



SERVICE BULLETIN

Date: 15.01.09

Model: Elise/Exige/Europa

Number:
2009/01

CLASS 3

Service Manager	Service Reception	Supervisor	Parts Manager

TITLE: Important precautions and recommendations for cars used on race tracks or in a competitive manner.

REASON: To highlight to dealers and customers some recommended precautions for regular track users. As stated in the owner's handbook Maintenance Record booklet (page 9) and Maintenance Schedule:

"The Lotus Elise, Exige and Europa, are designed as road going sports cars. It is recognised that owners may wish to use the car occasionally on closed circuit tracks to experience the car's full range of dynamic capabilities. However, use of the car in a competitive manner, including timed runs or laps, is not endorsed by Lotus. This type of timed, competitive use will invalidate warranty and require appropriate levels of expert vehicle preparation and servicing."

With the increasing use of Elise/Exige/Europa on track days and closed circuit events, it is important that customers who exploit full vehicle performance in these circumstances take appropriate action to optimise safety and vehicle durability. In addition to the proviso above, the following advice should also be observed:

Catalytic Converter (Toyota powertrain)

In order to provide enhanced durability and resistance to fatigue cracking when subjected to sustained high engine rpm, combined with extreme temperature gradients and extensive powertrain rock caused by acute torque reversals, the material specification of the catalytic converter/downpipe assembly has been upgraded. In addition, the length of the 'U' bend pipe has been increased to allow a greater insertion depth into the silencer, the better to accommodate positional tolerances.

Failure of the catalytic converter/downpipe assembly, or of any joint in the exhaust system, could cause overheating of surrounding components or body structure, and initiate a vehicle fire.

Revised components

Catalytic Converter, Elise 111R/Elise R/Elise SC/Exige	D120S0002F (Bifurcated downpipe)
Catalytic Converter, Exige S/2-Eleven	B128S0001F (Non-bifurcated downpipe)
Catalytic Converter, Elise S	C131S0002F (Non-bifurcated downpipe)

Identification

Revised components were introduced on production in March 2008 at approx. '08 M.Y. VIN serial number 1087. To check an individual item, hold a straight edge across the end of the 'U' bend pipe, and extend across to the the body of the converter. Measure the distance from this edge to the start of the weld bead at the outlet end of the converter body.

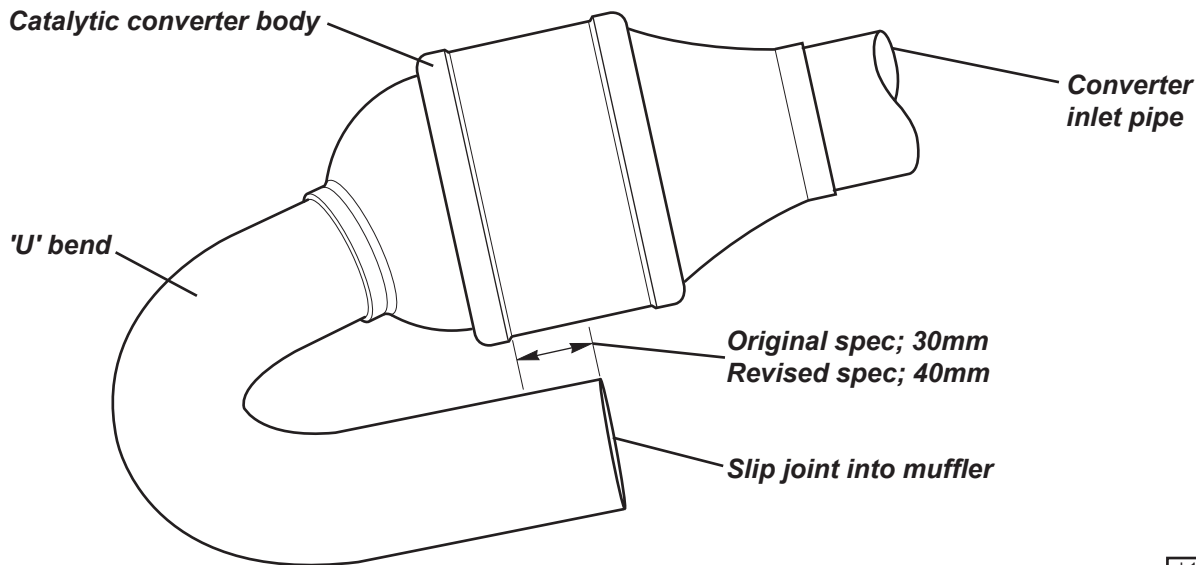
Original specification; approx. 30mm

Revised specification; approx. 40mm

See illustration overleaf.

For track use, or if fitting any non-standard exhaust muffler, excluding Lotus Authorized accessory exhausts, only the revised converter assembly should be used.

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The following advice, contained in Service Bulletin 2008/07, must also be adhered to:

The slip joint between the catalytic converter outlet 'U' bend and the exhaust muffler is secured by a strap clamp and pinch bolt. This clamp is designed to apply the correct clamping force to the pipe when the pinch bolt is tightened to the specified torque of 54 Nm. In order to guarantee this result, the clamp is for **one use only**, as some stretching and settling of components will occur in service.

Be aware that the security of this joint is essential to ensure the integrity of the exhaust system, in respect of noise, heat release and safety. Extreme temperature gradients and powertrain shunt (especially with track use), will subject the joint to additional stress, and for cars used on closed circuits or in similar conditions, the Pre-Track Use Check List, LSL520 should be followed, which includes an operation to check the exhaust system for sealing and security.

If an exhaust muffler is at any time removed or replaced, the following points should be observed:

Parts required	Part number	Qty
Clamp, exhaust muffler, Elise/Exige/2-Eleven	A120S6000S	1 off
Clamp, exhaust muffler, Europa	B116S6001H	1 off

1. Ensure that the clamp (A120S6000S or B116S6001H) is renewed, if necessary cutting the tack weld (used only to assist factory build) with a precision rotary tool to remove an old clamp from a muffler which is to be re-fitted.
2. Position the new clamp to be flush with the end of the muffler pipe, and orientated with the clamp split equidistant from the two patented joggled seal slots in the pipe. Tack welding the new clamp is not necessary.
Note that all new standard fitment mufflers, and Lotus accessory sports mufflers LOTAC05334, LOTAC05335 and LOTAC05450, are supplied with new clamps tack welded in position. Elise S sports exhaust LOTAC05391 will require a new clamp, A120S6000S, to be ordered separately.
3. Dependent on model, be aware that the optimum position of the muffler may not be determinable without trial fitment of the diffuser in order to centralise the tailpipe(s) in the diffuser aperture (note: access to the clamp is not available with the diffuser fitted). In this situation, the clamp bolt should be only nipped up for the position assessment, prior to torque tightening on final assembly. Achieve the maximum possible engagement of the 'U' bend pipe into the muffler inlet, consistent with acceptable tailpipe position. Assemble the joint **dry**.

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4. Finally, torque tighten the clamp bolt to 54 Nm. From this point onwards, the clamp should be discarded if the clamp bolt is slackened.
5. Manually attempt to slide or rotate the joint. No movement should be possible.

Rear Toe-Link Inboard Joint Torque Check (S/B 2006/19)

The hot dip galvanised coating used on the rear subframe can, on Toyota powertrain cars, result in some initial 'settling-in' of the toe-link ball joint stud with the channelled insert on the subframe (ref. Service Bulletin 2004/09). This process will be accelerated if the car is subjected to track type usage. The torque figure for the fine thread (1.25mm pitch) ball joint stud and 8.8 grade Philidas nut (A117W3189F) is 50 Nm.

On Rover powertrain cars, no channelled insert was used on the subframe; the orientation of the ball joint stud flats must manually be set horizontal to provide the maximum diameter for load distribution. For recommended torque figures for the various ball joints which may be found, refer to Service Bulletin 2003/11 Issue 6, noting that the fine thread ball joint (A117D0090S) is supplied as service replacement, with a torque of 50 Nm (unless using with early non-hardened subframe; 45 Nm)

For regular track use, Lotus recommends that all suspension fixings be checked between sessions, and that the chassis rear brace kit LOTAC05377 (see Service Notes section DH.5) is fitted to spread the load distribution across a wider base and to increase tolerance to abusive driving.

Camber Shimplates (S/B 2008/09)

The shim plates fitted between the steering arms (front) or ball joint plinth (rear) and the hub carrier, are selected to adjust the wheel camber. These shim plates are slotted to facilitate substitution without completely removing both the bolts. For motorsport application, where suspension loads are substantially increased, a high strength steel is used for the shimplates, and the slots are deleted to utilise the maximum clamp face area and enhance joint stability. These shim plates have been commonised for all cars from approx. '08 M.Y. V.I.N. serial number 1742, and will require bolt removal to allow shim interchange when adjusting camber.

Front Shimplate, 1mm	D111C0062F
Front Shimplate, 1.5mm	B120C0022F
Front Shimplate, 3mm	D111C0064F
Rear Shimplate, 1mm	E111D0052F
Rear Shimplate, 1.5mm	B120D0048F
Shimplate/harness support, 1mm, RH	C116C0012F
Shimplate/harness support, 1mm, LH	C116C0013F

Notes

- In all cases it is necessary to fit the plate supporting the wheel speed sensor harness.
 - The bolts securing the steering arm/top ball joint plinth to the hub carrier were upgraded in March '04 at VIN serial number 1537 (approx.).
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|---|------------|-------|
| Bolt, 10.9 grade, M10x40, steering arm to hub carrier | A117W7211F | 2 off |
| Bolt, 10.9 grade, M10x60, steering arm to hub carrier | A117W7212F | 2 off |
| Bolt, 10.9 grade, M10x50, rear ball joint plinth to hub carrier | A117W7213F | 4 off |
- Earlier type 8.8 grade bolts should be tightened to 45 Nm; Later 10.9 grade bolts to 68 Nm. The bolt grade is stamped around the head of the bolt.
- The thread of both bolt types should first be thoroughly cleaned before treating with Permabond A130 (A912E7033V).

- Any attempt to adjust camber outside of Lotus specification (refer to appropriate service manual) may result in inappropriate bolt thread engagement, and endanger security.
- If camber adjustment is to be undertaken, or if any car is being prepared for motorsport activity, it is recommended to fit the later type camber shimplates and steering arm/plinth bolts.

'Big' Brakes

The 'big brake' kit included in the Performance Pack option for Exige S, has been revised to reduce parts count, simplify assembly and add value.

Introduced in June 2008, at approx. '08 M.Y. VIN serial number 1742, the 'big brake' kit fitted to all Exige S models with the Performance Pack option, has been revised to a Fast Road specification. The differences may be summarised as follows:

- Single piece iron front brake discs replace separate iron discs and alloy mounting bells;
- Bespoke single piece front callipers replace callipers with separate adaptor brackets;
- Brake pad material change, front and rear;
- Revised braided hoses front and rear;
- Standard wheel bolts replace longer versions;

For Cup 260 cars, a new Sport brake specification combines the Fast Road front callipers with 2-piece front discs for marginally better disc cooling, in conjunction with Pagid pad material.

In general, the **Fast Road** brakes offer significant benefits over standard brakes where full vehicle performance is exploited, primarily through reduced brake fade in conditions of repeated or prolonged heavy application. Trade offs include a greater susceptibility to noise generation.

The **Sport** brakes, have marginally better disc cooling via the alloy mounting bells, and use the competition type Pagid pad material. Note that the new calliper requires a new reduced thickness version of the Pagid pad (A128J0003S). Trade offs include a greater susceptibility to noise generation, and reduced response when the brakes are cold.

The new callipers do not require the thicker disc bells formerly used to provide wheel/calliper clearance, or the corresponding increased length wheelbolts. Consequently, a new version of the two piece disc assembly uses the standard 8 mm flange thickness and standard wheelbolts.

Be aware that erroneously fitting a new 2-piece disc on an original 'Big Brake' car will result in the road wheel fouling the brake calliper.

Comparison chart:

Feature	Standard (reference)	'Big Brake' (discontinued)	Fast Road	Sport
Front calliper pistons	2	4	4	4
Piston diameter (mm)	44.45	Leading 31.75 Trailing 36.00	Leading 31.75 Trailing 36.00	Leading 31.75 Trailing 36.00
Calliper housing	Alloy. Bolts directly to hub carrier.	Alloy. Uses separate adaptor bracket.	Alloy. Bolts directly to hub carrier.	Alloy. Bolts directly to hub carrier.
Pad material	Textar T4139	Pagid RS14B	Ferodo DS25HP	Pagid RS14B
New pad thickness	14.5	16.5	14.5	14.5
Front disc size	288 x 26	308 x 26	308 x 26	308 x 26
Front disc features	Curved internal vanes, cross drilled. Common RH LH Single piece.	Curved internal vanes, cross drilled. Handed RH LH Separate 11mm thick alloy mounting bell.	Curved internal vanes, cross drilled. Handed RH LH Single piece.	Curved internal vanes, cross drilled. Handed RH LH Separate 8mm thick alloy mounting bell.
Wheelbolts	26mm long	28mm long	26mm long	26mm long

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Brake pad bedding-in

Fast Road brakes should be bedded-in according to standard handbook advice; avoid needless heavy braking for the first 100 miles (160 km). Thereafter, the first time the brakes are used aggressively, some loss of brake feel may be evident as the brake pads undergo a final conditioning phase. After the brakes have cooled, full brake performance will be restored.

For cars built with Sport Brakes, and any car fitted with 'big brakes' using Pagid RS14B pads, an extended bedding-in procedure is required, detailed in LSL534b (see S/B 2008/05).

Whichever brake equipment is fitted, it is vital that the brake pad material is matched at all four wheels - do not mix front and rear pad materials.

The braided brake hoses have been revised on introduction of the Fast Road brakes to optimise hose length and improve 'P' clip security. These hoses may be used as service replacement on all cars.

Big Brake Retrofit Kits (Elise/Exige)

Both Fast Road and Sport brake retrofit kits are offered, including front callipers, front discs (single or 2-piece), front and rear braided brake hoses, front and rear brake pads.

Fast Road Retrofit Brake Kit	A120J0045S
Sport Retrofit Brake Kit	A120J0046S

Special Offer

The following upgrade kit combinations are offered at a discount price:

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| 1. | Track Use/Fast Road Brake Upgrade Kit | - Elise R, Elise SC, Exige
- Exige S
- Elise S | A120J0048S
A128J0001S
A131J0002S |
| | comprising: | | |
| | Fast Road Retrofit Brake Kit | | A120J0045S |
| | Plus (for kit A120J0048S) | | |
| | Cat. Converter, Elise R/Elise SC/Exige (Bifurcated downpipe) | | D120S0002F |
| | Or (for kit A128J0001S) | | |
| | Catalytic Converter, Exige S (Non-bifurcated downpipe) | | B128S0001F |
| | Or (for kit A131J002S) | | |
| | Catalytic Converter, Elise S (Non-bifurcated downpipe) | | C131S0002F |
| | Plus: Exhaust Clamp | | A120S6000S |
| | Plus: Camber Shim/Bolt Set (whole car) | | A120J0047S |
| | (includes selection of front & rear shims plus car set of 10.9 grade bolts) | | |
| 2. | Track Use/Sport Brake Upgrade Kit | - Elise R, Elise SC, Exige
- Exige S
- Elise S | A120J0049S
A128J0002S
A131J0003S |
| | comprising: | | |
| | Sport Retrofit Brake Kit | | A120J0046S |
| | Plus (for A120J0049S) | | |
| | Cat. Converter, Elise R/Elise SC/Exige (Bifurcated downpipe) | | D120S0002F |
| | Or (for kit A128J0002S) | | |
| | Catalytic Converter, Exige S (Non-bifurcated downpipe) | | B128S0001F |
| | Or (for kit A131J0003S) | | |
| | Catalytic Converter, Elise S (Non-bifurcated downpipe) | | C131S0002F |
| | Plus: Exhaust Clamp | | A120S6000S |
| | Plus: Camber Shim/Bolt Set (whole car) | | A120J0047S |
| | (includes selection of front & rear shims plus car set of 10.9 grade bolts) | | |