IMPORTANT SAFETY NOTICE

**WARNING** Indicates a strong possibility of severe personal injury or loss of life if instructions are not followed.

**CAUTION** Indicates a possibility of personal injury or equipment damage if instructions are not followed.

Detailed descriptions of standard workshop procedures, safety principles and service operations are not included. It is important to note that this manual contains some warnings and cautions against some specific service methods which could cause PERSONAL INJURY to service personnel or could damage a vehicle or render it unsafe. Please understand that those warnings could not cover all conceivable ways in which service, whether or not recommended by Honda might be done or of the possible hazardous consequences of each conceivable way, nor could Honda investigate all such ways. Anyone using service procedures or tools, whether or not recommended by Honda must satisfy himself thoroughly that neither personal safety nor vehicle safety will be jeopardized by the service method or tools selected.
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Date of Issue: November, 1980
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A. Frame/Engine Number Identifications and Number Locations

ENGINE SERIAL NUMBER IDENTIFICATION

FL250 E - 1000000

MODEL
ENGINE
SERIAL NUMBER

ENGINE NUMBER

FRAME NUMBER IDENTIFICATION

FL250 - 1000000

MODEL
SERIAL NUMBER
B. Lift and Support Points

**WARNING**
Always use safety stands when working on or under a vehicle that is supported by only a jack.

**CAUTION**
Four support points are provided as shown.
ENGINE:
Air cooled, 2 stroke
single-cylinder
248 cc (15.1 cu. in.)

CONTROLS INTEGRATED STEERING WHEEL

INDEPENDENT SWING ARM SUSPENSION

BELT CONVERTER

DISC BRAKE

LOW PRESSURE TIRE
### Frame

<table>
<thead>
<tr>
<th>TOOL NUMBER</th>
<th>DESCRIPTION</th>
<th>FIGURE REFERENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>07946 - 3600000</td>
<td>Driver Attachment</td>
<td>1</td>
</tr>
<tr>
<td>07916 - 9180000</td>
<td>Tire Disassembly Tool</td>
<td>2</td>
</tr>
<tr>
<td>07944 - 9350300</td>
<td>6 mm Spring Pin Driver</td>
<td>3</td>
</tr>
<tr>
<td>07945 - 3330100</td>
<td>Driver Attachment</td>
<td>4</td>
</tr>
<tr>
<td>07959 - 3290000</td>
<td>Front Shock Absorber Compressor</td>
<td>5</td>
</tr>
</tbody>
</table>

### Engine

<table>
<thead>
<tr>
<th>TOOL NUMBER</th>
<th>DESCRIPTION</th>
<th>FIGURE REFERENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>07923 - 0010000</td>
<td>Rotor Holder</td>
<td>6</td>
</tr>
<tr>
<td>07933 - 0010000</td>
<td>Rotor Puller</td>
<td>7</td>
</tr>
<tr>
<td>07945 - 3330300</td>
<td>Bearing Driver</td>
<td>8</td>
</tr>
<tr>
<td>07933 - 9500000</td>
<td>Case Puller</td>
<td>9</td>
</tr>
</tbody>
</table>

### Frame and Engine

<table>
<thead>
<tr>
<th>TOOL NUMBER</th>
<th>DESCRIPTION</th>
<th>FIGURE REFERENCE</th>
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</thead>
<tbody>
<tr>
<td>07949 - 6110000</td>
<td>Driver Attachment Handle</td>
<td>10</td>
</tr>
</tbody>
</table>

### SALSBURY’s belt converter

<table>
<thead>
<tr>
<th>TOOL NUMBER</th>
<th>DESCRIPTION</th>
<th>FIGURE REFERENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salsbury #602112</td>
<td>SPANNER</td>
<td>11</td>
</tr>
<tr>
<td>#602090</td>
<td>CLUTCH PULLER TOOL</td>
<td>12</td>
</tr>
<tr>
<td>#703463</td>
<td>TAPER PLUG</td>
<td>13</td>
</tr>
<tr>
<td>#704229</td>
<td>SPIDER INSTALLATION CUP</td>
<td>14</td>
</tr>
<tr>
<td>#704233</td>
<td>PULLER PLATE</td>
<td>15</td>
</tr>
<tr>
<td>#900403</td>
<td>SCREW (1/4-20 x 2-3/4)</td>
<td>16</td>
</tr>
<tr>
<td>#704232</td>
<td>STEP PLUG</td>
<td>17</td>
</tr>
<tr>
<td>#901836</td>
<td>SCREW (1/2-20 x 5-1/2)</td>
<td>18</td>
</tr>
<tr>
<td>#703446</td>
<td>SPRING SEATING TOOL</td>
<td>19</td>
</tr>
<tr>
<td>#602114</td>
<td>SPECIAL SCREW</td>
<td>20</td>
</tr>
<tr>
<td>#901840</td>
<td>NUT (1/2-20)</td>
<td>21</td>
</tr>
<tr>
<td>#704236</td>
<td>FLAT WASHER</td>
<td>21</td>
</tr>
<tr>
<td>#704237</td>
<td>CAM RETAINER</td>
<td>22</td>
</tr>
</tbody>
</table>
Frame

REAR BRAKE

Driver Attachment
07946 – 3600000
[For installation of rear brake bearing and oil seal. Used with 07949 – 6110000 (Fig. 10.)]

TIRE

Tire Disassembly Tool
07916 – 9180000
(For disassembly of tire)

Fig. 1.

Fig. 2.

FRONT SUSPENSION

6 mm Spring Pin Driver
07944 – 9350300
(For removal of front arm and pivot pipe.)

Driver Attachment
07945 – 3330100
[For installation of front hub bearing and oil seal. Used with 07949 – 6110000 (Fig. 10.)]

Front Shock Absorber Compressor
07959 – 3290000
(For disassembly and Installation of front shock absorber.)

Fig. 3.

Fig. 4.

Fig. 5.
Rotor Holder
07923 – 0010000
(For disassembly and installation of rotor retaining nut)

Rotor Puller
07933 – 0010000
(For removal of rotor)

Bearing Driver
07945 – 3330300
[For installation of crankshaft bearing. Used with 07949-6110000 (Fig. 10)]

Case Puller
07933 – 9500000
(For disassembly of R/L crankcase)
FRAME AND ENGINE

Driver Attachment Handle
07949 — 6110000 [Used with
07946 — 3600000 (Fig. 1),
07945 — 3330100 (Fig. 4),
07945 — 3330300 (Fig. 8) ]

Belt Converter

Spanner
Salsbury #602112
(For holding drive pulley)

BELT CONVERTER

Clutch Puller Tool
Salsbury #602090
(For drive pulley dismounting)

BELT CONVERTER

Taper Plug
Salsbury #703463
(For securing drive pulley)
BELT CONVERTER

Spider Installation Cup
Salsbury #704229
(For spider installation)

Fig. 14

Puller Plate
Salsbury #704233
(For disassembly of spider and disassembly of driven pulley)

Fig. 15

BELT CONVERTER

Screw (1/4 – 20 x 2 – 3/4)
Salsbury #900403
(For use of puller plate when disassembling spider)

Fig. 16

Step Plug
Salsbury #704232
(For disassembling of spider)

Fig. 17
BELT CONVERTER

Screw (1/2 - 20 x 5-1/2)
Salsbury #901836
(For spider installation)

Fig. 18

BELT CONVERTER

Spring Seating Tool
Salsbury #703446
(For seating of roller arm return spring)

Fig. 19

BELT CONVERTER

Special Screw
Salsbury #602114
(For securing of driven pulley)

Fig. 20

BELT CONVERTER

Nut Salsbury #901840
Flat Washer Salsbury #704236
(For disassembly and reassembly of driven pulley)

Fig. 21
BELT CONVERTER

Cam Retainer
Salsbury # 704237
(For retaining of driven pulley cam)

Fig. 22
A. REQUIRED MAINTENANCE SCHEDULE

The maintenance intervals shown in the following schedule are based upon average riding conditions. Machines subjected to severe use, or ridden in unusually dusty areas, require more frequent servicing.
Items marked * should be serviced by an authorized Honda dealer, unless the owner has proper tools and a HONDA ODYSSEY shop manual, and is mechanically proficient. Other maintenance items are simple to perform and may be serviced by the owner.

INITIAL SERVICE PERIOD (FIRST WEEK OR 15 HOURS OPERATION WHICHEVER COMES FIRST)

- *CONTACT POINTS AND IGNITION TIMING — Clean, check, and adjust or replace if necessary.
- *CARBURETOR — Check and adjust if necessary.
- *BELT CONVERTER — Check operation.
- POLYURETHANE FOAM AIR FILTER ELEMENT — Clean and oil. Service more frequently if operated in dusty areas.
- BRAKE CONTROL LINKAGE — Check linkage and adjust if necessary.
- TIRES — Inspect and check air pressure or circumference.
- ALL NUTS, BOLTS, AND OTHER FASTENERS — Check security and tighten if necessary.

REGULAR SERVICE PERIOD EVERY 3 MONTHS OF OPERATION

- SPARK PLUG — Clean and adjust gap, or replace if necessary.
- *CONTACT POINTS AND IGNITION TIMING — Clean, check, and adjust or replace if necessary.
- POLYURETHANE FOAM AIR FILTER ELEMENT — Clean and oil. Service more frequently if operated in dusty areas.
- *CARBURETOR — Check and adjust if necessary.
- *BELT CONVERTER — Check operation.
- BRAKE CONTROL LINKAGE — Check linkage and adjust if necessary.
- TIRES — Inspect and check air pressure or circumference.
- ALL NUTS, BOLTS, AND OTHER FASTENERS — Check security and tighten if necessary.
- *REDUCTION GEAR CASE — Check oil level and oil leakage.

EVERY YEAR

- FUEL LINE — Check.
- STEERING SYSTEM — Check operation and adjust if necessary.
- *BRAKE SHOES AND PADS — Inspect and replace if worn.
- SPARK ARRESTER — Check for carbon build-up and clean if necessary.
### B. LUBRICATION POINT

<table>
<thead>
<tr>
<th>LUBRICATION POINT</th>
<th>LUBRICANT</th>
<th>INTERVAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduction case</td>
<td>A.P.I. Service Classification SE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SAE 10W - 40 or SAE 10W - 30</td>
<td></td>
</tr>
<tr>
<td>Recoil Starter</td>
<td></td>
<td>Overhaul</td>
</tr>
<tr>
<td>Steering Shaft Bushings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lever Shafts</td>
<td></td>
<td>As necessary</td>
</tr>
<tr>
<td>Front Arms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>King-Pins</td>
<td>Multipurpose Grease</td>
<td></td>
</tr>
<tr>
<td>Front Hub Bearings</td>
<td></td>
<td>Overhaul</td>
</tr>
<tr>
<td>Seat Adjusters</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parking Brake Lever</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parking Brake Wire Guide</td>
<td></td>
<td>As necessary</td>
</tr>
<tr>
<td>Rear Brake Bearings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disc Brake Ratchet</td>
<td></td>
<td>Overhaul</td>
</tr>
<tr>
<td>Disc Pads</td>
<td>Silicon Grease KS 62M</td>
<td></td>
</tr>
<tr>
<td>Tie-Rod Ball Joints</td>
<td>Texaco Molytекс Grease 2</td>
<td>Overhaul</td>
</tr>
</tbody>
</table>

---

4-2
## A. Standard Tolerances and Wear Limit

<table>
<thead>
<tr>
<th>SUBJECT OR ITEM</th>
<th>MEASUREMENT</th>
<th>STANDARD</th>
<th>WEAR LIMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ENGINE</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cylinder I.D.</td>
<td>70.0 - 70.01</td>
<td>(2.7559 - 2.7563)</td>
<td>70.1 (2.7598)</td>
</tr>
<tr>
<td>Piston O.D.</td>
<td>69.93 - 69.95</td>
<td>(2.7531 - 2.7539)</td>
<td>69.9 (2.7480)</td>
</tr>
<tr>
<td>Piston pin hole I.D.</td>
<td>18.002 - 18.008</td>
<td>(0.7067 - 9.7090)</td>
<td>18.1 (0.7126)</td>
</tr>
<tr>
<td>Piston pin O.D.</td>
<td>17.992 - 18.000</td>
<td>(0.7083 - 0.7087)</td>
<td>17.98 (0.7079)</td>
</tr>
<tr>
<td>Piston ring side clearance</td>
<td>Top</td>
<td>0.045 - 0.075</td>
<td>(0.0018 - 0.0030)</td>
</tr>
<tr>
<td></td>
<td>2nd</td>
<td>0.025 - 0.055</td>
<td>(0.0010 - 0.0022)</td>
</tr>
<tr>
<td>Piston ring gap</td>
<td>Top</td>
<td>0.2 - 0.4</td>
<td>(0.0079 - 0.0157)</td>
</tr>
<tr>
<td></td>
<td>2nd</td>
<td>0.2 - 0.4</td>
<td>(0.0079 - 0.0157)</td>
</tr>
<tr>
<td>Connecting rod small end I.D.</td>
<td>21.997 - 22.009</td>
<td>(0.8666 - 0.8665)</td>
<td></td>
</tr>
<tr>
<td>Connecting rod big end axial clearance</td>
<td>0.2 - 0.4</td>
<td>(0.0079 - 0.0157)</td>
<td>0.6 (0.0236)</td>
</tr>
<tr>
<td>Connecting rod big end radial clearance</td>
<td>0.010 - 0.022</td>
<td>(0.0001 - 0.0009)</td>
<td>0.03 (0.0012)</td>
</tr>
<tr>
<td>Crankshaft runout</td>
<td>0.04 max.</td>
<td></td>
<td>(0.00157)</td>
</tr>
<tr>
<td>Carburetor</td>
<td>Float height</td>
<td>20</td>
<td>(0.79)</td>
</tr>
<tr>
<td>Carburetor</td>
<td>3-point gap</td>
<td>6/3000 rpm</td>
<td>(0.24)/3000 rpm</td>
</tr>
<tr>
<td>Carburetor</td>
<td>Point gap</td>
<td>0.3 - 0.4</td>
<td>(0.012 - 0.016)</td>
</tr>
<tr>
<td>Carburetor</td>
<td>Plug gap</td>
<td>0.7 - 0.8</td>
<td>(0.028 - 0.32)</td>
</tr>
<tr>
<td><strong>STEERING</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Throttle lever free play</td>
<td>5</td>
<td>(0.20)</td>
<td>2 - 10 (0.08 - 0.39)</td>
</tr>
<tr>
<td>Throttle lever full travel</td>
<td>36</td>
<td>(0.06)</td>
<td>31 - 41 (1.22 - 1.61)</td>
</tr>
<tr>
<td>Steering wheel force</td>
<td>0.5 - 1.1Kg</td>
<td>(1.10 - 24.26 lb.)</td>
<td></td>
</tr>
<tr>
<td>Shaft O.D.</td>
<td>17.957 - 18.0</td>
<td>(0.7070 - 0.7087)</td>
<td>17.7 (0.6968)</td>
</tr>
<tr>
<td>Column bushing I.D.</td>
<td>17.9 - 18.3</td>
<td>(0.7047 - 0.7205)</td>
<td>18.5 (0.7283)</td>
</tr>
<tr>
<td>Shaft bushing I.D.</td>
<td>18.06 - 18.081</td>
<td>(0.71102 - 0.7118)</td>
<td>18.2 (0.7165)</td>
</tr>
<tr>
<td><strong>FRAME</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shock absorber spring free length</td>
<td>229.4</td>
<td>(9.03)</td>
<td>205 (8.07)</td>
</tr>
<tr>
<td>Front arm I.D.: Pivot pipe</td>
<td>Front arm I.D.: Pivot pipe</td>
<td>42.58 - 42.62</td>
<td>(1.6764 - 1.6780)</td>
</tr>
<tr>
<td></td>
<td>King-pin</td>
<td>14.03 - 14.06</td>
<td>(0.5524 - 0.5536)</td>
</tr>
<tr>
<td></td>
<td>Tog-in</td>
<td>8</td>
<td>(0.315)</td>
</tr>
<tr>
<td></td>
<td>Pivot pipe O.D.</td>
<td>42.47 - 42.50</td>
<td>(1.6721 - 1.6732)</td>
</tr>
<tr>
<td></td>
<td>King-pin O.D.</td>
<td>13.97 - 13.98</td>
<td>(0.5600 - 0.5604)</td>
</tr>
<tr>
<td><strong>REAR WHEEL AXLE</strong></td>
<td>Rear wheel axle bend</td>
<td>3.0</td>
<td>(0.1181)</td>
</tr>
<tr>
<td><strong>BRAKE</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brake lever free play</td>
<td>3</td>
<td>(0.12)</td>
<td>1 - 5 (0.04 - 0.20)</td>
</tr>
<tr>
<td>Brake lever full travel</td>
<td>70</td>
<td>(2.76)</td>
<td>62 - 78 (2.44 - 3.07)</td>
</tr>
<tr>
<td>Brake lever remaining effective travel</td>
<td>above 23 (above 0.90)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parking brake</td>
<td>1 - 5 notches</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disc runout</td>
<td>0.3</td>
<td>(0.0118)</td>
<td></td>
</tr>
<tr>
<td>Disc thickness</td>
<td>3.2</td>
<td>(0.1260)</td>
<td>3.0</td>
</tr>
<tr>
<td>Brake lining thickness</td>
<td>4.25</td>
<td>(0.1673)</td>
<td>1.5</td>
</tr>
<tr>
<td>Brake drum I.D.</td>
<td>139.9 - 140.1</td>
<td>(5.5079 - 5.5157)</td>
<td>140.6 (5.5354)</td>
</tr>
</tbody>
</table>
### B. Torque Specifications

<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>THREAD DIA.</th>
<th>TORQUE</th>
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<tbody>
<tr>
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<td></td>
<td></td>
<td>M12</td>
<td>Kg - cm</td>
</tr>
<tr>
<td>Engine</td>
<td>AC Generotor rotor</td>
<td></td>
<td></td>
<td>450 - 500</td>
</tr>
<tr>
<td></td>
<td>Cylinder head flanged nut</td>
<td></td>
<td>M6</td>
<td>100 - 130</td>
</tr>
<tr>
<td></td>
<td>Cylinder head special nut</td>
<td></td>
<td>M8</td>
<td>200 - 250</td>
</tr>
<tr>
<td></td>
<td>Spark plug</td>
<td></td>
<td>M14</td>
<td>150 - 200</td>
</tr>
<tr>
<td></td>
<td>Cylinder head sealing bolt</td>
<td></td>
<td>M14</td>
<td>200 - 300</td>
</tr>
<tr>
<td></td>
<td>Crankcase retaining bolt</td>
<td></td>
<td>M6</td>
<td>80 - 120</td>
</tr>
<tr>
<td></td>
<td>Recoil starter rope guide nut</td>
<td></td>
<td>M14</td>
<td>30 - 40</td>
</tr>
<tr>
<td></td>
<td>Engine hanger bolt</td>
<td></td>
<td>M10</td>
<td>350 - 430</td>
</tr>
<tr>
<td>Carburetor</td>
<td>Insulator band</td>
<td></td>
<td>M5</td>
<td>50 - 70</td>
</tr>
<tr>
<td>Muffler</td>
<td>Retaining nut</td>
<td></td>
<td>M8</td>
<td>150 - 200</td>
</tr>
<tr>
<td></td>
<td>Retaining bolt</td>
<td></td>
<td>M8</td>
<td>190 - 250</td>
</tr>
<tr>
<td>Reduction unit</td>
<td>Reduction cover retaining bolt</td>
<td></td>
<td>M8</td>
<td>190 - 250</td>
</tr>
<tr>
<td></td>
<td>Oil check bolt</td>
<td></td>
<td>M8</td>
<td>70 - 120</td>
</tr>
<tr>
<td></td>
<td>Ramp plate mounting screw</td>
<td></td>
<td>M8</td>
<td>110 - 140</td>
</tr>
<tr>
<td></td>
<td>Roller arm retaining bolt</td>
<td></td>
<td>M8</td>
<td>70 - 100</td>
</tr>
<tr>
<td></td>
<td>Driven pulley retaining bolt</td>
<td></td>
<td>M8</td>
<td>230 - 310</td>
</tr>
<tr>
<td></td>
<td>Drive pulley retaining bolt</td>
<td></td>
<td>M12</td>
<td>500 - 700</td>
</tr>
<tr>
<td>Steering and front suspension</td>
<td>Lever to shaft</td>
<td></td>
<td>M5</td>
<td>40 - 80</td>
</tr>
<tr>
<td></td>
<td>Lever shaft to arm</td>
<td></td>
<td>M5</td>
<td>40 - 80</td>
</tr>
<tr>
<td></td>
<td>Steering wheel and shaft</td>
<td></td>
<td>M12</td>
<td>350 - 450</td>
</tr>
<tr>
<td></td>
<td>Ball joint and front arm</td>
<td></td>
<td>M10</td>
<td>350 - 430</td>
</tr>
<tr>
<td></td>
<td>Tie-rod lock nut</td>
<td></td>
<td>M10</td>
<td>350 - 430</td>
</tr>
<tr>
<td></td>
<td>Front shock absorber (Top)</td>
<td></td>
<td>M12</td>
<td>400 - 500</td>
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<td></td>
<td>Front shock absorber and front arm (Bottom)</td>
<td></td>
<td>M10</td>
<td>350 - 430</td>
</tr>
<tr>
<td></td>
<td>King-pin lock nut</td>
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<td>M8</td>
<td>150 - 200</td>
</tr>
<tr>
<td></td>
<td>Front hub lock nut</td>
<td></td>
<td>M8</td>
<td>190 - 250</td>
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<tr>
<td></td>
<td>Front rim</td>
<td></td>
<td>M8</td>
<td>190 - 250</td>
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<tr>
<td></td>
<td>Front tire</td>
<td></td>
<td>M8</td>
<td>190 - 250</td>
</tr>
<tr>
<td></td>
<td>Front hub</td>
<td></td>
<td>M14</td>
<td>600 - 800</td>
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<td></td>
<td>Front arm stopper</td>
<td></td>
<td>M8</td>
<td>190 - 250</td>
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<td>Frame</td>
<td>Rear rim</td>
<td></td>
<td>M8</td>
<td>190 - 250</td>
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<tr>
<td></td>
<td>Rear hub lock nut</td>
<td></td>
<td>M8</td>
<td>190 - 250</td>
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<td></td>
<td>Rear hub</td>
<td></td>
<td>M14</td>
<td>600 - 800</td>
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<tr>
<td></td>
<td>Rear brake bearing holder</td>
<td></td>
<td>M8</td>
<td>190 - 250</td>
</tr>
<tr>
<td></td>
<td>Rear tire</td>
<td></td>
<td>M8</td>
<td>190 - 250</td>
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<td></td>
<td>Brake arm</td>
<td></td>
<td>M6</td>
<td>70 - 120</td>
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<td></td>
<td>Brake caliper pin</td>
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<td>M8</td>
<td>190 - 250</td>
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<td>Parking brake</td>
<td></td>
<td>M8</td>
<td>190 - 250</td>
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<tr>
<td>Fuel system</td>
<td>Fuel tank to guard pipe</td>
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<td>M6</td>
<td>70 - 120</td>
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<tr>
<td></td>
<td>Fuel valve</td>
<td></td>
<td>M6</td>
<td>80 - 100</td>
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<tr>
<td></td>
<td>Fuel pump</td>
<td></td>
<td>M6</td>
<td>70 - 120</td>
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<td>SUBJECT</td>
<td>ITEM</td>
<td>DESCRIPTION</td>
<td>THREAD DIA.</td>
<td>TORQUE</td>
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<td>-------------</td>
<td>-------------</td>
<td>--------</td>
</tr>
<tr>
<td>FRAME</td>
<td>Guard pipe to roll bar</td>
<td>M8</td>
<td>190 – 250</td>
<td>14 – 18</td>
</tr>
<tr>
<td>Frame Parts</td>
<td>Guard pipe:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Front</td>
<td>M8</td>
<td>190 – 250</td>
<td>14 – 18</td>
</tr>
<tr>
<td></td>
<td>Rear</td>
<td>M8</td>
<td>190 – 250</td>
<td>14 – 18</td>
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<tr>
<td></td>
<td>Roll bar to rear roll bar</td>
<td>M8</td>
<td>190 – 250</td>
<td>14 – 18</td>
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<td></td>
<td>Rear roll bar</td>
<td>M8</td>
<td>190 – 250</td>
<td>14 – 18</td>
</tr>
<tr>
<td></td>
<td>Rear roll bar to guard pipe</td>
<td>M8</td>
<td>190 – 250</td>
<td>14 – 18</td>
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<tr>
<td></td>
<td>Front bumper</td>
<td>M8</td>
<td>190 – 250</td>
<td>14 – 18</td>
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<td></td>
<td>Seat back to adjuster</td>
<td>M8</td>
<td>150 – 200</td>
<td>11 – 15</td>
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<tr>
<td></td>
<td>Adjuster cover</td>
<td>M6</td>
<td>70 – 120</td>
<td>5 – 9</td>
</tr>
<tr>
<td></td>
<td>Seat cushion stay</td>
<td>M8</td>
<td>190 – 250</td>
<td>14 – 18</td>
</tr>
<tr>
<td></td>
<td>Seat cushion</td>
<td>M6</td>
<td>70 – 120</td>
<td>5 – 9</td>
</tr>
<tr>
<td></td>
<td>Adjuster</td>
<td>M8</td>
<td>190 – 250</td>
<td>14 – 18</td>
</tr>
<tr>
<td></td>
<td>Seat cushion to stay</td>
<td>M6</td>
<td>70 – 120</td>
<td>5 – 9</td>
</tr>
<tr>
<td></td>
<td>Seat belt</td>
<td></td>
<td>300 – 350</td>
<td>22 – 25</td>
</tr>
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<td></td>
<td>Drive belt cover</td>
<td>M6</td>
<td>70 – 120</td>
<td>5 – 9</td>
</tr>
<tr>
<td></td>
<td>Pulley cover</td>
<td>M6</td>
<td>70 – 120</td>
<td>5 – 9</td>
</tr>
<tr>
<td>Engine mounting</td>
<td>Engine rubber mounting</td>
<td>M6</td>
<td>70 – 120</td>
<td>5 – 9</td>
</tr>
<tr>
<td></td>
<td>Engine rubber mounting to engine bed</td>
<td>M10</td>
<td>350 – 430</td>
<td>25 – 31</td>
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### B. General Specifications

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>SPECIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall length</td>
<td>2,095 mm (82.48 in.)</td>
</tr>
<tr>
<td>Overall width</td>
<td>1,230 mm (48.43 in.)</td>
</tr>
<tr>
<td>Overall height</td>
<td>1,525 mm (60.04 in.)</td>
</tr>
<tr>
<td>Wheel base</td>
<td>1,435 mm (56.50 in.)</td>
</tr>
<tr>
<td>Track front</td>
<td>930 mm (36.61 in.)</td>
</tr>
<tr>
<td>Track rear</td>
<td>950 mm (37.40 in.)</td>
</tr>
<tr>
<td>Ground clearance</td>
<td>140 mm (5.51 in.)</td>
</tr>
<tr>
<td>Min. turning circle radius</td>
<td>4.3 m (17.39 ft.)</td>
</tr>
</tbody>
</table>

**WEIGHT**

<table>
<thead>
<tr>
<th>Dry weight distribution</th>
<th>FRONT</th>
<th>65 Kg (143.4 lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>REAR</td>
<td>115 Kg (253.5 lbs)</td>
</tr>
<tr>
<td>Max. laden weight</td>
<td>265 Kg (584.3 lbs)</td>
<td></td>
</tr>
</tbody>
</table>

**EFFICIENCY**

| Max. stabilized inclination, right/left | 53° |
| Max. climbing angle                  | 35° |
| Stopping distance                    | 20 m (at 50 Km/h) |
|                                      | 32.8 ft. (at 31.25 mph) |

**ENGINE**

<table>
<thead>
<tr>
<th>MODEL</th>
<th>FL 250E</th>
</tr>
</thead>
<tbody>
<tr>
<td>TYPE</td>
<td>Air-cooled, 2-stroke</td>
</tr>
<tr>
<td>Cylinder arrangement</td>
<td>Single-cylinder 15° inclined from vertical</td>
</tr>
<tr>
<td>Bore and Stroke</td>
<td>70.0 x 64.4 mm (2.756 x 2.535 in.)</td>
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<tr>
<td>Displacement</td>
<td>248 cc (15.1 cu. in.)</td>
</tr>
<tr>
<td>Compression Ratio</td>
<td>6.6</td>
</tr>
<tr>
<td>Compression Pressure</td>
<td>9 Kg/cm² /800 rpm</td>
</tr>
<tr>
<td>Fuel</td>
<td>Gasoline 20 : oil 1 (mixed)</td>
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<tr>
<td>Ignition timing</td>
<td>5° BTDC</td>
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</table>

<table>
<thead>
<tr>
<th>Port timing</th>
<th>Intake</th>
<th>Open</th>
<th>80° BTDC</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Close</td>
<td>80° ATDC</td>
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<tr>
<td>Exhaust</td>
<td>Open</td>
<td>87° BBDC</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Close</td>
<td>87° ABDC</td>
<td></td>
</tr>
<tr>
<td>Scavenge</td>
<td>Open</td>
<td>60° BBDC</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Close</td>
<td>60° ABDC</td>
<td></td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>SPECIFICATION</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-----------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Idle speed</td>
<td>1,500 rpm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Valve mechanism</td>
<td>Piston valve type</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lubrication system</td>
<td>Forced and wet sump</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carburetor type</td>
<td>PW type</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Choke system</td>
<td>Starter valve system</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air cleaner type</td>
<td>Semi-dry type</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fuel pump type</td>
<td>Diaphragm type</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Belt converter</td>
<td>SALSBURY'S Torque sensitive belt converter</td>
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<td></td>
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<tr>
<td>Engine dry weight</td>
<td>22 Kg (48.51 lbs.)</td>
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<tr>
<td>Fuel tank</td>
<td>12 lit. (0.317 US gal., 0.264 Imp. gal.)</td>
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<tr>
<td>Reduction unit</td>
<td>0.5 lit. (1.057 US pt., 0.88 Imp. pt.)</td>
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<tr>
<td>Starting system</td>
<td>Recoil starter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stopping system</td>
<td>Ground switch</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ignition system</td>
<td>Flywheel magneto</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generator</td>
<td>AC Generator</td>
<td></td>
<td></td>
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<tr>
<td>Spark plug</td>
<td>NGK B7ES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spark plug gap</td>
<td>0.7 – 0.8 mm (0.0276 – 0.0315 in.)</td>
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<tr>
<td>Max. turning angle, right/left</td>
<td>45°</td>
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<tr>
<td>Arm ratio (Knuckle arm length / center arm length)</td>
<td>1.7</td>
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<tr>
<td>Steering angle inside</td>
<td>28°</td>
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<td></td>
</tr>
<tr>
<td>Steering angle outside</td>
<td>20°</td>
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<tr>
<td>Front</td>
<td>Trailing arm type</td>
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<tr>
<td></td>
<td>Coil spring</td>
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<td></td>
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<tr>
<td>Rear</td>
<td>Wheel axial type</td>
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<td></td>
</tr>
<tr>
<td>Front shock absorber</td>
<td>Coil spring type</td>
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<td></td>
</tr>
<tr>
<td>Side slip (ridden)</td>
<td>0 mm (0 in.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Toe-in</td>
<td>8 mm (0.315 in.)</td>
<td></td>
<td></td>
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<tr>
<td>Camber</td>
<td>1°</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caster</td>
<td>8°</td>
<td></td>
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</tr>
<tr>
<td>King pin angle</td>
<td>8°</td>
<td></td>
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<tr>
<td>Side off set</td>
<td>9 mm (0.354 in.)</td>
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<tr>
<td>Caster trail</td>
<td>50 mm (1.969 in.)</td>
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<tr>
<td>Rear</td>
<td>Side slip (ridden)</td>
<td>0 mm (0 in.)</td>
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<tr>
<td></td>
<td>Toe-in</td>
<td>0 mm (0 in.)</td>
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<tr>
<td></td>
<td>Camber</td>
<td>0°</td>
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<td>DESCRIPTION</td>
<td>SPECIFICATION</td>
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<td>----------------------------------</td>
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<tr>
<td><strong>BRAKES</strong></td>
<td></td>
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</tr>
<tr>
<td>Main brake</td>
<td>Self-adjusting cable actuated disc</td>
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<tr>
<td>Parking brake</td>
<td>Cable actuated leading-trailing shoe and drum</td>
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<tr>
<td>Disc effective diameter</td>
<td>220 mm (8.661 in.)</td>
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<tr>
<td>Parking brake drum diameter</td>
<td>140 mm (5.512 in.)</td>
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<tr>
<td>Rim, width x diameter,</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>front</td>
<td>140 x 203 mm (5.51 x 8 in.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>rear</td>
<td>210 x 203 mm (8.27 x 8 in.)</td>
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<tr>
<td><strong>TIRES</strong></td>
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<tr>
<td>Tire, O.D. x width x I.D.,</td>
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<tr>
<td>front</td>
<td>508 x 178 – 203 mm (20 x 7 – 8 in.) (2 ply)</td>
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</tr>
<tr>
<td>rear</td>
<td>559 x 280 – 203 mm (22 x 11 – 8 in.) (0 ply)</td>
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<tr>
<td>Pressure</td>
<td></td>
<td></td>
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<tr>
<td>front</td>
<td>0.35 Kg/cm² (5.0 psi)</td>
<td></td>
<td></td>
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<tr>
<td>rear</td>
<td>0.21 Kg/cm² (3.0 psi)</td>
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<tr>
<td><strong>LIGHTS</strong></td>
<td></td>
<td></td>
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<tr>
<td>Headlight</td>
<td>6 V – 35 W</td>
<td></td>
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</tr>
</tbody>
</table>
Before removing, make sure to perform the following operations:
- Remove the seat back.
- Set the parking brake.
- Drain the fuel line and carburetor.

Remove in 1, 2, 3 sequence.

1. ROLL BAR
2. PULLEY COVER
3. MUFFLER ASSY.
4. AIR CLEANER ASSY.
5. FUEL LINE (at carburetor side)
6. DRIVE BELT COVER
7. CARBURETOR (with connecting tube)
8. DRIVE BELT
   - Removal, see BELT CONVERTER sec.
9. VACUUM TUBE
10. ENGINE HANGER BOLT
    350 - 430 Kg-cm
    (25 - 31 lb-ft)
11. GROUND WIRE
12. WIRE CONNECTORS
13. PARKING BRAKE

Loosen:
- 190 - 250 Kg-cm
- (14 - 18 lb-ft)
- 30 - 40 Kg-cm
- (2 - 3 lb-ft)
A. AIR CLEANER & MUFFLER

Fig. 1 AIR CLEANER DISASSEMBLY/REASSEMBLY

SPARK ARRESTER
- Decarbonizing, Fig. 4

PROTECTOR

MUFFLER
- Decarbonizing, Fig. 4

190 - 250 Kg-cm
(14 - 18 lb-ft)

BRACKET

EXHAUST PIPE SPRING

Fig. 2 MUFFLER DISASSEMBLY/REASSEMBLY
(1) Wash in clean stoddard solvent.
(2) Dry thoroughly.
(3) Soak in clean gear oil (SAE 80 – 90) until saturated.
(4) Squeeze out excess oil.

Fig. 3  Air Cleaner Element Cleaning

(1) Use propane torch to burn off oil from carbon deposits.

**WARNING**
Do not use torch near flammable material.

**CAUTION**
Do not use oxyacetylene torch to burn off oil.

(2) Hold muffler in vertical position and tap it on a wood block to shake out carbon deposits.

(3) Clean spark arrester with wire brush.

Fig. 4  Muffler and Spark Arrester Decarbonizing
B. CARBURETOR

NOTE

1. Before disassembly, clean around carburetor and be sure to drain.
2. Before assembly, clean carburetor and related parts using compressed air.

Fig. 1 Carburator Disassembly/Reassembly
CAUTION
Carefully handle jets, needles and other small parts.

SEALING BOLT

BAFFLE PLATE

MAIN JET (#120)

JET HOLDER

JET NEEDLE

SLOW JET (#58)

VALVE SEAT SET PLATE
- Do not install upside down.

FLOAT VALVE
- Check for wear or breakage and replace if necessary.

VALVE SEAT

FLOAT SET
- Inspection, Fig. 3
- Adjustment, Fig. 4
- Check for proper operation.
- Replace any damaged or leaking float.

NOTE
- Bend up lock tabs to secure jet needle.

- Blow jets to check for clogging.

Fig. 2 Float Chamber Disassembly/Reassembly
① Place in upright position

② When the float arm tang just closes the float valve, without compressing the spring loaded plunger, measure the float height.

Standard: 20 mm (0.79 in.)

Fig. 3 Float Height Inspection

- Carefully bend the float arm tang to adjust to proper float level.

Fig. 4 Float Height Adjustment

**CAUTION**

- Before adjusting, perform the following steps.
  - Attach a suitable tachometer.
  - Set the parking brake.
  - Check to see that the ignition system and engine compression are in good condition.
  - Do not compensate for other faults by carburetor adjustment.

① Start the engine and allow to idle until operating temperature is reached.
② Adjust the throttle stop screw at approx. 1,500 rpm.
③ Turn the air screw clockwise until the engine begins to miss or decrease in speed.
④ Turn the air screw counterclockwise until the engine begins to miss or decrease in speed.
⑤ Set the air screw exactly between these two extreme positions. The correct setting will be found to be approximately 2 turns open from the fully closed position.
⑥ If the idle speed changes, readjust the throttle stop screw.

Specification: 1,500 rpm ± 150 rpm

Fig. 5 Idle Speed Adjustment
C. RECOIL STARTER

- Note how to knot.

CASE

RETURN SPRING

WARNING
Be careful not to allow spring to jump out.

ROPE
- Check for wear or damage.

- Note how to knot.

HANDLE

ROPE GUIDE NUT

ROPE GUIDE TUBE

ROPE GUIDE

PULLEY

GREASE

FRICTION PLATE

FRICTION SPRING

RATCHET

GREASE

Fig. 1 Recoil Starter Disassembly
WARNING Use gloves to assemble the recoil starter.

NOTE Turn the case to wind the spring in.

1. Set the return spring inside the case.

2. Wind the starter rope around the pulley.

3. Take the rope end out of the slot.

4. Set the pulley inside the case engaging the spring end and projection on the pulley as shown on page 8-6.

5. Wind pulley 2½ turns.

6. Knot rope end as shown on page 8-6.

7. After assembling, check that the starter works properly.

Fig. 2 Recoil Starter Reassembly
D. GENERATOR & IGNITION SYSTEM

WOODRUFF KEY
- Install as shown.

SPARK PLUG
(B7ES)
150 – 200 Kg-cm
(11 – 15 lb-ft)
- Inspection/Cleaning, Fig. 5

NOISE SUPPRESSOR

IGNITION COIL ASSY.
- Inspection, Fig. 3, 4

CONTACT BREAKER ASSY.
- Inspection, Fig. 7 and 8

STATOR
- Inspection, Fig. 6

OIL FELT
- Check for wear

SPARK ADVANCER ASSY.
- Check for proper operation.

ROTOR
- Make sure not to interfere with stator.

STARTER PULLEY

450 – 500 Kg-cm
(33 – 36 lb-ft)

Fig. 1 Generator/Ignition System Disassembly/Reassembly

Fig. 2 Rotor Removal

CLUTCH OUTER HOLDER
(Tool No. 07923 - 0010000)

FLYWHEEL PULLER
(Tool No. 07933 - 0010000)
- Connect wires in accordance with instructions provided with the service tester.
- Replace if no continuity.

**Fig. 3 Ignition Coil Continuity Test**

1. Connect wires in accordance with instructions provided with the service tester.
2. Measure stable max. distance jumping across 3-point spark gap.

<table>
<thead>
<tr>
<th>Standard</th>
<th>6 mm (0.24 in.) at 3,000 rpm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service limit</td>
<td>5 mm (0.20 in.) at 500 rpm</td>
</tr>
</tbody>
</table>

**NOTE**
Connect high tension cable to tester in reverse direction.

**Fig. 4 Ignition Coil Performance Test**

- Measure plug gap.

| Standard | 0.7 – 0.8 mm (0.028 – 0.032 in.) |

- Clean spark plug with plug cleaner or wire brush.

**Fig. 5 Spark Plug Inspection/Cleaning**
- Check for breakage.

Fig. 6 Stator Cable Continuity Test

- Check for damage or burning.
- Polish with emery cloth or point file if burned, pitted or worn.

Fig. 7 Contact Breaker Inspection

- Replace if beyond specification.

<table>
<thead>
<tr>
<th>Standard</th>
<th>0.3 – 0.4 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(0.012 – 0.016 in.)</td>
</tr>
<tr>
<td>Service limit</td>
<td>0.2 – 0.8 mm</td>
</tr>
<tr>
<td></td>
<td>(0.008 – 0.024 in.)</td>
</tr>
</tbody>
</table>

Fig. 8 Point Gap Inspection
1. Remove the recoil starter and the starter pulley.

2. Connect the black lead to the test light lead and the other test light lead to the positive battery terminal, and ground the negative terminal.

3. Turning the rotor clockwise, the light should become dim when the "F" mark and the matching mark align.

4. To adjust, slightly loosen screw (A), move rotating plate in either direction using a standard screwdriver inserted in the cutout (B) and retighten screw (A) where the test light starts to dim.

Fig. 9 Ignition Timing Static Adjustment

1. Remove the recoil starter.

2. Connect the wires in accordance with the instructions provided with the service tester.

3. Start the engine by using a rope wound around the starter pulley. Check the ignition timing at idle.

Fig. 10 Ignition Timing Dynamic Inspection
NOTE:
Before disassembly, remove dust, dirt and mud from around the engine.

- Tighten equally in criss-cross pattern.

Fig. 1 Cylinder/Piston Disassembly/Reassembly
**NOTE**
Place a rag under the piston to keep the wrist pin clip from dropping into the crankcase.

![Fig. 2 Wrist Pin Clip Removal](image)

- Remove from direction opposite of gap.

**CAUTION**
Install marked side up.
Be careful to use the proper rings.
(Note sectional view.)

![Fig. 3 Piston Ring Disassembly/Reassembly](image)

**CAUTION**
Install the piston with the dowel pins facing toward the intake port.

![Fig. 4 Piston Installation](image)
- Decarbonize with a scraper, screwdriver or wire brush taking care not to score or scratch.

Fig. 5  Cylinder Head/Exhaust Port Decarbonizing

<table>
<thead>
<tr>
<th>Standard</th>
<th>69.93 – 69.95 mm (2.7531 – 2.7539 in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service limit</td>
<td>69.8 mm</td>
</tr>
<tr>
<td></td>
<td>(2.7480 in.)</td>
</tr>
</tbody>
</table>

Fig. 6  Piston O.D. Inspection

<table>
<thead>
<tr>
<th>Standard</th>
<th>70.0 – 70.01 mm (2.7559 – 2.7563 in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service limit</td>
<td>70.1 mm</td>
</tr>
<tr>
<td></td>
<td>(2.7598 in.)</td>
</tr>
</tbody>
</table>

Fig. 7  Cylinder I.D. Inspection
Check for carbon deposits.

Check for scores, cracks or carbon deposits.

Fig. 8  Piston Inspection

<table>
<thead>
<tr>
<th>Standard</th>
<th>Top</th>
<th>0.2 — 0.4 mm (0.0079 — 0.0157 in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2nd</td>
<td>0.2 — 0.4 mm (0.0079 — 0.0157 in.)</td>
</tr>
<tr>
<td>Service limit</td>
<td>Top</td>
<td>0.5 mm (0.0197 in.)</td>
</tr>
<tr>
<td></td>
<td>2nd</td>
<td>0.5 mm (0.0197 in.)</td>
</tr>
</tbody>
</table>

Fig. 9  Piston Ring Gap Inspection

<table>
<thead>
<tr>
<th>Standard</th>
<th>Top</th>
<th>0.045 — 0.075 mm (0.0018 — 0.0030 in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2nd</td>
<td>0.025 — 0.050 mm (0.0010 — 0.0022 in.)</td>
</tr>
<tr>
<td>Service limit</td>
<td>Top</td>
<td>0.09 mm (0.0035 in.)</td>
</tr>
<tr>
<td></td>
<td>2nd</td>
<td>0.07 mm (0.0028 in.)</td>
</tr>
</tbody>
</table>

Fig. 10  Piston Ring Side Clearance Inspection

<table>
<thead>
<tr>
<th>Standard</th>
<th>17.992 — 18.000 mm (0.7083 — 0.7087 in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service limit</td>
<td>17.98 mm (0.7079 in.)</td>
</tr>
</tbody>
</table>

Fig. 11  Wrist Pin O.D. Inspection
Fig. 12  Wrist Pin Hole I.D. Inspection

- Since the wrist pin and connecting rod are selective-fitted, the proper needle bearing should be selected in accordance with the following table.

<table>
<thead>
<tr>
<th>BEARING SELECTION TABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Con-rod dia.</td>
</tr>
<tr>
<td>---------------</td>
</tr>
<tr>
<td>1 notch</td>
</tr>
<tr>
<td>2 notches</td>
</tr>
<tr>
<td>3 notches</td>
</tr>
</tbody>
</table>

Fig. 13  Con-Rod Small End Bearing Selection

- Pull the recoil starter rope until the gauge needle reaches the highest reading.

CAUTION

To avoid compression leaks, tighten gauge securely in the spark plug hole.

CAUTION

Set parking brake.

NOTE

Before checking, make sure that the engine is warmed up and the throttle is fully opened.

- Low compression is usually caused by one of the following:
  - Defective or sticking piston ring.
  - A blown cylinder head gasket.

- Unusually high compression pressure is due to excessive carbon deposits in the combustion chamber or on the piston head.

- The engine must be disassembled for complete inspection or repair if the compression exceeds the limit.

Specified pressure:

9 Kg/cm² (129 psi) / 800 rpm

Fig. 14  Cylinder Compression Inspection
F. CRANKSHAFT & CRANKCASE

- Shaded parts

L CRANKCASE

80 - 120 Kg-cm (6 - 9 lb-ft)

CONNECTING ROD
- Inspection, Fig. 3 and 4

DOWEL PIN

BALL BEARING
- Inspection, Fig. 8

L CRANKSHAFT
- Check for scores and scratches.

NEEDLE BEARING
- Check for looseness.
- Selection, Fig. 7

R CRANKSHAFT
- Inspection, Fig. 5
- Removal, Fig. 2

CRANK PIN
- Press-fitted into
- R/L crankshaft.

R CRANKCASE
- Removal, Fig. 2

Fig. 1 Crankshaft/Crankcase Disassembly/Reassembly

- Tightening order
CASE PULLER
(Tool No. 07933 – 9500000)

- Used for R/L CRANKCASE pulling.

BEARING DRIVER
(Tool No. 07946 – 3330300)

Fig. 2 Crankshaft/Crankcase Disassembly/Reassembly
- Measure at two points in directions as shown with arrows.

<table>
<thead>
<tr>
<th>Standard</th>
<th>0.010 – 0.022 mm (0.0004 – 0.0009 in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service limit</td>
<td>0.03 mm (0.0012 in.)</td>
</tr>
</tbody>
</table>

Fig. 3 Connecting Rod Large End Radial Clearance Inspection

<table>
<thead>
<tr>
<th>Standard</th>
<th>0.2 – 0.4 mm (0.0079 – 0.0157 in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service limit</td>
<td>0.6 mm (0.0236 in.)</td>
</tr>
</tbody>
</table>

Fig. 4 Connecting Rod Large End Axial Clearance Inspection
Standard: Less than 0.04 mm (0.00157 in.)

Fig. 5 Crankshaft Runout Inspection

Standard: 21.997 – 22.009 mm (0.8660 – 0.8665 in.)

Fig. 6 Connecting Rod Small End I.D. Inspection

- Since the connecting rod large end and crank pin are selective-fitted, proper needle bearing should be replaced in accordance with the following table.

BEARING SELECTION TABLE

<table>
<thead>
<tr>
<th>Crank pin O.D.</th>
<th>2 notches</th>
<th>1 notch</th>
<th>Without notch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Without notch</td>
<td>Red</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 notch</td>
<td>Blue</td>
<td>Red</td>
<td></td>
</tr>
<tr>
<td>2 notches</td>
<td>White</td>
<td>Blue</td>
<td>Red</td>
</tr>
<tr>
<td>3 notches</td>
<td>White</td>
<td>Blue</td>
<td></td>
</tr>
</tbody>
</table>

Fig. 7 Con-Rod Large End Bearing Selection
Fig. 8 Ball Bearing Play Inspection

- Replace if excessively worn.
G. REDUCTION UNIT

**NOTE**
Refer to FRAME section to remove rear wheels, rear axle, brake drum and disc brake system.

- Before disassembly, drain reduction case.

---

**REDUCTION COVER**
- Note fixing direction.

**BALL BEARING**
- Inspection, Fig. 4
- Assembly, Fig. 3

**190 - 250 Kg-cm**
(14 - 18 lb-ft)

**REDUCTION GEAR**
- Check for wear.

**PRIMARY SHAFT**
- Check for scores or scratches.

**NEEDLE BEARING**
- Check for looseness.

**FLAT KEY**

**REDUCTION GEAR**
- Check for wear.

**DRIVE CHAIN**
- Check for wear.

**DRIVEN SPROCKET**
- Inspection, Fig. 5
- Check for wear.

**THRUST WASHER**
- Note installation direction.
- Grooved side must be facing the sprocket.

---

**OIL CHECK BOLT**
- 70 - 120 Kg-cm
  (5 - 9 lb-ft)

**ONE (1) CIRCLIP NEW**

---

**REDUCTION CASE**
- Replace

---

**Fig. 1 Reduction Unit Disassembly/Reassembly**

---

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NOTE

To assemble, follow ①, ②, ③ .... in this sequence.

- After assembly, be sure that the chain rotates smoothly.

Fig. 2 Reduction Unit Reassembly

CAUTION

Install bearing equally by driving outer edge.

BEARING DRIVER
(Tool No. 07945 – 3330300)

Fig. 3 Ball Bearing Assembly
AXIAL PLAY

RADIAL PLAY

- Replace if excessively worn.

Fig. 4 Ball Bearing Play Inspection

(FINAL DRIVEN SPROCKET)

GOOD!

NO GOOD!

WEAR

Check the drive chain for wear or other defects if the sprockets are abnormal.

Fig. 5 Driven Sprocket Inspection
H. BELT CONVERTER

- For more detailed instructions, refer to SALSBURY's shop manual.

- When removing drive pulley from crankshaft, use tool provided by SALSBURY.

---

![Diagram of Honda FL 250 Engine Belt Converter](image)

**DRIVE PULLEY**

- **NOTE:** Check position prior to disassembly.

- **HUB**

- **GROOVE**

- **MOUVABLE FACE**

- **FIXED FACE**

- **ROLLER ARM**
  - Check for wear

- **SPIDER**

- **RAMP PLATE**

- **CUP WASHER**

- **LOCK PLATE**
  - **CAUTION:** Bend up the lock tabs to secure the ramp plate mounting bolts.

- **5 - 7 lb-ft (70 - 100 Kg-cm)**

- **500 - 700 Kg-cm (35 - 50 lb-ft)**

---

**DRIVEN PULLEY**

- **NOTE:** Check position prior to disassembly.

- **HUB**

- **GROOVE**

- **MOUVABLE FACE**

- **FIXED FACE**

- **SPRING**

- **RAMP**

- **SHOE RAMP BUTTON**

- **TORQUE BRACKET**
  - **NOTE:** Do not lubricate during reassembly.

- **8 - 10 lb-ft (110 - 140 Kg-cm)**

- **230 - 310 Kg-cm (17 - 22 lb-ft)**

---

**Fig. 1 Belt Converter Disassembly / Reassembly**
1. Remove the mounting bolt, lock washer, flat washer, and safety cup.

2. Apply grease to threads of the clutch puller tool and insert it fully into the drive pulley bore and apply torque with 1-1/4 inch wrench, while holding the drive pulley with the special spanner. It may be necessary to inflict a slight impact on the head of the puller tool with a hammer to unseat the taper and remove the drive pulley.
1. Using a plastic mallet, insert the taper plug into the taper of the drive pulley with a slight impact and place the taper plug flats in a bench vise.

2. Bend the tabs of the lock plate away from the heads of the three 1/4-20 self-tapping ramp plate mounting screws with a chisel.

3. Remove the three ramp plate mounting screws with a 3/8 inch wrench. Remove the lock plate and the three flat washers.

4. Remove the snap ring from the hub with snap ring pliers. If the snap ring is tight, place the spider installation cup over the hub and onto the snap ring and hit the ring sharply with a hammer until the snap ring loosens.

5. Remove the snap ring and the ramp plate.

6. Disengage the six roller arm return springs with a flat blade screwdriver.

7. Bend the lock plate tabs away from the heads of the three 1/4-20 arm clamp mounting bolts with a chisel.

8. Remove the arm clamp mounting bolts with a 7/16 inch or 11 mm open end wrench.

9. Remove the lock tabs, the three arm pivot pin clamps and the three roller arms/springs/pins and bushing subassemblies. The drive pulley is now fully disassembled for normal servicing.

Fig. 3 DRIVE PULLEY DISASSEMBLY
Spider removal for servicing the fixed face and hub, movable face assembly or the spider can be performed as per detailed instructions. However, it is impractical in most cases, i.e. if the movable face is worn, dictating replacement, the fixed face and hub will probably be in the same condition. It is usually less expensive to replace the entire drive pulley when the faces require replacement.

Disassembly:
① Place the stepped thrust block into the threaded end of the drive hub, place the puller assembly into position (cupped side down) and run the three (1/4-20) puller bolts fully into the threaded holes in the spider with a 7/16 inch or 11 mm open end wrench.

② Grease the puller bolts and tighten them in a clockwise direction with a 1-1/8 wrench until the spider is free from the hub.

Reassembly:
If the spider has been removed for servicing and is to be reused, replace the movable face on the hub, place the spider in position (on the hub) and place the spider installation cup over the spider, cupped side down. Thread the 1/2-20 x 5-1/2 inch bolt through the flat washer and the cup into the threaded taper plug. Continue tightening with a 3/4 inch open end wrench until the cup bottoms out on the end of the hub. Be sure that, during this pressing operation, the spider pins are aligned with the mating bearing in the movable face. A constant alignment of pins to bearings can be achieved by raising the movable face up against the spider and placing a small wad of paper between the fixed and the movable faces.

Hydraulic Press Installation
Install the movable face on the hub, lay the spider in position and place this assembly on a flat plate under hydraulic ram. Do not use the tapered plug. Center spider installation cup over the spider and carefully apply hydraulic pressure on the cup until it bottoms out on the end of the hub, while maintaining spider pin/bearing alignment.

Fig. 4 SPIDER DISASSEMBLY/REASSEMBLY
1. Install the tapered plug into the tapered bore of the drive pulley and place the drive pulley assembly in a vise. Install the roller arms, springs, pins and bushing subassemblies into the appropriate nests in the movable face assembly.

2. Install the roller arm pivot pin clamps, lock plates and 1/4-20 bolts.

3. Tighten the 1/4-20 bolts to 110-140 Kg-cm (8-10 lb-ft) and bend the lock tabs against the bolt heads.

4. Engage the six roller arm return springs with the Spring Installation Tool, while the movable face is positioned against the spider. Placing a wad of paper between the fixed and the movable faces may be helpful in maintaining this position.

5. Install the ramp plate and the snap ring (recommended snap ring application is flattest surface up against the load side of the groove), noting that the three holes in the ramp plate are aligned with the holes in the spider.

6. Install the flat washers, the lock plate and the three 1/4-20 self tapping bolts. Torque the bolts to 110-140 Kg-cm (8-10 lb-ft) and bend the lock tabs against the bolt heads.

7. Mount the drive pulley on the crankshaft. Be certain that both tapers are clean and dry.

Fig. 5  DRIVE PULLEY REASSEMBLY
1. Disengage the torsion/compression spring end from the boss on the underside of the cam with a flat blade screwdriver. For total spring unloading repeat the preceding to disengage the spring from the second boss.

2. Place the head of the special screw (1/2-20) in a bench vise. Place the driven pulley on the special screw. Place the puller plate, flat washer and 1/2-20 nut on the special screw over the driven pulley.

3. Tighten 1/2-20 nut until the puller plate bottoms out on the end of the driven pulley hub. Install the cam retainer on the ends of the movable face casting and the cam.

4. Remove the 1/2-20 nut, flat washer and puller plate.

5. Remove the snap ring. Check for burrs at the snap ring groove. If present, carefully remove them with a flat file.

6. Replace the puller plate, flat washer and 1/2-20 nut (finger tight).

7. Remove the cam retainer. Loosen the 1/2-20 nut slowly until the cam is free of the hub. If the cam does not free itself, refer to paragraph 5.

8. Remove the Morton Key with diagonal pliers. Now all parts are loose and the movable face can be removed.

Fig. 6 DRIVEN PULLEY DISASSEMBLY/REASSEMBLY
1. Place the movable face over the fixed face hub. Install the Morton Key.

2. Place the head of the special 1/2-20 bolt in a bench vise. Place the fixed and the movable face assembly on the screw (fixed face down).

3. Hook the spring end over any one of the round bosses on the internal side of the cam. While holding the cam and spring, attach the other end of the spring to any one of the three spring anchor points in the movable face. Rotate the fixed face and hub until the key and the keyway are aligned. Place the puller plate, flat washer and 1/2-20 nut over the cam and depress the cam on the hub until it engages with the key, thus allowing the movable face to rotate without cam contact.

4. Rotate the movable face counterclockwise to achieve a full 180° spring preload and hold it in this position.

5. Continue depressing the cam until the puller plate has bottomed out on the end of the hub. Securely apply the cam retainer over the ends of the movable face casting and the cam.

6. Remove the 1/2-20 nut, flat washer and puller plate.

7. Install the snap ring (flattest surface up against the load side of the groove).

8. Remove the cam retainer. Be certain that the cam is against the snap ring.

9. When remounting, no special procedure is required. Do not forget the key.

**NOTE** Keep the pulleys clean. Never apply grease or oil.

**NOTE** When using the clutch puller tool or special screw (#602114), grease should be applied to the threads for ease of use and to extend their service life.

---

Fig. 7 DRIVEN PULLEY DISASSEMBLY/REASSEMBLY
WARNING
Before removing, set parking brake.

DRIVE PULLEY
DRIVEN PULLEY
DRIVE SHAFT
LOOSENED BELT
MOVABLE FACE

1. Turn the movable face 90° counterclockwise, pull it toward you to loosen the drive belt and push the loosened belt down toward the hub center.

2. While holding the movable face on described in step ①, take off the loosened belt from lower side with your other hand.

3. After removing the belt at the driven pulley side, remove the belt completely from the drive pulley.

4. When reassembling, after installing on the drive pulley, install the belt on the driven pulley from the upper side.

CAUTION
Replace the drive belt if it is excessively worn as shown below.

- A worn belt requires higher engine speed for engagement and reduces the vehicle speed.
- A worn belt will not move to the largest section of the drive pulley.

Fig. 8 Drive Belt Removal & Replacement
• At low speeds, the V-belt position of the drive pulley maintains a smaller diameter which with a corresponding larger diameter on the driven pulley, creates a "low gear" ratio.

• As speed increases, centrifugally actuated roller weights follow the contour of a bowl-shaped plate, closing the drive pulley sheaves and creating a "high gear" ratio (note the position of the cam actuator).

• If the load is increased (such as climbing a hill) after the vehicle is up to speed, the cam actuator on the driven pulley takes over and automatically "downshifts" without loss of engine speed. Then, the engine remains at power range for all but the most severe loads, at which time it will shift into peak torque range.

Fig. 9 How Salsbury Belt Converters Work
A. Steering

ENGINE STOP SWITCH
- Only lightly press-fitted

HEADLIGHT SWITCH
- Only lightly press-fitted

40 – 80 Kg-cm (3 – 6 lb-ft)

- Inspect serrations for wear or damage

THROTTLE LEVER

-DUST SEAL

THROTTLE SHAFT
- Installation, Fig. 3

ARM

LOCK NUT

ADJUSTING BOLT

GROMMET

THROTTLE CABLE
- Adjustment, Fig. 4

COLUMN BUSHING

GROMMET

- Inspect serrations for wear or damage

STEERING SHAFT
- Installation, Fig. 2

STEERING COLUMN
- Inspect, Fig. 6

STEERING SHAFT BUSHING

- See sec. 8. B.

TO DISC BRAKE
- See sec. 9. E.

TO CARBURETOR

Fig. 1 Steering Wheel and Column Disassembly/Reassembly
• Adjustment, Fig. 4

Fig. 2 Steering Shaft Installation

• Adjustment, see sec. 9. E. • Inspect, see sec. 9. E.

Fig. 3 Lever and Shaft Installation
Lever Free Play
- Adjust the lever with the adjusting bolt.

Lever Full Travel
1) Measure full travel as shown above.
2) To adjust, remove lever and adjust position as required. Then install the lever. See Fig. 3.

Service limit: 2 – 10 mm (0.08 – 0.39 in.)
Service limit 31 – 41 mm (1.22 – 1.61 in.)

Fig. 4 Throttle Lever Adjustment
Service limit : 17.7 mm (0.6968 in.)

Fig. 5 Steering Shaft O.D.

Service limit : 18.5 mm (0.7283 in.)

STEERING COLUMN BUSHING

Service limit : 18.2 mm (0.7165 in.)

STEERING SHAFT BUSHING

Fig. 6 Steering Column I.D.

1. Raise the front wheels off the ground.
2. Turn the steering wheel with a spring gauge and note the reading.
3. If the reading exceeds the service limit, inspect the steering shaft and the front hub.

Service limit : 0.5 - 1.1 Kg (1.10 - 2.42 lb)

Fig. 7 Steering Wheel Force Check
B. Front Suspension

- O-RING
  - Replace

- BUSHING

- FRONT ARM

- GREASE

- FRONT ARM STOPPER

- LOCKING PIN
  - Replace

- SPRING PIN

- CAP

- KING-PIN
  - Inspection, Fig. 11

- DUST-SEAL

- KING-PIN BOLT
  - Inspect splines for wear or damage

- TIE-ROD
  - Installation, Fig. 7
  - Adjustment, Fig. 12

- FRONT SHOCK ABSORBER
  - Disassembly, Fig. 4

- 190 – 250 Kg-cm (14 – 18 lb-ft)

- 400 – 500 Kg-cm (29 – 36 lb-ft)

- 350 – 430 Kg-cm (25 – 31 lb-ft)

- 150 – 200 Kg-cm (11 – 15 lb-ft)

- 350 – 430 Kg-cm (25 – 31 lb-ft)

- 600 – 800 Kg-cm (43 – 58 lb-ft)

- 190 – 250 Kg-cm (14 – 18 lb-ft)

- L. BALL JOINT
  - Installation, Fig. 7

- R. BALL JOINT
  - Replace

- FRONT WHEEL ASSY.
  - Disassembly, see sec. 9. D.

- FRONT HUB
  - Disassembly, Fig. 3
  - Installation, Fig. 6

Fig. 1 Front Suspension Removal/Installation
Fig. 2  Spring Pin Removal

- Apply a coat of sealant
- Tighten firmly
- Check for oil leakage

Fig. 3  Front Hub Disassembly

Fig. 4  Front Shock Absorber Disassembly
Fig. 5 Knuckle Installation

"L" BALL JOINT
- Install the ball joint with "L" mark toward center.
- Install tie-rod with groove toward outside.

Fig. 6 Front Hub Bearing and Oil Seal Installation

Fig. 7 Tie-Rod Installation
FREE LENGTH

<table>
<thead>
<tr>
<th>Standard</th>
<th>229.4 mm (8.03 in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service limit</td>
<td>205 mm (8.07 in.)</td>
</tr>
</tbody>
</table>

Fig. 8 Shock Absorber Spring Free Length

PIVOT PIPE

<table>
<thead>
<tr>
<th>Standard</th>
<th>42.58 – 42.62 mm (1.6764 – 1.6780 in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service limit</td>
<td>42.8 mm (1.6850 in.)</td>
</tr>
</tbody>
</table>

KING-PIN

<table>
<thead>
<tr>
<th>Standard</th>
<th>14.03 – 14.06 mm (0.5524 – 0.5535 in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service limit</td>
<td>14.15 mm (0.5570 in.)</td>
</tr>
</tbody>
</table>

Fig. 9 Front Arm I.D.
**Fig. 10** Pivot Pipe O.D.

<table>
<thead>
<tr>
<th>Standard</th>
<th>42.47 – 42.50 mm (1.6721 – 1.6732 in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service limit</td>
<td>42.3 mm (1.6653 in.)</td>
</tr>
</tbody>
</table>

**Fig. 11** King-Pin O.D.

<table>
<thead>
<tr>
<th>Standard</th>
<th>13.97 – 13.98 mm (0.5500 – 0.5504 in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service limit</td>
<td>13.9 mm (0.5472 in.)</td>
</tr>
</tbody>
</table>
1. Place the vehicle on level ground with the front wheels in a straight ahead position.

2. Mark the centers of the tires with chalk to indicate the center height of an axle.

3. Align the toe-in gauge with the marks on the tires as shown.

4. Check the readings on the scales of the gauges.

5. Slowly move the vehicle back and rotate the wheels 180° until the marks on the tires are aligned with the height of the gauge on the rear side.

6. Measure the toe-in on the rear part of the tires at the same points.

7. When the toe-in does not meet the specification, adjust it by changing each length of the tie rods equally while measuring the toe-in.

**Fig. 12  Toe-in Adjustment**

<table>
<thead>
<tr>
<th>Service limit</th>
<th>0 – 13 mm (0 – 0.51 in.)</th>
</tr>
</thead>
</table>
C. Rear Wheel Axle

REAR WHEEL ASSY.
- Disassembly/Reassembly, see sec. 9. D.
- Inspect the splines for wear or damage.

REDUCTION CASE
- Disassembly, see sec. 8. G.

REAR WHEEL AXLE
Removal:
1. Wheels
2. Rear hubs
3. Rear axle spacer and axle collar
4. Rear brake drum assembly
5. Rear wheel axle

- Inspection, Fig. 2

REAR BRAKE DRUM ASSY.
- Removal/Installation, see sec. 9. E.
- Inspect the splines for wear or damage

Fig. 1 Rear Wheel Axle Removal/Installation

190 - 250 Kg-cm (14 - 18 lb-ft)

600 - 800 Kg-cm (43 - 58 lb-ft)

190 - 250 Kg-cm (14 - 18 lb-ft)
Service limit: 3.0 mm (0.1181 in.)

Fig. 2 Rear Wheel Axle Bend
D. Wheel

190 - 250 Kg-cm (14 - 18 lb-ft)

SUPPORT PLATE

INNER RIM
- Inspect for damage

TIRE
- Inspect for wear, cuts, tears, or any other defects.
- Disassembly, Fig. 2
- Repair, Fig. 3 and 4
- Inflation, Fig. 6

OUTER RIM
- Inspect for damage

O-RING
- Replace
- Installation, Fig. 5

CAP

SUPPORT PLATE PATCH

VALVE
- Replace when removed
- Inspect for air leaks

CAUTION
After reassembling, check to see that the tire beads fit properly all the way around the rims.

Fig. 1 Wheel Disassembly/Reassembly

TIRE DISASSEMBLY TOOL
(Tool No. 07916-9180000)

WEIGHT

WHEEL RIM

BEAD

NOTE
If it is hard to remove the bead or if rust has formed on the bead, apply a coat of lubricant to the periphery of the rim before removing the tire. When reassembling, wipe off oil from the tire and the rim using a cloth.

Fig. 2 Tire Disassembly
Check tire tread for nails or other puncturing objects; chalk mark punctured area. Remove nails or puncturing objects.

Remove dirt and roughen punctured area with sandpaper or wire brush. Clean area with gasoline.

Apply rubber cement around torn area and allow it to dry. Remove the lining from the patch and center it over the puncture. Press the patch against the puncture using a special roller.

Remove nails or other puncturing objects.

Insert a rubber plug through the eye in the inserting needle.

Center the needle on the plug and insert until the plug is all the way in the tire; twist the needle several times.

Pull the needle straight out so that the plug is about 10 mm (0.394 in.) above tread surface. Trim the plug 2 mm (0.079 in.) above the surface. Repeat the above procedure if the puncture is large.

NOTE
This method is for emergency purposes only. After driving repair injury with cold patch.

Fig. 3 Cold-Patch Repair

Fig. 4 Rubber-Plug Repair
① Position the tire on the rim half which has the valve.

② Press the O-ring into place in the groove in the rim.

③ Install the other rim half. Be sure to align the rim bolt holes.

Fig. 5 O-Ring Installation

FRONT TIRE

REAR TIRE

Recommended Pressure

0.35 kg/cm² (5.0 Psi)

Max. Pressure

0.5 kg/cm² (7.0 Psi)

Min. Pressure

0.3 kg/cm² (4.5 Psi)

Standard Tire Circumference

1.57 m (61.8 in.)

Recommended Pressure

0.21 kg/cm² (3.0 Psi)

Standard Tire Circumference

1.84 m (72.5 in.)

Max. Circumference

2.00 m (78.7 in.)

Min. Circumference

1.80 m (71.0 in.)

Fig. 6 Tire Inflation
E. Brake

DISC BRAKE
- Removal/Installation, Fig. 1 and 4.
- Inspection, Fig. 7.
- Adjustment, Fig. 6.

BRAKE LEVER
- Inspection, Fig. 9.
- Adjustment, Fig. 11.

BRAKE DRUM
- Removal/Installation, Fig. 3.
- Inspection, Fig. 8.
- Installation, Fig. 5.

PARKING BRAKE
- Removal/Installation, Fig. 2.
- Inspection/Adjustment, Fig. 10.
BRAKE DISC
- Removal:
  Remove the reduction case and the disc.

- Installation, Fig. 4

NOTE
After tightening the lock plates with the nuts, bend the locking tabs.

LOCK PLATE

CALIPER BODY

O-RING
- Replace

PAD SET

- Replace pad A and B as a set, if necessary.
- When replacing only the pads, it is not necessary to disconnect the cable.

CALIPER PIN

CABLE
- Disassembly/Reassembly, see sec. 9. A.

CALIPER COVER

PAD B

PAD A

ADJUSTING RATCHET

RATCHET SPRING

CALIPER GASKET
- Replace

O-RING
- Replace

THRUST PLATE GUIDE

ADJUSTING BOLT
- Adjustment, Fig. 6.

BRAKE ARM
- Installation, Fig. 4.

NOTE
Do not disassemble.

190 - 250 Kg-cm (14 - 18 lb-ft)

Fig. 1 Disc and Caliper Disassembly/Reassembly
Fig. 2 Parking Brake Removal/Installation

9 - 18
Fig. 3 Rear Brake Removal/Installation
Fig. 4 Pad and Brake Arm Installation

- Install pad A with O-ring.

- Apply a coat of about 0.5g (0.018 oz) silicon grease KS62M to the outer circumference of the pad.

Fig. 6 Brake Arm Adjustment

- Squeeze the brake lever about ten times so that the automatic adjuster can operate properly. At this time slightly squeeze the lever as in bleeding operation. The lever free play is now automatically adjusted. See Fig. 9.
PADS
- Inspect for wear. Replace the pads as a set if they are worn to the red line on each pad.

DISC
- Inspect the disc surface for scores, cracks.

Using a dial indicator mounted as shown, rotate the disc slowly and check the runout.

<table>
<thead>
<tr>
<th>Service limit: 0.3 mm (0.0118 in.)</th>
</tr>
</thead>
</table>

- Replace the disc if it is worn beyond the service limit.

Using a micrometer, measure the disc thickness at four points and 30 mm (1.18 in.) from the outer edge of the disc.

**DISC THICKNESS**

<table>
<thead>
<tr>
<th>Standard</th>
<th>3.2 mm (0.126 in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service limit</td>
<td>3.0 mm (0.1181 in.)</td>
</tr>
</tbody>
</table>

- Replace the disc if its thickness is less than the service limit.

Fig. 7 Pad and Disc Inspection
- Inspect the brake lining for cracking, glazing, wear or contamination.

- Inspect the brake drum for scoring, cracks and concentricity.

**VERNIER CALIPER**

**DRUM I.D.**

**BRAKE DRUM**

Service limit : 140.6 mm (5.5354 in.)

**Fig. 8 Brake Drum and Lining Inspection**

**FREE PLAY**

**REMAINING LEVER EFFECTIVE TRAVEL**

**BRAKE LEVER SIDE**

**DISC CALIPER SIDE**

**Lining Thickness**

<table>
<thead>
<tr>
<th>Standard</th>
<th>4.25 mm (0.1673 in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service limit</td>
<td>1.5 mm (0.0591 in.)</td>
</tr>
</tbody>
</table>

**NOTE**

If unable to get the correct free play adjustment described above, readjust the cable length at the disc caliper side in the same way.

**Fig. 9 Remaining Brake Lever Effective Travel/Free Play Inspection**

- Lever Free Play
  1. Measure lever free play.
  2. To adjust, loosen the lock nut of the brake lever and turn the adjusting bolt.

**SERVICE LIMIT**

| Service limit | 1 – 5 mm (0.04 – 0.20 in.) |

- Pad-to-disc clearance is automatically adjusted.
① Raise the rear wheels off the ground.

② Pull the parking brake lever up 1 – 5 notches so that the rear wheels do not turn.

③ Release the brake lever and check that the rear wheels do not drag when turned.

④ If proper operation of the parking brake is not achieved by steps ② and ③ move the brake arm serration only one notch to adjust.

⑤ If the proper adjustment cannot be obtained with the serration moving, inspect the BRAKE DRUM, BRAKE SHOES and replace if necessary.

**SPECIFICATIONS**

1 – 5 notches. Brakes fully engaged.

---

**Fig. 10 Parking Brake Lever Inspection/Adjustment**

① Measure the distance as above when the lever is free.

② To adjust, remove the lever and reinstall so that the proper lever position is achieved.

Service limit : 62 – 78 mm (2.44 – 3.07 in.)

**Fig. 11 Brake Lever Full Travel Adjustment**
F. Fuel System

WARNING
Shut off fuel valve
Removal:
1. Roll bars
2. Rear fenders
3. Muffler assembly
4. Air cleaner assembly
5. Pulley cover
6. Drive belt cover
7. Reduction case mounting top bolts
8. Ignition coil assembly
9. Starter knob nut
10. Guard pipe
11. Cap
12. Fuel tank

Fig. 1 Fuel Tank Removal/Installation
- Replace when damaged or deteriorated.

Fig. 2 Fuel Pump Disassembly/Reassembly
- Replace when damaged or deteriorated.
G. Frame Parts

Fig. 1 Front Body Removal/Installation

190 - 250 Kg-cm (14 - 18 lb-ft)

70 - 120 Kg-cm (5 - 9 lb-ft)

190 - 250 Kg-cm (14 - 18 lb-ft)

MUD-GUARD

SEAT CUTION
- Removal/Installation, Fig. 2

UPPER FLOOR MAT

LOWER FLOOR MAT

FRONT FENDER

FRONT FLOOR

FRONT BUMPER

SKID PLATE
Fig. 2 Seat Back and Cushion Removal/Installation
Fig. 3 Rear Frame Parts Removal/Installation
H. Headlight

Fig. 1 Headlight Removal/Installation

Fig. 2 Headlight Adjustment

WARNING
Make sure that the parking brake is set to avoid forward motion.
SHOP MANUAL

HONDA

ODYSSEY FL 250

ADDENDUM

POSTING THE FL250 ADDENDUM

Follow these instructions so that your FL250 Shop Manual is in order when you need to refer to it:

Start at the front of your shop manual ——
1. Remove the old cover. Replace it with the new cover (6295001).
2. Remove the old Table of Contents. Insert the new Table of Contents page (Date of Issue: Sep. 1979).

Move to the back of the shop manual ——
1. Insert the 1980 addendum directly behind page 10-1.
2. The FL250 addendum posting is now complete. You may now discard this cover sheet.

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PRINTED IN JAPAN

'80

6295000Z

A27007910
FOREWORD

This addendum describes major modifications to the Honda FL250 ODYSSEY starting with Frame No. TB04-2000001 and Engine No. TBOE-2000001.

---

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ELECTRICAL DIAGRAM ................................................. 11-9

Date of Issue: Sep., 1979
© HONDA MOTOR CO., LTD.
A. Overall Vehicle Dimensions
### General Specifications

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>SPECIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall length</td>
<td>2,095 mm (82.48 in.)</td>
</tr>
<tr>
<td>Overall width</td>
<td>1,230 mm (48.43 in.)</td>
</tr>
<tr>
<td>Overall height</td>
<td>1,625 mm (63.98 in.)</td>
</tr>
<tr>
<td>Wheel base</td>
<td>1,435 mm (56.60 in.)</td>
</tr>
<tr>
<td>Track front</td>
<td>930 mm (36.61 in.)</td>
</tr>
<tr>
<td>Track rear</td>
<td>950 mm (37.40 in.)</td>
</tr>
<tr>
<td>Ground clearance</td>
<td>140 mm (5.51 in.)</td>
</tr>
<tr>
<td>Min. turning circle radius</td>
<td>4.3 m (17.39 ft.)</td>
</tr>
</tbody>
</table>

### Weight

<table>
<thead>
<tr>
<th>WEIGHT</th>
<th>SPECIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dry weight distribution Front</td>
<td>66kg (145.53 lbs.)</td>
</tr>
<tr>
<td>Rear</td>
<td>119kg (262.40 lbs.)</td>
</tr>
<tr>
<td>Max. laden weight</td>
<td>270kg (595.35 lbs.)</td>
</tr>
</tbody>
</table>

### Efficiency

<table>
<thead>
<tr>
<th>EFFICIENCY</th>
<th>SPECIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. stabilized inclination, right/left</td>
<td>53°</td>
</tr>
<tr>
<td>Max. climbing angle</td>
<td>35°</td>
</tr>
<tr>
<td>Stopping distance</td>
<td>61.0 ft (at 31.25 mph)</td>
</tr>
</tbody>
</table>

### Model Information

<table>
<thead>
<tr>
<th>MODEL</th>
<th>FL 250E</th>
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</thead>
<tbody>
<tr>
<td>TYPE</td>
<td>Air-cooled, 2-stroke</td>
</tr>
<tr>
<td>Cylinder arrangement</td>
<td>Single-cylinder 15° inclined from vertical</td>
</tr>
<tr>
<td>Bore and Stroke</td>
<td>70.0 x 64.4 mm (2.756 x 2.535 in.)</td>
</tr>
<tr>
<td>Displacement</td>
<td>248 cc (15.1 cu. in.)</td>
</tr>
<tr>
<td>Compression Ratio</td>
<td>6.6</td>
</tr>
<tr>
<td>Compression Pressure</td>
<td>9 Kg/cm²/800 rpm</td>
</tr>
<tr>
<td>Fuel</td>
<td>Gasoline 20 : oil 1 (mixed)</td>
</tr>
<tr>
<td>Ignition timing</td>
<td>5° BTDC</td>
</tr>
</tbody>
</table>

### Port Timing

<table>
<thead>
<tr>
<th>Intake</th>
<th>Close</th>
<th>Exhaust</th>
<th>Close</th>
<th>Scavenging</th>
<th>Close</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open</td>
<td>80° BTDC</td>
<td>87° BBDC</td>
<td>60° BBDC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Close</td>
<td>80° ATDC</td>
<td>87° ABDC</td>
<td>60° ABDC</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Canada Model
<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>SPECIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Idle speed</td>
<td>1,500 rpm</td>
</tr>
<tr>
<td>Valve mechanism</td>
<td>Piston controlled</td>
</tr>
<tr>
<td>Lubrication system</td>
<td>Forced</td>
</tr>
<tr>
<td>Carburetor type</td>
<td>PW</td>
</tr>
<tr>
<td>Choke system</td>
<td>Starter valve system</td>
</tr>
<tr>
<td>Air cleaner type</td>
<td>Oiled</td>
</tr>
<tr>
<td>Fuel pump type</td>
<td>Diaphragm</td>
</tr>
<tr>
<td>Belt converter</td>
<td>SALSBURY'S Torque converter</td>
</tr>
<tr>
<td>Engine dry weight</td>
<td>22 Kg (48.51 lbs.)</td>
</tr>
<tr>
<td><strong>CAPACITIES</strong></td>
<td></td>
</tr>
<tr>
<td>Fuel tank</td>
<td>12 lit. (3.17 US gal., 2.64 Imp. gal.)</td>
</tr>
<tr>
<td>Reduction unit</td>
<td>0.5 lit. (1.057 US pt., 0.88 Imp. pt.)</td>
</tr>
<tr>
<td><strong>ELECTRICAL</strong></td>
<td></td>
</tr>
<tr>
<td>Starting system</td>
<td>Recoil starter</td>
</tr>
<tr>
<td>Stopping system</td>
<td>Ground switch</td>
</tr>
<tr>
<td>Ignition system</td>
<td>Flywheel magneto</td>
</tr>
<tr>
<td>Generator</td>
<td>AC Generator</td>
</tr>
<tr>
<td>Spark plug</td>
<td>NGK BR7ES DENSO W22ESR</td>
</tr>
<tr>
<td>Spark plug gap</td>
<td>0.7 – 0.8 mm (0.028 – 0.032 in.)</td>
</tr>
<tr>
<td><strong>STEERING</strong></td>
<td></td>
</tr>
<tr>
<td>Max. turning angle, right/left</td>
<td>45°</td>
</tr>
<tr>
<td>Arm ratio (Knuckle arm length/center arm length)</td>
<td>1.7</td>
</tr>
<tr>
<td>Steering angle inside</td>
<td>28°</td>
</tr>
<tr>
<td>steering angle outside</td>
<td>20°</td>
</tr>
<tr>
<td><strong>SUSPENSION</strong></td>
<td></td>
</tr>
<tr>
<td>Front</td>
<td>Trailing arm type</td>
</tr>
<tr>
<td>Rear</td>
<td>Wheel axial type</td>
</tr>
<tr>
<td>Front shock absorber</td>
<td>Coil spring type</td>
</tr>
<tr>
<td><strong>ALIGNMENT</strong></td>
<td></td>
</tr>
<tr>
<td>Front</td>
<td></td>
</tr>
<tr>
<td>Toe-in</td>
<td>8 mm (0.315 in.)</td>
</tr>
<tr>
<td>Camber</td>
<td>1°</td>
</tr>
<tr>
<td>Caster</td>
<td>8°</td>
</tr>
<tr>
<td>King pin angle</td>
<td>8°</td>
</tr>
<tr>
<td>Side off set</td>
<td>9 mm (0.354 in.)</td>
</tr>
<tr>
<td>Caster trail</td>
<td>50 mm (1.969 in.)</td>
</tr>
<tr>
<td>Rear</td>
<td></td>
</tr>
<tr>
<td>Side slip (ridden)</td>
<td>0 mm (0 in.)</td>
</tr>
<tr>
<td>Toe-in</td>
<td>0 mm (0 in.)</td>
</tr>
<tr>
<td>Camber</td>
<td>0°</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>SPECIFICATION</td>
</tr>
<tr>
<td>------------------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td><strong>BRAKES</strong></td>
<td></td>
</tr>
<tr>
<td>Main brake</td>
<td>Self-adjusting cable actuated disc</td>
</tr>
<tr>
<td>Parking brake</td>
<td>Cable actuated leading-trailing shoe and drum</td>
</tr>
<tr>
<td>Disc effective diameter</td>
<td>220 mm (8.661 in.)</td>
</tr>
<tr>
<td>Parking brake drum diameter</td>
<td>140 mm (5.512 in.)</td>
</tr>
<tr>
<td><strong>TIRES</strong></td>
<td></td>
</tr>
<tr>
<td>Rim, width x diameter,</td>
<td></td>
</tr>
<tr>
<td>front</td>
<td>140 x 203 mm (5.51 x 8 in.)</td>
</tr>
<tr>
<td>rear</td>
<td>210 x 203 mm (8.27 x 8 in.)</td>
</tr>
<tr>
<td>Tire, O.D. x width x I.D.,</td>
<td></td>
</tr>
<tr>
<td>front</td>
<td>508 x 178 – 203 mm (20 x 7 – 8 in.) (2 ply)</td>
</tr>
<tr>
<td>rear</td>
<td>559 x 280 – 203 mm (22 x 11 – 8 in.) (0 ply)</td>
</tr>
<tr>
<td>Pressure</td>
<td></td>
</tr>
<tr>
<td>front</td>
<td>0.35 Kg/cm² (5.0 psi.)</td>
</tr>
<tr>
<td>rear</td>
<td>0.21 Kg/cm² (3.0 psi.)</td>
</tr>
<tr>
<td><strong>LIGHTS</strong></td>
<td></td>
</tr>
<tr>
<td>Headlight</td>
<td>12V–45W</td>
</tr>
<tr>
<td>Taillight</td>
<td>12V–3W (Canada Model only)</td>
</tr>
</tbody>
</table>
**Headlight**

**Headlight Removal/Installation**

- HEADLIGHT CASE
- HEADLIGHT UNIT
  - Install with "TOP" mark up.
- SOCKET
- BULB (12V-45W)
- GROMMET
- SPRING
- BRACKET
- RIM

**Fig. 1**

**Headlight Adjustment**

- VERTICAL ADJUSTMENT BOLTS
- HORIZONTAL ADJUSTMENT NUT

*WARNING*
To avoid forward movement, make sure the parking brake is set.

Set the parking brake, start the engine.
Turn headlight "ON".
Adjust the headlight beam as shown.

**Fig. 2**
Tailight Removal/Installation
Tailight (Canada Model only)

Fig. 3

Seat
The new seat is equipped with a heat shield. The seat also has thicker padding and a covering that is flexible at low temperatures.

Heat Shield Removal/Installation

Fig. 4
Engine Mounts
Rebound limiters have been added to the front engine mounts, and the engine protector has been enlarged for rebound limiter clearance.

Rear Tire
The rear tires now have two reinforcing ribs on the side walls for increased rigidity and greater resistance against chafing.

A.C. Generator
The A.C. Generator was changed from a 6V—35W to a new 12V—45W type. Accordingly the taillight (Canada model) was changed from 6V—3W to 12V—3W. The headlight was changed from 6V—35W to 12V—45W.
INTRODUCTION

This addendum describes major modifications to the Honda FL250 ODYSSEY starting with Frame No. TB0400BC400001 and Engine No. TB04 E-2400001. Refer to the base shop manual and the 1980 Addendum for service procedures and data not included here.

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SERVICE PUBLICATIONS OFFICE

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GENERAL INFORMATION

A. Dimensions

FRONT VIEW

REAR VIEW

1,230 mm (48.4 in)

1,435 mm (56.5 in)

2,095 mm (82.5 in)

1,465 mm (57.5 in)

930 mm (36.6 in)

950 mm (37.4 in)

140 mm (5.5 in)
## B. Specifications

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>SPECIFICATION</th>
</tr>
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<tbody>
<tr>
<td>Overall height</td>
<td>1,465 mm (57.7 in.)</td>
</tr>
<tr>
<td>Min. turning circle radius</td>
<td>4.3 m (14.11 ft.)</td>
</tr>
<tr>
<td>WEIGHT</td>
<td></td>
</tr>
<tr>
<td>Dry weight</td>
<td>192 Kg (423 lbs)</td>
</tr>
<tr>
<td>Distribution</td>
<td></td>
</tr>
<tr>
<td>Front</td>
<td>71.5 Kg (157.5 lbs)</td>
</tr>
<tr>
<td>Rear</td>
<td>120.5 Kg (265.5 lbs)</td>
</tr>
<tr>
<td>ENGINE</td>
<td></td>
</tr>
<tr>
<td>Compression Ratio</td>
<td>6.6:1</td>
</tr>
<tr>
<td>Lubrication system</td>
<td>Fuel-oil mix</td>
</tr>
<tr>
<td>Air cleaner</td>
<td>Semi-dry type</td>
</tr>
<tr>
<td>ELECTRICAL</td>
<td></td>
</tr>
<tr>
<td>Ignition system</td>
<td>C.D.I.</td>
</tr>
<tr>
<td>Spark plug</td>
<td>NGK BR8ES, DENSO W24ESR</td>
</tr>
<tr>
<td>LIGHTS</td>
<td></td>
</tr>
<tr>
<td>Headlight</td>
<td>12V–60W</td>
</tr>
</tbody>
</table>
ENGINE

To remove the engine from the frame first remove these parts:
- seat back and harness
- muffler
- drive belt covers
- engine mounting bolts
- fuel lines

The air cleaner does not have to be removed.
ENGINE MOUNTING BOLT
350–430 Kg-cm
(25–31 lb-ft)

DRIVE BELT COVER

CARBURETOR

PULSE TUBE

FUEL LINES

ENGINE REMOVAL
Remove the engine by lifting and turning it as shown.

DRIVE BELT
WODRUFF KEY
- Install as shown

STATOR

EXCITER COIL

LAMP COIL

PULSE COIL

450–500 Kg-cm (33–36 lb-ft)

STARTER PULLEY

Rotor
- Be sure that it doesn’t interfere with the stator.

IGNITION COIL ASSY

NOISE SUPPRESSOR

C.D.I. UNIT

SPARK PLUG
BR8ES (NGK)
W24ESR (ND)
150–200 Kg-cm (11–15 lb-ft)
(Inspection page 8-9)
IGNITION COIL
Check the resistances between the leads of the primary and secondary coils:
- Primary coil: 0.2—0.8 Ω
- Secondary coil: 8—15 kΩ

EXCITER COIL
Adjust the seat so that it is completely forward.
Disconnect the A.C. generator wire connectors from the main harness clipped to the right side of the frame (see page 12-13).
Use an electrical tester to check continuity between the wires as shown.
The exciter coil is normal if there is continuity between the black/red wire and ground.
SPECIFIED RESISTANCE: 245 Ω

PULSE COIL
Measure the resistance between the Blue/Yellow and Green wires.
RESISTANCE: 20—60 Ω

LIGHTING COIL
The lighting coil is good if there is continuity between the yellow wire and ground.
IGNITION TIMING

NOTE
Capacitive discharge ignition timing is not adjustable. If timing is incorrect, test the CDI unit and the AC generator, and replace the faulty part.

1. Remove the recoil starter.
2. Wind a rope around the pulley and start the engine.
3. Check the timing using a strobe light. Timing is correct if the index mark aligns between the two advance marks at 1500 rpm.

CDI UNIT

NOTE
- The CDI unit is fully transistorized.
- For accurate testing, it is necessary to use a specified electric tester. Use of an improper tester may give a false reading.
- Use SANWA ELECTRIC TESTER (P/N 7308-0020000) or KOWA ELECTRIC tester (TH-5H).

Replace the CDI unit if the readings are not within the limits shown in the table.

<table>
<thead>
<tr>
<th>(+)</th>
<th>BLUE/YELLOW</th>
<th>BLACK/YELLOW</th>
<th>BLACK/RED</th>
<th>BLACK</th>
<th>GREEN</th>
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<tr>
<td>(-)</td>
<td>BLUE/YELLOW</td>
<td>BLACK/YELLOW</td>
<td>BLACK/RED</td>
<td>BLACK</td>
<td>GREEN</td>
</tr>
<tr>
<td>BLUE/YELLOW</td>
<td>∞</td>
<td>∞</td>
<td>∞</td>
<td>∞</td>
<td>∞</td>
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<tr>
<td>BLACK/YELLOW</td>
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<td>∞</td>
<td>∞</td>
<td>∞</td>
<td>∞</td>
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<tr>
<td>BLACK/RED</td>
<td>∞</td>
<td>∞</td>
<td>0.5-10.0</td>
<td>5.0-100.0</td>
<td>∞</td>
</tr>
<tr>
<td>BLACK</td>
<td>∞</td>
<td>∞</td>
<td>∞</td>
<td>0.5-10.0</td>
<td>1.0-30.0</td>
</tr>
<tr>
<td>GREEN</td>
<td>∞</td>
<td>∞</td>
<td>0.5-10.0</td>
<td>5.0-100.0</td>
<td>10.0-300.0</td>
</tr>
</tbody>
</table>

UPPER: SANWA (SP-10D)xk Ω
LOWER: KOWA (TH-5H) x 100 Ω

Revised: June, 1982
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MSV 4325 8206
**HEADLIGHT**

- **HEADLIGHT ASSY**
- **HEADLIGHT STAY**
- **GROMMET**
- **HEADLIGHT SOCKET HOLDER**
- **BULB (12V 60/60W)**
- **COLLAR**
- **HEADLIGHT CASE**
- **CASE NUT**
- **RIM**
- **SPRING**
- **HORIZONTAL ADJUSTMENT SCREW**

**HORIZONTAL ADJUSTMENT SCREW**
- Turn the screw so the headlight beam is aimed straight ahead.

**VERTICAL ADJUSTMENT BOLTS**
- Loosen the bolts and align the embossed mark on the headlight case with the cut-out in the headlight stay.
HARNESS ROUTING

HEADLIGHT

TAILLIGHT

ENGINE STOP SWITCH

IGNITION COIL

CDI UNIT

LIGHTING SWITCH