

## Fires on Underground Mobile Equipment

### Metaliferous Mines New South Wales

01/09/1990	Eimco Dump Truck	Exploding battery	Damaged battery earthing cables	Replace battery, insulate cables
18/01/90	Toro 500 Loader	Fuel spillage ignited by sparks	Fuel leakage exposed terminals	Protective wrap cables, isolate power before fueling
16/02/1990	Mahindra Personnel Vehicle	Electrical short	Worn battery leads	Replace leads, insulate and relocate leads
16/02/1990	Toro 500 Loader	Burst hydraulic hose	Hose spraying on hot exhaust manifold	Relocation of hose
26/03/1990	Caterpillar Grader	Melted wiring loom	Loose wiring connections	Upgrade wiring and connectors
09/04/1990	Wagner ST8 Loader	Burst hydraulic hose	Hose spraying on hot exhaust manifold	Relocation of hose
26/04/1990	Wagner ST8 loader	Burst hydraulic hose	Hose spraying on hot exhaust manifold	Relocation of hose
01/05/1990	ELphinstone R1500 Loader	Loose glow plugs	Fuel spraying on engine	Replaced glow plugs regular maintenance inspections
04/06/1990	Wagner MT 425 Dump Truck	Jammed brake caliper	Friction igniting brake	Replacement of brake components regular maintenance inspections
02/07/1990	Tamrock Drill Rig	Jammed brakes	Overheating brakes	Adjustment of brakes regular maintenance inspections
04/07/1990	Wagner ST8 Loader	Damaged oil filter	Oil spraying on exhaust manifold	Repaired oil filter mount
30/07/1990	Wagner ST8 Loader	Convertor oil leak	Oil dripping onto hot component	Isolated oil leak and sealed
20/08/1990	Toro 500 Loader	Oxy cutting	Oxy flame igniting tyre	Oxy awareness training

01/11/1990	Tamrock Drill Rig	Plastic pipe	Pipe adhering to hot exhaust	Plastic pipe not to be stored on rigs
21/11/1990	EIMCO 922 Loader	Worn wiring	Excess oil, exposed wiring	Relocated wiring loom and repaired cleaned machine
19/07/1991	Toro 500 DL Loader	Fuel filler nozzle locked on	Fuel spraying on ceramic exhaust	Fuel filler nozzles modified to prevent lock on
20/12/1991	Nissan Utility	Live cable	Vehicle parked on wire melting tyre	Isolated cable, relocated cable
27/03/1992	Toro 500 DL Loader	Burst hydraulic hose	Oil sprayed on to hot brakes	Replaced hydraulic hose and reclamped
05/05/1992	Tamrock Drill Rig	Faulty motor switch	Switch melted panel wiring	Replaced switch regular elect inspections
27/05/1992	Toro 500 DL Loader	Fuel leak	Fuel leaking onto starter terminals	Repaired fuel leak relocated fuel lines
13/07/1992	Toro 150 D Loader	Burst hydraulic hose	Oil sprayed on to battery terminal	Replaced hydraulic hose and relocated hose
24/02/1993	Toro 500 DL Loader	Burst hydraulic hose	Oil sprayed on to hot exhaust	Replaced hydraulic hose and relocated hose
25/05/1993	Caterpillar IT12	Faulty fuel injector pump	Overeating causing flames from exhaust	Replaced injector pump regular maintenance inspection
20/04/1993	Caterpillar D6 Dozer	Fuel spill	Hot exhaust filler location	Move fuel cap to opposite side of fuel tank
28/05/1993	Caterpillar D6 Dozer	Fuel spill	Hot exhaust filler location	Fit lip around fuel filler to direct fuel away from exhaust
09/03/1994	Toro 500 Loader	Oil leak	Hot exhaust scrubber	P.M. maintenance, oil spill cover mounted over exhaust scrubber
06/05/1993	Normet Charging Unit	Electrical fault	Jammed starter motor	Replace starter motor, check wiring circuits, relays and switches

01/06/1994	Toro 500 DL Loader	Leaking solenoid valve	Valve sprayed oil on to hot exhaust	Replaced solenoid valve regular maintenance inspection
13/06/1994	Wagner Truck	Rag on exhaust	Hot exhaust, fire suppression failed.	Better pre-start checks required. Fire suppression systems to be checked more regularly (500hrs)
28/06/1994	Toro 501 DL Loader	Park brake overheating	Driving with park brake applied	Park brake override on gear selection to check/repair. Operator training
17/08/1994	Toro 500 Loader	Loose tappet cover	Oil spray on turbo	Check security of tappet covers on 300hr services
17/08/1994	Toro 500 Loader	ABS pipe on exhaust	Loader parked on top of flammable material	Ensure machines are not parked in vicinity of flammable materials
09/10/1994	Toro 500 D Loader	Perforated fuel line due to vibrations in mounting brackets	Diesel sprayed over engine and exhaust manifold	Replace twin brackets with single bracket to hold all lines firmly together, check all loaders, fire resistant cover for exposed exhausts
20/01/1995	Toro 500 D Loader	Perished fuel line at 90 degree elbow	Fuel spraying onto hot, unprotected exhaust	Automatic engine shutdown and fire suppression systems installed
27/01/1995	Toro 501 DL Loader	Defective starter switch kept starter motor running once machine was stopped	Flammable materials in area (oils, cable insulation)	Check wiring on all loaders, indicator light installed in all loaders, implement changeout strategy of starter switches
9/03/1995	Toro 500L Loader	Positive lead short on chassis	Oil leaks, cables rubbing	Protective wrap cables and firmly fix on insulated blocks
24/03/1995	Nissan Utility	Electrical short	Heat generated from short ignited wiring	Unit decommissioned, regular inspection of all vehicles
29/10/1995	Rock Bolter	Burst hydraulic hose	Hot exhaust/location of hose	Relocate hose/Pre start checks

16/11/1995	Elphunstone R2800 Loader	Burst hydraulic hose	Oil sprayed on to exposed wiring loom	Replaced hose and relocated wiring
17/11/1995	Cubex Drill Rig	Build up of oil in the receiver tank	Drainage system not flushed regularly	Receiver tank to be modified and flushed on a regular basis
24/11/1995	Toro 500L Loader	Burst hydraulic hose	Sprayed onto turbo	Shield around turbo/Check worn hoses
27/12/1995	Volvo Loader	Park brake overheating	Driving with park brake applied	Re-adjust park brake. Repair warning light indicator
18/01/1996	Drill Rig	Hydraulic hose failure	Sprayed onto turbo/hydraulic relief valve blocked	Repair relief valve/maintenance QA checks
28/01/1996	Toro DumpTruck	Grease splashed or dropped on to Telma unit	Using retarder instead of brakes	Discussed with the Engineering Dept. why and how the grease came to be splashed or dropped on Telma unit
16/02/1996	Wagner Loader	Burst hydraulic hose	Sprayed onto turbo	Shield around turbo/Check hoses pre-start
02/05/1996	Toyota Utility	Rag on exhaust	Hot exhaust, oily rags thrown out of utility	Container for litter and waste rag
14/07/1996	Jumbo	Trailing cable short out	Sub never tripped	Operation procedures to be modified so as the trailing cable is not live when being rolled on or off drill rigs
21/07/1996	Development Services 1	Starter motor did not shut off		Starter motor, burnt cabling and push button starter were replaced before DS1 went back into service
05/08/1996	Toyota Utility	Short on battery lead against bonnet	Terminals not covered loose battery	Pre-start checks on battery clamps. Insulate battery terminals

09/08/1996	Elphinstone R2900	Loose connection to auxiliary brakes pump arcing	Vibration	Regular maintenance (MIMS), pre-start checks, manufacturer recommendations
30/08/1996	Drill Rig	Positive battery lead short on chassis	Oil leaks/insulation worn through/vibration	Relocate wiring harness & battery isolator
4/09/1996	Toro Loader	Starter motor lead wires loose	Wires were touching which lead to arching	Make sure pre start checks are done correctly
20/10/1996	Drill Rig	Positive battery lead short on chassis	Oil leaks/insulation worn through/vibration	Relocate wiring harness and relocate battery isolator
22/10/1996	Loader 21	Starter motor shorted out		Pre start checks for the fire suppression system and use of self rescuers
12/12/1996	Toro 500 Loader	Flex hose arcing on starter motor	Outer cover on hose worn through	P.M. maintenance, reroute fuel hoses away from starter motor terminals, insulate starter terminals
28/01/1996	Toro 500 D Loader	Flammable contact cleaner sprayed on control panel	Cleaner not allowed adequate time to dry	Ensure all electrical control panels are sealed, investigate alternative products
21/02/1996	Toro 500 D Loader	Soft core tyre overheated	Tyre operating out of design specifications	Source information on tyre sizes and capabilities - build up a history, monitor use of soft core tyres
19/06/1996	Grader	Wiring shorted to earth and burnt insulation	Electrical cables had become hard and brittle causing loss of insulation	Rewire grader
27/01/1997	Toro 501 DL Loader	Prim pump plunger came out	Fuel spraying onto engine and scrubber tank, engine shut down failure	Check & fix servo system, replace prima pump, repair bonnet hinges, standardise fire suppression system to electrically activated

03/01/1997	Loader 21	Short on starter motor		No equipment fitted with a fire
11/12/1998	Toro 35D Dump Truck	Fuel spill during refueling	Fuel tank breather/check valve broken.	More through maintenance inspection.
07/05/1999	Caterpillar D9N	Electric short circuit between battery and starter motor supply.	Worn cables.	
16/09/1999	Nissan patrol	Electrical short circuit.	Worn cables.	
07/01/2000	Wagner MT439 Dump Truck	Broken oil line to turbo charger.	Break occurred inside turbo charger fire covering.	Maintenance procedures should include the removal of fire protection covering for inspection.
03/02/2000		Fire on engine	Fuel hose failure sprayed diesel onto hot components	Fuel hose relocated.
21/03/2000	Toro 500D Loader	Seal failure on fuel pump.	Fuel pump not protected from hot components in engine compartment.	Review with manufacture the deflection of fuel away from hot components in the event of fuel pump failure.
03/02/2000	Elphinstone R2900 Loader	Fuel hose failure.	Fuel hose rubbing on metal component.	All fuel components should be inspected for loose connections and or rubbing.
03/08/2000	Toro 50D Truck	Retarder caught fire	Excessive heat melting seals	Tamrock have undertaken to investigate the fitting of a protective device that prevents the retarder operating when the unit is stationary. Revised training guidelines for traveling loaded down hill.
4/10/2000	Toro 50D Truck	Retarder over heated (no fire)	Incorrect assembly of retarder leading to bearing failure	Authorised and trained personnel to assemble retarders
03/08/2000	Elphinstone AD40 truck	Fire on Engine	Oil pipe fitting failure sprayed oil onto hot components.	Audit of similar equipment.
13/10/2000	Toro 50D Truck	Retarder caught fire	Incorrect assembly of retarder	Authorised and trained personnel

24/11/2000	Toro 50D Truck	Retarder caught fire	leading to bearing failure Grease leakage from front retarder seal due to heat build up	to assemble retarders Data loggers installed on trucks.
5/12/2000	Toro 50D Truck	Retarder caught fire	Grease leakage from front retarder seal due to heat build up	Evaluation of high temperature grease.
08/01/2001	Elphinstone AD40 truck	Fire on Engine	Throttle valve on engine came loose and shorted on solenoid igniting oil line.	All other trucks inspected, throttle valve relocated, solenoid terminals covered and leaking oil lines repaired.
28/12/2000	Concrete Agitator	Fire on engine	Transmission line melted spraying oil on turbo charger	Heat shield placed around turbo and exhaust. Complete inspection of truck.
09/01/2001	Toro 40D	Fire on Engine	Steering hose burst spraying oil on heat protection lagging.	Audit of all hoses on underground equipment.
17/01/2001		Fire on Engine	Ruptured oil pipe caused oil to spray onto Engine and ignited	
01/02/2001	Solo Drill rig	Fire on Engine	Power terminal to the glow plug solenoid had shorted out.	
23/04/2001	Elphinstone AD40 truck	Fire on Transmission	Battery leads damaged by rock bolt. Lead shorted on frame. Fuse link did not melt. Extensive damage due to oil and grease built up.	Loader and truck fleet inspected for oil and grease build up. Suitable sizing for fuse link under investigation
28/05/2001	Toro 40D	Fire on Engine	Induction pipe fitting fractured near turbo. Oil sprayed onto turbo.	
15/06/2001	Toro 40D	Fire on Brakes	Small flames coning from park brake area whilst truck was being towed to surface for maintenance repair	

13/07/2001	Elphinstone AD40 Truck	Oil and grease on engine caught fire.	Electrical short circuit. Short circuit occurred when cabin was tilted.	Improve inspection of electrical wiring on mobile equipment.
------------	------------------------	---------------------------------------	---	--