

# The Elan Factory - Information Sheet



## Brake Hose Installation Guide

During a routine safety inspection, a Lotus car was found to have full size locknuts fitted to the flexible hoses instead of half-size nuts. This dangerous installation could lead to the female tube nut not compressing the flared pipe end sufficiently to create a complete hydraulic seal. Brake hoses are safety critical components and need the greatest amount of care when replacing them. It is imperative to refer to the vehicle manufacturers instructions that should be adhered to ensure the replacement operation is carried out in the correct manner. The following instructions are a general guide and represent recommended assembly procedures.

1. Brake hoses must be fitted as supplied and not modified in any way. They should never be coated with paint or under body sealant that would inhibit regular inspection.
2. New hoses should be checked against the hoses being replaced. The end fittings must be identical and lengths must not vary by more than 1/4" (6mm) either way.
3. Route and install the new hose in the same manner as the original. Check and make sure the hose does not foul the suspension or the body.
4. Allow the new hose to adopt its natural position before tightening the locking nuts and fixings. Fit the new hose with wheels in the straight-ahead position and the suspension at the normal ride height. This is to ensure the hose is not kinked or twisted when installed.
5. The new hose must be able to follow all possible combinations of extremes of steering and suspension movement without obstructing or stretching of the hose. Be sure to route any hose so as to avoid contact with the exhaust system.
6. Always ensure that the new hose does not hang below the body of the vehicle.
7. Protective sleeves or springs on the new hose should not be removed or displaced.
8. The hose fittings should be tightened with the vehicle manufacturers' recommendations. Hydraulic connectors should not be tightened in excess of 15 lb/ft (2 Kgm) otherwise breakage or damage to the threads and seating faces will occur. Brake hoses with a washer face seating must be fitted with new washers on assembly.
9. After assembly, fill and bleed the braking system with fresh clean fluid. Be sure to check what type of fluid was previously in the hydraulic system as mineral fluid is not compatible with silicon fluid. Check for leaks and brake functionality **before** taking the vehicle on the road.



10. Wherever a female tube nut is used to connect a brake pipe to a brake hose as illustrated above, it is important that after tightening there should always be a clearance between the face of the tube nut and the face of the lock nut. If there is any doubt about this clearance, remove the existing hose locknut and fit the 'thin' locknut supplied with the new hose. Using the correct locknut ensures the proper connection has been made between the flared brake pipe and the brake hose end.

### Additional installation and maintenance tips

Bleed the brake system as you replace the hoses (one at a time) to minimise the residual air in the system. The service life of flexible brake hoses is 4 to 5 years depending on application, temperature, environment, etc. Note, the Lotus workshop manual recommends changing flexible brake hoses every 3 years or at 40,000 miles. Change hydraulic fluid every 12 to 24 months as regular brake fluid is hygroscopic and therefore absorbs moisture. Check what specification brake fluid should be installed in the system eg? DOT4  
Check condition, bends and crimped terminations regularly on all types of car.

**For further information regarding flexible brake hoses, performance products or genuine Lotus products, please phone The Elan Factory on (613) 9761-1903 or fax on (613) 9739-8944. Alternatively you can write to The Elan Factory at 5 Marong Court, Boronia Heights 3155, Melbourne, Australia or e-mail at [elanfactory@optusnet.com.au](mailto:elanfactory@optusnet.com.au)**