SUPPLEMENT

2-Eleven

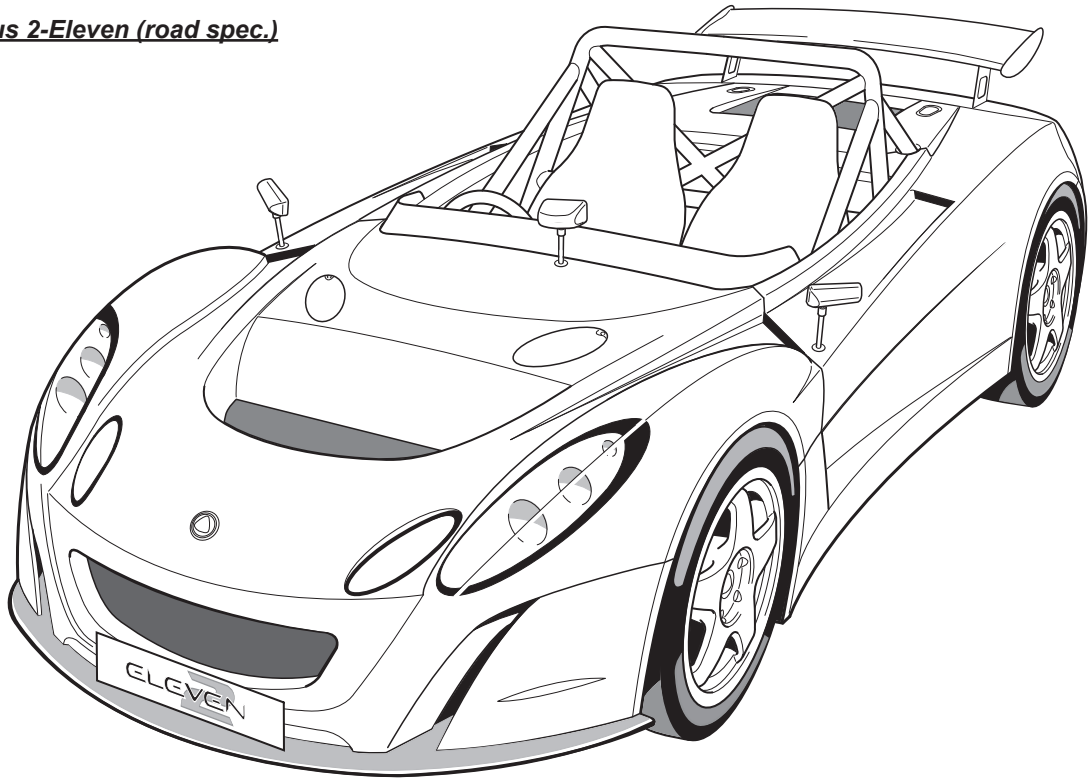
2-ELEVEN.# - CONCEPT & OVERVIEW

In March 2007, Lotus announced the Lotus 2-Eleven (255 PS) designed for the motorsport enthusiast, and aiming to provide a high fun factor from a lightweight, high performance, distinctively styled vehicle, suitable as a basis for various sporting disciplines, as well as offering U.K. customers the option of a unique road going experience. The cars to be produced in small numbers for the U.K. and certain overeas territories tailored to customer specification from an extensive options list.

The running gear is based on the Exige S, and shares that car's basic chassis and supercharged powertrain componentry, but uses a new chargecooler arrangement and peripheral systems. Unique engine programming is used in conjunction with 4 high flow fuel injectors as used on Exige Cup cars. The open top lightweight body is designed to be amenable to economic accident repair and is supplemented by an FIA compliant roll over bar, and strut mounted rear aerofoil acting directly onto the rear subframe. Options include a race specification carbon fibre adjustable rear aerofoil combined with an enlarged front splitter for enhanced aerodynamic balanced downforce, and Ohlins fully adjustable spring/damper units with remote reservoirs.

This supplement describes the unique features of the 2-Eleven, and refers to other models where componentry is shared.

Lotus 2-Eleven (road spec.)



2-11 fq road black

LOTUS SPORT

ELEVEN

2-ELEVEN.TD - TECHNICAL DATA (Where different to standard naturally aspirated Exige)

Identification

The VIN coding of the 2-Eleven includes the following identifying characters:
Character 4 (engine type); 2-Eleven 2ZZ supercharged 255 bhp = N
Character 6/7/8 (vehicle type); 2-Eleven = 123
Character 12 (chassis specification); U.K. SVA RHD = F
U.K. SVA LHD = G
Track only LHD = H
Track only RHD = J

Note that the VIN label on the 2-Eleven is located on the cabin rear bulkhead, behind the driver's seat.

Character 13 (model); 2-Eleven = 2

Dimensions

Overall length	- SVA	3822 mm
Overall width	- excluding mirrors	1709 mm
	- including mirrors	1735 mm (approx.)
Overall height (at kerb weight)		1112 mm
Ground clearance		95 mm
Dry weight - base car		670 kg
Unladen weight - SVA		745 kg. incl. full fuel tank
Maximum weight		895 kg. incl. occupants

Capacities

Engine oil; refill incl. filter & Accusump	6.4 litre

(The oil cooler circuit contains an additional 3.5 litres, but this volume is not normally drained during routine servicing)

Engine

Forced induction	Magnuson MP62 supercharger with integral by-pass valve. Air/air chargecooler.
Maximum boost pressure	0.5 bar (7 psi)
Max. power	255 PS (252 bhp; 188 kW) @ 8000rpm
Max. torque	242 Nm (179 lbf.ft; 24.7 kgf.m) @ 7000rpm
Power to weight ratio - base car	376 bhp/tonne
Specific power output	142 PS/l (140 bhp/l; 105 kW/l)
Lubrication system supplement	Accusump oil storage reservoir
Oil cooling	Twin front mounted oil coolers

Clutch

Spring cover assembly	Uprated diaphragm spring
Friction plate	Uprated cush drive springs

Wheels & Tyres

Wheels	- type	- std.	Cast alloy, 8 x Y-spoke (as Exige)
		- option	Lightweight forged alloy 5-spoke
	- size	- std. - front	6.5J x 16
		- rear	7.5J x 17
		- option - front	7J x 16
		- rear - rear	8J x 17

Suspension

General	Unique front top wishbones and steering arms. Chassis rear brace
Ride height, mid-laden, front/rear	100/110 (2 x 75 kg pass., ½ tank fuel)
Option	Siffened, 5-position adjustable front anti-roll bar with Ohlins gas pressurised, 2-way adjustable, remote reservoir dampers, with adjustable spring top platforms.

Suspension Geometry (at mid-laden ride height)

Front	
Castor	+ 3.5° to + 4.5° (+ 3°30' to + 4°30') max. side/side 0.4° (0°24')
Camber	- 1.5° to - 1.3° (- 1°30' to - 1°18') max. side/side 0.4° (0°24')
Alignment	- 0.4 mm to zero
Steering axis inclination	11°54' to 12°06'
Rear	
Camber	- 2.75° to - 2.48° (- 2°45' to - 2°29')
Alignment	1.2 to 1.5 mm toe-in each side

Electrical

Battery	- type	Odyssey PC680
	- rating	PHCA 5 second 680 amps
	- capacity (20 hr)	17 ah
	- cold cranking	220 amps
	- reserve capacity	24 minutes
	- dimensions	L185; W 79; H 187 mm
	- weight	7 kg

2-ELEVEN.A - CHASSIS

The 2-Eleven uses the basic chassis 'tub' of the Elise/Exige with minor revisions including;

- Deletion of door hinge upright extrusions on each end of scuttle beam.
- Full height side members (no cabin access cut down).
- Revised pick up points for the roll over bar.
- Addition of a body side attachment panel to the lower edge of each chassis rail sill extension.

The front crash structure is as Elise/Exige with minor fettling revisions, and the galvanised steel rear subframe differs only in respect of incidental fixings.

Roll-Over Bar

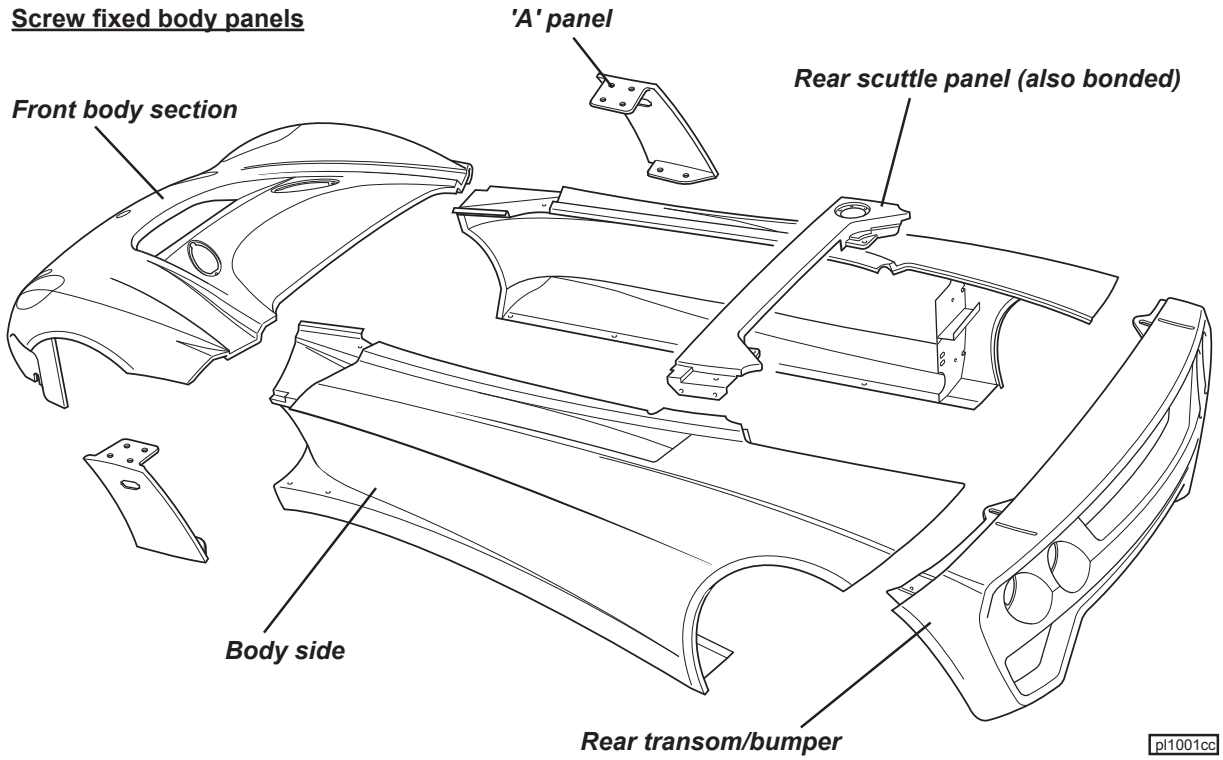
The tubular steel roll-over bar is substantially cross-braced, including provision for shoulder harness anchorage, and features integral bracing struts to both front and rear. The feet of the main hoop are bolted to tapping plates riveted into the top surface of the chassis side rails, with the front bracing struts locating against the joint between the side rail top and scuttle cross-beam and secured by similar riveted tapping plates. The rear bracing struts use a single fixing bolt at each side to secure to the rear subframe.

The roll-over bar complies with FIA requirements for international motorsport, but note that any additions or modifications to the 'bar may invalidate such compliance.

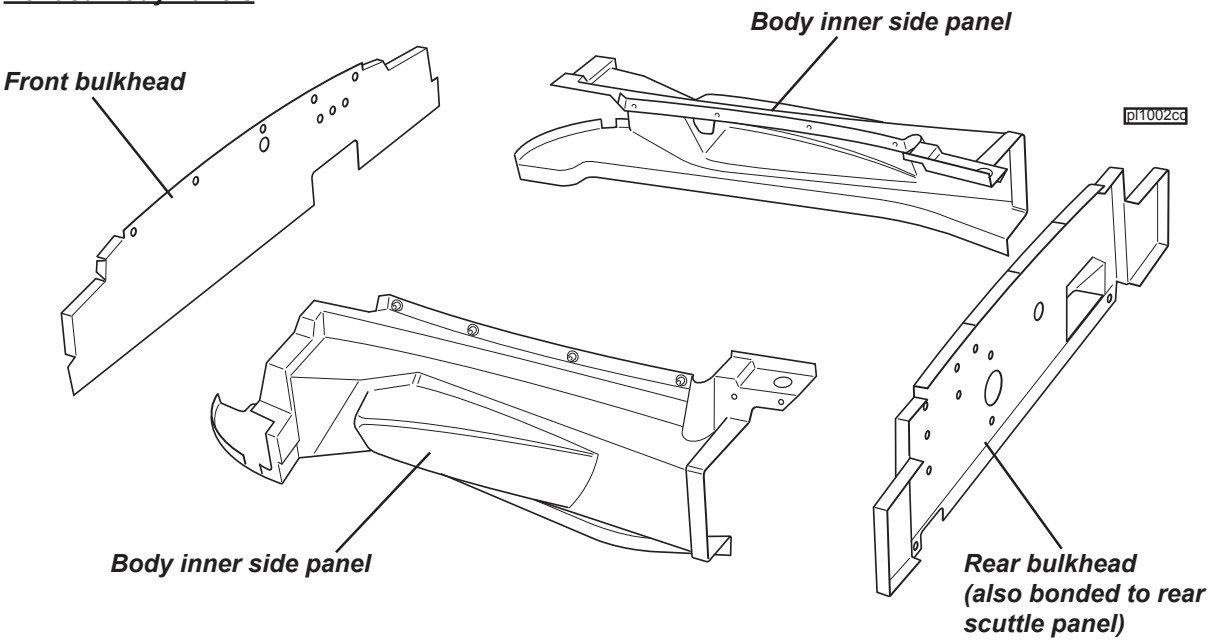
2-ELEVEN.B - BODY

On the 2-Eleven, the rear transom/bumper, body exterior side panels, ‘A’ panels, front splitter and splitter end support panels and the single panel comprising the whole of the nose section and front wings, are secured by threaded fasteners to permit easy removal for access to chassis or powertrain components, and allow simple and economic accident repair. The composite body inner sides, together with the alloy sheet front and rear cabin bulkheads and rear scuttle panel, are secured with an elastomeric adhesive.

Screw fixed body panels



Bonded Body Panels



All composite panels on the 2-Eleven are designed for light weight consistent with aerodynamic function, with some panels featuring core mat technology to provide a sandwich construction for enhanced stiffness. All panels are nevertheless vulnerable to damage caused by inappropriate subjection to bodyweight or other misapplied forces.

Note: The 2-Eleven is not equipped with conventional shock absorbing bumpers, so extra care should be taken when parking to guard against body damage. The Lotus 2-Eleven does not offer the same kind and degree of impact resistance or energy absorption afforded by normal bumper systems. Some panels, including the front quarter panels and 'A' panels, have sacrificial functions to help reduce repair costs and damage to the front body section in minor accidents.

Care is also required, due to the low ground clearance, to guard against chassis underside damage caused by ramps, kerbs and road humps. Note that the front splitter panel is constructed from timber composite, sealed by a layer of resin, and that the occasional grounding of this panel, which is a normal occurrence under track conditions, will cause erosion of the outer layer, requiring periodic repair (water absorption may promote eventual de-lamination) or replacement.

Engine Lid

A removable panel in the rear body is secured by two recessed 'Aerocatches' and provides access to the engine for maintenance operations.

To remove the cover, at each latch, press the smaller section of the flush fitting latch plate to allow the latch plate lever to spring up. Fully raise the lever to release the latch. Lift the rear of the panel, and then draw rearwards to disengage the front flange from beneath the rear scuttle, before lifting the panel forwards and over the rear aerofoil. Park the panel where it is unlikely to be damaged or blown away by wind.

To refit, rest the panel on the two rubber buffers at the front of the body aperture and slide forwards to engage the tang bracket at each side of the panel, beneath the body edge adjacent to the roll bar backstays, and the panel front flange beneath the rear scuttle edge. Press down the two latch levers to engage the retaining pins, finally pressing the small buttons to allow the lever ends to be captured. Ensure that each lever is correctly clipped shut, and flush with the body surface.

Rear Transom/Bumper Panel

The rear transom panel is screw fixed in the following manner:

- At each side, an angle bracket bonded to the underside of the transom top surface is secured by two screws to the aerofoil mounting strut.
- A row of screws secures the lower edge of the panel to the muffler alloy heatshield, which is itself screwed to the rear subframe.

- At each side, two screws pass through the transom end flange into captive nuts in the body side panel.

Rear Scuttle Panel

The rear scuttle panel is fixed at each side by two horizontally disposed M6 screws into bond nuts on the body side panel, and is bonded along the top edge of the rear bulkhead.

Body Side Panel

The body side panels are secured by screw fasteners for ease of access and replacement. Each panel is retained as follows:

- The top edge of the body outer side panel lips over the body inner side panel, to which it is fixed with four screws engaging with captive nuts in the inner panel.
- A single screw passes from beneath, through the end of the rear bulkhead capping rail into a captive nut in the side panel.
- The lower edge of the body side is secured to four threaded inserts in a chassis extension flange.
- At the front of the rear wheelarch, two screws secure the side panel baffle/stiffener to a vertical angle bracket bolted to the main chassis rail.
- At the rear end of the panel, two screws pass from beneath, through the rear transom flange into captive nuts in the body side.
- At the front of the body side, two screws pass upwards into captive nuts in the rear end of the front body panel.

'A' Panels

At the front of each body side, a separate 'A' panel is used to form a duct for air exhausting from the front wheelarch. Each panel is secured by four screws at the top (2 into the body side, 2 into the front body panel), and 2 screws into the body side sill at the bottom.

Front Quarter Panels

A front quarter panel is fitted ahead of each front wheel and forms a mounting and duct for the oil cooler, as well as tying the front corner of the body to the splitter panel. The quarter panel is fixed by:

- 2 screws from beneath, through the splitter into captive nuts in the quarter panel lower flange.
- 2 screws down through the front body flange into captive nuts in the quarter panel upper flange.

Front Wheelarch Shields

A small moulded plastic panel is fitted within each front wheelarch, fixed between the body side and radiator mounting panel, and provides protection for the cooling and brake system components.

Front Undertray

An alloy sheet undertray is fitted beneath the nose, and stabilises the front body, splitter panel, and crash structure to the front of the chassis. The undertray is secured by:

- 3 screws into the front edge of the chassis (also slots into the extrusion).
- 3 screws and nuts at each side into the lower flange of the crash structure.
- 5 fixings around the front edge, passing through the splitter into captive nuts in the front body flange.
- 2 screws and nuts to a central support bracket from the crash structure.
- 1 screw each side to the splitter panel.

Front Splitter Panel

A flat timber composite splitter panel is mounted beneath the nose to cleanly split the airflow above and below the underside of the car to optimise aerodynamic downforce whilst minimising drag. A road and race version of the panel are designed to balance the forces produced by the two types of rear aerofoil. Note that the front splitter panel is constructed from timber composite, sealed by a layer of resin, and that the occasional grounding of this panel, which is a normal occurrence under track conditions, will cause erosion of the outer layer, requiring periodic repair or replacement.

The panel is secured by:

- Undertray fixings as listed above.
- 2 screws at each side to the front quarter panel.

Front Body Panel

To remove the front body panel for access to the radiator, front suspension, brake control system and other front chassis components, proceed as follows:

- Release each of the two oil coolers from the front body by removing the two securing screws.
- Remove the aero screen to prevent damage, or at least release the two rearmost fixings at each side securing the screen to the body sides.
- Remove the single screw each side from within the front corner of the cockpit into a captive nut in the body.
- Remove the two screws each side from within the 'A' panel duct into captive nuts in the body.
- Remove the two screws each side fixing to the top of the front quarter panels.
- Remove the single screw each side from beneath, fixing the splitter panel to the body inboard of the oil coolers.
- From beneath the nose, remove the 5 screws securing the splitter panel to the body flange.
- Carefully lift the front body from the car, disconnecting the wiring harness if applicable.

Note that the front turn lamps (if fitted) are bonded into the front body using Betaseal products.

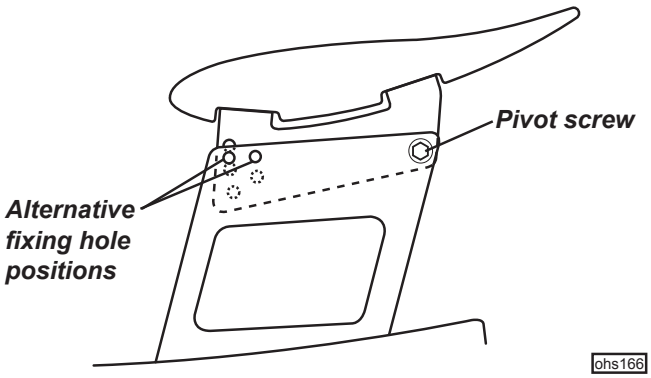
Rear Aerofoil

Two types of rear aerofoil are available. For road going cars, a fixed angle GFRP composite curved blade with integral end plates is used, whereas the track optimised aerofoil is made using carbon fibre with alloy end plates, and has provision for adjusting the angle of incidence. Each type should only be used with the corresponding front splitter panel in order to maintain the correct aerodynamic balance.

Both aerofoil types are mounted via machined alloy support plates to the top surface of the rear subframe. Each plate uses an angle bracket at its base to secure to the subframe, and two of the same angle bracket to brace the plate to the rear clamshell through which the plate penetrates. A further angle bracket secures the blade to the top of the support plate.

The track type aerofoil angle of attack may be adjusted by loosening the rear pivot screw on each support plinth, and removing the front fixing screw. Tilt the blade to the desired angle, and refit the screw in the most appropriate fixing hole. Tighten all fixings securely.

Slots are also provided on the endplates to allow correct horizontal alignment to be maintained after adjustment of blade angle.

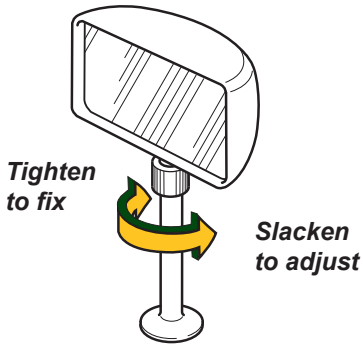


Exterior

The Launch Edition of the 2-Eleven is finished in a two tone combination of B111 Lotus Sport Black and B115 Arctic Silver, with yellow/black/silver styling decals. A '2 Eleven' decal is applied to the rear transom panel, with optional larger decals on each body side. Stone chip film is fitted to vulnerable areas.

Mirrors

A central rear view mirror is mounted on the top of the cabin front scuttle, with an additional mirror on both the driver's and passenger's body sides. Each of the convex glass mirrors may be adjusted after slackening (turn anticlockwise from above) the knurled clamp nut below the mirror.



2-ELEVEN.C - FRONT SUSPENSION

The front suspension is based on standard Elise/Exige componentry, but the angle of the top wishbone ball joint housing differs to better suit the lowered ride height. For the same reason, re-configured steering arms are fitted, being machined from solid EN16 steel billets, and heat treated.

On cars with the optional 'Sports Pack', revised road springs front and rear are fitted on Ohlins dampers featuring remote gas reservoirs, adjustable spring platforms and separate adjustments for compression and rebound damping. The 22 compression and 60 rebound damper settings allow the characteristics to be fine tuned to individual requirements, whilst the threaded spring platforms allow adjustment of ride height and corner weighting. Recommended front/rear mid-laden ride height for both road and track use is 100/110mm. Front height should always lie within the range 95 - 110mm, with a corresponding rear setting 5 - 10mm higher.

Each gas reservoir is mounted on the side of the crash structure, and is connected to its damper body by a steel braided hose. Compression (bump) damping is adjusted by turning the knob on the end of the gas reservoir canister: Turn clockwise to increase damping, and counterclockwise to decrease. Recommended settings are as follows:

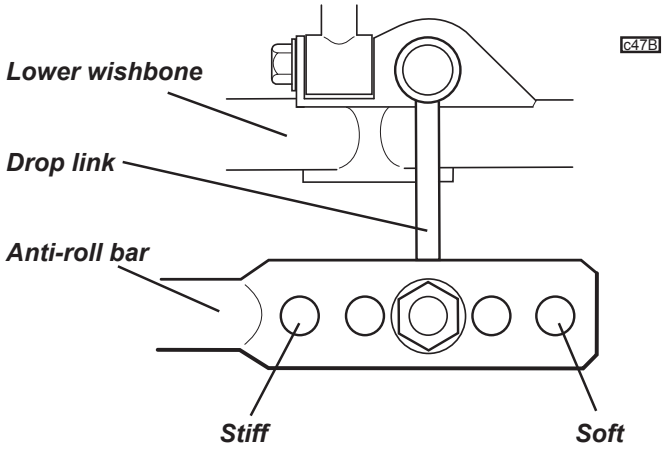
Road use: 11 clicks from full hard
Track use: 11 clicks from full hard

Rebound damping is adjusted via a ribbed collar below the bottom spring seat: Turn clockwise (as viewed from below) to increase damping, and counterclockwise to decrease. Recommended settings are as follows:

Road use: 8 clicks from full hard
Track use: 8 clicks from full hard

The motorsport stiffened and 5-position adjustable front anti-roll bar (included as part of the Sport Pack) provides further opportunity for fine tuning. To stiffen the bar, use a more forward hole, and to soften, use a more rearward hole. Recommended setting:

Road use: Central hole
Track use: Central hole



Note that the hard Nylon type chassis mountings used with this 'bar require periodic lubrication with MoS_2 grease at least every 3,000m (5,000km). For suspension geometry refer to Section 2-ELEVEN.TD - TECHNICAL DATA.

2-ELEVEN.D - REAR SUSPENSION

On cars with the optional 'Sports Pack', revised road springs front and rear are fitted on Ohlins dampers featuring remote gas reservoirs, adjustable spring platforms and separate adjustments for compression and rebound damping. Recommended front/rear mid-laden ride height for both road and track use is 100/110mm. Front height should always lie within the range 95 - 110mm, with a corresponding rear setting 5 - 10mm higher.

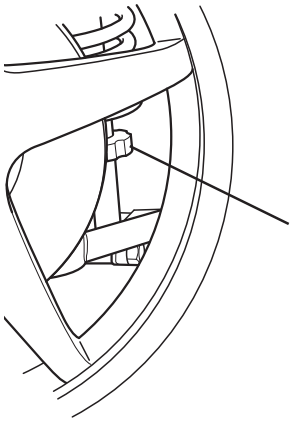
The 22 compression and 60 rebound damper settings allow the characteristics to be fine tuned to individual requirements. Each gas reservoir is mounted on the rear subframe and is connected to its damper body by a steel braided hose.

Compression (bump) damping is adjusted by turning the knob on the end of the gas reservoir canister: Turn clockwise to increase damping, and couterclockwise to decrease. Recommended settings are as follows:

Road use: 15 clicks from full hard
Track use: 10 clicks from full hard

Rebound damping is adjusted via a ribbed collar below the bottom spring seat: Turn clockwise (as viewed from below) to increase damping, and counterclockwise to decrease. Recommended settings are as follows:

Road use: 15 clicks from full hard
Track use: 12 clicks from full hard



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All cars are equipped with through bolted spherical joints on the inboard ends of the rear toe-links, allied to a tubular steel crossbrace connecting the rear sides of these joints to provide 'double shear' support. For suspension geometry refer to Section 2-ELEVEN.TD - TECHNICAL DATA.

2-ELEVEN.E - ENGINE

The 1.8 litre 2ZZ-GE engine with VVTL-i (Variable Valve Timing and Lift - intelligent) as used in other Elise/Exige models, is fitted with a low pressure Roots type Magnuson MP62 supercharger to provide up to 0.5 bar (7 psi) of boost pressure. The supercharger is mounted on the left hand side of the block and driven by a lengthened version of the multirib auxiliary belt. The unit is self contained and features helix twisted rotors to minimise output pressure variations, and maintenance free gearing and bearings, requiring no externally sourced lubrication. An integral by pass valve under ECU control, operates to recirculate air from the compressor outlet back to the inlet under conditions of idle and part throttle to the benefit of economy and quiet operation.

The supercharger is hung off the new intake manifold by two bolts in conjunction with eccentric sleeves in order to ensure stress free alignment. An alloy bracket supports the nose of the unit to the RH engine mounting plinth, and a tubular strut braces the intake end of the unit to the clutch slave cylinder mounting point.

Air is drawn from an enlarged air cleaner through the throttle body and adaptor and into the supercharger axial intake port. From the outlet port on the compressor top surface, the air is directed through a stainless steel duct to the LH end of an air/air chargecooler mounted behind the engine, where airflow gathered from an intake duct in each of the body sides aft of the cockpit, is directed by convoluted ducting to a chargecooler shroud and through the radiator finning to cool the compressed intake charge. The cooled air exiting from the RH end of the chargecooler flows via another stainless duct into a cast alloy intake plenum/manifold. The whole intake tract uses large diameter ducting and generously radiused bends to optimise airflow and intake efficiency and minimise any potential throttle lag. A charge air temperature sensor is mounted in the outlet tank of the chargecooler.

Each end of the chargecooler is mounted by two alloy spacers to a fabricated steel mounting bracket secured to the engine crankcase by a single fixing bolt. A bonded rubber bush at this position supresses vibration effects, and in conjunction with the rubber hose connections to the inlet and outlet ducts, provides an isolated mounting of the chargecooler.

A re-shaped breather pipe is used to connect the crankcase breather spigot to the cam cover and circumnavigate the supercharger.

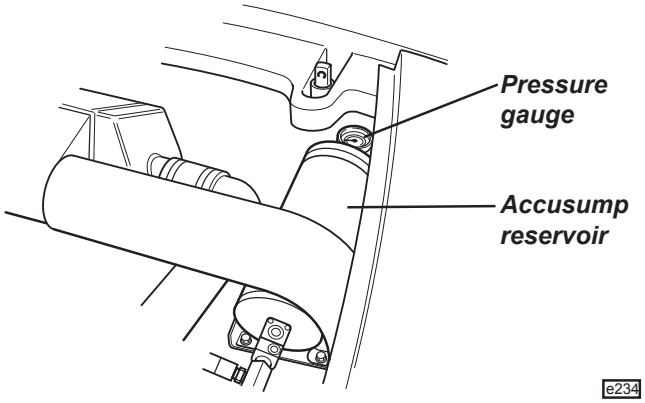
Road going cars use the standard catalytic converter, which is substituted by a plain pipe on track cars, but all versions are fitted with a unique exhaust muffler, featuring a double pass design, with single RH tailpipe exiting through the rear transom panel.

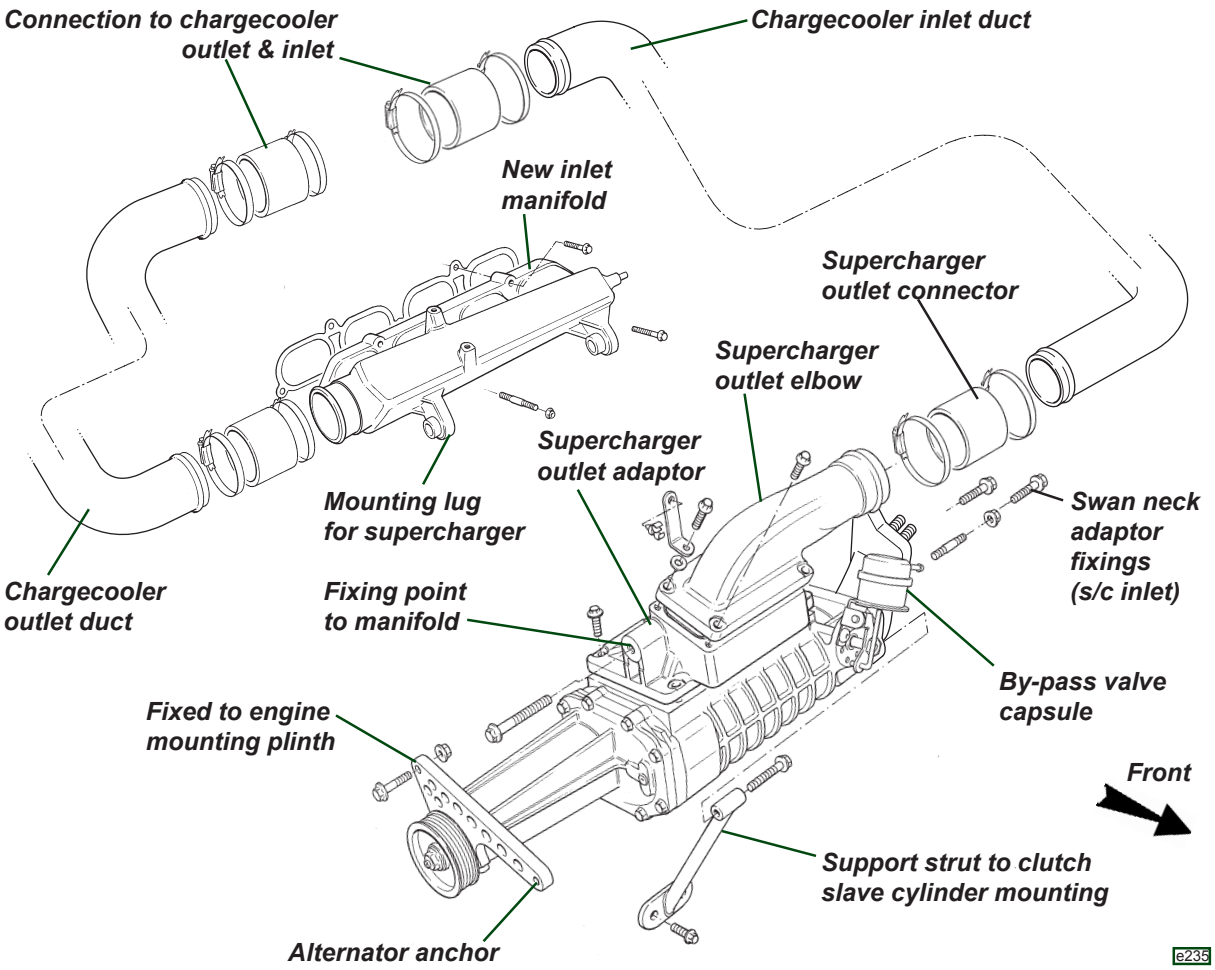
Four special high-flow port fuel injectors are used (common with Cup cars and USA Exige S) in conjuction with unique engine programming, which incorporates control of the supercharger by-pass valve. The boost characteristics have allowed the switching point from low to high lift cam profile to be varied between 4,500 and 6,200 rpm dependent on engine load (at normal running temperature). Twin front mounted oil/air coolers are fitted one each side, ahead of the front wheels.

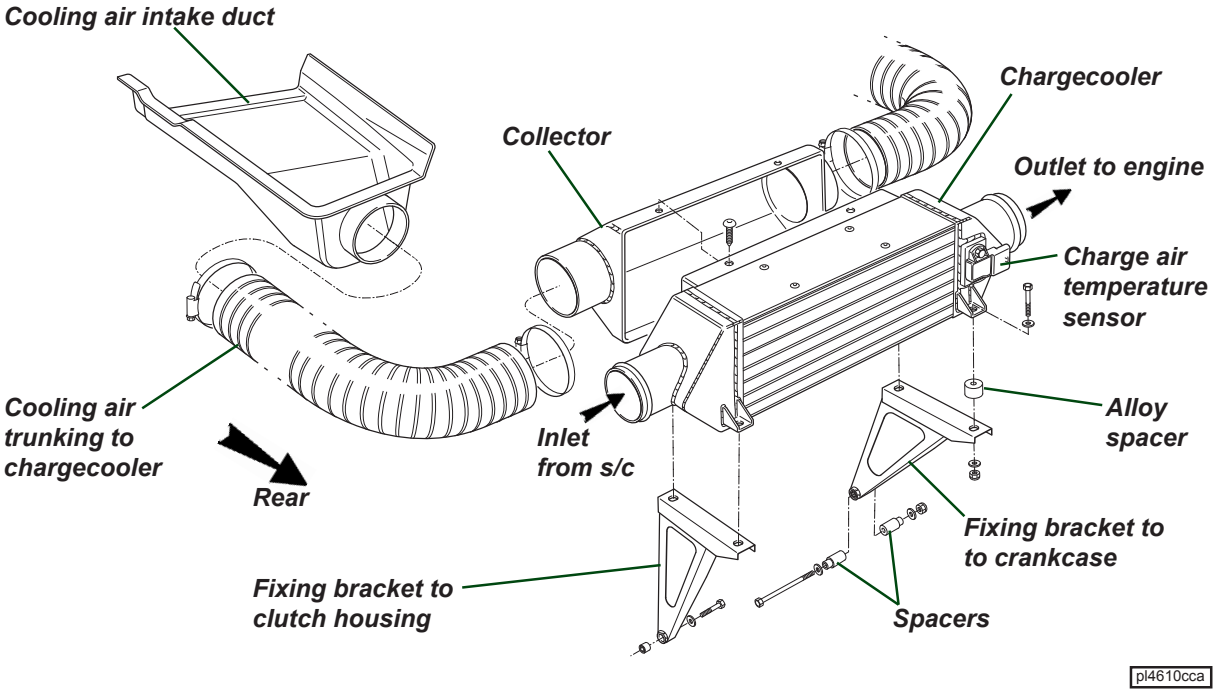
Accusump

To provide protection against the possibility of oil starvation caused by the extreme g-forces possible with track use on slick tyres, the 2-Eleven is fitted with an Accusump oil storage system.

A 2-litre Accusump reservoir is mounted behind the engine on the left hand side of the rear subframe, and is plumbed into the LH oil cooler return hose at the front of the engine bay. The device comprises an alloy cylinder divided by a sliding piston, one side of which is connected to the engine oil supply, with the other containing pressurised air. With the engine running, the cylinder is charged with oil provided by the engine oil pump, but if the pressure should drop for a short period due to oil pump pick up pipe exposure during extreme braking or cornering events, the accumulator air pressure forces the stored oil into the engine lubrication system to maintain continuity of oil supply until normal conditions are resumed.







A one-way valve at the oil cooler connection of the 'T'- piece ensures that the oil discharged from the Accusump is directed into the oil pump and not the cooler. An Electric Pressure Control (EPC) valve fitted at the connection to the Accusump cylinder, allows cylinder charging when oil pressure is above 35 - 40 psi, and cylinder discharging at engine oil pressures below 35 - 40 psi. The EPC is also linked to the ignition switch such that with the ignition switched on the valve is open to allow oil flow, and with ignition off the valve is closed to retain oil within the reservoir.

Normal Operation

When the ignition is turned on, the EPC valve on the Accusump is opened, allowing the pressurised oil stored in the reservoir to flow out into the engine and prime the oil galleries and bearings ready for start up. When the reservoir has been emptied, the pressure gauge on the end of the reservoir will indicate the pre-charge pressure which should be 7 - 15 psi.

When the engine is started, engine oil pressure will force the reservoir piston back, such that the reservoir air pressure gauge will indicate engine oil pressure, with the quantity of stored oil dependent on this pressure at any one time. With cold oil, 80 psi may be seen, but idling at normal running temperature should produce around 30 - 40 psi. Note that the pressure reading on the reservoir gauge is damped and will lag behind the actual instantaneous pressure. A pressure relief valve in the end of the reservoir protects the equipment from over-pressure damage. If oil is seen to escape from this valve, a fault in the lubrication system is indicated, or excessive rpm have been used with cold oil.

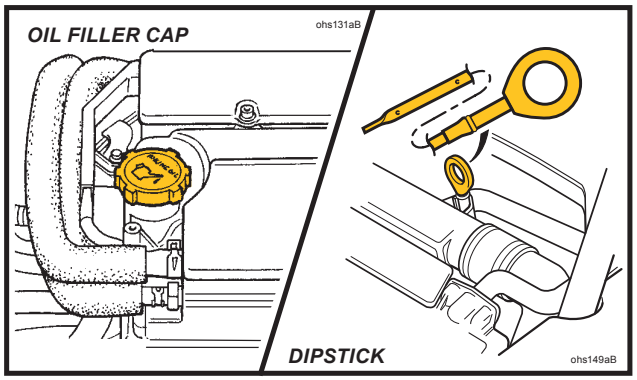
When the engine is stopped, the EPC valve closes and a quantity of oil pertaining to the oil pressure at that time, will be retained in the Accusump ready for re-starting.

Routine Checks

Be aware that the indicated oil level on the dipstick will depend on the amount of oil stored in the Accusump, which itself is dependent on the both the Accusump pre-charge air pressure and the engine oil pressure when the ignition was switched off.

Before checking the oil level, the Accusump pre-charge pressure should first be checked; turn on the ignition to open the EPC valve and allow the stored oil to be discharged from the Accusump. The pressure gauge reading will drop during this discharge, but should then register 7 - 15 psi representing the pre-charge. If necessary, adjust the air pressure using tyre inflator equipment on the Schraeder valve adjacent to the gauge and set to 15 psi. Allow adequate time for the gauge reading to stabilise.

The oil level should now be above the top mark on the dipstick. To check for correct oil level, the engine should be started to charge the Accusump, and run to normal operating temperature until the Accusump pressure gauge registers 40 psi. If the engine is already hot, idle oil pressure may not be sufficient to open the Accusump valve, and the pressure gauge will continue to show 15 psi pre-charge. Increase engine rpm to open the valve. With the gauge showing 40 psi, turn off the engine. The EPC valve will then close and trap the normal hot idle quantity of oil in the Accusump cylinder.

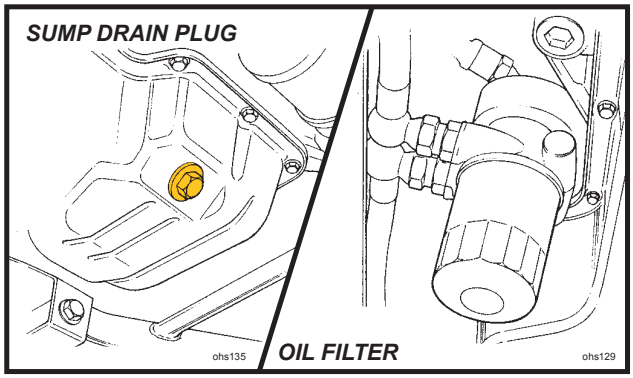


After a suitable oil drainback pause, the sump oil level may then be inspected on the disptick, and the level corrected to the top mark. It is important to maintain oil at this level to accommodate the oil transfer into the Accusump at pressures greater than 40 psi. Be aware that checking the oil level under any conditions other than 15 psi pre-charge and 40 psi oil pressure will produce inconsistent results.

Oil Changing

Before draining the sump, the ignition should first be switched on to open the EPC valve and allow the Accusump to discharge the stored oil into the sump. Check that a pressure of 7 - 15 psi remains in the Accusump at the end of this process, and if necessary top up the pressure using tyre inflating equipment on the Schraeder valve next to the gauge and set to 15 psi.

The oil can then be drained in the usual way, with the quantity contained in the oil cooler lines disregarded for the purposes of routine maintenance. If an engine failure has occurred, with possible debris contamination of oil hoses and coolers, it is recommended to replace both oil coolers, and to replace or thoroughly flush the feed and return hoses. At each service interval the in-line filter gauze in the hose between the Accusump and 'T'- piece, and located in the RH rear wheelarch, should be renewed.



After renewing and pre-filling the engine oil filter, refill the sump to about 10mm above the top mark on the dipstick. Start the engine and allow to idle. Do NOT rev the engine or drive the car. The Accusump will take up to 2 litres of oil from the sump to store within the cylinder. Continue to idle the engine until the Accusump pressure gauge drops to 40 psi (as the oil warms) and then switch off the engine. Top up the oil to the top mark on the dipstick.

Supercharger Remove/Refit

To remove:

1. Remove the chargecooler inlet and outlet ducting.

2. Remove the throttle body and vacuum/breather hose plumbing.

3. Using a 6-point socket, relieve auxiliary belt tension and remove the auxiliary belt. Remove the alternator top mounting bolt, slacken the lower, and swing down the alternator. Release the dipstick tube from the supercharger.

4. Using a strap wrench, remove the supercharger pulley retaining nut, and slide off the pulley.

5. Remove the support strut between the throttle body adaptor and the clutch slave cylinder. Slacken the pinch bolt securing the supercharger to the nose bracket. Remove the two bolts supporting the supercharger to the inlet manifold and withdraw the supercharger.

To refit:

1. With the supercharger nose bracket bolted to the engine mounting plinth, fit the upper fixing on the alternator to the nose bracket outer end (with 13.5mm spacer). This defines the position of the nose bracket. Tighten bracket to engine mounting plinth to 50 Nm. Remove alternator top bolt and swing down to allow supercharger to be fitted.

2. Prepare supercharger: Clean mating faces of supercharger and outlet adaptor using Betaclean 3900. Fit 'O' ring into groove in outlet adaptor and fit to supercharger using 6 off M8 x 25 setscrews with Permabond A130. On the fixing located inside the adaptor, Permabond should be applied over the entire thread length. Orientate the adaptor with the outlet towards the rear of the car when fitted. Torque tighten all fixings to 25 Nm.
   Clean mating faces of outlet adaptor and outlet elbow using Betaclean 3900. Fit 'O' ring into groove in outlet adaptor face. Fit outlet elbow to point to LH side of car using 4 off M8 x 25 setscrews with a pipe clip bracket secured by both rearmost fixings. Tighten to 25 Nm.

3. Fit M8 stud B111E6081S into RH top (as viewed on face) fixing position in supercharger inlet flange. Clean mating face on supercharger and inlet adaptor using Betaclean 3900. Fit 'O' ring into groove in adaptor face and fit adaptor to supercharger using 2 off M8 x 30 flange head bolts in top positions and M8 flange nut on stud - all 25 Nm. Disregard 4th position at this stage.

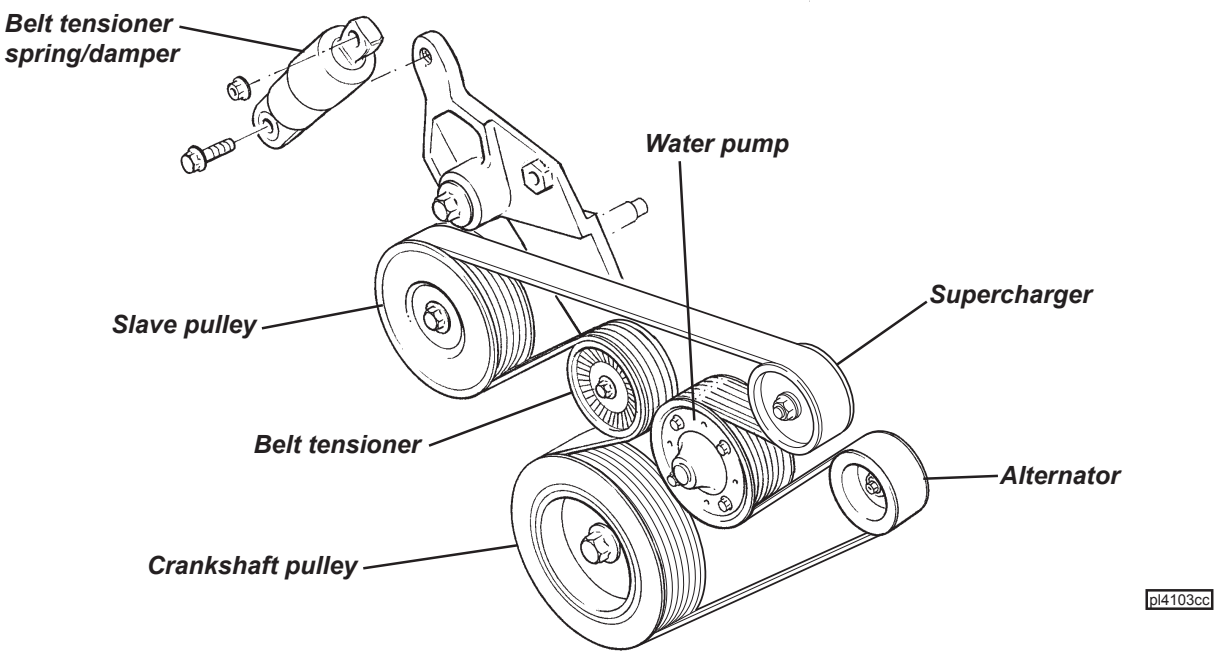
4. Mount supercharger: With the pulley removed from the supercharger, slide the nose into the nose bracket until hard against the machined step. Support to the inlet manifold sliding bushes using M10 x 50 flange head bolts and Permabond A130, but do not tighten. Tighten the nose bracket socket head pinch bolt to 25 Nm.

5. Loosley fit the supercharger support strut between the inlet adaptor (M8 x 55 bolt with A130) and the clutch slave cylinder fixings (M8 x 25 with A130). Tighten the three support strut bolts to 25 Nm. Carefully tighten the two M10 x 50 flange head bolts to pull in the two spacers evenly to clamp against the supercharger.

6. Refit the alternator upper bolt and spacer and tighten to 25 Nm. Tighten the lower bolt to 25 Nm.

7. Fit the pulley to the supercharger with the longer boss towards the 'charger. Fit the nut onto the shaft, and use a strap wrench to hold the pulley whilst the nut is tightened to 61 Nm.

8. Use a 6-point socket on the tensioner arm to allow fitment of the multirib accessory drive belt around the pulleys as shown, ensuring that the belt is correctly seated in all the ribbed pulleys.



9. Refit other components in reverse order to removal.

Note areas of change compared with standard models;

Engine dipstick tube altered to avoid supercharger.
Crankcase breather pipe altered to avoid supercharger.
Relays on engine bulkhead move to avoid supercharger by-pass capsule

Supercharger Nose Assembly

If the supercharger input shaft oil seal should be damaged or found to leak, the complete nose assembly including the nose housing, shaft, bearings and seals should be replaced as a unit by the following procedure:

Parts Required

Supercharger Nose Assembly	A128E6020S	1 off
Oil Fill Kit	A128E6014S	1 off

1. Remove the complete supercharger assembly from the engine (see above).

2. Use a strap wrench to hold the pulley, and remove the pulley nut. Use a three leg puller to withdraw the pulley from the shaft. Apply forces only to the pulley and shaft end. Other techniques may damage the housing or internal components.

3. Provision for collecting the contained oil before removing the 8 bolts securing the nose housing to the main supercharger body. To separate the nose from the body, expanding jaw pliers should be used in the recesses provided around the flange. Do not pry between the mating faces, or damage will be caused and oil leaks result. Drain all the old lubricant from the gearcase and discard appropriately.

4. Stand the supercharger body on end with the gearcase uppermost. Discard the old synthetic drive coupling, and fit the new part supplied in the oil fill kit onto the three pegs on the rotor drive gear. Check that the two alignment dowels are fitted in the supercharger body flange.

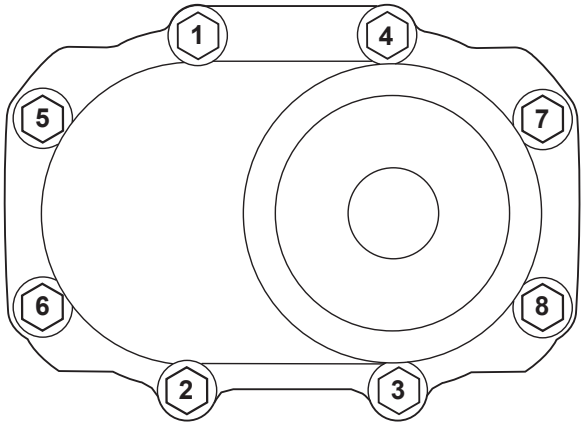
5. Fill the gear case with 120 ml of Magnuson Products Supercharger oil as supplied in the oil fill kit.

6. Clean the mating face on the supercharger body and on the new nose housing, and apply a bead of Loctite Eliminator Sealant, supplied in the oil fill kit, around the whole of the joint face on the nose housing, looping around each of the fixing holes.

7. Before attempting to fit the nose housing, first align the three pins on the input shaft with the vacant holes in the drive coupling. Place the nose housing into postition, and ensure that the two alignment dowels engage with their corresponding holes. It may be necessary for the casing bolts to be used to pull the two housings together.

8. If re-using the casing joint bolts, the threads should be thoroughly cleaned before applying Loctite 242 or equivalent medium strength threadlocking compound. New casing bolts are pre-treated. Fit the eight bolts and tighten progressively to pull the joint evenly together. Finally torque tighten to 27 Nm in the pattern shown.

Tightening sequence



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9. Fit and secure the oil service plug, and position mark. Refit the supercharger.

2-ELEVEN.F - TRANSMISSION

Clutch

The 2-Eleven is fitted with an uprated clutch cover assembly rated for a maximum torque of 362 Nm, and which enjoys a mass reduction of 0.6 Kg over the regular cover. Also fitted is an uprated friction plate which uses 4 steel compression springs in the cush drive hub, in place of the regular item's 4 rubber blocks.

Differential

The 2-Eleven is fitted as standard with an 'open' bevel gear differential, supplemented by switchable Lotus Traction Control (LTC), with an option package of variable LTC with Launch Control. For full details of these electronic systems, refer to Section 2-Eleven.M

Two types of optional Limited Slip Differential (LSD) are also available.

Torsen Type: A Torsen (TORque SENsing) gear type LSD limits the speed differential between the two rear wheels by mechanically distributing the applied torque in accordance with the available grip at each tyre. The LSD uses worm wheels to interconnect the two output shafts and uses the poor torque reversal efficiency of this type of gearing to ensure that both wheels are always supplied with driving torque. This feature can enhance vehicle performance in some competition events, and help maintain mobility in some types of soft ground condition.

Apart from the taper roller bearings supporting the differential in the transmission case, the LSD is not serviceable. For details of bearing preload adjustment, refer to Service Notes sub-section FJ.6. There is no special oil requirement for the Torsen LSD. All factory supplied transmission assemblies originally built with Torsen LSD are identified on the bar code label applied to the top surface of the transmission case; The 3rd character of the 7 digit code is 'O' for open differential, and 'L' for limited slip.

Plate Type: A competition type friction plate LSD made by TRD is available in both '2 way' and '1.5 way' variants. This type of LSD uses a pack of friction clutch plates between each differential output gear and the differential carrier. The load applied to the clutch pack is proportional to the input torque via a cam and ramp angle design incorporated between the 4-pinion spider (driven by the crownwheel) and the two clutch pack assemblies. The 'stiffness' of the LSD operation is dependent on the ramp angle which may be specified on ordering. A '2 way' LSD uses the same ramp angles for drive and overrun to provide similar slip control in both conditions. A '1.5 way' LSD uses different ramp angles for drive and overrun to reduce the clutch pack load on braking. There is no special oil requirement for the plate type LSD, but to maintain design performance, inspection and cleaning of the plates should be carried out every 15,000 miles (25,000 km) by a competent agent.

2-ELEVEN.G - WHEELS & TYRES

Optional on the 2-Eleven are 240R type lightweight forged alloy 5-spoke roadwheels, which at 7x16 and 8x17, are ½ inch wider, front and rear, than the standard Exige wheels, but retain the standard insets of + 31.3 mm and + 38.0 mm. The wheels are finished in either Satin Black or High Power Silver, with 'Lotus Sport' moulded into one of the spokes of each wheel. The Lotus specific, regular Exige Yokohama A048 tyres, identified by 'LTS', are fitted as standard. Each wheel is retained by four standard Elise/Exige spline head 60 degree taper seat bolts, for which a splined adaptor tool is stowed in the vertical tube of one of the roll-over bar backstays. No security coded wheel bolts are used.

Note that these forged alloy wheels incorporate a steel centralising sleeve to locate onto the hub spigot, and is normally retained in the wheel. A smear of copper grease on the spigot will help prevent corrosion between the hub and sleeve causing the insert to become separated from the wheel.

2-ELEVEN.J - BRAKES

The anti-lock braking system is uprated in the following respects:

- Motorsport brake pads (Pagid RS14) are fitted front and rear together with cross-drilled brake discs;
- Steel braided brake hoses fitted all round;
- Optional Castrol 'SRF' synthetic racing brake fluid. Over 500°F boiling point. Dot 4.
- Brake callipers painted yellow.

Access to the brake master cylinder reservoir is available via a small panel in the driver's side front body; release the screw fastener using the tool provided in the roll over bar backstay, and withdraw the panel. To refit, engage the tongue beneath the front end of the aperture, and secure the rear end with the fastener. Note that to avoid erroneous low fluid tell tale activation under extreme track use, it may be necessary to fill the fluid reservoir to the base of the neck.

Option

An optional brake upgrade comprises larger front discs (308mm vs. 288mm) mounted on alloy centres and clasped by A.P. Racing 4- pot callipers.

Brake Pad Bedding

If new brake pads and/or discs are to be fitted, a bedding-in procedure should be followed:

WARNING; This procedure should be carried out only on a closed track, paying appropriate regard to any other track users. Do not attempt on the public highway.

The purpose of brake pad bedding is to:

- Transfer a layer of friction material onto the disc faces to achieve maximum performance;
- Stabilise compressible materials to avoid a spongy pedal;
- Boil off volatile elements in the friction compound;
- Align the pad and brake disc surfaces for full contact.

If the pads are not bedded in correctly, or are used aggressively straight after fitting, pad glazing may occur. This condition results from resins in the pad material crystallising on both the pad friction surface and the brake disc surface, producing brake judder and vibration. Also, rapidly escaping volatile elements and moisture from the resin, in seeking an immediate escape route out of the friction compound, can create small fissures that can lead to cracking and chunking of the material.

Bedding Procedure;

- To generate some heat in the discs and pads, perform 4 to 6 stops with medium brake pressure from around 70 mph (110 km/h) to 40 mph (60 km/h), allowing around 30 seconds between stops. The pad temperature should not exceed 400 degrees C.
- Immediately after this procedure, carry out one high speed stop with medium to heavy brake pressure, without activating the ABS, from around 80 mph (130 km/h) to 40 mph (60 km/h).
- Perform 3 or 4 recovery stops to clean the discs and pads, using light pedal pressure from around 70 mph (110 km/h) to 40 mph (60 km/h).
- Repeat the high speed stops, including the recovery stops, a further 2 or 3 times. The brakes may now be considered fully bedded.

New Pads on Used Discs

If new brake pads are to be fitted on used discs, it is recommened to chamfer the edges of the pad to allow optimum bedding.

Parking Brake

Immediately after track use or hard brake usage when the discs are still hot, if possible, avoid using the parking brake (chock wheels) to prevent heat transfer into the pads and brake fluild.

2-ELEVEN.K - COOLING

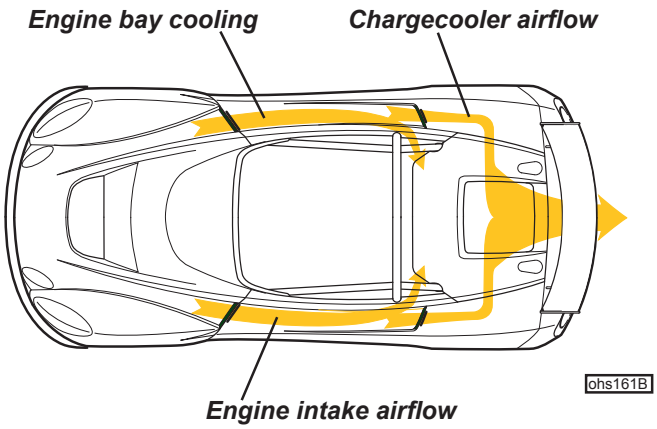
The 2-Eleven uses the standard horizontally mounted radiator, with twin cooling fans on its underside. The fans are switched individually by the engine ECM in conjunction with a fan control module mounted in the chassis front well, behind the radiator. One fan is switched on at 98°C on rise, off at 93°C on fall, with the second fan motor run in parallel, and switched on at 103°C on rise, off at 98°C on fall.

Twin front mounted oil/air coolers (std. Exige hot climate spec.) are fitted, one ahead of each front wheel. An engine intake air chargecooler radiator is rubber mounted behind the engine, with cooling airflow gathered by body apertures alongside the rear of the cabin, and fed via convoluted ducting to a collector on the forward side of the chargecooler. Air exhausting from the chargecooler radiator escapes via a rear transom aperture.

Engine Bay Ventilation

The body of the 2-Eleven incorporates four air intake ducts;

- Grilled air intakes at each side of the front scuttle, feed air via ducting formed within the body sides to the engine bay; the left hand duct feeds a cool air supply with a small 'ram'effect to the engine air cleaner; the right hand duct feeds cooling air to the front of the engine bay.
- Two grilled air intakes at the rear of the cockpit sides supply a plenum on the front of the chargecooler radiator.
  Hot air exhausts from the engine bay via an aperture in the rear body.



2-ELEVEN.L - FUEL SYSTEM

In order to meet the fuelling requirements of the 255 PS engine specification, a high output fuel pump is fitted in the otherwise unchanged tank. This pump is slightly longer than the standard item and requires a new alloy cap (replaces original plastic cap) to retain the pump in the plastic housing inside the tank.

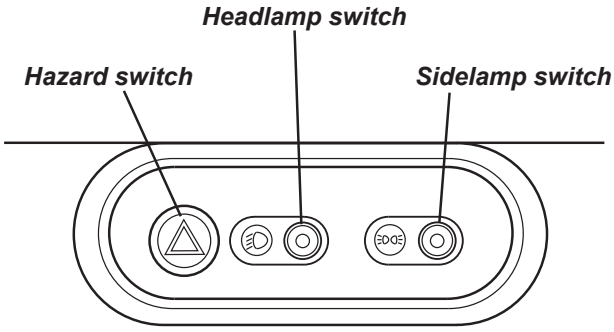
2-ELEVEN.M - ELECTRICAL

The 2-Eleven is available with three levels of lighting equipment:

- Track; with no lighting equipment.
- Race; with rear turn lamps, brake lamps and rear fog lamps.
- Road; with full lighting set, but no CHMSL.

Lighting Switches (if fitted)

Principal lighting functions are controlled by a row of three push button switches mounted in a nacelle below the scuttle top edge; for the rear fog switch (if fitted) see later. Each switch is pressed once to switch on, and pressed a second time to switch off. A symbol accompanies each switch to indicate its function.



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Sidelamp Switch

Positioned in the right hand end of the panel, this switch functions with or without the ignition, and switches on the sidelamps and instrument/switch illumination. A tell tale in the switch button lights up green to indicate when the circuit is active.

Press the switch a second time to switch off the sidelamps, but note that the headlamps must first be off (see below).

Headlamp Switch

Centremost of the three switches, that for the headlamps functions with or without ignition, and switches on the headlamps together with the sidelamps and instrument/switch illumination. A tell tale in the switch button lights up green to indicate when the circuit is active. The steering column lever switch (see later) is used to select main or dip beam.

Pressing the switch a second time will switch off the headlamps, but leave on the sidelamps (see above).

Hazard Warning Lamps Switch

The hazard warning switch is located at the left hand end of the panel and has an icon in the switch button which is back lit when the ignition is switched on. The switch is operative at all times, and when pressed, causes all the turn indicator lamps to flash in unison. The turn lamps tell tale and the hazard switch icon will also flash. Press a second time to switch off.

This facility should be used when the car is stopped on the highway in circumstances where a warning to other traffic would be judicious. Use of the hazard warning lamps may be subject to local traffic laws, with which drivers should familiarise themselves.

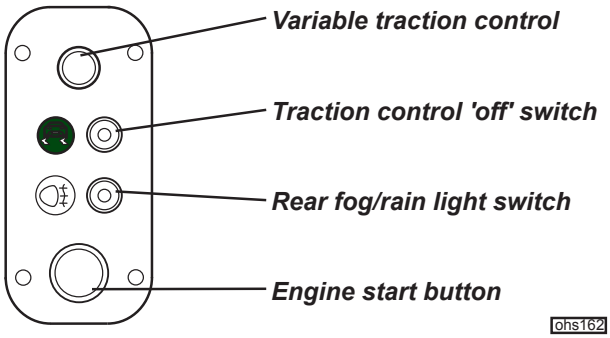
Instrument Illumination

A small button is provided on the steering column shroud ahead of the ignition switch, by which the brightness of the electroluminescent instrument illumination may be adjusted. To cycle through the range of brightness, first switch on the lights, and then press and hold the button before releasing at the desired setting.

Note that this dual function button also resets the trip distance recorder if pressed only briefly.

SIDE PANEL SWITCHES

Situated at the end of the fascia, outboard of the steering column is a switch panel providing various functions dependent on vehicle specification.



Engine Start Button

Fitted on all cars, at the bottom of this panel is a red button to activate the engine starter motor. This circuit is operative only when the ignition is switched on. Care should be taken not to press the button when the engine is running, as damage to the starter mechanism is likely to be caused.

For correct operation of this function see 'Starting Procedure'.

Rear Fog/Rain Light Switch (if fitted)

On cars fitted with full road lighting, the switch above the starter button controls the two rear fog lamps, which operate only in conjunction with the ignition and headlamps. Tell tales in the switch button and instrument pack light up amber to indicate when the circuit is active. Press a second time to switch off the lamps.

Note that whenever the headlamps and/or ignition are switched off, the fog lamps will also switch off. On re-instatement of ignition and headlamps, the fog lamps will remain off until requested again by pressing the switch.

For track cars fitted with rear warning 'rain' lamps, these may be activated any time the ignition is on, by pressing this button. Tell tales in the switch button and instrument pack light up amber to indicate when the circuit is active. Press a second time to switch off the rain lamps.

Lotus Traction Control

All cars are equipped with Lotus Traction Control (LTC), whether or not the optional Limited Slip Differential (LSD) is specified.

Lotus Traction Control (LTC) is a software programme within the engine electronic control unit (ECU) which uses inputs from the wheel speed sensors to determine the degree of wheelspin occurring, and when necessary, modulate fuel injector delivery to control engine power output until grip is restored. This feature, which operates at all speeds above 6 mph, can improve vehicle stability in some extreme conditions of use, especially where variable surface grip prevails, or when maximum vehicle performance is being exploited.

The optional Torsen type Limited Slip Differential (LSD) is a mechanical gear system incorporated into the final drive unit, and limits the speed differential between the two rear wheels by distributing the applied torque in accordance with the available grip at each tyre. This feature can enhance vehicle performance in certain types of off-road or closed venue competition, and help maintain mobility in mud, snow or sand. LTC then acts electronically to stabilise high speed vehicle behaviour under high cornering loads or extreme manoeuvres.

If the LTC tell tale in the instrument panel is seen to flicker, this is an indication that the tractive limit has been reached, and traction control activated.

Lotus Traction Control 'Off' Button:

In certain circumstances, such as loose or soft surfaces, it may be desirable temporarily to switch off the traction control, for which purpose an LTC 'off' button is provided on the switch panel outboard of the steering column. To switch off the LTC; with the ignition switched on, hold the button pressed for 2 seconds. The button tell tale together with the instrument panel tell tale will light up amber to confirm system de-activation.

WARNING:

- **LTC should always be active when driving on the public highway.**
- **If the system is switched off when driving off-highway, be aware of the consequent change in vehicle behaviour and modify driving style accordingly.**

To re-activate LTC, press (momentarily) the button a second time and check that the button and instrument panel tell tales go out. Note that the button tell tale will flicker in conjunction with the instrument panel tell tale if traction control is triggered. Irrespective of the system status at the time of ignition switch off, LTC will default to 'on' next time the ignition is switched on.

Variable Traction & Launch Control (if fitted)

Cars equipped with the optional variable traction and lauch control, have a rotary control knob mounted above the LTC 'off' button on the switch panel.

Variable Traction Control

Each time the ignition is turned on, normal full LTC is activated. To enable variable traction control, turn on the ignition and hold the LTC 'off' button pressed for 2 seconds. Do not touch the throttle pedal. Check that the tell tale in the switch button is lit. Start the engine. Note that if the ignition is switched off (e.g. prior to a second start attempt), the above procedure must be repeated in sequence.

With the switch button tell tale lit and the engine running, the rotary knob may then be used to select the degree of traction control desired:

- For maximum traction control (0% slip) turn the knob fully counterclockwise.
- To reduce traction control (to allow up to 12% slip), turn the knob progressively clockwise.
- Fully clockwise, traction control is disabled, as indicated by the lighting of the instrument panel tell tale.

Variable Launch Control

This feature allows the engine rpm to be limited during a competition start in order to balance engine power against available grip and provide a controlled degree of wheelspin for the first moment of acceleration, until superseded by the traction control system at around 6 mph.

To enable this feature, turn on the ignition and hold the LTC 'off' button pressed for 2 seconds. Check that the tell tale in the switch button is lit. Then;

- With ignition on, engine **stopped**, fully depress the throttle pedal for 5 seconds.
- Tacho will now show launch rpm. Turn the rotary knob as necessary to select any desired launch rpm between 2000 and 8000.
- Release throttle and start engine.
- Turn the rotary knob to select the desired level of traction control (see above), noting that the launch control setting will not be affected.
- Engage first gear, apply full throttle (ECU limits engine speed to selected launch rpm), and rapidly 'drop' clutch.
- Maintain full throttle throughout the transition from launch to traction control (at around 6 mph) until the first gear change is required.
- To disable launch control when variable traction control is still required, reset launch rpm to 8,000.

NOTE

- Do not attempt to slip the clutch during this process, as overheating or damage to the clutch mechanism may occur. An instant clutch engagement is required to 'break' rear tyre traction and initiate wheelspin.
- Do not attempt LC starts in any gear other than first.
- Do not hold the engine at or near maximum rpm for more than a few seconds.
- Under no circumstances should this track feature be employed on the public road.
- **Use of Launch Control is an ultimate technique designed to produce the fastest possible race start. Always allow the clutch to cool and recover before repeating a launch controlled start. The extreme loads associated with such starts will result in reduced transmission component life cycles.**
- At the next key-on, the system will default to full LTC and Launch Control off. Turning on the ignition and holding the LTC 'off' button pressed for 2 seconds will restore the previous traction and launch settings.

Adjustment Tips

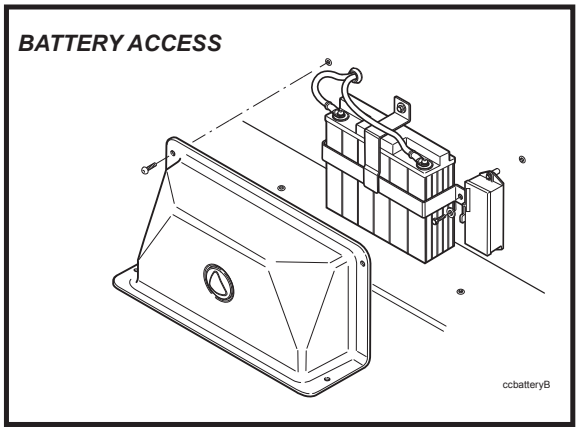
Note that the optimum settings for variable traction and launch control will differ for each set of track surface, tyre and ambient conditions. A suggested adjustment logic follows:

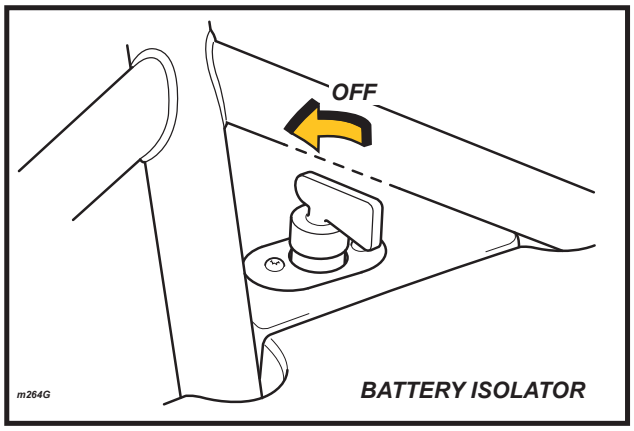
- Set the traction control to a mid position.
- Start with a low launch rpm e.g. 4,000 rpm.
- Trial launch and assess initial wheelspin control and transition into traction control.
- If launch control is set too low, the engine may 'bog down' and fall out of the power band. If set too high, too much initial wheelspin may result, with poor step off from the line.
- Similar logic applies to traction control adjustment when this system takes over above about 6 mph.

Battery Access

The lightweight 'Odyssey' battery uses absorbed glass mat, dry cell technology to provide high electrical performance with minimum weight and size. The battery is located centrally in the cabin rear bulkhead, protected by a composite cover. No routine inspection or topping up of the electrolyte is required, but at every service interval, the battery terminals should be checked for security and condition, and protected with petroleum jelly.

For access to the terminals, the bulkhead cover must first be removed. Use the 3mm hexagonal key to remove the four fixings securing the battery cover to the chassis and bulkhead, and disconnect the auxiliary power socket lead (if applicable).





Battery Isolator Switch

A battery master switch is mounted on the left hand side of the rear scuttle, and is provided as a safety feature to allow a third party, from outside the vehicle, to turn off the engine and islolate all battery power.

This facility should be used only when necessary for safety reasons, or prior to removing the battery from the car. If possible, do not operate the swtich until at least 10 seconds after switching off the ignition, in order to allow the engine management system to adjust the setting of some components ready for re-starting, and to avoid the loss of adaptive learn memory in the ECU.

To turn off battery power, turn the red key (knurled alloy knob on road cars) a quarter turn counterclockwise until aligned fore/aft. Remove the key to prevent loss and fit the rubber cap to protect from rain ingress. To turn on, insert the key, press down and turn a quarter clockwise. The key is now captive.

Battery Charging

The Odyssey PC680 battery fitted to the 2-Eleven uses aborbed glass mat (AGM) technology to provide the virtues of both deep cycling ability and high cranking power. Thus low rate long duration drains and short duration high amperage pulses are accommodated. The battery is fully sealed, recycling all gases internally and using no external vent. There is also no electrolytic corrosion of the positive terminal, or corrosion to the surrounding area. Never attempt to remove the top decal cover, or failure of the battery will ensue.

The state of charge in the battery can be determined from the following table:

Voltmeter reading	*State of charge*
12.84 V	100%
12.50 V	75%
12.18 V	50%
11.88 V	25%

The battery does not lose its charged energy during cold storage temperatures, so there should be no need to trickle or float charge during the winter months. To store off season, measure the battery voltage to ensure it is fully charged; 12.8 volts or greater, and recharge if necessary. Turn off the battery isolator switch, or disonnect the negative battery cable to prevent any applied electrical load during storage. The battery should not freeze in temperatures down to - 40°C, so can be left in the vehicle except in the most extreme climates. The battery can be stored for 2 years or more at temperatures below 25°C.

Under conditions of normal daily use, it should not be necessary to use external battery charging equipment. If the battery becomes discharged to the extent that the car cannot be started, the recommended course of action is to fit a substitute battery whilst the original battery is trickle charged. If, in an emergency, the car has

to be 'jump' started, the subsequent conditions of vehicle use may not allow for sufficient alternator charging of the battery to achieve a fully charged state. The battery should be trickle charged by external means until 12.8 volts is recorded.

The battery manufacturer recommends an Odyssey EPS 8A charger, which would require around 2½ hours to re-charge a fully discharged battery. Note that a trickle charger will not be capable of re-charging a fully discharged Odyssey battery. Putting the battery into service at a less than fully charged state will reduce the time period for which the car can be parked without subsequent starting difficulties. A battery left in a fully discharged state for a prolonged period, may not be recoverable to its original condition. Allow several hours after disconnecting a charger before measuring the battery voltage.

WARNING:

- **Hydrogen gas generated by the battery could cause an explosion, resulting in severe personal injuries.**
- **Charge battery in a well ventilated area.**
- **Never charge a frozen battery. It may explode because of gas trapped in the ice. Allow a frozen battery to thaw out first.**
- **If you get electrolyte, which is an acid, in your eyes or on your skin, immediately rinse with cold water for several minutes and call a doctor.**

Auxiliary Power Socket

An auxiliary power socket is fitted in the right hand side of the battery cover. The socket is operative at all times, and is provided with a protective hinged flap.

The format of the socket allows a standard cigarette lighter element to be used, or other electrical accessories requiring this type of fitting. Maximum current draw should not exceed 15 amps.

Fuses

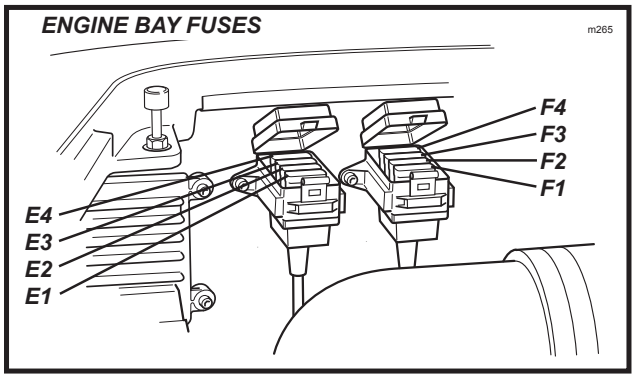
Two 4-slot fuseboxes are mounted on the rear bulkhead and control the principal engine circuits. Track cars fitted with rear lamps, use a third 4-slot fusebox, located within the battery compartment for the lighting circuits. Cars with full lighting sets replace this 4-slot box with a 22-slot fusebox within the battery compartment.

The 'Littel' type fuses are numbered and coloured according to their amperage rating, and may be removed by withdrawing from their slots.

Engine Bay Fuses

Slot	*Rate*	*Circuit*
E1	7.5A	Engine control relay
E2	15A	Cooling fan 1
E3	15A	Cooling fan 2
E4	-	Not used

Slot	*Rate*	*Circuit*
F1	15A	Batt. services
F2	15A	Ign. services
F3	20A	Fuel pump
F4	10A	Main relay



Track Lights Fusebox

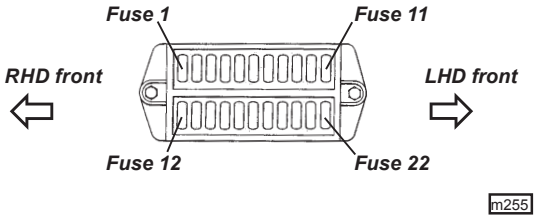
Slot	*Rate*	*Circuit*
R1	5A	Turn lamps
R2	5A	Rain lamp

Slot	*Rate*	*Circuit*
R3	5A	Rvrs. lamps
R4	5A	Stop lamps

Full Lighting Set Fusebox

Slot	*Rate*	*Circuit*
A1	-	Not used
A2	-	Not used
A3	7.5A	Reverse lamps
A4	-	Not used
A5	5A	Brake lamps
A6	7.5A	Turn lamps
A7	-	Not used
A8	-	Not used
A9	10A	Hazard
A10	7.5A	Horn
A11	-	Not used
A12	20A	Aux power socket

Slot	*Rate*	*Circuit*
A13	-	Not used
A14	-	Not used
A15	15A	Switch pack & dipswitch
A16	10A	Sidelamps, rear fog
A17	10A	Dip beam LH
A18	10A	Dip beam RH
A19	-	Not used
A20	10A	Main beam LH
A21	10A	Main beam RH
A22	-	Not used



ABS Fuse: A 60A Maxi fuse protecting the ABS circuits is located within the battery box.

Fuse colours:
2A - Black;
3A - Violet;
4A - Pink;
5A - Orange;
7.5A - Brown;
10A - Red;
15A - Light Blue;
20A - Yellow;
25A - Clear.

2-ELEVEN.O - MAINTENANCE & LUBRICATION

A Maintenance Schedule for the 2-Eleven is available under part number LSL519, and a Pre Track Session Check List, which should be completed before each and every track driving session, under part number LSL520.

Recommended lubricants are unchanged apart from the option of Castrol SRF brake fluid. Spark plugs are part number ALS3E6015F (NGK PFR7G) with 0.8mm (- 0.1, + 0) gap.

Vehicle Recovery

No towing eye is fitted on the 2-Eleven. If the car has to be recovered by towing either forwards or backwards, a fabric towing strap should be secured to the passenger side of the roll over bar. In operation, care should be taken to prevent damage to the aeroscreen or rear aerofoil.

2-ELEVEN.Z - MISCELLANEOUS

Warranty

'Track Use' Cars

The Lotus 2-Eleven is designed and supplied into markets other than the U.K. only as a track use vehicle, as defined by character 12 of the V.I.N. being 'H' or 'J'. This specification is also available as an option in the U.K., identified in the same manner. All such cars are not eligible for European type approval, or Australian Compliance Plate Approval, or equivalent regulations in other countries. The Lotus 2-Eleven is supplied with no specific type approval paperwork or certification information and Lotus Cars will not provide any assistance to any person or company seeking to register a 2-Eleven model for road use outside of the U.K.

Lotus offers no warranty other than that required by law, on any 'track use' car in any territory.

U.K. Road Use Cars

The following Warranty applies only to cars built by Lotus for road use in the U.K., as identified by V.I.N. character 12 being 'F' or 'G', and only whilst being used in the U.K. It is permissible for the car to be driven on closed circuits or private test tracks, but using the car in a competitive manner, including timed runs or laps, will invalidate the Lotus Vehicle Warranty.

Warranty Periods

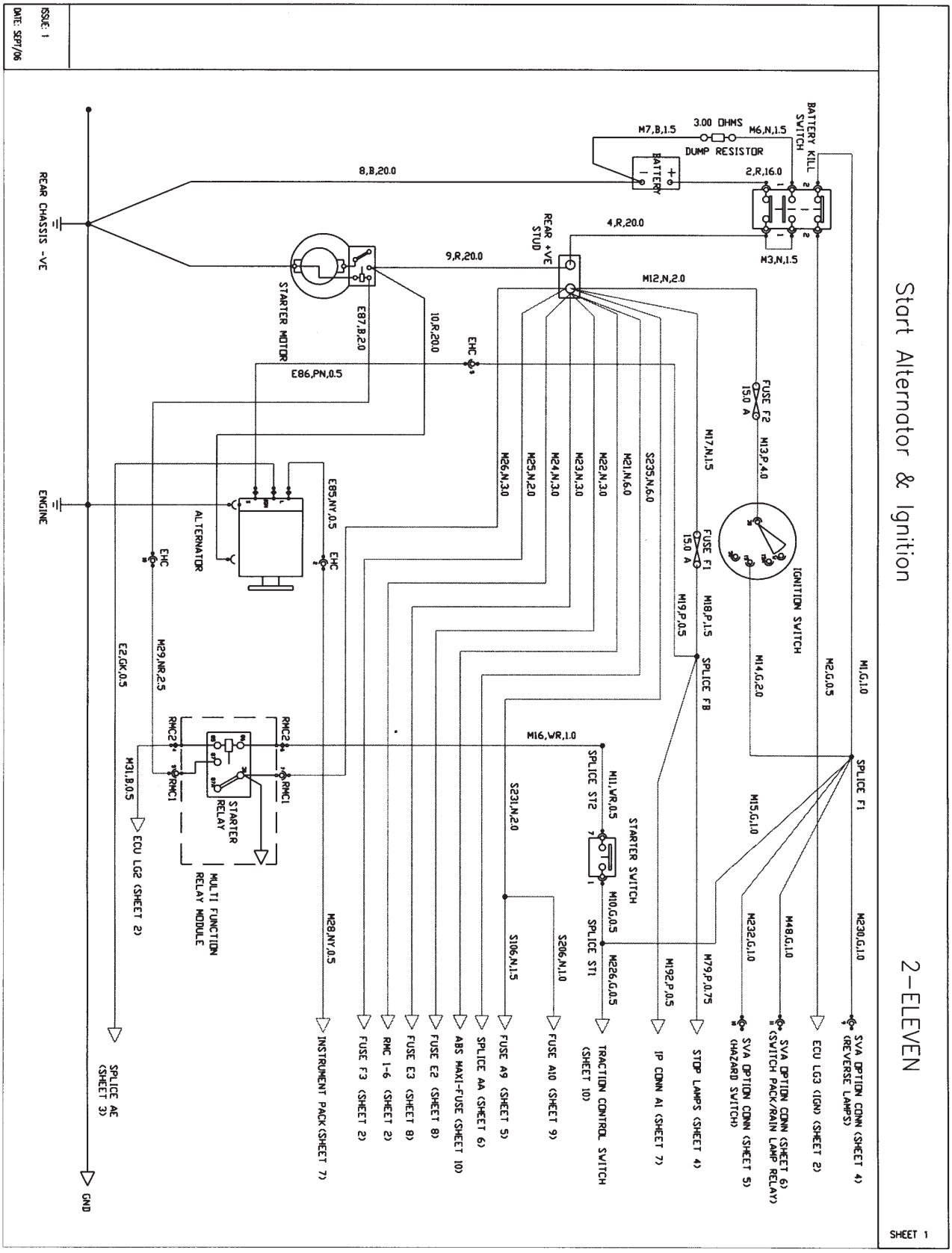
- Warranty period for vehicle; 12 months/12,000 miles.
- Warranty period for replacement parts; 12 months/12,000 miles.
- Corrosion perforation warranty; 2 years unlimited mileage.

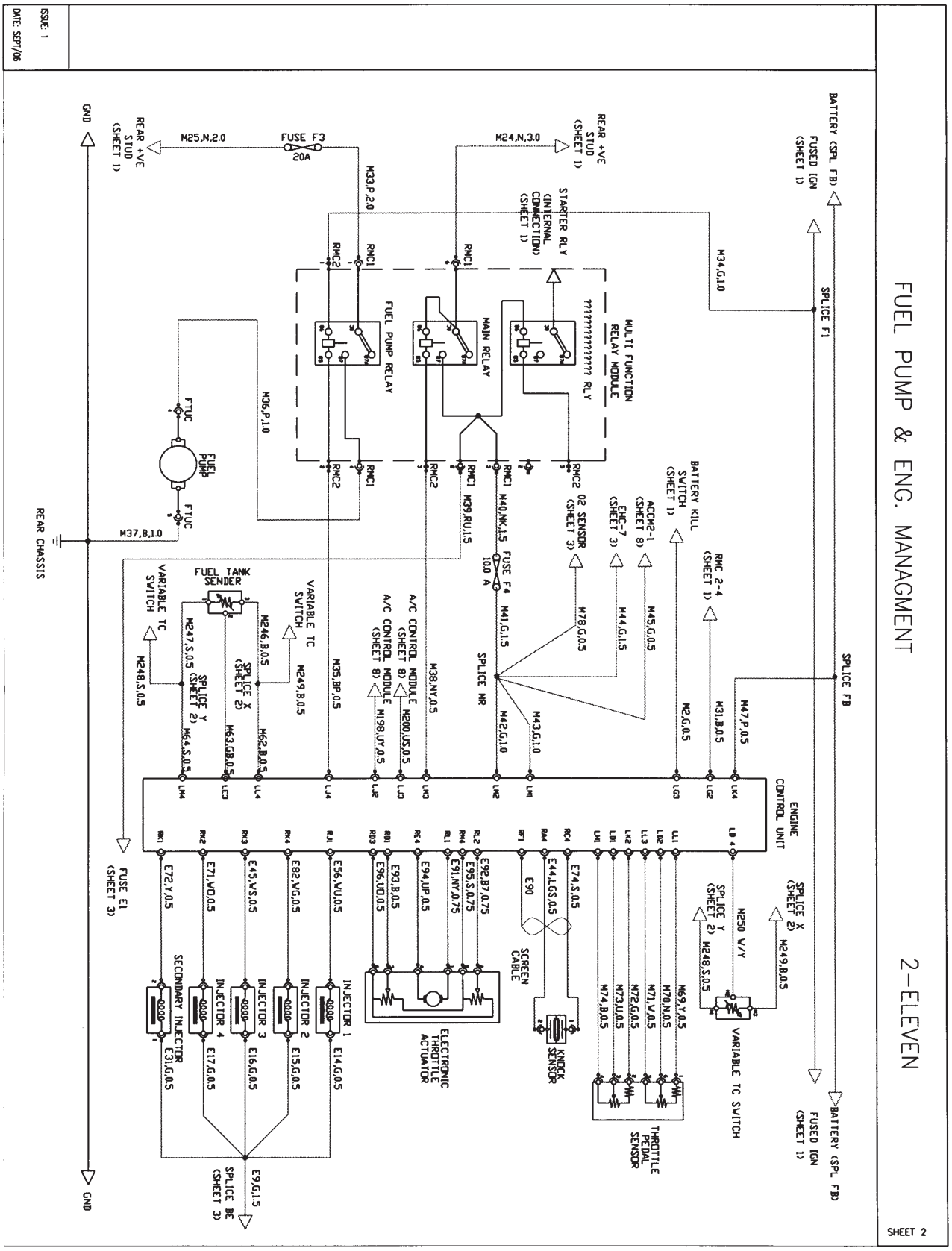
Exclusions From Warranty Coverage

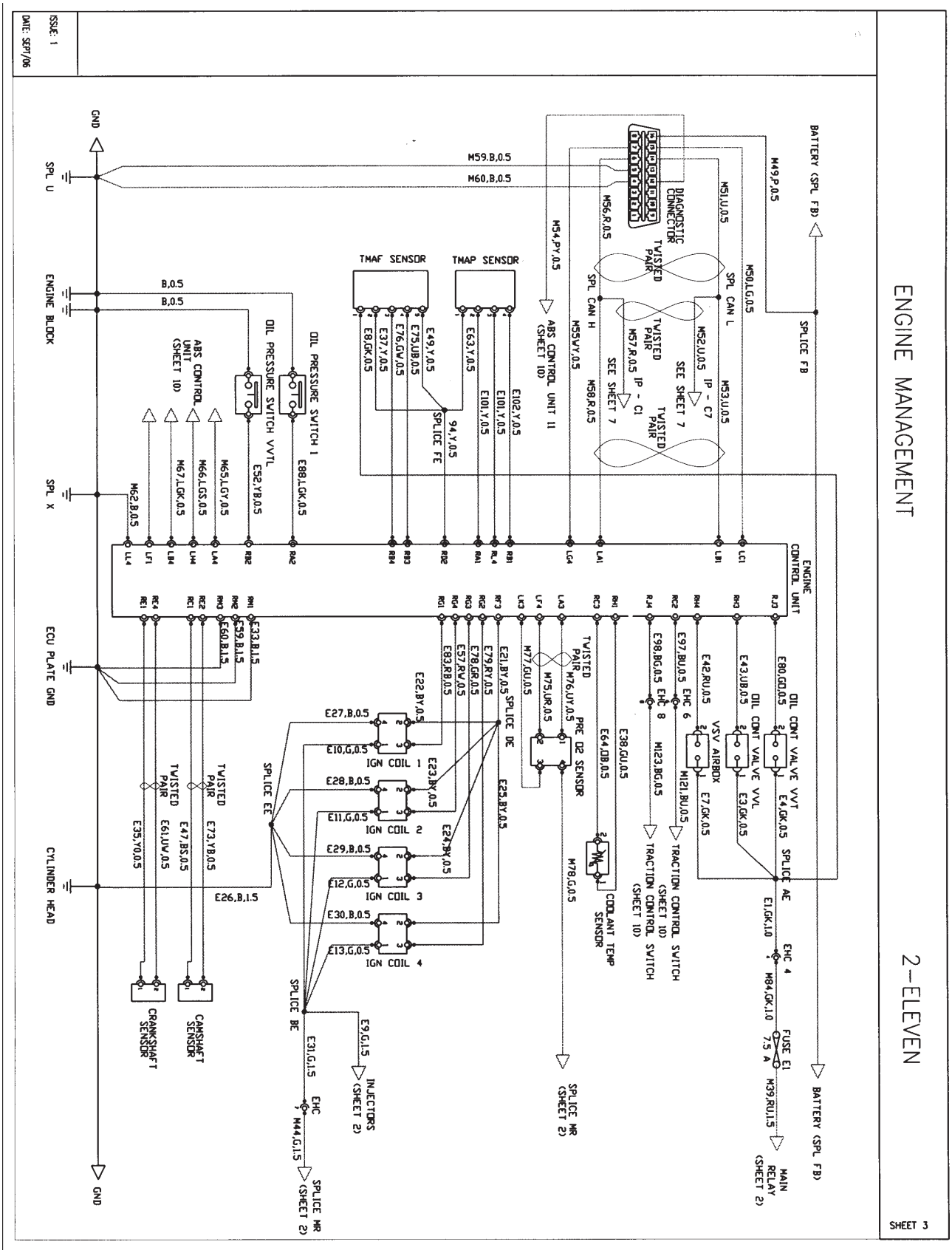
- The 2-Eleven features an open cockpit such that all issues relating to water ingress, including damage to trim and upholstery, staining or discoloration of the chassis, and damage to electrical equipment within the cabin, are not covered by this warranty; use a suitable outdoor car cover when necessary to protect against weather damage.
- Adjustments to screw fixed body panels and components, glass and trim should be considered as routine maintenance and may periodically be required, especially when subjected to high forces by repeated track use.
- Internal and external mirrors are vulnerable to damage from driver/passenger ingress/egress as well as from external strikes, and are excluded from warranty coverage.
- All composite panels on the 2-Eleven are designed for light weight consistent with aerodynamic function, and may be damaged by inappropriate application of bodyweight or other injudicious treatment. The durability and standard of the paint finish may not match that of more conventionally constructed cars. There is no body or paint warranty on the Lotus 2-Eleven.
- If the car has ever been used on road or track with 'slick' or equivalent racing tyres, warranty is void.
- Clutch and brake discs are excluded.

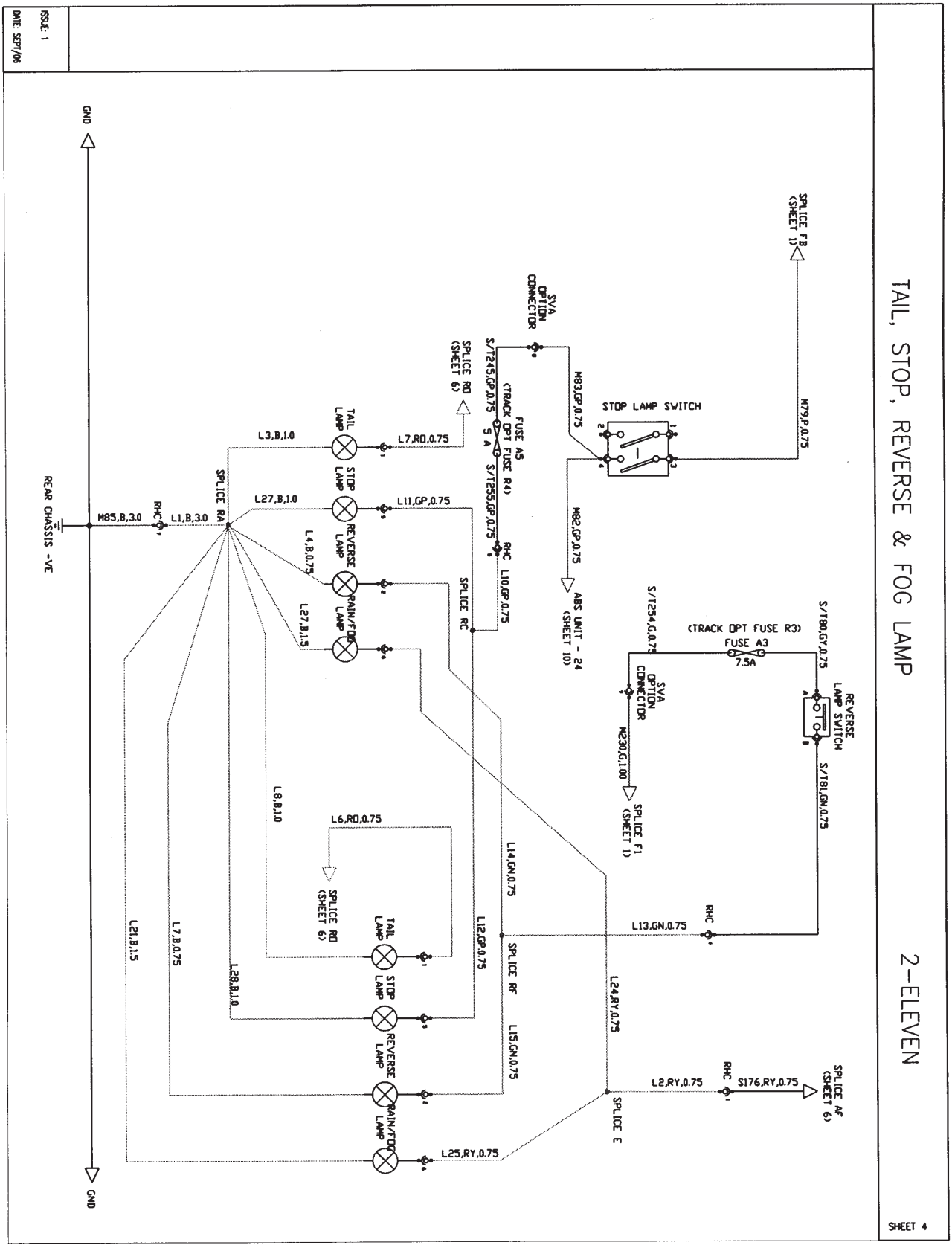
For full details of the 2-Eleven warranty and its restrictions and limitations, refer to the Owner's Handbook, or 2-Eleven specific Warranty Certificate LSL521

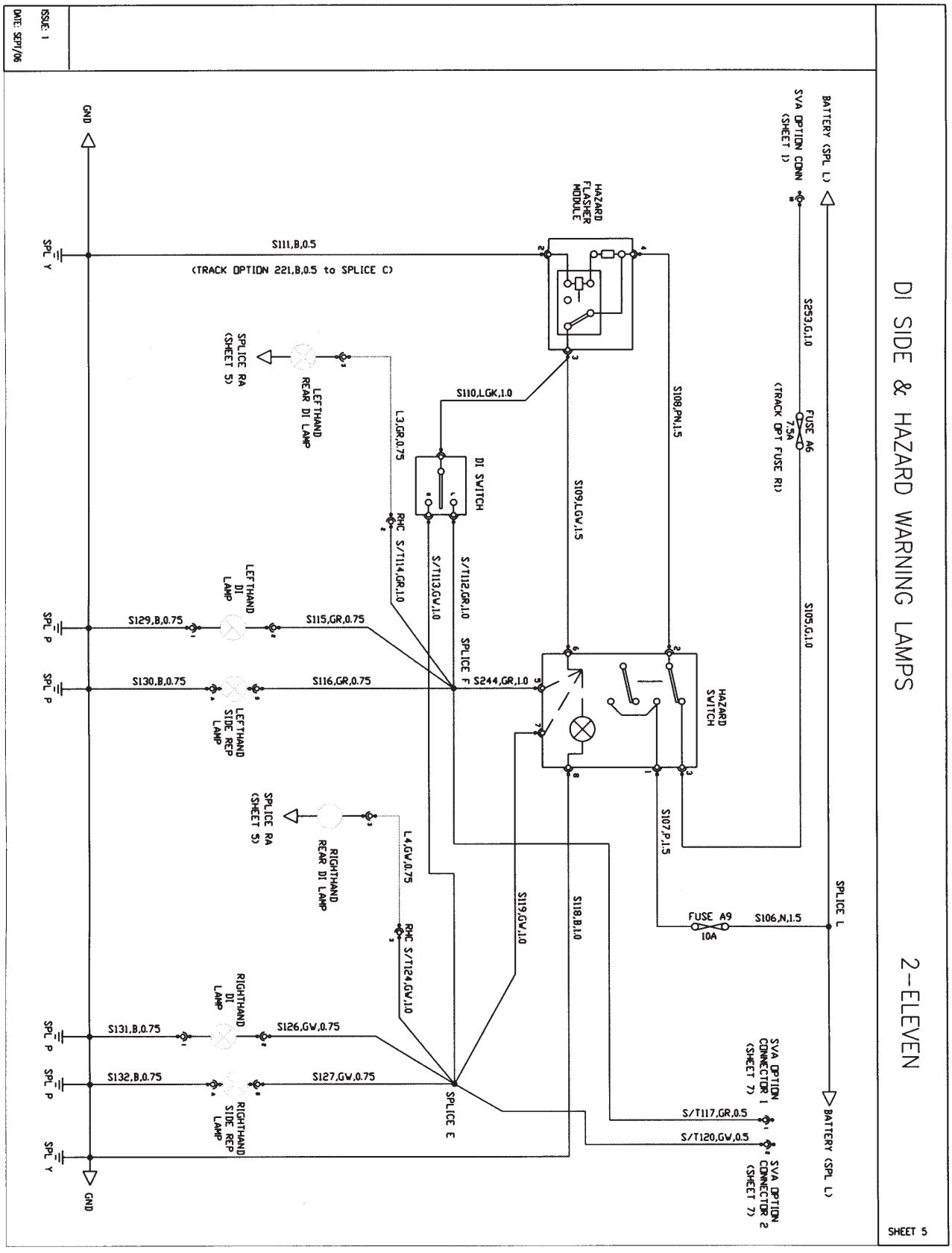
Circuit Diagrams

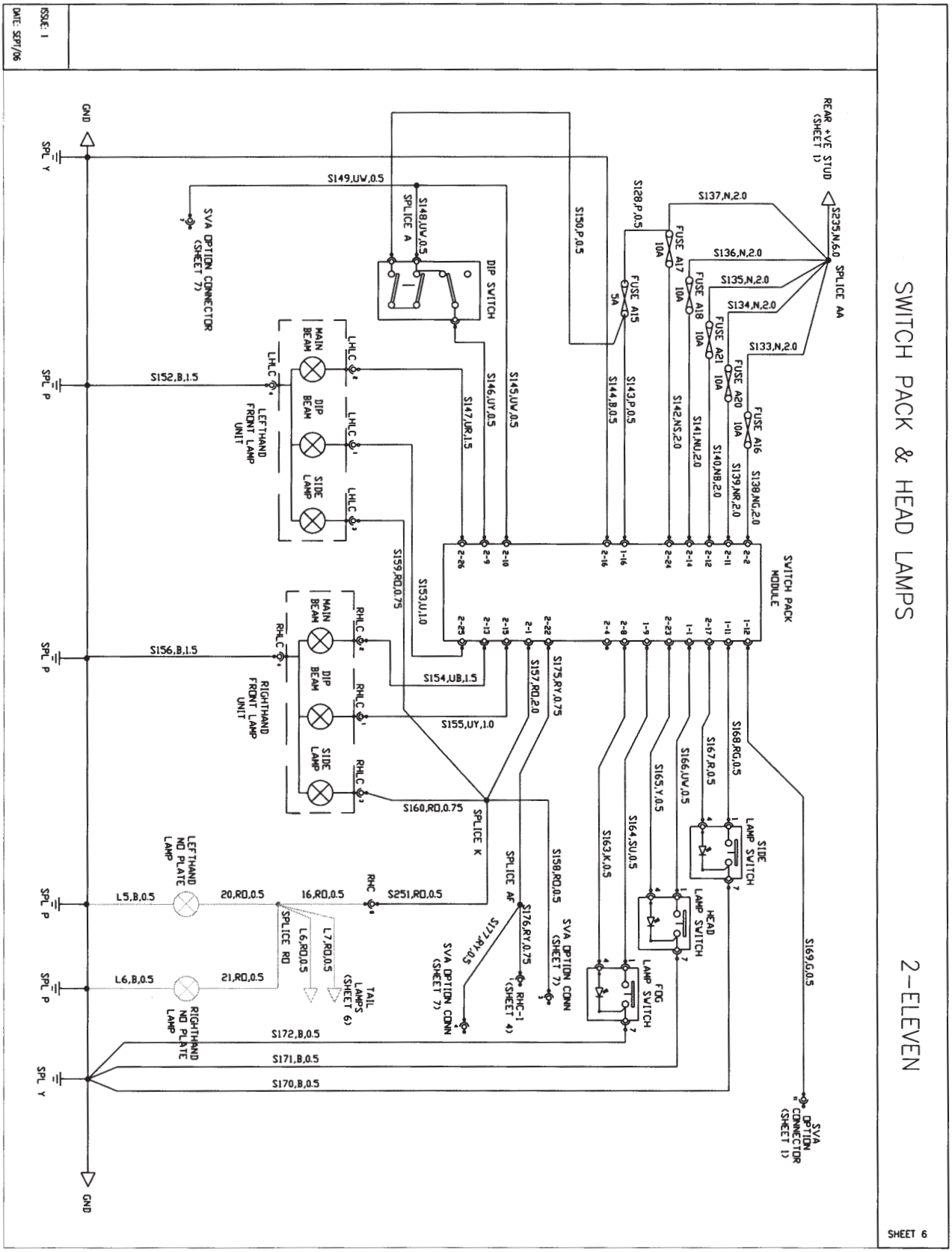


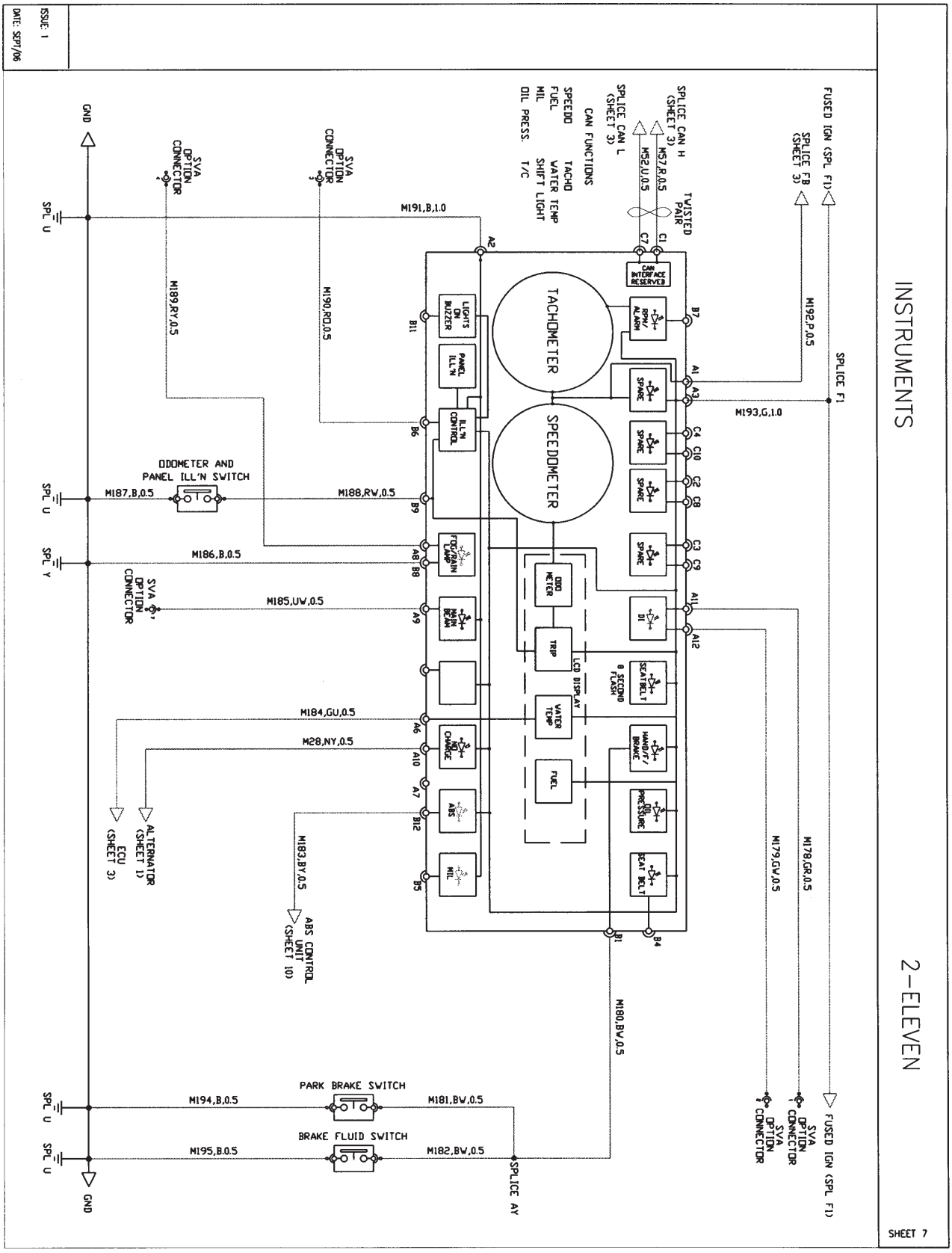


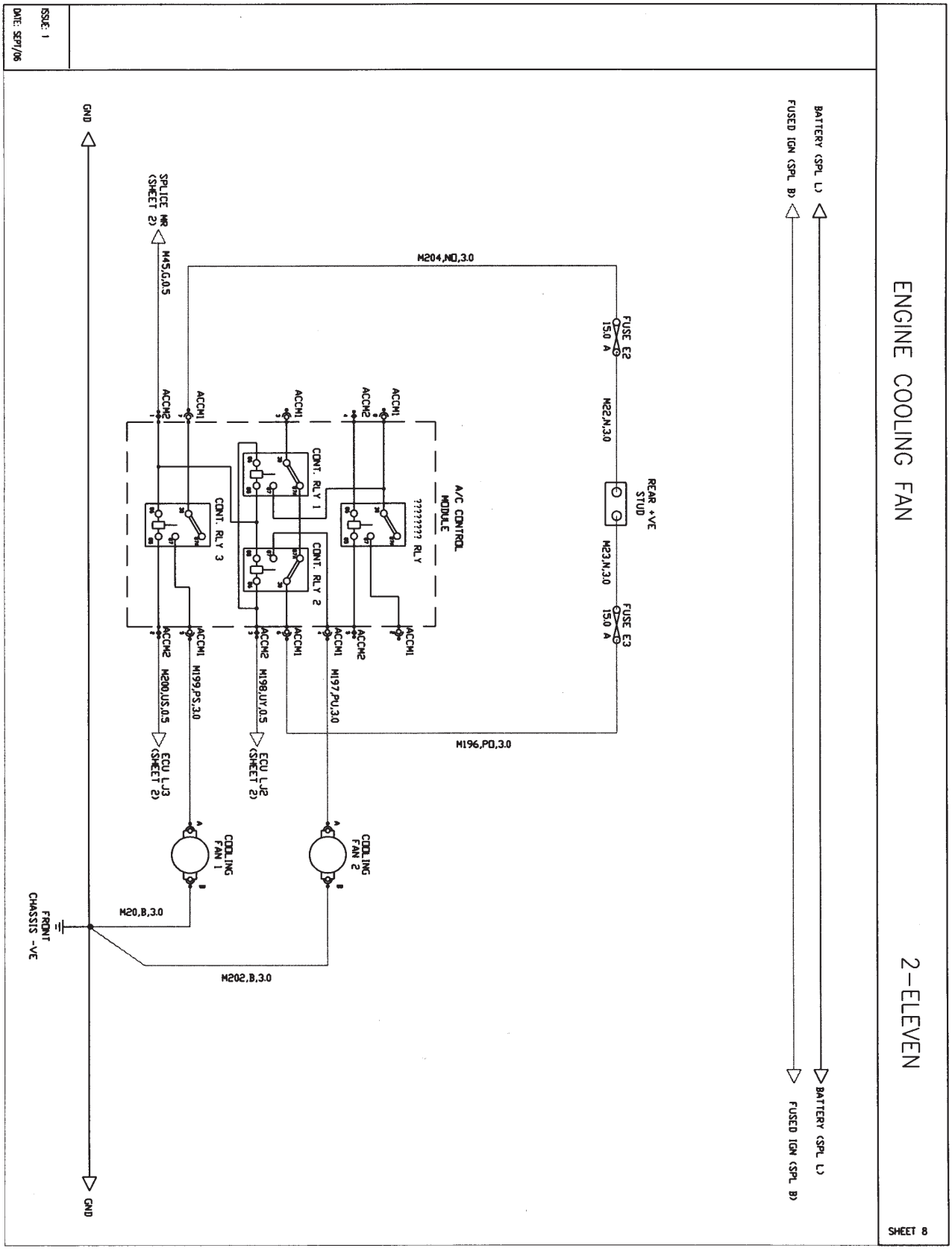


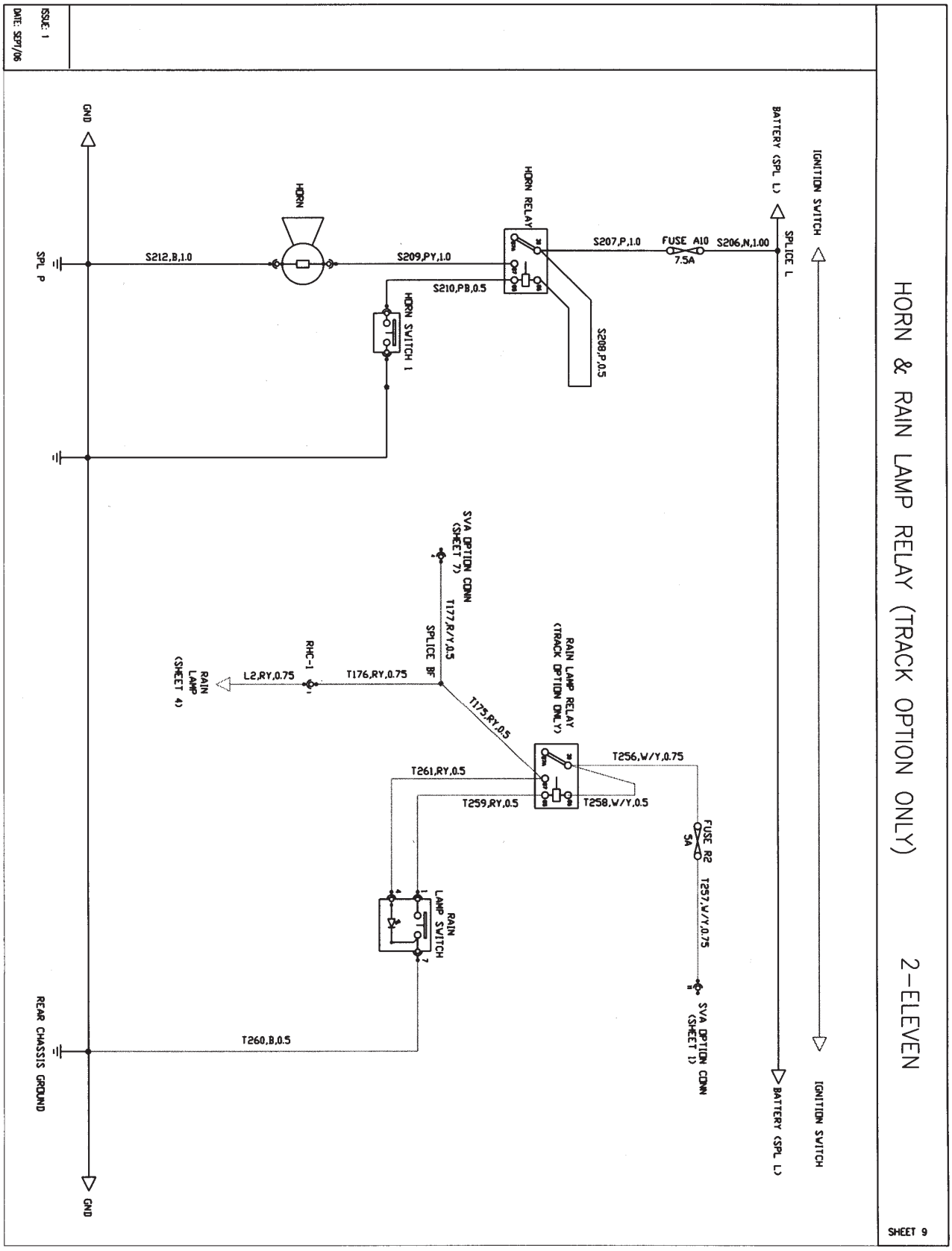


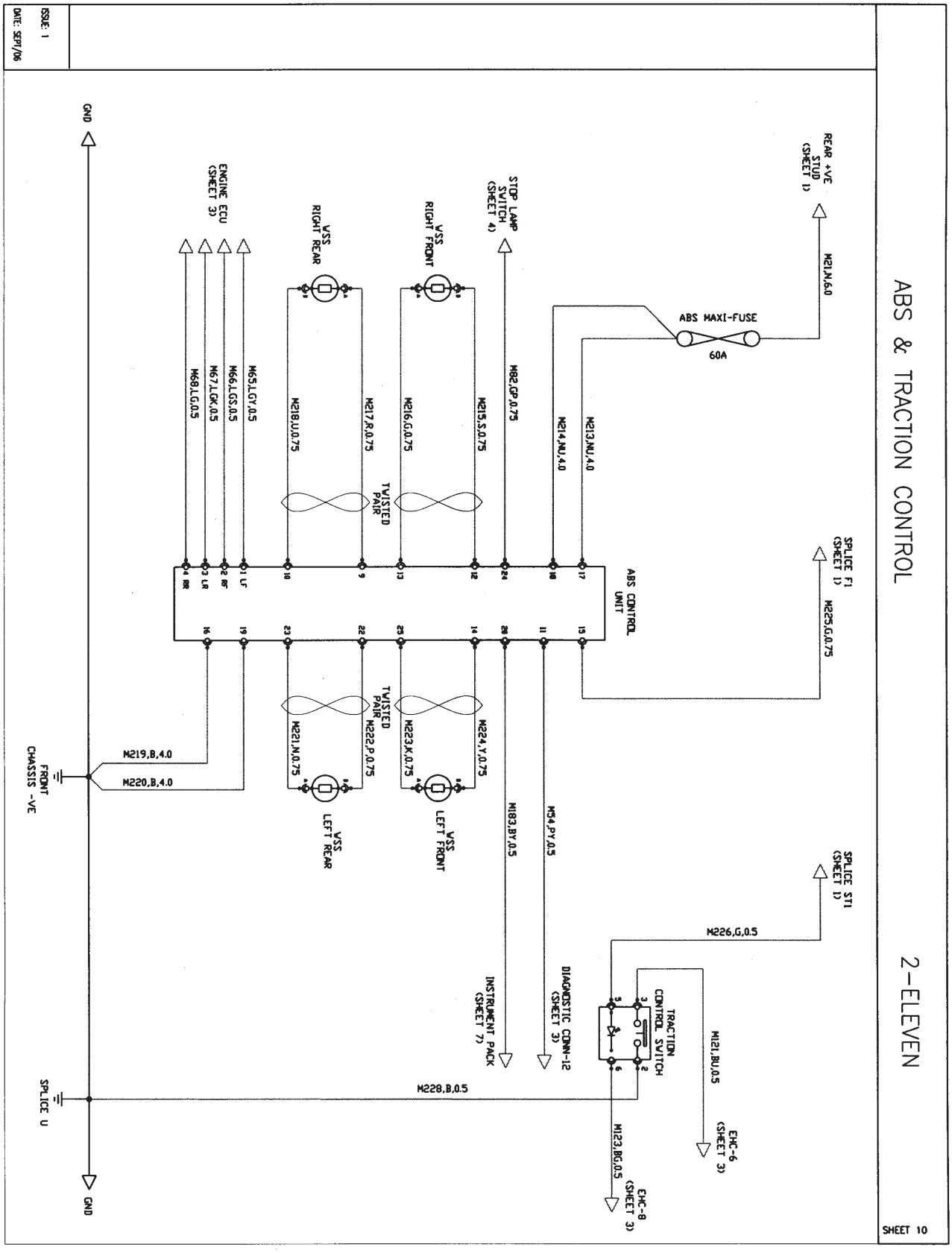


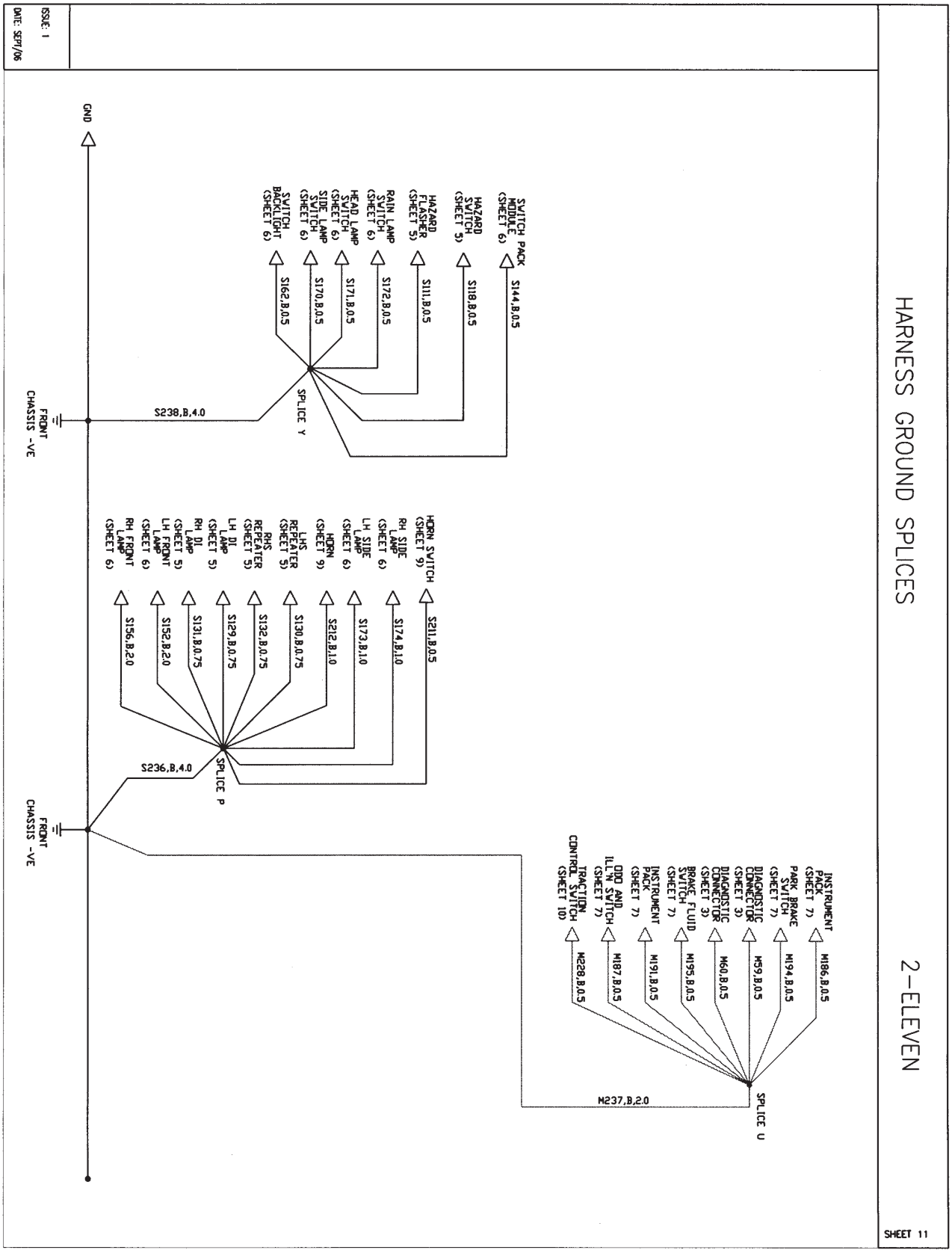












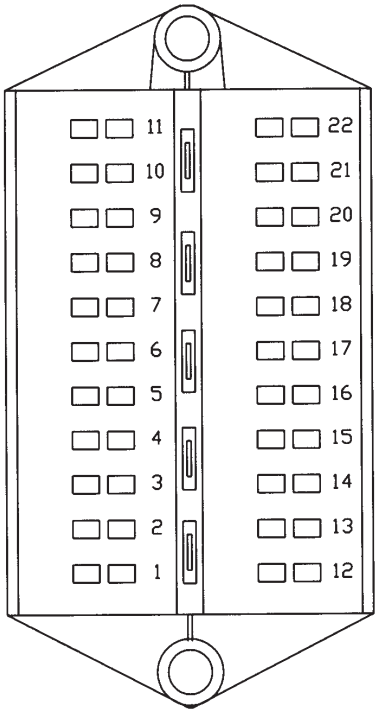
FUSE LAYOUT (BASE AND SVA VEHICLES)

2-ELEVEN

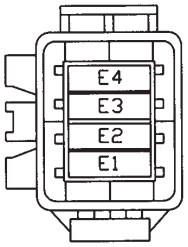
SHEET 12

FUSE	APPLICATION	RATING
A1		
A2		
A3	REVERSE LAMPS	7.5A
A4		
A5	BRAKE LAMPS	5A
A6	INDICATORS	7.5A
A7		
A8		
A9	HAZARD	10A
A10	HORN	7.5A
A11		
A12		
A13		
A14		
A15	SWITCH PACK & DIP SWITCH	15A
A16	SIDELAMP/FOG LAMP	10A
A17	DIP BEAM LH HEADLAMP	10A
A18	DIP BEAM RH HEADLAMP	10A
A19		
A20	MAIN BEAM LH HEADLAMP	10A
A21	MAIN BEAM RH HEADLAMP	10A
A22		
E1	ENGINE CONTROL RELAY	7.5A
E2	COOLING FAN 1	15A
E3	COOLING FAN 2	15A
E4		
F1	BATTERY SERVICES SPLICE FB	15A
F2	IGNITION SERVICES SPLICE F1	15A
F3	FUEL PUMP	20A
F4	MAIN RELAY	10A

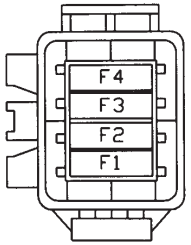
FUSEBOX A (BATTERY BOX)



FUSEBOX E (REAR)



FUSEBOX F (REAR)



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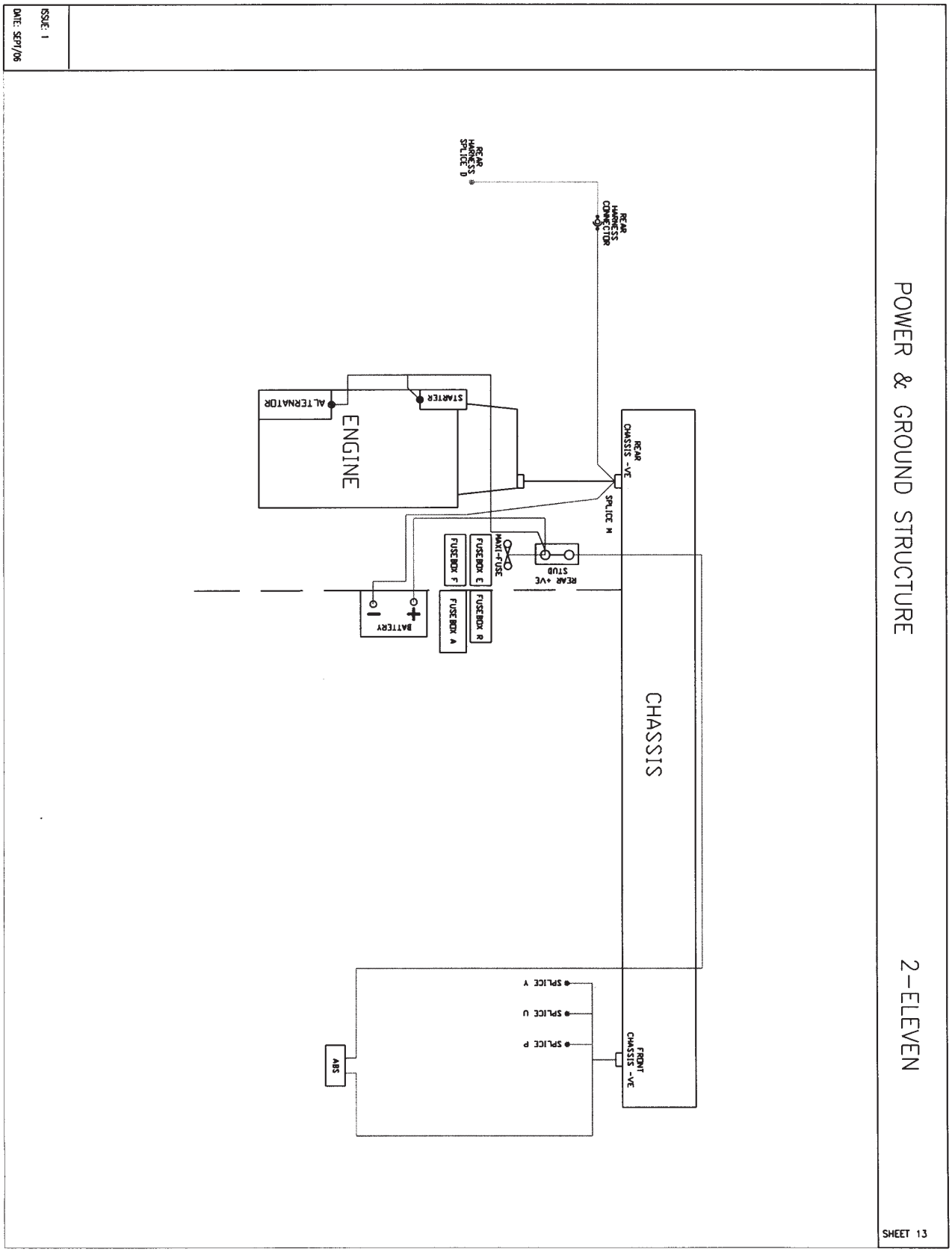


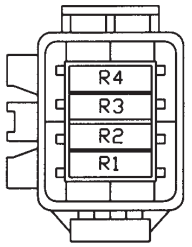
FUSE LAYOUT (BASE AND TRACK VEHICLES)

2-ELEVEN

SHEET 14

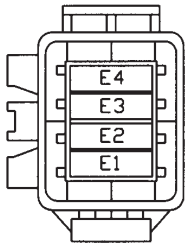
FUSE	APPLICATION	RATING
R1	DI LAMPS	5A
R2	RAIN LAMP	5A
R3	REVERSE LAMPS	5A
R4	STOP LAMPS	5A

FUSEBOX R (BATTERY BOX)

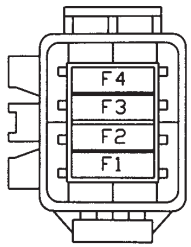


FUSE	APPLICATION	RATING
E1	ENGINE CONTROL RELAY	7.5A
E2	COOLING FAN 1	15A
E3	COOLING FAN 2	15A
E4		
F1	BATTERY SERVICES SPLICE FB	15A
F2	IGNITION SERVICES SPLICE F1	15A
F3	FUEL PUMP	20A
F4	MAIN RELAY	10A

FUSEBOX E (REAR)



FUSEBOX F (REAR)



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