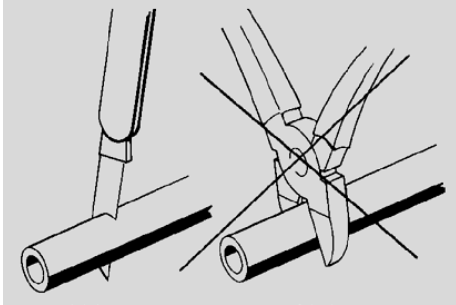


### Some basic installation rules for ESPAR heaters.

Please follow the rules below to prevent fuel related problems and carboning issues:



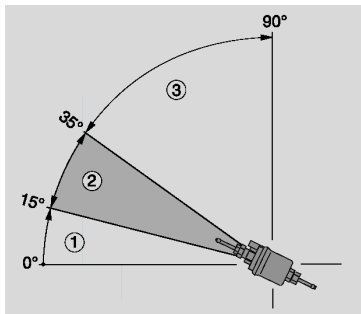
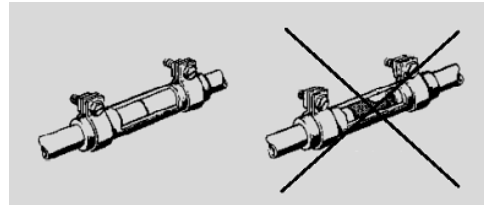
#### Fuel lines and connections.

Use a sharp knife to cut off fuel hoses and pipes. Interfaces must not be crushed and must be free of burrs. Side cutters or similar tools can not be used for cutting fuel lines. Incorrect installation (crushed ends of fuel pipes) leads to lack of fuel supply and instable flame.

Always use a rubber connecting piece to connect fuel lines – never use a plastic pipe.

When connecting metal fuel pipes with plastic fuel line, always use a butt joint and ensure that pipes touch each other inside of the connecting piece to prevent any bubble formation. **Gap between fuel pipes inside of connecting piece leads to bubble formation and frequent stops of heater.**

Always use ESPAR hose clamps as they are absolutely round. Third party hose clamps may have a D-shape and allow air to be sucked into the fuel line when used between fuel tank and fuel pump.



#### Installation position of the Fuel Metering Pump.

Fuel pump ever must be installed with an angle to horizontal line with electrical connector on the upper side. Angle of 15 to 35 degrees is recommended (must be ensured even when vehicle is parked on downhill road, so angle of close to 35° is suggested). Large then 35° angle is allowable. Fuel quantity may be reduced for a few % in positions close to vertical, which can be recommended for

heaters tend to carboning. Vertical position is not recommended as it reduces lifetime of pump, especially on off highway applications. **Angles of lower then 15° lead to carboning issues and not allowed.**

**Using heaters on high altitudes.** All ESPAR heaters can be used on altitudes of up to 1500 metres (5000feet) on permanent basis and temporarily on higher altitudes. Permanent use of a heater on high altitudes without special kit or compensator may lead to carboning issues because of lack of oxygen for burning fuel. For permanent use (like overnight stay) on altitudes of up to 2750 metres (9000 feet) an optional high altitude pump, high altitude sensor kit or compensator is needed.