

Please read this instruction manual carefully prior to installation. Keep this manual readily accessible for future reference.



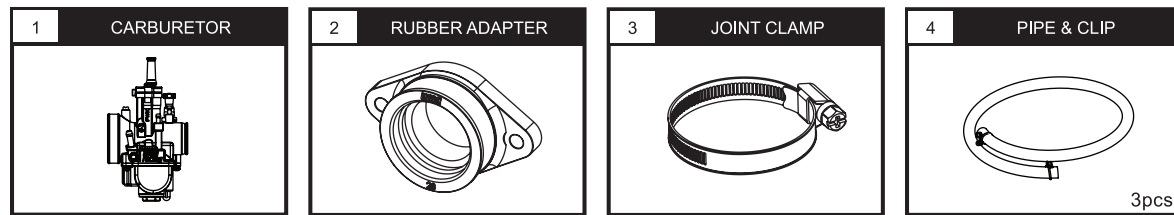
### ATTENTION

**FIRE CAUTION !** Stay clear and away from open flames to avoid unwanted fire during the course of assembling or disassembling the carburetor as fuel is highly flammable.

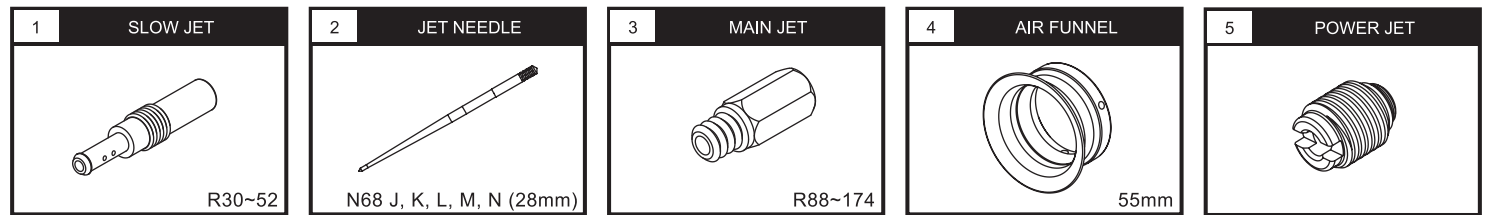
**INSTALLATION CAUTION !** Ensure all parts with screws or fasteners are tightened properly before switching engine ignition on.

- Upon installation, please ensure that your surrounding environment is clean, as it may affect it's precision.
- We shall not be held liable and shall not accept any liability, obligation or responsibility whatsoever for any damage on the item during the course of assembly and/or disassembly.
- Consider variables such as air pressure, temperature, humidity and height above sea level when tuning the carburetor as it may affect its performance.
- Please seek professional assistance or advice if you are unclear of the instructions or have any doubts regarding the procedures.

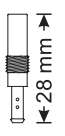

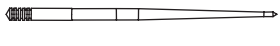
## 1 PARTS INCLUDED



## 2 OPTIONAL PARTS

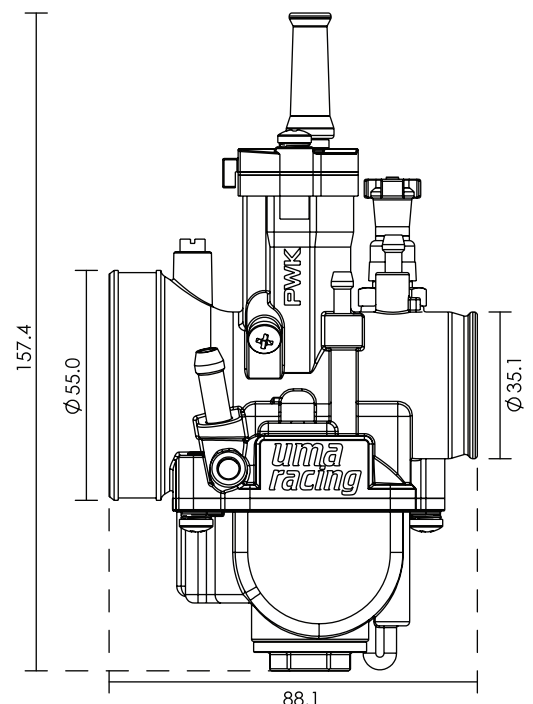


## 2-1 OPTIONAL PARTS SPECIFICATION




















|   |               |      |      |      |      |      |     |     |     |     |     |     |   |     |      |      |      |      |      |      |     |      |      |      |      |      |      |     |      |      |      |      |      |  |     |      |      |      |      |      |  |     |      |      |      |      |      |  |     |      |      |      |      |      |  |      |      |      |      |      |      |  |
|---|---------------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|---|-----|------|------|------|------|------|------|-----|------|------|------|------|------|------|-----|------|------|------|------|------|--|-----|------|------|------|------|------|--|-----|------|------|------|------|------|--|-----|------|------|------|------|------|--|------|------|------|------|------|------|--|
| 1<br>SLOW JET   | 2<br>MAIN JET |      |      |      |      |      |     |     |     |     |     |     |   |     |      |      |      |      |      |      |     |      |      |      |      |      |      |     |      |      |      |      |      |  |     |      |      |      |      |      |  |     |      |      |      |      |      |  |     |      |      |      |      |      |  |      |      |      |      |      |      |  |
|  <p>28 mm</p> <table border="1"> <tr><td>R30</td><td>R42</td></tr> <tr><td>R32</td><td>R44</td></tr> <tr><td>R34</td><td>R46</td></tr> <tr><td>R36</td><td>R48</td></tr> <tr><td>R38</td><td>R50</td></tr> <tr><td>R40</td><td>R52</td></tr> </table> | R30           | R42  | R32  | R44  | R34  | R46  | R36 | R48 | R38 | R50 | R40 | R52 |  <p>16.5 mm</p> <table border="1"> <tr><td>R88</td><td>R102</td><td>R116</td><td>R130</td><td>R144</td><td>R158</td><td>R172</td></tr> <tr><td>R90</td><td>R104</td><td>R118</td><td>R132</td><td>R146</td><td>R160</td><td>R174</td></tr> <tr><td>R92</td><td>R106</td><td>R120</td><td>R134</td><td>R148</td><td>R162</td><td></td></tr> <tr><td>R94</td><td>R108</td><td>R122</td><td>R136</td><td>R150</td><td>R164</td><td></td></tr> <tr><td>R96</td><td>R110</td><td>R124</td><td>R138</td><td>R152</td><td>R166</td><td></td></tr> <tr><td>R98</td><td>R112</td><td>R126</td><td>R140</td><td>R154</td><td>R168</td><td></td></tr> <tr><td>R100</td><td>R114</td><td>R128</td><td>R142</td><td>R156</td><td>R170</td><td></td></tr> </table> | R88 | R102 | R116 | R130 | R144 | R158 | R172 | R90 | R104 | R118 | R132 | R146 | R160 | R174 | R92 | R106 | R120 | R134 | R148 | R162 |  | R94 | R108 | R122 | R136 | R150 | R164 |  | R96 | R110 | R124 | R138 | R152 | R166 |  | R98 | R112 | R126 | R140 | R154 | R168 |  | R100 | R114 | R128 | R142 | R156 | R170 |  |
| R30   | R42           |      |      |      |      |      |     |     |     |     |     |     |   |     |      |      |      |      |      |      |     |      |      |      |      |      |      |     |      |      |      |      |      |  |     |      |      |      |      |      |  |     |      |      |      |      |      |  |     |      |      |      |      |      |  |      |      |      |      |      |      |  |
| R32   | R44           |      |      |      |      |      |     |     |     |     |     |     |   |     |      |      |      |      |      |      |     |      |      |      |      |      |      |     |      |      |      |      |      |  |     |      |      |      |      |      |  |     |      |      |      |      |      |  |     |      |      |      |      |      |  |      |      |      |      |      |      |  |
| R34   | R46           |      |      |      |      |      |     |     |     |     |     |     |   |     |      |      |      |      |      |      |     |      |      |      |      |      |      |     |      |      |      |      |      |  |     |      |      |      |      |      |  |     |      |      |      |      |      |  |     |      |      |      |      |      |  |      |      |      |      |      |      |  |
| R36   | R48           |      |      |      |      |      |     |     |     |     |     |     |   |     |      |      |      |      |      |      |     |      |      |      |      |      |      |     |      |      |      |      |      |  |     |      |      |      |      |      |  |     |      |      |      |      |      |  |     |      |      |      |      |      |  |      |      |      |      |      |      |  |
| R38   | R50           |      |      |      |      |      |     |     |     |     |     |     |   |     |      |      |      |      |      |      |     |      |      |      |      |      |      |     |      |      |      |      |      |  |     |      |      |      |      |      |  |     |      |      |      |      |      |  |     |      |      |      |      |      |  |      |      |      |      |      |      |  |
| R40   | R52           |      |      |      |      |      |     |     |     |     |     |     |   |     |      |      |      |      |      |      |     |      |      |      |      |      |      |     |      |      |      |      |      |  |     |      |      |      |      |      |  |     |      |      |      |      |      |  |     |      |      |      |      |      |  |      |      |      |      |      |      |  |
| R88   | R102          | R116 | R130 | R144 | R158 | R172 |     |     |     |     |     |     |   |     |      |      |      |      |      |      |     |      |      |      |      |      |      |     |      |      |      |      |      |  |     |      |      |      |      |      |  |     |      |      |      |      |      |  |     |      |      |      |      |      |  |      |      |      |      |      |      |  |
| R90   | R104          | R118 | R132 | R146 | R160 | R174 |     |     |     |     |     |     |   |     |      |      |      |      |      |      |     |      |      |      |      |      |      |     |      |      |      |      |      |  |     |      |      |      |      |      |  |     |      |      |      |      |      |  |     |      |      |      |      |      |  |      |      |      |      |      |      |  |
| R92   | R106          | R120 | R134 | R148 | R162 |      |     |     |     |     |     |     |   |     |      |      |      |      |      |      |     |      |      |      |      |      |      |     |      |      |      |      |      |  |     |      |      |      |      |      |  |     |      |      |      |      |      |  |     |      |      |      |      |      |  |      |      |      |      |      |      |  |
| R94   | R108          | R122 | R136 | R150 | R164 |      |     |     |     |     |     |     |   |     |      |      |      |      |      |      |     |      |      |      |      |      |      |     |      |      |      |      |      |  |     |      |      |      |      |      |  |     |      |      |      |      |      |  |     |      |      |      |      |      |  |      |      |      |      |      |      |  |
| R96   | R110          | R124 | R138 | R152 | R166 |      |     |     |     |     |     |     |   |     |      |      |      |      |      |      |     |      |      |      |      |      |      |     |      |      |      |      |      |  |     |      |      |      |      |      |  |     |      |      |      |      |      |  |     |      |      |      |      |      |  |      |      |      |      |      |      |  |
| R98   | R112          | R126 | R140 | R154 | R168 |      |     |     |     |     |     |     |   |     |      |      |      |      |      |      |     |      |      |      |      |      |      |     |      |      |      |      |      |  |     |      |      |      |      |      |  |     |      |      |      |      |      |  |     |      |      |      |      |      |  |      |      |      |      |      |      |  |
| R100  | R114          | R128 | R142 | R156 | R170 |      |     |     |     |     |     |     |   |     |      |      |      |      |      |      |     |      |      |      |      |      |      |     |      |      |      |      |      |  |     |      |      |      |      |      |  |     |      |      |      |      |      |  |     |      |      |      |      |      |  |      |      |      |      |      |      |  |
| 3<br>NEEDLE JET   |               |      |      |      |      |      |     |     |     |     |     |     |   |     |      |      |      |      |      |      |     |      |      |      |      |      |      |     |      |      |      |      |      |  |     |      |      |      |      |      |  |     |      |      |      |      |      |  |     |      |      |      |      |      |  |      |      |      |      |      |      |  |
|  <p>BCDEFGAH IJKLMN</p> <p>Rich      Standard      Lean</p>   |               |      |      |      |      |      |     |     |     |     |     |     |   |     |      |      |      |      |      |      |     |      |      |      |      |      |      |     |      |      |      |      |      |  |     |      |      |      |      |      |  |     |      |      |      |      |      |  |     |      |      |      |      |      |  |      |      |      |      |      |      |  |

## 3 DEFAULT SETTINGS

| Carburetor Size    | Ø24  | Ø28  | Ø30  | Ø32  |
|--------------------|------|------|------|------|
| Air Adjust Screw   | 4T   | 4T   | 4T   | 4T   |
| Slow Jet           | #34  | #38  | #42  | #50  |
| Jet Needle Setting | 3    | 3    | 4    | 2    |
| Jet Needle         | N    | N    | M    | L    |
| Main Jet           | #108 | #114 | #132 | #136 |
| Power Jet          | #38  | #38  | #38  | #38  |



## 3-1 ADJUSTMENT TIPS

|   |  |   |   |   |   |   |  |  |
|---|--|---|---|---|---|---|--|--|
| Air adjustment screw<br><b>Lean</b>  <b>Rich</b> | Turning the adjustment screw in (clockwise) makes for a rich mixture, turning it out for a lean one. |       |   |   |   |   |  |  |
| Idle/Slow jet<br>                                | The bigger the jet, the richer the mixture.  |       |   |   |   |   |  |  |
| Throttle valve angle  | The smaller the angle of the throttle valve the richer the mixture.                                  |       |   |   |   |   |  |  |
| Jet needle setting<br>                            | There are five options per needle, the higher the number, the richer the mixture.                    |       |   |   |   |   |  |  |
| Needle Jet<br>                                    | Needle type range B,C,D,E,F,G,H,I,J,K,L,M and N. B being rich to N leanest.                          |       |   |   |   |   |  |  |
| Main Jet<br>                                     | The bigger the main jet, the richer the mixture.   |      |   |   |   |   |  |  |
| Power Jet<br>                                    | The bigger the power jet, the richer the mixture.  |      |   |   |   |   |  |  |
|   |  | Close  | 1/8  | 1/4  | 1/2  | 3/4  | Open  |  |

### 1. From throttle closed to 1/4 throttle opening.

- Change idle jet to adjust mixture.
- Set air adjustment screw to adjust mixture.

### 2. From 1/4 throttle opening to 3/4 throttle opening.

- Adjust needle position.

### 3. From 3/4 throttle opening to full throttle.

- Change main jet to adjust mixture.

### 4. From 1/2 throttle to full throttle (high airspeed in the carburetor)

- Adjust mixture by changing main jet, jet needle or jet needle setting.
- Make sure to inspect the spark plug to check whether the setting is correct. (see 3-2 for details)

## 3-2 ADJUSTING NOTE & TROUBLESHOOTING GUIDE

- Basic jetting of the air screw is fully in, then turn 1 and 1/2 turns out. If engine runs rich or lean, try to adjust with air screw. If the required setting cannot be achieved within a few turns of the screw, change the idle jet.
- If mixture is too rich between closed and 1/2 throttle, and cannot be rectified with the air adjustment screw, go for a smaller idle jet.
- Running your engine too rich will result in your engine not running at its best, running it too lean will eventually damage your engine's components such as piston, cylinder and head. We therefore recommend starting on the rich side when you set up your engine and work your way down to the proper setting.
- Check and study the spark plug to learn about the mixture your engine requires.
  - Spark plug is black or even wet: your engine is running too rich. Unburnt fuel causes soot to build up on the spark plug. Go for a leaner setting, use smaller jets.
  - Spark plug is dry and grey or even white: your engine runs lean. This may lead to damage of spark plug due to overheating. Go for a richer setting, use larger jets.
  - Spark plug is brown and looks clear: mixture is as it should be.
- When changing to a larger main jet, it will affect your engine's performance at 1/2 to full throttle. Always change one factor at a time and assess the changes made to the engine's performance before changing something else.



## 3-3 THE ENVIRONMENT FACTOR

| Environment      | Mixture situation | Adjust advise |
|------------------|-------------------|---------------|
| High Temperature | Rich              | Lean          |
| Low Temperature  | Lean              | Rich          |
| High Humidity    | Rich              | Lean          |
| Low Humidity     | Lean              | Rich          |
| High Altitude    | Lean              | Rich          |

| Problem   | Mixed Air State | Adjusting method   | Note  |
|---|-----------------|--|---|
| When idling<br>a. Engine runs erratic.<br>b. RPM is unstable.   | Lean            | a. Turn air screw in clockwise to make mixture richer.<br>b. Change to a bigger idle jet.<br>c. Change to a smaller diameter needle to make mixture richer.                                    | a. There is a possibility that a reed petal is broken.<br>b. There may be an air leak in the inlet tract.                       |
| When idling<br>a. The engine stalls.<br>b. Exhaust fumes are black.   | Rich            | a. Turn air screw out anti-clockwise to make mixture leaner.<br>b. Change to a smaller idle jet.<br>c. Change to a larger diameter needle to make mixture leaner.                              |   |
| When accelerating<br>a. Poor acceleration.  | Lean            | Change to a bigger main jet.   |   |
| When accelerating<br>a. Engine runs erratic.  | Rich            | Change to a smaller main jet.  |   |
| Between closed throttle and 1/4 throttle opening<br>a. Engine stalls and does not pick up revs.                                   | Lean            | a. Go for a thinner needle to make the mixture richer.<br>b. Turn the airscrew in clockwise to make the mixture richer.  |   |
| Between closed throttle and 1/4 throttle opening<br>a. Acceleration is hesitant, unstable or irregular.                           | Rich            | a. Go for a bigger needle to make mixture leaner.<br>b. Turn the screw out anti-clockwise to make mixture leaner.<br>c. If above step a or b doesn't solve the problem try a smaller idle jet. | This may happen in rainy conditions in particular, pay attention to the engine temperature and humidity of the surrounding air. |
| Between 1/4 and 1/2 throttle<br>a. Engine brakes.<br>b. Engine bogs.  | Lean            | Change the needle jet to a bigger one to make the mixture richer.  | Please check section 3-1 Adjustment Tips  |
| Throttle between 1/4 and 1/2<br>a. Acceleration is slow or poor.  | Rich            | Change the needle jet to a smaller one to make mixture leaner.   | Please check section 3-1 Adjustment Tips  |
| Throttle is fully open<br>a. RPM changes erratically.<br>b. Engine pings, detonation or knock.<br>c. Spark plug is dry and white. | Lean            | Change the main jet to a larger one. (Remember, spark plug should be brown)  | a. Ignition could be out, that is: too much advance.<br>b. There may also be an air leak in the inlet tract.                    |
| Throttle is fully open<br>a. Engine speed rises slowly.<br>b. Engine feels flat.<br>c. Spark plug is black.                       | Rich            | Adjust mixture by using a smaller main jet. Keep checking spark plug until colour is correct.  | Air filter could be blocked. Also ensure the choke is not stuck.  |
| Rapid throttle opening  | Rich, lean      | Check all parts involved as described above, take your time, don't rush things.  | Make sure this is not caused by a broken reed petal or an air leak in the inlet tract.  |

