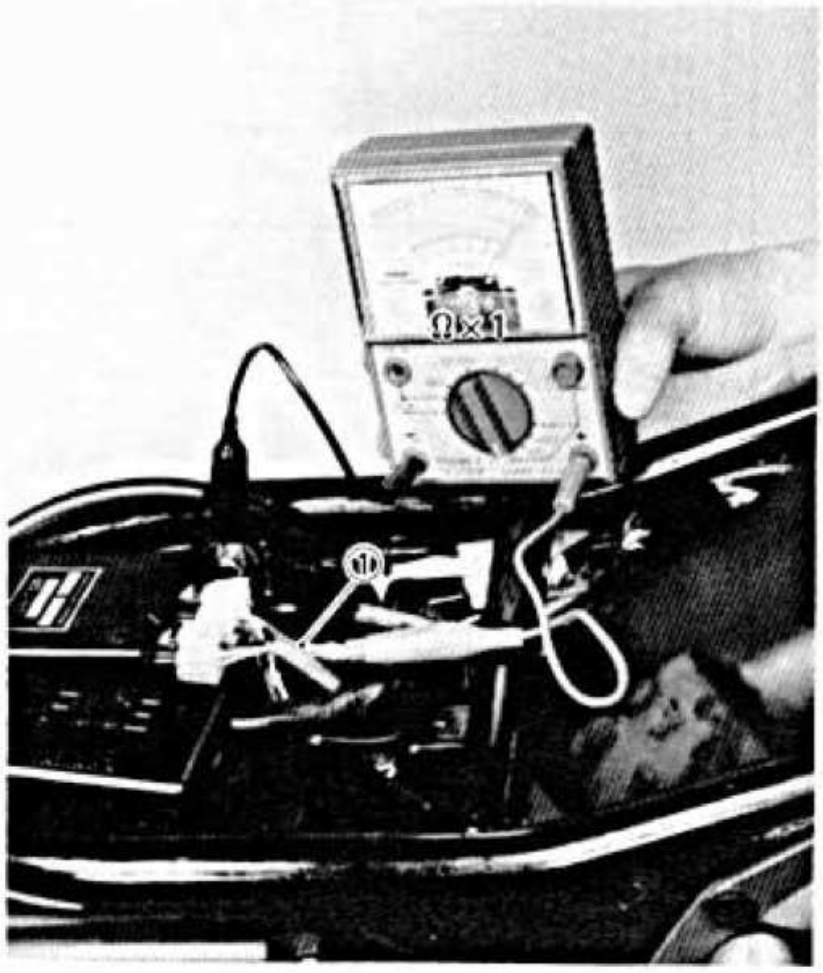
Set tester selector to "Ω×1" position.

- Clutch lever is pulled and check clutch switch for continuity.

Continuity (0Ω) ↓ Discontinuity (∞)

Clutch switch is faulty, replace it.

www.badrad600.com



13. Neutral switch conduct check
    - Disconnect neutral switch lead (Sky blue) ①.
    - Connect Pocket Tester (YU-03112) to neutral switch lead and frame earth lead.

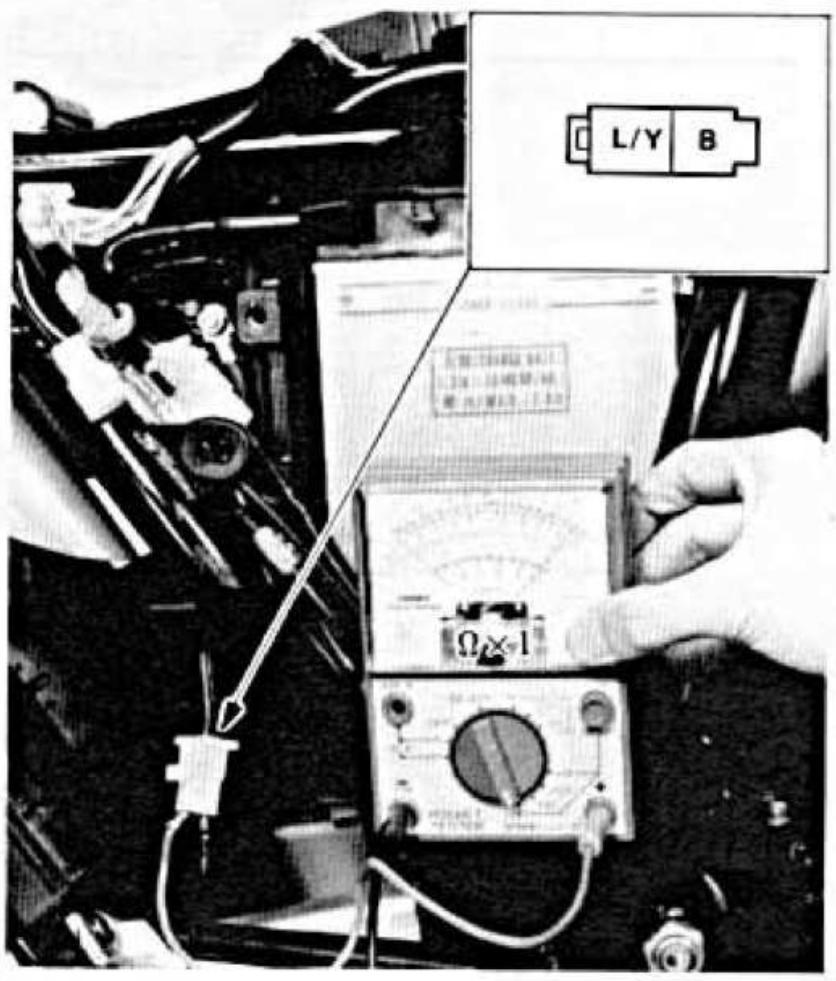
Tester (+) lead→Sky blue lead
Tester (−) lead→Frame earth

NOTE:
Set tester selector to "Ω×1" position.

- Transmission is in neutral and check neutral switch for continuity.

Continuity (0Ω) ↓ Discontinuity (∞)

Neutral switch is faulty, replace it.



14. Sidestand switch conduct check
    - Disconnect sidestand leads (Blue/Yellow, Black).
    - Connect Pocket Tester (YU-03112) to sidestand switch leads.

Tester (+) lead→Blue/Yellow lead
Tester (−) lead→Black lead

NOTE:
Set tester selector to "Ω×1" position.

- Place motorcycle on centerstand.
- Sidestand is up and check sidestand switch for continuity.

www.badrad600.com

Continuity (0Ω)

Discontinuity (∞)

Sidestand switch is faulty, replace it.

15. Check entire electrical starting system for connections. Refer to "WIRING DIAGRAM" section.

OK

Poor connection

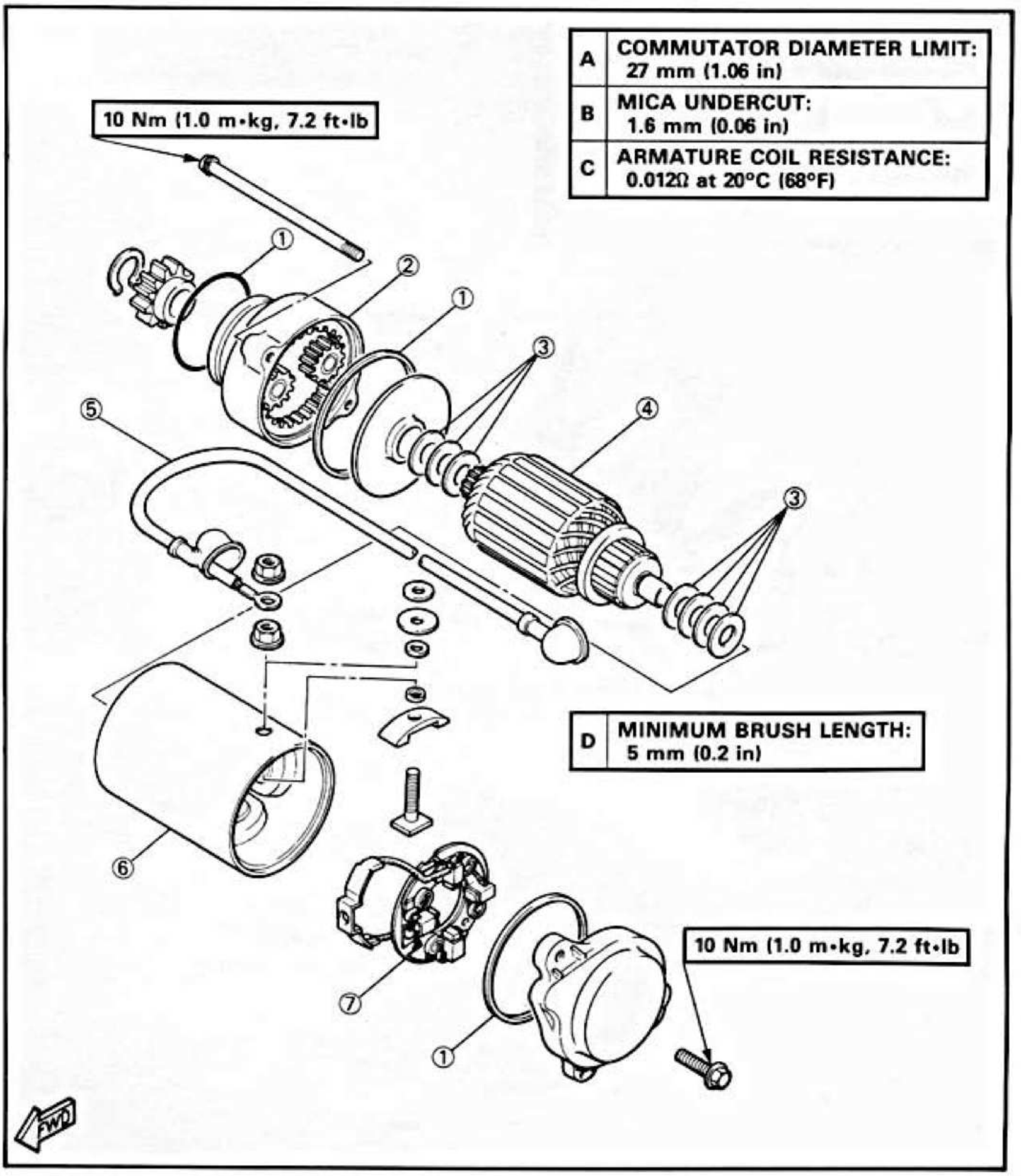
Correct.

Electrical starting system is good.

www.badrad600.com

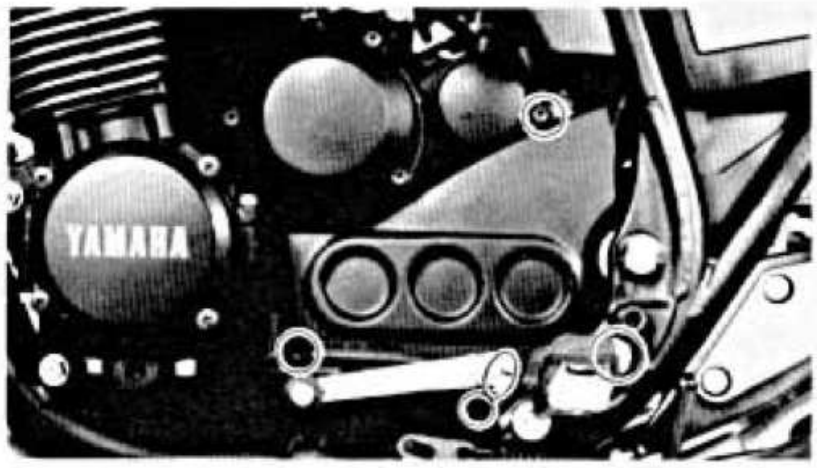
STARTER MOTOR

① O-ring
② Gear assembly
③ Shims
④ Armature coil assembly
⑤ Starter motor lead
⑥ Yoke assembly
⑦ Brush assembly



www.badrad600.com

ELECTRICAL STARTING SYSTEM

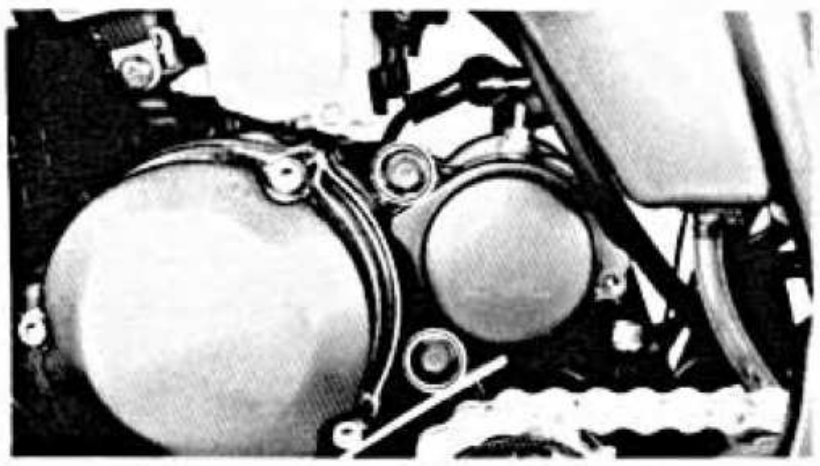


Removal

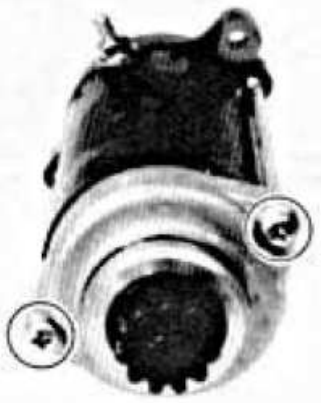
1. Remove:
   - Footrest (Left)
   - Change pedal
   - Cover (Drive sprocket)



2. Remove:
   - Starter motor lead

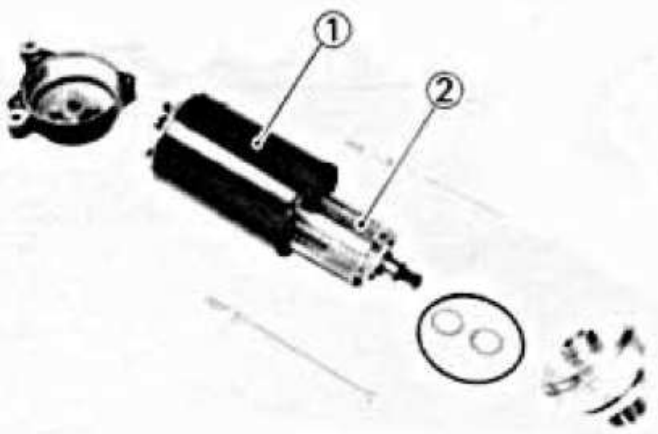


3. Remove:
   - Starter motor



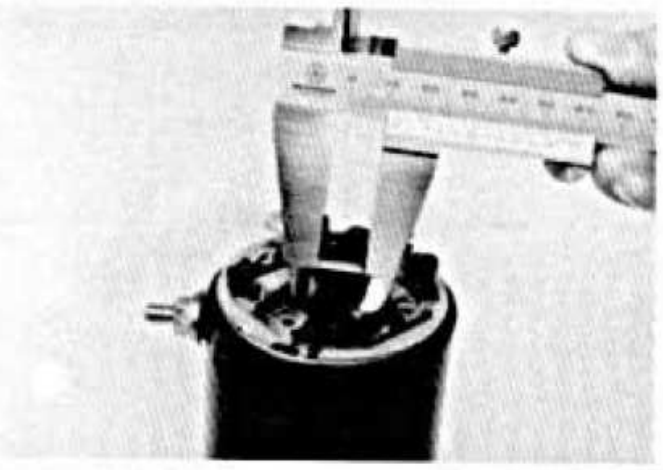
Disassembly

1. Remove:
   - Screws



2. Remove:
   - Yoke assembly ①
   - Armature coil assembly ②

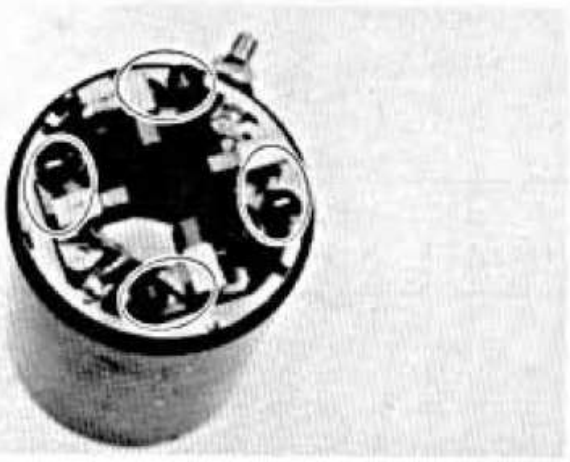
www.badrad600.com



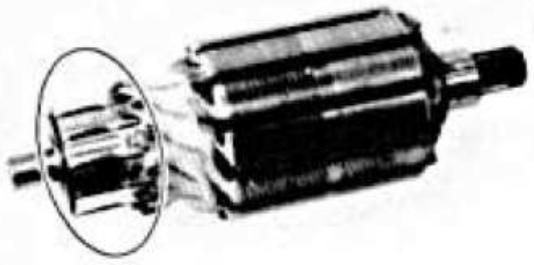
Inspection and Repair

1. Measure:
   - Brush length (each)
     Out of specification → Replace brush.

Minimum Brush Length:
5 mm (0.2 in)



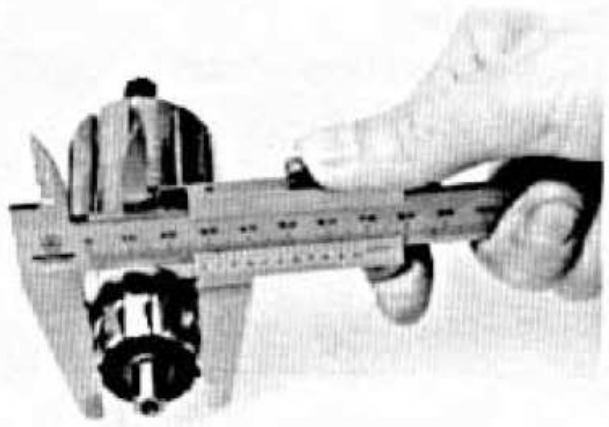
2. Inspect:
   - Brush spring
     Damage → Replace.



3. Inspect:
   - Commutator (Outer surface)
     Grooved wear/Burning/Scratches →
     Smooth out using a sandpaper (#500 ~ 600).

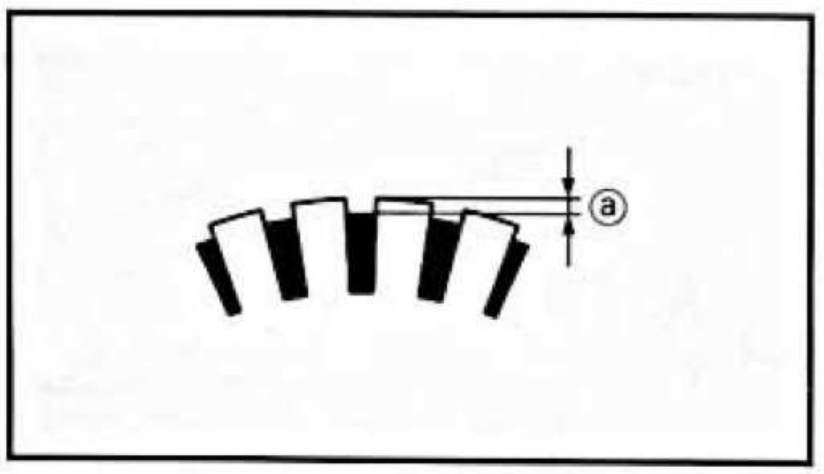
NOTE:

Sand the commutator outer surface lightly and evenly.



4. Measure:
   - Commutator diameter
     Out of specification → Replace.

Outside Diameter Limit:
27 mm (1.06 in)



5. Measure:
   - Mica undercut ⓐ
     Out of specification → Scrape mica using a hacksaw blade.

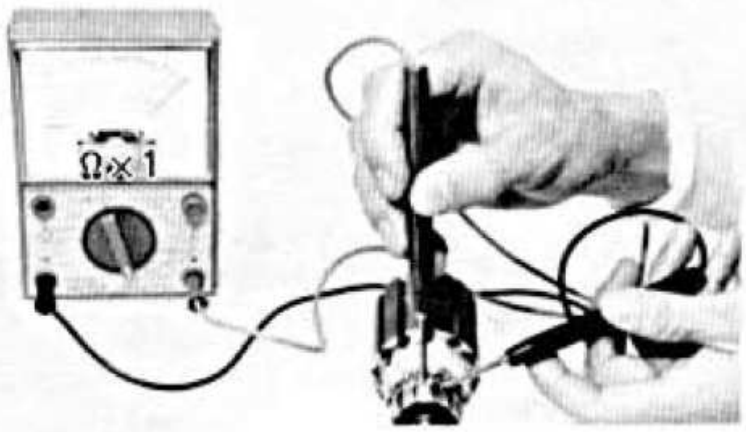
Mica Undercut ⓐ:
1.6 mm (0.06 in)

6

www.badrad600.com

NOTE:

The mica insulation of the commutator must be undercut to ensure proper operation of the commutator.



6. Measure:
   - Armature coil resistance
     Out of specification→Replace.

	Armature Coil Resistance: **0.012Ω at 20°C (68°F)**



7. Check:
   - Armature coil insulation
     Set the pocket tester selector to "Ω×1K" position.
     Continuity→Replace.



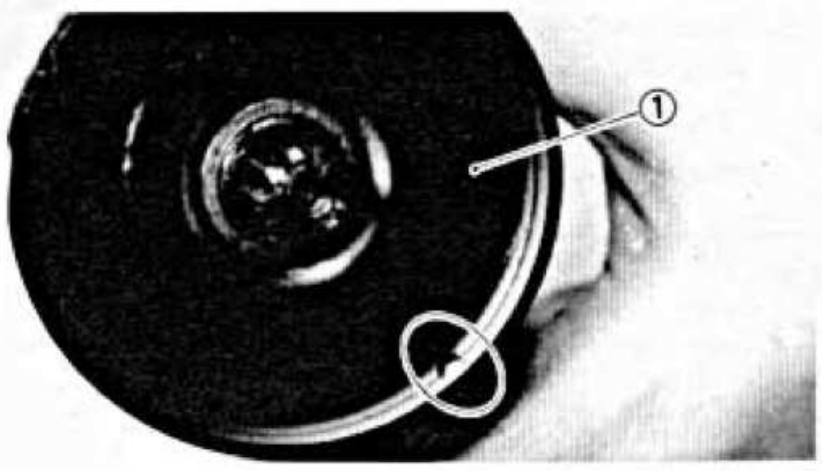
Assembly

Reverse the "Disassembly" procedure. Note the following points.

1. Install:
   - Brush assembly

NOTE:

Fit the projection onto the recess.

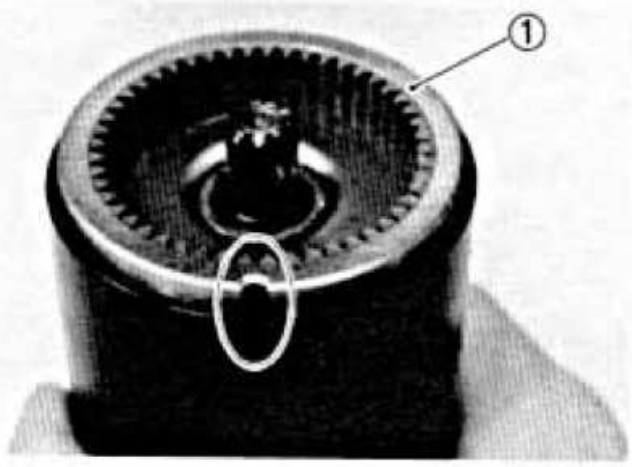


2. Install:
   - Bracket ①

NOTE:

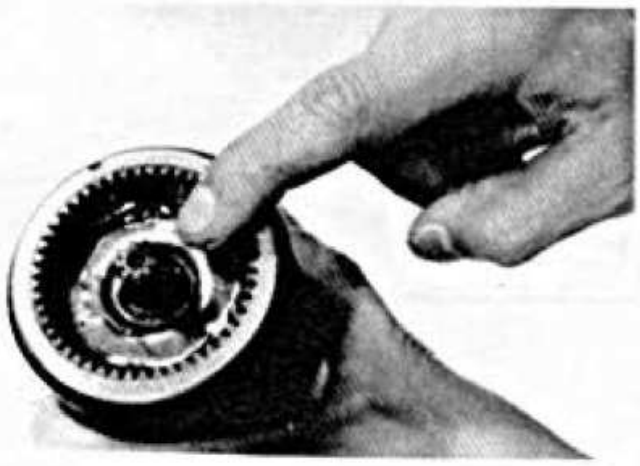
Fit the recess to the projection.

www.badrad600.com



3. Install:
   • Ring gear ①

NOTE:
Fit the recess to the projection.

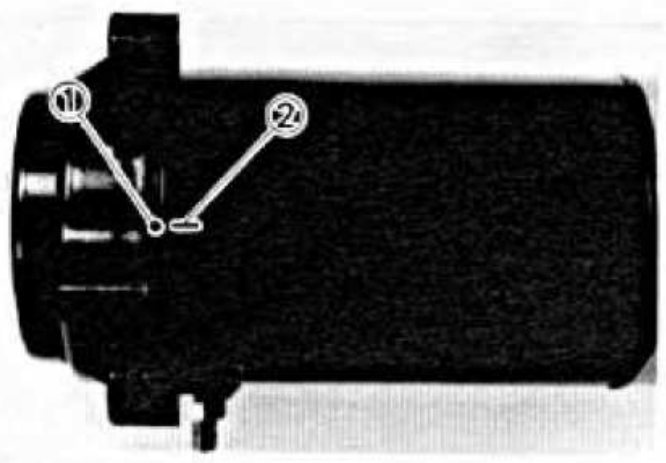


4. Apply:
   • Lithium soap base grease



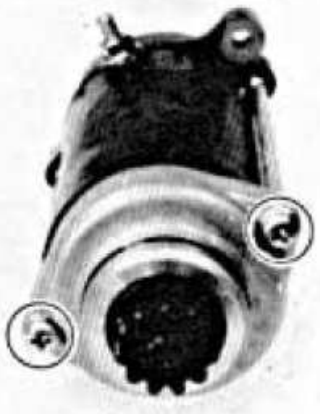
5. Install:
   • Gear assembly ①

NOTE:
Fit the pin into the ring gear recess.



6. Install:
   • Brush cap

NOTE:
Align the match mark ① on the brush cap with the match mark ② on the yoke assembly.

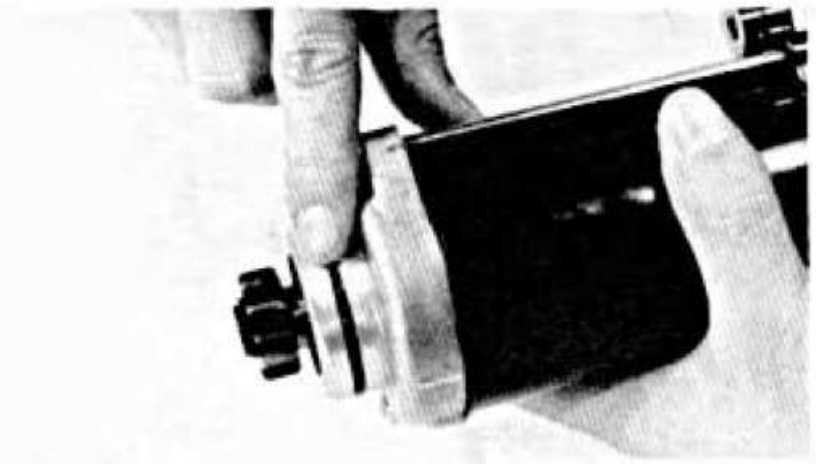


7. Install:
   • Screws

	10 Nm (1.0 m•kg, 7.2 ft•lb)

6

www.badrad600.com



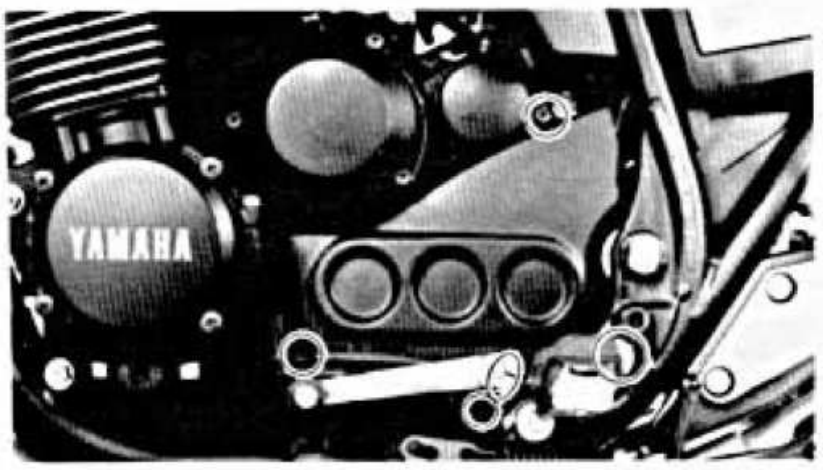
Installation
Reverse the "Removal" procedure. Note the following points.

1. Apply:
   - Lithium soap base grease



2. Install:
   - Starter motor

	10 Nm (1.0 m•kg, 7.2 ft•lb)



3. Install:
   - Cover (Drive sprocket)
   - Change pedal
   - Footrest (Left)

	Bolt (Change pedal): **10 Nm (1.0 m•kg, 7.2 ft•lb)** **Bolt (Footrest):** **70 Nm (7.0 m•kg, 50 ft•lb)**

www.badrad600.com

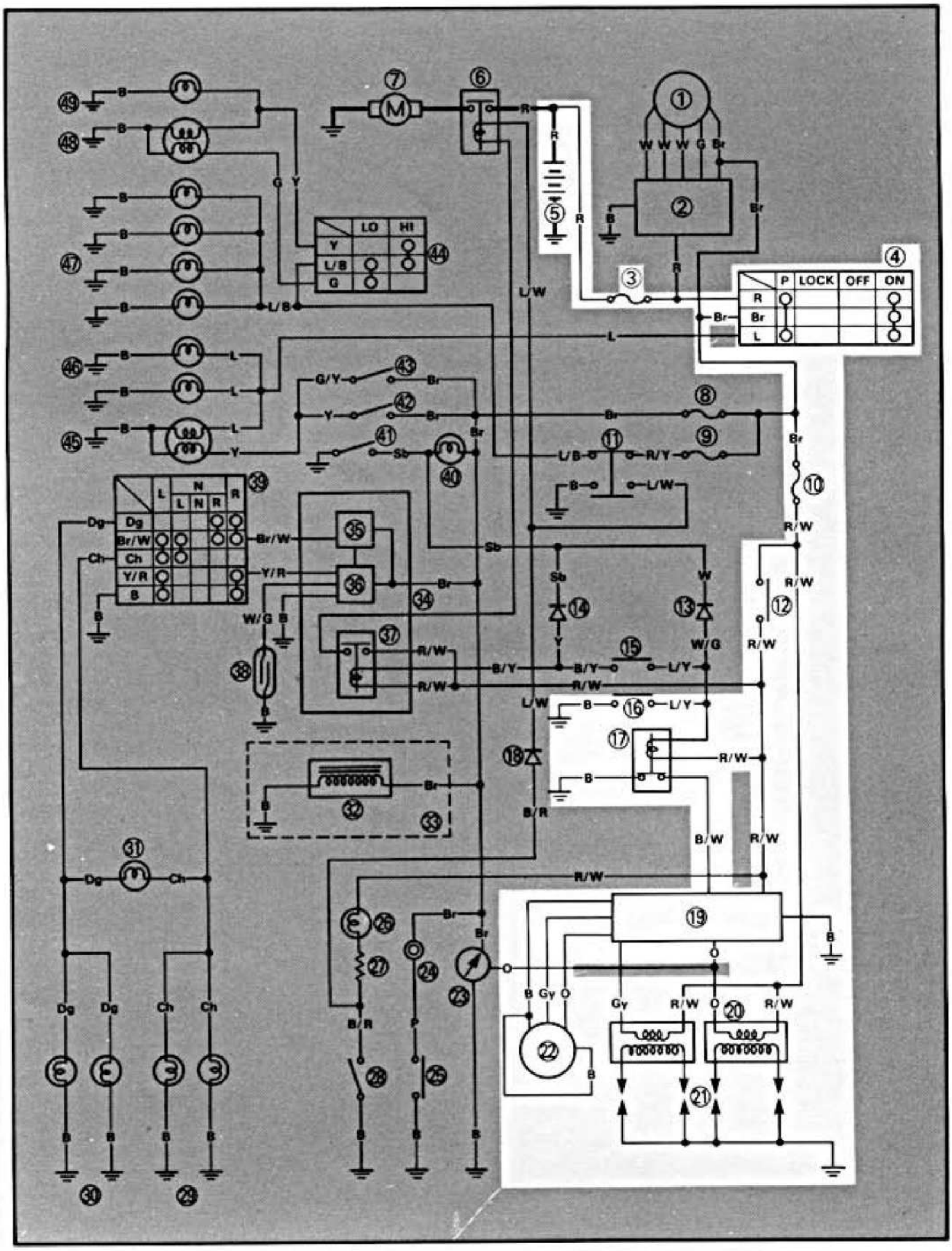
MEMO

www.badrad600.com

IGNITION SYSTEM

CIRCUIT DIAGRAM

Below circuit diagram shows ignition circuit.

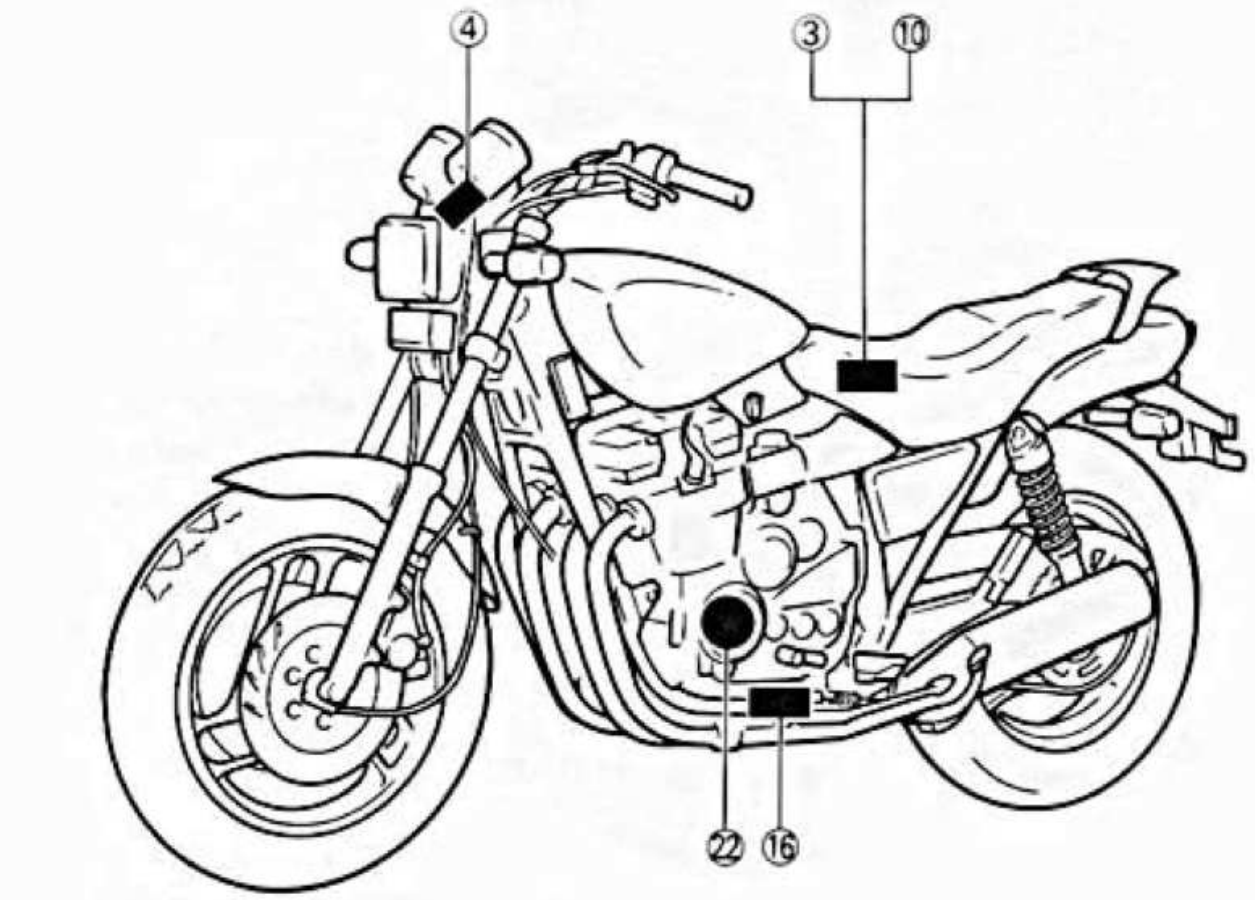


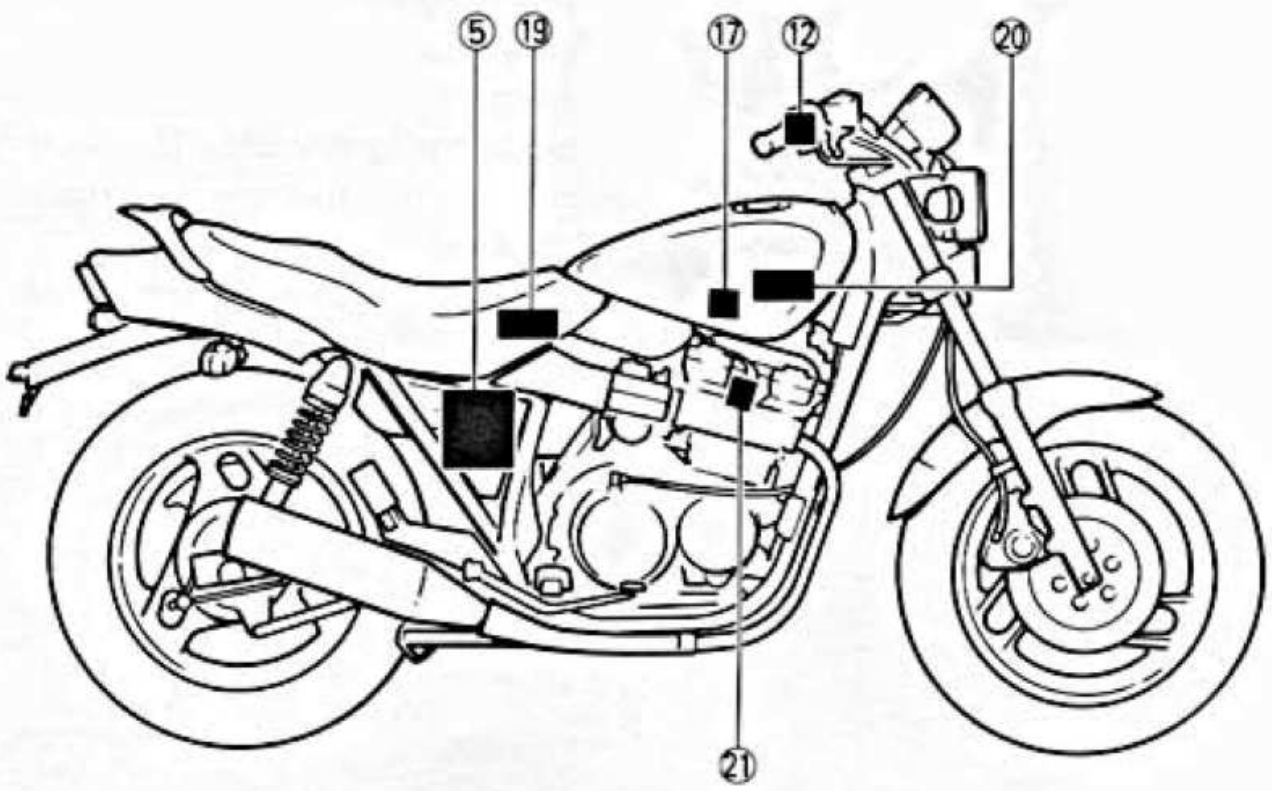
www.badrad600.com

NOTE:

For the color codes, see page 6-2.

③ Fuse (MAIN)
④ Main switch
⑤ Battery
⑩ Fuse (IGNITION)
⑫ "ENGINE STOP" switch
⑯ Sidestand switch
⑰ Sidestand relay
⑲ Ignitor unit
⑳ Ignition coil
㉑ Spark plug
㉒ Pickup coil





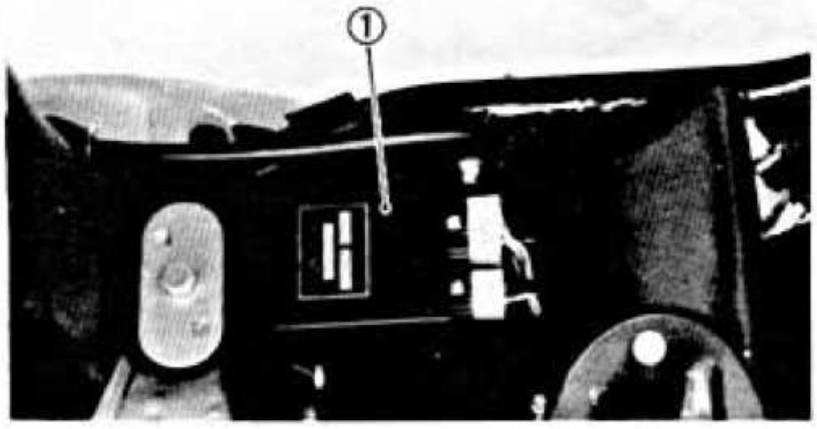
6

www.badrad600.com

IGNITION SYSTEM

DESCRIPTION

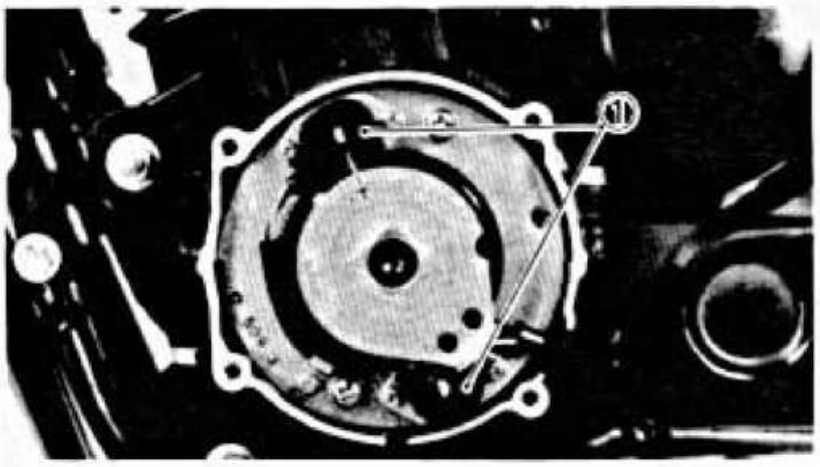
This model is equipped with a battery operated, fully transistorized, breakerless ignition system. By using magnetic pickup coils, the need for contact breaker points is eliminated. This adds to the dependability of the system by eliminating frequent cleaning and adjustment of points and ignition timing. The TCI (Transistor Control Ignition) unit incorporates an automatic advance circuit controlled by signals generated by the pickup coil. This adds to the dependability of the system by eliminating the mechanical advancer. This TCI system consists of two units; a pickup unit and an ignitor unit.



OPERATION

The TCI functions on the same principle as a conventional DC ignition system with the exception of using magnetic pickup coils and a transistor control box (TCI) in place of contact breaker points.

① TCI unit



PICKUP UNIT

The pickup unit consists of two pickup coils ① and a flywheel mounted onto the crankshaft. When the projection on the flywheel passes a pickup coil, a signal is generated and transmitted to the ignitor unit. The width of the projection on the flywheel determines the ignition advance.

The pickup coils are located in the left crankcase cover.

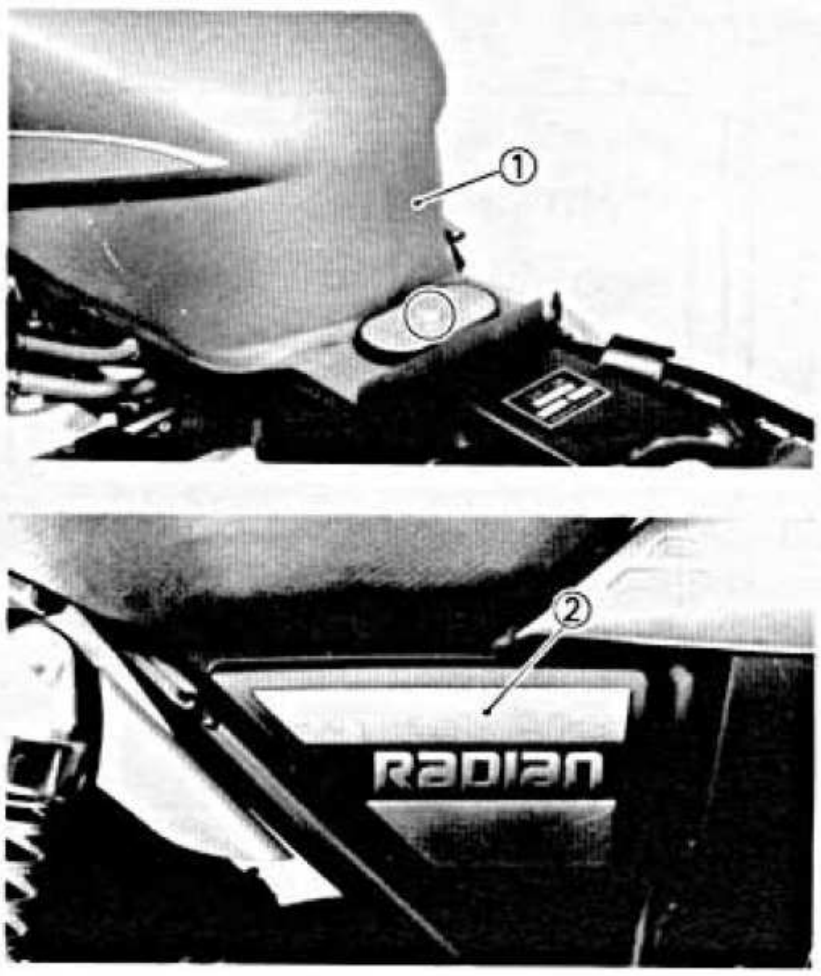
www.badrad600.com

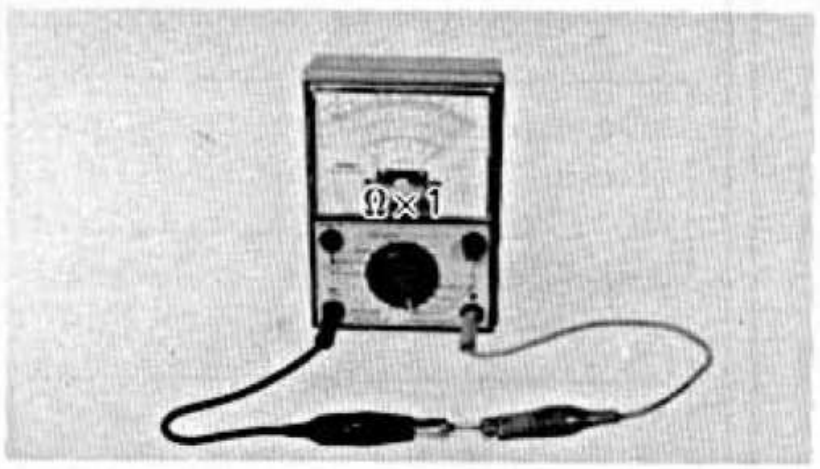
TROUBLESHOOTING

IF IGNITION SYSTEM SHOULD BECOME INOPERATIVE (NO SPARK OR INTERMITTENT SPARK).

Before this troubleshooting, remove following parts.

- Seat
- Fuel tank ①
- Side cover (Right) ②





1. Fuse inspection
   - Remove fuse (MAIN) and fuse (IGNITION).
   - Connect Pocket Tester (YU-03112) to fuse and check it for continuity.

NOTE:

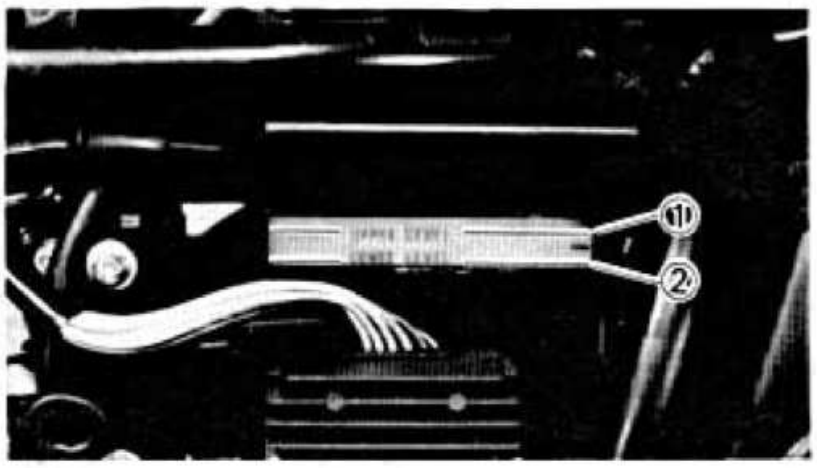
Set tester selector to "Ω×1" position.

Continuity (0Ω) ↓ Discontinuity (∞)

Replace fuse.

6

www.badrad600.com



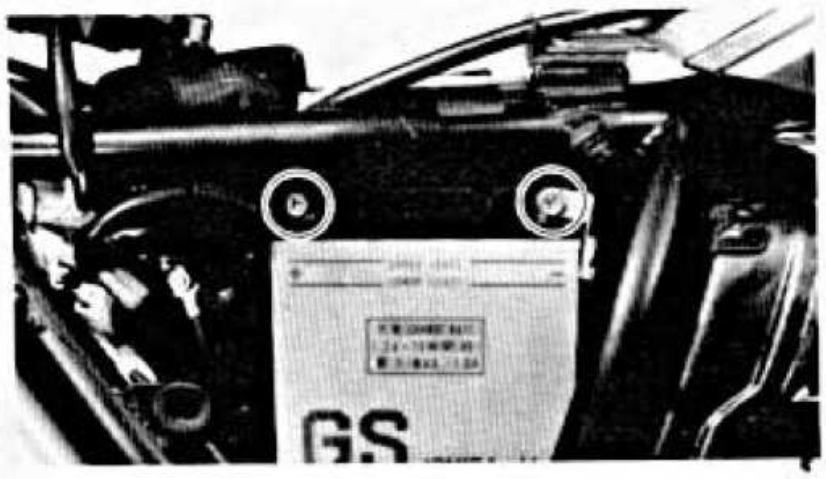
2. Battery fluid level inspection
   - Fluid level should be between upper ① and lower ② level mark.

Correct ↓ Incorrect

- Refill battery fluid.

CAUTION:

Refill with distilled water only; tap water contains minerals harmful to a battery.



3. Battery terminal inspection
   - Inspect battery terminal and connections.

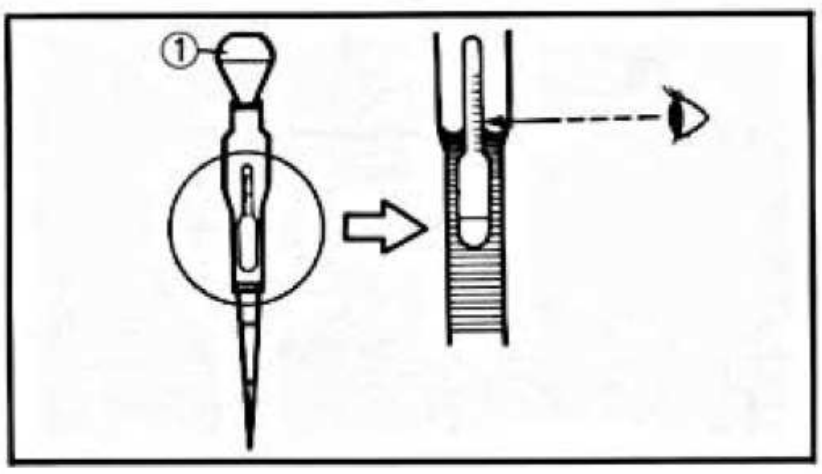
OK ↓ Dirty or poor connection

- Clean battery terminals using wire brush.

NOTE:

After cleaning terminals, apply grease lightly to both terminals.

- Connect battery leads correctly.



4. Battery fluid specific gravity inspection
   - Remove caps.
   - Inspect specific gravity of all cell using Battery Hydrometer ①.

Specific Gravity:
1.280 ± 0.01 at 20°C (68°F)

6

www.badrad600.com



WARNING:

Battery electrolyte is poisonous and dangerous, causing severe burns, etc. It contains sulfuric acid. Avoid contact with skin, eyes or clothing. Antidote: EXTERNAL-Flush with water. INTERNAL-Drink large quantities of water or milk. Follow with milk of magnesia, beaten egg, or vegetable oil. Call a physician immediately.
Eyes: Flush with water for 15 minutes and get prompt medical attention. Batteries produce explosive gases. Keep sparks, flame, cigarettes etc., away. Ventilate when charging or using in an enclosed space. Always shield your eyes when working near batteries.
KEEP OUT OF REACH OF CHILDREN.

OK

Low specific gravity

- Recharge battery

Charging Current:
1.2 amps/10 hrs

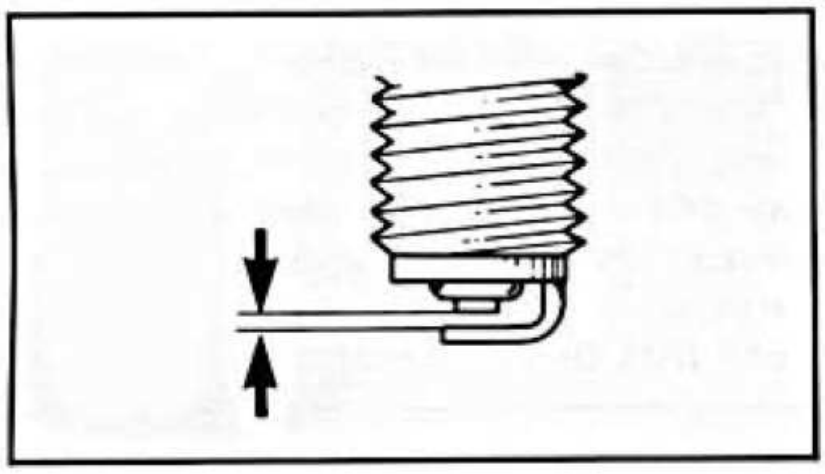
NOTE:

Replace the battery if:
- Battery voltage will not rise to a specific value or bubbles fail to rise even after many hours of charging.
- Sulfation of one or more cells occurs, as indicated by the plates turning white, or an accumulation of material exists in the bottom of the cell.
- Specific gravity readings after a long, slow charge indicate on cell to be lower than the rest.
- Warpage or buckling of plates or insulators is evident.

6

www.badrad600.com

5. Spark plug inspection
   - Remove spark plug.
   - Clean spark plug with spark plug cleaner, if necessary.
   - Inspect electrode, insulator and plug gap. Refer to "CHAPTER 2—SPARK PLUG INSPECTION" section.

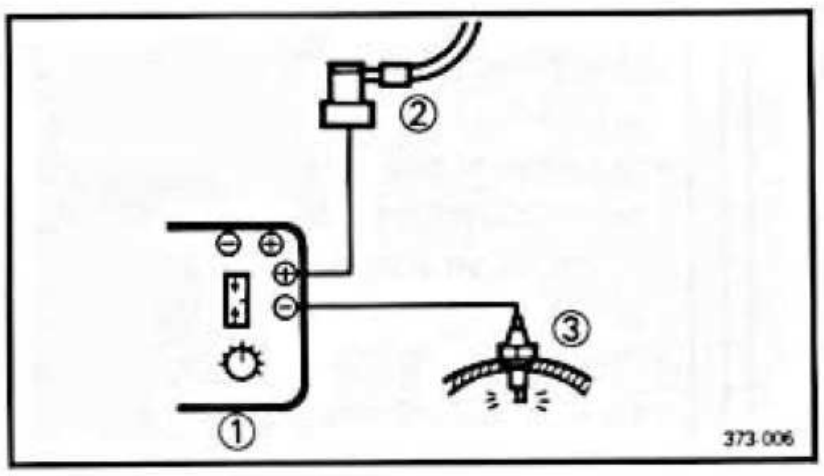


Plug Gap:
0.6 ~ 0.7 mm (0.024 ~ 0.028 in)

OK

No good

Replace or regap spark plug.



6. Ignition spark gap test
   - Connect Electro Tester (YU-33260) ① as shown.

② Spark plug lead
③ Spark plug

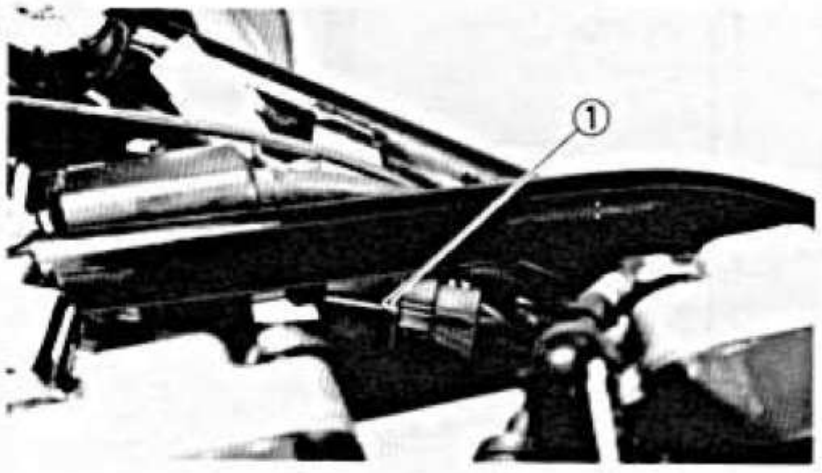
   - Start the engine, and increase the spark gap until misfire occurs. (Test at various r/min between idle and red line.)

CAUTION:

Do not run the engine in neutral above 6,000 r/min for more than 1 or 2 seconds.

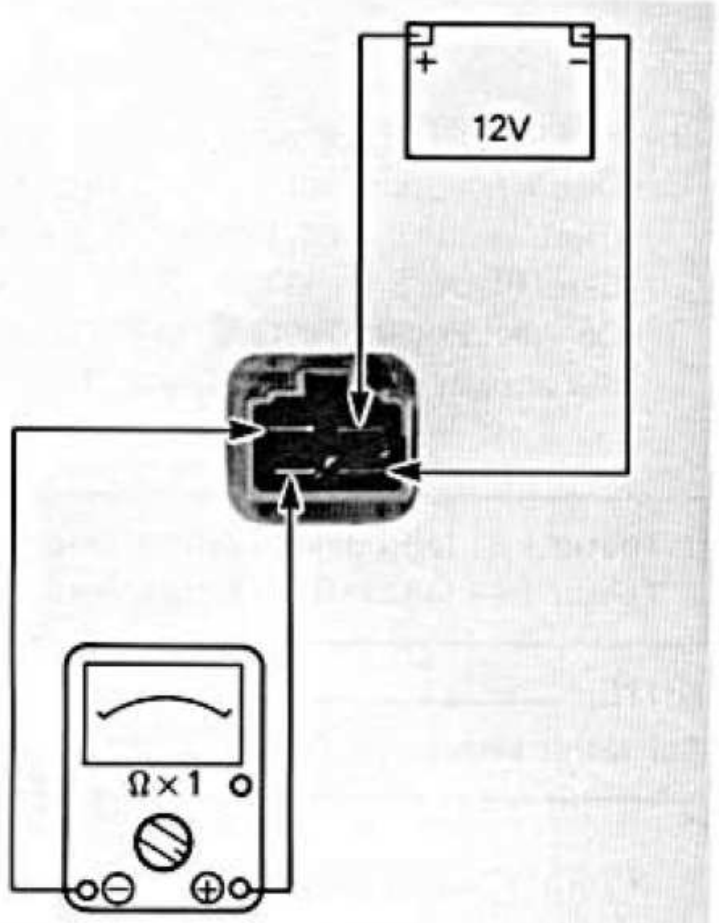
Minimum Spark Gap: 6 mm (0.24 in)

www.badrad600.com



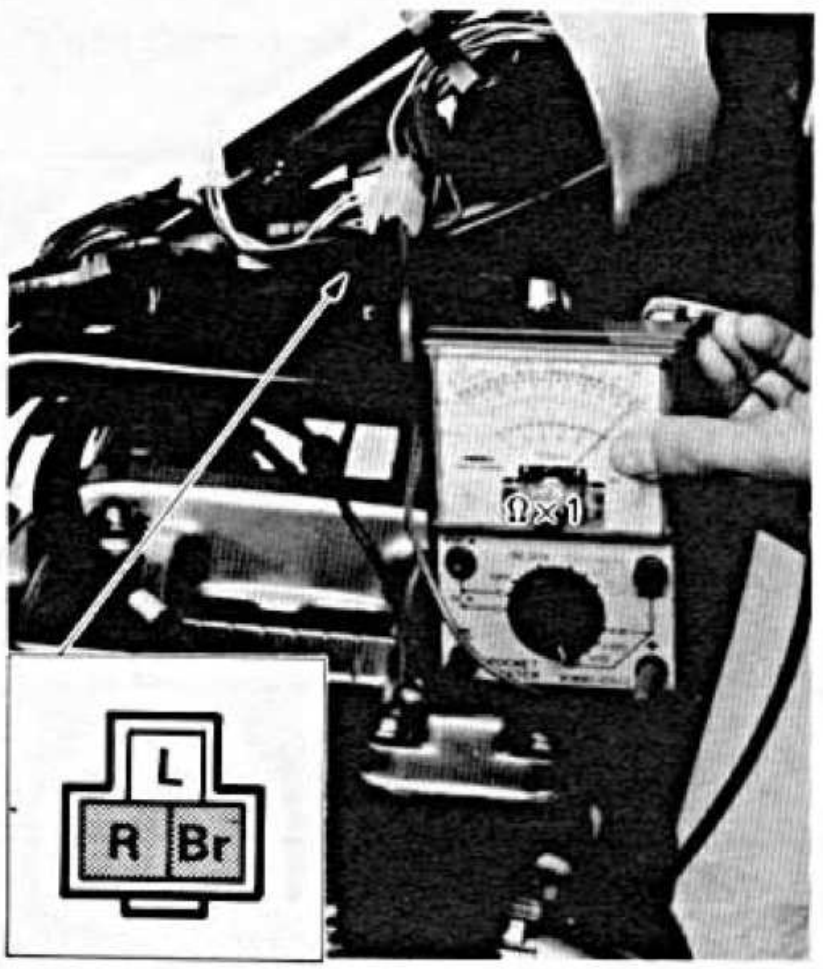
7. Sidestand relay conduct check
   - Remove sidestand relay ①
   - Connect 12V battery and Pocket Tester (YU-03112) to sidestand relay terminals as shown.

NOTE:
- Use full charge battery.
- Set tester selector to "Ω×1" position.



Discontinuity (∞) ⇩ Continuity (0Ω)

Sidestand relay is faulty, replace it.



8. Main switch conduct check
   - Disconnect main switch coupler (Brown, Red, Blue).
   - Connect Pocket Tester (YU-03112) to main switch leads (Brown, Red).

Tester (+) lead→Red lead
Tester (−) lead→Brown lead

NOTE:
Set tester selector to "Ω×1" position.

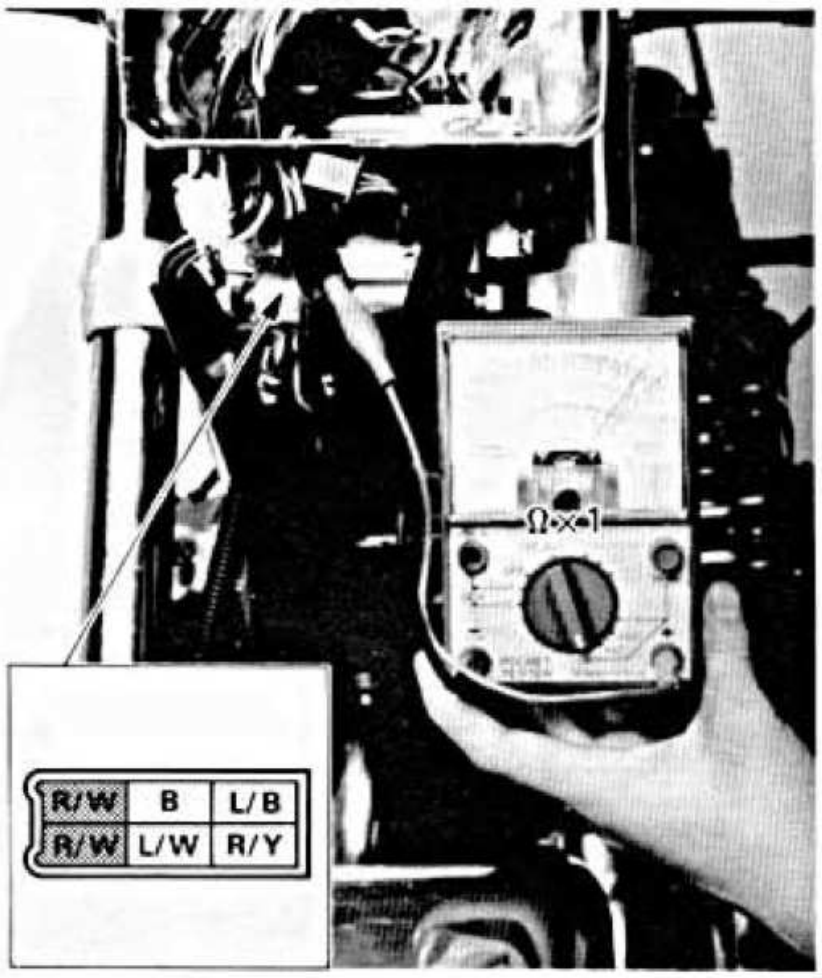
- Turn main switch to "ON" position and check it for continuity.

6

www.badrad600.com

Continuity (0Ω) ↓ Discontinuity (∞)

Main switch is faulty, replace it.



9. "ENGINE STOP" switch conduct check
   - Disconnect handlebar switch (Right) leads (Red/White, Red/White, Red/Yellow, Blue/Black, Blue/White, Black).
   - Connect Pocket Tester (YU-03112) to handlebar switch lead (Red/White, Red/White).

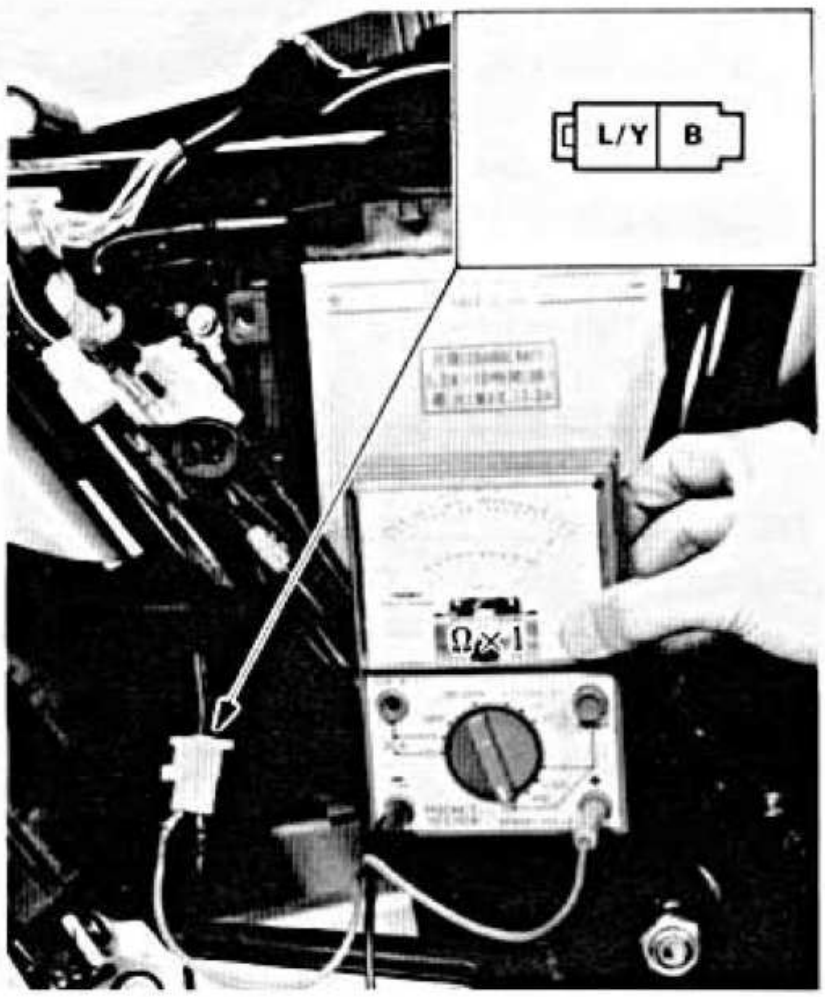
Tester (+) lead→Red/White lead
Tester (−) lead→Red/White lead

NOTE:
Set tester selector to "Ω×1" position.

- Turn "ENGINE STOP" switch to "RUN" position.

Continuity (0Ω) ↓ Discontinuity (∞)

"ENGINE STOP" switch is faulty, replace handlebar switch.



10. Sidestand switch conduct check
    - Disconnect sidestand leads (Blue/Yellow, Black).
    - Connect Pocket Tester (YU-03112) to sidestand switch leads.

Tester (+) lead→Blue/Yellow lead
Tester (−) lead→Black lead

www.badrad600.com

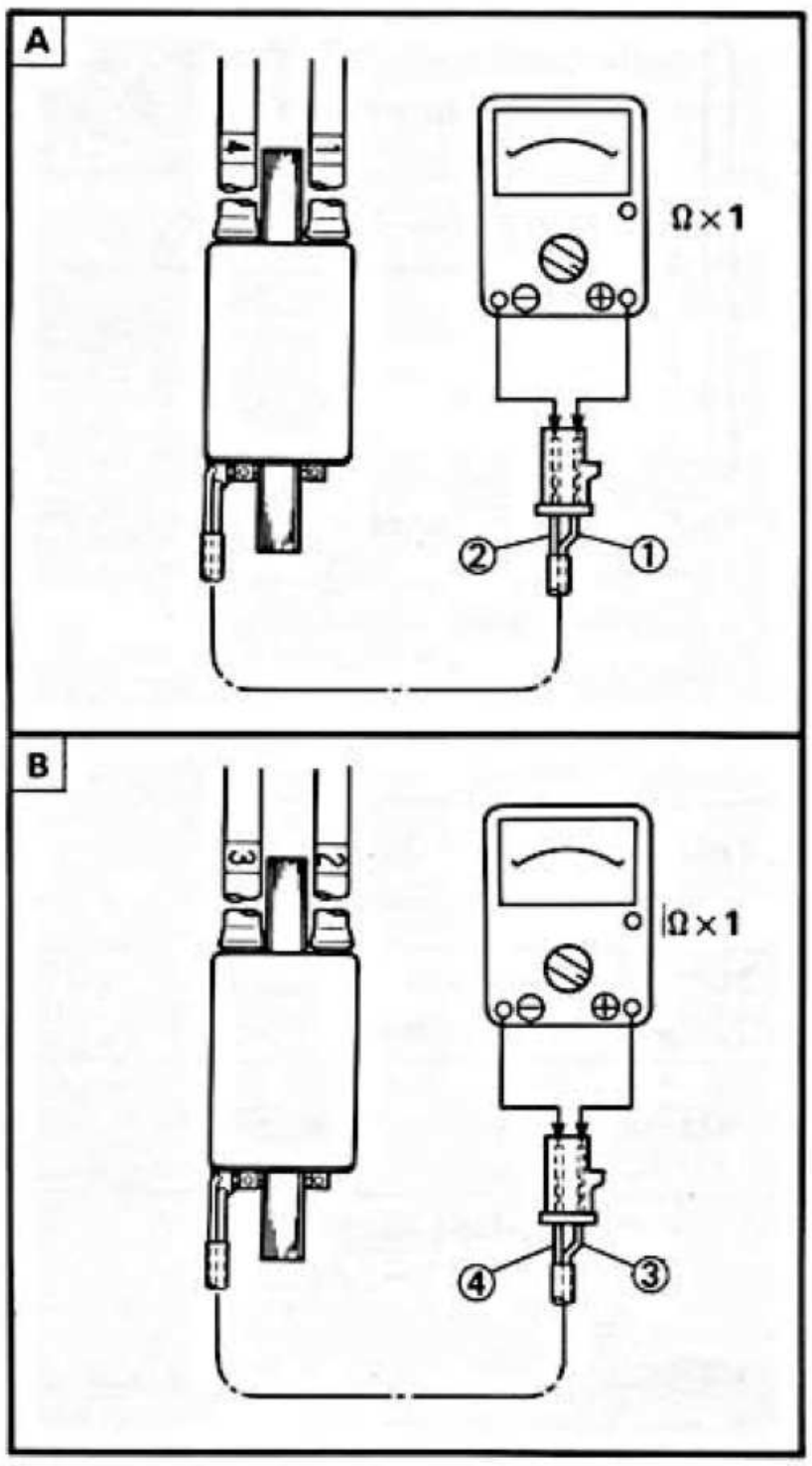
NOTE:
Set tester selector to "Ω×1" position.

- Place motorcycle on centerstand.
- Sidestand is up and check sidestand switch for continuity.

Continuity (0Ω) → Discontinuity (∞)

Sidestand switch is faulty, replace it.

11. Ignition coil resistance test
    - Disconnect ignition coil leads and spark plug leads.
    - Connect Pocket Tester (YU-03112) to ignition coil lead.



A Ignition coil for #1, #4 cylinder **Tester (+) lead→Orange lead ①** **Tester (−) lead→Red/White lead ②**
B Ignition coil for #2, #3 cylinder **Tester (+) lead→Gray lead ③** **Tester (−) lead→Red/White lead ④**

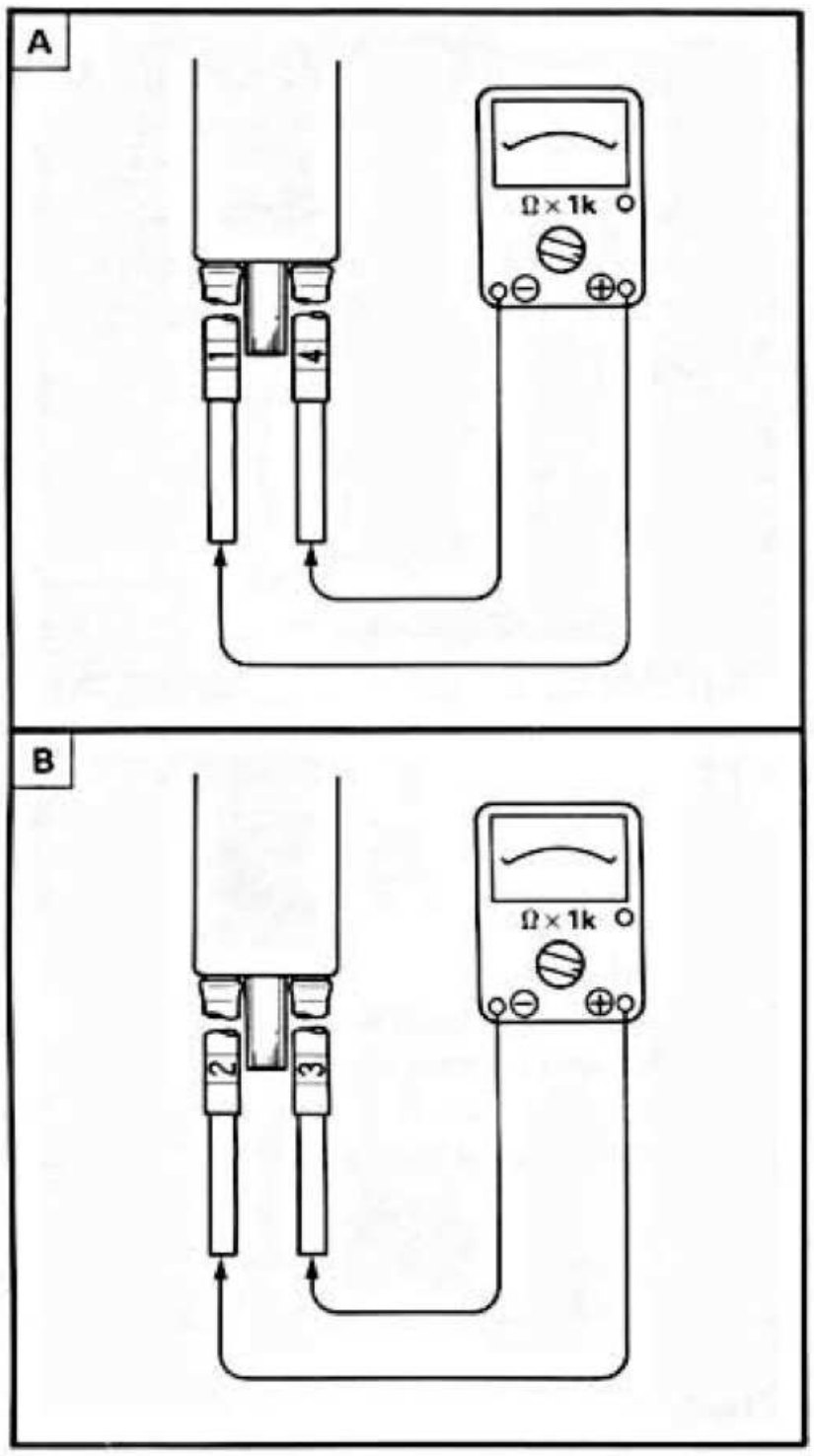
- Measure primary coil resistance

	Primary Coil Resistance: **2.43~2.97 Ω at 20°C (68°F)**

NOTE:
Set tester selector to "Ω×1" position.

6

www.badrad600.com



• Connect Pocket Tester (YU-03112) to spark plug leads.

A Ignition coil for #1, #4 cylinder
Tester (+) lead → #1 spark plug lead
Tester (−) lead → #4 spark plug lead

B Ignition coil for #2, #3 cylinder
Tester (+) lead → #2 spark plug lead
Tester (−) lead → #3 spark plug lead

• Measure secondary coil resitance.

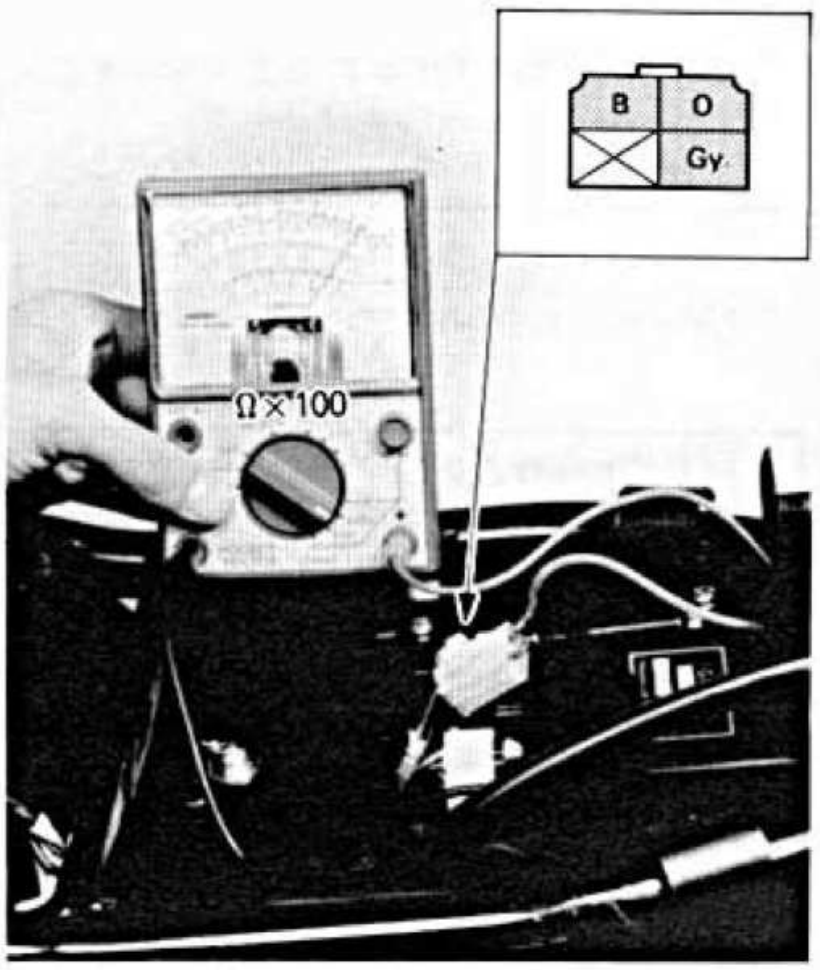
Secondary Coil Resistance:
10.56 ~ 15.84 kΩ at 20°C (68°F)

NOTE:
Set tester selector to "Ω × 1K" position.

Both resistances meet specifications → Ignition coil is faulty, replace it.

Out of specification

12. Pickup coil resistance test.
    • Disconnect pickup coil leads (Orange, Gray, Black) at ignitor unit.
    • Connect Pocket Tester (YU-03112) to pick-up coil leads.



Tester (+) lead → Orange lead
Tester (−) lead → Black lead

Tester (+) lead → Gray lead
Tester (−) lead → Black lead

• Measure pickup coil resistance.

Pickup Coil Resistance:
108 ~ 132 Ω at 20°C (68°F)

NOTE:
Set tester selector to "Ω × 100" position.

6

www.badrad600.com

Both resistances meet specifications

Out of specification

Pickup coil is faulty, replace it.

13. Check entire ignition system for connections. Refer to "WIRING DIAGRAM" section.

OK

Poor connection

Correct.

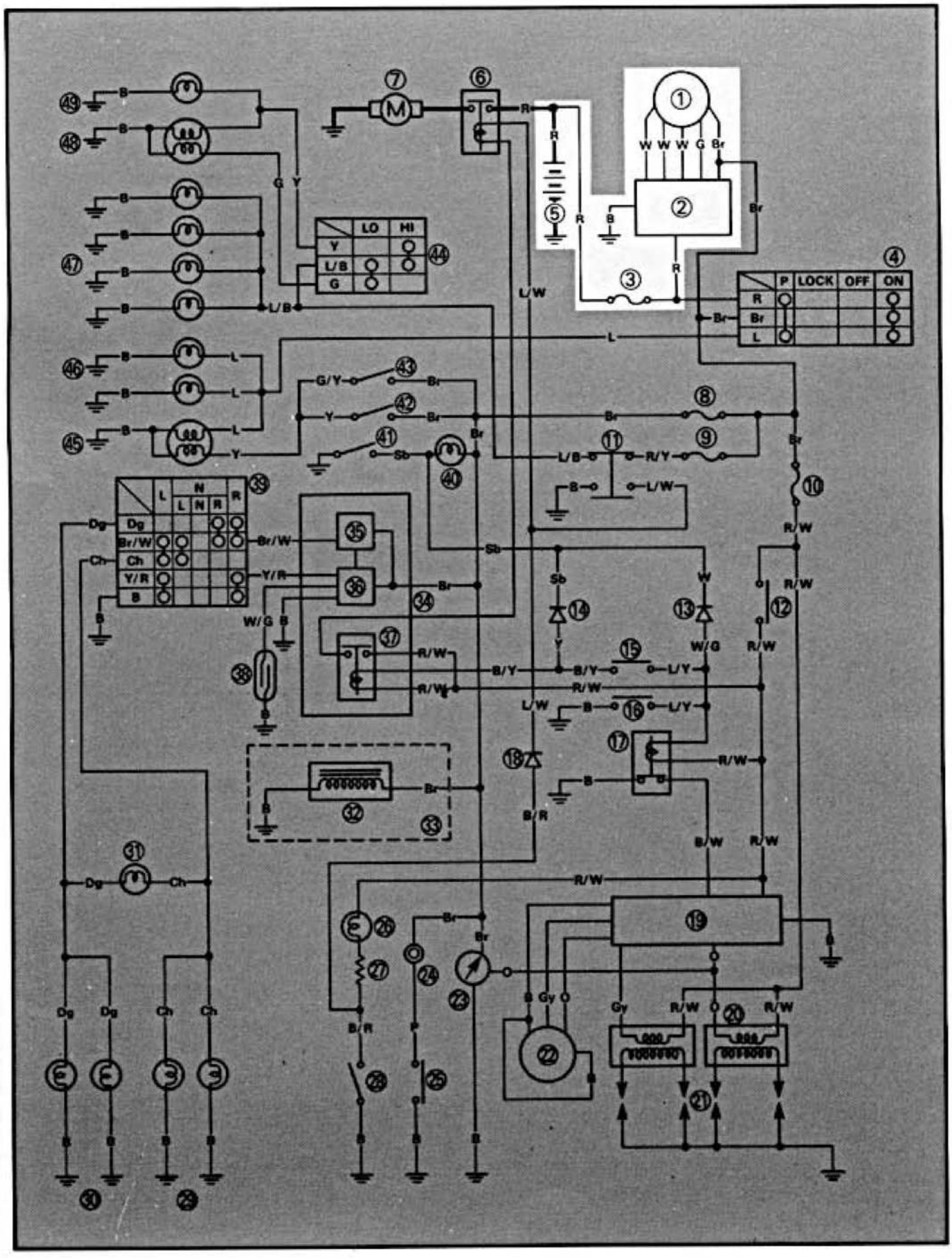
Ignitor unit is faulty, replace it.

www.badrad600.com

CHARGING SYSTEM

CIRCUIT DIAGRAM

Below circuit diagram shows charging circuit.

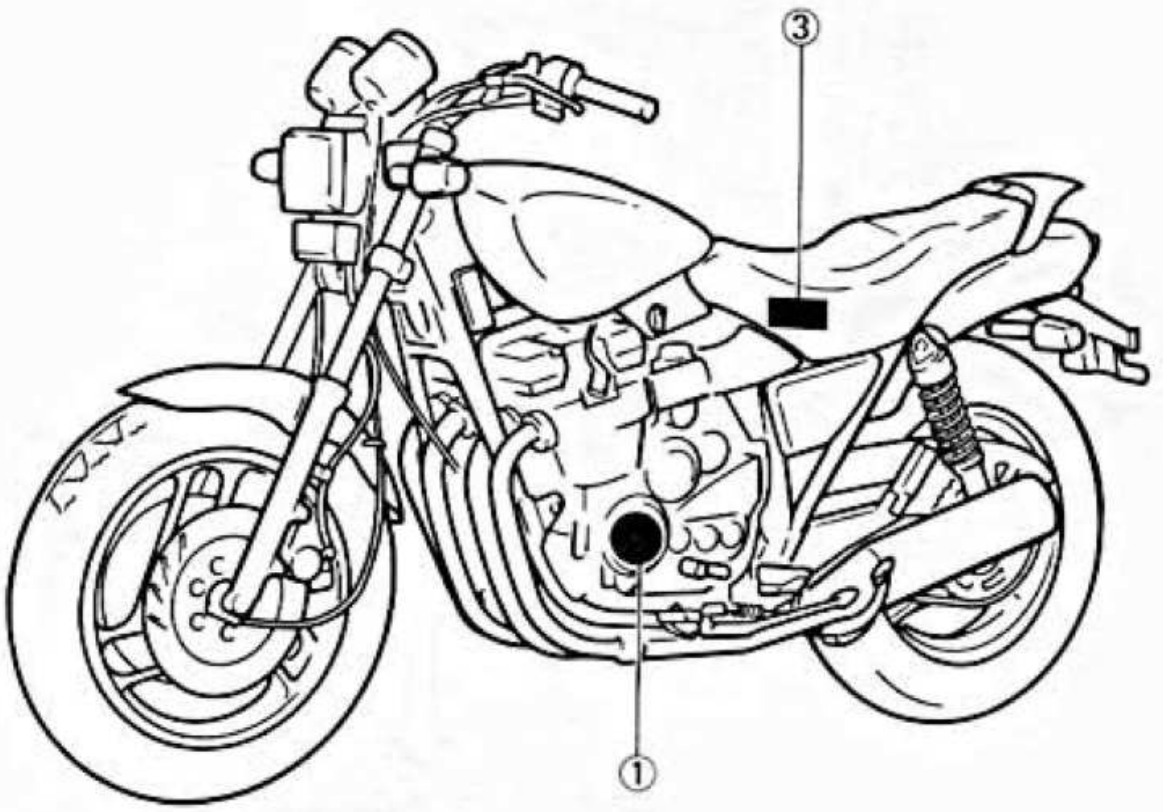


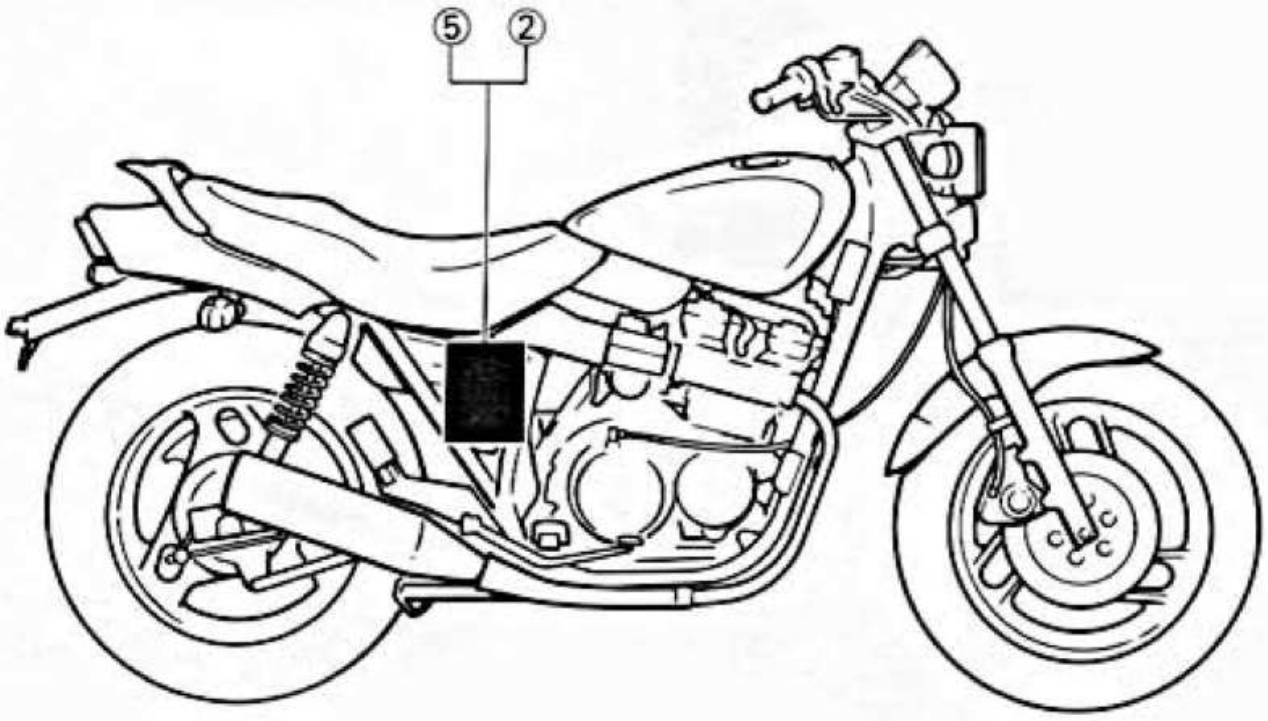
www.badrad600.com

NOTE:

For the color codes, see page 6-2.

① AC Magneto
② Rectifier/Regulator
③ Fuse (MAIN)
⑤ Battery





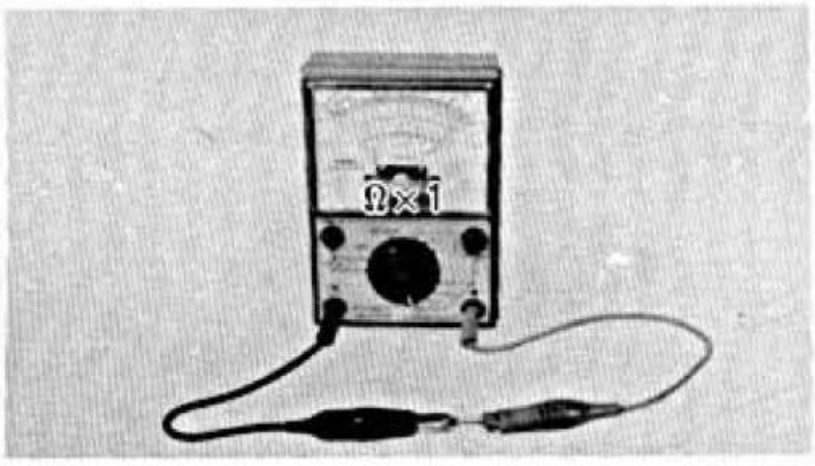
www.badrad600.com

TROUBLESHOOTING

THE BATTERY IS NOT CHARGED.

Before this troubleshooting, remove following parts.

- Seat
- Side cover (Right)



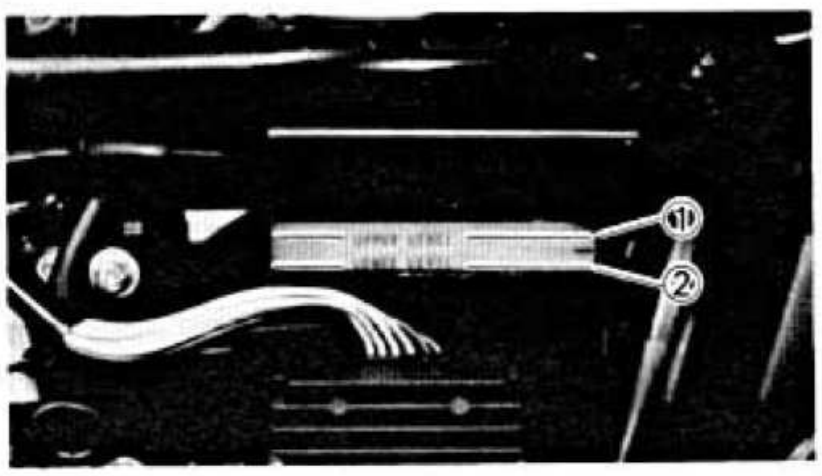
1. Fuse inspection
   - Remove fuse (MAIN).
   - Connect Pocket Tester (YU-03112) to fuse and check it for continuity.

NOTE:

Set tester selector to "Ω×1" position.

Continuity (0Ω) ⬇ Discontinuity (∞)

- Replace fuse.



2. Battery fluid level inspection
   - Fluid level should be between upper ① and lower ② level mark.

Correct ⬇ Incorrect

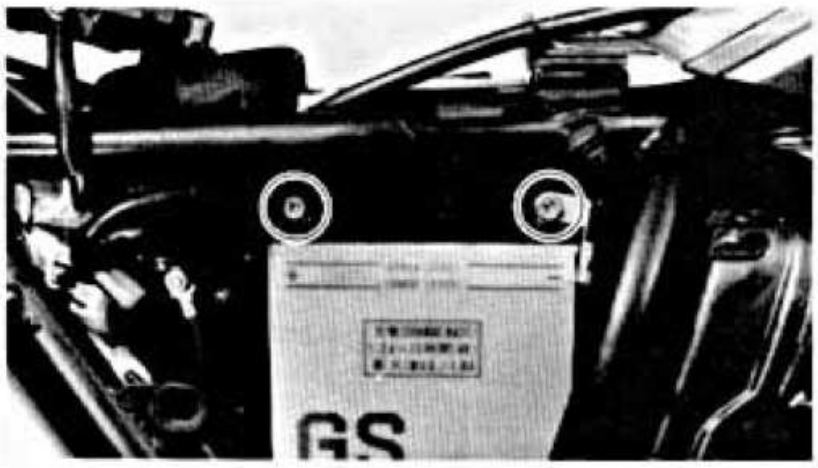
- Refill battery fluid.

CAUTION:

Refill with distilled water only; tap water contains minerals harmful to a battery.

6

www.badrad600.com



3. Battery terminal inspection
   - Inspect battery terminal and connections.

OK

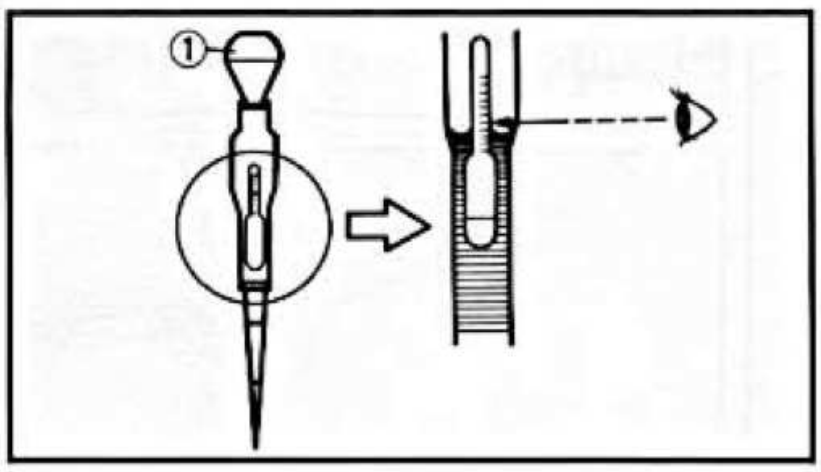
Dirty or poor connection

- Clean battery terminals using wire brush.

NOTE:

After cleaning terminals, apply grease lightly to both terminals.

- Connect battery leads correctly.



4. Battery fluid specific gravity inspection
   - Remove caps.
   - Inspect specific gravity of all cell using Battery Hydrometer ①.

Specific Gravity:
1.280 ± 0.01 at 20°C (68°F)



WARNING:

Battery electrolyte is poisonous and dangerous, causing severe burns, etc. It contains sulfuric acid. Avoid contact with skin, eyes or clothing. Antidote: EXTERNAL-Flush with water. INTERNAL-Drink large quantities of water or milk. Follow with milk of magnesia, beaten egg, or vegetable oil. Call a physician immediately.
Eyes: Flush with water for 15 minutes and get prompt medical attention. Batteries produce explosive gases. Keep sparks, flame, cigarettes etc., away. Ventilate when charging or using in an enclosed space. Always shield your eyes when working near batteries.
KEEP OUT OF REACH OF CHILDREN.

6

www.badrad600.com

OK

Low specific gravity

- Recharge battery.

Charging Current:
1.2 amps/10 hrs

NOTE:

Replace the battery if:

- Battery voltage will not rise to a specific value or bubbles fail to rise even after many hours of charging.
- Sulfation of one or more cells occurs, as indicated by the plates turning white, or an accumulation of materiad exists in the bottom of the cell.
- Specific gravity readings after a long, slow charge indicate on cell to be lower than the rest.
- Warpage or buckling of plates or insulators is evident.

5. Charging voltage test
   - Connect Pocket Tester (YU-03112) to battery.

NOTE:

Set tester selector to "DC20V" position.

Tester (+) lead → Battery (+) terminal
Tester (−) lead → Battery (−) terminal

- Start engine and accelerate to about 5,000 r/min.
- Measure charging voltage.

Charging Voltage:
14 ~ 15 V at 5,000 r/min



6

www.badrad600.com

Out of specification

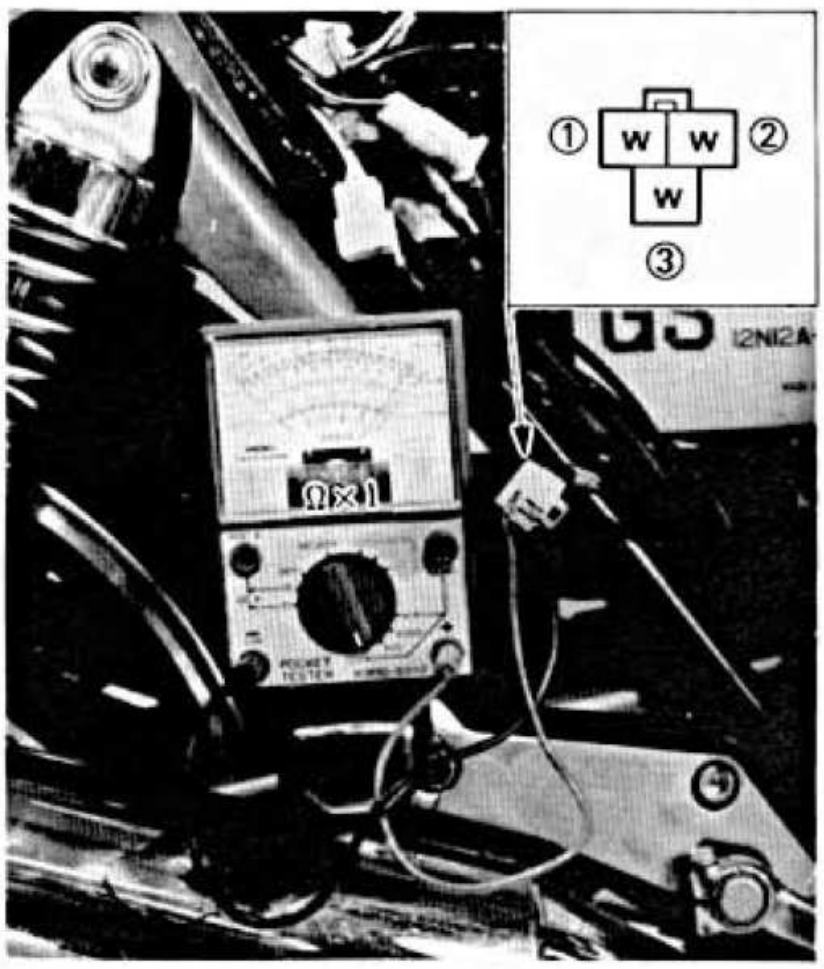
Charging voltage meets specification

Battery is faulty, replace it.

6. Stator coil resistance test
   - Disconnect AC magneto leads (White, White, White).
   - Connect Pocket Tester (YU-03112) to AC magneto leads.

NOTE:

Set tester selector to "Ω×1" position.



Stator Coil (1)
Tester (+) lead→White lead ①
Tester (−) lead→White lead ③

Stator Coil (2)
Tester (+) lead→White lead ②
Tester (−) lead→White lead ③

- Measure stator coil resistance.

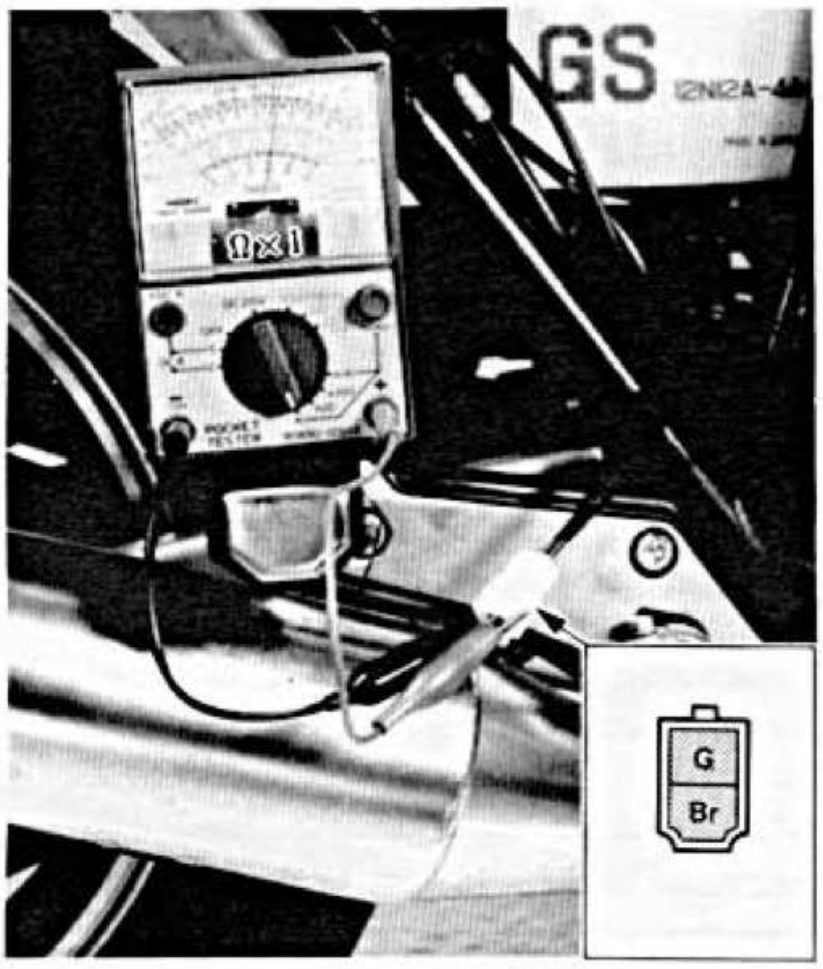
Stator Coil Resistance:
White ① - White ②
0.5~0.6 Ω at 20°C (68°F)
White ② - White ③
0.5~0.6 Ω at 20°C (68°F)

Both resistances meet specifications

Out of specification

Stator coil is faulty, replace it.

www.badrad600.com



7. Field coil resistance test.
   - Disconnect AC magneto leads (Green, Brown).
   - Connect Pocket Tester (YU-03112) to AC magneto leads.

NOTE:

Set tester selector "Ω × 1" position.

Tester (+) lead → Green lead
Tester (−) lead → Brown lead

- Measure field coil resistance.

Field Coil Resistance:
2.7 ~ 3.3Ω at 20°C (68°F)

Resistance meets specification

Out of specification.

Flied coil is faulty, replace it.

8. Check entire charging system for connections. Refer to "WIRING DIAGRAM" section.

OK

Poor connection

Correct.

Rectifier/Regulator is faulty, replace it.

www.badrad600.com

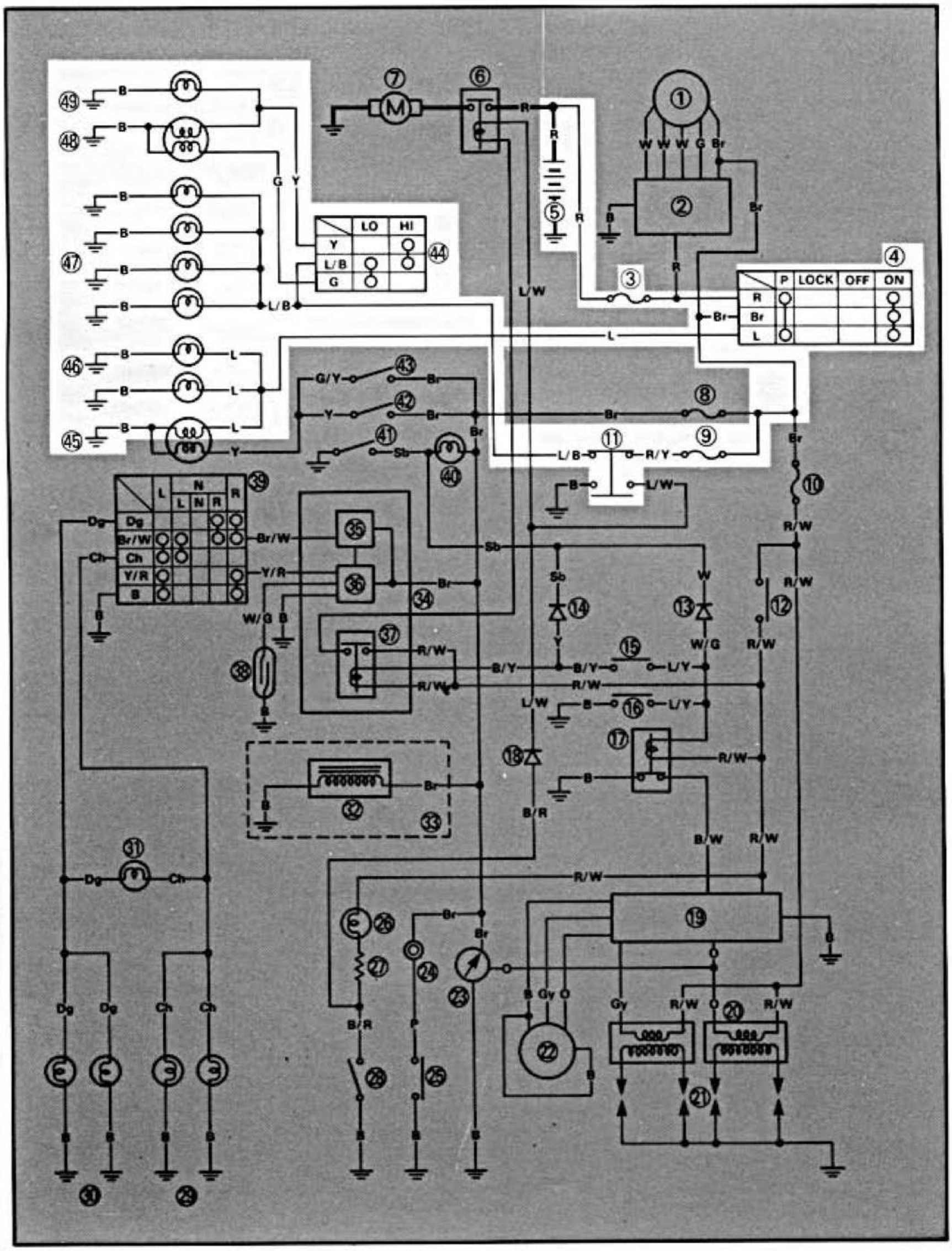
MEMO

www.badrad600.com

LIGHTING SYSTEM

CIRCUIT DIAGRAM

Below circuit diagram shows lighting circuit.

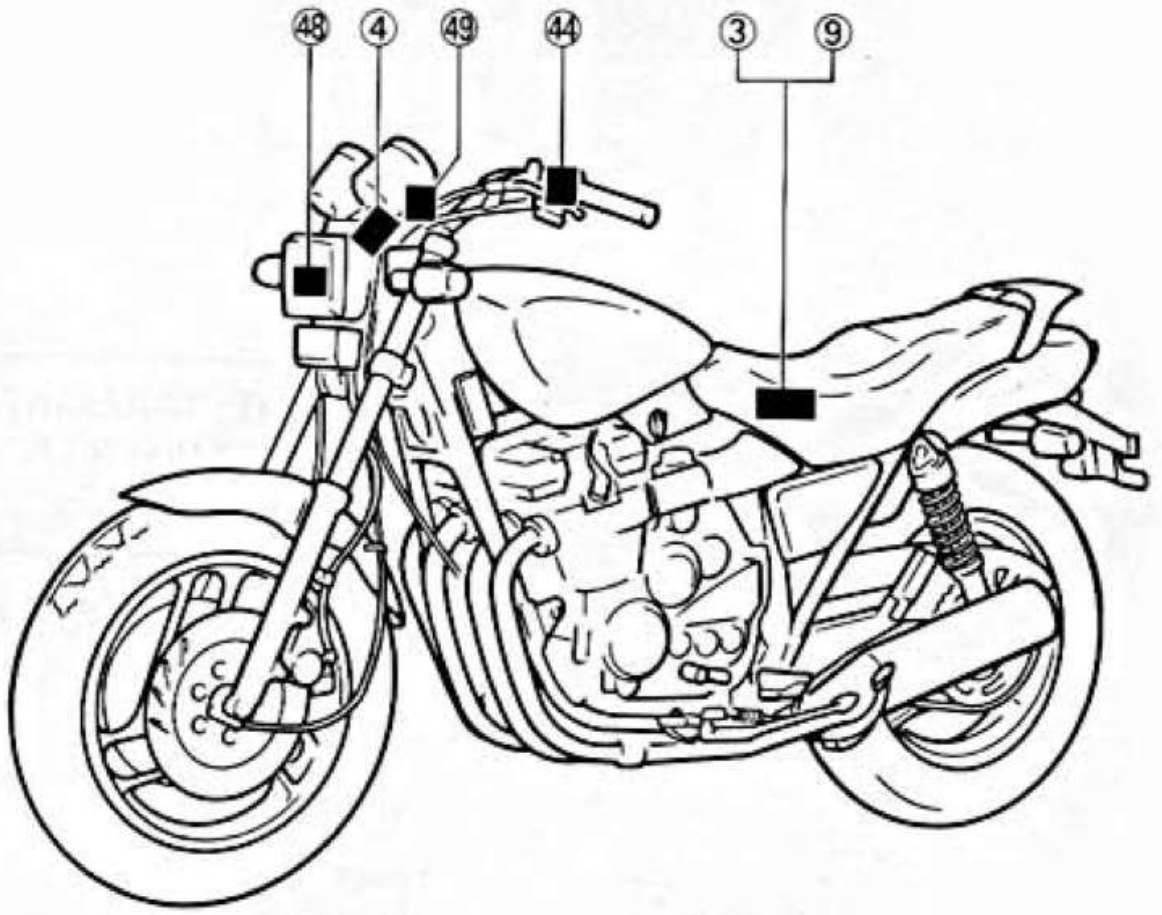


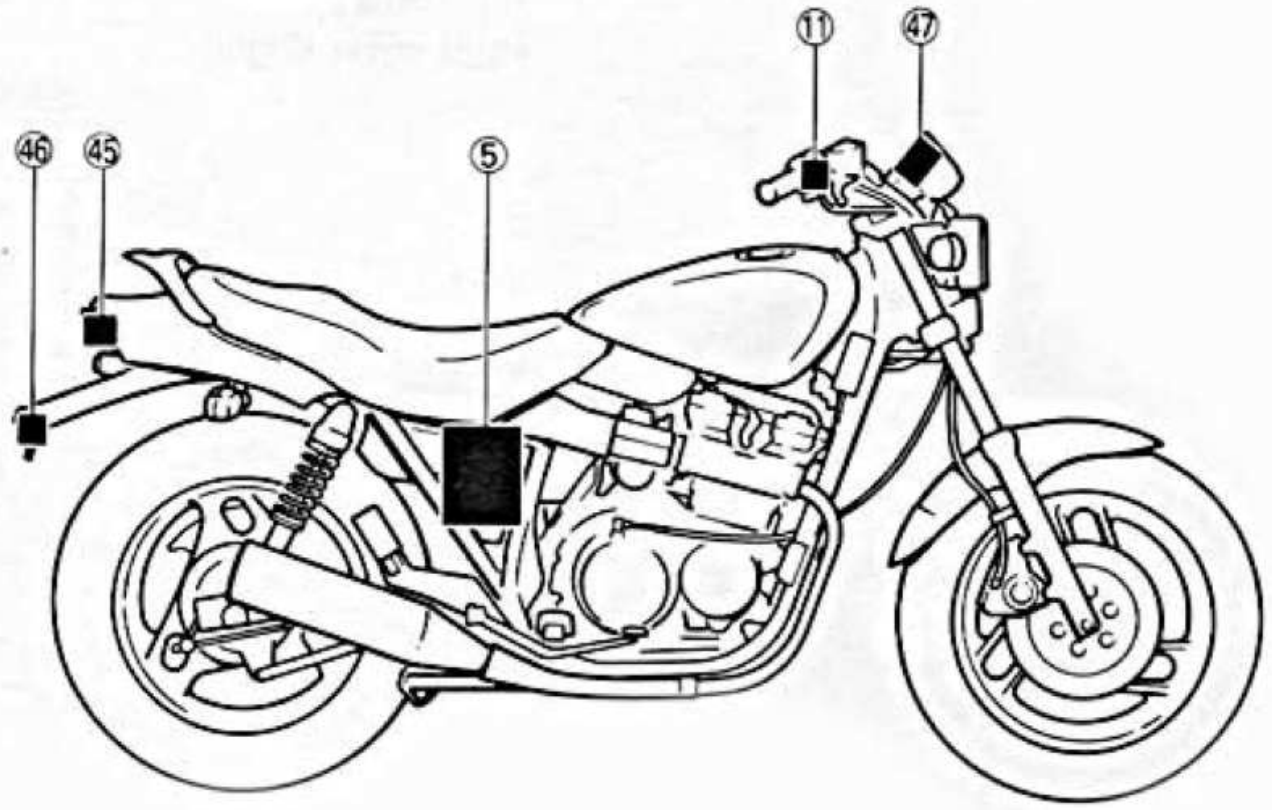
www.badrad600.com

NOTE:

For the color codes, see page 6-2.

③ Fuse (MAIN)
④ Main switch
⑤ Battery
⑨ Fuse (HEAD)
⑪ "START" switch
㊹ "LIGHTS" (Dimmer) switch
㊺ Tail/Brake light
㊻ License light
㊼ Meter light
㊽ Headlight
㊾ "HIGH BEAM" indicator light





www.badrad600.com

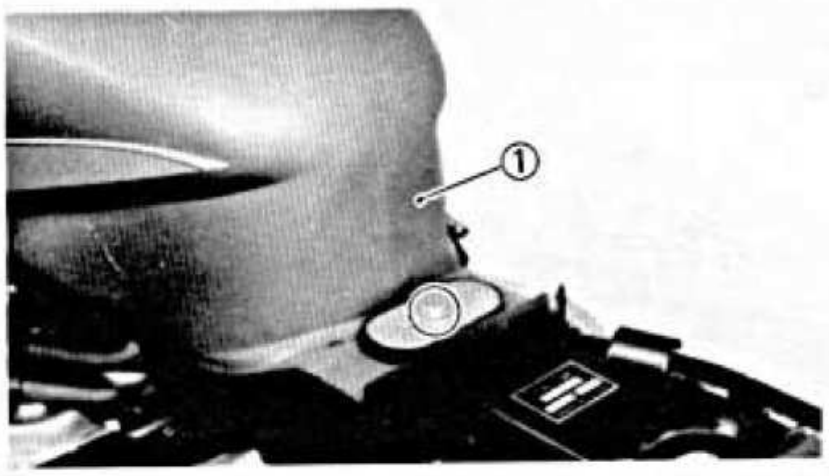
TROUBLESHOOTING

The battery provides power for operation of the headlight, taillight, lisence light and meter light. If none of the above fail to operate proceed further. Low battery voltage indicates either a faulty battery, low battery fluid level or a defective charging system.
Also check fuse condition. Replace any "Open" fuses.

HEADLIGHT, TAILLIGHT, LICENSE LIGHT AND METER LIGHT DO NOT COME ON.

Before this troubleshooting, remove following parts.

- Seat
- Fuel tank ①
- Side cover (Right) ②

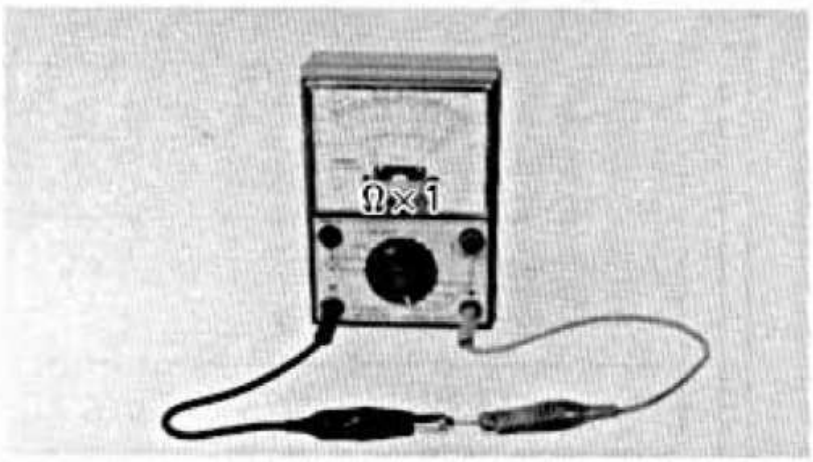




www.badrad600.com

NOTE:

Check each bulb first before performing the following check.



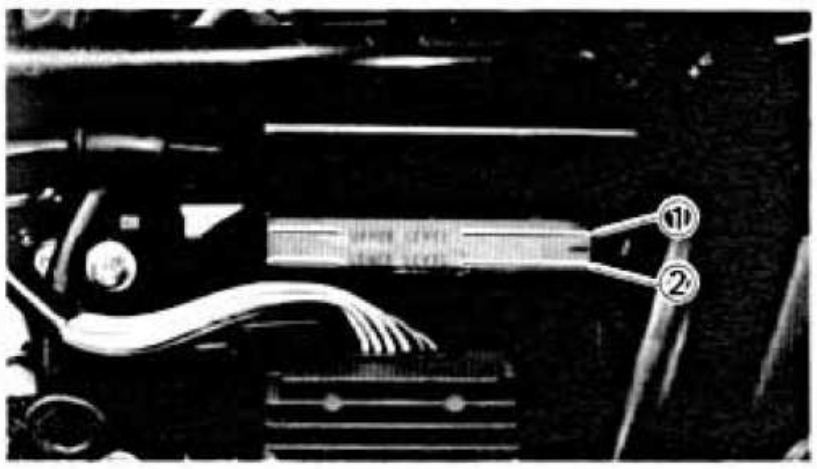
1. Fuse inspection
   - Remove fuse (MAIN) and fuse (HEAD).
   - Connect Pocket Tester (YU-03112) to fuse and check it for continuity.

NOTE:

Set tester selector to "Ω×1" position.

Continuity (0Ω) → Discontinuity (∞)

- Replace fuse.



2. Battery fluid level inspection
   - Fluid level should be between upper ① and lower ② level mark.

Correct → Incorrect

- Refill battery fluid.

CAUTION:

Refill with distilled water only; tap water contains minerals harmful to a battery.

www.badrad600.com



3. Battery terminal inspection
   - Inspect battery terminal and connections.

OK

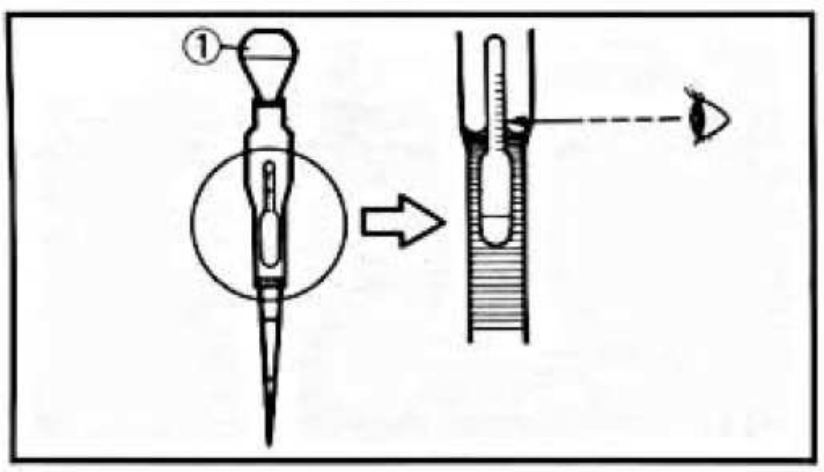
Dirty or poor connection

- Clean battery terminals using wire brush.

NOTE:

After cleaning terminals, apply grease lightly to both terminals.

- Connect battery leads correctly.



4. Battery fluid specific gravity inspection
   - Remove caps.
   - Inspect specific gravity of all cell using Battery Hydrometer ①.

Specific Gravity:
1.280 ± 0.01 at 20°C (68°F)



WARNING:

Battery electrolyte is poisonous and dangerous, causing severe burns, etc. It contains sulfuric acid. Avoid contact with skin, eyes or clothing. Antidote: EXTERNAL-Flush with water. INTERNAL-Drink large quantities of water or milk. Follow with milk of magnesia, beaten egg, or vegetable oil. Call a physician immediately.
Eyes: Flush with water for 15 minutes and get prompt medical attention. Batteries produce explosive gases. Keep sparks, flame, cigarettes etc., away. Ventilate when charging or using in an enclosed space. Always shield your eyes when working near batteries.
KEEP OUT OF REACH OF CHILDREN.

www.badrad600.com

OK

Low specific gravity

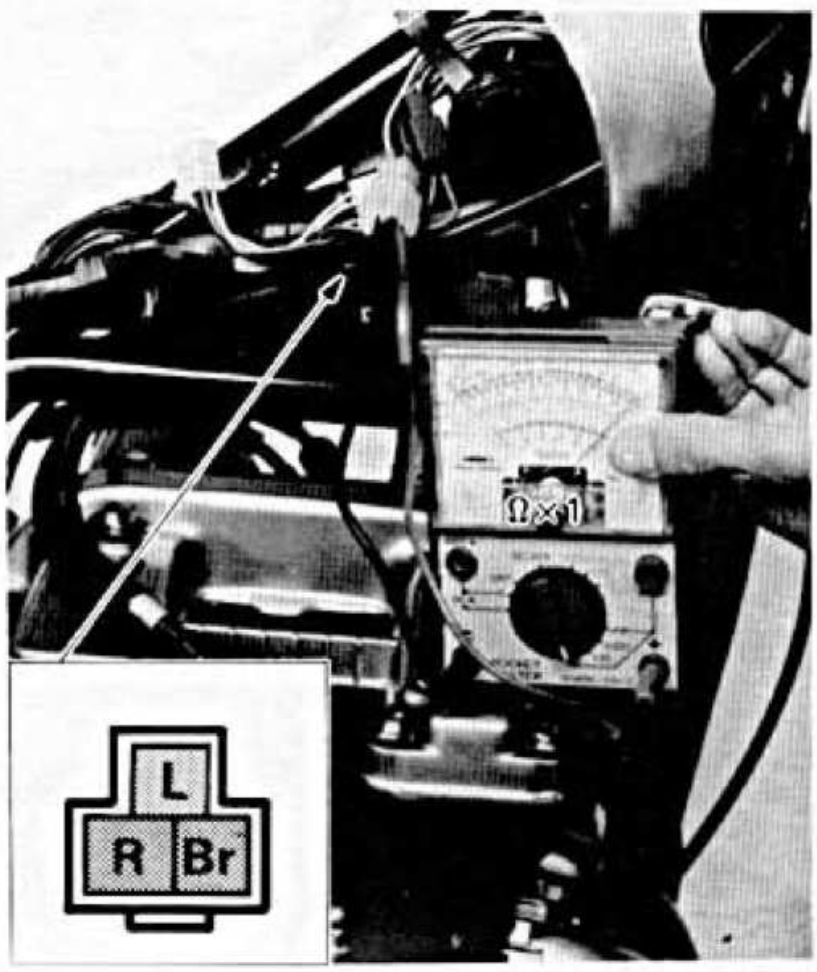
- Recharge battery.

Charging Current:
1.2 amps/10 hrs

NOTE:

Replace the battery if:

- Battery voltage will not rise to a specific value or bubbles fail to rise even after many hours of charging.
- Sulfation of one or more cells occurs, as indicated by the plates turning white, or an accumulation of material exists in the bottom of the cell.
- Specific gravity readings after a long, slow charge indicate on cell to be lower than the rest.
- Warpage or buckling of plates or insulators is evident.



5. Main switch conduct check
   - Disconnect main switch coupler (Brown, Red, Blue).
   - Connect Pocket Tester (YU-03112) to main switch leads.

Tester (+) lead→Red lead **Tester (−) lead→Brown lead**
Tester (+) lead→Red lead **Tester (−) lead→Blue lead**

NOTE:

Set tester selector to "Ω×1" position.

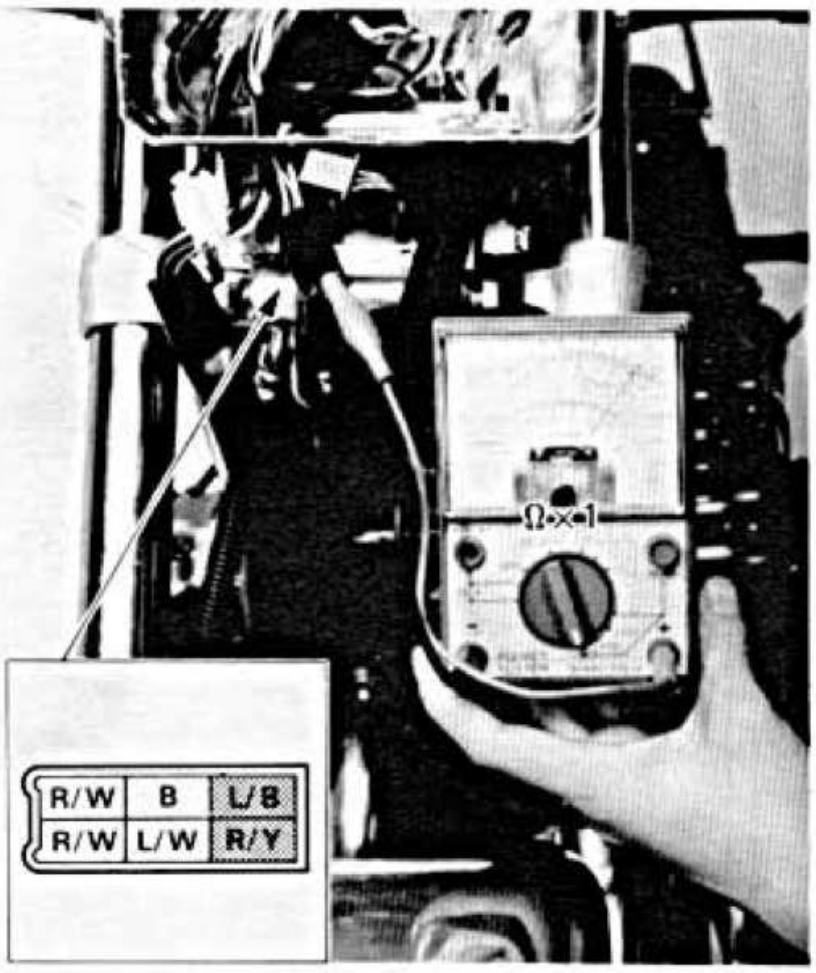
- Turn main switch to "ON" position and check it for continuity.

www.badrad600.com

Continuity exists on both circuits

Continuity does not exist on one circuit

Main switch is faulty, replace it.



6. "START" switch conduct check
   - Disconnect handlebar switch (Right) leads (Red/White, Red/White, Red/Yellow, Blue/Black, Blue/White, Black).
   - Connect Pocket Tester (YU-03112) to handlebar switch leads (Blue/Black, Red/Yellow).

Tester (+) lead→Blue/Black lead
Tester (−) lead→Red/Yellow lead

NOTE:
Set tester selector to "Ω×1" position.

Continuity (0Ω)

Discontinuity (∞)

"START" switch is faulty, replace handlebar switch.

7. Check entire lighting system for connections. Refer to "WIRING DIAGRAM" section.

6

www.badrad600.com

OK

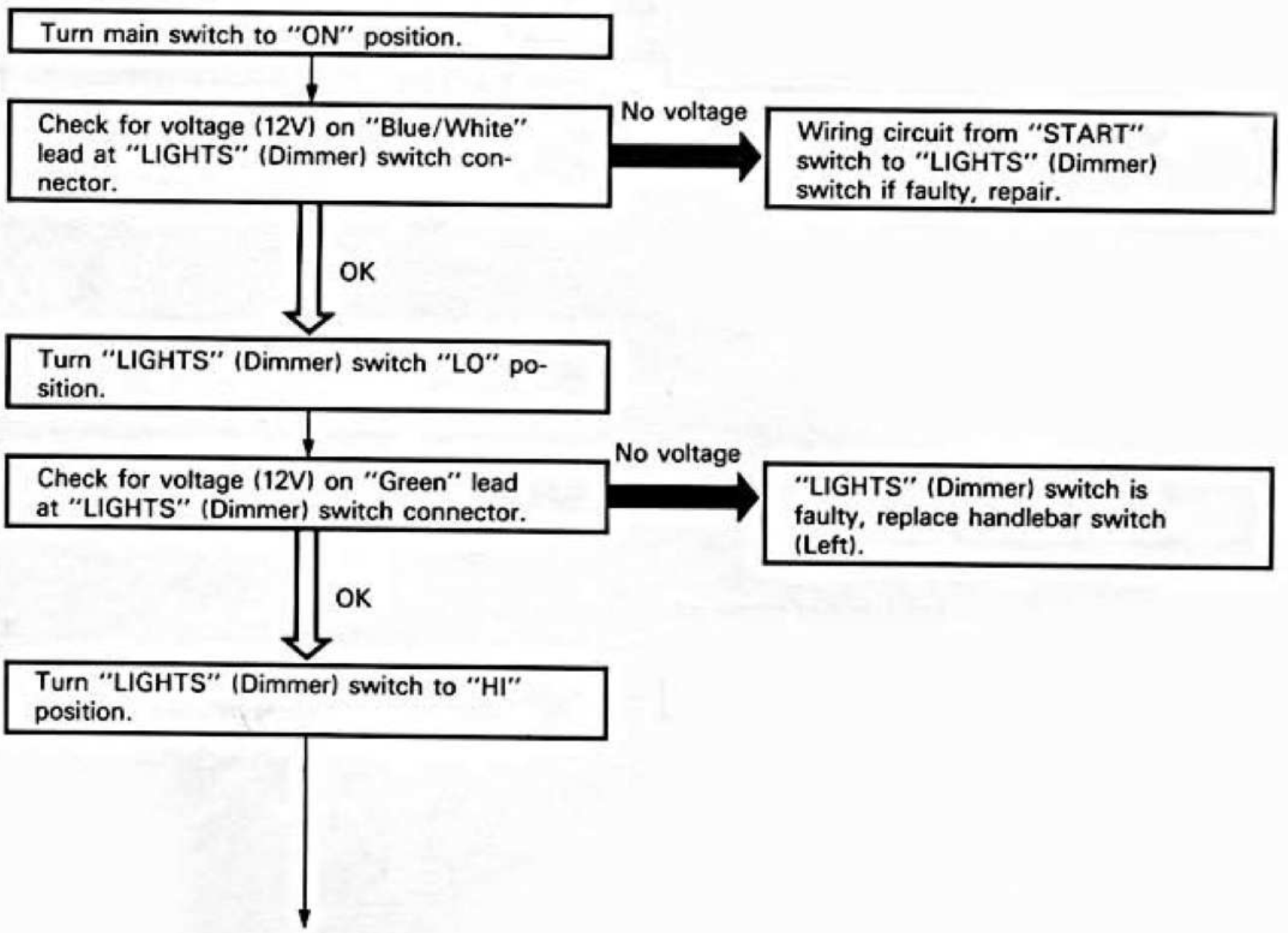
Poor connection

Correct.

8. Check condition of each circuit for lighting system.
   Refer to "LIGHTING SYSTEM TEST AND CHECKS" section.

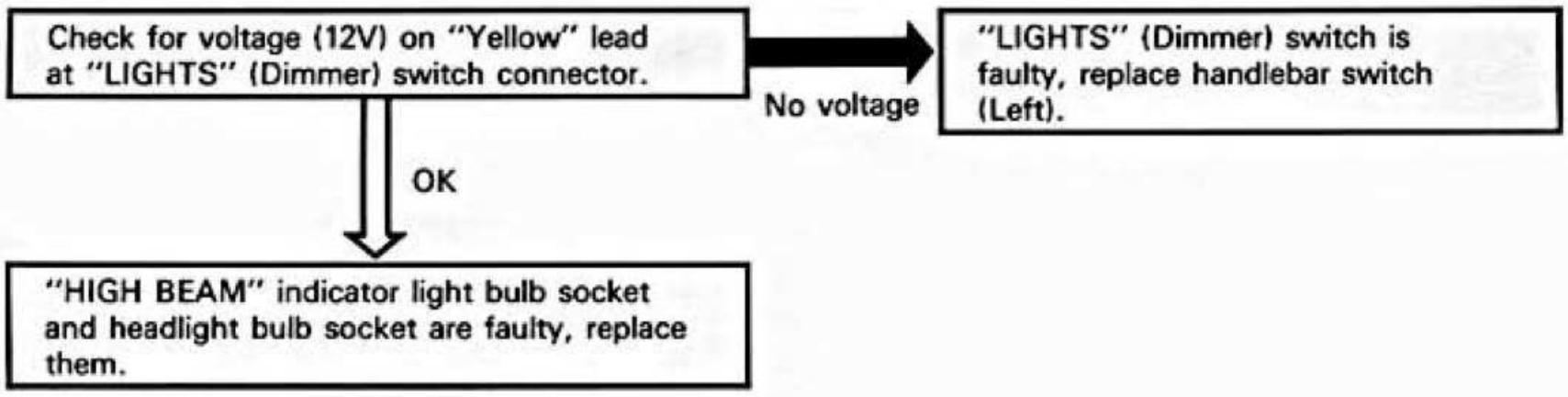
LIGHTING SYSTEM TEST AND CHECKS

Headlight and/or "HIGH BEAM" indicator light do not come on.

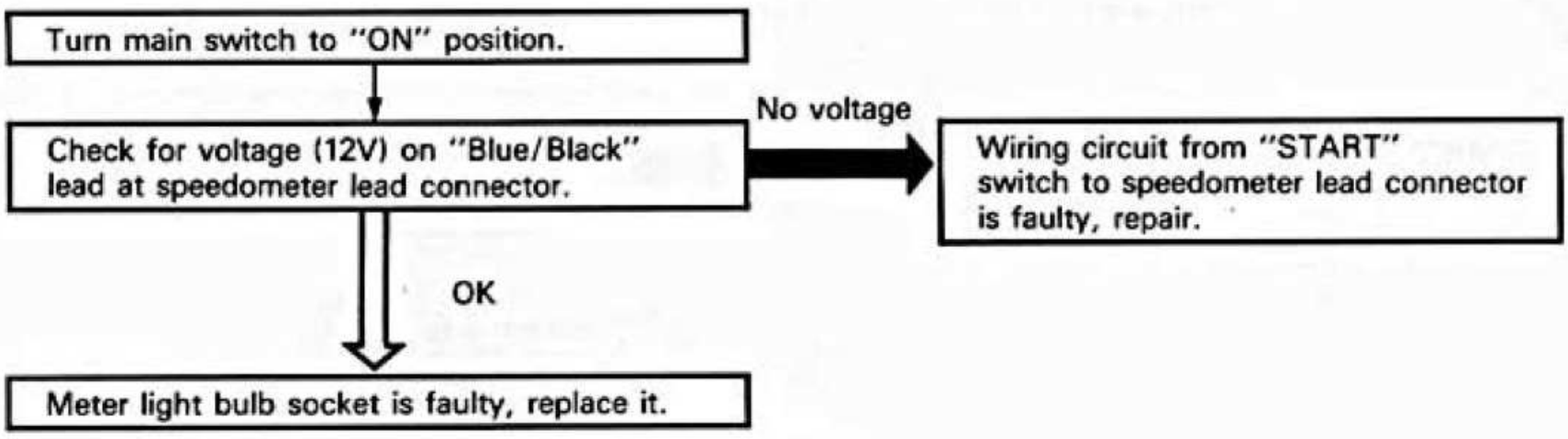


www.badrad600.com

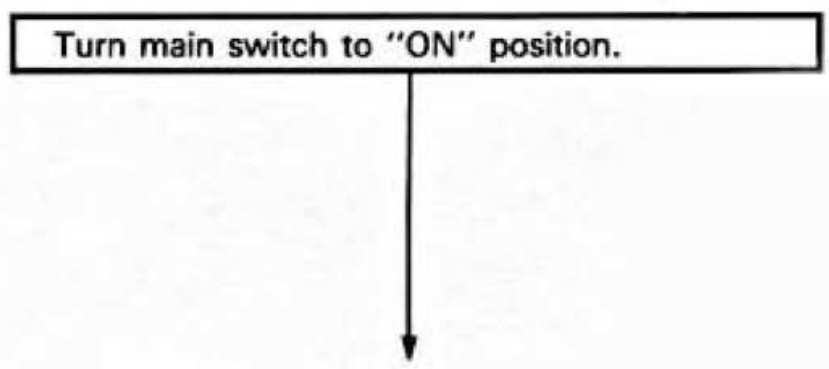
LIGHTING SYSTEM



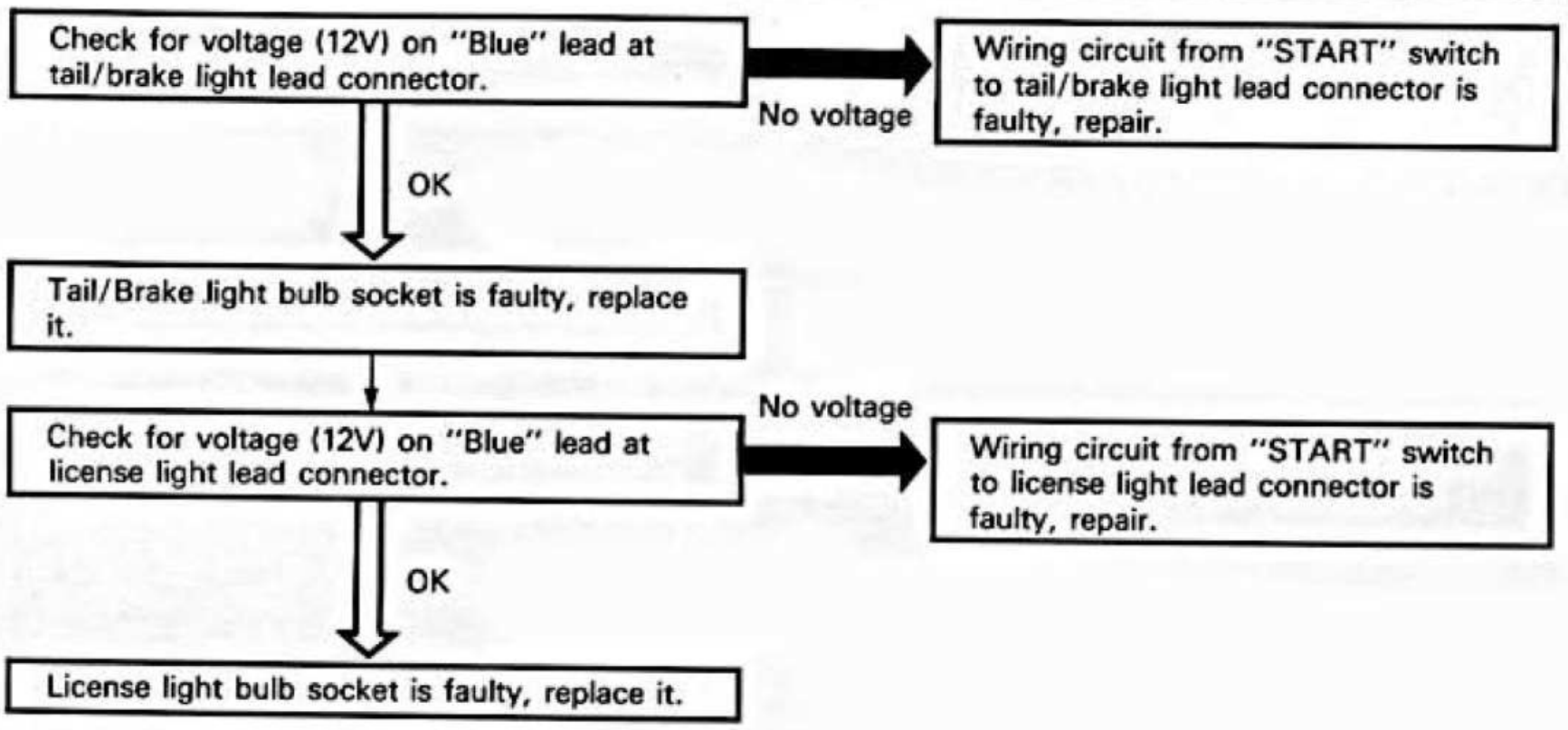
Meter lights do not come on.



Taillight and/or license light do not come on.



www.badrad600.com

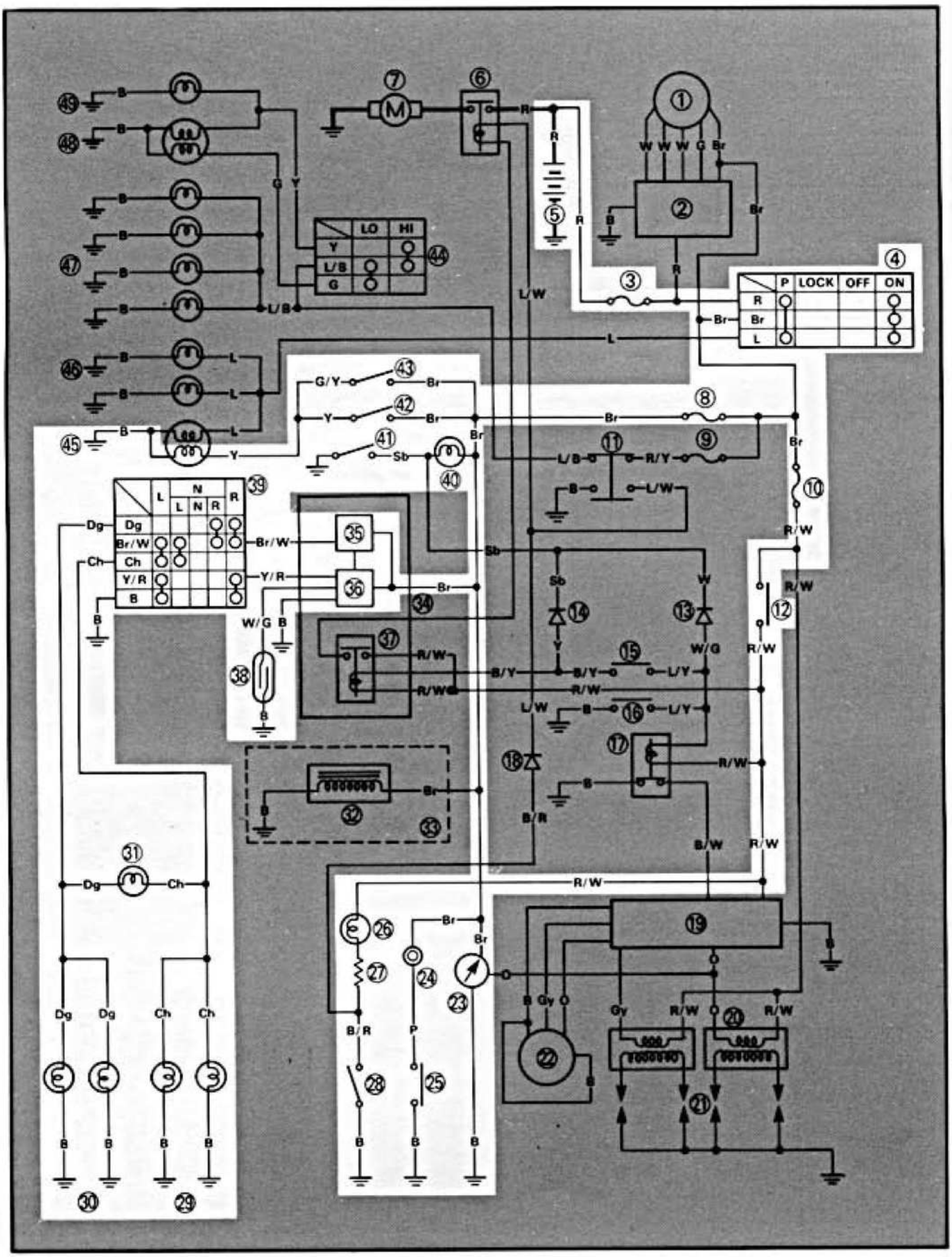


www.badrad600.com

SIGNAL SYSTEM

CIRCUIT DIAGRAM

Below circuit diagram shows signal circuit.

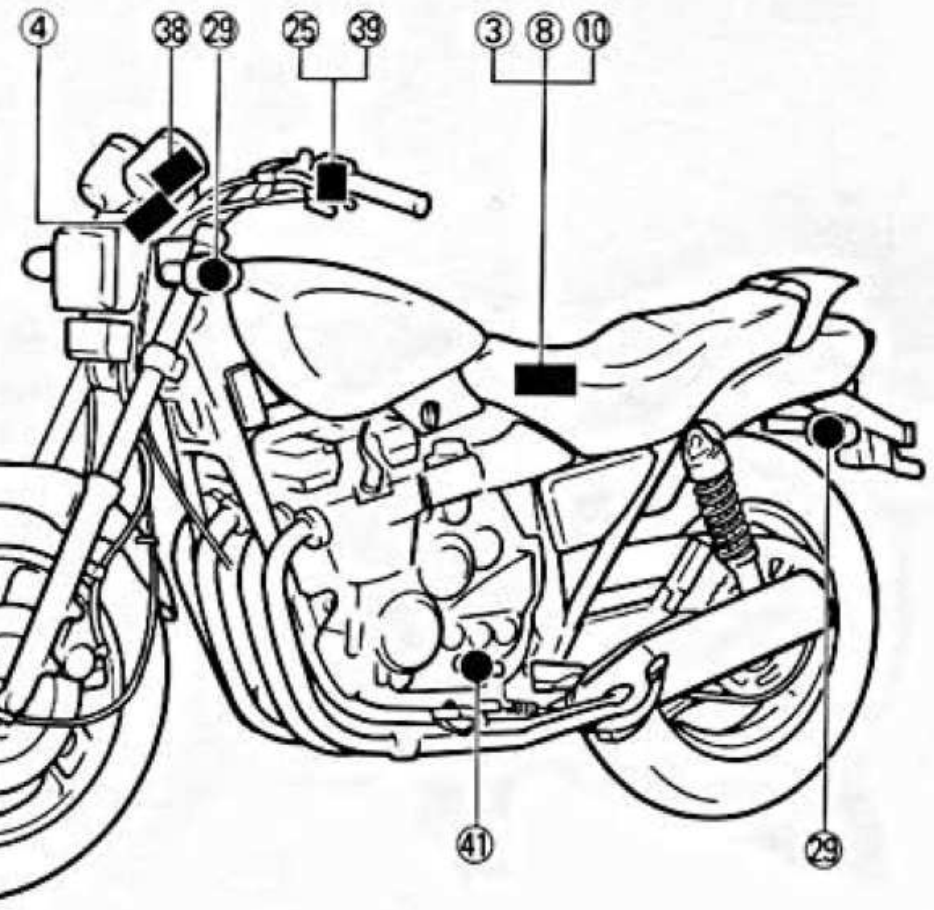


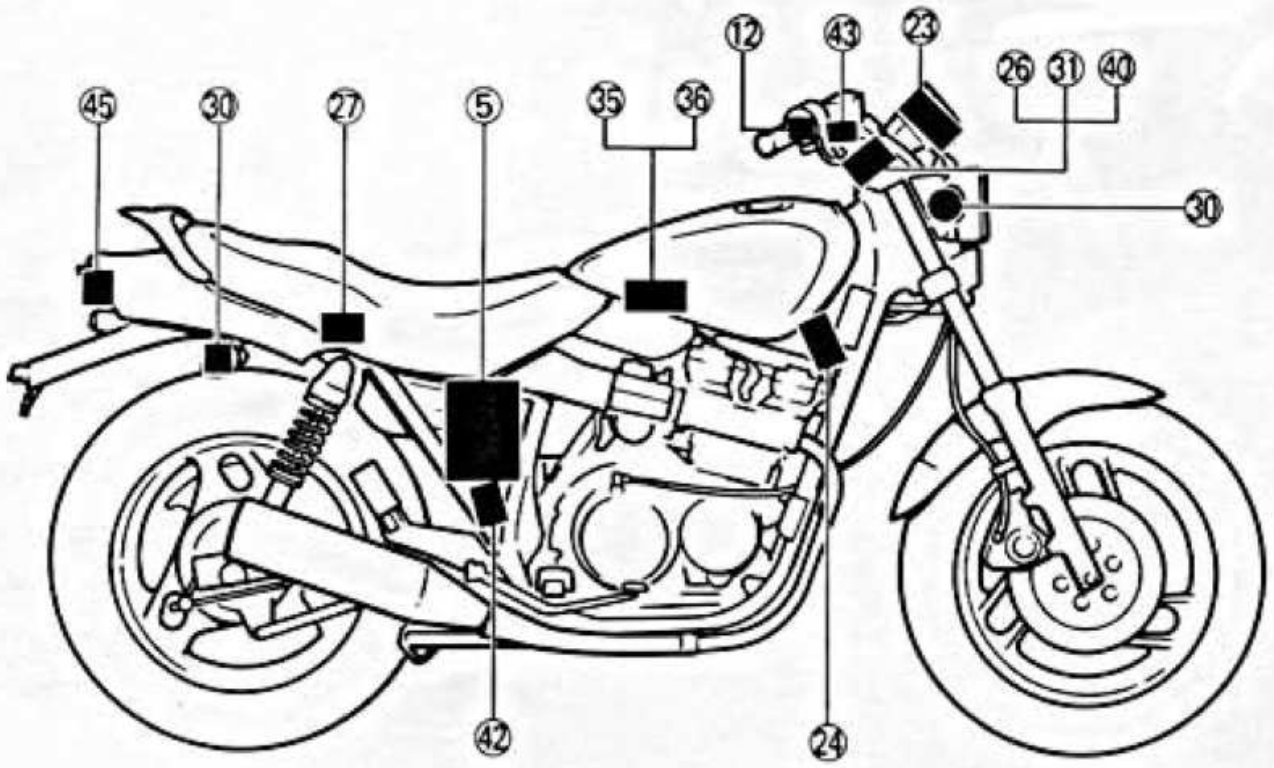
www.badrad600.com

NOTE:

For the color codes, see page 6-2.

③ Fuse (MAIN)
④ Main switch
⑤ Battery
⑧ Fuse (SIGNAL)
⑩ Fuse (IGNITION)
⑫ "ENGINE STOP" switch
㉓ Tachometer
㉔ Horn
㉕ "HORN" switch
㉖ "OIL" indicator light
㉗ Resistor
㉘ Oil level switch
㉙ Flasher light (Left)
㉚ Flasher light (Right)
㉛ "TURN" indicator light
㉟ Flasher relay
(Included in relay assembly)
㊱ Flasher cancelling unit
(Included in relay assembly)
㊳ Reed switch
㊴ "TURN" switch
㊵ "NEUTRAL" indicator light
㊶ Neutral switch
㊷ Rear brake switch
㊸ Front brake switch
㊺ Tail/Brake light.



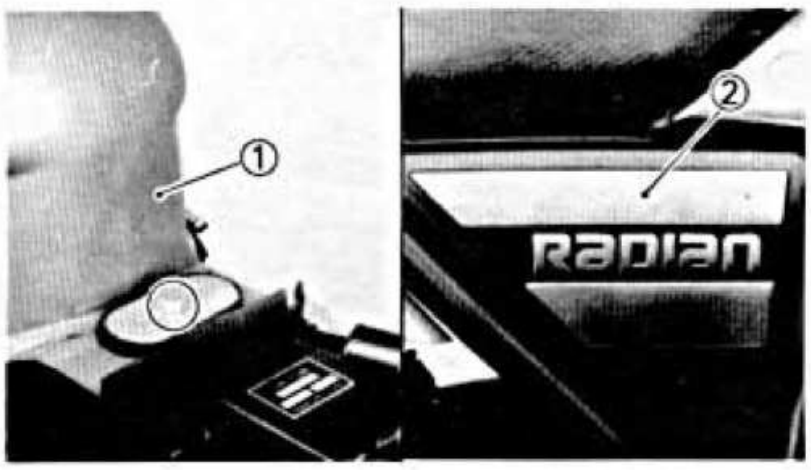


www.badrad600.com

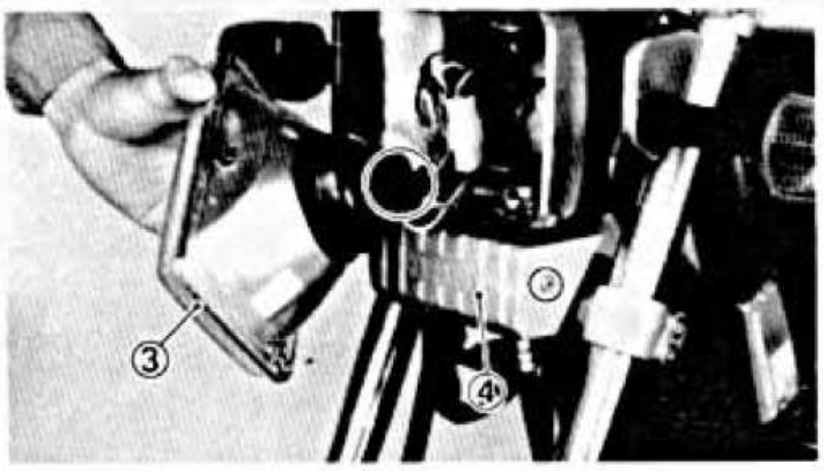
TROUBLESHOOTING

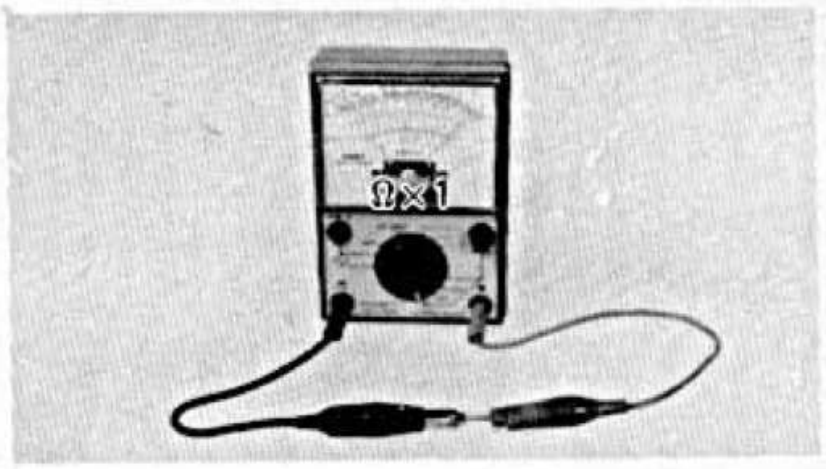
The battery provides power for operation of the signal system. If none of the above fail to operate proceed further. Low battery voltage indicates either a faulty battery, low battery fluid level, or a defective charging system.
Also check fuse condition.
Replace any "open" fuses.

Before this troubleshooting, remove following parts.



- Seat
- Fuel tank ①
- Side cover (Right) ②
- Headlight lens unit ③
- Cover (Front) ④





1. Fuse inspection
   - Remove fuse (MAIN) fuse (IGNITION) and fuse (SIGNAL).
   - Connect Pocket Tester (YU-03112) to fuse and check it for continuity.

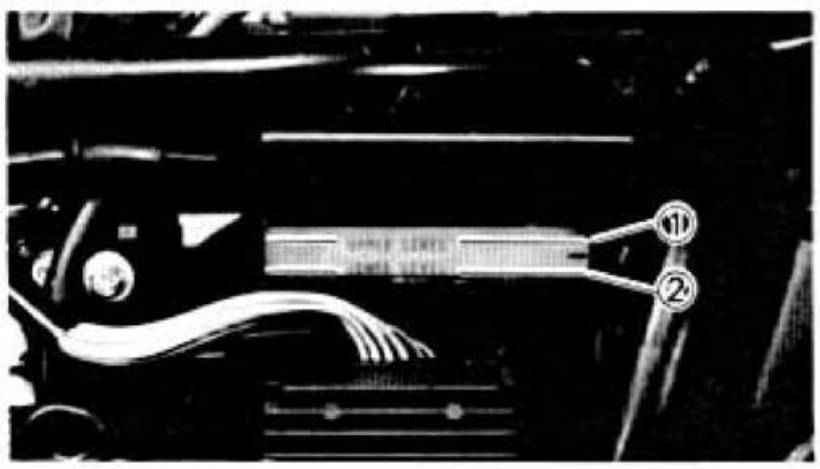
NOTE:

Set tester selector to "Ω×1" position.

www.badrad600.com

Continuity. (0Ω) ↓ Discontinuity (∞)

Replace fuse.



2. Battery fluid level inspeciton
   - Fluid level should be between upper ① and lower ② level mark.

Correct ↓ Incorrect

- Refill battery fluid.

CAUTION:

Refill with distilled water only; tap water contains minerals harmful to a battery.



3. Battery terminal inspection
   - Inspect battery terminal and connections.

OK ↓ Dirty or poor connection

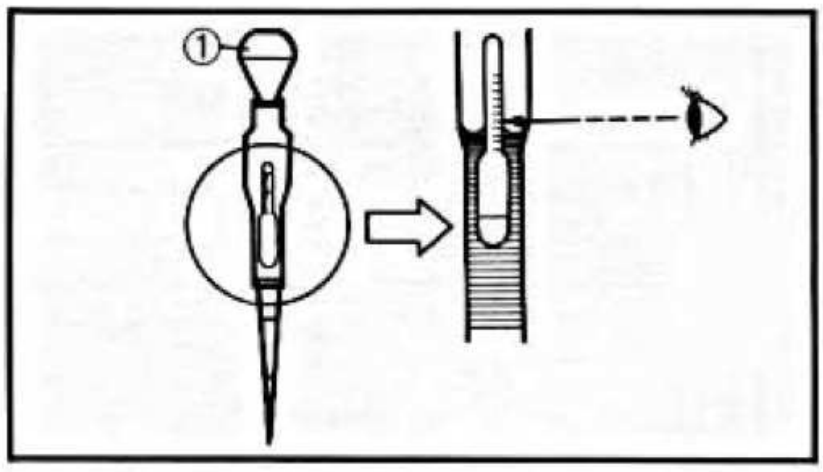
- Clean battery terminals using wire brush.

NOTE:

After cleaning terminals, apply grease lightly to both terminals.

- Connect battery leads correctly.

www.badrad600.com



4. Battery fluid specific gravity inspection
   - Remove caps.
   - Inspect specific gravity of all cell using Battery Hydrometer ①.

Specific Gravity:
1.280 ± 0.01 at 20°C (68°F)



WARNING:

Battery electrolyte is poisonous and dangerous, causing severe burns, etc. It contains sulfuric acid. Avoid contact with skin, eyes or clothing. Antidote: EXTERNAL-Flush with water. INTERNAL-Drink large quantities of water or milk. Follow with milk of magnesia, beaten egg, or vegetable oil. Call a physician immediately.
Eyes: Flush with water for 15 minutes and get prompt medical attention. Batteries produce explosive gases. Keep sparks, flame, cigarettes etc., away. Ventilate when charging or using in an enclosed space. Always shield your eyes when working near batteries.
KEEP OUT OF REACH OF CHILDREN.

OK ↓ Low specific gravity

- Recharge battery.

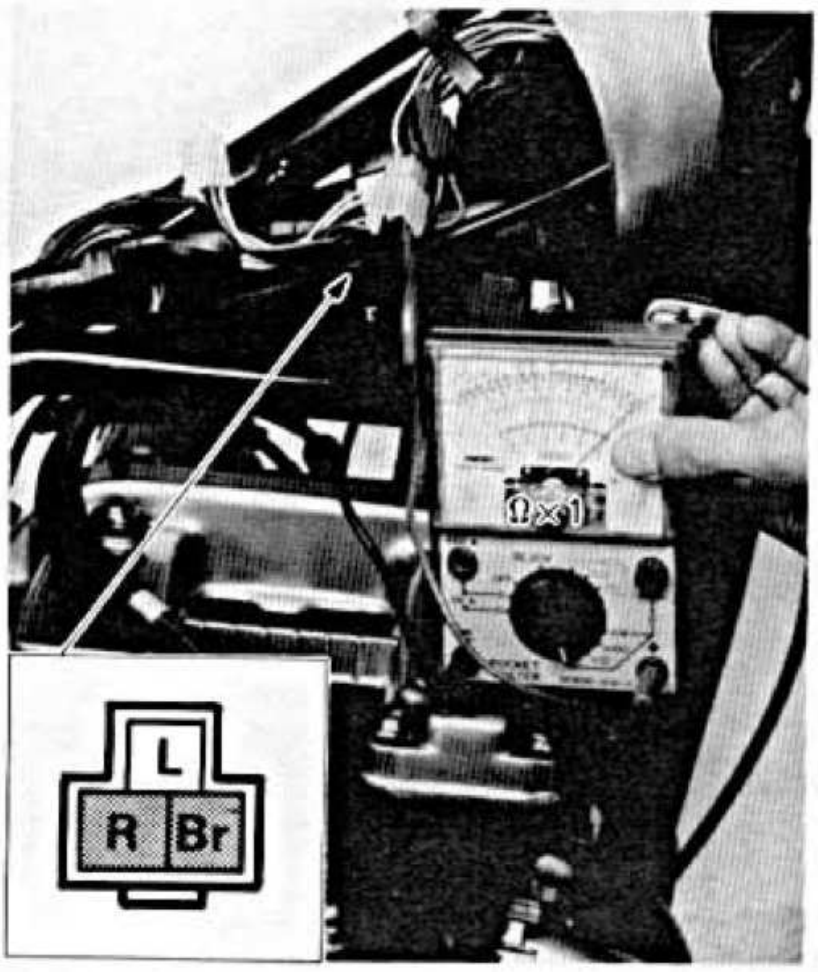
Charging Current:
1.2 amps/10 hrs

NOTE:

Replace the battery if:
- Battery voltage will not rise to a specific value or bubbles fail to rise even after many hours of charging.
- Sulfation of one or more cells occurs, as indicated by the plates turning white, or an accumulation of material exists in the bottom of the cell.

www.badrad600.com

- Specific gravity readings after a long, slow charge indicate on cell to be lower than the rest.
- Warpage or buckling of plates or insulators is evident.



5. Main switch conduct check
   - Disconnect main switch coupler (Brown, Red, Blue).
   - Connect Pocket Tester (YU-03112) to main switch leads.

Tester (+) lead→Red lead
Tester (− lead→Brown lead

NOTE:

Set tester selector to "Ω×1" position.

- Turn main switch to "ON" position and check it for continuity.

Continuity (0Ω) → Discontinuity (∞)

Main switch is faulty, replace it.

6. Check entire signal system for connections. Refer to "WIRING DIAGRAM" section.

6

www.badrad600.com

OK

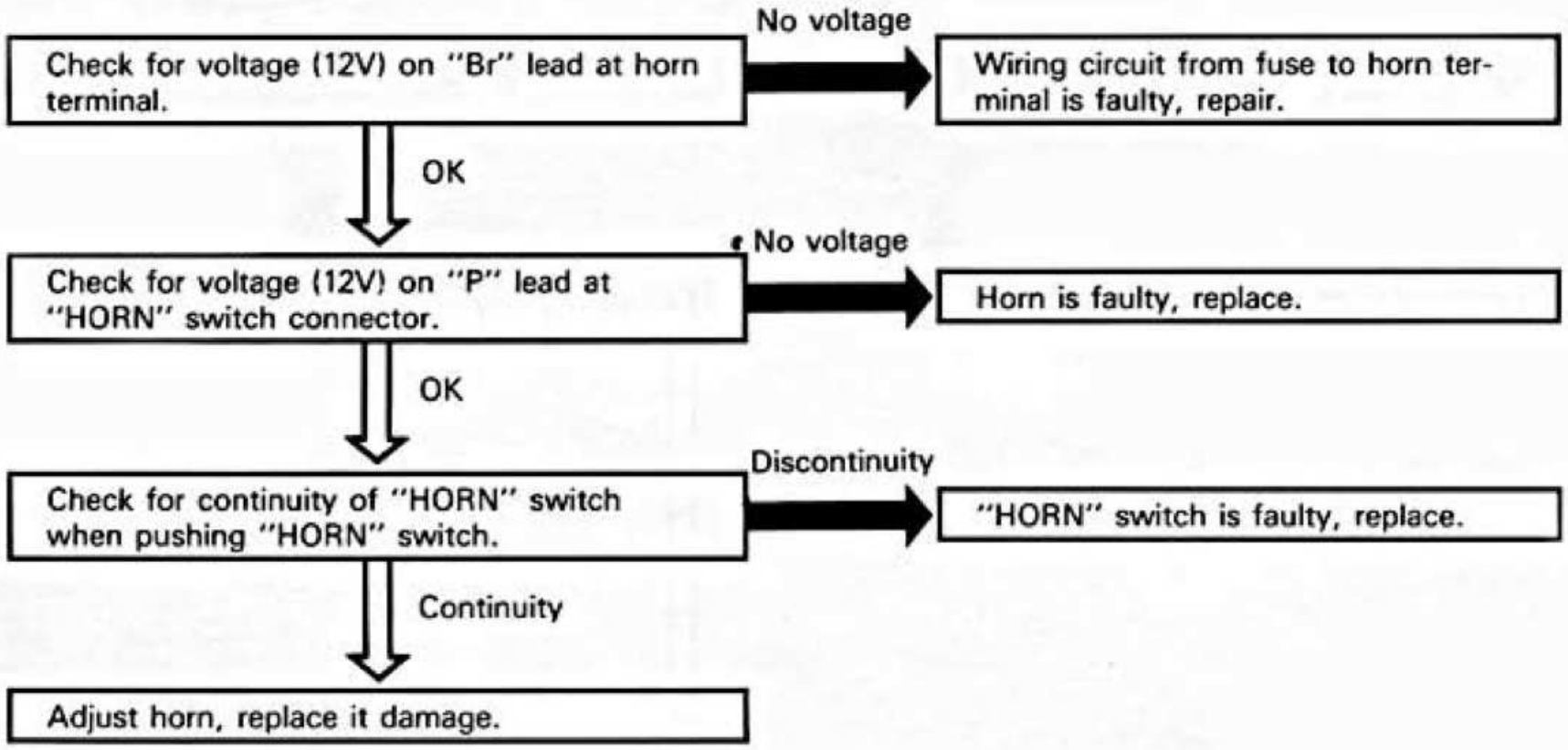
Poor connection

Correct.

7. Check condition of each circuit for signal system.
   Refer to "SIGNAL SYSTEM TEST AND CHECKS" section.

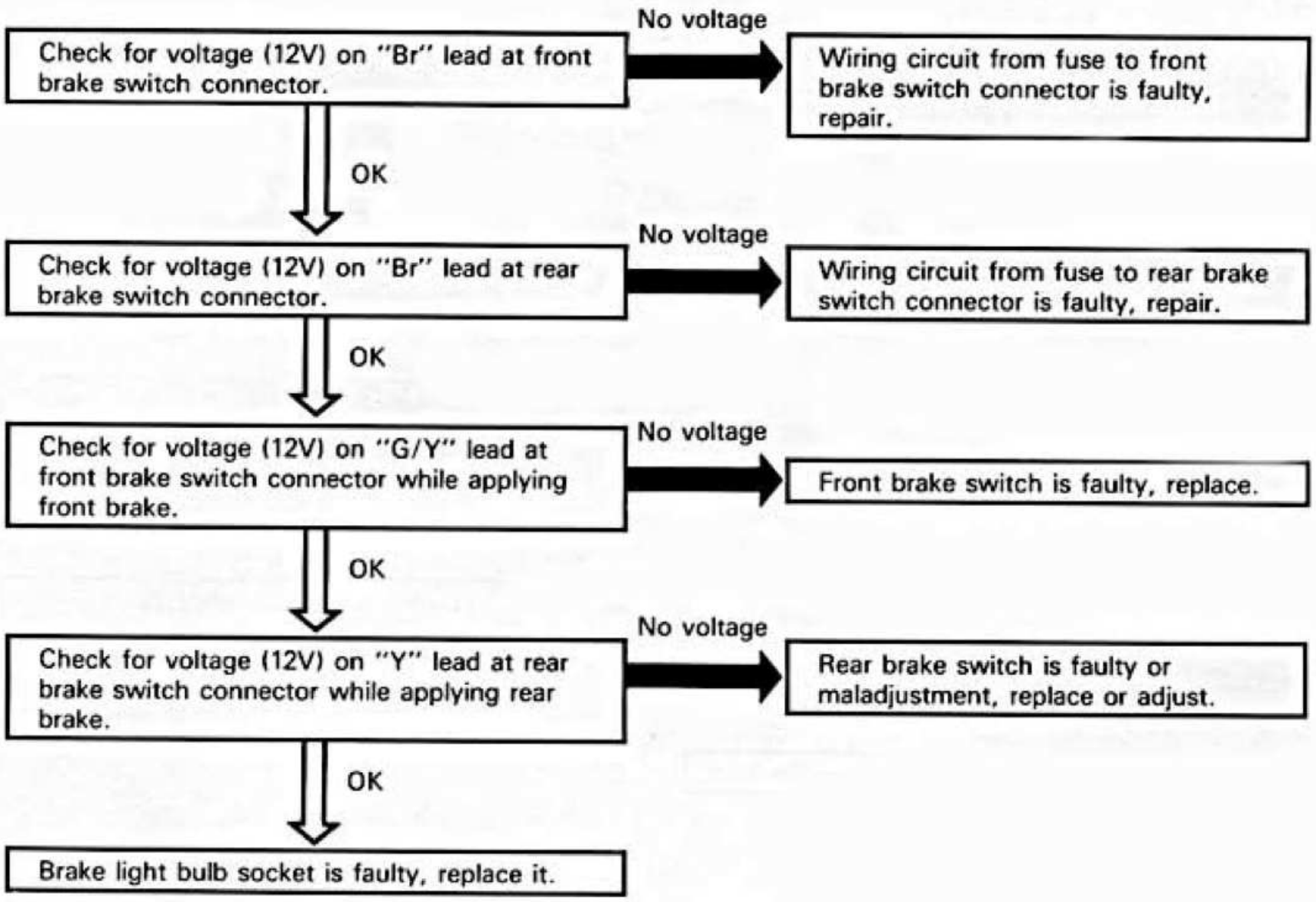
SIGNAL SYSTEM TEST AND CHECKS

Horn does not work.

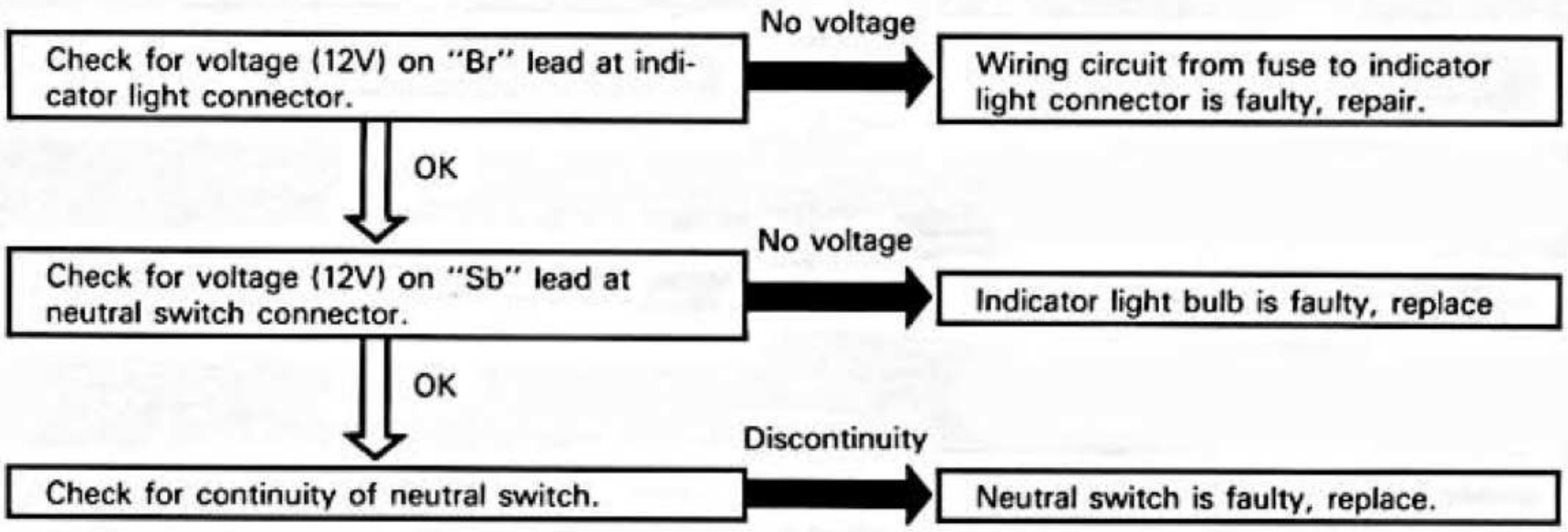


www.badrad600.com

Brake light does not work.



"NEUTRAL" indicator light does not come on

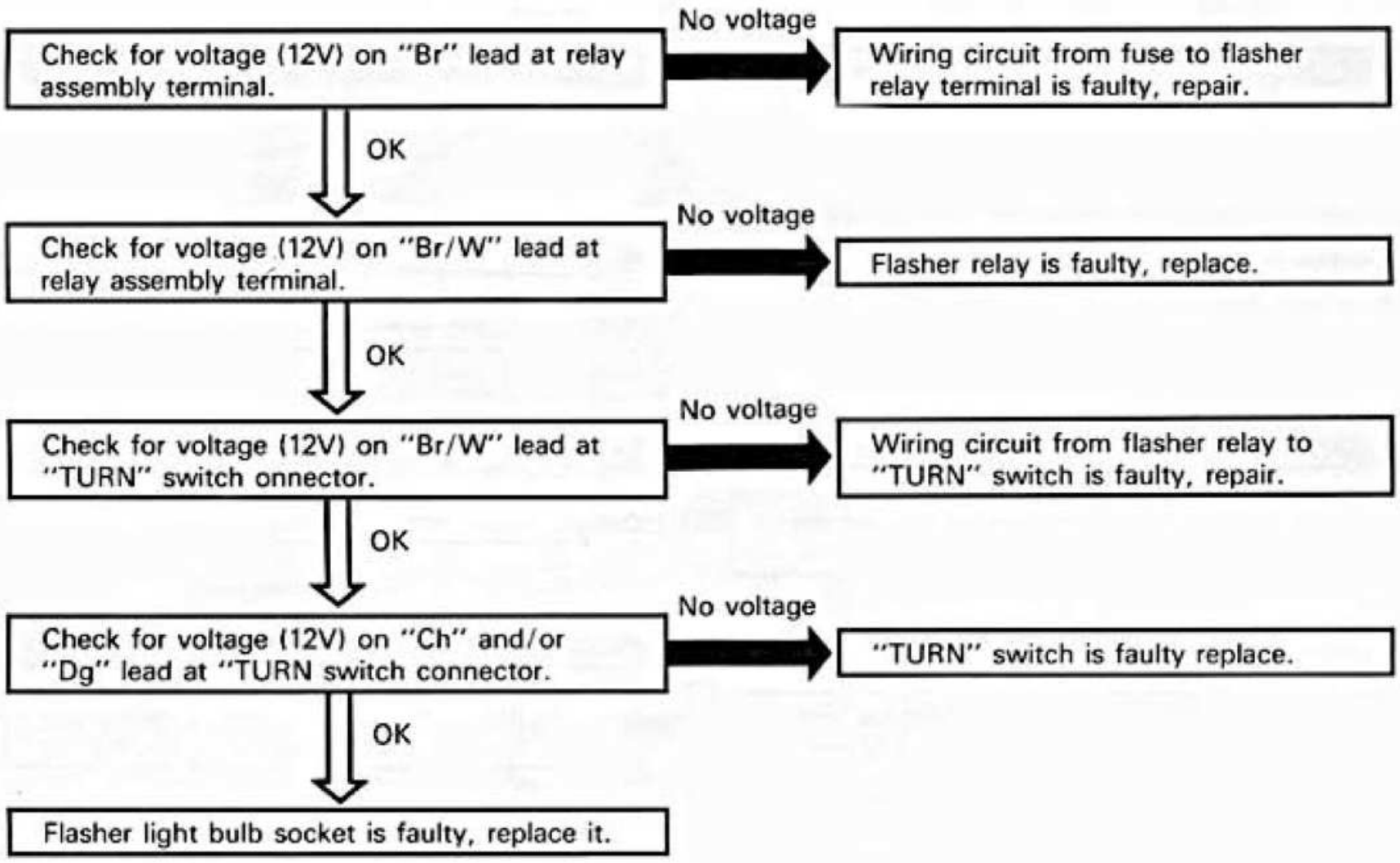


6

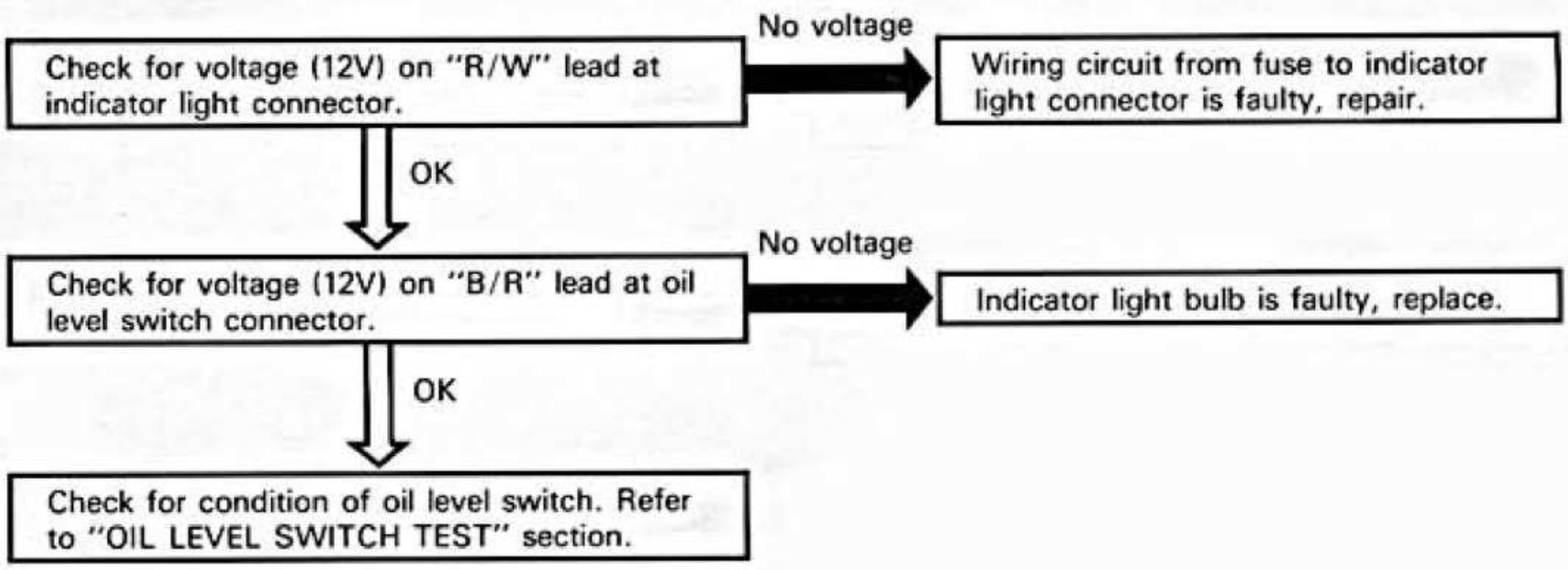
www.badrad600.com

SIGNAL SYSTEM

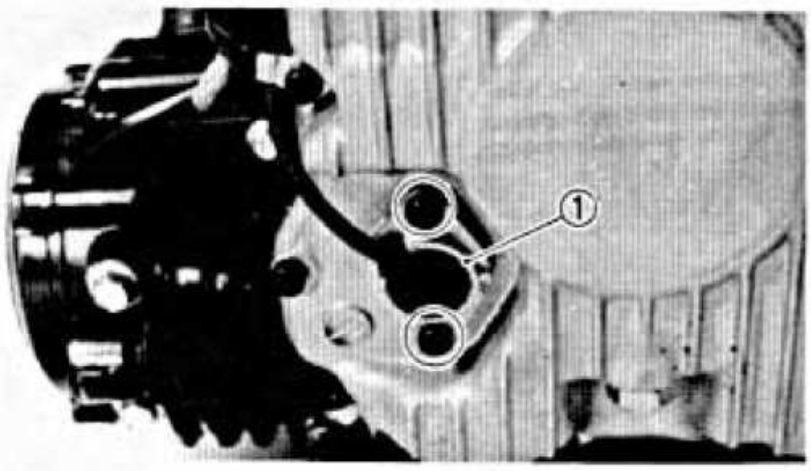
Flasher lights (left and/or right) do not come on.



"OIL" indicator light does not come on.

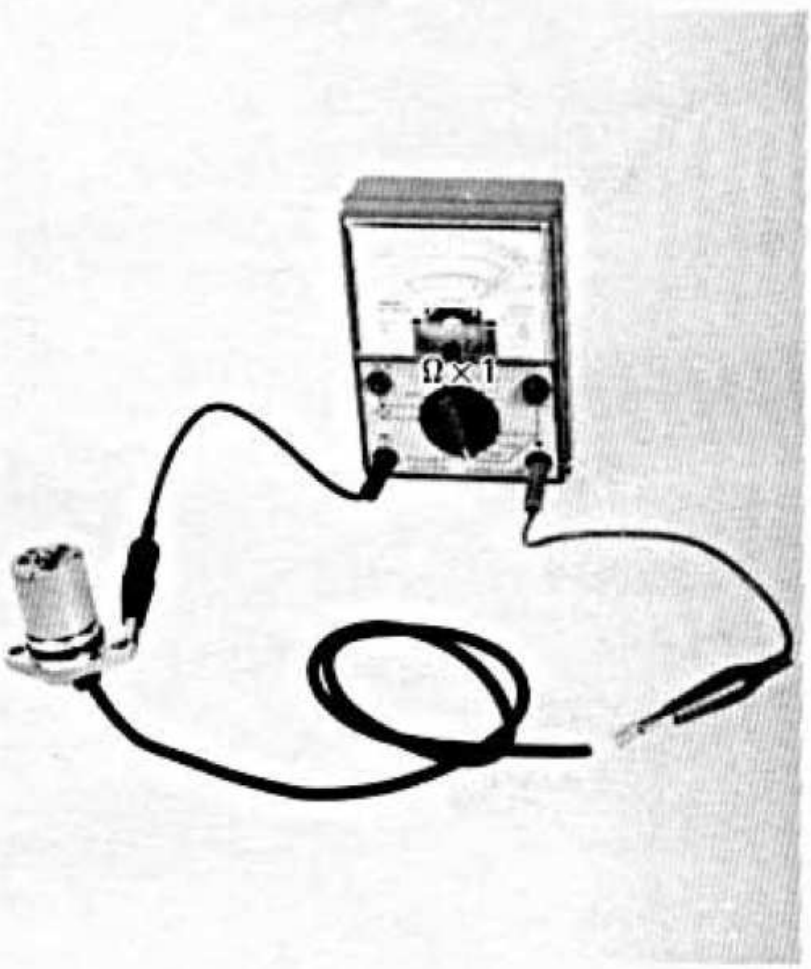


www.badrad600.com



OIL LEVEL SWITCH TEST

1. Remove:
   - Mufflers
   - Oil level switch ①



2. Connect the Pocket Tester (YU-03112).

Teser (+) lead→Oil level switch lead
Tester (−) lead→Oil level switch base

NOTE:

Set the tester selector to "Ω×1" position.

3. Check
   - Oil level switch

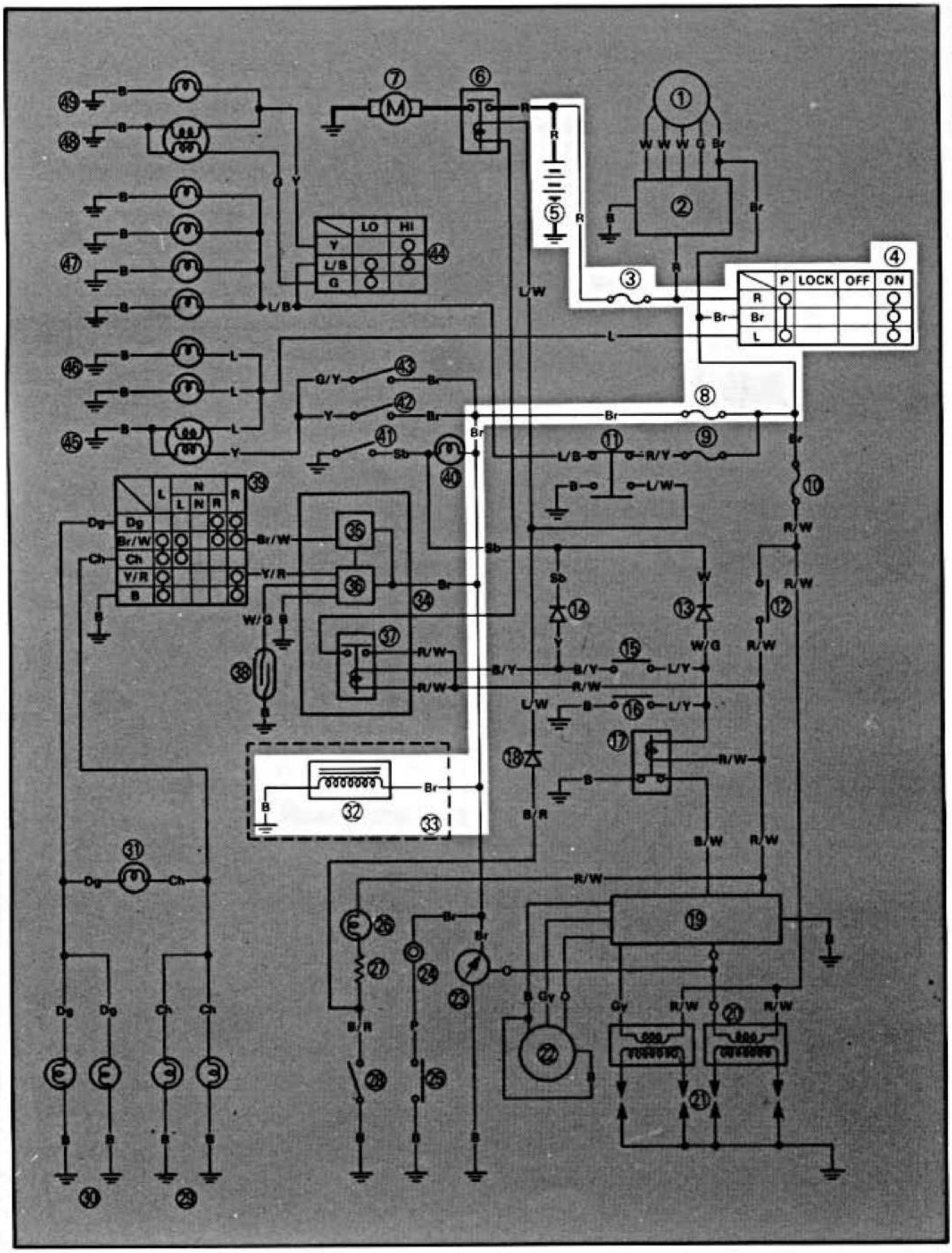
   Upside-down position.
   Continuity→Replace.
   Upright position.
   Discontinuity→Replace.

www.badrad600.com

CARBURETOR AIR VENT SYSTEM (CALIFORNIA ONLY)

CIRCUIT DIAGRAM

Below circuit diagram shows carburetor air vent circuit.

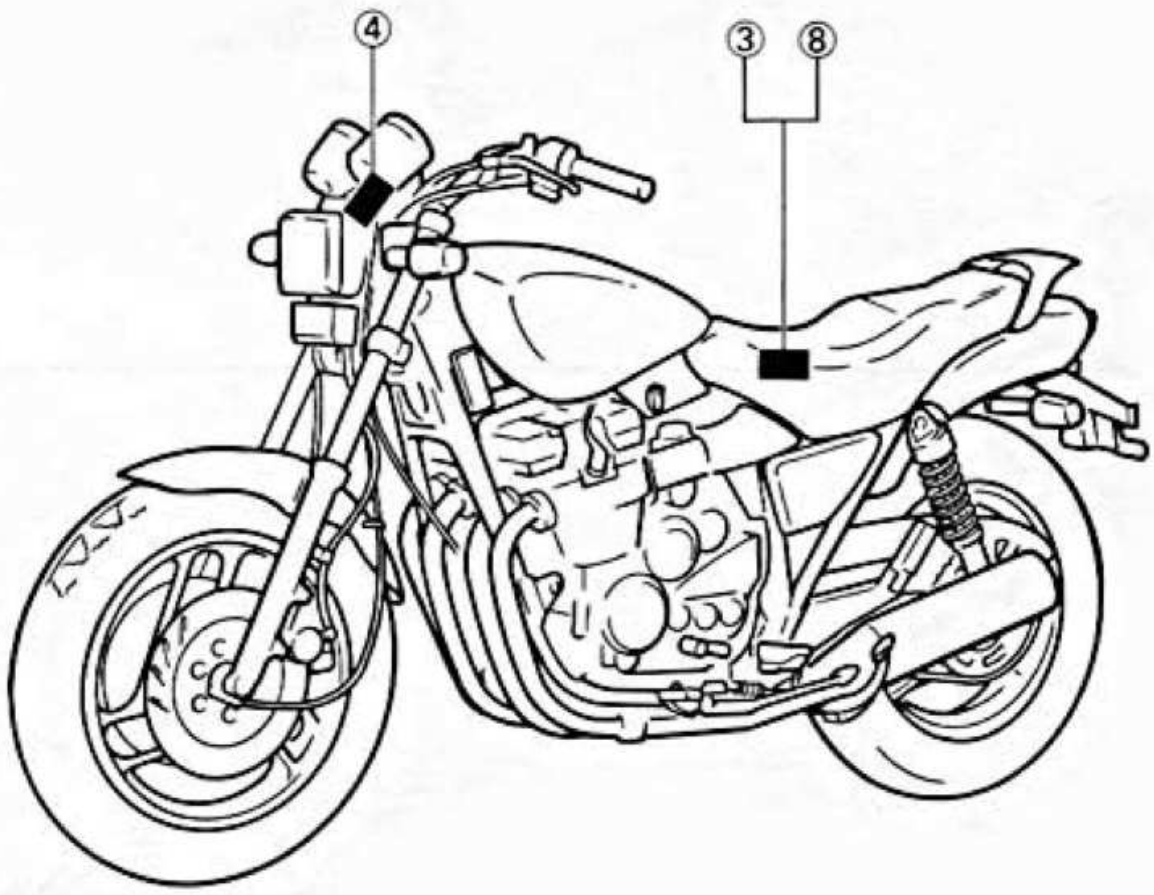


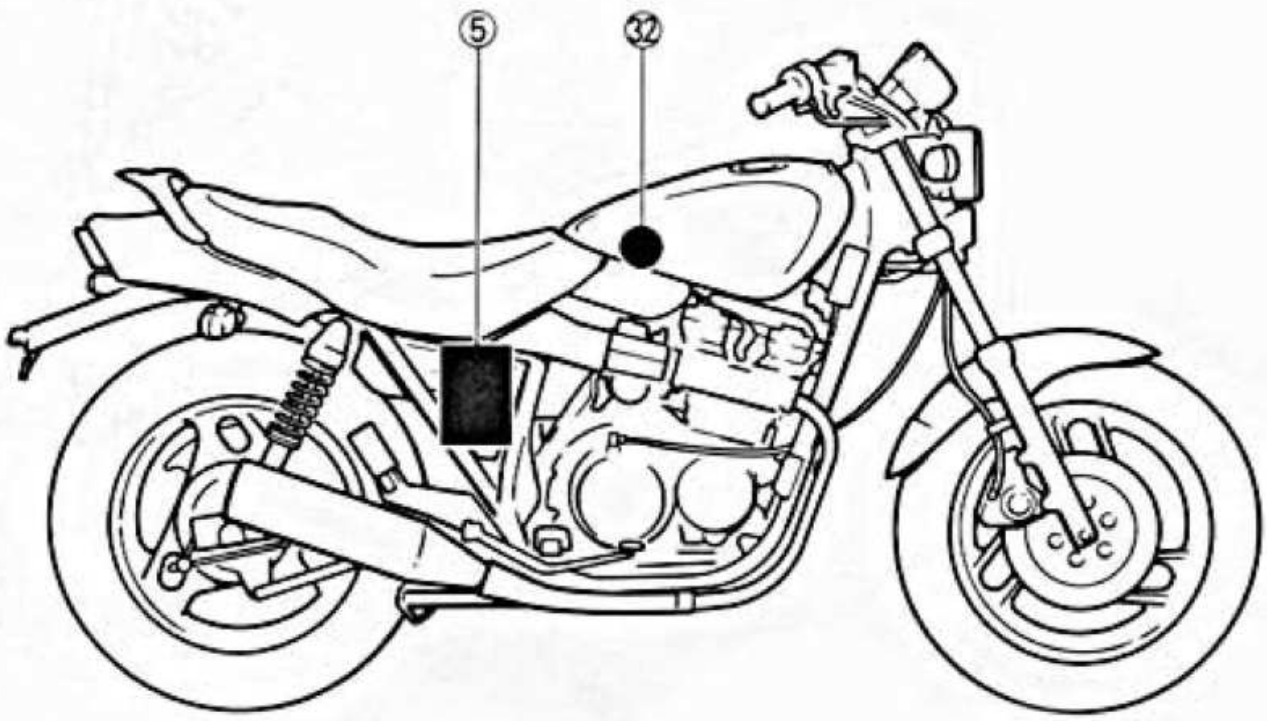
www.badrad600.com

NOTE:

For the color codes, see page 6-2.

③ Fuse (MAIN)
④ Main switch
⑤ Battery
⑧ Fuse (SIGNAL)
㉜ Air vent control valve
㉝ California only





www.badrad600.com

CARBURETOR AIR VENT SYSTEM

DESCRIPTION

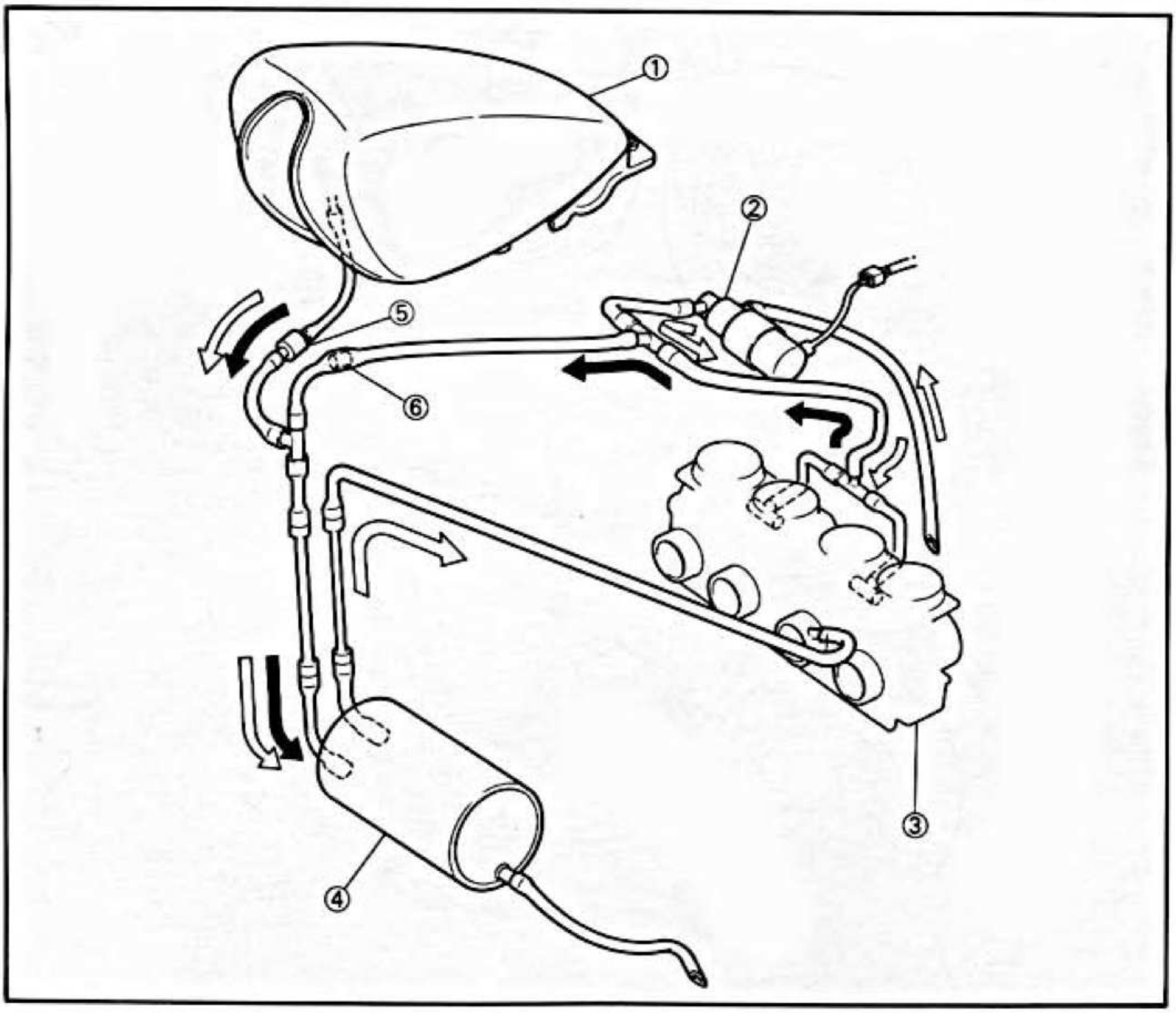
This model is equipped with a canister to prevent the discharging of fuel vapor and carburetor air vent into the atmosphere.

OPERATION

The carburetor air vent is controlled by the air vent control valve when the main switch is turned to "ON" position.

① Fuel tank
② Air vent control valve
③ Carburetor
④ Canister
⑤ Roll over valve
⑥ Nozzle

⬅ Main switch is turned to "OFF"
⇦ Main switch is turned to "ON"



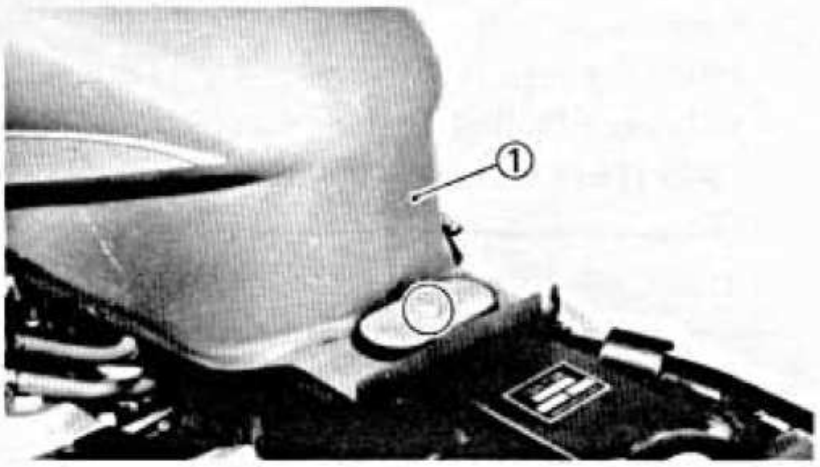
www.badrad600.com

TROUBLESHOOTING

The battery provides power for operation of the air vent control valve. If none of the above fail to operate proceed further. Low battery voltage indicates either a faulty battery, low battery fluid level, or a defective charging system.
Also check fuse condition. Replace any "open" fuses.

Before this troubleshooting, remove the following parts.

- Seat
- Fuel tank ①



THE AIR VENT CONTROL VALVE DOES NOT OPERATE (THE ENGINE LOSES POWER).

1. Check hose connection.

OK → Faulty

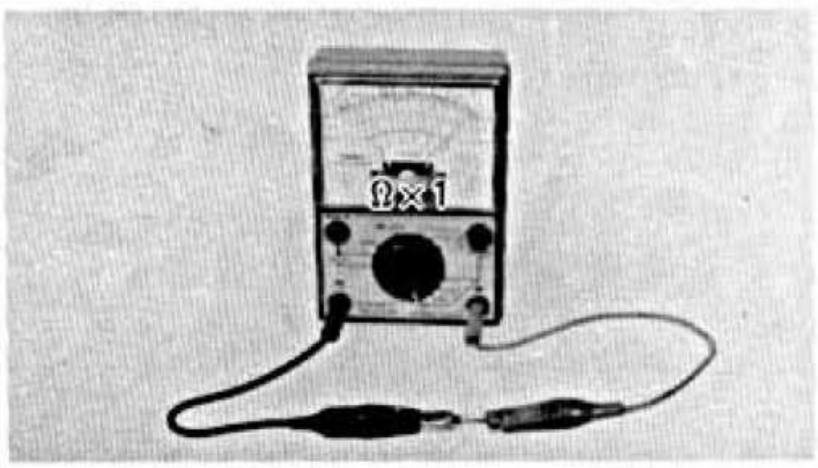
Correct.

www.badrad600.com

2. Check hose for clogging.

OK → Faulty

Clean.

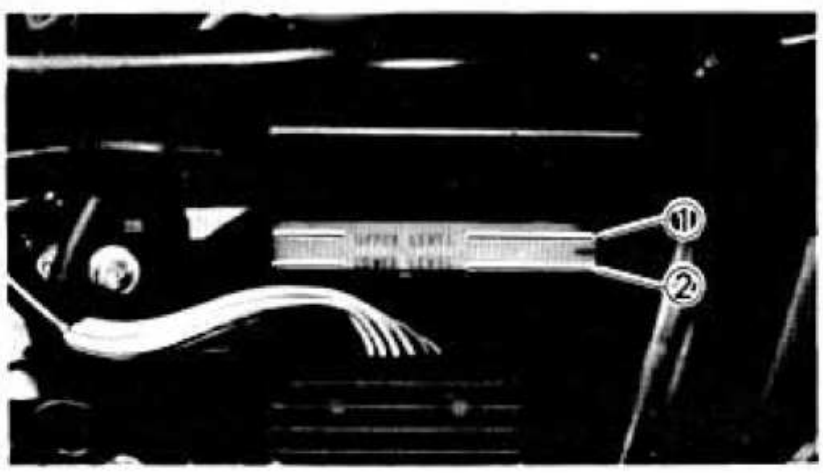


3. Fuse inspection
   - Remove fuse (MAIN) and fuse (SIGNAL).
   - Connect Pocket Tester (YU-03112) to fuse and check it for continuity.

NOTE:
Set tester selector to "Ω×1" position.

Continuity (0Ω) → Discontinuity (∞)

- Replace fuse.



4. Battery fluid level inspection
   - Fluid level should be between upper ① and lower ② level mark.

www.badrad600.com

Correct

Incorrect

- Refill battery fluid.

CAUTION:

Refill with distilled water only; tap water contains minerals harmful to a battery.



5. Battery terminal inspection
   - Inspect battery terminal and connections.

OK

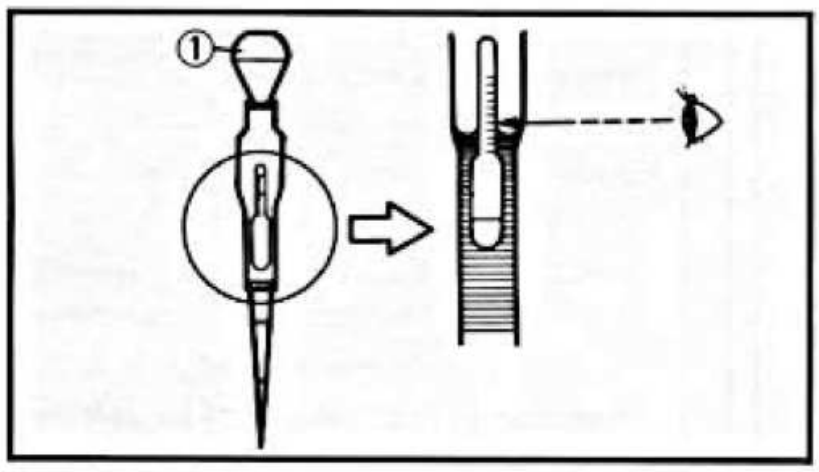
Dirty or poor connection

- Clean battery terminals using wire brush.

NOTE:

After cleaning terminals, apply grease lightly to both terminals.

- Connect battery leads correctly.



6. Battery fluid specific gravity inspection
   - Remove caps.
   - Inspect specific gravity of all cell using Battery Hydrometer ①.

Specific Gravity:
1.280 ± 0.01 at 20°C (68°F)



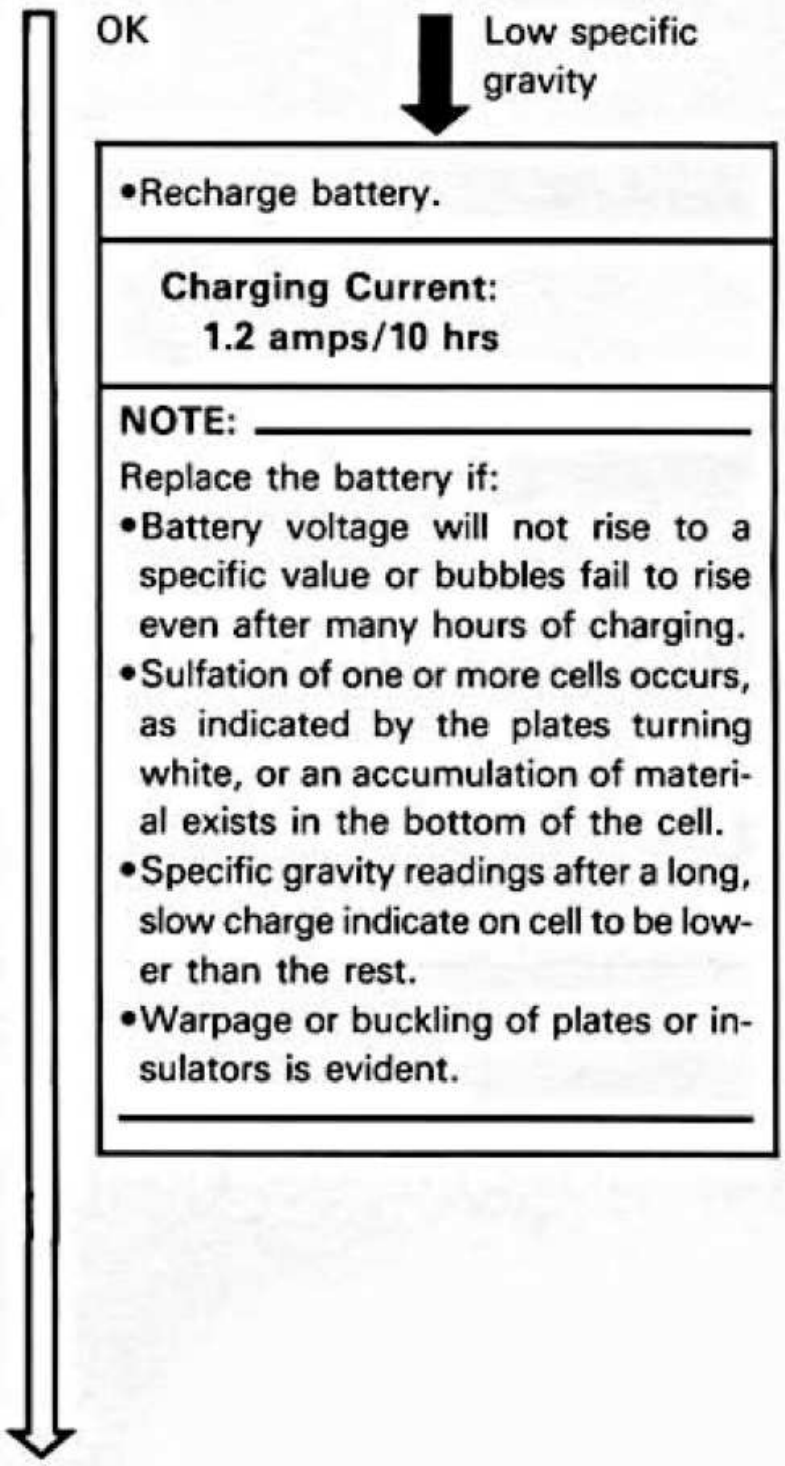
WARNING:

Battery electrolyte is poisonous and dangerous, causing severe burns, etc. It contains sulfuric acid. Avoid contact with skin, eyes or clothing. Antidote: EXTERNAL-Flush with water. INTERNAL-Drink large quantities of water or milk. Follow with milk of magnesia, beaten egg, or vegetable oil. Call a physician immediately.

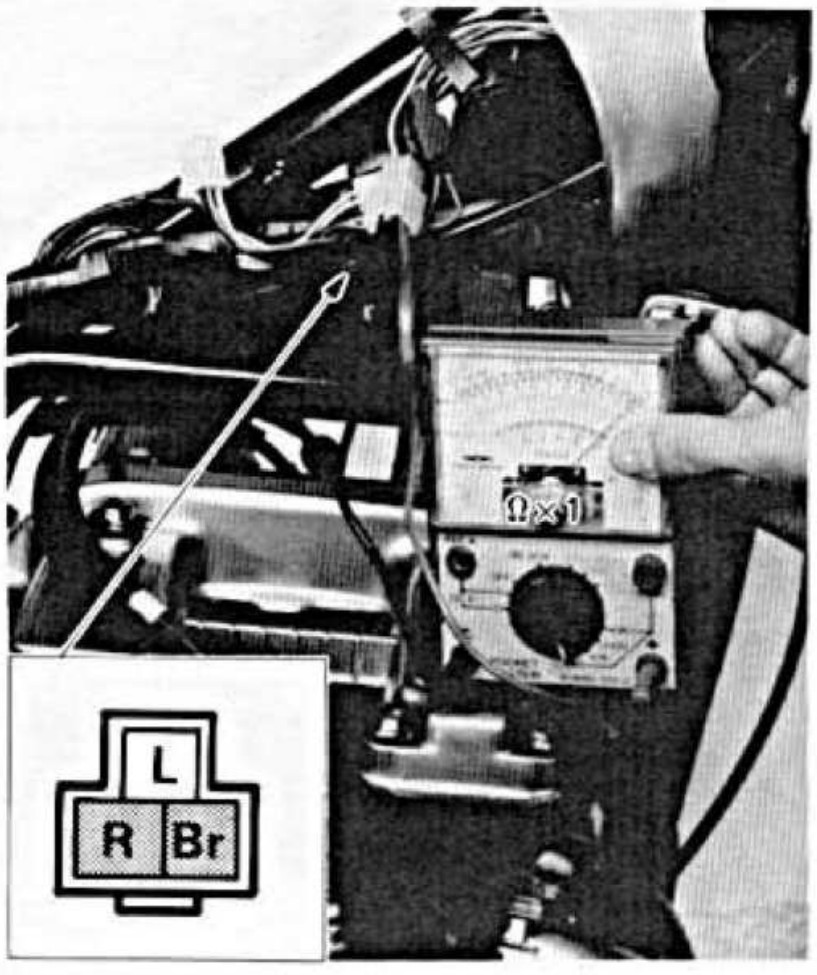
www.badrad600.com

CARBURETOR AIR VENT SYSTEM

Eyes: Flush with water for 15 minutes and get prompt medical attention. Batteries produce explosive gases. Keep sparks, flame, cigarettes etc., away. Ventilate when charging or using in an enclosed space. Always shield your eyes when working near batteries.
KEEP OUT OF REACH OF CHILDREN.



www.badrad600.com



9. Main switch conduct check
   - Disconnect main switch coupler (Brown, Red, Blue lead).
   - Connect Pocket Tester (YU-03112) to main switch leads (Brown, Red).

Tester (+) lead→Red lead
Tester (−) lead→Brown lead

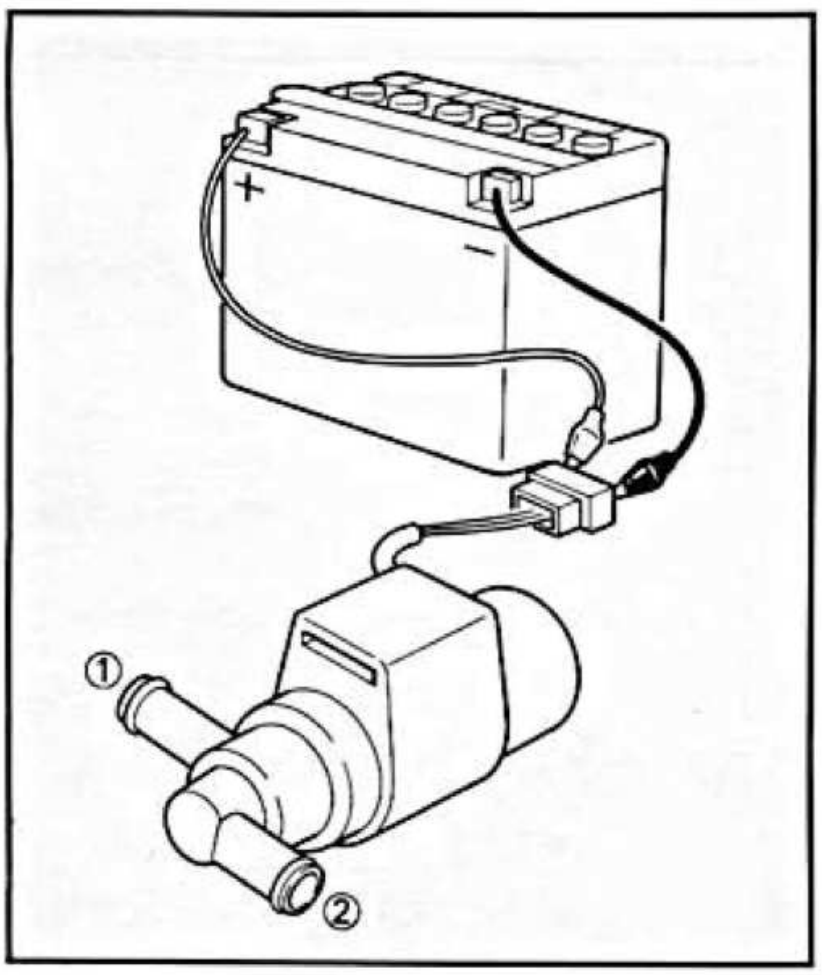
NOTE:

Set tester selector to "Ω×1" position.

   - Turn main switch to "ON" position and check it for continuity.

Continuity (0Ω) → No continuity (∞)

Main switch is faulty, replace it.



10. Air vent control valve test
    - Remove air vent control valve.
    - Connect 12V battery to air vent control valve as shown.
    - Blow air inside at nozzle ① which is open to atmosphere.
    - Check for air escape at nozzle ② on canister side.
      No air escape→Valve is faulty.
      Air escape→Valve is good.
    - Disconnect battery and blow air inside at nozzle ① which is open to atmosphere.
    - Check for air escape at nozzle ② on canister side.
      Air escape→Valve is faulty.
      No air escape→Valve is good.

www.badrad600.com

OK

Faulty

Replace air vent control valve.

11. Check entire air vent control valve system for connections.
Refer to "WIRING DIAGRAM" section.

OK

Poor connection

Correct.

Carburetor air vent system is good.

www.badrad600.com

CHAPTER 7
APPENDICES

SPECIFICATIONS 7-1
GENERAL SPECIFICATIONS 7-1
MAINTENANCE SPECIFICATIONS 7-4

GENERAL TORQUE SPECIFICATIONS 7-18

DEFINITION OF UNITS 7-19

CONVERSION TABLES 7-19

LUBRICATION DIAGRAM 7-20

CABLE ROUTING 7-22

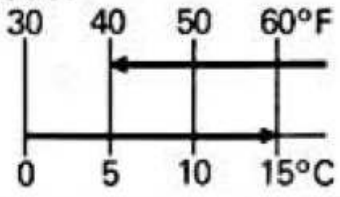
YX600S/YX600SC WIRING DIAGRAM

www.badrad600.com

APPENDICES

SPECIFICATIONS

GENERAL SPECIFICATIONS

Model	YX600S/YX600SC
Model Code Number:	1UJ (For YX600S) 1UL (For YX600SC)
Vehicle Identification Number:	JYA1UJ00*GA000101 (For YX600S) JYA1UL00*GA000101 (For YX600SC)
Engine Starting Number:	1UJ-000101 (For YX600S) 1UL-000101 (For YX600SC)
Dimensions: Overall Length Overall Width Overall Height Seat Height Wheelbase Minimum Ground Clearance	 2,075 mm (81.7 in) 770 mm (30.3 in) 1,095 mm (43.1 in) 765 mm (30.1 in) 1,385 mm (54.5 in) 145 mm (5.7 in)
Basic Weight: With Oil and Full Fuel Tank	 197 kg (434 lb)
Minimum Turning Radius:	2,400 mm (94.5 in)
Engine: Engine Type Cylinder Arrangement Displacement Bore × Stroke Compression Ratio Compression Pressure Starting System	 Air cooled 4-stroke, gasoline, DOHC 4-cylinder parallel 599 cm^3 58.5 × 55.7 mm (2.3 × 2.19 in) 10.0 : 1 1078.8 kPa (11 kg/cm^2, 156.4 psi) Electric starter
Lubrication System:	Pressure lubricated, wet sump
Engine Oil Type or Grade: 	 Yamalube 4-cycle oil or SAE 20W40 type SE motor oil SAE 10W30 type SE motor oil
Engine Oil Capacity: Engine Oil: Periodic Oil Change: With Oil Filter Replacement Total Amount	 2.2 L (1.9 Imp qt, 2.3 US qt) 2.5 L (2.2 Imp qt, 2.6 US qt) 2.9 L (2.6 Imp qt, 3.0 US qt)
Air Filter	Dry type element

www.badrad600.com

Model	YX600S/YX600SC	
Fuel:		
Type	Regular gasoline	
Tank Capacity	12.0 L (2.6 Imp gal, 3.2 US gal)	
Reserve Amount	2.5 L (0.55 Imp gal, 0.66 US gal)	
Carburetor:		
Type (Quantity)	BS30 (4 pcs.)	
Manufacturer	MIKUNI	
Spark plug:		
Type (Manufacture)	D8EA (N.G.K.), X24ESU (N.D.)	
Gap	0.6~0.7 mm (0.024~0.028 in)	
Clutch Type:	Wet, multiple-disc	
Transmission:		
Primary Reduction System	Spur gear, HY-VO chain	
Primary Reduction Ratio	22/21×65/28 (2.431)	
Secondary Reduction System	Chain drive	
Secondary Reduction Ratio	45/16 (2.813)	
Transmission Type	Constant-mesh, 6-speed	
Operation	Left foot operation	
Gear Ratio 1st	41/15 (2.733)	
2nd	37/19 (1.947)	
3rd	34/22 (1.545)	
4th	31/25 (1.240)	
5th	29/28 (1.036)	
6th	27/30 (0.900)	
Chassis:		
Frame Type	Tubular steel, double cradle	
Caster Angle	27°	
Trail	128 mm (5.04 in)	
Tire:	Front	Rear
Type	Tubeless	Tubeless
Size	110/90-16 59H	130/90-16 67H
Manufacture (Type)	DUNLOP (K355F) BRIDGESTONE (G527)	DUNLOP (K355) BRIDGESTONE (G528)
Tire Pressure (Cold tire):	Front	Rear
Up to 90 kg (198 lb) load*	177 kPa (1.8 kg/cm², 26 psi)	196 kPa (2.0 kg/cm², 28 psi)
90 kg (198 lb)~160 kg (353 lb) load*	196 kPa (2.0 kg/cm², 28 psi)	226 kPa (2.3 kg/cm², 32 psi)
160 kg (353 lb)~Maximum load*	196 kPa (2.0 kg/cm², 28 psi)	245 kPa (2.5 kg/cm², 36 psi)
High speed riding	196 kPa (2.0 kg/cm², 28 psi)	226 kPa (2.3 kg/cm², 32 psi)

*Load is total weight of cargo, rider, passenger, and accessories.

www.badrad600.com

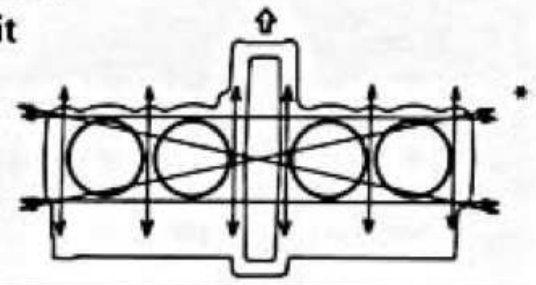
GENERAL SPECIFICATIONS

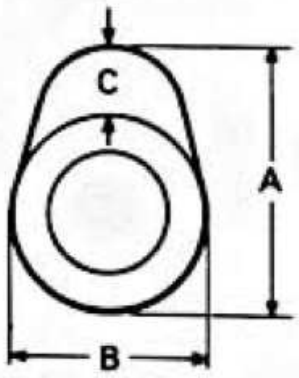
Model	YX600S/YX600SC
Brake:	
Front Brake Type	Dual disc brake
Operation	Right hand operation
Rear Brake Type	Drum brake
Operation	Right foot operation
Suspension:	
Front Suspension	Telescopic fork
Rear Suspension	Swingarm
Shock Absorber:	
Front Shock Absorber	Coil spring, oil damper
Rear Shock Absorber	Coil spring, oil damper
Wheel Travel:	
Front Wheel Travel	140 mm (5.5 in)
Rear Wheel Travel	98 mm (3.9 in)
Electrical:	
Ignition System	T.C.I. (Full Transistor ignition)
Generator System	A.C. generator
Battery Type or Model	12N12A-4A
Battery Capacity	12V 12AH
Headlight Type:	Bulb (Quartz bulb)
Bulb Wattage (Quantity):	
Headlight	60W/55W (1 pcs.)
Tail/Brake Light	8W/27W (1 pcs.)
Flasher Light	27W (4 pcs.)
License Light	3.8W (2 pcs.)
Meter Light	3.4W (4 pcs.)
Indicator Light:	
Wattage (Quantity) "NEUTRAL"	3.4W (1 pcs.)
"HIGH BEAM"	3.4W (1 pcs.)
"TURN"	3.4W (1 pcs.)
"OIL LEVEL"	3.4W (1 pcs.)

www.badrad600.com

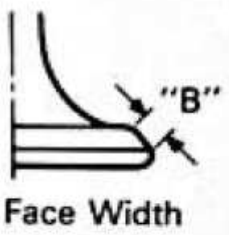
MAINTENANCE SPECIFICATIONS

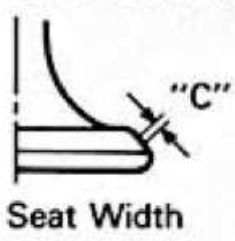
Engine

Model			YX600S/YX600SC
Cylinder Head:			
Warp Limit			0.03 mm (0.001 in) *Lines indicate straightedge measurement.
Cylinder:			
Bore Size			58.50 mm (2.303 in)
Taper Limit			0.05 mm (0.002 in)
Out-of-round Limit			0.01 mm (0.0004 in)
Camshaft:			
Drive Method			Chain drive (Center)
Cam Cap Inside Diameter			25 mm (0.9449 in)
(Cylinder head direct support)			
Camshaft Outside Diameter			25 mm (0.9448 in)
Shaft-to-cap Clearance			0.020 ~ 0.054 mm (0.0008 ~ 0.0021 in)
Cam Dimensions:	Intake	"A"	36.25 ~ 36.35 mm (1.427 ~ 1.431 in)
		<Limit>	36.2 mm (1.43 in)
		"B"	28.1 ~ 28.2 mm (1.106 ~ 1.11 in)
		<Limit>	28.05 mm (1.1 in)
		"C"	8.3 mm (0.327 in)
		<Limit>	8.1 mm (0.319 in)
	Exhaust	"A"	35.75 ~ 35.85 mm (1.408 ~ 1.411 in)
		<Limit>	35.7 mm (1.41 in)
		"B"	28.05 ~ 28.15 mm (1.104 ~ 1.108 in)
		<Limit>	28 mm (1.1 in)
		"C"	7.8 mm (0.307 in)
		<Limit>	7.6 mm (0.299 in)
Camshaft Runout Limit			0.05 mm (0.002 in)
Cam Chain Type/Number of Links			Bush-chain/114
Cam Chain Adjustment Method			Manual
Valve, Valve Seat, Valve Guide:			
Valve Clearance (Cold)		IN.	0.11 ~ 0.15 mm (0.004 ~ 0.006 in)
		EX.	0.16 ~ 0.20 mm (0.006 ~ 0.008 in)







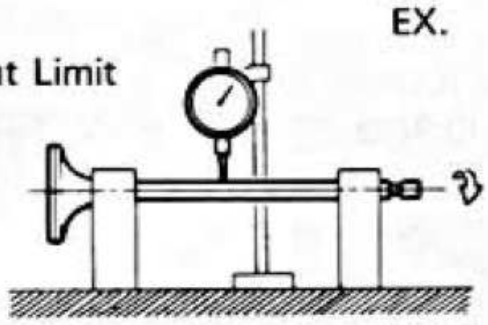
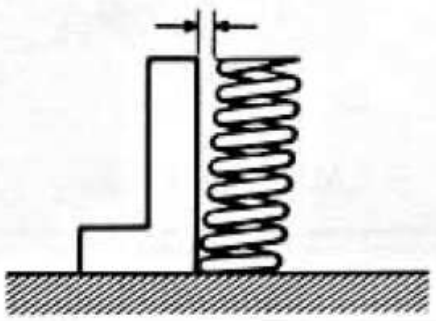




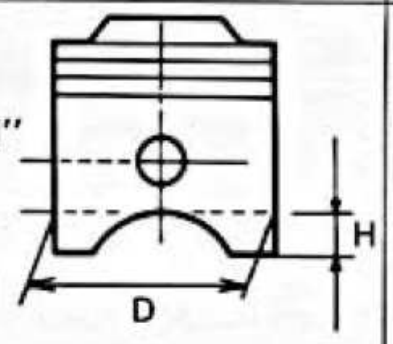
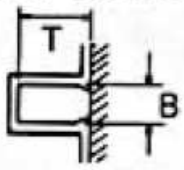
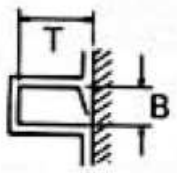
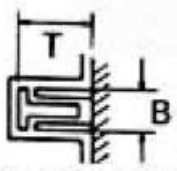
7

www.badrad600.com

MAINTENANCE SPECIFICATIONS

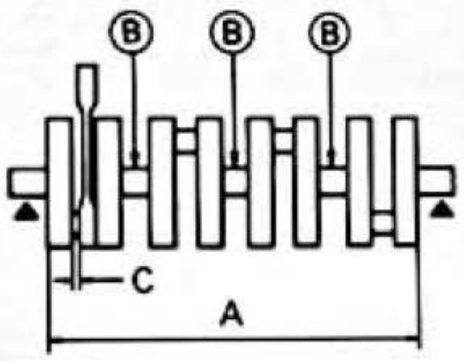
Model		YX600S/YX600SC
"A" Head Dia.	IN.	31 mm (1.220 in)
	EX.	27 ± 0.1 mm (1.063 ± 0.004 in)
"B" Face Width	IN.	2.26 mm (0.0889 in)
	EX.	2.26 mm (0.0889 in)
"C" Seat Limit Width	IN.	1.0 ± 0.1 mm (0.0394 ± 0.004 in)
	EX.	1.0 ± 0.1 mm (0.0394 ± 0.004 in)
"D" Margin Thickness Limit	IN.	1.0 ± 0.2 mm (0.0394 ± 0.008 in)
	EX.	1.0 ± 0.2 mm (0.0394 ± 0.008 in)
Stem Outside Diameter	IN.	5.975 ~ 5.990 mm (2.2352 ~ 0.2358 in)
	EX.	5.960 ~ 5.975 mm (0.2346 ~ 0.2352 in)
Guide Inside Diameter	IN.	6.0 ~ 6.012 mm (0.2362 ~ 0.2367 in)
	EX.	6.0 ~ 6.012 mm (0.2362 ~ 0.2367 in)
Stem-to-guide Clearance	IN.	0.010 ~ 0.037 mm (0.0004 ~ 0.0015 in)
	EX.	0.025 ~ 0.052 mm (0.0010 ~ 0.0020 in)
Stem Runout Limit 		0.03 mm (0.001 in)
Valve Seat Width	IN.	0.9 ~ 1.1 mm (0.0390 ~ 0.0398 in)
	EX.	0.9 ~ 1.1 mm (0.0390 ~ 0.0398 in)
<Limit>	IN.	2.0 mm (0.08 in)
	EX.	2.0 mm (0.08 in)
Valve Spring:		
Free Length		
Inner Spring	IN.	35.5 mm (1.398 in)
	EX.	35.5 mm (1.398 in)
Outer Spring	IN.	37.2 mm (1.465 in)
	EX.	37.2 mm (1.465 in)
Installed Length (Valve Closed)		
Inner Spring	IN.	30.5 mm (1.201 in)
	EX.	30.5 mm (1.201 in)
Outer Spring	IN.	32.0 mm (1.260 in)
	EX.	32.0 mm (1.260 in)
Tilt Limit		
Inner Spring	IN. & EX.	2.5°/1.5 mm (0.063 in)
Outer Spring	IN. & EX.	2.5°/1.6 mm (0.063 in)
		

www.badrad600.com

Model		YX600S/YX600SC	
Direction of Winding (Top View)		Inner spring	Outer spring
		IN. and EX.	IN. and EX.
		Clockwise 	Counter clockwise 
Piston:			
Piston Size "D"		58.50 mm (2.30 in)	
Measuring Point "H" 		7.0 mm (0.276 in) (From bottom line of piston skirt)	
Clearance Between Piston & Cylinder		0.025 ~ 0.045 mm (0.0010 ~ 0.0018 in)	
Oversize:	1st	—	
	2nd	59.00 mm (2.32 in)	
	3rd	—	
	4th	60.00 mm (2.36 in)	
Piston Ring:			
Sectional Sketch	Top Ring	Barrel B = 1.0 mm (0.039 in) T = 2.3 mm (0.090 in)	
	2nd Ring	Taper B = 1.2 mm (0.047 in) T = 2.3 mm (0.090 in)	
	Oil Ring	Expander B = 2.5 mm (0.10 in) T = 2.8 mm (0.11 in)	
			
End Gap (Installed):	Top Ring	0.15 ~ 0.30 mm (0.0059 ~ 0.0118 in)	
	<Limit>	0.7 mm (0.0276 in)	
	2nd Ring	0.15 ~ 0.30 mm (0.0059 ~ 0.0118 in)	
	<Limit>	0.7 mm (0.0276 in)	
	Oil Ring	0.2 ~ 0.7 mm (0.0079 ~ 0.0276 in)	
Side Clearance:	Top Ring	0.03 ~ 0.07 mm (0.0012 ~ 0.0028 in)	
	<Limit>	0.15 mm (0.0059 in)	
	2nd Ring	0.02 ~ 0.06 mm (0.0008 ~ 0.0024 in)	
	<Limit>	0.15 mm (0.0059 in)	
	Oil Ring	—	

www.badrad600.com

MAINTENANCE SPECIFICATIONS

Model	YX600S/YX600SC
Connecting Rod:	
Oil Clearance	0.016~0.040 mm (0.0006~0.0016 in)
Color Code	1. Blue 2. Black 3. Brown 4. Green
Crankshaft: 	
Crank Width "A"	312.4±0.6 mm (12.30±0.024 in)
Runout Limit "B"	0.03 mm (0.0012 in)
Big End Side Clearance "C"	0.16~0.262 mm (0.006~0.010 in)
Crank Journal Oil Clearance	0.021~0.044 mm (0.0008~0.0017 in)
Color Code	1. Blue 2. Black 3. Brown 4. Green 5. Yellow
Clutch:	
Friction Plate Thickness/Quantity	3.0±0.1 mm (0.12±0.0039 in)/8 pcs
Wear Limit	2.7 mm (0.106 in)
Clutch Plate Thickness/Quantity	1.6±0.1 mm (0.063±0.0039 in)/7 pcs.
Warp Limit	0.15 mm (0.0059 in)
Clutch Spring Free Length/Quantity	42.8 mm (1.690 in)/5 pcs.
Clutch Spring Minimum Length	41.8 mm (1.646 in)
Clutch Release Method	Outer Pull, Rack & Pinion Pull
Transmission:	
Main Axle Deflection Limit	0.08 mm (0.0031 in)
Drive Axle Deflection Limit	0.08 mm (0.0031 in)
Shifter:	
Shifter Type	Guide bar
Carburetor:	
Type/Manufacture/Quantity	BS30/MIKUNI/4 pcs.
I.D. Mark	1UJ00 (For YX600S), 1UL00 (For YX600SC)
Main Jet (M.J.)	#97.5
Main Air Jet (M.A.J)	#140
Jet Needle-clip Position (J.N.)	
(For No.1 and 4 Cylinder)	4CHP2
(For No.2 and 3 Cylinder)	4CHP4

www.badrad600.com

Model		YX600S/YX600SC
Needle Jet	(N.J.)	0-6 (517)
Pilot Jet	(P.J)	#30
Pilot Outlet Size	(P.O.)	ø0.8
Pilot Air Jet	(P.A.J)	#135
Pilot Screw	(P.S.)	Preset
Valve Seat Size	(V.S.)	ø2.3
Starter Jet	($G.S_1$)	#25
	($G.S_2$)	ϕ0.6
Bypath Size	($B.P_1$)	ϕ0.9
	($B.P_2$)	ϕ0.8
	($B.P_3$)	ϕ0.8
Fuel Level	(F.L.)	2.0±0.5 mm (0.08±0.02 in) Below from the carburetor mixing chamber body edge
Float Height		20±1.0 mm (0.8±0.04 in)
Engine Idling Speed		1,300±50 r/min
Vacuum Pressure at Idling Speed		23.3±0.667 kPa (175±5 mmHg, 6.890±0.1969 inHg)
Vacuum Synchronous Difference		Below 10 kPa (10 mmHg, 0.4 inHg)
Lubrication System:		
Oil Filter Type		Paper
Oil Pump Type		Trochoid pump
Tip Clearance		0.09~0.15 mm (0.0035~0.0060 in)
<Limit>		<0.2 mm (0.008 in)>
Side Clearance		0.03~0.08 mm (0.0012~0.0031 in)
<Limit>		<0.15 mm (0.006 in)>
Bypass Valve Setting Pressure		98.0±20 kPa (1.0±0.2 kg/cm², 14.2±2.8 psi)
Relief Valve Operating Pressure		490±49 kPa (5.0±0.5 kg/cm², 71.1±7.1 psi)

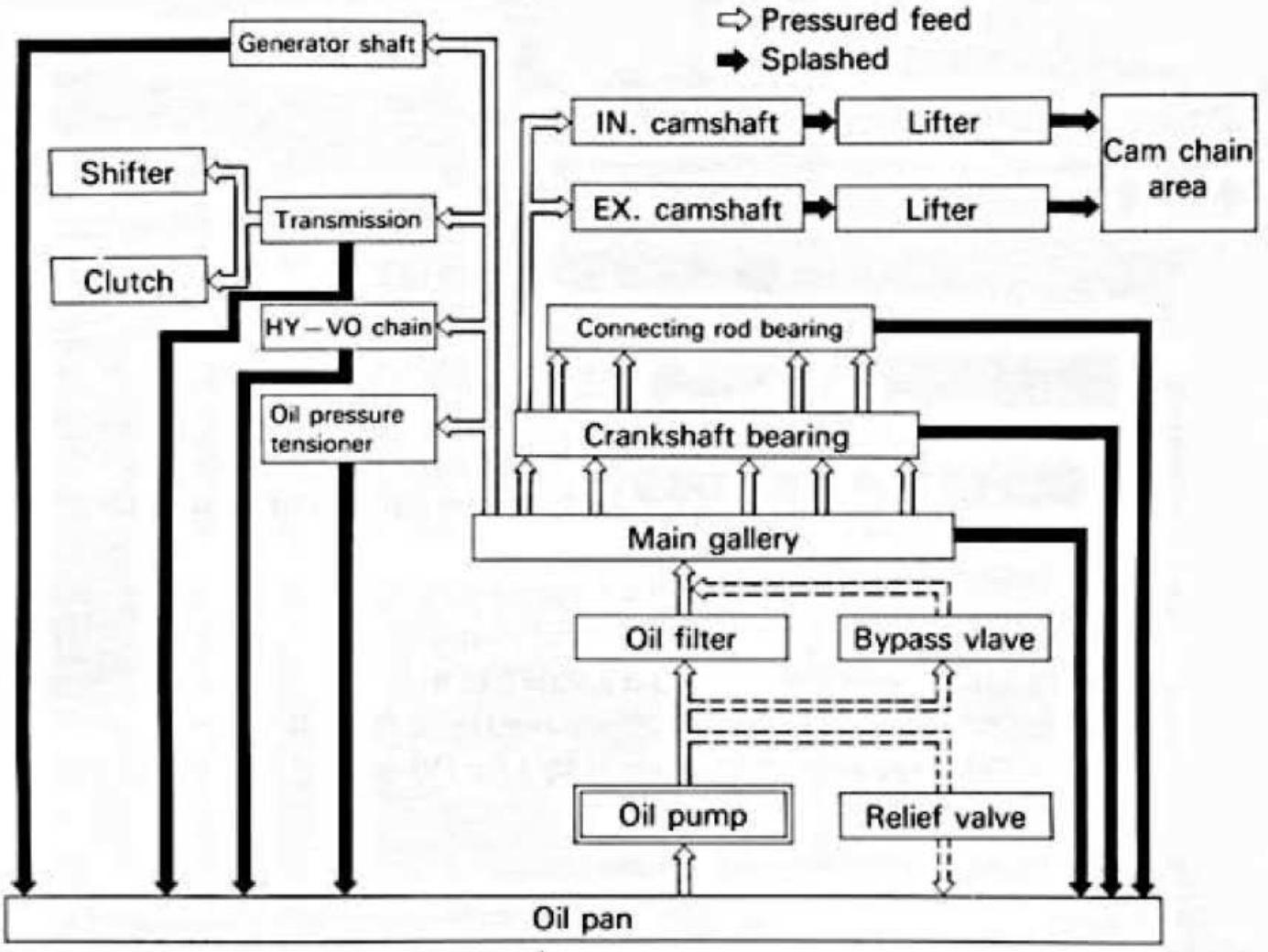
7

www.badrad600.com

MAINTENANCE SPECIFICATIONS

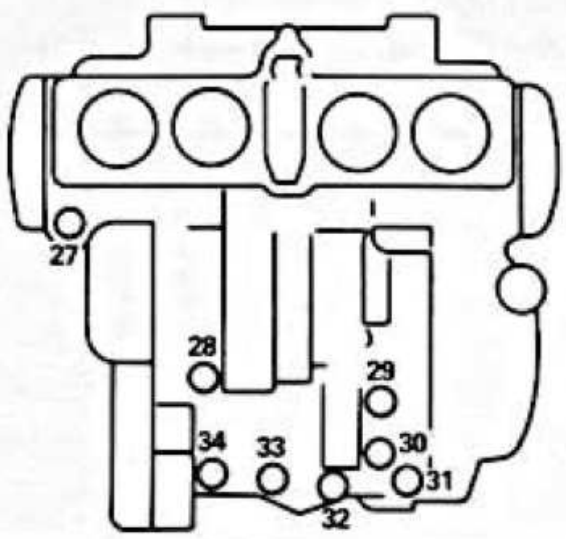
Model	YX600S/YX600SC

Lubrication Chart

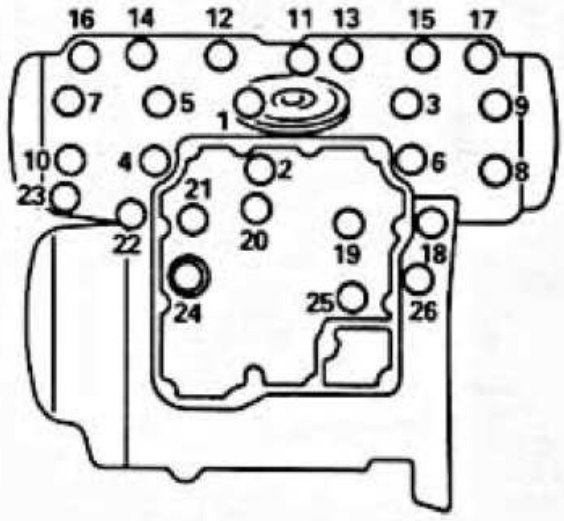


Crankcase Tightening Sequence:

Upper case



Lower case



7

www.badrad600.com

Part to be tightened	Part name	Thread size	Q'ty	Tightening torque			Remarks
				Nm	m•kg	ft•lb	
Cam shaft cap	Bolt	M6 P1.0	24	10	1.0	7.2	Tighten in 3-stages
Cylinder (cam chain)	Stud bolt	M6 P1.0	4	5	0.5	3.6	Apply oil
Cylinder head (Exhaust pipe)	Stud bolt	M6 P1.0	8	10	1.0	7.2	Apply oil
Cylinder head	Stud bolt	M6 P1.0	4	5	0.5	3.6	Apply oil
Cylinder	Nut	M8 P1.25	1	20	2.0	14	
Cylinder	Nut	M6 P1.0	1	10	1.0	7.2	
Cylinder head	Cap nut	M8 P1.25	12	22	2.2	16	Apply oil
Spark plug		M12 P1.25	4	17.5	1.75	13	
Cylinder head cover	Bolt	M6 P1.0	12	10	1.0	7.2	
Cylinder	Stud bolt	M8 P1.25	1	15	1.5	11	Apply oil
Cylinder and crankcase	Nut	M8 P1.25	1	20	2.0	14	
Connecting rod and rod cap	Nut	M7 P0.75	8	25	2.5	18	
Camshaft and sprocket	Bolt	M7 P1.0	4	24	2.4	17	
Cam chain tensioner stopper bolt	Bolt	M8 P1.0	1	8	0.8	5.7	
Cam chain tensioner case and cylinder	Bolt	M6 P1.0	1	10	1.0	7.2	
Cam chain tensioner case and cylinder	Nut	M6 P1.0	1	10	1.0	7.2	
Cam chain tensioner lock nut	Nut	M8 P1.25	1	9	0.9	6.5	
Crankcase	Plug	M10 P1.25	1	10	1.0	7.2	
Rotor housing and pump cover	Screw	M6 P1.0	1	7	0.7	5.1	
Oil pump ass'y and crankcase	Screw	M6 P1.0	3	7	0.7	5.1	
Strainer housing and crankcase	Bolt	M6 P1.0	2	10	1.0	7.2	
Strainer cover and crankcase	Bolt	M6 P1.0	12	10	1.0	7.2	
Filter cover and crankcase	Union bolt	M20 P1.5	1	15	1.5	11	
Drain bolt	Plug	M14 P1.5	1	43	4.3	31	
Carburetor joint and cylinder head	Bolt	M6 P1.0	8	10	1.0	7.2	

www.badrad600.com

APPX

MAINTENANCE SPECIFICATIONS

Part to be tightened	Part name	Thread size	Q'ty	Tightening torque			Remarks
				Nm	m•kg	ft•lb	
Air filter cover	Screw	M5 P0.8	4	5	0.5	3.6	
Air filter case	Bolt	M6 P1.0	3	7	0.7	5.1	
Exhaust pipe and cylinder head	Nut	M6 P1.0	8	10	1.0	7.2	
Exhaust pipe joint	Bolt	M8 P1.25	6	20	2.0	14	
Muffler	Bolt	M10 P1.25	2	25	2.5	18	
Crankcase	Stud bolt	M8 P1.25	12	13	1.3	9.4	Apply oil
Crankcase (upper and lower)	Bolt	M8 P1.25	11	24	2.4	17	Apply oil
Crankcase (upper and lower)	Bolt	M6 P1.0	23	12	1.2	8.7	Apply oil
Generator cover and crankcase	Bolt	M6 P1.0	3	10	1.0	7.2	
Bearing cover plate (crankcase right)	Screw	M6 P1.0	4	8	0.8	5.7	
Bearing cover plate (crankcase left)	Screw	M6 P1.0	4	8	0.8	5.7	Use LOCTITE®
Clutch cable holder	Screw	M6 P1.0	1	10	1.0	7.2	
Crankcase cover	Bolt	M6 P1.0	13	10	1.0	7.2	
Crankcase (Main gallary blind plug)	Plug	M20 P1.5	2	12	1.2	8.7	Apply oil
Clutch pressure plate	Bolt	M6 P1.0	5	8	0.8	5.8	
Clutch boss	Nut	M20 P1.0	1	70	7.0	50	
Drive sprocket	Bolt	M6 P1.0	2	10	1.0	7.2	
Stopper plate	Screw	M5 P0.8	1	7	0.7	5.1	Use LOCTITE®
Cam segment	Bolt	M6 P1.0	1	10	1.0	7.2	Use LOCTITE®
Change pedal	Bolt	M6 P1.0	1	10	1.0	7.2	
A.C. Generator	Bolt	M10 P1.25	1	35	3.5	25	
A.C. Generator (brush)	Screw	M6 P1.0	2	8	0.8	5.8	
Pickup coil base	Screw	M6 P1.0	2	8	0.8	5.8	Use LOCTITE®
Timing plate	Bolt	M8 P1.25	1	24	2.4	17	
Starter motor	Bolt	M6 P1.0	2	10	1.0	7,2	
Neutral switch	Screw	M5 P0.8	3	3.5	0.35	2.5	Use LOCTITE®

7

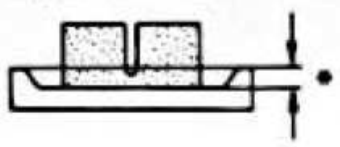
www.badrad600.com

Part to be tightened	Part name	Thread size	Q'ty	Tightening torque			Remarks
				Nm	m•kg	ft•lb	
Oil level gauge switch	Bolt	M6 P1.0	2	7	0.7	5.1	
Reliet valve and crankcase	—		1	20	2.0	14	
HY-VO chain tensioner	Bolt	M6 P1.0	2	10	1.0	7.2	Use LOCTITE®
Primary drive gear	Nut	M16 P1.5	1	50	5.0	36	
Bearing cover plate	Screw	M6 P1.0	2	10	1.0	7.2	Use LOCTITE®
Starter clutch	Bolt	M8 P1.25	3	25	2.5	18	Use LOCTITE®
Shift shaft stopper	Screw	M8 P1.25	1	22	2.2	16	
Shift cam bearing plate	Screw	M6 P1.0	1	10	1.0	7.2	

www.badrad600.com

MAINTENANCE SPECIFICATIONS

Chassis

Model		YX600S/YX600SC
Steering System:		
Steering Bearing Type		Ball Bearing
No./Size of Steel Balls:	Upper	19 pcs/1/4 in
	Lower	19 pcs/1/4 in
Front Suspension:		
Front Fork Travel		140 mm (5.5 in)
Frok Spring Free Length		542 mm (21.3 in)
Spring Rate/Stroke		K_1 = 3.8 N/mm (0.385 kg/mm, 21.2 lb/in) 0.0 ~ 95 mm (0.0 ~ 3.47 in) K_2 = 5.6 N/mm (0.575 kg/mm, 31.7 lb/in) 95 ~ 140 mm (3.74 ~ 5.51 in)
Optional Spring		No
Oil Capacity		320 cm^3 (11.3 Imp oz, 10.8 US oz)
Oil Grade		Yamaha Fork Oil 10WT or equivalent
Rear Suspension:		
Shock Absorber Travel		80 mm (3.1 in)
Spring Free Length		222.4 mm (8.76 in)
Spring Rate/Stroke		K_1 = 17.6 N/mm (1.8 kg/mm, 99.1 lb/in) 0.0 ~ 52 mm (0.0 ~ 2.04 in) K_2 = 25.5 N/mm (2.6 kg/mm, 143.2 lb/in) 52 ~ 80 mm (2.04 ~ 3.15 in)
Optional Spring		No
Adjustment	Spring Position	←Stiffer / Std. / Softer 5 / 4 / 3 / 2 / 1
Rear Arm:		
Swingarm Free Play Limit (End)		1.0 mm (0.039 in)
Wheel:		
Front Wheel Type		Cast Wheel
Rear Wheel Type		Cast Wheel
Front Rim Size/Material		MT2.50 × 16/Aluminum
Rear Rim Size/Material		MT3.00 × 16/Aluminum
Rim Runout Limit	Vertical	2.0 mm (0.08 in)
	Lateral	2.0 mm (0.08 in)
Drive Chain:		
Type/Manufacturer		50HDL2/DAIDO
No. of Links		104
Chain Free Play		20 ~ 30 mm (0.78 ~ 1.18 in)
Front Disc Brake:		
Type		Dual disc
Outside Dia. × Thickness		267 × 5 mm (10.5 × 0.2 in)
Pad Thickness:	Inner	5.5 mm (0.21 in)
	<Limit>*	0.5 mm (0.019 in)
	Outer	5.5 mm (0.21 in)
	<Limit>*	0.5 mm (0.019 in)

7

www.badrad600.com

Model	YX600S/YX600SC
Master Cylinder Inside Dia.	15.87 mm (0.62 in)
Caliper Cylinder Inside Dia.	42.8 mm (1.50 in)
Brake Fluid Type	DOT #3
Rear Drum Brake:	
Type	Leading, Trailing
Brake Drum Inside Diameter	180 mm (7.08 in)
<Limit>	<181 mm (7.12 in)>
Lining Thickness	4 mm (0.16 in)
<Limit>	<2 mm (0.08 in)>
Shoe Spring Free Length	68 mm (2.68 in)
Brake Lever & Brake Pedal:	
Brake Lever Free Play (at lever end)	2~5 mm (0.08~0.20 in)
Brake Pedal Free Play	20~30 mm (0.8~0.12 in)
Brake Pedal Position	15 mm (0.6 in) (Vertical height below footrest top)
Clutch Lever Free Play (at lever end):	10~15 mm (0.4~0.6 in)

www.badrad600.com

MAINTENANCE SPECIFICATIONS

Part to be tightened	Thread size	Tightening torque		
		Nm	m•kg	ft•lb
Front wheel axle	M14×1.5	105	10.5	75
Front wheel axle holder	M8 ×1.25	20	2.0	14
Front fender and front fork	M6 ×1.0	80	8.0	58
Handle crown and inner tube	M8 ×1.25	20	2.0	14
Handle crown and steering shaft	M14×1.25	54	5.4	39
Steering shaft and ring nut (Refer to NOTE)	M25×1.0	38	3.8	27
Caliper and front fork	M10×1.25	35	3.5	25
Brake disc and wheel	M10×1.25	20	2.0	14
Master cylinder and master cylinder bracket	M6 ×1.0	8	0.8	5.8
Master cylinder and master cylinder cap	M5 ×0.8	2	0.2	1.4
Caliper and bleed screw	M8 ×1.25	6	0.6	4.3
Brake hose	M10×1.25	26	2.6	19
Handlebar upper holder	M8 ×1.25	20	2.0	14
Engine mounting: Front upper	M10×1.25	42	4.2	30
Front under	M10×1.25	42	4.2	30
Rear	M12×1.25	70	7.0	50
Engine stay and frame	M8×1.25	20	2.0	14
Muffler bracket and frame	M10×1.25	42	4.2	30
Footrest	M12×1.25	70	7.0	50
Brake pedal and brake shaft	M6 ×1.0	9	0.9	6.5
Pivot axle and locknut	M14×1.5	90	9.0	65
Rear shock absorber and frame	M8 ×1.25	20	2.0	14
Rear shock absorber and rear arm	M10×1.25	29	2.9	21
Tension bar and rear arm	M8 ×1.25	20	2.0	14
Tension bar and brake shoe plate	M8 ×1.25	20	2.0	14
Rear wheel axle and nut	M14×1.5	106	10.6	75
Sproket and clutch hub	M8 ×1.25	32	3.2	23

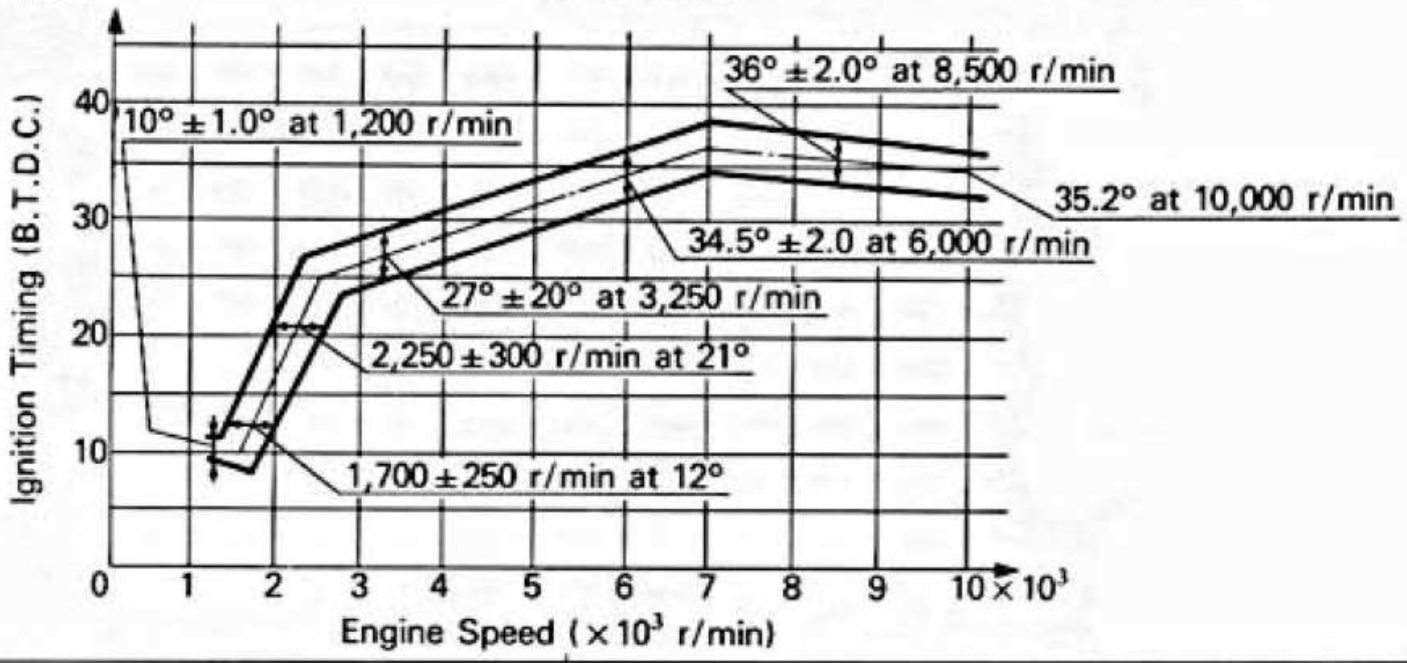
NOTE:

After torquing the steering shaft and ring nut, adjust them for smooth movement of the handlebar.

www.badrad600.com

Electrical

Model	YX600S/YX600SC
Voltage	12V
Ignition System:	
Ignition Timing (B.T.D.C.)	10° ± 1° at 1,200 r/min
Advancer Type	Electrical



T.C.I.:	
Pickup Coil Resistance	108 ~ 132Ω at 20°C (68°F)
(Color)	(Black — Gray) (Black — Orange)
T.C.I. Unit — Manufacturer	TID14-31 HITACHI
Ignition Coil	
Model/Manufacturer	CM12-10/HITACHI
Minimum Spark Gap	6 mm (0.24 in) or more at 500 r/min
Primary Winding Resistance	2.43 ~ 2.97Ω at 20°C (68°F)
Secondary Winding Resistance	10.56 ~ 15.84KΩ at 20°C (68°F)
Spark Plug Cap Resistance	10KΩ
Charging System:	
Type	A.C. Generator
A.C. Generator:	
Model/Manufacturer	LD117-13/HITACHI
Nominal Output	14V, 17A at 5,000 r/min
Field Coil Resistance	2.7 ~ 3.3Ω at 20°C (68°F) (Brown — Green)
Starter Coil Resistance	0.5 ~ 0.6Ω at 20°C (68°F) (White — White)
Brush — Overall Length	17 mm (0.669 in)
<Limit>	10 mm (0.394 in)
— Spring Force	190 ~ 360 gr (6.7 ~ 12.7 oz)
Voltage Regulator:	
Type	Field control
Model/Manufacturer	SH233-12/SHINDENGEN
No Load Regulated Voltage	14.2 ~ 14.8V
Rectifier:	
Model/Manufacturer	SH233-12/SHINDENGEN
Capacity	15A
Withstand Voltage	300V

www.badrad600.com

MAINTENANCE SPECIFICATIONS

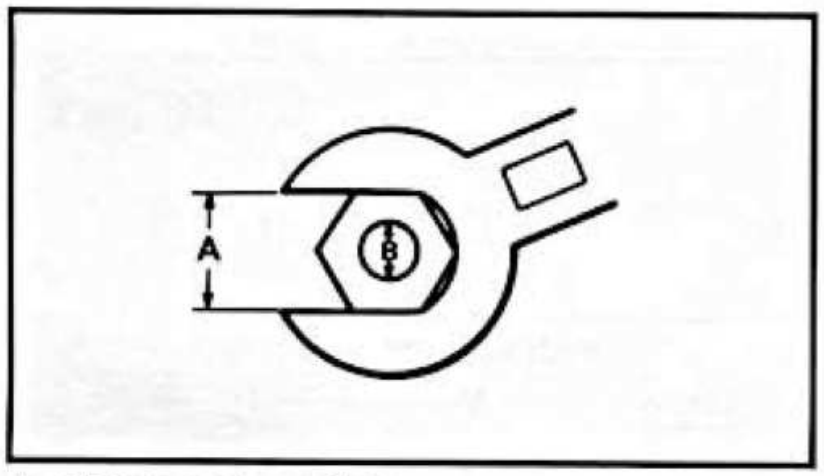
Model	YX600S/YX600SC
Battery:	
Capacity	12V 12AH
Specific Gravity	1.280
Electrical Starter System:	
Type	Constant mesh type
Starter Motor:	
Model/Manufacturer	SM8204/MITSUBA
Output	0.5 kw
Armature Coil Resistance	0.012Ω ± 10% at 20°C (68°F)
Brush—Overall Length	12 mm (0.47 in)
<Limit>	5 mm (0.20 in)
—Spring Force	340 ~ 460 g (12.0 ~ 16.2 oz)
Commutator Dia.	28 mm (1.10 in)
Wear Limit	27 mm (1.06 in)
Mica Undercut	1.6 mm (0.06 in)
Starter Relay:	
Model/Manufacturer	22U-00/HONDA LOCK
Amperage Rating	150A
Coil Resistance	3.4Ω at 20°C (68°F)
Horn:	
Type/Quantity	Plane Type/1 pcs.
Model/Manufacturer	YF-12./NIKKO
Maximum Amperage	2.5A
Flasher Relay (Relay Assembly):	
Type	Semi transistor type
Model/Manufacturer	FX257N/NIPPON DENSO
Self Cancelling Device	Yes
Flasher Frequency	85 ± 10 cycle/min
Wattage	27W × 2 pcs + 3.4W
Sidestand Relay:	
Model/Manufacturer	4U8-01/OMRON
Coil Winding Resistance	75Ω ± 10% at 20°C (68°F)
Diode	No
Safty Relay (Relay Assembly):	
Model/Manufacturer	FX257N/NIPPON DENSO
Diode	No
Oil Level Switch:	
Model/Manufacturer	4U8-00/HIPPON DENSO
Circuit Breaker:	
Type	Fuse
Amperage for Individual Circuit × Quantity:	
MAIN	20A × 1 pcs.
HEADLIGHT	10A × 1 pcs.
SIGNAL	10A × 1 pcs.
IGNITION	10A × 1 pcs.
RESERVE	20A × 1 pcs, 10A × 1 pcs.

www.badrad600.com

GENERAL TORQUE SPECIFICATIONS

This chart specifies torque for standard fasteners with standard I.S.O. pitch threads. Torque specifications for special components or assemblies are included in the applicable sections of this book. To avoid warpage, tighten multi-fastener assemblies in a crisscross fashion, in progressive stages, until full torque is reached. Unless otherwise specified, torque specifications call for clean, dry threads. Components should be at room temperature.

A (Nut)	B (Bolt)	General torque specifications		
		Nm	m•kg	ft•lb
10 mm	6 mm	6	0.6	4.3
12 mm	8 mm	15	1.5	11
14 mm	10 mm	30	3.0	22
17 mm	12 mm	55	5.5	40
19 mm	14 mm	85	8.5	61
22 mm	16 mm	130	13.0	94



A: Distance across flats
B: Outside thred diameter

7

www.badrad600.com

DEFINITION OF UNITS/CONVERSION TABLES

DEFINITION OF UNITS

Unit	Read	Definition	Measure
mm cm	millimeter centimeter	10^{-3} meter 10^{-2} meter	Length Length
kg	kilogram	10^{3} gram	Weight
N	Newton	1 kg × m/sec^2	Force
Nm m•kg	Newton meter Meter kilogram	N × m m × kg	Torque Torque
Pa N/mm	Pascal Newton per millimeter	N/m^2 N/mm	Pressure Spring rate
L cm^3	Liter Cubic centimeter		Volume or Capacity
r/min	Rotation per minute		Engine Speed

CONVERSION TABLES

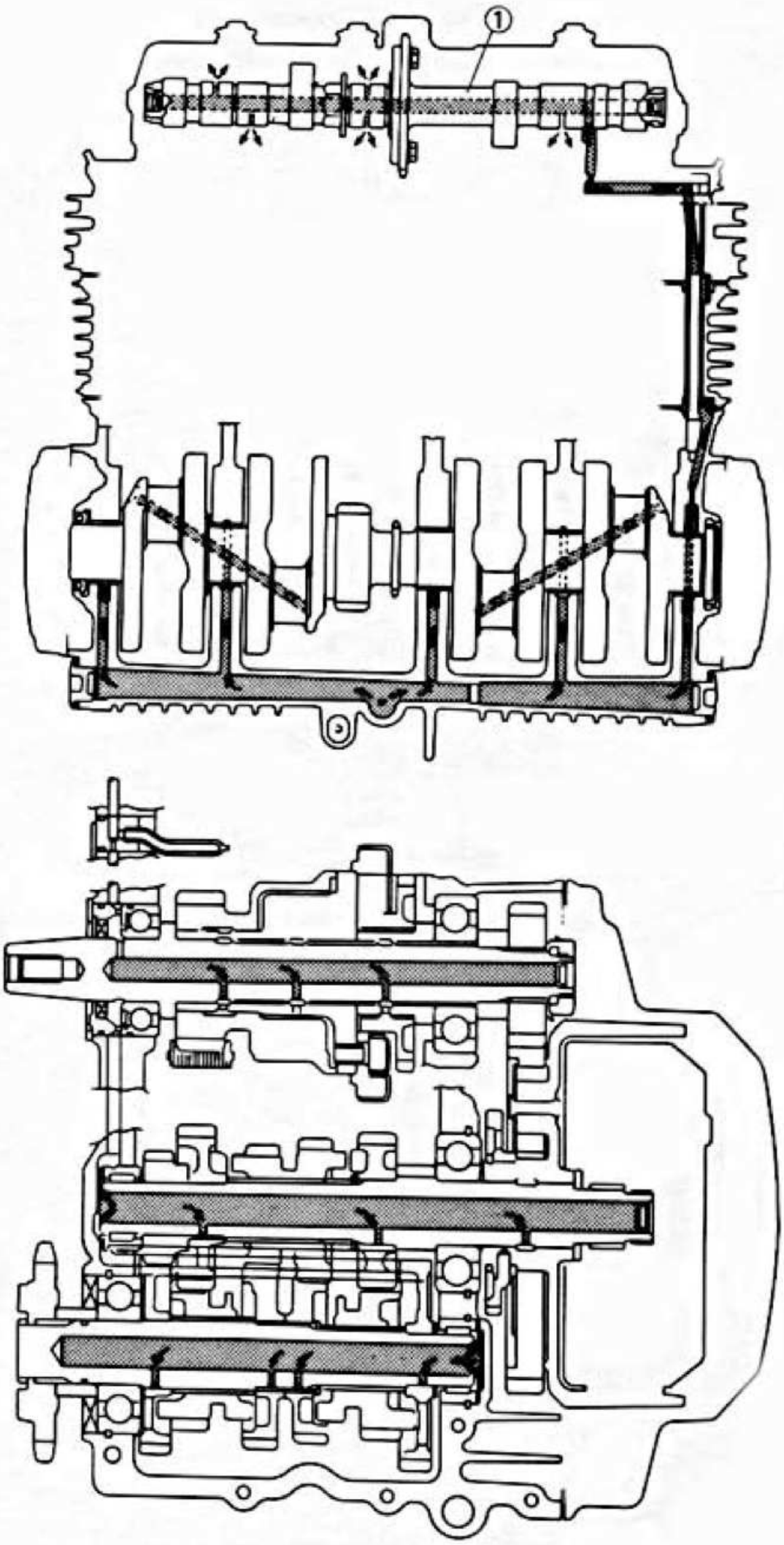
Metric to inch system		
Known	Multiplier	Result
m•kg	7.233	ft•lb
m•kg	86.80	in•lb
cm•kg	0.0723	ft•lb
cm•kg	0.8680	in•lb
kg	2.205	lb
g	0.03527	oz
km/lit	2.352	mpg
km/hr	0.6214	mph
km	0.6214	mi
m	3.281	ft
m	1.094	yd
cm	0.3937	in
mm	0.03937	in
cc (cm^3)	0.03382	oz (US liq)
cc (cm^3)	0.06102	cu in
lit (liter)	2.1134	pt (US liq)
lit (liter)	1.057	qt (US liq)
lit (liter)	0.2642	gal (US liq)
kg/mm	56.007	lb/in
kg/cm	14.2234	psi (lb/in)
Centigrade (°C)	9/5 (°C) + 32	Fahrenheit (°F)

Inch to metric system		
Known	Multiplier	Result
ft•lb	0.13826	m•kg
in•lb	0.01152	m•kg
ft•lb	13.831	cm•kg
in•lb	1.1521	cm•kg
lb	0.4535	kg
oz	28.352	g
mpg	0.4252	km/lit
mph	1.609	km/hr
mi	1.609	km
ft	0.3048	m
yd	0.9141	m
in	2.54	cm
in	25.4	mm
oz (US liq)	29.57	cc (cm^3)
cu in	16.387	cc (cm^3)
pt (US liq)	0.4732	lit (liter)
qt (US liq)	0.9461	lit (liter)
gal (US liq)	3.785	lit (liter)
lb/in	0.017855	kg/mm
psi (lb/in)	0.07031	kg/cm
Fahrenheit (°C)	5/9 (F°-32)	Centigrade (°F)

www.badrad600.com

LUBRICATION DIAGRAM

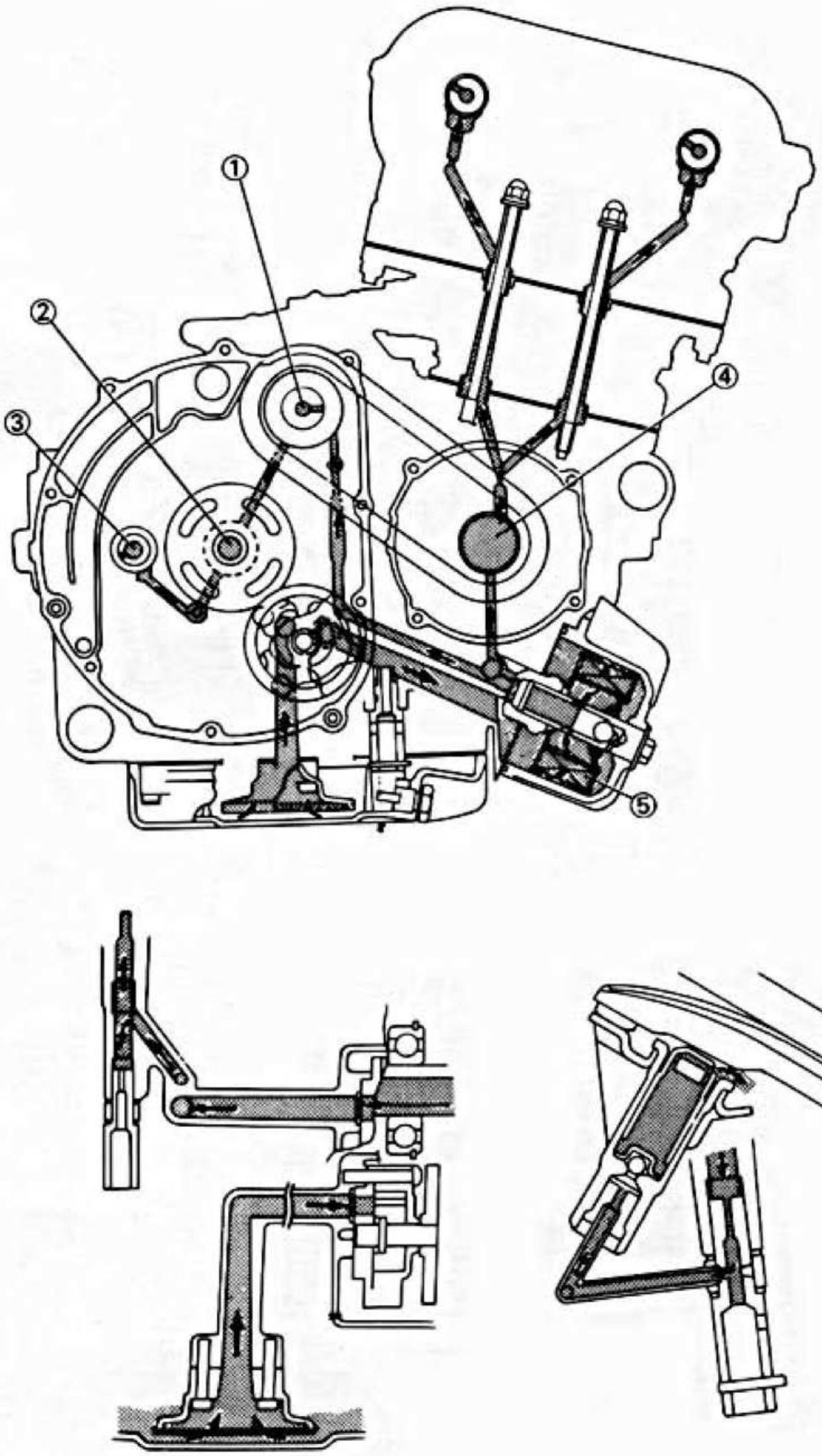
① Crankshaft



www.badrad600.com

LUBRICATION DIAGRAM

① Generator shaft
② Main axle
③ Drive axle
④ Crankshaft
⑤ Oil filter

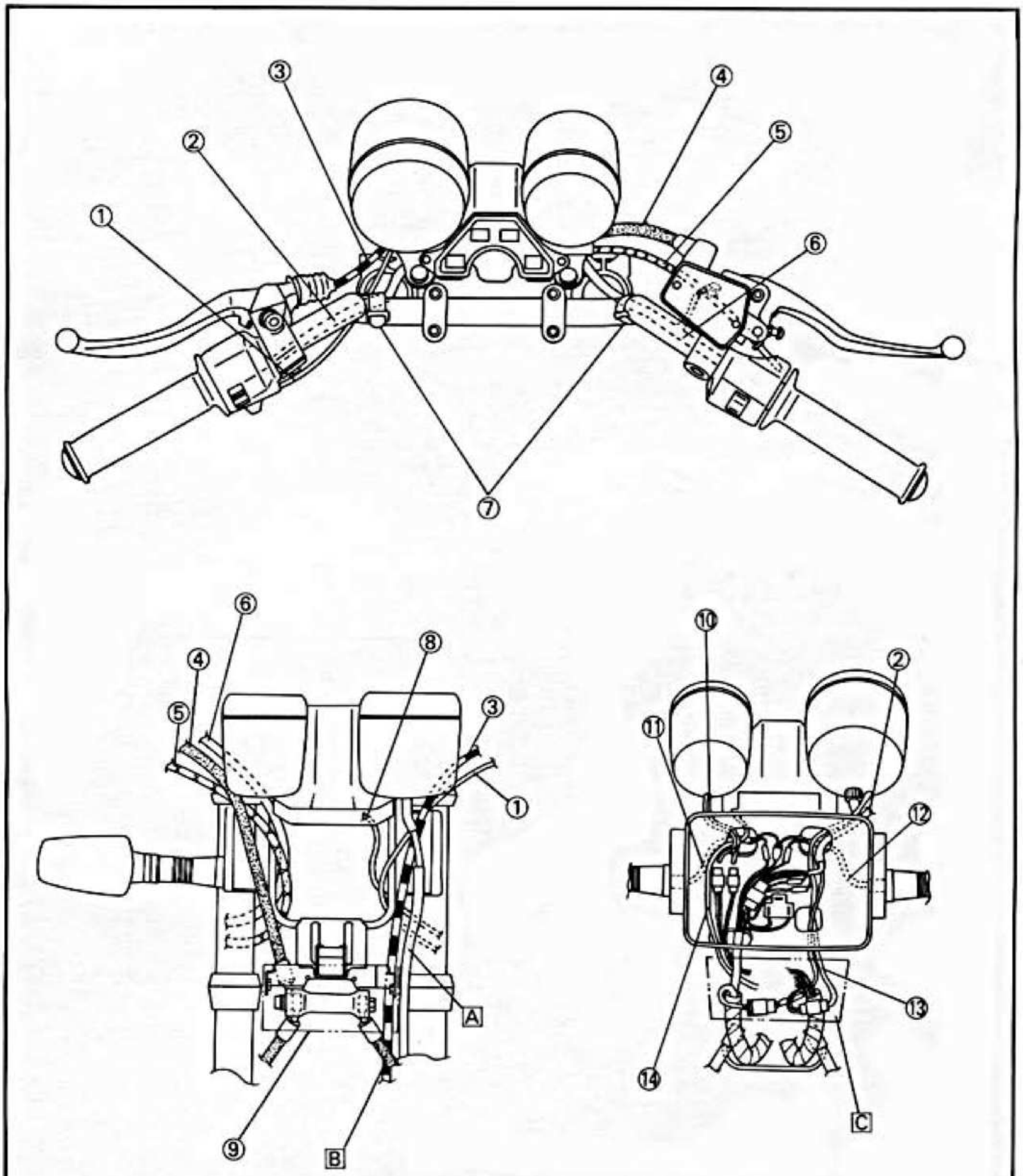


www.badrad600.com

CABLE ROUTING

① Starter cable
② Handlebar switch lead (Left)
③ Clutch cable
④ Brake hose
⑤ Throttle cable
⑥ Handlebar switch lead (Right)
⑦ Band
⑧ Main switch lead
⑨ Outer cover
⑩ Tachometer lead
⑪ Flasher light lead (Right)
⑫ Flasher light lead (Left)
⑬ Speedometer light lead
⑭ Indicator light lead

A Speedometer cable:
Pass the speedometer cable outside the outer cover.
B Clutch cable:
Pass the clutch cable behind the outer cover stay.
C Connect the couplers inside the outer cover.



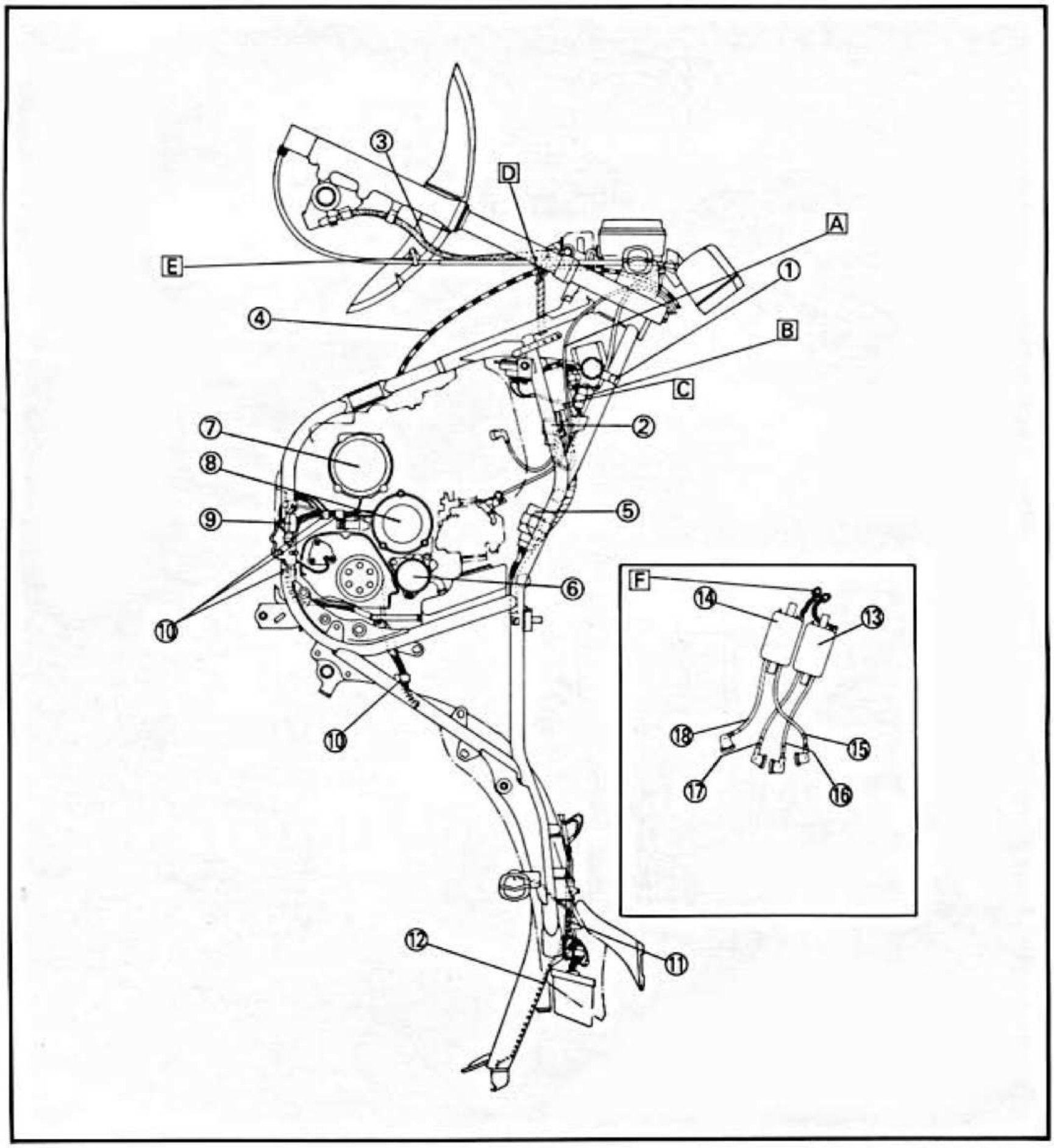
7

www.badrad600.com

CABLE ROUTING

① Band
② Sidestand relay
③ Brake hose
④ Clutch cable
⑤ Relay assembly
⑥ Starter motor
⑦ Pickup coil
⑧ A.C. generator
⑨ Sidestand switch
⑩ Clamp
⑪ Rear flasher light lead
⑫ License light lead
⑬ Ignition coil (Right)
⑭ Ignition coil (Left)
⑮ "4" mark → #4 cylinder
⑯ "3" mark → #3 cylinder
⑰ "2" mark → #2 cylinder
⑱ "1" mark → #1 cylinder

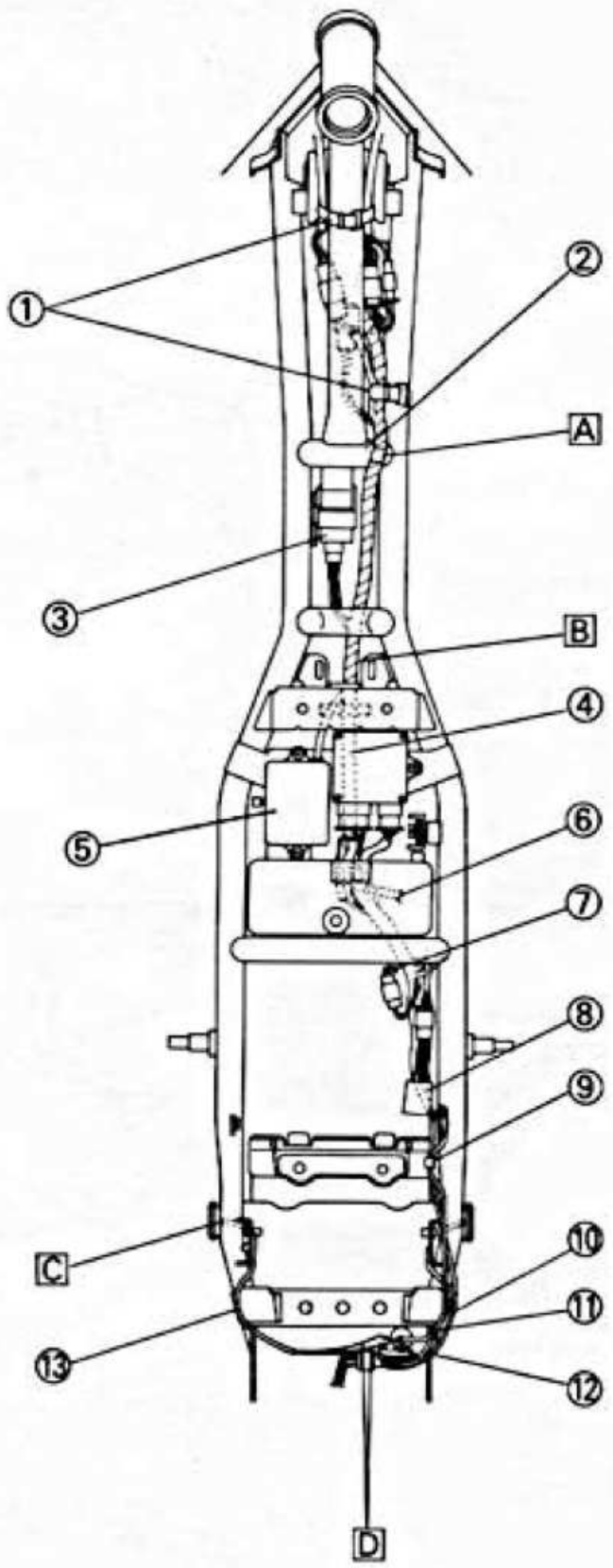
[A] Pass the starter cable between the locating damper and ignition coil.
[B] After connecting the couplers, locate them above the ignition coil.
[C] Pass the horn lead between the ignition coils.
[D] Guide:
Clamp the wire harness.
[E] Cable holder:
Pass the speedometer cable through the cable holder.
[F] Pass the ignition coil leads through the coil stay.



www.badrad600.com

① Band
② Cross pipe
③ Relay assembly
④ Ignitor unit
⑤ Fuse box
⑥ To pickup coil
⑦ To starter relay
⑧ Diode
⑨ Clamp
⑩ Rear flasher light lead (Right)
⑪ License light lead
⑫ Taillight lead
⑬ Rear flasher light lead (Left)

Ⓐ White tape:
Align the white tape with the cross pipe as shown.
Ⓑ Pass the wire harness between air cleaner box and battery box.
Ⓒ Pass the flasher light lead between the frame and rear fender.
Ⓓ Locate the couplers and leads inside the rear fender.



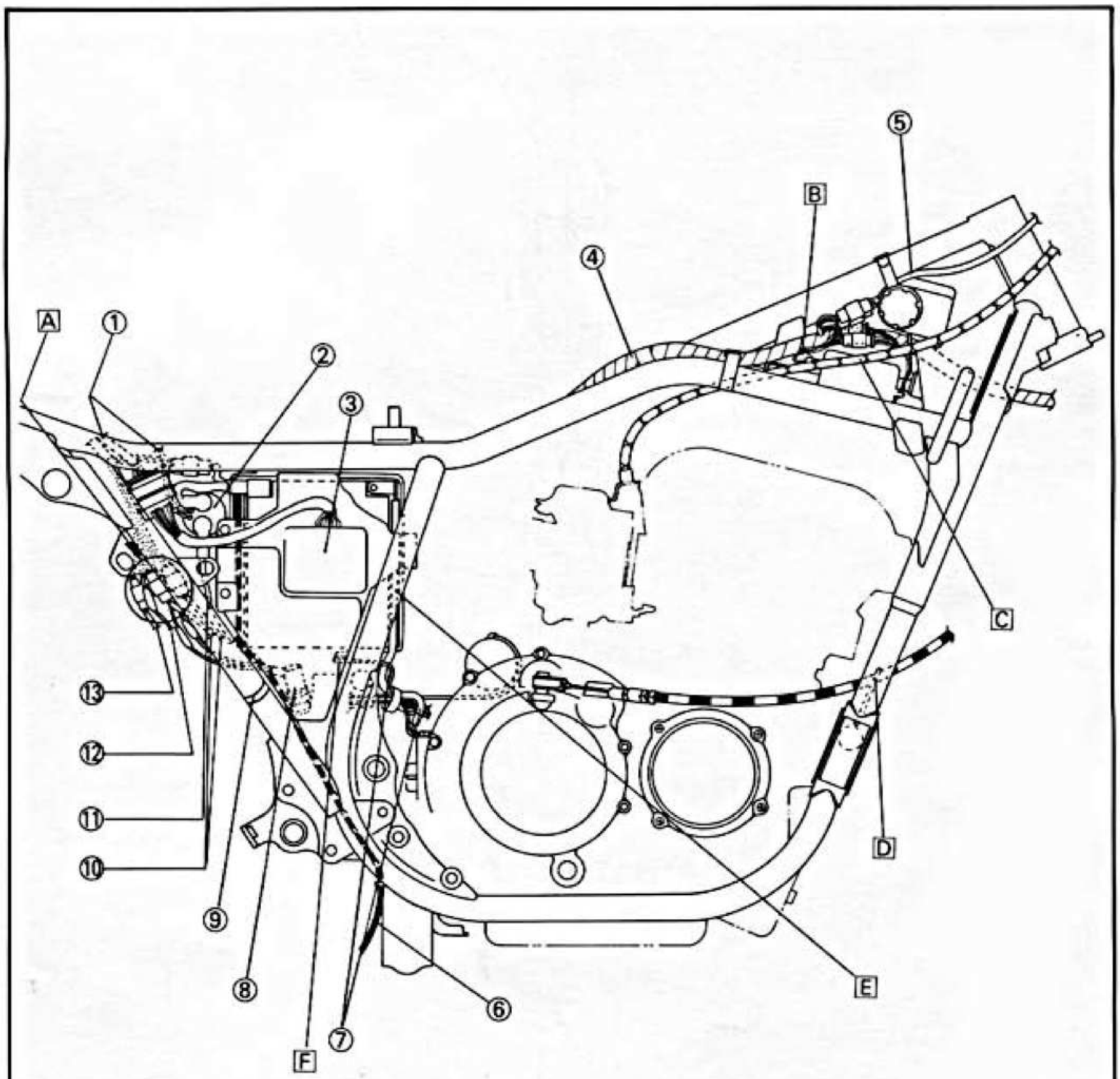
7

www.badrad600.com

CABLE ROUTING

① To wire harness
② Starter relay
③ Rectifier-regulator
④ Wire harness
⑤ Handlebar switch lead (Right)
⑥ Battery breather pipe
⑦ Earth lead
⑧ Rear brake switch
⑨ Clamp
⑩ To A.C. generator
⑪ Starter relay lead
⑫ Oil level switch lead
⑬ Sidestand switch lead

[A] After connecting the couplers, locate the couplers behind the battery box.
[B] Clamp the earth lead with the ignition coil securing screw.
[C] Pass the throttle cable under the locating damper.
[D] Pass the clutch cable through the guide and between EX. pipe #2 and #3.
[E] Pass the battery negative (–) lead inside the battery box.
[F] Clamp the earth lead with the battery cover securing bolt.

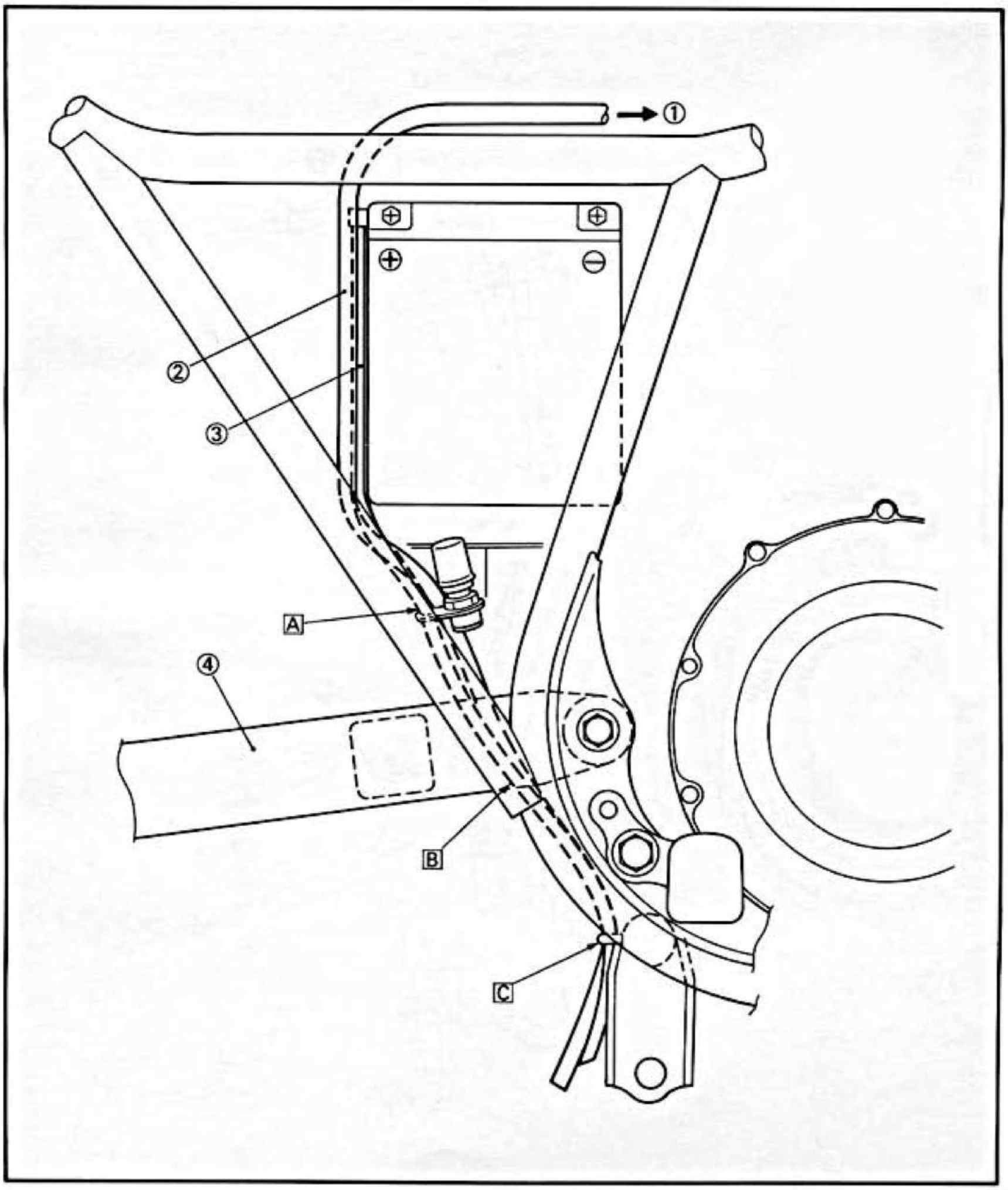


www.badrad600.com

① To fuel tank
② Fuel tank breather pipe
③ Battery breather pipe
④ Rear arm

[A] Pass the battery breather pipe through the guide hole on the stop switch bracket.

[B] Pass the fuel tank and battery breather pipe between the rear arm corss tube and rear arm pivot.
[C] Pass the breather pipes through the guide.

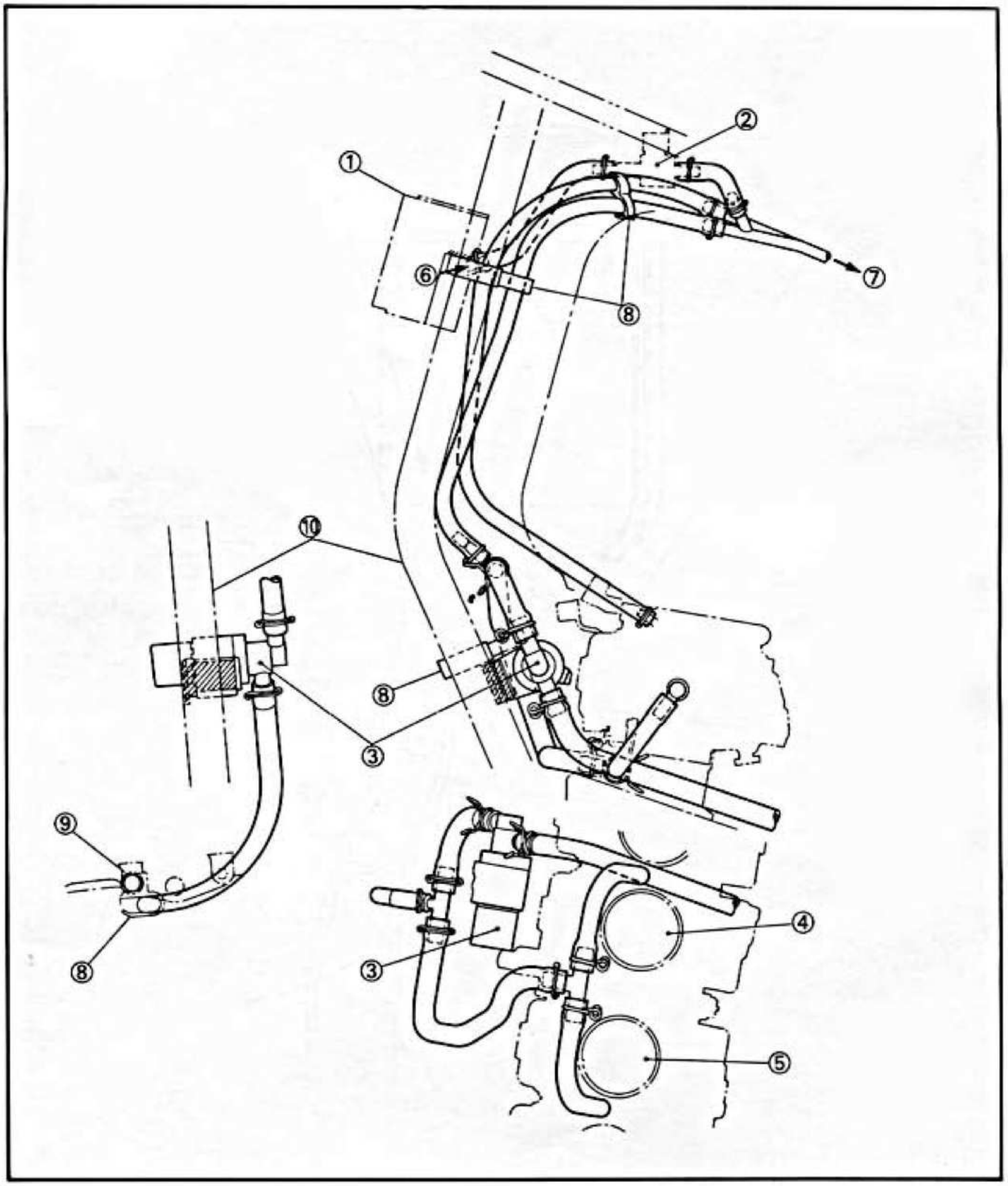


www.badrad600.com

CABLE ROUTING

CALIFORNIA ONLY

① Ignition coil
② Roll over valve
③ Air vent control valve
④ #3 Carburetor
⑤ #2 Carburetor
⑥ From fuel tank
⑦ To canister
⑧ Clamp
⑨ Crankcase
⑩ Frame



www.badrad600.com

FOREWORD

This Supplementary Service Manual has been prepared to introduce new service and new data for the YX600U/UC. For complete information on service procedures, it is necessary to use this Supplementary Service Manual together with following manual:

YX600S/SC Service Manual: LIT-11616-05-06

YX600U/YX600UC
SUPPLEMENTARY SERVICE MANUAL
©1987 by Yamaha Motor Corporation, U.S.A.
1st Edition, July 1987
All rights reserved. Any reprinting or unauthorized use without the written permission of Yamaha Motor Corporation, U.S.A. is expressly prohibited.
Printed in U.S.A.
P/N LIT-11616-06-16

www.badrad600.com

NOTICE

This manual was written by the Yamaha Motor Company primarily for use by Yamaha dealers and their qualified mechanics. It is not possible to put an entire mechanic's education into one manual, so it is assumed that persons using this book to perform maintenance and repairs on Yamaha motorcycles have a basic understanding of the mechanical concepts and procedures inherent in motorcycle repair technology. Without such knowledge, attempted repairs or service to this model may render it unfit to use and/or unsafe.

Yamaha Motor Company, Ltd. is continually striving to improve all models manufactured by Yamaha. Modifications and significant changes in specifications or procedures will be forwarded to all Authorized Yamaha dealers and will, where applicable, appear in future editions of this manual.

TECHNICAL PUBLICATIONS
SERVICE DIVISION
MOTORCYCLE OPERATIONS
YAMAHA MOTOR CO., LTD.

HOW TO USE THIS MANUAL

PARTICULARLY IMPORTANT INFORMATION

This material is distinguished by the following notation.

NOTE: A NOTE provides key information to make procedures easier or clearer.

CAUTION: A CAUTION indicates special procedures that must be followed to avoid damage to the motorcycle.

WARNING: A WARNING indicates special procedures that must be followed to avoid injury to a motorcycle operator or person inspecting or repairing the motorcycle.

MANUAL FORMAT

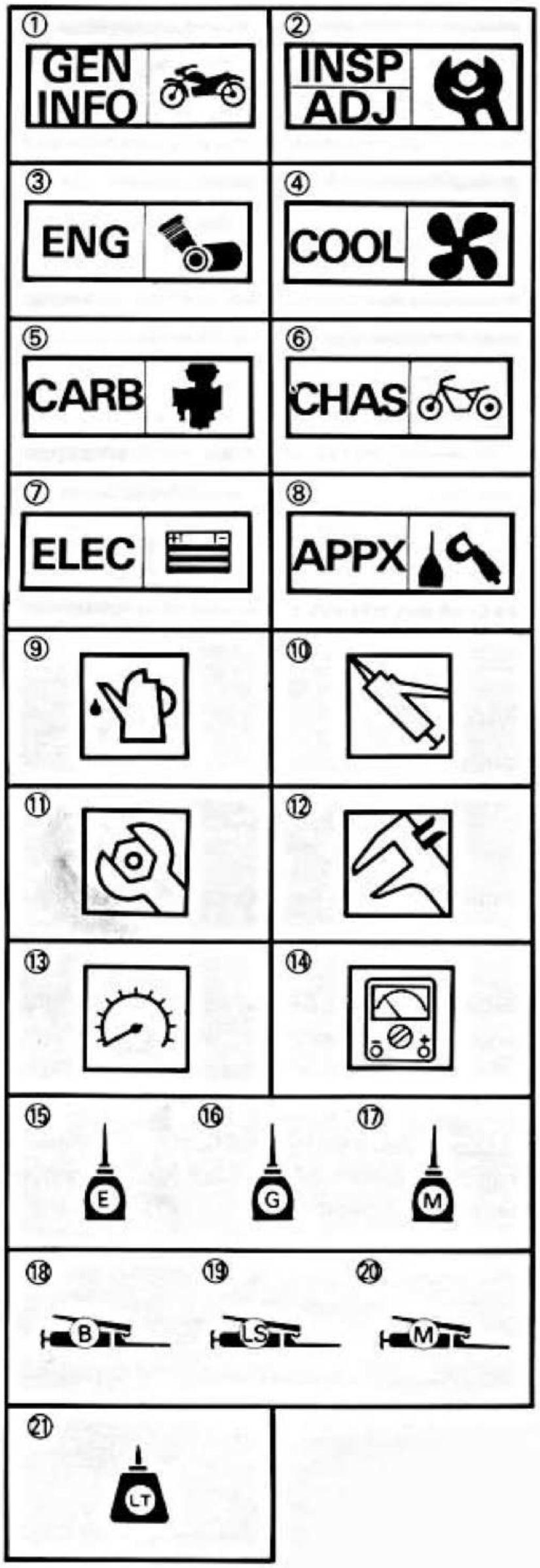
All of the procedures in this manual are organized in a sequential, step-by-step format. The information has been compiled to provide the mechanic with an easy to read, handy reference that contains comprehensive explanations of all disassembly, repair, assembly, and inspection operations.
In this revised format, the condition of a faulty component will precede an arrow symbol and the course of action required will follow the symbol, e.g.,

- Bearings
  Pitting/Damage→Replace.

EXPLODED DIAGRAM

Each chapter provides exploded diagrams before each disassembly section for ease in identifying correct disassembly and assembly procedures.

www.badrad600.com



ILLUSTRATED SYMBOLS (Refer to the illustration)

Illustrated symbols ① to ⑧ are designed as thumb tabs to indicate the chapter's number and content.

① General information
② Periodic inspection and adjustment
③ Engine
④ Cooling system
⑤ Carburetion
⑥ Chassis
⑦ Electrical
⑧ Appendices

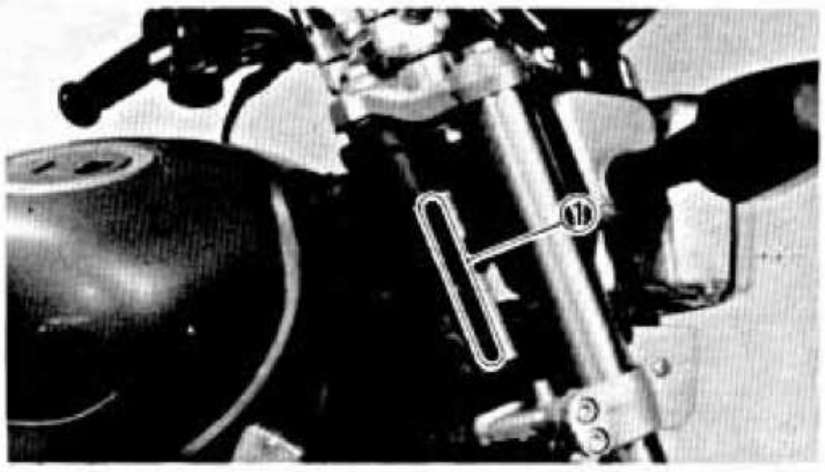
Illustrated symbols ⑨ to ⑭ are used to identify the specifications appearing in the text.

⑨ Filling fluid
⑩ Lubricant
⑪ Tightening
⑫ Wear limit, clearance
⑬ Engine speed
⑭ Ω, V, A

Illustrated symbols ⑮ to ㉑ in the exploded diagram indicate grade of lubricant and location of lubrication point.

⑮ Apply engine oil
⑯ Apply gear oil
⑰ Apply molybdenum disulfide oil
⑱ Apply wheel bearing grease
⑲ Apply lightweight lithium-soap base grease
⑳ Apply molybdenum disulfide grease
㉑ Apply locking agent (LOCTITE®)

www.badrad600.com



GENERAL INFORMATION

MOTORCYCLE IDENTIFICAITON

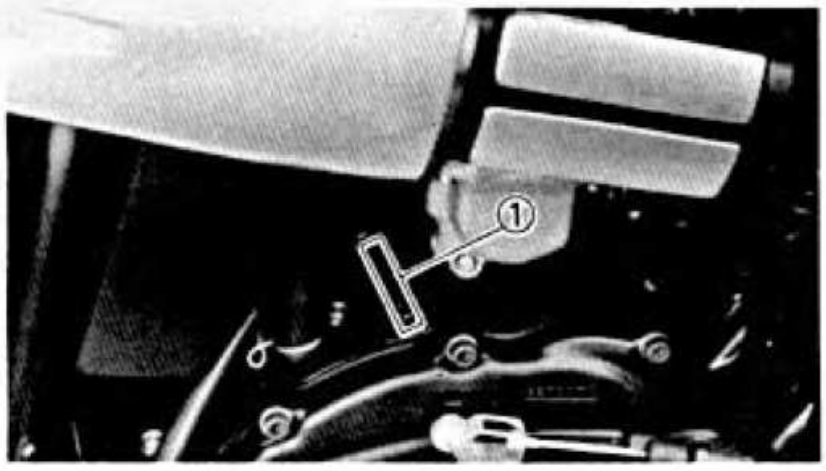
VEHICLE IDENTIFICATION NUMBER

The vehicle identification number ① is stamped into the right side of the steering head pipe.

Starting Serial Number:
YX600U (Except for California)
JYA1UJE0*JA000101
YX600UC (For California)
JYA1ULC0*JA000101

NOTE:

The vehicle identification number is used to identify your motorcycle and may be used to register your motorcycle with the licensing authority in your state.



ENGINE SERIAL NUMBER

The engine serial number ① is stamped into the elevated part of the left rear section of the engine.

Starting Serial Number:
YX600U (Except for California)
1UJ-047101
YX600UC (For California)
1UL-00701

NOTE:

- The first three digits of these numbers are for model identifications; the remaining digits are the unit production number.
- Designs and specifications are subject to change without notice.

www.badrad600.com

APPENDICES

SPECIFICATIONS

GENERAL SPECIFICATIONS

Model	YX600U/YX600UC
Model Code Number:	2WY (For YX600U) 2XA (For YX600UC)
Vehicle Identification Number:	JYA1UJE0*JA000101 (For YX600U) JYA1ULC0*JA000101 (For YX600UC)
Engine Starting Number:	1UJ-047101 (For YX600U) 1UL-00701 (For YX600UC)
Bulb Wattage (Quantity): Headlight Tail/Brake Light Flasher Light (Front)/Front Position Light Flasher Light (Rear) License Light Meter Light	 60W/55W (1 pcs.) 8W/27W (1 pcs.) 27W/8W (2 pcs.) 27W (2 pcs.) 3.8W (2 pcs.) 3.4W (4 pcs.)

www.badrad600.com

FOREWORD

This Supplementary Service Manual has been prepared to introduce new service and new data for the YX600W/WC. For complete information on service procedures, it is necessary to use this Supplementary Service Manual together with following manual:

YX600S/SC Service Manual: LIT-11616-05-06
YX600V/VC Supplementary Service Manual: LIT-11616-06-16

YX600W/YX600WC
SUPPLEMENTARY SERVICE MANUAL
© 1989 by Yamaha Motor Corporation, U.S.A.
1st Edition, January 1989
All rights reserved. Any reprinting or unauthorized use without the written permission of Yamaha Motor Corporation, U.S.A. is expressly prohibited.
Printed in U.S.A.
P/N LIT-11616-06-88

www.badrad600.com

NOTICE

This manual was written by the Yamaha Motor Company primarily for use by Yamaha dealers and their qualified mechanics. It is not possible to put an entire mechanic's education into one manual, so it is assumed that persons using this book to perform maintenance and repairs on Yamaha motorcycles have a basic understanding of the mechanical concepts and procedures inherent in motorcycle repair technology. Without such knowledge, attempted repairs or service to this model may render it unfit to use and/or unsafe.
Yamaha Motor Company, Ltd. is continually striving to improve all models manufactured by Yamaha. Modifications and significant changes in specifications or procedures will be forwarded to all Authorized Yamaha dealers and will, where applicable, appear in future editions of this manual.

TECHNICAL PUBLICATIONS
SERVICE DIVISION
MOTORCYCLE GROUP
YAMAHA MOTOR CO., LTD.

HOW TO USE THIS MANUAL

PARTICULARLY IMPORTANT INFORMATION

This material is distinguished by the following notation.

NOTE: A **NOTE** provides key information to make procedures easier or clearer.

CAUTION: A **CAUTION** indicates special procedures that must be followed to avoid damage to the motorcycle.

WARNING: A **WARNING** indicates special procedures that must be followed to avoid injury to a motorcycle operator or person inspecting or repairing the motorcycle.

MANUAL FORMAT

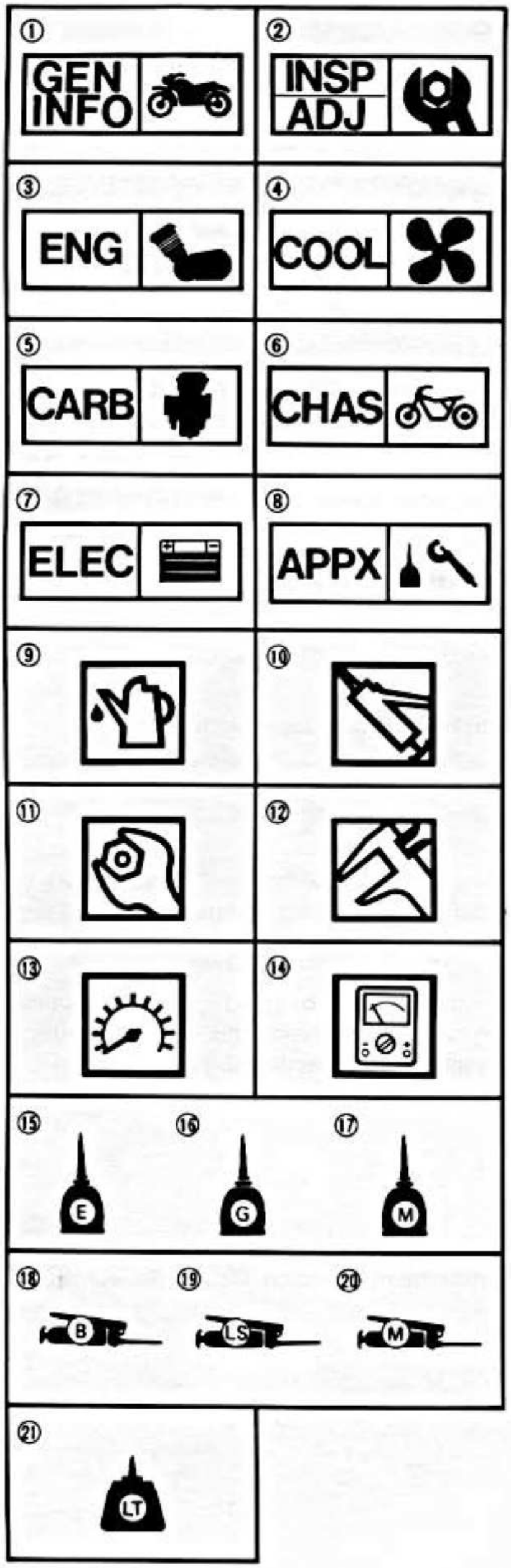
All of the procedures in this manual are organized in a sequential, step-by-step format. The information has been compiled to provide the mechanic with an easy to read, handy reference that contains comprehensive explanations of all disassembly, repair, assembly, and inspection operations.
In this revised format, the condition of a faulty component will precede an arrow symbol and the course of action required will follow the symbol, e.g.,

- Bearings
  Pitting/Damage → Replace.

EXPLODED DIAGRAM

Each chapter provides exploded diagrams before each disassembly section for ease in identifying correct disassembly and assembly procedures.

www.badrad600.com



ILLUSTRATED SYMBOLS
(Refer to the illustration)

Illustrated symbols ① to ⑧ are designed as thumb tabs to indicate the chapter's number and content.

① General information
② Periodic inspection and adjustment
③ Engine
④ Cooling system
⑤ Carburetion
⑥ Chassis
⑦ Electrical
⑧ Appendices

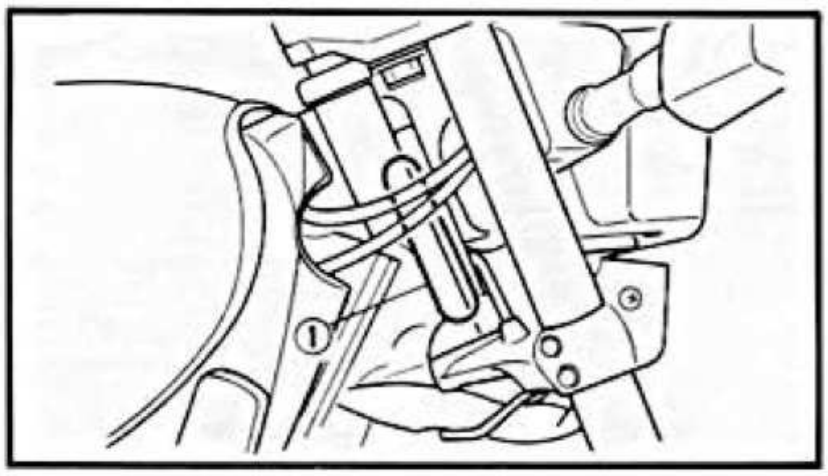
Illustrated symbols ⑨ to ⑭ are used to identify the specifications appearing.

⑨ Filling fluid
⑩ Lubricant
⑪ Tightening
⑫ Wear limit, clearance
⑬ Engine speed
⑭ Ω, V, A

Illustrated symbols ⑮ to ㉑ in the exploded diagram indicate grade of lubricant and location of lubrication point.

⑮ Apply engine oil
⑯ Apply gear oil
⑰ Apply molybdenum disulfide oil
⑱ Apply wheel bearing grease
⑲ Apply lightweight lithium-soap base grease
⑳ Apply molybdenum disulfide grease
㉑ Apply locking agent (LOCTITE®)

www.badrad600.com



GENERAL INFORMATION

MOTORCYCLE IDENTIFICATION

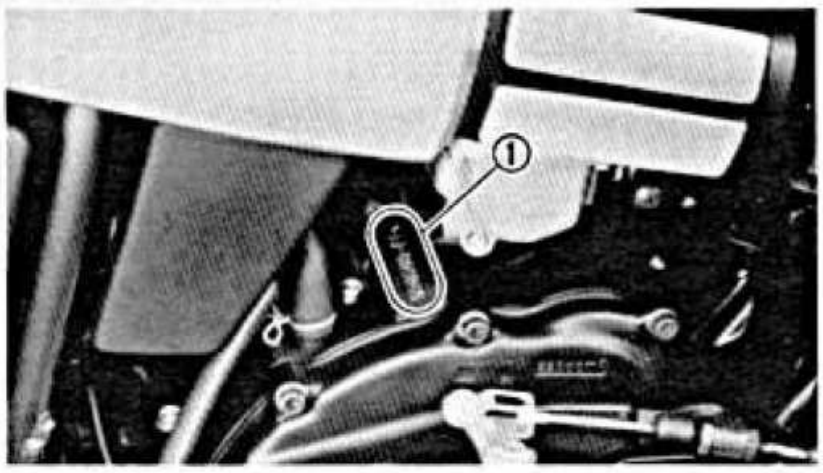
VEHICLE IDENTIFICATION NUMBER

The vehicle identification number ① is stamped into the right side of the steering head pipe.

Starting Serial Number:
YX600W (Except for California)
JYA3LTE0 * KA000101
YX600WC (For California)
JYA3LTC0 * KA007101

NOTE:

The vehicle identification number is used to identify your motorcycle and may be used to register your motorcycle with the licensing authority in your state.



ENGINE SERIAL NUMBER

The engine serial number ① is stamped into the elevated part of the left rear section of the engine.

Starting Serial Number:
YX600W (Except for California)
3LT-000101
YX600WC (For California)
3LT-007101

NOTE:

- The first three digits of these numbers are for model identifications; the remaining digits are the unit production number.
- Designs and specifications are subject to change without notice.

www.badrad600.com

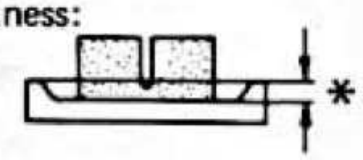
APPENDICES

SPECIFICATIONS

GENERAL SPECIFICATIONS

Model	YX600W/YX600WC
Model Code Number:	3LT1 (For YX600W) 3LT2 (For YX600WC)
Vehicle Identification Number:	JYA3LTE0 * KA000101 (For YX600W) JYA3LTC0 * KA007101 (For YX600WC)
Engine Starting Number:	3LT-000101 (For YX600W) 3LT-007101 (For YX600WC)

Chassis

Model	YX600W/YX600WC
Front Disc Brake: Type Outside Dia. x Thickness Pad Thickness:  Inner < Limit > * Outer < Limit > *	 Dual disc 267 x 5 mm (10.5 x 0.2 in) 5.5 mm (0.21 in) 0.5 mm (0.019 in) 5.5 mm (0.21 in) 0.5 mm (0.019 in)
Master Cylinder Inside Dia. Caliper Cylinder Inside Dia. Brake Fluid Type	15.87 mm (0.62 in) 42.8 mm (1.50 in) DOT #3 or DOT #4
Clutch Lever Free Play (At Lever Pivot Point)	2 ~ 3 mm (0.08 ~ 0.10 in)

Electrical

Model	YX600W/YX600WC
T.C.I.: Pickup Coil Resistance (Color) T.C.I. Unit – Manufacturer	 81 ~ 121Ω at 20°C (68°F) (White – Red) (White – Black) TID14-79 HITACHI
Ignition Coil Model/Manufacturer Minimum Spark Gap Primary Winding Resistance Secondary Winding Resistance Spark Plug Cap Resistance	 CM12-40/HITACHI 6 mm (0.24 in) or more at 500 r/min 1.8 ~ 2.2Ω at 20°C (68°F) 9.6 ~ 14.4 kΩ at 20°C (68°F) 10 kΩ

www.badrad600.com

Electrical

Model	YX600W/YX600WC
A.C. Generator:	
Model/Manufacturer	FL118-16/HITACHI
Nominal Output	12V, 21A at 5,000 r/min
Starter Coil Resistance	0.31 ~ 0.37Ω at 20°C (68°F) (White – White)
Voltage Regulator:	
Type	Field control
Model/Manufacturer	SH538A-12/SHINDENGEN
No Load Regulated Voltage	14 ~ 15V
Rectifier:	
Model/Manufacturer	SH538A-12/SHINDENGEN
Capacity	25A
Withstand Voltage	240V
Electrical Starter System:	
Type	Constant mesh type
Starter Motor:	
Model/Manufacturer	SM-13 MITSUBA
Output	0.5 kw
Armature Coil Resistance	0.012Ω ± 10% at 20°C (68°F)
Brush – Overall Length	12.5 mm (0.50 in)
< Limit >	4 mm (0.16 in)
– Spring Force	340 ~ 460 g (12.0 ~ 16.2 oz)
Commutator Dia.	28 mm (1.10 in)
Wear Limit	27 mm (1.06 in)
Mica Undercut	0.8 mm (0.03 in)
Starter Relay:	
Model/Manufacturer	3AY/HITACHI
Amperage Rating	100A
Coil Resistance	4.3Ω at 20°C (68°F)
Flasher Relay (Relay Assembly):	
Type	Semi transistor type
Model/Manufacturer	FB257H/NIPPON DENSO
Self Cancelling Device	Yes
Flasher Frequency	85 ± 10 cycle/min
Wattage	27W x 2 pcs + 3.4W
Circuit Breaker:	
Type	Fuse
Amperage for Individual Circuit x Quantity:	
MAIN	30A x 1 pcs.
HEADLIGHT	20A x 1 pcs.
SIGNAL	10A x 1 pcs.
IGNITION	10A x 1 pcs.
RESERVE	30A x 1 pcs, 10A x 1 pcs.

www.badrad600.com

Tightening torque chart

Part to be tightened	Part name	Thread size	Q'ty	Tightening torque			Remarks
				Nm	m · kg	ft · lb	
Cam shaft cap	Bolt	M6 P1.0	24	10	1.0	7.2	Tighten in 3-stages
Cylinder (cam chain)	Stud bolt	M6 P1.0	4	5	0.5	3.6	Apply oil
Cylinder (cam chain)	Nut	M6 P1.0	4	10	1.0	7.2	
Cylinder head (Exhaust pipe)	Stud bolt	M6 P1.0	8	10	1.0	7.2	Apply oil
Cylinder and crankcase	Nut	M8 P1.25	1	20	2.0	14	
Cylinder head	Cap nut	M8 P1.25	12	22	2.2	16	Apply oil
Spark plug		M12 P1.25	4	17.5	1.75	13	
Cylinder head cover	Bolt	M6 P1.0	12	10	1.0	7.2	
Cylinder	Stud bolt	M8 P1.25	1	15	1.5	11	Apply oil
Connecting rod and rod cap	Nut	M7 P0.75	8	25	2.5	18	
Camshaft and sprocket	Bolt	M7 P1.0	4	24	2.4	17	
Cam chain tensioner stopper bolt	Bolt	M8 P1.0	1	8	0.8	5.7	
Cam chain tensioner case and cylinder	Bolt	M6 P1.0	2	10	1.0	7.2	
Cam chain tensioner case lock nut	Nut	M8 P1.25	1	9	0.9	6.5	
Crankcase	Plug	M10 P1.25	1	10	1.0	7.2	
Rotor housing and pump cover	Screw	M6 P1.0	1	7	0.7	5.1	
Oil pump ass'y and crankcase	Screw	M6 P1.0	3	7	0.7	5.1	
Strainer housing and crankcase	Bolt	M6 P1.0	2	10	1.0	7.2	
Strainer cover and crankcase	Bolt	M6 P1.0	12	10	1.0	7.2	
Filter cover and crankcase	Union bolt	M20 P1.5	1	15	1.5	11	
Drain bolt	Plug	M14 P1.5	1	43	4.3	31	
Carburetor joint and cylinder head	Bolt	M6 P1.0	8	10	1.0	7.2	
Air filer cover	Screw	M5 P0.8	4	5	0.5	3.6	
Air filter case	Bolt	M6 P1.0	3	7	0.7	5.1	
Exhaust pipe and cylinder head	Nut	M6 P1.0	8	10	1.0	7.2	
Exhaust pipe joint	Bolt	M8 P1.25	6	20	2.0	14	
Muffler	Bolt	M10 P1.25	2	25	2.5	18	
Crankcase	Stud bolt	M8 P1.25	12	13	1.3	9.4	Apply oil
Crankcase (upper and lower)	Bolt	M8 P1.25	11	24	2.4	17	Apply oil
Crankcase (upper and lower)	Bolt	M6 P1.0	23	12	1.2	8.7	Apply oil

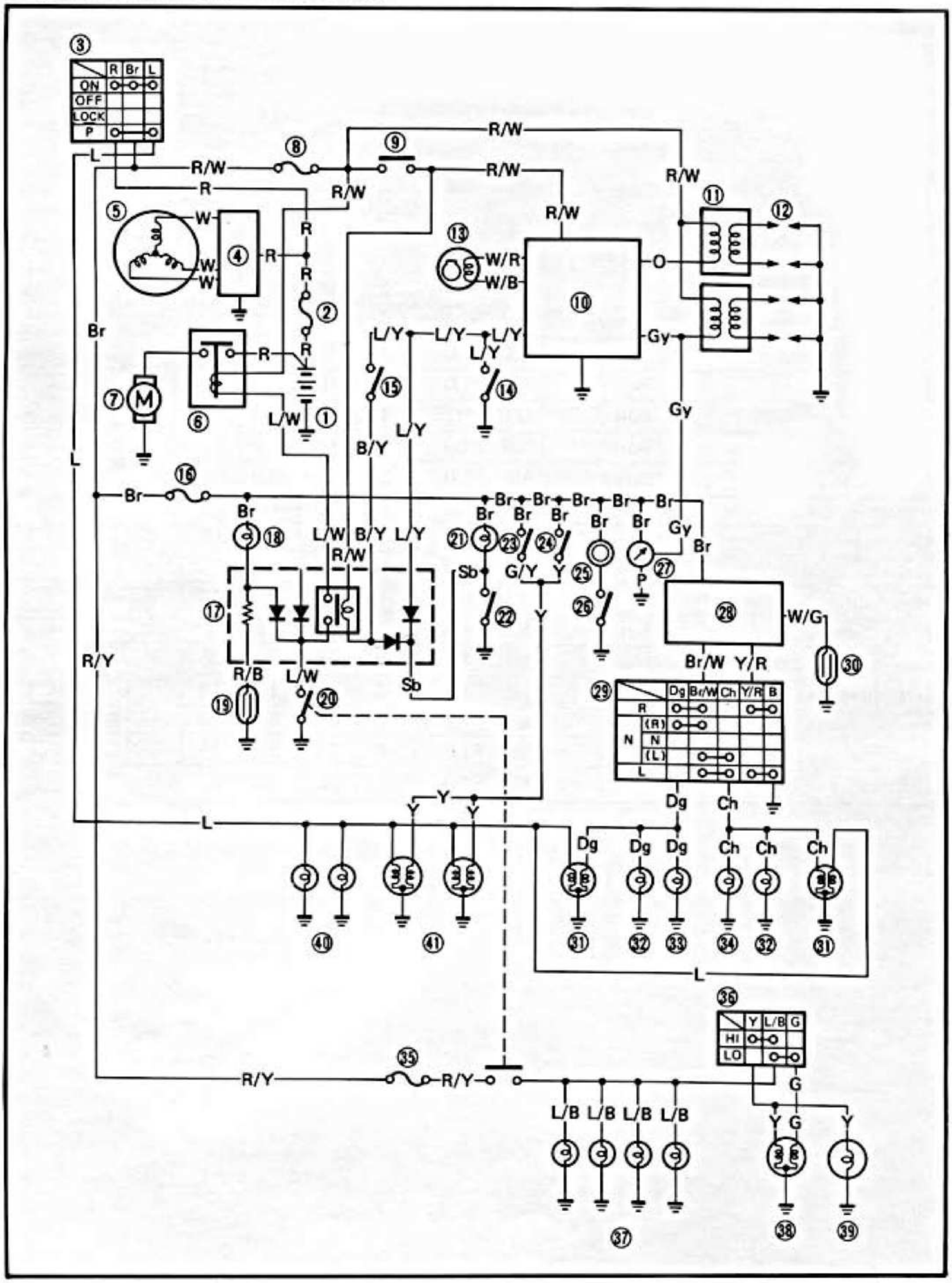
www.badrad600.com

Part to be tightened	Part name	Thread size	Q'ty	Tightening torque			Remarks
				Nm	m · kg	ft · lb	
Generator cover and crankcase	Bolt	M6 P1.0	3	10	1.0	7.2	
Bearing cover plate (crankcase right)	Screw	M6 P1.0	4	8	0.8	5.7	
Clutch cable holder	Screw	M6 P1.0	1	10	1.0	7.2	
Crankcase cover	Bolt	M6 P1.0	13	10	1.0	7.2	
Crankcase (Main gallary blind plug)	Plug	M20 P1.5	2	12	1.2	8.7	Apply oil
Clutch pressure plate	Bolt	M6 P1.0	5	8	0.8	5.8	
Clutch boss	Nut	M20 P1.0	1	70	7.0	50	
Drive sprocket	Bolt	M6 P1.0	2	10	1.0	7.2	
Stopper plate	Screw	M5 P0.8	1	4	0.4	2.9	Use LOCTITE®
Cam segment	Bolt	M6 P1.0	1	10	1.0	7.2	Use LOCTITE®
Change pedal	Bolt	M6 P1.0	1	10	1.0	7.2	
A.C. magneto	Bolt	M10 P1.25	1	80	8.0	58	
Stator	Bolt	M6 P1.0	3	10	1.0	7.2	Use LOCTITE®
Pickup coil base	Screw	M6 P1.0	2	8	0.8	5.8	
Starter motor	Bolt	M6 P1.0	2	10	1.0	7.2	
Neutral switch	Screw	M5 P0.8	3	3.5	0.35	2.5	Use LOCTITE®
Oil level gauge switch	Bolt	M6 P1.0	2	7	0.7	5.1	
Relief valve and crankcase	—		1	20	2.0	14	
HY-VO chain tensioner	Bolt	M6 P1.0	2	10	1.0	7.2	Use LOCTITE®
Primary drive gear	Nut	M16 P1.5	1	50	5.0	36	
Bearing cover plate	Screw	M6 P1.0	2	10	1.0	7.2	Use LOCTITE®
Starter clutch	Bolt	M8 P1.25	3	25	2.5	18	Use LOCTITE®
Shift shaft stopper	Screw	M8 P1.25	1	22	2.2	16	
Shift cam bearing plate	Screw	M6 P1.0	1	10	1.0	7.2	

www.badrad600.com

ELECTRICAL

YX600W/WC CIRCUIT DIAGRAM



www.badrad600.com

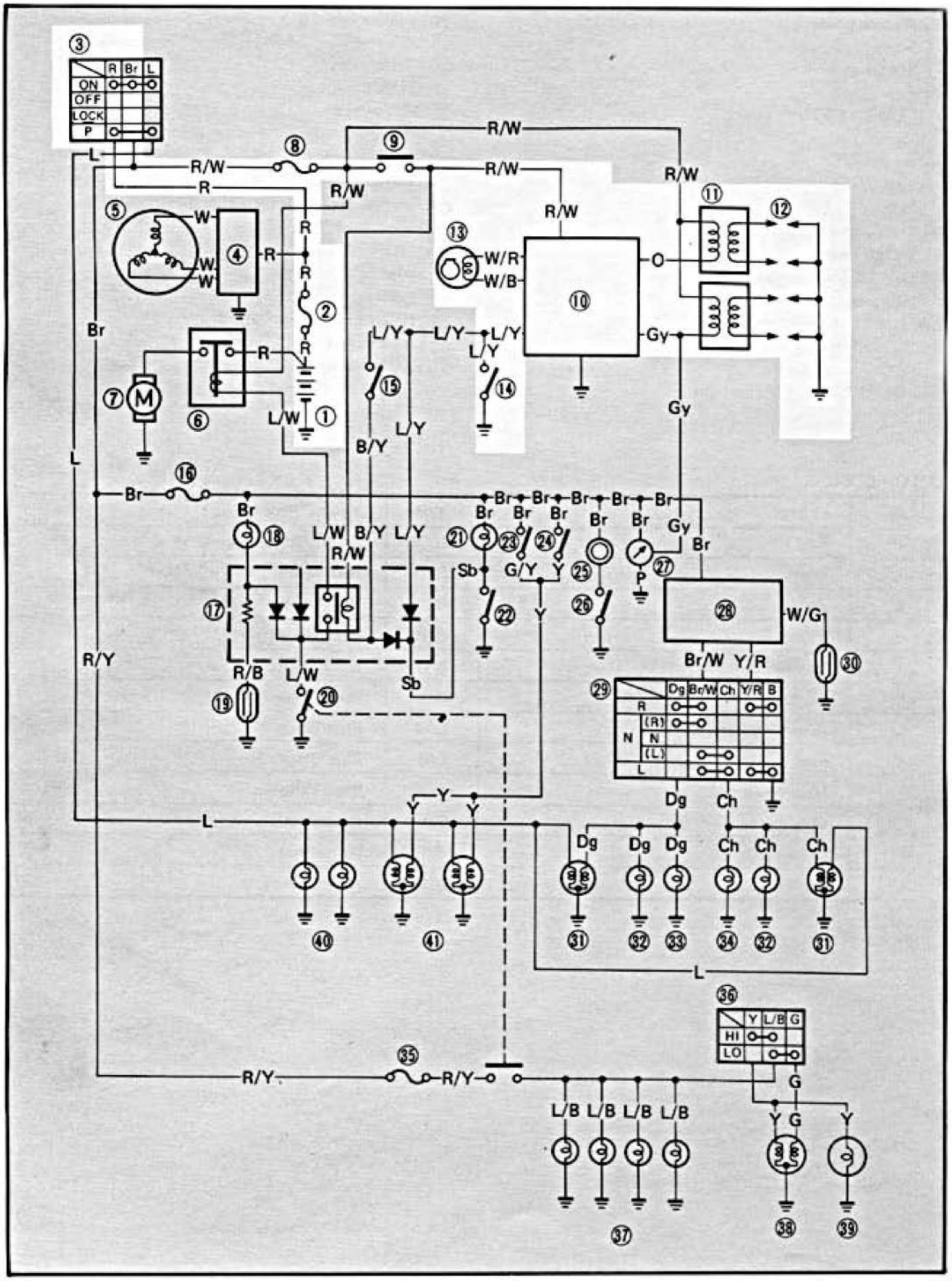
① Battery
② Fuse (Main)
③ "MAIN" switch
④ Rectifier/Regulator
⑤ A.C. Magneto
⑥ Starter relay
⑦ Starter motor
⑧ Fuse (Ignition)
⑨ "ENGINE STOP" switch
⑩ Ignitor
⑪ Ignition coil
⑫ Spark plug
⑬ Pick up coil
⑭ Sidestand switch
⑮ Clutch switch
⑯ Fuse "Signal"
⑰ Relay assembly
⑱ "OIL" indicator light
⑲ Oil level switch
⑳ "START" switch
㉑ "NEUTRAL" indicator light
㉒ Neutral switch
㉓ Front brake switch
㉔ Rear brake switch
㉕ Horn
㉖ "HORN" switch
㉗ Tachometer
㉘ Flasher relay
㉙ "TURN" switch
㉚ Reed switch
㉛ Front position light/Flasher light
㉜ Rear flasher light
㉝ "TURN" indicator light (Right)
㉞ "TURN" indicator light (Left)
㉟ Fuse "Head"
㊱ "LIGHTS" (Dimmer) switch
㊲ Meter light
㊳ Headlight
㊴ "HIGH BEAM" indicator light
㊵ Licence light
㊶ Tail/Brake light

COLOR CODE

O	Orange	Y/R	Yellow/Red
R	Red	Br/W	Brown/White
L	Blue	R/W	Red/White
Br	Brown	R/Y	Red/Yellow
B	Black	B/R	Black/Red
Y	Yellow	B/W	Black/White
W	White	B/Y	Black/Yellow
G	Green	L/W	Blue/White
P	Pink	L/B	Blue/Black
Dg	Dark green	L/Y	Blue/Yellow
Ch	Chocolate	G/Y	Green/Yellow
Gy	Gray	W/R	White/Red
Sb	Sky blue	W/G	White/Green

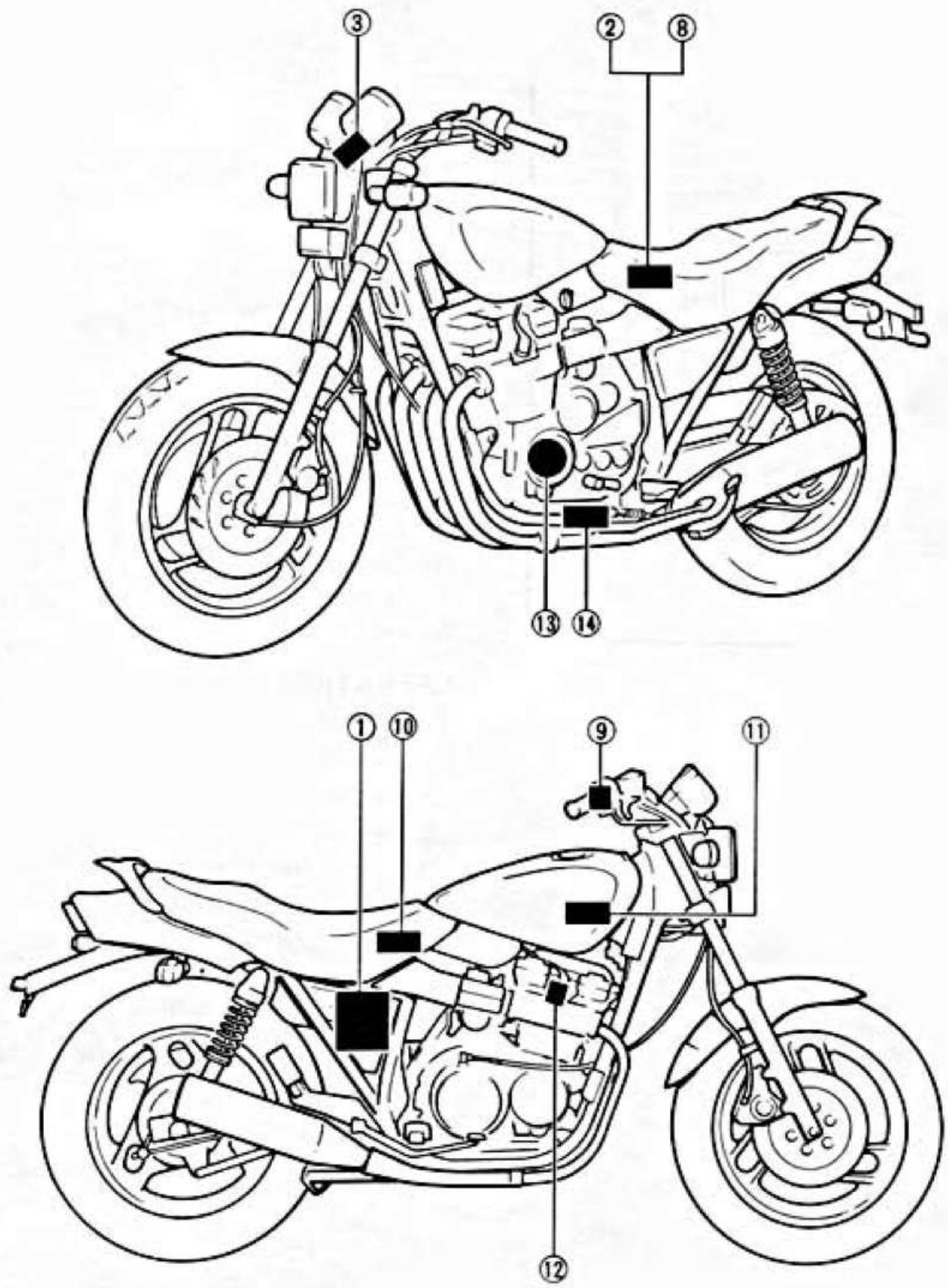
www.badrad600.com

IGNITION SYSTEM
CIRCUIT DIAGRAM

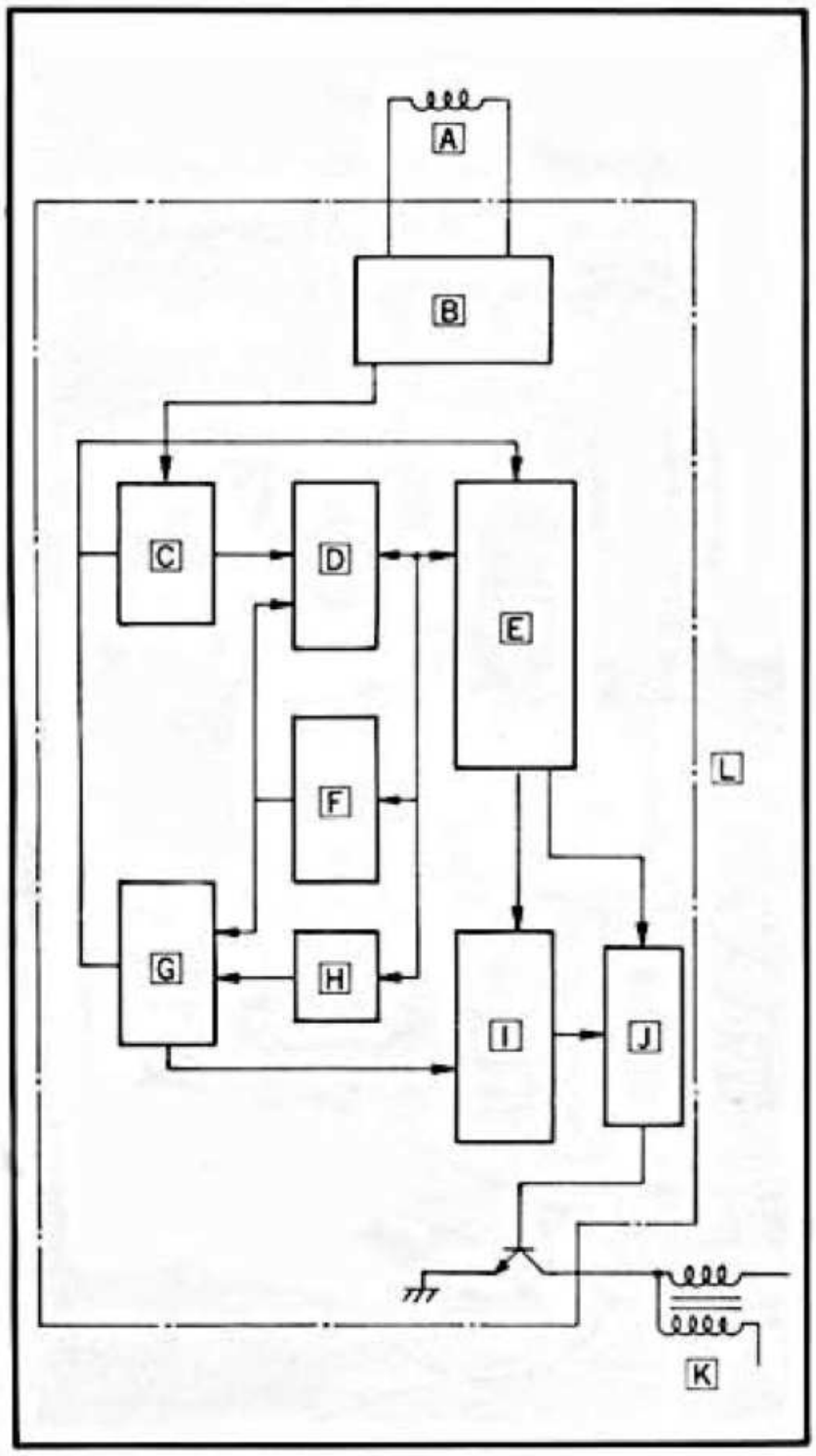


www.badrad600.com

① Battery
② Fuse (MAIN)
③ Main switch
⑧ Fuse (IGNITION)
⑨ "ENGINE STOP" switch
⑩ Ignitor unit
⑪ Ignition coil
⑫ Spark plug
⑬ Pickup coil
⑭ Sidestand switch



www.badrad600.com



DIGITAL IGNITION CONTRL SYSTEM

DESCRIPTION

The electronic ignition that sparks the engine is computer controlled and operated by the digital microprocessor. It has a pre-programed ignition advance curve.

This programed advance curve closely matches the spark timing to the engine's ignition requirements. Only one pickup coil is needed to meet the requirements of the digital ignitor unit.

The digital ignitor also includes the control unit for the electric fuel pump.

- A Pickup coil
- B Wave-shape shaping circuit
- C Edge detection circuit
- D Latch circuit
- E Microprocessor
- F Free-running counter
- G Comparison circuit
- H Register
- I Flip-flop circuit
- J Driving circuit
- K Ignition coil
- L Digital ignitor unit

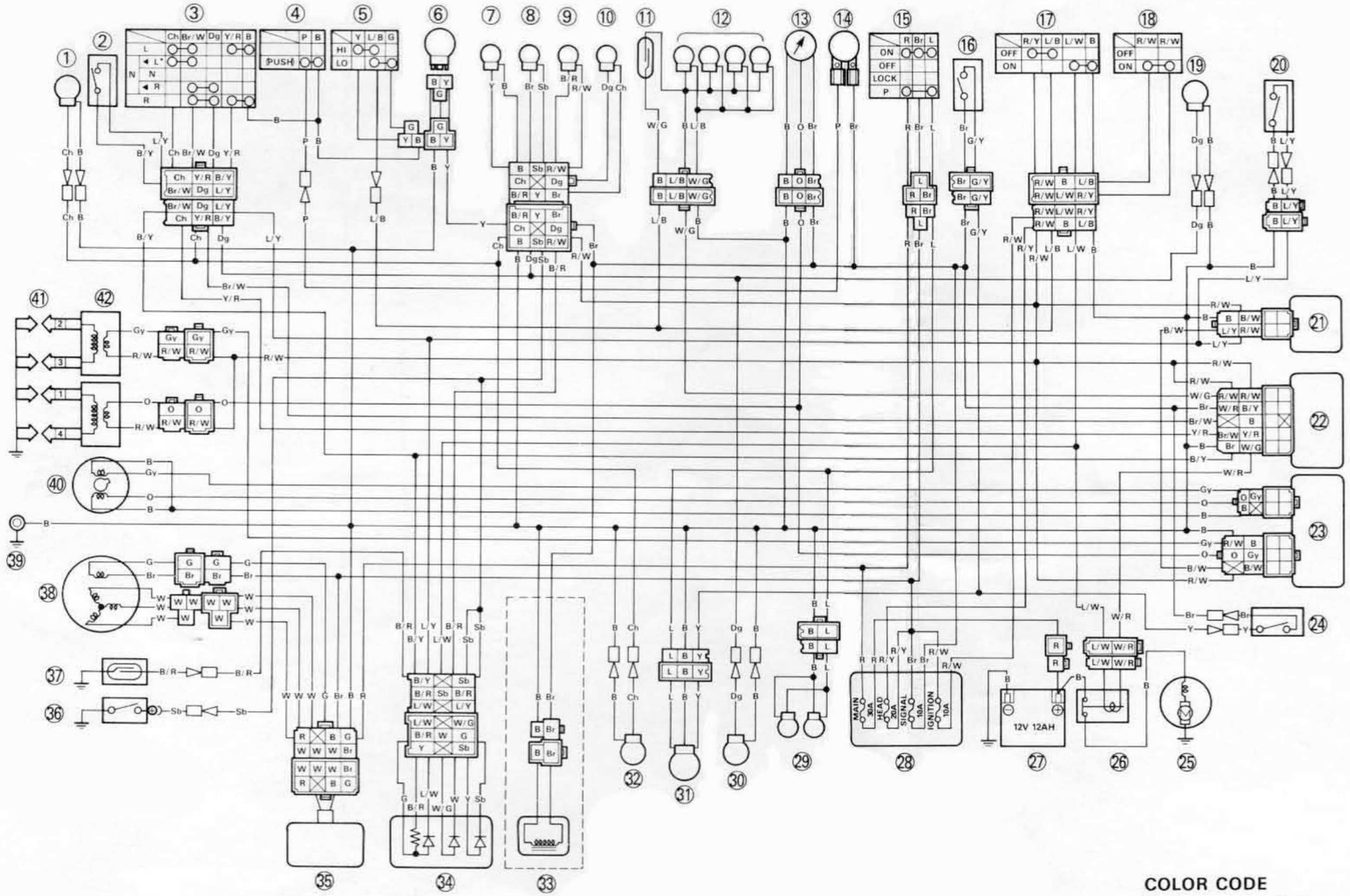
OPERATION

The following operations are digitally-performed by signal from the pickup coil signal:

1. Determing proper ignition timing.
2. Sensing the engine revolution speed.
3. Determing timing for switching on ignition coil (duty control).
4. Increasing ignition coil primary current for starting the engine.
5. Sensing engine stall.
6. Preventing over-revolution of the engine.

www.badrad600.com

YX600S/YX600SC WIRING DIAGRAM



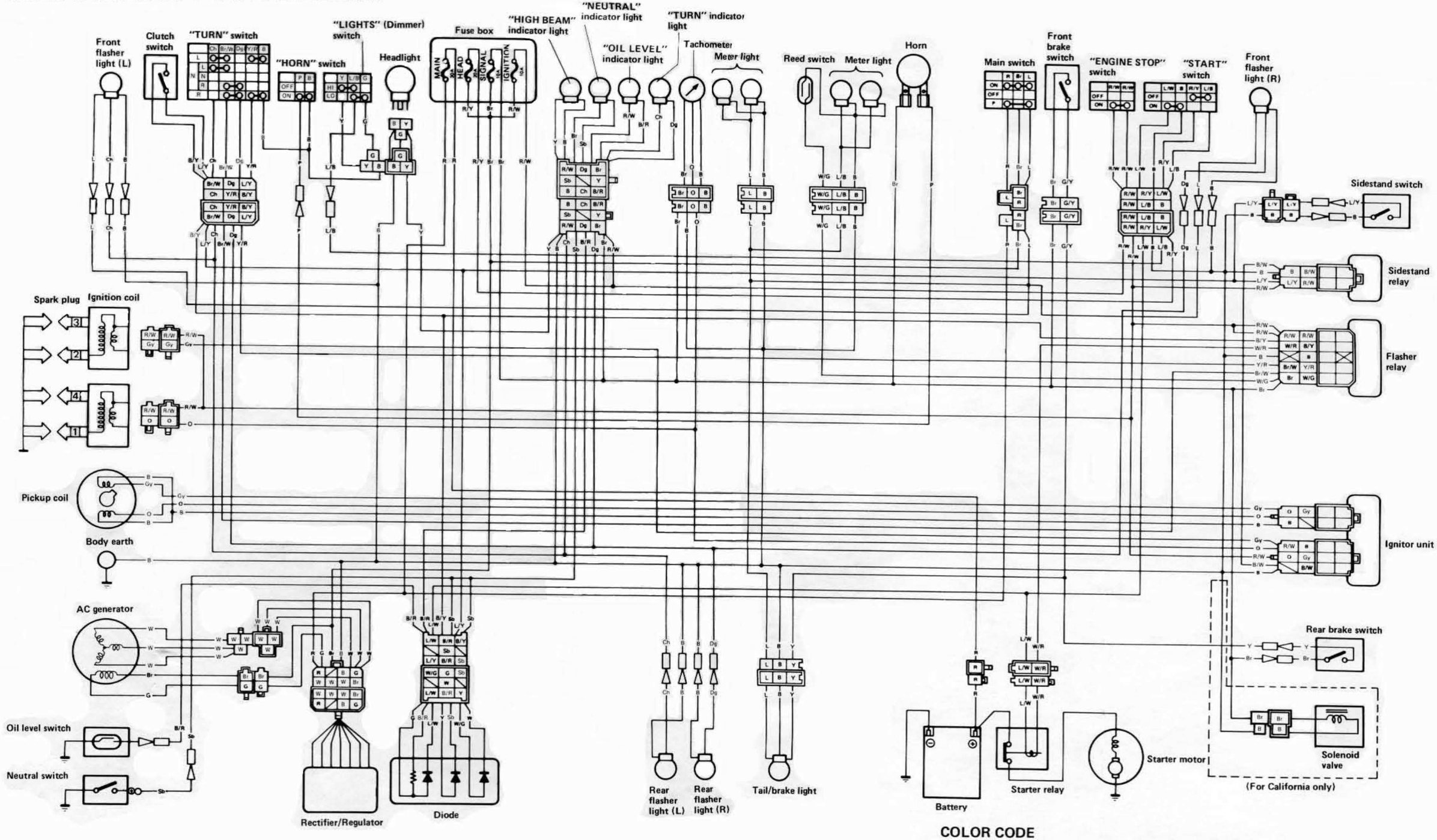
① Front flasher light (L)
② Clutch switch
③ "TURN" switch
④ "HORN" switch
⑤ "LIGHTS" (dimmer) switch
⑥ Headlight
⑦ "HIGH BEAM" indicator light
⑧ "NEUTRAL" indicator light
⑨ "OIL" indicator light
⑩ "TURN" indicator light
⑪ Reed switch
⑫ Meter light
⑬ Tachometer
⑭ Horn
⑮ Main switch
⑯ Front brake switch
⑰ "START" switch
⑱ "ENGINE STOP" switch
⑲ Front flasher light (R)
⑳ Sidestand switch
㉑ Sidestand relay
㉒ Relay assembly
㉓ Ignitor unit
㉔ Rear brake switch
㉕ Starter motor
㉖ Starter relay
㉗ Battery
㉘ Fuse
㉙ License light
㉚ Rear flasher light (R)
㉛ Tail/Brake light
㉜ Rear flasher light (L)
㉝ Air vent control valve (For YX600SC only)
㉞ Diode
㉟ Rectifier/regulator
㊱ Neutral switch
㊲ Oil level switch
㊳ AC magneto
㊴ Body earth
㊵ Pickup coil
㊶ Spark plug
㊷ Ignition coil

COLOR CODE

R	Red
B	Black
W	White
Y	Yellow
G	Green
L	Blue
Br	Brown
Ch	Chocolate
Dg	Dark green
P	Pink
O	Orange
Sb	Sky blue
Gy	Gray
R/W	Red/White
R/Y	Red/Yellow
B/W	Black/White
B/Y	Black/Yellow
B/R	Black/Red
W/R	White/Red
W/G	White/Green
Y/R	Yellow/Red
G/Y	Green/Yellow
L/W	Blue/White
L/Y	Blue/Yellow
L/B	Blue/Black
Br/W	Brown/White

www.badrad600.com

YX600U/YX600UC WIRING DIAGRAM



COLOR CODE

B . . . . . .Black	Ch . . . . . .Chocolate	L/Y . . . . .Blue/Yellow
L . . . . . .Blue	Dg . . . . . .Dark green	L/B. . . . .Blue/Black
Y . . . . . .Yellow	Sb . . . . . .Sky blue	L/W . . . . .Blue/White
O . . . . . .Orange	Gy . . . . . .Gray	Y/R . . . . .Yellow/Red
P . . . . . .Pink	Br. . . . . .Brown	R/Y . . . . .Red/Yellow
W . . . . . .White	B/Y . . . . .Black/Yellow	R/W . . . . .Red/White
G . . . . . .Green	B/R . . . . .Black/Red	R/B . . . . .Red/Black
R . . . . . .Red	B/W . . . . .Black/White	W/G . . . . .White/Green

www.badrad600.com