KONI QUALITY

WHY KONI?

A KONI is not your average shock absorber. They feature a number of standards that make them unique:

ADJUSTABLE: to set them to your personal preference and to compensate for wear.

TAILORMADE: not a copy of the original, but designed for a specific car or even conditions.

IMPROVEMENT: individually tested until the optimum in handling and comfort is reached.

SAFETY: the handling of your car is a major issue for your own safety.

INVOLVEMENT: KONI test drivers are dedicated car enthusiasts themselves.

BUILT FOR A LIFETIME: a set of KONI shock absorbers will usually outlive your car.

KONI TECHNOLOGY

KONI experts recognize that every vehicle has unique damping needs. KONI manufactures three shock absorber technologies in order to choose the perfect damping solution. Every KONI is adjustable for ultimate performance benefits.

KONI Shock Absorber Components:

1 Piston rod
2 Piston
3 Piston rod guide
4 Piston rod seal
5 Inner Cylinder
6 Reservoir tube
7 Foot valve
8 Bypass valve
9 Bypass spring
10 Adjusting nut
11 Adjusting knob
12 Adjusting detent
13 Compression valve assembly
14 Rebound valve assembly
15 Floating piston
16 Dust cover
17 Adjusting rod
18 Dust cap
19 Non return valve
20 Non return valve
21 Valves

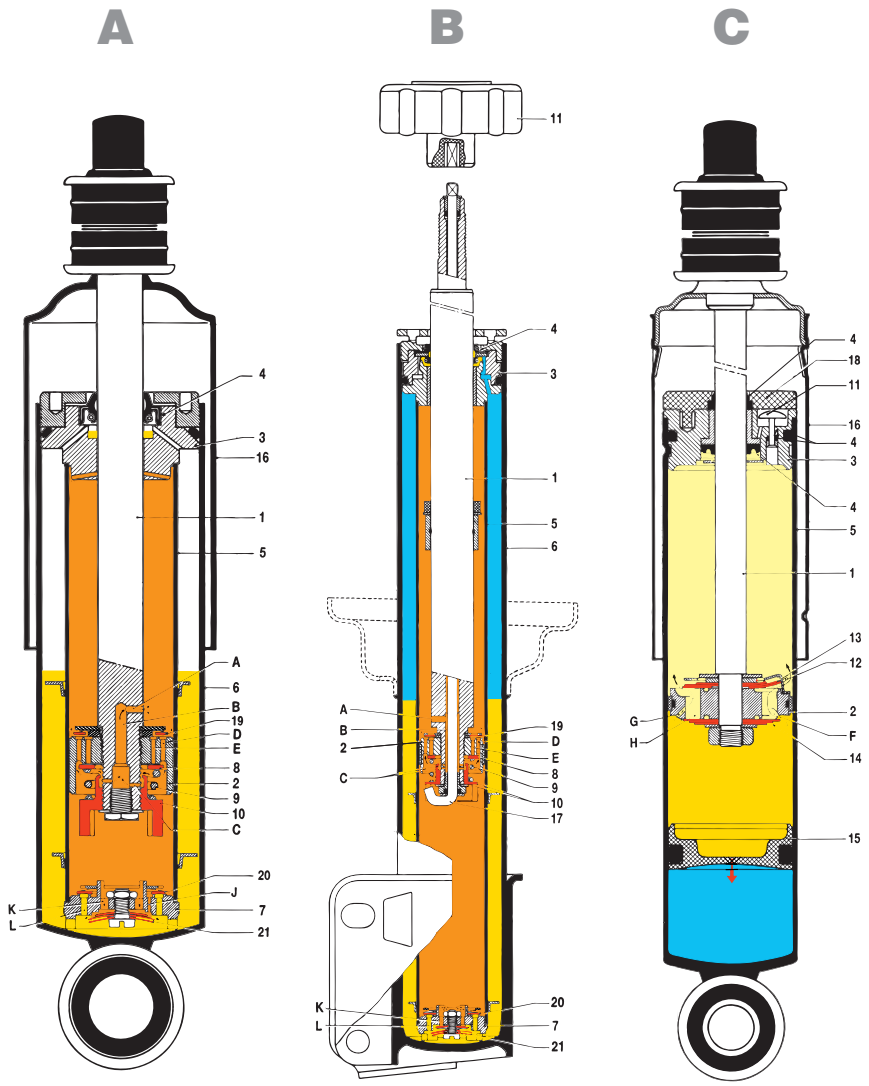
A, B, C, D, E, F, G, H, J, K and L
Various orifices

KONI PHILOSOPHY

As KONI is known as the shock absorber specialist par excellence, we commit ourselves to delivering to our customers the finest quality product with the best performance. KONI has vast experience, and a world-wide reputation in developing their products for all applications.

Our engineers ensure that every product is manufactured to meet the highest standards. KONI shock absorbers are produced from the finest materials; surfaces are machined to the narrowest tolerances and quality control is incorporated in all production steps. At the end of the production line every single damper is 100% dyno-tested to assure highest quality.

This philosophy results in unrivaled lifetime, superb road performance and maximum customer satisfaction. Our philosophy is one of no compromises!



TWIN TUBE HYDRAULIC

TWIN TUBE LOW PRESSURE GAS

MONO-TUBE HIGH PRESSURE GAS

KONI INDEX

For Adjustment Procedures, FAQs, and Technical Information
Use KONI Technical Guide 103613

Passenger Car and Light Truck Applications
Use KONI Catalog 103609

For Heavy Duty Applications
Use KONI CD Catalog or
www.konirv.com

2822 Series 4-way

The 2822 4-way adjustable damper has been developed to give you the ultimate control over the valving of the damper. Based on the proven technology of the 2812 2-way adjustable damper, the 2822 4-way damper goes further by providing both low and high speed adjustment for compression and rebound. These shocks are also racer rebuildable and revalveable.

Damper type
The 2822 Series is a double wall, high pressure gas shock absorber. Specifically designed for competition purposes, it is fully adjustable while fitted on the car. It contains two low speed adjusters in top eye assembly and two for high speed damping on the side of the body, both independent for compression and rebound damping. Its precision adjustment mechanism allows the maximum control possible over the damping forces generated.

Low speed:
On modern racing cars precise control over the damping forces at low speeds is very important. This in turn means that very small flows of oil have to be controlled. In many racing damper designs, a needle valve is used that tries to achieve this. Such a simple mechanism has many drawbacks. For KONI, repeatability, consistency and ease of use are a must for any racing damper. To achieve this, the 2822 Series uses superior and advanced adjustment cartridges that control the opening and closing of valve loaded ports. These two cartridges are contained in the main piston, one for bump and one for rebound. They operate totally independent of each other. For each 8 adjustment positions are available, generating a total of 64 predefined damping curves. Distinct stops (clicks) assure that each port can only be either opened or closed. Thus total repeatability of performance is engineered into the damper and the need for calibration on a damper dyno is eliminated. A unique feature is that the low speed damping is created through 2 stages, one by predefined bleed holes and the other one by ports.

High speed:
With high piston velocities, such as those correlated with rough sections of pavement, the high speed damping becomes important. The suspension needs to be able to move instead of becoming solid due to too much damping. Two cartridges, fitted in the high speed block, control the high speed damping and adjustment. They allow the damper to have an adjustable blow-off force. Also these operate totally independent of each other and feature 8 positions, all being predefined and having distinct stops. The adjustment range of all four cartridges are wide and divided in equal steps.

Figure 1 shows the damping characteristic in bump and rebound without a high speed blow off.

Figure 2 shows a graph only having a high speed blow off. In the 2822 these two are combined, resulting a graph of which **Figure 3** is an example.

Figure 1
Low Speed Only

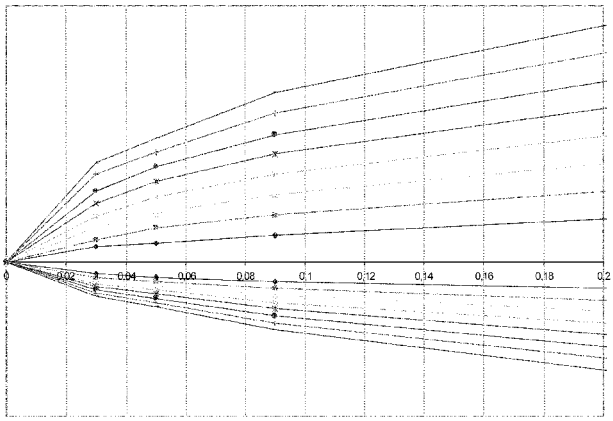
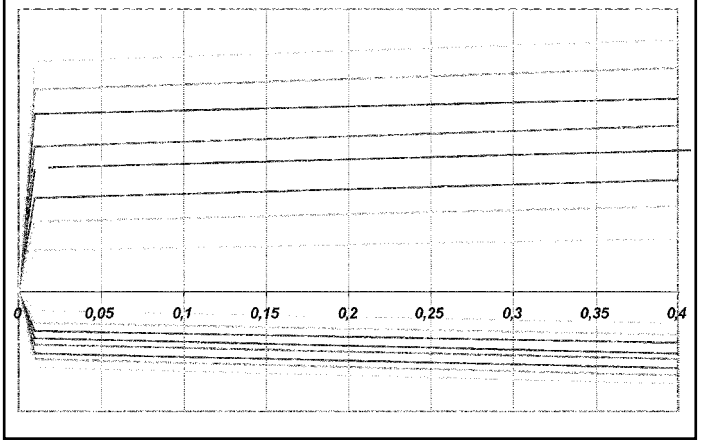


Figure 2
High Speed Only

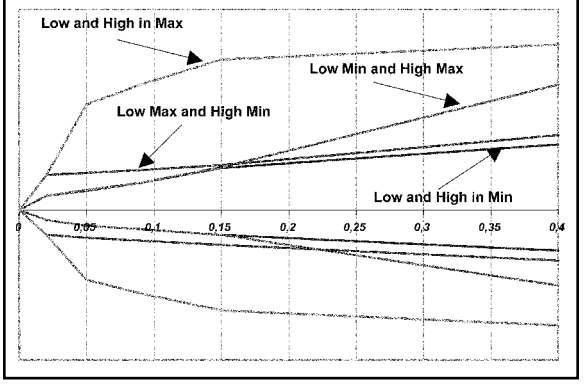


2822 Series 4-way (continued)

Unique features.
Also unique to both low as well as high speed damping is that the bump and rebound forces are generated by the piston area and not by rod displacement at all. This creates a very precise control over the damping forces and very little phase lag (hysteresis) due to the lower hydraulic pressures. Besides, it makes a separate reservoir to accommodate the bump adjuster superfluous, and installation simple, lightweight and clean.

The high speed adjustment on the 2822 Series is fitted on the side of the damper. In combination with the low speed adjustment it will be able to generate 4096 predefined damping curves. This makes the control over the damping forces even more precise.

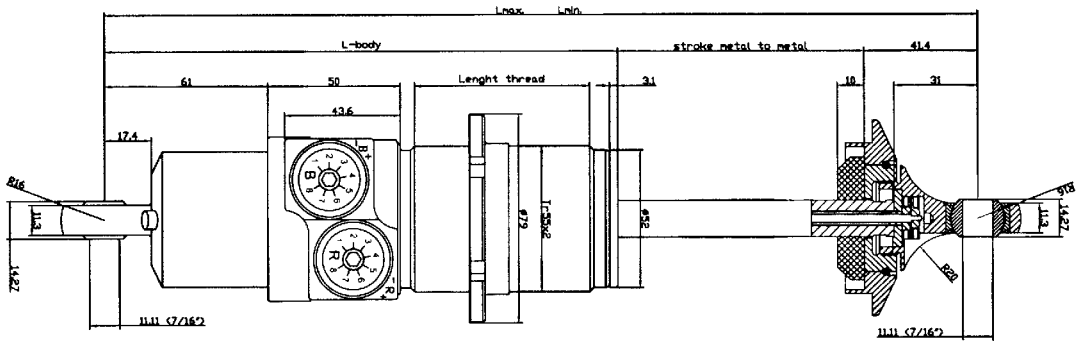
Figure 3
Combination Low/High Min and Max



Ordering Information: Springs seats are available to work with either 2.25" or 2.5" ID springs. There are a large number of mounting options available besides the lengths given below as well as valving combinations. Please call for more information.

Lengths Available

Type Code	TYPE OF MOUNTING EYE #1 L max mm	#1 L min mm	#2 L max mm	#2 L min mm	#3 L max mm	#3 L min mm	Stroke mm	L body mm
279	279	220	284	225	289	230	59	178
299	299	230	304	235	309	240	69	188
309	309	235	314	240	319	245	74	193
319	319	240	324	245	329	250	79	198
339	339	250	344	255	349	260	89	208
359	359	260	364	265	369	270	99	218
379	379	270	384	275	389	280	109	228



All dimensions without tolerances:±0.25 mm

2812 MK. II Series

The 2812 Mk. II Series is a mono-tube damper specifically designed for competition purposes, featuring externally adjustable compression and rebound. The precision adjustment mechanism allows for maximum control possible over the damping forces generated. In modern racing applications damper sensitivity, repeatability, and ease of use are a must. To achieve this, the 2812 Mk.II Series uses a superior and advanced adjustment mechanism operated by closing or opening valve-loaded ports. By having all damping forces generated at the piston, the control over the dampening forces is very precise unlike those that use a separate reservoir.

The 2812 Mk. II Series spans 35 different stroke/length combinations. In addition, 3 different top mounting eye lengths are available.

For a damper to function properly, it must be the correct length and valving. Regardless of the actual mounting configuration, the basic method for selecting a damper is always the same. Please refer to page 11 for a guide through this process.

Note: Always select the longest L min you can accommodate. This ensures the lowest friction plus the best durability. The same eye options are available for the Long Body as the 2812 Mk. II as well as ordering on- or off-axis adjuster windows. The bearing in the lower eye is 7/16".

Ordering Information: Once the correct length code has been identified, please fill out the order sheet at the back of the catalog. Please call if there are any questions regarding lengths or valvings available.

Lengths Available

	TYPE OF MOUNTING EYE							
	#1		#2		#3			
Type Code	L max mm	L min mm	L max mm	L min mm	L max mm	L min mm	Stroke mm	L body mm
214	214	185	219	190	224	195	29	139
219	219	190	224	195	229	200	29	144
224	224	190	229	195	234	200	34	144
229	229	195	234	200	239	205	34	149
234	234	195	239	200	244	205	39	149
239	239	200	244	205	249	210	39	154
244	244	200	249	205	254	210	44	154
249	249	205	254	210	259	215	44	159
254	254	205	259	210	264	215	49	159
259	259	210	264	215	269	220	49	164
264	264	210	269	215	274	220	54	164
269	269	215	274	220	279	225	54	169
274	274	215	279	220	284	225	59	169
279	279	220	284	225	289	230	59	174
284	284	220	289	225	294	230	64	174
289	289	225	294	230	299	235	64	179
294	294	225	299	230	304	235	69	179
299	299	230	304	235	309	240	69	184
304	304	230	309	235	314	240	74	184
309	309	235	314	240	319	245	74	189
214	314	235	319	240	324	245	79	189
219	319	240	324	245	329	250	79	194
324	324	240	329	245	334	250	84	194
329	329	245	334	250	339	255	84	199
334	334	245	339	250	344	255	89	199
339	339	250	344	255	349	260	89	204
344	344	250	349	255	354	260	94	204
349	349	255	354	260	359	265	94	209
354	354	255	359	260	364	265	99	209
359	359	260	364	265	369	270	99	214
364	364	260	369	265	374	270	104	214
369	369	265	374	270	379	275	104	219
374	374	265	379	270	384	275	109	219
379	379	270	384	275	389	280	109	224
384	384	270	389	275	394	280	114	224

2812 Long Body Series

The 2812 LB (Long Body) Series are mono-tube dampers specifically designed for competition purposes, featuring externally adjustable compression and rebound. The precision adjustment mechanism allows for maximum control possible over the damping forces generated. In modern racing applications damper sensitivity, repeatability and ease of use are a must. To achieve this, the 2812 Long Body Series uses a superior and advanced adjustment mechanism operated by closing and opening valve-loaded ports. By having all damping forces generated at the piston, the control over the damping forces is very precise, unlike those that use a separate reservoir.

In most racing-damper designs, a needle valve is used. These simple mechanisms have many drawbacks, the most important being a high sensitivity to; manufacturing tolerances, oil viscosity (and thus temperature variations) and damage to the (needle) valve seat. This means that regular performance checks must be carried out and the only way to make such dampers perform as you want them to is to set them on a damper dyno.

Also, most companies use an external reservoir to accommodate the bump adjuster. The 2812 Long Body does not need this which makes for a lighter and simpler installation.

The 2812 LB works the same as the 2812 Mk. II Series but utilizes a modular design allowing a much longer damper and more flexibility for alternative mounting designs than our standard 2812 Mk. II. There are three standard eye configurations available but due to its modular design, these attachments can be easily modified to meet the necessary requirements. Steel caps for both the lower and upper attachments are available to fabricate custom mountings.

The 2812 LB can be used on racecars using eye to eye bearing mountings or on production based suspensions using a variety of eyes, pins, clevises, etc.

Ordering Information: Shock Lengths can be from the chart listed here or by custom lengths as needed. Please call for mounting or valving questions. For more information on finding the correct shock length for your application, please refer to page 11.

Note: Always select the longest L min you can accommodate. This ensures the lowest friction plus the best durability. The same eye options are available for the Long Body as the 2812 Mk. II as well as ordering on- or off-axis adjuster windows.

— Lengths for the #3 top mounting eye are taken from the center of the bottom mounting eye to the center of the top mounting eye. The steel cap measurements are from the center of the lower eye to the top of the steel cap.

Lengths Available

TYPE OF MOUNTING EYE						
	#1 top eye		Steel top			
Type Code	L max mm	L min mm	L max mm	L min mm	Stroke mm	L body mm
214	233	204	211	182	29	211
219	238	209	216	187	29	216
224	243	209	221	187	34	221
229	248	214	226	192	34	226
234	253	214	231	192	39	231
239	258	219	236	197	39	236
244	263	219	241	197	44	241
249	268	224	246	202	44	246
254	273	224	251	202	49	251
259	278	229	256	207	49	256
264	283	229	261	207	54	261
269	288	234	266	212	54	266
274	293	234	271	212	59	271
279	298	239	276	217	59	276
284	303	239	281	217	64	281
289	308	244	286	222	64	286
294	313	244	291	222	69	291
299	318	249	296	227	69	296
304	323	249	301	227	74	301
309	328	254	306	232	74	306

TYPE OF MOUNTING EYE						
	#3 top eye		Steel top			
Type Code	L max mm	L min mm	L max mm	L min mm	Stroke mm	L body mm
379	398	289	376	267	109	376
403	403	289	381	267	114	381
433	433	309	411	287	124	411
473	473	329	451	307	144	451
513	513	349	491	327	164	491
553	553	369	531	347	184	531
593	593	389	571	367	204	571
633	633	409	611	387	224	611

2817 Series

The 2817 are racing dampers designed for strut applications. The 2817 Series is a semi-finished strut damper where only the mounting brackets need to be added.

The 2817 Series uses an inverted "twin guide" installation. The primary guide is fitted to the top of the main cylinder. The secondary guide is fitted to the lowest point of the damper body itself and runs up and down inside the strut housing. Therefore as the strut is compressed, the distance between the two guides increases. This reduces friction and increases strength dramatically under load. Damping adjustments for rebound and compression are made at the bottom of the strut unit.

The strut housing and spring seats (for 2.5" I.D. springs) for the 2817 are made of hard-anodized aluminum. A removable steel sleeve is fitted to the bottom part of the main cylinder of the strut housing to allow for fabrication of bracket to fit each particular application.

Bracket Fabrication

The 2817 comes with a steel sleeve of 4.5mm thick which is an integral, yet detachable part of its structure. Onto this sleeve a bracket can be welded to attach the strut to the upright of the car. Usually such a bracket will consist of two steel strips, vertically welded parallel to the strut. The distance between the strips, of course, is equal to the thickness of the upright-fitting flange. The thickness of the strips should be approximately 5mm. A TiG welding process is recommended. Cool the area surrounding the weld and beware of overheating the steel 2817 sleeve. The resulting distortion will make it difficult to refit the sleeve over the aluminum casing. If, despite all precautions, the sleeve turns out to be distorted, screw the sleeve onto the casing as far as it will go and then tap around the circumference of the sleeve with a soft faced hammer until the sleeve is free to move.

Droop Limiter

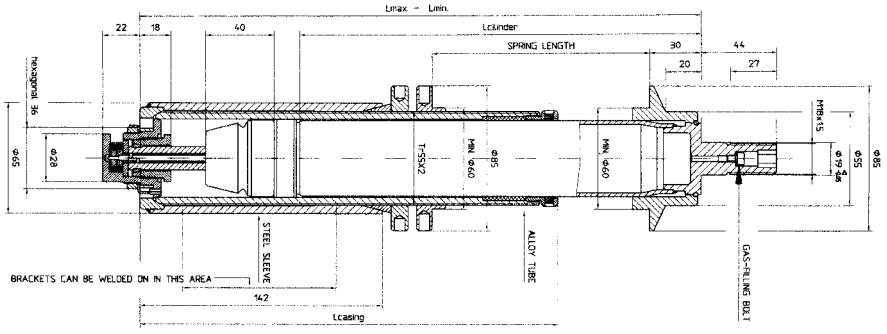
A droop limiter can be installed to reduce L max. The limiter length can be increased in steps of 5mm and can be changed by a KONI Service Center. Please state the required length at the time of ordering.

Length code	L max Dynamic*	L max Static**	L min	Stroke Max**	L cylinder
2817A43 VVV 00	429	429	310	119	251
2817A47 VVV 00	469	469	330	139	271
2817A51 VVV 00	509	509	350	159	291
2817A55 VVV 25	549	549	370	179	311
2817A59 VVV 25	589	589	390	199	331

NOTE:

* This is the max length allowed under dynamic conditions (see disclaimer below).

** The damper should only reach this length under static (no load) conditions.



NOTE: Upper Mounting Pin is now 5/8" Diameter.

Disclaimer:

At full droop the beam strength of a strut assembly is at its minimum. To warrant sufficient strength and safe operation, a droop limiter is usually installed inside the damper. Unfortunately, the resulting dimensions of the damper do not allow for the combination of a very low ride height and sufficient clearance to remove the wheels when the car is on jacks. As a solution, the droop limiter is shortened or removed. As a result, the damper can potentially be used outside of its safe operation limits. Under NO circumstance should a dynamic load be allowed to act on the strut assembly when the dampers are at such extended droop.

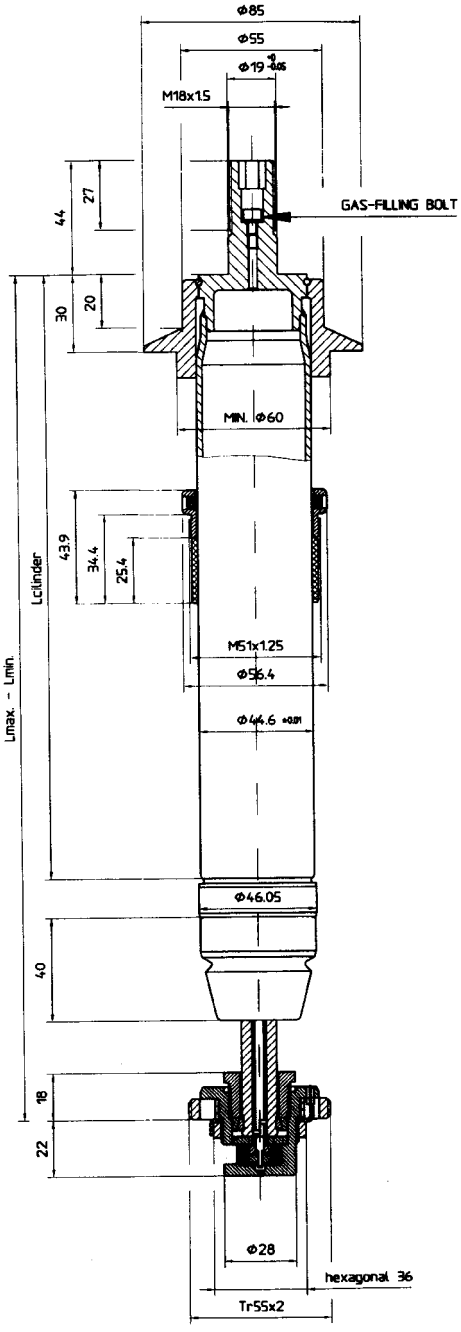
How to determine the required damper length for the 2817 and 2816

Please note that this procedure assumes that the vehicle is already equipped with dampers.

A. Put the car on a flat level surface. Measure the distance between the upper and lower spring seats.
B. Jack the car up to maximum desired droop. Measure the distance between the upper and lower spring seats.
C. Support the car on jack stands. Remove the wheels, springs and bump rubbers. For convenience, disconnect the anti-roll bars if possible.
D. Now raise the suspension to the point where either the chassis would hit the ground or where a suspension component uses up all its available travel. If the factory length struts are being used, it is necessary to determine if the length of the strut housing will require shortening to achieve the desired bump travel.
E. Subtracting the value found in stop D with the value found in step B give the required stroke.
F. Find a 2817 that has this required stroke. Compare the L min with that required from Step D.
G. If the L min is too long, check the next shorter length and determine if the L max will be sufficient.
H. If the L min is too short, check the next longer length. The L max can be shortened by increasing the length of the internal droop limiter of the damper.

2816 Series

The 2816 is a damper for use in strut housings that are designed and fabricated by the customer. The damper is to be used in an inverted “twin guide” installation. In this layout, the primary guide is located at the top of the suspension strut housing. The secondary guide is attached to the damper and moves up and down, relative to the primary guide. This configuration offers the stiffest assembly possible with lowest friction.



NOTE: Upper Mounting Pin is now 5/8" Diameter.

Components Supplied by KONI

– fully assembled piston rod attachment, containing the adjuster assembly.
– primary guide bushing and the secondary guide PTFE ring.
– lock nut with integrated dirt scraper.

Strut Housing Fabrication

All dimensional and finish requirements of the damper strut housing are noted in the drawing to the right. For the inside of the cylinder, it is important to achieve the small tolerance and smooth surface finish. Both are vital for low friction and durability.

2816ATT-VVV-DD

This is the generic part number for the 2816 Series. TT is the length code, VVV is the valving code, and DD is the length of the internal droop limiter.

TIP: Always select the longest L min you can accommodate. This ensures the lowest friction plus the best durability.

Droop Limiters

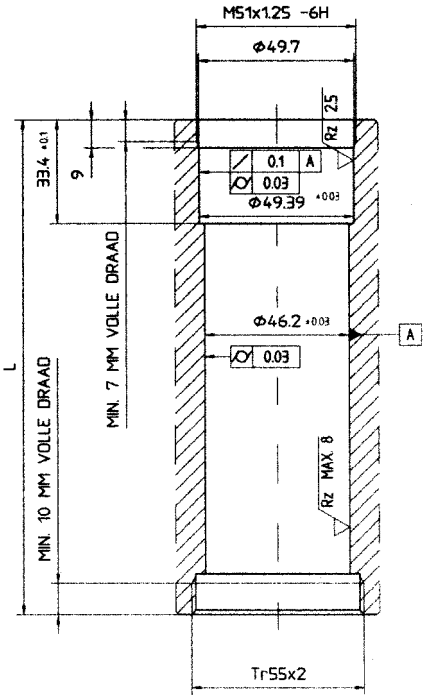
A droop limiter can be installed to reduce L max. The limiter length can be increased in steps of 5mm and can be changed in a KONI service center. Please state the required length at the time of ordering.

NOTE:

* This is the max length allowed under dynamic conditions (see disclaimer on page 6).

** The damper should only reach this length under static (no load) conditions.

SPECIFICATIONS FOR STRUT HOUSING



Length code	L max Dynamic*	L max Static**	L min	Stroke Max**	L cylinder
2816A43 VVV 00	429	429	310	119	251
2816A47 VVV 00	469	469	330	139	271
2816A51 VVV 00	509	509	350	159	291
2816A55 VVV 25	524	549	370	179	311
2816A59 VVV 25	564	589	390	199	331

3012 Series

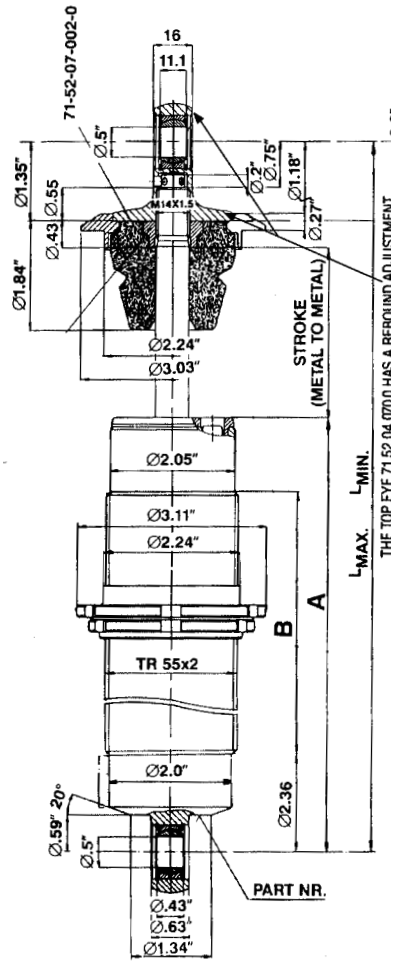
The 3012 Series features a threaded aluminum-body, external double-adjustability and a high pressure gas mono-tube design, ensuring optimum performance. Our patented mono-tube design allows for independent adjustments to the rebound and compression forces. All damping adjustment are made at the piston, eliminating the additional weight and packaging complications of an external reservoir. The 3012 Series offers one of the broadest adjustment ranges in the industry, eliminating the need of constant revalving procedures from track to track.

The rebound adjustment is made at the top of the shock while the compression is made by full extending the shock and turning the rod.

Styles Available

The 3012 Series dampers are available in either one of two standardized styles. The part numbers ending in an even number are supplied with the standard eye, which has the rebound adjustment window on axis to the mounting eye. The dampers ending in an odd part number are supplied with the rebound adjustment window 90 degrees to the axis of the eye. Please note that the eye supplied with the odd numbered dampers increases the maximum and minimum dimension of the damper 5mm (0.2").

Besides the 3012 shock, there is a steel bodied version, the 3011 Series also available. In addition, a rebound only adjustable 3014 Series is available in the same lengths. Custom mountings and lengths are also available.



Part Number	Stroke	Max L	Min L	A	Stroke	Max L	Min L	A
1600	50mm	261mm	211mm	165mm	1.97"	10.28"	8.31"	6.50"
1602	55mm	271mm	216mm	170mm	2.17"	10.67"	8.50"	6.69"
1604	60mm	281mm	221mm	175mm	2.36"	11.06"	8.70"	6.89"
1606	65mm	291mm	226mm	180mm	2.56"	11.46"	8.90"	7.09"
1608	70mm	301mm	231mm	185mm	2.76"	11.85"	9.09"	7.28"
1610	75mm	311mm	236mm	190mm	2.95"	12.24"	9.29"	7.48"
1612	80mm	321mm	241mm	195mm	3.15"	12.64"	9.49"	7.68"
1614	85mm	331mm	246mm	200mm	3.35"	13.03"	9.69"	7.87"
1616	90mm	341mm	251mm	205mm	3.54"	13.43"	9.88"	8.07"
1618	95mm	351mm	256mm	210mm	3.74"	13.82"	10.08"	8.27"
1620	100mm	361mm	261mm	215mm	3.94"	14.21"	10.28"	8.46"
1622	105mm	371mm	266mm	220mm	4.13"	14.61"	10.47"	8.66"
1624	110mm	381mm	271mm	225mm	4.33"	15.0"	10.67"	8.86"
1626	115mm	391mm	276mm	230mm	4.53"	15.39"	10.87"	9.06"
1628	120mm	401mm	281mm	235mm	4.72"	15.79"	11.06"	9.25"
1630	125mm	411mm	286mm	240mm	4.92"	16.18"	11.26"	9.45"
1632	130mm	421mm	291mm	245mm	5.12"	16.57"	11.46"	9.65"
1634	135mm	431mm	296mm	250mm	5.31"	16.97"	11.65"	9.84"
1636	140mm	441mm	301mm	255mm	5.51"	17.36"	11.85"	10.04"
1638	145mm	451mm	306mm	260mm	5.71"	17.76"	12.05"	10.24"
1640	150mm	461mm	311mm	265mm	5.91"	18.15"	12.24"	10.43"
1642	155mm	471mm	316mm	270mm	6.10"	18.54"	12.44"	10.63"
1644	160mm	481mm	321mm	275mm	6.30"	18.94"	12.64"	10.83"
1646	165mm	491mm	326mm	280mm	6.50"	19.33"	12.83"	11.02"
1648	170mm	501mm	331mm	285mm	6.69"	19.72"	13.03"	11.22"
1650	175mm	511mm	336mm	290mm	6.89"	20.12"	13.23"	11.42"
1652	180mm	521mm	341mm	295mm	7.09"	20.51"	13.43"	11.61"
1654	185mm	531mm	346mm	300mm	7.28"	20.91"	13.62"	11.81"
1656	190mm	541mm	351mm	305mm	7.48"	21.30"	13.82"	12.01"
1658	195mm	551mm	356mm	310mm	7.68"	21.69"	14.02"	12.20"
1660	200mm	561mm	361mm	315mm	7.87"	22.09"	14.21"	12.40"
1662	205mm	571mm	366mm	320mm	8.07"	22.48"	14.41"	12.60"
1664	210mm	581mm	371mm	325mm	8.27"	22.87"	14.61"	12.80"
1666	215mm	591mm	376mm	330mm	8.46"	23.27"	14.80"	12.99"
1668	220mm	601mm	381mm	335mm	8.66"	23.66"	15.0"	13.19"
1670	225mm	611mm	386mm	340mm	8.86"	24.06"	15.20"	13.39"
1672	230mm	621mm	391mm	345mm	9.06"	24.45"	15.39"	13.58"

* Lengths are for On-Axis eyes only. Off-Axis eyes are also available but will increase the minimum and maximum length by 5mm (0.2").

8212 Series

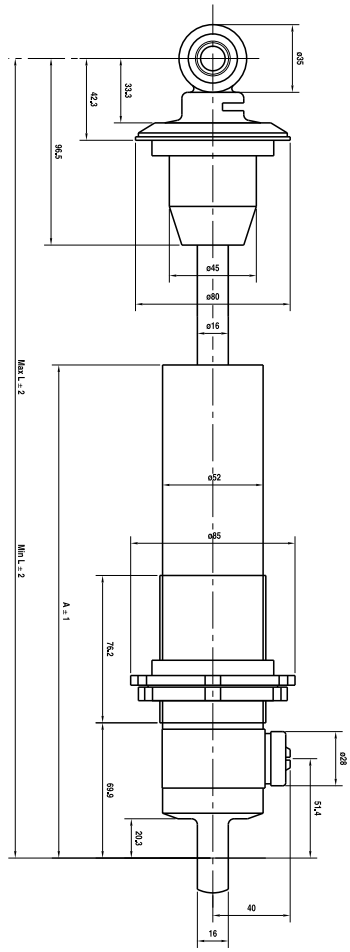
The 8212 Series is an aluminum bodied externally double adjustable coil-over. It has a twin-tube hydraulic construction that is fully rebuildable and the valving can be matched to a wide range of applications. Adjustment of the rebound and compression damping is provided by two controls and may be adjusted independently of one another without removing it from the car. Please note that the mounting angle may not be more than 45 degrees from vertical as otherwise air might be sucked into the working cylinder. When this occurs, the damper does not function properly.

The 8212 Series dampers are available in 7 standard valving. Listed below are the valving codes, and the range of spring rates that are recommended.

Variations Available

1. Settings for spring rates lighter than those of B1 or heavier than those listed for B8+ can be supplied after discussing your requirements with your KONI dealer.
2. In its standard form, the 8212 Series accepts spring with an inside diameter of 2.5". If desired, 2.25" spring seats are available upon request.
3. In applications where the minimum length of the damper is correct, but the desired droop travel is too long an internal rebound stop may be added to achieve the correct dimension. Discuss your needed with your KONI dealer. Custom Lengths are also available.
4. A steel bodied, nickel plated version, the 8211 Series, is available offering identical performance with a slight sacrifice in weight. This is an ideal shock for vintage applications that require a steel body shock.
5. A single adjustable version, the 8216 Series, is also available with adjustment in rebound damping only.

Part Number	Stroke	Max L	Min L	A	Stroke	Max L	Min L	A
1400	68mm	271mm	203mm	165mm	2.68"	10.67"	7.99"	6.50"
1402	73mm	281mm	208mm	170mm	2.87"	11.06"	8.19"	6.69"
1404	78mm	291mm	213mm	175mm	3.07"	11.46"	8.39"	6.89"
1406	83mm	301mm	218mm	180mm	3.27"	11.85"	8.58"	7.09"
1408	88mm	311mm	223mm	185mm	3.46"	12.24"	8.78"	7.28"
1410	93mm	321mm	228mm	190mm	3.66"	12.64"	8.98"	7.48"
1412	98mm	331mm	233mm	195mm	3.86"	13.03"	9.17"	7.68"
1414	103mm	341mm	238mm	200mm	4.06"	13.43"	9.37"	7.87"
1416	108mm	351mm	243mm	205mm	4.25"	13.82"	9.57"	8.07"
1418	113mm	361mm	248mm	210mm	4.45"	14.21"	9.76"	8.27"
1420	118mm	371mm	253mm	215mm	4.65"	14.61"	9.96"	8.46"
1422	123mm	381mm	258mm	220mm	4.84"	15.0"	10.16"	8.66"
1424	128mm	391mm	263mm	225mm	5.04"	15.39"	10.35"	8.86"
1426	133mm	401mm	268mm	230mm	5.24"	15.79"	10.55"	9.06"
1428	138mm	411mm	273mm	235mm	5.43"	16.18"	10.75"	9.25"
1430	143mm	421mm	278mm	240mm	5.63"	16.57"	10.94"	9.45"
1432	148mm	431mm	283mm	245mm	5.83"	16.97"	11.14"	9.65"
1434	153mm	441mm	288mm	250mm	6.02"	17.36"	11.34"	9.84"
1436	158mm	451mm	293mm	255mm	6.22"	17.76"	11.54"	10.04"
1438	163mm	461mm	298mm	260mm	6.42"	18.15"	11.73"	10.24"
1440	168mm	471mm	303mm	265mm	6.61"	18.54"	11.93"	10.43"
1442	173mm	481mm	308mm	270mm	6.81"	18.94"	12.13"	10.63"
1444	178mm	491mm	313mm	275mm	7.01"	19.33"	12.32"	10.83"
1446	183mm	501mm	318mm	280mm	7.20"	19.72"	12.52"	11.02"

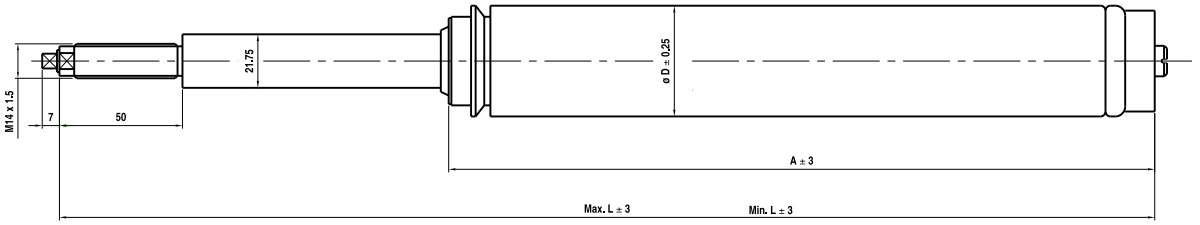


8611 Series Double Adjustable Strut Inserts

The 8611 Series double adjustable strut insert is a twin-tube hydraulic that is externally adjustable in both rebound and compression damping. This is an affordable double adjustable option for club racers and autocrossers in North America for vehicles utilizing strut suspensions. The rebound valving is adjustable at the top of the strut rod with a knob that is included while the compression adjuster is located at the bottom of the insert. This requires a 1/2" diameter hole to be made in the bottom of the strut housing for access to the adjuster. The 8611 Series is not supplied with a threaded locknut to retain the insert into the strut housing. If new locknuts are required for your application, please refer to the chart below to determine which part number you need when placing your order. Bump rubbers are included with the inserts though not shown in the drawing.

Part Number	Stroke	Max L	Min L	A	D
8611-1256 Race	139mm	520mm	380mm	311mm	45.5mm
8611-1257 Race	143mm	500mm	357mm	290mm	43.5mm
8611-1258 Race	158mm	615mm	457mm	391mm	43.5mm
8611-1259 Race	153mm	540mm	387mm	332mm	43.5mm

Stroke	Max L	Min L	A	D
5.47"	20.47"	14.96"	12.24"	1.79"
5.63"	19.69"	14.06"	11.42"	1.71"
6.22"	24.21"	17.99"	15.39"	1.71"
6.02"	21.26"	15.24"	13.07"	1.71"

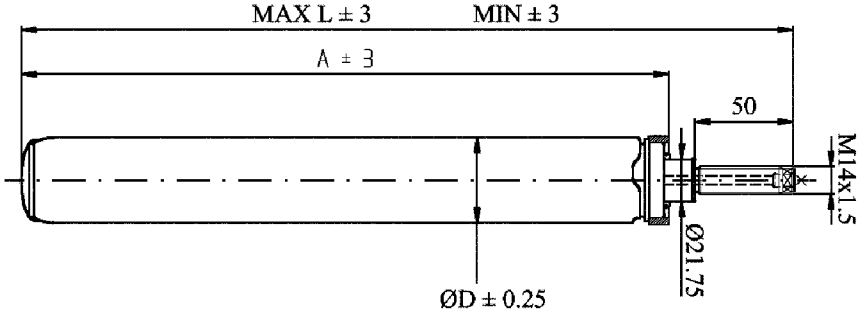


8610 Series Single Adjustable Strut Inserts

The 8610 Series strut cartridge insert fits a variety of road racing and autocross cars. This insert offers externally adjustable rebound damping with unique valving characteristics that have been developed in conjunction with many top racing teams and chassis builders. The piston rod is designed to fit through a 5/8" bearing/camber plate assembly. The 8610 Series is not supplied with a threaded locknut. Please specify which of the following part numbers you need from the chart below when placing your order. Bump rubbers are included with the inserts though not shown in the drawing.

Part Number	Stroke	Max L	Min L	A	D
8610-1436 Race	143mm	500mm	357mm	290mm	43.5mm
8610-1437 Race	153mm	540mm	387mm	332mm	43.5mm

Stroke	Max L	Min L	A	D
5.63"	19.69"	14.06"	11.42"	1.71"
6.02"	21.26"	15.24"	13.07"	1.71"



THREAD & PITCH	PART NO.
M48 x 1.50	73.25.01.003.1
M48 x 1.00	73.25.01.002.1
M51 x 1.25	73.25.01.006.1
M51 x 1.50	73.25.01.007.1
M52 x 1.50	73.25.00.025.1
52.8WW	73.25.01.011.1

TO DETERMINE THE CORRECT 8611 OR 8610 INSERT FOR YOUR APPLICATION

FOLLOW THESE STEPS.

A. Measure the inside depth and inside diameter of your strut housing.

B. For the KONI insert to be properly installed, the measure depth of your strut housing must be 1-4mm (.04"-.16") shorter than the dimension "A" in the chart below. Also, the inner diameter of the housing must be larger than the dimension "D".

C. In the event that the KONI "A" length is shorter than the required, the user must then fabricate a spacer and place it under the KONI insert so as to achieve the proper depth relationship.

D. After the KONI insert with the correct "A" length has been determined, verify that the stroke length will be appropriate for your application.

NOTE: See page 13 for camber plate notes.

RACE Series

The RACE Series dampers are designed as a bolt in application for those running either in high performance driving events, road racing or autocross. They are externally adjustable in rebound damping and can be adjusted on the car. They are designed to work with the extreme high performance spring rates up to 1000 lbs. with coil-over sleeve setups. These shocks come with factory style perches but will also work will our coil-over sleeve systems on page 30.

Also, these shocks have been shortened to give additional travel in the suspension to work with the lowered ride heights. This gives the dampers additional travel and keeps the car from bottoming out. The measurement given in the table below is the amount that the shocks are shorter than the factory length dampers.

Application	Year	Front	Body Shortened	Rear	Body Shortened
Acura Integra	94-01	8041 1152 Race	26mm	8041 1153 Race	16mm
Honda Civic*	88-91	8041 1166 Race	25mm	8041 1153 Race	16mm
Honda Civic	92-95	8041 1152 Race	26mm	8041 1153 Race	16mm
Honda Civic	96-00	8041 1152 Race	26mm	8041 1213 Race	15mm
Honda CRX*	88-91	8041 1166 Race	25mm	8041 1153 Race	16mm
Honda Del Sol	92-95	8041 1152 Race	26mm	8041 1153 Race	16mm

*Front Dampers only on 1988 models

HOW TO DETERMINE THE REQUIRED DAMPER LENGTHS

Double eye mounting style: 2812, 3011, 3012, 30 SP8, 8212

A. Prepare the car for making measurements: put it on a flat and level surface, support it on jack stands as such to lift the wheels off the ground. Remove the wheels, springs and dampers. Disconnect the anti-roll bars if fitted.

B. Check if the upper and lower mounting eyes of the damper you have selected will clear the attachment points on the car under all normal operating motions.

C. ***1.*** The suspension should now be set at its maximum droop position. Take careful note of which suspension component is limiting the suspension from traveling any further.

2. Lift the suspension just enough to prevent that component from binding.

3. Measure the center to center distance between the upper and lower damper attachment points. This is the open length or Lmax.

4. Refer to the chart that corresponds with the damper that you have selected. Find the Lmax that matches the one you measured. If no exact match can be found, decrease Lmax to the next available length.

NOTE: *All KONI dampers are designed to withstand the loads of limiting suspension droop and it is advisable to make use of this feature.*

D. ***1.*** Raise the suspension to the point where the chassis would hit the ground, or a suspension component uses up all of its available travel.

2. Now again measure the distance between the damper mounting points.

3. Check that this figure is greater that the Lmin found at point D1.

4. If this is not the case, decide if you need all the available droop-travel. If not, decrease Lmax to the next available fit an go back to step C4.

DETERMINING ROAD COURSE VALVING

Only the minimum and maximum adjustment curves are shown. If you need assistance in selecting a valving for your application, please have the following information available when you contact your KONI dealer:

- Spring rates
- Motion ratios

Motion ratio is the term used to indicate the ratio between wheel movement and damper movement. This ratio is an important factor when the required valving is selected, because it determines the piston velocities the damper will operate within.

Motion ratio *= Damper movement/Wheel movement*

This ratio is easily measured: assuming the car is without wheels, springs, and anti-roll bars:

1. Lower the suspension to its maximum droop position.
2. Measure the distance between the damper mounting points.
3. Raise the suspension to the minimum ride height position as found earlier and repeat step 2.
4. The mean motion ratio can now be calculated using the formula stated above.

SUGGESTED ADJUSTMENT PROCEDURE FOR ROAD COURSE USE

ADJUSTING THE BUMP DAMPING CONTROL

Bump damping controls the unsprung weight of the vehicle (wheels, axles, etc.). It controls the upward movement of the suspension as when hitting a bump in the track. It should not be used to control the downward movement of the vehicle when it encounters dips. Also, it should not be used to control roll or bottoming.

Depending on the vehicle, the ideal bump setting can occur at any point within the adjustment range. This setting will be reached when "side-hop" or "walking" in a bumpy turn is minimal and the ride is not uncomfortably harsh. At any point other than this ideal setting, the "side-hopping" condition will be more pronounced and the ride may be too harsh.

STEP 1: Set all four dampers on minimum bump and minimum rebound settings.

STEP 2: Drive one or two laps to get the feel of the car. NOTE: When driving the car during the bump adjustment phase, disregard body lean or roll and concentrate solely on how the car feels over bumps. Also, try to notice if the car "walks" or "side-hops" on a rough turn.

STEP 3: Increase bump adjustment clockwise 3 clicks on all four dampers. Drive the car one or two laps. Repeat Step 3 until a point is reached where the car starts to feel hard over bumpy surfaces.

STEP 4: Back off the bump adjustment two clicks. The bump control is now set. NOTE: The back off point will probably be reached sooner on one end of the vehicle than the other. If this occurs, keep increasing the bump on the soft end until it, too, feels hard. Then back it off 2 clicks. The bump control is now set.

ADJUSTING THE REBOUND DAMPING CONTROL

Once you have found what you feel to be the best bump setting on all four wheels, you are now ready to proceed with adjusting the rebound. The rebound damping controls the transitional roll (lean) as when entering a turn. It does not limit the total amount of roll; it does limit how fast this total roll angle is achieved. How much the vehicle actually leans is determined by other things such as spring rate, sway bars, roll center heights, etc.

It should be noted that too much rebound on either end of the vehicle will cause an initial loss of lateral acceleration (cornering power) at that end which will cause the vehicle to oversteer or understeer excessively when entering a turn. Too much rebound control in relation to spring rate will cause a condition known as "jacking down." This is a condition where, after hitting a bump and compressing the spring, the damper does not allow the spring to return to a neutral position before the next bump is encountered. This repeats with each subsequent bump until the car is actually lowered onto the bump stops. Contact with the bump stops causes a drastic increase in roll stiffness. If this condition occurs on the front, the car will understeer; if it occurs on the rear, the car will oversteer.

STEP 1: With rebound set on full soft and the bump control set from your testing, drive the car one or two laps, paying attention to how the car rolls when entering a turn.

STEP 2: Increase rebound damping three sweeps on all four dampers and drive the car one or two laps. Repeat Step 2 until the car enters the turns smoothly (no drastic attitude changes) and without leaning excessively. Any increase in the rebound stiffness beyond this point is unnecessary and may in fact be detrimental.

EXCEPTION: It may be desirable to have a car that assumes an oversteering or understeering attitude when entering a turn. This preference, of course, will vary from one driver to another depending on individual driving style.

TROUBLESHOOTING GUIDE

The following is a guide to try to fix handling problems AFTER the car's initial setup has already been found.

FRONT

Rebound
Setting is Too Firm – Can cause the car to "jack down" which can cause the driver to think the car is too firm in compression. Can also cause a lack in grip from the tire not separating from the chassis fast enough and cause the car to understeer.
Setting is Too Soft – Though a soft rebound setting will allow better compliance with the road, the car may feel floaty or excessively oscillate after hitting bumps.

Compression
Setting is Too Firm – Can cause the car to feel skittish and lose grip over rough sections of pavement. Can cause outside tire to be loaded too quickly. The car won't stabilize in a turn.
Setting is Too Soft – Can cause a corner entry understeer. Can possibly cause excessive suspension movement.

REAR

Rebound
Setting is Too Firm – Can cause a snap over steer on corner entry from rear tires losing contact on bumps. Can also cause the car to "jack down" in the rear and less grip.
Setting is Too Soft – Can cause a corner entry oversteer and corner exit oversteer. Vehicle may feel floaty or excessively oscillate after hitting bumps.

Compression
Setting is Too Firm – Can cause the car to have a snap oversteer, especially on mid-corner bumps. Car won't feel stabile in turn and skittish on rough pavement.
Setting is Too Soft – Can cause corner exit understeer and possible excessive suspension movement.

NOTES:

1. When changing to firmer springs, the shocks usually need to be set firmer for rebound and softer for compression damping.
2. On rainy or slick tracks, softening the compression damping will help to delay initial loading on the tire which increases grip.

This is a guide for Shock Setup only. Other factors such as the spring rates, sway bars, alignment and tire pressures will also have an affect on the handling of the vehicle.

SPHERICAL BEARING MOUNT AND CAMBER PLATE GUIDE

For applications that use an upper spherical bearing mount or camber plate, please check the following points for adequate clearance through the entire range of suspension travel.

- Make certain that the mounting hardware does not contact the outer bearing race or the housing that retains the bearing. The mounting hardware includes any nut, washer, or spacers that are use to locate the mounting pin in the bearing.
- Make certain that the retaining clip for the bearing does not contact the piston rod shoulder or mounting hardware.

Any contact at these points can cause excessive side load that could cause damage to the damper or bearing mounting assembly.

KONI ADJUSTABLE DRAG RACING SHOCK ABSORBERS SERIES SPA1

90/10 THEORY FALLS BY WAYSIDE

The KONI SPA1 Series shock absorber (for drag racing only) is a complete departure from the old "90/10" thinking which is no longer effective in modern drag race competition.

The old thinking was to allow the vehicle front end to rise quickly and stay there to promote as much weight transfer as possible to the rear wheels. This was achieved by virtually no rebound forces ("10") and a great deal of bump forces ("90"). This massive amount of bump force was supposed to hold the front suspension up to maintain that "bite."

Unfortunately the nose-in-the-air position trapped huge volumes of air which ruined any attempt at aerodynamics so E.T.s were not as good as they *could* have been.

KONI SPA1 Series shocks deal with this in several ways. First, they use virtually no bump (compression) damping. Why? To allow the front-end to settle quicker, restoring the nose down attitude that is so essential for cleaner air flow. Second, the rebound (extension) forces are velocity sensitive; that is, they increase at a rate directly proportionate to piston speed.

So, what does this mean?

On a dry surface with good hookup, the amount of lift generated by initial launch is, of course, very sudden and quite violent. The velocity sensitive nature of the SPA1 reacts instantly (no magic, just good design and tuning) to *damp* this lift to avoid bogging caused by *too much* weight transfer. (Yes, you can have too much of a good thing.)

On the other end of the spectrum, a slick surface would naturally provide less lift and tire shock, so the SPA1 then allows more movement of the front end because the lack of traction initially does not lift the chassis as violently. This "gentle" impulse does not activate the higher speed circuit of the SPA1, so you end up with more front to rear weight transfer and accordingly better bite. Not only that, they have five settings that enable you to tune your chassis. For KONI rear SPA1 shocks, there is a big difference. They still have nearly zero bump (compression) damping but the rebound damping, unlike the fronts, is digressive.

Digressive?

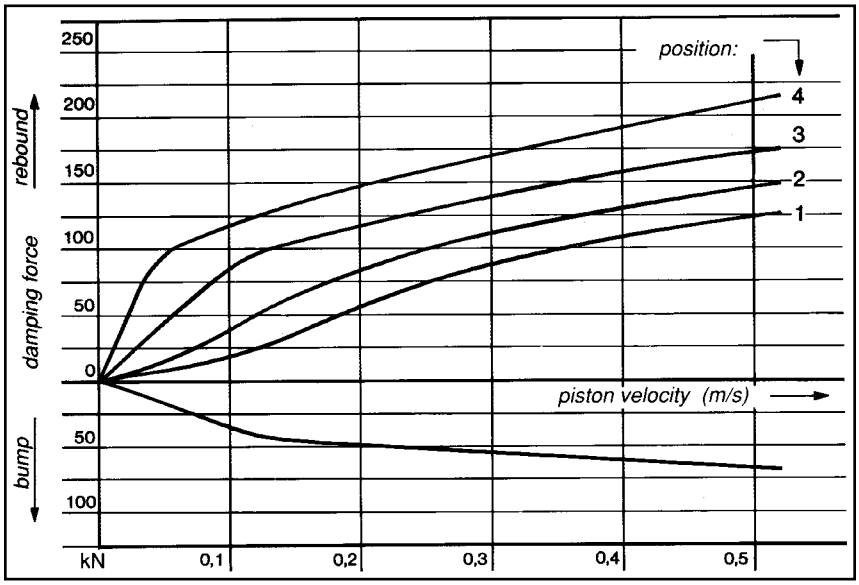
Yes. This means they are designed to digress, or "blow off" at high piston speed. Why? Well, if you had the velocity sensitive type setting the front shocks use, it would be possible to grossly over damp the rear suspension on initial launch, thereby picking up rear wheels. The rear SPA1 KONI will "blow off" then, and allow proper "unwinding" of the rear suspension.

WARNING

KONI Series SPA1 shock absorbers are specifically for use in off highway drag race competition only. If used on public highways loss of vehicle control and consequent personal injuries may result.

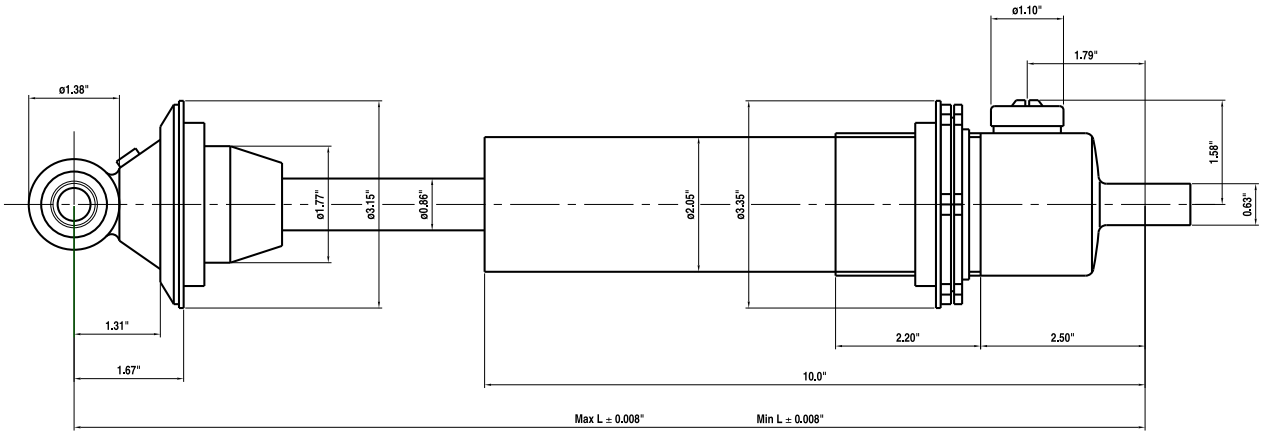
Electric Drag

The 12-2021 electric drag racing dampers offer the ultimate in adjustable drag race suspension. Rebound damping forces are adjusted by an electric servo motor located inside the piston rod that can be adjusted with the touch of a button. This allows the driver to launch the car with high rebound forces to hold the car down for better bite and then change to a softer setting by a remote switch to offer more compliance to optimize traction. Compression damping is also adjustable manually to one of twelve settings via a screw adjustment at the bottom of the damper. The spring seats accept a 2.25" I.D. spring or a 2.5" ID spring when used with the included nylon adapters and are installed with 1/2" I.D. spherical bearings. These are complete kits that include the wiring harness and the control box. The SPA11 "Gorilla" valving is available as well which offers higher rebound forces for applications using higher spring rates.



Note: Compression Adjustment range not shown in graph.

Part Number	Stroke	Max. Length	Min. Length	Spring Length	Ride Height
12 2021	6.57"	19.25"	12.68"	14"	15.96"
12 2021 SPA11	6.57"	19.25"	12.68"	14"	15.96"



Bump Rubber = 1"

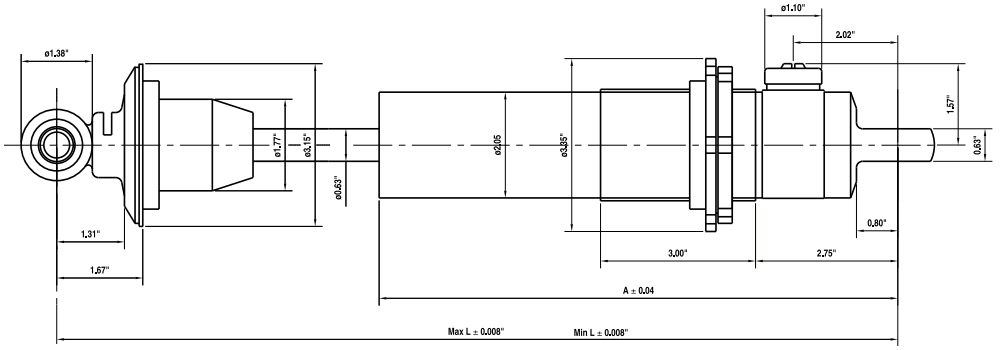
Parts Available

70.29.01.288.0	Upper Spring Seat
71.29.11.048.0	Lower Spring Seat
71.29.13.008.0	Locking Ring
15.29.04.003.0	Nylon 2.25" to 2.5" spring seat adapter
71.80.40.048.0	Electronic Control Box
71.80.10.034.0	Wiring Harness

8212 SPA1

The 8212 SPA1 Series of dampers is an aluminum bodied coil-over that features externally adjustable rebound and compression damping. Due to its unique valving and wide range of adjustment, this drag racing damper satisfies a wide range of suspension configurations and spring rates. The 8212 SPA1 is fully rebuildable and comes complete with 2.5" I.D. spring hardware and 1/2" I.D. spherical bearings. Custom Lengths can be built to your requirements in our shop.

Part Number	Stroke	Max. Length	Min. Length	Spring Length	Ride Height
8212 1121 SPA1	5.13"	15.88"	10.75"	10"-12"	13.32"
8212 1126 SPA1	6.00"	17.50"	11.50"	12"	14.50"
8212 1123 SPA1	7.00"	19.50"	12.50"	14"	16.00"



Bump Rubber = 2-3/16"

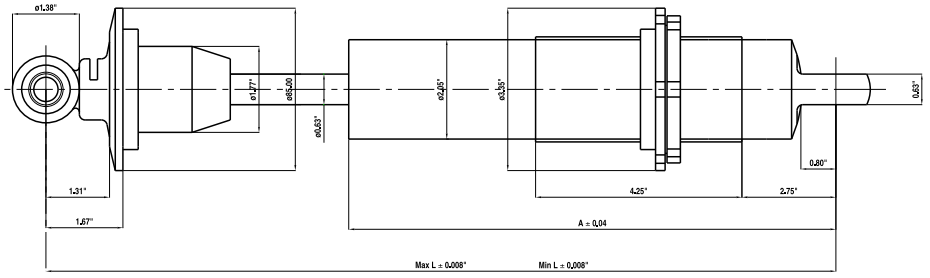
Parts Available

70.29.01.121.0	Upper Spring Seat
8212.29.129	Lower Spring Seat
8212.29.011	Locking Ring
15.29.04.003.0	Nylon 2.25" to 2.5" spring seat adapter
70.34.53.000.0	Bump Rubber

8216 SPA1

The 8216 SPA1 is an aluminum bodied coil-over that is designed for use with 2.5" I.D. springs. These single adjustable drag race dampers are externally adjustable on rebound damping with the compression damping set from the factory. Custom Lengths can also be fabricated in our shop.

Part Number	Stroke	Max. Length	Min. Length	Spring Length	Ride Height
8216 2027	2.25"	11.26"	8.74"	8"	9.87"
8216 1906 SPA1	4.61"	15.59"	10.98"	10"-12"	13.29"
8216 1907 SPA1	5.44"	17.17"	11.73"	12"	14.45"
8216 1908 SPA1	6.37"	19.13"	12.76"	14"	15.95"



Bump Rubber = 2-5/32" (1-9/16" for 8216-2127)

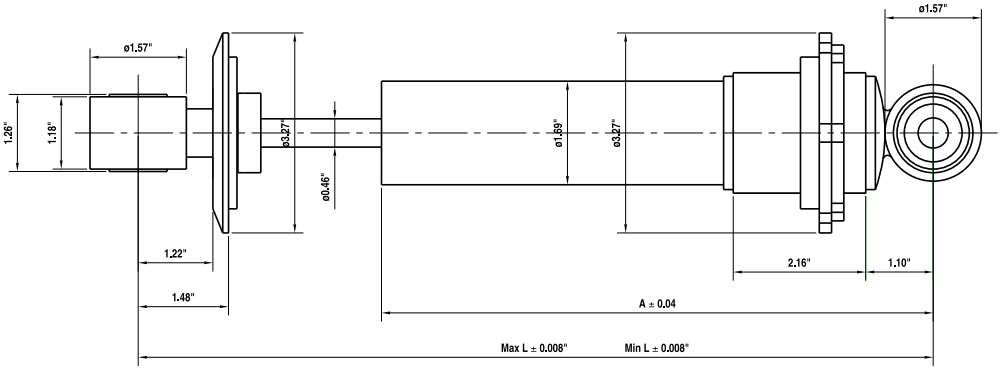
Parts Available

70.29.01.119.0	Upper Spring Seat
8212.29.129	Lower Spring Seat
8212.29.011	Locking Ring
70.34.53.000.0	Bump Rubber
70.34.54.000.0	Bump Rubber (for 8216-2027 only)

80-2650 SPA1

The 80-2650 SPA1 is an economical steel bodied coil-over that is designed for use with 2.5" I.D. springs. These single adjustable dampers are internally adjustable on rebound damping with a fixed compression damping setting. The 80-2650 SPA1 mount has 1/2" I.D. rubber mounting bushings.

Part Number	Stroke	Max. Length	Min. Length	Spring Length	Ride Height
80 2650 SPA1	5.2"	15.83"	10.63"	12"	13.23"



Bump Rubber = 15/32"

Parts Available

70.29.01.230.0	Upper Spring Seat
70.29.11.246.0	Lower Spring Seat
70.29.13.002.0	Locking Ring
70.52.21.134.0	Rubber Bushing

TIPS FOR COIL-OVER SHOCKS

Ride Height – The ride height measurement given in the tables above is the point at the center of stroke for the shock. Ideally, you should be within a half inch above or below this depending on your chassis setup.

Bump Rubber – The bump rubber, or bumpstop as it is also called, can be cut down some depending on if the travel is needed in compression. The bump rubber should not be removed though as this protects the shock from damage. Any trimming done to the bumpstop should be done from the top down. The conical part at the bottom should be left alone as it allows a more progressive stop the suspension movement.

Spring Seats – The spring seats and threading on the shocks should be kept clean at all times. Dirt and other debris could otherwise lodge into the threads and possibly damage them.

Car Transport – If you trailer your car to the track, it is possible that you are wearing your shocks out faster. If the tires of the car are tied down instead of the chassis, the shock is trying to work to stop the movement the chassis by the trailer. This can cause premature wear of the suspension components.

Make / Model	Year	Front	Rear
BUICK			
Apollo, Skylark	74-79	80 1958 SPA1	80 1661 SPA1
Centurion, Electra, LeSabre	71-76	80 1958 SPA1	Not Available
Century Wagon	73-77	80 1958 SPA1	Not Available
Century, Regal (Exc. Wagons)	70-87	80 1958 SPA1	80 1661 SPA1
Regal, Grand National	78-87	80 1958 SPA1	80 1661 SPA1
Electra, LeSabre (Exc. FWD)	77-85	80 1958 SPA1	80 1661 SPA1
Skylark, Special	68-72	80 1958 SPA1	80 1661 SPA1
Skylark, Special	64-67	Not Available	80 1661 SPA1
Sportwagon	70-72	80 1958 SPA1	80 1661 SPA1
CHEVROLET			
Camaro incl. Z-28	82-92	8710 1289 SPA1	Not Available
Camaro incl. Z-28	70-81	80 2108 SPA1	80 2109 SPA1
Camaro W/Mono-Leaf Rear Springs	68-69	80 1914 SPA1	80 1915 SPA1
Camaro W/Multi-Leaf Rear Springs	68-69	80 1914 SPA1	Not Available
Camaro	67	80 1914 SPA1	80 1915 SPA1
Caprice, Impala Sedans, Wagons	77-95	80 1958 SPA1	80 1661 SPA1
Caprice, Impala Sedans, Wagons	66-78	80 1958 SPA1	Not Available
Chevelle, Malibu Sedans	68-85	80 1958 SPA1	80 1661 SPA1
Chevelle, Malibu Sedans, SS-396	64-67	Not Available	80 1661 SPA1
Chevy	55-57	80 2108 SPA1	Not Available
Nova	75-79	80 1958 SPA1	80 1661 SPA1
Chevy II, Nova	68-74	80 1958 SPA1	80 1661 SPA1
Chevy II, Nova	62-67	80 1546 SPA1	80 1915 SPA1
Corvette	63-83	80 1820 SPA1	80 1576 SPA1
El Camino	68-77	80 1958 SPA1	Not Available
Monte Carlo	70-87	80 1958 SPA1	80 1661 SPA1
DODGE			
Charger	77-81	80 2660 SPA1	Not Available
Charger, Coronet	73-76	80 2660 SPA1	Not Available
Dart, Demon, GTS	63-76	80 1423 SPA1	Not Available
FORD			
Mustang (Exc. IRS) — Double Adjustable Rear Alternative — Quad Shock	94-04	8710 1311 SPA1 _	80 2401 SPA1 8042 1134 Sport 25 1215
Mustang, 8 cyl. — Double Adjustable Rear Alternative — Quad Shock	87-93	8710 1272 SPA1 _	80 2401 SPA1 8042 1026 Sport 25 1215
Mustang, 4 cyl. —Quad Shock	86-92	Not Available	80 2401 SPA1 25 1215
Mustang w/1.5 in. Lower Rear Bushing (Exc. SVO) —Quad Shock	79-86	Not Available	80 2401 SPA1 25 1215
Mustang Not Available	74-78		80 2660 SPA1
Mustang	71-73	Not Available	80 2511 SPA1
Mustang	64-70	80 2510 SPA1	80 2511 SPA1
Pinto Sedan and Wagon	70-80	80 2660 SPA1	Not Available

Make / Model	Year	Front	Rear
MERCURY			
Capri w/1.5 in. Lower Rear Bushing	79-86	Not Available	80 2401 SPA1
— Quad Shock		—	25-1215
Cougar	67-70	80 2510 SPA1	Not Available
OLDSMOBILE			
Cutlass Sedan	87	80 1958 SPA1	80 1661 SPA1
Cutlass Vista Cruiser	73-77	80 1958 SPA1	Not Available
Cutlass 442	66-67	Not Available	80 1661 SPA1
Cutlass F-85 (Exc. 442)	64-67	Not Available	80 1661 SPA1
Omega	75-79	80 1958 SPA1	80 1661 SPA1
PLYMOUTH			
Barracuda	64-69	80 1423 SPA1	80 1539 SPA1
Belvedere, Satellite	74	80 2660 SPA1	Not Available
Duster/ Valiant	63-76	80 1423 SPA1	80 1539 SPA1
Road Runner	73-75	80 2660 SPA1	Not Available
PONTIAC			
Bonneville, Catalina, Parisienne (all)	77-81	80 1958 SPA1	80 1661 SPA1
Bonneville, Catalina, Parisienne (all)	65-76	80 1958 SPA1	Not Available
Can-Am	77	80 1958 SPA1	80 1661 SPA1
Firebird Incl. Trans-Am	82-92	8710 1289 SPA1	Not Available
Firebird Incl. Trans-Am	70-81	80 2108 SPA1	80 2109 SPA1
Firebird	69	80 1914 SPA1	Not Available
Firebird	68	80 1914 SPA1	Not Available
Firebird	67	80 1914 SPA1	80 1915 SPA1
Grand Am	73-77	80 1958 SPA1	80 1661 SPA1
Grand Prix	69-87	80 1958 SPA1	80 1661 SPA1
GTO, LeMans, Tempest Sedans	68-77	80 1958 SPA1	80 1661 SPA1
GTO, LeMans, Tempest Sedans	64-67	Not Available	80 1661 SPA1
LeMans Wagon	73-77	80 1958 SPA1	Not Available
Parisienne Incl. Wagon	83-86	80 1958 SPA1	80 1661 SPA1
Phoenix, Ventura II	75-79	80 1958 SPA1	80 1661 SPA1
Ventura	72-74	80 1958 SPA1	80 1661 SPA1

Note: For FWD applications, please check the Sport applications in our Passenger Car and Light Truck Applications.

Drag Racing Stock Length Information

FRONT	MOUNTING STYLE		Max.	Min.
Part Number	Top	Bottom	Length	Length
80 2660 SPA1	Pin	Eye	11.69"	8.00"
80 1914 SPA1	Pin	Fork	13.27"	8.62"
80 1958 SPA1	Pin	Fork	13.66"	8.82"
80 1820 SPA1	Pin	Fork	13.66"	8.82"
80 2510 SPA1	Fork	2-Stud	14.40"	9.37"
80 2108 SPA1	Pin	Fork	14.84"	9.41"
80 1423 SPA1	Pin	Eye	14.88"	9.50"
80 1546 SPA1	Pin	2-Stud	16.30"	10.00"

REAR	MOUNTING STYLE		Max.	Min.
Part Number	Top	Bottom	Length	Length
80 1576 SPA1	Eye	Eye	14.13"	10.12"
80 2511 SPA1	Pin	Pin	16.46"	10.12"
80 1915 SPA1	Pin	Eye	19.80"	12.01"
80 2401 SPA1	Pin	Eye	20.35"	12.32"
80 2109 SPA1	Fork	Pin	20.47"	12.48"
80 1661 SPA1	Fork	1-Stud	21.18"	12.99"

See page 20 for measurement procedures for factory style shocks.

SUGGESTED ADJUSTMENT PROCEDURE FOR DRAG RACING USE

Step 1: Prior to testing make certain that wheelie bars are raised as high as possible while maintaining control and eliminating their influence as much as possible on damper settings. Also install a tie-wrap to the chrome rod of the shock and push down to where it touches the top of the body.

Step 2: Place all damping controls on minimum. Make a pass in first and second gears in order to determine that the car goes straight. If not, the alignment, tire pressures, etc. should be checked and corrected before proceeding any further.

Pay close attention to what occurs during gear change. If the car wheel stands or bounces violently, you should adjust the front dampers first and then the rears. However, if there is rear tire shake, wheel hop or excessive body separation, adjust the rear shocks first and then the fronts.

Check also where the tie-wrap ends up after launch. If it is buried into the bumpstop, the spring rate may either be too soft, the vehicle set too low or the bumpstop may need to be trimmed (up to 1").

Step 3: Front Damper Adjustment Procedure

Pay close attention to what is happening to the front end during launch and the first gear change. Your goal is to eliminate all jerking and/or bouncing movements so as to obtain smooth transitions at all times.

Too Light of a damper setting allows violent chassis separation and may even result in jerking the front wheels off the ground during initial launch. Too light a setting also allows the car, during gear change, to bounce off its front rebound travel limiter and then bottom out in a continually oscillating manner.

Too Firm of a damper setting will prevent the tires from easily lifting off the ground and thus providing sufficient weight transfer. During a gear change a firm setting will also cause the chassis to bounce off the tire when the chassis settles down.

Adjust the damper by increasing the rebound damping in 1/4 turn (90 degrees) increments until a smooth transition from launch through gear change has been achieved. If double adjustable KONI's are used, adjust the bump damping in 3 click increments to control the amount and the rate at which the front end settles during gear change. Watch your ET's and, if your times start to get slower, back off the rebound adjustment by 1/4 turn and the bump adjustment by 2 clicks.

Step 4: Rear Damper Adjustment Procedure

You should pay close attention to the rear of the car as your goal is to damp the tire movements as firm as the track conditions permit. Remember that the damper controls the amount and the rate of weight transfer to the tire.

Too Light of a damper setting allows excessive separation between the body and the tire.

Too Firm of a damper setting allows high tire shock and causes extreme flattening of the tire.

Adjust the rear damper in 1/4 turn (90 degrees) increments of rebound adjustment and, if KONI double adjustable dampers are used, increase the bump adjuster by 3 clicks for each pass. Watch your ET's and if your times start to get slower, reduce the amount of adjustment by 1/4 turn of rebound adjustment and 2 clicks of bump adjustment.

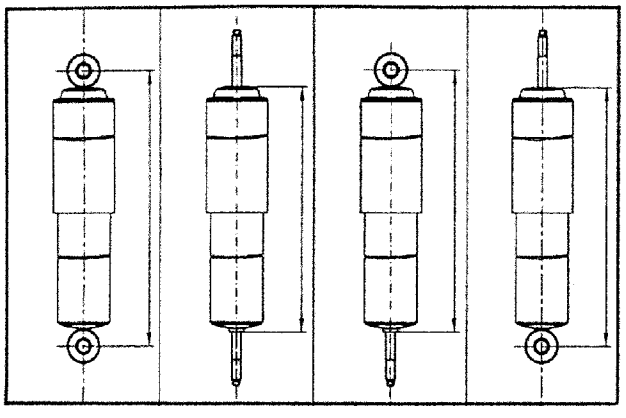
Step 5: When all adjustments have been completed, reset your wheelie bars as low as possible without hurting your ET's. Once you have completed this procedure, only fine adjustments may be needed in the future due to varying track conditions.

HOW TO MEASURE MAXIMUM/MINIMUM LENGTHS OF FACTORY STYLE SHOCKS

1 **Maximum Length** – fully extend the shock absorber and measure from center of eye(s), including single stud or fork mounts; or in the case of pin or 2-stud mounts, from the start of the pin or 2-stud mount as it emerges from the shock body.

2 **Minimum Length**
– completely compress shock absorber and measure.

Note: Single stud and fork configurations may be pressed out to allow for an eye style mounting.



HOW TO DETERMINE THE CORRECT SHOCK ABSORBER LENGTH

Please observe the following guidelines when determining the correct shock absorber length for your vehicle.

1 **Preparing the car.**

Place the car on a level surface and remove springs, shock absorbers, bump rubbers and sway bar(s).

2 **Determining the Maximum Length.**

- Raise the car body until the tires are lifted off the ground. Take careful note of which component of the suspension is limiting the suspension from traveling further.
- Raise the tire enough to prevent that suspension component from binding.
- Measure between the center of the upper and lower shock mounting points. This gives you the desired maximum length shock.

All KONI shocks are designed to withstand the loads of limiting the suspension droop travel and it is advisable to take advantage of this feature.

3 **Determining the Minimum Length.**

- Lower the car to the point at which the tub just touches on the pavement, or a tire just touches on the inside of the fender well, or some other suspension component uses up all its available travel.
- Measure between the center of the upper and lower shock mounting points. Now select a KONI shock with a minimum which is shorter than your measured minimum suspension length. By choosing a slightly shorter shock you protect the shock from bottoming out and causing internal damage.

HOW TO DETERMINE SPRING REQUIREMENTS-GENERAL GUIDELINES*

1 **Determining Travel.**

It is recommended that there be approximately 3" of compression travel available (including the bump stop). This means the chassis must be supported by a spring rate that will allow the chassis to be supported 3" upward from the bottoming position.

2 **Determining the Vehicle Sprung Weight.**

- Establish front and rear weight of the vehicle.
- Establish unsprung weight. This is the weight not supported by the springs, i.e., tires, wheels, wheelie bars, brakes, and 1/2 the weight of the shock, spring, driveline and ladder bar or four link. 1/2 the weight is used for some components because their weights are equally shared between sprung and unsprung weight.
- Determine Sprung Weight - The weight of the vehicle less the unsprung weight.

3 **Spring Rate.**

Divide the rear sprung weight by 2 to determine the load for each rear corner. Divide the front sprung weight by 2 to determine the load for each front corner. If the load for the rear corners is 330 lbs. each (660 lbs./2=330 lbs.) then divide the 330 lbs. by the compression travel needed and you arrive at the base spring rate of 110 lbs. per inch.

330 lbs./3" compression travel = 110 lbs. spring rate.

This does not take into account a lever ratio that may be applied to the spring rate.

4 **How to run a lighter spring rate.**

Because KONI coil-over shocks feature an adjustable spring platform it is possible to run a lighter spring rate by preloading the spring. For example, with 3" of travel a 95 lb. spring will be 45 lbs. softer than a 110 lb. spring.

110 lbs. - 95 lbs. = 15 lbs.
15 lbs. x 3 = 45 lbs.

To regain 45 lbs. simply preload the 95 lb. spring by screwing up on the bottom adjustable spring platform by 1/2".

1/2 of 95 = 47.5 lbs.

You are now able to support the chassis at the desired ride height but with a softer spring rate, thus allowing more weight transfer to the rear and a better bite.

To preload a spring properly, the difference between free height and compressed height (coil bind position) must be determined and coordinated with the amount of usable shock travel. The spring minimum or coil bind position must not be greater than the amount of shock travel desired.

KONI'S SUPERIOR SHOCK

KONI's Mono-Tube, High Pressure Gas Design Damping Solution

To meet the demands of Oval Track racing KONI has chosen the **Mono-tube, high pressure gas design, which provides no fade valving and enables mounting of the shock absorber upside-down, lowering the unsprung weight of the vehicle.**

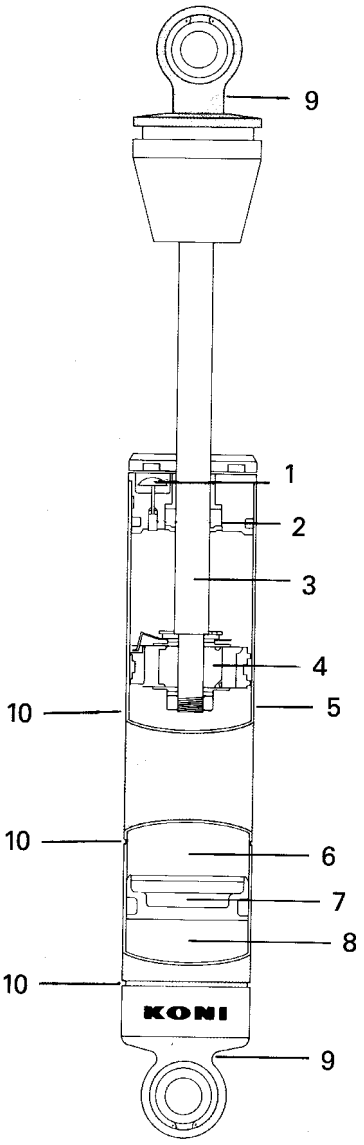
KONI's Mono-Tube Design vs. Gas Cell Design

Some other manufacturers place a plastic bag filled with gas inside a hydraulic twin-tube shock absorber, as a means of preventing aeration or free stroke, when the shock absorber is mounted upside-down. In theory this is logical thinking; however, in practice: the plastic bags usually fail, resulting in aeration and reduced performance.

The plastic bags are not heat resistant and float within the shock absorber. **The bags fail prematurely because of the abrasions received as it floats within the cylinder, and the high operating temperatures experienced in oval track racing.**

When mounting a shock absorber upside-down, the only shock absorber design that will not fail under the extreme conditions of oval track racing is the Mono-tube design. Lacking the engineering and manufacturing sophistications of KONI, other suppliers offer the "gas cell" or plastic bag design.

Other manufacturers' "gas cell" bag. These bags fail prematurely, causing shock fade.



1 **Adjustment Button.** 4 Position Adjustable - KONI's patented adjustment design enables 1 KONI shock to have 4 distinct and separate rebound valvings, by a simple push of a button. This feature allows for tuning of the chassis.

2 **Guide & Seal.** Low friction Viton seal ensures continued peak performance; other gas cell shock designs have been measured at 3 times the friction value of KONI. The KONI guide is made of hardened steel and includes a sintered bushing for long life; other gas cell designs are not hardened, nor include a bushing.

3 **Piston Rod.** Highest tensile strength of any make. KONI rod will withstand 850 lbs. of force prior to bending 1% - other competitive rods bend between 625 and 725 lbs. of force. Super Chrome finished and lapped (over 3 times smoother than gas cell design) for continued peak performance and superior seal life.

4 **Piston & Teflon Band.** Large piston diameter (1.81" vs. gas cell design of 1.38") provides velocity-sensitive valving. The valves on the piston monitor the oil flow and damping forces. The Teflon Band provides low friction value - other gas cell designs contain lower grade rubber O-rings, which damage quickly.

5 **Cylinder Wall.** Precision drawn seamless tubing (other gas cell designs have abrasive seam welds) ensures low friction value .080" thick cylinder wall withstands tract abuse.

6 **Damping Fluid.** Highest viscosity value of any make, ensures no fade valving. Mono-tube design also allows for larger volume of oil, increasing ability to withstand high operating temperatures.

7 **Floating Separation Piston.** Separates gas from oil, enabling shock to be mounted in any position, including upside-down.

8 **Gas.** Large volume of nitrogen gas for peak operating performance at high working temperatures, up to 320˚F.

9 **Eye Attachments.** Strongest tensile strength of any brand. KONI eye can withstand up to 15,000 lbs. of force, up to 3 times stronger than some other brands.

10 **3 Position Coil-Over Snap Ring Grooves.** Various lengths of springs can be fitted because of adjustable spring retainers.

2812 Series – The Ultimate Asphalt Damper!

The 2812 Series are a mono-tube damper specifically designed for asphalt competition purposes and features externally adjustable bump and rebound. The precision adjustment mechanism allows for maximum control possible over the damping forces generated.

In modern racing applications damper sensitivity, repeatability, and ease of use are a must. To achieve this, the 2812 Series uses a superior and advanced adjustment mechanism operated by closing and opening valve-loaded ports. By having all damping forces generated at the piston, the control over the damping forces is very precise. A separate reservoir is not needed to accommodate the bump adjuster. This makes for a lighter assembly and a compact and simple installation.

Due to the uniqueness of this damper, please call to discuss application and valving. The shocks are user rebuildable with hundreds of different valving combinations available. For parts and tool information, please call.

The chart below is just a sample of the various lengths that are available. The 2812 shock uses a 1/2" ID bearing but custom mountings can be fabricated as well due to its modular design.

For more information on finding the correct shock length for your application, please refer to page 11. For strut based applications, please refer to page 6.

Note: Always select the longest L min you can accommodate. This ensures the lowest friction plus the best durability.

Part Number	Max L	Min L	Stroke
403	403mm	289mm	114mm
433	433mm	309mm	124mm
473	473mm	329mm	144mm
513	513mm	349mm	164mm
553	553mm	369mm	184mm
593	593mm	389mm	204mm
633	633mm	409mm	224mm

Max L	Min L	Stroke
15.87"	11.38"	4.49"
17.05"	12.17"	4.88"
18.62"	12.95"	5.67"
20.20"	13.74"	6.46"
21.77"	14.53"	7.24"
23.35"	15.31"	8.03"
24.92"	16.10"	8.82"

3012 Series

The 3012 Series is the ultimate circle track shock. The KONI patented mono-tube design allows for independent adjustments to the rebound and compression forces. The 3012 Series offers one of the broadest adjustment ranges in the industry, eliminating the need for constant revalving procedures from track to track.

Note: This shock is also available in a steel body known as the 3011 Series.

PART NUMBER SYSTEM

3012 - **5** **1** through **6** **1** through **9** **L** or **D**

Series | Stroke | Bump Valve Range | Rebound Valve Range | Linear or Digressive Valving

5" ALUMINUM SHOCK

Part Number	Bump Valving	Rebound Valving	Min. Length	Max. Length
3012-51619L	1-6	1-9	10.75	15.75
3012-51619D	1-6	1-9	10.75	15.75
3012-516318D	1-6	3-18	10.75	15.75

6" ALUMINUM SHOCK

Part Number	Bump Valving	Rebound Valving	Min. Length	Max. Length
3012-61619L	1-6	1-9	12.25	18.25
3012-61619D	1-6	1-9	12.25	18.25
3012-616318D	1-6	3-18	12.25	18.25

7" ALUMINUM SHOCK

Part Number	Bump Valving	Rebound Valving	Min. Length	Max. Length
3012-71619L	1-6	1-9	12.75	18.25
3012-71619D	1-6	1-9	12.75	18.25
3012-716318D	1-6	3-18	12.75	18.25

8" ALUMINUM SHOCK

Part Number	Bump Valving	Rebound Valving	Min. Length	Max. Length
3012-81619L	1-6	1-9	14.25	22.25
3012-81619D	1-6	1-9	14.25	22.25
3012-816318D	1-6	3-18	14.25	22.25

9" ALUMINUM SHOCK

Part Number	Bump Valving	Rebound Valving	Min. Length	Max. Length
3012-91619L	1-6	1-9	14.75	23.75
3012-91619D	1-6	1-9	14.75	23.75
3012-916318D	1-6	3-18	14.75	23.75

3014 Series

The 3014 Series shock is the premier rebound adjustable damper in the industry. The 3014 can be adjusted without removing anything from the car; just simply turn the adjuster wheel to the desired position and it's set. This low gas pressure mono-tube has a rebound adjustment range that covers a number 1 through 9 valve and can be ordered with a choice of two compression valves.

PART NUMBER SYSTEM

3014 - 5 3 1 through **9**

Series Stroke Bump Valve Rebound Valve Range

5" ALUMINUM SHOCK

Part Number	Bump Valving	Rebound Valving	Min. Length	Max. Length
3014-5319	3	1-9	10.75	15.75
3014-5519	5	1-9	10.75	15.75

6" ALUMINUM SHOCK

Part Number	Bump Valving	Rebound Valving	Min. Length	Max. Length
3014-6319	3	1-9	12.25	18.25
3014-6519	5	1-9	12.25	18.25

7" ALUMINUM SHOCK

Part Number	Bump Valving	Rebound Valving	Min. Length	Max. Length
3014-7319	3	1-9	12.75	18.25
3014-7519	5	1-9	12.75	18.25

8" ALUMINUM SHOCK

Part Number	Bump Valving	Rebound Valving	Min. Length	Max. Length
3014-8319	3	1-9	14.25	22.25
3014-8519	5	1-9	14.25	22.25

9" ALUMINUM SHOCK

Part Number	Bump Valving	Rebound Valving	Min. Length	Max. Length
3014-9319	3	1-9	14.75	23.75
3014-9519	5	1-9	14.75	23.75

Parts for 3012 and 3014 Series

71.52.07.002.0	Aluminum 1" Top Eye
8212.29.129	Lower Spring Perch (2.5" ID spring)
3012.29.129	Lower Spring Perch (2.25" ID spring)
8212.29.011	Lock Ring
COM-8T-31	Upgrade 1" Teflon Bearing
1038.50.02.54	Bearing Snap Ring
1037.74.01.04	3012 Bump Adjuster Tool

30 Series

Our 30 Series shock is a single adjustable mono-tube design that can be used on Asphalt or Dirt Applications. There are four distinct rebound adjustments that allow you to adjust the shock to suit your needs, chassis setup and track conditions. It is lightweight, very consistent and affordable.

PART NUMBER SYSTEM

30 - **5** **3** **2** through **5**

Series / Stroke / Bump Valve / Rebound Valve Range

5" STEEL SHOCK

Part Number	Bump Valving	Rebound Valving	Min. Length	Max. Length
30-5325	3	2-5	10.75	15.75
30-5436	4	3-6	10.75	15.75

6" STEEL SHOCK

Part Number	Bump Valving	Rebound Valving	Min. Length	Max. Length
30-6325	3	2-5	12.25	18.25
30-6436	4	3-6	12.25	18.25

7" STEEL SHOCK

Part Number	Bump Valving	Rebound Valving	Min. Length	Max. Length
30-7325	3	2-5	12.75	19.75
30-7436	4	3-6	12.75	19.75
30-7514	5	1-4	12.75	19.75
30-7647	6	4-7	12.75	19.75

8" STEEL SHOCK

Part Number	Bump Valving	Rebound Valving	Min. Length	Max. Length
30-8325	3	2-5	14.25	22.25
30-8436	4	3-6	14.25	22.25
30-8414	4	1-4	14.25	22.25
30-8525	5	2-5	14.25	22.25

9" STEEL SHOCK

Part Number	Bump Valving	Rebound Valving	Min. Length	Max. Length
30-9325	3	2-5	14.75	23.75
30-9436	4	3-6	14.75	23.75
30-9414	4	1-4	14.75	23.75
30-9425	4	2-5	14.75	23.75
30-9525	5	2-5	14.75	23.75

FORCE VELOCITY CHART

Part Number	Max. Length	Min, Length	Stroke	Test Velocity (in./sec.)	Compression Force(lbs.)	Rebound Adjustment Position // Forces (lbs.)			
						0*	1	2	3
30 5325	15.75"	10.75"	5"	2.05"	20	65	70	95	125
30 6325	18.25"	12.25"	6"	5.16"	40	160	180	225	275
30 7325	19.75"	12.75"	7"	10.32"	60	280	325	390	490
30 8325	22.25"	14.25"	8"	13.00"	70	345	405	495	630
30 9325	23.75"	14.75"	9"	15.49"	80	380	450	550	750
				20.65"	100	510	595	720	935
				26.00"	125	675	790	965	1280
30 5436	15.75"	10.75"	5"	2.05"	45	100	110	120	145
30 6436	18.25"	12.25"	6"	5.16"	65	175	195	225	275
30 7436	19.75"	12.75"	7"	10.32"	90	285	330	385	490
30 8436	22.25"	14.25"	8"	13.00"	110	340	400	470	590
30 9436	23.75"	14.75"	9"	15.49"	120	395	450	560	710
				20.65"	150	520	605	735	905
				26.00"	180	650	765	900	1180
30 7514	19.75"	12.75"	7"	2.05"	75	50	60	70	85
				5.16"	125	85	90	105	125
				10.32"	180	135	155	180	230
				13.00"	225	155	185	225	280
				15.49"	240	180	215	265	335
				20.65"	305	240	275	335	450
				26.00"	380	310	360	450	565
30 7647	19.75"	12.75"	7"	2.05"	110	115	135	150	185
				5.16"	165	235	255	295	360
				10.32"	220	320	365	435	550
				13.00"	240	370	420	505	650
				15.49"	265	410	485	580	735
				20.65"	310	500	595	710	925
				26.00"	350	575	685	805	1095
30 8414	22.25"	14.25"	8"	2.05"	25	15	20	25	35
30 9414	23.75"	14.75"	9"	5.16"	60	50	65	75	100
				10.32"	120	100	115	150	200
				13.00"	155	135	155	200	260
				15.49"	175	150	175	225	300
				20.65"	220	220	265	325	420
				26.00"	265	275	330	420	530
30 8525	22.25"	14.25"	8"	2.05"	50	95	100	105	115
30 9525	23.75"	14.75"	9"	5.16"	80	165	180	200	225
				10.32"	130	260	290	330	395
				13.00"	135	310	355	410	510
				15.49"	160	355	405	475	585
				20.65"	200	455	530	630	785
				26.00"	230	585	680	785	1025
30 9425	23.75"	14.75"	9"	2.05"	40	75	85	105	120
				5.16"	60	145	160	170	200
				10.32"	85	205	220	260	320
				13.00"	105	235	260	310	395
				15.49"	120	260	300	365	460
				20.65"	150	335	395	480	610
				26.00"	185	415	495	600	750

* 0 - Factory Setting or Minimum Setting

30 Series threaded sleeve & components

(fits all 30 Series dampers with 2 ID springs)

Set including threaded sleeve, lower spring perch, and upper spring perch 30.0000
Threaded Sleeve 30.0000.0005
Lower spring perch with locking set screw 30.0000.0006
Upper spring perch 30.0000.0010
Snap ring 30.0000.0009

STREET STOCK SERIES

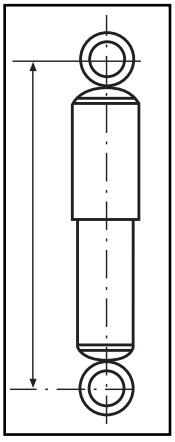
Make / Model	Year	Front	Rear
BUICK			
Apollo/Skylark	74-79	8040 1087	8040 1088
Regal/Grand National	70-87	8040 1087	8040 1088
Skylark	68-72	8040 1087	8040 1088
CHEVROLET			
Camaro	82-92	8741 1030	8241 1140 Sport
Camaro	70-81	8040 1017	8040 1018
Caprice/Impala	77-91	8040 1087	8040 1088
Chevelle/Malibu	64-85	8040 1087	8040 1088
Chevy II/Nova w/Multi-Leaf	68-74	8040 1087	8040 1088
Monte Carlo	70-87	8040 1087	8040 1088
Nova	75-79	8040 1087	8040 1088
FORD			
Mustang	94-04	8741 1401 Sport	8041 1026 Sport
Mustang	87-93	8741 1121 Sport	8041 1026 Sport
Quad Shock			25 1215
Mustang (Exc. SVO)	85-86	8741 1103	8041 1026 Sport
Quad Shock			25 1215
Mustang w/1.5" Lower Rear Bushing (Exc.SVO)	81-84	8741 1103	8041 1026 Sport
Quad Shock			25 1215
Mustang, all models	79-80	8741 1103	8041 1026 Sport

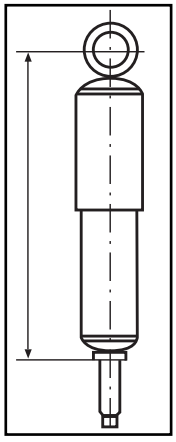
Make / Model	Year	Front	Rear
OLDSMOBILE			
Cutlass	64-87	8040 1087	8040 1088
Omega	75-79	8040 1087	8040 1088
PONTIAC			
Cam-Am	77	8040 1087	8040 1088
Firebird	82-92	8741 1030	8241 1140 Sport
Firebird	70-81	8040 1017	8040 1018
Grand Am	73-77	8040 1087	8040 1088
Grand Prix	69-87	8040 1087	8040 1088
GTO/LeMans/Tempest	64-77	8040 1087	8040 1088
LeMans	78-81	8040 1087	8040 1088
Phoenix/ Ventura II	75-79	8040 1087	8040 1088
Ventura II w/Multi-Leaf	72-74	8040 1087	8040 1088

For other Street Stock applications, check our Passenger Car and Light Truck Application Guide.

STREET STOCK SPECIFICATION CHART

PART NO.	MOUNTING STYLE		MAX. LENGTH (Inches)	MIN. LENGTH (Inches)
	UPPER	LOWER		
8040-1018	Fork	Pin	20 3/8	12 7/16
8040-1026 Sport	Pin	Eye	20 5/16	12 3/8
8040-1087	Pin	Cross Bar	13 3/4	8 7/8
8040-1088	Fork	1-Stud	21 1/8	13 1/16





Single stud and fork configurations may be pressed out to allow for an eye style mounting.

OVAL TRACK TUNING GUIDE

LEFT FRONT

REBOUND

-Set Softer if the car is Pushing in the Middle of Turn.

-Set Firmer if the car is Loose on Exit.

COMPRESSION

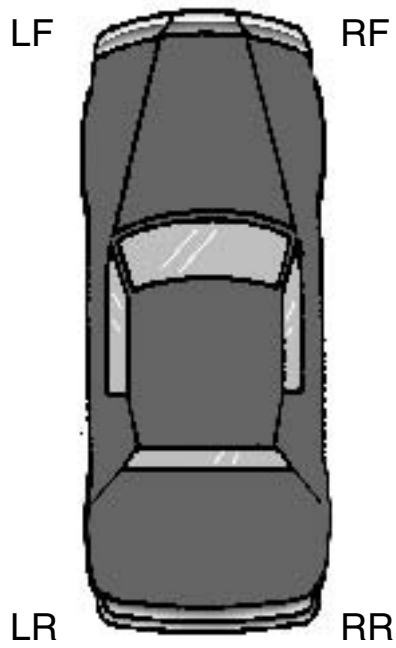
-Set Softer if the car is Pushing in the Middle of Turn. This will have a lesser affect than the Rebound setting.

LEFT REAR

REBOUND

-Set Softer if the car is Loose in the Middle or Exit of the Turn. Will also affect Loose condition on Entry.

-Set Firmer if the car is Pushing off the Exit. Will also affect Push Condition on Entry.



RIGHT FRONT

REBOUND

-Set Softer if the car is Loose off the Exit or the Middle of the Turn.

-Set Firmer if the car is Pushing off the Exit or the Middle of the Turn.

RIGHT REAR

REBOUND

-Set Softer if there is a Push off Exit.

-Set Firmer if the car is Loose off Exit.

COMPRESSION

-Set Softer if the car is Loose in the Exit or Middle of the Turn.

-Set Firmer if there is a Push off the Exit or Middle of the Turn.

Setting both Front shocks Firmer for Rebound will tighten the car up some.
Setting both Rear shocks Firmer will loosen the car up some.

ADDITIONAL TIPS

Adjust only enough rebound into each shock absorber to eliminate the undesirable characteristic. Adjusting too much rebound may mask a handling problem of another sort.

Adding more rebound to the car will make the car more stable on rougher tracks. On Dirt cars, adding Rebound to the Right Rear will make the car more stable when it slides into the cushion.

Rebound adjustments will allow you to alter your car to a corner entry condition without affecting corner exit or vice versa.

Rebound controls the sprung weight of the chassis or weight transfer while Compression damping affects the unsprung weight of the chassis or the tire contact to the racing surface.

KONI THREADED SPRING PERCH SLEEVES AND PARTS

Threaded coil-over spring perches allow vehicles that would normally have fixed location spring perches to gain some of the benefits of racing developed tuning techniques. Performance suspension adjustments such as ride height adjustment and corner weighting or weight jacking can be performed with threaded spring perches. KONI offers several coil-over sleeves and individual components to allow both street and race cars these performance benefits. Because different vehicles have differ spring and shock mounting needs and uses, each installer will need to establish which parts are right for that particular application.

The threaded sleeves are designed to mount on fixed platforms or groove located circlips that are perpendicular to the damper body. The threaded sleeves are made of anodized aluminum with threaded specially designed for load carrying and self cleaning properties. All lower perches have a nylon tipped locking set screw to positively lock the perch in place without damaging the threads.

Caution should be used in the installation and use of threaded spring perches to be sure not to cause damage to the vehicle from bottoming or topping springs, shocks and suspension parts. KONI cannot be held responsible for modifications or damages caused by the improper use or adjustment of threaded spring perches.

30.0000.0005 and 30.0000.0006

80.0000.1

Figure A

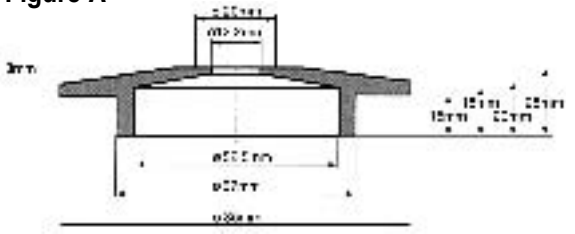
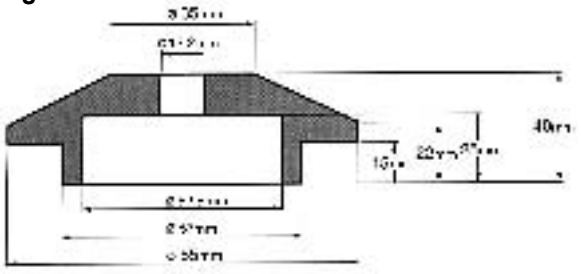


Figure B



42mm ID threaded sleeves & components

(fits most 80-, 8040-, 8041-, 8042- Series dampers with 2 1/4" ID springs)

Set including threaded sleeve, lower spring perch, and 25mm upper spring perch (figure A). 80.0000.1
Set including threaded sleeve, lower spring perch, and 40mm upper spring perch (figure B). 80.0000.2
Threaded Sleeve. 80.0000.0005
Lower spring perch with locking set screw 80.0000.0006
25 mm upper spring perch (figure A) 80.0000.0007
40 mm upper spring perch (figure B) 80.0000.0008
Nylon 2 1/4" to 2 1/2" ID spring adapters (2 needed) 15.29.04.003.0

50mm ID threaded sleeves & components

(fits all 30-, and most 82-, 8240-, 8241-, 8242-, 87-, 8741- Series dampers with 2 1/2" ID springs)

Threaded sleeve 30.0000.0005
Lower spring perch with locking set screw 30.0000.0006

30 Series threaded sleeve & components

(fits all 30 Series dampers with 2.5" ID springs)

Set including threaded sleeve, lower spring perch, and upper spring perch 30.0000
Threaded Sleeve. 30.0000.0005
Lower spring perch with locking set screw 30.0000.0006
Upper spring perch. 30.0000.0010
Snap ring. 30.0000.0009

KONI BUMP RUBBERS

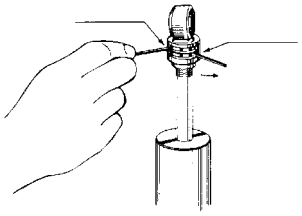
A KONI cellular polyurethane bump rubber is specially designed to protect the suspension from bottoming. Like a progressive spring, the bump rubber resistance increases the more it is compressed. This not only provides safe and controlled bottoming of the suspension, but also prevents internal damage within the shock from metal to metal contact.

Modifying Bump Rubbers

The tapered end of the bump rubber helps to provide its progressive nature. If it is necessary to increase shock travel, trim the non-tapered end of the bump rubber.

Part Number	Rod Diameter	Length	Characteristic
70.34.05.000.0	12mm	45mm	Linear soft
15.34.20.000.0	12mm	55mm	Progressive soft
72.34.48.000.0	14mm	25mm	Linear soft
71.34.42.000.0	14mm	45mm	Progressive hard
70.34.54.000.0	16-20mm	40mm	Progressive soft
70.34.53.000.0	16-20mm	55mm	Progressive soft
70.34.95.000.0	22-24mm	55mm	Progressive soft
71.34.80.000.0	14mm	10mm	Progressive hard
71.34.92.000.0	14mm	40mm	Progressive hard

28 Series



Note: Do not place shock absorber in a vice (except at the lower eye).

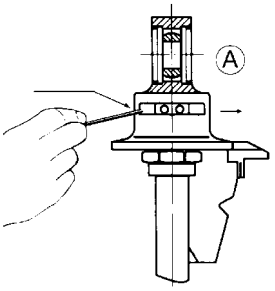
The rebound and compression adjuster requires a pin with an outside diameter of 1.5mm or a 1.5mm hex key. The adjusters are marked with the letters that are stamped on the mounting eye.

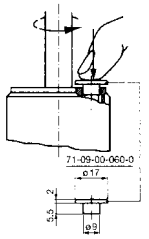
The **Rebound adjuster is marked with an R (rebound).** To increase the rebound force, put the adjuster pin next to the minus sign and turn the pin towards the plus sign (left to right).

The **Compression adjuster is marked with a B (bump).** To increase the compression force, put the adjuster pin next to the minus sign and turn the pin towards the plus sign (left to right).

The adjusters each have 7 distinct stop (clicks), each of which marks an adjustment position. There are a total of 8 adjustment positions for both the compression and rebound adjusters. There are stops at the minimum and maximum position. DO NOT FORCE THE ADJUSTER AS DAMAGE MAY RESULT!

3011/3012 Series



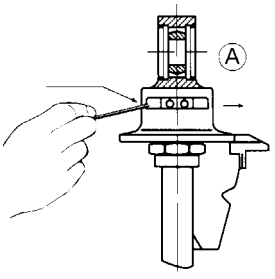


Note: Do not place shock absorber in a vice (except at the lower eye).

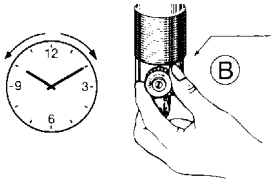
The **Rebound adjuster requires a pin with an outside diameter of 3mm or a 2.5mm Allen key.** To increase the rebound force, put the adjuster pin next to the minus sign and turn the pin towards the plus sign (left to right). This is one sweep of adjustment. From the minimum position there is a total adjustment range of 6-8 sweeps. There are no specific clicks of adjustment to mark the adjustment position and the rebound adjuster can be placed at any position in the adjustment range. DO NOT FORCE ADJUSTER AS BINDING MAY RESULT!

The **Compression adjustment is made with the shock fully extended.** The compression adjustment requires tool 1037.74.01.04 or a tool of similar dimension to depress the adjuster button. Hold the shock body where the piston rod emerges from the cylinder. Depress the button fully, and hold it down while adjusting. It may require turning the rod slightly to get the button fully depressed. The adjuster has 10 distinct stops (clicks) each of which marks an adjustment position. To increase the compression force, turn the piston rod counter-clockwise. When finished, release the button and make sure the button fully springs back into position. Otherwise, the correct adjustment will be disturbed.

8212/8216 Series

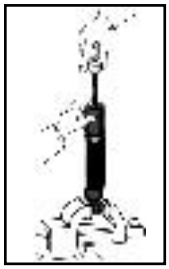


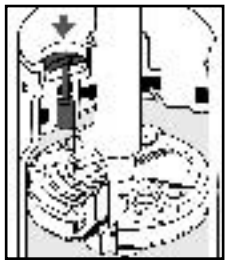
The **Rebound adjuster requires a pin with an outside diameter of 3mm or a 2.5mm hex key.** To increase the rebound force, put the adjuster pin in the hole next to the minus sign and turn the pin towards the plus sign. This is one sweep of adjustment. The total adjustment range is 7 to 8 sweeps. There are no specific clicks to mark the adjustment position; the rebound adjuster can be placed in any position in the adjustment range.

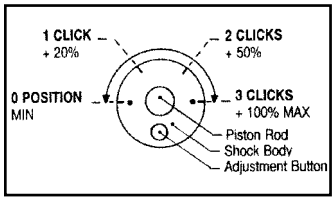


The **Compression adjuster is available for the 8212 only.** To increase the compression force, turn the lower adjuster clockwise. To decrease the compression force, turn the lower adjuster counter-clockwise. From the minimum, there are 12 distinct stops (clicks) of adjustment.

30 Series





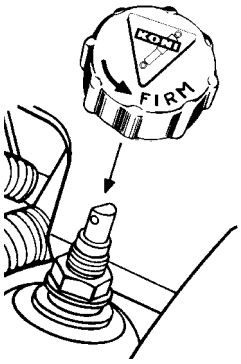


Note: Do not place shock absorber in a vice (except at the lower eye).

The **Rebound adjustment is made with the shock fully extended.** First remove the shock absorber from the vehicle. Raise the black plastic dust cap covering the adjuster button. Hold the shock body where the piston rod emerges from the cylinder. Depress the button fully and hold it down while adjusting. The adjuster has 3 distinct stops (clicks), each of which marks an adjustment position. There are a total of 4 adjustment positions. The shock may have been adjusted previously. Check if the shock is in the zero-position by turning the piston rod counter-clockwise until the zero-stop is felt. DO NOT FORCE.

To increase the rebound forces, turn the piston rod clockwise. Once the correct adjustment has been reached, release the button and make sure that it full springs back into position before installing the shock again.

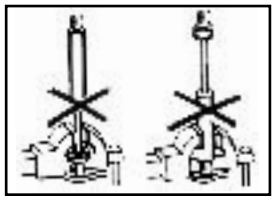
8041, 8210, 8241, 8610, 8641, 8710, 8741 Series

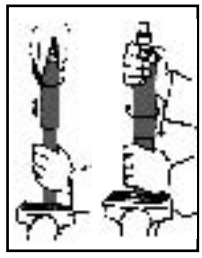


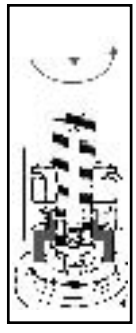
These shocks do not need to be removed from the vehicle to be adjusted. Place the adjustment knob included with the shocks onto the adjuster tab on the top of the shock absorber. Turn the adjusting knob clockwise to check if the damper has been previously adjusted. If you feel resistance, DO NOT FORCE, as the shock is in the minimum position.

To increase the **Rebound force, turn the knob counter-clockwise in the direction of the "firm" arrow.** There will be 1.5-3 turns of the adjuster depending on the model. There are no specific clicks to mark the adjustment position; the rebound adjuster can be placed in any position in the adjustment range. When finished, remove the adjusting knob to prevent damage to the adjuster.

80, 82, 86, 8040, 8240 Series







Remove the shock from the vehicle and hold it vertically with the lower mounting attachment in a vice. Fully compress the shock, at the same time turning the dust cover or piston rod slowly counter-clockwise until you feel the adjuster engage into the recess at the bottom of the shock (the foot valve assembly).

Note: Some shock absorbers include a bump rubber concealed under the dust cover. All bumpstops MUST be removed prior to adjusting. Do not forget to re-install after adjusting.

The shock may have been adjusted previously. Therefore, check whether the shock absorber is at the minimum position by keep it compressed and gently turning further counter-clockwise while counting the half turns until a stop is felt. This is the minimum rebound position.

To increase the rebound damping, turn the piston rod clockwise. The typical adjustment range is 3-5 half turns. There will be a stop at the maximum rebound position. DO NOT TRY TO FORCE BEYOND THIS MAXIMUM POSITION! When finished with the adjustment, extend the shock vertically for at least an inch without turning in order to disengage the adjusting mechanism. The dust cover or piston rod may now be turned freely.

KONI SHOP SERVICES

KONI SERVICE CENTER

KONI North America operates a full service shock absorber Service Center to provide complete testing, fabrication, restoration and revalve capabilities. The facility can perform services for automotive, motorsports, heavy duty bus and truck, railway and industrial applications.

DYNO TESTING – All KONI dampers are tested on a shock dyno when they are manufactured. However, racing dampers should be dyno tested periodically to ensure optimum performance. KONI offers dyno services utilizing the latest technology in computer operated multi- and single- speed dynos.

REBUILD AND RESTORATION – KONI dampers, in most cases, are fully rebuildable (see chart below). Vintage street and racing shocks can be refurbished to a like-new condition including paint and decals.

REVALVE – In cases where the original KONI valving may not be optimal for modified vehicles, the valving on a KONI may be altered to match a customer's application requirements. KONI has developed specific valvings for motorsports applications including autocross, drag racing, oval track racing and road course racing.

SPECIAL APPLICATION CONVERSIONS – The KONI Service Center can perform a variety of special modifications including shortened and extended lengths. We can also convert most dampers to double adjustable or external rebound adjustable on application that did not have this before. Special mounting configurations or conversion of non-KONI dampers can also be done for applications that are not offered otherwise. Contact the KONI Service Center with your special requirements.

OTHER KONI AUTHORIZED REBUILD FACILITIES – In addition to the KONI Service Center in Hebron, KY, there are two KONI authorized rebuild facilities in North America. Both utilize KONI trained technicians and KONI parts. They are TrueChoice in Hilliard, OH (800-388-8783) and Pro Parts West in Canoga Park, CA (818-888-8904).

MOBILE SERVICE FACILITIES – KONI operates mobile service units complete with dyno testing and rebuilding facilities for Research and Development and motorsports support.

HOW TO DO BUSINESS WITH THE KONI SERVICE CENTER

Call KONI at 859-586-4100 option 51. Service Center hours are 7:30am to 4:00pm EST. Dampers should be sent to:
Koni North America, Attn: Service Center, 1961A International Way, Hebron, KY 41048

Please include a note with a description of the services required and your name, address and a daytime telephone number.

Turn-Around Time: Normal turn-around time is three to four weeks from date of receipt but it is sometimes subject to seasonal run-ups so please call KONI in advance to determine your projected availability date.

Terms: Without exception, all shocks must be sent to KONI freight prepaid. Method of payment will be VISA, MasterCard or American Express. No C.O.D's can be accepted.

Costs: Contact KONI at 859-586-4100 for current prices on services.

Identifying KONI Part Numbers. Refer to the chart below to determine an at-a-glance overview of the KONI part number prefixes and what feature each one indicates.

	26	2812	2816	2817	30	30 SP8	3014	3012	80	8010	8040	8041	8042	82	8240	8241	8242	8210	8212	86	8610	8611	8640	8641	87	8710	8711	8740	8741	8742
CONSTRUCTION TYPE																														
Twin-Tube Hydraulic									X	X				X				X	X	X	X	X			X	X	X			
Twin-Tube Low Pressure Gas											X	X	X		X	X	X						X	X				X	X	X
Mono-Tube High Pressure Gas	X	X	X	X	X	X	X	X																						
ADJUSTMENT FEATURE																														
Externally Adjustable							X			X		X				X		X			X			X		X	X		X	
Standard Adjustable	X				X	X			X		X			X	X					X			X		X			X		
Double Adjustable		X	X	X				X					X				X		X			X								X
BODY STYLE																														
McPherson Strut Cartridge			X																X	X	X	X	X	X						
McPherson Strut Complete Housing				X																					X	X	X	X	X	X
Standard Shock Absorber	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X												
SERVICE																														
Rebuildable		X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Not Rebuildable	X				X																			X						

KONI SHOCK FABRICATION CHART

Name: _____ **Due Date:** _____

Shipping Address: _____

_____

City: _____ **State/Province:** _____ **Zip/Postal Code:** _____

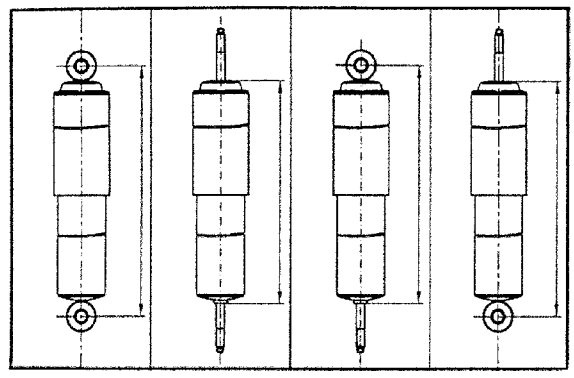
Phone (Day): _____ **Fax:** _____

Form of Payment: _____ **Exp Date:** _____

Car Make: _____ **Model:** _____ **Year:** _____

	Front	Rear
Shock Series Requested		
Type of Shock (A, B, C, D):		
L Minimum		
L Maximum		
"A" Body Length		
Aluminum/Steel Body		
Coil-over/Non Coil-over		
Gas/Non Gas		
Single/Double Adjustable		
Motion Ratio (see tech section)		
Spring Rate Range		
Spring Inner Diameter		
Top Eye Adjuster Orientation		
Bottom Eye Adjuster Orientation		

Pin Dimensions *(Sketch here or attach)*



Please attach any other specifications or attachment information as needed

This specification sheet must be signed off by the customer before any shocks will be built or modified. Any changes made by the customer will be recognized as the customers requested dimensions and the damper will be built to these listed specifications. The customer is responsible for the signed off specification sheet. If there are any questions, please contact us at 800-922-2616.

Signed: _____ Date: _____

KONI REBUILD/MODIFICATION SHEET

Name: _____ **Due Date:** _____

Shipping Address: _____

_____

City: _____ **State/Province:** _____ **Zip/Postal Code:** _____

Phone (Day): _____ **Fax:** _____

Form of Payment: _____ **Exp Date:** _____

Car Make: _____ **Model:** _____ **Year:** _____

Racing Class: _____

	Front	Rear
Part number of dampers		
Customer supplied or supplied by KONI		
Fabrication from non-KONI units (wet kit)?		

For modifying shocks only

Increase/Decrease Max Length *		
Shorten shock Min Length		
Gas/Non Gas		
Convert to Double Adjustable /Bottom Adjuster Orientation		
Compression Adjuster Orientation (as required) **		
Rebound External Adjustment Conversion?		
Top Eye Adjuster Orientation ***		
Spring Rate Range		
Coil-over Conversion (where applicable)		
Spring Inner Diameter (coil-over only)		

** To add rebound stop means that the maximum length of the damper will get shorter*

*** For Double adjustable conversions only*

**** Applies to eye top attachment shocks only*

Please attach any other specifications or attachment information as needed

This specification sheet must be signed off by the customer before any shocks will be built or modified. Any changes made by the customer will be recognized as the customers requested dimensions and the damper will be built to these listed specifications. The customer is responsible for the signed off specification sheet. At time of order, we will contact your for any corrections, as needed, and with a price quote for the work. If there are any questions, please contact us at 800-922-2616.

Signed: _____ Date: _____

SUGGESTED ADJUSTMENT PROCEDURE FOR ROAD COURSE USE

Adjusting the Compression (Bump) Damping Control

Bump damping controls the unsprung weight of the vehicle (wheels, axles, etc.). It controls the upward movement of the suspension such as hitting a bump in the track. It should not be used to control the downward movement of the vehicle when it encounters dips. Also, it should not be used to control roll or bottoming.

Depending on the vehicle, the ideal bump setting can occur at any point within the adjustment range. This setting will be reached when "side-hop" or "walking" in a bumpy turn is minimal and the ride is not uncomfortably harsh. At any point other than this ideal setting, the "side-hopping' condition will be more pronounced and the ride may be too harsh.

Step 1: Set all four dampers on minimum bump and minimum rebound settings.

Step 2: Drive one or two laps to get the feel of the car. NOTE: When driving the car during the bump adjustment phase, disregard body lean or roll and concentrate solely on how the car feels over bumps. Also, try to notice if the car "walks" or "side-hops" on a rough turn.

Step 3: Increase bump adjustment clockwise 3 clicks on all four dampers. Drive the car one or two laps. Repeat this step until a point is reached where the car starts to feel hard over bumpy surfaces.

Step 4: Back off the bump adjustment two clicks. The bump control is now set. NOTE: The back off point will likely be reached sooner on one end of the vehicle than the other.If this occurs, keep increasing the bump on the soft end until it too feels too hard. Then back that side off two clicks. The bump control is now set.

Adjusting the Rebound Damping Control

Once you have found what you feel to be the best bump setting on all four wheels, you are now ready to proceed with adjusting the rebound damping.

The rebound damping controls the transitional roll (lean) as when entering a turn. It does not limit the total amount of roll; it does limit how fast this total roll angle is achieved. How much the vehicle actually leans is determined by other things such as spring rate, sway bars, roll center heights, etc.

It should be noted that too much rebound damping on either end of the vehicle will cause an initial loss of lateral acceleration (cornering power) at that end which will cause the vehicle to oversteer or understeer excessively when entering a turn. Too much rebound control in relation to spring rate will cause a condition known as "jacking down." This is a condition where, after hitting a bump and compressing the spring, the damper does not allow the spring to return to a neutral position before the next bump is encountered. This repeats with each subsequent bump until the car is actually lowered onto the bump stops. Contact with the bump stops causes a drastic increase in roll stiffness. If this condition occurs on the front, the car will understeer; if it occurs on the rear, the car will oversteer.

Step 1: With the rebound set on full soft and the bump control set from your testing, drive the car one or two laps, paying attention to how the car rolls when entering a turn.

Step 2: Increase rebound damping three sweeps or 3/4 of a turn on all four dampers and drive the car one or two laps. Repeat this step until the car enters the turns smoothly (no drastic attitude changes) and with out leaning excessively. Any increase in the rebound stiffness beyond this point is unnecessary and may in fact be detrimental.

EXCEPTION: It may be desirable to have a car that assumes an oversteering or understeering attitude when entering a turn. This preference, of course, will vary from one driver to another depending on the individual driving style.

SUGGESTED ADJUSTMENT PROCEDURE FOR DRAG RACING USE

Step 1: Prior to testing make certain that wheelie bars are raised as high as possible while maintaining control and eliminating their influence as much as possible on damper settings. Also install a tie-wrap to the chrome rod of the shock and push down to where it touches the top of the body.

Step 2: Place all damping controls on minimum. Make a pass in first and second gears in order to determine that the car goes straight. If not, the alignment, tire pressures, etc. should be checked and corrected before proceeding any further.

Pay close attention to what occurs during gear change. If the car wheel stands or bounces violently, you should adjust the front dampers first and then the rears. However, if there is rear tire shake, wheel hop or excessive body separation, adjust the rear shocks first and then the fronts.

Check also where the tie-wrap ends up after launch. If it is buried into the bumpstop, the spring rate may either be too soft, the vehicle set too low or the bumpstop may need to be trimmed (up to 1").

Step 3: Front Damper Adjustment Procedure

Pay close attention to what is happening to the front end during launch and the first gear change. Your goal is to eliminate all jerking and/or bouncing movements so as to obtain smooth transitions at all times.

Too Light of a damper setting allows violent chassis separation and may even result in jerking the front wheels off the ground during initial launch. Too light a setting also allows the car, during gear change, to bounce off its front rebound travel limiter and then bottom out in a continually oscillating manner.

Too Firm of a damper setting will prevent the tires from easily lifting off the ground and thus providing sufficient weight transfer. During a gear change a firm setting will also cause the chassis to bounce off the tire when the chassis settles down.

Adjust the damper by increasing the rebound damping in 1/4 turn (90 degrees) increments until a smooth transition from launch through gear change has been achieved. If double adjustable KONI's are used, adjust the bump damping in 3 click increments to control the amount and the rate at which the front end settles during gear change. Watch your ET's and, if your times start to get slower, back off the rebound adjustment by 1/4 turn and the bump adjustment by 2 clicks.

Step 4: Rear Damper Adjustment Procedure

You should pay close attention to the rear of the car as your goal is to damp the tire movements as firm as the track conditions permit. Remember that the damper controls the amount and the rate of weight transfer to the tire.

Too Light of a damper setting allows excessive separation between the body and the tire.

Too Firm of a damper setting allows high tire shock and causes extreme flattening of the tire.

Adjust the rear damper in 1/4 turn (90 degrees) increments of rebound adjustment and, if KONI double adjustable dampers are used, increase the bump adjuster by 3 clicks for each pass. Watch your ET's and if your times start to get slower, reduce the amount of adjustment by 1/4 turn of rebound adjustment and 2 clicks of bump adjustment.

Step 5: When all adjustments have been completed, reset your wheelie bars as low as possible without hurting your ET's. Once you have completed this procedure, only fine adjustments may be needed in the future due to varying track conditions.