



UNIT STANDARD TRACKING DOCUMENT

National Certificate in Fitting - Level 2

National Certificate in Fitting - Level 3

National Certificate in Fitting - Level 4

Decemember 2008

NATIONAL CERTIFICATE IN FITTING - L2

List	Old Unit Standards					New revised Unit Standards registered 2008					
	NLRD Ref No	MQA Ref No	Title	Level	Credits	NLRD Ref No	MQA Ref No	Title	Level	Credits	Comments
						Core					
1						253440		Assemble mechanical components	Level 2	12	
2						12466		Explain the individual's role within business	Level 2	4	
3		EnM-G412	Identify engineering equipment and materials	1	7	12477		Identify engineering materials, their characteristics and applications and common metal tests used in engineering	Level 2	4	Range: Must be assessed to determine characteristics, applications and common metal tests.
4						13220		Keep the work area safe and productive	Level 2	8	
5						13219		Maintain static seals in machines and / or equipment	Level 2	4	
6						9881		Mark off basic regular engineering shapes	Level 2	6	
7		MnT-G003	Read and interpret an elementary engineering drawing	1	3	12215		Read, interpret and produce basic engineering drawings	Level 2	6	Range: Must be assessed to determine relevance.
8	12216		Select, use and care for engineering hand tools	2	8	119744		Select, use and care for engineering hand tools	Level 2	8	Equivalent
9	12476		Select, use and care for engineering measuring equipment	2	4	12476		Select, use and care for engineering measuring equipment	Level 2	4	Equivalent
10		EnM-G205	Grind steel by means of an angle grinder	2	2	12219		Select, use and care for engineering power tools	Level 2	6	Range: Must be assessed to determine competence in use of other equipment.
						Electives					
11		EnM-G205	Grind steel by means of an angle grinder	2	2	13297		Grind tools and drill bits	Level 3	4	Range: Must be assessed to determine competence in grinding tools and drill bits.
12		EnM-G100	Drill a hole by means of a radial arm or pedestal drilling machine	2	4	13214		Operate and monitor a drilling machine to produce simple components	Level 2	6	Equivalent
13						243784		Demonstrate an understanding of the South African mining and mineral sector processes	Level 1	5	
14						13221		Perform routine maintenance	Level 2	8	
15	10740	EnM-G007	Lift and move a load	3	7	12481		Sling loads	Level 2	4	Range: Must be assessed to determine competence in slinging of loads.
16						12484		Perform basic fire fighting	Level 2	4	
17						12483		Perform basic first aid	Level 2	4	
18						12463		Understand and deal with HIV-Aids	Level 2	4	
19	10745	EnM-G012	Cut mild steel by means of an Oxy-acetylene cutting torch	2	3	243067		Cut materials using the oxy-fuel gas cutting process (manual cutting)	Level 2	6	Equivalent
20	10786	EnM-G101	Cut screw threads by means of a thread cutting machine	2	2	253496		Cut screw threads and install threaded pipe systems	Level 2	4	Equivalent
21	10853	EnM-G080	Overhaul a positive displacement pump	3	6	253497		Maintain positive displacement pumps	Level 3	10	Range: Must be assessed on all EnM-G080, EnM-G081 and EnM-G082 .
	10854	EnM-G081	Repair a positive displacement pump	3	6						
		EnM-G082	Replace a positive displacement pump	2	2						
22	10737	EnM-G004	Replace a single stage centrifugal pump	2	2	253391		Maintain centrifugal pumps	Level 3	14	Range: Must be assessed on all.
	10738	EnM-G005	Overhaul a single stage centrifugal pump	3	6						
	10744	EnM-G011	Overhaul a portable submersible centrifugal pump	2	2						
	10746	EnM-G013	Repair a single stage centrifugal pump	3	7						
	10777	EnM-G039	Replace a multi-stage centrifugal pump	2	2						
	10778	EnM-G040	Repair a multi-stage centrifugal pump	3	7						
	10779	EnM-G041	Overhaul a multi-stage centrifugal pump	3	6						

23	10760	EnM-G022	Join a conveyor belt by means of mechanical clips	2	2	253392	Maintain a conveyor belt installation	Level 2	6	Range: Must be assessed on all EnM-G022, EnM-G146, EnM-G163, EnM-G164.
	10874	EnM-G146	Replace components on a conveyor belt installation	2	3					
		EnM-G163	Replace a conveyor drive power pack	2	2					
		EnM-G164	Replace a conveyor belt pulley and drum	2	2					
24		EnM-G217	Replace mechanical components on a vibrating screen	2	4	253416	Replace mechanical components on a vibrating screen	Level 2	4	Equivalent
25	10739	EnM-G006	Repair a double drum scraper winch	2	2	253394	Repair double drum scraper winches	Level 2	6	Range: Must be assessed on both EnM-G006, EnM-G032
	10770	EnM-G032	Replace a double drum scraper winch	2	3					
26	10741	EnM-G008	Replace an inline ventilation fan in an underground environment	2	2	10741	Replace an inline ventilation fan in an underground environment	Level 2	2	Equivalent
27	10747	EnM-G014	Maintain the hydraulic system of a self propelled mobile machine	1	2	253380	Repair self propelled mobile machines	Level 3	5	Range: Must be assessed on all.
	10748	EnM-G015	Replace the bucket assembly of a load haul dump machine	2	2					
	10800	EnM-G053	Replace the final drive axle assembly of a self propelled mobile machine	2	4					
	10867	EnM-G092	Replace a torque converter of a self-propelled mobile machine	2	3					
	10846	EnM-G134	Replace the hydraulic wheel motor of a self propelled mobile machine	2	4					
	15322	EnM-G158	Replace a cat track on a self propelled mobile machine	2	3					
		EnM-G170	Replace the wheel of a self propelled mobile machine	2	3					
	10766	EnM-G028	Replace the diesel engine of a self propelled mobile machine	3	5					
10767	EnM-G029	Replace the centre portion of a differential assembly of a self-propelled mobile machine	2	2						
28	10759	EnM-G021	Repair the mechanical brake system of and underground locomotive	2	5	253435	Repair underground locomotives	Level 2	8	Range: Must be assessed on all three EnM-G021, EnM-G143 and EnM-G144 .
	10865	EnM-G143	Replace a final drive (gearbox) assembly of an underground locomotive	2	5					
	10868	EnM-G144	Replace an axle assembly of an underground locomotive	2	4					
29	10765	EnM-G027	Repair a drum stacker	2	5	254356	Repair a drum stacker	Level 2	5	Equivalent
30	10788	EnM-G102	Repair the liquid cooling system of an internal combustion engine	2	4	253425	Repair internal combustion engines	Level 2	5	Range: Must be assessed on all four EnM-G102, EnM-G103, EnM-G147 and EnM-G167 .
	10792	EnM-G103	Repair the air cooling system of an internal combustion engine	2	4					
	10876	EnM-G147	Trace and correct faults on a diesel engine	3	7					
	110142	EnM-G167	Repair the exhaust system of a self propelled mobile machine	2	2					
31		EnM-G354	Replace the wheel motor on an electrical driven haul truck	2	2	253420	Repair a haul truck	Level 3	5	Range: Must be assessed on all four EnM-G352, EnM-G354 and EnM-G355 and EnM-G357 .
		EnM-G355	Replace the rear suspension on a haul truck	2	3					
		EnM-G357	Replace the generator set on an electrically driven haul truck	2	2					
		EnM-G352	Repair the bucket assembly (load box) on a haul truck	3	2					
32		EnM-G351	Repair a blow tank	3	2	253454	Repair blow tanks	Level 3	2	Equivalent
33		EnM-G372	Replace a bucket elevator	2	2	253424	Repair a belt or chain type bucket elevator	Level 2	4	Equivalent
34		EnM-G287	Replace the screw of a screw type feeder	2	2	253362	Replace the screw of a screw type feeder	Level 2	2	Equivalent

35		EnM-G504	Repair track driven earth moving equipment	2	4	253427	Replace components on track driven earth moving equipment	Level 2	4	Range: Must be assessed on EnM-G504 or on both EnM-G280 and EnM-G348 .
	115760	EnM-G280	Replace track pads on earth moving equipment	2	2					
	116635	EnM-G348	Replace the side frame assembly of a track driven machine	2	2					
36		EnM-G513	Replace components on a dragline	3	8	253432	Replace components on a dragline	Level 3	8	Equivalent
37		EnM-G502	Repair mechanical rock breakers	2	4	253437	Repair mechanical rock breakers	Level 2	4	Range: Must be assessed on EnM-G502 or on both EnM-G219 and EnM-G278 .
		EnM-G219	Repair a rock breaker	2	4					
	115769	EnM-G278	Replace components on the boom assembly of a back actor	2	2					
38		EnM-G526	Repair a hydraulic/rope shovel	2	4	253444	Repair a rope or hydraulic shovel	Level 2	4	Equivalent
39		EnM-G499	Repair crushers	2	4	253441	Repair crushers	Level 2	4	Range: Must be assessed on EnM-G499 or on both EnM-G206 and EnM-G221 .
		EnM-G206	Replace liners of a gyrating crusher	2	3					
		EnM-G221	Repair a gyrating crusher	2	4					
40		EnM-G498	Repair a rotary drill	2	4	253514	Repair a rotary drill	Level 2	4	Range: Must be assessed on EnM-G498 or on all three EnM-G213, EnM-G275 and EnM-G334 .
		EnM-G213	Replace components on a rotary drill	2	4					
		EnM-G275	Replace the rotary head of an overburden drill	2	3					
		EnM-G334	Replace the mast of an overburden drill	3	3					
41	10871	EnM-G145	Replace components on a chairlift installation	2	4	253365	Replace components on a chairlift installation	Level 2	4	Equivalent
42	253535	EnM-G501	Repair a mono rope winch	2	3	253535	Repair mono rope winches	Level 2	3	Range: Must be assessed on 253535 or on both EnM-G127 and EnM-G128 .
	10833	EnM-G127	Repair a mono rope winch	2	3					
	10835	EnM-G128	Replace a mono rope winch	2	2					
43	10809	EnM-G113	Replace components of an air driven track bound mechanical loader	2	7	253534	Repair air driven track bound mechanical loaders	Level 2	4	Range: Must be assessed on all EnM-G113, EnM-G114, EnM-G115 EnM-G116, EnM-G117 and EnM-G118.
	10813	EnM-G114	Repair the upper gearbox of an air driven track bound mechanical loader	2	4					
	10814	EnM-G115	Repair the lower gearbox of an air driven track bound mechanical loader	2	4					
	10816	EnM-G116	Repair the motor of an air driven track bound mechanical loader	2	5					
	10818	EnM-G117	Replace the axle assembly of an air driven track bound mechanical loader	2	3					
	10820	EnM-G118	Repair the controls and pipes of an air driven mechanical loader	2	4					
44					9678	Follow basic health and safety practices underground	Level 2	5		
45		EnM-G475	Replace electro magnetic brakes	3	2	253537	Overhaul the bogey of rolling stock	Level 2	2	Equivalent
46		EnM-G471	Overhaul pneumatic percussion drills	3	4	253446	Overhaul pneumatic percussion drills	Level 2	4	Equivalent
47		EnM-G469	Make up a spare strand section for a pig cast machine	2	2	253421	Make up a spare strand section for a pig cast machine	Level 2	2	Equivalent
48		EnM-G450	Repair the rotary valve of a bag house	2	2	253364	Replace a rotary valve on a bag house	Level 2	2	Equivalent
49		EnM-G458	Replace a mould wheel assembly on a pig cast machine strand	2	2	253360	Replace a mould wheel assembly on a pig cast machine strand	Level 2	2	Equivalent
50		EnM-G508	Repair a dredge	2	4	253355	Repair a dredge	Level 3	4	Range: Must be assessed on EnM-G508 or on both EnM-G457 and EnM-G473 .
		EnM-G457	Replace the liners of a dredge main pump door (front and back)	2	1					
		EnM-G473	Overhaul the simmering pot of a dredge main pump	2	2					

51		EnM-G454	Repair a bag-type dust suppression system	2	2	253387		Repair a bag-type dust suppression system	Level 2	2	Equivalent
52		EnM-G453	Replace components on an apron feeder	2	2	253428		Replace components on an apron feeder	Level 2	2	Equivalent
53		EnM-G452	Replace a pneumatic drill on a clay gun	2	2	253436		Replace a pneumatic drill on a clay gun	Level 2	2	Equivalent
54		EnM-G445	Repair an air slide	2	3	253445		Repair an air slide	Level 2	3	Equivalent
55		EnM-G520	Repair a grate cooler	2	3	253354		Repair a grate cooler	Level 2	3	Equivalent
56		EnM-G425	Repair a hammer mill	2	2	253426		Replace a hammer mill	Level 2	2	Equivalent
57		EnM-G380	Replace a magnetic separator	2	2	253431		Replace a magnetic separator	Level 2	2	Equivalent
58		EnM-G507	Repair screw type conveyors	2	3	253414		Repair screw type conveyors	Level 2	3	Range: Must be assessed on EnM-G507 or on both EnM-G370 and EnM-G455 .
		EnM-G370	Replace a screw type conveyer	2	2						
		EnM-G455	Replace a hanger bearing on a screw conveyer	2	2						
59						13205		Operate a lathe to produce simple components	Level 2	12	
60	10762	EnM-G024	Join mild steel by means of arc welding	2	11	243063		Weld carbon steel work-pieces using the shielded metal arc welding process in the down-hand position	Level 2	15	Equivalent

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	NLRD Ref No	MQA Ref No	Title	Level	Credits	NLRD Ref No	MQA Ref No	Title	Level	Credits	Comments
						Core					
61		EnM-G083	Install a chain drive	2	4	13216		Maintain indirect drives	Level 2	6	Range: Must be assessed on all four EnM-G083, EnM-G084, 10856 and 108586.
		EnM-G084	Repair a chain drive	2	4						
	10856	EnM-G085	Install a V-belt drive	2	4						
	10858	EnM-G086	Repair a V-belt drive	2	4						
62					13223		Apply safety, health and environmental protection procedures	Level 3	6		
63					12456		Explain and use organisational procedures	Level 3	6		
64					116714		Lead a team, plan, allocate and assess their work	Level 3	4		
65	10832	EnM-G126	Replace a direct mount bearing	2	3	13283		Maintain bearings in machines and equipment	Level 3	8	Range: Must be assessed on all three 10832, 10735 and EnM-G488.
		EnM-G488	Identify, select and examine different types of bearings and describe their application	1	1						
	10735	EnM-G002	Replace a taper sleeve type bearing	2	2						
66	10734	EnM-G001	Replace a fluid drive coupling	3	3	13280		Maintain direct drives	Level 3	6	Range: Must be assessed on all four 10734, 1088, 10822, 10823 and EnM-G386.
	10822	EnM-G119	Replace a tyre type drive coupling	2	2						
	10823	EnM-G120	Replace a pin and bush type drive coupling	2	2						
		EnM-G386	Replace a spring type coupling	3	3						
67		EnM-G492	Demonstrate knowledge of lubrication	2	2	13277		Maintain lubricating systems	Level 3	4	Range: Must be assessed on both EnM-G220, and EnM-G492.
		EnM-G220	Replace mechanical components on a lubrication system	2	3						
68					9530		Manage work time effectively	Level 3	3		
					Electives						
69		EnM-G204	Repair a vacuum pump	3	3	253396		Repair a vacuum pump	Level 3	3	Equivalent
70		EnM-G511	Repair shuttle cars	2	5	253359		Repair shuttle cars	Level 2	5	Range: Must be assessed on EnM-G511 or on all three , EnM-G155, EnM-G225 and EnM-G299.
		EnM-G225	Replace components on a shuttle car	3	4						
	15327	EnM-G155	Replace the wheel unit of a shuttle car	2	3						
		EnM-G299	Replace the cable reel of a shuttle car	2	2						

71	10747	EnM-G014	Maintain the hydraulic system of a self propelled mobile machine	1	2	253380	Repair self propelled mobile machines	Level 3	5	Range: Must be assessed on all.
	10748	EnM-G015	Replace the bucket assembly of a load haul dump machine	2	2					
	10800	EnM-G053	Replace the final drive axle assembly of a self propelled mobile machine	2	4					
	10867	EnM-G092	Replace a torque converter of a self-propelled mobile machine	2	3					
	10846	EnM-G134	Replace the hydraulic wheel motor of a self propelled mobile machine	2	4					
	15322	EnM-G158	Replace a cat track on a self propelled mobile machine	2	3					
		EnM-G170	Replace the wheel of a self propelled mobile machine	2	3					
	10766	EnM-G028	Replace the diesel engine of a self propelled mobile machine	3	5					
10767	EnM-G029	Replace the centre portion of a differential assembly of a self-propelled mobile machine	2	2						
72		EnM-G382	Repair a valve (Gate and diaphragm)	3	2	253439	Maintain valves	Level 2	8	
	10803	EnM-G054	Replace a flange mounted valve	1	2					
73	10854	EnM-G081	Repair a positive displacement pump	3	6	253497	Maintain positive displacement pumps	Level 3	10	Range: Must be assessed on both 10854 and EnM-G082.
		EnM-G082	Replace a positive displacement pump	2	2					
74	10737	EnM-G004	Replace a single stage centrifugal pump	2	2	253391	Maintain centrifugal pumps	Level 3	14	Range: Must be assessed on all.
	10738	EnM-G005	Overhaul a single stage centrifugal pump	3	6					
	10744	EnM-G011	Overhaul a portable submersible centrifugal pump	2	2					
	10746	EnM-G013	Repair a single stage centrifugal pump	3	7					
	10777	EnM-G039	Replace a multi-stage centrifugal pump	2	2					
	10778	EnM-G040	Repair a multi-stage centrifugal pump	3	7					
	10779	EnM-G041	Overhaul a multi-stage centrifugal pump	3	6					
75		EnM-G520	Repair a grate cooler	2	3	253354	Repair a grate cooler	Level 2	3	Equivalent
76		EnM-G438	Repair an electro filter	3	2	253438	Repair an electro filter	Level 2	2	Equivalent
77		EnM-G435	Repair bag applicator machines	2	5	253385	Repair bag-applicator machines	Level 2	5	Equivalent
78		EnM-G433	Repair bag palletisers	2	4	253433	Repair bag palletisers	Level 2	4	Equivalent
79		EnM-G432	Repair rail tracks	2	2	253874	Repair rail tracks	Level 2	2	Equivalent
80		EnM-G422	Repair boom type stackers	2	3	253422	Repair boom type stackers	Level 2	3	Equivalent
81		EnM-G420	Repair rotary kilns	3	7	253417	Repair rotary kilns	Level 3	7	Equivalent
82		EnM-G415	Repair jig washers	2	4	253395	Repair jig washers	Level 2	4	Equivalent
83		EnM-G517	Maintain filter presses	3	4	253382	Maintain filter presses	Level 3	4	Range: Must be assessed on EnM-G517 or on both , EnM-G365 and EnM-G373.
		EnM-G365	Repair a filter press	3	3					
		EnM-G373	Replace a filter press	2	2					
84	116656	EnM-G364	Repair a rotary packer	3	2	253418	Repair a rotary packer	Level 3	2	Equivalent

85	EnM-G527	Maintain glass equipment	3	6	253383	Maintain glass lined equipment	Level 3	5	Range: Must be assessed on EnM-G527 or on all six , EnM-G312, EnM-G317, EnM-G318, EnM-G319, EnM-G320 and EnM-G321.	
	EnM-G317	Replace a glass column section in a chemical plant	3	3						
	EnM-G318	Replace a glass flask in a chemical plant	3	3						
	EnM-G319	Replace a glass column adaptor in a chemical plant	3	3						
	116628	EnM-G320	Replace a glass pipe section in a chemical plant	3						3
	116631	EnM-G321	Replace a PTFE bellows in a chemical plant	3						3
	EnM-G312	Replace a glass heat exchanger unit in a chemical plant	2	3						
86	EnM-G190	Inspect a safety detaching hook	2	2	253356	Inspect a safety detaching hook	Level 2	2	Equivalent	
87	EnM-G292	Replace the girth gear and pinion on a mill	3	4	253390	Replace the girth gear and pinion on a mill	Level 3	4	Equivalent	
88	EnM-G515	Repair material separator/classifying equipment	2	2	253358	Repair material separator or classifying equipment	Level 2	2	Range: Must be assessed on EnM-G515 or on all six , EnM-G288, EnM-G289, EnM-G291, EnM-G358, EnM-G379 and EnM-G411.	
	EnM-G288	Replace a cyclone	2	2						
	EnM-G289	Repair a magnetic separator	2	2						
	EnM-G291	Replace components on a screw type classifier	2	2						
	EnM-G358	Replace a centrifuge	2	2						
	EnM-G375	Replace components of a cyclone	3	2						
	EnM-G411	Replace a drum type separator	2	2						
89	EnM-G514	Repair mechanised coal mining equipment	3	9	253379	Repair mechanised coal mining equipment	Level 3	9	Range: Must be assessed on EnM-G514 or on all five , EnM-G227, EnM-G228, EnM-G229, EnM-G294, EnM-G298.	
	EnM-G227	Replace components on a roof support system (chock shield)	2	4						
	EnM-G228	Replace components on a roof bolter	2	4						
	EnM-G229	Replace the crusher drum on a feeder breaker	2	2						
	EnM-G294	Replace the drill head unit of a roof bolting machine	3	3						
	EnM-G298	Replace the cutter head assembly of a shearer	3	4						
90	EnM-G224	Replace components on a stage loader	2	3	253419	Replace components on a stage loader	Level 2	3	Equivalent	
91	EnM-G503	Replace components on a dragline	3	8	253432	Replace components on a dragline	Level 3	8	Range: Must be assessed on EnM-G503 or on all seven , EnM-G244, EnM-G266, EnM-G271, EnM-G272, EnM-G273, EnM-G281 and EnM-G282.	
	EnM-G244	Replace ropes on a dragline	2	3						
	EnM-G266	Replace components of a hoist gearbox of a dragline	3	3						
	115727	EnM-G271	Replace the bucket assembly of a dragline	2						2
	EnM-G281	Repair the propel gearbox of a dragline (motor pinion, bearings, bull gear)	3	4						
	EnM-G282	Replace mechanical components on the lubrication system of a dragline	3	4						
	EnM-G273	Replace a propel cam on a dragline	3	3						
115732	EnM-G272	Replace the fair-lead frame on a dragline	2	2						

92		EnM-G499	Repair crushers	2	4	253441		Repair crushers	Level 2	4	Range: Must be assessed on EnM-G499 or on both , EnM-G206 and EnM-G221.
		EnM-G206	Replace liners of a gyrating crusher	2	3						
		EnM-G221	Repair a gyrating crusher	2	4						
93						13303		Align machines and equipment using laser technology	Level 4	6	
94	10736	EnM-G003	Replace a reduction gearbox	2	3	13325		Maintain gearboxes	Level 4	10	Range: Must be assessed on all three EnM-G003, EnM-G018and EnM-G472.
		EnM-G472	Overhaul a shaft mounted gearbox	3	4						
	10752	EnM-G018	Overhaul a single speed reduction gearbox	2	5						
						13282		Maintain brakes and clutches	Level 3	6	
95	10815	EnM-G062	Maintain an air compressor	2	3	13325		Maintain compressors	Level 3	15	Equivalent

111		EnM-G476	Take samples and measurements on machinery for condition monitoring purposes.	3	3	253447		Take samples and measurements on rotating machinery for conditioning monitoring purposes	Level 3	3	Equivalent
112		EnM-G527	Maintain glass equipment	3	6	253388		Maintain glass equipment	Level 3	6	Range: Must be assessed on EnM-G527 or on all six EnM-G312, EnM-G317, EnM-G318, EnM-G319, EnM-G320 and EnM-G321.
		EnM-G317	Replace a glass column section in a chemical plant	3	3						
		EnM-G318	Replace a glass flask in a chemical plant	3	3						
		EnM-G319	Replace a glass column adaptor in a chemical plant	3	3						
	116628	EnM-G320	Replace a glass pipe section in a chemical plant	3	3						
	116631	EnM-G321	Replace a PTFE bellows in a chemical plant	3	3						
		EnM-G312	Replace a glass heat exchanger unit in a chemical plant	2	3						
113	10736	EnM-G003	Replace a reduction gearbox	2	3	13325		Maintain gearboxes	Level 4	10	Range: Must be assessed on all three EnM-G003, EnM-G018 and EnM-G472.
		EnM-G472	Overhaul a shaft mounted gearbox	3	4						
	10752	EnM-G018	Overhaul a single speed reduction gearbox	2	5						
114						120406		Demonstrate an understanding of mining strategies applicable to the different depth environments	Level 4	6	
115						13328		Refurbish machines	Level 4	24	