C I R C U L A R

Date: 10 December 2002

To: All Liquip Distributors Domestic & Export
All Tank Manufacturers Domestic & Export
Oil Co Transport People
Major Carriers (Cootes, Linfox etc)
Other repair shops etc eg WBG

Dear Sirs

IMPORTANT SAFETY NOTICE

The enclosed note explains how a static electricity hazard can eventuate on some semis, B-doubles and rigid-dog combinations.

The proposed simple solution has been discussed with oil industry representatives and received their agreement.

This note is for your information to alert you and your staff to the possibility of sparking due to lack of electrical bonding.

David Gregory
Engineering Manager

TECH TALK NO 48

ELECTRICAL BONDING ON TANKERS

Section 2.6.10 of Australian Standard AS2809-1999 is:

> **Electrical bonding** The electrical resistance between the tank and the tanker chassis, prime mover chassis, or trailer undercarriage, and between the tank and the connection of the tanker pipework to the delivery hose, shall not exceed 10 Ω.

Similar requirements apply also in European and USA Standards.

What we have found is that there is frequently no electrical contact between prime mover and trailer between B-double trailers and between rigid and dog trailer.

This is due to the common use of two-wire electrical system… with no connection to tanker at all as earth return is purely by cable.

The presence of Teflon wear plates or non-conducting grease between the 5th wheel and trailer and poor or no electrical contact in the 5th wheel rocker bushes can easily electrically isolate the trailer from prime mover.

So What? Well, the trailer builds up a high level of static electricity due to movement of the fuel. As it is not bonded to the prime mover, there is a high electrical potential and sparks can jump between the two.

THIS IS HAZARDOUS as the product is frequently highly flammable. IT ALSO DAMAGE ELECTRONICS with the presence of 40,000 volts and electromagnetic emissions.

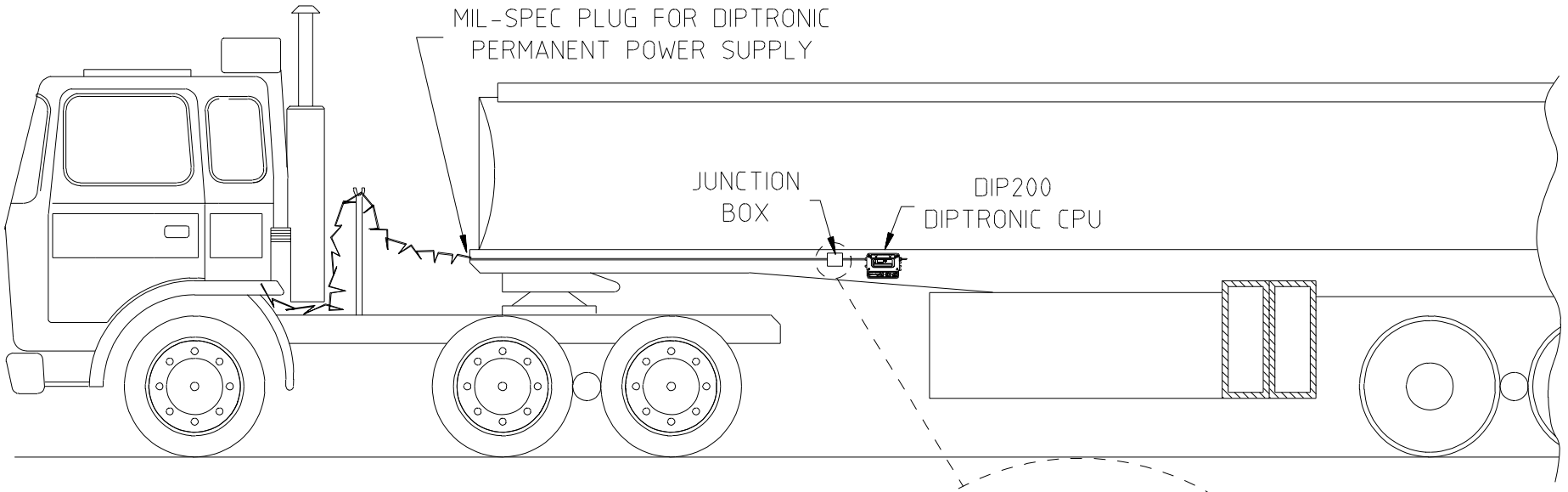
Such "zaps" can kill overfill probes, ABS electronics, engine electronics and electronic registers.

In the case of B-double and rigid-dog combinations, walkway drain tubes may discharge in the same vicinity as the sparks occur.

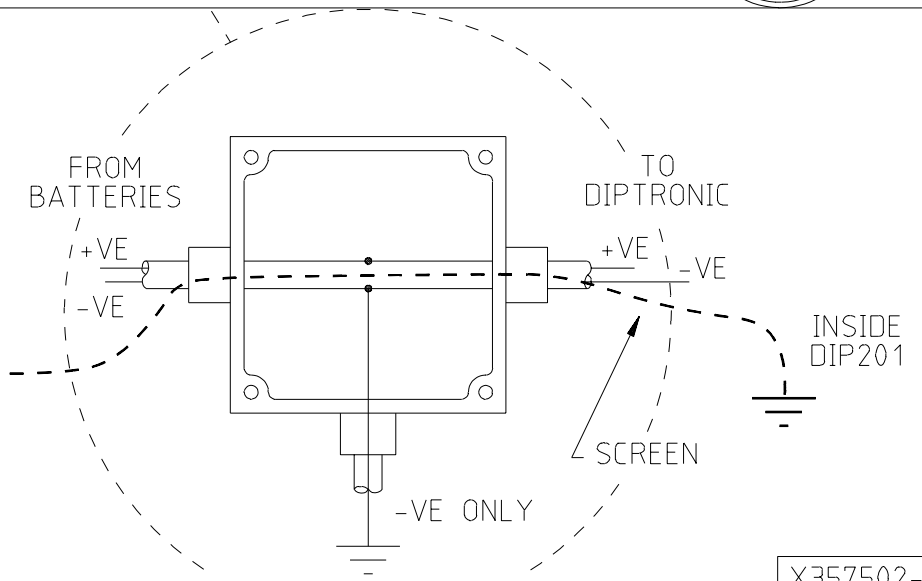
The fix is to ensure the prime mover and trailer are joined at less than 10 ohms resistance. Simply provide an earth to the tank frame from the earth wire in the lighting electrics from 7-pin plug.

If Diptronic™ is fitted to the tanker an additional earth point is required in the junction box nearest the CPU to screen the system from the effects of interference.

Attached are examples of bonding methods.



RECOMMENDED BONDING METHOD OFF DIPTRONIC WIRING



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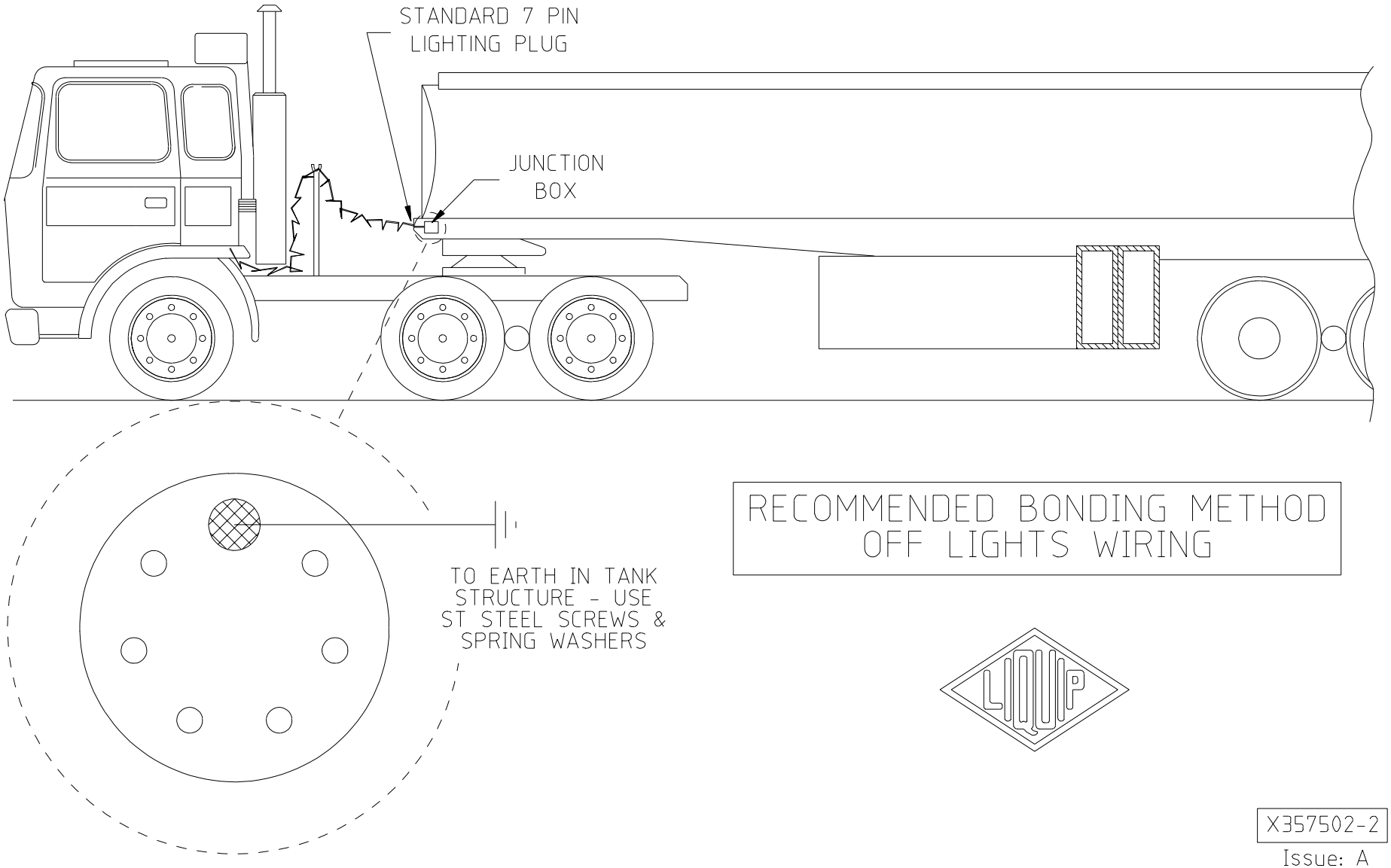

RECOMMENDED BONDING METHOD OFF LIGHTS WIRING

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Issue: A