

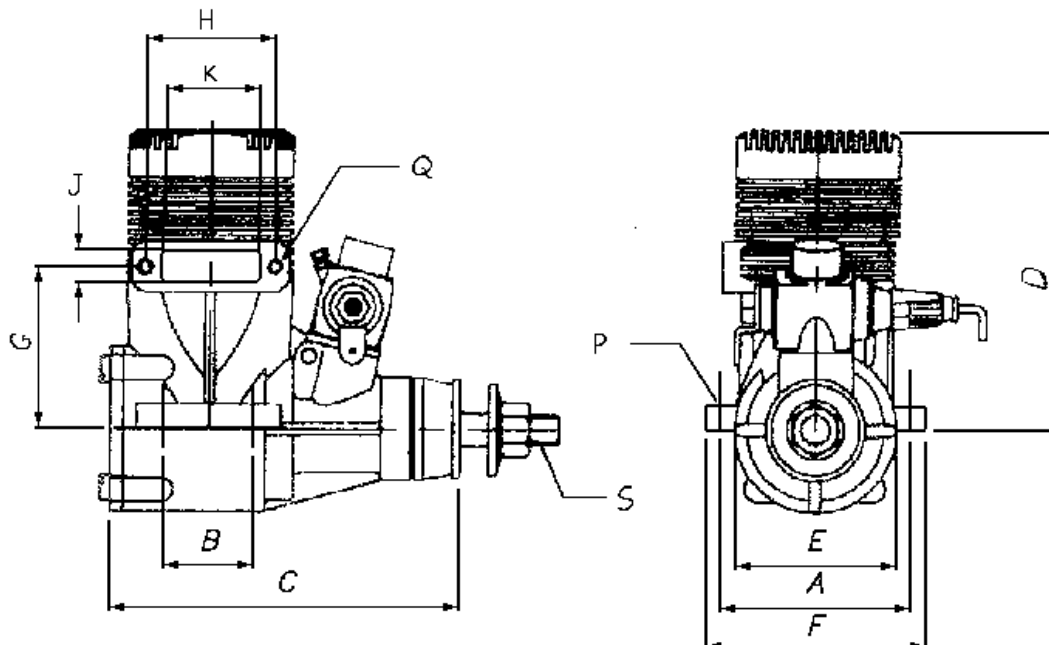


Rossi has been making engines since 1960. The factory incorporates the best Swiss CNC machinery that manufactures engines with the most precise tolerances from the best quality materials producing the highest quality engines. Rossi engines have superior performance and the longest life. Countless championship races have been won with Rossi engines, which have made the Rossi engines well known worldwide.

SPECIFICATION	23M40	27M46	27R45	67R53	32R60	154R65
DISPLACEMENT	6.5cc	7.6cc	7.5cc	8.5cc	10cc	11cc
BORE (mm)	21	22.5	22.41	22.41	23.88	24.83
STROKE (mm)	19	19	19	22.22	22.22	22.27
HP	1.9	2.2	2.1	2.3	2.8	3.5
RPM	17000	16500	16000	18000	16000	17000
PORTS	3	5	3	5	3	5
WEIGHT (g)	430	430	430	430	580	610

DIM.	A	B	C	D	E	F	G	H	J	K	P	Q	S
23M40	45	24	90	71	37.5	54.5	39.2	32	7.7	20.8	3.8D	3.5T	M8x1.25
27M46	45	24	90	71	37.5	54.5	39.2	32	7.7	20.8	3.8D	3.5T	M8x1.25
27R45	45	24	90	71	37.5	54.5	39.2	32	7.7	20.8	3.8D	3.5T	M8x1.25
67R53	45	24	90	71	37.5	54.5	39.2	32	7.7	20.8	3.8D	4T	M8x1.25
32R60	52	25	96	81	45	61.5	44.5	35.6	8.7	22.5	4.2D	4T	M8x1.25
154R65	52	25	96.5	85.4	45	61.5	44.5	42	8.7	22.5	4.2D	4.2D	M8x1.25

NOTE: "D" is for diameter, and "T" is for thread.



## Instructions and Test Data for Rossi Engines

These instructions and the test data are created to assist you in selecting the best propeller, silencer, tuned pipe, glow plug and fuel for your Rossi Engine(s).

### FUELS

Fuels recommended for Rossi engines should contain castor oil or a blend of castor and synthetic oil. Fuels with only synthetic oil are not recommended for Rossi engines. Add a 0.1mm copper shim under the engine head in hot weather and for fuels with high nitro content to decompress the engine.

**PowerMaster** FAI: 20% oil, (80% methanol, 20% castor oil) and  
Premium Sport: 10% nitro, 18% oil (1/3 castor and 2/3 synthetic blend).

**Byron Fuels** FAI: 18% oil, (20% castor, 80% synthetic blend) and  
Premium Sport: 10% nitro, 18% oil, (20% castor, 80% synthetic blend).

**Morgan Fuels Omega** FAI: 17% oil, (30% castor, 70% synthetic blend) and  
Omega: 10% nitro, 17% oil, (30% castor, 70% synthetic blend).

### PROPELLERS

The propellers we used in our tests are the Landing Products APC propellers. Scrape the sharp edges of the propellers lightly with a knife and balance the props before use.

Many variables affect the propeller selection. As shown in the test data, low pitch propellers have greater STATIC thrust on the bench test. However, DYNAMIC thrust is different. When the engine is on an airplane in flight, the flying speed and drag affect propeller performance. Here is an easy-to-calculate relationship: The maximum possible speed (in miles per hour) of a propeller-driven airplane equals the propeller pitch in inches times the propeller RPM in thousands.

12 - 6 prop @ 12,000 rpm :  $6 \times 12 = 72$  mph -- maximum possible speed

12 - 8 prop @ 12,000 rpm :  $10 \times 12 = 120$  mph -- maximum possible speed

### GLOW PLUGS

Glow plug selection is a trial-and-error process. It depends on several factors: engine, fuel, propeller, and weather conditions. The general rules are:

- The hotter the fuel, the colder the plug should be.
- The bigger the prop, the colder the plug should be.
- The colder the weather, the hotter the plug should be.
- The smaller the engine, the hotter the plug should be.

The glow plug controls the "timing" of combustion. If the plug is too "hot", combustion starts too soon -- and some of the energy from the combustion is wasted in pushing down on a piston that is coming UP. If the plug is too "cold", combustion doesn't begin soon enough, and some of the energy is wasted by being blown out the exhaust port.

### ENGINE BREAK IN

To break in a new engine mounted on an airplane or bench, start the engine rich with full open throttle for approximately 3 minutes. Stop the engine and allow the engine to cool down. Re-start the engine and close the max needle  $\frac{1}{4}$  turn. Run the engine for approximately three minutes. Stop the engine and allow the engine to cool down. Repeat these steps until the engine is close to the maximum RPM range. Avoid running the engine lean at all times. Check the engine head screws and tighten if loose.

## **CARBURETOR ADJUSTMENT**

Rossi engine carburetors have two needles, adjustable for idle speed and maximum speed. The max speed setting is between 1.2 and 2 turns open from the closed position. First adjust the max speed with the throttle fully open. Next, close the throttle to run the engine at idle speed. The idle speed adjustment is based on where the highest rpm is achieved while the engine is idling. If the engine loads up and quits while idling, the idle adjust screw should be closed to make a leaner setting for the idle fuel mixture. If the idle screw is closed in too far, the engine will quit suddenly at idle. The idle screw is very sensitive and should only be changed in 1/8 of a turn increments to fine-tune the engine. After the idle adjustment, check the max speed and transition from low to high. When the idle mixture and max speed needles are adjusted, the engine will have fast response and transition from low to high speed.

## **TUNE PIPE LENGTH**

The tune pipe length is measured from glow plug tip to the end of the pipe.

**Rossi 41R40T Quickie 500 Engine Tested with 10% Nitro fuel.**

- A) Rossi 4011 Mini Tuned Silencer.
- B) Rossi 4015 Tuned Silencer.
- C) Nelson Ultra Thrust Pylon Racing Muffler.
- D) Nelson Ultra Thrust Sport Racing Muffler.

<b>RPM AND STATIC THRUST TABLE</b>				
<b>Propeller</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>
8.5 x 7.5	17000 RPM 1.58Kg(3.5lbs)	15600 RPM 1.49Kg(3.3lbs)	13500 RPM 1.17Kg(2.6lbs)	17000 RPM 1.58Kg(3.5lbs)
9 x 6	16600 RPM 2.31lbs(5.1lbs)	15600 RPM 1.99Kg(4.4lbs)	13000 RPM 1.58Kg(3.5lbs)	16500 RPM 2.22Kg(4.9lbs)
9 x 7	16000 RPM 2.22Kg(4.9lbs)	15000 RPM 2Kg(4.43lbs)	13000 RPM 1.45Kg(3.2)	16500 RPM 2.31Kg(5.1lbs)
9 x 8	12800 RPM 1.49Kg(3.3lbs)	14600 RPM 2Kg(4.43lbs)	12500 RPM 1.4Kg(3.1lbs)	15500 RPM 2.04Kg(4.5lbs)
9 x 9	12800 RPM 1.58Kg(3.5lbs)	14400 RPM 2Kg(4.43lbs)	12000 RPM 1.49Kg(3.3lbs)	11300 RPM 1.31Kg(2.9lbs)
10 x 4	16800 RPM 2.99Kg(6.6lbs)	15300 RPM 2.61Kg(5.76lbs)	12900 RPM 1.81Kg(4lbs)	16500 RPM 2.81Kg(6.2lbs)
10 x 5	13000 RPM 2.08Kg(4.6lbs)	15000 RPM 2.81Kg(6.2lbs)	12300 RPM 1.99Kg(4.4lbs)	12800 RPM 1.9Kg(4.2lbs)
10 x 6	12600 RPM 2.31Kg(5.1lbs)	14300 RPM 2.49Kg(5.5lbs)	12100 RPM 1.99Kg(4.4lbs)	12000 RPM 1.81Kg(4lbs)
10 x 7	12000 RPM 2.04Kg(4.5lbs)	11400 RPM 1.9Kg(4.2lbs)	11100 RPM 1.67Kg(3.7lbs)	11000 RPM 1.81Kg(4lbs)
10 x 8	11300 RPM 1.81Kg(4.0lbs)	10800 RPM 1.67Kg(3.7lbs)	10600 RPM 1.49Kg(3.3lbs)	10300 RPM 1.58Kg(3.5lbs)
11 x 4	12800 RPM 2.49Kg(5.5lbs)	13500 RPM 2.9Kg(6.4lbs)	11800 RPM 2.08Kg(4.6lbs)	11200 RPM 1.81Kg(4lbs)
11 x 5	11800 RPM 2.4Kg(5.3lbs)	11000 RPM 2.22Kg(4.9lbs)	10200 RPM 1.9Kg(4.2lbs)	10500 RPM 1.9Kg(4.2lbs)
12 x 4	11800 RPM 2.49Kg(5.5lbs)	10900 RPM 2.4Kg(5.3lbs)	10800 RPM 2.22Kg(4.9lbs)	10500 RPM 1.99Kg(4.4lbs)

Picture of the Engine Test Stand, RPM tachometer, 25 lbs digital fish scale, and thermometer used to test and record the test data for Rossi engines.

The chains restrain the engine from moving while mounted on car wheels on the test bench. The fish scale is hooked from the back and pulled to measure the engine thrust.



**Rossi 27R45 Tested with no nitro fuel.**

- A) Rossi 4011 Mini Tuned Silencer.  
 B) Bisson (BCM) 2845 Pitts Muffler.

<b>RPM AND STATIC THRUST TABLE</b>		
<b>Propeller</b>	<b>A</b>	<b>B</b>
10 x 6	15000 RPM 3.46Kg(7.63lbs)	13000 RPM 2.13Kg(4.7lbs)
10 x 7	14200 RPM 2.62Kg(5.78lbs)	12800 RPM 2.06Kg(4.54lbs)
10 x 8	12500 RPM 2.11Kg(4.65lbs)	11800 RPM 1.82Kg(4.01lbs)
11 x 6	11700 RPM 2.39Kg(5.27lbs)	11500 RPM 2.3Kg(5.07lbs)

**Rossi 27R45 Tune Pipe Tested with no nitro fuel.**

<b>RPM AND STATIC THRUST TABLE</b>		
<b>Propeller</b>	<b>Rossi 6033 Pipe &amp; 16023 Header</b>	<b>Length</b>
10 x 7	14100 RPM, 2.48Kg(5.47lbs)	19"
10 x 7	14100 RPM, 2.48Kg(5.47lbs)	18.5"
10 x 7	14200RPM, 2.57Kg(5.67lbs)	18"
10 x 7	14300 RPM, 2.59Kg(5.71lbs)	17.5"
10 x 7	14800 RPM, 2.77Kg(6.11lbs)	17"
10 x 7	14500 RPM, 2.54Kg(5.60lbs)	16.5"
10 x 7	13800 RPM, 2.3Kg(5.07lbs)	16"

**Rossi 27M46 Tune Pipe Tested with no nitro fuel.**

<b>RPM AND STATIC THRUST TABLE</b>		
<b>Propeller</b>	<b>Rossi 6043 Pipe &amp; 16023 Header</b>	<b>Length</b>
10 x 8	12000 RPM, 1.95Kg(4.30lbs)	21"
10 x 8	12200 RPM, 2.08Kg(4.60lbs)	20.5"
10 x 8	12500 RPM, 2.25Kg(4.98lbs)	20"
10 x 8	12800 RPM, 2.31Kg(5.10lbs)	19.5"
10 x 8	12900 RPM, 2.21Kg(4.88lbs)	19"
10 x 8	13000 RPM, 2.20Kg(4.86lbs)	18.5"
10 x 8	12900 RPM, 2.27Kg(5.02lbs)	18"
10 x 8	12900 RPM, 2.22Kg(4.90lbs)	17.5"

**Rossi 27M46 Tune Pipe Tested with no nitro fuel.**

<b>RPM AND STATIC THRUST TABLE</b>		
<b>Propeller</b>	<b>Rossi 6043 Pipe &amp; 16023 Header</b>	<b>Length</b>
11 x 6	12300 RPM, 2.64Kg(5.84lbs)	19.5"
11 x 6	12600 RPM, 2.74Kg(6.06lbs)	19"
11 x 6	12300 RPM, 2.56Kg(5.66lbs)	18.5"

**Rossi 67R53 Tested with no nitro fuel.**

- A) Rossi 4011 Mini Tuned Silencer.  
 B) Bisson (BCM) 2845 Pitts Muffler.

<b>RPM AND STATIC THRUST TABLE</b>		
<b>Propeller</b>	<b>A</b>	<b>B</b>
10 x 6	15700RPM 2.99Kg(6.59lbs)	13500 RPM 2.25Kg(4.96lbs)
10 x 7	15000 RPM 2.87Kg(6.33lbs)	13000 RPM 2.19Kg(4.83lbs)
10 x 8	13600 RPM 2.34Kg(5.16lbs)	12300 RPM 2.05Kg(4.52lbs)
11 x 6	12200 RPM 2.45Kg(5.4lbs)	12000 RPM 2.54Kg(5.6lbs)
11 x 7	12000 RPM 2.66Kg(5.86lbs)	11500 RPM 2.53Kg(5.58lbs)

**Rossi 67R53 Tune Pipe Tested with no nitro fuel.**

<b>RPM AND STATIC THRUST TABLE</b>		
<b>Propeller</b>	<b>Rossi 6033 Pipe &amp; 16023 Header</b>	<b>Length</b>
10 x 8	13800 RPM, 2.40 Kg (5.29 lbs)	19"
10 x 8	14000 RPM, 2.44 Kg (5.38 lbs)	18.5"
10 x 8	14100 RPM, 2.61 Kg (5.75 lbs)	18"
10 x 8	13800 RPM, 2.41 Kg (5.31 lbs)	17.5"
10 x 8	13600 RPM, 2.36 Kg (5.2 lbs)	17"

**Rossi 32R60 Tested with 10% nitro fuel.**

Open Face Test with 11x8 prop has 12200 RPM, 3.06 Kg Static Thrust.

- A) Rossi 6052 Mini Tuned Silencer.  
 B) Bisson (BCM) 2861 Pitts Muffler.

<b>RPM AND STATIC THRUST TABLE.</b>		
<b>Propeller</b>	<b>A</b>	<b>B</b>
11 x 7	13000 RPM 3.08 Kg (6.79 lbs)	12000 RPM 2.72 Kg (6 lbs)
11 x 8	12500 RPM 3.12 Kg (6.88 lbs)	11400 RPM 2.74 Kg (6.04 lbs)
12 x 6	12400 RPM 3.65 Kg (8.05 lbs)	11300 RPM 3.25 Kg (7.17 lbs)
12 x 8	10800 RPM 3.3 Kg (7.28 lbs)	10500 RPM 2.99 Kg (6.59 lbs)
13 x 6	11200 RPM 3.64 Kg (8.02 lbs)	10600 RPM 3.32 Kg (7.32 lbs)

**Rossi 32R60 Tune Pipe Tested with 10% nitro fuel.**

<b>RPM AND STATIC THRUST TABLE</b>		
<b>Propeller</b>	<b>Rossi 6033 Pipe &amp; 16023 Header</b>	<b>Length</b>
11 x 8	12200 RPM, 2.95 Kg (6.50 lbs)	21.5"
11 x 8	12300 RPM, 2.99 Kg (6.59 lbs)	21"
11 x 8	12600 RPM, 3.11 Kg (6.86 lbs)	19.5"
11 x 8	13000 RPM, 3.21 Kg (7.08 lbs)	19"
11 x 8	13100 RPM, 3.24 Kg (7.14 lbs)	18.5"
11 x 8	13200 RPM, 3.54 Kg (7.80 lbs)	18"
11 x 8	13500 RPM, 3.60 Kg (7.94 lbs)	17.5"
11 x 8	13300 RPM, 3.46 Kg (7.63 lbs)	17"

**Rossi 154R65 Tested with no nitro fuel.**

**Open Face Test with 12x8 prop has 10700 RPM, 3.09 Kg Static Thrust.**

- A) Rossi 6052 Mini Tuned Silencer.
- B) Rossi 6053 Pitts Silencer.
- C) MACs Products 6860 Muffler.
- D) BCM 4091 Pitts Muffler.

<b>RPM AND STATIC THRUST TABLE</b>				
<b>Propeller</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>
12 x 6	12000 3.63 Kg (8.0 lbs)	10500 2.53 Kg (5.58 lbs)	10400 2.68 Kg (5.91 lbs)	11000 2.84 Kg (6.26 lbs)
12 x 8	10800 3.31 Kg (7.3 lbs)	9800 2.4 Kg (5.29 lbs)	9400 2.39 Kg (5.27 lbs)	9900 2.67 Kg (5.89 lbs)
12 x 10	9800 2.8 Kg (6.17 lbs)	9300 2.34 Kg (5.16 lbs)	8700 2.18 Kg (4.81 lbs)	9300 2.45 Kg (5.4 lbs)
13 x 4 W	11700 4.2 Kg (9.26 lbs)	10000 2.71 Kg (5.97 lbs)	10400 2.98 Kg (6.57 lbs)	10300 3.29 Kg (7.25 lbs)
13 x 6	11000 3.55 Kg (7.83 lbs)	10000 2.94 Kg (6.48 lbs)	9700 2.79 Kg (6.15 lbs)	10200 2.99 Kg (6.59 lbs)
14 x 4 w	10000 3.61 Kg (7.96 lbs)	9600 3.27 Kg (7.21 lbs)	9000 3.09 Kg (3.09 lbs)	9600 3.44 Kg (7.58 lbs)

**Rossi 154R65 Tune Pipe Tested with 10% nitro fuel.**

<b>RPM AND STATIC THRUST TABLE</b>		
<b>Propeller</b>	<b>Rossi 6033 Pipe &amp; 16023 Header</b>	<b>Length</b>
11 x 8	13000, 3.04 Kg (6.7 lbs)	19.5"
11 x 8	13200, 3.13 Kg (6.9 lbs)	19"
11 x 8	13300, 3.34 Kg (7.36 lbs)	18.5"
11 x 8	13200, 3.25 Kg (7.17 lbs)	18"
11 x 8	12600, 3.08 Kg (6.79 lbs)	17.5"