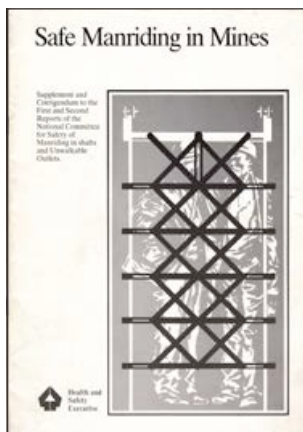


Safe manriding in mines

Supplement and Corrigendum to the First and Second Reports of the National Committee for Safety of Manriding in shafts and Unwalkable Outlets



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Foreword

The National Committee for Safety of Manriding in Shafts and Unwalkable Outlets produced in 1976 and 1980 two detailed reports entitled 'Safe Manriding in Mines' (ISBN Nos 0 11 880491 X and 0 11 883281 6), commonly known as the SMIM Reports. The Committee's successor, the National Technical Liaison Committee on Safe Manriding in Mine Shafts was formed in 1981 to meet periodically and review experience on the application of the SMIM reports. The Committee has representatives from the National Coal Board, the National Union of Mineworkers, the British Association of Colliery Management, the Mining Research and Development Establishment, the Institution of Mining Electrical and Mining Mechanical Engineers, the Safety in Mines Research Establishment and HM Mines and Quarries Inspectorate.

This supplement has been compiled by the National Technical Liaison Committee to add further information and make necessary changes to the SMIM Reports. The Committee continues to meet periodically, and may revise the supplement from time to time if this proves necessary.

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Corrigendum for SMIM Part 1

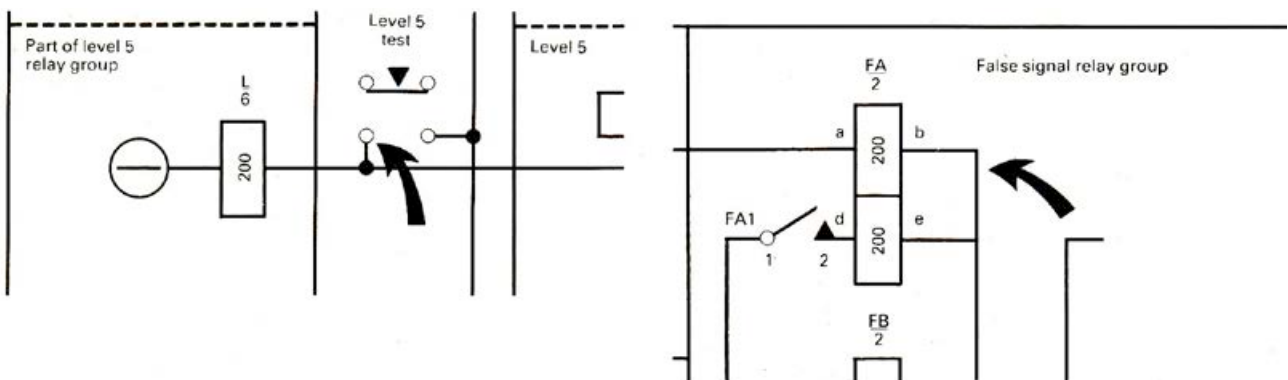
(First published in Part 2)

Page 7	Para 21(1)	Change 'of' to 'or'
Page 10	Para 24	Reverse 'minority' and 'majority' in lines 1 and 4
Page 23	Para 118(1)	Delete ',' between 'brake' and 'gear'
Page 27	Para 138(1)	Change 'is' to 'be'
Page 30	Para 165(2) 3rd and 4th lines	Change 'an automatic contrivance' to 'a supervisory device'
Page 37	Para 138(1)	Change 'is' to 'be'
Page 37	Para 138(7)	Delete 'as illustrated in Part 1B'
Page 46	Under Working Group 4B (WG4B)	Change 'G W Sadler' to J W Sadler'
Page 46	Under Working Group 3D	Add (Chairman) after R A Smith
Page 65	Under MATERIAL Brake shafts	First line – Change 'EN41A' to 'En14A'
Page 65	Para 2(1)	Delete everything after 'All components' and insert instead 'which transmit force from the brake springs, fluid or weights to braking surfaces'
Page 65	Para 2(2)	After 'and depth indicator' add 'unless monitored'
Page 65	Section 5 Para 1	First line – After '18, 19 and 20.3,' add 'and 118(1)'
Page 71	APPENDIX 5.4 Section on 'Gear drives to automatic contrivances'	The last word 'Reject' to be set opposite 'Couplings and joints'
Page 75	Para 21	Last word – Change 'avoided' to 'provided'
Page 78/79	Para 101	After 'All components' delete 'from the brake control lever to the brake shoe anchorages' and replace by 'which transmit force from the brake springs, fluid or weights to braking surfaces'
Page 81	APPENDIX 8.6 Para 1(2)	After 'rope' insert 'or' before 'pin'
Page 83	Top right two graphs	Vertical scales should both read 'Conveyance speed: ft/sec' not 'ft/min'

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Page 85	Para 9, end of second full line from the bottom	Change 'done' to 'only'
Page 90	Para 3 upper left, seventh line	Change 'SDE' to 'SDR'
Page 93	Diagram in para 3 centre right'	Change 'R _G ' to 'R ₄ '
Page 113	Fig 22.11 upper graph left hand vertical scale	Change 'Declaration' to 'Decelaration'
Page 115	Fig 22.15	Reverse 'IMPACT MACHINE TESTS' and 'COLLIERY TESTS'
Page 121	Top left hand paragraph line seven last number	Change '34' to '3'
Page 122	Fig 27.1	Amend as per diagrams below*
Page 127	Para 10 line 8	Insert a ',' between 'craftsman' and 'possibly'
Page 127	Para 12 line 3	Insert 'and' between 'time' and 'which'
Page 128	Para 13 last line	Insert 'the' between 'with' and 'engineer's'
Page 170	Para 16 line 4	Change 'slips' to 'skips'

*Amendments to Fig 27.1 Amend diagrams where indicated by arrows.



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Changes to SMIM Part 2

Page 10	Fig 1	Centre of diagram – alter 'pr' before 54% to or
Page 62		The left hand column should begin: '7 In Part 1A Paragraph 90(7) it is recommended that' The right hand column should begin: '9 The power supply arrangement used at most shafts'
Page 83	Maintenance of suspension gear: Para 1	In line 9 after 'six monthly intervals' insert 'for drum winding systems and twelve monthly intervals for friction winding systems'
Page 110	Foot of page	Sub heading 'Change of friction winding apparatus' to read 'Charge of friction winding apparatus'
Page 116	Working Group 2A	Change 'A. Thurtle' to 'J Thurtle'

Page 37-8 Amendments to entries for anchor brackets, brake shaft pedestals, brake levers, spring rods etc and pins as follows:

Anchor brackets These may be either case or fabricated
Cast: Grade A of BS 1456: 1957 or Grade A of BS 592: 1957 (Specified Izod). (Both of these specifications are incorporated in BS 3100: 1976).
Fabricated: Grades 43A, 43C, 43D, 50C, 50D 50D of BS 4360: 1972, or 1.5% manganese steel* to BS 2772: Part 2; in the normalised steel* or hardened and tempered condition.

Brake shaft pedestals These may be either cast or fabricated.
Cast: Grade A of BS 1456: 1957 or Grade A of BS 592: 1957 (Specified Izod). (Both of these specifications are incorporated in BS 3100: 1976).
Fabricated: Grades 43A, 43C, 43D, 50C, 50D 50D of BS 4360: 1972, or 1.5% manganese steel* to BS 2772: Part 2; in the normalised steel* or hardened and tempered condition.

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Brake levers	<p>These may be either fabricated or forged.</p> <p><i>Fabricated:</i> Grades 43C, 43D, 50C, 50D or BS 4360: 1972 or 1.5% manganese steel* to BS 2772: Part 2; in the normalised or hardened and tempered condition.</p> <p><i>Forged:</i> Grade 150M19 (En 14A) of BS 970: Part 1: 1972 in the normalised or P condition (fine grain controlled).</p>	<p>50D</p> <p>1.5% manganese steel*</p> <p>50M19</p>
Spring rods and tie rods incl turn buckles, rod ends etc.	<p>Grades 43C, 43D, 50C, 50D of BS 4360: 1972 in the normalised condition or Grade 150M19 (En 14A) of BS 970: Part 1: 1972 in the normalised condition (fine grain controlled) or 1.5% manganese steel* to BS 2772; Part 2; in the normalised or hardened and tempered condition.</p>	<p>50D</p> <p>150M19</p> <p>1.5% manganese steel*</p>
Pins	<p>Material to be as for Spring Rods etc. For applications where size considerations preclude the use of these materials (ie where geometric factors are limiting) 817M40* (En 24), condition T BS 970: Part 2: 1970.</p>	<p>50D</p> <p>150M19</p> <p>1.5% manganese steel*</p> <p>817M40*</p>

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Additions and further corrections to SMIM Part 1

Note: A corrigendum to SMIM Part 1 appeared at the back of Part 2, and is reproduced at the start of this supplement. Further corrections are included below, together with new additions to the text.

Page 11 Para 33(5) At the end of the paragraph add:

‘(Dynamic braking need not be fitted to “backshaft” winding engines provided that:

(a) the manriding speed is restricted by the limits of the automatic contrivance to not more than 12 ft/s. (Certain other such winding engines having above 12 ft/s speed may be allowed by exception).

(b) the winding engine is fitted with dual line brakes (Recommendation 23(2)), or alternatively a pinion shaft brake.

(c) the automatic contrivance is monitored as required by Recommendation 42(6), but on a winding engine limited to 12 ft/s and below, this monitoring could be by a separately driven second automatic contrivance. Winding engines limited to 5 ft/s maximum may use a simple overspeed device duplicated by a similar device. Winding engines operating at speeds between 5 ft/s and 7 ft/s should be equipped with an automatic contrivance as required by Recommendation 42(1) but may be monitored by a simple over-speed switch)’.

Page 13 Para 47 (1-7)

At the end of the paragraph add: ‘(The full requirements of Recommendations 47 (1-7) can be modified for “backshaft” winding engines to allow the use of a simpler safety circuit cubicle than the Standard Safety Cubicle, based on the principle of a Main safety circuit which opens the stator reverser and applies the mechanical brakes, and a Back-up safety circuit which opens the main circuit breaker and applies the mechanical brakes. The main safety circuit to include overwind and overspeed switches on the automatic contrivance, slack rope, keps and platforms and the emergency stop button tripping two safety contractors to de-energise the emergency brake solenoids. The backup safety circuit to include cover and door, interlocks, ultimate headgear limit switch, over-speed (duplicate auto contrivance), stator reverser interlock and emergency stop button. Consideration shall be given to contractor ‘anti-freeze’ protection)’.

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Page 16	Para 60	At the end of the paragraph add '(An alternative to installing pit bottom buffers at "backshaft" windings installations and installations where retractable platforms are traversed across the shaft to form a temporary pit bottom, is to arrange the protective system such that the conveyance comes to rest before reaching the pit bottom or platform when retarding with 50% braking or that amount of braking retained after failure of one brake component. The distance above the pit bottom or platform when the conveyance comes to rest should preferably be equivalent to that necessary to retard it from a speed of between 5 to 10 ft/sec with the aforementioned amount of braking).'
Page 17	Para 68	At the end of the paragraph add '(The alternative in Section 24 of Part 1B, allowing a shorter set of headframe catches, could be adopted on "backshaft" winding installations, the length of catches after detachment being at least equivalent to the retardation distance due to gravity from the maximum winding speed).'
Page 19	Para 90	After 'Recommendations:' insert '(Also See Second Report Recommendation 158, Page 20).'
Pages 19 and 34	Para 90(3)	At the end of the paragraphs add '(The Plessey Type 57 Shaft Signalling System is exempted from the requirements of this recommendation because the inherent design features make it impossible to provide such protection).'
Page 19	Para 90(3)	At the end of the paragraph add '(Indication of 'stop-false signal' need not be fitted at "backshaft" winding installations, as such faults would not be expected to occur when transmitting the relatively simple signals at "backshafts". Specific instructions to persons authorised to transmit signals at "backshafts" where multi-level winding is practised should be posted).'
Page 19	Para 90(4)	At the end of the paragraph add '(Indication of 'stop-signal incomplete' need not be fitted at "backshaft" winding installations, as such faults would not be expected to occur when transmitting the relatively simple signals at "backshafts".
<p>This is a web-friendly version of <i>Safe manriding in mines: Supplement and Corrigendum to the First and Second Reports of the National Committee for Safety of Manriding in shafts and Unwalkable Outlets</i>, originally produced by HM Inspectorate of Mines</p>		<p>Specific instructions to persons authorised to transmit signals at "backshafts" where multi-level winding is practised should be posted).'</p> <p>At the end of the paragraphs add '(Such apparatus need not be fitted at "backshaft" winding installations).'</p>

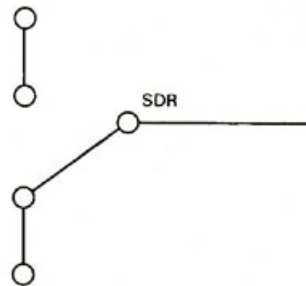
Page 20	Para 99(1)	At the end of paragraph add '(Such equipment need not be fitted at "backshaft" winding installations, but a supervisory device, second automatic contrivance or overspeed device should be fitted as stated in (c) at the end of Paragraph 33(5)).'
Pages 20 and 34	Para 99(2)	At the end of the paragraphs add '(This recommendation is not being implemented because of the successful development of the magnetised rope system which offers a far superior method for conveyance position monitoring).'
Page 23	Para 112	After heading 'Non-destructive testing of winding engines' add '(See also Second Report, Paragraphs 196-207, Pages 24-6).'
Page 23	Para 114	After sub-paragraph (c) add '(Amended by Second Report, Paragraphs 197 and 207(1), Pages 25-6).'
Page 23	Para 116	After the table add '(Amended by Second Report, Paragraph 207(2), Page 26).'
Page 24	Para 118(3)	At the end of the paragraph add (See Second Report), Paragraph 207(2), Page 26'.
Page 24	Para 118(5)	Change 'is' to 'be' in line 1.
Pages 24 and 35	Para 188(5)	At the end of the paragraphs add '(This recommendation is not being implemented because it has proved impracticable to specify values for wear limits for components.)'
Pages 27 and 37	Para 136(8)	At the end of the paragraphs add '(The recommendation is not being implemented in this form by the NCB because of possible confusion between certificates of competency issued by the NCB and those statutory certificates issued by the Mining Qualifications Board. It is the duty of the colliery manager to satisfy himself that a winder testing engineer is competent before giving the necessary authorisation under Regulation 11 of the Coal and Other Mines (Mechanics and Electricians) Regulations 1965. The Colliery manager should receive written confirmation from the Area Chief Engineer that the testing engineer was suitably trained and qualified to perform the required duties).'
Pages 27 and 37	Para 138(6)	After 'notices', insert 'referred to in Recommendation 138(3)'
Page 31	Para 33(5)	At the end of the paragraph add '(For "backshaft" winding engines see Paragraph 33(5)).'

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Page 32	Para 47(7)	At the end add '(For "backshaft" winding engines see Recommendation 47 on Page 13).'
Page 32	Para 60	At the end of the paragraph add '(For "backshaft" winding installations and installations where retractable platforms are traversed across the shaft to form a temporary pit bottom, see Paragraph 60).'
Page 33	Para 68	At the end of the paragraph add '(For "backshaft" winding installations see Paragraph 68).'
Page 33	Para 73(2)	Change 'needs' to 'need' in line 1.
Page 34	Under 'Shaft signals'	Insert '(Also See Second Report Recommendation 158, Page 20)'
Page 34	Para 90(3)	At the end of the paragraph add '(For "backshaft" winding installations see Paragraph 90(3))'
Page 34	Para 90(4)	At the end of the paragraph add '(For "backshaft" winding installations see Paragraph 90(4))'
Page 34	Para 99(1)	At the end of the paragraph add '(For "backshaft" winding installations see Paragraph 99(1))'
Page 35	Para 118(5)	Change 'is' to 'be' in line 1.
Page 39		Between 'Automatic contrivance' and 'Bi-cylindro conical drum' insert:- 'Backshaft winding engine a simple winding system, operating at 12 ft/s or less, used only once or twice per shift or less frequently and carrying small loads, as with shaft pumping duties and shaft inspections'.
Page 70	Top left: table headed 'Critical classification (B)'	Immediately after 'Critical classification (B)' insert '(Amended by Second Report paragraphs 197 and 207(1), Pages 25-6)'. Change 'loss of 50% of effective brake surface area' to 'either insufficient braking torque to bring the winding system safely to rest or the loss of more than 50% braking'. Transfer the list of components to Non-critical classification (C) below, and in their place insert 'NONE'.
Page 70	Upper left: table headed 'Non-critical classification (C)'	Immediately after 'Non-critical classification (C)' insert '(Amended by Second Report Paragraphs 197 and 207(1))'. Change 'result in loss of less than 50% of effective brake surface area' to 'would not prevent the brake from bringing the winding system safely to rest and would not result in a loss of more than 50% of braking'.

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Page 71	Appendix 5.4	Insert in the heading after NDT '(Amended by Second Report, Paragraph 207(3), Page 26).
Pages 74 and 77	Paras 15 and 73	Insert 'manual' before 'control valve'.
Page 75	Para 36	Change 'radical' to 'radial'.
Pages 76 and 78/9	Paras 56 and 101	After 'All components' delete 'from the brake control lever to the brake shoe anchorages' and replace by 'which transmit force from the brake springs, fluid or weights to braking surfaces'.
Page 78	Para 75	Change 8.3 to 8.4 in line 1.
Page 79	Para 11	Change '1E' to '1D' in line 4.
Page 87	Fig 11.1	At bottom right of diagram, change 'Liquid control' to 'Liquid controller'.
Page 89	Fig 15.1	In centre of diagram, reverse position of switch SDR thus:-



Page 143	Upper left	In the line beginning 'Retardation', change '32.2' to '32.1'.
Page 144	Para 2	Change 'present' to 'pre-set' in the last line but one of the paragraph.
Page 145	Para 25	Change 'minimum' to 'maximum' in line 3.
Page 148	Para 6	Change 'mark' to 'marks' in line 8, and in line 9 insert 'and drum', after 'depth indicator'.
Page 148	Para 14	Change 'mark' to 'marks' in line 11. Change line 12 to read 'indicator, drum and couplings, and test the'.
Page 150	Upper graph	The rightmost blip on the trip indication line (at the foot of graph) should be shifted left to make its right hand edge line up with the dotted line.
Page 150	Para 2	Delete 'interposing' from last line of paragraph.

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