

YZF-R1 2024 KIT MANUAL

GYTR[®]
GENUINE YAMAHA TECHNOLOGY RACING
PERFORMANCE PRODUCTS

Introduction

- This manual is intended for persons with knowledge and experience of motorcycles. Please refer to the YZF-R1 service manual, which shall be published from YAMAHA MOTOR CO. LTD., for information on part assembly and maintenance.
- The design of the YZF-R1 racing kit is based on YZF-R1, according to FIM racing rules, but that does not mean the kit conforms to all competitions. When used in races, riders must mount the YZF-R1 racing kit at their own discretion after checking the rules of competition issued by the sponsor.

About Warranty

- Please understand that these parts are not covered by warranty.
- The Manufacturer does not take any responsibility for problems caused by these parts.

Request

- These kit parts are intended exclusively for racing purposes. You are strictly requested not to use them on public roads.
- The specifications and usage methods of these kit parts along with the contents of this manual are subject to change without notice for improvement.

Parts List Symbols

- The star mark (*) means that the part is included in the kit set and is a genuine Yamaha part. Therefore, you can easily purchase the part at any Yamaha part dealer when necessary.
- The circle mark (°) means that although the part is included in the kit set it can also be purchased individually.

| | No. | PART No. | PART NAME | Q'TY | REMARKS |
|---|-----|--------------|------------------------------|------|----------|
| ° | 1 | 4C8-11181-70 | GASKET, CYLINDER HEAD 1 | 3 | t=0.30mm |
| * | 2 | 5VY-11351-00 | GASKET, CYLINDER 1 | 3 | |
| * | 3 | 4C8-11603-00 | PISTON RING SET | 12 | |
| | 4 | 5VY-1165A-01 | BOLT, CONNECTING ROD SPECIAL | 24 | |
| * | | | | 24 | |

Symbol Marks

Particularly important information is distinguished in this manual by the following notations.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.



A WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.



A NOTICE indicates special precautions that must be taken to avoid damage to the vehicle or other property.



A TIP provides key information to make procedures easier or clearer.

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1 Engine Specifications

| Spec | | SBK/JSB | SST | STD |
|--|-----|--------------------|--------------------|--------------------|
| Displacement | | 998cm ³ | 998cm ³ | 998cm ³ |
| Bore/Stroke | | 79.0 × 50.9 mm | 79.0 × 50.9 mm | 79.0 × 50.9 mm |
| Maximum engine speed (limiter controlled speed) | | 14750 rpm | 14750 rpm | 14500 rpm |
| Compression ratio (recommended value) | | 13.0 – 13.4 | 13.0 | 13.0 |
| Valve timing (event angle) | INT | 105° | 108° *106° | 108° |
| | EXT | 109° | 110° *109° | 110° |
| Clearance between valve and piston (minimum) | INT | 0.95 mm | 0.95mm | – |
| | EXT | 1.90 mm | 1.95mm | – |
| Valve (tappet) clearance | INT | 0.09 – 0.17 mm | 0.09 – 0.17 mm | 0.09 – 0.17 mm |
| | EXT | 0.18 – 0.23 mm | 0.18 – 0.23 mm | 0.18 – 0.23 mm |
| Squish recommended value | INT | 0.65 – 0.75 mm | 0.65 – 0.75 mm | 0.65 – 0.75 mm |
| | EXT | 0.95 – 1.05 mm | 0.95 – 1.05 mm | 0.95 – 1.05 mm |

* Recommended value when it can be changed.

2 Kit Parts

2-1 Installing Electrical Parts

1. ECU Set (B3L-8591A-72/B3L-8591A-A1)

Parts List

for SBK

| No. | PART No. | PART NAME | Q'TY | REMARKS |
|-----|--------------|-----------------|------|---------|
| 1 | B3L-8591A-72 | ECU SET for SBK | 1 | |

The ECU in this set has base data (R1-22_BaseData_00_SBK.ycz) written for SBK (Superbike).

The base data for SBK is for modified engines.

for SST

| No. | PART No. | PART NAME | Q'TY | REMARKS |
|-----|--------------|-----------------|------|---------|
| 1 | B3L-8591A-A1 | ECU SET for SST | 1 | |

The base data (R1-24_BaseData_00_STK.ycz) for SST (Stock Sports) is written in the ECU of this set.

The base data for SST is for standard engine.

- Use of this set and a wire harness included in the kit enables regulation (or setting) of fuel injection and ignition timing, etc.
- For details as to how to regulate (or set) fuel injection and ignition timings, etc., and the method of writing the base data, refer to the FI matching system manual.

* Recommended muffler

Made by Akrapovic (For details of the specification, please access the website.)

Web <https://www.akrapovic.com/en/intro?returnUrl=%2F>

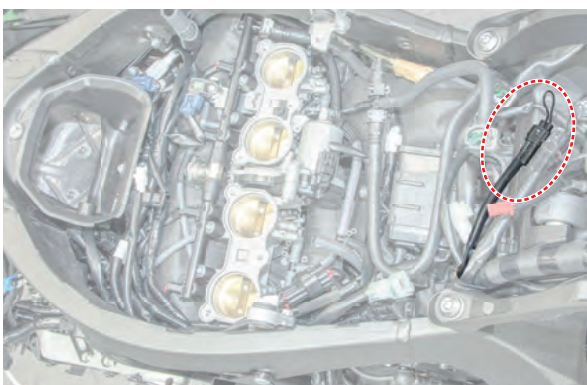
Both for SBK and SST, the mode can be switched between Sprint and EWC by inserting and removing the 2-pole coupler of the kit harness.

When the coupler is connected, the mode is for EWC.

When the coupler is disconnected, the mode is for sprint.

When shipped, the coupler is connected.

(See figure below.)



The set of the camshaft, cam sprocket, valve spring, ECU and air funnel must be used in the following combination.

| MODEL | SHAFT CAM 1 INT | SHAFT CAM 2 EXT | CAM SPROCKET | VALVE SPRING SET | AIR FUNNEL SET | ECU SET | WIRE HARNESS SET | METER(REPAIR SET) |
|---|--|--|---|--|---|------------------------------|------------------|---|
| 2015 | 2CR-12170-70 | 2CR-12180-70 | B3L-12176-70 | 2CR-A2110-70 2CR-A2110-71 2CR-A2110-72 | MGC-191114-00 | 2CR-8591A-70 | 2CR-F2590-70 | R1:2CR-83500-00 (SET No.2CR-28130-70) R1M:2KS-83500-00 (2KS-28130-70) |
| 2016 | | | | | 2CR-1440B-70 | 2CR-8591A-71 2CR-8591A-72 | | |
| 2017 | | | | | | | | |
| 2018 2019 | 2CR-12170-70 | 2CR-12180-70 | B3L-12176-70 | 2CR-A2110-71 2CR-A2110-72 | 2CR-1440B-70 | BX4-8591A-70 BX4-8591A-71 | BX4-F2590-70 | R1:BX4-83500-30 (SET No.B3L-28130-70) R1M:2KS-83500-60 (SET No.2KS-28130-80) |
| 2020 2021 2022 2023 2024 | B3L-12170-70 | B3L-12180-70 | B3L-12176-70 | Use with original valve springs of YZF-R1. BX4-12113-00 BX4-12114-00 BX4-12123-00 BX4-12124-00 | B3L-1440B-70 | B3L-8591A-71 | B3L-F2590-70 | R1:B3L-83500-00 (SET No.B3L-28130-70) R1M:B4S-83500-00 (SET No.B4S-28130-70) |
| 2020 2021 2022 2023 2024 for SST | Use with original cam shaft of YZF-R1. B3L-12170-00 | Use with original cam shaft of YZF-R1. B3L-12180-00 | Use with original cam sprocket of YZF-R1. | Use with original valve springs of YZF-R1. BX4-12113-00 BX4-12114-00 BX4-12123-00 BX4-12124-00 | Use with original air funnel of YZF-R1. B3L-1440B-01 | B3L-8591A-A1 | B3L-F2590-70 | R1:B3L-83500-00 (SET No.B3L-28130-70) R1M:B4S-83500-00 (SET No.B4S-28130-70) |
| 2020 2021 2022 2023 2024 for SST | Use with original cam shaft of YZF-R1. B3L-12170-00 | Use with original cam shaft of YZF-R1. B3L-12180-00 | B3L-12177-70 | Use with original valve springs of YZF-R1. BX4-12113-00 BX4-12114-00 BX4-12123-00 BX4-12124-00 | Use with original air funnel of YZF-R1. B3L-1440B-01 | B3L-8591A-A1 | | |
| 2020 2021 2022 2023 2024 for SBK | B3L-12170-80 | B3L-12180-80 | B3L-12176-70 | 2CR-A2110-72 | B3L-1440B-80 | B3L-8591A-72 | | |

NOTICE

Using in other combinations may possibly damage the engine.

Be sure to use in the combination as stated above.

2. Cable Interface (2CR-8533A-70)

Parts List

| No. | PART No. | PART NAME | Q'TY | REMARKS |
|-----|--------------|------------------|------|---------|
| 1 | 2CR-8533A-70 | CABLE, INTERFACE | 1 | USB |

R1 EN2911 2019Rev

- This cable connects the kit wire harness to the personal computer on which YEC FI Matching System (YMS) is installed.
- Please see the YMS manual for instructions on how to use YMS.
- When connecting the cable to the PC for the first time, it is necessary to install the USB driver. Refer to the USB Driver Installation Manual for details on how to install the USB driver.

Self-Diagnosis Functions

The ECU is equipped with a self-diagnostic function in order to ensure that the fuel injection system is operating normally. If this function detects a malfunction in the system, it immediately operates the engine under substitute characteristics and illuminates the engine trouble warning light to alert the rider that a malfunction has occurred in the system. Once a malfunction has been detected, a fault code is stored in the memory of the ECU.

To check the following codes, connect an OBD tool (commercially available) to the vehicle using the genuine Yamaha part "90890-03249 OBD/GST LEADWIRE KIT".

For details, refer to the STD service manual published by Yamaha Motor Co., Ltd.

You can purchase "90890-03249 OBD/GST LEADWIRE KIT" at any Yamaha part dealer.

R1 EN 2024Rev

| DTC CODE | DTC English name/check item |
|--------------|---|
| C0520 | Multi-axis Acceleration Sensor Module "A" |
| C1000 | Steering Damper Solenoid Control Circuit |
| P0030 | HO2S Heater Control Circuit Bank 1 Sensor 1 |
| P0050 | HO2S Heater Control Circuit Bank 2 Sensor 1 |
| P00D1 | HO2S Heater Control Circuit Range/Performance Bank 1 Sensor 1 |
| P00D3 | HO2S Heater Control Circuit Range/Performance Bank 2 Sensor 1 |
| P0069 | Manifold Absolute Pressure - Barometric Pressure Correlation |
| P0105 | Manifold Absolute Pressure/Barometric Pressure Sensor Circuit |
| P0106 | Manifold Absolute Pressure/Barometric Pressure Sensor Circuit Range/Performance |
| P0107 | Manifold Absolute Pressure/Barometric Pressure Sensor Circuit Low |
| P0108 | Manifold Absolute Pressure/Barometric Pressure Sensor Circuit High |
| P0110 | Intake Air Temperature Sensor 1 Circuit Bank 1 |
| P0111 | Intake Air Temperature Sensor 1 Circuit Range/Performance Bank 1 |
| P0112 | Intake Air Temperature Sensor 1 Circuit Low Bank 1 |
| P0113 | Intake Air Temperature Sensor 1 Circuit High Bank 1 |
| P0115 | Engine Coolant Temperature Sensor 1 Circuit |
| P0116 | Engine Coolant Temperature Sensor 1 Circuit Range/Performance |
| P0117 | Engine Coolant Temperature Sensor 1 Circuit Low |
| P0118 | Engine Coolant Temperature Sensor 1 Circuit High |
| P0122 | Throttle/Pedal Position Sensor/Switch "A" Circuit Low |
| P0123 | Throttle/Pedal Position Sensor/Switch "A" Circuit High |
| P0132 | O2 Sensor Circuit High Voltage Bank 1 Sensor 1 |
| P0133 | O2 Sensor Circuit Slow Response Bank 1 Sensor 1 |
| P0134 | O2 Sensor Circuit No Activity Detected Bank 1 Sensor 1 |
| P0152 | O2 Sensor Circuit High Voltage Bank 2 Sensor 1 |
| P0153 | O2 Sensor Circuit Slow Response Bank 1 Sensor 1 |
| P0154 | O2 Sensor Circuit No Activity Detected Bank 1 Sensor 1 |
| P0201 | Cylinder 1 Injector "A" Circuit |
| P0202 | Cylinder 2 Injector "A" Circuit |
| P0203 | Cylinder 3 Injector "A" Circuit |
| P0204 | Cylinder 4 Injector "A" Circuit |
| P0222 | Throttle/Pedal Position Sensor/Switch "B" Circuit Low |
| P0223 | Throttle/Pedal Position Sensor/Switch "B" Circuit High |
| P0300 | Random/Multiple Cylinder Misfire Detected |
| P0301 | Cylinder 1 Misfire Detected |
| P0302 | Cylinder 2 Misfire Detected |
| P0303 | Cylinder 3 Misfire Detected |
| P0304 | Cylinder 4 Misfire Detected |
| P0335 | Crankshaft Position Sensor "A" Circuit |
| P0340 | Camshaft Position Sensor "A" Circuit Bank 1 or Single Sensor |
| P0342 | Camshaft Position Sensor "A" Circuit Low Bank 1 or Single Sensor |
| P0343 | Camshaft Position Sensor "A" Circuit High Bank 1 or Single Sensor |
| P0351 | Ignition Coil "A" Primary Control Circuit/Open |
| P0352 | Ignition Coil "B" Primary Control Circuit/Open |
| P0353 | Ignition Coil "C" Primary Control Circuit/Open |
| P0354 | Ignition Coil "D" Primary Control Circuit/Open |

| DTC CODE | DTC English name/check item |
|--------------|---|
| P0475 | Exhaust Pressure Control Valve "A" |
| P0476 | Exhaust Pressure Control Valve "A" Range/Performance |
| P0480 | Fan 1 Control Circuit |
| P048B | Exhaust Pressure Control Valve "A" Position Sensor/Switch Circuit |
| P048C | Exhaust Pressure Control Valve "A" Position Sensor/Switch Circuit Range/Performance |
| P048D | Exhaust Pressure Control Valve "A" Position Sensor/Switch Circuit Low |
| P048E | Exhaust Pressure Control Valve "A" Position Sensor/Switch Circuit High |
| P0500 | Vehicle Speed Sensor "A" Circuit |
| P0560 | System Voltage |
| P0563 | System Voltage High |
| P0601 | Internal Control Module Memory Checksum Error |
| P0606 | Control Module Processor |
| P062F | Internal Control Module EEPROM Error |
| P0638 | Throttle Actuator Control Range/Performance Bank 1 |
| P0657 | Actuator Supply Voltage "A" Circuit/Open |
| P0914 | Gear Shift Position Circuit |
| P0915 | Gear Shift Position Circuit Range/Performance |
| P0916 | Gear Shift Position Circuit Low |
| P0917 | Gear Shift Position Circuit High |
| P1400 | Secondary Air Induction System Control Solenoid Circuit |
| P1500 | VSS - NGS - CES Correlation |
| P1600 | Lean Angle Sensor Circuit / Open |
| P1601 | Side Stand Switch Circuit |
| P1602 | Internal Control Module Shutoff Circuit |
| P1806 | Shift Sensor "A" Circuit Low |
| P1807 | Shift Pedal Position "A" Circuit High |
| P2122 | Throttle/Pedal Position Sensor/Switch "D" Circuit Low |
| P2123 | Throttle/Pedal Position Sensor/Switch "D" Circuit High |
| P2127 | Throttle/Pedal Position Sensor/Switch "E" Circuit Low |
| P2128 | Throttle/Pedal Position Sensor/Switch "E" Circuit High |
| P2135 | Throttle/Pedal Position Sensor/Switch "A"/"B" Voltage Correlation |
| P2138 | Throttle/Pedal Position Sensor/Switch "D"/"E" Voltage Correlation |
| P2158 | Vehicle Speed Sensor "B" Circuit |
| P2195 | O2 Sensor Signal Biased/Stuck Lean Bank 1 Sensor 1 |
| P2197 | O2 Sensor Signal Biased/Stuck Lean Bank 2 Sensor 1 |
| P21CF | Cylinder 1 injector "B" circuit/open |
| P21D0 | Cylinder 2 injector "B" circuit/open |
| P21D1 | Cylinder 3 injector "B" circuit/open |
| P21D2 | Cylinder 4 injector "B" circuit/open |
| P2228 | Barometric Pressure Sensor "A" Circuit Low |
| P2229 | Barometric Pressure Sensor "A" Circuit High |
| U0125 | Lost Communication With Multi-axis Acceleration Sensor Module |
| U0155 | Lost Communication With Instrument Panel Cluster (IPC) Control Module |

3. Wire Harness Set (B3L-F2590-70)

Parts List

| | No. | PART No. | PART NAME | Q'TY | REMARKS |
|---|-----|--------------|-------------------------------|------|--------------------------|
| | 1 | B3L-82590-70 | WIRE HARNESS ASSY. | 1 | |
| ○ | 2 | B3L-82386-70 | WIRE,SUB-LEAD for TH INJECTOR | 1 | |
| ○ | 3 | B3L-82318-70 | WIRE,SUB-LEAD for AC INJECTOR | 1 | |
| ○ | 4 | B3L-82309-70 | WIRE,SUB-LEAD for IG. COIL | 1 | |
| ○ | 5 | 2CR-8231Y-70 | WIRE,LEAD for FUEL PUMP | 1 | |
| ○ | 6 | B3L-83553-70 | WIRE,LEAD for METER | 1 | |
| ○ | 7 | B3L-2128A-70 | BRKT., REGULATOR 1 | 1 | For REC./REG. |
| * | 8 | 92017-06020 | BOLT,BUTTON HEAD | 2 | |
| * | 9 | 90201-07081 | WASHER,PLAIN | 2 | |
| * | 10 | 95607-06200 | NUT,U FLANGE | 2 | |
| ○ | 11 | B3L-2331W-70 | BRKT.,UPPER | 1 | For ECU |
| ○ | 12 | B3L-2331X-70 | BRKT.,UNDER | 1 | For ECU |
| * | 13 | 90338-06018 | PLUG | 4 | |
| * | 14 | 90111-06116 | BOLT,HEX. SOCKET BUTTON | 1 | M6x16mm |
| * | 15 | 90111-06140 | BOLT, HEX.SOCKET BUTTON | 1 | M6x20mm |
| * | 16 | 95817-06010 | BOLT,FLG. | 2 | |
| | 17 | B3L-2830X-70 | BRKT.,CONTROL UNIT | 1 | For Hydraulic unit assy. |
| * | 18 | 90110-06163 | BOLT,HEX. SOCKET HEAD | 1 | |
| * | 19 | 92017-06010 | BOLT,BUTTON HEAD | 2 | |
| * | 20 | 5GF-83976-00 | SW., HANDLE 1 | 1 | TAIL LIGHT SW. |

This wire harness is weight-saved by doing away with connecting wires for lights.

NOTICE

This wire harness will not function unless it is combined with the kit's ECU.

4. WIRE, SUB-LEAD(2KS-82509-70)

Parts List

| No. | PART No. | PART NAME | Q'TY | REMARKS |
|-----|--------------|----------------|------|---------|
| 21 | 2KS-82509-70 | WIRE, SUB-LEAD | 1 | SCU |

This wire harness is for mounting the KIT harness to a vehicle with the Electric racing suspension (ERS) function.

TIP

If the E-SD (STD steering damper) is not used, removing its coupler will pose no problem.

NOTICE

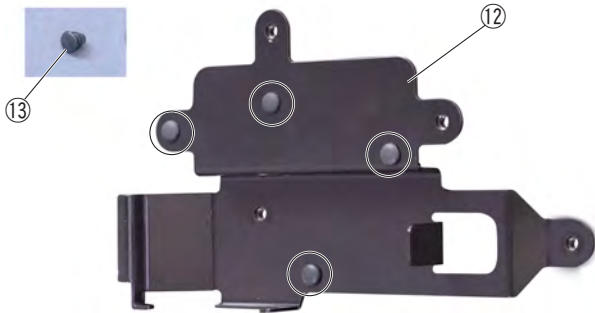
- Before using the KIT ECU for the first time, use YMS to perform writing of the base map.
- Remove the coupler of the main switch before starting assembling work.

NOTICE

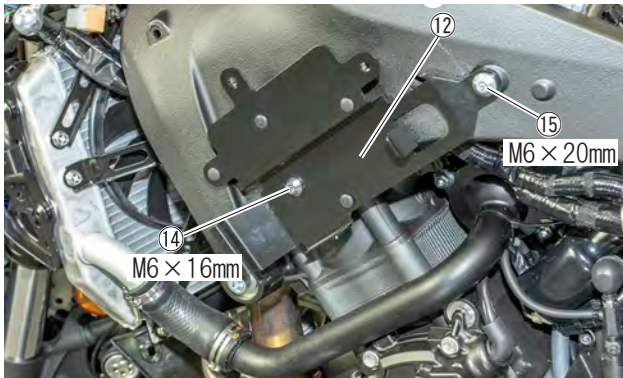
- Do not remove the AC generator but leave it to function. Use on the battery alone will make the machine unable to run in a short time.
- Be sure to connect the Hydraulic unit assy. to the wire harness. The ABS does not function when using the KIT ECU, but every electronic control does not work without the connection.
- Do not disassemble the Hydraulic unit assy.

Installing Wire Harness:

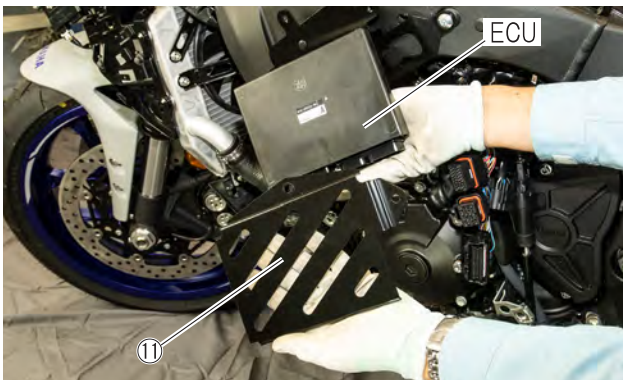
1. Remove the STD wire harness from the chassis.
2. Remove the side cover bracket(left) from the vehicle.
3. Install the PLUG^⑬ to the BRKT.,UNDER^⑫.



4. Install the BRKT.,UNDER^⑫ using the BOLT,HEX.SOCKER BUTTON ^⑭and^⑮ to the frame.

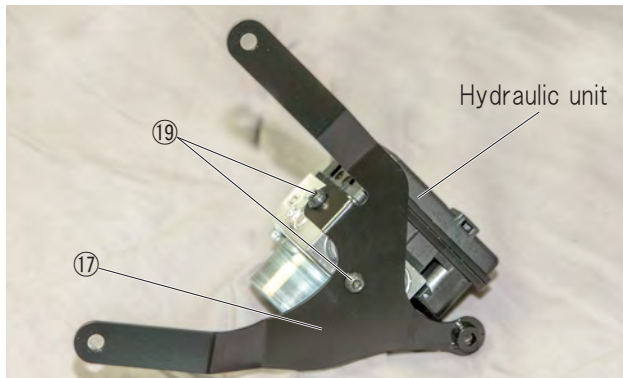


5. Install the ECU and BRKT.,UPPER ^⑪ using the BOLT,FLG ^⑯ to the BRKT.,UNDER^⑫.

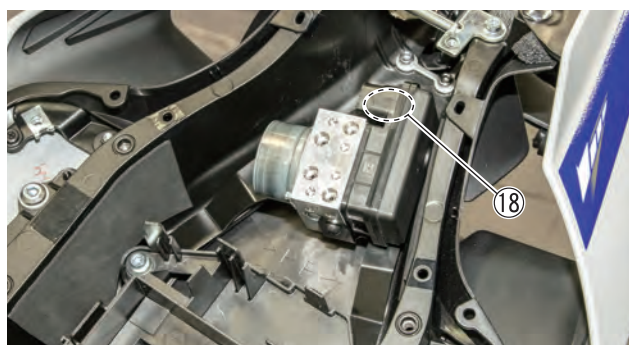
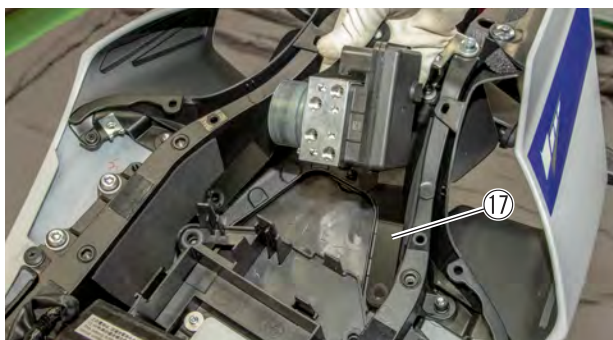


6. Remove the Hydraulic unit and EXUP servo motor from the vehicle.

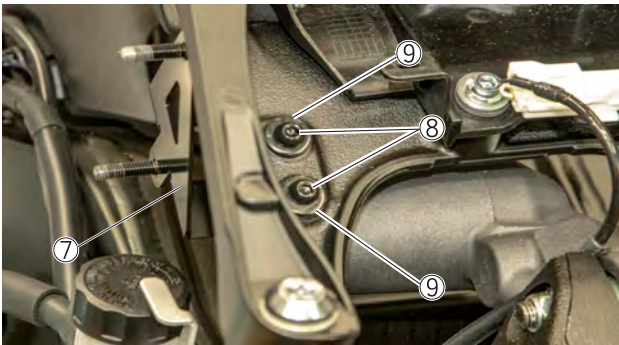
Install the Hydraulic unit using the BOLT, BUTTON HEAD^{①⁹} to the BRKT., CONTROL UNIT^{①⁷}.



7. Install the BRKT., CONTROL UNIT^{①⁷} using the STD Bolt and collar, BOLT, HEX. SOCKET HEAD^{①⁸} to the vehicle.



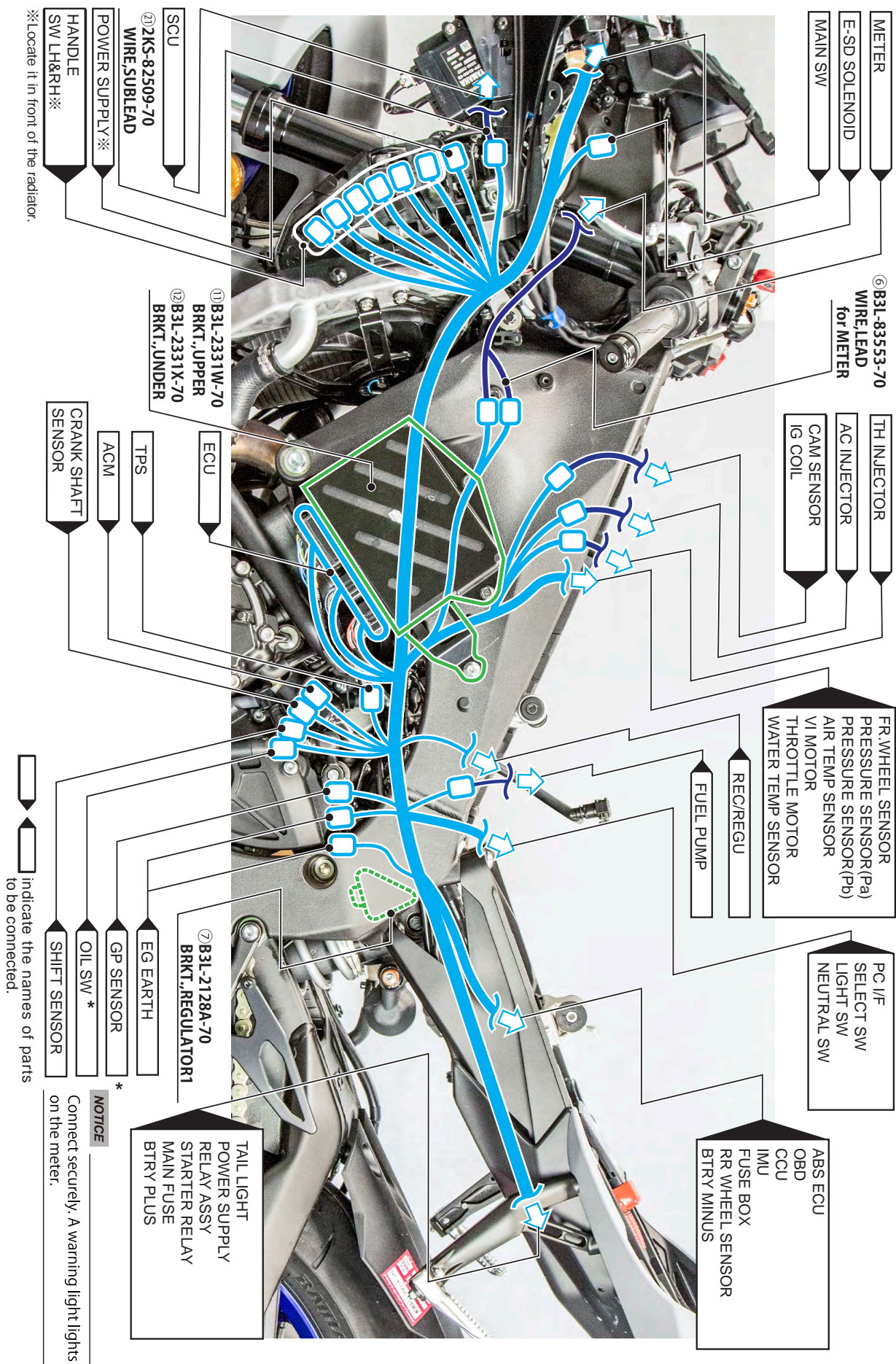
8. Remove from the chassis the STD rectifier/regulator that is installed on the right side of the radiator.
9. Install the BRKT.,REGULATOR 1⑦ using the BOLT.,BUTTON HEAD⑧ and WASHER,PLAIN⑨ to the vehicle.

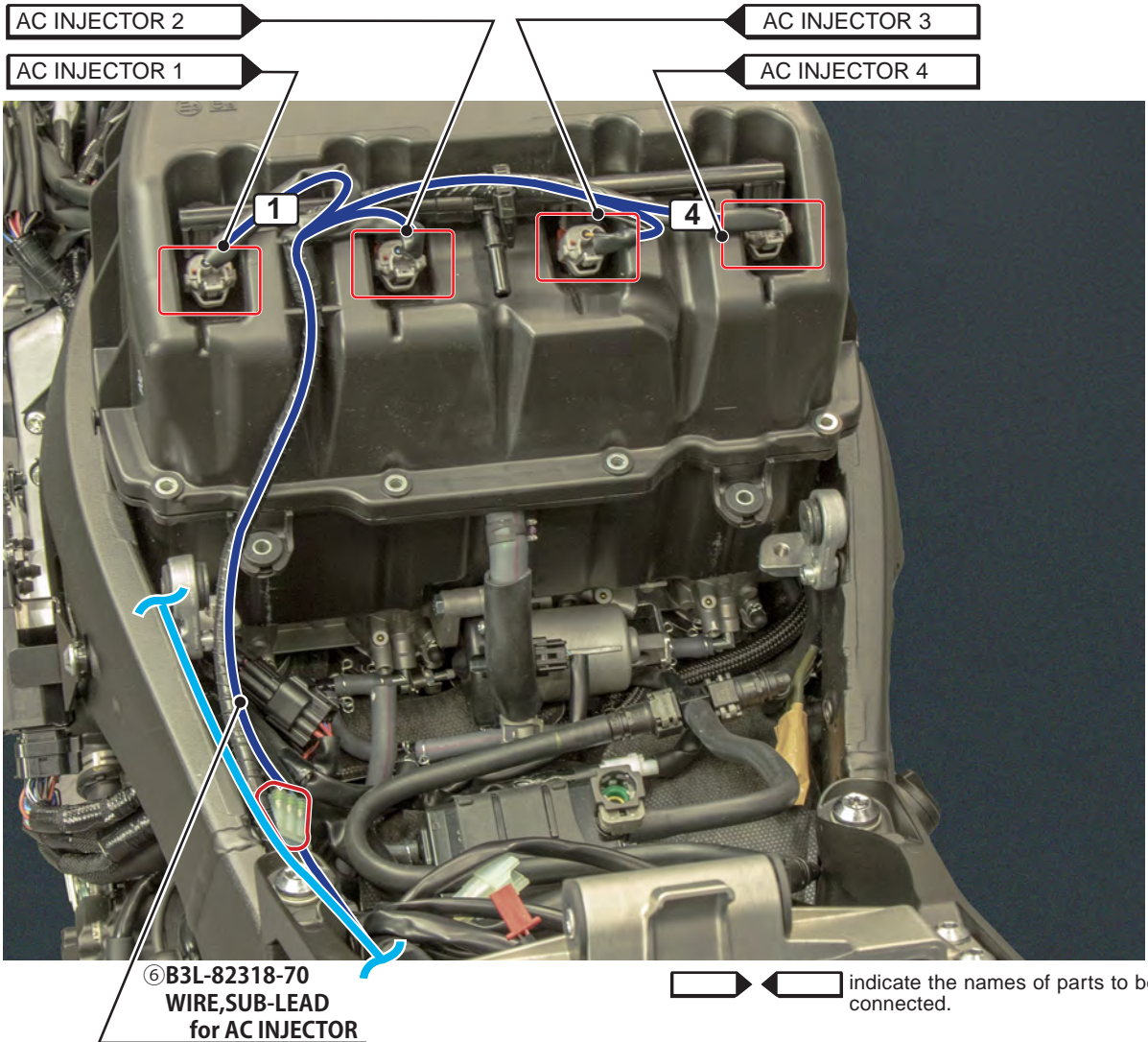
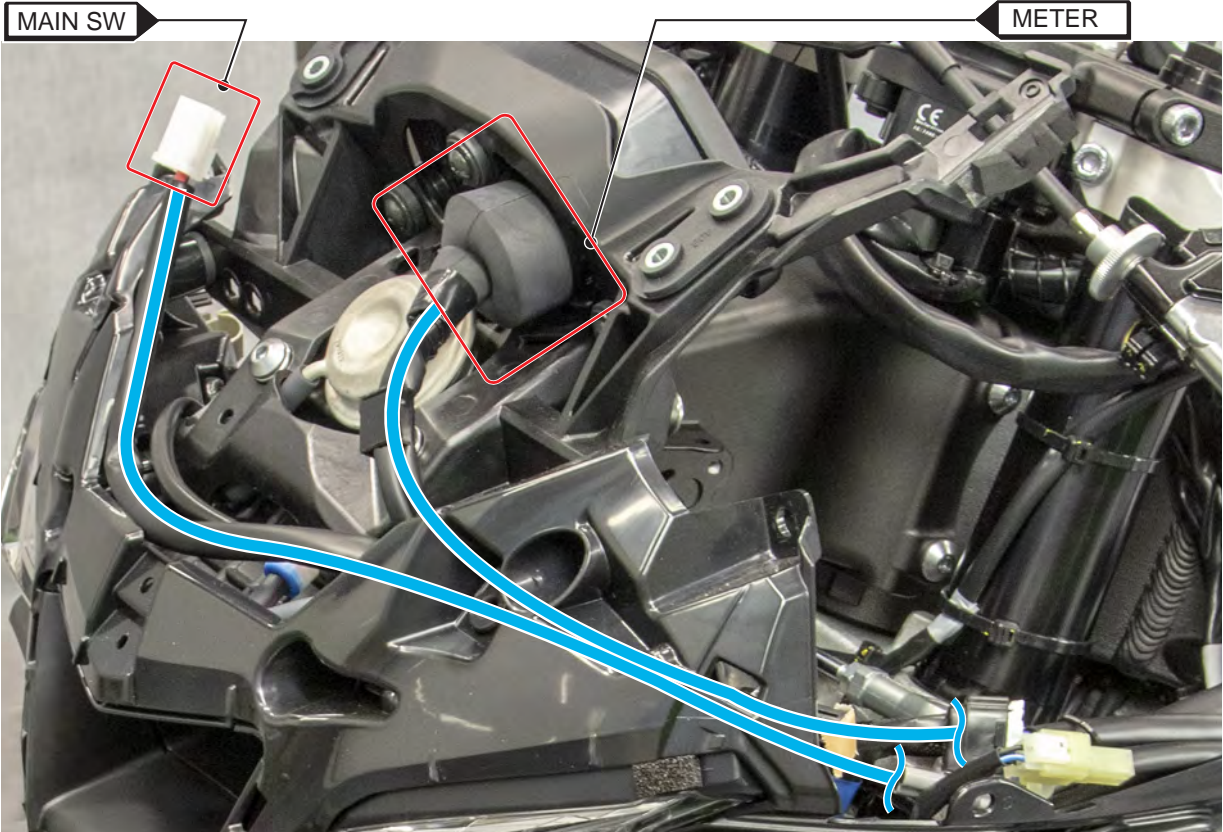


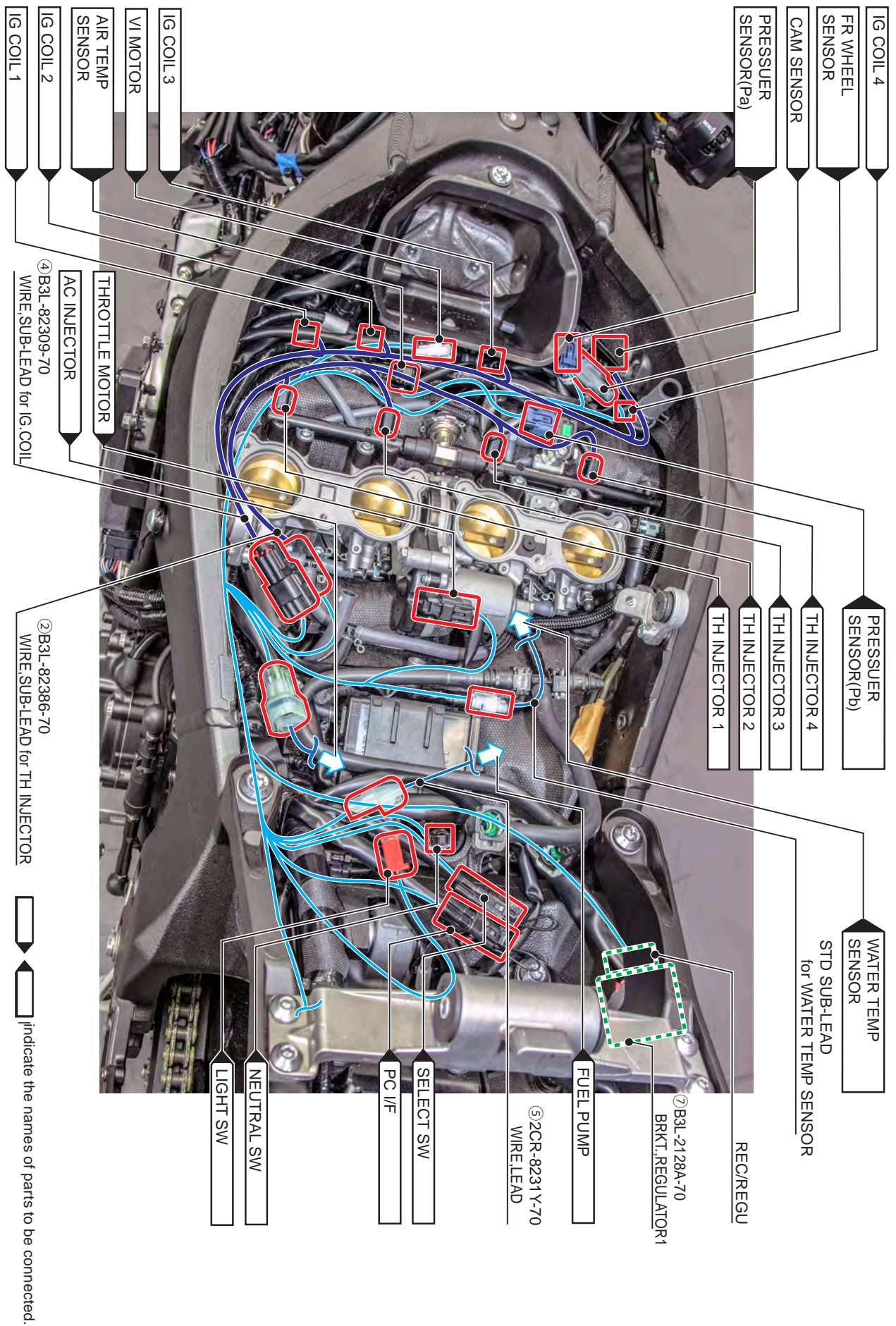
10. Install the rectifier/regulator to the BRKT.,REGULATOR 1⑦ using the NUT,U FLANGE ⑩.



11. Install the wire harness of the kit as the diagram.







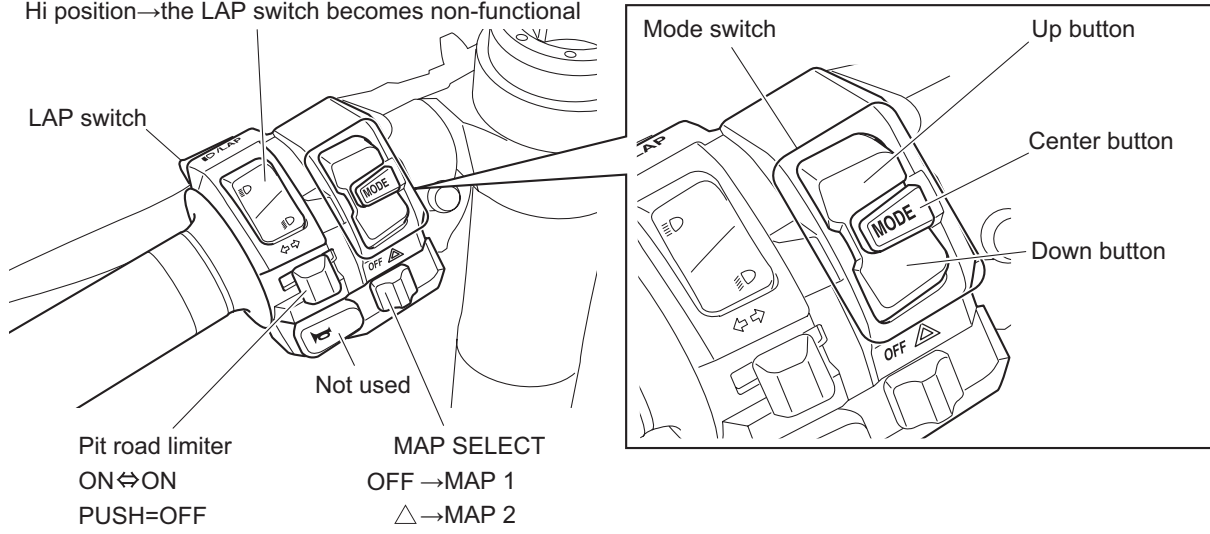
indicate the names of parts to be connected.

The name and function of each switch

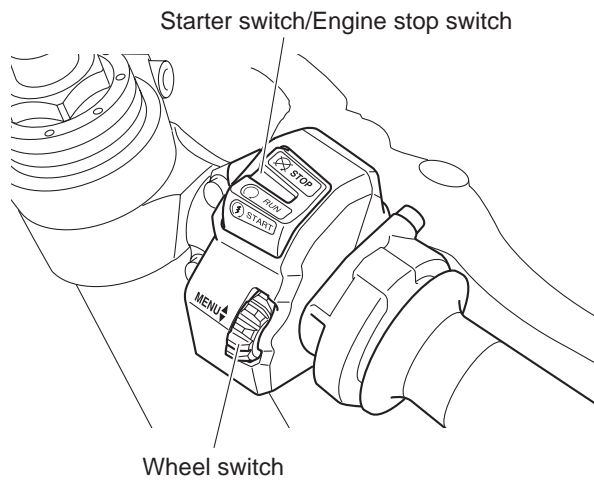
<Left>

Keep the switch at low position

Hi position→the LAP switch becomes non-functional



<Right>



YRC : Yamaha Ride Control

Yamaha Ride Control is a system that controls the engine output based on data received from the sensors and IMU.

The functions listed below represent individual YRC items which can be turned on/off or adjusted to suit various riders and riding conditions.

For details on the settings, see “MENU” in the Owner’s Manual.

* The meter MENU screen cannot be displayed if “T.TRIP” is selected when the battery or meter is reconnected.

IMU : Inertial Measurement Unit

PWR : Power Delivery Mode

TCS : Spin control system

SCS : Slide control system

LCS : Launch control system

QSS : Quick shift system

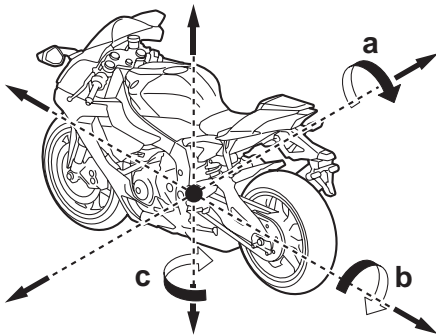
LIF : Lift control system

ERS : Electric racing suspension by ÖHLINS
(available only with 2KS)

EBM : Engine brake management system

IMU : Inertial Measurement Unit

IMU is 6-axis inertial measurement unit. It consists of three gyro sensors (angular sensors) that measure a: machine pitch, b: roll, and c: yaw, and three G-sensors (accelerometer) that measure acceleration in the forward-backward, up-down and right-left directions. YRC controls the engine output based on data received from those sensors.

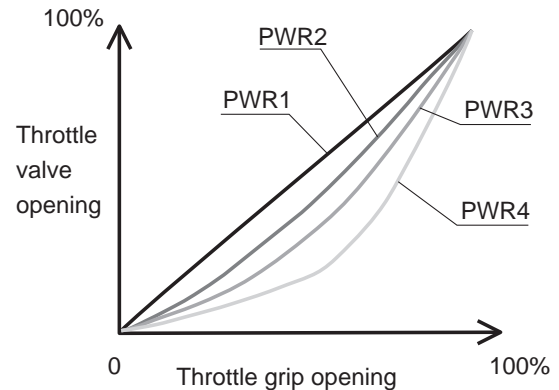


TIP

If the installation position or angle of the inertial measurement unit is changed, YRC does not function properly because measurements are not available.

PWR : Power Delivery Mode

The power mode selection system consists of four different control maps to regulate throttle valve opening depending on the degree of throttle opening, thus providing the rider with a selection of modes to fit rider’s preferences and the riding environment.



TCS : Spin control system

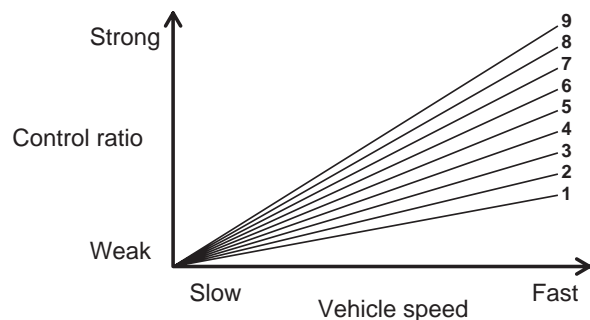
The spin control system helps maintain traction when accelerating. If sensors detect that the rear wheel is starting to slip (uncontrolled spinning), the spin control system assists by regulating engine power as needed until traction is restored.

This system supports the SCS to contribute to a smoother ride.

The TCS-1 effect becomes 0.

If TCS is set to “OFF”, SCS, LCS, QSS and LIF are also set to OFF automatically.

For TCS on/off operation, refer to the service manual

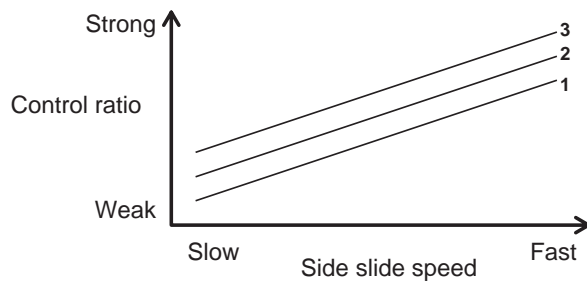


SCS : Slide control system

The slide control system controls engine power output when a sideward slide is detected in the rear wheel.

It adjusts output to an optimum level based on data from the IMU, thus helping the rider focus on riding without distraction.

This system supports the TCS to contribute to a smoother ride.



LCS : Launch control system

The launch control system helps ensure smooth and swift starts.

The LCS maintains an optimum level of engine output in conjunction with input from the TCS and LIF systems even with the throttle fully open.

This allows the rider to concentrate on clutch engagement and vehicle control to reduce stress during starts.

LCS works in conjunction with TCS and LIF systems.

If TCS is set to "OFF", LIF is also set to OFF automatically.

QSS : Quick shift system

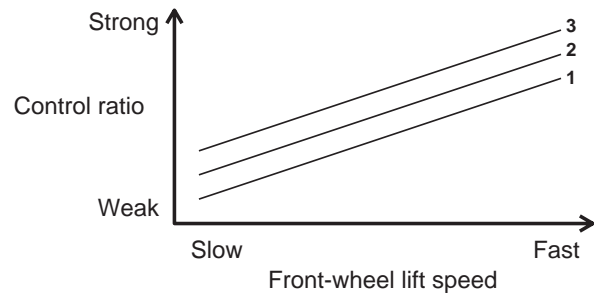
The quick shift system allows for clutch lever-less, electronically-assisted shifting.

When the sensor on the shift rod detects the appropriate motion in the shift pedal, engine power output is momentarily adjusted to allow for the gear change to occur.

LIF : Lift control system

The lift control system reducing wheel lift rate during extreme acceleration, such as during starts or out-of-corner acceleration.

When front-wheel lift is detected by the IMU, engine output is adjusted to the optimum level to compensate for it and thus assist the rider's vehicle control.

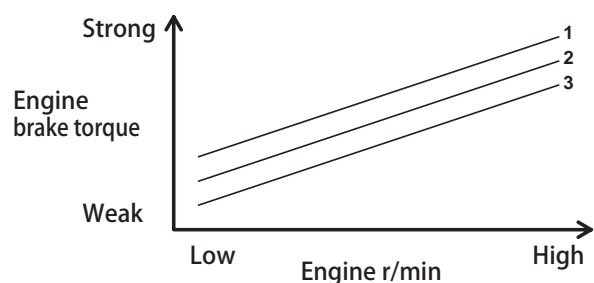


ERS : Electronic racing suspension

The Ohlins electronic racing suspension takes data from the IMU and the suspension control unit (SCU) makes integrated adjustments of both the front and rear suspension's damping force based on running conditions.

EBM : Engine brake management system

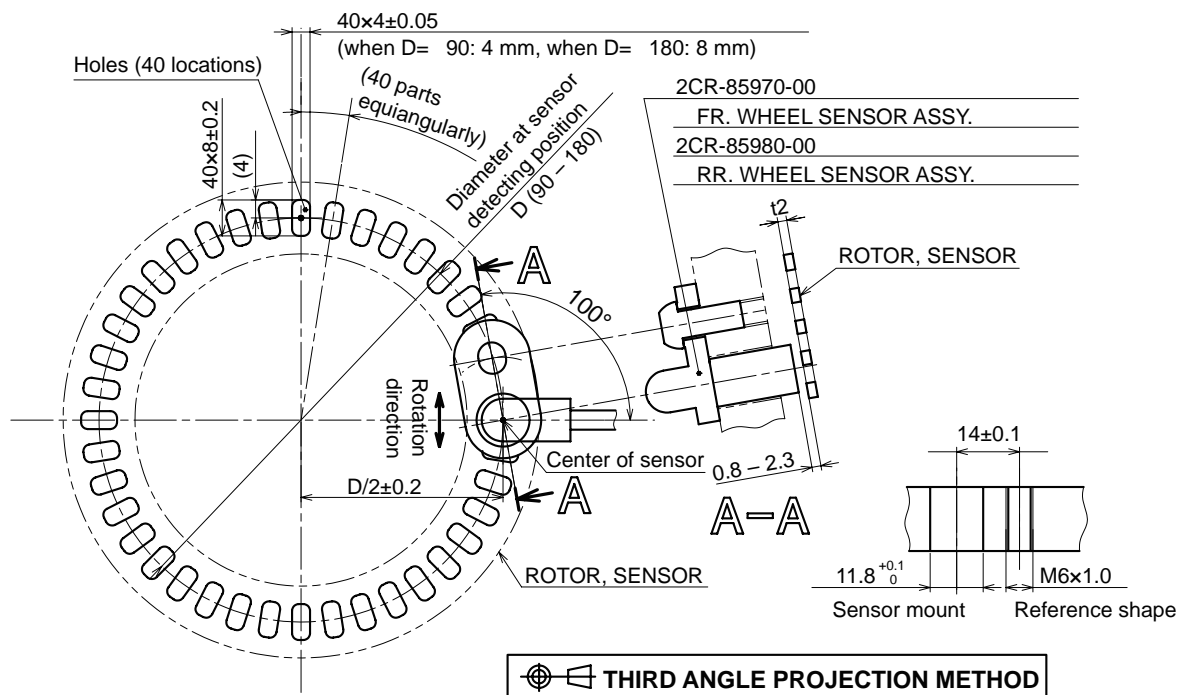
The engine brake management system reduces engine torque when decelerating. The fuel injection, ignition timing, and electronic throttle valve are electronically adjusted by the ECU. There are 3 settings to suit the track, riding conditions, or your personal preference.



About the front and rear wheel speed sensor

Do not remove the speed sensors installed at the front and rear wheels because they are used for regulating YRC controls.

- If you change the front and rear wheels to non-standard parts, manufacture and attach a rotor and sensor referring to the diagram below.
 - If you change the front fork/rear brake bracket to a non-standard part too, create a mount for the sensor assembly and attach the front and rear wheel sensors referring to the diagram below.
- *1. When manufacturing a rotor and sensor, use a steel type material with magnetic properties.
 - *2. Make the angle of attachment in the rotation direction of the rotor of the sensor assembly the same as the angle indicated in the diagram below.
 - *3. If you change the rotor sensor or sensor assembly attachment bracket to a non-standard part, there is a possibility of malfunction due to vibration or noise even if the part is attached properly.



5. Headlight Harness Set (BX4-F4350-71)

Parts List

| No. | PART No. | PART NAME | Q'TY | REMARKS |
|-----|--------------|------------------|------|---------------------------------------|
| 1 | BX4-84359-71 | CORD, HEAD LIGHT | 1 | |
| * | 5GF-83976-00 | SW., HANDLE 1 | 3 | Light ON/OFF SW. x 2 Emergency SW. |

This set is used in endurance races in combination with the kit harness for turning on the STD headlights and taillights.

It assumes that the standard headlights and taillights are used.

There are three light switches.

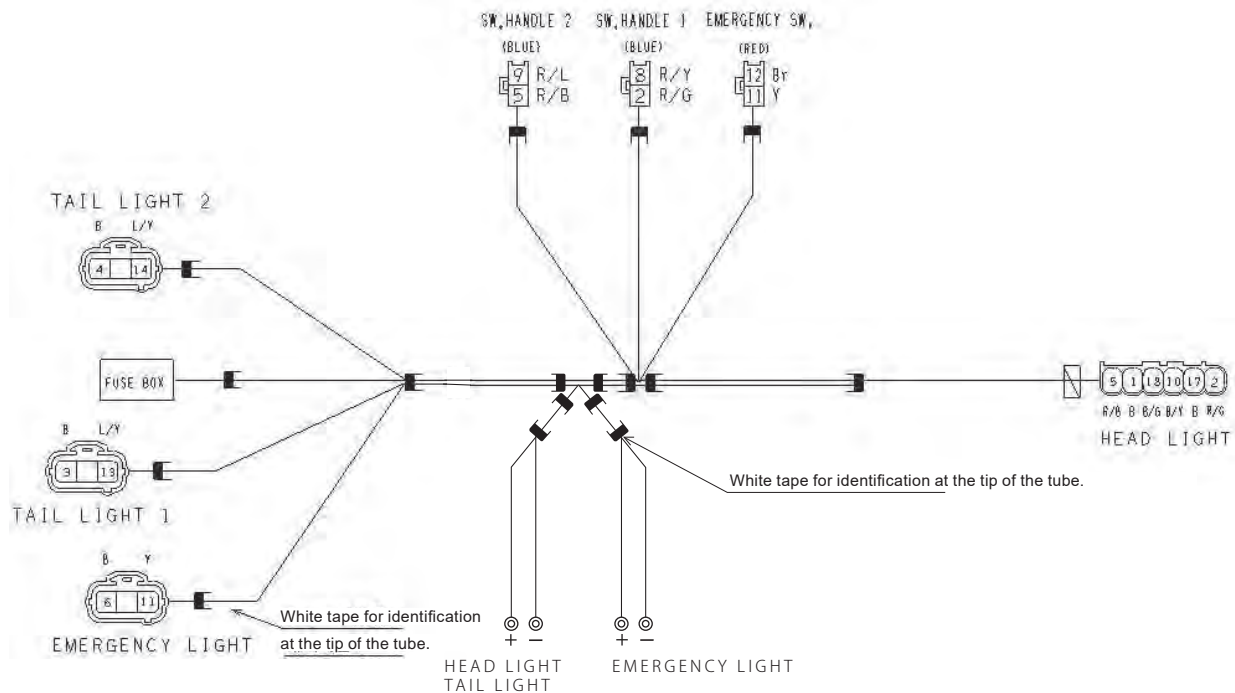
SW.1 : Turns on the headlight (high beam) and taillight 1

SW.2 : Turns on the headlight (low beam) and taillight 2

EMERGENCY SW. : Turns on the emergency light

Use the appropriate light according to the racing rules of the endurance race.

(Diagram)



6. Repair set

Select the part set corresponding to your model.

Parts List

2CR-28130-70 (for 2015~2017 YZF-R1(2CR/BX4))

| | No. | PART No. | PART NAME | Q'TY | REMARKS |
|---|-----|--------------|-----------------|------|---------|
| * | 1 | 2CR-83500-00 | METER ASSY. | 1 | |
| * | 2 | 2CR-83963-00 | SWITCH HANDLE 3 | 1 | |
| * | 3 | 2CR-83969-00 | SWITCH HANDLE 5 | 1 | |
| * | 4 | 2CR-85970-00 | FR.WHEEL SENSOR | 1 | |
| * | 5 | 2CR-85980-00 | RR.WHEEL SENSOR | 1 | |

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Parts List

BX4-28130-80 (for 2018,2019 YZF-R1(BX4))

| | No. | PART No. | PART NAME | Q'TY | REMARKS |
|---|-----|--------------|-----------------|------|---------|
| * | 1 | BX4-83500-30 | METER ASSY. | 1 | |
| * | 2 | 2CR-83963-00 | SWITCH HANDLE 3 | 1 | |
| * | 3 | 2CR-83969-00 | SWITCH HANDLE 5 | 1 | |
| * | 4 | 2CR-85970-00 | FR.WHEEL SENSOR | 1 | |
| * | 5 | 2CR-85980-00 | RR.WHEEL SENSOR | 1 | |

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Parts List

B3L-28130-70 (for 2020~2024 YZF-R1 (B3L/BMP))

| | No. | PART No. | PART NAME | Q'TY | REMARKS |
|---|-----|--------------|-----------------|------|---------|
| * | 1 | B3L-83500-00 | METER ASSY. | 1 | |
| * | 2 | B3L-8291R-00 | SWITCH HANDLE 3 | 1 | |
| * | 3 | B3L-83969-00 | SWITCH HANDLE 5 | 1 | |
| * | 4 | 2CR-85970-00 | FR.WHEEL SENSOR | 1 | |
| * | 5 | 2CR-85980-00 | RR.WHEEL SENSOR | 1 | |

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Parts List

2KS-28130-70 (for 2015~2017 YZF-R1M (2KS))

| | No. | PART No. | PART NAME | Q'TY | REMARKS |
|---|-----|--------------|-----------------|------|---------|
| * | 1 | 2KS-83500-00 | METER ASSY. | 1 | |
| * | 2 | 2CR-83963-00 | SWITCH HANDLE 3 | 1 | |
| * | 3 | 2CR-83969-00 | SWITCH HANDLE 5 | 1 | |
| * | 4 | 2CR-85970-00 | FR.WHEEL SENSOR | 1 | |
| * | 5 | 2CR-85980-00 | RR.WHEEL SENSOR | 1 | |

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Parts List

2KS-28130-80 (for 2018, 2019 YZF-R1M(2KS/BAF))

| | No. | PART No. | PART NAME | Q'TY | REMARKS |
|---|-----|--------------|-----------------|------|---------|
| * | 1 | 2KS-83500-60 | METER ASSY. | 1 | |
| * | 2 | 2CR-83963-00 | SWITCH HANDLE 3 | 1 | |
| * | 3 | 2CR-83969-00 | SWITCH HANDLE 5 | 1 | |
| * | 4 | 2CR-85970-00 | FR.WHEEL SENSOR | 1 | |
| * | 5 | 2CR-85980-00 | RR.WHEEL SENSOR | 1 | |

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Parts List

B4S-28130-70 (for 2020~2024 YZF-R1M (B4S/D46))

| | No. | PART No. | PART NAME | Q'TY | REMARKS |
|---|-----|--------------|-----------------|------|---------|
| * | 1 | B4S-83500-00 | METER ASSY. | 1 | |
| * | 2 | B3L-8291R-00 | SWITCH HANDLE 3 | 1 | |
| * | 3 | B3L-83969-00 | SWITCH HANDLE 5 | 1 | |
| * | 4 | 2KS-85970-00 | FR.WHEEL SENSOR | 1 | |
| * | 5 | 2CR-85980-00 | RR.WHEEL SENSOR | 1 | |

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7. CCU COMP. (2KS-85800-72)

The CCU (Communication control unit) facilitates checking or settings of the vehicle information, and enhances rider's relationship with the vehicle.

The CCU COMP. consists of the CCU ASSY. and GPS unit.

Download the application onto the tablet before use.

The CCU of RACING KIT PARTS is equipped with the general-purpose analog voltage (0 to 5 V) interface.

For information about the standard features, refer to the OWNER'S MANUAL for the vehicle or the explanation of the store application in addition to this manual.

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Parts List

| No. | PART No. | PART NAME | Q'TY | REMARKS |
|-----|--------------|--------------|------|---|
| 1 | 2KS-85810-72 | CCU ASSY. | 1 | dedicated software embedded |
| * | 2 | 2KS-88107-00 | 1 | GPS unit |
| 3 | 2KS-85721-71 | Sub-harness | 1 | |
| | | Application | | Download from App Store/Google Play Store |

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CCU Compatibility chart

| PART No. | MODEL | |
|--------------|-------------|-------------|
| | 2015 ~ 2017 | 2018 ~ 2024 |
| 2KS-85810-70 | ✓ | ✗ |
| 2KS-85810-71 | ✓ | ✓ |
| 2KS-85810-72 | ✓ | ✓ |

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Components

CCU ASSY.

(dedicated software embedded)



GPS unit



Sub-harness



Application

Download from App Store/Google Play Store

TIP

The functions of the CCU unit

- Data logging (GPS positioning information, vehicle information, analog voltage)
- Line passing detection
- Wireless LAN main unit (IEEE 802.11b/g/n)

Preparation

- Install the units to the vehicle.

TIP

The gray and black cable is for AIN-1 (analog Ch1), and the purple and black cable is for AIN-2 (analog Ch2).

TIP

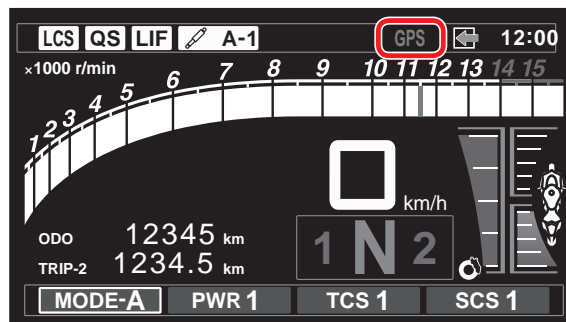
Since the eight-digit number (S/N:) on the CCU unit will be used as the password for wireless LAN connection between the tablet and CCU, be sure to write down the number.



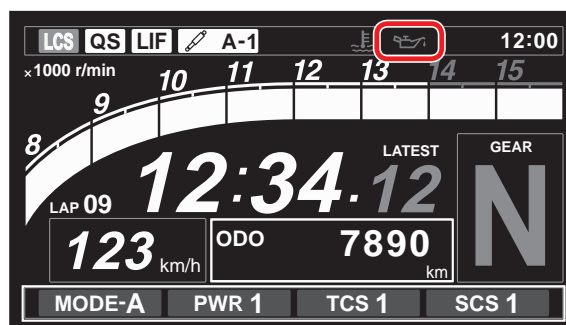
TIP

When using it for the first time, check if the GPS icon lights up on the meter before riding.

(It may take about 10 minutes for GPS positioning even in an outdoor location.)



Since the GPS and oil-pressure warning icons are at the same location, the GPS icon does not light up when the the oil-pressure warning icon lights up (such as engine stop).



NOTICE

If GPS positioning is not available, it will affect functioning of logging.

- Download the application onto the tablet.

TIP

For Android, visit Google Play Store and download "Y-TRAC" and "CCU Config".



For iOS, visit App Store and download "Y-TRAC". (Y-TRAC is equipped with the CCU Config feature.)

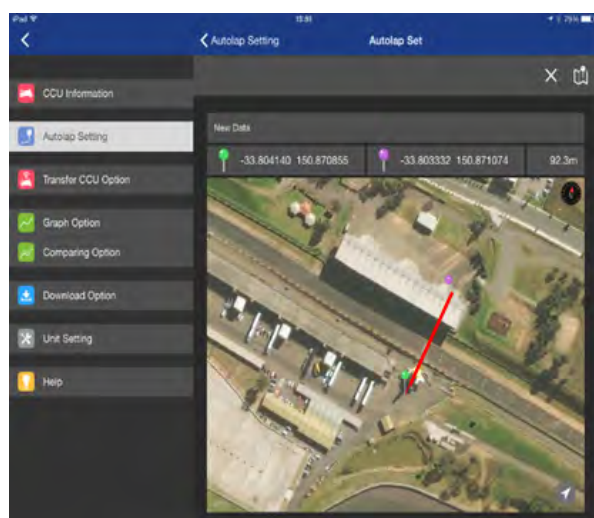


In this manual, iOS version screens are used as examples.

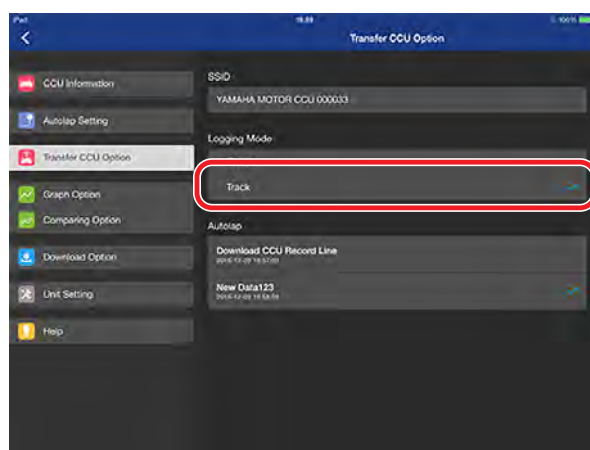
Usage

| | Operations on the tablet | Application to be used | Network to be connected |
|---------------|---|--|-------------------------|
| Before riding | Draw a circuit record line on the map. (See Fig. 1.) | CCU Config (Y-TRAC for iOS version) | Internet |
| | Transfer the record line to the CCU. | CCU Config (Y-TRAC for iOS version) | CCU |
| | Set the logging mode of the CCU to "Track". (See Fig. 2.) | CCU Config (Y-TRAC for iOS version) | CCU |
| While riding | | | |
| After riding | Download the logging data from the CCU. | Y-TRAC | CCU |
| | Display the logging data (with map). | Y-TRAC | Internet |

(Fig. 1.)



(Fig. 2.)



TIP

When connecting the tablet to the network, select **CCU** (when communicating with the CCU) or **Internet** (when displaying the map) according to the use.

Connecting to the CCU

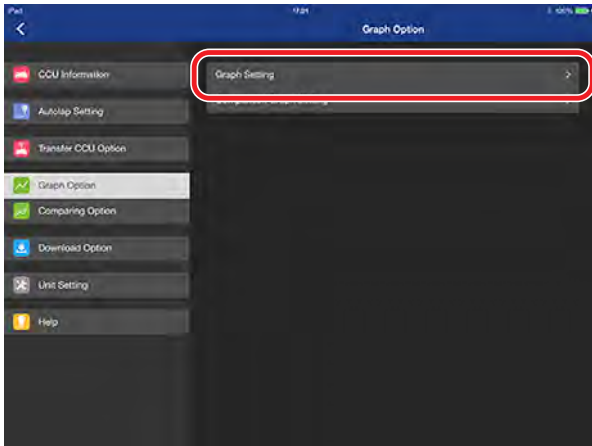
| Connecting to the CCU | | Label on the CCU (See Fig.3.) |
|-----------------------|--------------------------------|-------------------------------|
| Network name (SSID) | YAMAHA MOTOR CCU ddeeff | MAC: aa-bb-cc-dd-ee-ff |
| Password | 12345678 | S/N: 12345678 |

(Fig. 3.)

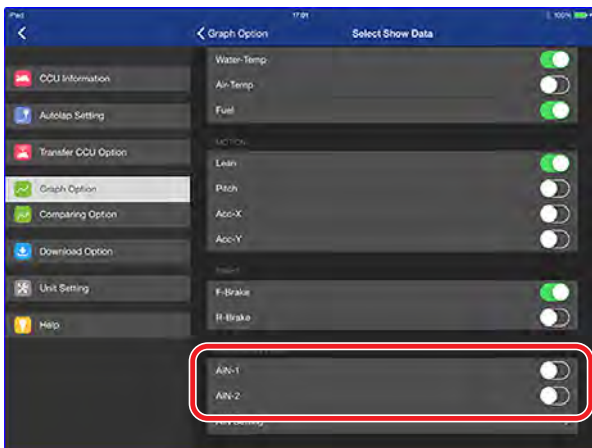


TIP

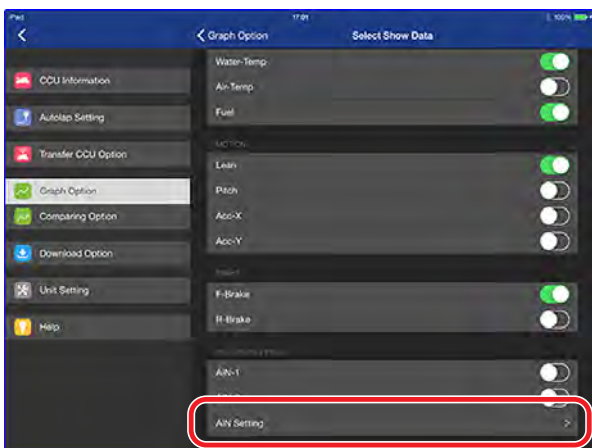
When viewing logging data, analog Ch is not displayed by Y-TRAC default setting. To display it, tap Graph Setting in the Graph Option mode.



On the screen, tap AIN-1 or AIN-2 to display the arbitrary CH.



In the analog display mode, the voltage is indicated by level (0 to 5) by default. The display value can be changed according to the specification of the installed sensor. To change the display value, tap AIN Setting.



<Example 1>

When the following is stated in the sensor's manual

"AF value: voltage x 1.6 +10"

Factor **1.6000**

Offset **10.0000**

Min Y-axis **10.00**

Max Y-axis **20.00**

(Min Y-axis and Max Y-axis can be any given values)

<Example 2>

When the following is stated in the sensor's homepage

"Output voltage is three times the λ value."



AF value: output voltage x 14.7 / 3

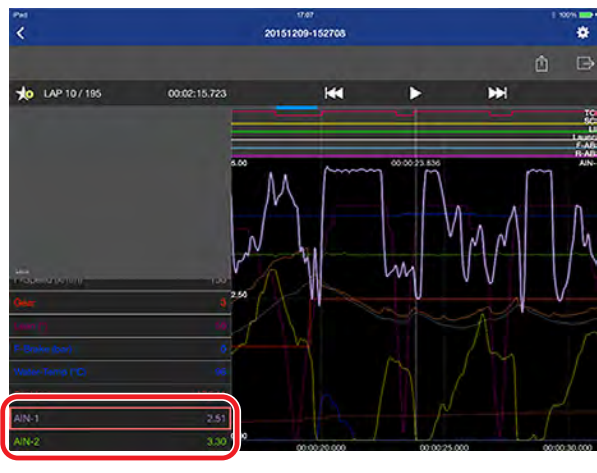
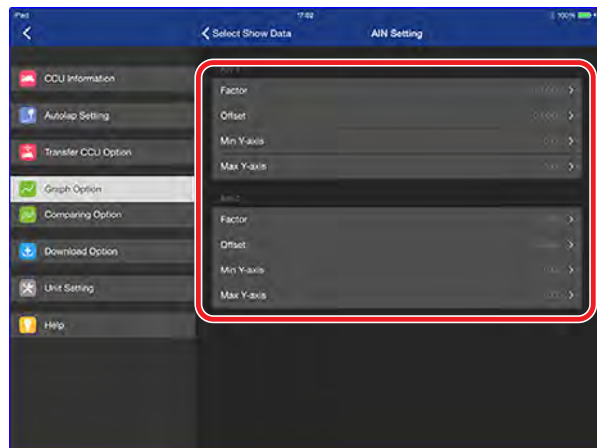
Factor **4.9000**

Offset **0.0000**

Min Y-axis **10.00**

Max Y-axis **20.00**

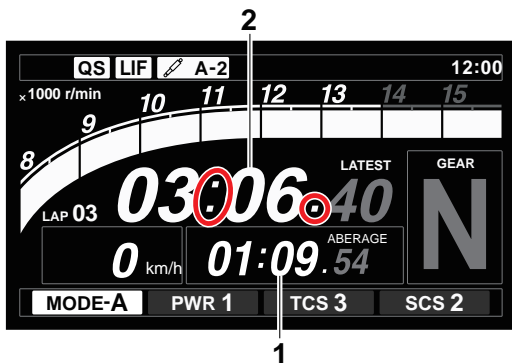
(Min Y-axis and Max Y-axis can be any given values)



Other usages

Meter setting

To indicate CCU's detection of line passing on the meter, enable the stop watch function on the meter (blink ":" (column) and "." (period) in area 2).



<Wheel switch operation procedure>

Press the wheel switch to blink area 1.



Rotate the wheel switch to blink area 2.



Press and hold the wheel switch to blink only ":" (column) and "." (period) in area 2.

This operation is required each time after the main switch is set to ON.

TIP

Regardless of the meter setting, lap data will be recorded in the logging data when line passing is detected,

2-2 Installing Engine Parts

8. Maintenance Set (B3L-MAINT-70)

Parts List

| | No. | PART No. | PART NAME | Q'TY | REMARKS |
|---|-----|--------------|------------------------------|------|--------------------|
| * | 1 | B3L-11181-00 | GASKET, CYLINDER HEAD 1 | 3 | t=0.60 mm (STD) |
| * | 2 | 2CR-11351-00 | GASKET, CYLINDER 1 | 3 | t=0.20 mm (STD) |
| * | 3 | 2CR-11603-10 | PISTON RING SET | 12 | |
| | 4 | 2CR-1165A-00 | BOLT, CONNECTING ROD SPECIAL | 24 | |
| * | 5 | 93450-18169 | CIRCLIP | 24 | |
| * | 6 | 3P6-12129-00 | SEAL, VALVE STEM OIL 2 | 24 | INT |
| * | 7 | 4TE-12119-00 | SEAL, VALVE STEM OIL | 24 | EXT |
| * | 8 | BX4-13414-00 | GASKET, STRAINER | 3 | OIL PAN |
| ° | 9 | 2CR-15451-70 | GSKT., CRANKCASE COVER 1 | 3 | GENERATOR COVER |
| ° | 10 | 2CR-15461-70 | GSKT., CRANKCASE COVER 2 | 3 | CLUTCH |
| ° | 11 | 2CR-15456-70 | GSKT., 1 | 3 | PICK UP |
| * | 12 | 2CR-15462-00 | GSKT., CRANKCASE COVER 3 | 3 | BREATHER |
| * | 13 | 93102-40330 | SEAL, OIL | 3 | DRIVE AXLE |
| * | 14 | 90149-06082 | SCREW | 9 | MAIN AXLE |
| * | 15 | 90119-09010 | BOLT, HEX. W/WASHER | 30 | CRANK JOURNAL BOLT |
| * | 16 | 93210-07540 | O-RING | 24 | BALANCER BOLT |
| * | 17 | 90119-09016 | BOLT, HEX. W/WASHER | 30 | CYLINDER HEAD BOLT |

These sets of parts necessary for engine disassembly and maintenance are provided in three (3) sets. Tighten the connecting rod bolt (4) using the angle tightening method or the elongation control method.

NOTICE

The connecting rod bolts should be used in their original condition. Do not apply any oil or degrease. Be careful not to get engine oil or grease on the bolt seat surface or threads. If oil is applied or degrease, replace the bolts with new ones. Use only new bolts for assembly, and do not reuse them.

Angle tightening method

1. Degrease the bolt seat surface and female thread on the connecting rod side, and allow it to dry for at least 5 minutes.
2. Tighten the bolts with a torque wrench to an initial tightening torque of $25.0 \pm 2.0 \text{ N}\cdot\text{m}$ ($2.5 \pm 0.2 \text{ kgf}\cdot\text{m}$).
3. Retighten at an angle of $180^\circ \pm 5^\circ$.
4. Check that the final tightening torque is between 40.0 and $85.0 \text{ N}\cdot\text{m}$ (4.0 and $8.5 \text{ kgf}\cdot\text{m}$). If the final tightening torque is outside the range, replace the connecting rod bolt with a new one and retighten it.

Elongation control method

1. Measure the total length of the connecting rod bolts before tightening.
2. Tighten the two connecting rod bolts alternately to $10.0 \text{ N}\cdot\text{m}$ ($1.0 \text{ kgf}\cdot\text{m}$) each.
3. Retighten the two bolts until they reach $50.0 \text{ N}\cdot\text{m}$ ($5.0 \text{ kgf}\cdot\text{m}$).
 - 1st time: Tighten both bolts at $10.0 \text{ N}\cdot\text{m}$ ($1.0 \text{ kgf}\cdot\text{m}$).
 - 2nd time: Tighten both bolts to $20.0 \text{ N}\cdot\text{m}$ ($2.0 \text{ kgf}\cdot\text{m}$).
 - ↓ ...
 - 5th time: Tighten both bolts to $50.0 \text{ N}\cdot\text{m}$ ($5.0 \text{ kgf}\cdot\text{m}$).
4. Tighten the connecting rod bolts so that the amount of elongation is $0.330 \pm 0.005 \text{ mm}$ from the state before tightening.

If the amount of elongation exceeds the specified value, replace the connecting rod bolts with a new one and retighten it.

9. Spark Plug Set (14B-R465B-70)

Parts List

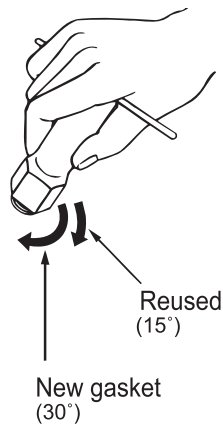
| No. | PART No. | PART NAME | Q'TY | REMARKS |
|-----|--------------|-------------|------|---------------|
| 1 | 14B-1119C-70 | PLUG, SPARK | 4 | NGK R0465B-10 |

The spark creating portion of this spark plug is of a semi-surface discharge type of shape.

TIP

Since these spark plugs have a copper gasket, caution is needed during installation on the following points.

1. The tightening torque is 12 – 15 N•m (1.2 – 1.5 kgf•m).
2. When not checking the torque, tighten by rotating through 30° after manual tightening in the case of new plugs. When reusing plugs, tighten by rotating through 15° .



10. Cylinder Head Gasket

Parts List

| No. | PART No. | PART NAME | Q'TY | REMARKS |
|-----|--------------|----------------------|------|-------------------|
| 1 | B3L-11181-70 | GASKET CYLINDER HEAD | 1 | t=0.45mm Stamp:00 |
| 2 | B3L-11181-80 | GASKET CYLINDER HEAD | 1 | t=0.50mm Stamp:01 |
| 3 | B3L-11181-90 | GASKET CYLINDER HEAD | 1 | t=0.55mm Stamp:02 |

*the thickness of a standard part is t=0.60mm.

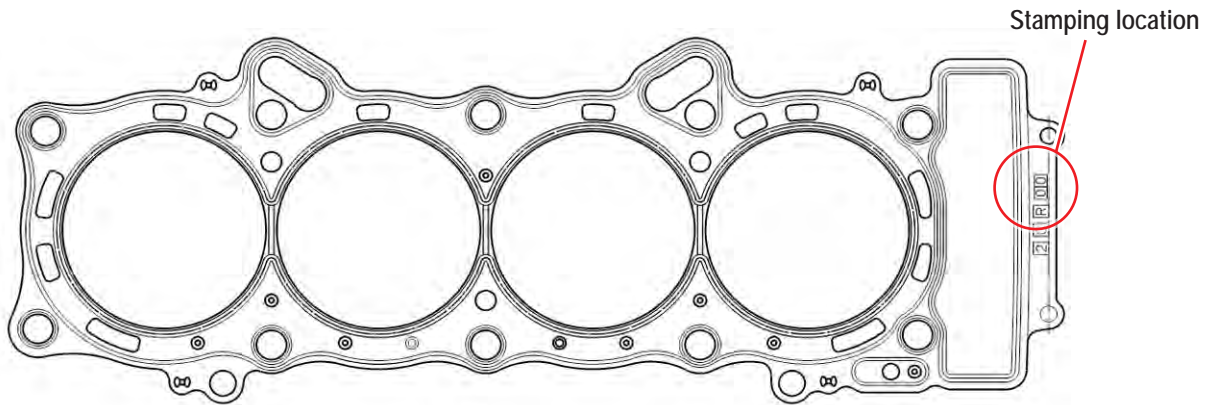
This parts are used to adjust the compression ratio for improving performance by selecting given gasket (thickness).

Be sure to measure the squish height and choose the appropriate gasket so that it meets the recommended height.

(Recommended squish height: INT:0.65~0.75mm, EXT:0.95~1.00mm)

TIP

Squish height means the gap between the flat portion of the piston and the head cylinder.



Measuring the volume of the cylinder head combustion chamber

TIP

Squish height means the gap between the flat portion of the piston and the head cylinder.

Measure the volum of the combustion chamber of the cylinder head (commonly cakked the dome volime) as follouws.

The combustion chamber volume (commonly known as dome volume) of a cylinder head is measured as follows

Measuring equipment

1. Burette
2. Clear plastic plate
3. Oil (3:1 mixture of torque converter oil and white gasoline)
4. Vaseline (to seal the valve and the plastic plate)

Measurement method

1. Tighten a regulation spark plug to the regulation torque in the cylinder head to be measured .
2. Set so that the alignment surface of the combustion chamber is level.
3. Apply a thin coat of Vaseline to the valve face and set the IN and EX valves.
4. Apply a thin coat of Vaseline to the combustion chamber alignment surface, and set the plastic plate.
5. Add drops of oil from the burette. The total added amount minus the valve back clearance is the volume of the combustion chamber.

11. Piston Set (2CR-116A0-71)

Parts List

| | No. | PART No. | PART NAME | Q'TY | REMARKS |
|---|-----|--------------|-----------------|------|---------|
| * | 1 | 2CR-11631-10 | PISTON | 4 | |
| * | 2 | 2CR-11603-10 | PISTON RING SET | 4 | |
| * | 3 | 2CR-11633-00 | PIN, PISTON | 4 | |
| * | 4 | 93450-18169 | CIRCLIP | 8 | |

This set consists of a combination of four genuine pistons so that the weight difference of each item does not exceed 0.5 g.

12. Connecting Rod Set (2CR-1165B-70)

Parts List

| | No. | PART No. | PART NAME | Q'TY | REMARKS |
|---|-----|--------------|-------------------|------|---------|
| * | 1 | 2CR-11650-00 | CONN. ROD ASSY. 1 | 4 | |

This set consists of four genuine connecting rod assemblies and the weight difference of each item does not exceed 2 g and combine them so that the small end weights are uniform.(by Yamaha's measuring method)

13. Crankshaft (B3L-11400-70)

Parts List

| | No. | PART No. | PART NAME | Q'TY | REMARKS |
|---|-----|--------------|-------------|------|---------|
| * | 1 | B3L-11400-70 | CRANK ASSY. | 1 | |

This item is a genuine crankshaft with good balance.

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About compatibility between the piston set, connecting rod set and crankshaft (by model year)

| MODEL | Piston set | Connecting Rod Set | Crankshaft | | |
|-------|--------------|--------------------|--------------|--------------|--------------|
| 2015 | 2CR-116A0-70 | 2CR-1165B-70 | 2CR-11400-70 | | |
| 2016 | 2CR-116A-71 | | 2CR-1165B-70 | 2CR-11400-71 | |
| 2017 | | | | | B3L-11400-70 |
| 2018 | | | | | |
| 2019 | | | | | |
| 2020 | | | | B3L-11400-70 | |
| 2021 | | | | | |
| 2022 | | | | | |
| 2023 | | | | | |
| 2024 | | | | | |

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Piston set:

As the component parts (piston and piston ring) of the 2016 to 2024 models are different from that of the 2015 model, the 2015 model and 2016 to 2024 models are not compatible each other.

Be sure to use a combination of a piston and a piston ring of same model year.

Since the piston set of the kit consists of pistons, piston rings and piston pins, the set enables installing those items on any model-year engine at once.

Connecting rod:

No change.

Crankshaft:

As a thrust bearing is added to the #4 cylinder for the 2016 to 2024 model engine, the 2015 model and 2016 to 2024 models are not compatible each other.

The 2015 model crankshaft is currently not available in the kit.

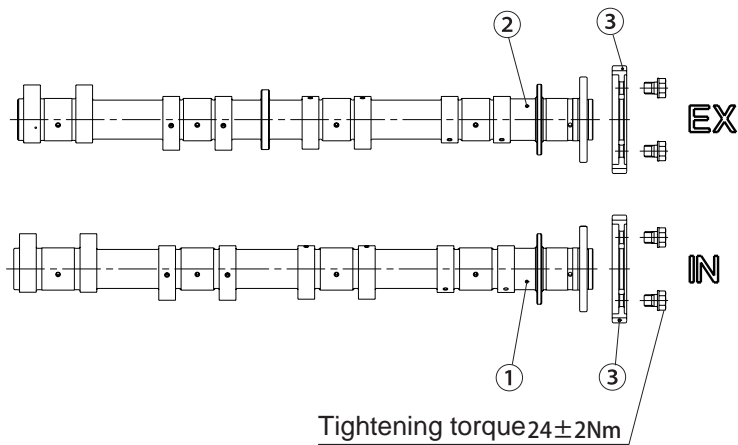
Please purchase a Yamaha genuine part when a 2015 model crankshaft is needed.

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14. High-lift Camshafts for SBK

Parts List

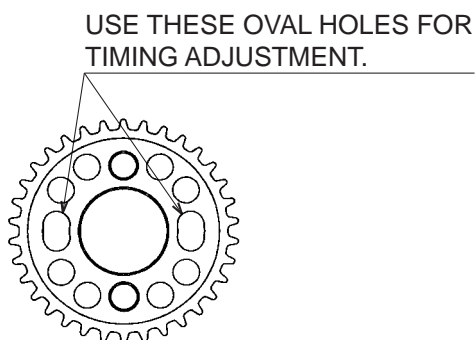
| No. | PART No. | PART NAME | Q'TY | REMARKS |
|-----|--------------|-------------|------|---------|
| 1 | B3L-12170-80 | SHAFT CAM 1 | 1 | INT |
| 2 | B3L-12180-80 | SHAFT CAM 2 | 1 | EXT |



15. Cam Sprocket for SBK (B3L-12176-70)

| No. | PART No. | PART NAME | Q'TY | REMARKS |
|-----|--------------|---------------|------|--------------------|
| 3 | B3L-12176-70 | SPROCKET, CAM | 1 | INT/EXT-shared use |

Possible to adjust the valve timing using the long holes on the cam sprocket.



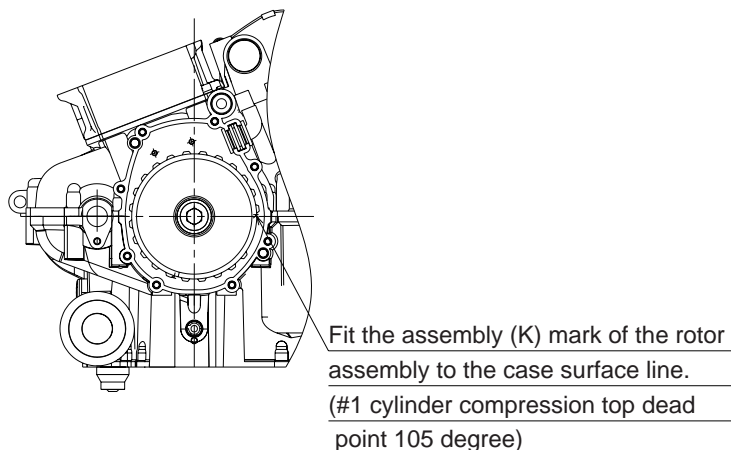
Installation

1. Fit the scratch line on the camshaft to the compression top dead point 105 degree (K mark position) to combine the camshaft and cylinder head surface.
2. Adjust the valve timing (to the value stated on the normal specifications) using the long holes.

TIP

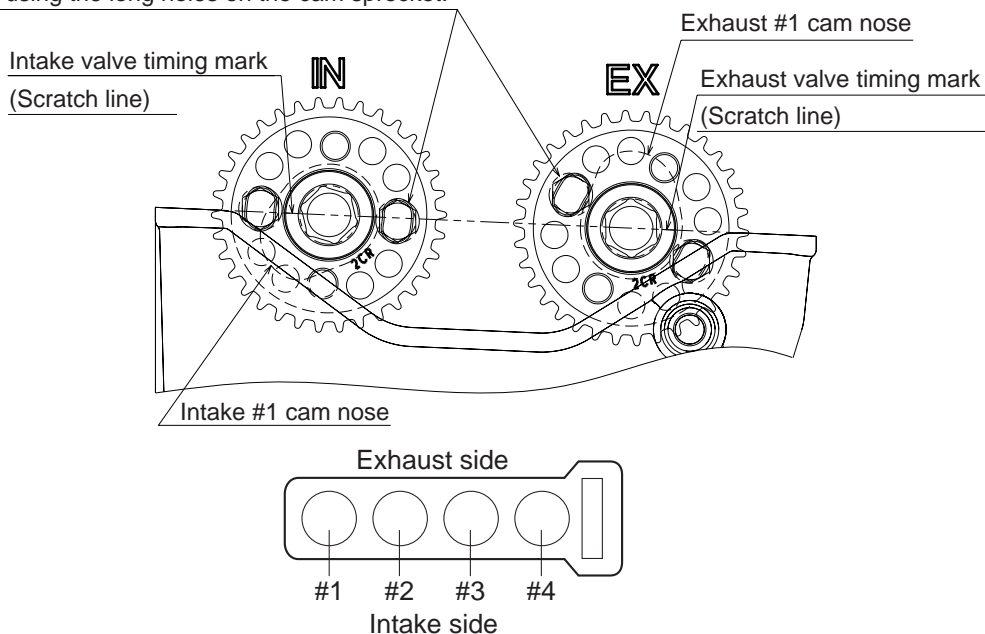
Install the cam sprocket as the scratch line and BX4 mark face the outside of the engine.

<How to position at #1 cylinder's compression top dead point 105°>



< Position to install the cam sprocket at #1 cylinder compression top dead point 105°>

Tighten using the long holes on the cam sprocket.



NOTICE

When fitting the camshaft, use the slotted holes of the cam sprockets and always set the timing to match. If otherwise, no intended performance can be expected and more over, the engine may be damaged.

The set of the camshaft, cam sprocket, valve spring, ECU and air funnel must be used in the following combination.

| MODEL | SHAFT CAM 1 INT | SHAFT CAM 2 EXT | CAM SPROCKET | VALVE SPRING SET | AIR FUNNEL SET | ECU SET | WIRE HARNESS SET | METER(REPAIR SET) |
|---|--|--|---|--|---|------------------------------|------------------|---|
| 2015 | 2CR-12170-70 | 2CR-12180-70 | B3L-12176-70 | 2CR-A2110-70 2CR-A2110-71 2CR-A2110-72 | MGC-191114-00 | 2CR-8591A-70 | 2CR-F2590-70 | R1:2CR-83500-00 (SET No.2CR-28130-70) R1M:2KS-83500-00 (2KS-28130-70) |
| 2016 | | | | | 2CR-1440B-70 | 2CR-8591A-71 2CR-8591A-72 | | |
| 2017 | | | | | | | | |
| 2018 2019 | 2CR-12170-70 | 2CR-12180-70 | B3L-12176-70 | 2CR-A2110-71 2CR-A2110-72 | 2CR-1440B-70 | BX4-8591A-70 BX4-8591A-71 | BX4-F2590-70 | R1:BX4-83500-30 (SET No.B3L-28130-70) R1M:2KS-83500-60 (SET No.2KS-28130-80) |
| 2020 2021 2022 2023 2024 | B3L-12170-70 | B3L-12180-70 | B3L-12176-70 | Use with original valve springs of YZF-R1. BX4-12113-00 BX4-12114-00 BX4-12123-00 BX4-12124-00 | B3L-1440B-70 | B3L-8591A-71 | B3L-F2590-70 | R1:B3L-83500-00 (SET No.B3L-28130-70) R1M:B4S-83500-00 (SET No.B4S-28130-70) |
| 2020 2021 2022 2023 2024 for SST | Use with original cam shaft of YZF-R1. B3L-12170-00 | Use with original cam shaft of YZF-R1. B3L-12180-00 | Use with original cam sprocket of YZF-R1. | Use with original valve springs of YZF-R1. BX4-12113-00 BX4-12114-00 BX4-12123-00 BX4-12124-00 | Use with original air funnel of YZF-R1. B3L-1440B-01 | B3L-8591A-A1 | B3L-F2590-70 | R1:B3L-83500-00 (SET No.B3L-28130-70) R1M:B4S-83500-00 (SET No.B4S-28130-70) |
| 2020 2021 2022 2023 2024 for SST | Use with original cam shaft of YZF-R1. B3L-12170-00 | Use with original cam shaft of YZF-R1. B3L-12180-00 | B3L-12177-70 | Use with original valve springs of YZF-R1. BX4-12113-00 BX4-12114-00 BX4-12123-00 BX4-12124-00 | Use with original air funnel of YZF-R1. B3L-1440B-01 | B3L-8591A-A1 | | |
| 2020 2021 2022 2023 2024 for SBK | B3L-12170-80 | B3L-12180-80 | B3L-12176-70 | 2CR-A2110-72 | B3L-1440B-80 | B3L-8591A-72 | | |

NOTICE

Using in other combinations may possibly damage the engine.

Be sure to use in the combination as stated above.


16. Cam Sprocket ASSY. for SST (B3L-12177-70)

Parts List

| No. | PART No. | PART NAME | Q'TY | REMARKS |
|-----|---------------|----------------------|------|--------------------|
| 1 | 0WX2-12176-00 | CAM SPROCKET | 2 | INT/EXT-shared use |
| 2 | 0WX2-90003-00 | HOLDER, CAM SPROCKET | 2 | |
| 3 | 0WX2-90004-00 | SCREW, CAM SPROCKET | 6 | |

This part is attached to the STD camshaft and changes the valve timing to improve the output.

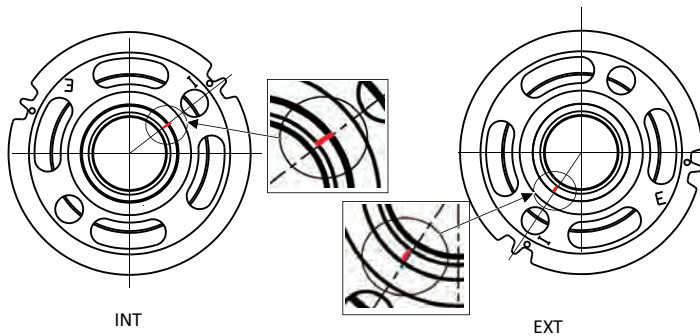
Meaning of the symbol marks in the figures

 : Tighten based on the specified tightening torque

Installation

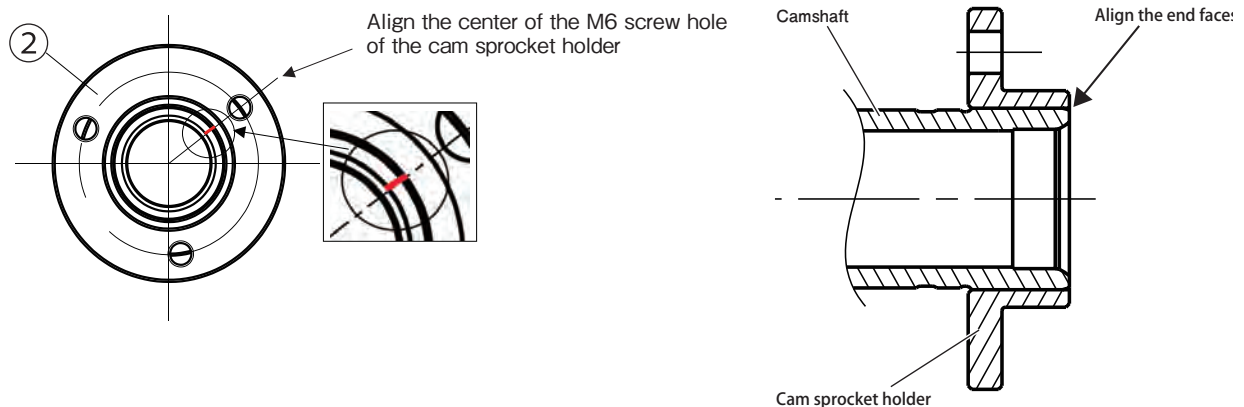
1. Mark the camshaft end face on the sprocket mountain centerline at the "I" mark on the INT/EXT cam sprocket.

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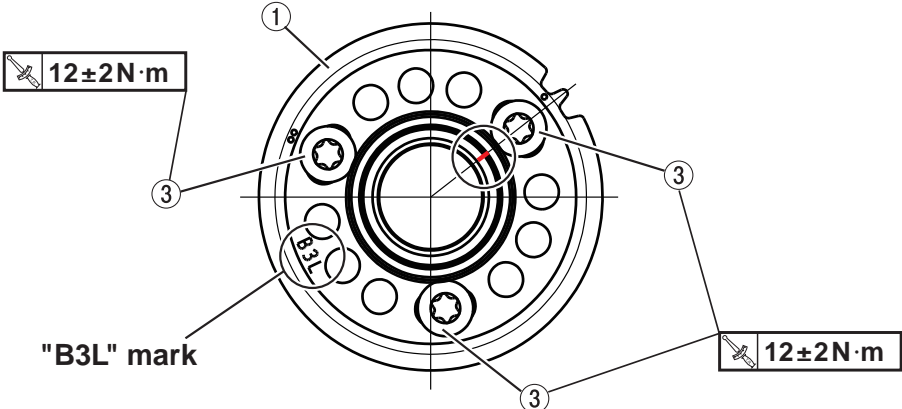


2. Remove the STD cam sprocket from the camshaft using a press machine.

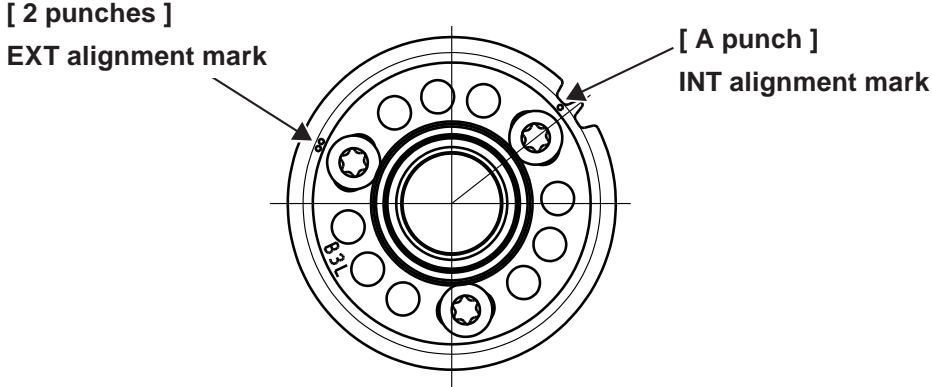
3. Align the center of the screw hole of the cam sprocket holder with the phase of the mark made in step 1, and press-fit the cam sprocket holder. Press-fit the cam sprocket holder until the end face of the cam sprocket holder meets the end face of the camshaft.



4. Assemble the kit cam sprocket in the position where the mark made in step 1. and the "B3L" mark are diagonal.



5. When assembling to the cylinder head, align the center of the two exhaust marks on the kit cam sprocket with the top surface of the exhaust side cylinder head.



The set of the camshaft, cam sprocket, valve spring, ECU and air funnel must be used in the following combination.

| MODEL | SHAFT CAM 1 INT | SHAFT CAM 2 EXT | CAM SPROCKET | VALVE SPRING SET | AIR FUNNEL SET | ECU SET | WIRE HARNESS SET | METER(REPAIR SET) |
|---|--|--|---|--|---|------------------------------|------------------|---|
| 2015 | 2CR-12170-70 | 2CR-12180-70 | B3L-12176-70 | 2CR-A2110-70 2CR-A2110-71 2CR-A2110-72 | MGC-191114-00 | 2CR-8591A-70 | 2CR-F2590-70 | R1:2CR-83500-00 (SET No.2CR-28130-70) R1M:2KS-83500-00 (2KS-28130-70) |
| 2016 | | | | | 2CR-1440B-70 | 2CR-8591A-71 2CR-8591A-72 | | |
| 2017 | | | | | | | | |
| 2018 2019 | 2CR-12170-70 | 2CR-12180-70 | B3L-12176-70 | 2CR-A2110-71 2CR-A2110-72 | 2CR-1440B-70 | BX4-8591A-70 BX4-8591A-71 | BX4-F2590-70 | R1:BX4-83500-30 (SET No.B3L-28130-70) R1M:2KS-83500-60 (SET No.2KS-28130-80) |
| 2020 2021 2022 2023 2024 | B3L-12170-70 | B3L-12180-70 | B3L-12176-70 | Use with original valve springs of YZF-R1. BX4-12113-00 BX4-12114-00 BX4-12123-00 BX4-12124-00 | B3L-1440B-70 | B3L-8591A-71 | B3L-F2590-70 | R1:B3L-83500-00 (SET No.B3L-28130-70) R1M:B4S-83500-00 (SET No.B4S-28130-70) |
| 2020 2021 2022 2023 2024 for SST | Use with original cam shaft of YZF-R1. B3L-12170-00 | Use with original cam shaft of YZF-R1. B3L-12180-00 | Use with original cam sprocket of YZF-R1. | Use with original valve springs of YZF-R1. BX4-12113-00 BX4-12114-00 BX4-12123-00 BX4-12124-00 | Use with original air funnel of YZF-R1. B3L-1440B-01 | B3L-8591A-A1 | B3L-F2590-70 | R1:B3L-83500-00 (SET No.B3L-28130-70) R1M:B4S-83500-00 (SET No.B4S-28130-70) |
| 2020 2021 2022 2023 2024 for SST | Use with original cam shaft of YZF-R1. B3L-12170-00 | Use with original cam shaft of YZF-R1. B3L-12180-00 | B3L-12177-70 | Use with original valve springs of YZF-R1. BX4-12113-00 BX4-12114-00 BX4-12123-00 BX4-12124-00 | Use with original air funnel of YZF-R1. B3L-1440B-01 | B3L-8591A-A1 | | |
| 2020 2021 2022 2023 2024 for SBK | B3L-12170-80 | B3L-12180-80 | B3L-12176-70 | 2CR-A2110-72 | B3L-1440B-80 | B3L-8591A-72 | | |

NOTICE

**Using in other combinations may possibly damage the engine.
Be sure to use in the combination as stated above.**

17. Valve Spring Set (2CR-A2110-72)

Parts List

| No. | PART No. | PART NAME | Q'TY | REMARKS |
|-----|--------------|-------------------|------|-----------------------|
| 1 | 2CR-12130-71 | SRG'ASSY.1 | 8 | I.D.Color: Blue (INT) |
| 2 | 2CR-12140-71 | SRG'ASSY.2 | 8 | I.D.Color: Red (EXT) |
| * | 2CR-12117-00 | RET.VALVE SPRING | 8 | INT |
| * | 2CR-12127-00 | RET.VALVE SPRING2 | 8 | EXT |

This valve spring is used when the camshaft is mounted from the kit.

This set consists of a valve spring, a valve spring seat and a retainer valve spring.

The set of the camshaft, cam sprocket, valve spring, ECU and air funnel must be used in the following combination.

| MODEL | SHAFT CAM 1 INT | SHAFT CAM 2 EXT | CAM SPROCKET | VALVE SPRING SET | AIR FUNNEL SET | ECU SET | WIRE HARNESS SET | METER(REPAIR SET) |
|---|--|--|---|--|---|------------------------------|------------------|---|
| 2015 | 2CR-12170-70 | 2CR-12180-70 | B3L-12176-70 | 2CR-A2110-70 2CR-A2110-71 2CR-A2110-72 | MGC-191114-00 | 2CR-8591A-70 | 2CR-F2590-70 | R1:2CR-83500-00 (SET No.2CR-28130-70) R1M:2KS-83500-00 (2KS-28130-70) |
| 2016 | | | | | 2CR-1440B-70 | 2CR-8591A-71 2CR-8591A-72 | | |
| 2017 | | | | | | | | |
| 2018 2019 | 2CR-12170-70 | 2CR-12180-70 | B3L-12176-70 | 2CR-A2110-71 2CR-A2110-72 | 2CR-1440B-70 | BX4-8591A-70 BX4-8591A-71 | BX4-F2590-70 | R1:BX4-83500-30 (SET No.B3L-28130-70) R1M:2KS-83500-60 (SET No.2KS-28130-80) |
| 2020 2021 2022 2023 2024 | B3L-12170-70 | B3L-12180-70 | B3L-12176-70 | Use with original valve springs of YZF-R1. BX4-12113-00 BX4-12114-00 BX4-12123-00 BX4-12124-00 | B3L-1440B-70 | B3L-8591A-71 | B3L-F2590-70 | R1:B3L-83500-00 (SET No.B3L-28130-70) R1M:B4S-83500-00 (SET No.B4S-28130-70) |
| 2020 2021 2022 2023 2024 for SST | Use with original cam shaft of YZF-R1. B3L-12170-00 | Use with original cam shaft of YZF-R1. B3L-12180-00 | Use with original cam sprocket of YZF-R1. | Use with original valve springs of YZF-R1. BX4-12113-00 BX4-12114-00 BX4-12123-00 BX4-12124-00 | Use with original air funnel of YZF-R1. B3L-1440B-01 | B3L-8591A-A1 | | |
| 2020 2021 2022 2023 2024 for SST | Use with original cam shaft of YZF-R1. B3L-12170-00 | Use with original cam shaft of YZF-R1. B3L-12180-00 | B3L-12177-70 | Use with original valve springs of YZF-R1. BX4-12113-00 BX4-12114-00 BX4-12123-00 BX4-12124-00 | Use with original air funnel of YZF-R1. B3L-1440B-01 | B3L-8591A-A1 | B3L-F2590-70 | R1:B3L-83500-00 (SET No.B3L-28130-70) R1M:B4S-83500-00 (SET No.B4S-28130-70) |
| 2020 2021 2022 2023 2024 for SBK | B3L-12170-80 | B3L-12180-80 | B3L-12176-70 | 2CR-A2110-72 | B3L-1440B-80 | B3L-8591A-72 | | |

NOTICE

Using in other combinations may possibly damage the engine.

Be sure to use in the combination as stated above.

18. Air Funnel Set (B3L-1440B-80)

Parts List

| No. | PART No. | PART NAME | Q'TY | REMARKS |
|-----|--------------|------------------|------|---------|
| 1 | B3L-14479-80 | SECONDARY FUNNEL | 1 | |
| 2 | B3L-14469-80 | PRIMARY FUNNEL 1 | 1 | |
| * | 92014-06025 | BUTTON HEAD BOLT | 3 | |
| 4 | B3L-1446C-80 | PRIMARY FUNNEL 2 | 1 | |
| * | 92014-06025 | BUTTON HEAD BOLT | 3 | |

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Installation

1. Assembling the primary funnel

Secure the primary funnel 1 and 2 to the throttle body with the supplied button head bolts. At this time, install the STD lever 1 and 2 and fix them.



TIP

The STD seal rubber is not used at the bottom surface (face to the primary funnel) of the secondary funnel.

Ycci System Control

You can use the Ycci system as the kit funnel. You can control the operation timing by using the YMS software packed together with the kit ECU.

You can also control the STD funnel by using the YMS software.

2. Assembling the secondary funnel

Install the secondary funnel to the lever 1 and 2. Then, fit the STD bushes to the lever assembling positions. (5 locations)

Bush (5 locations)



*The funnel shape differs from the photo.

The set of the camshaft, cam sprocket, valve spring, ECU and air funnel must be used in the following combination.

| MODEL | SHAFT CAM 1 INT | SHAFT CAM 2 EXT | CAM SPROCKET | VALVE SPRING SET | AIR FUNNEL SET | ECU SET | WIRE HARNESS SET | METER(REPAIR SET) |
|---|--|--|---|--|---|------------------------------|------------------|---|
| 2015 | 2CR-12170-70 | 2CR-12180-70 | B3L-12176-70 | 2CR-A2110-70 2CR-A2110-71 2CR-A2110-72 | MGC-191114-00 | 2CR-8591A-70 | 2CR-F2590-70 | R1:2CR-83500-00 (SET No.2CR-28130-70) R1M:2KS-83500-00 (2KS-28130-70) |
| 2016 | | | | | 2CR-1440B-70 | 2CR-8591A-71 2CR-8591A-72 | | |
| 2017 | | | | | | | | |
| 2018 2019 | 2CR-12170-70 | 2CR-12180-70 | B3L-12176-70 | 2CR-A2110-71 2CR-A2110-72 | 2CR-1440B-70 | BX4-8591A-70 BX4-8591A-71 | BX4-F2590-70 | R1:BX4-83500-30 (SET No.B3L-28130-70) R1M:2KS-83500-60 (SET No.2KS-28130-80) |
| 2020 2021 2022 2023 2024 | B3L-12170-70 | B3L-12180-70 | B3L-12176-70 | Use with original valve springs of YZF-R1. BX4-12113-00 BX4-12114-00 BX4-12123-00 BX4-12124-00 | B3L-1440B-70 | B3L-8591A-71 | B3L-F2590-70 | R1:B3L-83500-00 (SET No.B3L-28130-70) R1M:B4S-83500-00 (SET No.B4S-28130-70) |
| 2020 2021 2022 2023 2024 for SST | Use with original cam shaft of YZF-R1. B3L-12170-00 | Use with original cam shaft of YZF-R1. B3L-12180-00 | Use with original cam sprocket of YZF-R1. | Use with original valve springs of YZF-R1. BX4-12113-00 BX4-12114-00 BX4-12123-00 BX4-12124-00 | Use with original air funnel of YZF-R1. B3L-1440B-01 | B3L-8591A-A1 | B3L-F2590-70 | R1:B3L-83500-00 (SET No.B3L-28130-70) R1M:B4S-83500-00 (SET No.B4S-28130-70) |
| 2020 2021 2022 2023 2024 for SST | Use with original cam shaft of YZF-R1. B3L-12170-00 | Use with original cam shaft of YZF-R1. B3L-12180-00 | B3L-12177-70 | Use with original valve springs of YZF-R1. BX4-12113-00 BX4-12114-00 BX4-12123-00 BX4-12124-00 | Use with original air funnel of YZF-R1. B3L-1440B-01 | B3L-8591A-A1 | | |
| 2020 2021 2022 2023 2024 for SBK | B3L-12170-80 | B3L-12180-80 | B3L-12176-70 | 2CR-A2110-72 | B3L-1440B-80 | B3L-8591A-72 | | |

NOTICE

Using in other combinations may possibly damage the engine.
Be sure to use in the combination as stated above.

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19. AIS-plug Set (2CR-A4890-70)

Parts List

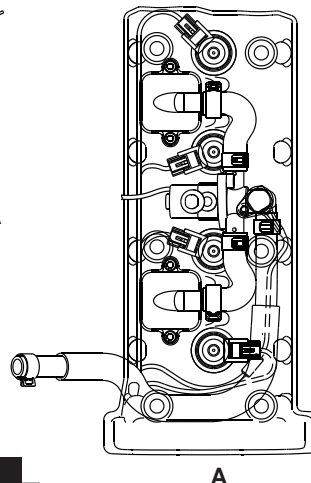
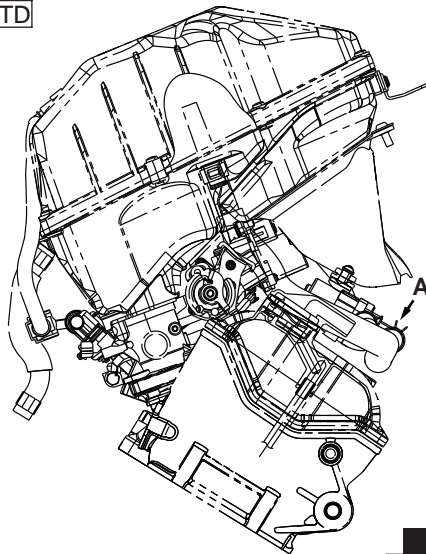
| No. | PART No. | PART NAME | Q'TY | REMARKS |
|-----|--------------|-------------|------|---------|
| 1 | 5SL-1482L-70 | PLATE, 2 | 2 | |
| 2 | 93610-14002 | PLUG, BLIND | 4 | |
| 3 | 90336-10020 | PLUG, TAPER | 1 | |

This plug set is used when the AIS (Air Induction System), an exhaust gas purifying system, is removed.

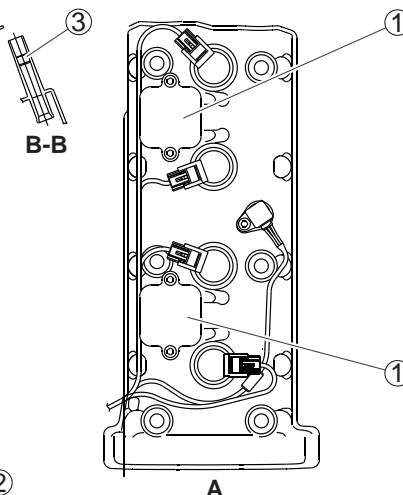
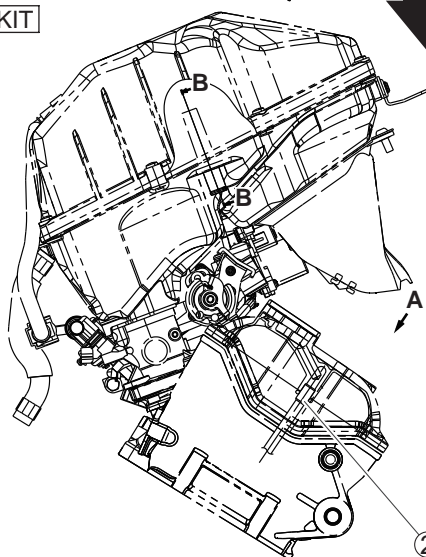
Installation

1. Remove the hose attached to the cylinder head cover and the air cut-off valve accompanying the hose.
2. Remove the cap fitted to the hose, remove the reed valve and plate from inside.
3. Install the ① PLATE,2 (5SL-1482L-70) in replacement of the cap. Be sure to apply liquid gasket.
4. Remove the cylinder head cover and the four collars fitted to the head cover, and install the ② PLUG, BLIND (2CR-A4890-70).
5. After removing the hose connected to the air filter casing from the air-cut valve assembly, insert the ③ PLUG, TAPER (90336-10020) onto the side of the air filter casing to close the opening.

STD



KIT



20.Exhaust gaskets (B3L-14613-70)

Parts List

| No. | PART No. | PART NAME | Q'TY | REMARKS |
|-----|--------------|---------------|------|---------|
| 1 | B3L-14613-70 | GSKT., EXT. 1 | 1 | |

This exhaust gasket has a larger inner diameter than the standard one and is used when the exhaust port diameter is enlarged or the port shape is changed.

- Standard: ϕ 41.5
- Kit: ϕ 45.5

4 pieces in a set.



21. Clutch Spring Spacer Set (B3L-16332-70)

Parts List

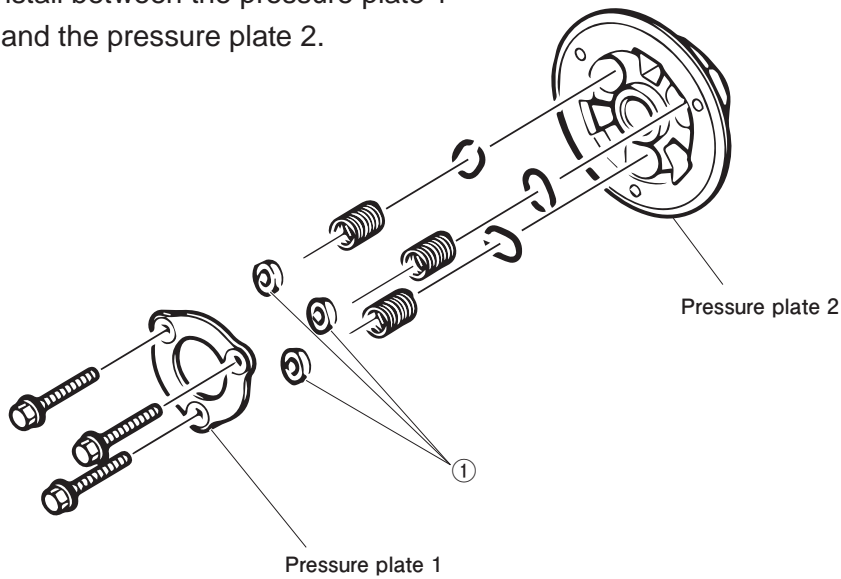
| No. | PART No. | PART NAME | Q'TY | REMARKS |
|-----|-------------|-----------|------|---------|
| 1 | 90387-06037 | COLLAR | 3 | |

This spacer is intended to reduce rear tire hopping during deceleration.
3 pieces spacers are included.

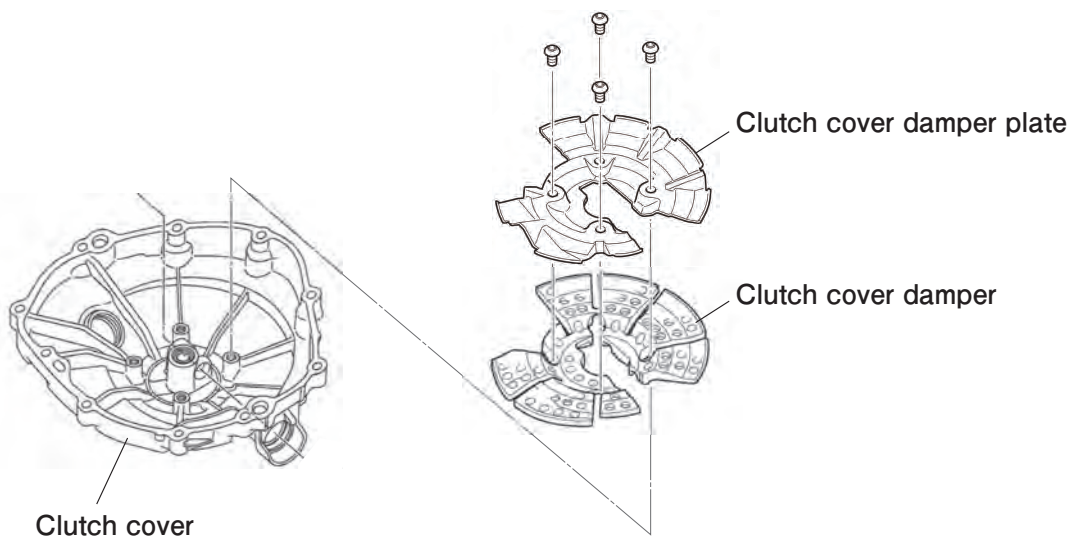
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Installation

1. Install between the pressure plate 1 and the pressure plate 2.



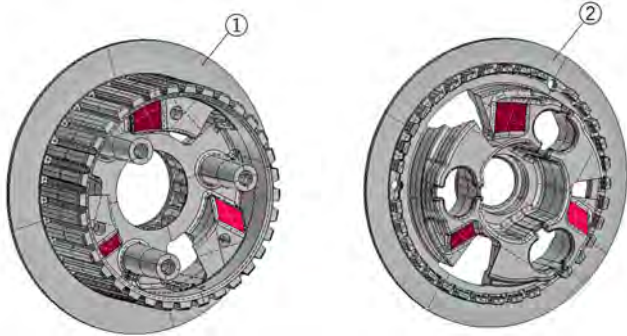
2. Remove the clutch cover damper plate and clutch cover damper from the clutch cover, then install the clutch cover.



22. Clutch boss set (B3L-16370-70)

| No. | PART No. | PART NAME | Q'TY | REMARKS |
|-----|--------------|------------------------|------|---------|
| 1 | B3L-16371-70 | BOSS,CLUTCH | 1 | |
| 2 | B3L-16350-70 | PRESSURE PLATE ASSY.,1 | 1 | |

By using this part together with Clutch Spring Spacer(B3L-16332-70),the hopping of the rear tire during deceleration can be further reduced.

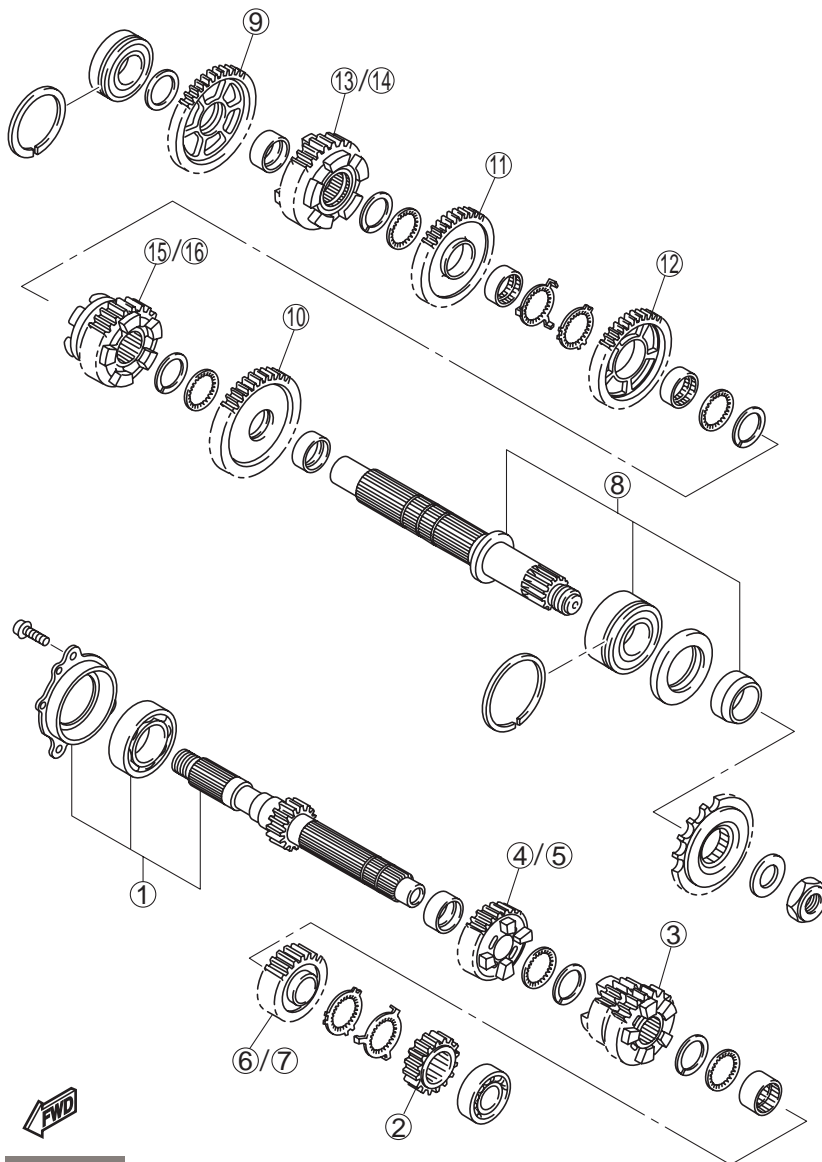


23. Transmission Gear

Parts List

| No. | PART No. | PART NAME | Q'TY | REMARKS | |
|-----|--------------|--------------------|------------------|---------|--|
| 1 | 2CR-17401-70 | MAIN AXLE ASSY. | 1 | | |
| | 2CR-17401-80 | MAIN AXLE ASSY. | 1 | | |
| | 2CR-17401-90 | MAIN AXLE ASSY. | 1 | | |
| 2 | 2CR-17121-70 | GEAR, 2ND PINION | 1 | | |
| | 2CR-17121-80 | GEAR, 2ND PINION | 1 | | |
| | 2CR-17121-90 | GEAR, 2ND PINION | 1 | | |
| 3 | 2CR-17131-70 | GEAR, 3RD PINION | 1 | | |
| | 2CR-17131-80 | GEAR, 3RD PINION | 1 | | |
| 4 | 2CR-17151-70 | GEAR, 5TH PINION A | 1 | | |
| | 2CR-17151-80 | GEAR, 5TH PINION B | 1 | | |
| 5 | 2CR-17161-70 | GEAR, 6TH PINION A | 1 | | |
| | 2CR-17161-80 | GEAR, 6TH PINION B | 1 | | |
| | 2CR-17161-90 | GEAR, 6TH PINION | 1 | | |
| * | 6 | 2CR-17402-00 | DRIVE AXLE ASSY. | 1 | |
| 7 | 2CR-17211-70 | GEAR, 1ST WHEEL | 1 | | |
| | 2CR-17211-80 | GEAR, 1ST WHEEL | 1 | | |
| | 2CR-17211-90 | GEAR, 1ST WHEEL | 1 | | |
| 8 | 2CR-17221-70 | GEAR, 2ND WHEEL | 1 | | |
| | 2CR-17221-80 | GEAR, 2ND WHEEL | 1 | | |
| | 2CR-17221-90 | GEAR, 2ND WHEEL | 1 | | |
| 9 | 2CR-17231-70 | GEAR, 3RD WHEEL | 1 | | |
| | 2CR-17231-80 | GEAR, 3RD WHEEL | 1 | | |
| 10 | 2CR-17241-70 | GEAR, 4TH WHEEL | 1 | | |
| | 2CR-17241-80 | GEAR, 4TH WHEEL | 1 | | |
| 11 | 2CR-17251-70 | GEAR, 5TH WHEEL A | 1 | | |
| | 2CR-17251-80 | GEAR, 5TH WHEEL B | 1 | | |
| 12 | 2CR-17261-70 | GEAR 6TH WHEEL A | 1 | | |
| | 2CR-17261-80 | GEAR 6TH WHEEL B | 1 | | |
| | 2CR-17261-90 | GEAR 6TH WHEEL | 1 | | |

R1 EN 2024Rev



NOTICE

**This set contains modified gear ratios and docks compared with the STD gearbox.
Kit gears cannot use combine standard gear.**

Gear ratio

| GEAR | STD EWC approved | KIT A | KIT B | KIT C EWC approved | KIT D EWC approved |
|------|---------------------|---------------|---------------|-----------------------|-----------------------|
| 1st | 39/15 (2.600) | 39/16 (2.438) | 39/16 (2.438) | 40/16 (2.500) | 38/16 (2.375) |
| 2nd | 37/17 (2.176) | 35/17 (2.059) | 35/17 (2.059) | 36/17 (2.118) | 36/18 (2.000) |
| 3rd | 35/19 (1.842) | 34/19 (1.789) | 34/19 (1.789) | 34/19 (1.789) | 34/20 (1.700) |
| 4th | 30/19 (1.579) | 33/21 (1.571) | 33/21 (1.571) | 33/21 (1.571) | 33/22 (1.500) |
| 5th | 29/21 (1.381) | 32/22 (1.455) | 31/22 (1.409) | 31/22 (1.409) | 31/22 (1.409) |
| 6th | 30/24 (1.250) | 30/22 (1.364) | 33/25 (1.320) | 30/23 (1.304) | 30/23 (1.304) |

YZF-R1 Speed List

Engine speed (rpm) 13900
 Primary reduction ratio 1.63
 Tire diameter (mm) 642

| GEAR | PLAN | The number of teeth | | Ratio | 16 | 16 | 16 | 15 | 16 | 15 | 16 | 15 | 16 | 14 | 15 | 16 | 14 | 15 | 16 | 14 | 15 | 16 |
|------|-------|---------------------|----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | | P | W | | 38 | 39 | 40 | 38 | 41 | 39 | 42 | 40 | 43 | 38 | 41 | 44 | 39 | 42 | 45 | 40 | 43 | 46 |
| 1st | STD | 15 | 39 | 2.60 | 166.6 | 162.3 | 158.3 | 156.2 | 154.4 | 152.2 | 150.7 | 148.3 | 147.2 | 145.7 | 144.7 | 143.8 | 142.0 | 141.3 | 140.6 | 138.4 | 138.0 | 137.6 |
| | KIT A | 16 | 39 | 2.44 | 177.8 | 173.2 | 168.8 | 166.6 | 164.7 | 162.3 | 160.8 | 158.3 | 157.0 | 155.5 | 154.4 | 153.5 | 151.5 | 150.7 | 150.0 | 147.7 | 147.2 | 146.8 |
| | KIT B | 16 | 40 | 2.50 | 173.3 | 168.8 | 164.6 | 162.4 | 160.6 | 158.3 | 156.8 | 154.3 | 153.1 | 151.6 | 150.5 | 149.6 | 147.7 | 146.9 | 146.3 | 144.0 | 143.5 | 143.1 |
| | KIT C | 16 | 40 | 2.50 | 173.3 | 168.8 | 164.6 | 162.4 | 160.6 | 158.3 | 156.8 | 154.3 | 153.1 | 151.6 | 150.5 | 149.6 | 147.7 | 146.9 | 146.3 | 144.0 | 143.5 | 143.1 |
| | KIT D | 16 | 38 | 2.38 | 182.5 | 177.8 | 173.3 | 171.0 | 169.1 | 166.6 | 165.0 | 162.4 | 161.2 | 159.6 | 158.5 | 157.5 | 155.5 | 154.7 | 154.0 | 151.6 | 151.1 | 150.6 |
| 2nd | STD | 17 | 37 | 2.18 | 199.0 | 193.9 | 189.1 | 186.6 | 184.4 | 181.8 | 180.0 | 177.2 | 175.8 | 174.1 | 172.9 | 171.8 | 169.6 | 168.7 | 168.0 | 165.4 | 164.8 | 164.3 |
| | KIT A | 17 | 35 | 2.06 | 210.4 | 205.0 | 199.9 | 197.3 | 195.0 | 192.2 | 190.3 | 187.4 | 185.9 | 184.1 | 182.8 | 181.7 | 179.3 | 178.4 | 177.6 | 174.8 | 174.3 | 173.7 |
| | KIT B | 17 | 35 | 2.06 | 210.4 | 205.0 | 199.9 | 197.3 | 195.0 | 192.2 | 190.3 | 187.4 | 185.9 | 184.1 | 182.8 | 181.7 | 179.3 | 178.4 | 177.6 | 174.8 | 174.3 | 173.7 |
| | KIT C | 17 | 36 | 2.12 | 204.6 | 199.3 | 194.3 | 191.8 | 189.6 | 186.8 | 185.0 | 182.1 | 180.7 | 178.9 | 177.7 | 176.6 | 174.3 | 173.4 | 172.7 | 170.0 | 169.4 | 168.9 |
| | KIT D | 18 | 36 | 2.00 | 216.7 | 211.1 | 205.8 | 203.1 | 200.8 | 197.9 | 196.0 | 192.9 | 191.4 | 189.5 | 188.2 | 187.0 | 184.6 | 183.7 | 182.9 | 180.0 | 179.4 | 178.9 |
| 3rd | STD | 19 | 35 | 1.84 | 235.2 | 229.1 | 223.4 | 220.4 | 217.9 | 214.8 | 212.7 | 209.4 | 207.7 | 205.7 | 204.3 | 203.0 | 200.4 | 199.4 | 198.5 | 195.4 | 194.7 | 194.2 |
| | KIT A | 19 | 34 | 1.79 | 242.1 | 235.9 | 230.0 | 226.9 | 224.3 | 221.1 | 219.0 | 215.6 | 213.9 | 211.8 | 210.3 | 209.0 | 206.3 | 205.3 | 204.3 | 201.1 | 200.5 | 199.9 |
| | KIT B | 19 | 34 | 1.79 | 242.1 | 235.9 | 230.0 | 226.9 | 224.3 | 221.1 | 219.0 | 215.6 | 213.9 | 211.8 | 210.3 | 209.0 | 206.3 | 205.3 | 204.3 | 201.1 | 200.5 | 199.9 |
| | KIT C | 19 | 34 | 1.79 | 242.1 | 235.9 | 230.0 | 226.9 | 224.3 | 221.1 | 219.0 | 215.6 | 213.9 | 211.8 | 210.3 | 209.0 | 206.3 | 205.3 | 204.3 | 201.1 | 200.5 | 199.9 |
| | KIT D | 20 | 34 | 1.70 | 254.9 | 248.3 | 242.1 | 238.9 | 236.2 | 232.8 | 230.6 | 226.9 | 225.2 | 222.9 | 221.4 | 220.0 | 217.2 | 216.1 | 215.1 | 211.8 | 211.1 | 210.4 |
| 4th | STD | 19 | 30 | 1.58 | 274.4 | 267.3 | 260.6 | 257.2 | 254.3 | 250.6 | 248.2 | 244.3 | 242.4 | 240.0 | 238.3 | 236.9 | 233.8 | 232.6 | 231.6 | 228.0 | 227.2 | 226.5 |
| | KIT A | 21 | 33 | 1.57 | 275.7 | 268.6 | 261.9 | 258.4 | 255.5 | 251.8 | 249.4 | 245.5 | 243.6 | 241.1 | 239.5 | 238.0 | 234.9 | 233.7 | 232.7 | 229.0 | 228.3 | 227.6 |
| | KIT B | 21 | 33 | 1.57 | 275.7 | 268.6 | 261.9 | 258.4 | 255.5 | 251.8 | 249.4 | 245.5 | 243.6 | 241.1 | 239.5 | 238.0 | 234.9 | 233.7 | 232.7 | 229.0 | 228.3 | 227.6 |
| | KIT C | 21 | 33 | 1.57 | 275.7 | 268.6 | 261.9 | 258.4 | 255.5 | 251.8 | 249.4 | 245.5 | 243.6 | 241.1 | 239.5 | 238.0 | 234.9 | 233.7 | 232.7 | 229.0 | 228.3 | 227.6 |
| | KIT D | 22 | 33 | 1.50 | 288.9 | 281.4 | 274.4 | 270.8 | 267.7 | 263.8 | 261.3 | 257.2 | 255.2 | 252.7 | 250.9 | 249.4 | 246.2 | 244.9 | 243.8 | 240.0 | 239.2 | 238.5 |
| 5th | STD | 21 | 29 | 1.38 | 313.7 | 305.7 | 298.0 | 294.1 | 290.7 | 286.5 | 283.8 | 279.3 | 277.2 | 274.4 | 272.5 | 270.8 | 267.4 | 266.0 | 264.8 | 260.6 | 259.8 | 259.0 |
| | KIT A | 22 | 32 | 1.45 | 297.8 | 290.2 | 282.9 | 279.2 | 276.0 | 272.0 | 269.4 | 265.2 | 263.1 | 260.5 | 258.7 | 257.1 | 253.8 | 252.5 | 251.4 | 247.4 | 246.6 | 245.9 |
| | KIT B | 22 | 31 | 1.41 | 307.5 | 299.6 | 292.0 | 288.2 | 284.9 | 280.8 | 278.1 | 273.7 | 271.6 | 268.9 | 267.0 | 265.4 | 262.0 | 260.7 | 259.5 | 255.4 | 254.6 | 253.8 |
| | KIT C | 22 | 31 | 1.41 | 307.5 | 299.6 | 292.0 | 288.2 | 284.9 | 280.8 | 278.1 | 273.7 | 271.6 | 268.9 | 267.0 | 265.4 | 262.0 | 260.7 | 259.5 | 255.4 | 254.6 | 253.8 |
| | KIT D | 22 | 31 | 1.41 | 307.5 | 299.6 | 292.0 | 288.2 | 284.9 | 280.8 | 278.1 | 273.7 | 271.6 | 268.9 | 267.0 | 265.4 | 262.0 | 260.7 | 259.5 | 255.4 | 254.6 | 253.8 |
| 6th | STD | 24 | 30 | 1.25 | 346.6 | 337.7 | 329.2 | 324.9 | 321.2 | 316.5 | 313.5 | 308.6 | 306.2 | 303.2 | 301.0 | 299.2 | 295.4 | 293.8 | 292.5 | 287.9 | 287.0 | 286.2 |
| | KIT A | 22 | 30 | 1.36 | 317.6 | 309.5 | 301.7 | 297.7 | 294.3 | 290.1 | 287.3 | 282.8 | 280.6 | 277.8 | 275.9 | 274.2 | 270.7 | 269.3 | 268.1 | 263.9 | 263.0 | 262.2 |
| | KIT B | 25 | 33 | 1.32 | 328.2 | 319.7 | 311.7 | 307.6 | 304.1 | 299.7 | 296.8 | 292.2 | 289.9 | 287.0 | 285.0 | 283.3 | 279.6 | 278.2 | 277.0 | 272.6 | 271.7 | 270.9 |
| | KIT C | 23 | 30 | 1.30 | 332.1 | 323.6 | 315.5 | 311.3 | 307.7 | 303.3 | 300.4 | 295.7 | 293.4 | 290.5 | 288.5 | 286.7 | 283.0 | 281.6 | 280.3 | 275.9 | 275.0 | 274.2 |
| | KIT D | 23 | 30 | 1.30 | 332.1 | 323.6 | 315.5 | 311.3 | 307.7 | 303.3 | 300.4 | 295.7 | 293.4 | 290.5 | 288.5 | 286.7 | 283.0 | 281.6 | 280.3 | 275.9 | 275.0 | 274.2 |

YZF-R1 Speed List

Engine speed (rpm) 13900
 Primary reduction ratio 1.63
 Tire diameter (mm) 642

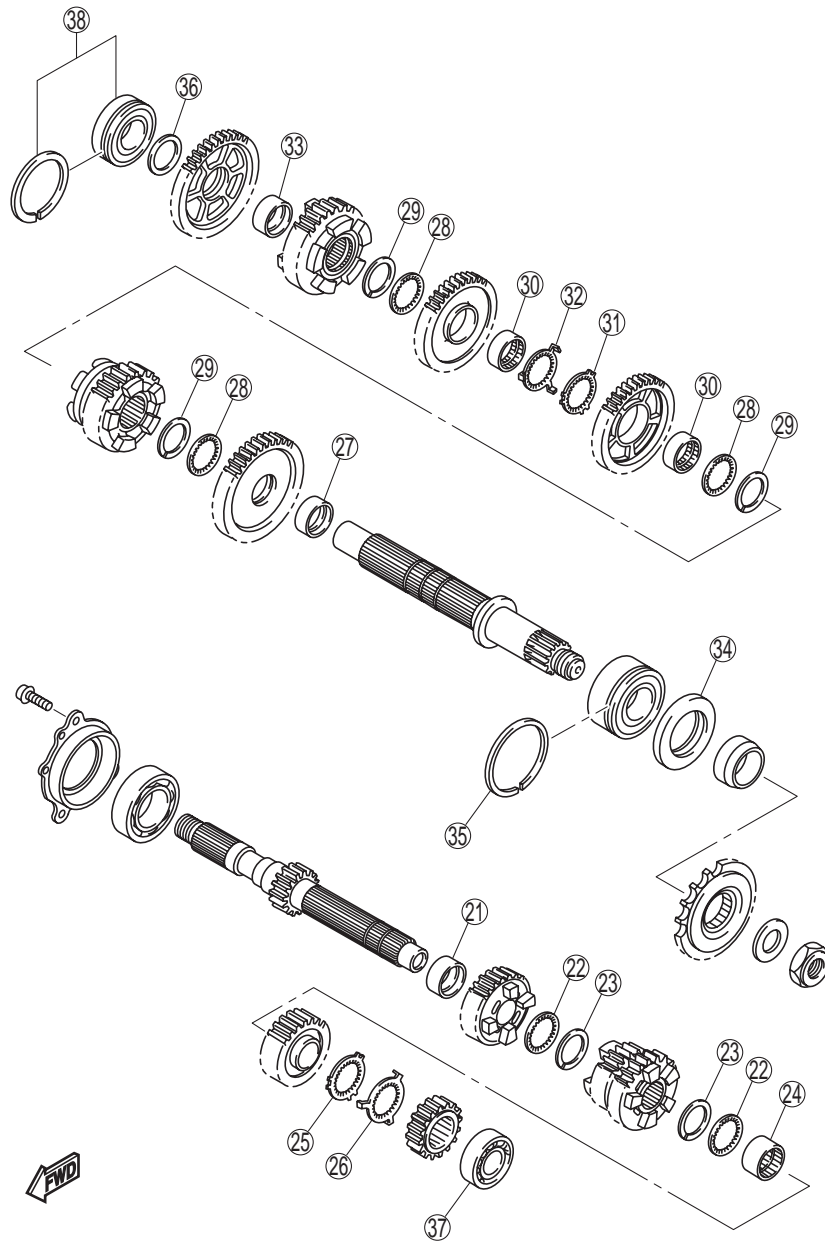
| GEAR | PLAN | The number of teeth | | Ratio | 14 | 15 | 16 | 16 | 15 | 14 | 16 | 15 | 14 | 15 | 14 | 15 | 14 | 15 | 14 | 14 | 14 | 14 |
|------|-------|---------------------|----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | | P | W | | 41 | 44 | 47 | 48 | 45 | 42 | 49 | 46 | 43 | 47 | 44 | 48 | 45 | 49 | 46 | 47 | 48 | 49 |
| 1st | STD | 15 | 39 | 2.60 | 135.1 | 134.9 | 134.7 | 131.9 | 131.9 | 131.9 | 129.2 | 129.0 | 128.8 | 126.3 | 125.9 | 123.6 | 123.1 | 121.1 | 120.4 | 117.8 | 115.4 | 113.0 |
| | KIT A | 16 | 39 | 2.44 | 144.2 | 143.9 | 143.7 | 140.7 | 140.7 | 140.7 | 137.8 | 137.7 | 137.4 | 134.7 | 134.3 | 131.9 | 131.3 | 129.2 | 128.5 | 125.7 | 123.1 | 120.6 |
| | KIT B | 16 | 40 | 2.50 | 140.6 | 140.3 | 140.1 | 137.2 | 137.2 | 137.2 | 134.4 | 134.2 | 134.0 | 131.3 | 130.9 | 128.6 | 128.0 | 126.0 | 125.2 | 122.6 | 120.0 | 117.5 |
| | KIT C | 16 | 40 | 2.50 | 140.6 | 140.3 | 140.1 | 137.2 | 137.2 | 137.2 | 134.4 | 134.2 | 134.0 | 131.3 | 130.9 | 128.6 | 128.0 | 126.0 | 125.2 | 122.6 | 120.0 | 117.5 |
| | KIT D | 16 | 38 | 2.38 | 148.0 | 147.7 | 147.5 | 144.4 | 144.4 | 144.4 | 141.5 | 141.3 | 141.1 | 138.3 | 137.9 | 135.4 | 134.8 | 132.6 | 131.8 | 129.0 | 126.3 | 123.7 |
| 2nd | STD | 17 | 37 | 2.18 | 161.4 | 161.1 | 160.9 | 157.5 | 157.5 | 157.5 | 154.3 | 154.1 | 153.9 | 150.8 | 150.4 | 147.7 | 147.0 | 144.6 | 143.8 | 140.7 | 137.8 | 135.0 |
| | KIT A | 17 | 35 | 2.06 | 170.7 | 170.4 | 170.1 | 166.6 | 166.6 | 166.6 | 163.2 | 162.9 | 162.7 | 159.5 | 159.0 | 156.1 | 155.4 | 152.9 | 152.1 | 148.8 | 145.7 | 142.7 |
| | KIT B | 17 | 35 | 2.06 | 170.7 | 170.4 | 170.1 | 166.6 | 166.6 | 166.6 | 163.2 | 162.9 | 162.7 | 159.5 | 159.0 | 156.1 | 155.4 | 152.9 | 152.1 | 148.8 | 145.7 | 142.7 |
| | KIT C | 17 | 36 | 2.12 | 165.9 | 165.6 | 165.4 | 161.9 | 161.9 | 161.9 | 158.6 | 158.4 | 158.2 | 155.0 | 154.6 | 151.8 | 151.1 | 148.7 | 147.8 | 144.7 | 141.6 | 138.7 |
| | KIT D | 18 | 36 | 2.00 | 175.7 | 175.4 | 175.2 | 171.5 | 171.5 | 171.5 | 168.0 | 167.8 | 167.5 | 164.2 | 163.7 | 160.7 | 160.0 | 157.5 | 156.5 | 153.2 | 150.0 | 146.9 |
| 3rd | STD | 19 | 35 | 1.84 | 190.7 | 190.4 | 190.1 | 186.1 | 186.1 | 186.1 | 182.3 | 182.1 | 181.8 | 178.2 | 177.6 | 174.5 | 173.7 | 170.9 | 169.9 | 166.3 | 162.8 | 159.5 |
| | KIT A | 19 | 34 | 1.79 | 196.3 | 196.0 | 195.7 | 191.6 | 191.6 | 191.6 | 187.7 | 187.4 | 187.2 | 183.4 | 182.9 | 179.6 | 178.8 | 175.9 | 174.9 | 171.2 | 167.6 | 164.2 |
| | KIT B | 19 | 34 | 1.79 | 196.3 | 196.0 | 195.7 | 191.6 | 191.6 | 191.6 | 187.7 | 187.4 | 187.2 | 183.4 | 182.9 | 179.6 | 178.8 | 175.9 | 174.9 | 171.2 | 167.6 | 164.2 |
| | KIT C | 19 | 34 | 1.79 | 196.3 | 196.0 | 195.7 | 191.6 | 191.6 | 191.6 | 187.7 | 187.4 | 187.2 | 183.4 | 182.9 | 179.6 | 178.8 | 175.9 | 174.9 | 171.2 | 167.6 | 164.2 |
| | KIT D | 20 | 34 | 1.70 | 206.7 | 206.3 | 206.1 | 201.7 | 201.7 | 201.7 | 197.6 | 197.3 | 197.0 | 193.1 | 192.5 | 189.1 | 188.3 | 185.2 | 184.1 | 180.2 | 176.5 | 172.8 |
| 4th | STD | 19 | 30 | 1.58 | 222.5 | 222.1 | 221.8 | 217.2 | 217.2 | 217.2 | 212.7 | 212.4 | 212.1 | 207.9 | 207.3 | 203.5 | 202.6 | 199.4 | 198.2 | 194.0 | 189.9 | 186.0 |
| | KIT A | 21 | 33 | 1.57 | 223.5 | 223.2 | 222.9 | 218.2 | 218.2 | 218.2 | 213.7 | 213.4 | 213.1 | 208.9 | 208.3 | 204.5 | 203.6 | 200.3 | 199.2 | 194.9 | 190.8 | 186.9 |
| | KIT B | 21 | 33 | 1.57 | 223.5 | 223.2 | 222.9 | 218.2 | 218.2 | 218.2 | 213.7 | 213.4 | 213.1 | 208.9 | 208.3 | 204.5 | 203.6 | 200.3 | 199.2 | 194.9 | 190.8 | 186.9 |
| | KIT C | 21 | 33 | 1.57 | 223.5 | 223.2 | 222.9 | 218.2 | 218.2 | 218.2 | 213.7 | 213.4 | 213.1 | 208.9 | 208.3 | 204.5 | 203.6 | 200.3 | 199.2 | 194.9 | 190.8 | 186.9 |
| | KIT D | 22 | 33 | 1.50 | 234.2 | 233.8 | 233.5 | 228.6 | 228.6 | 228.6 | 223.9 | 223.6 | 223.3 | 218.9 | 218.2 | 214.3 | 213.3 | 209.9 | 208.7 | 204.2 | 200.0 | 195.9 |
| 5th | STD | 21 | 29 | 1.38 | 254.4 | 254.0 | 253.6 | 248.3 | 248.3 | 248.3 | 243.2 | 242.9 | 242.5 | 237.7 | 237.0 | 232.7 | 231.7 | 228.0 | 226.6 | 221.8 | 217.2 | 212.7 |
| | KIT A | 22 | 32 | 1.45 | 241.5 | 241.1 | 240.7 | 235.7 | 235.7 | 235.7 | 230.9 | 230.5 | 230.2 | 225.6 | 224.9 | 220.9 | 219.9 | 216.4 | 215.1 | 210.5 | 206.1 | 201.9 |
| | KIT B | 22 | 31 | 1.41 | 249.3 | 248.9 | 248.5 | 243.3 | 243.3 | 243.3 | 238.3 | 238.0 | 237.6 | 232.9 | 232.2 | 228.1 | 227.0 | 223.4 | 222.1 | 217.3 | 212.8 | 208.4 |
| | KIT C | 22 | 31 | 1.41 | 249.3 | 248.9 | 248.5 | 243.3 | 243.3 | 243.3 | 238.3 | 238.0 | 237.6 | 232.9 | 232.2 | 228.1 | 227.0 | 223.4 | 222.1 | 217.3 | 212.8 | 208.4 |
| | KIT D | 22 | 31 | 1.41 | 249.3 | 248.9 | 248.5 | 243.3 | 243.3 | 243.3 | 238.3 | 238.0 | 237.6 | 232.9 | 232.2 | 228.1 | 227.0 | 223.4 | 222.1 | 217.3 | 212.8 | 208.4 |
| 6th | STD | 24 | 30 | 1.25 | 281.0 | 280.5 | 280.1 | 274.3 | 274.3 | 274.3 | 268.7 | 268.3 | 267.9 | 262.6 | 261.8 | 257.1 | 255.9 | 251.8 | 250.4 | 245.0 | 239.9 | 235.0 |
| | KIT A | 22 | 30 | 1.36 | 257.5 | 257.1 | 256.7 | 251.4 | 251.4 | 251.4 | 246.2 | 245.9 | 245.5 | 240.6 | 239.9 | 235.6 | 234.5 | 230.8 | 229.4 | 224.5 | 219.8 | 215.3 |
| | KIT B | 25 | 33 | 1.32 | 266.1 | 265.6 | 265.2 | 259.7 | 259.7 | 259.7 | 254.4 | 254.0 | 253.6 | 248.6 | 247.9 | 243.4 | 242.3 | 238.4 | 237.0 | 232.0 | 227.1 | 222.5 |
| | KIT C | 23 | 30 | 1.30 | 269.3 | 268.8 | 268.4 | 262.8 | 262.8 | 262.8 | 257.4 | 257.1 | 256.7 | 251.6 | 250.8 | 246.3 | 245.2 | 241.3 | 239.9 | 234.8 | 229.9 | 225.1 |
| | KIT D | 23 | 30 | 1.30 | 269.3 | 268.8 | 268.4 | 262.8 | 262.8 | 262.8 | 257.4 | 257.1 | 256.7 | 251.6 | 250.8 | 246.3 | 245.2 | 241.3 | 239.9 | 234.8 | 229.9 | 225.1 |

24. Mission Maintenance Set (2CR-A7000-70)

Parts List

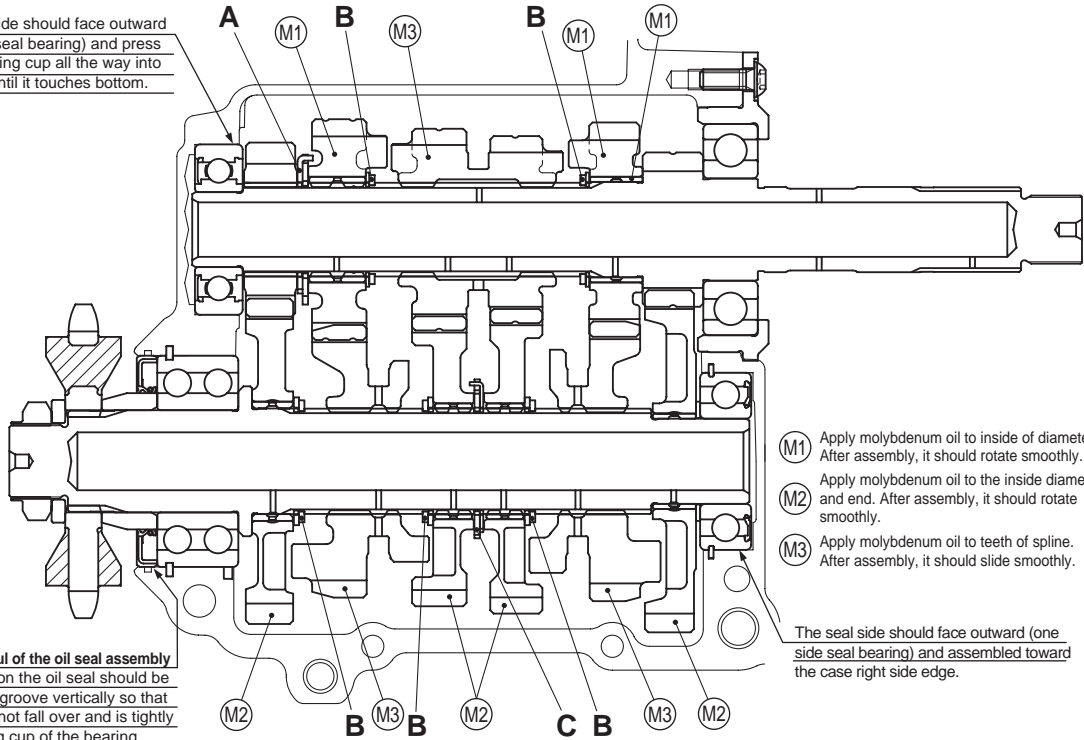
| | No. | PART No. | PART NAME | Q'TY | REMARKS |
|---|-----|--------------|---------------|------|---------|
| * | 21 | 90387-28003 | COLLAR | 3 | |
| * | 22 | 90209-25011 | WASHER | 6 | |
| * | 23 | 93440-28184 | CIRCLIP | 6 | |
| * | 24 | 90387-25023 | COLLAR | 3 | |
| * | 25 | 90214-25004 | WASHER, CLAW | 3 | |
| * | 26 | 90214-25003 | WASHER, CLAW | 3 | |
| * | 27 | 90387-31003 | COLLAR | 3 | |
| * | 28 | 90209-28008 | WASHER | 9 | |
| * | 29 | 93440-31187 | CIRCLIP | 9 | |
| * | 30 | 90387-28004 | COLLAR | 6 | |
| * | 31 | 90214-29002 | WASHER, CLAW | 3 | |
| * | 32 | 90214-28002 | WASHER, CLAW | 3 | |
| * | 33 | 90387-25008 | COLLAR | 3 | |
| * | 34 | 93102-40330 | SEAL, OIL | 3 | |
| * | 35 | 93440-62032 | CIRCLIP | 3 | |
| * | 36 | 90201-257H0 | WASHER, PLAIN | 3 | |
| * | 37 | 93306-27214 | BRG. | 3 | |
| | 38 | 5VY-17166-00 | BRG., 2 | 3 | |

This kit contains three (3) sets of parts necessary for transmission disassembly and maintenance.



Transmission Assembly

The seal side should face outward (one side seal bearing) and press in the bearing cup all the way into the case until it touches bottom.



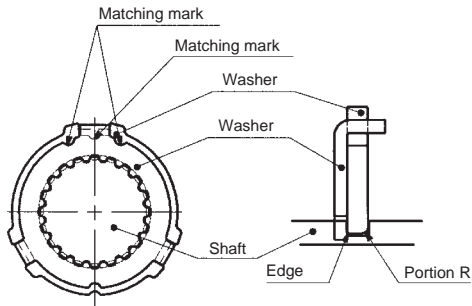
Points to be careful of the oil seal assembly
 The convex part on the oil seal should be put into the case groove vertically so that the oil seal does not fall over and is tightly fit into the bearing cup of the bearing.
 (Apply grease to the lip.)

- (M1) Apply molybdenum oil to inside of diameter. After assembly, it should rotate smoothly.
- (M2) Apply molybdenum oil to the inside diameter and end. After assembly, it should rotate smoothly.
- (M3) Apply molybdenum oil to teeth of spline. After assembly, it should slide smoothly.

The seal side should face outward (one side seal bearing) and assembled toward the case right side edge.

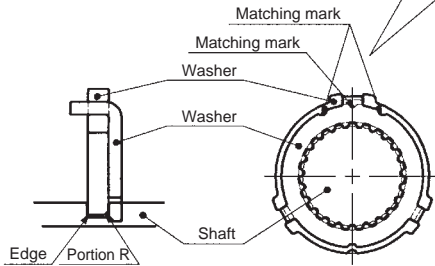
TIP

- Always use a new circlip.
- Do not mistake the washer and circlip directions.
 (See drawing below.)

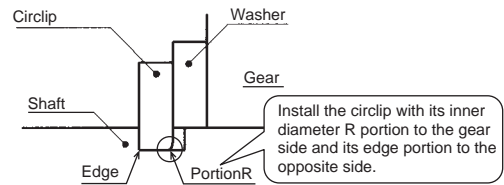


A Detail of installation of washer

Rotate washer so that its teeth meet axle-spline teeth on the axle, and then lock with washer's claw. Assemble washer with putting together their matching mark.



C Detail of installation of washer



B Detail of installation of circlip

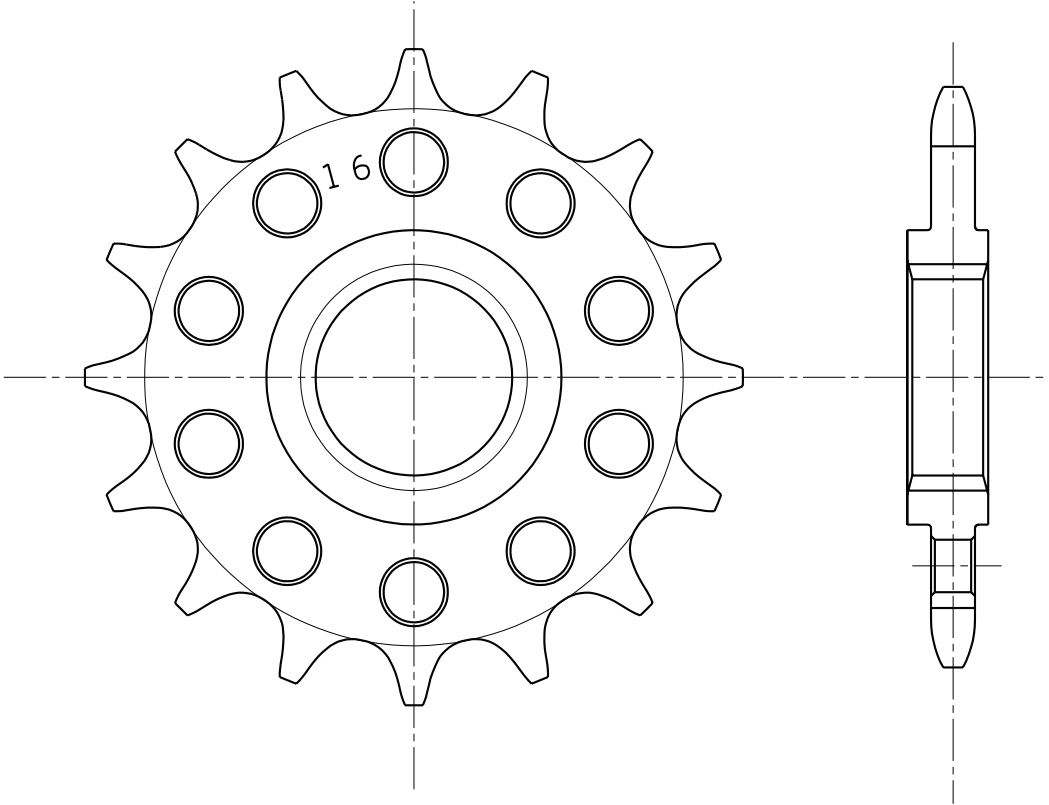
Position the center of the abutment joint of the circlip right with the spline threads.

25. Drive Sprockets

Parts List

| No. | PART No. | PART NAME | Q'TY | REMARKS |
|-----|--------------|-----------------|------|--------------|
| 1 | 2CR-17460-74 | SPROCKET, DRIVE | 1 | 14T, 520SIZE |
| 2 | 2CR-17460-75 | SPROCKET, DRIVE | 1 | 15T, 520SIZE |
| 3 | 2CR-17460-76 | SPROCKET, DRIVE | 1 | 16T, 520SIZE |

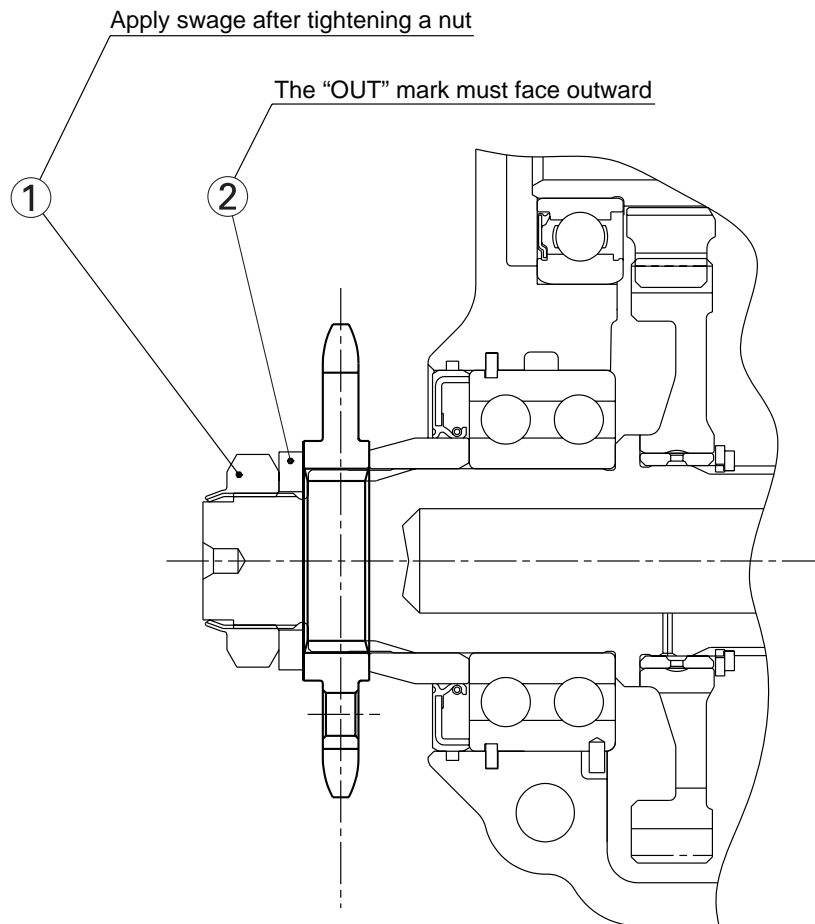
This sprocket is weight-saved by changing the chain size to 520 in relation to the STD one.



26. Sprocket Nut Set (2CR-A7463-70)

Parts List

| | No. | PART No. | PART NAME | Q'TY | REMARKS |
|---|-----|-------------|-----------------------|------|---------|
| * | 1 | 90179-22018 | NUT | 3 | |
| * | 2 | 90208-22002 | WASHER, CONICAL SPRG. | 3 | |



27. Strainer Cover Set (2CR-13400-71)

Parts List

| | No. | PART No. | PART NAME | Q'TY | REMARKS |
|---|-----|--------------|---------------------|------|---|
| ○ | 1 | 2CR-13410-71 | STRAINER HSG.ASSY. | 1 | |
| ○ | 2 | 2CR-13576-70 | SPACER | 1 | |
| * | 3 | 93210-22M93 | O-RING | 2 | 2 attachment, Grease outer surface |
| * | 4 | 92017-06014 | BOLT,BUTTON HEAD | 2 | 2 attachment |
| * | 5 | 90110-06172 | BOLT, HEX. SOCKET | 2 | 1 attachment |
| ○ | 6 | 2CR-13418-70 | PIPE,OIL 2 | 1 | |
| ○ | 7 | 2CR-13416-71 | PIPE,OIL 1 | 1 | |
| * | 8 | 93210-14003 | O-RING | 3 | 6, 7 attachment, Grease outer surface |
| * | 9 | 90110-06393 | BOLT,HEX. SOCKET | 1 | 6 attachment |
| * | 10 | 90110-06182 | BOLT,HEX. SOCKET | 1 | 7,23 attachment |
| ○ | 11 | 2CR-13161-70 | PIPE,DELIVERY 1 | 1 | |
| * | 12 | 90480-13010 | GROMMET | 1 | 1,11,23 attachment |
| * | 13 | 5VY-13117-10 | COLLAR,DISTANCE | 1 | 1,11,23 attachment |
| * | 14 | 90109-06015 | BOLT | 1 | 1,11,23 attachment |
| ○ | 15 | 2CR-1310A-70 | PAN,OIL | 1 | The number of the oil window changed: 2 ('16 kit) → 1 ('17~ kit) |
| | 16 | 90110-06380 | BOLT, HEX. SOCKET | 12 | 15 attachment M6×1.0×L25 |
| * | 17 | 90340-14019 | PLUG,STRAIGHT SCREW | 1 | |
| * | 18 | 90430-14005 | GASKET | 1 | |
| ○ | 19 | 2CR-13414-70 | GASKET, STRAINER | 1 | 15 attachment |
| ○ | 20 | 2CR-13317-70 | BAFFLE, PLATE | 1 | |
| * | 21 | 90119-06115 | BOLT | 4 | 20 attachment |
| * | 22 | 90201-09M01 | WASHER,PLAIN | 1 | 1,11,23 attachment |
| ○ | 23 | 2CR-13428-70 | BRKT.,STRAINER 1 | 1 | 1,11 attachment |

The tightening torque of this set is same as that of STD.

Use the screw locking solvent and grease same as STD.

For details, refer to the STD service manual published by Yamaha Motor Co.,Ltd.

For details on installation of this set, see the next page.

Meaning of the symbol marks in the figures



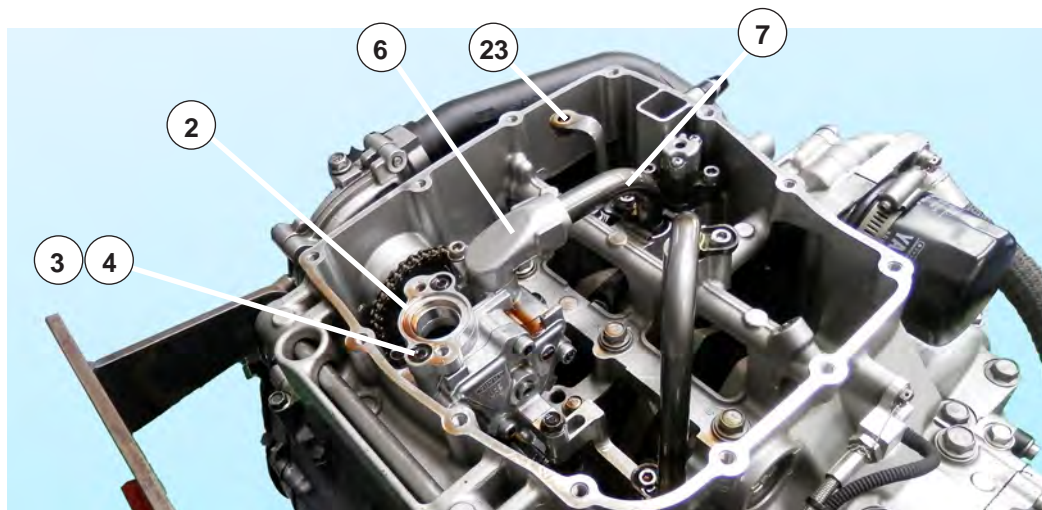
: Apply LOCTITE 620



: Tighten based on the specified tightening torque

Installation

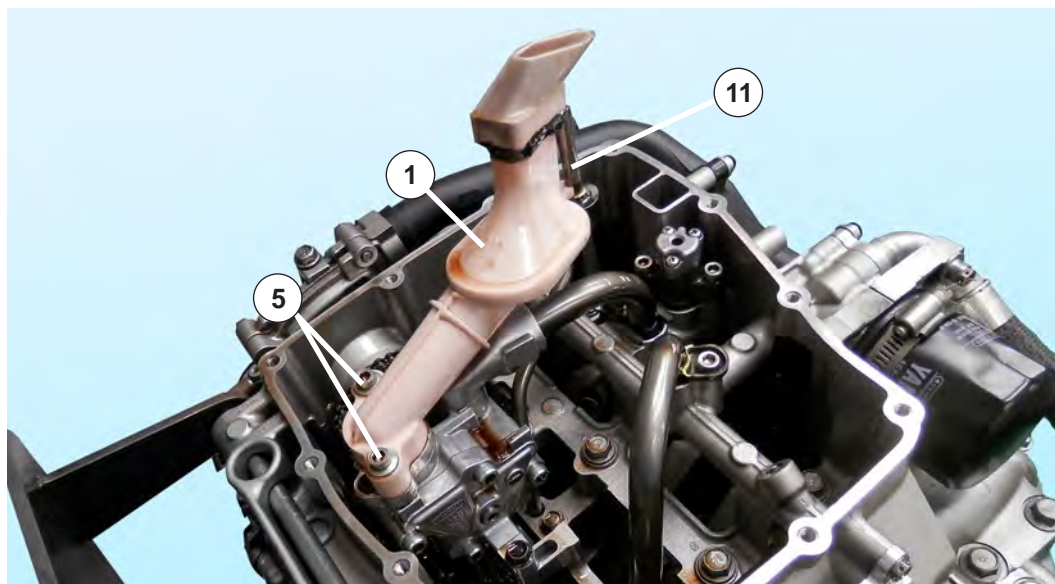
1. Put (8) O-RING at (7) PIPE,OIL 1, and connect (6) PIPE,OIL 2 to (7)PIPE,OIL 1.
2. Attach (6) PIPE,OIL 2 to the engine by using (8) O-RING and (9) BOLT,HEX. SOCKET.
3. Attach (7)PIPE,OIL 1 and (23)BRKT.,STRAINER 1 to the engine by using(8)O-RING and(10) BOLT,HEX. SOCKET (tighten (7) PIPE,OIL 1 together with (23) BRKT.,STRAINER 1).



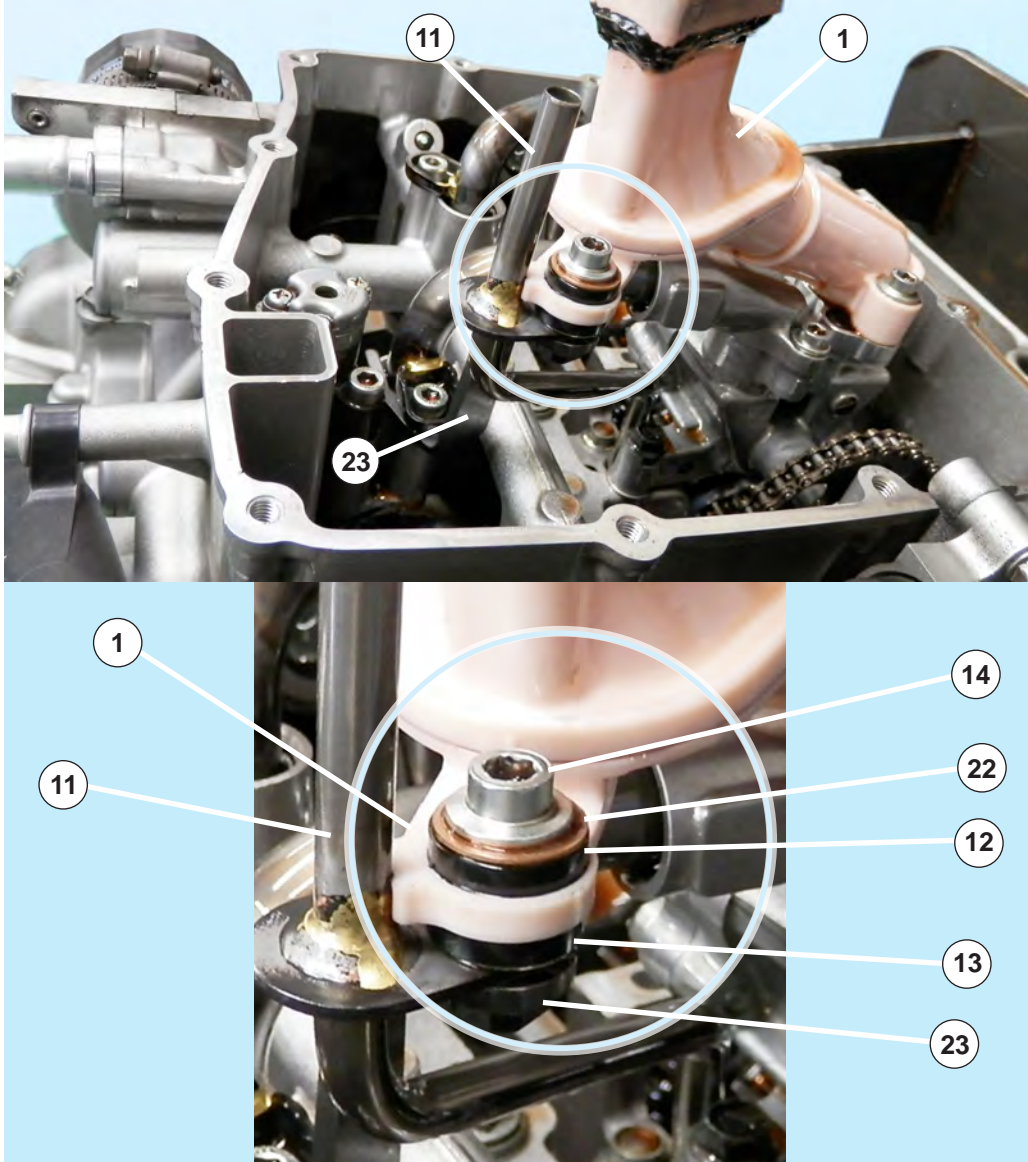
TIP

Visually confirm the condition of 6 PIPE,OIL 2 and 7 PIPE,OIL 1 periodically.

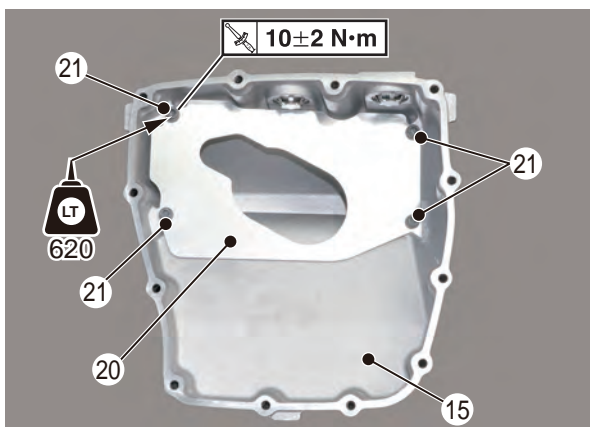
4. Attach (11)PIPE, DELIVERY 1 to the engine.
5. Fix (1) STRAINER HSG.ASSY. to the engine by using (5)BOLT,HEX. SOCKET.



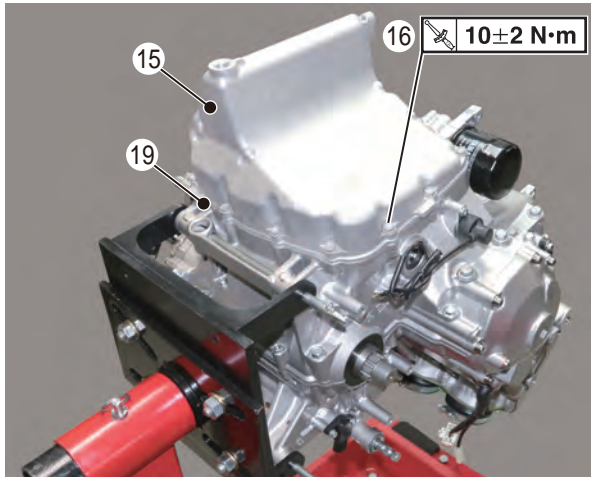
6. Fix (1) STRAINER HSG.ASSY., 11 PIPE, DELIVERY 1 and (23)BRKT.,STRAINER 1 by using (12)GROMMET, (13) COLLAR,DISTANCE, (14) BOLT and (22) WASHER,PLAIN.



7. Attach (20)BAFFLE,PLATE to (15) PAN,OIL by using 21 BOLT.



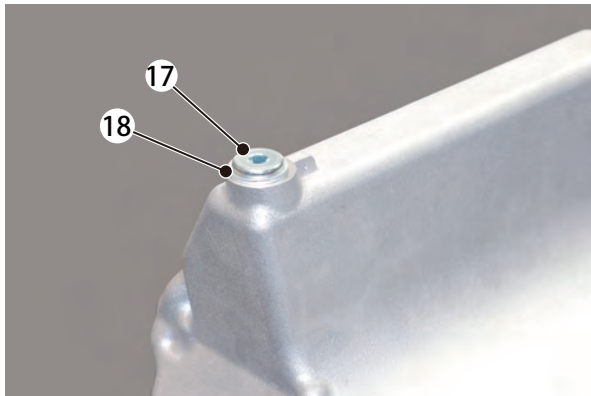
- Attach (19)GASKET, STRAINER between (15) PAN,OIL and the engine, and Install (15)PAN,OIL to the engine by using (16) BOLT,BUTTON HEAD.



TIP

Be sure to check the torque when installing.

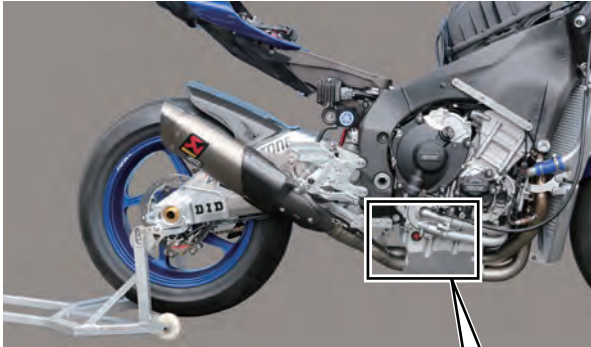
- Attach (17)PLUG,STRAIGHT SCREW and (18)GASKET to (15)PAN,OIL.



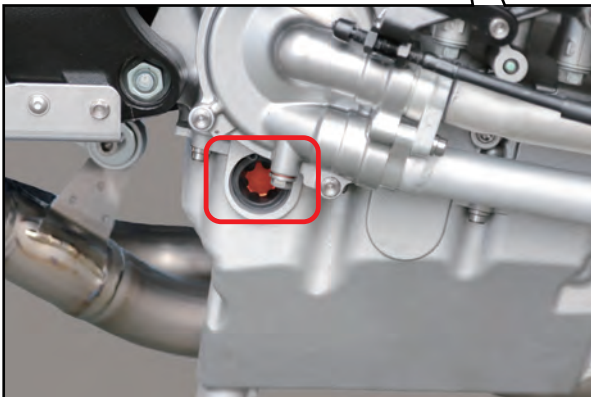
Recommended oil level

After engine warm-up (water temperature of 75 to 80 degrees), while using the racing (rear) stand, and check that the oil level is within a range of the upper limit of the oil pan window (right side of the vehicle) to the lower limit of the engine crank case oil window (left side of vehicle).

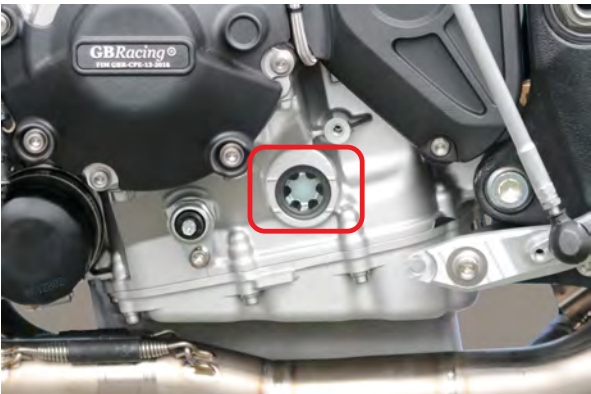
If it is out of range, adjust the oil level.



<Oil pan window (right side of vehicle)>



<Engine crank case oil window (left side of vehicle)>



28. Strainer Cover ASSY. (BMP-13400-70)

Parts List

| | No. | PART No. | PART NAME | Q'TY | REMARKS |
|---|-----|---------------|-----------------------|------|-------------------|
| ○ | 1 | BMP-13411-00 | STRAINER,OIL | 1 | |
| | 2 | OWP4-13415-00 | SEAL,STRAINER | 1 | |
| * | 3 | 91312-06012 | BOLT HEX. SOCKET HEAD | 4 | |
| ○ | 4 | BMP-13412-20 | HSG.,STRAINER | 1 | |
| * | 5 | 93210-14003 | O-RING | 2 | |
| * | 6 | 93210-22M93 | O-RING | 1 | |
| * | 7 | 91312-06012 | BOLT HEX. SOCKET HEAD | 4 | Apply LOCTITE 620 |
| | 8 | OWW2-13483-00 | PLUNGER | 1 | |
| | 9 | OWS4-90433-00 | SPRG. | 1 | |
| | 10 | OWX8-13486-00 | RET.,RELIEF VALVE | 1 | |
| ○ | 11 | BMP-13171-00 | PIPE,DELIVERY 2 | 1 | |
| * | 12 | 91317-06014 | BOLT HEX. SOCKET HEAD | 2 | Apply LOCTITE 243 |
| * | 13 | 93210-13361 | O-RING | 2 | |
| * | 14 | 90119-09012 | BOLT,HEX. W/WASHER | 4 | |
| ○ | 15 | BMP-13161-10 | PIPE,DELIVERY 1 | 1 | |
| | 16 | 91317-06014 | BOLT HEX. SOCKET HEAD | 1 | |
| ○ | 17 | 2CR-1310A-70 | PAN,OIL | 1 | |
| * | 18 | 90110-06380 | BOLT, HEX. SOCKET | 12 | |
| * | 19 | 90340-14019 | PLUG,STRAIGHT SCREW | 1 | |
| * | 20 | 90430-14005 | GASKET | 1 | |
| ○ | 21 | 2CR-13414-70 | GASKET, STRAINER | 1 | |
| ○ | 22 | 2CR-13317-70 | BAFFLE, PLATE | 1 | |
| * | 23 | 90119-06115 | BOLT | 4 | |

Compared to the Strainer cover assy. (2CR-13400-71), the loss horsepower is reduced and the functionality is improved.

The tightening torque of this set is same as that of STD.

Use the screw locking solvent and grease same as STD.

For details, refer to the STD service manual published by Yamaha Motor Co.,Ltd.

For details on installation of this set, see the next page.

Meaning of the symbol marks in the figures



: Apply LOCTITE 620.

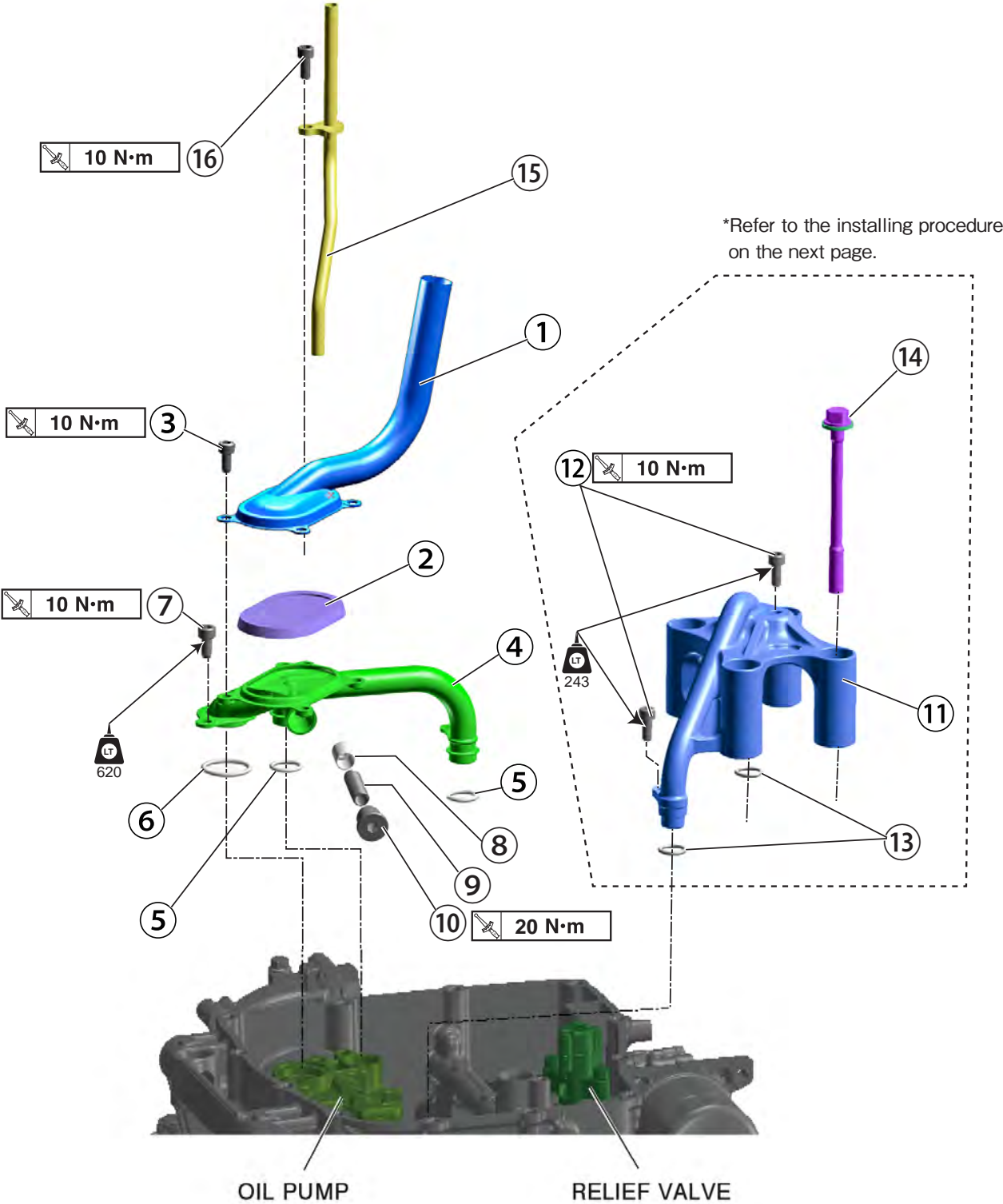


: Apply LOCTITE 243.



: Tighten based on the specified tightening torque.

Installation

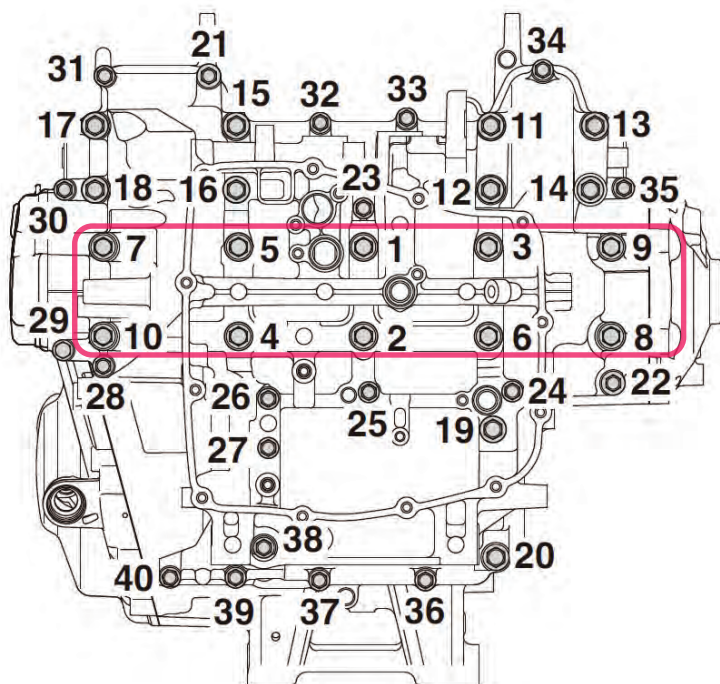


Installing the (11)PIPE,DELIVERY 2.

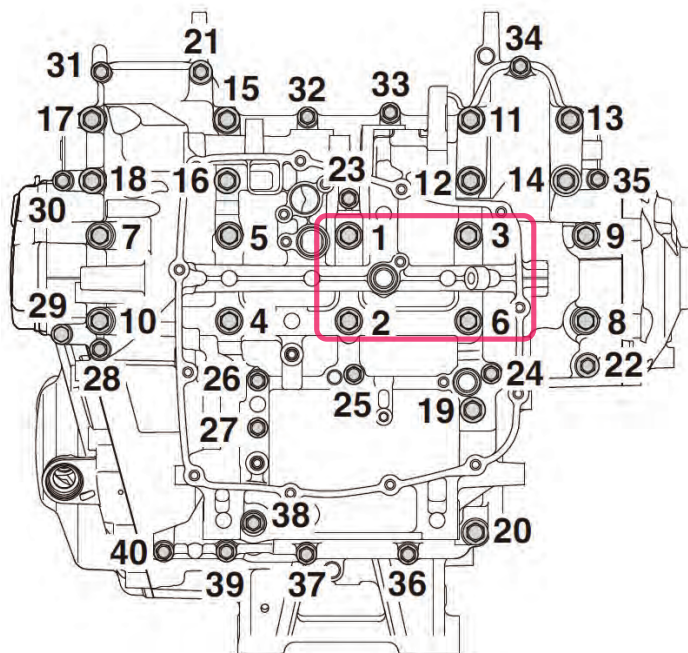
1. First, tighten the crankcase using ten OEM-bolts(L=100mm) using the following procedure.
Use new OEM-bolts.
*(11)PIPE, DELIVERY 2 is not installed yet.
 - 1) Apply the engine oil to the bolts and the both sides of the washer.
 - 2) Tighten to 20 N•m in the order of “1” to “10”.
 - 3) After loosening the bolts once in the sequence of “1” to “10”, retighten them one by one to 15 N•m.

TIP

Do not loosen all bolts at once.Repeat loosening and tightening operation one by one bolt.



2. After tightening all OEM-bolts, remove four OEM-bolts “1”, “2”, “3” and “6”.



3. Install the (13)O-RING to the (11) PIPE,DELIVERY 2.
4. Install the (11)PIPE,DELIVERY 2 to the crankcase using the following procedure.
 - 1) Apply the engine oil to the (14)bolts (L=105mm) and the both sides of the washer.
 - 2) Tighten to 20 N•m in the order of “1” → “2” → “3” → “6”.
 - 3) After loosening the bolts once in the sequence of “1” → “2” → “3” → “6”, retighten them one by one to 15 N•m (1.5 kg•m).

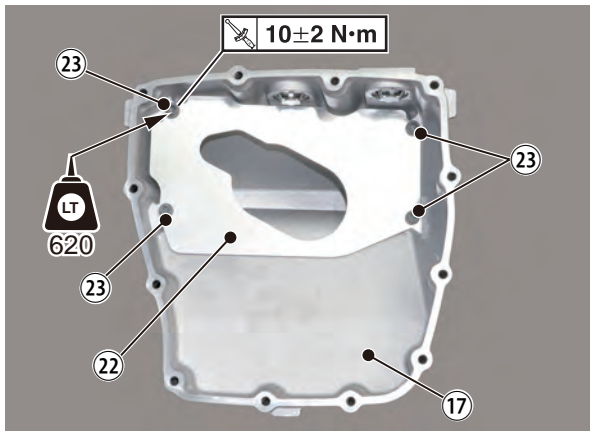
TIP

Do not loosen all bolts at once.Repeat loosening and tightening operation one by one bolt.

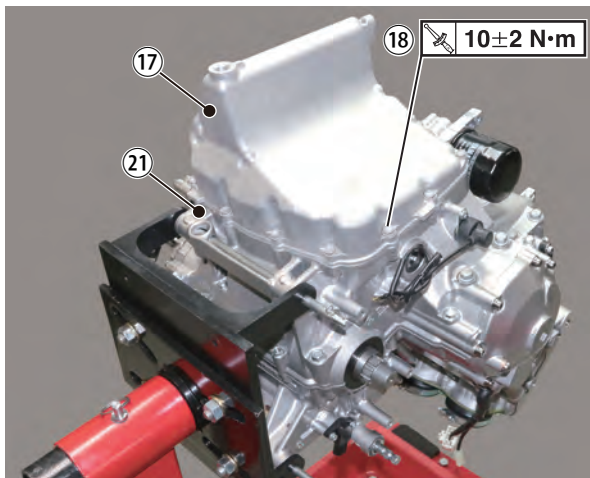
- 4) Retighten the bolts in the tightening sequence of “1” → “2” → “3” → “6”, to a turn-of-bolt angle of 85°.
5. Apply Loctite 243 to the two (12) BOLT and tighten to 10N•m.

Installing the (17)PAN,OIL

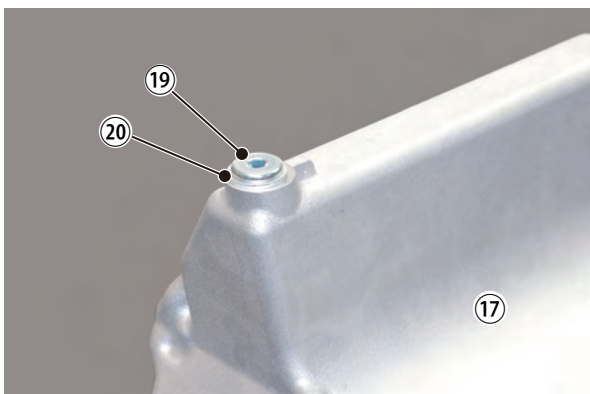
1. Install the (22)BAFFLE, PLATE to the (17) PAN,OIL by using the (23)BOLT.



2. Install the (21)GASKET, STRAINER between the (17)PAN,OIL and the engine then install the (17)PAN,OIL by using the (18)BOLT, HEX. SOCKET.



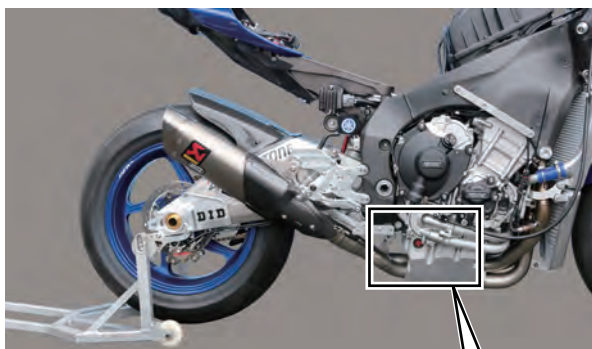
3. Install the (19)PLUG,STRAIGHT SCREW and (20)GASKET to the (17)PAN,OIL .



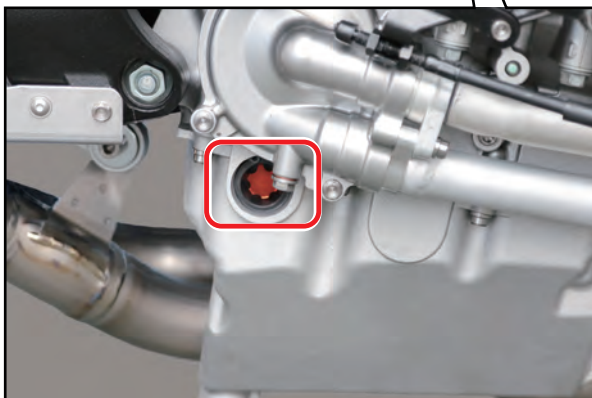
Recommended oil level

After the engine has warmed up (water temperature of 75-80°C), stop the engine and wait for 10minutes. Refill the oil to the upper limit of the oil pan window on the right side of the vehicle with the racing(rear)stand in place.

Add another 200cc from there.



<Oil pan window (right side of vehicle)>



29.Strainer Cover ASSY. for SST (BMP-13400-80)

Parts List

| | No. | PART No. | PART NAME | Q'TY | REMARKS |
|---|-----|---------------|-----------------------|------|-------------------|
| ○ | 1 | BMP-13411-10 | STRAINER,OIL | 1 | |
| | 2 | OWP4-13415-00 | SEAL,STRAINER | 1 | |
| * | 3 | 91312-06012 | BOLT HEX. SOCKET HEAD | 4 | |
| ○ | 4 | BMP-13412-20 | HSG.,STRAINER | 1 | |
| * | 5 | 93210-14003 | O-RING | 2 | |
| * | 6 | 93210-22M93 | O-RING | 1 | |
| * | 7 | 91312-06012 | BOLT HEX. SOCKET HEAD | 4 | Apply LOCTITE 620 |
| | 8 | OWW2-13483-00 | PLUNGER | 1 | |
| | 9 | OWS4-90433-00 | SPRG. | 1 | |
| | 10 | OWX8-13486-00 | RET.,RELIEF VALVE | 1 | |
| ○ | 11 | BMP-13171-00 | PIPE,DELIVERY 2 | 1 | |
| * | 12 | 91317-06014 | BOLT HEX. SOCKET HEAD | 2 | Apply LOCTITE 243 |
| * | 13 | 93210-13361 | O-RING | 2 | |
| * | 14 | 90119-09012 | BOLT,HEX. W/WASHER | 4 | |
| ○ | 15 | BMP-13161-00 | PIPE,DELIVERY 1 | 1 | |
| | 16 | 91317-06014 | BOLT HEX. SOCKET HEAD | 1 | |

This set reduces loss horsepower and functionality is improved.

This set uses the stock oil pan.

The tightening torque of this set is same as that of STD.

Use the screw locking solvent and grease same as STD.

For details, refer to the STD service manual published by Yamaha Motor Co.,Ltd.

For details on installation of this set, see the next page.

Meaning of the symbol marks in the figures



: Apply LOCTITE 620.

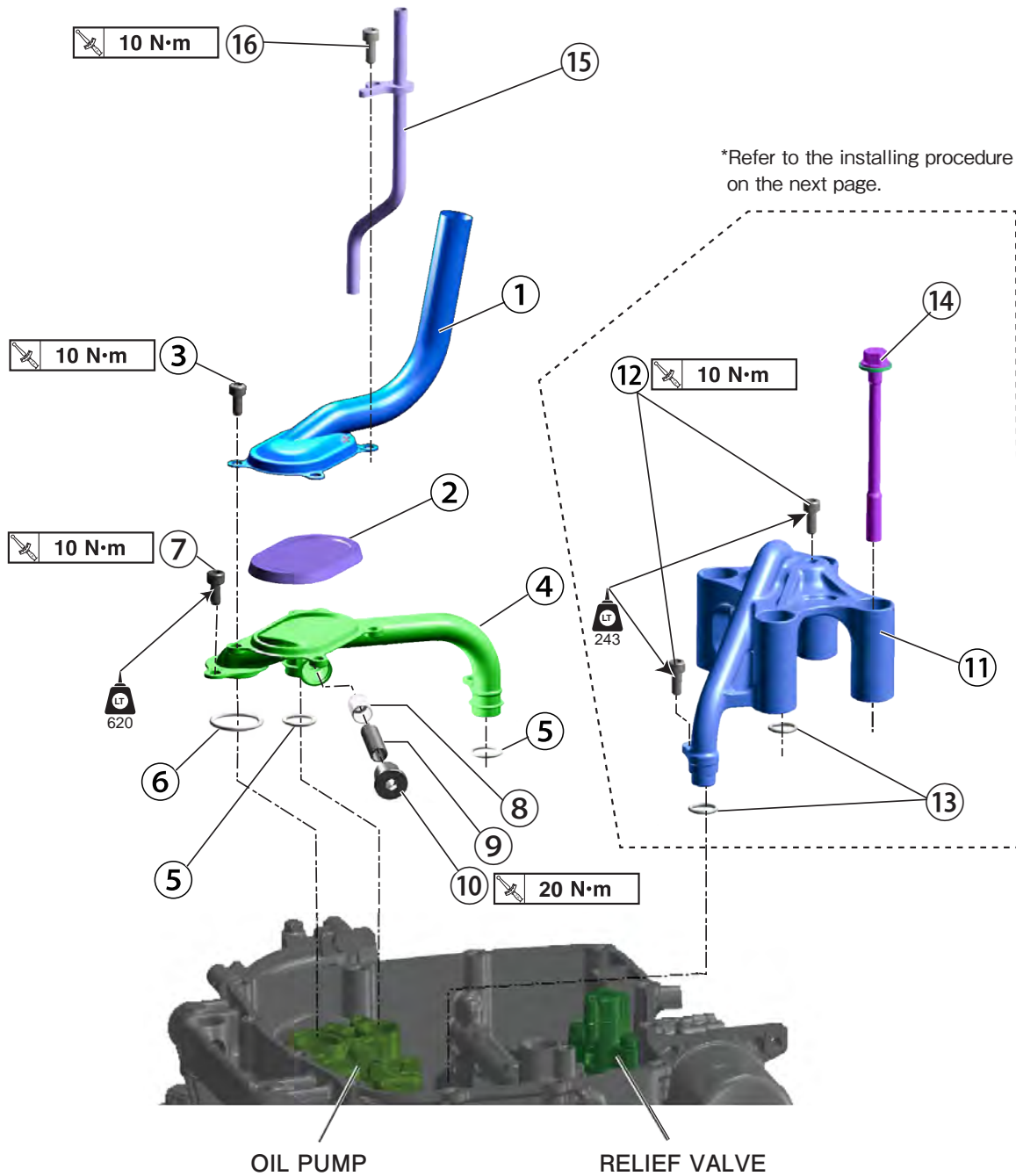


: Apply LOCTITE 243.



: Tighten based on the specified tightening torque.

Installation



Installing the (11)PIPE,DELIVERY 2

1. First, tighten the crankcase using ten OEM-bolts(L=100mm) using the following procedure.

Use new OEM-bolts.

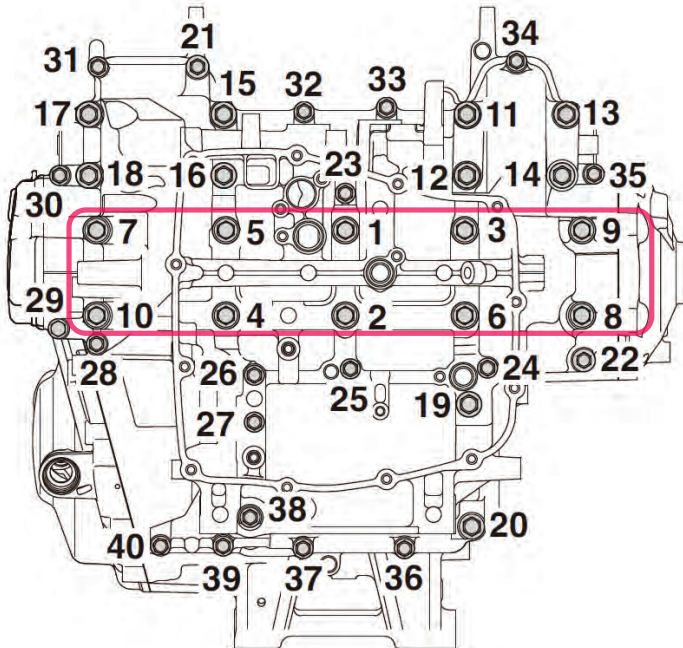
* (11)PIPE, DELIVERY 2 is not installed yet.

- 1) Apply the engine oil to the bolts and the both sides of the washer.
- 2) Tighten to 20 N•m in the order of “1” to “10”.
- 3) After loosening the bolts once in the sequence of “1” to “10”, retighten them one by one to 15 N•m.

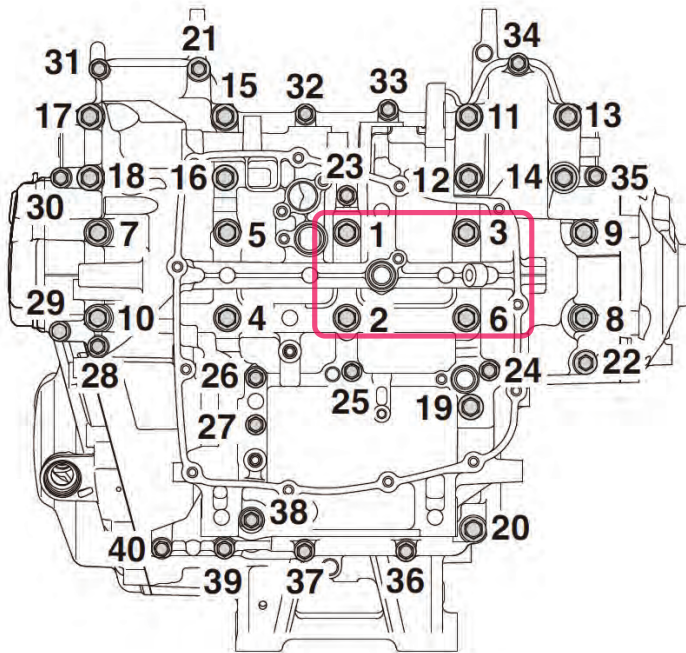
TIP _____

Do not loosen all bolts at once.Repeat loosening and tightening operation one by one bolt.

- 4) Retighten the bolts in the tightening sequence of “1” to “10” to a turn-of-bolt angle of 75°.



2. After tightening all OEM-bolts, remove four OEM-bolts "1", "2", "3" and "6".



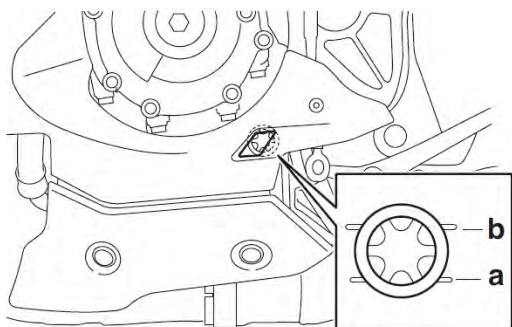
3. Install the (13)O-RING to the (11) PIPE,DELIVERY 2.
4. Install the (11)PIPE,DELIVERY 2 to the crankcase using the following procedure.
 - 1) Apply the engine oil to the (14)bolts (L=105mm) and the both sides of the washer.
 - 2) Tighten to 20 N•m in the order of "1" → "2" → "3" → "6".
 - 3) After loosening the bolts once in the sequence of "1" → "2" → "3" → "6", retighten them one by one to 15 N•m (1.5 kg•m).

TIP_____

Do not loosen all bolts at once.Repeat loosening and tightening operation one by one bolt.

- 4) Retighten the bolts in the tightening sequence of "1" → "2" → "3" → "6", to a turn-of-bolt angle of 85°.
5. Apply Loctite 243 to the two (12) BOLT and tighten to 10N•m.

Recommended oil level



1. Fill the engine oil to the lower line (a) of the left side oil window.
2. After the engine has warmed up (water temperature 75-80°C), stop the engine and wait for 10 minutes.
3. Refill the oil to the lower line (a) of left side oil window.

NOTICE

**This indication is for sprint race.
For endurance race, engine oil consumption will be larger, so must increase the oil level based on actual consumption not to be lower than above indication.**

30.Toolkit (Event Angle Measurement Tool)B3L-28100-70

Parts List

| | No. | PART No. | PART NAME | Q'TY | REMARKS |
|---|-----|---------------|----------------------|------|---------|
| | 1 | 0WU7-90059-30 | SHAFT,ANGLE PLATE | 1 | |
| * | 2 | 95817-08014 | BOLT,FLANGE | 1 | |
| | 3 | 0WX7-90023-00 | DIAL GAUGE HOLDER | 1 | |
| * | 4 | 91317-03005 | BOLT,HEX.SOCKET HEAD | 1 | |
| | 5 | 0WX7-90024-00 | DIAL GAUGE HOLDER | 1 | |
| * | 6 | 91312-06025 | BOLT,HEX.SOCKET HEAD | 2 | |
| * | 7 | 91312-06020 | BOLT,HEX.SOCKET HEAD | 2 | |
| | 8 | 0WX7-90025-10 | PROBE | 2 | |

R120221213Rev

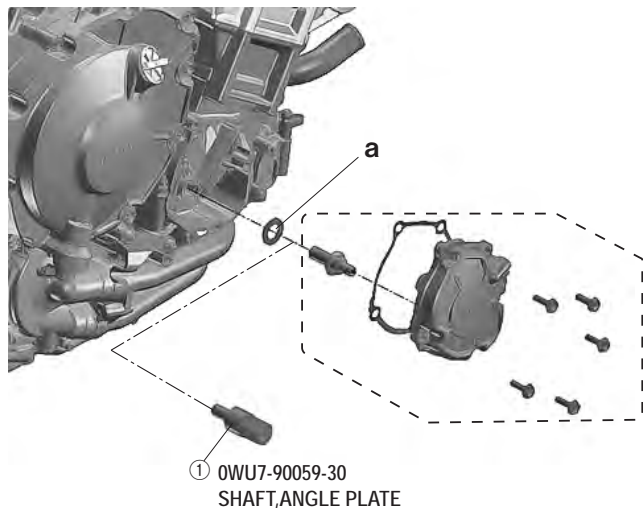
This kit is a tool to accurately measure valve timing when using the following parts.

- **Cam Sprocket Set for SBK**
B3L-12176-70
- **Cam Sprocket ASSY. for SST**
B3L-12177-70

In addition to the tool kit, the following tools should be prepared separately for valve timing measurement.

- **Protractor (360° full-circle protractor)**
Protractor that reads crank angle
*Reference product: Niigata Seiki Protractor PRT193-200
- **Parts for reading crank angle (separately purchased or self-made)**
- **Dial gauge**
*Reference: PEACOCK 207S
*Recommended stroke: 20mm
- **Measuring element joint for dial gauge**
*Recommended rod length: 140mm

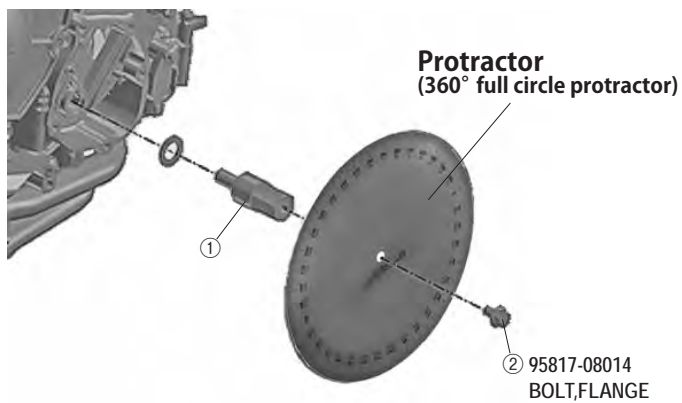
Installation the protractor (360° full circle protractor).



1. Remove the dotted line part (oil pump cover, gasket and bolts) on the right side of the engine and install ① .

TIP _____

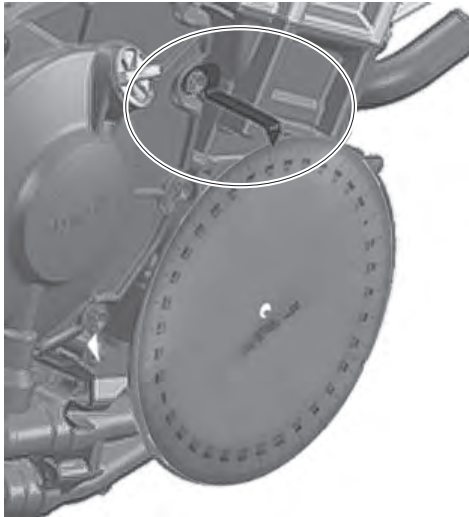
Use washer (a) installed on the engine.



2. Attach the prepared protractor using ② .
M8 x P1.25 holes are provided in ① .
Use an appropriate protractor.

TIP

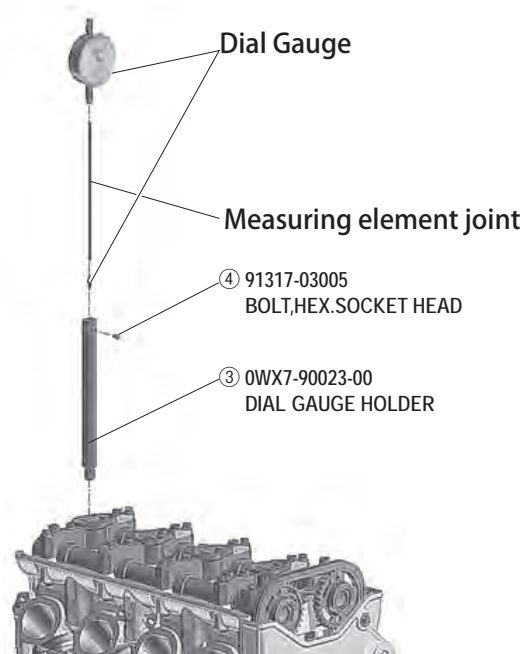
To read the crank angle, install the crank angle reading part that serves as a reference mark as shown in the figure below.



Parts for reading crank angle are not included in the kit.

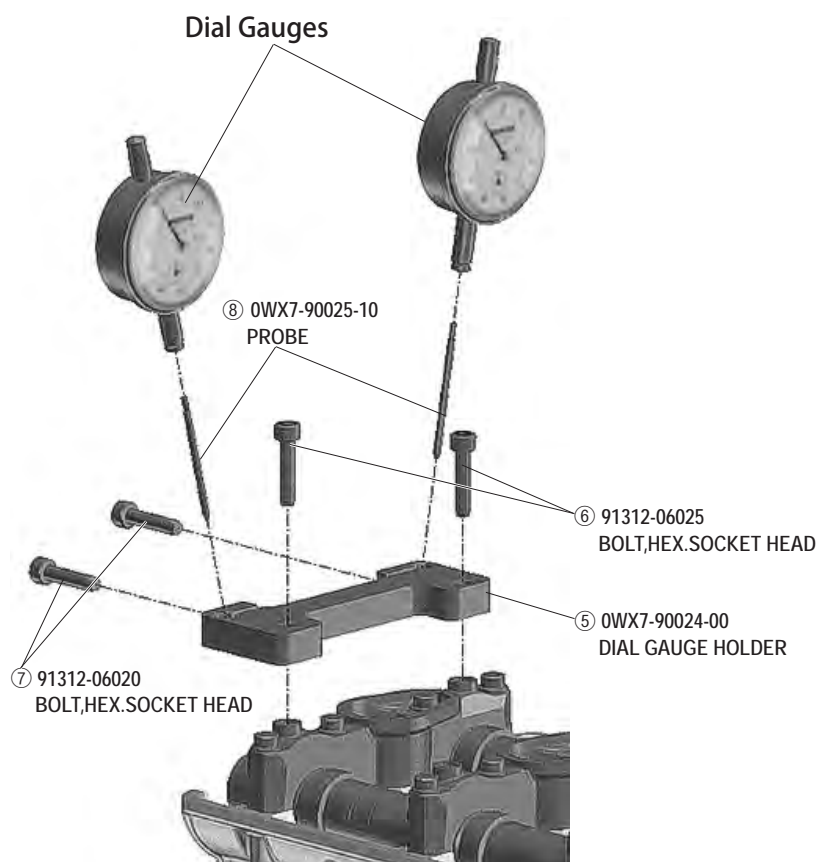
Please purchase separately or make your own.

Installation of piston upper dead center tool



1. With the cylinder head cover removed, remove the spark plug of the #1 cylinder and install ③ .
2. After attaching a commercially available dial gauge and measuring element joint, fix them with ④ .

installation of Valve lift measurement tool



1. With the cylinder head cover removed, install ⑤ into the cam cap of the #1 cylinder.
2. After mounting the dial gauges, fix it with ⑦ . Use ⑧ supplied with this kit as the measuring element.

TIP

When installing ⑤ , install it so that the side marked "B3L" is on the top.

TIP

The valve lift measurement tool can be installed simultaneously with the piston upper dead center tool.

2-3 Installing Chassis Parts

31. Spring Rear Shock

Parts List

| No. | PART No. | PART NAME | Q'TY | REMARKS |
|-----|--------------|-------------------|------|--|
| 1 | 2CR-22222-A0 | SPRG., REAR SHOCK | 1 | 83 N/mm Identifying stamp: 159.5-56-83 |
| 2 | 2CR-22222-70 | SPRG., REAR SHOCK | 1 | 93 N/mm Identifying stamp: 159.5-56-93 |
| 3 | 2CR-22222-75 | SPRG., REAR SHOCK | 1 | 98 N/mm Identifying stamp: 159.5-56-98 |
| 4 | 2CR-22222-80 | SPRG., REAR SHOCK | 1 | 103 N/mm Identifying stamp: 159.5-56-103 |
| 5 | 2CR-22222-85 | SPRG., REAR SHOCK | 1 | 108 N/mm Identifying stamp: 159.5-56-108 |

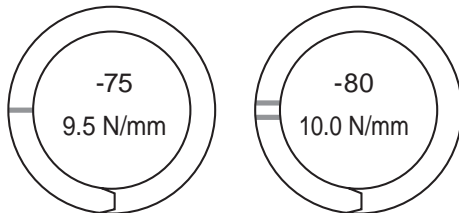
- There is a stamp on the side of the springs for rate identification.
- Free length is 159.5 mm for the both STD spring and KIT spring.
- For spring replacement, see the 2CR STD. Service Manual.
- The spring rate of the standard rear suspension is 88 N/mm.

32. Spring Front Fork

Parts List

| No. | PART No. | PART NAME | Q'TY | REMARKS |
|-----|--------------|-------------------|------|----------------------------------|
| 1 | BN6-2314-75 | SPRG., FRONT FORK | 1 | 9.5 N/mm Identifying slits 1 |
| 2 | BN6-23141-80 | SPRG., FRONT FORK | 1 | 10.0 N/mm Identifying slits 2 |

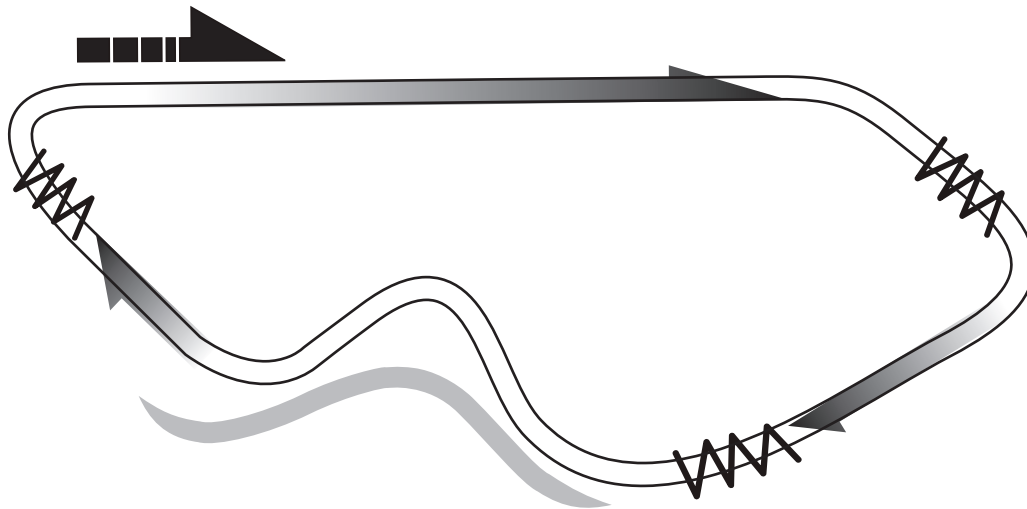
- There are slits at the ends of the spring for rate identification.



- There are slits at the ends of the spring for rate identification.
- Free lengths are STD spring andKIT spring = 219.5mm.
- The spring rate of the STD is 9.0 N/mm.
- For information about spring replacement, see STD. Service Manual.

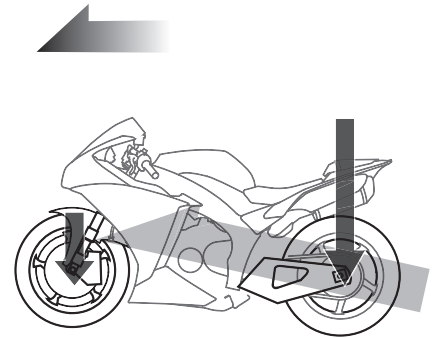
References

Front and rear load changes and front and rear suspension movement in different scenarios.



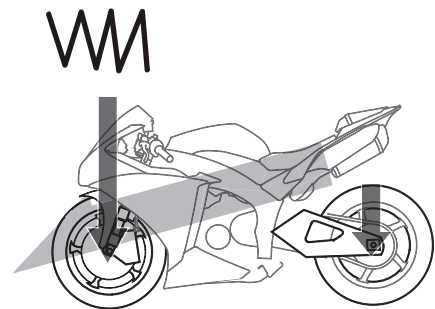
Accelerating

- Load change
The wider the throttle is opened, the more the load is concentrated on the rear.
- Front fork
Reaches nearly maximum extended stroke.
- Rear cushion
Up to 20 to 30mm stroke displacement, depending on conditions.



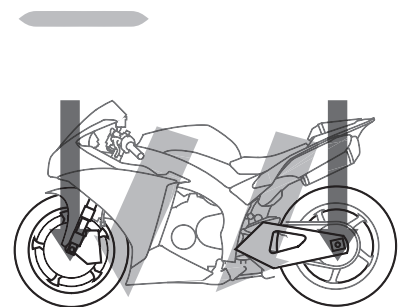
Braking

- Load change
The harder the brake is applied, the more the load is concentrated on the front.
- Front fork
Displaces until stroke has almost bottomed.
- Rear cushion
Reaches nearly maximum extended stroke.



Cornering

- Load change
Increases the load on the front fork and rear cushion on both sides.
- Front fork
Up to 30 to 90mm stroke displacement depending on the size of the corner.
- Rear cushion
Up to 25 to 40mm stroke displacement, depending on conditions.



33. Seat Cushion (13S-24713-70)

Parts List

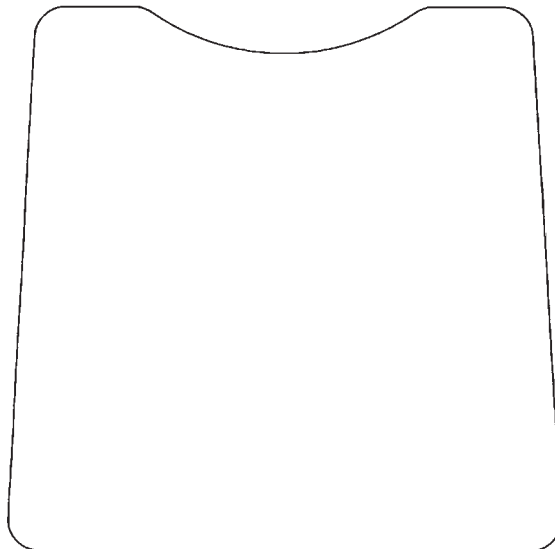
| No. | PART No. | PART NAME | Q'TY | REMARKS |
|-----|--------------|--------------|------|---------|
| 1 | 13S-24713-70 | CUSHION SEAT | 1 | |

Anti slip seat.

Cut to any size for use.



FWD



34. Seat Pad (B3L-27741-70)

Parts List

| No. | PART No. | PART NAME | Q'TY | REMARKS |
|-----|--------------|-----------|------|---------|
| 1 | B3L-27741-70 | PAD, SEAT | 1 | |

This seat pad can be cut freely and used as a cushion seat.

Size: 1000mm x 1000mm

Thickness: 10mm



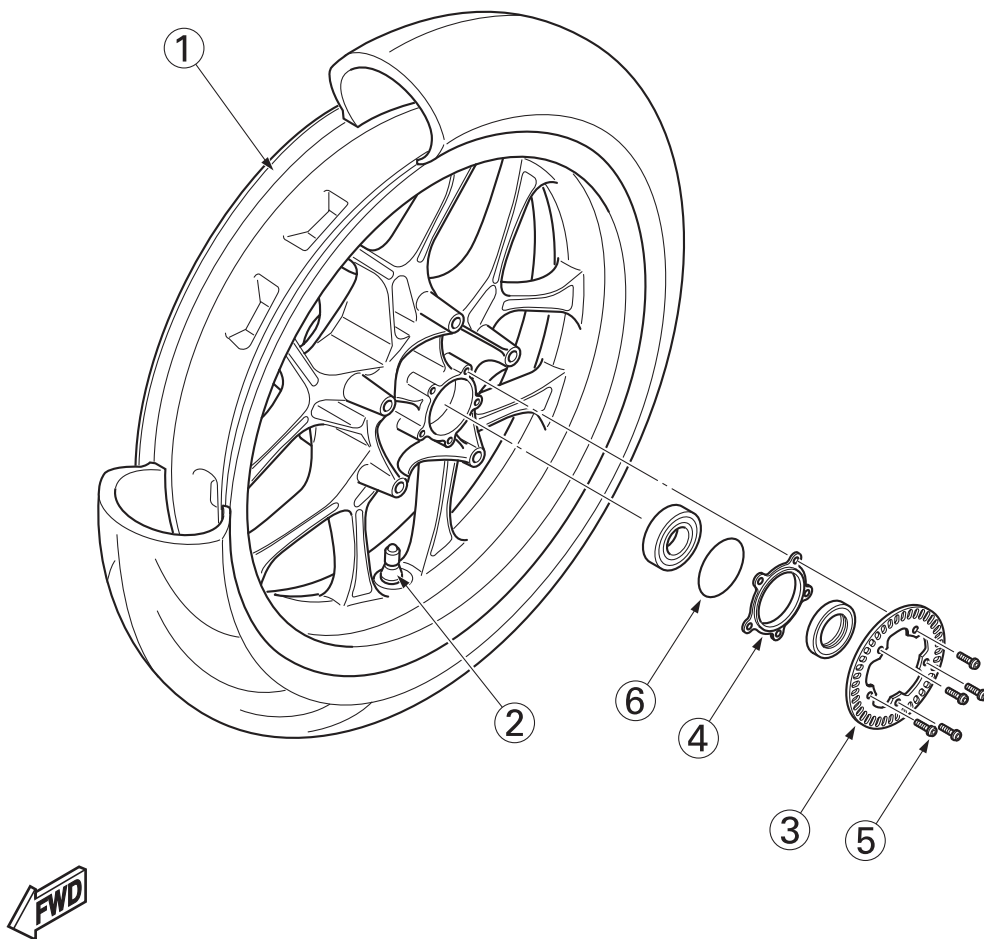
35.Front Spare Wheel ASS'Y (2CR-25100-70)

Parts List

| No. | PART No. | PART NAME | Q'TY | REMARKS | |
|-----|--------------|------------------|---------------|---------|--|
| 1 | 2CR-25160-00 | CAST WHEEL ASSY. | 1 | | |
| * | 2 | 93900-00030 | VALVE, RIM | 1 | |
| * | 3 | 1SD-2517G-00 | ROTOR, SENSOR | 1 | |
| * | 4 | 2CR-2514A-00 | RING, WHEEL 1 | 1 | |
| * | 5 | 90149-05037 | SCREW | 5 | |
| * | 6 | 93210-47440 | O-RING | 1 | |

*This kit does not include a tire.

This part is the STD wheel, bearing, spacer, air valve and center rotor combined.



36.Rear Spare Wheel ASS'Y (B3L-25300-70)

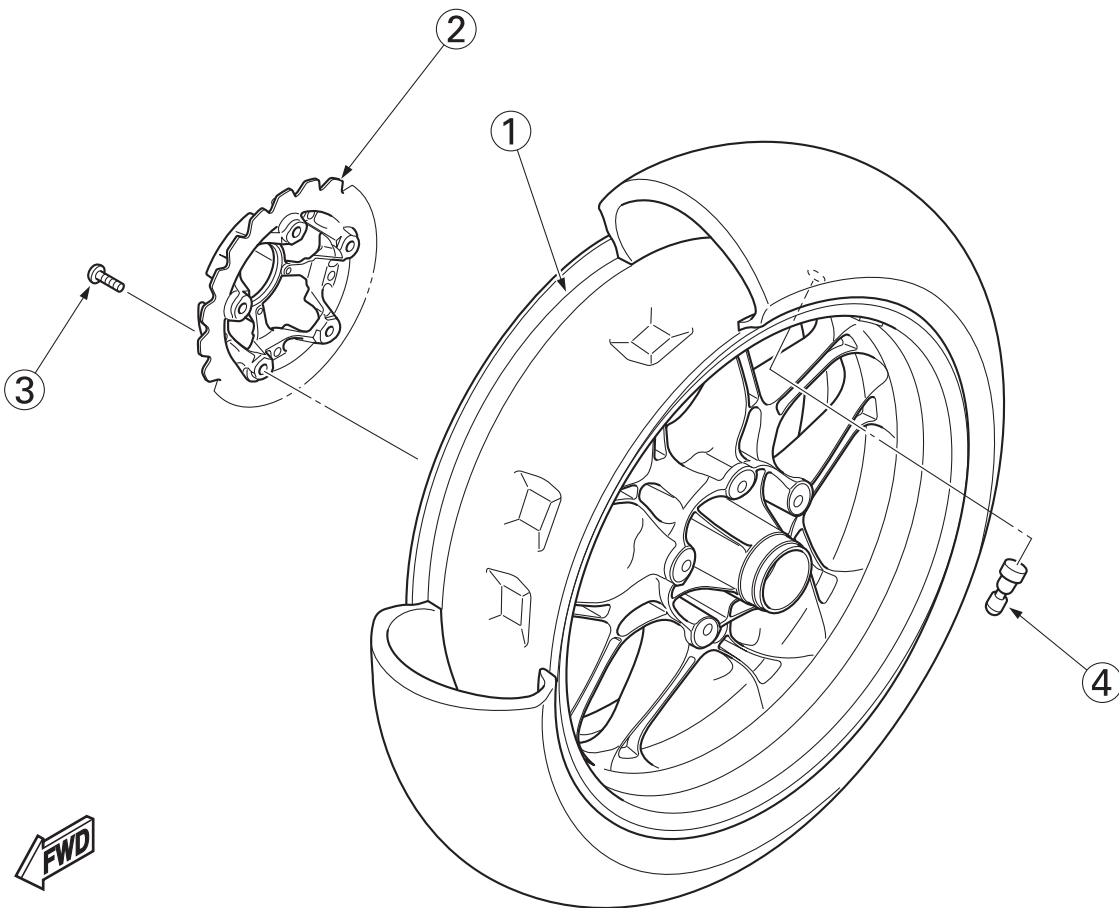
Parts List

| No. | PART No. | PART NAME | Q'TY | REMARKS |
|-----|--------------|-----------------------------|------|---------|
| 1 | B3L-25370-00 | CAST WHEEL ASSY. | 1 | |
| 2 | B3L-25840-00 | DISK BRAKE ASSY. | 1 | |
| * | 90111-08085 | BOLT, HEX. SOCKET BUTTON | 5 | |
| * | 93900-00030 | VALVE, RIM | 1 | |

*This kit does not include a tire.

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This part is the STD wheel, bearing, spacer, air valve, rear disk brake and center rotor combined.



37.Rear Sprocket

Parts List

| No. | PART No. | PART NAME | Q'TY | REMARKS |
|-----|--------------|------------------|------|---------|
| 1 | B3L-12170-70 | Rr. SPROCKET 38T | 1 | |
| 2 | B3L-12180-70 | Rr. SPROCKET 39T | 1 | |
| 3 | B3L-12180-71 | Rr. SPROCKET 40T | 1 | |
| 4 | B3L-12180-72 | Rr. SPROCKET 41T | 1 | |
| 5 | B3L-12180-73 | Rr. SPROCKET 42T | 1 | |
| 6 | B3L-12180-74 | Rr. SPROCKET 43T | 1 | |
| 7 | B3L-12180-75 | Rr. SPROCKET 44T | 1 | |
| 8 | B3L-12180-76 | Rr. SPROCKET 45T | 1 | |
| 9 | B3L-12180-77 | Rr. SPROCKET 46T | 1 | |
| 10 | B3L-12180-78 | Rr. SPROCKET 47T | 1 | |
| 11 | B3L-12180-79 | Rr. SPROCKET 48T | 1 | |
| 12 | B3L-12180-80 | Rr. SPROCKET 49T | 1 | |

This sprocket changes the chain size to 520 for the STD and is lighter weight than the STD. It is used for the STD wheel.

R1 EN2911 2019Rev

38. Front Caliper Piston set (B3L-25809-70)

Parts List

| No. | PART No. | PART NAME | Q'TY | REMARKS |
|-----|--------------|-----------------------------|------|---------|
| 1 | 4SV-25814-00 | FR.CALIPER PISTON 30mm | 4 | |
| 2 | 4SV-25814-10 | FR.CALIPER PISTON 27mm | 4 | |
| 3 | 5PW-25815-00 | FR.CALIPER PISTON SEAL 30mm | 4 | |
| 4 | 3GM-25816-00 | FR.CALIPER DUST SEAL 30mm | 4 | |
| 5 | 5PW-25815-10 | FR.CALIPER PISTON SEAL 27mm | 4 | |
| 6 | 3MA-25816-00 | FR.CALIPER DUST SEAL 27mm | 4 | |

Compared to STD parts, heat resistance has been improved by changing the material.

R1 EN0102 2022Rev

39. Tube Guide (B3L-26243-70)

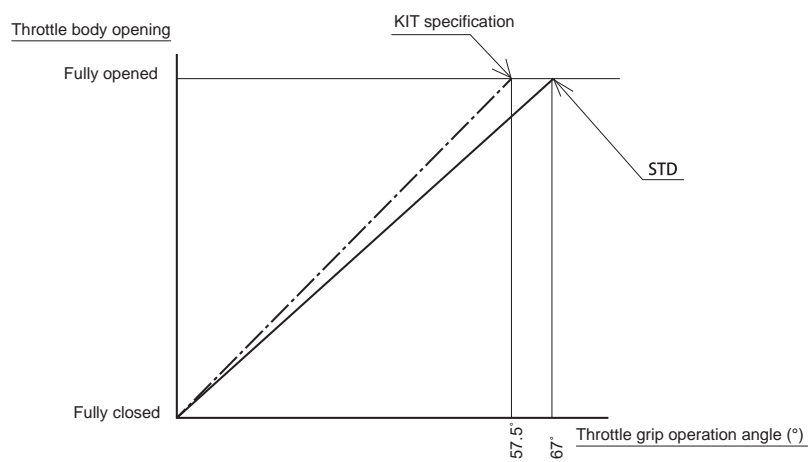
Parts List

| No. | PART No. | PART NAME | Q'TY | REMARKS |
|-----|--------------|-------------|------|---------|
| 1 | B3L-26243-70 | TUBE, GUIDE | 1 | |

About the Throttle Tube Guide Specifications

As shown below, the operating angle of the throttle grip when the throttle is fully opened is 57.5° as against STD 67° .

(Except this part, all other parts should be STD parts)



NOTICE

When the tube guide is changed, use the YEC FI Matching system (YMS) to switch the STD↔KIT.

3 Tightening Torque List

Engine

| To be tightened | Part No. | Part Name | Thread dia. x pitch | Tightening torque N•m (kgf•m) | Q'ty | Remarks |
|---------------------------------------|--------------|---------------------------|---------------------------|---|------|--|
| Plug for sand drain hole | 90340-18004 | PLUG, STRAIGHT SCREW | M18 x 1.5 | 25 ± 2 (2.5 ± 0.2) | 2 | APPLY LOCKING AGENT (LOCKTITE® TO BOTH SCREW THREAD AND TAPERED PORTION. |
| Install SPARK PLUG | 94700-00424 | PLUG, SPARK | M10S x 1.0 | 12 – 15 (1.2 – 1.5) | 4 | FOR DETAILS, SEE page 27. |
| Tighten HEAD | 90119-09016 | BOLT, HEXAGON WITH WASHER | M9 x 1.25 | TURN OF NUT METHOD: AXIAL FORCE TARGET VALUE OF 40kN ± 2kN | 10 | FOR DETAILS, SEE page 94. |
| Tighten HEAD | 90110-06430 | BOLT, HEXAGON SOCKET HEAD | M6 x 1.0 | 8.5±1.5 (0.85±0.15) | 2 | |
| CAP x HEAD | 90105-06027 | BOLT, FLANGE | M6 x 1.0 | [When using the bolt continuously] Apply oil to the bearing surface and thread part of the bolt, and tighten with tightening torque 8.0±1.0 N•m (0.8±0.1 kgf•m). [When replacing with a new bolt] | 10 | |
| CAP x HEAD | 90105-06209 | BOLT, FLANGE | M6 x 1.0 | Tighten with tightening torque 10.0±2.0 N•m (1.0±0.2 kgf•m). It is not necessary to apply oil to the bearing surface and thread part of the bolt Use it in the delivery condition (corrosion-proof oil is applied). | 10 | |
| Tighten HEAD COVER | 5VY-1119E-00 | BOLT, COVER HEAD | M6 x 1.0 | 10±2 (1.0±0.2) | 6 | |
| Embedded in HEAD (Install EX.PIPE) | 95612-08615 | BOLT, STUD | M8 x 1.25 | 15±3 (1.5±0.3) | 8 | |
| AI CAP | 90110-06175 | BOLT, HEXAGON SOCKET HEAD | M6 x 1.0 | 10±2 (1.0±0.2) | 4 | APPLY TO SCREW ROCKING |

Engine

| To be tightened | Part No. | Part Name | Thread dia. x pitch | Tightening torque N•m (kgf•m) | Q'ty | Remarks |
|--|--------------|------------------------------------|---------------------------|-------------------------------------|-----------|---|
| HEAD x JOINT, ASSY | 90110-06168 | BOLT, HEXAGON SOCKET HEAD | M6 x 1.0 | 10±2 (1.0±0.2) | 6 | APPLY TO SCREW ROCKING |
| ROCKER AXIS PLUG | 90340-12013 | PLUG, STRAIGHT SCREW | M12 x 1.0 | 10±2 (1.0±0.2) | 3 | APPLY TO SCREW ROCKING |
| ROCKER AXIS FIXING PIN | 90109-05015 | BOLT | M5 x 0.8 | 6±1 (6.0±0.1) | 4 | APPLY TO SCREW ROCKING |
| CON ROD | 2CR-11654-00 | BOLT, CON-ROD, BIG END | M9 x 0.75 | Refer to page 29. . | 8 each | Angle tightening method or elon- gation control method. |
| ACM rotor | 90109-10061 | BOLT | M10 x 1.25 | 85±5 (8.5±0.5) | 1 | Remove oil from the taper surface. Apply oil to the bearing surface and thread part of the bolt, and the both sides of the washer. |
| SPROCKET, CRANK | 2CR-12157-00 | BOLT | M12 x 1.25 | 72±5 (7.2±0.5) | 1 | Apply oil to the bearing surface and thread part of the bolt. |
| CAM CHAIN, TENSIONER | 90110-06178 | BOLT, HEXAGON SOCKET HEAD | M6 x 1.0 | 10±2 (1.0±0.2) | 2 | APPLY TO SCREW ROCKING |
| Install PIPE 1, 4 (Water pump) | 90110-06246 | BOLT, HEXAGON SOCKET HEAD | M6 x 1.0 | 10±2 (1.0±0.2) | 1 | APPLY TO SCREW ROCKING. WATER PUMP SIDE |
| Install THERMO- STAT ASSY. | 90110-06163 | BOLT, HEXAGON SOCKET HEAD | M6 x 1.0 | 10±2 (1.0±0.2) | 2 | The rear of the head cylinder |
| Install PIPE 1 (Body cylinder, case) | 90105-06127 | BOLT, FLANGE | M6 x 1.0 | 10±2 (1.0±0.2) | 4 | |
| PIPE 4 (Case) | 91312-06014 | BOLT, HEXAGON SOCKET HEAD | M6 x 1.0 | 10±2 (1.0±0.2) | 1 | |
| Install PUMP | 91314-06035 | BOLT, HEXAGON SOCKET HEAD | M6 x 1.0 | 10±2 (1.0±0.2) | 2 | |
| THERMOSTAT ASSY | 90176-06017 | CAP, NUT | M6 x 1.0 | 10±2 (1.0±0.2) | 2 | |

Engine

| To be tightened | Part No. | Part Name | Thread dia. x pitch | Tightening torque N•m (kgf•m) | Q'ty | Remarks |
|---|--------------|------------------------------------|---------------------------|--|------|---|
| Install OIL PUMP ASSY. | 95817-06035 | BOLT, FLANGE | M6 x 1.0 | 10±2 (1.0±0.2) | 2 | |
| | 95817-06025 | BOLT, FLANGE | M6 x 1.0 | 10±2 (1.0±0.2) | 1 | |
| Tighten DRAIN BOLT | 90340-14019 | PLUG, STRAIGHT SCREW | M14 x 1.5 | 23±2 (4.3±0.4) | 1 | |
| Install PIPE, OIL 1 | 90110-06182 | BOLT, HEXAGON SOCKET HEAD | M6 x 1.0 | 10±2 (1.0±0.2) | 2 | APPLY TO SCREW ROCKING |
| Install HOUSING, STRAINER | 90110-06173 | BOLT, HEXAGON SOCKET HEAD | M6 x 1.0 | 10±2 (1.0±0.2) | 3 | APPLY TO SCREW ROCKING |
| Install RELIEF VALVE | 90110-06169 | BOLT, HEXAGON SOCKET HEAD | M6 x 1.0 | 10±2 (1.0±0.2) | 2 | APPLY TO SCREW ROCKING |
| Install PIPE HOLDER | 90110-06182 | BOLT, HEXAGON SOCKET HEAD | M6 x 1.0 | 10±2 (1.0±0.2) | 2 | APPLY TO SCREW ROCKING |
| Install oil delivery pipe 2 | 90110-06182 | BOLT, HEXAGON SOCKET HEAD | M6 x 1.0 | 10±2 (1.0±0.2) | 2 | APPLY TO SCREW ROCKING |
| Install oil delivery pipe 5 | 90149-06158 | SCREW | M6 x 1.0 | 10±2 (1.0±0.2) | 1 | APPLY TO SCREW ROCKING |
| Tighten CLEANING BOLT, UNION | 90401-20008 | BOLT, UNION | M20 x 1.5 | 70±10 (7.0±1.0) | 1 | Apply oil when tightening the case. |
| Install OIL CLEANER ASSY | 5GH-13440-60 | OIL CLEANER ASSY | M20 x 1.5 | 17±2 (1.7±0.2) | 1 | APPLY GREASE TO O-RING. |
| Install OIL PAN BAFFLE | 90111-06168 | BOLT, HEXAGON SOCKET HEAD | M6 x 1.0 | 10±2 (1.0±0.2) | 2 | APPLY TO SCREW ROCKING |
| Install COVER, STRAINER | 90109-06300 | BOLT | M6 x 1.0 | FOR DETAILS, SEE page 96. (List of tightening AL bolts) | 12 | STRAINER COVER |
| Tighten the main gallery side of OIL PIPE COMP. | 90110-06395 | BOLT, HEXAGON SOCKET HEAD | M6 x 1.0 | 10±2 (1.0±0.2) | 1 | APPLY TO SCREW ROCKING |

Engine

| To be tightened | Part No. | Part Name | Thread dia. x pitch | Tightening torque N•m (kgf•m) | Q'ty | Remarks |
|---|--------------|------------------------------------|---------------------------|-------------------------------------|------|--|
| Tighten together with OIL PIPE COMP. | 90110-06389 | BOLT, HEXAGON SOCKET HEAD | M6 x 1.0 | 10±2 (1.0±0.2) | 2 | APPLY TO SCREW ROCKING |
| Tighten the cover side of OIL PIPE COMP.2 | 90110-06295 | BOLT, HEXAGON SOCKET HEAD | M6 x 1.0 | 10±2 (1.0±0.2) | 1 | APPLY TO SCREW ROCKING |
| Install OIL HOSE | 90110-06211 | BOLT, HEXAGON SOCKET HEAD | M6 x 1.0 | 10±2 (1.0±0.2) | 4 | APPLY TO SCREW ROCKING |
| Install OIL COOLER STAY | 90110-06341 | BOLT, HEXAGON SOCKET HEAD | M6 x 1.0 | 10±2 (1.0±0.2) | 3 | |
| Install the upper side of the OIL COOLER | 90110-06346 | BOLT, HEXAGON SOCKET HEAD | M6 x 1.0 | 10±2 (1.0±0.2) | 2 | |
| Install the lower of the OIL COOLER | 95827-06030 | BOLT, FLANGE | M6 x 1.0 | 10±2 (1.0±0.2) | 1 | |
| Install THROTTLE WIRE | 2CR-26302-00 | BOLT, ADJUSTING | M6 | 3.5 – 5.5 (0.35 – 0.55) | 2 | |
| JOINT ASSY x THROTTLE BODY | 90450-60004 | HOSE CLAMP | M5 x 0.8 | 3±0.5 (0.3±0.05) | 4 | Collar striking or torque manage- ment |
| THROTTLE x FUNNEL | 90110-06163 | BOLT | M6 x 1.0 | 8±2 (0.8±0.2) | 6 | |
| UPPER COVER | 98907-05020 | SCREW, BINDING HEAD | M5 x 0.8 | 2.0±0.5 (0.2±0.05) | 10 | (TARGET VALUE OF 2.0 N•m) |
| AIR FILTER CASE | 90110-06233 | BOLT, HEXAGON SOCKET | M6x1.0 | 6.5-8.0 (0.65-0.8) | 2 | |
| NUT, RING x CYLINDER HEAD | 90179-08442 | NUT | M8 x 1.25 | 20±2 (2.0±0.2) | 8 | |
| EX. PIPE x CHAMBER | 95024-08035 | BOLT, FLANGE (SMALL HEAD) | M8 x 1.25 | 20±2 (2.0±0.2) | 2 | |
| CHAMBER x STAY MUFFLER | 90109-08238 | BOLT | M8 x 1.25 | 20±2 (2.0±0.2) | 2 | |

Engine

| To be tightened | Part No. | Part Name | Thread dia. x pitch | Tightening torque N•m (kgf•m) | Q'ty | Remarks |
|--------------------------------------|--------------|--------------------------------------|---------------------------|---|------|---|
| CHAMBER x SIDE STAND | 90110-08099 | BOLT, HEXAGON SOCKET | M8 x 1.25 | 20±2 (2.0±0.2) | 1 | |
| CHAMBER x SILENCER | 90110-06343 | BOLT, HEXAGON SOCKET | M6 x 1.0 | 10±2 (1.0±0.2) | 1 | |
| SILENCER x STAY MUFFLER3 | 90110-08071 | BOLT, HEXAGON SOCKET | M8 x 1.25 | 20±2 (2.0±0.2) | 1 | |
| Install WIRE PULLEY DOUBLE NUT | 2CR-1133E-□□ | WIRE, PULLEY,1 | M6 x 1.0 | 5 – 7 (0.5 – 0.7) | 2 | |
| | 2CR-1133F-□□ | WIRE, PULLEY,2 | | | | |
| CHAMBER x PROTECTOR ASSY. | 90111-06153 | BOLT, HEXAGON SOCKET BUTTON | M6 x 1.0 | 10±2 (1.0±0.2) | 3 | |
| OIL PATHWAY THROTTLING NOZZLE | 2CR-15138-00 | NOZZLE | M8 x 1.25 | 2.5 – 3.5 (0.25 – 0.35) | 5 | Control by ad- ditional tightening method |
| CRANKCASE 1 x CRANKCASE 2 | 90119-09010 | BOLT, HEXAGON WITH WASHER | M9 x 1.25 | FOR DETAILS, SEE page 95. (Installing the Crank- case) | 10 | Apply oil to the thread part and bearing surface. Do not reuse a mended part. |
| CRANKCASE 1 x CRANKCASE 2 | 14B-15156-00 | BOLT, CRANK- CASE JOURNAL | M8 x 1.25 | 24±2 (2.4±0.2) | 8 | Apply oil to the thread part, bear- ing surface and O-RING part. Do not reuse a mended O-RING. |
| CRANKCASE 1 x CRANKCASE 2 | 95812-08060 | BOLT, FLANGE | M8 x 1.25 | 24±2 (2.4±0.2) | 2 | APPLY OIL TO BOTH SCREW THREAD AND BEARING. |
| CRANKCASE 1 x CRANKCASE 2 | 90109-06100 | BOLT | M6 x 1.0 | 10±2 (1.0±0.2) | 2 | APPLY OIL TO BOTH SCREW THREAD AND BEARING. |
| CRANKCASE 1 x CRANKCASE 2 | 95812-06070 | BOLT, FLANGE | M6 x 1.0 | 10±2 (1.0±0.2) | 1 | APPLY OIL TO BOTH SCREW THREAD AND BEARING. |
| CRANKCASE 1 x CRANKCASE 2 | 95812-06060 | BOLT, FLANGE | M6 x 1.0 | 10±2 (1.0±0.2) | 6 | APPLY OIL TO BOTH SCREW THREAD AND BEARING. |

Engine

| To be tightened | Part No. | Part Name | Thread dia. x pitch | Tightening torque N•m (kgf•m) | Q'ty | Remarks |
|--|--------------|------------------------------------|---------------------------|--|------|--|
| CRANKCASE 1 x CRANKCASE 2 | 95812-06050 | BOLT, FLANGE | M6 x 1.0 | 10±2 (1.0±0.2) | 4 | APPLY OIL TO BOTH SCREW THREAD AND BEARING. |
| CRANKCASE 1 x CRANKCASE 2 | 90105-06213 | BOLT | M6 x 1.0 | 10±2 (1.0±0.2) | 2 | APPLY TO SCREW ROCKING. APPLY OIL TO THE BEARING SURFACE ONLY. |
| CRANKCASE 1 x CRANKCASE 2 | 95812-06040 | BOLT, FLANGE | M6 x 1.0 | 10±2 (1.0±0.2) | 5 | APPLY OIL TO BOTH SCREW THREAD AND BEARING. |
| Install NOZZLE ASSY. (15105) | 90149-06158 | SCREW | M6 x 1.0 | 10±2 (1.0±0.2) | 4 | APPLY TO SCREW ROCKING |
| Install COVER CRANK CASE 1 (15411) | 90109-06300 | BOLT | M6 x 1.0 | FOR DETAILS, SEE page 96. (List of tightening AL bolts) | 8 | ACM COVER |
| Install COVER CHAIN CASE (15418) | 90110-06387 | BOLT, HEXAGON SOCKET HEAD | M6 x 1.0 | 10±2 (1.0±0.2) | 3 | DRIVE SPROCKET COVER |
| Install COVER CRANK CASE 2 (15421) | 90109-06301 | BOLT | M6 x 1.0 | FOR DETAILS, SEE page 96. (List of tightening AL bolts) | 10 | CLUTCH COVER |
| Install COVER 1 (15416) | 90109-06299 | BOLT | M6 x 1.0 | FOR DETAILS, SEE page 96. (List of tightening AL bolts) | 5 | CAM CHAIN COVER |
| Install COVER (15413) | 90109-06300 | BOLT | M6 x 1.0 | FOR DETAILS, SEE page 96. (List of tightening AL bolts) | 8 | BREATHER COVER |
| Install PLATE, BREATHER | 90149-06158 | SCREW | M6 x 1.0 | 10±2 (1.0±0.2) | 4 | APPLY TO SCREW ROCKING |
| Install PLUG to COVER CRANK CASE 1 | 90340-27003 | PLUG, STRAIGHT SCREW | M27 x 1.5 | 15±2 (1.5±0.2) | 1 | FOR CRANK ROTATION |
| Install COVER CRANK CASE 1 | 90109-08239 | BOLT | M8 x 1.25 | 15±2 (1.5±0.2) | 1 | CHECK TIMING. |
| Install PLUG to COVER CRANK CASE 2 | 2CR-15363-01 | PLUG, OIL | M20 x 1.5 | Attached firmly to the bearing surface. | 1 | |

Engine

| To be tightened | Part No. | Part Name | Thread dia. x pitch | Tightening torque N•m (kgf•m) | Q'ty | Remarks |
|--|--------------|------------------------------------|---------------------------|-------------------------------------|------|--|
| Install DAMPER to COVER CRANK CASE 2 | 90149-06158 | SCREW | M6 x 1.0 | 10±2 (1.0±0.2) | 4 | APPLY TO SCREW ROCKING |
| PLUG for REAR PATHWAY of OIL FILTER | 4H7-15189-00 | PLUG | M20 x 1.5 | 8±2 (0.8±0.2) | 2 | TAKE CARE NOT TO OVERTIGHTEN. |
| Install CLUTCH WIRE HOLDER | 90110-06340 | BOLT | M6 x 1.0 | 10±2 (1.0±0.2) | 2 | APPLY TO SCREW ROCKING |
| ACM LEAD | 90110-06182 | BOLT, HEXAGON SOCKET HEAD | M6 x 1.0 | 10±2 (1.0±0.2) | 1 | APPLY TO SCREW ROCKING |
| Install STATOR | 90149-06128 | SCREW | M6 x 1.0 | 10±2 (1.0±0.2) | 3 | APPLY TO SCREW ROCKING. TORQUES |
| Install PLUG (2CR-15189-00-1) | 90110-06396 | BOLT, HEXAGON SOCKET | M6 x 1.0 | 10±2 (1.0±0.2) | 2 | |
| Install JOINT (15319) | 90149-06068 | SCREW | M6 x 1.0 | 10±2 (1.0±0.2) | 1 | TAKE CARE NOT TO OVERTIGHTEN. FOR HYDRAU- LIC SENSOR. |
| Install PLATE (15113) | 90110-06108 | BOLT, HEXAGON SOCKET | M6 x 1.0 | 12±2 (1.2±0.2) | 4 | APPLY TO SCREW ROCKING |
| Install IDLER SHAFT | 90110-06401 | BOLT, HEXAGON SOCKET | M6 x 1.0 | 10±2 (1.0±0.2) | 1 | APPLY TO SCREW ROCKING |
| Install STARTER ONE-WAY OUTER | 90149-06158 | SCREW | M6 x 1.0 | 14±2 (1.4±0.2) | 3 | APPLY TO SCREW ROCKING |
| Install CLUTCH BOSS | 90179-20007 | NUT | M20 x 1.0 | 125±5 (12.5±0.5) | 1 | APPLY OIL TO BOTH SCREW THREAD AND BEARING. 1 POINT SWAG- ING AFTER TIGHTENING |
| Install CLUTCH SPRING | 2CR-16337-00 | SCREW, SPRING1 | M6 x 1.0 | 10±2 (1.0±0.2) | 3 | |
| Install BEARING HOUSING | 90149-06082 | SCREW | M6 x 1.0 | 12±2 (1.2±0.2) | 3 | APPLY TO SCREW ROCKING |

Engine

| To be tightened | Part No. | Part Name | Thread dia. x pitch | Tightening torque N•m (kgf•m) | Q'ty | Remarks |
|---|--------------|---------------------------|---------------------------|-------------------------------------|------|--|
| Tighten DRIVE SPROCKET | 90179-22018 | NUT | M22x 1.0 | 125±10 (12.5±1.0) | 1 | 2 POINT SWAGING AFTER TIGHTENING |
| Install STOPPER, SHIFT BAR and PLATE, STOPPER 2 | 90149-06158 | SCREW | M6 x 1.0 | 10±2 (1.0±0.2) | 2 | APPLY TO SCREW ROCKING |
| Install STOPPER SCREW | 1D7-18127-00 | STOPPER, SCREW | M8 x 1.25 | 22±2 (2.2±0.2) | 1 | APPLY TO SCREW ROCKING |
| Install ARM, SHIFT | 90105-06127 | BOLT, FLANGE | M6 x 1.0 | 10±2 (1.0±0.2) | 1 | CHECK SERRATION FOR TIGHTENING UP |
| Install SENSOR, GEAR POSITION | 90110-05067 | BOLT, HEXAGON SOCKET | M5 x 0.8 | 3 – 5 (0.3 – 0.5) | 2 | APPLY TO SCREW ROCKING |
| Install NEUTRAL SWITCH | 3GB-82540-01 | NEUTRAL SWITCH ASSY. | M10 x 1.25 | 17±3 (1.7±0.3) | 1 | OVERTIGHTENING MAY DAMAGE THE PART |
| Install COVER, SERVOMOTOR | 97702-50514 | SCREW, TRUSS HEAD TAPPING | M5 | 1 – 3 (0.1 – 0.3) | 2 | |
| Install THERMO SENSOR (for water temperature) | 4P9-83591-00 | THERMO SENSOR ASSY | M10 x 1.25 | 16±2 (1.6±0.2) | 1 | |
| SENSOR, CAM POSITION | 90110-06175 | BOLT, HEXAGON SOCKET HEAD | M6 x 1.0 | 7.5±1.5 (0.75±0.15) | 1 | APPLY TO SCREW ROCKING |
| Install PICKUP ASSY | 90110-05034 | BOLT, HEXAGON SOCKET HEAD | M5 x 0.8 | 6±1 (0.6±0.1) | 2 | APPLY TO SCREW ROCKING |
| OIL PRESSURE SWITCH | 1WS-82504-00 | SW. OIL PRESSURE | PT1/8 | 12.5±2 (1.25±0.2) | 1 | When mended, use 67F-82504-00 and apply the sealing agent to the thread part ThreeBond MEC #2403 |

Engine

| To be tightened | Part No. | Part Name | Thread dia. x pitch | Tightening torque N•m (kgf•m) | Q'ty | Remarks |
|---|--------------------------|------------------------------------|---------------------------|-------------------------------------|------|---------|
| Install OIL PRES- SURE SWITCH LEAD WIRE | WS-82504-00 accessory | BOLT | M4 x 0.7 | 1.5 – 2.0 (0.15 – 0.2) | 1 | |
| Install STARTER MOTOR | 91312-06030 | BOLT, HEXAGON SOCKET HEAD | M6 x 1.0 | 10±2 (1.0±0.2) | 2 | |

Chassis

| To be tightened | Part No. | Part Name | Thread dia. x pitch | Tightening torque N•m (kgf•m) | Q'ty | Remarks |
|---|--------------|--------------------------------------|---------------------------|-------------------------------------|------|---|
| E/G BRACKET, FRONT, LEFT | 90110-12007 | BOLT, HEXAGON SOCKET | M12 x 1.25 | 64 – 76 (6.4 – 7.6) | 1 | PROCEDURE TO INSTALL THE ENGINE. FOR DETAILS, SEE page 92. |
| E/G BRACKET, FRONT, RIGHT | 90111-12003 | BOLT, HEXAGON SOCKET BUTTON | M12 x 1.25 | 64 – 76 (6.4 – 7.6) | 1 | PROCEDURE TO INSTALL THE ENGINE. FOR DETAILS, SEE page 92. |
| E/G BRACKET, REAR UPPER | 90110-12008 | BOLT, HEXAGON SOCKET | M12 x 1.25 | 50 – 62 (5.0 – 6.2) | 1 | PROCEDURE TO INSTALL THE ENGINE. FOR DETAILS, SEE page 92. |
| | 90179-12004 | NUT | | | | |
| E/G BRACKET, REAR UNDER | 90110-12010 | BOLT, HEXAGON SOCKET | M12 x 1.25 | 50 – 62 (5.0 – 6.2) | 1 | PROCEDURE TO INSTALL THE ENGINE. FOR DETAILS, SEE page 92. |
| | 90179-12004 | NUT | | | | |
| ADJUST BOLT for E/G BRACKET, REAR | 5YU-21495-00 | BOLT, ENGINE ADJUSTING | M18 x 1.0 | 7 – 9 (0.7 – 0.9) | 2 | PROCEDURE TO INSTALL THE ENGINE.. FOR DETAILS, SEE page 92. Apply grease or engine oil (10W- 30 or 20W-40 equivalent) and tighten it. Be sure to tighten at the nut side. |
| STAY and FRAME on the front side of the tank | | | M6 x 1.0 | 7 – 10 (0.7 – 1.0) | 1 | |
| MAIN FRAME & REAR FRAME | 90149-10002 | SCREW | M10 x 1.25 | 33 – 40 (3.3 – 4.0) | 4 | |
| SHAFT, PIVOT & FRAME | 14B-22141-00 | SHAFT, PIVOT | M30 x 1.0 | 5 – 8 (0.5 – 0.8) | 1 | PROCEDURE TO INSTALL THE PIVOT SHAFT PERIPHERAL PARTS. FOR DETAILS, SEE page 93. |
| SHAFT, PIVOT & LOCK NUT | 4C8-22252-00 | NUT, 2 | M30 x 1.0 | 50 – 80 (5.0 – 8.0) | 1 | PROCEDURE TO INSTALL THE PIVOT SHAFT PERIPHERAL PARTS. FOR DETAILS, SEE page 93. |

Chassis

| To be tightened | Part No. | Part Name | Thread dia. x pitch | Tightening torque N•m (kgf•m) | Q'ty | Remarks |
|---|-------------|------------------------------------|---------------------------|-------------------------------------|------|--|
| SHAFT, PIVOT & U NUT | 90185-20008 | NUT, SELF LOCKING | M20 x 1.5 | 80 – 130 (8.0 – 13.0) | 1 | PROCEDURE TO INSTALL THE PIVOT SHAFT PERIPHERAL PARTS. FOR DETAILS, SEE page 93. |
| ARM RELAY and FRAME | 90109-10017 | BOLT | M10 x 1.25 | 31 – 49 (3.1 – 4.9) | 1 | |
| | 95602-10200 | NUT, U FLANGE | | | | |
| ARM, RELAY & ARM | 90109-12010 | BOLT | M10 x 1.25 | 31 – 49 (3.1 – 4.9) | 1 | |
| | 92902-12600 | WASHER, PLAIN | | | | |
| | 90185-12011 | NUT, SELF LOCKING | | | | |
| ARM & REAR ARM | 90109-12010 | BOLT | M10 x 1.25 | 31 – 49 (3.1 – 4.9) | 1 | |
| | 92902-12600 | WASHER, PLAIN | | | | |
| | 90185-12011 | NUT, SELF LOCKING | | | | |
| REAR CUSHION & ARM, RELAY | 90105-10017 | BOLT, FLANGE | M10 x 1.25 | 31 – 49 (3.1 – 4.9) | 1 | |
| | 95602-10200 | NUT, U FLANGE | | | | |
| REAR CUSHION and FRAME | 95602-10200 | NUT, U FLANGE | M10 x 1.25 | 31 – 49 (3.1 – 4.9) | 1 | |
| | 90105-10609 | BOLT, FLANGE | | | | |
| ADJUST NUT for CHAIN PULLER | 90101-08013 | BOLT, HEXAGON | M8 x 1.25 | 12 – 19 (1.2 – 1.9) | 2 | |
| | 95302-08600 | NUT, HEXAGON | | | | |
| | 90201-08057 | WASHER, PLAIN | | | | |
| HANDLE, CROWN & OUTER TUBE | 91314-08030 | BOLT, HEXAGON SOCKET HEAD | M8 x 1.25 | 23 – 28 (2.3 – 2.8) | 2 | |
| HANDLE, CROWN & STEERING SHAFT | 90170-28419 | NUT, HEXAGON | M28 x 1.0 | 100 – 125 (10.0 – 12.5) | 1 | |
| HANDLE & OUTER TUBE | 91314-08025 | BOLT, HEXAGON SOCKET HEAD | M8 x 1.25 | 28 – 35 (2.8 – 3.5) | 2 | |

Chassis

| To be tightened | Part No. | Part Name | Thread dia. x pitch | Tightening torque N•m (kgf•m) | Q'ty | Remarks |
|--|--------------|--------------------------------------|---------------------------|-------------------------------------|------|---------|
| HANDLE and HANDLE, CROWN | 91380-06025 | BOLT, HEXAGON SOCKET HEAD | M6 x 1.0 | 5 – 8 (0.5 – 0.8) | 2 | |
| STEERING SHAFT and RING NUT | 90179-30691 | NUT | M30 x 1.0 | 40 – 64 (4.0 – 6.4) | 1 | |
| | | | | 12 – 15 (1.2 – 1.5) | | |
| OUTER TUBE and UNDER BRACKET | 91314-08030 | BOLT, HEXAGON SOCKET HEAD | M8 x 1.25 | 20 – 25 x 2 (2.0 – 2.5 x 2) | 4 | |
| FUEL TANK & FUEL PUMP | 90119-05015 | BOLT, HEXAGON WITH WASHER | M5 x 0.8 | 3 – 5 (0.3 – 0.5) | 4 | |
| FRONT STAY for FUEL TANK & FUEL TANK | 90110-06233 | BOLT, HEXAGON SOCKET | M6 x 1.0 | 3 – 5 (0.3 – 0.5) | 1 | |
| REAR STAY for FUEL TANK & REAR FRAME | 90111-06071 | BOLT, HEXAGON SOCKET BUTTON | M6 x 1.0 | 5 – 8 (0.5 – 0.8) | 4 | |
| REAR STAY for FUEL TANK & FUEL TANK | 95812-06090 | BOLT, FLANGE | M6 x 1.0 | 3 – 5 (0.3 – 0.5) | 1 | |
| | 95702-06500 | NUT, FLANGE | | | | |
| FRONT WHEEL SHAFT & NUT | 90179-24004 | NUT | M24 x *** | 100 – 130 (10.0 – 13.0) | 1 | |
| REAR WHEEL SHAFT & NUT | 90185-24007 | NUT, SELF LOCKING | M24 x 1.5 | 160 – 220 (16.0 – 22.0) | 1 | |
| FRONT CALIPER & FRONT FORK | 90105-10397 | BOLT, FLANGE | M10 x 1.25 | 30 – 40 (3.0 – 4.0) | 4 | |
| DISC BRAKE & WHEEL (FRONT) | 2CR-2589H-00 | SCREW | M6 x 1.0 | 14 – 19 (1.4 – 1.9) | 10 | |
| DISK BRAKE & PLATE DISK 1 | 90149-08009 | SCREW | M8 x 1.25 | 23 – 37 (2.3 – 3.7) | 5 | |
| REAR WHEEL SPROCKET & CLUTCH HUB | 90185-10011 | NUT, SELF LOCKING | M10 x 1.25 | 90 – 109 (9.0 – 10.9) | 5 | |
| SPLIT BOLT for FRONT AXLE | 91314-08040 | BOLT, HEXAGON SOCKET HEAD | M8 x 1.25 | 18 – 23 (1.8 – 2.3) | 4 | |

For reference

| | Tightening torque N•m |
|------------|-----------------------|
| M5 × 0.8 | 4.5 – 7.0 |
| M6 × 1.0 | 7.5 – 12 |
| M8 × 1.25 | 18 – 28 |
| M10 × 1.25 | 37 – 58 |
| M12 × 1.25 | 68 – 108 |
| M14 × 1.5 | 105 – 167 |

Tightening the Cylinder Head

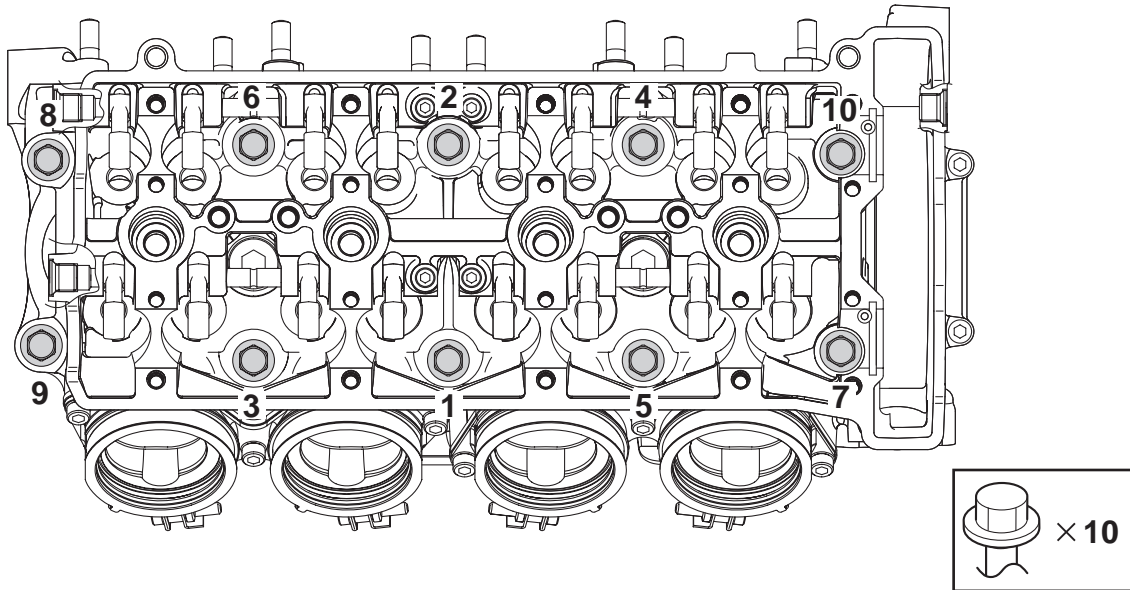
1. In the following order (1→10), apply initial tightening of 10 N•m (1.0 kgf•m).
2. In the following order (1→10), apply additional tightening of 25 N•m (2.5 kgf•m).
3. In the following order (1→10), apply additional tightening of 45 N•m (4.5 kgf•m).
4. In the following order (1→10), loosen each bolt. Then, tighten at 15 N•m (1.5 kgf•m) and tighten at rotating angle of 160°.
(Note: Do not loosen all bolts at once. Repeat loosening and tightening operation one by one bolt.)

TIP

The numbers 1 to 10 show the sequence in which the bolts are tightened.

Apply engine oil to the bearing surface and thread part of the bolt.

Use a new bolt only. (Do not reuse)



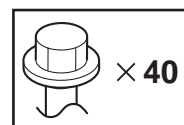
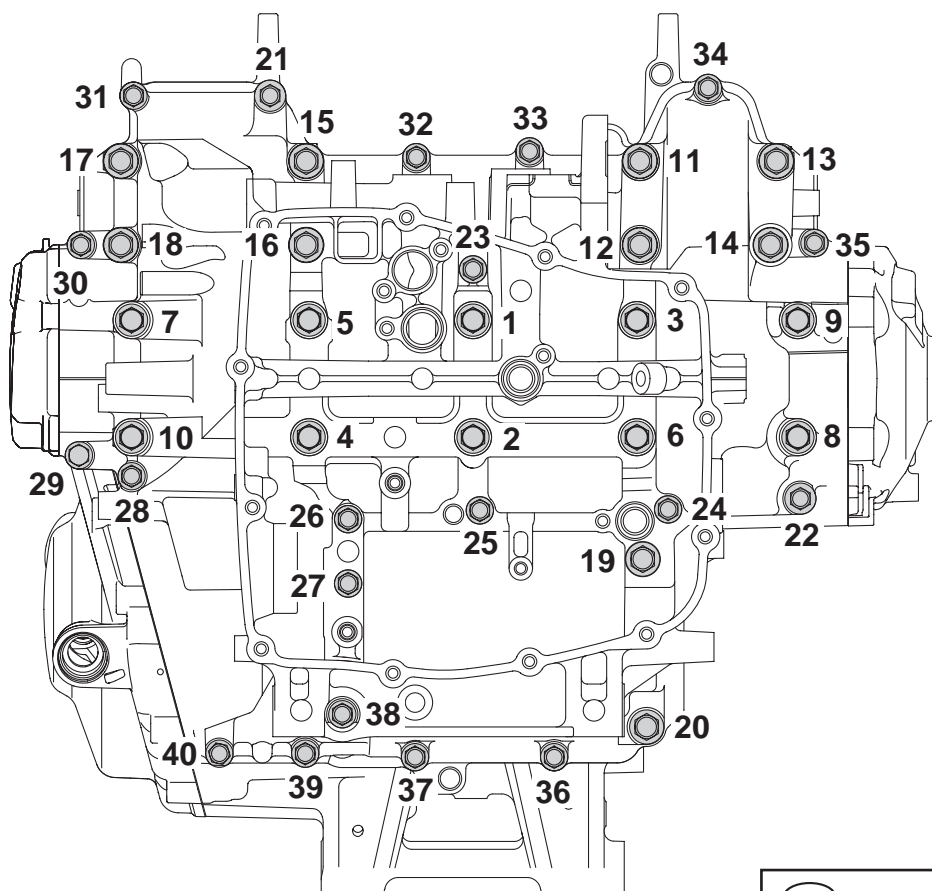
Installing the Crankcase

1. Tighten the bolts in the tightening sequence of 1 to 10 to 20 N•m (2.0 kg•m).
2. After loosening the bolts once in the tightening sequence of 1 to 10, retighten them one by one to 15 N•m (1.5 kg•m).
(Note: Do not loosen all bolts at once. Repeat loosening and tightening operation one by one bolt.)
3. Retighten the bolts in the tightening sequence of 1 to 10 to a turn-of-nut angle of $75^{\circ}\pm 5^{\circ}$.
4. Tighten the bolts in the tightening sequence of 11 to 20 to 24 ± 2 N•m (2.4 ± 0.2 kg•m).
5. Tighten the bolts in the tightening sequence of 21 to 40 to 10 ± 2 N•m (1.0 ± 0.2 kg•m).

TIP

The numbers 1 to 40 show the sequence in which the bolts are tightened.

Apply engine oil to the bolts 1 to 10, 21 to 27 and 29 to 39, and the both sides of the washer. Apply screw rock agent to the bolts 28 and 40 (apply engine oil to the bearing surface only). Apply oil to the thread part, bearing surface and O-RING part of the bolts 11 to 20. Do not reuse a mended O-RING.

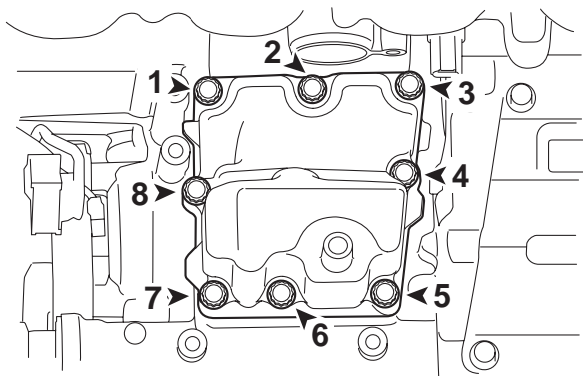
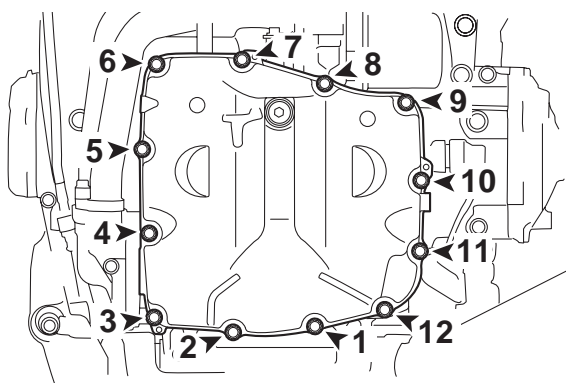
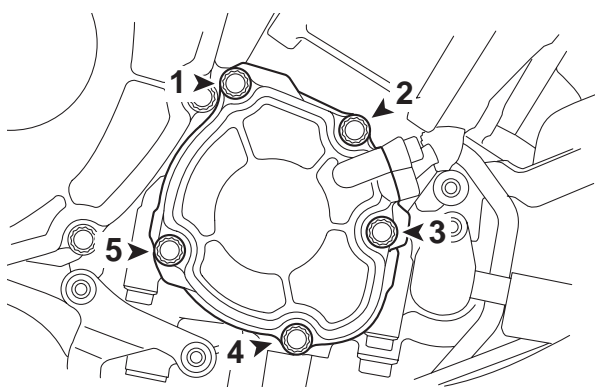
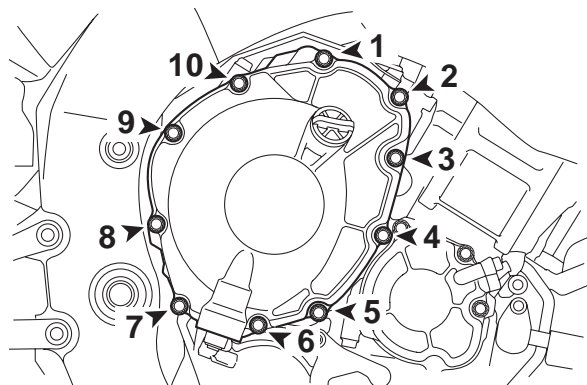
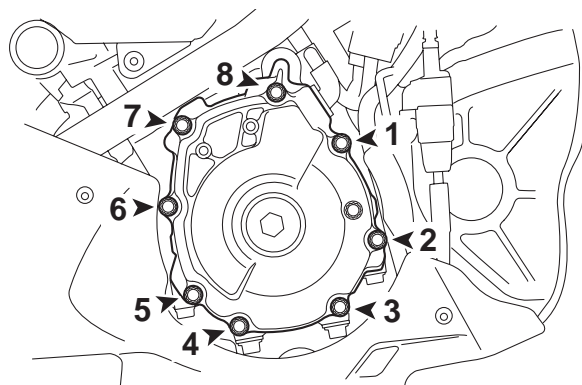


Procedure to tighten the aluminum bolts

1. In the following order, tighten the bolt at 6N•m (0.6kgf•m).
2. In the following order, loosen each bolt, tighten at 3 N•m (0.3 kgf•m), and apply snap and angle tightening at rotating angle of 90°.
(Note: Do not loosen all bolts at once. Repeat loosening and tightening operation one by one bolt.)

TIP

The numbers 1 to 12 show the sequence in which the bolts are tightened.
Use a new bolt only. (Do not reuse)



When replacing aluminum bolts with iron bolts

Use the following table as a reference when replacing aluminum bolts with iron bolts.

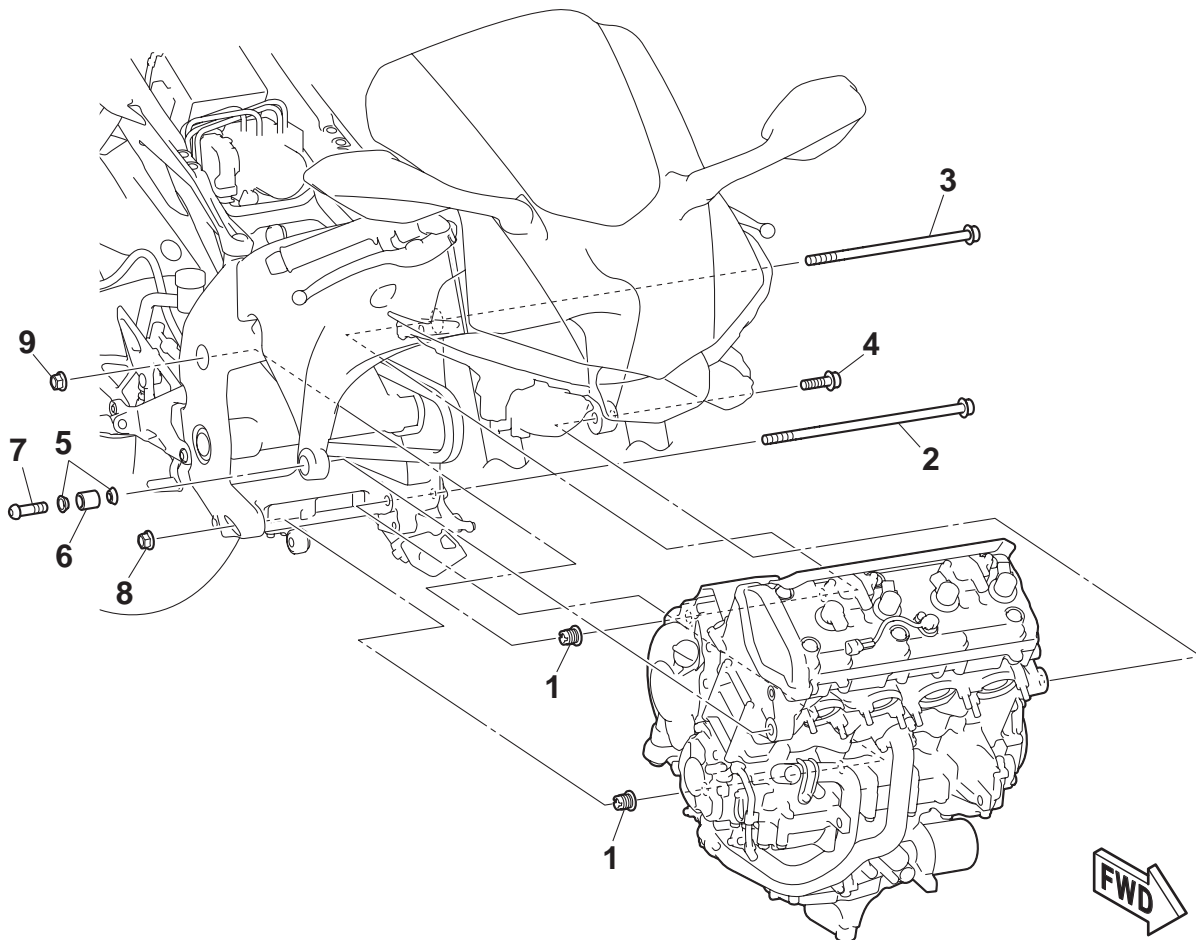
| To be tightened | Part No. | Part Name | Thread dia. x pitch | Tightening torque N•m (kgf•m) | Q'ty | Remarks |
|--|-------------|----------------------------|---------------------------|-------------------------------------|------|--|
| Install COVER, STRAINER | 90110-06390 | BOLT, HEXAGON SOCKET | M6 x 1.0 | 12±2 (1.2±0.2) | 12 | APPLY TO SCREW ROCKING STRAINER COVER |
| Install COVER CRANK CASE 1 (15411) | 90110-06387 | BOLT, HEXAGON SOCKET | M6 x 1.0 | 12±2 (1.2±0.2) | 8 | ACM COVER |
| Install COVER CRANK CASE 2 (15421) | 90110-06388 | BOLT, HEXAGON SOCKET | M6 x 1.0 | 12±2 (1.2±0.2) | 10 | CLUTCH COVER |
| Install COVER 1 (15416) | 90110-06396 | BOLT, HEXAGON SOCKET | M6 x 1.0 | 12±2 (1.2±0.2) | 5 | CAM CHAIN COVER |
| Install COVER (15413) | 90110-06387 | BOLT, HEXAGON SOCKET | M6 x 1.0 | 12±2 (1.2±0.2) | 8 | BREATHER COVER |

Procedure to install the engine (unchangeable)

1. Attach the two engine adjusting bolts 1 to the frame COMP. temporarily.
2. Fit the engine installation position to the frame COMP and attach the bolts 2 and 3 temporarily.
3. Attach the bolt 4 temporarily.
4. Attach the engine mount boss 5 and 6 to the frame COMP. temporarily and then attach the bolt 7 temporarily.
5. Tighten the two engine adjusting bolts 1 at specified torque.
Check that the bearing surface of the bolts 1 completely fit the surface of the engine.
6. Tighten the two nuts 8 and 9 at specified torque. Tighten the nut 8 (lower side) at first, then tighten the nut 9 (upper side).
7. Tighten the bolt 4 at specified torque.
8. Tighten the bolt 7 at specified torque.

TIP

For information about tightening torque and requirement for lubricant agent, see the list of tightening torque.

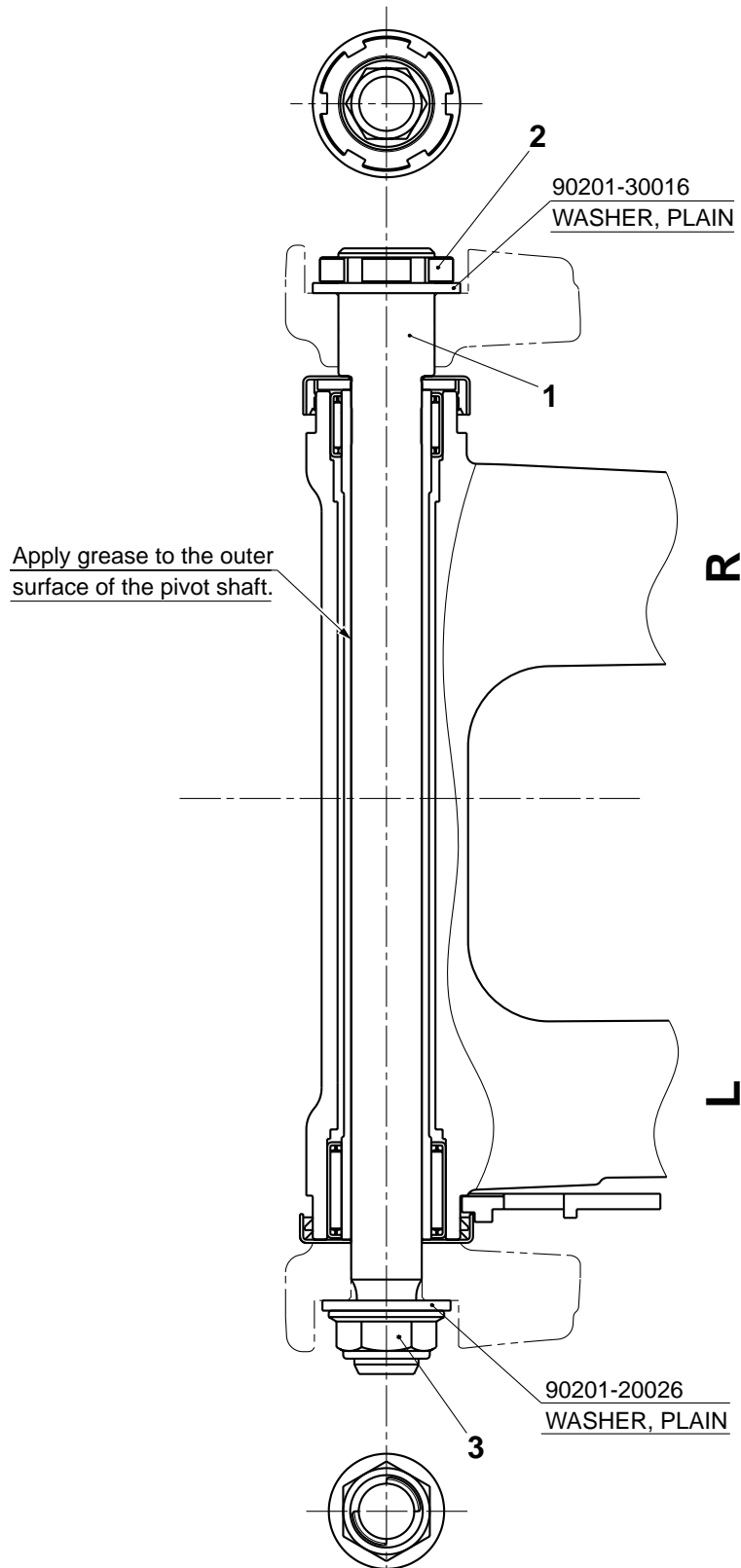


Procedure to install the pivot shaft peripheral parts

1. Tighten the pivot shaft 1 at specified torque.
2. Tighten the nut 2 at specified torque.
3. Tighten the nut 3 (self-rocking) at specified torque.

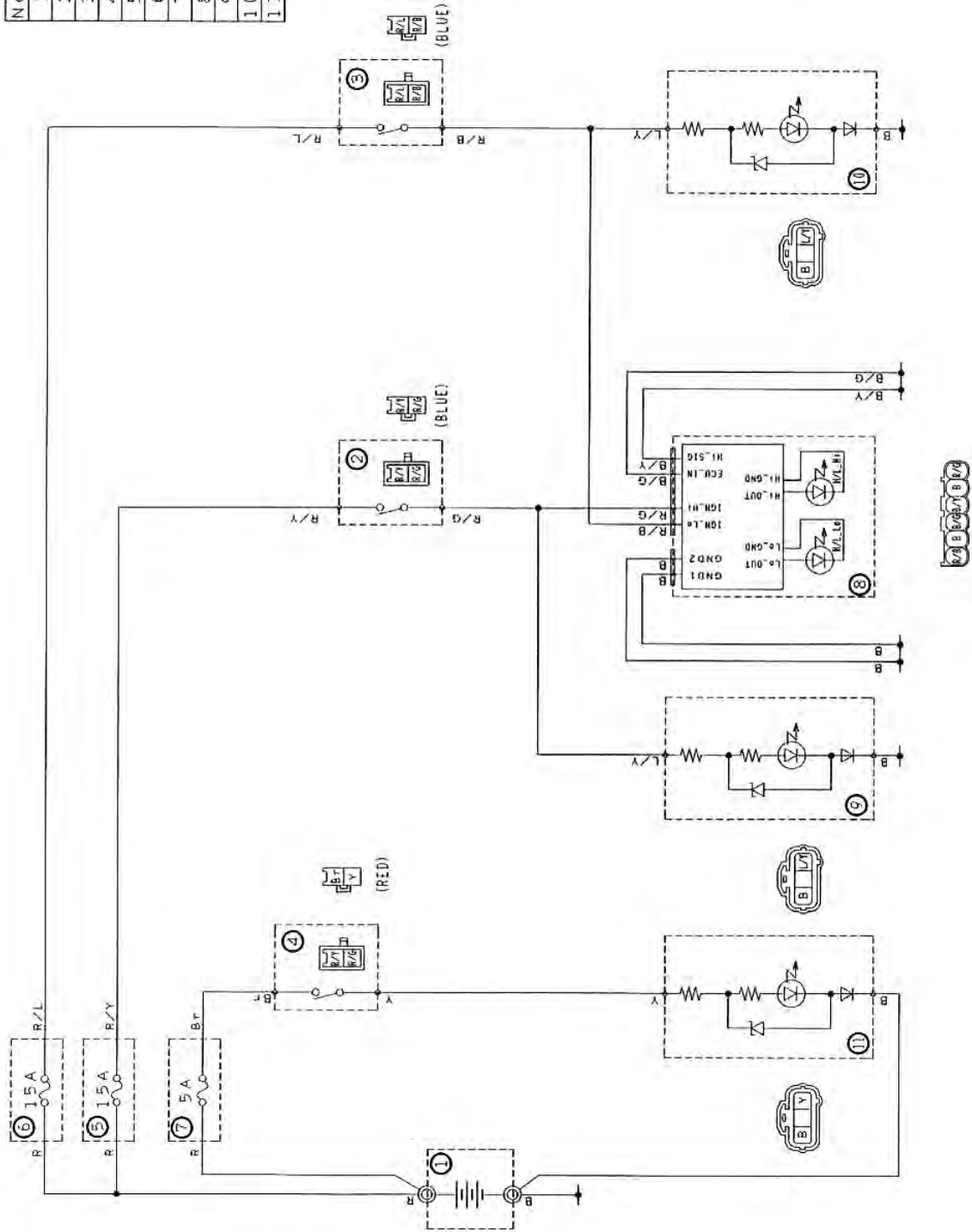
Be sure to secure the pivot shaft 1 so that it is not co-rotated.

TIP _____
For information about tightening torque and requirement for lubricant agent, see the list of tightening torque.



4 Headlight Cord Wiring Diagram

| No. | COMPONENTS |
|-----|-------------------------|
| 1 | B.T.R.Y. |
| 2 | SW. HANDLE 1 |
| 3 | SW. HANDLE 2 |
| 4 | EMERGENCY SW. |
| 5 | FUSE 1 (15A) |
| 6 | FUSE 2 (15A) |
| 7 | FUSE 3 (5A) |
| 8 | HEAD LIGHT |
| 9 | TAIL LIGHT 1 (Hi-side) |
| 10 | TAIL LIGHT 2 (Low-side) |
| 11 | EMERGENCY LIGHT |



5 YZF-R1 Wiring Diagram

