



# MOTORCYCLE TUNING GUIDE

The following recommendations are based on consumer feedback together with our own test data. Models not shown will be added as we accumulate additional information.

The correct number of diffuser discs for a particular motorcycle model is dependent on the degree of engine modification, motorcycle use and rider preference. Therefore, our recommendations provide only a starting point from which to determine your best

set-up experimentally. See the reverse side for additional recommendations on using the Super-Trapp accessories and troubleshooting problems.

We need your comments in order to perfect and expand this guide so please return the Guarantee Card after completing your tests. If you are unable to obtain satisfactory results, contact our Engineering Department.

KEY: W/O = Weld-On Model Super-Trapp (2-Stroke)

C/O = Clamp-On Model Super-Trapp (2 or 4 Stroke)

Note: The size of a C/O Model is specified by the tailpipe outer dia. in decimal inches. For example, .875" C/O denotes a Clamp-on Model to fit a 7/8" dia. tailpipe.

MOTORCYCLE MODEL	SUPER-TRAPP MODEL & SIZE	CORE DIA.	NUMBER OF DISCS	
			RACING	TRAIL
<b>B.S.A.</b>				
500 MX	1.500" C/O	1 1/4"	18	8
<b>BULTACO</b>				
125 Pursang	W/O or .875" C/O early	1"	5	3 or *
250 Pursang	W/O or 1.000" C/O early	1"	6	4 or *
360 Pursang	W/O or 1.250" C/O early	1 1/4"	7	5
250 Frontera } 360 Frontera }	W/O on Pursang pipe or special Super-Trapp spark arrestor kit available from Bultaco	1"	—	4 or *
250,350 SherpaT	1.250" C/O before '75	1 1/4"	—	4 or *
<b>CZ</b>				
250 MX	W/O or 1.417" C/O early	1 1/4"	6	4 or *
380,400 MX	W/O or 1.417" C/O early	1 1/4"	8	5
<b>D.A.N. (D.A.M.)</b>				
125 MX-2	W/O	1"	5	3 or *
175 MX-2	W/O	1"	6	4 or *
250 MX-2	W/O	1 1/4"	6	4 or *
125, 175 TNT	1.187" C/O	1 1/4"	5	3 or *
250 TNT	W/O	1 1/4"	6	4 or *
175 OR	1.250" C/O	1 1/4"	6	4 or *
<b>D.K.W.</b>				
125 MX, End.	.750" C/O	1"	5	3 or *
<b>HARLEY-DAVIDSON</b>				
XR 750	Contact our Engineering Dept.			
<b>HONDA</b>				
100 Super Rat	W/O or 1.125" C/O early	1 1/4"	5	3 or *
125 Sup. Comb.	W/O	1 1/4"	5	3 or *
250 ED	1.250" C/O	1 1/4"	6	4 or *
<b>HONDA</b>				
SL, XL 70	.875" C/O + Stock Pipe	1 1/4"	6	4 or *
XR, XL 75	1.125" C/O + Stock or Acc. pipe (30" for max. peak power)	1 1/4"	6	4 or *
SL, XL 100 }	1.250" C/O + Stock or Acc. pipe (30" for max. peak power)	1 1/4"	8	4 or *
SL, XL 125 }	1.250" C/O + Stock or Acc. pipe (30" for max. peak power)	1 1/4"	8	4 or *
XL 175	1.375 or 1.500" C/O + Acc. pipe (30" for max. peak power)	1 3/4"	10	5
XL 250	1.375 or 1.500" C/O + Acc. pipe (30" for max. peak power)	1 3/4"	12	6
XL 350	1.625" or 1.750" C/O + Acc. pipe (32" for max. peak power)	1 3/4"	16	7
TL 125	1.125" C/O	1 1/4"	—	3 or *
TL 250	1.250" C/O	1 1/4"	—	4 or *
CR 125	.875" C/O before '75	1"	5	3 or *
	1.680" C/O after '74	1"	5	3 or *
CR 250	1.000" C/O before '75	1"	6	4 or *
	1.680" C/O after '74	1"	6	4 or *
MR 250	1.680" C/O	1"	6	4 or *
<b>HUSQVARNA</b>				
125 CR	.875" C/O	1"	5	3 or *
175 CR	W/O	1 1/4"	5	3 or *
250 CR, WR	W/O or 1.574" C/O early	1 1/4"	6	4 or *
360, 400, 450 CR, WR	W/O or 1.574" C/O early	1 1/4"	8	5

\* Use 1 more disc plus Quiet Core Insert and Resonator for improved silencing with same performance.

MOTORCYCLE MODEL	SUPER-TRAPP MODEL & SIZE	CORE DIA.	NUMBER OF DISCS	
			RACING	TRAIL
<b>KAWASAKI</b>				
KX 125	W/O	1"	5	3 or *
KX 250	W/O	1 1/4"	6	4 or *
KX 400	W/O	1 1/4"	7	5
KX 450	W/O	1 1/4"	7	5
<b>KTM/PENTON</b>				
125	MX Models: Remove stock silencer and adapt C/O Super-Trapp. Should weld stub to pipe for clamping. Cross Country Models: Special Super-Trapp spark arrestor available from Penton Imports.	1"	5	3 or *
175		1"	6	4 or *
250		1"	6	4 or *
400		1 1/4"	8	5
<b>M.A.C.O.</b>				
250	W/O or 1.000" C/O early	1"	5	3 or *
400, 450	W/O or 1.250" C/O early	1 1/4"	8	5
<b>MOTALESA</b>				
125 Capra VA	.875" C/O	1"	5	3 or *
250 Capra VA	W/O	1 1/4"	6	4 or *
350 Capra VA	W/O	1 1/4"	7	5
250 Enduro	W/O	1 1/4"	—	4 or *
247 Cota	1.000" C/O	1"	—	3 or *
348 Cota	1.312" C/O	1 1/4"	—	4 or *
<b>O.S.S.A.</b>				
125, 175 Pha. MX	W/O	1"	5	3 or *
250MX, DesPhan	W/O	1 1/4"	6	4 or *
250 Pionker	1.375" C/O	1 1/4"	—	3 or *
350 Pionker	1.375" C/O	1 1/4"	—	4 or *
Pion., Mtneer.	Special Super-Trapp spark arrestor available from OSSA	—	—	6
<b>SUZUKI</b>				
PE 250	1.125" C/O	1 1/4"	—	4 or *
RL 250	1.125" C/O	1 1/4"	—	3 or *
RM 100, 125	.875" C/O	1"	5	3 or *
RM 250	Must replace stock 7/8" stinger with 1" dia. like '77 model	1"	6	4 or *
RM 370	1.250" C/O must shorten stinger 3"	1 1/4"	8	5
TM 100, 125	.875" C/O	1"	5	3 or *
TM 250	.937" C/O	1"	6	4 or *
TM 400	1.250" C/O	1 1/4"	7	5
<b>YAMAHA</b>				
250 MX	1.125" C/O '73, '74	1 1/4"	6	4 or *
	1.024" C/O '75	1 1/4"	6	4 or *
360 MX	1.125" C/O	1 1/4"	7	4 or *
400 MX, YZ 400	Weld 1.312" C/O in place of stock	1 1/4"	8	5
YZ 100, 125	.937" C/O	1"	5	3 or *
YZ 175	.937" C/O	1"	6	4 or *
YZ 250	Weld 1.000" C/O in place of stock	1 1/4"	6	4 or *
IT 400	Weld 1.375" C/O in place of stock	1 1/4"	7	4 or *
TY 250	1.125" C/O	1 1/4"	—	3 or *
TT, XT 500	1.625" or 1.750" C/O + acc. pipe (32" for max. peak power)	1 3/4"	18	8
TX 650/750	1.750" C/O + acc. pipe (27" for max peak power)	1 3/4"	18	—

\* Use 1 more disc plus Quiet Core Insert and Resonator for improved silencing with same performance.

**CAUTION:** When properly tuned, the Super-Trapp (due to better scavenging) may require richer jetting than stock or other accessory silencers.

## SUPER-TRAPP ACCESSORIES

Reducing the number of diffuser discs is an effective method of lowering noise because it reduces the exhaust outlet area. The accessory Resonator is available for additional silencing with no increase in back-pressure. However, when using less than 5 discs, it is most efficient to install the accessory Quiet Core Insert together with the Resonator.

### RESONATOR

The accessory Resonator is installed in place of the standard end cap (increases overall length 3") and is always recommended if space allows. It is designed to deaden low frequency noise but its effectiveness depends on the particular engine and pipe design (typically provides 4 dbA or 37% reduction). The Resonator does not increase back pressure or hurt performance and may give a slight power boost in 4-stroke applications.

### QUIET CORE INSERT

The accessory Quiet Core Insert is designed for maximum silencing. It should be used only after installing the accessory Resonator and reducing the number of discs to 5 or less. Using the Quiet Core Insert with more than 5 discs is not recommended because the total back-pressure and noise level will be greater than 5 discs used alone. When 5 or less discs are used, installing the Quiet Core Insert causes the same back pressure increase as removing 1 disc but will be quieter. Three models of the Quiet Core Insert are available:

**2-Stroke - 1/4" core:** Fits the 1/4" core Weld-On Model or the 2-stroke Clamp-On Model with standard 1/4" core or accessory 1/4" core.

**2-Stroke - 1" core:** Fits the 1" core Weld-On Model or the 2-stroke Clamp-On Model with accessory 1" core.

**4-Stroke:** Fits both the standard 1/4" diameter core or accessory 1/4" core. Also recommended for large displacement 2-strokes with short large diameter stingers (1/4" and larger).

### REPLACEMENT CORES

Accessory Replacement Cores are available to change the standard Super-Trapp core diameter if necessary for improved silencing and performance. The recommended core size is given in the guide for each motorcycle model. Compare this to the standard core size for your model Super-Trapp in the following table:

#### SUPER-TRAPP CORE SIZES

Model	Standard Core Dia.
2-stroke c/o	1/4"
2-stroke w/o	1" or 1/4"
4-stroke c/o	1/4"

Replacement Cores are available in 1", 1/4" and 1/4" diameters. Details on their use are given in the following sections.

### 2-STROKE TUNING

The typical 250cc single requires 6 discs for maximum peak power and about 4 discs for trailriding. Larger engines require up to 4 more discs and small engines about 2 less. **Using more discs than necessary will be louder and will generally reduce low end power with no improvement in peak performance.**

### WELD-ON MODEL

The Weld-On model Super-Trapp is recommended instead of the Clamp-On model whenever possible. It provides an additional 3 dbA reduction (30% less noise) because of its larger internal volume yet is shorter overall than the Clamp-On model when installed. It is adaptable to most stock or accessory expansion chambers and is especially suited for those with built-in silencers.

When using the Weld-On model, choosing the correct core size is very critical since the core provides the entire stinger effect. If in doubt about the proper size, it is safer to use the larger 1/4" core model. If the power band is erratic, with flat spots and a loss of low end and midrange power, then the core is too small. If there is a loss of top end with improved low end and midrange torque, then the core may be too large (this is often a more desirable power band).

### CLAMP-ON MODEL

A silencer will add greatly to the effective stinger length if its core diameter is close to the stinger size. Therefore, when replacing a stock silencer with the clamp-on Super-Trapp, the original silencer's length and core diameter should be noted. Ideally, the Super-Trapp core size should be matched to the original silencer core. The effects of a core mismatch are:

1. If the Super-Trapp core is larger than the original silencer, the stinger effect will be less. This may result in an improvement in low end and midrange power but could reduce top end power. If peak power is most important, a smaller diameter replacement core should be installed.
2. If the Super-Trapp core is even slightly smaller than the original silencer, the stinger effect may be too great. This could cause an erratic power band with significant reductions in low end and midrange performance.

With the proper diameter core installed, if there is still a reduction in low end and midrange power that cannot be corrected by varying the number of diffuser discs, then the stinger should be shortened.

#### 2-STROKE TROUBLESHOOTING

Problem	Possible Cause	Solution
LOSS OF TOP END OR PEAK POWER	Not enough Discs	Use number recommended for racing.
	Stinger too short or W/O core too large	Super-Trapp core dia. is too large. Use smaller dia. Replacement Core.
	Stinger too long	Shorten stinger or use larger dia. core.
	Running rich or lean.	Adjust main jet.
LOSS OF LOW END, MIDRANGE POWER	Too many discs.	Use number recommended for trailriding.
	Stinger too long or W/O core too small.	Shorten stinger or use larger diameter replacement core.
	Running rich or lean.	Adjust needle position.
DISCS CLOG & POWER DROPS	Oil rich fuel mixtures.	Use 40:1 for mineral base oils and 50-60:1 for synthetic oils.
	Gummy oil or one with high ash content.	Switch to cleaner oil, preferably a synthetic like All Proof, Bel Ray or Torco Power Stroke.

### 4-STROKE TUNING

For a given engine displacement, 4-strokes require more discs than 2-strokes to attain maximum top end power. For example, the typical 350cc 4-stroke single requires 15 to 18 discs compared to only 8 discs for a 350cc 2-stroke. **Less discs will always produce less noise and will generally give better low end and midrange power unless a radical cam is used.** Compared to a stock exhaust, the Super-Trapp can be expected to give up to a 30% boost in low end and mid-range torque.

The standard 4-stroke Super-Trapp core is 1/4" diameter. This is the same size as the accessory pipes used on the large displacement singles. For smaller engines which use a maximum of 1/4" diameter pipes, the 1/4" replacement core is recommended for improved silencing. A core size smaller than the pipe diameter is not recommended unless only a few discs are used.

When using the Super-Trapp on a tuned open pipe of similar diameter to the core, it may be necessary to shorten the pipe up to 7" to match the original tuned length. This is only necessary if a radical cam is used and maximum peak power is all important. The pipe must also be shortened when replacing an open megaphone with the Super-Trapp.

The tuning guide on the front page gives the approximate tuned pipe length to use with the Super-Trapp. This length will vary with cam design and pipe diameter but is not critical with stock cams. For trailriding use, pipe length is usually determined by convenience of mounting and typically this results in extremely long pipes. This should not cause problems except with a radical cam.

#### 4-STROKE TROUBLESHOOTING

Problem	Possible Cause	Solution
LOSS OF TOP END POWER	Not enough discs	Use number recommended for racing.
	Pipe too long	Use recommended tuned length or shorter.
	Pipe too short	Use recommended tuned length or longer.
	Running too lean	Richer main jet.
LOSS OF LOW END, MIDRANGE POWER	Too many or not enough discs	With typical stock cam, reduce number of discs to improve low end torque. A radical cam may require more discs.
	Pipe too short	Use recommended tuned length or longer.
POOR THROTTLE RESPONSE	Running too lean or too rich	Adjust main jet and/or needle position.



**SUPERTRAPP INDUSTRIES, INC.**  
**4540 W. 160TH STREET**  
**CLEVELAND, OHIO 44135-2628**