INDEX

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.

	30	80	82	86	87	2812	2816	2817	3012	8040	8041	8042	8210	8212	8216	8240	8241	8242	8610	8640	8641	8740	8741	8742
CONSTRUCTION TYPE																								
Twin-Tube Low Pressure Gas										X	X	X				X	X	X		X	X	X	X	X
Twin-Tube Hydraulic		X	X	X	X								X	X	X				X					
Mono-Tube High Pressure Gas	X					X	X	X	X															
ADJUSTMENT FEATURE																								
Externally Adjustable											X		X		X		X		X		X		X	
Standard Adjustable	X	X	X	X	X					X						X				X		X		
Double Adjustable						X	X	X	X			X		X				X						X
BODY STYLE																								
McPherson Strut Cartridge				X			X												X	X	X			
McPherson Strut Complete Housing					X			X														X	X	X
Standard Shock Absorber	X	X	X			X			X	X	X	X	X	X	X	X	X	X						

CHOOSING THE OPTIMUM DAMPER FOR YOUR VEHICLE

All hydraulic shock absorbers work by the principle of converting kinetic energy (movement) into thermal energy (heat). For that purpose, fluid in the shock absorber is forced to flow through restricted outlets and valve systems, thus generating hydraulic resistance.

A telescopic shock absorber (damper) can be compressed and extended; the so called bump stroke and rebound stroke.

Telescopic shock absorbers can be subdivided into:

1. Twin-tube dampers, available in hydraulic and gas-hydraulic configuration.
2. Mono-tube dampers, also called high pressure gas shocks.

TWIN-TUBE SHOCK ABSORBERS (fig. A and B)

The main components are:

- outer tube, also called reservoir tube (6)
- inner tube, also called cylinder (5)
- piston (2) connected to a piston rod (1)
- bottom valve, also called footvalve (7)
- piston rod guide (3)

How Does a Twin-Tube Shock Absorber Work?

Bump stroke.
When the piston rod is pushed in, oil flows without resistance from below the piston through the outlets A, B, C, and D and the non-return valve (19) to the area above the piston. Simultaneously,a quantity of oil is displaced by the volume of the rod entering the cylinder. This volume of oil is forced to flow through the bottom valve into the reservoir tube filled with air (1 bar) or nitrogen gas (4-8 bar). The resistance, encountered by the oil on passing through the footvalve, generates the bump damping.

Rebound stroke.
When the piston rod is pulled out, the oil above the piston is pressurized and forced to flow through the piston. The resistance, encountered by the oil on passing through the piston, generates the rebound damping. Simultaneously, some oil flows back, without resistance, from the reservoir tube (6) through the footvalve to the lower part of the cylinder to compensate for the volume of the piston rod emerging from the cylinder.

MONO-TUBE SHOCK ABSORBER (fig. C)

The main components are:

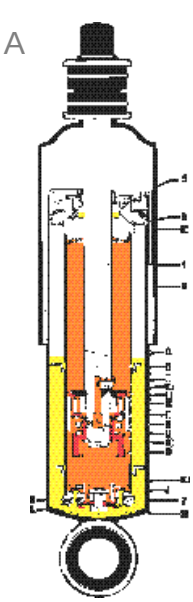
- (pressure) cylinder, also called housing
- piston (2) connected to a piston rod (1)
- floating piston, also called separating piston (15)
- piston guide (3)

How Does a Mono-Tube Shock Absorber Work?

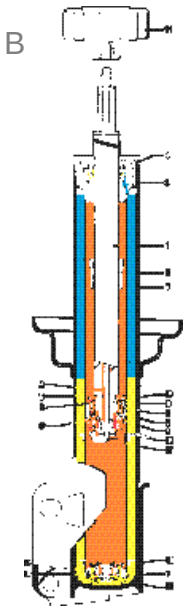
Bump stroke.
Unlike the twin-tube damper, the mono-tube shock has no reservoir tube. There is still a need to store the oil that is displaced by the rod when entering the cylinder. This is achieved by making the oil capacity of the cylinder adaptable. Therefore the cylinder is not completely filled with oil; the lower part contains (nitrogen) gas under 20–30 bar. Gas and oil are separated by the floating piston (15).

When the piston rod is pushed in, the floating piston is also forced down by the displacement of the piston rod, thus slightly increasing pressure in both gas and oil section. Also, the oil below the piston is forced to flow through the piston. The resistance encountered in this manner generates the bump damping.

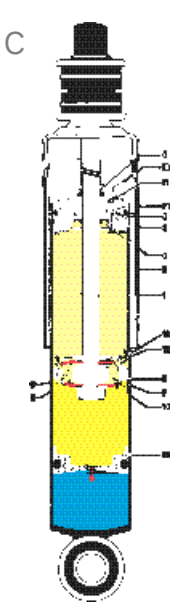
Rebound stroke.
When the piston rod is pulled out, the oil between piston and guide is forced to flow through the piston. The resistance encountered in this manner generates the rebound damping. At the same time, part of the piston rod will emerge from th cylinder and the free (floating) piston will move upwards.



TWIN TUBE
HYDRAULIC



TWIN TUBE
LOW PRESSURE GAS



MONO-TUBE HIGH
PRESSURE GAS

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

28 Series

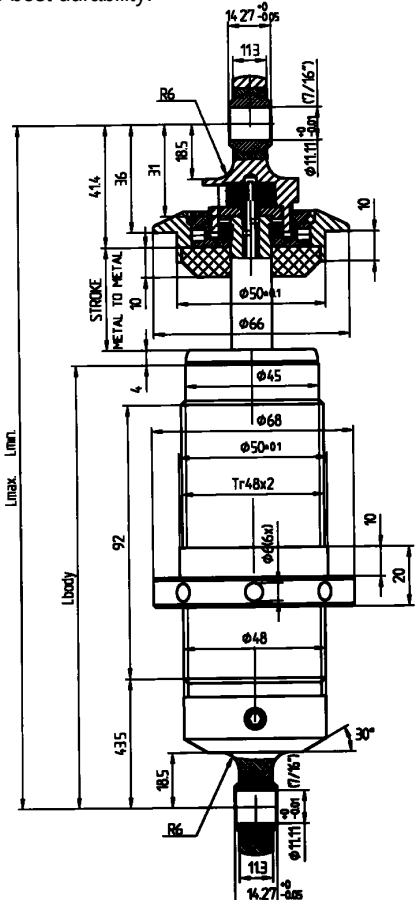
The 28 Series are mono-tube dampers specifically designed for competition purposes, featuring externally adjustable compression and rebound. The precision adjustment mechanism allows for maximum control possible over the damping forces generated. In modern racing applications damper sensitivity, repeatability, and ease of use are a must. To achieve this, the 28 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 damping forces is very precise. A separate reservoir is not needed to accommodate the bump adjuster. This makes for a compact and simple for installation.

Series 2812

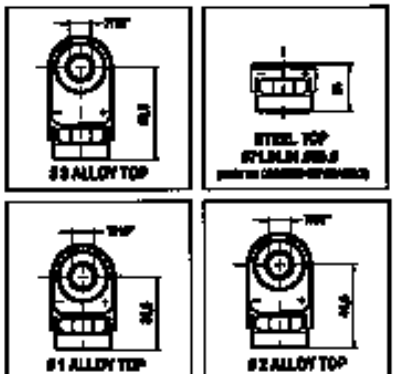
The 2812 Series spans 35 different stroke/length combinations. In addition, 3 different top mounting eye lengths are available.

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 10 for a guide through this process.

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



Type Code	TYPE OF MOUNTING EYE #1 L max	#1 L min	#2 L max	#2 L min	#3 L max	#3 L min	Stroke	L body
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
314	314	235	319	240	324	245	79	189
319	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



Series 2812LB

For applications that require dampers with lengths greater than what is listed in the table above, the 2812 Long Body will soon be available. Please contact your KONI dealer for availability.

Series 2817

The 2817 series is a semifinished strut damper. The strut housing and spring seats (for 2 1/2" I.D. springs) 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 brackets to fit each particular application.

The 2817 series uses a "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, when the strut is compressed, the distance between the 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.

Bracket Fabrication

The 2817 is supplied with a steel sleeve of 4.5mm wall thickness that can be removed to allow for welding on lower mounting brackets. The thickness of steel used to make these brackets should be approximately 5mm. A TIG weld is recommended to minimize heat distortion of the sleeve.

2817ATT-VVV-DD

This is the generic part number for the 2817 series. TT is the length code, VVV is the valving code, and DD is the length of the internal droop limiter.

Droop Limiters

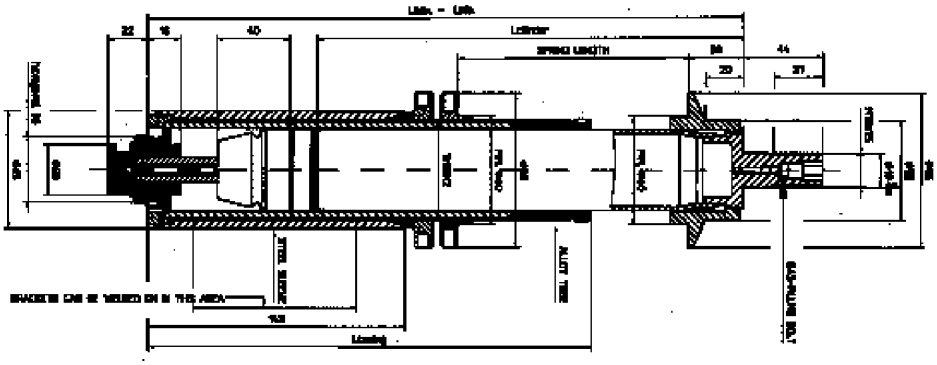
A droop limiter can be installed to reduce L max. The limiter length can be increased in steps of 5mm and can be changed by a KONI service center. Please state the required length at the time of ordering.

Length code	L max Dynamic*	L max Static**	L min	Stroke Max**	L casing
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**	524	549	370	179	311
2817A59 **VVV 25**	564	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.



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 operating 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 lengths for the 2817

For the following paragraph, it is assumed that the car 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 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 at D with the value found at B gives the required stroke.

F. Find a 2817 that has this required stroke. Note its L min.

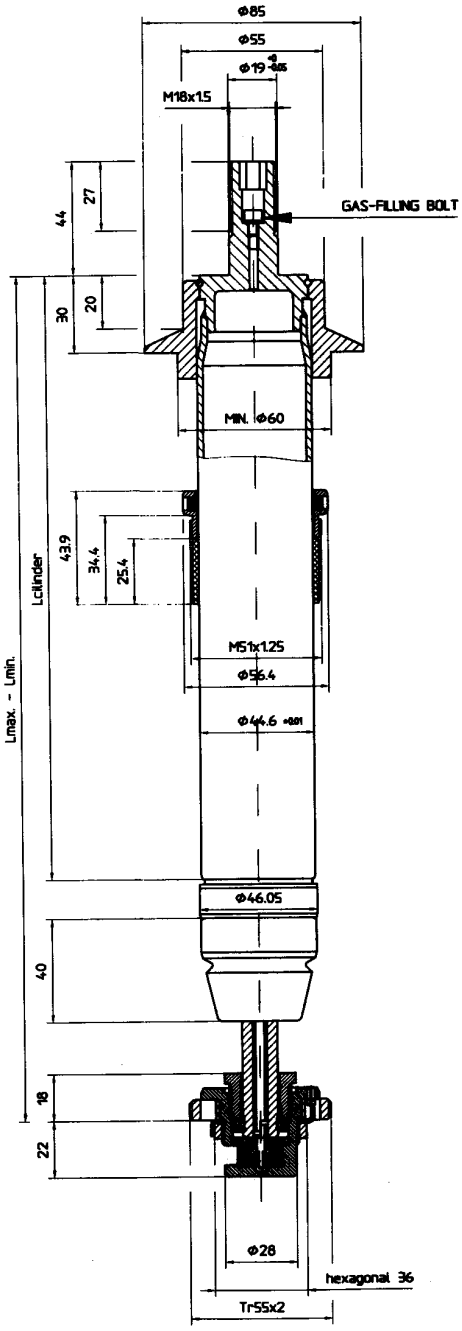
G. Check that this L min fits within the dimension found at D.

H. If the L min is too long, check the next shorter length and determine if the L max will be sufficient.

I. 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.

Series 2816

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 a "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.



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

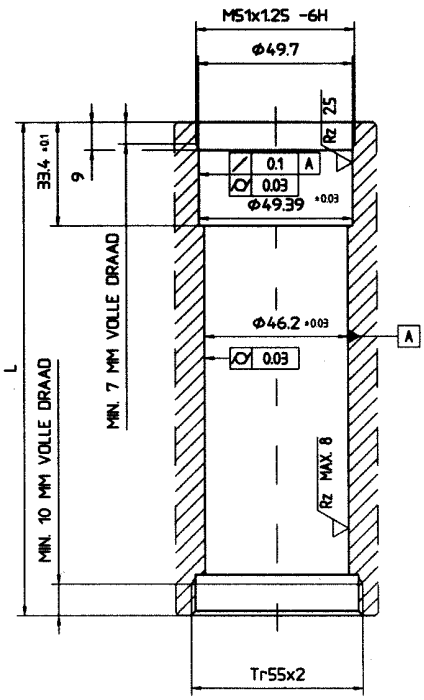
A droop limiter can be installed to reduce L max. The limiter length can be increased in steps of 5mm and can be changed in a KONI service center. Please state the required length at the time of ordering.

NOTE:

* This is the max length allowed under dynamic conditions (see disclaimer on page 4).

** 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

Series 3012-1600

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 adjustments 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

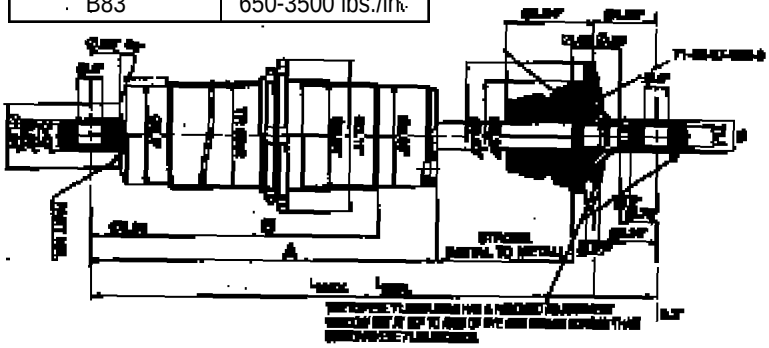
Styles Available

The 3012 series dampers are available in either 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").

Settings Available

The 3012-1600 series dampers are available with a variety of valvings to meet your specific dampening requirements. Due to the unique valving and dampening characteristics available, we recommend that you discuss your needs with our technical staff prior to ordering. Listed below is a sample of valving codes, and the range of spring rates that are recommended.

VALVING CODE	SPRING RATES
B16	up to 250 lbs./in.
B23	250-1500 lbs./in.
B53	500-2000 lbs./in.
B83	650-3500 lbs./in.



Part Number	Stroke	Max L	Min L	A	B
3012-1600	55mm	264mm	209mm	165mm	75mm
-1601		269mm	214mm		
3012-1602	60mm	274mm	214mm	170mm	75mm
-1603		279mm	219mm		
3012-1604	65mm	284mm	219mm	175mm	75mm
-1605		289mm	224mm		
3012-1606	70mm	294mm	224mm	180mm	75mm
-1607		299mm	229mm		
3012-1608	75mm	304mm	229mm	185mm	75mm
-1609		309mm	234mm		
3012-1610	80mm	314mm	234mm	190mm	75mm
-1611		319mm	239mm		
3012-1612	85mm	324mm	239mm	195mm	100mm
-1613		329mm	244mm		
3012-1614	90mm	334mm	244mm	200mm	100mm
-1615		339mm	249mm		
3012-1616	95mm	344mm	249mm	205mm	100mm
-1617		349mm	254mm		
3012-1620	105mm	364mm	259mm	215mm	100mm
-1621		369mm	264mm		
3012-1622	110mm	374mm	264mm	220mm	100mm
-1623		379mm	269mm		
3012-1624	115mm	384mm	269mm	225mm	100mm
-1625		389mm	274mm		
3012-1626	120mm	394mm	274mm	230mm	100mm
-1627		399mm	279mm		
3012-1628	125mm	404mm	279mm	235mm	100mm
-1629		409mm	284mm		
3012-1630	130mm	414mm	284mm	240mm	100mm
-1631		419mm	289mm		
3012-1636	145mm	444mm	299mm	255mm	100mm
-1637		449mm	304mm		
3012-1646	160mm	494mm	334mm	286mm	100mm
-1647		499mm	339mm		

Stroke	Max L	Min L	A	B
2.16"	10.39"	8.23"	6.50"	2.95"
	10.59"	8.43"		
2.36"	10.79"	8.43"	6.69"	2.95"
	10.98"	8.62"		
2.56"	11.18"	8.62"	6.89"	2.95"
	11.38"	8.82"		
2.75"	11.57"	8.82"	7.10"	2.95"
	11.77"	9.02"		
2.95"	11.97"	9.02"	7.28"	2.95"
	12.17"	9.22"		
3.15"	12.36"	9.21"	7.48"	2.95"
	12.56"	9.41"		
3.35"	12.76"	9.41"	7.68"	3.94"
	12.96"	9.61"		
3.54"	13.15"	9.61"	7.87"	3.94"
	13.34"	9.80"		
3.74"	13.54"	9.80"	8.07"	3.94"
	13.74"	10.00"		
4.13"	14.33"	10.39"	8.46"	3.94"
	14.52"	10.39"		
4.33"	14.72"	10.39"	8.66"	3.94"
	14.92"	10.59"		
4.53"	15.12"	10.59"	8.86"	3.94"
	15.32"	10.79"		
4.72"	15.51"	10.79"	9.10"	3.94"
	15.70"	10.98"		
4.92"	15.92"	10.98"	9.25"	3.94"
	16.10"	11.18"		
5.12"	16.30"	11.18"	9.45"	3.94"
	16.50"	11.38"		
5.71"	17.48"	11.77"	10.04"	3.94"
	17.68"	11.97"		
6.30"	19.45"	13.15"	11.26"	3.94"
	19.65"	13.45"		

See page 10 to determine proper damper length.

Series 30 SP8

The 30 SP8 Road Course shock features a threaded aluminum body, four-position rebound adjustability, and a high-pressure gas mono-tube design. The rebound forces can be adjusted 100%, while the compression forces are pre-set. This rebuildable design offers a wide range of valving options to fit a variety of applications at an economical price.

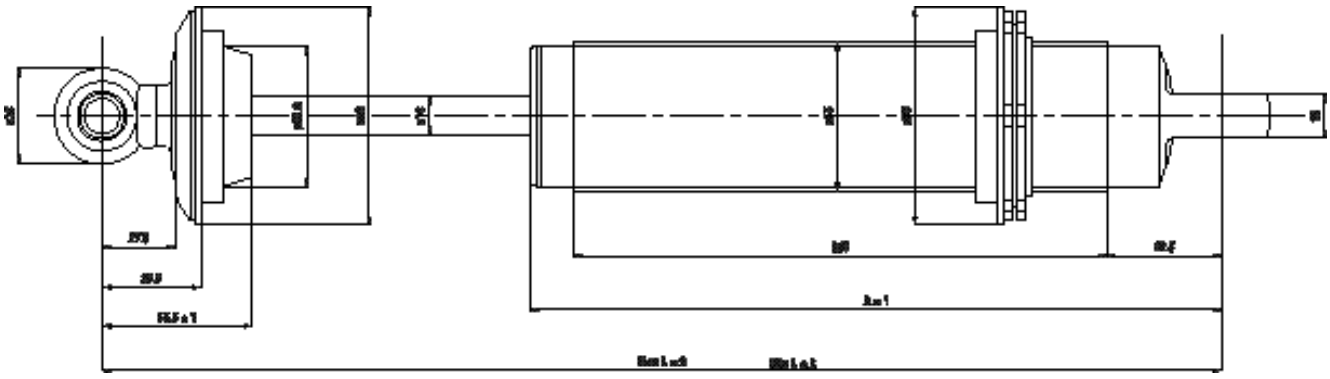
The 30 SP8 series dampers are available with a variety of valvings to meet your specific damping requirements. Due to the unique valving and damping characteristics available, we recommend that you discuss your needs with our technical staff prior to ordering.

The steel spring seats that are included with the 30 SP8 series will accept springs with 2 1/4" I.D. or a 2 1/2" I.D. when used with a KONI adapter.

Part Number	Stroke	Max L	Min L	A
30-0500 SP8	125mm	403mm	278mm	243mm
30-0600 SP8	150mm	463mm	313mm	278mm
30-0700 SP8	170mm	501mm	331mm	296mm
30-0800 SP8	200mm	565mm	365mm	330mm
30-0900 SP8	220mm	605mm	385mm	350mm

Stroke	Max L	Min L	A
4.92"	15.87"	10.94"	9.57"
5.90"	18.23"	12.32"	10.94"
6.69"	19.72"	13.03"	11.65"
7.87"	22.24"	14.37"	12.99"
8.66"	23.81"	15.16"	13.78"

See page 10 to determine proper damper length.



Series 8212-1400

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.

Settings Available

The 8212-1400 series dampers are available in 7 standard valvings. Listed below are the valving codes, and the range of spring rates that are recommended.

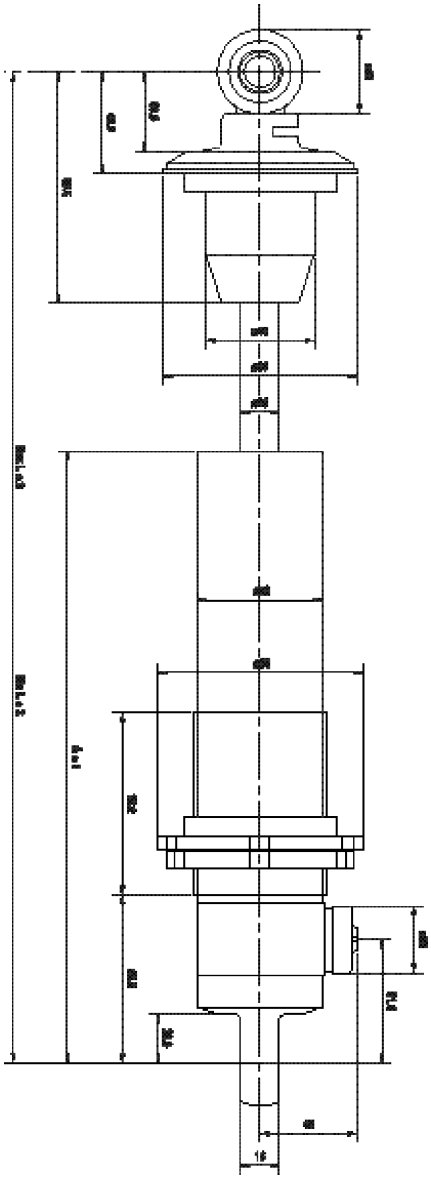
VALVING CODE	SPRING RATES
B1	150-300 lbs./in.
B2	225-450 lbs./in.
B3	275-550 lbs./in.
B6	300-650 lbs./in.
B7	375-750 lbs./in.
B8	400-800 lbs./in.
B8+	600-2000 lbs./in

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 8212-1400 series accepts springs with an inside diameter of 2 1/2". If desired, 2 1/4" 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 you needs with your KONI dealer.



Part Number	Stroke	Max L	Min L	A	Stroke	Max L	Min L	A
8212-1400	80mm	283mm	203mm	165mm	3.15"	11.14"	7.99"	6.50"
8212-1402	85mm	93mm	208mm	170mm	3.35"	11.54"	8.19"	6.69"
8212-1404	90mm	303mm	213mm	175mm	3.54"	11.93"	8.39"	6.89"
8212-1406	95mm	313mm	218mm	180mm	3.74"	12.32"	8.58"	7.09"
8212-1408	100mm	323mm	223mm	185mm	3.94"	12.72"	8.78"	7.28"
8212-1410	105mm	333mm	228mm	190mm	4.13"	13.11"	8.98"	7.48"
8212-1412	110mm	343mm	233mm	195mm	4.33"	13.50"	9.17"	7.68"
8212-1414	115mm	353mm	238mm	200mm	4.53"	13.90"	9.37"	7.87"
8212-1416	120mm	363mm	243mm	205mm	4.72"	14.29"	9.57"	8.07
8212-1418	125mm	373mm	248mm	210mm	4.93"	14.69"	9.76"	8.27"
8212-1420	130mm	383mm	253mm	215mm	5.12"	15.08"	9.96"	8.46"
8212-1422	135mm	393mm	258mm	220mm	5.31"	15.47"	10.16"	8.66"
8212-1424	140mm	403mm	263mm	225mm	5.52"	15.87"	10.35"	8.86"
8212-1426	145mm	413mm	268mm	230mm	5.71"	16.26"	10.55"	9.06"
8212-1428	150mm	423mm	273mm	235mm	5.90"	16.65"	10.75"	9.25"
8212-1430	155mm	433mm	278mm	240mm	6.10"	17.05"	10.95"	9.45"

See page 10 to determine proper damper length.

Series 8211

The 8211 series is a nickel-plated steel body version of the 8212, offering identical performance with a slight sacrifice in weight. This is an ideal shock for vintage applications that require a steel body shock.

8611 Series Double Adjustable Strut Inserts

The 8611 series double adjustable strut insert is one of the new additions to the KONI road race offerings. Originally designed for European touring car classes utilizing strut suspensions, the 8611 has become an affordable double adjustable option for club racers and autocrossers in North America.

The KONI 8611 series is a twin-tube hydraulic that is externally adjustable in both rebound and compression damping. The compression adjuster is located in bottom end of the strut cartridge and requires a 1/2" diameter hole to be made in the bottom of the strut housing for access to the adjuster.

To determine the correct 8611 for your application, follow these steps:

1. Measure the inside depth of your strut housing. (NOTE: At this time also make certain that the inside diameter of your housing is large enough to accept the KONI insert.)
2. For the KONI insert to be installed properly the measured depth of your strut housing must be 1-4mm (.04" - .16") shorter than the dimension "A" in the chart below.
3. 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.
4. After the KONI insert with the correct "A" length has been determined, verify that the stroke length will be appropriate for your application.

The 8611 series is not supplied with a threaded locknut to retain the insert into the strut housing. If new locknuts are required for you application, please refer to the chart below to determine which part number you need when placing your order.

Part Number	Stroke	Max L	Min L	A	D
8611-1256 Sport	140mm	520mm	380mm	307mm	45.5mm
8611-1257 Sport	143mm	500mm	357mm	290mm	45.0mm
8611-1258 Sport	158mm	615mm	457mm	389mm	45.0mm

Stroke	Max L	Min L	A	D
5.51"	20.47"	14.96"	12.09"	1.79"
5.63"	19.69"	14.06"	11.42"	1.77"
6.22"	24.21"	17.99"	15.32"	1.77"

8610 Series Externally Adjustable Strut Insert

The 8610-1149 McPherson strut cartridge insert fits a variety of road racing and autocross cars.

The KONI 8610-1149 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.

To determine the correct fitting of an 8610-1149, please follow these guidelines:

1. Measure the inside depth of your existing strut housing. Also make certain that the inside diameter of your housing is large enough to accept the KONI insert, which has an O.D. of 43.5mm (1.71").
2. For the KONI 8610-1149 to be installed properly, the inside depth of your housing must be 326-329mm (12.83" - 12.95").
3. In the event that your existing strut housing depth is greater than the above recommended depth, a spacer must be fabricated and placed under the KONI insert to provide the proper depth relationship.

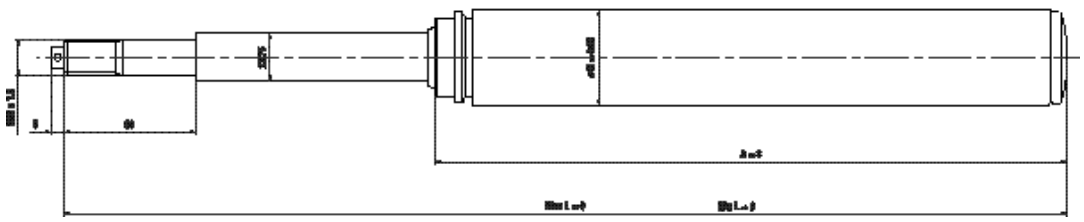
Variations Available

The 8610-1149 is supplied with a threaded locknut of M48x1.5 (Thread and Pitch) to hold the insert into the strut housing. However, if you require a different size locknut please specify which of the following part numbers you need when placing your order:

THREAD & PITCH	PART NO.
M48 x 1.50	70.25.00.078.0 *(supplied locknut)*
M45 x 1.25	70.25.00.092.0
M48 x 1.00	70.25.00.077.0
M51 x 1.25	70.25.00.091.0
M51 x 1.50	70.25.00.076.0
M52 x 1.50	70.25.00.067.0
52.8WW	70.25.00.087.0

Part Number	Stroke	Max L	Min L	A	D
8610-1149	151mm	550mm	451mm	330mm	43.5mm

Stroke	Max L	Min L	A	D
5.94"	21.66"	15.71"	12.99"	1.71"



DETERMINING ROAD COURSE VALVING

In the Force vs. Velocity graph on page 11, the standard valvings for KONI road course dampers are listed. 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 "see".

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.

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.*

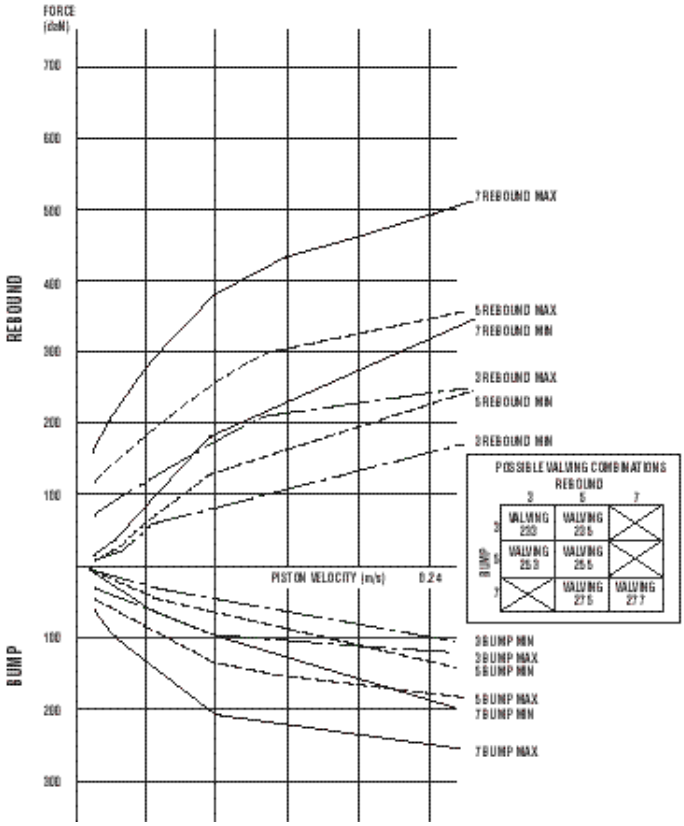
D. ***1.*** Raise the suspension to the point where the chassis would hit the ground, or a suspension component uses up all of its available travel.

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.

28 SERIES FORCE vs. VELOCITY GRAPH



Available standard valvings: only the minimum and maximum adjustments are shown.

3011/3012

Valving code	Test Velocity (in/sec)	Compression Force (lbs) Min/Max	Rebound Force (lbs) Min/Max
BA16	8.67”	38 / 227	84 / 632
BA23	8.67”	55 / 375	132 / 992
BA53	8.67”	55 / 375	243 / 1279
BA83	8.67”	88 / 529	397 / 2050

8211/8212

Valving code	Test Velocity (in/sec)	Compression Force (lbs) Min/Max	Rebound Force (lbs) Min/Max
B1	13.00”	44 / 220	176 /430
B2	13.00”	88 / 375	243 / 606
B3	13.00”	88 / 375	298 / 760
B6	13.00”	88 / 375	320 / 816
B7	13.00”	88 / 375	408 / 970
B8	13.00”	88 / 375	430 / 1036
B8+	13.00”	88 / 375	705 / 1620

Road Course Inserts

Valving code	Test Velocity (in/sec)	Compression Force (lbs) Min/Max	Rebound Force (lbs) Min/Max
8610-1149	13.00”	187	187 / 425
8611-1256 Sport	13.00”	176 / 485	276 / 705
8611-1257 Sport	13.00”	143 / 463	243 / 507
8611-1258 Sport	13.00”	143 / 463	243 / 507

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.

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
Skyhawk	75-80	80-2329 SPA1	Revalve 80-2321
Skylark, Special	68-72	80-1958 SPA1	80-1661 SPA1
Skylark, Special	64-67	80-1660 SPA1	80-1661 SPA1
Sportwagon	70-72	80-1958 SPA1	80-1661 SPA1
CHEVROLET			
Camaro	93-99	8210-1161 SPA1	80-2501 SPA1
Camaro incl. Z-28	82-92	8710-1289 SPA1	80-2501 SPA1
Camaro incl. Z-28	70-81	80-2108 SPA1	80-2109 SPA1
Camaro W/Mono-Leaf Spring	68-69	80-1914 SPA1	80-1915 SPA1
Camaro W/Multi-Leaf Spring	68-69	80-1914 SPA1	80-1953 SPA1
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 SS-396	66-67	80-1660 SPA1	80-1661 SPA1
Chevelle, Malibu Sedans	64-67	80-1660 SPA1	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
Monza, Vega	72-80	80-2329 SPA1	Revalve 80-2321
DODGE			
Challenger	70-74	80-1538 SPA1	Revalve 82-1255
Charger	77-81	80-2660 SPA1	Not Available
Charger, Coronet	73-76	80-2660 SPA1	Revalve 82-1255
Charger, Coronet	65-72	80-1538 SPA1	Revalve 82-1255
Dart, Demon, GTS	63-76	80-1423 SPA1	80-1539 SPA1
FORD			
Mustang (Exc. IRS)	94-99	8710-1311 SPA1	80-2401 SPA1 or
— double adjustable rear alternative		—	8042-1134 Sport
— Quad Shock		—	25-1215
Mustang, 8 cyl.	87-93	8710-1272 SPA1	80-2401 SPA1 or
— double adjustable rear alternative		—	8042-1026 Sport
— Quad Shock		—	25-1215
Mustang, 4 cyl. only	86-92	Revalve 8741-1103	80-2401 SPA1
— Quad Shock		—	25-1215
Mustang w/1-1/2 in. Lower	79-86	Revalve 8741-1103	80-2401 SPA1
Rear Bushing (Exc. SVO)			
— Quad Shock		—	25-1215
Mustang	74-78	80-2660 SPA1	Revalve 80-2288
Mustang	71-73	Revalve 82-1742	80-2511 SPA1
Mustang	64-70	80-2510 SPA1	80-2511 SPA1
Pinto Sedan & Wagon	70-80	80-2660 SPA1	Not Available

Make / Model	Year	Front	Rear
MERCURY			
Capri w/1-1/2 (in.) Lower Rear Bushing	79-86	Revalve 8741-1103	80-2401 SPA1
— Quad Shock		—	25-1215
Cougar	67-70	80-2510 SPA1	Not Available
OLDSMOBILE			
Cutlass Sedan	68-87	80-1958 SPA1	80-1661 SPA1
Cutlass Vista Cruiser	73-77	80-1958 SPA1	Not Available
Cutlass 442	66-67	80-1660 SPA1	80-1661 SPA1
Cutlass F-85 (Exc. 442)	64-67	80-1660 SPA1	80-1661 SPA1
Omega	75-79	80-1958 SPA1	80-1661 SPA1
Starfire	75-80	80-2329 SPA1	Revalve 80-2321
PLYMOUTH			
Barracuda	70-74	80-1538 SPA1	Revalve 82-1255
Barracuda	64-69	80-1423 SPA1	80-1539 SPA1
Belvedere,Satellite	73-74	80-2660 SPA1	Not Available
Duster/Valiant	63-76	80-1423 SPA1	80-1539 SPA1
Road Runner	73-75	80-2660 SPA1	Revalve 82-1255
Road Runner	68-72	80-1538 SPA1	Revalve 82-1255
PONTIAC			
Astre	75-77	80-2329 SPA1	Revalve 80-2321
Bonneville, Catalina, Parisienne, Sedans & Wagons	77-81	80-1958 SPA1	80-1661 SPA1
Bonneville, Catalina, Parisienne, Sedans & Wagons	65-76	80-1958 SPA1	Not Available
Can-Am	77	80-1958 SPA1	80-1661 SPA1
Firebird Incl. Trans-Am	93-99	8210-1161 SPA1	80-2501 SPA1
Firebird Incl. Trans-Am	82-92	8710-1289 SPA1	80-2501 SPA1
Firebird Incl. Trans-Am	70-81	80-2108 SPA1	80-2109 SPA1
Firebird	69	80-1914 SPA1	Not Available
Firebird	68	80-1914 SPA1	80-1953 SPA1
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	80-1660 SPA1	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
Sunbird	76-80	80-2329 SPA1	Revalve 80-2321
Ventura	72-74	80-1958 SPA1	80-1661 SPA1

Note: The KONI Service Center (refer to page 33) is available to modify valving due to individual vehicle modifications or driver needs.

FRONT Part Number	MOUNTING STYLE Top	Bottom	Max. Length	Min. Length
80-2660 SPA1	Pin	Eye	11.69”	8.00”
80-2329 SPA1	Pin	Fork	12.32”	8.32”
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”
80-1660 SPA1	Pin	Fork	14.80”	9.37”
80-2108 SPA1	Pin	Fork	14.84”	9.41”
80-1423 SPA1	Pin	Eye	14.88”	9.50”
80-1538 SPA1	Pin	Eye	15.83”	10.00”
80-1546 SPA1	Pin	2-Stud	16.30”	10.00”

REAR Part Number	MOUNTING STYLE Top	Bottom	Max. Length	Min. Length
80-1576 SPA1	Eye	Eye	14.13”	10.12”
80-2511 SPA1	Pin	Pin	16.46”	10.12”
80-1953 SPA1	Pin	1-Stud	19.06”	11.65”
80-1915 SPA1	Pin	Eye	19.80”	12.01”
80-2501 SPA1	Pin	Stud	20.12”	12.20”
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”
80-1539 SPA1	Eye	Eye	21.89”	13.50”

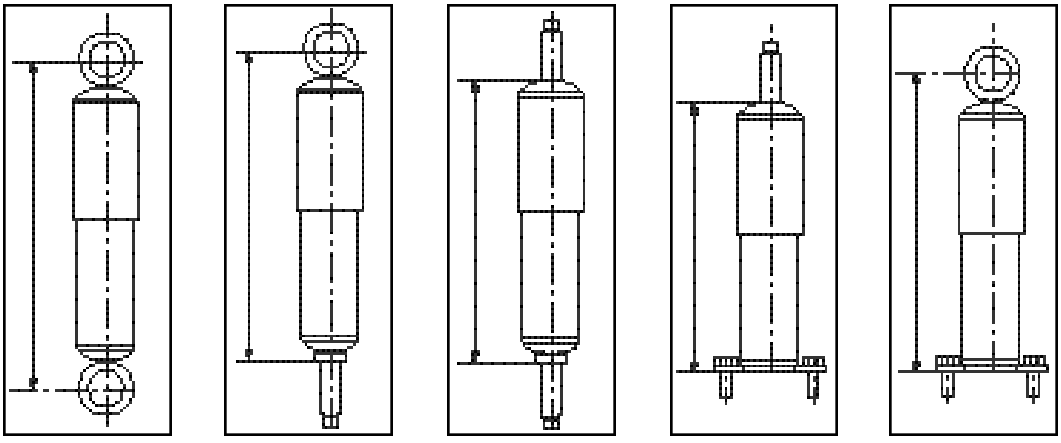
HOW TO MEASURE MAXIMUM/MINIMUM LENGTHS

Refer to next page or compare your existing shock as follows:

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.

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



KONI DRAG RACING COIL OVER GUIDELINES

The KONI universal drag racing coil over shocks have long been the mainstay on the professional circuit. These shocks are available in single and double adjustment configuration.

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.

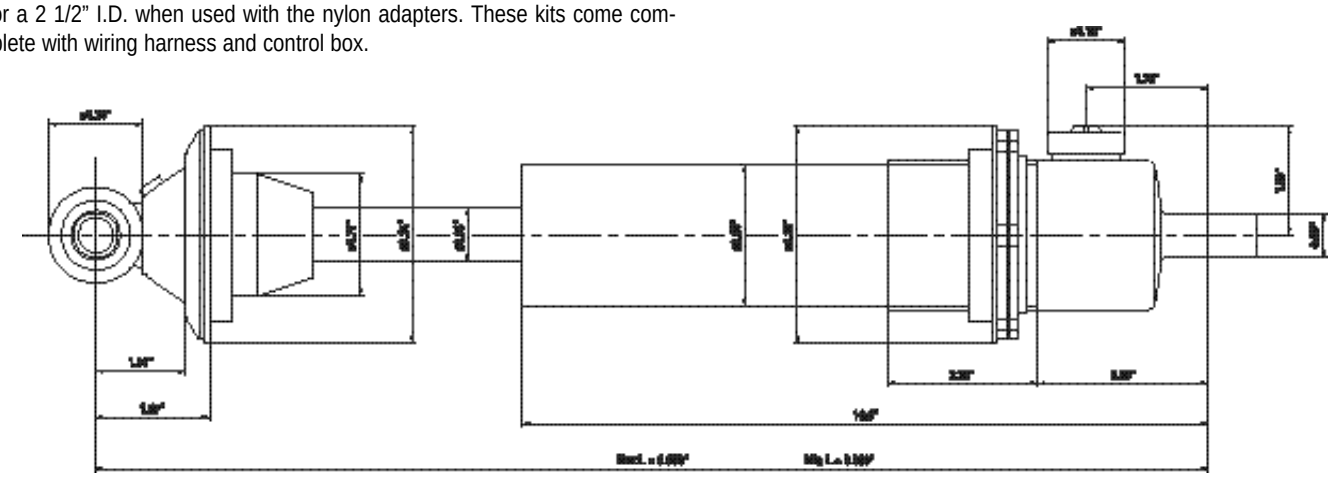
You are now able to support the chassis at the desired ride height but with a softer spring rate, thus allowing more weight transfer to the rear and a better bite.

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.

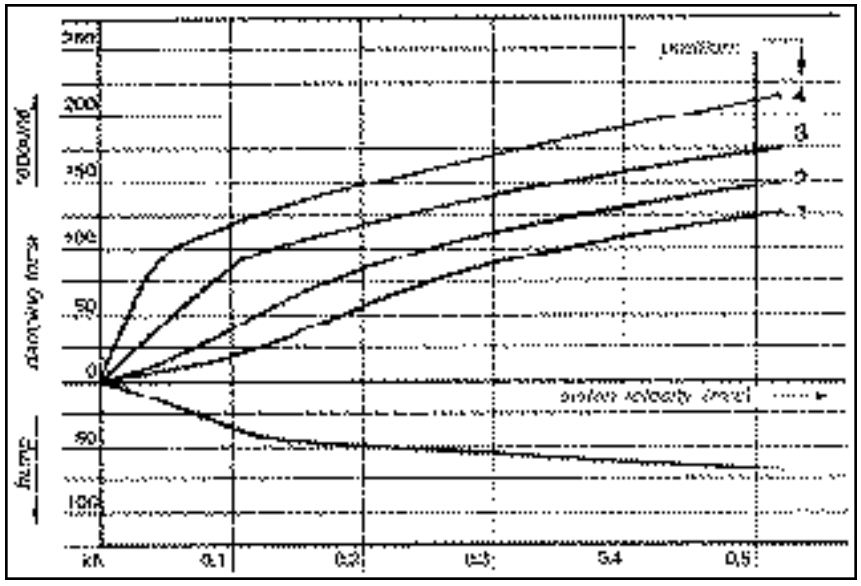
Electric Drag

The 12 Series electric dampers offer the ultimate in adjustable drag race suspension. Rebound damping forces are adjusted by an electric servo motor located inside the piston rod. This allows the driver to launch the car with a high rebound force setting, then change to a softer setting by a remote switch to optimize traction. The SPA11 offers higher rebound forces for applications using higher rate springs. The spring seats accept a 2 1/4" I.D. spring or a 2 1/2" I.D. when used with the nylon adapters. These kits come complete with wiring harness and control box.

Part Number	Stroke	Max L	Min L
12-2021	6.57"	19.25"	12.68"
12-2021 SPA11	6.57"	19.25"	12.68"



Bump Rubber = 1"



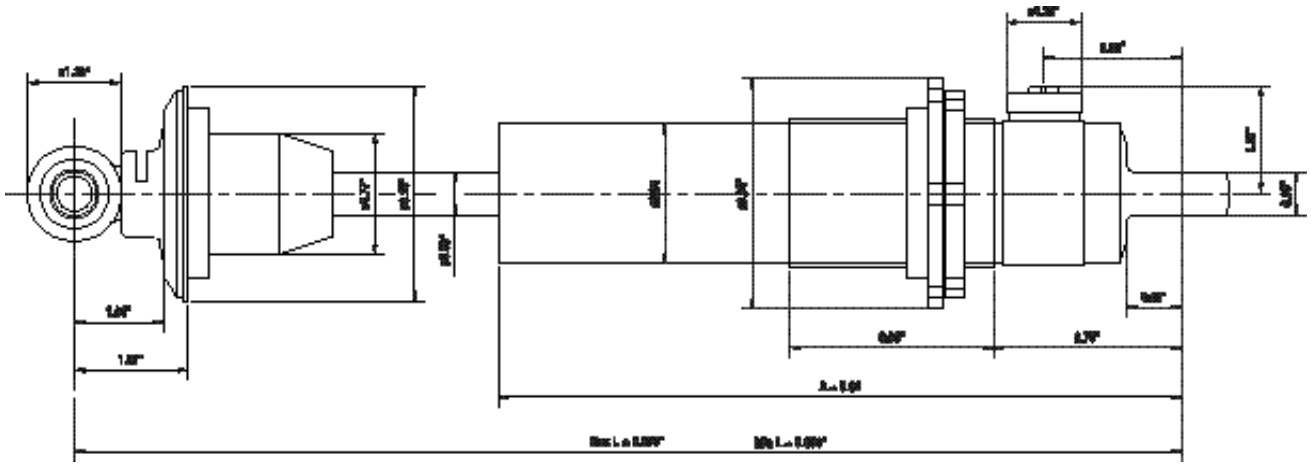
The damping forces of the different adjustment rebound settings are identified at 1, 2, 3 and 4. Additionally there are 12 independent manual bump (compression) adjustments available.

KONI COIL OVER DRAG RACING DAMPERS

8212 SPA1

The 8212 SPA1 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. the 8212 SPA1 is fully rebuildable and comes complete with 2 1/2" I.D. spring hardware and 1/2" I.D. spherical bearings.

Part Number	Stroke	Max L	Min L
8212-1121 SPA1	513"	15.88"	10.75"
8212-1126 SPA1	6.00"	17.50"	11.50"
8212-1123 SPA1	7.00"	19.50"	12.50"

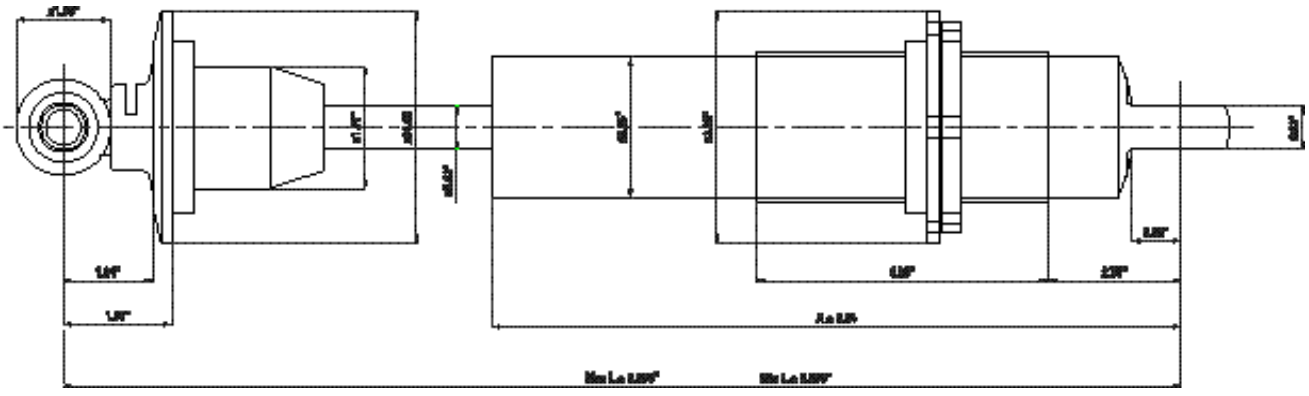


Bump Rubber = 2-3/16"

8216 SPA1

The 8216 SPA1 is an aluminum bodied coil over that is designed for use with 2 1/2" I.D. springs. These single adjustable drag race dampers are externally adjustable on rebound with a fixed compression setting.

Part Number	Stroke	Max L	Min L
8216-2027	2.52"	11.26"	8.74"
8216-1906 SPA1	4.61"	15.59"	10.98"
8216-1907 SPA1	5.44"	17.17"	11.73"
8216-1908 SPA1	6.37"	19.13"	12.76"



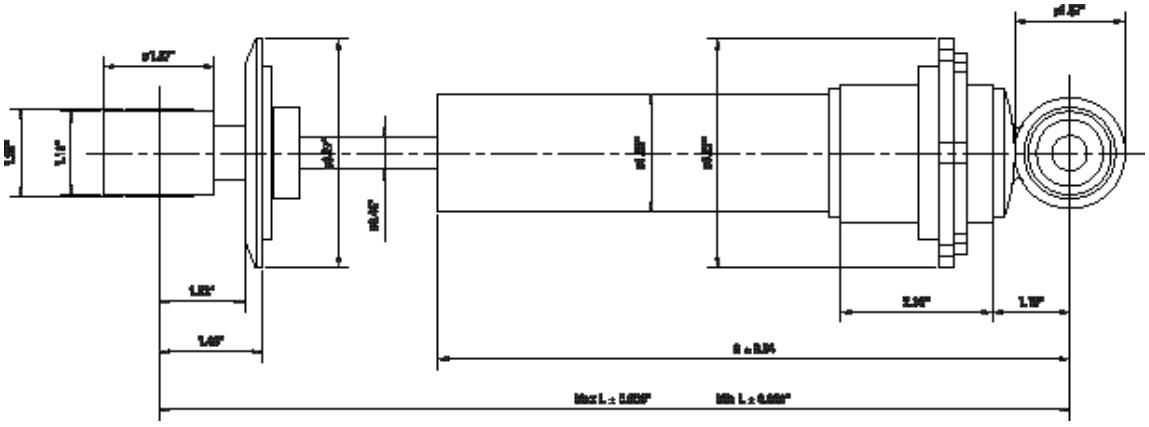
Bump Rubber = 2-5/32" (1-9/16" for 8216-2127)

KONI COIL OVER DRAG RACING DAMPERS

80-2650 SPA1

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

Part Number	Stroke	Max L	Min L
80-2650 SPA1	5.08"	15.71"	10.63"



Bump Rubber = 15/32"

KONI REPLACEMENT COMPONENTS

BEARINGS	
1425.50.00.13	1" O.D. 1/2" I.D.
1038.50.02.54	1" O.D. snap ring

BUMP RUBBERS	
70.34.53.000.0	2-5/32" Length
70.34.54.000.0	1-9/16" Length

ELECTRIC DRAG	
70.29.01.228.0	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 adaptor
70.80.40.048.0	Electric Box
71.80.10.034.0	Wiring Harness

8212	
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 adaptor

8216	
70.29.01.119.0	Upper spring seat
70.29.11.129.0	Lower spring seat
71.29.13.011.0	Locking ring

80-2650	
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

KONI'S SUPERIOR SHOCK

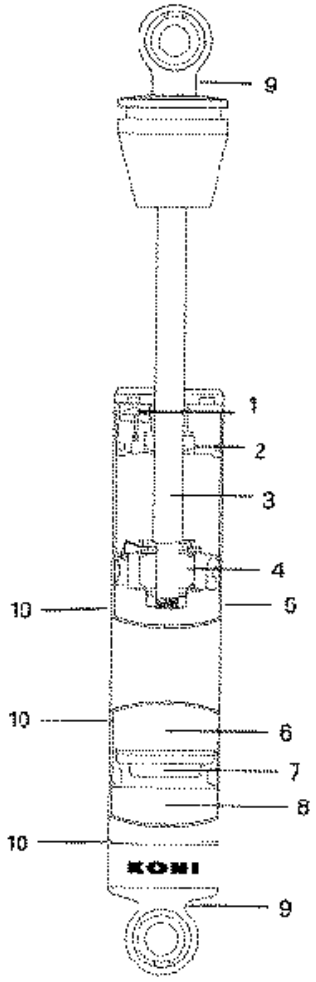
KONI's Mono-Tube, High Pressure Gas Design Damping Solution
To meet the demands of Oval Track racing KONI has chosen the **Mono-tube, high pressure gas design, which provides no fade valving and enables mounting of the shock absorber upside-down, lowering the unsprung weight of the vehicle.**

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.

KONI CIRCLE TRACK APPLICATIONS

Model and Track	FRONT LEFT	Stroke	Adj. Pos.	FRONT RIGHT	Stroke	Adj. Pos.	REAR LEFT	Stroke	Adj. Pos.	REAR RIGHT	Stroke	Adj. Pos.
DIRT LATE MODEL& IMCAMODIFIED												
Up to 2950 lbs.—Series: Stars, UMP, IMCA, etc.												
Track Conditions												
Normal												
Mono Leaf	30-1440 SP1	7”	1	30-1440 SP1	7”	0	30-1442	9”	1	30-1442	9”	0
4 Bar	30-1440 SP1	7”	1	30-1440 SP1	7”	0	30-1442	9”	1	30-1442	9”	0
Cantilever	30-1440 SP1	7”	1	30-1440 SP1	7”	0	30-1303	6”	3	30-1303	6”	2
Fast/Tacky/Rough												
Mono Leaf	30-1440 SP1	7”	2	30-1440 SP1	7”	1	30-1591	9”	2	30-1591	9”	1
4 Bar	30-1440 SP1	7”	2	30-1440 SP1	7”	1	30-1591	9”	2	30-1591	9”	1
Cantilever	30-1440 SP1	7”	2	30-1440 SP1	7”	1	30-1303	6”	2	30-1303	6”	2
Dry/Slick												
Mono Leaf	30-1440 SP1	7”	1	30-1440 SP1	7”	0	30-1442	9”	1	30-1442	9”	0
4 Bar	30-1440 SP1	7”	1	30-1440 SP1	7”	0	30-1442	9”	1	30-1442	9”	0
Cantilever	30-1440 SP1	7”	1	30-1440 SP1	7”	0	30-1303	6”	2	30-1303	6”	2
RayburnSwingArm	30-1440 SP1	7”	1	30-1440 SP1	7”	0	30-1442	9”	1	30-1442	9”	0
ASPHALT LATE MODEL												
Up to 3200 lbs.—Series: NASCAR, ALLPRO, ARTGO, ASA, etc.												
High Bank Tracks												
5/8 to 1 Mile	30-1303	6”	3	30-1303	6”	2	30-1305	7”	3	30-1305	7”	1
	30-1305	7”	3	30-1305	7”	2	30-1308	9”	3	30-1308	9”	0
Short Track	30-1305	7”	3	30-1305	7”	1	30-1304	7”	3	30-1304	7”	0
or	30-1305	7”	3	30-1305	7”	1	30-1305**	7”	3	30-1304	7”	0
	—	—	—	—	—	—	30-1308	9”	3	30-1308	9”	0
or	—	—	—	—	—	—	30-1309**	9”	3	30-1308	9”	0
Flat Track												
5/8 to 1 Mile	30-1305	7”	2	30-1305	7”	2	30-1304	7”	2	30-1304	7”	1
or	30-1305	7”	2	30-1305	7”	2	30-1305**	7”	3	30-1304	7”	1
Short Track	30-1305	7”	3	30-1305	7”	1	30-1304	7”	3	30-1304	7”	0
	30-1305	7”	3	30-1305	7”	1	30-1305**	7”	3	30-1304	7”	0
ARCA												
SuperSpeedway	3012-1112	8”	—	3012-1112	8”	—	3012-1112	8”	—	3012-1112	8”	—
1 to 1-1/2 Mile	3012-1112	8”	—	3012-1112	8”	—	3012-1112	8”	—	3012-1112	8”	—
5/8 to 1 Mile	30-1403	8”	2	30-1403	8”	1	30-1307	8”	2	30-1307	8”	1
Short Track	30-1403	8”	3	30-1403	8”	1	30-1307	8”	3	30-1307	8”	0
DIRT MODIFIED												
Track Conditions												
Normal												
Olsen	30-1302	6”	0	30-1302	6”	0	30-1306	8”	2	30-1306	8”	0
Troyer	30-1308	9”	0	30-1309	9”	0	30-1308	9”	2	30-1308	9”	0
Fast/Tacky/Rough												
Olsen	30-1303	6”	0	30-1303	6”	0	30-1403	8”	3	30-1403	8”	2
Troyer	30-1308	9”	0	30-1309	9”	0	30-1308	9”	3	30-1308	9”	2
Dry/Slick												
Olsen	30-1303	6”	0	30-1302	6”	0	30-1306	8”	0	30-1306	7”	0
Troyer	30-1308	9”	0	30-1309	9”	0	30-1308	9”	0	30-1308	9”	0
ASPHALT MODIFIED												
Track												
Up to 1/2 Mile	30-1300	5”	0	30-1300	5”	0	30-1304	7”	1	30-1304	7”	0
5/8 Mile & Up	30-1301	5”	0	30-1301	5”	0	30-1305	7”	1	30-1305	7”	0
ASPHALT SUPER MODIFIED												
Track												
Up to 5/8 Mile	30-1304**	7”	0	30-1304**	7”	2	30-1306	8”	1	30-1306	8”	0

	FRONT						REAR					
Model and Track	**LEFT**	**Stroke**	**Adj. Pos.**	**RIGHT**	**Stroke**	**Adj. Pos.**	**LEFT**	**Stroke**	**Adj. Pos.**	**RIGHT**	**Stroke**	**Adj. Pos.**
DIRT MODIFIED ON ASPHALT												
Track												
Flemington	30-1301	5”	3	30-1301	5”	0	30-1309	9”	2	30-1309	9”	0
DIRT SPRINT—NO WING												
Series: USAC, CRA, etc.												
Track Conditions												
Normal	30-1440 SP2	7”	2	30-1440 SP2	7”	0	30-1441	8”	2	30-1441	8”	0
Alternative Rear	—	—	—	—	—	—	30-1442 SP1	9” *	2	30-1442 SP1	9” *	0
Fast/Tacky/Rough	30-1440 SP2	7”	3	30-1440 SP2	7”	3	30-1306	8”	3	30-1441	8”	2
Alternative Rear	—	—	—	—	—	—	30-1308	9” *	3	30-1442 SP1	9” *	2
Dry/Slick	30-1440 SP2	7”	0	30-1440 SP2	7”	0	30-1441	8”	2	30-1441	8”	0
Alternative Rear	—	—	—	—	—	—	30-1442 SP1	9” *	2	30-1442 SP1	9” *	0
DIRT SPRING—WING												
Series: Wo Outlaws, ALLSTAR, etc.												
Track Conditions												
Normal	30-1440 SP1	7”	1	30-1440 SP1	7”	1	30-1441	8”	1	30-1441	8”	1
Alternative Rear	—	—	—	—	—	—	30-1442 SP1	9” *	0	30-1442 SP1	9” *	0
Fast/Tacky/Rough	30-1440 SP1	7”	2	30-1440 SP1	7”	2	30-1441	8”	2	30-1441	8”	2
Alternative Rear	—	—	—	—	—	—	30-1442 SP1	9” *	1	30-1442 SP1	9” *	1
Dry/Slick	30-1440 SP1	7”	0	30-1440 SP1	7”	0	30-1441	8”	0	30-1441	8”	0
Alternative Rear	—	—	—	—	—	—	30-1442 SP1	9” *	0	30-1442 SP1	9” *	0
ASPHALT SPRINT—W/ & W/O WING												
Track Conditions												
Normal	30-1440 SP1	7”	2	30-1440 SP1	7”	2	30-1441	8”	2	30-1441	8”	2
Alternative Rear	—	—	—	—	—	—	30-1442 SP1	9” *	1	30-1442 SP1	9” *	1

* Must verify bump travel, in most cases 8” stroke is required.
** Heavier compression shock, for bumpier tracks, helps tighten the car.

30 SP8 Series

The 30 series listed above are also available in a light-weight aluminum version. The 30 SP8 features a threaded aluminum body and a serviceable design. Please put the “SP8” designation after the part number when ordering.

3012 Series

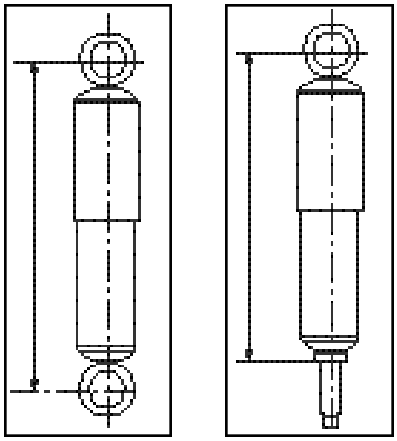
The 3012 series is the ultimate circle track shock. The KONI patented mono-tube design allows for independent adjustments to the rebound and compression forces. The 3012 series offers one of the broadest adjustment ranges in the industry, eliminating the need for constant revalving procedures from track to track. Due to the unique valving and damping characteristics available, we recommend that you discuss your needs with our technical staff prior to ordering.

MAKE/ YEAR & MODEL	PART NUMBER FRONT	PART NUMBER REAR
BUICK		
74-79 Apollo/Skylark	8040-1087	8040-1088
70-87 Regal/Grand National	8040-1087	8040-1088
68-72 Skylark	8040-1087	8040-1088
CHEVROLET		
70-81 Camaro	8040-1087	8040-1018
77-91 Caprice/Impala	8040-1087	8040-1088
64-85 Chevelle/Malibu	8040-1087	8040-1088
68-74 Chevy II/Nova w/ multi-leaf	8040-1087	8040-1088
70-87 Monte Carlo	8040-1087	8040-1088
75-79 Nova	8040-1087	8040-1088
FORD		
85-86 Mustang (Exc. SVO)	**8741-1103 Sport**	**8040-1126 Sport**
Quad Shock	–	25-1215
81-84 Mustang w/ 1-1/2" Lower Rear Bushing (Exc. SVO)	**8741-1103 Sport**	**8040-1126 Sport**
Quad Shock	–	25-1215
79-80 Mustang, all models	**8741-1103 Sport**	**8040-1026 Sport**

MAKE/ YEAR & MODEL	PART NUMBER FRONT	PART NUMBER REAR
OLDSMOBILE		
64-87 Cutlass	8040-1087	8040-1088
75-79 Omega	8040-1087	8040-1088
PONTIAC		
77 Can-Am	8040-1087	8040-1088
70-81 Firebird	8040-1087	8040-1088
73-77 Grand Am	8040-1087	8040-1088
69-87 Grand Prix	8040-1087	8040-1088
64-77 GTO/LeMans/Tempest	8040-1087	8040-1088
78-81 LaMans	8040-1087	8040-1088
75-79 Phoenix/Ventura II	8040-1087	8040-1088
72-74 Ventura II w/ multi-leaf	8040-1087	8040-1088

STREET STOCK SPECIFICATION CHART

PART NO.	MOUNTING STYLE UPPER	MOUNTING STYLE LOWER	MAX. LENGTH (Inches)	MIN. LENGTH (Inches)
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.

DIRT LATE MODEL, SPRINT

RIDE HEIGHT - 30 SERIES

The gas reactive force may increase ride height by 1/8" to 3/8". Simply adjust the spring seats to return to your standard ride height. The caster, camber and toe should remain the same as before installation.

To optimize settings on these chassis, it is recommended that the shocks be installed in the following click positions:
30-1440 SP1 - 2 clicks, 30-1441 - 1 click, 30-1442 - 1 click, 30-1300 - 0 clicks

Optimum click positions for your particular setup will be established using the following tips:

TUNING TIP

Left Front

Increase rebound setting on LF if car rolls on RR during corner exit.

Softening the front rebound will allow the front to transfer more weight, for slow slick tracts.

Stiffening the front rebound will create a more stable platform on high speed tracks.

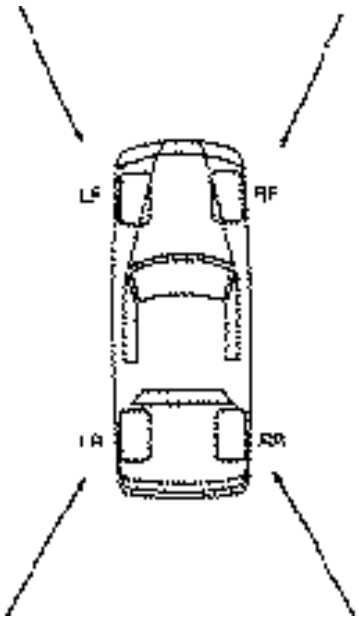
To control loose or tight conditions on corner exit, alter the split between LF/RF rebound. More rebound on the LF than the RF will tighten the car up.

Left Rear

Increase rebound setting on LR if car rolls on RR or RF during corner entry.

Softening the LR rebound will tighten the car on corner entry.

Stiffening the rebound on the LR will loosen the car on corner entry.



Right Front

If car rolls on RF during corner entry, increase rebound setting on LR.

Softening the front rebound will allow the front to transfer more weight, for slow slick tracks.

Stiffening the front rebound will create a more stable platform on high speed tracks.

To control loose or tight conditions on corner exit, alter the split between LF/RF rebound. More rebound on the LF than the RF will tighten the car up.

Right Rear

If car rolls on RR during corner exit, increase rebound on LF.

On a rough track with a cushion, stiffening the RR rebound will make the car more stable when you slide into the cushion.

ASPHALT LATE MODEL DIRT MODIFIED, ASPHALT MODIFIED

RIDE HEIGHT - 30 SERIES

The gas reactive force may increase ride height by 1/8" to 3/8". Simply adjust the spring seats to return to your standard ride height. The caster, camber and toe should remain the same as before installation.

To optimize settings on these chassis, it is recommended that the shocks be installed in the 0 click position: Optimum click positions for your particular setup will be established using the following tips.

TUNING TIP

Left Front

Increase rebound setting on LF if car rolls on RR during corner exit.

The LS rebound settings should be used to control weight transfer to the RS of the car. Shocks do not change the amount of weight transfer, only the time it takes to transfer the weight.

The LF shock affects the car mostly on corner exit. By adding rebound damping you will loosen the car up on corner exit.

Increasing LS rebound damping will increase LS tire temperatures while decreasing RS tire temperatures.

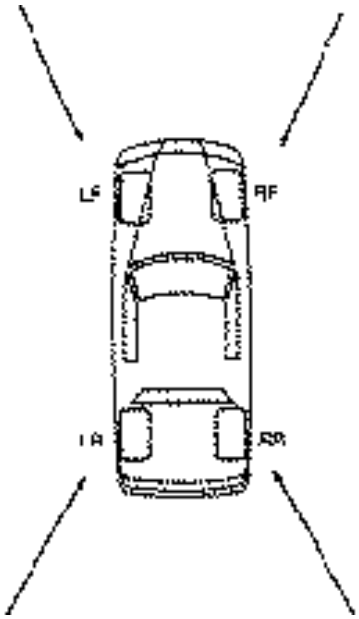
By adding rebound to the front of the car, both sides equally, it will tighten the car some.

Left Rear

Increase rebound setting on LR if car rolls on RR or RF during corner entry.

The LR shock has most of its effect on corner entry. By adding rebound damping you will loosen the car up on corner entry.

By adding rebound to the rear of the car, both sides equally, it will loosen the car up some.



Right Front

If car rolls on RF during corner entry, increase rebound setting on LR.

The RS shocks will be adjusted to control the energy of the compressed springs. When the RS springs are loaded we want the weight to come off those springs, in a smooth manner with little or no oscillation.

Added rebound damping to the RF or RR shocks will lessen the oscillation on that particular corner.

By adding rebound to the front of the car, both sides equally, it will tighten the car up some.

Right Rear

If car rolls on RR during corner exit, increase rebound on LF.

By adding rebound to the rear of the car, both sides equally, it 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.

On a rough race track, which causes a lot of body motion, adding more rebound will make the car more stable.

Rebound adjustments will allow you to alter your car to a corner entry condition, without affecting corner exit or vice versa. Adjustments should be made using driver input, visual observation, and tire temperature.

LS=Left RS=Right Side

KONI CIRCLE TRACK SPECIFICATION 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
30-1300	15-3/4"	10 3/4"	5"	2.05"	20	65	70	95	125
				5.16"	40	160	180	225	275
				10.32"	60	280	325	390	490
				13.00"	70	345	405	495	630
				15.49"	80	380	450	550	750
				20.65"	100	510	595	720	935
				26.00"	125	675	790	965	1280
30-1301	15-3/4"	10 3/4"	5"	2.05"	45	100	110	120	145
				5.16"	65	175	195	225	275
				10.32"	90	285	330	385	490
				13.00"	110	340	400	470	590
				15.49"	120	395	450	560	710
				20.65"	150	520	605	735	905
				26.00"	180	650	765	900	1180
30-1302	18-1/4"	12-1/4"	6"	2.05"	20	65	70	95	125
				5.16"	40	160	180	225	275
				10.32"	60	280	325	390	490
				13.00"	70	345	405	495	6
				15.49"	80	380	450	550	750
				20.65"	100	510	595	720	935
				26.00"	125	675	790	965	1280
30-1303	18-1/4"	12-1/4"	6"	2.05"	45	100	110	120	145
				5.16"	65	175	195	225	275
				10.32"	90	285	330	385	490
				13.00"	110	340	400	470	590
				15.49"	120	395	450	560	710
				20.65"	150	520	605	735	905
				26.00"	180	650	765	900	1180
30-1304	19-3/4"	12-3/4"	7"	2.05"	20	65	70	95	125
				5.16"	40	160	180	225	275
				10.32"	60	280	325	390	490
				13.00"	70	345	405	495	630
				15.49"	80	380	450	550	750
				20.65"	100	510	595	720	935
				26.00"	125	675	790	965	1280
30-1305	19-3/4"	12-3/4"	7"	2.05"	45	100	110	120	145
				5.16"	65	175	195	225	275
				10.32"	90	285	330	385	490
				13.00"	110	340	400	470	590
				15.49"	120	395	450	560	710
				20.65"	150	520	605	735	905
				26.00"	180	650	765	900	1180
30-1440 SP1	19-3/4"	12-3/4"	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
30-1440 SP2	19-3/4"	12-3/4"	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
				25.00"	350	575	685	805	1095
30-1306	22-1/4"	14-1/4"	8"	2.05"	20	65	70	95	125
				5.16"	40	160	180	225	275
				10.32"	60	280	325	390	490
				13.00"	70	345	405	495	630
				15.49"	80	380	450	550	750
				20.65"	100	510	595	720	935
				26.00"	125	675	790	965	1280
30-1307	22-1/4"	14-1/4"	8"	2.05"	45	100	110	120	145
				5.16"	65	175	195	225	275
				10.32"	90	285	330	385	490
				13.00"	110	340	400	470	590
				15.49"	120	395	450	560	710
				20.65"	150	520	605	735	905
				26.00"	180	650	765	900	1180
30-1441	22-1/4"	14-1/4"	8"	2.05"	25	15	20	25	35
				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

* 0 - Factory Setting or Minimum Setting

KONI CIRCLE TRACK SPECIFICATION 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
30-1403	22-1/4"	14-1/4"	8"	2.05"	50	95	100	105	115
				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
30-1308	23-3/4"	14-3/4"	9"	2.05"	20	65	70	95	125
				5.16"	40	160	180	225	275
				10.32"	60	280	325	390	490
				13.00"	70	345	405	495	630
				15.49"	80	380	450	550	750
				20.65"	100	510	595	720	935
				26.00"	125	675	790	965	1280
30-1309	23-3/4"	14-3/4"	9"	2.05"	45	100	110	120	145
				5.16"	65	175	195	225	275
				10.32"	90	285	330	385	490
				13.00"	110	340	400	470	590
				15.49"	120	395	450	560	710
				20.65"	150	520	605	735	905
				26.00"	180	650	765	900	1180
30-1442	23-3/4"	14-3/4"	9"	2.05"	25	15	20	25	35
				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
30-1442 SP1	23-3/4"	14-3/4"	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
				25.00"	185	415	495	600	750
30-1591	23-3/4"	14-3/4"	9"	2.05"	100	70	85	95	105
				5.16"	135	110	135	155	175
				10.32"	155	175	215	255	310
				13.00"	200	210	255	300	385
				15.49"	220	235	300	355	465
				20.65"	260	300	385	475	615
				26.00"	290	365	465	560	715

* 0 - Factory Setting or Minimum Setting

CIRCLE TRACK COMPETITIVE CROSS REFERENCE

Interchanges are to be used as a guideline only. Always check the application section of this catalog to determine your KONI shock. Adjustment positions will vary according to your specific set-up.

DIRT LATE MODEL

KONI	Pro	Afco	Carrera	KONI Adjustment Position
30-1440 SP2	7600	1076	3176	0
30-1440 SP2	7700	1077	3177	1
30-1440 SP2	7800	1078	3178	2
30-1440 SP2	–	1077-4	3174/7	1
30-1440 SP2	–	–	3174/9	3
30-1442 SP1	9400	1094	3194	0
30-1442 SP1	9500	1095	3195	1
30-1442 SP1	9600	1096	3196	2

D.I.R.T. MODIFIED

KONI	Pro	Afco	Carrera	KONI Adjustment Position
30-1304	7400	1074	3174	0
30-1305	7500	1075	3175	0
30-1308	9400	1094	3194	0
30-1308	–	–	6194dm2	0
30-1308	–	–	6194dm3	0
30-1308	9500	1095	3195 0	0
30-1308	–	–	6195dm2	0
30-1308	–	–	6195dm3	0
30-1308	9560	1095-6	3196/5	1

ASPHALT LATE MODEL

KONI	Pro	Afco	Carrera	KONI Adjustment Position
30-1304	7500	1075	3175	1
30-1305	7600	1076	3176	1
30-1305	7700	1077	3177	2
30-1305	7570	–	3177/5	2
30-1308	9500	1095	3195	0
30-1308	9600	1096	3196	2
30-1308	9560	1095-6	3196/5	2

ASPHALT MODIFIED

KONI	Pro	Afco	Carrera	KONI Adjustment Position
30-1300	5500	–	6255	1
30-1301	5600	–	6256	1
30-1301	5570	–	6257/5	2
30-1304	7500	1075	6175	1
30-1305	7600	1076	6176	1
30-1305	7460	1074-6	6176/4	1

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 different 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 red anodized aluminum with threading 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 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

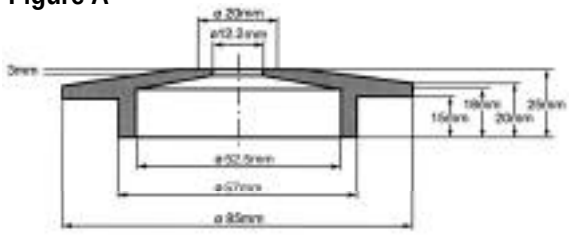
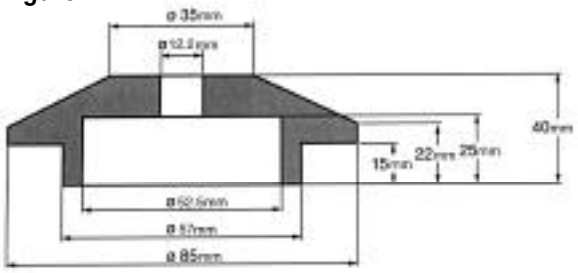


Figure B



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 sleeved & 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

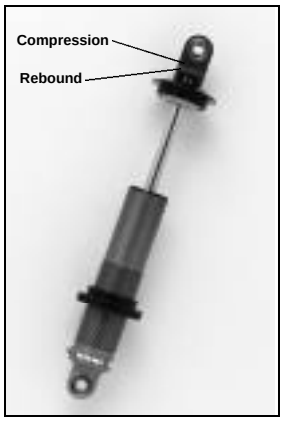
KONI BUMP RUBBERS

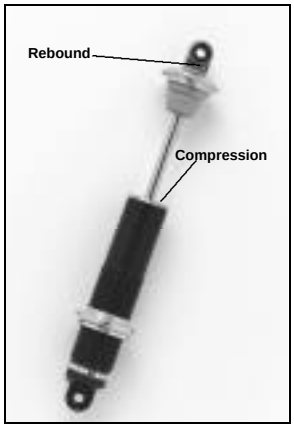
A Koni cellular polyurethane bump rubber is specially designed to protect the suspension from bottoming. Like a progressive spring, the bump rubber resistance increases the more it is compressed. This not only provides safe and controlled bottoming of the suspension, but also prevents internal damage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

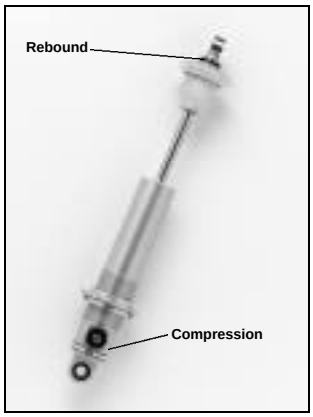
Modifying Bump Rubbers

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	40mm	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







28 Series

NOTE: *Do not place shock absorber in a vise (except at the lower eye).*

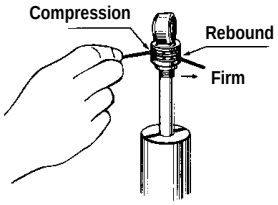
The rebound and compression adjuster requires a pin with an outside diameter of 1.5mm or a 1.5mm hex key. The adjusters are marked with letters that are stamped on the mounting eye.

Rebound Adjustment

1. 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.

2. The adjuster has 7 distinct stops (clicks), each of which marks an adjustment position. There are a total of 8 adjustment positions.

3 The rebound adjuster has a positive stop on the minimum and maximum position. DO NOT FORCE ADJUSTER AS DAMAGE MAY RESULT!



Compression Adjustment

1. 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.

2. The adjuster has 7 distinct stops (clicks), each of which marks an adjustment position. There are a total of 8 adjustment positions.

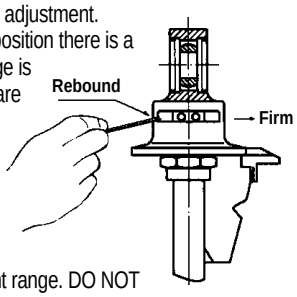
3. The compression adjuster has a positive stop on the minimum and maximum position. DO NOT FORCE ADJUSTER AS DAMAGE MAY RESULT!

3011/3012

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

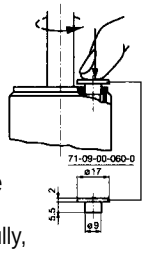
Rebound Adjustment

The rebound adjuster requires a pin with an outside diameter of 3mm or a 2.5mm Allen key. If higher rebound forces are desired, put the adjuster pin next to the minus sign and turn the pin towards the plus sign. This is one sweep of adjustment. From the minimum position there is a total adjustment range is 6-8 sweeps. There are no specific clicks of adjustment to mark the adjustment position, the rebound adjuster can be placed at any position in the adjustment range. DO NOT FORCE ADJUSTER AS BINDING MAYRESULT!



Compression Adjustment

The adjustment is made with the shock fully extended.



1. The compression adjustment requires tool 1037.74.01.04 or a tool of similar dimension to depress the adjuster button.

2. Hold the shock body where the piston rod emerges from the cylinder. Depress the button fully, and hold it down while adjusting.

3. The adjuster has 10 distinct stops (clicks), each of which marks an adjustment position.

4. The shock may have been adjusted previously. Check if the shock is in the zero-position by turning the piston rod clockwise until the zero-stop is felt-DO NOT FORCE!

6. To increase compression damping, turn the piston rod counter-clockwise.

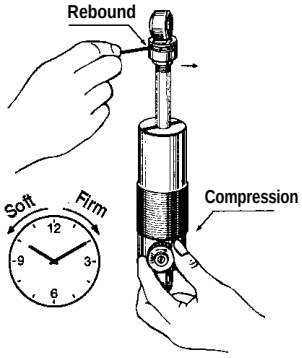
7. While the button is depressed, do not turn the piston rod further, otherwise correct adjustment will be disturbed. Release the button and make sure that the adjusting button springs fully back into position. As soon as the button is back in position, the piston rod may be turned freely.

8212/8216*

Rebound Adjustment (fig. 2)

1. The rebound adjuster requires a pin with an outside diameter of 3mm or a 2.5mm hex key.

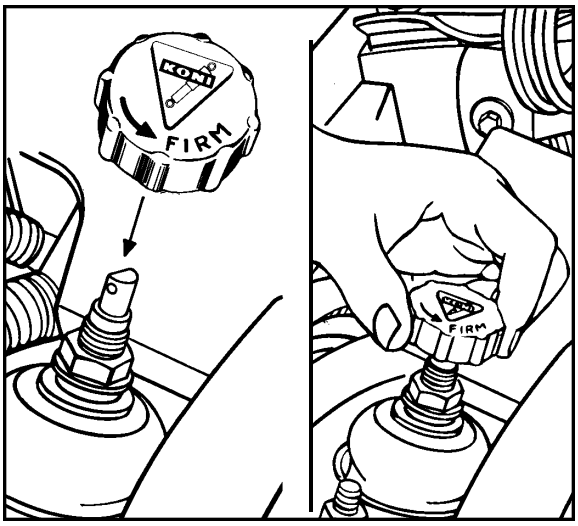
2. If higher rebound forces are required, put the adjuster pin in the hole next to the minus sign and turn the pin towards the plus sign. This is one sweep of adjustment. The total adjustment range is 7 to 8 sweeps. There are no specific clicks to mark the adjustment position, the rebound adjuster can be placed in any position in the adjustment range.



Compression Adjustment

To **increase** the compression damping force of the shock absorber, turn the lower adjuster clockwise. To **decrease** the compression damping force, turn the lower adjuster **counter-clockwise**. From the minimum position, there are 12 distinct stops (clicks) of adjustment.

** 8216 is rebound adjustable only.*



EXTERNALLY ADJUSTABLE

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

These shocks can be adjusted while mounted to the car.

Adjustment by Knob

1. Place the supplied adjusting knob onto the adjuster tab on the top of the shock absorber.

2. 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.

3. To increase the rebound damping force, turn the knob clockwise in the direction of the "firm" arrow. To decrease the rebound damping force, turn the knob counter-clockwise.

4. After adjustment remove the adjusting knob to prevent damage to the adjuster.

30 series

The adjustment is made with the shock fully extended.

NOTE: Do not place shock absorber in a vice (except at the lower eye). (fig. 2 and 3)

1. Remove the shock absorber from the vehicle.

2. 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. (fig. 1 and 2)

3. The adjuster has 3 distinct stops (clicks), each of which marks an adjustment position. There are a total of 4 adjustment positions. (fig. 4)

4. 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!

5. To increase rebound damping, turn the piston clockwise.

6. While the button is depressed, do not turn the piston rod further, otherwise correct adjustment will be disturbed. Release the button and make sure that the adjusting button springs fully back into position. As soon as the button is back in position, the piston rod may be turned freely.

STANDARD ADJUSTABLE

80, 82, 86, 8040, 8240 Series

1. Remove the shock absorber from the vehicle and hold it vertically with the lower mounting attachment in a vise.

2. Fully compress the shock absorber, at the same time turning the dust cover or piston rod slowly counter-clockwise, until you feel the adjuster engage into the recesses of the foot valve assembly. (fig. 5)

NOTE: *Some shock absorbers include a bump rubber concealed under the dust cover and this must be removed prior to adjusting. Do not forget to re-install after adjusting.*

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

4. To **increase** the rebound damping, turn the piston rod **clockwise**. The typical adjustment range is 3-5 half turns. (fig. 6)

5. Extend the shock absorber vertically for at least 3/8î without turning in order to disengage the adjusting mechanism. The dust cover or piston rod may now be turned freely.

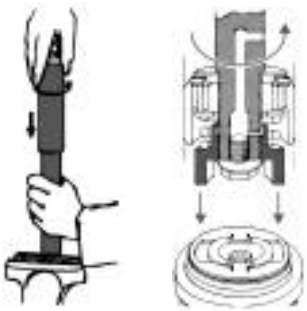


fig. 5

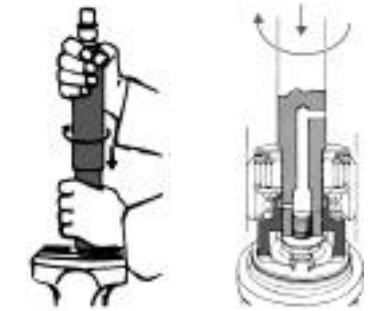


fig. 6

fig. 1

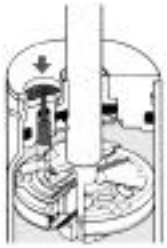


fig. 2

fig. 3

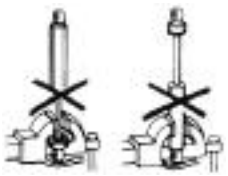
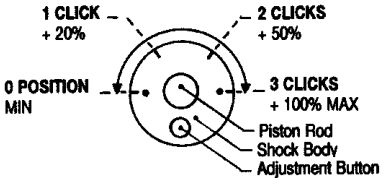


fig. 4



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.

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.

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 wheelstands or bounces violently proceed to Step 3 and then to Step 4. However, if there is rear tire shake, wheel hop, or excessive body separation proceed first to Step 4 and then to Step 3.

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 degree) 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 adjustments by 2 clicks.

STEP 4: **Rear Damper Adjustment Procedure**

Pay close attention to the rear of the car as your goal is to dampen the tire movements as firm as 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 degree) increments of rebound adjustment and if KONI double adjustables 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. Once you have completed this procedure only fine adjustments may be needed in the future due to varying track conditions.