# Features & Specifications 2016 RM-Z450



### **Key Features**

• Refined for further rider control, the Suzuki Holeshot Assist Control (S-HAC) is a selectable launch system derived from the factory race bike to help riders' takeoff from the starting gate for an early lead. There are three modes riders can choose for the best option per their skill level and starting conditions.

> **A Mode:** For hard surfaces or less than ideal conditions at the starting gate. **B Mode:** When there is better traction and a more aggressive launch is needed. Base Mode: Standard power launch, no S-HAC function.

- The SFF-Air suspension evolved from the SFF system but without a conventional coil spring resulting in reduced weight, increased inner tube diameter and damper rod/piston size. SFF-Air utilizes three tunable chambers so riders can easily adjust the spring rate with an air pump instead of changing out steel springs.
- New light weight front brake caliper reduces mass while still providing outstanding stopping force.

#### **Engine Features**

- 449cc 4-stroke liquid-cooled DOHC 4-valve fuel-injected engine delivers phenomenal idle-to-redline performance
- The compact aluminum cylinder is finished with Suzuki Composite Electrochemical Material (SCEM) coating for durability, light weight and efficient heat transfer.
- The piston pin has Diamond-Like Carbon (DLC) surface treatment, for less friction and increased durability.
- Designed for motocross-use, the lightweight, battery-less, electronic fuel injection system with progressive throttle linkage delivers efficient power. A 12-hole fuel injector sprays a fine fuel/air mist for efficient combustion.
- For quick fuel adjustments to suit riding conditions, two couplers are provided. One is for rich and another for lean fuel setting compared to stock setting. Riders can change fuel settings in seconds by simply connecting either coupler to the wire harness.
- Engine starting is easy due to a long kick starter lever, refined internal gears, and decompression system that works precisely and efficiently.
- Cooling performance is efficient with hose routing that is balanced between the left and right radiators, and a high capacity coolant pump.
- Refined 5-speed transmission enables precise gear shift operation. The transmission feel has been improved with a revised shift cam for accurate gear selection. Specialized machining processes increase the precision of the matching gears.

#### **Chassis Features**

- The frame has increased rigidity and reduced weight from the previous generation RM-Z450.
- Slim chassis design creates a trim riding position, allowing the rider to actively take control of the machine.
- The SHOWA rear shock, with rising-rate linkage system, provides 12.2 inches of wheel travel and complements the SFF-Air fork.
- Race-inspired waved disc rotors are mounted to EXCEL aluminum rims with stainless steel spokes.
- The standard Renthal Fatbar is stronger and reduces vibration more than conventional aluminum handlebars.
- Bright Champion Yellow bodywork with race team-inspired graphics package.
- Gripper seat, with projected cross-shaped patterns, aids rider control.



RM-Z450L6 GY8: Champion Yellow No.2 / Solid Black

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### **Additional Features**

- See Suzuki industry leading Amateur Contingency program at <u>www.SuzukiCycles.com/Racing</u>.
- For more details, please visit <u>www.suzukicycles.com</u>.

## Specifications RM-Z450L6 E-03: USA, E-33: California

#### DIMENSIONS AND CURB MASS ENGINE Type..... Four-stroke, liquid-cooled, DOHC Number of cylinders ..... 1 Compression ratio..... 12.5 : 1 Fuel system ...... Fuel injection Air cleaner..... Polyurethane foam element Starter system..... Primary kick Lubrication system ...... Semi dry sump DRIVE TRAIN Clutch...... Wet multi-plate type Transmission..... 5-speed constant mesh Gearshift pattern ..... 1-down, 4-up Primary reduction ratio...... 2.625 (63/24) Gear ratios, Low ...... 1.800 (27/15) 2nd ...... 1.470 (25/17) 3rd..... 1.235 (21/17) 4th..... 1.050 (21/20) Drive chain ...... DID520MXV4, 114 links CHASSIS Front suspension ...... Inverted telescopic, air spring, oil damped Rear suspension ...... Link type, coil spring, oil damped Trail..... 125 mm (4.92 in) Turning radius ...... 1.95 m (6.4 ft) Front brake Disc brake Rear brake ..... Disc brake Rear tire size...... 110/90-19 62M, tube type **ELECTRICAL** Ignition type ..... Electronic ignition (CDI) Ignition timing...... 12° B.T.D.C. at 2100 r/min Spark plug...... NGK DIMR8A10 CAPACITIES Engine oil, change..... 1050 ml (1.1/0.9 US/Imp at) with filter change..... 1100 ml (1.2/1.0 US/Imp qt) overhaul...... 1200 ml (1.3/1.1 US/Imp qt) Coolant ...... 1150 ml (1.2/1.0 US/Imp qt)

## Service Data RM-Z450L6 E-03: USA, E-33: California

## **VALVE + GUIDE**

Unit: mm (in)

GILL

| ITEM                                   |           | STANDARD   | LIMIT           |
|--|-----------|--|-----------------|
| Valve diam.                            | IN.       | 36<br>(1.4)  |                 |
|  | EX.       | 31<br>(1.2)  | _               |
| Tappet clearance (when cold)           | IN.       | 0.09 – 0.16<br>(0.004 – 0.006)   | _               |
|  | EX.       | 0.17 – 0.24<br>(0.007 – 0.009)   | _               |
| Valve guide to valve stem<br>clearance | IN.       | 0.010 - 0.037<br>(0.0004 - 0.0015)   | _               |
|  | EX.       | 0.030 - 0.057<br>(0.0012 - 0.0022)   | _               |
| Valve stem deflection                  | IN. & EX. | —  | 0.25<br>(0.010) |
| Valve guide I.D.                       | IN. & EX. | 5.500 – 5.512<br>(0.2165 – 0.2170)   | _               |
| Valve stem O.D.                        | IN.       | 5.475 – 5.490<br>(0.2156 – 0.2161)   |                 |
|  | EX.       | 5.455 – 5.470<br>(0.2148 – 0.2154)   |                 |
| Valve stem runout                      | IN. & EX. | —  | 0.05<br>(0.002) |
| Valve seat width                       | IN. & EX. | 0.9 – 1.1<br>(0.035 – 0.043)   | _               |
| Valve head radial runout               | IN. & EX. | —  | 0.03<br>(0.001) |
| Valve spring free length               | IN. & EX. | —  | 35.8<br>(1.41)  |
| Valve spring tension                   | IN. & EX. | 146 – 168 N<br>(14.9 – 17.1 kgf, 32.8 – 37.7 lbs)<br>at length 30.9 mm (1.22 in) |                 |

# **CAMSHAFT + CYLINDER HEAD**

| Unit: | mm | (in)        |
|-------|----|-------------|
| 01110 |    | <b>\'''</b> |

| ITEM                           |            | STANDARD                             | LIMIT             |
|--------------------------------|------------|--------------------------------------|-------------------|
| Cam height                     | IN.        | 35.58 – 35.63<br>(1.401 – 1.403)     | 35.28<br>(1.389)  |
|                                | EX.        | 34.53 – 34.58<br>(1.359 – 1.361)     | 34.23<br>(1.348)  |
| Camshaft journal oil clearance | IN. & EX.  | 0.032 - 0.066<br>(0.001 - 0.002)     | 0.150<br>(0.0059) |
| Camshaft journal holder I.D.   | IN. & EX.  | 22.012 - 22.025<br>(0.8667 - 0.8671) | —                 |
| Camshaft journal O.D.          | IN. & EX.  | 21.959 – 21.980<br>(0.8645 – 0.8654) | —                 |
| Camshaft runout                | —          |                                      | 0.10<br>(0.004)   |
| Cam chain pin                  | 14th pin — |                                      | —                 |
| Cylinder head distortion       |            |                                      | 0.05<br>(0.002)   |

## **CYLINDER + PISTON + PISTON RING**

Unit: mm (in)

GILL

| ITEM   |         | STANDARD  |                       |  |
|--|---------|---|-----------------------|--|
| Compression pressure<br>(Automatic decomp. actuated) | 300     | 300 kPa (3.0 kgf/cm², 43 psi) or more   |                       |  |
| Piston to cylinder clearance                         |         | 0.035 - 0.045<br>(0.0014 - 0.0018)  |                       |  |
| Cylinder bore  |         | 96.000 – 96.015<br>(3.7795 – 3.7801)  | Nicks or<br>scratches |  |
| Piston diam.   | Measure | 95.960 – 95.975<br>(3.7779 – 3.7785)<br>at 16 mm (0.6 in) from the skirt end. | 95.880<br>(3.7748)    |  |
| Cylinder distortion                                  |         | —   | 0.05<br>(0.002)       |  |
| Piston ring free end gap                             | 1st     | Approx. 8.7 (0.34)  | 7.0<br>(0.28)         |  |
| Piston ring end gap                                  | 1st     | 0.20 - 0.30<br>(0.008 - 0.012)  | 0.50<br>(0.020)       |  |
| Piston ring to groove clearance                      | 1st     | _   | 0.180<br>(0.007)      |  |
| Piston ring groove width                             | 1st     | 0.78 – 0.80<br>(0.0307 – 0.0315)  | _                     |  |
|  | 150     | 1.30 – 1.32<br>(0.0512 – 0.0520)  | _                     |  |
|  | Oil     | 2.01 – 2.03<br>(0.0791 – 0.0799)  | —                     |  |
| Piston ring thickness                                | 1st     | 0.71 – 0.76<br>(0.0279 – 0.0299)  | —                     |  |
|  | 151     | 1.08 – 1.10<br>(0.0425 – 0.0433)  | _                     |  |
| Piston pin bore                                      |         | 19.002 – 19.008<br>(0.7425 – 0.7433)  |                       |  |
| Piston pin O.D.                                      |         | 18.980<br>(0.7472)  |                       |  |

## **CONROD + CRANKSHAFT**

Unit: mm (in)

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| ITEM                          | STANDARD                             | LIMIT              |
|-------------------------------|--------------------------------------|--------------------|
| Conrod small end I.D.         | 19.018 – 19.038<br>(0.7487 – 0.7495) | 19.050<br>(0.7500) |
| Conrod deflection             | —                                    | 3.0<br>(0.12)      |
| Conrod big end side clearance | 0.20 – 0.65<br>(0.008 – 0.026)       | 1.0<br>(0.04)      |
| Conrod big end width          | 19.75 – 19.80<br>(0.778 – 0.780)     | _                  |
| Crank web to web width        | 61.9 – 62.1<br>(2.437 – 2.445)       | _                  |
| Crankshaft runout             | _                                    | 0.08<br>(0.003)    |

## **OIL PUMP**

| ITEM                            | STANDARD  | LIMIT |
|---------------------------------|---|-------|
| Oil pressure (at 50 °C, 122 °F) | 50 kPa (0.5 kgf/cm², 7.1 psi)<br>at 4 000 r/min | —     |

| CLUTCH                                  |                                  | Unit: mm (in)    |
|---|----------------------------------|------------------|
| ITEM                                    | STANDARD                         | LIMIT            |
| Clutch lever clearance                  | 2 - 3<br>(0.08 - 0.12)           | —                |
| Drive plate thickness<br>(No.1 & No.2)  | 3.07 – 3.23<br>(0.121 – 0.127)   | 2.77<br>(0.109)  |
| Drive plate claw width<br>(No.1 & No.2) | 13.85 – 13.95<br>(0.545 – 0.549) | 13.05<br>(0.514) |
| Driven plate distortion                 | _                                | 0.10<br>(0.004)  |
| Clutch spring free length               | 51.94<br>(2.045)                 | 49.4<br>(1.94)   |

# **RADIATOR + ENGINE COOLANT**

| ITEM                                | S                 | STANDARD/SPECIFICATION   |   |  |
|-------------------------------------|-------------------|--|---|--|
| ECT sensor resistance               | 20 °C<br>(68 °F)  | Approx. 2.58 kΩ  | — |  |
|                                     | 50 °C<br>(122 °F) | Approx. 0.77 kΩ  | _ |  |
|                                     | 80 °C<br>(176 °F) | Approx. 0.28 kΩ  | — |  |
| Radiator cap valve opening pressure | (0.               | 95 – 125 kPa<br>(0.95 – 1.25 kgf/cm², 14 – 18 psi)                 |   |  |
| Engine coolant type                 |                   | Use an anti-freeze/coolant compatible with alumi-<br>num radiator. |   |  |
| Engine coolant capacity             |                   | 1 150 ml<br>(1.2/1.0 US/Imp qt)                                    |   |  |

| TRANSMISSION + DRIVE CHAIN Unit: mm (in) Except r |        |            | Unit: mm (in) Except ratio       |                  |
|---|--------|------------|----------------------------------|------------------|
| ITEM<br>Primary reduction ratio                   |        |            | <b>STANDARD</b><br>2.625 (63/24) |                  |
|   |        |            |                                  |                  |
| Final reduction ratio                             |        |            | 3.846 (50/13)                    | —                |
| Gear ratios                                       | Low    |            | 1.800 (27/15)                    | _                |
|   | 2nd    |            | 1.470 (25/17)                    | —                |
|   | 3rd    |            | 1.235 (21/17)                    | —                |
|   | 4rh    |            | 1.050 (21/20)                    | —                |
|   | Тор    |            | 0.909 (20/22)                    | —                |
| Shift fork to groove cle                          | arance | No.1, 2, 3 | 0.1 – 0.3<br>(0.004 – 0.012)     | 0.5<br>(0.02)    |
| Shift fork groove width                           |        | No.1, 2, 3 | 5.0 – 5.1<br>(0.197 – 0.201)     | _                |
| Shift fork thickness                              |        | No.1, 2, 3 | 4.8 – 4.9<br>(0.189 – 0.193)     | _                |
| Drive chain                                       |        | Туре       | DID520MXV4                       |                  |
|   |        | Links      | 114                              | _                |
| Drive chain plate height                          |        | Inner      | 15.0 (0.59)                      | 12.75<br>(0.502) |
|   |        | Outer      | 12.8 (0.50)                      | 11.20<br>(0.441) |
| Drive chain slack                                 |        |            | 35 – 45<br>(1.4 – 1.8)           |                  |

### **INJECTOR + FUEL PUMP + FUEL PRESSURE REGULATOR**

| ITEM   | SPECIFICATION                                  | NOTE |
|--|--|------|
| Injector resistance                            | 9.5 – 11.5 Ω at 20 °C (68 °F)                  |      |
| Fuel pump discharge amount                     | 89 ml (3.0/ 3.1 US/Imp oz) or more<br>/10 sec. |      |
| Fuel pressure regulator operating set pressure | Approx. 294 kPa (2.94 kgf/cm², 41.81 psi)      |      |

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## **FI SENSORS**

| ITEM                      | S       | STANDARD/SPECIFICATION           |                     |
|---------------------------|---------|----------------------------------|---------------------|
| CKP sensor resistance     |         | 80 – 120 Ω                       |                     |
| CKP sensor peak voltage   |         | 2.8 V or more                    |                     |
| IAP sensor input voltage  |         | 4.5 – 5.5 V                      |                     |
| IAP sensor output voltage |         | 0.98 – 2.86 V at idle speed      |                     |
| TP sensor input voltage   |         | 4.5 – 5.5 V                      |                     |
| TP sensor output voltage  | Closed  | 0.60 – 0.64 V                    |                     |
|                           | Opened  | 3.60 – 4.00 V                    |                     |
| ECT sensor input voltage  |         | 4.5 – 5.5 V                      |                     |
| ECT sensor resistance     | Ap      | Approx. 2.58 kΩ at 20 °C (68 °F) |                     |
| IAT sensor input voltage  |         | 4.5 – 5.5 V                      |                     |
| IAT sensor resistance     | Ap      | Approx. 2.58 kΩ at 20 °C (68 °F) |                     |
| TO sensor resistance      | Ap      | prox. 19.4 kΩ at 20 °C (68 °F)   |                     |
| TO sensor voltage         | Normal  | 0.4 – 1.4 V                      |                     |
|                           | Leaning | 3.7 – 4.4 V                      | When<br>leaning 65° |
| GP switch voltage         |         | 0.6 V or more                    |                     |
| Injector voltage          |         |                                  |                     |

## **THROTTLE BODY**

| ITEM                | SPECIFICATION                |
|---------------------|------------------------------|
| Bore size           | 43 mm                        |
| I.D. No.            | 28H5                         |
| Idle r/min          | 2 100 ± 50 r/min             |
| Idle screw          | 5 – 6 turns back             |
| Throttle cable play | 2 – 4 mm<br>(0.08 – 0.16 in) |

## **ELECTRICAL**

Unit: mm (in)

|   | S         | TANDARD/SPECIFICATION         | NOTE           |
|---|-----------|-------------------------------|----------------|
| Ignition timing                                 |           | 12° B.T.D.C. at 2 100 r/min.  |                |
| Spark plug                                      | Туре      | NGK: DIMR8A10                 |                |
|   | Gap       | 0.9 - 1.0 (0.035 - 0.039)     |                |
| Spark performance                               |           | Over 8 (0.3) at 1 atm.        |                |
| CKP sensor resistance                           |           | 80 – 120 Ω                    | R – G          |
| Charge coil resistance                          |           | 1.2 – 2.5 Ω                   | Y – Y          |
| CKP sensor peak voltage                         |           | 2.8 V or more                 | + R – - G      |
| Ignition coil resistance                        | Primary   | 0.17 – 0.70 Ω                 | W/BI – B/W     |
|   | Secondary | 9 – 14 kΩ                     | Plug cap – B/W |
| Ignition coil primary peak voltage              |           | 170 V or more                 |                |
| Magneto no-load voltage<br>When engine is cold) | 100       | V (AC) or more at 5 000 r/min |                |
| legulated voltage                               |           | 13.5 – 15.0 V at 5 000 r/min  |                |
| ngine stop switch resistance                    |           | Under 1 $\Omega$              | B/Y – B/W      |
| S-HAC switch resistance                         |           | Under 1 Ω                     | R/Y – B/W      |

| BRAKE + WHEEL                |                 |                                      | Unit: mm (in)   |
|------------------------------|-----------------|--------------------------------------|-----------------|
| ITEM                         |                 | STANDARD                             | LIMIT           |
| Brake lever adjuster length  |                 | 11 – 15<br>(0.4 – 0.6)               |                 |
| Rear brake pedal height      |                 | 0 - 10<br>(0 - 0.4)                  | _               |
| Brake disc thickness         | Front           | $3.0 \pm 0.2$<br>(0.118 ± 0.008)     | 2.5<br>(0.10)   |
|                              | Rear            | 4.0 ± 0.15<br>(0.157 ± 0.006)        | 3.5<br>(0.14)   |
| Brake disc distortion        | Front &<br>Rear | —                                    | 0.3<br>(0.012)  |
| Master cylinder bore         | Front           | 11.000 – 11.043<br>(0.4331 – 0.4348) | _               |
|                              | Rear            | 11.000 – 11.043<br>(0.4331 – 0.4348) | —               |
| Master cylinder piston diam. | Front           | 10.957 – 10.984<br>(0.4314 – 0.4324) | _               |
|                              | Rear            | 10.957 – 10.984<br>(0.4314 – 0.4324) | _               |
| Brake caliper cylinder bore  | Front           | 27.000 – 27.050<br>(1.0630 – 1.0650) | _               |
|                              | Rear            | 25.400 – 25.450<br>(1.0000 – 1.0020) | _               |
| Brake caliper piston diam.   | Front           | 26.900 – 26.950<br>(1.0591 – 1.0610) | _               |
|                              | Rear            | 25.335 – 25.368<br>(0.9974 – 0.9987) | _               |
| Brake fluid type             |                 | DOT 4                                | _               |
| Wheel rim runout             | Axial           | _                                    | 2.0<br>(0.08)   |
|                              | Radial          | _                                    | 2.0<br>(0.08)   |
| Wheel rim size               | Front           | 1.60×21                              | —               |
|                              | Rear            | 2.15 × 19                            | —               |
| Wheel axle runout            | Front           | _                                    | 0.25<br>(0.010) |
|                              | Rear            | _                                    | 0.25<br>(0.010) |

## TIRE

| ITEM                                  | ST              | ANDARD/SPECIFICATION                             | LIMIT               |
|---------------------------------------|-----------------|--|---------------------|
| Cold inflation tire pressure          | Front &<br>Rear | 70 – 110 kPa<br>(0.7 – 1.1 kgf/cm², 10 – 16 psi) | _                   |
| Tire size                             | Front           | 80/100-21 51M                                    | _                   |
|                                       | Rear            | 110/90-19 62M                                    | _                   |
| Tire type                             | Front           | BRIDGESTONE: M403                                | _                   |
|                                       | Rear            | BRIDGESTONE: M404                                | _                   |
| Tire tread depth<br>(Recommend depth) | Front &<br>Rear | _  | 4.0 mm<br>(0.16 in) |
| or of America, Inc. ai 02/04/2016     | 9 /15           | <b>G</b> U                                       | 20                  |

## **SUSPENSION**

Unit: mm (in)

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| ITEM                                       |                                  | STANDARD  | LIMIT         | NOTE   |
|--|----------------------------------|---|---------------|--|
| Front fork stroke                          |                                  | 310<br>(12.2)   | _             |  |
| Front fork inner tube O.                   | D.                               | 49<br>(1.9)   | _             |  |
| Left front fork damping force adjuster     | Rebound                          | MAX – 13 clicks<br>turn counterclockwise                              | _             |  |
|  | Compres-<br>sion                 | MAX – 8 clicks<br>turn counterclockwise                               | _             |  |
| Left front fork air pressu                 | re                               | 0 kPa<br>(0 kgf/cm², 0 psi)   | _             |  |
| Right front fork air<br>pressure           | Inner<br>chamber                 | 1 200 kPa<br>(12 kgf/cm², 171 psi)                                    | _             |  |
|  | Outer<br>chamber                 | 0 kPa<br>(0 kgf/cm², 0 psi)   |               |  |
|  | Balance<br>chamber               | 1 200 kPa<br>(12 kgf/cm², 171 psi)                                    | _             |  |
| Rear shock absorber ga                     | as pressure                      | 784 – 980 kPa<br>(7.8 kgf/cm², 111.5 psi –<br>9.8 kgf/cm², 139.4 psi) | —             |  |
| Rear shock absorber sp<br>length           | oring set                        | 5<br>(0.2)  | _             | 5 mm (0.2 in) com-<br>pressed from spring<br>free length |
| Rear shock absorber sp                     | oring rate                       | 55.9 N/mm<br>(5.70 kgf/mm)  | —             |  |
| Rear shock absorber damping force adjuster | Rebound                          | MAX – 12 clicks<br>turn counterclockwise                              | _             |  |
|  | Compres-<br>sion (High<br>speed) | MAX – 2 turns coun-<br>terclockwise                                   | _             |  |
|  | Compres-<br>sion (Low<br>speed)  | MAX – 12 clicks<br>turn counterclockwise                              | _             |  |
| Rear wheel travel                          |                                  | 310<br>(12.2)   | _             |  |
| Swingarm pivot shaft ru                    | nout                             | _   | 0.3<br>(0.01) |  |



## FUEL + OIL

| ITEM                             |   | NOTE                               |                                    |  |                               |
|----------------------------------|---|------------------------------------|------------------------------------|--|-------------------------------|
| Fuel type                        | Use only ur                                   |                                    |                                    |  |                               |
|                                  | octane (R/2                                   | octane (R/2 + M/2 method).         |                                    |  |                               |
| Fuel tank capacity               |   | 6.2 L<br>(1.6/1.4 US/Imp gal)      |                                    |  |                               |
| Engine oil type                  | SAE   | 10W-40, API SG/SH/SJ/SL with       |                                    |  |                               |
|                                  |   | JASO MA/MA1/MA2                    |                                    |  |                               |
| Engine oil capacity              | Change  | 1 050 ml<br>(1.1/0.9 US/Imp qt)    |                                    |  |                               |
|                                  | Filter<br>change                              | 1 100 ml<br>(1.2/1.0 US/Imp qt)    |                                    |  |                               |
|                                  | Overhaul                                      | 1 200 ml<br>(1.3/1.1 US/Imp qt)    |                                    |  |                               |
| Air cleaner element oil type     | MOT   | MOTUL AIR FILTER OIL or equivalent |                                    |  |                               |
| Front fork oil type              | SHOWA SUSPENSION FLUID SS-19<br>or equivalent |                                    |                                    |  |                               |
| Left front fork oil capacity     | 320 ml<br>(10.8/11.3 US/Imp oz)               |                                    | (10.8/11.3 US/Imp oz)              |  | Outer tube oil<br>quantity    |
|                                  | 314 ml<br>(10.6/11.1 US/Imp oz)               |                                    | Fork cylinder<br>unit oil quantity |  |                               |
| Right front fork oil capacity    | 100 ml<br>(3.4/3.5 US/Imp oz)                 |                                    | Inner chamber<br>oil quantity      |  |                               |
|                                  | 250 ml<br>(8.5/8.8 US/Imp oz)                 |                                    |                                    |  | Outer chamber<br>oil quantity |
|                                  | 10 ml<br>(0.3/0.4 US/Imp oz)                  |                                    | Balance cham-<br>ber oil quantity  |  |                               |
| Rear shock absorber oil type     | SHOWA SUSPENSION FLUID SS-25<br>or equivalent |                                    |                                    |  |                               |
| Rear shock absorber oil capacity |   | 383 ml<br>(13.0 /13.5 US/Imp oz)   |                                    |  |                               |

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# **TIGHTENING TORQUE** ENGINE

|  |         | N⋅m | kgf-m | lbf-ft |
|--|---------|-----|-------|--------|
| Cylinder head cover bolt                 |         | 14  | 1.4   | 10.0   |
| Spark plug                               |         | 11  | 1.1   | 8.0    |
| Cylinder head bolt (Ini                  |         | 25  | 2.5   | 18.0   |
|  | (Final) | 51  | 5.1   | 37.0   |
| Cylinder head base bolt                  |         | 10  | 1.0   | 7.0    |
| Cylinder base bolt                       |         | 10  | 1.0   | 7.0    |
| Camshaft journal holder bolt             |         | 10  | 1.0   | 7.0    |
| Oil gallery bolt (journal holder)        |         | 10  | 1.0   | 7.0    |
| Primary drive gear nut                   |         | 110 | 11.0  | 79.5   |
| Magneto rotor nut                        |         | 80  | 8.0   | 58.0   |
| Clutch sleeve hub nut                    |         | 90  | 9.0   | 65.0   |
| Clutch spring set bolt                   |         | 10  | 1.0   | 7.0    |
| Clutch release camshaft retainer bolt    |         | 10  | 1.0   | 7.0    |
| Gearshift arm stopper                    |         | 23  | 2.3   | 16.5   |
| Gearshift cam driven pin                 |         | 24  | 2.4   | 17.5   |
| Pawl lifter screw                        |         | 8.5 | 0.85  | 6.0    |
| Bearing retainer screw                   |         | 8.5 | 0.85  | 6.0    |
| Kick starter guide bolt                  |         | 10  | 1.0   | 7.0    |
| Cam chain tension adjuster mounting bolt |         | 10  | 1.0   | 7.0    |
| Cam chain tension adjuster cap bolt      |         | 23  | 2.3   | 16.5   |
| Cam chain tensioner bolt                 |         | 10  | 1.0   | 7.0    |
| Cam chain guide retainer bolt            |         | 10  | 1.0   | 7.0    |
| Right crankcase cover bolt               |         | 11  | 1.1   | 8.0    |
| Engine oil drain plug                    |         | 12  | 1.2   | 8.5    |
| Engine oil check bolt                    |         | 5.5 | 0.55  | 4.0    |
| Oil filter cap bolt                      |         | 11  | 1.1   | 8.0    |
| Oil gallery plug                         |         | 10  | 1.0   | 7.0    |
| Oil pump No.1 bolt                       |         | 5.5 | 0.55  | 4.0    |
| Oil pump No.2 bolt                       |         | 11  | 1.1   | 8.0    |
| Engine oil strainer cap                  |         | 21  | 2.1   | 15.0   |
| Crankcase bolt                           |         | 11  | 1.1   | 8.0    |
| Clutch cover bolt                        |         | 11  | 1.1   | 8.0    |
| TDC plug                                 |         | 14  | 1.4   | 10.0   |
| Magneto cover bolt                       |         | 11  | 1.1   | 8.0    |
| Crankshaft hole plug                     |         | 11  | 1.1   | 8.0    |
| Magneto stator bolt                      |         | 5.5 | 0.55  | 4.0    |
| gnition coil mounting bolt               |         | 10  | 1.0   | 7.0    |
| Regulator/rectifier mounting bolt        |         | 10  | 1.0   | 7.0    |
| Condenser bracket bolt                   |         | 10  | 1.0   | 7.0    |
|  |         | 5   | 0.5   | 3.5    |

| PART                                 |           | N∙m | kgf-m | lbf-ft |
|--------------------------------------|-----------|-----|-------|--------|
| Engine mounting bolt                 |           | 55  | 5.5   | 40.0   |
| Engine mounting nut (front)          |           | 66  | 6.6   | 47.5   |
| Engine mounting nut (lower)          |           | 66  | 6.6   | 47.5   |
| Engine mounting bracket nut (front)  |           | 66  | 6.6   | 47.5   |
| Engine mounting bracket bolt (upper) |           | 40  | 4.0   | 29.0   |
| Intake pipe bolt                     | (Initial) | 1   | 0.1   | 0.7    |
|                                      | (Final)   | 10  | 1.0   | 7.0    |
| Engine sprocket bolt                 |           | 36  | 3.6   | 26.0   |
| Engine sprocket cover bolt           |           | 11  | 1.1   | 8.0    |
| Kick starter lever bolt              |           | 29  | 2.9   | 21.0   |
| Kick starter lever screw             |           | 10  | 1.0   | 7.0    |
| Exhaust pipe nut                     |           | 23  | 2.3   | 16.5   |
| Muffler connector clamp bolt         |           | 17  | 1.7   | 12.5   |
| Muffler mounting front bolt          |           | 21  | 2.1   | 15.0   |
| Muffler mounting rear bolt           |           | 23  | 2.3   | 16.5   |
| Exhaust pipe cover bolt              |           | 11  | 1.1   | 8.0    |
| Rear muffler body mounting bolt      |           | 10  | 1.0   | 7.0    |
| Front protector bolt                 |           | 12  | 1.2   | 8.5    |

# FI SYSTEM AND INTAKE AIR SYSTEM

| ITEM                      | N⋅m | kgf-m | lbf-ft |
|---------------------------|-----|-------|--------|
| CKP sensor bolt           | 5.5 | 0.55  | 4.0    |
| IAT sensor mounting screw | 1.3 | 0.13  | 0.95   |
| GP switch mounting bolt   | 6.5 | 0.65  | 4.7    |
| Fuel joint mounting screw | 3.5 | 0.35  | 2.5    |
| Fuel pipe mounting screw  | 3.5 | 0.35  | 2.5    |
| Fuel pump mounting bolt   | 10  | 1.0   | 7.0    |
| TP sensor mounting screw  | 3.5 | 0.35  | 2.5    |
| ECT sensor                | 12  | 1.2   | 8.5    |
| ECM bracket mounting bolt | 10  | 1.0   | 7.0    |
| TO sensor bracket bolt    | 8.5 | 0.85  | 6.0    |

# **COOLING SYSTEM**

| ITEM                      | N⋅m | kgf-m | lbf-ft |
|---------------------------|-----|-------|--------|
| Impeller                  | 8   | 0.8   | 6.0    |
| Water pump case bolt      | 11  | 1.1   | 8.0    |
| Engine coolant drain bolt | 11  | 1.1   | 8.0    |
| Radiator air bleeder bolt | 6   | 0.6   | 4.5    |
| Water hose clamp screw    | 1.5 | 0.15  | 1.0    |

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## **CHASSIS**

| PART   | N⋅m | kgf-m            | lbf-ft |
|--|-----|------------------|--------|
| Handlebar clamp bolt                           | 25  | 2.5              | 18.0   |
| Handlebar holder set nut                       | 44  | 4.4              | 32.0   |
| Front fork upper clamp bolt (right and left)   | 23  | 2.3              | 16.5   |
| Front fork lower clamp bolt (right and left)   | 23  | 2.3              | 16.5   |
| Steering stem head nut                         | 120 | 12.0             | 87.0   |
| Steering stem nut                              |     | m (4.5 kgf-m, 32 |        |
| <b>F</b> 1 1 1                                 |     | en turn back 1/4 |        |
| Fork cylinder unit                             | 34  | 3.4              | 24.5   |
| Air cylinder unit                              | 34  | 3.4              | 24.5   |
| Lock-nut/center bolt                           | 28  | 2.8              | 20.0   |
| Lock-nut/sealing bolt                          | 28  | 2.8              | 20.0   |
| Front fork center bolt                         | 69  | 6.9              | 50.0   |
| Front fork sealing bolt                        | 69  | 6.9              | 50.0   |
| Front fork compression damper unit             | 30  | 3.0              | 21.5   |
| Front fork air bleeder valve                   | 1.3 | 0.13             | 1.0    |
| Front fork air valve                           | 5.5 | 0.55             | 4.0    |
| Front fork valve core                          | 3   | 0.3              | 2.0    |
| Front fork protector bolt                      | 4.9 | 0.49             | 3.5    |
| Front brake master cylinder holder bolt        | 10  | 1.0              | 7.0    |
| Rear brake master cylinder mounting bolt       | 10  | 1.0              | 7.0    |
| Rear brake master cylinder rod lock-nut        | 6   | 0.6              | 4.5    |
| Rear brake master cylinder reservoir cap screw | 1.5 | 0.15             | 1.0    |
| Brake lever pivot bolt                         | 6   | 0.6              | 4.5    |
| Brake lever pivot bolt lock-nut                | 6   | 0.6              | 4.5    |
| Brake pedal pivot bolt                         | 29  | 2.9              | 21.0   |
| Brake hose union bolt (front and rear)         | 23  | 2.3              | 16.5   |
| Brake hose guide bolt (front)                  | 3   | 0.3              | 2.0    |
| Brake caliper mounting bolt (front)            | 26  | 2.6              | 19.0   |
| Brake pad mounting pin (front and rear)        | 18  | 1.8              | 13.0   |
| Front brake caliper axle bolt (caliper)        | 25  | 2.5              | 18.0   |
| Front brake caliper axle bolt (bracket)        | 28  | 2.8              | 20.0   |
| Rear brake caliper axle bolt (caliper)         | 43  | 4.3              | 31.0   |
| Rear brake caliper axle bolt (bracket)         | 13  | 1.3              | 9.5    |
| Brake air bleeder valve (front and rear)       | 6   | 0.6              | 4.5    |
| Disc plate bolt (front)                        | 11  | 1.1              | 8.0    |
| Disc plate bolt (rear)                         | 26  | 2.6              | 19.0   |
| Front axle nut                                 | 35  | 3.5              | 25.5   |
| Front axle holder bolt                         | 21  | 2.1              | 15.0   |
| Rear axle nut                                  | 100 | 10.0             | 72.5   |
| Rear sprocket nut                              | 30  | 3.0              | 21.5   |
| Drive chain roller bolt and nut                | 23  | 2.3              | 16.5   |
| Spoke nipple                                   | 6   | 0.6              | 4.5    |
| Front wheel rim lock                           | 14  | 1.4              | 10.0   |
| Rear wheel rim lock                            | 47  | 4 7              | 40.5   |
|  | 17  |                  | 12.0   |

| PART  | N⋅m | kgf-m | lbf-ft |
|---|-----|-------|--------|
| Throttle cable adjuster lock-nut                  | 4.5 | 0.45  | 3.25   |
| Clutch cable adjuster lock-nut                    | 2.2 | 0.22  | 1.60   |
| Clutch cable bracket bolt                         | 7   | 0.7   | 5.0    |
| Throttle case screw                               | 3.8 | 0.38  | 2.75   |
| Clutch lever holder bolt                          | 3   | 0.3   | 2.0    |
| Clutch lever pivot bolt                           | 4   | 0.4   | 3.0    |
| Clutch lever pivot bolt lock-nut                  | 4   | 0.4   | 3.0    |
| Swingarm pivot nut (engine mounting)              | 70  | 7.0   | 50.5   |
| Swingarm rear axle plate screw                    | 3   | 0.3   | 2.0    |
| Rear shock absorber upper mounting nut            | 50  | 5.0   | 36.0   |
| Rear shock absorber lower mounting nut            | 50  | 5.0   | 36.0   |
| Rear shock absorber compression adjuster assembly | 30  | 3.0   | 21.5   |
| Rear cushion lever nut (upper and lower)          | 80  | 8.0   | 58.0   |
| Rear cushion rod nut                              | 80  | 8.0   | 58.0   |
| Rear shock absorber spring adjuster lock-nut      | 70  | 7.0   | 50.5   |
| Seat rail bolt (upper and lower)                  | 23  | 2.3   | 16.5   |
| Footrest bolt                                     | 35  | 3.5   | 25.5   |

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