PROVEN

TEXT / *Doug Neilson*
PHOTOGRAPHY / *Eric Roy and Doug Neilson*

KW SUSPENSION
CLUBSPORT COILOVERS

THERE COMES A TIME IN THE PERFORMANCE PROGRESSION OF ANY TRACK CAR PROJECT WHEN "COMPLETELY MAXED-OUT" IS STILL NOT ENOUGH. Everyone knows that more power is better, but in this Proven article we concentrate on maximum handling. The goal was to take an already great handling track car and smartly convince it to handle even better. At the track this means reducing lap times. To do this we had to move out of the regular spectrum of street-spec aftermarket coilovers and closer to a full-blown racecar setup. KW Suspensions has bridged this gap nicely with its new Clubsport kits with fully adjustable height, compression, and rebound, just like the company's V3 street coilover kits. The combination of adjustment options allows for an individual setup according to the vehicle load, tire characteristics, different track conditions, and driver preferences. In addition, Clubsport coilover kits have been designed to utilize linear race springs with much more aggressive rates. They also provide stiffer damping, and increase overall strength to deal with the harsh race track environment. Therefore, they're ideal for enthusiasts who participate in race track lapping events or driver safety training courses.

VEHICLE DATA

Engine: 3.6-liter flat six, (265 whp)
Transmission: Six-speed manual
Mileage: 52,000
Current modifications: Custom mufflers, Cup airbox, Steve Wong chip, Bilstein PSS9 coilovers, TRG sway bars, custom drop links, OMP strut brace, Walrod bushings, DasSport rollbar, 993 Turbo "Big Red" front brakes with 320mm rotors, Pagid Black brake pads, Forgeline ZX3-R competition wheels (8.5x18, 10x18), Dunlop Z1 Starspec tires (235/40, 265/35), HID lights, OMP carbon seats
Test equipment: Traqmate GPS Acquisition System, PC laptop with USB connection

Race Track: RaceCity Motorsport Park, Calgary, Canada , ~2 miles (10,200 ft), 11 turns
Test Driver: "The Bloke" (Steven Tory)

BASELINE

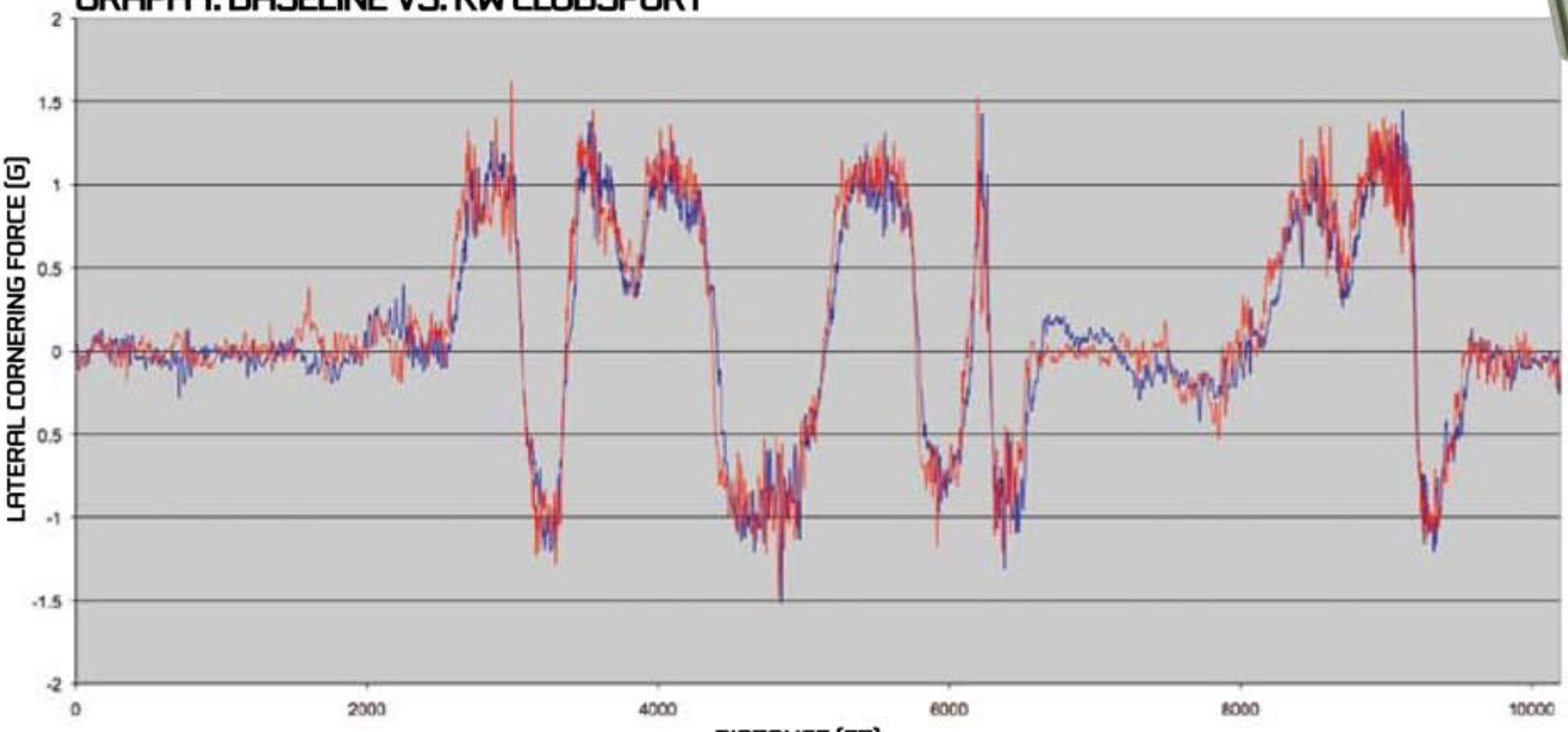
Lap time (hot lap): 1:29.07 sec.
Maximum lateral cornering force (non spike, relative measurement): 1.30g (Turn 10)
Temperature: 73° F
Humidity: 34%

TEST NOTES

Same driver, same driven line, pleasant weather conditions: warm, sunny, and dry.

The car felt predictable on most sections of the track, giving one the confidence to put the car where you want it. Chasing the last tenths was where the challenges really lie; when the shocks were set to full stiff, inherent issues arrived, making the ride and handling harsh. On the bumpier sections the car felt way overdamped, causing the wheels to bounce around and lose the full contact patch. When you are at the top of the shock adjustment range, and it's still not enough, it's time for an upgrade.

GRAPH 1: BASELINE VS. KW CLUBSPORT



TEST 1

PERFORMANCE

Lap time (hot lap): 1:27.33 sec.
Maximum lateral cornering force (non-single spike, relative measurement): 1.38g (turn 10)
Temperature: 71° F
Humidity: 36%
Conditions: : Sunny and Dry

Tools: Full set of metric wrenches and sockets, screwdriver set, long breaker bar, rubber mallet, band aids
Installation time: Four hours for DIY with your best car-guy buddy (not including race and hot-babe talk)
Brief description: Raise car on axle stands, mark or photograph rear alignment eccentric, remove brake line clips, release sway bar links attached to struts, remove front and rear struts, install new struts and reverse process. Set approximate ride height and rough-in alignment.
Performance alignment: Two hours labor at a qualified shop

PROS

- Excellent improvement in high speed cornering capability
- Adjustable rebound and compress for finer tuning to individual driver preferences
- Out-of-the-box fast with suggested factory settings, only minor adjustments to suit
- Good range of height control with the security of grub screws holding the collars
- Very firm, yet still compliant on road feel, in no way harsh on the street

CONS

- Requires custom sway bar links or bracket extension for very low ride height settings with aftermarket sway bars
- Climbing under car to make shock adjustments
- Minimal improvement in low speed corners

TEST NOTES

Same driver, same driven line, pleasant weather conditions: warm, sunny, and dry (however, performed a different day than the baseline test). Initial testing with the KW Clubsport setup was done using the factory recommend settings. Some very minor adjustments were made to suit the characteristics of the car and the personal preference of the test driver. It was interesting to note that these adjustments only amounted to less than a half second per lap over the recommended settings, and were more or less indistinguishable from our hot lap data plotted on the graph.

COSTS SUMMARY

KW CLUBSPORT COILOVER	$3,449
6 HOURS OF LABOR	$600
MSRP TOTAL	$4,100

CONCLUSION

The KW Clubsport coilover suspension kit is designed to offer a stronger, more durable suspension, and has significantly improved our test car's lap times and handling performance at the track. At speed, the 993 feels well damped, planted and in control, never nervous or jittery, with the greatest improvements occurring on the fast, bumpy sections on the track. In addition, the state-of-the-art damping technology has greatly improved the ride quality of the test vehicle on the street. This is truly an extra bonus for those who use their track day warrior regularly on the street.

GRAPH 2: BASELINE VS. KW CLUBSPORT