Ref:	NR/SMS/Part/D
Issue:	15
Date:	04 June 2022
Compliance date:	03 September 2022

NR/L3/SIG/10663 NR/SMS/Part/D

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NR/L3/SIG	/10663 S	ignal Mainten	ance Specificatio	ns	
NR/SMS/P	art/D				
Index – Level Crossing Annual Test					
Issue No:	15	Issue Date:	04/06/2022	Compliance Date:	03/09/2022

INDEX

The level crossing annual tests (Service B in NR/SMS/Test/070-076, 80-81, and NR/SMS/LC10) are produced in an A4 format only for use of the person(s) conducting the annual test of the level crossing. They are formatted to provide a tick box next to each item that requires to be tested so that an auditable record of the test is produced.

These test documents are only available electronically and can be downloaded from Connect (on Network Rails Intranet) from the 'Network Rail Standards' link and use the search function to call up document NR/L3/SIG/10663.

The index of these documents is as follows:

Annual Test	Crossing Type
<u>LX70</u>	Automatic Half Barrier Crossing (AHBC)
LX70/1	Automatic Half Barrier (AHBC) - RCM
<u>LX71</u>	Automatic Barrier Crossing Locally Monitored (ABCL) and Automatic Full Barrier Crossing Locally Monitored (AFBCL)
<u>LX72</u>	Automatic Open Crossing Locally Monitored (AOCL)
<u>LX73</u>	Automatic Open Crossing Remotely Monitored (AOCR)
<u>LX74</u>	Miniature Stop Light Crossing (MSL)
<u>LX75</u>	Manually Controlled Barriers (MCB)
<u>LX76</u>	On Call Barriers (OCB)
<u>LX77</u>	EBI Gate 200 Level Crossing System
<u>LX78</u>	VAMOS Level Crossing System
<u>LX79</u>	Flex Level Crossing system
<u>LX80</u>	Automatic Half Barrier (AHBC) - With Level Crossing Predictor
LX81	Miniature Stop Light Crossing (MSL) - Using A Level Crossing Predictor
<u>LX83</u>	Automatic Open Crossing Locally Monitored + Barriers
<u>LX94</u>	Miniature Stop Light Crossing (MSL) - (RCM)

END



LEVEL CROSSING TESTING

AUTOMATIC HALF BARRIER CROSSING

NR/SMS/LX70

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NR/L3/SIG/10663	Signal Mainten	ance Specification	ons	
NR/SMS/PartD/LX	(70			
Automatic Half Barrier (AHBC)				
Issue No: 07	Issue Date:	05/12/2020	Compliance Date:	05/06/2021

GENERAL

This test plan covers the requirements of NR/SMS/PartC/LC10 (Level Crossings Operational Sequences), NR/SMS/PartB/Test/070 (AHB Operational Sequence Test). It is for use of the person conducting the annual test of the level crossing and has relevant 'tick boxes' by each task so that the particular item of the test can be correctly recorded as per the index in "crossing defects".

- a) The crossing ground plan.
- b) The level crossing order.
- c) The crossing control tables.
- d) The signalling plan.

Missing documentation shall be listed as a defect.

TEST SUMMARY

Test Summary
Name of Level Crossing:
Level Crossing Type:
Name of Monitoring Signal Box(es):
Date of Full Test:
Time Full Test Commenced:
Time Full Test Completed:
Tested By:
Signature:
Date of Signature:
Grade and Title:

CROSSING DEFECTS

On the test plan each item shall be recorded with the following letters in the box provided:

- X: Found Incorrect, Action Required.
- R: Found Incorrect, Rectified on Day of Test.
- C: Correct.
- **N**: Not Applicable to this Installation.

Any items found incorrect (X or R) are to be listed on the summary pages. On items requiring action, list the party(s) responsible for rectifying them.

NR/L3/SIG/10663 Signal Maintenance Specifications							
NR/SMS/PartD/LX70							
Automatic Half Barrier (AHBC)							
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SUMMARY OF ITEMS FOUND INCORRECT (1)

List in the table below all sites found incorrect and rectified on the day of the test (code letter R).

Description of Items Found Incorrect and Rectified

NR/L3/SIG/10663 Signal Maintenance Specifications							
NR/SMS/PartD/LX70							
Automatic Half Barrier (AHBC)							
Issue No: 07							

SUMMARY OF ITEMS FOUND INCORRECT (2)

List in the table below items found incorrect and requiring action (code letter X).

Description of Items Found Incorrect and Requiring Action	Responsible Party (s)

NR/L3/SIG	/10663 S	Signal Mainten	ance Specification	ons	
NR/SMS/P	artD/LX7	70			
Automatic Half Barrier (AHBC)					
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1. Road Arrangements

1.1	Check that the road markings are in accordance with the section order and plans.	
1.2	Check that the road markings on the approaches to the crossing (up to the stop line) are complete and visible.	
1.3	Check the condition and the sighting of the road signs on the crossing approaches. See NR/SMS/PartC/SG00 (Signals : General) for details on reflective boards and signs.	
1.4	Check (if provided) the condition and security of any pedestrian guardrails.	
	Any defects found in 1.2 to 1.4 shall be reported to the appropriate council via the SM(S).	
1.5	Check the condition of the road surface over the crossing.	
1.6	Check that the road markings between and including the stop lines are complete and visible.	
1.7	Check (if provided) that the cattle/anti-trespass guards are complete and securely fastened down.	
1.8	Check (if provided) the condition and security of any wicket gates.	
1.9	Check the condition and the security of any fencing on the approach to equipment room or locations.	

2. Barrier and Machine BR Standard Mk1 (Penguin)

Is Th	Is This Section Applicable to the Crossing Under Test? Yes			No	
2.1	Examine the exterior of the pedestal unit; Check the concrete excessively cracked or crumbing. Report as corrective maintenance if any of the concrete rebars are visible.			Υ	Z
2.2	Check that the pedestal unit and foundation are stable and aligned.	correctly		Υ	Ζ
2.3	Check that the cement plug at the top of the pedestal unit i secure. If missing secure the hole with a wooden plug and arrange permanent fixture.			Υ	Z
2.4	Remove the pedestal covers and anti-guillotine shields.			Υ	Z
2.5	Check the condition of the rubber up and down stops; replaced become soft or damaged.	ace any tha	t	Υ	Z
	With the barriers on manual operation, lower and check the	e following:			
2.6	The boom takes 6 to 8 seconds to lower.			Υ	Ζ
2.7	The boom is horizontal when fully lowered.			Υ	Ζ

			663 Signal Main)/LX70	tena	ance Spe	cification	าร				
			f Barrier (AHB	C)							
Issue		07			05/12/2	020	Com	pliance	Date: 05/06/2	2021	
2.8	The	boo	m is the correct	len	gth.					Y	Z
			Design		Υ	Z					
			Actual		Υ	Z					
2.9	The	boo	m saw cuts for	sign	s of splitt	ing.				Υ	Z
2.10	Con	ditio	n of the boom.							Υ	Z
2.11	The security of the boom.						Υ	Z			
2.12	The reflective strips are undamaged, clean and are in the correct position.										
2.13	The boom lamps, hoods, brackets, and fastenings are undamaged, free from corrosion and correctly aligned.										
2.14	The boom wiring, plugs, clamps, and terminations are undamaged.					Υ	Z				
	Che	ck th	ne height of the	boo	m from t	he road	surfac	e.			
2.15	Тор	of b	arrier at the cer	ntre	of the roa	ad (0.9m	Minir	num).		Υ	Ζ
2.16	Und	ersi	de of barrier at a	any	point (1m	n Maxim	um).			Y	Ζ
2.17	Check the counter balance weights are secure and are the correct weight by Measuring with a weight measuring device the tip weight by using the following method:										
1	At the tip end slowly lift the boom until it is approximately 4° to 5° from the horizontal.										
	•	С	onnect the weig	ght n	neasurin	g device	to the	e tip end	of the boom.		
	•		elease the boo ot fully lowered				g devi	ce ensu	ring that the bo	om ha	IS
			Boom Leng	th		Tip We	eight				
			3.99m to 6.02	2m	2.3Ka	(Min) to	2.5Kg	(Max)]		

		3.99m to 6.02m	2.3Kg (Min) to 2.5Kg (Max)	_			
2.18	Check th	Check that the boom can be lifted by hand to the fully raised position.					
2.19		Check the interior of the pedestal for water ingress and contamination. Clean as necessary.					
	Check the following on the hydraulic pack assembly:						
2.20	The pac	k is secure to the ca	rrier.		Υ	Ζ	
2.21	There ar	re no signs of a fluid	leak.		Υ	Ζ	
2.22	The hos	e connections are ti	ght.		Υ	Ζ	
2.23	The pac	k, hoses, and ram a	re clean and undamaged.		Y	Z	

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	matic H		•		05/40/2020	Compliance Date: 05/00	/0004	
Issue	NO: U	7	Issue	Date:	05/12/2020	Compliance Date: 05/06	2021	
2.24	The fluid level is correct. Just visible in the filter strainer or to the max mark on the indicator.							
2.25	The motor brushes. They shall be of sufficient length, slide freely in their holder and seat fully on the commutator.							
2.26	The motor commutator (where accessible). It shall be undamaged and a							
2.27								
	Unit	Mk		Seria	l Number			
	Υ							
	Z							
2.28	to prev Any ins	ent it t stallation	urning) ons that	have b	een carried out.	pin (the fitting of the clamp ication shall be reported to	Υ	Ζ
2.29	9 Check that the turned pins are lubricated and free from wear.					Y	Z	
2.30	Check that the pedestal wiring and terminations are undamaged, secure and positioned so that they will not be trapped by the boom movement. Wiring to the boom lamps through the spindle is especially prone to damage Protect as necessary.							
2.31	Check the spindle is lubricated and free from wear						Υ	Ζ
2.32	Unfaste	en the	lid of th	e circu	it controller and	check the following items:		
2.33	The spindle and control arm are lubricated and free from wear. Do not						Υ	Z
2.34	Termin	ations	and wi	ring.				
2.35	Contac	•		lace ar	ny fingers that are	e worn or have lost their	Υ	Z
2.36	Rands Chack they are clean and not worn (conner dust in the hottom of				Y	Z		
2.37	Measure by use of an inclinometer and digital voltmeter (on resistance)						Z	
2.38						k if any adjustments have ve been correctly tightened.	Υ	Z
2.39	Raise t	he bo	om unde	er 'pow	er' operation and	I check the following:		
2.40	The bo	oms a	re betw	een 80	° and 85° when	fully raised.	Υ	Z
2.41	The bo raised			xcessiv	ely oscillate whe	en they come to rest in the	Υ	Z

NR/L3/SIG/10663 Signal Maintenance Specifications

NR/L3/SIG/10663 Signal Maintenance Specifications									
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2.42	The booms do not 'hunt' when fully raised. This is a sign of an internal fluid leak inside the hydraulic pack.	Υ	Z
2.43	Check the condition of the anti-guillotine shields and covers. Replace and secure shields and covers. Arrange for replacements to be fitted if any are damaged.	Υ	Z

3. Barrier and Machine (BR Spec. 843)

Is Th	is Section Applicable to th	ne Crossin	g Under Te	st?	Yes	No)
	Check the following on	the barrie	r pedestal u	nit:			
3.1		The pedestal is correctly aligned and stable.					Z
3.2	The locks and hinges a					Υ	Z
3.3	With the boom in the rabetween the side arm/c	•		•		Υ	Z
3.4	The main shaft to side a excessive play in the ke	arm faster				Y	Z
3.5	Lower the barriers on lo lower position. Open th fully extend the manual raised position and obs	e front and pump har	d rear doors ndle. Pump t	of the pedesta the booms to t	al units and	Υ	Z
3.6	On each barrier in turn raise the pump handle until the boom begins to lower. Check that the pump handle roll pin has not reached an alignment where its top is above the bottom edge of the handle guide slot.				Υ	Z	
	Allow the boom to fully	lower and	check the fo	ollowing:			
3.7	The boom takes 6 to 8	seconds to	o lower.			Υ	Z
3.8	The boom is damped d	uring the I	ast 10° to 15	5° of moveme	nt.	Υ	Z
3,9	The boom is horizontal	when fully	lowered.			Υ	Z
3.10	The boom is the correc	t length.				Υ	Z
	Design	Y	Z				
	Actual	Υ	Z				
3.11	Condition of the boom.					Υ	Z
3.12	The security of the boo	m.				Υ	Z
3.13	The boom fixing bolt 'E assembly has had grea	•	•	and the whole	e shear bolt	Υ	Z
3.14	The reflective strips are position.	undamag	jed, clean ar	nd are in the c	orrect	Υ	Z

NID /L 1	2/010/40/	CCO Cianal Maintenana	Canaliantina			
	3/SIG/100 MS/Part [663 Signal Maintenance D/LX70	Specifications			
		If Barrier (AHBC)				
Issue	No: 07	Issue Date: 05/	12/2020 Compliance	Date: 05/06/	2021	
3.15	The boom lamps, hoods, brackets, and fastenings are undamaged, free from corrosion and correctly aligned.					
3.16	The boo	om wiring, plugs, clamps	s, and terminations are un	damaged.	Y	Ζ
3.17	(If Fitted	,	oort bracket and fastening	s are	Y	Z
	Check t	he height of the boom f	om the road surface.			
3.18	Top of b	parrier at the centre of th	ne road (0.9m Minimum).		Υ	Z
3.19	Undersi	ide of barrier at any poir	t (1m Maximum).		Υ	Z
3.20	correct	•	ghts are secure and are th h a weight measuring dev ving method:		Υ	Z
		At the tip end slowly lift to some the horizontal.	he boom until it is approxi	mately 4° to		
		Connect the weight mea boom.	suring device to the tip en	d of the		
		Release the boom onto to boom has not fully lower	he measuring device ens ed then take a reading.	uring that the		
		Boom Length	Tip Weight			
		3.6m to 4.1m	7.6Kg ±0.5Kg			
		3.6m to 4.1m 4.6m to 9.1m	7.6Kg ±0.5Kg 6.1Kg ±0.5Kg			
3.21	Check t	4.6m to 9.1m	5	sed position.	Υ	Z
3.21 3.22	Check t	4.6m to 9.1m hat the boom can be lift	6.1Kg ±0.5Kg	•	Y	Z
	Check t	4.6m to 9.1m hat the boom can be lift he interior of the pedest	6.1Kg ±0.5Kg ed by hand to the fully raise all for water ingress and contact the full water the	•		
	Check to Clean a Check to	4.6m to 9.1m hat the boom can be lift he interior of the pedest s necessary.	6.1Kg ±0.5Kg ed by hand to the fully raise all for water ingress and contact the full water the	•		
3.22	Check to Clean a Check to The page	4.6m to 9.1m hat the boom can be lift he interior of the pedest is necessary. he following on the hydr ck fastenings.	6.1Kg ±0.5Kg ed by hand to the fully raise all for water ingress and contact the full water the	ontamination.	Υ	Ζ
3.22	Check to Clean a Check to The page The top Bolts the	4.6m to 9.1m hat the boom can be lift he interior of the pedest is necessary. he following on the hydr ck fastenings. and bottom pack trunni	6.1Kg ±0.5Kg ed by hand to the fully raise all for water ingress and contained and contained are operating lever are the contained and lever	ontamination.	Y	Z
3.22 3.23 3.24	Check to Clean a Check to The page The top Bolts the and spin	4.6m to 9.1m hat the boom can be lift he interior of the pedest is necessary. he following on the hydr ck fastenings. and bottom pack trunni rough the trunnion to the ral pins are fitted correct	6.1Kg ±0.5Kg ed by hand to the fully raise all for water ingress and contained and contained are operating lever are the contained and lever	ontamination. ock washers. correct length	Y	Z Z Z
3.22 3.23 3.24 3.25	Check to Clean a Check to The pace. The top Bolts the and spin The rank.	4.6m to 9.1m hat the boom can be lift the interior of the pedest is necessary. he following on the hydr ck fastenings. and bottom pack trunni rough the trunnion to the ral pins are fitted correct n adjusting screw and lo	6.1Kg ±0.5Kg ed by hand to the fully raise all for water ingress and contained and the fully raise all for water ingress and contained assembly: on block mountings and less operating lever are the contained are the followings.	ontamination. ock washers. correct length the screw.	Y Y Y	Z Z Z
3.22 3.23 3.24 3.25 3.26	Check to Clean a Check to The pace. The top Bolts the and spin The rank seal are The wire can cau wires to	4.6m to 9.1m hat the boom can be lift the interior of the pedest is necessary. he following on the hydrock fastenings. and bottom pack trunning to the ral pins are fitted correct in adjusting screw and lower the intact. ing and terminations to the intact. is the B24 feed wire to ocheck for this type of desired.	6.1Kg ±0.5Kg ed by hand to the fully rais all for water ingress and containing and leading to the fully rais and leading to the auto position and the break internal strands, disamage.	ontamination. ock washers. correct length the screw. split pin and of the pack	Y Y Y Y	Z Z Z Z
3.22 3.23 3.24 3.25 3.26 3.27	Check to Clean a Check to Chec	4.6m to 9.1m hat the boom can be lift the interior of the pedest is necessary. he following on the hydrock fastenings. and bottom pack trunning to the ral pins are fitted correct in adjusting screw and lower the intact. ing and terminations to the intact. is the B24 feed wire to ocheck for this type of desired.	6.1Kg ±0.5Kg ed by hand to the fully rais all for water ingress and containing and long and	ontamination. ock washers. correct length the screw. split pin and of the pack	Y Y Y Y Y	Z Z Z Z

NR/SMS/PartD/LX70 Automatic Half Barrier (AHBC) Issue No: 07 Issue Date: 05/12/2020 Compliance Date: 05/06/202 The motor commutator (where accessible). It shall be undamaged and a light coffee colour. Record the pack details (Mk and serial number). Unit Mk Serial Number V Z 3.33 Check that the shock absorber plunger cannot be depressed more than 3mm by finger pressure. 3.34 Check the up and down stop block striker pads. Replace if worn. 3.35 Unfasten the lid of the circuit controller and check the following items: The spindle and control arm are lubricated and free from wear. Do not lubricate the spindle if fitted with Oilite bearings. This can be identified by a P or an R stamped on the controller lid. Terminations and wiring. 3.37 Contact fingers. Replace any fingers that are worn or have lost their spring tension. 3.38 Bands. Check they are clean and not worn (copper dust in the bottom of the casting). If worn the complete controller shall be renewed. Measure by use of an inclinometer and digital voltmeter (on resistance) the setting of the bands whilst raising the boom on 'hand' operation. Adjust if necessary (Appendix A). Close and fasten the circuit controller. Check if any adjustments have been carried out that all the terminations have been correctly tightened. 3.40 Check the earth-bonding strip is secure and undamaged. 3.41 Check the earth-bonding strip is secure and undamaged. 3.42 Check the main shaft bearings and fastenings. Check that sufficient grease has been applied to the bearings 3.45 Check the bearing end cap seals are effective. Water ingress into the end caps can freeze and prevent the booms from lowering. 3.46 Check that the pedestal fixing bolts are all fitted and correctly tightened.	NR/L3/SIG/10663 Signal Maintenance Specifications							
Issue No: 07 Issue Date: 05/12/2020 Compliance Date: 05/06/202								
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3 43	Z							
	Z							
3.46 Check the operator's door (rear) micro switch assembly, fastenings and wires. Check that they are secure and undamaged.	Z							
Raise the boom by hand pumping, check that the boom does not lower between pumping strokes.	Z							
Lower both the booms; stow the pump handles and close and lock the operator's doors (rear). Raise the boom under 'power' operation by switching the LCU to raise and check the following:	Z							

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3.49	The booms are between 80° and 85° when fully raised.	Υ	Z
3.50	The booms do not excessively oscillate when they come to rest in the raised position.	Υ	Ζ
3.51	The booms do not 'hunt' when fully raised. This is a sign of an internal fluid leak inside the hydraulic pack.	Y	Z
3.52	Close and lock the front pedestal door.	Y	Z

4. Local and Manual Control

Is This Section Applicable to the Crossing Under Test?	Yes	No
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NOTE: The LCU control unit is normally fitted to the Y pedestal but on some installations it may on the Z pedestal.

4.1	On the pedestal with the LCU unit, unlock the local control access door.	Υ	Z
4.2	Check when unlocked the key is retained in the lock and cannot be withdrawn unless the door is locked again.	Υ	Ζ
4.3	Pull the control arm to the lowered position and operate the raise button. Check that on pressing the raise button the auto button is released.	Υ	Z
4.4	Check that two buttons cannot be depressed at the same time. The pressing of a button will release the button already depressed, the button interlocking shall prevent two buttons locking down at the same time.	Υ	Z
	Operate the lower button and allow the booms to lower. Observe the following items:		
4.5	All the amber road signals illuminate and the audible warnings commence concurrently (Yodalarms at normal warbling rate).	Υ	Ζ
4.6	After 3 seconds (5 seconds at older installations) all the amber signals extinguish and all the red flashing road signals start to flash.	Υ	Z
4.7	After approximately a further 4 seconds (8 seconds at older installations) the booms commence to lower.	Υ	Z
4.8	The booms take 6 to 8 seconds to reach the fully lowered position.	Υ	Ζ
4.9	Red flashing road lights continue to be illuminated. Audible warnings may continue to sound depending on design (check diagrams).	Υ	Z
	Press the hand button then operate the control valve to the raise position and hand pump the LCU side boom to the raised position. Observe the following items:		
4.10	The boom does not lower between pumping strokes.	Υ	Ζ
4.11	The red flashing road signals are illuminated.	Υ	Z
4.12	The audible warnings are silent.	Y	Z

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4.13	On the other pedestal unlock the local control access door and check when unlocked that the key is retained in the lock and cannot be withdrawn unless the door is locked again.	Υ	Z
	Operate the control valve to the raise position and hand pump the boom to the raised position. Check the following items:		
4.14	The boom does not lower between pumping strokes.	Y	Z
4.15	The red flashing road signals stay illuminated until the boom is above 80° from the horizontal.	Υ	Z
4.16	The audible warnings are silent.	Υ	Z
4.17	On the LCU pedestal operate the control valve to the lower position and allow the boom to fall sufficiently to illuminate the red flashing road signals.	Υ	Z
4.18	Operate the control valve to the raise position and check that the boom movement is arrested.	Υ	Z
4.19	Check that the audible warnings are silent. Pump the boom to the raised position.	Υ	Z
4.20	Observe that the red flashing road signals are extinguished when the boom is above 80° from the horizontal.	Y	Z
4.21	Repeat 4.17 to 4.20 for the other boom.		
4.22	Check that the blocks are fitted to the inside of the local control access doors on both the Y and Z pedestals. The blocks prevent the local control access door being closed and locked with the control valve in the raise position.	Υ	Ζ
4.23	Operate the control valve on both the Y and Z pedestals to the lower position and allow both booms to fully lower.	Υ	Z
4.24	Close and lock the local control access door in the non LCU pedestal.	Υ	Z
4.25	Operate the raise button on the control unit in the LCU pedestal and Observe the following:		
4.26	Both booms rise together.	Y	Z
4.27	The audible warnings sound, if designed to operate when the booms are lowered (check diagrams).	Y	Z
4.28	The red road lights extinguish and the audible warnings (depending on design) cease before the booms have reached 45° from the horizontal.	Υ	Z
4.29	Check that the local control access door on the LCU pedestal cannot be closed with the control arm in the lowered position		
4.30	Press the lower button, allow the booms to lower then operate the auto button. Check that the same sequence of events occur as listed in 4.6 to 4.10.	Υ	Z
	When the booms are fully raised, stow the control arm and close and lock the access door.		

5. Local and Manual Control BR Spec. 843

5.1	Open the local control unit door. Check when unlocked that the key is retained in the lock and cannot be withdrawn unless the door is locked again.		
5.2	Operate the control switch to the lower position and Observe the following items:		
5.3	All the amber road signals illuminate and the audible warnings commence concurrently (Yodalarms at normal warbling rate).	Υ	Z
5.4	After 3 seconds (5 seconds at older installations) all the amber signals extinguish and all the red flashing road signals start to flash.	Υ	Z
5.5	After approximately a further 4 seconds (8 seconds at older installations) the booms commence to lower.	Υ	Z
5.6	The booms take 6 to 8 seconds to reach the fully lowered position	Y	Z
5.7	Red flashing road lights continue to be illuminated. Audible warnings may continue to sound depending on design (check diagrams).	Υ	Z
5.8	Open the operator's door (rear) of Y pedestal. Check that if the audible warnings are designed to continue to operate when the booms are fully lowered they are silenced.		
	Extend the pump handle and hand pump the boom to the raised position. Observe the following items:		
5.9	The boom does not lower between pumping strokes.	Υ	Z
5.10	The red flashing road signals are illuminated.	Υ	Z
5.11	The audible warnings remain silent.	Y	Z
5.12	Open the operator's door (rear) of Z pedestal. Extend the pump handle and hand pump the boom to the raised position. Observe the following items:		
5.13	The boom does not lower between pumping strokes.	Υ	Z
5.14	The red flashing road signals stay illuminated until the Z boom is above 80° from the horizontal.	Υ	Z
5.15	The audible warnings remain silent.	Υ	Z
5.16	On Y pedestal lift the pump handle and allow the boom to fall sufficiently to illuminate the red flashing road signals.	Υ	Z
5.17	Release the pump handle and check that the boom movement is arrested.	Y	Z
5.18	Check that the audible warnings are silent. Pump the boom to the raised position.	Υ	Z
5.19	Observe that the red flashing road signals are extinguished when the boom is above 45° from the horizontal.	Υ	Z
5.20	Repeat 5.16 to 5.19 for Z pedestal.		

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5.21	On Y pedestal lift the pump handle and allow the boom to fully lower	Y	Z
5.22	Check that the operator's door cannot be closed and locked unless the pump handle is in the stowed position.	Υ	Z
5.23	Check that the guide pin is seated in the bottom of the guide slot when the pump handle is fully stowed.	Υ	Z
5.24	Check that the spiral pin is not bent and the spiral pin guide is not worn or does not have a 'step'.	Y	Z
5.25	Close and fully lock the operator's door ensuring that the audible warnings remain silent. When locking the operators' door check that the key is turned a further 90° clockwise then back again to the removal position to correctly operate the door proving micro switch.	Υ	Ζ
5.26	Repeat 5.21 to 5.25 for Z pedestal ensuring that when the operator's door is fully locked the audible warnings (if designed to operate when the booms are lowered) begin to sound.		
	Operate the switch in the local control unit to the raise position and		
	Observe the following:		
5.27	Observe the following: Both booms rise together.	Y	Z
5.27 5.28	9	Υ	Ζ
	Both booms rise together. The red road lights extinguish and the audible warnings cease before	Υ	Z
5.28	Both booms rise together. The red road lights extinguish and the audible warnings cease before the booms have reached 45° from the horizontal. Check that the guide on the inside of the local control unit door prevents the door being closed and locked unless the switch is in the	Υ	Z
5.28	Both booms rise together. The red road lights extinguish and the audible warnings cease before the booms have reached 45° from the horizontal. Check that the guide on the inside of the local control unit door prevents the door being closed and locked unless the switch is in the auto position. Operate the switch to the lower position and observe that the	Υ	Z

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6. Road Traffic Light Signals

If auxiliary road traffic light signals are fitted (in addition to YO, YN, ZO and ZN), list the additional signal identification below:

Signal Number	Signal Identification
Aux 1	
Aux 2	

	On each of the road traffic light signals check the	follow	ing ite	ems:			
6.1	The signal structure is stable.	YO	YN	ZO	ZN	Aux 1	Aux 2
6.2	The signal light units are undamaged and the hoods are securely fitted.	YO	YN	ZO	ZN	Aux 1	Aux 2
6.3	The signal lenses are undamaged, clean and correctly orientated.	YO	YN	ZO	ZN	Aux 1	Aux 2
6.4	Signs and notices attached to the signal post are undamaged, clean, and legible. See NR/SMS/PartC/SG00 (Signals : General) for details on reflective boards and signs.	YO	YN	ZO	ZN	Aux 1	Aux 2
6.5	Cables and conduit are undamaged and secure.	YO	YN	ZO	ZN	Aux 1	Aux 2
6.6	Check that if the signals are fitted with 50-watt Quartz Halogen lamps, the road traffic light signal backboard is fitted with a red/white border. White only and red/white border backboards shall not be mixed together at the same crossing.	YO	YN	ZO	ZN	Aux 1	Aux 2

7. Audible Warnings

7.1	Check that the audible warning device and any exposed cables and conduit are undamaged and secure. Check that the device is correctly aligned.	YO	YN	ZO	ZN
7.2	Check that there has been no water ingress into audible warning device. Rectify or replace as necessary.	YO	YN	ZO	ZN
7.3	Check that the sound output of the audible warning is sufficient for the crossing circumstances and (if applicable) is reduced for the night time. Some crossings have had the sound output of audible warning device reduced because of local conditions, check the diagrams.	YO	YN	ZO	ZN

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	.3/SIG/10663 Sigr	nal Mainten	ance Specification	ons						
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							•	•		
	` ' '	,	he audible warnin	_						
7.4			nd the day/night s		_		YO	YN	ZO	ZN
			have a control to			set				
	controls on cert	ain days, c	heck this is not a	ctivai	tea.					
0	Dodootrion Cian	olo								
8.	Pedestrian Sign	iais								
									l	
Is Ir	nis Section Applica	able to the (Crossing Under T	est?			Y	es	N	0
	If auxiliary pede	strian signa	als are fitted (in ad	dditio	n to	YO. Y	N. ZO	and Z	N). lis	t the
	additional signa	_	,			, ,	.,		.,,	
	Signal Number	Signal	Identification							
	Aux 1									
	Aux 2									
	Check that the s	sign is secu	rely fixed to the						A	A
8.1	post, the post is stable; the sign is undamaged YO YN				ZO	ZN	Aux	Aux 2		
	and correctly ali	gned								_

8.2	signal face is clean and undamaged	YO	YN	ZO	ZN	Aux 1	Aux 2
8.3	If a sun screen is fitted, check this is undamaged and securely fitted.	YO	YN	ZO	ZN	Aux 1	Aux 2

9. Telephone System

The majority of installations usually have two emergency phones and an LCU phone. There are also some installations that have 'lay-by' phones because of the road conditions. The crossing section order will state the telephone system that is required at the crossing.

Identify telephones at the installation under test in the grid below:

No.	Telephone Identity
1	
2	
3	
4	
5	
6	
7	

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		Telephone Identity (see Grid)					d)	
9.1	Check the telephone and cord is undamaged.	1	2	3	4	5	6	7
9.2	Check the correct labels and symbols are fitted inside and outside the case and they are legible.	1	2	3	4	5	6	7
9.3	Check that any associated signs are stable, undamaged and legible. Emergency telephones require having the yellow telephone symbol visible on three sides of the telephone case or on a separate plate above the telephone.	1	2	3	4	5	6	7
9.4	Check that the correct crossing name is stated on any telephone labels and signs.	1	2	3	4	5	6	7
9.5	Check that telephone numbers given on any sign are correct. The site plan will give information on the correct names/numbers that shall be displayed.	1	2	3	4	5	6	7
9.6	If betalights are fitted, check they are lit. Betalights are usually fitted to older style telephones units that the public have access to.	1	2	3	4	5	6	7
9.7	On emergency telephones, check that an ETD number is given for the public to call in case they cannot contact the monitoring point. Ring this number and check that the recipient uses the correct procedures for the call.	1	2	3	4	5	6	7

Public Telephone Numbers	Checked

9.8	Ring the monitoring point and check that the call is received correctly. Ask the	1	2	3	4	5	6	7
	monitoring point to ring back.							

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9.9	Check the telephone rings correctly. Check that the quality of speech and hearing is clear and not distorted. On Whitely PETS telephone systems there is a short time when answering a call at either end of the line where the system 'handshakes' During this period transmission and reception of speech is not possible.	1	2	3	4	5	6	7
9.10	If lay-by and/or pedestal telephones are fitted Check that there is a ring differential at the monitoring point between them and the emergency telephones.		2	3	4	5	6	7
9.11	Check that if a lay-by or pedestal telephone is in use a call from the emergency telephone is still received correctly at the monitoring point	1	2	3	4	5	6	7
9.12	Check that with one of the emergency telephones left 'off the hook' calls on the other telephones can be made and received correctly. Whitely PETS systems will indicate a fault		2	3	4	5	6	7
9.13	at the monitoring point. If a block switch is fitted Check that when operated 9.8 to 9.12 operate correct at the alternative monitoring point.							
9.14	Check that at the normal monitoring point an	y aud	ible d	evice	s do	not so	ound.	
9.15	Repeat 9.13 to 9.14 for any other alternative	moni	toring	poin	ts.			
9.16	If an absent switch is fitted to the telephone system operate it and Check that if an emergency call made this is indicated by a low level of illumination of the telephone unit and any audible devices do not sound. Operate the absent switch is back to normal operation and check that a normal emergence call is received.							
9.17	Switch off the mains power to the telephone equal to the crossing sequence testing repermains power to the telephone system back of	at tas			•			

10. Barrier Proving

Check that a cut-out is provided in the motor contactors before proceeding with 10.2 to 10.4.

The booms can be lowered and raised by local control or train simulation.

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10.1	Turn the mains power off.		
	Allow the booms to lower. Restrain the tip of one of the booms then allow the barriers to rise.		
10.2	Check that the motor cut-out for the restrained boom operates within 25 seconds. This time relates to a SPX Contactor only, if a different contactor is fitted refer to site diagrams and report to Section Manager.	Υ	Z
10.3	Release the boom and check that the motor cuts in again within 3 minutes and the boom fully rises.	Υ	Z
10.4	Repeat 10.2 and 10.3 for each of the other booms.		
10.5	Allow the booms to lower. Disconnect the Up KR link in the equipment room/location from one of the booms. Allow the booms to rise.	Υ	Z
10.6	Check that the red flashing road lights signals have extinguished when the booms reach 45° from the horizontal.	Υ	Z
10.7	Check that the road signals re-illuminate 6 seconds after the booms have started to rise.	Υ	Z
10.8	Reconnect the Up KR link and check that the road signals extinguish.	Υ	Z
10.9	Repeat 10.7 to 10.8 for the other boom.		

11. Red Flashing Road Traffic Light Signal Proving

The booms shall be lowered and raised by train simulation.

Some early installations only require one red road light to be working on each side to allow the booms to rise. (RECR modifications have not been carried out).

Check the diagrams for circuit design. Report any of these crossings to the S&T Maintenance Engineer.

If auxiliary road traffic light signals are fitted (in addition to YO, YN, ZO and ZN), list the additional signal identification below:

Signal number	Signal Identitication
Aux 1	
Aux 2	

11.1	Simulate a train striking in and allow the booms to lower. Check that all the red road signals are illuminated (flashing).	YO	YN	ZO	ZN	Aux 1	Aux 2
11.2	Measure the rate of flashing (Between 70 and 90 flashes per minute).			FF	РМ		

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11.3	Disconnect the left and right lamps on one of the light units by slipping the links in the equipment room/loc	YO	YN	ZO	ZN	Aux 1	Aux 2
11.4	Operate the exit function and remove the train simulation. Check that the booms remain lowered.	YO	YN	ZO	ZN	Aux 1	Aux 2
11.5	Re-connect the right hand lamp and Check that the booms raise.	YO	YN	ZO	ZN	Aux 1	Aux 2
11.6	Disconnect again the right hand lamp and simulate a train striking in. Check that approximately 2 seconds after the amber lights extinguish the booms begin to lower.	YO	YN	ZO	ZN	Aux 1	Aux 2
11.7	Operate the exit function and remove the train simulation. Check that the booms remain lowered.	YO	YN	ZO	ZN	Aux 1	Aux 2
11.8	Re-connect the left hand lamp and check that the booms raise. Re- connect the right hand lamp	YO	YN	ZO	ZN	Aux 1	Aux 2
Repeat 11.1 to 11.8 for the other red road signal units. The flashes per minute rate only requires to be measured on one light unit.							

12. Local Control Sequence

12.1	Operate the LCU to the LOWER position and check the following:	
12.2	All the amber road signals illuminate, and the audible warnings commence concurrently (Yodalarms at normal warbling rate).	
12.3	After 3 seconds (5 seconds at older installations) all the amber signals extinguish and all the red flashing road signals start to flash.	
12.4	After approximately a further 4 seconds (8 seconds at older installations) the booms commence to lower.	
12.5	The booms take 6 to 8 seconds to reach the fully lowered position.	
12.6	Red road lights and any pedestrian lights continue to be illuminated. Audible warnings continue to sound depending on design (check diagrams).	
12.7	Operate the LCU to the RAISE position and check the following:	
12.8	The booms begin to rise.	
12.9	The red road lights extinguish, the lineside headlights extinguish and the audible warnings cease before the booms have reached 45° from the horizontal.	
12.10	The boom lights extinguish when the booms have reached approximately 81° from the horizontal.	
12.11	The booms do not take more than 7 seconds to reach the fully raised position of between 81° and 85° from the horizontal.	

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12.12	Operate the LCU to the LOWER position, allow the lowering sequence to take place and then operate the LCU switch to the AUTO position. Check that the lowering sequence is as 12.2 to 12.6 and the raise sequence is as 12.8 to 12.11. On modern installations the switch can be put straight to the auto position, which will cause the booms to perform a lowering sequence then rise. Check the diagrams for the correct mode of operation applicable to the	
	crossing.	
12.13	Close and lock the LCU door.	

13. Automatic Control Sequence

- Check in the crossing control tables for any special controls that affect the automatic control sequence.
- On early designs of crossings ATC and Strike in treadle reverse proving is required in the automatic sequence and the crossing sequence will start as soon as the strike in treadles are operated. Check the diagrams.
- Where the word EXIT occurs, the strike out treadle shall be operated.
- On single lines or where bi-directional controls exist, the leaving track circuit shall also be operated.
- Where directional proving controls exists the bi-directional strike out treadle shall also be operated in the correct sequence.

13.1	Simulate an approaching train by shunting a controlling track circuit and or treadle operation. Observe the following:						
13.2	On double lines 10 seconds elapse before the crossing sequence commences. On single lines the sequence starts immediately.	Up	Up X	Dn	Dn X		
13.3	All the amber road signals illuminate and the audible warnings commence concurrently (Yodalarms at normal warbling rate).	Up	Up X	Dn	Dn X		
13.4	After 3 seconds (5 seconds at older installations) all the amber signals extinguish and all the red flashing road signals start to flash.	Up	Up X	Dn	Dn X		
13.5	After approximately a further 4 seconds (8 seconds at older installations) the booms commence to lower.	Up	Up X	Dn	Dn X		
13.6	The boom lamps illuminate at approximately 80° from the horizontal. Check the sighting of the boom lamps.						

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13.7	The booms take 6 to 8 seconds to reach the fully lowered position.	Up	Up X	Dn	Dn X
13.8	Red road lights and any pedestrian lights continue to be illuminated and flash alternately with the road lights. Audible warnings may continue to sound depending on design (check diagrams).	Up	Up X	Dn	Dn X
	Operate the exit function and remove the train simulation. Observe the following:				
13.9	The booms begin to rise.	Up	Up X	Dn	Dn X
13.10	The red road lights and crossing headlights extinguish and the audible warnings cease when the booms have reached approximately 45° from the horizontal.	Up	Up X	Dn	Dn X
13.11	The boom lights extinguish when the booms have reached approximately 81° from the horizontal.	Up	Up X	Dn	Dn X
13.12	The booms do not take more than 7 seconds to reach the fully raised position of between 81° and 85° from the horizontal.	Up	Up X	Dn	Dn X
13.13	Repeat steps 13.1 to 13.12 for the opposite direction on a single line and the other direction on double lines.	Up	Up X	Dn	Dn X

14. Double Lines Second Train Approaching Sequence

Is This Section Applicable to the Crossing Under Test?				
14.1	Simulate a train striking in on line one as per 13.1.	Up	Dn	
	Simulate a second train striking in on line two. Observe the following:			
14.2	The booms remain lowered.	Up	Dn	
14.3	The road lights and any pedestrian lights continue to flash.	Up	Dn	
14.4	The audible warning rate where designed to sound when booms are lowered continues at the normal rate (check diagrams).	Up	Dn	
	Operate the exit function and remove the simulation on line one. Observe the following:			
14.5	The booms remain lowered.	Up	Dn	
14.6	The road lights and any pedestrian lights continue to flash.	Up	Dn	
14.7	The audible warning rate where designed to sound when booms are lowered changes to the increased rate (check diagrams)	Up	Dn	
14.8	Operate the exit function and remove the simulation on line two. Observe that the sequence is the same as described in 13.8 to 13.11.	Up	Dn	
14.9	Repeat steps 14.1 to 14.8 for a train striking in on line two first and a second train striking in on line one.			

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14.10 Turn Main	s Power on
15. Special Con	ntrol Function Sequence
Is This Section Ap	oplicable to the Crossing Under Test? Yes No
<u> </u>	<u> </u>
	ny special control functions according to the control tables (Non-Stopping, Signal, TRTS etc). Record the function performed and
Function	Result

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16. Strike in Track Circuit Resetting

Is This Section Applicable to the Crossing Under Test?	Yes	No
--	-----	----

Direction	TC Name	Time (seconds)
Up		
Up X		
Dn		
Dn X		

16.1	Make up the track circuit and start timing with a stopwatch from the time the track circuit is reconnected. Check that the booms remain lowered				
16.2	Simulate an approaching train by shunting a controlling track circuit. Observe that the barrier lowering sequence is correct.	Up	Up X	Dn	Dn X
16.3	Observe that after 120 seconds the booms rise. If any adjustments have to be made to achieve this time, allow a period of time for the bi-metal strip in the timer to cool down.				

17. Leaving Track Circuit Resetting

Is This Section Applicable to the Crossing Under Test?	Yes	No
--	-----	----

NOTE: Check the diagrams to find if these controls are fitted to the crossing.

The booms shall be operated by train simulation.

Record the actual times in the grid below.

Direction	Entrance TC	Exit TC	Time (seconds)
Up			
Up X			
Dn			
Dn X			

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17.1	Simulate a train striking in by dropping a controlling track circuit, observe that the boom lowering sequence is correct	Up	Up X	Dn	Dn X
17.2	Drop the leaving track circuit, operate the exit function and make up the controlling track circuit. Check that the leaving track circuit remains dropped.	Up	Up X	Dn	Dn X
17.3	Observe that a boom raising sequence takes place when the controlling track circuit is made up, start timing with a stopwatch as soon as the booms start to rise.	Up	Up X	Dn	Dn X
17.4	Observe that after 130 seconds on double lines or 120 seconds on single lines a boom lowering sequence takes place	Up	Up X	Dn	Dn X
17.5	Re-connect the leaving track circuit and observe that after 120 seconds a boom raising sequence takes place. If any adjustments have to be made to achieve this time, allow a period of time for the bi-metal strip in the timer to cool down	Up	Up X	Dn	Dn X

18. Speed Discriminator

Is This Section Applicable to the Crossing Under Test?				
18.1	Check (if fitted) that the speed discriminator synchronous motor timer times correctly.	Up	Dn	
18.2	Record the time up and down (in seconds).			

Direction	Time
Up	
Dn	

19. Line Dimensions

Is This Section Applicable to the Crossing Under Test?	Yes	No	
--	-----	----	--

Where track works have taken place since the pervious test.

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19.1 Check and identify the distance of track circuits and treadles as specified on the signalling plan. Record the design and actual dimensions.

Line	Design Measurement	Actual Measurement

20. Indications (Needle Type) and Audible Devices

Is This Section Applicable to the Crossing Under Test?	Yes	No	l
--	-----	----	---

It may be convenient to combine this with Section 9 - Telephone systems

A competent person (not the Signaller) is required at the monitoring point(s) to observe the indications

20.1	Check that the indicator is in the barriers raised / power on position.	
20.2	Simulate a train striking in and observe that the indicator moves to the no legend (barriers working) position.	
20.3	Remove the train simulation and operate the exit function, observe that the indication returns to the barriers raised / power on position.	
20.4	Open the local control operator's door, if door proving is fitted observe that the indicator moves to the no legend (barriers working) position.	
20.5	Otherwise operate the local control buttons to raise, lower and hand in turn and observe that the indicator moves to and remains in the no legend (barriers working) position.	
20.6	Return the local control unit to the auto position and close and lock the operator's door, observe that the indicator returns to the barriers raised / power on position.	
20.7	Simulate a train striking in and observe that the indicator moves to the no legend (barriers working) position.	
20.8	Check that after 240 seconds on double lines or 180 seconds on single lines the audible alarm sounds and it can be silenced.	
20.9	Remove the train simulation and operate the exit function. Observe that the indication returns to the barriers raised / power on position and the audible alarm sounds and it can be silenced.	

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20.10	Withdraw in turn each power supply fuse that is in the (PO) PR circuit (check diagrams). Observe that for each fuse the indicator moves to the barriers raised / power off position.	
20.11	Check that the audible alarm sounds and can be silenced.	
20.12	When each fuse is replaced observe that the indicator returns to the barriers raised / power on position.	
20.13	Check that the audible alarm sounds and can be silenced.	
20.14	Check (where provided) that the monitoring point test switches operate.	
20.15	If an Absent switch is provided, switch to the absent position and check that the indicator moves to the no legend (barriers working) position, the audible alarms devices do not sound and the level crossing protecting functions (block/signal) are effective.	
20.16	If a block switch is provided, switch to the alternative monitoring point and Check that at the normal monitoring point the indicator moves to the no legend (barriers working) position and the audible alarms devices do not sound. At the alternative monitoring point repeat 20.1 to 20.14.	

21. Indications (Lamp Type) and Audible Devices

Is This Section Applicable to the Crossing Under Test? Yes Yes
--

It may be convenient to combine this with Section 9 - Telephone systems.

A competent person (not the Signaller) is required at the monitoring point(s) to observe the indications.

The barrier indications are normally White for barriers raised, barriers working and power on. For barriers failed and standby in use they are normally Red.

21.1	Check that the indications show barriers raised and power on.	
21.2	Simulate a train striking in and observe the barriers raised indication extinguishes, the barriers working indication illuminates and the power on indication remains illuminated.	
21.3	Operate the exit function and remove the train simulation, observe that the barriers working indication extinguishes, the barriers raised indication illuminates and the power on indication remains illuminated.	
21.4	Open the LCU unit door and observe that the barriers raised indication extinguishes, the barriers working indication illuminates and the power on indication remains illuminated.	
21.5	Check that with each position of the switch (Raise, Lower/Hand and Auto) the barriers raised indication remains extinguished and the barriers working indication remains illuminated.	

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21.6	Return the switch to the auto position, and close and lock the door. Observe that the barriers raised indication illuminates, the barriers working indication extinguishes and the power on indication remains illuminated.					
21.7	operator's do extinguishes	ors (rear) an and the barr illuminates	d observe that th	3 barrier pedestal un ne barriers raised ind cation illuminates wh ed. The power on ind	ication en	
21.8	Operate in turn each exit treadle (or freddy) and observe that the barriers raised indication extinguishes and the barriers working indication					
21.9	Simulate a train striking in and observe that the barrier raised indicator extinguishes and the barriers working indicator illuminates.					
21.10	Check that after 240 seconds on double lines or 180 seconds on single lines the barriers working indicator extinguishes, the barriers failed indication illuminates and the audible alarm sounds and it can be silenced. The power on indication will remain illuminated.					
21.11	the barriers fa illuminates, a	ailed indication in the sudib	on extinguishes,	he exit function, obso the barriers raised in and it can be silence l.	dication	
21.12	(check diagra	ms). Observ		hat is in the (PO) PR use the power on ind ation illuminates.		
21.13	fuse is replac	ed observe		can be silenced. Whe		
21.14			arm sounds and on the contract of the contract	can be silenced. The	barriers	
21.15	Check (where	e provided) t	hat the monitorin	g point test switches	operate.	
21.16	that all the in	dications ext	inguish, the audi	he absent position and ble alarms devices de nctions (block/signal)	o not	
21.17	check that at extinguished	the normal r and the aud	monitoring point a	alternative monitorin all the indications are es do not sound. At 21.16.		

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22. Power Supplies and Batteries

22.1	Carry out NR/SMS/PartB/Test/051 (Busbar Earth Test) or NR/SMS/PartB/Test/053 (ELD Function Test).	
22.2	Carry out NR/SMS/PartB/Test/052 (Dynamic Earth Tests) – Level Crosing Barriers.	

Power Supply Identification				

APPENDIX A - Circuit Controller Band Settings

Band	Made Between
DN KR	0° and 4°
HJPR	42° and 90°#
MR	0° and 83°
UP KR	81° and 90°

#: The HJPR band on early installations may be set to make sooner than 42°. Check the diagrams for the required setting for the installation you are testing.

NOTE: It is important to obtain the over-lap between the UP KR band making and the MR band breaking. This is to ensure that if a boom drops slightly it will drive up again before the red road signals operate.

END



LEVEL CROSSING TESTING

AUTOMATIC HALF BARRIER CROSSING (RCM)

NR/SMS/LX70-1

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NR/L3/SIG/10663 Signal Maintenance Specifications					
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GENERAL

This test plan is in addition to <u>NR/SMS/PartC/LC20</u> Services A & B'. It is for use of the person conducting the annual test of the level crossing and has relevant 'tick boxes' by each task so that particular item of the test can be correctly recorded as per the index in 'crossing defects'.

It does not cover AHBC installations controlled by HXP-3 crossing processors and those not maintained using NR/ROSE/LC maintenance standard.

- a) The crossing ground plan.
- b) The level crossing order.
- c) The crossing control tables.
- d) The signalling plan.

Missing documentation shall be listed as a defect.

TEST SUMMARY

est Summary
lame of Level Crossing:
evel Crossing Type:
lame of Monitoring Signal Box(es):
Date of Full Test:
ime Full Test Commenced:
ime Full Test Completed:
ested By:
Signature:
Date of Signature:
Grade and Title:

CROSSING DEFECTS

On the test plan each item shall be recorded with the following letters in the box provided:

- X: Found Incorrect, Action Required.
- **R**: Found Incorrect, Rectified on Day of Test.
- C: Correct.
- **N**: Not Applicable to this Installation.

Any items found incorrect (X or R) are to be listed on the summary pages. On items requiring action, list the party(s) responsible for rectifying them.

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SUMMARY OF ITEMS FOUND INCORRECT (1)

List in the table below all sites found incorrect and rectified on the day of the test (code letter R).

Description of Items Found Incorrect and Rectified				

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SUMMARY OF ITEMS FOUND INCORRECT (2)

List in the table below items found incorrect and requiring action (code letter X).

Description of Items Found Incorrect and Requiring Action	Responsible Party (s)

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1. Barrier and Machine BR Spec. 843

	Check the following on the barrier pedestal unit:		
1.1	Lower the barriers on the local control and leave the LCU switch in the Lower/Hand position.	Υ	Z
1.2	Check that the boom can be lifted by hand to the fully raised position.	Y	Ζ
1.3	Measure by use of an inclinometer and digital voltmeter (on resistance) the setting of the bands whilst raising the boom on 'hand' operation. Adjust if necessary (Appendix A).	Υ	Z

2. Local and Manual Control BR Spec. 843

2.1	Open the local control unit door. Check when unlocked that the key is retained in the lock and cannot be withdrawn unless the door is locked again.		
2.2	Operate the control switch to the lower position and Observe the following items:		
2.3	Open the operator's door (rear) of Y pedestal. Check that if the audible warnings are designed to continue to operate when the booms are fully lowered they are silenced.		
	Extend the pump handle and hand pump the boom to the raised position. Observe the following items:		
2.4	The boom does not lower between pumping strokes.	Υ	Z
2.5	The red flashing road signals are illuminated.	Υ	Z
2.6	The audible warnings remain silent.	Υ	Z
2.7	Open the operator's door (rear) of Z pedestal. Extend the pump handle and hand pump the boom to the raised position. Observe the following items:		
2.8	The boom does not lower between pumping strokes.	Υ	Ζ
2.9	The red flashing road signals stay illuminated until the Z boom is above 80° from the horizontal.	Υ	Z
2.10	The audible warnings remain silent.	Υ	Z
2.11	On Y pedestal lift the pump handle and allow the boom to fall sufficiently to illuminate the red flashing road signals.	Υ	Z
2.12	Release the pump handle and check that the boom movement is arrested.	Υ	Z
2.13	Check that the audible warnings are silent. Pump the boom to the raised position.	Υ	Z
2.14	Observe that the red flashing road signals are extinguished when the boom is above 45° from the horizontal.	Υ	Z
2.15	Repeat 2.11 to 2.14 for Z pedestal.		

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2.16	On Y pedestal lift the pump handle and allow the boom to fully lower	Υ	Z
2.17	Check that the operator's door cannot be closed and locked unless the pump handle is in the stowed position.	Υ	Z
2.18	Check that the guide pin is seated in the bottom of the guide slot when the pump handle is fully stowed.	Υ	Z
2.19	Check that the spiral pin is not bent and the spiral pin guide is not worn or does not have a 'step'.	Y	Ζ
2.20	Close and fully lock the operator's door ensuring that the audible warnings remain silent. When locking the operators' door check that the key is turned a further 90° clockwise then back again to the removal position to correctly operate the door proving micro switch.	Υ	Z
2.21	Repeat 2.16 to 2.20 for Z pedestal ensuring that when the operator's door is fully locked the audible warnings (if designed to operate when the booms are lowered) begin to sound. Operate the switch in the local control unit to the raise position and		
2.22	Observe the following: Both booms rise together.	Y	Z
2.23	The red road lights extinguish and the audible warnings cease before the booms have reached 45° from the horizontal.		
2.24	Operate the switch to the lower position and wait for the boom to be in the fully lowered		
2.25	Operate the switch to the auto position and Observe the sequence of events occur as listed in 2.22 to 2.24. On modern installations the switch can be put straight to the auto position, which will cause the booms to perform a lowering sequence then rise. Check the diagrams for the correct mode of operation applicable to the crossing.		
2.26	Close and lock the local control unit door.		

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3. Telephone System

Different types of telephones systems are fitted to AHBC's. Older installations at BR standard Mk1crossings usually have two pedestal phones, two emergency phones, and two 'lay-by' phones.

If the crossing has had 'section 66' modifications the two 'lay-by' telephones are replaced with signs instructing the public to use the phones at the crossing.

Newer installations (BR Spec. 843) usually have two emergency phones and a LCU phone. There are also 'hybrid' installations, which can be a mixture of the two types.

The crossing section order will state the telephone system that is required at the crossing.

Identify telephones at the installation under test in the grid:

No.	Telephone Identity
1	
2	
3	
4	

		Telephone Identity (see Grid)				
3.1	Check the telephone and cord is undamaged.	1	2	3	4	
3.2	Check the correct labels and symbols are fitted inside and outside the case and they are legible.	1	2	3	4	
3.3	Check that any associated signs are stable, undamaged and legible. Emergency telephones require having the yellow telephone symbol visible on three sides of the telephone case or on a separate plate above the telephone.	1	2	3	4	
3.4	Check that the correct crossing name is stated on any telephone labels and signs.	1	2	3	4	
3.5	Check that telephone numbers given on any sign are correct. The site plan will give information on the correct names/numbers that shall be displayed.	1	2	3	4	
3.6	If betalights are fitted, check they are lit. Betalights are usually fitted to older style telephones units that the public have access to.	1	2	3	4	

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On emergency telephones, check that an ETD number is given for the public to call in case they cannot contact the monitoring point. Ring this number and check that the recipient uses the correct procedures for the call.							
Public	Telephone Numbers						
- 5.35110							
		1	1				
3.8	Ring the monitoring point and check that the call is	1	2	3	4		
	received correctly. Ask the monitoring point to ring back.	1					
	Check the telephone rings correctly. Check that the quality of speech and hearing is clear and not distorted.						
3.9	On Whitely PETS telephone systems there is a short time when answering a call at either end of the line where the system 'handshakes' During this period transmission and reception of speech is not possible.	1	2	3	4		
3.10	If lay-by and/or pedestal telephones are fitted check that there is a ring differential at the monitoring point between them and the emergency telephones.	1	2	3	4		
3.11	Check that if a lay-by or pedestal telephone is in use a call from the emergency telephone is still received correctly at the monitoring point	1	2	3	4		
3.12	Check that with one of the emergency telephones left 'off the hook' calls on the other telephones can be made and received correctly.	1	2	3	4		
	Whitely PETS systems will indicate a fault at the monitoring point.						
3.13	If a block switch is fitted check that when operated 3.8 to 3.12 operate correct at the alternative monitoring point.						
3.14	Check that at the normal monitoring point any audible device	s do	not so	ound.			
3.15	Repeat 3.13 to 3.14 for any other alternative monitoring poin	ts.					
3.16	If an absent switch is fitted to the telephone system operate it and check that if an emergency call made this is indicated by a low level of illumination of the telephone unit and any audible devices do not sound.						
	Operate the absent switch is back to normal operation and on normal emergence call is received.	neck	that a	3			
3.17	Switch off the mains power to the telephone system. After a equal to the crossing sequence testing repeat tasks 3.8 to 3 mains power to the telephone system back on.	•					

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4. Barrier Proving

Check that a cut-out is provided in the motor contactors before proceeding with 4.2 to 4.4.

The booms can be lowered and raised by local control or train simulation.

4.1	Turn the mains power off.		
4.2	Allow the booms to lower.		
4.3	Disconnect the Up KR link in the equipment room/location from one of the booms.	Υ	Z
4.4	Turn the LCU Switch to raise, allow the booms to rise.		
4.5	Check that the red flashing road lights signals have extinguished when the booms reach 45° from the horizontal.	Y	Z
4.6	Check that the road signals re-illuminate 6 seconds after the booms have started to rise.	Υ	Z
4.7	Reconnect the Up KR link and check that the road signals extinguish.	Υ	Z
4.8	Repeat 4.2 to 4.7 for the other boom.		

5. Red Flashing Road Traffic Light Signal Proving

The booms shall be lowered and raised by train simulation.

Some early installations only require one red road light to be working on each side to allow the booms to rise. (RECR modifications have not been carried out)

Check the diagrams for circuit design. Report any of these crossings to the S&T Maintenance Engineer.

If auxiliary road traffic light signals are fitted (in addition to YO, YN, ZO and ZN), list the additional signal identification below:

	Signal number	Signal Identitication						
	Aux 1							
l,	Aux 2							
5 .1	Simulate a train striking in and allow the booms to lower. Check that all the red road signals are illuminated (flashing).			YN	ZO	ZN	Aux 1	Aux 2
5.2	Measure the rate of flashing (Between 70 and 90 flashes per minute).				FF	PM		

ND/L3/	/SIC/10663 S	Signal Mainten	ance Specificatio	ne					
	IS/PartD/LX7	•	ance opecificatio	113					
		rrier (AHBC) -		T					
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5.3		ts by slipping t	ght lamps on one the links in the	of YO	YN	ZO	ZN	Aux 1	Aux 2
5.4	•	tion. Check tha	and remove the at the booms	YO	YN	ZO	ZN	Aux 1	Aux 2
5.5		the right hand he booms rais		YO	YN	ZO	ZN	Aux 1	Aux 2
5.6	Disconnect again the right hand lamp and simulate a train striking in. Check that approximately 2 seconds after the amber lights extinguish the booms begin to lower.						Aux 1	Aux 2	
5.7	•	tion. Check th	and remove the at the booms	YO	YN	ZO	ZN	Aux 1	Aux 2
5.8			lamp and check connect the right	YO	YN	ZO	ZN	Aux 1	Aux 2
5.9	units. The flashes		other red road sig ate only requires ght unit.	nal					
5.10		the Mains Pov							
	•	rol Function s	Sequence Crossing Under T	est?				Yes	No
6.1	Turn the Ma	ains power On							
6.2	Perform any special control functions according to the control tables (Stopping/Non-Stopping, Signal, TRTS etc). Record the function performed and its results.								
Functi	on	Result							
4									

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2	

			63 Signal Maintenance Specifications				
		S/PartD/	LX70-1 Barrier (AHBC) - RCM				
	ue N		Issue Date: 04/06/2022 Compliance	e Date:	03/09	9/2022	<u> </u>
			1				
7.	St	rike in 1	rack Circuit Resetting				
ls '	This	Section /	Applicable to the Crossing Under Test?			Yes	No
	Dire	ection	TC Name	Time (s	econd	ls)	
	Up						
	Up	X					
	Dn						
	Dn	X					
7.1			e an approaching train by shunting a controlling cuit. Observe that the barrier lowering sequences		Up X	Dn	Dn X
7.2	2	Make up	the track circuit and start timing with a ch from the time the track circuit is re-				
7.3	Observe tha If any adjust		e that after 120 seconds the booms rise. djustments have to be made to achieve this ow a period of time for the bi-metal strip in the cool down.				
8.	Le	aving T	rack Circuit Resetting				
ls	This	Section /	Applicable to the Crossing Under Test?			Yes	No
	Cł	neck the	diagrams to find if these controls are fitted to the	ne crossi	na		

The booms shall be operated by train simulation.

Record the actual times in the grid below.

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Direction	Entrance TC	Exit TC	Time (seconds)
Up			
Up X			
Dn			
Dn X			

8.1	Simulate a train striking in by dropping a controlling track circuit, Observe that the boom lowering sequence is correct	Up	Up X	Dn	Dn X
8.2	Drop the leaving track circuit, operate the exit function and make up the controlling track circuit. Check that the leaving track circuit remains dropped.	Up	Up X	Dn	Dn X
8.3	Observe that a boom raising sequence takes place when the controlling track circuit is made up, start timing with a stopwatch as soon as the booms start to rise.	Up	Up X	Dn	Dn X
8.4	Observe that after 130 seconds on double lines or 120 seconds on single lines a boom lowering sequence takes place	Up	Up X	Dn	Dn X
8.5	Re-connect the leaving track circuit and Observe that after 120 seconds a boom raising sequence takes place. If any adjustments have to be made to achieve this time, allow a period of time for the bi-metal strip in the timer to cool down	Up	Up X	Dn	Dn X

9. Speed Discriminator

Is This Section Applicable to the Crossing Under Test?			
9.1	Check (if fitted) that the speed discriminator synchronous motor timer times correctly.	Up	Dn
9.2	Record the time up and down (in seconds).		

Direction	Time
Up	
Dn	

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10. Line Dimensions

Is This Section Applicable to the Crossing Under Test?	Yes	No	
--	-----	----	--

Where track works have taken place since the pervious test

10.1 Check and identify the distance of track circuits and treadles as specified on the signalling plan. Record the design and actual dimensions.

Line	Design Measurement	Actual Measurement

11. Indications (Needle Type) and Audible Devices

Is This Section Applicable to the Crossing Under Test?	Yes	No
--	-----	----

It may be convenient to combine this with Section 3 - Telephone systems.

A competent person (not the signaller) is required at the monitoring point(s) to observe the indications.

11.1	Check that the indicator is in the barriers raised / power on position.	
11.2	Simulate a train striking in and Observe that the indicator moves to the no legend (barriers working) position.	
11.3	Remove the train simulation and operate the exit function, Observe that the indication returns to the barriers raised / power on position.	
11.4	Open the local control operator's door, if door proving is fitted Observe that the indicator moves to the no legend (barriers working) position.	
11.5	Otherwise operate the local control buttons to raise, lower and hand in turn and Observe that the indicator moves to and remains in the no legend (barriers working) position.	
11.6	Return the local control unit to the auto position and close and lock the operator's door, Observe that the indicator returns to the barriers raised / power on position.	
11.7	Simulate a train striking in and Observe that the indicator moves to the no legend (barriers working) position.	

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11.8	Check that after 240 seconds on double lines or 180 seconds on single lines the audible alarm sounds and it can be silenced.	
11.9	Remove the train simulation and operate the exit function. Observe that the indication returns to the barriers raised / power on position and the audible alarm sounds and it can be silenced.	
11.10	Withdraw in turn each power supply fuse that is in the (PO) PR circuit (check diagrams). Observe that for each fuse the indicator moves to the barriers raised / power off position.	
11.11	Check that the audible alarm sounds and can be silenced.	
11.12	When each fuse is replaced Observe that the indicator returns to the barriers raised / power on position	
11.13	Check that the audible alarm sounds and can be silenced.	
11.14	Check (where provided) that the monitoring point test switches operate.	
11.15	If an Absent switch is provided, switch to the absent position and check that the indicator moves to the no legend (barriers working) position, the audible alarms devices do not sound and the level crossing protecting functions (block/signal) are effective.	
11.16	If a block switch is provided, switch to the alternative monitoring point and check that at the normal monitoring point the indicator moves to the no legend (barriers working) position and the audible alarms devices do not sound. At the alternative monitoring point repeat 11.1 to 11.14.	

12. Indications (Lamp Type) and Audible Devices

Is This Section Applicable to the Crossing Under Test?	Yes	No	
--	-----	----	--

It may be convenient to combine this with Section 3 - Telephone systems

A competent person (not the signaller) is required at the monitoring point(s) to observe the indications

The barrier indications are normally White for barriers raised, barriers working and power on. For barriers failed and standby in use they are normally Red.

12.1	Check that the indications show barriers raised and power on.	
12.2	Simulate a train striking in and Observe the barriers raised indication extinguishes, the barriers working indication illuminates and the power on indication remains illuminated.	
12.3	Operate the exit function and remove the train simulation, Observe that the barriers working indication extinguishes, the barriers raised indication illuminates and the power on indication remains illuminated.	

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Open the LCU unit door and Observe that the barriers raised indication extinguishes, the barriers working indication illuminates and the power on indication remains illuminated.	
Check that with each position of the switch (Raise, Lower/Hand and Auto) the barriers raised indication remains extinguished and the barriers working indication remains illuminated.	
Return the switch to the auto position, and close and lock the door. Observe that the barriers raised indication illuminates, the barriers working indication extinguishes and the power on indication remains illuminated.	
Unlock in turn each of the BR standard 843 barrier pedestal unit operator's doors (rear) and Observe that the barriers raised indication extinguishes and the barriers working indication illuminates when unlocked and illuminates again when locked. The power on indication will remain illuminated.	
Operate in turn each exit treadle (or freddy) and Observe that the barriers raised indication extinguishes and the barriers working indication illuminates when the treadle is not proving normal (or freddy activated) and returns to barriers raised illuminated, barriers working extinguished again when normal proving is regained (or freddy de-activated). The power on indication will remain illuminated.	
Simulate a train striking in and Observe that the barrier raised indicator extinguishes and the barriers working indicator illuminates.	
Check that after 240 seconds on double lines or 180 seconds on single lines the barriers working indicator extinguishes, the barriers failed indication illuminates and the audible alarm sounds and it can be silenced. The power on indication will remain illuminated.	
Remove the train simulation and operate the exit function, Observe that the barriers failed indication extinguishes, the barriers raised indication illuminates, and the audible alarm sounds and it can be silenced. The power on indication will remain illuminated.	
Withdraw in turn each power supply fuse that is in the (PO) PR circuit (check diagrams). Observe that for each fuse the power on indication extinguishes and the standby in use indication illuminates.	
Check that the audible alarm sounds and can be silenced. When each fuse is replaced Observe that the standby in use indication extinguishes and the power on indication illuminates.	
Check that the audible alarm sounds and can be silenced. The barriers raised indication will remain illuminated.	
Check (where provided) that the monitoring point test switches operate.	
If an Absent switch is provided, switch to the absent position and check that all the indications extinguish, the audible alarms devices do not sound and the level crossing protecting functions (block/signal) are effective.	
	extinguishes, the barriers working indication illuminates and the power on indication remains illuminated. Check that with each position of the switch (Raise, Lower/Hand and Auto) the barriers raised indication remains extinguished and the barriers working indication remains illuminated. Return the switch to the auto position, and close and lock the door. Observe that the barriers raised indication illuminates, the barriers working indication extinguishes and the power on indication remains illuminated. Unlock in turn each of the BR standard 843 barrier pedestal unit operator's doors (rear) and Observe that the barriers raised indication extinguishes and the barriers working indication illuminates when unlocked and illuminates again when locked. The power on indication will remain illuminated. Operate in turn each exit treadle (or freddy) and Observe that the barriers raised indication extinguishes and the barriers working indication illuminates when the treadle is not proving normal (or freddy activated) and returns to barriers raised illuminated, barriers working extinguished again when normal proving is regained (or freddy de-activated). The power on indication will remain illuminated. Simulate a train striking in and Observe that the barrier raised indicator extinguishes and the barriers working indicator illuminates. Check that after 240 seconds on double lines or 180 seconds on single lines the barriers working indicator extinguishes, the barriers failed indication illuminates and the audible alarm sounds and it can be silenced. The power on indication will remain illuminated. Remove the train simulation and operate the exit function, Observe that the barriers failed indication will remain illuminated. Check diagrams). Observe that for each fuse the power on indication extinguishes and the standby in use indication illuminates. Check that the audible alarm sounds and can be silenced. When each fuse is replaced Observe that the standby in use indication extinguishes and the power on indication il

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12.17	If a block switch is provided, switch to the alternative monitoring point and check that at the normal monitoring point all the indications are extinguished and the audible alarms devices do not sound. At the alternative monitoring point repeat 12.1 to 12.16.	
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APPENDIX A - Circuit Controller Band Settings

Band	Made Between
DN KR	0° and 4°
HJPR	42° and 90°#
MR	0° and 83°
UP KR	81° and 90°

#: The HJPR band on early installations may be set to make sooner than 42°. Check the diagrams for the required setting for the installation you are testing.

NOTE: It is important to obtain the over-lap between the UP KR band making and the MR band breaking. This is to ensure that if a boom drops slightly it will drive up again before the red road signals operate.

END



LEVEL CROSSING TESTING

AUTOMATIC BARRIER CROSSING LOCALLY MONITORED (ABCL)

AND

AUTOMATIC FULL BARRIER CROSSING LOCALLY MONITORED (AFBCL)

NR/SMS/LX71

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NR/L3/SIG/10663 Signal Maintenance Specifications				
NR/SMS/PartD/LX71				
Automatic Barrier Crossing Locally Monitored (ABCL) and				
Automatic Full Barrier Crossing Locally Monitored (AFBCL)				
Issue No: 08	Issue Date:	05/12/2020	Compliance Date:	05/06/2021

GENERAL

This test plan covers the requirements of NR/SMS/PartB/Test/071 and NR/SMS/PartB/Test/160. It is for use of the person conducting the annual test of the level crossing and has relevant 'tick boxes' by each task so that particular item of the test can be correctly recorded as per the index in "crossing defects".

- a) The crossing ground plan.
- b) The level crossing order.
- c) The crossing control tables.
- d) The signalling plan.

Missing documentation shall be listed as a defect.

TEST SUMMARY

Test Summary
Name of Level Crossing:
Level Crossing Type:
Name of Monitoring Signal Box(es):
Date of Full Test:
Time Full Test Commenced:
Time Full Test Completed:
Tested By:
Signature:
Date of Signature:
Grade and Title:

CROSSING DEFECTS

On the test plan each item shall be recorded with the following letters in the box provided:

- X: Found Incorrect, Action Required.
- R: Found Incorrect, Rectified on Day of Test.
- C: Correct.
- **N**: Not Applicable to this Installation.

Any items found incorrect (X or R) are to be listed on the summary pages. On items requiring action, list the party(s) responsible for rectifying them.

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SUMMARY OF ITEMS FOUND INCORRECT (1)

List in the table below all sites found incorrect and rectified on the day of the test (code letter R).

Description of Items Found Incorrect and Rectified

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SUMMARY OF ITEMS FOUND INCORRECT (2)

List in the table below items found incorrect and requiring action (code letter X).

Description of Items Found Incorrect and Requiring Action	Responsible Party (s)

NR/L3/SIG/10663 Signal Maintenance Specifications									
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Automatic Full Barrier Crossing Locally Monitored (AFBCL)									
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1. Road Arrangements

	Chapt that the road moultings are in accordance with the continuous and	
1.1	Check that the road markings are in accordance with the section order and plans.	
1.2	Check that the road markings on the approaches to the crossing (up to the stop line) are complete and visible.	
1.3	Check the condition and the sighting of the road signs on the crossing approaches. See NR/SMS/SG00 for details on reflective boards and signs.	
1.4	Check (if provided) the condition and security of any pedestrian guardrails.	
	Any defects found in 1.2 to 1.4 shall be reported to the appropriate council via the SM(S)	
1.5	Check the condition of the road surface over the crossing.	
1.6	Check that the road markings between and including the stop lines are complete and visible.	
1.7	Check (if provided) that the cattle/anti-trespass guards are complete and securely fastened down.	
1.8	Check (if provided) the condition and security of any wicket gates.	
1.9	Check the condition and the security of any fencing on the approach to equipment room or locations.	

2. Barrier and Machine (BR Spec. 843)

2.1	Check the following on the barrier pedestal unit:	YN	YO	ZN	ZO
2.2	The pedestal is correctly aligned and stable.	YN	YO	ZN	ZO
2.3	The locks and hinges are undamaged.	YN	YO	ZN	ZO
2.4	With the boom in the raised position there is adequate clearance between the side arm/counter balance weights and the ground/base.	YN	YO	ZN	ZO
2.5	The main shaft to side arm fastenings. Check that there is not any excessive play in the keyway.	YN	YO	ZN	ZO
2.6	Lower the barriers on local control and leave the LCU switch in the Lower position. Open the front and rear doors of the pedestal units and fully extend the manual pump handle. Pump the booms to the fully raised position and Observe they remain raised.	YN	YO	ZN	ZO
2.7	On each barrier in turn raise the pump handle until the boom begins to lower. Check that the pump handle roll pin has not reached an alignment where its top is above the bottom edge of the handle guide slot. Allow the boom to fully lower and Check the following:	YN	YO	ZN	ZO
2.8	The boom takes 6 to 8 seconds to lower.	YN	YO	ZN	ZO

	IR/L3/SIG/10663 Signal Maintenance Specifications										
	IR/SMS/PartD/LX71 Automatic Barrier Crossing Locally Monitored (ABCL) and										
Auto	matic Ful	I Barrier Cross	ing Loc	ally Mo	onito	red (A	FBCL)	<u> </u>	05/0/	0/0004	
Issue	sue No: 08 Issue Date: 05/12/2020 Compliance Date: 05/06/2021										
2.9	The boo	m is damped du ent.	uring the	last 10)° to 1	5° of		YN	YO	ZN	ZO
2.10	The boo	m is horizontal	when fu	lly lowe	red.			YN	YO	ZN	ZO
2.11	The boo	m is the correct	length.					YN	YO	ZN	ZO
		Design	YN	YO	ZN	I Z	20				
		Actual	YN	YO	ZN	l Z	20				
2.12	Conditio	n of the boom.						YN	YO	ZN	ZO
2.13	The sec	urity of the boor	n.					YN	YO	ZN	ZO
2.14		m fixing bolt 'E' near bolt assem	•		•			YN	YO	ZN	ZO
2.15	The refle	ective strips are osition.	undama	aged, cl	ean a	and are	e in the	YN	YO	ZN	ZO
2.16	The hoom lamps hoods brackets and fastenings are						YN	YO	ZN	ZO	
2.17	The boo undama	m wiring, plugs ged.	, clamps	, and te	ermina	ations	are	YN	YO	ZN	ZO
2.18	,) the strainer wigs are effective.		ort bra	cket a	ınd		YN	YO	ZN	ZO
	Check th	ne height of the	boom fr	om the	road	surfac	e.				
2.19	Top of b	arrier at the cer	ntre of th	e road	(0.9m	Minir	num).	YN	YO	ZN	ZO
2.20		de of barrier at a		`				YN	YO	ZN	ZO
2.21		ne counter balaring with a weigh	_						_	,	ıg
	• A	t the tip end slo orizontal.	wly lift th	ne boor	n unti	l it is a	pproxim	nately 4	4° to 5	° from	the
	• C	onnect the weig	ght meas	suring c	levice	to the	e tip end	of the	boom	١.	
		elease the boo ot fully lowered				g devi	ce ensu	ring tha	at the	boom	has
		Boom Le	ngth		Tip	Weigl	ht				
		3.6m to 4	.1m		7	'.6Kg					
		4.6m to 9	.1m		6	5.1Kg					
2.22	Check th	nat the boom ca	n be lifte	ed by h	and to	the f	ully	YN	YO	ZN	ZO
2.23		ne interior of the nation. Clean as	-		ater ir	ngress	and	YN	YO	ZN	ZO

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_	Check	the following	on the hydraulic	pack assen	nbly:				
2.24	The pack fastenings.						YO	ZN	ZO
2.25		p and bottom ashers.	pack trunnion blo	ock mountin	igs and	YN	YO	ZN	ZO
2.26	correct	t length and sp	innion to the ope piral pins are fitte	ed correctly.		YN	YO	ZN	ZO
2.27	The rai	, .	crew and lock wa	asher. Do no	ot adjust	YN	YO	ZN	ZO
2.28		uto/manual val n and seal are	lve is set in the a e intact.	uto position	and the	YN	YO	ZN	ZO
2.29	of the p	pack can caus s, disconnect	inations to the pa se the B24 feed we the wires to chec	wire to breal	k internal	YN	YO	ZN	ZO
2.30			rect. Just visible on the indicator.	in the filter s	strainer	YN	YO	ZN	ZO
2.31	The motor brushes. They shall be of sufficient length, slide freely in their holder and seat fully on the commutator.					YN	YO	ZN	ZO
2.32			itor (where acces ght coffee colour	,	all be	YN	YO	ZN	ZO
2.33		•	tails (Mk and seri ne correct type for	,					
	Unit	Mk	Serial Number						
2.34			k absorber plung n 3mm by finger	•	е	YN	YO	ZN	ZO
2.35	Chack the up and down stop block striker hads. Replace					YN	YO	ZN	ZO
			ne circuit controll	er and Ched	ck the				
2.36	following items: The spindle and control arm are lubricated and free from wear. Do not lubricate the spindle if fitted with Oilite bearings. This can be identified by a P or an R stamped on the controller lid.						YO	ZN	ZO

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	Terminations and wiring.				
2.37	Contact fingers. Replace any fingers that are worn or have lost their spring tension.	YN	YO	ZN	ZO
2.38	Bands. Check they are clean and not worn (copper dust in the bottom of the casting) If worn the complete controller shall be renewed.	YN	YO	ZN	ZO
2.39	Measure by use of an inclinometer and digital voltmeter (on resistance) the setting of the bands whilst raising the boom on 'hand' operation. Adjust if necessary (Appendix A).	YN	YO	ZN	ZO
2.40	Close and fasten the circuit controller. Check if any adjustments have been carried out that all the terminations have been correctly tightened.	YN	YO	ZN	ZO
2.41	Check the circuit controller cam, cam slot and roller assembly.	YN	YO	ZN	ZO
2.42	Check the earth-bonding strip is secure and undamaged.	YN	YO	ZN	ZO
2.43	Check the main shaft bearings and fastenings. Check that sufficient grease has been applied to the bearings	YN	YO	ZN	ZO
2.44	Check the bearing end cap seals are effective. Water ingress into the end caps can freeze and prevent the booms from lowering.	YN	YO	ZN	ZO
2.45	Check that the pedestal fixing bolts are all fitted and correctly tightened.	YN	YO	ZN	ZO
2.46	Check the operator's door (rear) micro switch assembly, fastenings and wires. Check that they are secure and undamaged.	YN	YO	ZN	ZO
2.47	Raise the boom by hand pumping, Check that the boom does not lower between pumping strokes.	YN	YO	ZN	ZO
2.48	Lower both the booms; stow the pump handles and close and lock the operator's doors (rear). Raise the boom under 'power' operation by switching the LCU to raise and Check the following:	YN	YO	ZN	ZO
2.49	The booms are between 80° and 85° when fully raised.	YN	YO	ZN	ZO
2.50	The booms do not excessively oscillate when they come to rest in the raised position.	YN	YO	ZN	ZO
2.51	The booms do not 'hunt' when fully raised. This is a sign of an internal fluid leak inside the hydraulic pack.	YN	YO	ZN	ZO
2.52	Close and lock the front pedestal door.	YN	YO	ZN	ZO

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3. Local and Manual Control

3.1	Open the local control unit door. Check when unlocked that the key is retained in the lock and cannot be withdrawn unless the door is locked again.	YN	YO	ZN	ZO
3.2	Operate the control switch to the lower position and Observ	ve the	follow	ing ite	ms:
3.3	All the amber road signals illuminate, and the audible warnings commence concurrently (Yodalarms at normal warbling rate).	YN	YO	ZN	ZO
3.4	After 3 seconds <u>all</u> the amber signals extinguish, and all the red flashing road signals start to flash.	YN	YO	ZN	ZO
3.5	The crossing headlights illuminate the crossing at the same time the red road lights commence to flash.	YN	YO	ZN	ZO
3.6	The DWL signals do not illuminate for any direction.	YN	YO	ZN	ZO
3.7	After approximately a further 4 seconds the booms commence to lower.	YN	YO	ZN	ZO
3.8	The booms take 6 to 8 seconds to reach the fully lowered position.	YN	YO	ZN	ZO
3.9	Red flashing road lights continue to be illuminated. Audible warnings continue to sound.	YN	YO	ZN	ZO

As this Test covers both Two and Four barrier crossings steps 3.10 to 3.35 are repeated and should be carried out for both sides of the crossing. If carrying out a Four barrier crossing both columns should be completed

3.10	Open the operator's door (rear) of Y pedestal. Check the audible warning silenced. Extend the pump handle and hand pump the boom to the raise position. Observe the following items:	_	Э			
3.11	The boom does not lower between pumping strokes.	2	4			
3.12	The red flashing road signals are illuminated.	2	4			
3.13	The audible warnings remain silent.	2	4			
3.14	Open the operator's door (rear) of Z pedestal. Extend the pump handle and hand pump the boom to the raised position. Observe the following items:					
3.15	The boom does not lower between pumping strokes.	2	4			
3.16	The red flashing road signals stay illuminated until the Z boom is above 80° from the horizontal.	2	4			
3.17	The audible warnings remain silent.	2	4			
3.18	Operate the LCU control switch to the raise position and check that the red flashing road signals are extinguished.	2	4			

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3.19	On Y pedestal lift the pump handle and allow the boom to fall sufficiently to illuminate the red flashing road signals. Release the pump handle and Check that the boom movement is arrested.	2	4
3.20	Check that the audible warnings are silent. Pump the boom to the raised position.	2	4
3.21	Observe that the red flashing road signals are extinguished when the boom is above 80° from the horizontal.	2	4
3.22	On Z pedestal lift the pump handle and allow the boom to fall sufficiently to illuminate the red flashing road signals. Release the pump handle and Check that the boom movement is arrested.	2	4
3.23	Check that the audible warnings are silent. Pump the boom to the raised position.	2	4
3.24	Observe that the red flashing road signals are extinguished when the boom is above 80° from the horizontal.	2	4
3.25	Operate the LCU switch to the lower position.	2	4
3.26	On Y pedestal lift the pump handle and allow the boom to fully lower	2	4
3.27	Check that the operator's door cannot be closed and locked unless the pump handle is in the stowed position.	2	4
3.28	Check that the guide pin is seated in the bottom of the guide slot when the pump handle is fully stowed.	2	4
3.29	Check that the spiral pin is not bent, and the spiral pin guide is not worn or does not have a 'step'.	2	4
3.30	Close and fully lock the operator's door ensuring that the audible warnings remain silent.	2	4
	When locking the operators' door check that the key is turned a further 90° clockwise then back again to the removal position to correctly operate the door proving micro switch.		
3.31	On Z pedestal lift the pump handle and allow the boom to fully lower	2	4
3.32	Check that the operator's door cannot be closed and locked unless the pump handle is in the stowed position.	2	4
3.33	Check that the guide pin is seated in the bottom of the guide slot when the pump handle is fully stowed.	2	4
3.34	Check that the spiral pin is not bent, and the spiral pin guide is not worn or does not have a 'step'.	2	4
3.35	Close and fully lock the operator's door ensuring that the audible warnings remain silent.	2	4
	Operate the switch in the local control unit to the raise position and Obfollowing:	serve 1	the
3.36	All booms rise together.		
3.37	The red road lights extinguish, and the audible warnings cease before booms have reached 45° from the horizontal.	the	

3.38	Check that the guide on the inside of the local control unit door prevents the door being closed and locked unless the switch is in the auto position.	
3.39	Operate the switch to the auto position and Observe that a lowering sequence takes place and then the booms rise as listed in section 13.	
3.40	Close and lock the local control unit door.	

4. Road Traffic Light Signals

	If auxiliary road traffic light signals are fitted (in addition to YO, YN, ZO and ZN), list the additional signal identification below:								
	Signal Number	Signal Identification							
	Aux 1								
	Aux 2								
	On each of the road t following items:	raffic light signals Check the							
4.1	The signal structure	e is stable.	YO	ΥN	ZO	ZN	Aux 1	Aux 2	
4.2	The signal light uning hoods are securely	s are undamaged, and the fitted.	YO	YN	ZO	ZN	Aux 1	Aux 2	
4.3	The signal lenses a correctly orientated	re undamaged, clean and	YO	YN	ZO	ZN	Aux 1	Aux 2	
4.4	are undamaged, cl	attached to the signal post ean, and legible See 00 (Signals : General) for boards and signs.	YO	YN	ZO	ZN	Aux 1	Aux 2	
4.5	Cables and conduit secure.	are undamaged and	YO	YN	ZO	ZN	Aux 1	Aux 2	
4.6	Quartz Halogen lar signal backboard is border. White only and red	gnals are fitted with 50-watt nps the road traffic light fitted with a red/white white border backboards cogether at the same	YO	YN	ZO	ZN	Aux 1	Aux 2	

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5.	Audible	Warn	nings	5								
5.1	Check that the audible warning device and any exposed cables and conduit are undamaged and secure. Check that the device is correctly aligned.									ZN		
5.2					no water ingr replace as ne			ole	YO	YN	ZO	ZN
5.3	sufficien applicab have ha	t for tole) is	the c redu sour	rossing cuced for the court output to the cour	out of the audik circumstances the night time. t of audible wa conditions, che	and (Some arning	if e crossi device	ngs	YO	ΥN	ZO	ZN
5.4	is set to correct.	the c	orred e tim	ct time ar e clocks	he audible wa nd the day/nig have a contro heck this is no	ht set	tings are kip' the	е				
6.	Pedestri	an Si	ignal	ls								
ls This	Soction /											 1
	S SECTION A	Applic	cable	to the C	rossing Under	Test'	?		Ye	S	No	
		strian I iden	sign tifica	nals are fi	itted (in additio	on to \		ZO ar				
	liary pede onal signal	strian I iden <mark>Numk</mark>	sign tifica	nals are fi	itted (in additic w:	on to \		ZO ar				
	liary pede onal signal	strian iden Numb x 1	sign tifica	nals are fi	itted (in additic w:	on to \		ZO ar				
	liary pede onal signal Signal N	strian iden Numb x 1	sign tifica	nals are fi	itted (in additic w:	on to \		ZO ar				
	Signal N Au Check th	strian iden when iden x 1 x 2 hat the	sign tifica per	Signal In is secutable; the	itted (in additic w:	on to \	′O, YN,	ZO ar				Aux 2
additio	Signal N Au Check the and corrected to the corrected to t	strian iden Numb x 1 x 2 hat the positectly hat the	e signale signale hole	Signal In is secutable; the ned od is secu	itted (in addition) Identification urely fixed to the	ne naged	(O, YN,		nd ZN), list tl	ne	Aux
addition	Signal N Au Check the and correct the signal farms of the sun	strian iden Numb x 1 x 2 nat the posicectly nat the screetly screetly screetly	e signer	Signal In is secutable; the od is secundary	itted (in addition) w: Identification urely fixed to the sign is undanted and addition and and addition are deck this is	ne naged	(O, YN,	YN	nd ZN	zn	Aux 1	Aux 2
6.1 6.2	Signal N Au Check the and correct the signal farms of the sun	strian iden Numb x 1 x 2 nat the posicectly nat the ce is screed ged a	e signer	Signal In is secutable; the ned od is securely frequency from the courely from the course of the courely from the courely from the course of the courely from the course of the course o	itted (in addition) w: Identification urely fixed to the sign is undanted and addition and and addition are deck this is	ne naged	/O, YN,	YN	zo zo	zn	Aux 1 Aux 1	Aux 2 Aux 2 Aux
6.1 6.2 6.3	Signal N Au Check the and correct the signal far undama Crossing	strian iden Numb x 1 x 2 nat the posite ectly nat the screet is screet ged a	e signate sign	Signal In is secutable; the ned od is securely for the thick the securely for the thick the thi	itted (in addition) w: Identification urely fixed to the sign is undanted and addition and and addition are deck this is	ne naged	YO, YN, YO YO	YN YN YN	zo zo zo	ZN ZN ZN	Aux 1 Aux 1	Aux 2 Aux 2 Aux
6.1 6.2 6.3	Signal N Au Check the and correct the signal far undama Crossing Check the	strian iden liden lumk x 1 x 2 hat the positive city hat the ged a g Hea	e signale signale holder and sense straignale straignal	Signal In is secutable; the ned od is securely for the tunit uncture is	itted (in addition) Identification Identification Identification Identification Identification Identification Identification Identification	ne maged and the	YO, YN,	YN YN YN	zo zo round	ZN ZN ZN	Aux 1 Aux 1	Aux 2 Aux 2 Aux 2

8. Drivers Crossing Indicators (DRL/DWL) Signals

8.1	Check (with no trains approaching) that the flashing red signal (DRL) is clearly visible from the speed restriction board	UP	UP X	DN	DN X
8.2	Check that the structure is stable and securely fixed in the ground.	UP	UP X	DN	DN X
8.3	Check that the unit is undamaged, correctly aligned and sighted	UP	UP X	DN	DN X
8.4	Check that the lens(es) are clean and the hood(s) is/are securely fitted.	UP	UP X	DN	DN X
8.5	Check that all the LED's on the DRL unit are flashing	UP	UP X	DN	DN X

9. Lineside Notice Boards and Signs

9.1	Check that the sign is securely fixed to the post, the post is stable and securely fixed in the ground	UP	UP X	DN	DN X
9.2	Check that the sign is correctly aligned and sighted	UP	UP X	DN	DN X
9.3	Check that the sign is of the correct retro-reflective material (see 1.3)	UP	UP X	DN	DN X
9.4	Check that the sign is clean, and the legend is correct and legible. The site plan will give details on the correct information that shall be displayed.	UP	UP X	DN	DN X

10. Telephone System

The majority of installations usually have two emergency phones and an LCU phone. There are also some installations that have 'lay-by' phones because of the road conditions. The crossing section order will state the telephone system that is required at the crossing.

Identify telephones at the installation under test in the grid below:

No.	Telephone Identity
1	
2	
3	
4	
5	
6	
7	

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		Telephone Identity (see Grid)					d)	
10.1	Check the telephone and cord is undamaged.	1	2	3	4	5	6	7
10.2	Check the correct labels and symbols are fitted inside and outside the case and they are legible.	1	2	3	4	5	6	7
10.3	Check that any associated signs are stable, undamaged and legible. Emergency telephones require having the yellow telephone symbol visible on three sides of the telephone case or on a separate plate above the telephone	1	2	33	4	5	6	7
10.4	Check that the correct crossing name is stated on any telephone labels and signs	1	2	3	4	5	6	7
10.5	Check that telephone numbers given on any sign are correct. The site plan will give information on the correct names/numbers that shall be displayed.	1	2	3	4	5	6	7
10.6	If betalights are fitted, check they are lit. Betalights are usually fitted to older style telephones units that the public have access to.	1	2	3	4	5	6	7
10.7	On emergency telephones Check that an ETD number is given for the public to call in case they cannot contact the monitoring point. Ring this number and Check that the recipient uses the correct procedures for the call.	1	2	3	4	5	6	7

Public	Public Telephone Numbers								
10.8	Ring the monitoring point and Check that the call is received correctly. Ask the monitoring point to ring back.	1	2	3	4	5	6	7	

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10.9	Check the telephone rings correctly. Check that the quality of speech and hearing is clear and not distorted. On Whitely PETS telephone systems there is a short time when answering a call at either end of the line where the system 'handshakes' During this period transmission and reception of speech is not possible.	1	2	3	4	5	6	7
10.10	Check that with one of the emergency telephones left 'off the hook' calls on the other telephones can be made and received correctly. Whitely PETS systems will indicate a fault at the monitoring point.	1	2	33	4	5	6	7
10.11	Switch off the mains power to the telephone system. After a period of time equal to the crossing sequence testing repeat tasks 10.8 to 10.10. Switch the mains power to the telephone system back on.							

11. Barrier Proving

Check that a cut-out is provided in the motor contactors before proceeding with 11.1 to 11.5.

The booms can be lowered and raised by local control or train simulation.

11.1	Turn the mains power off.				
11.2	Allow the booms to lower. Restrain the tip of one of the booms then allow the barriers to rise.	YO	YN	ZO	ZN
11.3	Check that the motor cut-out for the restrained boom operates within 25 seconds. This time relates to a SPX Contactor only, if a different contactor is fitted refer to site diagrams and report to Section Manager.	YO	YN	ZO	ZN
11.4	Release the boom and check that the motor cuts in again within 3 minutes and the boom fully rises.	YO	YN	ZO	ZN
11.5	Repeat 11.1to 11.4 for each of the other booms.				

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11.6	Allow the booms to lower. Disconnect the Up KR link in the equipment room/location from one of the booms. Allow the booms to rise.	YO	ΥN	ZO	ZN
11.7	Check that the red flashing road lights signals have extinguished when the booms reach 45° from the horizontal.	YO	ΥN	ZO	ZN
11.8	Check that the road signals re-illuminate 6 seconds after the booms have started to rise.	YO	YN	ZO	ZN
11.9	Reconnect the Up KR link and Check that the road signals extinguish.	YO	YN	ZO	ZN
11.10	Repeat 11.6 to 11.9 for each of the other booms.				
	Turn the mains power on.				

12. Driver's White Light (DWL) Signal Proving

The crossing shall be operated by train simulation. Check on the following tests that only the DWL for the direction in which the train simulation is applied operates

12.1	Simulate a train striking in and allow the crossing to operate. Check that all the red road signals are illuminated (flashing).	YO	YN	ZO	ZN	Aux 1	Au x 2
12.2	Measure the rate of flashing (Between 70 and 90 fl minute)	ashes	per	FF	РМ		
12.3	Check that the DWL is illuminated (flashing).	YO	YN	ZO	ZN	Aux 1	Au x 2
12.4	Disconnect the left and right lamps on one of the light units by slipping the links in the equipment room/loc and Check that the DWL extinguishes and the DRL illuminates.	YO	YN	ZO	ZN	Aux 1	Au x 2
12.5	Re-connect the right-hand lamp and Check that the DRL extinguishes and the DWL illuminates.	YO	YN	ZO	ZN	Aux 1	Au x 2
12.6	Disconnect again the right-hand lamp and Check that the DWL extinguishes and the DRL illuminates.	YO	YN	ZO	ZN	Aux 1	Au x 2
12.7	Re-connect the left-hand lamp and Check that the DRL (if provided) extinguishes and the DWL illuminates.	YO	YN	ZO	ZN	Aux 1	Au x 2
12.8	Repeat 12.2 to 12.6 for all other light units.	YO	YN	ZO	ZN	Aux 1	Au x 2

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12.9	Open the door of the LCU unit and Check that the DWL extinguishes and the DRL illuminates. Close and lock the door and Check that the DRL extinguishes and the DWL illuminates.	YO	YN	ZO	ZN
12.10	In turn open the operator's door (rear) of the Y and Z pedestals, Check that the DWL is extinguished and the DRL is illuminated as the door is opened	YO	YN	ZO	ZN
12.11	Check that the DRL is extinguished and the DWL is illuminated as each door is correctly closed and locked again.	YO	YN	ZO	ZN
12.12	Operate the exit function and remove the train simulation. If necessary, re-set the circuits to normalise the crossing controls.				

13. Local Control Sequence

Operate the LCU to the LOWER position and Check the following:	
All the amber road signals illuminate, and the audible warnings commence concurrently (Yodalarms at normal warbling rate).	
After 3 seconds all the amber signals extinguish, and all the red road signals and any pedestrian lights start to flash.	
The crossing headlights illuminate the crossing at the time the red road lights commence to flash.	
The DWL do not illuminate.	
The DRL continue to flash.	
After approximately a further 4 seconds at older the booms commence to lower and the boom lamps illuminate.	
The booms take 6 to 8 seconds to reach the fully lowered position.	
Red road lights and any pedestrian lights continue to be illuminated. Audible warnings continue to sound.	
Operate the LCU to the RAISE position and Check the following:	
The booms begin to rise.	
The red road lights extinguish, the lineside headlights extinguish, and the audible warnings cease before the booms have reached 45° from the horizontal.	
The boom lights extinguish when the booms have reached approximately 81° from the horizontal.	
The booms do not take more than 7 seconds to reach the fully raised position of between 81° and 85° from the horizontal.	
	All the amber road signals illuminate, and the audible warnings commence concurrently (Yodalarms at normal warbling rate). After 3 seconds all the amber signals extinguish, and all the red road signals and any pedestrian lights start to flash. The crossing headlights illuminate the crossing at the time the red road lights commence to flash. The DWL do not illuminate. The DRL continue to flash. After approximately a further 4 seconds at older the booms commence to lower and the boom lamps illuminate. The booms take 6 to 8 seconds to reach the fully lowered position. Red road lights and any pedestrian lights continue to be illuminated. Audible warnings continue to sound. Operate the LCU to the RAISE position and Check the following: The booms begin to rise. The red road lights extinguish, the lineside headlights extinguish, and the audible warnings cease before the booms have reached 45° from the horizontal. The boom lights extinguish when the booms have reached approximately 81° from the horizontal. The booms do not take more than 7 seconds to reach the fully raised

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13.15	Operate the switch to the auto position and Observe that a lowering sequence as listed in 13.1 to 13.9 takes place and then the booms raise as listed in 13.12 to 13.14.	
13.16	Close and lock the LCU door.	

14. Automatic Control Sequence

- Check in the crossing control tables for any special controls that affect the automatic control sequence.
- Where the word EXIT occurs the strike out treadle shall be operated.
- On single lines or where bi-directional controls exist the leaving track circuit shall also be operated.
- Where directional proving controls exists the bi-directional strike out treadle shall also be operated in the correct sequence.

14.1	Observe, with no train approaching all DRL are illuminated (flashing) and are visible from the speed restriction board.	Up	Up X	Dn	Dn X
14.2	Simulate an approaching train by shunting a controlling track circuit. Observe the following:	Up	Up X	Dn	Dn X
14.3	On double lines 10 seconds elapse before the crossing sequence commences. On single lines the sequence starts immediately.	Up	Up X	Dn	Dn X
14.4	All the amber road signals illuminate, and the audible warnings commence concurrently (Yodalarms at normal warbling rate).	Up	Up X	Dn	Dn X
14.5	After 3 seconds all the amber signals extinguish, and all the red road signals and any pedestrian lights start to flash	Up	Up X	Dn	Dn X
14.6	The crossing headlights illuminate the crossing at the time the red road lights commence to flash.	Up	Up X	Dn	Dn X
14.7	After approximately a further 4 seconds the booms commence to lower.	Up	Up X	Dn	Dn X
14.8	As the booms commence to lower the DRL extinguishes and the DWL commences to flash for the direction where the train simulation was applied. The DRL continues for the opposing directions.	Up	Up X	Dn	Dn X
14.9	The booms take 6 to 8 seconds to reach the fully lowered position.	Up	Up X	Dn	Dn X
14.10	The crossing headlights, red road lights and any pedestrian lights continue to be illuminated and audible warnings continue to sound.	Up	Up X	Dn	Dn X

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14.11	Operate the exit function and remove the train simulation. Observe the following:	Up	Up X	Dn	Dn X
14.12	The booms begin to rise.	Up	Up X	Dn	Dn X
14.13	The DWL for the direction where the simulation was applied extinguishes and the DRL commences to flash.	Up	Up X	Dn	Dn X
14.14	The red road lights and crossing headlights extinguish and the audible warnings cease when the booms have reached approximately 45° from the horizontal.	Up	Up X	Dn	Dn X
14.15	The boom lights extinguish when the booms have reached approximately 81° from the horizontal.	Up	Up X	Dn	Dn X
14.16	The booms do not take more than 7 seconds to reach the fully raised position of between 81° and 85° from the horizontal.	Up	Up X	Dn	Dn X
14.17	Repeat steps 14.2 to 14.16 for the opposite direction on a single line and the other direction on double lines.	Up	Up X	Dn	Dn X

15. Double Lines Second Train Approaching Sequence

Is This	s Section Applicable to the Crossing Under Test?				
15.1	Simulate a train striking in on line one as per 14.2.	Up	Dn		
15.2	Simulate a second train striking in on line two. Observe the following:	Up	Dn		
15.3	The booms remain lowered.	Up	Dn		
15.4	The road lights and any pedestrian lights continue to flash.	Up	Dn		
15.5	The audible warning rate continues at the normal rate	Up	Dn		
15.6	The crossing headlights continue to illuminate	Up	Dn		
15.7	Operate the exit function and remove the simulation on line one. Observe the following:	Up	Dn		
15.8	The booms remain lowered.	Up	Dn		
15.9	The road lights and any pedestrian lights continue to flash.	Up	Dn		
15.10	The audible warning rate changes to the increased rate.	Up	Dn		
15.11	The crossing headlights continue to illuminate	Up	Dn		
15.12	The DWL for the direction of the simulation on line one extinguishes and the DRL commences to flash.	Up	Dn		
15.13	The DRL for the simulation on line two extinguishes and the DWL commences to flash.	Up	Dn		

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	0					simulation on the store		
15.14	Obs	erve t	hat t	the sequenc	ce is the same a	simulation on line two. is described in 14.3.	Up	Dn
15.15			-	15.1 to 15.1 striking in o		king in on line two first and	Up	Dn
16.	Specia	al Cor	ntrol	I Function S	Sequence			
Is Thi	s Sect	ion Ap	plica	able to the 0	Crossing Under	Test?	Yes	No
16.1						ng to the control tables (Stoppir tion performed and its results.	ng/Non	-
Funct	tion			Result				

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17. Track Circuit Timing

Direction	TC Name	DWL Extinguishes (Seconds)	Booms Rise (Seconds)

17.1	Simulate an approaching train by shunting a controlling track circuit.	Up	Up X	Dn	Dn X
17.2	Start timing with a stopwatch as soon as the red flashing road signals and the DWL for the direction in which the simulation was applied illuminate.	Up	Up X	Dn	Dn X
17.3	Check that after 180 seconds the DWL extinguishes and the DRL commences to flash.	Up	Up X	Dn	Dn X
17.4	Check that 30 seconds after the DWL extinguishes the barriers perform a raising sequence as in 17.12 to 17.16. The only exception will be that the DWL will already be extinguished and the DRL will be flashing.	Up	Up X	Dn	Dn X
17.5	Remove the train simulation and operate the exit function. Check that the crossing controls return to their normal state. If necessary, re-set the circuits.	Up	Up X	Dn	Dn X
17.6	Repeat 17.1 to 17.5 for all other directions where controls are provided	Up	Up X	Dn	Dn X

18. Drivers Plunger Unit

NOTE: On some designs the DWL will not illuminate when the driver's plunger is operated after the crossing has timed out. The DRL will remain flashing. Check the control tables and diagrams for the crossing you are testing.

18.1	Simulate an approaching train by shunting a controlling track circuit and allow the crossing to time out.	Up	Up X	Dn	Dn X
18.2	Check that the DWL extinguishes and the DRL commences to flash.	Up	Up X	Dn	Dn X
18.3	Open the door of the unit and operate the plunger. Check that the crossing sequence starts.	Up	Up X	Dn	Dn X
18.4	Check that DWL for the direction of the plunger operation illuminates (if designed to do so, see note at start of section).	Up	Up X	Dn	Dn X

	101011								
NCAN	/SIG/10663 <i>\</i> /IS/PartD/LX	_	enance Specificat	ions					
			ocally Monitored	I (ABCI	L) and				
			ing Locally Moni						
Issue	No: 08	Issue Date	e: 05/12/2020	Con	npliance D	ate:	05/06	6/2021	
	0	., ,	1 4						1
18.5			on and remove the raising sequence		daga ag	Up	Up	Dn	Dn
10.5		.12 to 14.16		ianes p	nace as	ОР	X	DII	X
			ktinguishes (if ope	rating, s	see note		Llo		Do
18.6		,	the DRL commer	ces (or		Up	Up X	Dn	Dn X
	continues)								
18.7		• .	k the door of the			Up	Up X	Dn	Dn X
18.8			r all other driver's			Up	Up	Dn	Dn
	Tropout To			prunge.			X		Х
19. L	ine Dimens	ions							
Is This	Section App	olicable to th	e Crossing Under	Test?				Yes	No
Where t	track works h	nave taken p	lace since the pe	vious te	est.				
Lin	ne Design Measurement Actual Measurement								
<u> </u>									
	Chook and	identify the	distance of track	oirouito d	and			1	
19.1		•	distance of track on the signalling pla			Un	Up	Dn	Dn
19.1	treadles as	•	n the signalling pla			Up	Up X	Dn	Dn X
	treadles as design and	s specified or I actual dime	n the signalling pla ensions			Up	Up X	Dn	Dn X
	treadles as	s specified or I actual dime	n the signalling pla ensions			Up	Up X	Dn	Dn X
	treadles as design and Power Suppl	s specified or I actual dime	n the signalling pla ensions tteries	an. Rec	ord the		Up X	Dn	Dn X
	treadles as design and Power Supple Carry out	s specified or I actual dime lies and Bar NR/SMS/Par	n the signalling pla ensions tteries t <u>tB/Test/051</u> (Busl	an. Reco	ord the		Up X	Dn	Dn X
20. F 20.1	treadles as design and Power Supple Carry out NR/SMS/P	s specified or I actual dime lies and Bar NR/SMS/Par PartB/Test/05	n the signalling pla ensions tteries	an. Reco par Eart Test).	ord the th Test) or		X	Dn	Dn X
20. F	treadles as design and Power Supple Carry out NR/SMS/P	s specified or I actual dime lies and Bar NR/SMS/Par PartB/Test/05 NR/SMS/Par	n the signalling pla ensions tteries t <u>tB/Test/051</u> (Busl 53 (ELD Function	an. Reco par Eart Test).	ord the th Test) or		X	Dn	Dn X
20. F 20.1	treadles as design and Power Supple Carry out NR/SMS/P	s specified or I actual dime lies and Bar NR/SMS/Par PartB/Test/05 NR/SMS/Par	n the signalling pla ensions tteries t <u>tB/Test/051</u> (Busl 53 (ELD Function	an. Reco par Eart Test).	ord the th Test) or		X	Dn	Dn X
20. F 20.1 20.2	treadles as design and Power Supple Carry out NR/SMS/P	s specified or l actual dime lies and Bar NR/SMS/Par PartB/Test/05 NR/SMS/Par Barriers.	n the signalling pla ensions tteries t <u>tB/Test/051</u> (Busl 53 (ELD Function	an. Reco par Eart Test).	ord the th Test) or		X	Dn	Dn X
20. F 20.1 20.2	treadles as design and Power Supple Carry out NR/SMS/P Carry out Narry out N	s specified or l actual dime lies and Bar NR/SMS/Par PartB/Test/05 NR/SMS/Par Barriers.	n the signalling pla ensions tteries t <u>tB/Test/051</u> (Busl 53 (ELD Function	an. Reco par Eart Test).	ord the th Test) or		X	Dn	Dn X
20. F 20.1 20.2	treadles as design and Power Supple Carry out NR/SMS/P Carry out Narry out N	s specified or l actual dime lies and Bar NR/SMS/Par PartB/Test/05 NR/SMS/Par Barriers.	n the signalling pla ensions tteries t <u>tB/Test/051</u> (Busl 53 (ELD Function	an. Reco par Eart Test).	ord the th Test) or		X	Dn	Dn
20. F 20.1 20.2	treadles as design and Power Supple Carry out NR/SMS/P Carry out Narry out N	s specified or l actual dime lies and Bar NR/SMS/Par PartB/Test/05 NR/SMS/Par Barriers.	n the signalling pla ensions tteries t <u>tB/Test/051</u> (Busl 53 (ELD Function	an. Reco par Eart Test).	ord the th Test) or		X	Dn	Dn X
20. F 20.1 20.2	treadles as design and Power Supple Carry out NR/SMS/P Carry out Narry out N	s specified or l actual dime lies and Bar NR/SMS/Par PartB/Test/05 NR/SMS/Par Barriers.	n the signalling pla ensions tteries t <u>tB/Test/051</u> (Busl 53 (ELD Function	an. Reco par Eart Test).	ord the th Test) or		X	Dn	Dn

NR/L3/SIG	/10663 S	Signal Mainten	ance Specificatio	ns	
NR/SMS/Pa	artD/LX7	7 1			
Automatic Barrier Crossing Locally Monitored (ABCL) and					
Automatic Full Barrier Crossing Locally Monitored (AFBCL)					
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APPENDIX A - Circuit Controller Band Settings

Band	Made Between
DN KR	0° and 4°
HJPR	42° and 90°
MR	0° and 83°
UP KR	81° and 90°

NOTE: It is important to obtain the over-lap between the UP KR band making and the MR band breaking. This is to ensure that if a boom drops slightly it will drive up again before the red road signals operate.

END



LEVEL CROSSING TESTING

AUTOMATIC OPEN CROSSING LOCALLY MONITORED

NR/SMS/LX72

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NR/L3/SIG/	′10663 S	ignal Mainten	ance Specificatio	ns	
NR/SMS/Pa	artD/LX7	' 2			
Automatic	Open C	rossing Loca	Ily Monitored (A	OCL)	

GENERAL

This test plan covers the requirements of NR/SMS/PartC/LC10 Level Crossings Operational Sequences, NR/SMS/PartB/Test/070 - AHB Operational Sequence Test. It is for use of the person conducting the annual test of the level crossing and has relevant 'tick boxes' by each task so that the particular item of the test can be correctly recorded as per the index in "crossing defects".

- a) The crossing ground plan.
- b) The level crossing order.
- c) The crossing control tables.
- d) The signalling plan.

Missing documentation shall be listed as a defect.

TEST SUMMARY

Test Summary
Name of Level Crossing:
Level Crossing Type:
Name of Monitoring Signal Box(es):
Date of Full Test:
Time Full Test Commenced:
Time Full Test Completed:
Tested By:
Signature:
Date of Signature:
Grade and Title:

CROSSING DEFECTS

On the test plan each item shall be recorded with the following letters in the box provided:

- **X**: Found Incorrect, Action Required.
- R: Found Incorrect, Rectified on Day of Test.
- C: Correct.
- **N**: Not Applicable to this Installation.

Any items found incorrect (X or R) are to be listed on the summary pages. On items requiring action, list the party(s) responsible for rectifying them.

NR/L3/SIG/10663 Signal Maintenance Specifications								
NR/SMS/Pa	NR/SMS/PartD/LX72							
Automatic	Automatic Open Crossing Locally Monitored (AOCL)							
Issue No:	Issue No: 06							

SUMMARY OF ITEMS FOUND INCORRECT (1)

List in the table below all sites found incorrect and rectified on the day of the test (code letter R).

Description of Items Found Incorrect and Rectified	

NR/L3/SIG/10663 Signal Maintenance Specifications								
NR/SMS/P	NR/SMS/PartD/LX72							
Automatic	Automatic Open Crossing Locally Monitored (AOCL)							
Issue No:	Issue No: 06							

SUMMARY OF ITEMS FOUND INCORRECT (2)

List in the table below items found incorrect and requiring action (code letter X).

Description of Items Found Incorrect and Requiring Action	Responsible Party (s)

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n	
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NR/L3/SIG	/10663 S	Signal Mainten	ance Specification	ns			
NR/SMS/P	artD/LX7	72					
Automatic	Automatic Open Crossing Locally Monitored (AOCL)						
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1. Road Arrangements

1.1	Check that the road markings are in accordance with the section order and plans.	
1.2	Check that the road markings on the approaches to the crossing (up to the stop line) are complete and visible.	
1.3	Check the condition and the sighting of the road signs on the crossing approaches. See NR/SMS/PartC/SG00 (Signals : General) for details on reflective boards and signs.	
1.4	Check (if provided) the condition and security of any pedestrian guardrails.	
	Any defects found in 1.2 to 1.4 shall be reported to the appropriate council via SM(S).	the
1.5	Check the condition of the road surface over the crossing.	
1.6	Check that the road markings between and including the stop lines are complete and visible.	
1.7	Check (if provided) that the cattle/anti-trespass guards are complete and securely fastened down.	
1.8	Check (if provided) the condition and security of any wicket gates.	
1.9	Check the condition and the security of any fencing on the approach to equipment room or locations.	

2. Local Control Unit

Is Th	is Section Applicable to the Crossing Under Test?	Yes	No				
2.1	Open the local control unit door. When unlocked Check that the key is retained in the lock and cannot be withdrawn unless the door is locked again.						
2.2	Operate the LCU to the on position, Check the road lights and audible warnings operate						
2.3	Check that the DWL do not illuminate.						
2.4	Operate the LCU to the off position, Check the road lights extinguish and audible warnings cease.						
2.5	Operate the LCU to on position, allow the sequence to comp to the auto position. Observe the road lights extinguish and a cease.	audible warr	nings				
	On modern installations the switch can be put straight to the auto position and the door locked. Check the diagrams for the correct mode of operation applicable to the crossing.						
2.6	Close and lock the LCU door. Check the door cannot be lock switch is in the Auto position.	ked unless t	he				

NR/L3/SIG/	/10663 S	Signal Mainten	ance Specificatio	ns			
NR/SMS/Pa	artD/LX7	72					
Automatic	Automatic Open Crossing Locally Monitored (AOCL)						
Issue No:	06	Issue Date:	07/03/2020	Compliance Date:	06/06/2020		

3. Road Traffic Light Signals

If auxiliary road traffic light signals are fitted (in addition to YO, YN, ZO and ZN), list the additional signal identification below:

Signal Number	Signal Identification
Aux 1	
Aux 2	

	On each of the road traffic light signals check the	follov	ving i	tems:			
3.1	The signal structure is stable.	YO	YN	ZO	ZN	Aux 1	Aux 2
3.2	The signal light units are undamaged and the hoods are securely fitted.	YO	YN	ZO	ZN	Aux 1	Aux 2
3.3	The signal lenses are undamaged, clean and correctly orientated.	YO	YN	ZO	ZN	Aux 1	Aux 2
3.4	Signs and notices attached to the signal post are undamaged, clean, and legible. See NR/SMS/PartC/SG00 (Signals : General) for details on reflective boards and signs.	YO	YN	ZO	ZN	Aux 1	Aux 2
3.5	Cables and conduit are undamaged and secure.	YO	YN	ZO	ZN	Aux 1	Aux 2
3.6	Check that if the signals are fitted with 50-watt Quartz Halogen lamps, the road traffic light signal backboard is fitted with a red/white border. White only and red/white border backboards shall not be mixed together at the same crossing.	YO	YN	ZO	ZN	Aux 1	Aux 2

4. Audible Warnings

4.1	Check that the audible warning device and any exposed cables and conduit are undamaged and secure. Check that the device is correctly aligned.	YO	YN	ZO	ZN
4.2	Check that there has been no water ingress into audible warning device. Rectify or replace as necessary.	YO	YN	ZO	ZN
4.3	Check that the sound output of the audible warning is sufficient for the crossing circumstances and (if applicable) is reduced for the night time. Some crossings have had the sound output of audible warning device reduced because of local conditions, check the diagrams.	YO	YN	ZO	ZN

NR/L	3/SIG/106	63 Signal Mainten	ance Specification	าร					
NR/S	MS/PartD	/LX72	•						
		en Crossing Loca	Illy Monitored (A	OCL)					
Issue	No: 06	Issue Date:	07/03/2020	Compl	iance l	Date:	06/0	6/2020)
Check (if applicable) that the audible warning time clock is set to the correct time and the day/night settings are correct. Some time clocks have a control to 'skip' the set controls on certain days, check this is not activated.									ZN
5.	Another ⁻	Train Coming Sig	ıns						
Is Th	is Section	Applicable to the (Crossing Under Te	est?		Y	'es	N	lo
	additional	/ pedestrian signal signal identification	on below:	dition to	YO, Y	N, ZO	and Z	ZN), lis	t the
	umber ux 1								
	ıx 2								
									_
5.1	Check that the sign is securely fixed to the post, the post is stable; the sign is undamaged and correctly aligned				YN	ZO	ZN	Aux 1	Aux 2
5.2		nat the hood is sec al face is clean and		YO	YN	ZO	ZN	Aux 1	Aux 2
5.3		screen is fitted, che ged and securely f		YO	YN	ZO	ZN	Aux 1	Aux 2
6.	Pedestria	an Signals							
Is Th	is Section	Applicable to the 0	Crossing Under Te	est?		Y	es	N	0
	If auxiliary pedestrian signals are fitted (in addition to YO, YN, ZO and ZN), list the additional signal identification below:								
	Signal Number Signal Identification								
Au	Aux 1								
Au	ıx 2								
6.1	post, the undama	nat the sign is secu post is stable; the ged and correctly a	sign is aligned	YO	YN	ZO	ZN	Aux 1	Aux 2
6.2		nat the hood is sec ce is clean and un	-	YO	YN	ZO	ZN	Aux 1	Aux 2

NR/L3/SIG/10663 Signal Maintenance Specifications											
NR/S	MS/P	artD/LX7	72								
Automatic Open Crossing Locally Monitored (AOCL)											
Issue	No:	06	Issue Date:	07/03/2020	Compliance Date: 06/06/2020)			
6.3 If a sun screen is fitted, check this is undamaged and securely fitted.				YO	YN	ZO	ZN	Aux 1	Aux 2		

7. Crossing Headlight Unit

7.1	Check that the structure is stable and securely fixed in the ground.	Υ	Z
7.2	Check that the light unit is undamaged and correctly aligned.	Υ	Z
7.3	Check that the lens is clean and the hood is securely fixed.	Υ	Z

8. Drivers Crossing Indicators (DRL/DWL) Signals

8.1	Check (on DRL/DWL units) that the flashing red signal is clearly visible from the speed restriction board	YO	YN	ZO	ZN
8.2	Check that the structure is stable and securely fixed in the ground.	YO	YN	ZO	ZN
8.3	Check that the unit is undamaged, correctly aligned and sighted.	YO	YN	ZO	ZN
8.4	Check that the lens(es) are clean and the hood(s) is/are securely fitted.	YO	YN	ZO	ZN
8.5	Check (on DRL/DWL units) that all the LED's on the DRL unit are flashing.	YO	YN	ZO	ZN

9. Lineside Notice Boards and Signs

9.1	Check that the sign is securely fixed to the post, the post is stable and securely fixed in the ground.	YO	YN	ZO	ZN
9.2	Check that the sign is correctly aligned and sighted.	YO	YN	ZO	ZN
9.3	Check that the sign is of the correct retro-reflective material.	YO	YN	ZO	ZN
9.4	Check that the sign is clean and the legend is correct and legible. The site plan will give details on the correct information that shall be displayed.	YO	YN	ZO	ZN

10. Telephone System

Most AOCL installations do not have public access telephones provided. Usually there is only an information sign giving contact details.

Is This Section Applicable to the Crossing Under Test?	Yes	No
--	-----	----

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NR/SMS/PartD/LX72						
Automatic Open Crossing Locally Monitored (AOCL)						
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Identify telephones at the installation under test in the grid below:

No.	Telephone Identity
1	
2	
3	
4	

		Tel	•	ne Ide Grid)	_
10.1	Check the telephone and cord is undamaged.	1	2	3	4
10.2	Check the correct labels and symbols are fitted inside and outside the case and they are legible.	1	2	3	4
10.3	Check that any associated signs are stable, undamaged and legible. Emergency telephones require having the yellow telephone symbol visible on three sides of the telephone case or on a separate plate above the telephone.	1	2	3	4
10.4	Check that the correct crossing name is stated on any telephone labels and signs. The site plan will give information on the correct names that shall be displayed	1	2	3	4
10.5	If betalights are fitted, check they are lit. Betalights are usually fitted to older style telephones units that the public have access to.	1	2	3	4
10.6	Ring the monitoring point and Check that the call is received correctly. Ask the monitoring point to ring back.	1	2	3	4
10.7	Check the telephone rings correctly. Check that the quality of speech and hearing is clear and not distorted. On Whiteley PETS telephone systems there is a short time when answering a call at either end of the line where the system 'handshakes' during this period transmission and reception of speech is not possible				
10.8	Switch off the mains power to the telephone system. After a period of time equal to the crossing sequence testing repeat tasks 10.6 to 10.7. Switch the mains power to the telephone system back on.				

NR/L3/SIG/10663 Signal Maintenance Specifications							
NR/SMS/PartD/LX72							
Automatic Open Crossing Locally Monitored (AOCL)							
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11. Public Telephone Numbers

11.1	Check the information on all the public information signs is correct and legible.	
11.2	Ring the ETD number given for the public to call in an emergency, Check that the recipient gives correct procedures for the call. The site plan will give information on the correct names/numbers that shall be displayed.	

Public Telephone Numbers	

12. Red Flashing Road Traffic Light Signal Proving

The crossing shall be operated by train simulation.

Check on the following tests that only the DWL for the direction in which the train simulation is applied operates.

If the (DWL)CR/CSR is a slow to pick relay the DWL will not illuminate with only one red road light connected. Check the diagrams.

If auxiliary road traffic light signals are fitted (in addition to YO, YN, ZO and ZN), list the addional signal identification below:

Signal number	Signal Identitication
Aux 1	
Aux 2	

12.1	Simulate a train striking in and allow the booms to lower. Check that all the red road signals are illuminated (flashing).	YO	YN	ZO	ZN	Aux 1	Aux 2
12.2	Measure the rate of flashing (Between 70 and 90 flashes per minute).			FPM			
12.3	Check that the DWL is flashing.	YO	YN	ZO	ZN	Aux 1	Aux 2

NR/L3/SIG/10663 Signal Maintenance Specifications								
NR/SMS/PartD/LX72								
			lly Monitored (A	OCL)				
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12.4	Disconnect the left and right lamps on one of the light units by slipping the links in the equipment room/loc Check that the DWL extinguishes and (if provided) the DRL illuminates.	YO	YN	ZO	ZN	Aux 1	Aux 2
12.5	Re-connect the right hand lamp Check that the DRL (if provided) extinguishes and the DWL illuminates	YO	YN	ZO	ZN	Aux 1	Aux 2
12.6	Disconnect again the right hand lamp and Check that the DWL extinguishes and the DRL (if provided) illuminates.	YO	YN	ZO	ZN	Aux 1	Aux 2
12.7	Re-connect the left hand lamp and Check that the DRL (if provided) extinguishes and the DWL illuminates	YO	YN	ZO	ZN	Aux 1	Aux 2
12.8	Re-connect the right hand lamp and repeat 12.3 to 12.7 for the other red road signal units. The flashes per minute rate only requires to be measured on one light unit.	YO	YN	ZO	ZN	Aux 1	Aux 2

13. Local Control Sequence

Is This Section Applicable to the Crossing Under Test?

13.1	Operate the switch on the local control unit to the On position and Check the following items:)
13.2	All the amber road signals illuminate and the audible warnings commence concurrently (Yodalarms at normal warbling rate).	
13.3	After 3 seconds (5 seconds at older installations) all the amber signals extinguish and all the red flashing road signals start to flash and any pedestrian lights start to flash.	
13.4	The crossing headlights illuminate the crossing at the time the red road lights commence to flash.	
13.5	Check that the DWL do NOT illuminate.	
13.6	Operate the switch to the Off position and Check the following:	
13.7	The red flashing road signals, yodalarms and any pedestrian lights are extinguished.	
13.8	The crossing headlights are extinguished.	
13.9	Check that the guide on the inside of the local control unit door prevents the door being closed and locked unless the switch is in the auto position.	
13.10	Operate the switch to the On position and Observe that the sequence occurs as in 13.2 to 13.5, operate the switch to the Auto position and close	

and lock the door. Observe that all the crossing functions are extinguished.

Yes

No

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and the doc		ck the diagrams f	put straight to the au or the correct mode				

14. Automatic Control Sequence

- Check in the crossing control tables for any special controls that affect the automatic control sequence.
- Where the word EXIT occurs, the strike out treadle shall be operated.
- On single lines or where bi-directional controls exist, the leaving track circuit shall also be operated.
- Where directional proving controls exists the bi-directional strike out treadle shall also be operated in the correct sequence.

	Observe, with no train approaching, all DRL (if provided) are illuminated (flashing) and are visible from the speed restriction board								
14.1	Simulate an approaching train by shunting a controlling track circuit. Observe the following:	Up	Up X	Dn	Dn X				
14.2	On double lines 10 seconds elapse before the crossing sequence commences. On single lines the sequence starts immediately.								
14.3	All the amber road signals illuminate and the audible warnings commence concurrently (Yodalarms at normal warbling rate).	Up	Up X	Dn	Dn X				
14.4	After 3 seconds all the amber signals extinguish and all the red road signals and any pedestrian lights start to flash	Up	Up X	Dn	Dn X				
14.5	The crossing headlights illuminate the crossing at the time the red road lights commence to flash	Up	Up X	Dn	Dn X				
14.6	The DRL (if applicable) extinguishes and the DWL commences to flash for the direction where the train simulation was applied. The DRL (if applicable) continues for the opposing directions.	Up	Up X	Dn	Dn X				
14.7	Operate the exit function and remove the train simulation. Observe the following	Up	Up X	Dn	Dn X				
14.8	The road lights, any pedestrian lights, and audible warnings cease immediately.								
14.9	The DWL for the direction where the simulation was applied extinguishes	Up	Up X	Dn	Dn X				
14.10	The DRL (if provided) commences to flash	Up	Up X	Dn	Dn X				
14.11	Repeat steps 14.2 to 14.11 for the opposite direction on a single line and the other direction on double lines	Up	Up X	Dn	Dn X				

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NR/SMS/PartD/LX72								
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15. Double Lines Second Train Approaching Sequence

Is This	Section Applicable to the Crossing Under Test?			Yes	No				
15.1	15.1 Simulate a train striking in on line one as per 14.2								
15.2	Simulate a second train striking in on line two. Observe the following:								
15.3	The road lights and any pedestrian lights continue to flash.	Up	Up X	Dn	Dn X				
15.4	The audible warning rate continues at the normal rate.	Up	Up X	Dn	Dn X				
15.5	The crossing headlights continue to illuminate.	Up	Up X	Dn	Dn X				
15.6	Operate the exit function and remove the simulation for the first train and Check the following:	Up	Up X	Dn	Dn X				
15.7	The road lights and any pedestrian lights continue to flash.	Up	Up X	Dn	Dn X				
15.8	The audible warning rate changes to the increased rate.	Up	Up X	Dn	Dn X				
15.9	The ATC signs (if Illuminating) illuminate, flash and the words are correct.	Up	Up X	Dn	Dn X				
15.10	The crossing headlights continue to illuminate.	Up	Up X	Dn	Dn X				
15.11	The DWL for the direction of the simulation on line one extinguishes and the DRL (if applicable) commences to flash.	Up	Up X	Dn	Dn X				
15.12	The DRL (if applicable) for the simulation on line two extinguishes and the DWL commences to flash.	Up	Up X	Dn	Dn X				
15.13	Operate the exit function and remove the simulation on line two. Observe that the sequence is the same as described in 14.9 to 14.11.								
15.14	Repeat steps 15.1 to 15.13 for a train striking in on line two first and a second train striking in on line one.								

16. Track Circuit Timing

16.1	Simulate an approaching train by shunting a controlling track circuit.						
16.2	The DWL for the direction of the simulation on line one extinguishes and the DRL (if applicable) commences to flash.	Up	Up X	Dn	Dn X		
16.3	Start timing with a stopwatch as soon as the red flashing road signals and the DWL for the direction in which the simulation was applied illuminate.	Up	Up X	Dn	Dn X		
16.4	Check that after 180 seconds the DWL extinguishes and the DRL (if applicable) commences to flash.	Up	Up X	Dn	Dn X		

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16.5	Check that 30 seconds after the DWL extinguishes the red flashing road signals extinguish.	Up	Up X	Dn	Dn X
16.6	Remove the train simulation and operate the exit function. Check that the crossing controls return to there normal state. If necessary re-set the circuits.	Up	Up X	Dn	Dn X
16.7	Repeat 16.1 to 16.5 for all other directions where controls are provided. Record the results in the table below. If any adjustments have to be made to achieve these	Up	Up X	Dn	Dn X
	times, allow a period of time for the bi-metal strip in the timer to cool down.				

Direction	TC Name	DWL Extinguishes (Seconds)	Red Road Signals Extinguishes (Seconds)
Up			
Up X			
Dn			
Dn X			

17. Drivers Plunger Unit

13 This Section Applicable to the Crossing Orider Test:	Is This Section Applicable to the Crossing Under Test?	Yes	No
---	--	-----	----

These are normally fitted to modern installations.

NOTE: On some designs the DWL will not illuminate when the drivers plunger is operated after the crossing has timed out. The DRL (if provided) will remain flashing. Check the control tables and diagrams for the crossing you are testing.

17.1	Simulate an approaching train by shunting a controlling track circuit and allow the crossing to time out.	Up	Up X	Dn	Dn X
17.2	Open the door of the unit and operate the plunger. Check that the crossing sequence starts.	Up	Up X	Dn	Dn X
17.3	Check that DWL for the direction of the plunger operation illuminates (if designed to do so, see note at start of section).	Up	Up X	Dn	Dn X
17.4	Reset the circuits to normalise the crossing controls. Close and lock the door of the plunger unit.	Up	Up X	Dn	Dn X
17.5	Repeat 17.1 and 17.3 for all other driver's plunger units.	Up	Up X	Dn	Dn X

		10663 art D/L)	Signal Mainten	ance Spec	ification	ons		
			K72 Crossing Loca	Ily Monito	red (/	AOCL)		
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18.	Spec	ial Cor	ntrol Function S	Sequence				
Is Th	is Sec	tion Ap	plicable to the C	Crossing Ur	nder 1	est?	Yes	No
		k in the ossing	control tables f	or any spe	cial co	ontrols functions that are	applicab	le to
18.1	(Sto					ording to the control table c). Record the function p		and
Fu	nction	า			Res	ult		
		-						
-								
19.	Line	Dimen	sions					
Is Th	is Sec	tion Ap	plicable to the (Crossing Ur	nder 1	est?	Yes	No
	Where	e track	works have tak	en place si	nce th	ne pervious test		
19.1			identify the dista lan. Record the			cuits and treadles as special dimensions.	cified on t	he
Li	ne		Design Measu	rement		Actual Measurement		

NR/L3/SIG/10663 Signal Maintenance Specifications					
NR/SMS/PartD/LX72					
Automatic Open Crossing Locally Monitored (AOCL)					

20. Power Supplies and Batteries

20.1	Simulate a train striking in and allow the crossing to operate.	
20.2	Check that the DWL for the direction in which the simulation was applied illuminates and (if applicable) the DRL extinguishes.	
20.3	Disconnect the mains power and Check that the DWL extinguishes and (if provided) the DRL illuminates.	
20.4	Reconnect the power and Check that the DWL illuminates and the DRL extinguishes.	
20.5	Remove the train simulation and operate the exit function.	
20.6	Check that the crossing controls return to there normal state.	
20.7	If necessary re-set the circuits	
20.8	Carry out NR/SMS/PartB/Test/051 (Busbar Earth Test) or NR/SMS/PartB/Test/053 (ELD Function Test).	
20.9	Carry out NR/SMS/PartB/Test/052 (Dynamic Earth Tests) - Level Crossing Barriers.	

Power Supply Identification	

END



LEVEL CROSSING TESTING

AUTOMATIC OPEN CROSSING REMOTELY MONITORED

NR/SMS/LX73

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NR/L3/SIG/10663 Signal Maintenance Specifications					
NR/SMS/PartD/LX73					
Automatic Open Crossing Remotely Monitored (AOCR)					
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GENERAL

This test plan covers the requirements of NR/SMS/PartC/LC10 and NR/SMS/PartB/Test/073. It is for use of the person conducting the annual test of the level crossing and has relevant 'tick boxes' by each task so that particular item of the test can be correctly recorded as per the index in "crossing defects".

- a) The crossing ground plan.
- b) The level crossing order.
- c) The crossing control tables.
- d) The signalling plan.

Missing documentation shall be listed as a defect.

TEST SUMMARY

Test Summary					
Name of Level Crossing:					
Level Crossing Type:					
Name of Monitoring Signal Box(es):					
Date of Full Test:					
Time Full Test Commenced:					
Time Full Test Completed:					
Tested By:					
Signature:					
Date of Signature:					
Grade and Title:					

CROSSING DEFECTS

On the test plan each item shall be recorded with the following letters in the box provided:

- **X**: Found Incorrect, Action Required.
- R: Found Incorrect, Rectified on Day of Test.
- C: Correct.
- **N**: Not Applicable to this Installation.

Any items found incorrect (X or R) are to be listed on the summary pages. On items requiring action, list the party(s) responsible for rectifying them.

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SUMMARY OF ITEMS FOUND INCORRECT (1)

List in the table below all sites found incorrect and rectified on the day of the test (code letter R).

Description of Items Found Incorrect and Rectified	

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SUMMARY OF ITEMS FOUND INCORRECT (2)

List in the table below items found incorrect and requiring action (code letter X).

Description of Items Found Incorrect and Requiring Action	Responsible Party (s)

1. Road Arrangements

1.1	Check that the road markings are in accordance with the section order and plans.	
1.2	Check that the road markings on the approaches to the crossing (up to the stop line) are complete and visible.	
1.3	Check the condition and the sighting of the road signs on the crossing approaches. See NR/SMS/SG00 for details on reflective boards and signs.	
1.4	Check (if provided) the condition and security of any pedestrian guardrails.	
	Any defects found in 1.2 to 1.4 shall be reported to the appropriate council via the SM(S)	
1.5	Check the condition of the road surface over the crossing.	
1.6	Check that the road markings between and including the stop lines are complete and visible.	
1.7	Check (if provided) that the cattle/anti-trespass guards are complete and securely fastened down.	
1.8	Check (if provided) the condition and security of any wicket gates.	
1.9	Check the condition and the security of any fencing on the approach to equipment room or locations.	

2. Local Control Unit

2.1	Open the local control unit door. Check when unlocked that the key is retained in the lock and cannot be withdrawn unless the door is locked again.	
2.2	Operate the LCU to the on position, Check the road lights and audible warnings operate	
2.3	Operate the LCU to the off position, Check the road lights extinguish and audible warnings cease.	
2.4	Operate the LCU to on position, allow the sequence to complete then switch to the auto position. Observe the road lights extinguish and audible warnings cease.	
2.5	Close and lock the LCU door. Check the door cannot be locked unless the switch is in the Auto position.	

3. Road Traffic Light Signals

If auxiliary road traffic light signals are fitted (in addition to YO, YN, ZO and ZN), list the additional signal identification below:						
Signal Number	Signal Identification					
Aux 1						
Aux 2						

NR/L3/SIG/	/10663 S	ignal Maintena	ance Specification	าร				
NR/SMS/Pa	NR/SMS/PartD/LX73							
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3.1	On each of the road traffic light signals check the following items:						
3.2	The signal structure is stable.	YO	YN	ZO	ZN	Aux 1	Aux 2
3.3	The signal light units are undamaged and the hoods are securely fitted.	YO	YN	ZO	ZN	Aux 1	Aux 2
3.4	The signal lenses are undamaged, clean and correctly orientated.	YO	YN	ZO	ZN	Aux 1	Aux 2
3.5	Signs and notices attached to the signal post are undamaged, clean, and legible See NR/SMS/SG00 for details on reflective boards and signs.	YO	YN	ZO	ZN	Aux 1	Aux 2
3.6	Cables and conduit are undamaged and secure.	YO	YN	ZO	ZN	Aux 1	Aux 2
3.7	Check that if the signals are fitted with 50-watt Quartz Halogen lamps the road traffic light signal backboard is fitted with a red/white border. White only and red/white border backboards shall not be mixed together at the same crossing.	YO	YN	ZO	ZN	Aux 1	Aux 2

4. Audible Warnings

4.1	Check that the audible warning device and any exposed cables and conduit are undamaged and secure. Check that the device is correctly aligned.	YO	YN	ZO	ZN
4.2	Check that there has been no water ingress into audible warning device. Rectify or replace as necessary.	YO	YN	ZO	ZN
4.3	Check that the sound output of the audible warning is sufficient for the crossing circumstances and (if applicable) is reduced for the night time. Some crossings have had the sound output of audible warning device reduced because of local conditions, check the diagrams.	YO	YN	ZO	ZN
4.4	Check (if applicable) that the audible warning time clock is set to the correct time and the day/night settings are correct. Some time clocks have a control to 'skip' the set controls on certain days, check this is not activated.				

5. Another Train Coming Signs

Is This Section Applicable to the Crossing Under Test?	Yes	No
--	-----	----

NR/L3/SIG	/10663 S	ignal Maintena	ance Specification	าร			
NR/SMS/P	NR/SMS/PartD/LX73						
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If auxiliary pedestrian signals are fitted (in addition to YO, YN, ZO and ZN), list the additional signal identification below:

Signal Number	Signal Identification
Aux 1	
Aux 2	

5.1	Check that the sign is securely fixed to the post, the post is stable; the sign is undamaged and correctly aligned	YO	YN	ZO	ZN	Aux 1	Aux 2
5.2	Check that the hood is securely fitted and the signal face is clean and undamaged	YO	YN	ZO	ZN	Aux 1	Aux 2
5.3	If a sun screen is fitted, check this is undamaged and securely fitted.	YO	YN	ZO	ZN	Aux 1	Aux 2

6. Pedestrian Signals

Is This Section Applicable to the Crossing Under Test?	Yes	No
--	-----	----

If auxiliary pedestrian signals are fitted (in addition to YO, YN, ZO and ZN), list the additional signal identification below:

Signal Number	Signal Identification
Aux 1	
Aux 2	

6.1	Check that the sign is securely fixed to the post, the post is stable; the sign is undamaged and correctly aligned	YO	YN	ZO	ZN	Aux 1	Aux 2
6.2	Check that the hood is securely fitted and the signal face is clean and undamaged	YO	YN	ZO	ZN	Aux 1	Aux 2
6.3	If a sun screen is fitted Check this is undamaged and securely fitted.	YO	YN	ZO	ZN	Aux 1	Aux 2

7. Telephone System

The majority of installations usually have two emergency phones and an LCU phone. There are also some installations that have 'lay-by' phones because of the road

conditions. The crossing section order will state the telephone system that is required at the crossing.

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NR/SMS/P	artD/LX7	73			
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Identify telephones at the installation under test in the grid below:

No.	Telephone Identity
1	
2	
3	
4	

		Tele		e Ide Grid)	ntity
7.1	Check the telephone and cord is undamaged.	1	2	3	4
7.2	Check the correct labels and symbols are fitted inside and outside the case and they are legible.	1	2	3	4
7.3	Check that any associated signs are stable, undamaged and legible. Emergency telephones require having the yellow telephone symbol visible on three sides of the telephone case or on a separate plate above the telephone	1	2	3	4
7.4	Check that the correct crossing name is stated on any telephone labels and signs. The site plan will give information on the correct names/numbers that shall be displayed.	1	2	3	4
7.5	If betalights are fitted Check they are lit. Betalights are usually fitted to older style telephones units that the public have access to.	1	2	3	4
7.6	On emergency telephones Check that an ETD number is given for the public to call in case they cannot contact the monitoring point. Ring this number and Check that the recipient uses the correct procedures for the call.	1	2	3	4

Public Telephone Numbers	Checked

NR/L3/SIG/	10663 S	ignal Maintena	ance Specification	าร	
NR/SMS/Pa	artD/LX7	' 3			
Automatic	Open C	rossing Remo	otely Monitored (AOCR)	
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7.7	Ring the monitoring point and Check that the call is received correctly. Ask the monitoring point to ring back.	1	2	3	4
7.8	Check the telephone rings correctly. Check that the quality of speech and hearing is clear and not distorted. On Whitely PETS telephone systems there is a short time when answering a call at either end of the line where the system 'handshakes' During this period transmission and reception of speech is not possible.	1	2	3	4
7.9	Check that with one of the emergency telephones left 'off the hook' calls on the other telephones can be made and received correctly. Whitely PETS systems will indicate a fault at the monitoring point.	1	2	3	4
7.10	If a block switch is fitted Check that when operated 7.5 to 7.6 operate correct at the alternative monitoring point.	1	2	3	4
7.11	Check that at the normal monitoring point any audible devices do not sound	1	2	3	4
7.12	Repeat 7.7 for any other alternative monitoring points.	1	2	3	4
7.13	If an absent switch is fitted to the telephone system operate it and Check that if an emergency call made this is indicated by a low level of illumination of the telephone unit and any audible devices do not sound. Operate the absent switch back to normal operation and Check that a normal emergence call is received.	1	2	3	4
7.14	Switch off the mains power to the telephone system. After a period of time equal to the crossing sequence testing repeat tasks 7.7 to 7.13. Switch the mains power to the telephone system back on.				

8. Red Flashing Road Traffic Light Signal Proving

The crossing shall be operated by train simulation. A competent person (not the signaller) is required at the monitoring point(s) to observe the indications.

If auxiliary road traffic light signals are fitted (in addition to YO,YN, ZO and ZN), list the additional signal identification below:

Signal Number	Signal Identification
Aux 1	
Aux 2	

NR/L3/SIG/	/10663 S	ignal Maintena	ance Specification	ns	
NR/SMS/Pa	artD/LX7	3			
Automatic	Open C	rossing Remo	tely Monitored ((AOCR)	
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Turn the mains power off.						
Simulate a train striking in and allow the crossing to operate. Check that all the red road signals are illuminated (flashing).	YO	YN	ZO	ZN	Aux 1	Aux 2
Measure the rate of flashing (Between 70 and per minute)	90 fla	shes	FF	М		
Disconnect the left and right lamps on one of the light units by slipping the links in the equipment room/loc and Check that the indication at the monitoring point shows failed/local control.	YO	YN	ZO	ZN	Aux 1	Aux 2
Re-connect the right-hand lamp and check that the indication at the monitoring point shows in order.	YO	YN	ZO	ZN	Aux 1	Aux 2
Disconnect again the right-hand lamp and Check that the indication at the monitoring point shows failed/local control.	YO	YN	ZO	ZN	Aux 1	Aux 2
Re-connect the left-hand lamp and check that the indication at the monitoring point shows in order.	YO	YN	ZO	ZN	Aux 1	Aux 2
Re-connect the right hand lamp and Repeat 8.2 to 8.7 for all other light units. The flashes per minute rate only requires to	YO	YN	ZO	ZN	Aux 1	Aux 2
	Simulate a train striking in and allow the crossing to operate. Check that all the red road signals are illuminated (flashing). Measure the rate of flashing (Between 70 and per minute) Disconnect the left and right lamps on one of the light units by slipping the links in the equipment room/loc and Check that the indication at the monitoring point shows failed/local control. Re-connect the right-hand lamp and check that the indication at the monitoring point shows in order. Disconnect again the right-hand lamp and Check that the indication at the monitoring point shows failed/local control. Re-connect the left-hand lamp and check that the indication at the monitoring point shows in order. Re-connect the right hand lamp and Repeat 8.2 to 8.7 for all other light units.	Simulate a train striking in and allow the crossing to operate. Check that all the red road signals are illuminated (flashing). Measure the rate of flashing (Between 70 and 90 fla per minute) Disconnect the left and right lamps on one of the light units by slipping the links in the equipment room/loc and Check that the indication at the monitoring point shows failed/local control. Re-connect the right-hand lamp and check that the indication at the monitoring point shows in order. Disconnect again the right-hand lamp and Check that the indication at the monitoring point shows failed/local control. Re-connect the left-hand lamp and check that the indication at the monitoring point shows in order. Re-connect the right hand lamp and Repeat 8.2 to 8.7 for all other light units.	Simulate a train striking in and allow the crossing to operate. Check that all the red road signals are illuminated (flashing). Measure the rate of flashing (Between 70 and 90 flashes per minute) Disconnect the left and right lamps on one of the light units by slipping the links in the equipment room/loc and Check that the indication at the monitoring point shows failed/local control. Re-connect the right-hand lamp and check that the indication at the monitoring point shows in order. Disconnect again the right-hand lamp and Check that the indication at the monitoring point shows failed/local control. Re-connect the left-hand lamp and check that the indication at the monitoring point shows in order. Re-connect the left-hand lamp and check that the indication at the monitoring point shows in order. Re-connect the right hand lamp and Repeat 8.2 to 8.7 for all other light units.	Simulate a train striking in and allow the crossing to operate. Check that all the red road signals are illuminated (flashing). Measure the rate of flashing (Between 70 and 90 flashes per minute) Disconnect the left and right lamps on one of the light units by slipping the links in the equipment room/loc and Check that the indication at the monitoring point shows failed/local control. Re-connect the right-hand lamp and check that the indication at the monitoring point shows in order. Disconnect again the right-hand lamp and Check that the indication at the monitoring point shows failed/local control. Re-connect the left-hand lamp and check that the indication at the monitoring point shows failed/local control. Re-connect the left-hand lamp and check that the indication at the monitoring point shows in order. Re-connect the right hand lamp and Repeat 8.2 to 8.7 for all other light units.	Simulate a train striking in and allow the crossing to operate. Check that all the red road signals are illuminated (flashing). Measure the rate of flashing (Between 70 and 90 flashes per minute) Disconnect the left and right lamps on one of the light units by slipping the links in the equipment room/loc and Check that the indication at the monitoring point shows failed/local control. Re-connect the right-hand lamp and check that the indication at the monitoring point shows in order. Disconnect again the right-hand lamp and Check that the indication at the monitoring point shows failed/local control. Re-connect the left-hand lamp and check that the indication at the monitoring point shows failed/local control. Re-connect the left-hand lamp and check that the indication at the monitoring point shows in order. Re-connect the right hand lamp and Repeat 8.2 to 8.7 for all other light units. The flashes per minute rate only requires to	Simulate a train striking in and allow the crossing to operate. Check that all the red road signals are illuminated (flashing). Measure the rate of flashing (Between 70 and 90 flashes per minute) Disconnect the left and right lamps on one of the light units by slipping the links in the equipment room/loc and Check that the indication at the monitoring point shows failed/local control. Re-connect the right-hand lamp and check that the indication at the monitoring point shows in order. Disconnect again the right-hand lamp and Check that the indication at the monitoring point shows failed/local control. Re-connect the left-hand lamp and check that the indication at the monitoring point shows failed/local control. Re-connect the left-hand lamp and check that the indication at the monitoring point shows in order. Re-connect the right hand lamp and Repeat 8.2 to 8.7 for all other light units. The flashes per minute rate only requires to

9. Another Train Coming Signal Proving

Is This Section Applicable to the Crossing Under Test? Yes No
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	On double lines where this facility exists simulate a train striking in on line one, then simulate a train striking in on line two.	
9.1	Operate the exit function for the train on line one and Check that the red flashing road signals and any pedestrian signals and (if applicable) ATC signs are illuminated and flashing.	
9.2	On the flasher unit disconnect the strap ER1 to ER2 and Check that red flashing road signals and any pedestrian signals and (if applicable) ATC signs remain illuminated and are not flashing	
9.3	Check at the monitoring point that a failed/local control indication is received	
9.4	Reconnect the strap ER1 to ER2 on the flasher and Check that red flashing road signals and any pedestrian signals and (if applicable) ATC signs remain illuminated and flashing.	
9.5	Check at the monitoring point that an in-order indication is received.	

10. Local Control Sequence

	Operate the switch on the local control unit to the On position and check the following items:	
10.1	All the amber road signals illuminate and the audible warnings commence concurrently (Yodalarms at normal warbling rate).	
10.2	After 3 seconds all the amber signals extinguish and all the red road signals and any pedestrian lights start to flash.	
10.3	Operate the switch to the Off position and check the following:	
10.4	The red flashing road signals, yodalarms and any pedestrian lights are extinguished.	
10.5	Check that the guide on the inside of the local control unit door prevents the door being closed and locked unless the switch is in the auto position.	
10.6	Operate the switch to the Auto position and close and lock the door. Check that the correct indication is received at the monitoring point.	

11. Automatic Control Sequence

- Check in the crossing control tables for any special controls that affect the automatic control sequence.
- Where the word EXIT occurs the strike out treadle shall be operated.
- On single lines or where bi-directional controls exist the leaving track circuit shall also be operated.
- Where directional proving controls exists the bi-directional strike out treadle shall also be operated in the correct sequence.

	Simulate an approaching train by shunting a controlling track circuit. Observe the following:				
11.1	On double lines 10 seconds elapse before the crossing sequence commences. On single lines the sequence starts immediately.	Up	Up X	Dn	Dn X
11.2	All the amber road signals illuminate and the audible warnings commence concurrently (Yodalarms at normal warbling rate).	Up	Up X	Dn	Dn X
11.3	After 3 seconds all the amber signals extinguish and all the red road signals and any pedestrian lights start to flash	Up	Up X	Dn	Dn X
11.4	Operate the exit function and remove the train simulation and Observe the road lights, any pedestrian lights and audible warnings cease immediately.	Up	Up X	Dn	Dn X
11.5	Repeat steps 11.1 to 11.5 for the opposite direction on a single line and the other direction on double lines.	Up	Up X	Dn	Dn X

12. Double Lines Second Train Approaching Sequence

Is This Section Applicable to the Crossing Under Test?	Yes	No

	Simulate a train striking in on line one.		
	Simulate a second train striking in on line two. check the following:		
12.1	The road lights and any pedestrian lights continue to flash.	Up	Dn
12.2	The audible warning rate continues at the normal rate	Up	Dn
12.3	Operate the exit function and remove the simulation on line one. Observe the following:		
12.4	The road lights and any pedestrian lights continue to flash.	Up	Dn
12.5	The audible warning rate changes to the increased rate.	Up	Dn
12.6	The ATC signs (if Illuminating) illuminate, flash and the words are correct	Up	Dn
12.7	Operate the exit function and remove the simulation on line two. Observe the road lights, any pedestrian lights and audible warnings cease immediately.	Up	Dn
12.8	Repeat steps 12.1 to 12.7 for a train striking in on line two first and a second train striking in on line one.	Up	Dn

13. Strike In Track Circuit Resetting

	Simulate an approaching train by shunting a controlling track circuit.				
13.1	As soon as the red flashing road signals illuminate remove the train simulation and start timing with a stopwatch.	Up	Up X	Dn	Dn X
13.2	Check that after 120 seconds the red flashing road signals extinguish.				
13.3	Check that the crossing controls return to their normal state. If necessary, re-set the circuits				
13.4	Repeat 13.1 to 13.3 for all other directions where controls are provided. Record the results in the table below If any adjustments have to be made to achieve these times, allow a period of time for the bi-metal strip in the timer to cool down.				

Direction	TC Name	Red Road Light extinguishes (second)
Up		
UpX		
Dn		
DnX		

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14. Exit Track Circuit Resetting

	Simulate an approaching train by shunting a controlling track circuit.				
14.1	When the red flashing road signals have illuminated, shunt the exit track circuit, operate the exit function and remove the shunt from the strike in track circuit. Leave the exit track circuit shunted	Up	Up X	Dn	Dn X
14.2	Observe that the red flashing road signals extinguish and start timing with a stopwatch as soon as this occurs				
14.3	Check that after 130 seconds on double lines or 120 seconds on single lines the crossing sequence commences as detailed in 14.1				
14.4	Remove the shunt from the exit track circuit and Check that the crossing controls return to their normal state after the strike in track circuit timing has completed				
14.5	Repeat 14.1 to 14.4 for all other directions where controls are provided. Record the results in the table below. If any adjustments have to be made to achieve these times, allow a period of time for the bi-metal strip in the timer to cool down.				

Direction	TC Name	Red Road Light extinguishes (second)
Up		
UpX		
Dn		
DnX		

15. Special Control Function Sequence

Is This Section Applicable to the Crossing Under Test?						
				,		

Perform any special control functions according to the control tables (Stopping/Non-Stopping, Signal, TRTS etc). Record the function performed and its results.

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NR/SMS/Pa	NR/SMS/PartD/LX73					
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Function	Result

16. Line Dimensions

Is This Section Applicable to the Crossing Under Test?

Yes No

Where track works have taken place since the pervious test

Check and identify the distance of track circuits and treadles as specified on the signalling plan. Record the design and actual dimensions

NR/L3/SIG	/10663 S	signal Maintena	ance Specification	ns		
NR/SMS/P	artD/LX7	7 3				
Automatic	Open C	rossing Remo	otely Monitored ((AOCR)		
Issue No:	06	Issue Date:	07/03/2020	Compliance Date:	06/06/2020	

Line	Design Measurement	Actual Measurement
Up		
Up X		
Dn		
Dn X		

17. Indications (Needle Type) and Audible Devices

Is This Section Applicable to the Crossing Under Test?	Yes	No	Ī
--	-----	----	---

It may be convenient to combine this with Section 7 Telephone systems

A competent person (not the signaller) is required at the monitoring point(s) to observe the indications.

17.1	Check that the indicator is in the in order/power on position.	
17.2	Simulate a train striking in and observe that the indicator moves to the no legend position.	
17.3	Remove the train simulation and operate the exit function, observe that the indication returns to the in order/power on position.	
17.4	Open the local control operator's door observe that the indicator moves to the no legend position.	
17.5	Close and lock the operator's door, observe that the indicator returns to the in order/power on position.	
17.6	Simulate a train striking in and observe that the indicator moves to the no legend position.	
17.7	Check that after 240 seconds on double lines or 180 seconds on single lines the audible alarm sounds and it can be silenced.	
17.8	Remove the train simulation and operate the exit function. Observe that the indication returns to the in order/power on position and the audible alarm sounds and it can be silenced.	
17.9	Withdraw in turn each power supply fuse that is in the (PO) PR circuit (check diagrams). Observe that for each fuse the indicator moves to the in order/power off position and Check that the audible alarm sounds and can be silenced.	
17.10	When each fuse is replaced Observe that the indicator returns to the barriers raised / power on position and Check that the audible alarm sounds and can be silenced.	
17.11	Check (where provided) that the monitoring point test switches operate.	

NR/L3/SIG/10663 Signal Maintenance Specifications					
NR/SMS/P	NR/SMS/PartD/LX73				
Automatic	Open C	rossing Remo	otely Monitored	(AOCR)	
Issue No:	06	Issue Date:	07/03/2020	Compliance Date:	06/06/2020

17.12	If an Absent switch is provided, switch to the absent position and Check that the indicator moves to the no legend position, the audible alarms devices do not sound, and the level crossing protecting functions (block/signal) are effective.	
17.13	If a block switch is provided, switch to the alternative monitoring point and Check that at the normal monitoring point the indicator moves to the no legend position and the audible alarms devices do not sound. At the alternative monitoring point repeat 17.1 to 17.12	

18. Indications (Lamp Type) and Audible Devices

Is This Section Applicable to the Crossing Under Test?	Yes	No	
--	-----	----	--

It may be convenient to combine this with Section 7 Telephone systems

A competent person (not the signaller) is required at the monitoring point(s) to observe the indications.

18.1	Check that the indications show in order and power on.	
18.2	Simulate a train striking in and Observe the in order indication extinguishes and the power on indication remains illuminated.	
18.3	Operate the exit function and remove the train simulation, Observe that the in order indication illuminates and the power on indication remains illuminated.	
18.4	Open the LCU unit door and Observe that the in order indication extinguishes. Close and lock the door. Observe that the in order indication illuminates and the power on indication remains illuminated.	
18.5	Simulate a train striking in and Observe that the in order indicator extinguishes.	
18.6	Check that after 240 seconds on double lines or 180 seconds on single lines the failed/local control indication illuminates and the audible alarm sounds and it can be silenced. The power on indication will remain illuminated	
18.7	Remove the train simulation and operate the exit function, Observe that the failed/local control indication extinguishes, the in order indication illuminates and the audible alarm sounds and it can be silenced. The power on indication will remain illuminated.	
18.8	Withdraw in turn each power supply fuse that is in the (PO) PR circuit (check diagrams). Observe that for each fuse the power on indication extinguishes and the standby in use indication illuminates.	
18.9	Check that the audible alarm sounds and can be silenced.	
18.10	When each fuse is replaced Observe that the standby in use indication extinguishes and the power on indication illuminates.	
18.11	Check that the audible alarm sounds and can be silenced. The in-order indication will remain illuminated.	

			ance Specification	ns		
	IS/PartD/L>	_				
Autom	natic Open	Crossing Rem	otely Monitored	(AOCR)		
Issue N	No: 06	Issue Date:	07/03/2020	Compliance Date:	06/06/2020)
18.12	Check (wh	ere provided) th	nat the monitoring	g point test switches	operate.	
18.13	that all the	indications exti	nguish, the audib	ne absent position an ole alarms devices do (block/signal) are eff	not sound	
18.14	Check that extinguish	t at the normal r ed and the audi	monitoring point a	alternative monitoring all the indications are es do not sound. At the 18.13	•	
19. F	Power Supp	olies and Batte	ries			
19.1	,		<u>/Test/051</u> - Busba 53 - ELD Function			
19.2	Carry out Barriers).	NR/SMS/PartB	<u>/Test/052</u> - Dyna	mic Earth Tests (Lev	rel Crossing	
Power	r Supply Ide	entification				
Ť			END			

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LEVEL CROSSING TESTING

MINIATURE STOP LIGHT CROSSING (MINIATURE WARNING LIGHTS)

NR/SMS/LX74

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NR/L3/SIG	/10663 5	Signal Mainten	ance Specificatio	ns	
NR/SMS/P	NR/SMS/PartD/LX74				
Miniature \$	Stop Lig	ht Crossing (MSL)		
Issue No:	06	Issue Date:	07/03/2020	Compliance Date:	06/06/2020

GENERAL

This test plan covers the requirements of NR/SMS/PartB/Test/074. It is for use of the person conducting the annual test of the level crossing and has relevant 'tick boxes' by each task so that particular item of the test can be correctly recorded as per the index in "crossing defects".

- a) The crossing ground plan.
- b) The level crossing order.
- c) The crossing control tables.
- d) The signalling plan.

Missing documentation shall be listed as a defect.

TEST SUMMARY

Test Summary
Name of Level Crossing:
Level Crossing Type:
Name of Monitoring Signal Box(es):
Date of Full Test:
Time Full Test Commenced:
Time Full Test Completed:
Tested By:
Signature:
Date of Signature:
Grade and Title:

CROSSING DEFECTS

On the test plan each item shall be recorded with the following letters in the box provided:

- **X**: Found Incorrect, Action Required.
- R: Found Incorrect, Rectified on Day of Test.
- C: Correct.
- **N**: Not Applicable to this Installation.

Any items found incorrect (X or R) are to be listed on the summary pages. On items requiring action, list the party(s) responsible for rectifying them.

NR/L3/SIG/10663 Signal Maintenance Specifications						
NR/SMS/Pa	artD/LX7	4				
Miniature S	Miniature Stop Light Crossing (MSL)					
Issue No:	06	Issue Date:	07/03/2020	Compliance Date:	06/06/2020	

SUMMARY OF ITEMS FOUND INCORRECT (1)

List in the table below all sites found incorrect and rectified on the day of the test (code letter R).

Description of Items Found Incorrect and Rectified				

NR/L3/SIG/10663 Signal Maintenance Specifications						
NR/SMS/P	artD/LX7	' 4				
Miniature	Miniature Stop Light Crossing (MSL)					
Issue No:	06	Issue Date:	07/03/2020	Compliance Date:	06/06/2020	

SUMMARY OF ITEMS FOUND INCORRECT (2)

List in the table below items found incorrect and requiring action (code letter X).

Description of Items Found Incorrect and Requiring Action	Responsible Party (s)

NR/L3/SIG/10663 Signal Maintenance Specifications						
NR/SMS/PartD/	NR/SMS/PartD/LX74					
Miniature Stop Light Crossing (MSL)						
Issue No: 06	Issue Date:	07/03/2020	Compliance Date:	06/06/2020		

1. Road Arrangements

1.1	Check that the road markings are in accordance with the section order and plans.	
1.2	Check that the road markings on the approaches to the crossing (up to the stop line) are complete and visible.	
1.3	Check the condition and the sighting of the road signs on the crossing approaches. See NR/SMS/SG00 for details on reflective boards and signs.	
1.4	Check (if provided) the condition and security of any pedestrian guardrails.	
	Any defects found in 1.2 to 1.4 shall be reported to the appropriate council via the SM(S)	
1.5	Check the condition of the road surface over the crossing.	
1.6	Check that the road markings between and including the stop lines are complete and visible.	
1.7	Check (if provided) that the cattle/anti-trespass guards are complete and securely fastened down.	
1.8	Check (if provided) the condition and security of any wicket gates.	
1.9	Check the condition and the security of any fencing on the approach to equipment room or locations.	

2. Red/Green Light Units

2.1	On each of the red/green light units check the following items:			
2.2	The light unit structure is stable.	Υ	Ζ	
2.3	The light unit is correctly aligned and the lights are clearly visible from the crossing entry point.	Υ	Z	
2.4	The light units are undamaged and the hoods are securely fitted.	Υ	Ζ	
2.5	The red and green lenses are undamaged and clean.	Υ	Ζ	
2.6	Signs and notices attached to the light unit post are undamaged, clean and legible.	Υ	Z	
2.7	Cables and conduit are undamaged and secure.	Υ	Ζ	

3. Gates

Is This Section Applicable to the Crossing Under Test?		Yes	No	
3.1 Check that the gate and fixtures and fittings are undamaged and in good condition.		Υ	Z	
3.2	Check that the gatepost is stable and securely fixed into the	ground.	Y	Z

NR/L3/SIG/10663 Signal Maintenance Specifications							
NR/SMS/P	NR/SMS/PartD/LX74						
Miniature Stop Light Crossing (MSL)							
Issue No:	06	Issue Date:	07/03/2020	Compliance Date:	06/06/2020		

3.3	Check that the gate locks or hooks are effective in both the open and closed positions.	Υ	Z
3.4	Check that any red roundels or signs attached to the gate are undamaged, clean and legible. Signs and roundels shall be of class 1 retro-reflective material.	Υ	Ζ
3.5	If wicket gates are provided, check they are undamaged, stable and in good condition.	Y	Z
3.6	Check that the gatepost is stable and securely fixed into the ground.	Υ	Ζ
3.7	Check (if fitted) that the gate closing mechanism is effective.	Υ	Z

4. Audible Warnings

Is Th	Is This Section Applicable to the Crossing Under Test? Yes		N	0
4.1 V	Check that the audible warning device and any exposed cables and conduit are undamaged and secure. Check that the device is correctly aligned.			Z
4.2	Check that there has been no water ingress into audible warning device. Rectify or replace as necessary			Z
4.3	Check that the sound output of the audible warning is sufficient for the		Υ	Ζ
4.4	Check (if applicable) that the audible warning time clock is so correct time and the day/night settings are correct. Some time clocks have a control to 'skip' the set controls on days, check this is not activated.		Υ	Z

5. Telephone System

Is This	Is This Section Applicable to the Crossing Under Test?		N	0
5.1	Check the telephone and cord is undamaged and the correct labels and symbols are fitted inside and outside the case and they are legible.			Z
5.2	Check that any associated signs are stable, undamaged and legible. Emergence telephones require having the yellow telephone symbol visible on three sides of the telephone case or on a separate plate above the telephone.		Υ	Z
5.3	Check that the correct crossing name is stated on any teleplabels and signs.	hone	Υ	Z

NR/L3/SIG/10663 Signal Maintenance Specifications						
NR/SMS/PartD/LX74						
Miniature Stop Light Crossing (MSL)						
Issue No:	06	Issue Date:	07/03/2020	Compliance Date:	06/06/2020	

5.4	Check that telephone numbers given on any sign are correct. The site plan will give information on the correct names/numbers that shall be displayed.	Y	Ζ
5.5	If betalights are fitted Check they are lit. Betalights are usually fitted to older style telephones units that the public have access to.	Υ	Ζ
5.6	On emergency telephones Check that an ETD number is given for the public to call in case they cannot contact the monitoring point. Ring this number and Check the recipient gives correct procedures for the call.	Y	Z
5.7	Ring the monitoring point and Check that the call is received correctly. Ask the monitoring point to ring back and Check the telephone rings correctly. Check that the quality of speech and hearing is clear and not distorted. On Whiteley PETS telephone systems there is a short time when answering a call at either end of the line where the system 'handshakes', during this period transmission and reception of speech is not possible	Υ	Ζ
5.8	Check that with one of the public access telephones left 'off the hook' calls on the other telephone can be made and received correctly. Whiteley PETS systems will indicate a fault at the monitoring point.	Υ	Z
5.9	If an absent switch is fitted to the telephone system operate it and Check that if an emergency call made this is indicated by a low level of illumination of the telephone unit and any audible devices do not sound. Operate the absent switch back to normal operation and Check that a normal emergence call is received.	Υ	Ζ
5.10	Switch off the mains power to the telephone system. After a period of time equal to the crossing sequence testing repeat tasks 5.7 to 5.9. Switch the mains power to the telephone system back on	Υ	Ζ

6. Red/Green Lamp Operation

6.1	With no trains approaching Check that the light units are showing a green light, operate either the replacement switch to 'red' or slip the test link and Observe that the light units are showing a red light.	
	Operate the replacement switch to the 'auto' position or re-connect the test link and Observe that the light units are showing a green light.	

NR/L3/SIG/10663 Signal Maintenance Specifications							
NR/SMS/PartD/LX74							
Miniature Stop Light Crossing (MSL)							
Issue No:	06	Issue Date:	07/03/2020	Compliance Date:	06/06/2020		

7. Local Control Sequence

- Check in the crossing control tables for any special controls that affect the automatic control sequence.
- Where the word EXIT occurs, the strike out treadle shall be operated.

	Simulate an approaching train by shunting a controlling track circuit. Observe the following:				
7.1	The green lamps on both light units extinguish and the red lamps illuminate.	Up	Up X	Dn	Dn X
7.2	The audible warnings (if provided) sound.	Up	Up X	Dn	Dn X
7.3	Operate the exit function and remove the train simulation. Observe the following:				
7.4	The red lamps on both light units extinguish and the green lamps illuminate.	Up	Up X	Dn	Dn X
7.5	The audible warnings (if provided) cease	Up	Up X	Dn	Dn X
7.6	Repeat steps 7.1 to 7.6 for all other directions where controls are provided.	Up	Up X	Dn	Dn X

8. Double Lines Second Train Approaching Sequence

Simulate a train striking in on line one. Simulate a second train striking in on line two. Check the following: Operate the exit function and remove the simulation on line one. Observe the following: 8.1 The green lamps on both light units stay extinguished and the red lamps stay illuminated 8.2 The audible warnings (if provided) changes to the increased rate. 8.3 Operate the exit function for the train simulation on line two and Observe the following. 8.4 The red lamps on both light units extinguish and the green lamps illuminate. 8.5 The audible warnings (if provided) cease Repeat steps 8.1 to 8.5 for all other directions where controls are provided.	Is This	Section Applicable to the Crossing Under Test?			Yes	No
Simulate a second train striking in on line two. Check the following: Operate the exit function and remove the simulation on line one. Observe the following: The green lamps on both light units stay extinguished and the red lamps stay illuminated The audible warnings (if provided) changes to the increased rate. Operate the exit function for the train simulation on line two and Observe the following. The red lamps on both light units extinguish and the green lamps illuminate. The audible warnings (if provided) cease Repeat steps 8.1 to 8.5 for all other directions where				•		
Operate the exit function and remove the simulation on line one. Observe the following: The green lamps on both light units stay extinguished and the red lamps stay illuminated The audible warnings (if provided) changes to the increased rate. Operate the exit function for the train simulation on line two and Observe the following. The red lamps on both light units extinguish and the green lamps illuminate. The audible warnings (if provided) cease Repeat steps 8.1 to 8.5 for all other directions where		Simulate a train striking in on line one.				
Observe the following: The green lamps on both light units stay extinguished and the red lamps stay illuminated The audible warnings (if provided) changes to the increased rate. Operate the exit function for the train simulation on line two and Observe the following. The red lamps on both light units extinguish and the green lamps illuminate. The audible warnings (if provided) cease Repeat steps 8.1 to 8.5 for all other directions where		Simulate a second train striking in on line two. Check the f	ollowii	ng:		
and the red lamps stay illuminated The audible warnings (if provided) changes to the increased rate. Operate the exit function for the train simulation on line two and Observe the following. The red lamps on both light units extinguish and the green lamps illuminate. The audible warnings (if provided) cease Repeat steps 8.1 to 8.5 for all other directions where		Operate the exit function and remove the simulation on line one. Observe the following: The green lamps on both light units stay extinguished and the red lamps stay illuminated The audible warnings (if provided) changes to the increased rate. Operate the exit function for the train simulation on line two and Observe the following.				
to the increased rate. Operate the exit function for the train simulation on line two and Observe the following. The red lamps on both light units extinguish and the green lamps illuminate. The audible warnings (if provided) cease Repeat steps 8.1 to 8.5 for all other directions where	8.1		Up	Up X	Dn	Dn X
two and Observe the following. The red lamps on both light units extinguish and the green lamps illuminate. The audible warnings (if provided) cease Repeat steps 8.1 to 8.5 for all other directions where	8.2	J (1 ,	Up	Up X	Dn	Dn X
green lamps illuminate. 8.5 The audible warnings (if provided) cease Repeat steps 8.1 to 8.5 for all other directions where	8.3	· ·				
Repeat steps 8.1 to 8.5 for all other directions where	8.4		Up	Up X	Dn	Dn X
	8.5	The audible warnings (if provided) cease	Up	Up X	Dn	
	8.6	•	Up	Up X	Dn	

NR/L3/SIG/10663 Signal Maintenance Specifications						
NR/SMS/PartD/LX74						
Miniature Stop Light Crossing (MSL)						
Issue No:	06	Issue Date:	07/03/2020	Compliance Date:	06/06/2020	

9. Strike In Track Circuit Resetting

Is This Section Applicable to the Crossing Under Test?					No
9.1	Simulate an approaching train by shunting a controlling track circuit. Observe that the light units show a red light.	Up	Up X	Dn	Dn X
9.2	Make up the track circuit and start timing with a stopwatch from the time the track circuit is reconnected. Check that the red lights remain illuminated.	Up	Up X	Dn	Dn X
9.3	Observe that after 120 seconds the red lights are extinguished and the green lights illuminate. If any adjustments have to be made to achieve this time, allow a period of time for the bi-metal strip in the timer to cool down.	Up	Up X	Dn	Dn X
9.4	Repeat 9.1 to 9.3 for all other directions where controls are provided. Record the results in the table below.	Up	Up X	Dn	Dn X

Direction	TC Name	Red Road Light extinguishes (second)
Up		
UpX		
Dn		
DnX		

10. Leaving Track Circuit Monitoring

Is This Section Applicable to the Crossing Under Test?					
		П	II.		ı
10.1	Simulate a train striking in by dropping a controlling track circuit, Observe that the red lights illuminate	Up	Up X	Dn	Dn X
10.2	Drop the leaving track circuit, operate the exit function and make up the controlling track circuit. Check that the leaving track circuit remains dropped.	Up	Up X	Dn	Dn X
10.3	Observe that the red lights are extinguished and the green lights illuminate. Start timing with a stopwatch as soon as the red lights are extinguished.	Up	Up X	Dn	Dn X
10.4	Observe that after 240 seconds the green lights extinguish and the red lights stay extinguished.	Up	Up X	Dn	Dn X
10.5	Re-connect the leaving track circuit and reset the control circuits. Check that the green lights illuminate. Record the time in the table.	Up	Up X	Dn	Dn X

		Signal Maintenance	Specification	ons	
	SMS/PartD/LX		`		
	ue No: 06	ht Crossing (MSL) Issue Date: 07/9	<u>)</u> 03/2020	Compliance Date:	06/06/2020
331	de 110. 00	133ue Date. 07/	03/2020	Compliance Date.	00/00/2020
ſ	Direction	TC Name	Red R	oad Light extinguish	es (second)
	Up			<u> </u>	,
	UpX				
	Dn				
	DnX				
١.	Special Cont	rol Function Sequ	ience		
c 7	This Section Ann	olicable to the Cross	sing Under T	Tact?	Yes No
ا ر —	тііз оссіюн дрр	blicable to the Closs	sing Onder		163 100
	Б. (D: 'AL
1.				ng to the control tables (ion performed and its re	
	Otopping, Of	griai, Tivi o cioj. Ivoo		ion penomica and its re	Suits.
	a a tila m	Decult			
uı	nction	Result			
<u>.</u>	Power Suppl	ies and Batteries			
-	. сс. сарр.				
2.	Carry out N	IR/SMS/PartB/Test	<u>/051</u> - Busb	ar Earth Test	
۷.	or NR/SMS	<u> S/PartB/Test/053</u> - E			
12.:		IR/SMS/PartB/Test	<u>/052</u> - Dyna	amic Earth Tests (Leve	el Crossing
	Barriers).				
0	wer Supply Ide	ntification			

END



LEVEL CROSSING TESTING

MANUALLY CONTROLLED BARRIERS (MCB)

NR/SMS/LX75

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NR/L3/SIG/10663 Signal Maintenance Specifications						
NR/SMS/PartD/LX75						
Manually Controlled Barriers (MCB)						
Issue No: 08	Issue Date:	05/12/2020	Compliance Date:	05/06/2021		

GENERAL

This test plan covers the requirements of <u>NR/SMS/PartC/LC10</u> and <u>NR/SMS/PartB/Test/075</u>. It is for use of the person conducting the annual test of the level crossing and has relevant 'tick boxes' by each task so that particular item of the test can be correctly recorded as per the index in "crossing defects".

- a) The crossing ground plan.
- b) The level crossing order.
- c) The crossing control tables.
- d) The signalling plan.

Missing documentation shall be listed as a defect.

TEST SUMMARY

Test Summary
Name of Level Crossing:
Level Crossing Type:
Name of Monitoring Signal Box(es):
Date of Full Test:
Time Full Test Commenced:
Time Full Test Completed:
Tested By:
Signature:
Date of Signature:
Grade and Title:

CROSSING DEFECTS

On the test plan each item shall be recorded with the following letters in the box provided:

- X: Found Incorrect, Action Required.
- R: Found Incorrect, Rectified on Day of Test.
- C: Correct.
- **N**: Not Applicable to this Installation.

Any items found incorrect (X or R) are to be listed on the summary pages. On items requiring action, list the party(s) responsible for rectifying them.

NR/L3/SIG/10663 Signal Maintenance Specifications							
NR/SMS/PartD/LX75							
Manually Controlled Barriers (MCB)							
Issue No: 08	Issue Date:	05/12/2020	Compliance Date:	05/06/2021			

SUMMARY OF ITEMS FOUND INCORRECT (1)

List in the table below all sites found incorrect and rectified on the day of the test (code letter R).

Description of Items Found Incorrect and Rectified				

SUMMARY OF ITEMS FOUND INCORRECT (2)

List in the table below items found incorrect and requiring action (code letter X).

Description of Items Found Incorrect and Requiring Action	Responsible Party (s)

NR/L3/SIG/10663 Signal Maintenance Specifications							
NR/SMS/PartD/LX75							
Manually Controlled Barriers (MCB)							
Issue No:	80	Issue Date:	05/12/2020	Compliance Date:	05/06/2021		

1. Road Arrangements

1.1	Check that the road markings are in accordance with the section order and plans.	
1.2	Check that the road markings on the approaches to the crossing (up to the stop line) are complete and visible.	
1.3	Check the condition and the sighting of the road signs on the crossing approaches. See <u>NR/SMS/PartC/SG00</u> for details on reflective boards and signs.	
	Any defects found in 1.2 to 1.4 shall be reported to the appropriate council via the SM(S).	
1.4	Check the condition of the road surface over the crossing.	
1.5	Check that the road markings between and including the stop lines are complete and visible.	
1.6	Check (if provided) that the cattle/anti-trespass guards are complete and securely fastened down.	
1.7	Check the condition and the security of any fencing around the barrier machines and (if provided) on the approach to equipment room or locations.	
1.8	Check (if provided) that any crossing illumination works correctly.	

2. Booms and Barrier Machines

2.1	Check when lowered under power operation the lock down feature on each barrier is effective. Resistance is felt when the barrier is lifted.	YN	YO	ZN	ZO
2.2	Check when on hand operation the booms can be lifted by hand to a fully raised position and can be retained in that position. Hand operation can be by using the machines pump handle or manually lifting the boom as appropriate to the machine type.	YN	YO	ZN	ZO
2.3	Check by use of an inclinometer and digital voltmeter (on resistance) the setting of the bands or limit switches whilst raising the boom on 'hand' operation. Adjust if necessary (Appendix A). The inclinometer can be a stand-alone unit or the one built into the barrier pedestal (as long as it is undamaged)	YN	YO	ZN	ZO
2.4	Check (if provided) that the boom proving circuit is intact and operational. Beware of the (Barr)PR circuit being shorted out on individual booms.	YN	YO	ZN	ZO
2.5	Check when the booms are lowered that the boom skirting is undamaged and effective	YN	YO	ZN	ZO
2.6	Check on hydraulic barriers that the boom is damped during the last 10° to 15° of movement.	YN	YO	ZN	ZO

NR/L3/SIG/10663 Signal Maintenance Specifications							
NR/SMS/PartD/LX75							
Manually Controlled Barriers (MCB)							
Issue No:	80	Issue Date:	05/12/2020	Compliance Date:	05/06/2021		

2.7	Check when the booms are fully raised that the skirting folds correctly. Replace any missing rods and replace/repair any broken bottom pieces	YN	YO	ZN	ZO
2.8	Check the alignment of each boom when they are lowered, check on two barrier installations they align correctly with the appropriate end post and on four barrier installations the two barrier ends align correctly. It shall not be possible for a person to get around the end of a boom	YN	YO	ZN	ZO
2.9	Installations with BR843 barrier packs only Check the counter balance weights are secure and are the Measuring with a weight measuring device the tip weight by method:				ıg
	 At the tip end slowly lift the boom until it is approxim horizontal. 	ately 4	4° to 5	° from	the
	 Connect the weight measuring device to the tip end 	of the	boom		
	 Release the boom onto the measuring device ensur not fully lowered then take a reading. 	ing the	at the	boom	has

Boom Length	Tip Weight
3.6m to 4.1m	7.6Kg
4.6m to 9.1m	6.1Kg

YO	YN	ZO	ZN
----	----	----	----

3. Road Traffic Light Signals

If auxiliary road traffic light signals are fitted (in addition to YO, YN, ZO and ZN), list the additional signal identification below: **Signal Number Signal Identification** Aux 1 Aux 2 On each of the road traffic light signals Check the following items: 3.1 The signal structure is stable. The signal light units are undamaged and the 3.2 hoods are securely fitted. The signal lenses are undamaged, clean and 3.3 correctly orientated. Signs and notices attached to the signal post 3.4 are undamaged, clean, and legible See

				nance Specificati	ions						
		artD/LX		100)							
Issue		O8	ed Barriers (No. 1884) Issue Date:	05/12/2020	C0	malia	200 D	loto:	05/06	5/2021	
issue	NO.	06	Issue Date.	05/12/2020	00	mplia	nce D	ale.	05/00	0/2021	
		SMS/SG signs.	600 for details	on reflective boa	ards						
3.5	Cab		conduit are un	damaged and		YO	YN	ZO	ZN	Aux 1	Aux 2
3.6	Qua sign bord	irtz Halog al backb der.	gen lamps the poard is fitted v	re fitted with 50-v road traffic light vith a red/white		YO	YN	ZO	ZN	Aux 1	Aux 2
	sha	•	ind red/white b mixed togethe	oorder backboard r at the same	ds						
4.	Audi	ble War	nings								
Is Th	is Se	ction App	olicable to the	Crossing Under	Test?			Y	es	١	No
	_									1	
4.1	Check that the audible warning device and any exposed cables and conduit are undamaged and secure. Check that the device is correctly aligned.				YO	YN	ZO	ZN			
4.2				no water ingres replace as nece			le	YO	YN	ZO	ZN
4.3	suff app hav	icient for licable) is e had the	the crossing on the crossing of the crossing o	out of the audible circumstances and the night time. So t of audible warn conditions, checl	nd (if ome c ning de	rossir evice		YO	YN	ZO	ZN
4.4	is se	et to the ect. Som	correct time ar	he audible warn nd the day/night have a control to heck this is not a	settin oʻskip	gs are)				
5.	Barr	ier Provi	ing								
Is Th	is Se	ction App	olicable to the	Crossing Under	Test?			Y	es	١	No
These	tests	are to b	e carried out u	ınder power ope	ration			•		•	
5.1				om lowering then l I indication is rece				-	` '		
5.2	Low	er the stil		and Check that wh							
5.3	Prev afte	ent one	of the booms fro	om rising then rais	se the	remain	ina ba	om(s)	. Chec	k that	

NR/L3/SIG	/10663 S	Signal Mainten	ance Specificatio	ns	
NR/SMS/P	artD/LX7	75			
Manually (Controlle	ed Barriers (M	ICB)		
Issue No:	08	Issue Date:	05/12/2020	Compliance Date:	05/06/2021

5.4	lowered or when the raise but operated. If these times are not achieve	n extinguiton is	e booms to rise. lishes when all the booms are to the lishes to the lishes the lishes to the lishes the lishe	ed)JR.	
	(Failed)JR Timing (In Seconds)				
	Before Adjustment		After Adjustment		

6. **Red Flashing Road Traffic Light Signal Proving**

Some early installations only require one red road light to be working on the Y or Z side before an indication is given of lamp failure. Check the diagrams for circuit design.

At TMOB the indications will be via the DCI, check the diagrams for the circuit design.

If auxiliary road traffic light signals are fitted (in addition to YO, YN, ZO and ZN), list the additional signal identification below:

Signal Number	Signal Identification
Aux 1	
Aux 2	

6.1	Lower the booms and check that all the red road signals are illuminated (flashing) and the red road light indications on the signaller's panel are illuminated.	YO	YN	ZO	ZN	Aux 1	Aux 2
6.2	Measure the rate of flashing (Between 70 and per minute).	90 fla	shes	FF	PM		
6.3	Disconnect the left lamp on one of the Y side light units by slipping the link in the equipment room/loc. Check that the Y road light indication on the signaller's panel begins to flash.	YO	YN	ZO	ZN	Aux 1	Aux 2
6.4	Disconnect the right lamp on the same light unit and check that the Y road light indication on the signaller's panel extinguishes.	YO	YN	ZO	ZN	Aux 1	Aux 2

NR/L3/SIG/	10663 S	ignal Maintena	ance Specification	าร	
NR/SMS/Pa	artD/LX7	' 5			
Manually C	ontrolle	d Barriers (M	CB)		
Issue No:	80	Issue Date:	05/12/2020	Compliance Date:	05/06/2021

6.5	Reconnect the left lamp on the light unit and check that the Y road light indication on the signaller's panel begins to flash.	YO	YN	ZO	ZN	Aux 1	Aux 2
6.6	Reconnect the right-hand lamp and check that the Y road light indication is illuminated and not flashing.	YO	YN	ZO	ZN	Aux 1	Aux 2
6.7	Repeat 6.3 to 6.6 for the other units on the Y side of the crossing and for the light units on the Z side of the crossing. When testing the Z road light units observe the Z road light indication on the signaller's panel	YO	YN	ZO	ZN	Aux 1	Aux 2

7. Barrier Operation Sequence (Not TMOB)

Is This Section Applicable to the Crossing Under Test?	Yes	No
--	-----	----

	Press the lower button and Observe the following:	
7.1	All the Amber lights illuminate and show a steady light.	
7.2	The audible warnings (if fitted) sound when the amber lights illuminate and continue until all the booms have fully lowered	
7.3	After approximately 3 to 5 seconds the amber lights extinguish and all the red lights begin to flash	
7.4	After approximately 4 to 6 seconds after the red lights have started to flash the booms begin to lower	
7.5	At installations with four booms, Check the nearside booms (YN & ZN) lower first and are completely lowered before the offside booms (YO & ZO) began to lower	
7.6	The boom lights on each boom illuminate when the boom is approximately 80° from the horizontal	
7.7	Each boom takes between 6 to 10 seconds to completely lower. Check that the boom damping (if fitted) is effective when the boom is approximately 10° to 15° from the fully lowered position	
7.8	The audible warnings (if fitted) cease to sound when all the booms have fully lowered	
	Press the raise button and Observe the following:	
7.9	All the booms began to rise simultaneously and take 4 to 10 seconds to reach the fully raised position at between 83° and 85° from the horizontal	
7.10	The flashing red lights continue to show until the booms have reached a maximum of 45° from the horizontal	
7.11	The boom lights extinguish when all the booms have passed 80° from the horizontal	
7.12	Press the LOWER button and allow the sequence to continue until the nearside booms (YN & ZN) have started to lower then stop the lowering sequence (press the STOP button or release the LOWER button).	
7.13	Observe the boom movement is arrested. The flashing red lights and audible warnings (if fitted) continue to sound	

			•	nance Specific	ations				
NR/SN									
			led Barriers (. 0=/6	20001		
Issue	No: (08	Issue Date:	05/12/2020	Compliance D	ate: 05/0	06/2021		
			014/50 1						
7.14	Pres	s the L	OWER button	and Observe tha	at the boom lower seq	uence cont	inues.		
7.15			ps 7.12 to 7.14 have started to		with four booms wher	the offside	booms		
	Press the RAISE button and allow the raise sequence to continue until the booms have started to rise and the flashing red lights have extinguished then stop the raising sequence (press the STOP button or press the LOWER button). Observe the following:								
7.16	All the booms movement is arrested.								
7.17			warnings (if fitter red lights.	ted) and amber	lights commence to op	oerate follo	wed by		
	Oper	ate eitl	her the RAISE	or LOWER butto	n and Observe the fo	llowing:			
7.18				the booms to rise adible warnings (e, extinguishing the ar	nber/flashir	ng red		
7.19	The LOWER button allows the boom to lower providing the amber and flashing red								
				rith auto lower		V	Τ,		
IS This	s Secti	on Ap	plicable to the	Crossing Und	er lest?	Yes	N	lo	
8.1				•	ed that the protecting ion has been opera		annot		
8.2	Chec	k at C tor is	CCTV-MB insta extinguished v	allations if auto	raise is selected the ing clear function is	e picture o	n the		
9.	Auto L	ower	Functions						
Is This	s Secti	on Ap	plicable to the	Crossing Und	er Test?		Yes	No	
9.1					ower an audible war d on the monitor.	ning (if			
9.2	and t	ne cro	ssing clear indi	cation flashes.	n audible warning (if p				
9.3 Check when the crossing clear function is operated the protecting signals clear. If auto raise is selected Check that the picture on the monitor is extinguished.									
10. 7	Frack (Circui	its (CCTV-MB	Installations	Only)				
Is This	s Secti	on Ap	plicable to the	Crossing Und	er Test?		Yes	No	

	NR/L3/SIG/10663 Signal Maintenance Specifications									
NR/SN	NR/SMS/PartD/LX75									
Manua	ally Controlle	ed Barriers (M	ICB)							
Issue I	No: 08	Issue Date:	05/12/2020	Compliance Date:	05/06/20)21				
10.1	Shunt the approaching track circuits to the crossing and Observe that the amber road lights followed by the flashing red road lights illuminate and the audible warnings sound.						Dn			
10.2	Check that the sequence can be cancelled by pressing the raise button.									

Is This	Is This Section Applicable to the Crossing Under Test?					
11.1	Open the door of the LCU, Check (if door proving is fitted) that the signaller's indications show failed otherwise switch to local control and Check that the signaller's indications show failed.					
11.2	Repeat steps 7.1 to 7.19 and Observe the following additional items at this location					
11.3	The Barriers Raised light (if provided) is not illuminated until local control is taken.					
11.4	The Barriers Lowered light (if provided) does not illuminate until all booms are fully lowered.					
11.5	At CCTV-MB installations no picture can be obtained on the monitors whilst the crossing is on local control.					
11.6	Return the crossing control back to the signaller. Check that the correct indications are obtained at the monitoring point. At some newer installations when giving local control back to the signaller the booms shall be in the lowered position. The signaller will then operate the booms to the raised position.					

Trainman Operated Barriers (TMOB) 12.

Is This	Section Applicable to the Crossing Under Test?	Yes	No
12.1	Check that the lowering sequence can only be initiated when the contrack circuit is occupied, and the plunger is operated	olling	
	Observe the following:		
12.2	All the Amber lights illuminate and show a steady light.		
12.3	The audible warnings (if fitted) sound when the amber lights illuminate and continue until all the booms have fully lowered		
12.4	After approximately 3 to 5 seconds the amber lights extinguish and all the reclights begin to flash	I	
12.5	After approximately 4 to 6 seconds after the red lights have started to flash th booms begin to lower.	е	

				ainten	ance	Specifica	tions				
		artD/LX	<i>r</i> 5 ed Barri	ers (N	ICB)						
Issue N	_	08	Issue	•		2/2020	Co	ompliance	e Date:	05/06/	2021
100001			1.0000			_,		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	<i>-</i> - - - - - - - - - -	00,00,	
								booms (Yns (YO & 2	,		
12.6	from	the hor	izontal.					boom is a			
12.7	Each boom takes between 6 to 10 seconds to completely lower. Check that boom damping (if fitted) is effective when the boom is approximately 10° to 15° from the fully lowered position.										
12.8		audible ered.	warnings	if fitte	d) cea	se to sour	nd whe	n all the b	ooms ha	ve fully	
12.9			CI (white he applie			es only wh	en all	booms are	fully lov	vered for	the
	Ope	rate the	exit func	tion an	d Obse	erve the fo	llowing	j:			
12.10								e 4 to 10 se e horizont		o reach t	he
12.11			red light he horizo		nue to	show until	the bo	oms have	reached	d a maxir	num
12.12		boom lig zontal.	ghts extir	iguish v	when a	ıll the booı	ms hav	e passed	80° from	the	
12.13	Che	ck the D	CI (white	light) ł	nas ext	tinguished					
13. P	owe	r Supp	lies and	Batte	ries						
13.1		-				<mark>051</mark> - Bus LD Funct		arth Test st.			
13.2		ry out <u>l</u> riers).	NR/SMS	/PartB	/Test/	<u>052</u> - Dyr	namic	Earth Tes	sts (Lev	el Cross	sing
Power	Sup	ply Ide	ntificati	on							
<u> </u>											

NR/L3/SIG/10663 Signal Maintenance Specifications							
NR/SMS/PartD/LX75							
Manually Controlled Barriers (MCB)							
Issue No:	08	Issue Date:	05/12/2020	Compliance Date:	05/06/2021		

APPENDIX A - Circuit Controller Band Settings

Band	Made Between	
DN KR	0° and 4°	
HJPR	42° and 90°(#)	
MR	0° and 83°	
UP KR	81° and 90°	

#: The HJPR band on early installations may be set to make sooner than 42°. Check the diagrams for the required setting for the installation you are testing.

NOTE: It is important to obtain the over-lap between the UP KR band making and the MR band breaking. This is to ensure that if a boom drops slightly it will drive up again before the red road signals operate.

On barrier units that use limit switches in place of circuit controllers, reference shall be made to the diagrams for the positions of the cams.

END



LEVEL CROSSING TESTING ON CALL BARRIERS (OCB) NR/SMS/LX76

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NR/L3/SIG/10663 Signal Maintenance Specifications							
NR/SMS/PartD/LX76							
On Call Barriers (OCB)							
Issue No:	05	Issue Date:	07/03/2020	Compliance Date:	06/06/2020		

GENERAL

This test plan covers the requirements of NR/SMS/PartC/LC10 and NR/SMS/PartB/Test/076. It is for use of the person conducting the annual test of the level crossing and has relevant 'tick boxes' by each task so that particular item of the test can be correctly recorded as per the index in "crossing defects".

- a) The crossing ground plan.
- b) The level crossing order.
- c) The crossing control tables.
- d) The signalling plan.

Missing documentation shall be listed as a defect.

TEST SUMMARY

Test Summary
Name of Level Crossing:
Level Crossing Type:
Name of Monitoring Signal Box(es):
Date of Full Test:
Time Full Test Commenced:
Time Full Test Completed:
Tested By:
Signature:
Date of Signature:
Grade and Title:

CROSSING DEFECTS

On the test plan each item shall be recorded with the following letters in the box provided:

- X: Found Incorrect, Action Required.
- R: Found Incorrect, Rectified on Day of Test.
- C: Correct.
- **N**: Not Applicable to this Installation.

Any items found incorrect (X or R) are to be listed on the summary pages. On items requiring action, list the party(s) responsible for rectifying them.

	ì

NR/L3/SIG/10663 Signal Maintenance Specifications							
NR/SMS/PartD/LX76							
On Call Barriers (OCB)							
Issue No:	05	Issue Date:	07/03/2020	Compliance Date:	06/06/2020		

SUMMARY OF ITEMS FOUND INCORRECT (1)

List in the table below all sites found incorrect and rectified on the day of the test (code letter R).

Description of Items Found Incorrect and Rectified

NR/L3/SIG/10663 Signal Maintenance Specifications								
NR/SMS/PartD/LX76								
On Call Barriers (OCB)								
Issue No: 05 Issue Date: 07/03/2020 Compliance Date: 06/06/2020								

SUMMARY OF ITEMS FOUND INCORRECT (2)

List in the table below items found incorrect and requiring action (code letter X).

Description of Items Found Incorrect and Requiring Action	Responsible Party (s)

1. Booms and Barrier Machines

OCB installations can have various types of barrier machines fitted, refer to the appropriate NR/SMS for the full service for the barrier machine.

1.1	Check (if provided) that the boom proving circuit is intact and operational	Υ	Z		
1.2	Check when the booms are lowered that the boom skirting is undamaged and effective				
1.3	Check when the booms are fully raised that the skirting folds correctly. Replace any missing rods and replace/repair any broken bottom pieces.	Υ	Z		
1.4	Installations with BR843 barrier packs only Check the counter balance weights are secure and are the correct wei Measuring with a weight measuring device, the tip weight by using the following method:	ght by			
1.5	Check the counter balance weights are secure and are the correct weighted Measuring with a weight measuring device the tip weight by using the femethod:		ng		
	 At the tip end slowly lift the boom until it is approximately 4° to 5 horizontal. 	° from	the		
	 Connect the weight measuring device to the tip end of the boom 	۱.			
	 Release the boom onto the measuring device ensuring that the not fully lowered then take a reading. 	boom	has		

Boom Length	Tip Weight
3.6m to 4.1m	7.6Kg
4.6m to 9.1m	6.1Kg

Υ	Z

2. Audible Warnings

2.1	Check that the audible warning device and any exposed cables and conduit are undamaged and secure. Check that the device is correctly aligned.	YO	YN	ZO	ZN
2.2	Check that there has been no water ingress into audible warning device. Rectify or replace as necessary.	YO	YN	ZO	ZN
2.3	Check that the sound output of the audible warning is sufficient for the crossing circumstances and (if applicable) is reduced for the night time. Some crossings have had the sound output of audible warning device reduced because of local conditions, check the diagrams.	YO	YN	ZO	ZN

NR/L	NR/L3/SIG/10663 Signal Maintenance Specifications							
NR/S	NR/SMS/PartD/LX76							
On Call Barriers (OCB)								
Issue	No:	05	Issue Date:	07/03/2020	Compliance Date:	06/06/2020		
					•			
Check (if applicable) that the audible warning time clock is set to the correct time and the day/night settings are correct. Some time clocks have a control to 'skip' the set controls on certain days, check this is not activated.								

3. Barrier Proving and Sequence Test

The booms can be lowered and raised by local control or train simulation.

	Operate the lower switch/button and Observe the following:		
3.1	The audible warnings sound.	Υ	Z
3.2	The Booms commence to fall 8 to 10 seconds after the audible warnings commence.	Υ	Z
3.3	They are fully lowered in a further 8 to 15 seconds.	Υ	Z
3.4	The booms lights illuminate when the booms are approximately 80° from the horizontal.	Υ	Z
3.5	The audible warnings continue to sound until both booms are fully lowered.	Υ	Z
	Operate the raise switch/button and Observe the following:		
3.6	The booms commence to rise.	Υ	Z
3.7	The boom lights extinguish when the booms have passed 80° from the horizontal.	Υ	Z
3.8	The barrier cut-off is effective when the booms reach the fully raised position of between 83° and 85° from the horizontal.	Υ	Z
3.9	The booms take 8 to 15 seconds to reach the fully raised position.	Υ	Z
3.10	Operate the lower switch/button and wait until the boom begins to lower then operate the stop switch/button and Observe that the boom lowering movement is arrested.	Υ	Z
3.11	Operate the raise switch/button and wait until the boom begins to rise operate the stop switch/button and Observe the following:	then	
3.12	The boom raising movement is arrested.	Υ	Z
3.13	The audible warnings sound if the booms have risen more than 5° from the horizontal	Υ	Z
3.14	Lower the booms and operate the emergency plunger at each barrier. Observe the following:		
3.15	The audible warning sounds and the appropriate boom rises.	Υ	Z
3.16	After a fixed period, the booms lower and the audible warning ceases to sound.	Υ	Z
3.17	Disconnect the power supply and Observe the booms lower in 8 to 15 seconds	Υ	Z

NR/L3/SIG/10663 Signal Maintenance Specifications							
NR/SMS/PartD/LX76							
On Call Barriers (OCB)							
Issue No: 05 Issue Date: 07/03/2020 Compliance Date: 06/06/2020							

3.18	Insert the special Allen key in the socket on the clutch and check that the micro-switch motor isolating contacts are broken.	Υ	Z
3.19	Push the boom up by hand to the fully raised position and check that it remains in the raised position when the Allen key is turned to lock the boom.	Υ	Z
3.20	Unlock the boom and return it to the fully lowered position. Remove the Allen key.	Υ	Z
3.21	Reconnect the power supply and operate the raise switch/button. Check that the boom is fully raised.	Υ	Z

4. Power Supplies and Batteries

4.1	Carry out NR/SMS/PartB/Test/051 - Busbar Earth Test or NR/SMS/PartB/Test/053 - ELD Function Test.	
4.2	Carry out <u>NR/SMS/PartB/Test/052</u> - Dynamic Earth Tests (Level Crossing Barriers).	

Power Supply Identification				

END



LEVEL CROSSING TESTING

EBI GATE 200 LEVEL CROSSING SYSTEM

NR/SMS/LX77

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Published & Issued by: Network Rail Kings Place 90 York Way, London N1 9AG

NR/L3/SIG/10663 Signal Maintenance Specifications							
NR/SMS/PartD/LX77							
EBI Gate 200 Level Crossing System							
Issue No:	Issue No: 03 Issue Date: 07/03/2020 Compliance Date: 06/06/2020						

GENERAL

This test plan covers the requirements of NR/SMS/PartB/Test/082 – Part 6 & Part 7 It is for use of the person conducting the annual test of the level crossing and has relevant 'tick boxes' by each task so that particular item of the test can be correctly recorded as per the index in "crossing defects".

- a) The crossing ground plan.
- b) The level crossing order.
- c) The crossing control tables.
- d) The signalling plan.

Missing documentation shall be listed as a defect.

TEST SUMMARY

Test Summary
Name of Level Crossing:
Level Crossing Type:
Name of Monitoring Signal Box(es):
Date of Full Test:
Time Full Test Commenced:
Time Full Test Completed:
Tested By:
Signature:
Date of Signature:
Grade and Title:

CROSSING DEFECTS

On the test plan each item shall be recorded with the following letters in the box provided:

- X: Found Incorrect, Action Required.
- R: Found Incorrect, Rectified on Day of Test.
- C: Correct.
- **N**: Not Applicable to this Installation.

Any items found incorrect (X or R) are to be listed on the summary pages. On items requiring action, list the party(s) responsible for rectifying them.

NR/L3/SIG/10663 Signal Maintenance Specifications							
NR/SMS/PartD/LX77							
EBI Gate 200 Level Crossing System							
Issue No: 03							

SUMMARY OF ITEMS FOUND INCORRECT (1)

List in the table below all sites found incorrect and rectified on the day of the test (code letter R).

Description of Items Found Incorrect and Rectified

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NR/L3/SIG/10663 Signal Maintenance Specifications								
NR/SMS/PartD/LX77								
EBI Gate 200 Level Crossing System								
Issue No:								

SUMMARY OF ITEMS FOUND INCORRECT (2)

List in the table below items found incorrect and requiring action (code letter X).

Description of Items Found Incorrect and Requiring Action	Responsible Party (s)

NR/L3/SIG/10663 Signal Maintenance Specifications								
NR/SMS/PartD/LX77								
EBI Gate 200 Level Crossing System								
Issue No:								

1. Road Arrangements

1.1	Check that the road markings are in accordance with the section order and plans.	
1.2	Check the condition and the sighting of any signs on the crossing approaches. See NR/SMS/SG00 for details on reflective boards and signs.	
1.3	Check the condition of the road surface over the crossing.	
1.4	Check that the road markings between and including the stop lines are complete and visible.	
1.5	Check (if provided) that the cattle/anti-trespass guards are complete and securely fastened down.	
1.6	Check the condition and the security of any fencing around the barrier machines and (if provided) on the approach to equipment room or locations.	
1.7	Check (if provided) the condition and security of any pedestrian guardrails.	
1.8	Check (if provided) the condition and security of any wicket gates	
1.9	Check (if provided) that any crossing illumination works correctly.	

Any defects found in 1.1 and 1.3 shall be reported to the appropriate council via the SM(S).

2. EBI Gate Posts

	On each of the EBI Gate Posts check the following items:		
2.1	The Post is stable and undamaged	M	S
2.2	Signs and notices attached to post are undamaged, clean and legible.	M	S
2.3	The red and green lenses are undamaged and clean.	M	S
2.4	Observe LED illumination (Red/Green) from road and or foot approaches.	M	S
2.5	Check the background for any relevant side lighting and /or any obstructions such as fencing or vegetation. (Consider viewing positions for all type of crossing users – i.e crossing user in a high farm style vehicle or pedestrian)	M	S
2.6	If the crossing is an On-Demand type, check the push buttons on each unit are not damaged	M	S
	Terminations and wiring.		
2.7	Check that there has been no water ingress into EBI Gate Posts	M	S
2.8	Cables and plug couplers are undamaged and secure.	M	S

NR/L3/SIG/10663 Signal Maintenance Specifications							
NR/SMS/PartD/LX77							
EBI Gate 200 Level Crossing System							
Issue No:	Issue No: 03						

3. Gates

ls Th	Is This Section Applicable to the Crossing Under Test? Yes					
Check that the gate and fixtures and fittings are undamaged and in good condition.						
3.2	Check that the gatepost is stable and securely fixed into the	ground.	M	S		
3.3	Check that the gate locks or hooks are effective in both the open and closed positions.			S		
3.4	Check that any red roundels or signs attached to the gate are undamaged, clean and legible.			S		
3.5	Signs and roundels shall be of class 1 retro-reflective material If wicket gates are provided check, they are undamaged, stagood condition.		M	S		
3.6	Check that the gatepost is stable and securely fixed into the	ground.	M	S		
3.7	Check (if fitted) that the gate closing mechanism is effective		M	S		

4. Telephone Systems

Different types of telephone systems are fitted to AHBCs. BR Spec. 843 installations usually have two emergency phones and an LCU phone. The crossing section order will state the telephone system that is required at the crossing.

Identify telephones at the installation under test in the grid below:

No.	Telephone Identity
1	
2	
3	
4	

		Telephone Identity (see Grid)			ntity
4.1	Check the telephone and cord is undamaged.	1	2	3	4
4.2	Check the correct labels and symbols are fitted inside and outside the case and they are legible.	1	2	3	4
4.3	Check that any associated signs are stable, undamaged and legible. Emergency telephones shall have the yellow telephone symbol visible on three sides of the telephone case or on a separate plate above the telephone.	1	2	3	4

NR/L3/SIG/10663 Signal Maintenance Specifications									
NR/SMS/Pa	NR/SMS/PartD/LX77								
EBI Gate 20	EBI Gate 200 Level Crossing System								
ssue No: 03 Issue Date: 07/03/2020 Compliance Date: 06/06/2020									

4.4	Check that the correct crossing name is stated on any telephone labels and signs	1	2	3	4
4.5	Check that telephone numbers given on any sign are correct. The site plan will give information on the correct names/numbers that shall be displayed.	1	2	3	4
4.6	If betalights are fitted, check they are lit. Betalights are usually fitted to older style telephone units that the public have access to.	1	2	3	4
4.7	Ring the monitoring point and check that the call is received correctly. Ask the monitoring point to ring back	1	2	3	4
4.8	Check the telephone rings correctly. Check the quality of speech and hearing is clear and not distorted. On Whiteley PETS telephone systems there is a short time when answering a call at either end of the line where the system 'handshakes'. During this period transmission and reception of speech is not possible.	1	2	3	4
4.9	If lay-by and/or pedestal telephones are fitted Check that there is a ring differential at the monitoring point between them and the emergency telephones.	1	2	3	4
4.10	Check that if a lay-by or pedestal telephone is in use a call from the emergency telephone is still received correctly at the monitoring point.	1	2	3	4
4.11	Check that with one of the emergency telephones left 'off the hook' calls on the other telephones can be made and received correctly Whitely PETS systems will indicate a fault at the monitoring point.	1	2	3	4
4.12	Ring the ETD number given for the public to call in an emer- that the recipient gives correct procedures for the call. The site plan will give information on the correct names/num displayed.				e

Public Telephone Numbers	Checked

5. System Test

	Power down the system by removing the supply fuse and power back up	
5.1	and wait until the ACB boards are displaying alternating – -109 - 209	M
	(System Initialising)	

Toggle the Test/Reset switch to "Test" position and release and observe the following sequence on master and slave post.

NR/L3/SIG	NR/L3/SIG/10663 Signal Maintenance Specifications							
NR/SMS/P	NR/SMS/PartD/LX77							
EBI Gate 200 Level Crossing System								
Issue No: 03								

On Demand System Check

5.2	RED LED's illuminate	M	S
5.3	After 5 seconds with the RED LED's still illuminated the Audible Warning sounds	M	S
5.4	After a further 5 seconds with the RED LED's still illuminated the Second Train Coming Audible warning sounds	M	S
5.5	Hold the test switch for 5 seconds with the RED LED's still illuminated the GREEN LED's also Illuminate. briefly	M	S
5.6	'If fitted push the On Demand button" and release the GREEN aspect will flash once (which signifies the button is operating correctly).	M	S
5.7	Then both the RED and GREEN LED will extinguish	\mathbb{N}	S
5.8	The system is now in Dark Mode awaiting initialisation. This requires the Test/Reset switch to be operated.	M	S

Automatic Configuration Test Sequence

5.9	RED LED's illuminate	M	S
5.10	After 5 seconds with the RED LED's still illuminated the Audible Warning sounds	M	S
5.11	After a further 5 seconds with the RED LED's still illuminated the Second Train Coming Audible warning sounds	M	S
5.12	Hold the test switch for 5 seconds the RED LED's still illuminated the GREEN LED's also Illuminate.	M	S
5.13	Both the RED and GREEN will extinguish	M	S
5.14	The system is now in Dark Mode awaiting initialisation. This requires the Test/Reset switch to be operated.	M	S

6. Observe or simulate a train in normal direction

	Press one of the "on Demand" buttons (If Provided) At locations where an "On Demand" system is fitted, the button shall be pressed to illuminate the Red/Green LEDs. The system will revert to energy saving mode after a period of 5 minutes.						
6.1	Observe both Green LED's are illuminated.	\mathbb{N}	S				
6.2	When the train strikes in or the first axle counter section is occupied by using the toggle switches on the Axle counter Evaluator Board (IMC)	M					
6.3	Observe the Green LED's extinguish and are replaced by Red LED's	M	S				
6.4	Check the audible warning sound from both Posts	M	S				

NR/L3/SIG	NR/L3/SIG/10663 Signal Maintenance Specifications								
NR/SMS/P	NR/SMS/PartD/LX77								
EBI Gate 200 Level Crossing System									
Issue No: 03 Issue Date: 07/03/2020 Compliance Date: 06/06/2020									

6.5	Check the Axle Counter Board (ACB) for the first section shows an axle count.	M	
6.6	When the train has completely traversed the 2 nd axle counter head or has been counted out, Check the ACB has returned to zero.	M	
6.7	Observe the Red LED's extinguished and are replaced by Green LED's and the audible warning has ceased to sound.	M	S
6.8	Observe the count shown on the ACB first section has transferred to the ACB for the second section.	M	
6.9	If you are observing the passage of a real train, check the ACB counts back to zero as the train passes over the last axle counter head.	M	
6.10	If you have simulated the passage of a train, you should complete this passage by using the toggle switches on the third IMC card to count out the axles shown on the ACB card.	M	

7. Double Lines Second Train Approaching Sequence

Is This Section Applicable to the Crossing Under Test?	Yes	No
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Up Direction

7.1	Press the on-demand button (if provided). Simulate the passage of a train in the "Up" direction using the toggle switches on the Axle counter Evaluator Board (IMC). Occupying block sections 1 and 2.	M	
7.2	Simulate a second train striking in in the "Down" direction.	M	
7.3	Observe that the Slave Post Red LED stays illuminated.		S
7.4	Observe that the Master Post Red LED stays illuminated.	M	
7.5	Check the audible warning from the Slave Post changes to the Another Train Coming warning.		S
7.6	Check the audible warning from the Master Post changes to the Another Train Coming warning.	M	
7.7	Complete the "normal passage" sequence for the train simulated on the "Up"	M	
7.8	Complete the "normal passage" sequence for the train simulation on the "Down" line and that the LED's return to Green.	M	

NR/L3/SIG/10663 Signal Maintenance Specifications						
NR/SMS/PartD/LX77						
EBI Gate 200 Level Crossing System						
Issue No: 03						

Down Direction

7.9	Press the on-demand button (if provided). Simulate the passage of a train in the "Down" direction using the toggle switches on the Axle counter Evaluator Board (IMC). Occupying block sections 3 and 4.	M	
7.10	Simulate a second train striking in in the Up direction.	M	
7.11	Observe that the Slave Post Red LED stays illuminated.		S
7.12	Observe that the Master Post Red LED stays illuminated.	M	
7.13	Check the audible warning from the Slave Post changes to the Another Train Coming warning.		S
7.14	Check the audible warning from the Master Post changes to the Another Train Coming warning.	M	
7.15	Complete the "normal passage" sequence for the train simulation on the "Down" Line.	M	
7.16	Complete the "normal passage" sequence for the train simulation on the "Up" line and that the LED's return to Green.	M	

8. Normal Direction Strike In Monitoring

8.1	Press the "on Demand" button on the Master Post (If Provided)		
8.2	Observe Green LED's are illuminated on both Posts.	M S	
8.3	Simulate a train striking in in the normal direction by using the toggle switches on the Axle counter Evaluator Board (IMC).	M	
8.4	Check the Post LED's are now Red and the audible alarm is sounding.	MS	
8.5	Using a stopwatch measure the length of time the audible alarms sound and the Red LED are displayed. By default, this should be 300 seconds (5 minutes) +/- 15 seconds. This time is the default setting; however, site specific condition may vary this time. The timer continues for another 600 seconds before the ACB cards resets and displays -109 / -209. This will mean a total time recorded should be 900 seconds.	Seconds	
8.6	Observe that the Red LED's extinguish / audible warning silenced and the crossing reverts to Dark Mode. No Post LED's are displayed when the "On Demand" (If provided) is pressed	MS	
8.7	The system can be reset by either the passage of a train or the simulated of the passage of a train.		

NR/L3/SIG/10663 Signal Maintenance Specifications					
NR/SMS/PartD/LX77					
EBI Gate 200 Level Crossing System					
Issue No:	03	Issue Date:	07/03/2020	Compliance Date:	06/06/2020

9. Wrong Direction Strike In Monitoring

9.1	Press the "on Demand" button on the Master Post (If Provided).			
9.2	Observe Green LED's are illuminated on both Posts.	luminated on both Posts.		
9.3	Simulate a train striking in in the wrong direction by using the toggle switches on the Axle counter Evaluator Board (IMC).			
9.4	Check the Post LED's are now Red and the audible alarm is sounding.	M S		
9.5	Using a stopwatch measure the length of time the audible alarms sound and the Red LED are displayed. By default, this should be 300 seconds (5 minutes) +/- 15 seconds. This time is the default setting; however, site specific condition may vary this time. The timer continues for another 600 seconds before the ACB cards resets and displays -109 / -209. This will mean a total time recorded should be 900 seconds.	stopwatch measure the length of time the audible alarms and the Red LED are displayed. By default, this should be 300 (5 minutes) +/- 15 seconds. This time is the default setting; site specific condition may vary this time. Seconds or continues for another 600 seconds before the ACB cards and displays -109 / -209. This will mean a total time recorded		
9.6	Observe that the Red LED's extinguish / audible warning silenced and the crossing reverts to Dark Mode. No Post LED's are displayed when the "On Demand" (If provided) is pressed.	MS		
9.7	The system can be reset by either the passage of a train or the simulated of the passage of a train.	M		

10. Power Supplies and Batteries

The EBI Gate 200 Level crossing Systems power requirements are provided from an external location case therefore; any power supply testing will be completed at that location and not within the EBI Gate 200 Post.

However, there is a UPS Controller and Battery within the Master Post's upper section, this should be isolated from the external power supply before any power supply testing is carried out.

Power Supply Identification				

END



LEVEL CROSSING TESTING

VAMOS LEVEL CROSSING SYSTEM

NR/SMS/LX78

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NR/L3/SIG/10663 Signal Maintenance Specifications						
NR/SMS/PartD/LX78						
VAMOS Level Crossing System						
Issue No:	03	Issue Date:	04/06/2022	Compliance Date:	03/09/2022	

GENERAL

This test plan covers the requirements of NR/SMS/PartC/LC10 and NR/SMS/PartB/Test/159. It is for use of the person conducting the annual test of the level crossing and has relevant 'tick boxes' by each task so that particular item of the test can be correctly recorded as per the index in "crossing defects".

- a) The crossing ground plan.
 - b) The level crossing order.
 - c) The crossing control tables.
- d) The signalling plan.

Missing documentation shall be listed as a defect.

TEST SUMMARY

Test Summary
Name of Level Crossing:
Level Crossing Type:
Name of Monitoring Signal Box(es):
Date of Full Test:
Time Full Test Commenced:
Time Full Test Completed:
Tested By:
Signature:
Date of Signature:
Grade and Title:

CROSSING DEFECTS

On the test plan each item shall be recorded with the following letters in the box provided:

- **X**: Found Incorrect, Action Required.
- R: Found Incorrect, Rectified on Day of Test.
- C: Correct.
- **N**: Not Applicable to this Installation.

Any items found incorrect (X or R) are to be listed on the summary pages. On items requiring action, list the party(s) responsible for rectifying them.

NR/L3/SIG/10663 Signal Maintenance Specifications							
NR/SMS/PartD/LX78							
VAMOS Level Crossing System							
Issue No:	03	Issue Date:	04/06/2022	Compliance Date:	03/09/2022		

SUMMARY OF ITEMS FOUND INCORRECT (1)

List in the table below all sites found incorrect and rectified on the day of the test (code letter R).

Description of Items Found Incorrect and Rectified

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NR/L3/SIG/10663 Signal Maintenance Specifications						
NR/SMS/PartD/LX78						
VAMOS Level Crossing System						
Issue No:	03	Issue Date:	04/06/2022	Compliance Date:	03/09/2022	

SUMMARY OF ITEMS FOUND INCORRECT (2)

List in the table below items found incorrect and requiring action (code letter X).

Description of Items Found Incorrect and Requiring Action	Responsible Party (s)

NR/L3/SIG/10663 Signal Maintenance Specifications						
NR/SMS/PartD/LX78						
VAMOS Level Crossing System						
Issue No:	03	Issue Date:	04/06/2022	Compliance Date:	03/09/2022	

1. Road Arrangements (If Provide)

1.1	Check that the road markings are in accordance with the section order and plans.	
1.2	Check the condition and the sighting of any signs on the crossing approaches. See NR/SMS/SG00 - Section 28 for details on reflective boards and signs.	
1.3	Check the condition of the road surface over the crossing.	
1.4	Check that the road markings between and including the stop lines are complete and visible.	
1.5	Check (if provided) that the cattle/anti-trespass guards are complete and securely fastened down.	
1.6	Check the condition and the security of any fencing around the barrier machines and (if provided) on the approach to equipment room or locations.	
1.7	Check (if provided) the condition and security of any pedestrian guardrails.	
1.8	Check (if provided) the condition and security of any wicket gates	

Any defects found in 1.1 and 1.3 shall be reported to the appropriate council via the SM(S).

2. Indication Posts

NOTE: For the purposes of identification the "Indication Post" closest to the system location is called Pole 1 and the stand alone Pole 2.

	On each of the Indication Posts check the following items:		
2.1	The post is stable and undamaged and anti-rotation is working	1	2
2.2	The post is correctly aligned and the LED's Indications are clearly visible from the crossing decision point.	1	2
2.3	The red and green lenses are undamaged and clean.	1	2
2.4	If the crossing is an On-Demand type, check the touch buttons on each unit are not damaged.	1	2
2.5	Signs and notices attached to post are undamaged, clean and legible.	1	2
2.6	Cables and/or plug couplers are undamaged and secure and shows no damage to cables with door opening and closing	1	2

3. Gates

Is Th	is Section Applicable to the Crossing Under Test?	Yes	Ν	lo
3.1	Check that the gate and fixtures and fittings are undamaged good condition and pedestrian gates are self-closing	l and in	1	2

NR/L3/SIG/10663 Signal Maintenance Specifications							
NR/SMS/PartD/LX78							
VAMOS Level Crossing System							
Issue No: 03							

3.2	Check that the gatepost is stable and securely fixed into the ground	1	2
3.3	Check that the gate locks or hooks are effective in both the open and closed positions	1	2
3.4	Check that any red roundels or signs attached to the gate are undamaged, clean and legible. Signs and roundels shall be of class 1 retro-reflective material	1	2
3.5	If wicket gates are provided check, they are undamaged, stable and in good condition.	1	2
3.6	Check (if fitted) that the gate closing mechanism is effective	1	2

4. Telephone Systems (Use as Applicable)

4.1	Check the telephone and cord is undamaged.	1	2
4.2	Check the correct labels and symbols are fitted inside and outside the case and they are legible.	1	2
4.3	Check that any associated signs are stable, undamaged and legible. Emergency telephones shall have the yellow telephone symbol visible on three sides of the telephone case or on a separate plate above the telephone.	1	2
4.4	Check that the correct crossing name is stated on any telephone labels and signs.	1	2
4.5	Check that telephone numbers given on any sign are correct. The site plan will give information on the correct names/numbers that shall be displayed.	1	2
4.6	If betalights are fitted, check they are lit. Betalights are usually fitted to older style telephone units that the public have access to.	1	2
4.7	On emergency telephones, check that an ETD number is given for the public to call in case they cannot contact the monitoring point.	1	2
4.8	Ring this number and check that the recipient gives correct procedures for the call.	1	2
4.9	Ring the monitoring point and check that the call is received correctly. Ask the monitoring point to ring back.	1	2
4.10	Check the telephone rings correctly. Check the quality of speech and hearing is clear and not distorted. On Whiteley PETS telephone systems there is a short time when answering a call at either end of the line where the system 'handshakes'. During this period transmission and reception of speech is not possible.	1	2
4.11	If lay-by and/or pedestal telephones are fitted check that there is a ring differential at the monitoring point between them and the emergency telephones.	1	2

	/L3/SIG/10663 Signal Maintenance Specifications	
	/SMS/PartD/LX78 MOS Level Crossing System	
	ue No: 03 Issue Date: 04/06/2022 Compliance Date: 03/09/2022	
4.12 4.13	Check that if a lay-by or pedestal telephone is in use a call from the emergency telephone is still received correctly at the monitoring point. Check that with one of the emergency telephones left 'off the hook' calls on the other telephones can be made and received correctly Whitely PETS systems will indicate a fault at the monitoring point.	
5.	Cabinet	
5.1	Check the cabinet securely mounted, undamaged and locked.	
5.2	Check for water ingress and other contaminates.	
5.3	Check cables and or plug couplers are undamaged and secure.	
5.4	Scroll through the Telemetry Module screens to check there is are no failure modes present, if one is note investigate and correct the issue.	
5.5	Check that the Green "DC ok" LED is illuminated on the 24v DC PULS supply unit and the green "Status" light on the Buffer Module are both lit.	
5.6	Check that both of the surge arrestors have green indications showing in the status windows.	
For e	each IMC board working from left to right carry out the following	
5.7	Check the "PWR" LED is lit.	
5.8	Record the system current for SYS1	
5.9	Record the system current for SYS2	
AS1E	В	
5.10	Check the "PWR" LED is lit.	
5.11	1 Record the system current for SYS1	
5.12	Record the system current for SYS2	
ES1E	B (Use as Applicable)	
5.13	Check the "PWR" LED is lit.	
5.14	Record the system current for SYS1	
5.15	Record the system current for SYS2	

	MS/PartD/L		ance Specificat	0115		
		ossing System		1		
Issue	No: 03	Issue Date:	04/06/2022	Compliance Date:	03/09/2022	
ES2B	(Use as App	icable)				
5.16	Check the "	PWR" LED is lit				
5.17	Record the	system current	for SYS1			
5.18	Record the	system current	for SYS2			
AS2A	(Use as App	licable)				
5.19	Check the "	PWR" LED is lit				
5.20	Record the	system current	for SYS1			
5.21	Record the	system current	for SYS2			
ES2A	(Use as App	licable)				
5.22	Check the "	PWR" LED is lit				
5.23	Record the	system current	for SYS1			
5.24	Record the	system current	for SYS2			
6.	User Instru	ction Signs				
6.1	Check that	user instruction	signage is legib	le and secure.	1	2

By observation of the passage of a train or simulation check that each sensor head is functioning correctly

Rail		Checked	
Sensor	Location / Unique identity Passa		Simulation
ES1A			
AS1B			
ES1B			
ES2B			
AS2A			
ES2A			

NR/L3/SIG/10663 Signal Maintenance Specifications						
NR/SMS/P	NR/SMS/PartD/LX78					
VAMOS Level Crossing System						
Issue No:	03	Issue Date:	04/06/2022	Compliance Date:	03/09/2022	

8. **Operational Sequence Test - No Train**

NOTE: Check no train will enter the level crossing strike in area from any direction for the duration of test.

8.1	With the system in "Standby Mode" (No red or green indicator LED lit) using a timing device Press/touch the "On-Demand" button on one of the indication posts and start timing.	1	2
8.2	Observe that the "On-Demand" blue LED is extinguished and goes to yellow whilst touching button, at the same time the green LEDs illuminate in both indication posts.	1	2
8.3	Check the green LED's are extinguished after 5 minutes.	1	2
8.4	Check the crossing returns to "Standby Mode" and the "On – Demand" red LED's are illuminated.	1	2

9. **Operational Sequence Test - One Train**

NOTE: Check no train will enter the level crossing strike in area from any direction for the duration of test.

9.1	With the system in "Standby Mode" (No red or green indicator LED lit) Press/touch the "On-Demand" button on one of the indication posts. Observe that the "On-Demand" blue LED is extinguished and goes to yellow whilst touching button, at the same time the green LEDs illuminate in both indication posts.	1	2
9.2	Simulate a train "striking in" on a strike in sensor head by operating the test switches on a Strike-in evaluator board (IMC).	1	2
9.3	Observe the green LEDs on both indicator posts are extinguished and that the red LED's illuminate.	1	2
9.4	Confirm both the audible warnings sounders are working correctly.	1	2
9.5	Simulate a train "striking out" on a strike out sensor head on the same line as the "Strike in" sensor by operating the test switches on a Strike-out evaluator board (IMC).	1	2
9.6	After a short delay (3-6 seconds) observe the indicator post LED's change from red to green.	1	2
9.7	Confirm the audible warning ceases.	1	2

10. **Operational Sequence Test - Double Lines Second Train Approaching**

NOTE: Check no train will enter the level crossing strike in area from any direction for the duration of test.

10.1	With the system in "Standby Mode" (No red or green indicator LED lit) Simulate a train "striking in" on a strike in sensor head by operating the test switches on a Strike-in evaluator board (IMC). Press/touch the "On-Demand" button on one of the indication posts. Observe that the "On-Demand" LED is extinguished, at the same time the red LEDs illuminate in both indication posts.	1	2
10.2	Simulate a train "striking in" on the first strike in sensor head mounted on 2nd line in the "opposite direction" to the first train by operating the test switches on a Strike-in evaluator board (IMC).	1	2
10.3	Confirm both audible warnings sounders DO NOT change to the second train approaching warning.	1	2
10.4	Check both indication posts continue to display a red LED.	1	2
10.5	Simulate a train "striking out" on first sensor by operating the test switches on a Strike-out evaluator board (IMC).	1	2
10.6	Check both audible warnings sounders NOW change to the second train approaching warning.	1	2
10.7	Check both indication posts continue to display a red LED and the warning continue to sound.	1	2
10.8	Simulate a train "striking out" on 2nd line by operating the test switches on a Strike-out evaluator board (IMC).	1	2
10.9	After a short delay (3-6 seconds) Observe the indicator post LED's change from red to green.	1	2
10.10	Confirm the audible warning ceases	1	2
10.11	The "On-Demand" LED's will remain extinguished until the crossing reverts to "Standby Mode".	1	2

Power Supplies and Batteries 11.

The Vamos Level crossing Systems power requirements are provided from an external location case therefore, any power supply testing will be done at that location and not within the Vamos System.

Note state of power supply and Buffer unit below.

Power Supply Identification		

END



LEVEL CROSSING TESTING

FLEX LEVEL CROSSING SYSTEM

NR/SMS/LX79

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NR/L3/SIG/10663 Signal Maintenance Specifications						
NR/SMS/Part	NR/SMS/PartD/LX79					
Flex Level Cr	Flex Level Crossing System					
Issue No: 0	1	Issue Date:	04/06/2022	Compliance Date:	03/09/2022	

GENERAL

This test plan covers the requirements of NR/SMS/PartC/LC10 (Level Crossings Operational Sequences) and NR/SMS/PartB/Test/161 (Flex – Operational Sequence Tests). It is for use of the person conducting the annual test of the level crossing and has relevant 'tick boxes' by each task so that the particular item of the test can be correctly recorded as per the index in "crossing defects".

- a) The crossing ground plan.
- b) The level crossing order.
- c) The crossing control tables.
- d) The signalling plan.

Missing documentation shall be listed as a defect.

TEST SUMMARY

Test Summary
Name of Level Crossing:
Level Crossing Type:
Name of Monitoring Signal Box(es):
Date of Full Test:
Time Full Test Commenced:
Time Full Test Completed:
Tested By:
Signature:
Date of Signature:
Grade and Title:

CROSSING DEFECTS

On the test plan each item shall be recorded with the following letters in the box provided:

- **X**: Found Incorrect, Action Required.
- R: Found Incorrect, Rectified on Day of Test.
- C: Correct.WW
- **N**: Not Applicable to this Installation.

Any items found incorrect (X or R) are to be listed on the summary pages. On items requiring action, list the party(s) responsible for rectifying them.

NR/L3/SIG/	NR/L3/SIG/10663 Signal Maintenance Specifications					
NR/SMS/Pa	NR/SMS/PartD/LX79					
Flex Level Crossing System						
Issue No:	01	Issue Date:	04/06/2022	Compliance Date:	03/09/2022	

SUMMARY OF ITEMS FOUND INCORRECT (1)

List in the table below all sites found incorrect and rectified on the day of the test (code letter R).

Description of Items Found Incorrect and Rectified
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NR/L3/SIG/	IR/L3/SIG/10663 Signal Maintenance Specifications					
NR/SMS/Pa	R/SMS/PartD/LX79					
Flex Level	Flex Level Crossing System					
Issue No:	01	Issue Date:	04/06/2022	Compliance Date:	03/09/2022	

SUMMARY OF ITEMS FOUND INCORRECT (2)

List in the table below items found incorrect and requiring action (code letter X).

Description of Items Found Incorrect and Requiring Action	Responsible Party (s)

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NR/L3/SIG/10663 Signal Maintenance Specifications					
NR/SMS/P	NR/SMS/PartD/LX79				
Flex Level Crossing System					
Issue No:	01	Issue Date:	04/06/2022	Compliance Date:	03/09/2022

1. Road Arrangements (If Provide)

1.1	Check that the road markings are in accordance with the section order and plans if provided.	
1.2	Check the condition and the sighting of any signs on the crossing approaches. See NR/SMS/PartC/SG00 (Signals: General) for details on reflective boards and signs.	
1.3	Check the condition of the road surface over the crossing.	
1.4	Check that the road markings between and including the stop lines are complete and visible.	
1.5	Check (if provided) that the cattle/anti-trespass guards are complete and securely fastened down.	
1.6	Check the condition and the security of any fencing around the barrier machines and (if provided) on the approach to equipment room or locations.	
1.7	Check (if provided) the condition and security of any pedestrian guardrails.	
1.8	Check (if provided) the condition and security of any wicket gates.	

Any defects found in 1.1 and 1.3 shall be reported to the via the SM(S).

2. Indication Posts

NOTE: For the purposes of identification the "Indication Posts" are called Pole 1 (closest to the system location case) and Pole 2 (is the standalone post).

	On each of the Indication Posts check the following items:		
2.1	The post is stable and undamaged and Anti-Rotation working.	Α	В
2.2	The post is correctly aligned and the LED's Indications are clearly visible from the crossing decision point and NOT towards the railway in the direction of travel.	А	В
2.3	The red and green lenses are undamaged and clean.	А	В
2.4	Signs and notices attached to post are undamaged, clean and legible.	А	В
2.5	Cables and/or plug couplers are undamaged and secure and shows on damage to cables with door opening and closing.	А	В

3. Gates

Is Th	Yes	Ν	lo	
3.1	Check that the gate and fixtures and fittings are undamaged good condition and that the does not stay open.	l and in	А	В

NR/L3/SIG/	NR/L3/SIG/10663 Signal Maintenance Specifications					
NR/SMS/Pa	NR/SMS/PartD/LX79					
Flex Level	Flex Level Crossing System					
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3.2	Check that the gatepost is stable and securely fixed into the ground.	А	В
3.3	Check that the gate locks or hooks are effective in both the open and closed positions.	Α	В
3.4	Check that any red roundels or signs attached to the gate are undamaged, clean and legible. Signs and roundels shall be of class 1 retro-reflective material.	А	В
3.5	If wicket gates are provided check they are undamaged, stable and in good condition.	А	В
3.6	Check (if fitted) that the gate closing mechanism is effective.	А	В

4. Telephone Systems (Use as Applicable)

4.1	Check the telephone and cord is undamaged.	А	В
4.2	Check the correct labels and symbols are fitted inside and outside the case and they are legible.	А	В
	Check that any associated signs are stable, undamaged and legible.		
4.3	Emergency telephones shall have the yellow telephone symbol visible on three sides of the telephone case or on a separate plate above the telephone.	Α	В
4.4	Check that the correct crossing name is stated on any telephone labels and signs.	Α	В
4.5	Check that telephone numbers given on any sign are correct. The site plan will give information on the correct names/numbers that shall be displayed.	А	В
4.6	If betalights are fitted, check they are lit. Betalights are usually fitted to older style telephone units that the public have access to.	А	В
4.7	On emergency telephones, check that an ETD number is given for the public to call in case they cannot contact the monitoring point.	А	В
4.8	Ring this number and check that the recipient gives correct procedures for the call.	А	В
4.9	Ring the monitoring point and check that the call is received correctly. Ask the monitoring point to ring back.	А	В
	Check the telephone rings correctly. Check the quality of speech and hearing is clear and not distorted.		
4.10	On Whiteley PETS telephone systems there is a short time when answering a call at either end of the line where the system 'handshakes'. During this period, transmission and reception of speech is not possible.	А	В
4.11	If lay-by and/or pedestal telephones are fitted, check that there is a ring differential at the monitoring point between them and the emergency telephones.	А	В

	NR/L3/SIG/10663 Signal Maintenance Specifications					
	MS/PartD/LX Level Cross					
Issue		Issue Date:	04/06/2022	Compliance Date: 03	/09/202	2
				· '		
417			•	is in use a call from the tly at the monitoring point.	А	В
4.13	Check that with one of the emergency telephones left 'off the hook' calls on the other telephones can be made and received correctly. Whitely PETS systems will indicate a fault at the monitoring point.					
5.	Cabinet					
5.1	Check the	cabinet is secure	ely mounted, ur	damaged and locked.		
5.2	Check for w	ater ingress an	d other contam	nates.		
5.3	Check cable	es and or plug o	ouplers are und	amaged and secure.		
5.4		•	•	lle screens to check there a tigate and correct the issue		
5.5		•		luminated on the 230VAC as Voltage within "LED is lit."	Akkuted	;
5.6		both of the surg		e green indications showing	g in the	
ES1A	For each IM	C board working	g from left to rig	ht carry out the following		
5.7	Check the "	PWR" LED is lit				
5.8	Record the	system current	for SYS1.			
5.9	Record the	system current	for SYS2.			
SSN1	A (Use as Ap	plicable)				
5.10	Check the "	PWR" LED is lit	·.			
5.11	Record the	system current	for SYS1.			
5.12	Record the	system current	for SYS2.			

NR/L3/SIG/10663 Signal Maintenance Specifications NR/SMS/PartD/LX79 Flex Level Crossing System Issue No: 01 Issue Date: 04/06/2022 Compliance Date: 03/09/2022 AS1B (Use as Applicable) 5.13 Check the "PWR" LED is lit. 5.14 Record the system current for SYS1. 5.15 Record the system current for SYS2. ES1B (Use as Applicable) 5.16 Check the "PWR" LED is lit. 5.17 Record the system current for SYS1. 5.18 Record the system current for SYS2. ES2B (Use as Applicable) 5.19 Check the "PWR" LED is lit. 5.20 Record the system current for SYS1. 5.21 Record the system current for SYS2. SSN2B (Use as Applicable) 5.22 Check the "PWR" LED is lit. 5.23 Record the system current for SYS1. 5.24 Record the system current for SYS2. AS2A (Use as Applicable) 5.25 Check the "PWR" LED is lit. 5.26 Record the system current for SYS1. 5.27 Record the system current for SYS2.							
Issue No: 01 Issue Date: 04/06/2022 Compliance Date: 03/09/2022					ance Specificat	ions	
Issue No: 01 Issue Date: 04/06/2022 Compliance Date: 03/09/2022 AS1B (Use as Applicable) 5.13 Check the "PWR" LED is lit. 5.14 Record the system current for SYS1. 5.15 Record the system current for SYS2. ES1B (Use as Applicable) 5.16 Check the "PWR" LED is lit. 5.17 Record the system current for SYS1. 5.18 Record the system current for SYS1. 5.19 Check the "PWR" LED is lit. 5.20 Record the system current for SYS1. 5.21 Record the system current for SYS2. SSN2B (Use as Applicable) 5.22 Check the "PWR" LED is lit. 5.23 Record the system current for SYS1. 5.24 Record the system current for SYS2. AS2A (Use as Applicable) 5.25 Check the "PWR" LED is lit. 5.26 Record the system current for SYS1.							
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ES1B (Use as Applicable) 5.16 Check the "PWR" LED is lit. 5.17 Record the system current for SYS1. 5.18 Record the system current for SYS2. ES2B (Use as Applicable) 5.19 Check the "PWR" LED is lit. 5.20 Record the system current for SYS1. 5.21 Record the system current for SYS2. SSN2B (Use as Applicable) 5.22 Check the "PWR" LED is lit. 5.23 Record the system current for SYS1. 5.24 Record the system current for SYS2. AS2A (Use as Applicable) 5.25 Check the "PWR" LED is lit. 5.26 Record the system current for SYS1.	5.14	Recor	d the sy	stem current	for SYS1.		
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5.22 Check the "PWR" LED is lit. 5.23 Record the system current for SYS1. 5.24 Record the system current for SYS2. AS2A (Use as Applicable) 5.25 Check the "PWR" LED is lit. 5.26 Record the system current for SYS1.	5.21	Record	d the sy	stem current	for SYS2.		
5.23 Record the system current for SYS1. 5.24 Record the system current for SYS2. AS2A (Use as Applicable) 5.25 Check the "PWR" LED is lit. 5.26 Record the system current for SYS1.	SSN2E	3 (Use	as App	licable)			
5.24 Record the system current for SYS2. AS2A (Use as Applicable) 5.25 Check the "PWR" LED is lit. 5.26 Record the system current for SYS1.	5.22	Check	the "P	WR" LED is lit	t.		
AS2A (Use as Applicable) 5.25 Check the "PWR" LED is lit. 5.26 Record the system current for SYS1.	5.23	Record	d the sy	stem current	for SYS1.		
5.25 Check the "PWR" LED is lit. 5.26 Record the system current for SYS1.	5.24	Record	d the sy	stem current	for SYS2.		
5.26 Record the system current for SYS1.	AS2A	(Use a	as Appl	icable)			
	5.25	Check	the "P	WR" LED is lit	i.		
5.27 Record the system current for SYS2.	5.26	Recor	d the sy	stem current	for SYS1.		
	5.27	Record	d the sy	stem current	for SYS2.		

NR/L3/SIG/10663 Signal Maintenance Specifications						
NR/S	MS/PartD/LX	X79				
Flex I	Level Cross	ing System				
Issue	No: 01	Issue Date:	04/06/2022	Compliance Date:	03/09/2022	
ES2A	(Use as Ap	plicable)				
5.28	Check the "	'PWR" LED is lit				
5.29	Record the	system current	for SYS1.			
5.30	Record the	system current	for SYS2.			
6.	User Instru	ction Signs			_	

_

6.1	Check that user instruction signage is legible and secure.	А	В

7. Wheel Sensor Test (Detection Capability)

By observation of the passage of a train or simulation check that each sensor head is functioning correctly

Rail		Chec	Simulation
Sensor	Location / Unique identity	Passage of Train	Simulation
ES1A			
SSN1A			
AS1B			
ES1B			
ES2B			
SNN2B			
AS2A			
ES2A			

03/09/2022	

8. Operational Sequence Test - One Train (With Interface Signal OFF)

04/06/2022

NR/L3/SIG/10663 Signal Maintenance Specifications

Issue Date:

NR/SMS/PartD/LX79

Issue No:

8.7

8.8

Flex Level Crossing System

01

NOTE: Check no train will enter the level crossing strike in area from any direction for the duration of test.

Compliance Date:

8.1	Confirm any interface signals are showing "proceed".	А	В
8.2	Simulate a train "striking in" on a strike in sensor head by operating the test switches on a Strike-in evaluator board (IMC).	Α	В
8.3	Observe that the green LEDs on both indicator posts are extinguished and that the red LED's illuminate.	А	В
8.4	Check both audible warnings sounders are working correctly.	А	В
8.5	Simulate a train "striking out" on a strike out sensor head on the same line as the "Strike in" sensor by operating the test switches on a Strike-out evaluator board (IMC).	А	В
8.6	After a short delay (3-6 seconds).	А	В

9. Operational Sequence Test - Double Lines Second Train Approaching (With Interface Signal OFF)

Observe the indicator post LED's change from red to green.

Check the audible warning ceases.

NOTE: Check no train will enter the level crossing strike in area from any direction for the duration of test.

9.1	Confirm any interface signals are showing "proceed"	А	В
9.2	Simulate a train "striking in" on a strike in sensor head by operating the test switches on a Strike-in evaluator board (IMC).	Α	В
9.3	Observe that the red LEDs illuminate in both indication posts. Check both audible warnings sounders sound and Green's LEDs go Out".	А	В
9.4	Simulate a train "striking in" on a strike in sensor head mounted on 2 nd line in the "opposite direction" to the first train by operating the test switches on a Strike-in evaluator board (IMC).	А	В
9.5	Check both audible warnings sounders remain and do not change to the second train approaching warning.	Α	В
9.6	Check both indication posts continue to display a red LED.	А	В
9.7	Simulate a train "striking out" on first sensor by operating the test switches on a Strike out evaluator boatd (IMC).	Α	В
9.8	Check both audible warnings sounders, now change to the second train approaching warning.	А	В
9.9	Check both indication posts continue to display a red LED and the warning continues to sound.	А	В

NR/L3/SIG/1	NR/L3/SIG/10663 Signal Maintenance Specifications						
NR/SMS/Pai	NR/SMS/PartD/LX79						
Flex Level C	Flex Level Crossing System						
ssue No: 01 Issue Date: 04/06/2022 Compliance Date: 03/09/2022							

9.10	Simulate a train "striking out" on 2nd line by operating the test switches on a Strike out evaluator board (IMC).	А	В
9.11	After a short delay (3-6 seconds).	Α	В
9.12	Observe the indicator post LED's change from red to green.	А	В
9.13	Check the audible warning ceases straight away.	А	В

10. Operational Sequence Test – One Train (With Interface Signal ON)

NOTE: Check no train will enter the level crossing strike in area from any direction for the duration of test.

Track 1 Track 2

10.1	Confirm the interface signal is at red, and has been for greater than 2 minutes.	Α	В
10.2	Simulate a train "striking in" on a strike in sensor head by operating the test switches on a Strike-in evaluator board (IMC).	Α	В
10.3	Observe the green LEDs on both indicator posts remain lit.	А	В
10.4	Clear the interface signal.	А	В
10.5	Observe the green LEDS on both indicator posts are extinguished, and the red LEDS are illuminated.	А	В
10.6	Check both the audible warning sounds are working correctly.	A	В
10.7	Observe interface signal clears to proceed aspect after signal regulation time (if applied, check for in control tables).	А	В
10.8	Simulate a train "striking out" on a strike out sensor head on the same line as the "Strike in" sensor by operating the test switches on a Strike-out evaluator board (IMC).	А	В
10.9	After a short delay (3-6 seconds).	А	В
10.10	Observe the indicator post LED's change from red to green.	А	В
10.11	Check the audible warning ceases straight away.	А	В

NR/L3/SIG/10663 Signal Maintenance Specifications						
NR/SMS/P	NR/SMS/PartD/LX79					
Flex Level	Flex Level Crossing System					
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11. Power Supplies and Batteries

The Flex Level crossing Systems power requirements are provided via an Akkutec 230 VAC Battery Charger and 2 "Power save" Lead-acid batteries providing 24VDC to the Flex case.

- 11.1 Switch the battery charger off via it's MCB.
- 11.2 Allow a few minutes for the cell voltages to stabilize before taking the readings and measure each individual cell voltage.
- 11.3 Measure all cells and record the lowest reading on the record card. Arrange for any cells below the minimum voltage to be replaced.
- 11.4 Measure and record the full battery voltage.
- 11.5 Connect the voltmeter across one cell. Switch the battery charger on. The cell voltage rises slightly above the nominal voltage.

This indicates that the charger is working.

11.6 Carry out voltage checks and ELD reading in power supply location

Power Supply Identification	

END



LEVEL CROSSING TESTING

AUTOMATIC HALF BARRIER CROSSING

WITH LEVEL CROSSING PREDICTOR

NR/SMS/LX80

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NR/L3/SIG	/10663 \$	Signal Mainten	ance Specificatio	ns	
NR/SMS/P	artD/LX	30			
Automatic Half Barrier (AHBC) - With Level Crossing Predictor					
Issue No:	06	Issue Date:	05/12/2020	Compliance Date:	05/06/2021

GENERAL

This document has been produced as an alternative test plan to that provided in NR/SMS/PartD/LX70 to incorporate a number of necessary maintenance tasks that are specific to crossings controlled using Level Crossing Predictors (LCP). The scope of this document includes Westinghouse GCP3000 and Harmon HXP-3R and HXP-3R2 predictors.

Differences between the Westinghouse and Harmon Predictors that influence application of this Specification are detailed below:

Terminology:

Whilst the technology employed in both the Westinghouse and Harmon Level Crossing Predictors is similar, some functions are referred to differently. To avoid confusion, the following common terms shall be used throughout this document:

Term Used in this Document	Westinghouse Equivalent	Harmon Equivalent
Loop Impedance	EZ	RX
Ballast Condition	EX	Phase Angle

Disconnecting the Output of the Predictor

Westinghouse GCP3000

Remove the disconnection link labeled "(LCP) R Test Link". To re-connect the output; put the link back in place.

Harmon HXP-3R and HXP-3R2

Place a high visibility wire strap across AAR terminals R1-1 and R2-1. To reconnect the output, remove the strap.

This test plan covers the requirements of NR/SMS/PartB/Test/080 (AHB Operational Sequence), NR/SMS/PartB/Test/080 (AHB Operational Sequence Test). It is for use of the person conducting the annual test of the level crossing and has relevant 'tick boxes' by each task so that the particular item of the test can be correctly recorded as per the index in "crossing defects".

- a) The crossing ground plan.
- b) The level crossing order.
- c) The crossing control tables.
- d) The signalling plan.

NR/L3/SIG	NR/L3/SIG/10663 Signal Maintenance Specifications						
NR/SMS/P	artD/LX8	30					
Automatic Half Barrier (AHBC) - With Level Crossing Predictor							
Issue No:	06	Issue Date:	05/12/2020	Compliance Date:	05/06/2021		

Missing documentation shall be listed as a defect.

TEST SUMMARY

Test Summary					
Name of Level Crossing:					
Level Crossing Type:					
Name of Monitoring Signal Box(es):					
Value of Loop Impedance on Arrival:	T1:	T2:			
Value of Ballast Condition on Arrival:	T1:	T2:			
Date of Full Test:					
Time Full Test Commenced:					
Time Full Test Completed:					
Tested By:					
Signature:					
Date of Signature:					
Grade and Title:					

CROSSING DEFECTS

On the test plan each item shall be recorded with the following letters in the box provided:

- **X**: Found Incorrect, Action Required.
- R: Found Incorrect, Rectified on Day of Test.
- C: Correct.
- **N**: Not Applicable to this Installation.

Any items found incorrect (X or R) are to be listed on the summary pages. On items requiring action, list the party(s) responsible for rectifying them.

NR/L3/SIG/10663 Signal Maintenance Specifications					
NR/SMS/Pa	NR/SMS/PartD/LX80				
Automatic Half Barrier (AHBC) - With Level Crossing Predictor					
Issue No:	90	Issue Date:	05/12/2020	Compliance Date:	05/06/2021

SUMMARY OF ITEMS FOUND INCORRECT (1)

List in the table below all sites found incorrect and rectified on the day of the test (code letter R).

Description of Items Found Incorrect and Rectified

NR/L3/SIG/	NR/L3/SIG/10663 Signal Maintenance Specifications					
NR/SMS/Pa	NR/SMS/PartD/LX80					
Automatic	Automatic Half Barrier (AHBC) - With Level Crossing Predictor					
Issue No:	06	Issue Date:	05/12/2020	Compliance Date:	05/06/2021	

SUMMARY OF ITEMS FOUND INCORRECT (2)

List in the table below items found incorrect and requiring action (code letter X).

Description of Items Found Incorrect and Requiring Action	Responsible Party (s)

NR/L3/SIG/10663 Signal Maintenance Specifications					
NR/SMS/P	artD/LX	80			
Automatic Half Barrier (AHBC) - With Level Crossing Predictor					
Issue No:	06	Issue Date:	05/12/2020	Compliance Date:	05/06/2021

1. Road Arrangements

1.1	Check that the road markings are in accordance with the section order and plans.	
1.2	Check that the road markings on the approaches to the crossing (up to the stop line) are complete and visible.	
1.3	Check the condition and the sighting of the road signs on the crossing approaches. See NR/SMS/PartC/SG00 (Signals : General) for details on reflective boards and signs.	
1.4	Check (if provided) the condition and security of any pedestrian guardrails.	
J.	Any defects found in 1.2 to 1.4 shall be reported to the appropriate council via SM(S).	the
1.5	Check the condition of the road surface over the crossing.	
1.6	Check that the road markings between and including the stop lines are complete and visible.	
1.7	Check (if provided) that the cattle/anti-trespass guards are complete and securely fastened down.	
1.8	Check (if provided) the condition and security of any wicket gates.	
1.9	Check the condition and the security of any fencing on the approach to equipment room or locations.	

2. Barrier and Machine

	Check the following on the barrier pedestal unit:		
2.1	The pedestal is correctly aligned and stable.	Υ	Z
2.2	The locks and hinges are undamaged.	Υ	Z
2.3	With the boom in the raised position there is adequate clearance between the side arm/counter balance weights and the ground/base.	Υ	Z
2.4	The main shaft to side arm fastenings. Check that there is not any excessive play in the keyway.	Y	Z
2.5	Observe they remain raised.	Υ	Z
2.6	Lower the barriers on local control and leave the LCU switch in the lower/hand position. Open the front and rear doors of the pedestal units and fully extend the manual pump handle. Pump the booms to the fully raised position and observe they remain raised.	Υ	Z
2.7	On each barrier in turn raise the pump handle until the boom begins to lower. Check that the pump handle roll pin has not reached an alignment where its top is above the bottom edge of the handle guide slot.	Υ	Z

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Allow the boom to fully lower and check the following:					
The boom takes 6 to 8 seconds to lower.	Υ	Z			
The boom is damped during the last 10° to 15° of movement.	Υ	Z			
The boom is horizontal when fully lowered.	Υ	Z			
The boom is the correct length.	Υ	Z			
Design Y Z					
Actual Y Z					
Condition of the boom.	Υ	Z			
13 The security of the boom.					
The boom fixing bolt 'E' clips are undamaged and the whole shear bolt assembly has had grease applied.					
The reflective strips are undamaged, clean and are in the correct position.					
The boom lamps, hoods, brackets, and fastenings are undamaged, free from corrosion and correctly aligned.					
7 The boom wiring, plugs, clamps, and terminations are undamaged.					
(If Fitted) the strainer wire, support bracket and fastenings are effective.					
Check the height of the boom from the road surface.					
Top of barrier at the centre of the road (0.9m Minimum).	Υ	Z			
Underside of barrier at any point (1m Maximum).	Υ	Z			
Check the counter balance weights are secure and are the correct weight by Measuring with a weight measuring device the tip weight by using the following method:					
 At the tip end slowly lift the boom until it is approximately 4° to 5° from the horizontal. 					
Connect the weight measuring device to the tip end of the boom.					
 Release the boom onto the measuring device ensuring that the boom ont fully lowered then take a reading. 	oom h	as			
	The boom takes 6 to 8 seconds to lower. The boom is damped during the last 10° to 15° of movement. The boom is horizontal when fully lowered. The boom is the correct length. Design Y Z Z Actual Y Z Condition of the boom. The security of the boom. The boom fixing bolt 'E' clips are undamaged and the whole shear bolt assembly has had grease applied. The reflective strips are undamaged, clean and are in the correct position. The boom lamps, hoods, brackets, and fastenings are undamaged, free from corrosion and correctly aligned. The boom wiring, plugs, clamps, and terminations are undamaged. (If Fitted) the strainer wire, support bracket and fastenings are effective. Check the height of the boom from the road surface. Top of barrier at the centre of the road (0.9m Minimum). Underside of barrier at any point (1m Maximum). Check the counter balance weights are secure and are the correct weight by Measuring with a weight measuring device the tip weight by using the following method: • At the tip end slowly lift the boom until it is approximately 4° to 5° horizontal. • Connect the weight measuring device to the tip end of the boom. • Release the boom onto the measuring device ensuring that the boom.	The boom takes 6 to 8 seconds to lower. The boom is damped during the last 10° to 15° of movement. The boom is horizontal when fully lowered. The boom is the correct length. Design Y Z Actual Y Z Condition of the boom. The security of the boom. The boom fixing bolt 'E' clips are undamaged and the whole shear bolt assembly has had grease applied. The reflective strips are undamaged, clean and are in the correct position. The boom lamps, hoods, brackets, and fastenings are undamaged, free from corrosion and correctly aligned. The boom wiring, plugs, clamps, and terminations are undamaged. (If Fitted) the strainer wire, support bracket and fastenings are effective. Check the height of the boom from the road surface. Top of barrier at the centre of the road (0.9m Minimum). Underside of barrier at any point (1m Maximum). Check the counter balance weights are secure and are the correct weight by Measuring with a weight measuring device the tip weight by using the following method: • At the tip end slowly lift the boom until it is approximately 4° to 5° from thorizontal. • Connect the weight measuring device to the tip end of the boom. • Release the boom onto the measuring device ensuring that the boom here.			

Boom Length	Tip Weight	
3.6m to 4.1m	7.6Kg	±0.5Kg
4.6m to 9.1m	6.1Kg	±0.5Kg

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2.22	Check that the boom can be position.	e lifted by hai	nd to the fully raised	Υ	Z	
2.23	Check the interior of the percontamination. Clean as ne		ter ingress and	Υ	Z	
	Check the following on the	hydraulic pac	ck assembly:			
2.24	The pack fastenings.			Y	Z	
2.25	The top and bottom pack truwashers.	unnion block	mountings and lock	Υ	Z	
2.26	Bolts through the trunnion tength and spiral pins are fit	•	•	Υ	Z	
2.27	The ram adjusting screw ar	nd lock washe	er. Do not adjust the screw.	Υ	Z	
2.28	The auto/manual valve is seand seal are intact.	et in the auto	position and the split pin	Υ	Z	
2.29	The split pin and seal are in	ntact.		Υ	Z	
	The wiring and terminations to the pack.					
2.30	internal strands, disconnect the wires to check for this type of damage.					
2.31	The fluid level is correct					
2.32	The motor brushes. They shall be of sufficient lefully on the commutator.	ength, slide fr	eely in their holder and seat	Υ	Z	
2.33	The motor commutator (what shall be undamaged and		,	Υ	Z	
2.34	Record the pack details (MI	k and serial n	umber).			
	Unit	Mk	Serial Number			
	Υ					
	Z					
2.35	Check that the shock absorber plunger cannot be depressed more than 3mm by finger pressure.				Z	
2.36	Charletha up and days atom black attilier made. Deplete if your					
2.37						
2.38	The spindle and control arm Do not lubricate the spindle identified by a P or an R sta	if fitted with	Oilite bearings. This can be	Υ	Z	
	Terminations and wiring.					

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2.39	Contact fingers. Replace any fingers that are worn or have lost their spring tension.	Υ	Z
2.40	Bands. Check they are clean and not worn (copper dust in the bottom of the casting). If worn the complete controller shall be renewed.	Υ	Z
2.41	Measure by use of an inclinometer and digital voltmeter (on resistance) the setting of the bands whilst raising the boom on 'hand' operation. Adjust if necessary (Appendix A).	Υ	Z
2.42	Close and fasten the circuit controller. Check if any adjustments have been carried out that all the terminations have been correctly tightened.	Υ	Z
2.43	Check the circuit controller cam, cam slot and roller assembly.	Υ	Z
2.44	Check the earth-bonding strip is secure and undamaged.	Υ	Z
2.45	Check the main shaft bearings and fastenings. Check that sufficient grease has been applied to the bearings	Υ	Z
2.46	Check the bearing end cap seals are effective. Water ingress into the end caps can freeze and prevent the booms from lowering.	Υ	Z
2.47	Check that the pedestal fixing bolts are all fitted and correctly tightened.	Υ	Z
2.48	Check the operator's door (rear) micro switch assembly, fastenings and wires. Check that they are secure and undamaged.	Υ	Z
2.49	Raise the boom by hand pumping, Check that the boom does not lower between pumping strokes.	Υ	Z
2.50	Lower both the booms; stow the pump handles and close and lock the operator's doors (rear). Raise the boom under 'power' operation by switching the LCU to raise and check the following:	Υ	Z
2.51	The booms are between 80° and 85° when fully raised.	Υ	Z
2.52	The booms do not excessively oscillate when they come to rest in the raised position.	Υ	Z
2.53	The booms do not 'hunt' when fully raised. This is a sign of an internal fluid leak inside the hydraulic pack.	Υ	Z
2.54	Close and lock the front pedestal door.	Y	Z

3. Local and Manual Control

	On the pedestal with the LCU unit, unlock the local control access door	•	
3.1	Check when unlocked the key is retained in the lock and cannot be withdrawn unless the door is locked again.	Y	Z
3.2	Operate the control switch to the LOWER position and observe the following items:		
3.3	All the amber road signals illuminate and the audible warnings commence concurrently (Yodalarms at normal warbling rate).	Υ	Z

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3.4	After 3 seconds all the amber signals extinguish and all the red flashing road signals start to flash	Υ	Z
3.5	After approximately a further 4 seconds the booms commence to lower.	Υ	Z
3.6	The booms take 6 to 8 seconds to reach the fully lowered position.	Υ	Z
3.7	Red flashing road lights continue to be illuminated. Audible warnings may continue to sound depending on design (check diagrams).	Y	Z
3.8	Disconnect the output of the Level Crossing Predictor and allow the booms to lower. Turn the local control switch to the HAND position.	Υ	Z
3.9	Open the Z barrier machine operator's door, fully extend the hydraulic power unit manual pump handle and Check that the boom can be pumped to the raised position.	Υ	Z
3.10	Check that the red flashing road traffic light signals are illuminated and the audible warnings are silent.	Υ	Z
3.11	Open the Y barrier machine operator's door, fully extend the hydraulic power unit manual pump handle and check that the boom can be pumped to the raised position.	Υ	Z
3.12	Lift the barrier hydraulic power unit pump handle slowly and allow the boom to fall sufficiently to illuminate the red flashing road traffic light signals and the release the pump handle. Check that the boom movement is arrested.	Υ	Z
3.13	Check that the audible warnings are silent.	Υ	Z
3.14	Check, by hand pumping, that the amber lights/red flashing road traffic light signals extinguish when the boom is at an angle of 81° above the horizontal.	Υ	Z
3.15	Lift the pump handle and Check that the boom lowers in 6 to 8 seconds.	Υ	Z
3.16	Check that the pump handle guide pin in seated at the bottom of the guide slot when the pump handle is in the stowed position.	Υ	Z
3.17	Check that the barrier machine operator's door cannot be fully closed until the pump handle is in the stowed position.	Υ	Z
3.18	Re-connect the output of the Level Crossing Predictor.	Υ	Z
3.19	Lock the barrier machine operator's door and restore to AUTO WORKING.	Υ	Z
3.20	Repeat tasks 3.8 to 3.19 for the other barrier machine.		
3.21	Operate the switch in the local control unit to the RAISE position and obtollowing:	serve 1	the
3.22	Both booms rise together.	Υ	Z
3.23	The red road lights extinguish and the audible warnings (depending on design) cease before the booms have reached 45 degrees from the horizontal.	Υ	Z

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3.24	Check that the guide on the inside of the local control unit door prevents the door being closed unless the switch is in the auto position.	Υ	Z
3.25	Operate the switch to the LOWER position and observe that the sequence of events occurs as listed in 3.3 to 3.7.	Υ	Z
	Operate the switch to the AUTO position and observe the sequence of events occur as listed in 3.22 to 3.23.		
3.26	It may be possible for the LCU switch to be put straight to the AUTO position, which will cause the booms to perform a lowering sequence then rise. Check the diagrams for the correct mode of operation applicable to the crossing.	Υ	Z
3.27	Close and lock the local control unit door.	Υ	Z

4. Road Traffic Light Signals

If auxiliary road traffic light signals are fitted (in addition to YO, YN, ZO and ZN), list the additional signal identification below:

Signal Number	Signal Identification
Aux 1	
Aux 2	

	On each of the road traffic light signals check the following items:									
4.1	The signal structure is stable.	YO	YN	ZO	ZN	Aux 1	Aux 2			
4.2	The signal light units are undamaged and the hoods are securely fitted.	YO	YN	ZO	ZN	Aux 1	Aux 2			
4.3	The signal lenses are undamaged, clean and correctly orientated.	YO	YN	ZO	ZN	Aux 1	Aux 2			
4.4	Signs and notices attached to the signal post are undamaged, clean, and legible. See NR/SMS/PartC/SG00 (Signals : General) for details on reflective boards and signs.	YO	YN	ZO	ZN	Aux 1	Aux 2			
4.5	Cables and conduit are undamaged and secure.	YO	YN	ZO	ZN	Aux 1	Aux 2			

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4.6	Qua signa bord Whit shall	rtz Halog al backb er. e only a	gen la oard nd red	imps, the is fitted w	e fitted with 50- road traffic ligh rith a red/white order backboard at the same	t	YO	YN	ZO	ZN	Aux 1	Aux 2
5.	Audi	ble War	nings	S								
5.1	cable	es and c	ondui		ning device and amaged and se aligned.	•	•		YO	YN	ZO	ZN
5.2					no water ingres			ole	YO	YN	ZO	ZN
5.3	Chec sufficis is re- Som warr	ck that the cient for duced for e crossing	ne soon the contract or the ngs h	e sound output of the audible warning is the crossing circumstances and (if applicable) the night time. The property of sound output of audible the reduced because of local conditions,					YO	YN	ZO	ZN
5.4	set to	o the corect. Som	rect t e tim	ime and e clocks I	ne audible warn the day/night se nave a control to neck this is not a	ettings oʻskip	are o'the		YO	YN	ZO	ZN
6.	Pede	strian S	igna	ls								
Is Th	nis Sed	ction App	olicab	le to the (Crossing Under	Test?			Ye	es	N	0
					ls are fitted (in a	additic	on to \	/O, YI	N, ZO	and Z	N), list	t the
	Sign	al Num	ber	Signal I	dentification							
	Aux	1										
	Aux	2										
6.1	post and	, the pos correctly	t is st align	able; the ed	rely fixed to the sign is undama	ged	YO	YN	ZO	ZN	Aux 1	Aux 2
6.2					urely fitted and t damaged	he	YO	YN	ZO	ZN	Aux 1	Aux 2
	. 3				J							

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14		n in fitted abo	ماد الماد الم		A 1.137	A	

6.3	If a sun screen is fitted, check this is	VO	VNI	70	7N	Aux	Aux
0.3	undamaged and securely fitted.	10	111		ZIV	1	2

7. Telephone System

Different types of telephone systems are fitted to AHBCs. BR Spec. 843 installations usually have two emergency phones and an LCU phone. The crossing section order will state the telephone system that is required at the crossing.

Identify telephones at the installation under test in the grid below:

No.	Telephone Identity
1	
2	
3	

			elepho ntity (Grid)	see
7.1	Check the telephone and cord is undamaged.	1	2	3
7.2	Check the correct labels and symbols are fitted inside and outside the case and they are legible.	1	2	3
7.3	Check that any associated signs are stable, undamaged and legible. Emergency telephones require having the yellow telephone symbol visible on three sides of the telephone case or on a separate plate above the telephone.	1	2	3
7.4	Check that the correct crossing name is stated on any telephone labels and signs.	1	2	3
7.5	Check that telephone numbers given on any sign are correct. The site plan will give information on the correct names/numbers that shall be displayed.	1	2	3
7.6	If betalights are fitted, check they are lit. Betalights are usually fitted to older style telephones units that the public have access to.	1	2	3
7.7	On emergency telephones, check that an ETD number is given for the public to call in case they cannot contact the monitoring point. Ring this number and check that the recipient uses the correct procedures for the call.	1	2	3

Public Telephone Numbers	Checked

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7.8	Ring the monitoring point and check that the call is received correctly. Ask the monitoring point to ring back.	1	2	3	
7.9	Check the telephone rings correctly. Check that the quality of speech and hearing is clear and not distorted. On Whitely PETS telephone systems there is a short time when answering a call at either end of the line where the system 'handshakes' During this period transmission and reception of speech is not possible.	1	2	3	
	Check that with one of the emergency telephones left 'off the				
7.10	hook' calls on the other telephones can be made and received correctly.	1	2	3	
	Whitely PETS systems will indicate a fault at the monitoring point.				
7.11	If a block switch is fitted Check that when operated 7.8 to 7.10 operate correct at the alternative monitoring point.				
7.12	Check that at the normal monitoring point any audible devices do not				
7.13	Repeat 7.11 and 7.12 for any other alternative monitoring points.		•		
7.14	If an absent switch is fitted to the telephone system operate it and Check that if an emergency call made this is indicated by a low level of illumination of the telephone unit and any audible devices do not sound. Operate the absent switch is back to normal operation and Check that a normal emergence call is received.				
7.15	Switch off the mains power to the telephone system. After a period of time				

8. Barrier Proving

Check that a cut-out is provided in the motor contactors before proceeding with 8.2 to 8.4.

The booms can be lowered and raised by local control or train simulation.

8.1	Turn the mains power off.		
8.2	Allow the booms to lower. Restrain the tip of the Y boom then allow the to rise.	ne barı	riers
8.3	Check that the motor cut-out for the restrained boom operates within 25 seconds. This time relates to a SPX Contactor only, if a different contactor is fitted refer to site diagrams and report to Section Manager.	Y	Z

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8.4	Release the boom and check that the motor cuts in again within 3 minutes and the boom fully rises.	Υ	Z
8.5	Disconnect the output of the Level Crossing Predictor and allow the booms to lower.		
8.6	Restrain the tip of the Y boom from reaching the raised position (50° to 70°).		
8.7	Re-connect the output of the Level Crossing Predictor and wait for the crossing to re-set.		
8.8	Check that the red flashing road traffic light signals extinguish and that they re-illuminated 6 seconds the other begins to rise.		
8.9	Release the Y boom and allow it to reach the raised position.		
8.10	Repeat 8.1 to 8.9 for the Z boom.		

9. Red Flashing Road Traffic Light Signal Proving

The booms shall be lowered and raised by train simulation.

If auxiliary road traffic light signals are fitted (in addition to YO, YN, ZO and ZN), list the addional signal identification below:

Signal number	Signal Identitication
Aux 1	
Aux 2	

9.1	Disconnect the output of the Level Crossing Predictor and allow the booms to lower.	YO	YN	ZO	ZN	Aux 1	Aux 2
9.2	Measure the rate of flashing (Between 70 and 90 flashes per minute).		FPM				
9.3	Disconnect the left and right-lamps on one of the light units by slipping the links in the equipment room/loc	YO	YN	ZO	ZN	Aux 1	Aux 2
9.4	Re-connect the output of the Level Crossing Predictor and check that the booms remain lowered.	YO	YN	ZO	ZN	Aux 1	Aux 2
9.5	Re-connect the right-hand lamp and Check that the booms raise.	YO	YN	ZO	ZN	Aux 1	Aux 2
9.6	Disconnect again the right-hand lamp and Disconnect the output of the Level Crossing Predictor. Check that approximately 2 seconds after the amber lights extinguish the booms begin to lower.						

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9.7	Re-connect the output of the Level Crossing Predictor and Check that the booms remain lowered.			
9.8	Re-connect the left-hand lamp and check that the booms rise. Re-connect the right-hand lamp			
9.9	Repeat 9.1 to 9.8 for the other red road signal units. The flashes per minute rate only requires to be measured on one light unit.			

10. Local Control Sequence

10.1	Operate the LCU to the LOWER position and check the following:	
10.2	All the amber road signals illuminate, and the audible warnings commence concurrently (Yodalarms at normal warbling rate).	
10.3	After 3 seconds all the amber signals extinguish, and all the red road signals and any pedestrian lights start to flash.	
10.4	After approximately a further 4 seconds the booms commence to lower and the boom lamps illuminate.	
10.5	The booms take 6 to 8 seconds to reach the fully lowered position.	
10.6	Red road lights and any pedestrian lights continue to be illuminated. Audible warnings continue to sound depending on design (check diagrams).	
10.7	Operate the LCU to the RAISE position and check the following:	
10.8	The booms begin to rise.	
10.9	The red road lights extinguish, the lineside headlights extinguish and the audible warnings cease before the booms have reached 45° from the horizontal.	
10.10	The boom lights extinguish when the booms have reached approximately 81° from the horizontal.	
10.11	The booms do not take more than 7 seconds to reach the fully raised position of between 81° and 85° from the horizontal.	
10.12	Operate the LCU to the LOWER position, allow the lowering sequence to take place and then operate the LCU switch to the AUTO position. Check that the lowering sequence is as 10.2 to 10.6 and the raise sequence is as 10.8 to 10.11. On modern installations the switch can be put straight to the auto position, which will cause the booms to perform a lowering sequence then rise. Check the diagrams for the correct mode of operation applicable to the crossing.	

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10.13	Close and lock the LCU door.	
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11. Another Train Coming

The tasks in this section are concerned with observing the correct operation of the crossing in its "Constant Warning" mode and shall be carried out whilst observing the passage of a train through the crossing area.

If the frequency of timetabled train services during the test period is such that an extended delay exists between trains on both lines, arrangements shall be made for the completion of crossing sequence observations to be carried out on a subsequent visit.

11.1	Confirm with the Signal Box that the correct indications are being received whilst tasks 11.1 to 11.22 are being carried out.	Up	Up X	Dn	Dn X
11.2	Note the warning time and Check that this does not fall below the minimum as stated in the site set-up sheet, which forms part of the Circuit Diagrams.	Mini	mum	Recorded	
11.3	Observe if applicable on double lines that 10 seconds elapse before the amber lights illuminate and that the audible warnings sound immediately.				
11.4	Check the sighting of the amber lights.				
11.5	Observe that the sound of the audible warning devices can be heard within the crossing area and on the immediate approaches to the crossing.				
11.6	Observe that after approx. 3 seconds the amber lights extinguish and the red flashing road traffic light signals commence flashing.				
11.7	Observe that all red flashing road signals illuminate and that the audible warnings continue to sound.				
11.8	Observe the sighting of the red flashing road traffic light signals				
11.9	Observe that the barriers commence to lower 4 seconds after the red flashing road traffic light signals illuminate.				
11.10	Observe that when the barriers commence to lower, they each take between 6 and 8 seconds to reach the horizontal position.				
11.11	Observe that when the barriers are lowering, all the barrier boom lights illuminate at approx. 80° from the horizontal.				
11.12	Check the sighting of the barrier boom lights.				

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				•				
11.13	Observe that the red flashing road traffic light signals are illuminated and that the audible warnings continue to sound.							
11.14	crossing, th	e Loop Impedes the crossing	proceeds towards ance decreases. I, the value of the	When the				
11.15	Observe that the audible warning warble rate changes to the increased rate.							
11.16	Observe that after the last train has left the crossing, the barriers begin to rise.							
11.17	Observe that before the barriers have reached 45° above the horizontal, the red flashing road lights extinguish.							
11.18	Observe that	at that audible	warning ceases	to sound.				
11.19	Observe that after the barriers have reached approx. 80° above the horizontal, the barrier lights extinguish.							
11.20			encing to rise, the not more that 6					
11.21		at when raised in the horizonta	l, the barriers are al.	between 80°				
11.22	crossing, th		moves away from ance returns to th Idendum.					

12. Automatic Control Sequence (Harmon HXP-3R and HXP-3R2 only)

Is This	Section Applicable to the Crossing Under Test?	Yes	No
12.1	Place a hard wire strap across AAR terminal R1-1 and R2-1 and observe that the AX1 LED has extinguished.	Up	Dn
12.2	Observe that Track 2 has gone into motion detect mode by confirming that the MD LED on the Track 2 TRM is flashing.	Up	Dn
12.3	Confirm that the letters "MD" are shown on the IDK display	Up	Dn
12.4	Remove the wire strap and observe that the AX1 becomes energised	Up	Dn
12.5	Place a hard wire strap across AAR terminal R1-1 and R2-1 and observe that the AX2 LED has extinguished.	Up	Dn
12.6	Observe that Track 1 has gone into motion detect mode by confirming that the MD LED on the Track 1 TRM is flashing.	Up	Dn
12.7	Confirm that the letters "MD" are shown one the IDK display.	Up	Dn
12.8	Remove the wire strap and Observe that the AX2 becomes energised	Up	Dn

	Perform any special control functions according to the control tables (Stopping/Non-Stopping, Signal, TRTS etc). Record the function performed and its results.
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Function	Result

14. Line Dimensions

Is This Section Applicable to the Crossing Under Test?

Yes No

Where track works have taken place since the pervious test.

14.1 Check and Record the approach length for both directions.specified on the signalling plan. Record the design and actual dimensions.

Line	Design Measurement	Actual Measurement
Up		
Dn		

Line	Design Measurement	Actual Measurement
Up		
Dn		

Line	Start Mileage	Finish Mileage
Up		
Dn		

15. Indications and Audible Devices

Obtain confirmation of points/indications and alarms as detailed in this section from the Signal Box

15.1	Disconnect the output of the Level Crossing Predictor causing the booms to lower and Check that the indication extinguishes.	
15.2	Re-connect the output of the Level Crossing Predictor and Check that the BARRIERS RAISED POWER ON indication illuminates.	
15.3	Open the local control switch access door and operate the local control switch to the RAISE, LOWER and HAND positions, checking that the indications extinguish and remain extinguished	
	Access Door	
	Raise	
	Lower	
	Hand	

NR/L3/SIG/10663 Signal Maintenance Specifications					
NR/SMS/PartD/LX80					
Automatic Half Barrier (AHBC) - With Level Crossing Predictor					
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15.4	Restore the local control to the AUTO position, close and lock the access door and Check that the BARRIERS RAISED POWER ON indication illuminates	
15.5	Disconnect the output of the Level Crossing Predictor and Check that the FAILED/LOCAL CONTROL indication illuminates.	
15.6	Check that the audible alarm sounds after the prescribed period (no more than 240 seconds for double line or no more than 180 seconds for single line) and that it can be silenced.	
15.7	Re-connect the output of the Level Crossing Predictor and Check that the audible alarm sounds when the booms are in the raised position and that the alarm can be silenced.	
15.8	Check that the BARRIERS RAISED POWER ON indication illuminates.	
15.9	Withdraw, in turn, the power supply fuses for the functions that are on the (PO) PR circuit. For each power supply disconnection Check that the BARRIERS RAISED POWER OFF indication is obtained the audible alarm sounds and that it can be silenced	
15.10	Check, after restoring the final power supply that the indicator returns to the BARRIERS RAISED POWER ON position, that the audible alarm sounds and that is can be silenced.	
15.11	Check where provided, that the Monitoring Signal Box test switches operate	

16. Power Supplies and Batteries

16.1	Carry out NR/SMS/PartB/Test/051 - Busbar Earth Test or NR/SMS/PartB/Test/053 - ELD Function Test.	
16.2	Carry out NR/SMS/PartB/Test/052 - Dynamic Earth Tests (Level Crossing Barriers).	

Power Supply Identification	

NR/L3/SIG	NR/L3/SIG/10663 Signal Maintenance Specifications						
NR/SMS/P	NR/SMS/PartD/LX80						
Automatic Half Barrier (AHBC) - With Level Crossing Predictor							
Issue No:	06	Issue Date:	05/12/2020	Compliance Date:	05/06/2021		

17. Motion Detect Test (Harmon HXP-3R and HXP-3R2 only)

Is This Section Applicable to the Crossing Under Test?	Yes	No]
--	-----	----	---

17.1	Place the STANDBY/AUTO/NORMAL switch on the Transfer Logic Module (TLM) in the NORMAL position.	
17.2	Place the CW/MD switch on the Relay Driver Module (RYD) in the MD position.	
17.3	Place a hard wire shunt on the track at the marker positioned at 90% of the approach from the crossing.	
17.4	Observe that a full crossing sequence occurs.	
17.5	Remove the hard wire shunt.	
17.6	Place the STANDBY/AUTO/NORMAL switch on the TLM in the STANDBY position.	
17.7	Repeat tasks 17.3 to 17.5.	
17.8	Temporarily place the STANDBY/AUTO/NORMAL switch on the Transfer Logic Module (TLM) in the Normal position before returning the switch to the AUTO position.	

18. Motion Detect Test (Westinghouse GCP3000 only)

Is This	Is This Section Applicable to the Crossing Under Test? Yes			
18.1	Place a hard wire shunt on the track at the marker positioned at 70% capproach from the crossing	of the		
18.2	Observe that a full crossing sequence occurs.			
18.3	Remove the hard wire shunt.			
18.4	Observe that the crossing does not reset for at least 120 seconds.			
18.5	Repeat tasks 18.1 to 18.5 for each approach (both right and wrong direction).			

NR/L3/SIG	NR/L3/SIG/10663 Signal Maintenance Specifications						
NR/SMS/P	NR/SMS/PartD/LX80						
Automatic Half Barrier (AHBC) - With Level Crossing Predictor							
Issue No:	06	Issue Date:	05/12/2020	Compliance Date:	05/06/2021		

19. Returning the Level Crossing Predictor to Service

19.1	Once all tasks have been completed, note the values of Loop Impedance and Ballast Condition and check to see that these are comparable to the values noted on page two of this addendum, remembering to give due consideration to any environmental changes which may have occurred since the reading was first taken.	
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	T1	T2
Loop Impedance		
Ballast Condition		

APPENDIX A - Circuit Controller Band Settings

Band	Made Between
DN KR	0° and 4°
HJPR	42° and 90°
MR	0° and 83°
UP KR	81° and 90°

NOTE: It is important to obtain the over-lap between the UP KR band making and the MR band breaking. This is to ensure that if a boom drops slightly it will drive up again before the red road signals operate.

END



LEVEL CROSSING TESTING

MINIATURE STOP LIGHT CROSSING

USING A LEVEL CROSSING PREDICTOR

NR/SMS/LX81

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NR/L3/SIG/10663 Signal Maintenance Specifications						
NR/SMS/P	NR/SMS/PartD/LX81					
Miniature Stop Light Crossing (MSL) - Using A Level Crossing Predictor						
Issue No:	03	Issue Date:	07/03/2020	Compliance Date:	06/06/2020	

GENERAL

This document has been produced as an alternative test plan to that provided in NR/SMS/LX74 to incorporate a number of necessary maintenance tasks that are specific to crossings controlled using Level Crossing Predictors (LCP). The scope of this document includes Westinghouse GCP3000 and Harmon HXP-3R and HXP-3R2 predictors.

Differences between the Westinghouse and Harmon Predictors that influence application of this Specification are detailed below:

Terminology:

Whilst the technology employed in both the Westinghouse and Harmon Level Crossing Predictors is similar, some functions are referred to differently. To avoid confusion, the following common terms shall be used throughout this document:

Term Used in this Document	Westinghouse Equivalent	Harmon Equivalent
Loop Impedance	EZ	RX
Ballast Condition	EX	Phase Angle

Disconnecting the Output of the Predictor

Westinghouse GCP3000

Remove the disconnection link labeled "(LCP) R Test Link". To re-connect the output; put the link back in place.

Harmon HXP-3R and HXP-3R2

Place a high visibility wire strap across AAR terminals R1-1 and R2-1. To reconnect the output, remove the strap.

This test plan covers the requirements of NR/SMS/PartC/LC10 (Level Crossings Operational Sequences), NR/SMS/PartB/Test/081 (MSL with Predictor Operational Sequence Test). It is for use of the person conducting the annual test of the level crossing and has relevant 'tick boxes' by each task so that the particular item of the test can be correctly recorded as per the index in "crossing defects".

- a) The crossing ground plan.
- b) The level crossing order.
- c) The crossing control tables.
- d) The signalling plan.

NR/L3/SIG/10663 Signal Maintenance Specifications						
NR/SMS/P	NR/SMS/PartD/LX81					
Miniature Stop Light Crossing (MSL) - Using A Level Crossing Predictor						
Issue No:	03	Issue Date:	07/03/2020	Compliance Date:	06/06/2020	

Missing documentation shall be listed as a defect.

Assumptions have been made in this document about the nature of level crossing installations with which the modern Level Crossing Predictor will be associated.

It is considered highly unlikely that Level Crossing Predictor systems will be used with older variants of level crossing installations, for example those utilising SL35 type Miniature Warning Lights.

TEST SUMMARY

Test Summary						
Name of Level Crossing:						
Level Crossing Type:						
Name of Monitoring Signal Box(es):						
Value of Loop Impedance on Arrival:	T1:	T2:				
Value of Ballast Condition on Arrival: T1: T2:						
Date of Full Test:						
Time Full Test Commenced:						
Time Full Test Completed:						
Tested By:	Tested By:					
Signature:						
Date of Signature:	Date of Signature:					
Grade and Title:						

CROSSING DEFECTS

On the test plan each item shall be recorded with the following letters in the box provided:

- **X**: Found Incorrect, Action Required.
- **R**: Found Incorrect, Rectified on Day of Test.
- C: Correct.
- **N**: Not Applicable to this Installation.

Any items found incorrect (X or R) are to be listed on the summary pages. On items requiring action, list the party(s) responsible for rectifying them.

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NR/L3/SIG	/10663	Signal Mainten	ance Specificatio	ns	
NR/SMS/P	artD/LX	81			
Miniature Stop Light Crossing (MSL) - Using A Level Crossing Predictor					
Issue No:	03	Issue Date:	07/03/2020	Compliance Date:	06/06/2020

SUMMARY OF ITEMS FOUND INCORRECT (1)

List in the table below all sites found incorrect and rectified on the day of the test (code letter R).

Description of Items Found Incorrect and Rectified

NR/L3/SIG	/10663 S	ignal Mainten	ance Specification	ns			
NR/SMS/P	artD/LX8	31					
Miniature 3	Miniature Stop Light Crossing (MSL) - Using A Level Crossing Predictor						
Issue No:	03	Issue Date:	07/03/2020	Compliance Date:	06/06/2020		

SUMMARY OF ITEMS FOUND INCORRECT (2)

List in the table below items found incorrect and requiring action (code letter X).

Description of Items Found Incorrect and Requiring Action	Responsible Party (s)

NR/L3/SIG/10663 S	Signal Mainten	ance Specificatio	ns		
NR/SMS/PartD/LX8	31				
Miniature Stop Light Crossing (MSL) - Using A Level Crossing Predictor					
Issue No: 03	Issue Date:	07/03/2020	Compliance Date:	06/06/2020	

1. Road Arrangements

1.1	Check that the road markings are in accordance with the section order and	
1.2	plans. Check that the road markings on the approaches to the crossing (up to the	
1.3	stop line) are complete and visible. Check the condition and the sighting of the road signs on the crossing	
1.4	approaches. See NR/SMS/SG00 for details on reflective boards and signs. Check (if provided) the condition and security of any pedestrian guardrails.	
	Any defects found in 1.2 to 1.4 shall be reported to the appropriate council via the SM(S)	
1.5	Check the condition of the road surface over the crossing.	
1.6	Check that the road markings between and including the stop lines are complete and visible.	
1.7	Check (if provided) that the cattle/anti-trespass guards are complete and securely fastened down.	
1.8	Check (if provided) the condition and security of any wicket gates.	
1.9	Check the condition and the security of any fencing on the approach to equipment room or locations.	

2. Red/Green Light Units

2.1	On each of the red/green light units Check the following items:		
2.2	The light unit structure is stable.	Υ	Ζ
2.3	The light unit is correctly aligned and the lights are clearly visible from the crossing entry point.	Υ	Z
2.4	The light units are undamaged and the hoods are securely fitted.	Υ	Ζ
2.5	The red and green lenses are undamaged and clean.	Υ	Ζ
2.6	Signs and notices attached to the light unit post are undamaged, clean and legible.	Υ	Z
2.7	Cables and conduit are undamaged and secure.	Υ	Ζ

3. Gates

Is This Section Applicable to the Crossing Under Test?		Yes	No	
3.1	Check that the gate and fixtures and fittings are undamaged a condition.	nd in good	Υ	Z
3.2	Check that the gatepost is stable and securely fixed into the g	round.	Υ	Z

NR/L3/SIG/10663 Signal Maintenance Specifications							
NR/SMS/P	artD/LX8	31					
Miniature	Miniature Stop Light Crossing (MSL) - Using A Level Crossing Predictor						
Issue No:	03	Issue Date:	07/03/2020	Compliance Date:	06/06/2020		

3.3	Check that the gate locks or hooks are effective in both the open and closed positions.	Υ	Z
3.4	Check that any red roundels or signs attached to the gate are undamaged, clean and legible. Signs and roundels shall be of class 1 retro-reflective material.	Υ	Ζ
3.5	If wicket gates are provided, check they are undamaged, stable and in good condition.	Υ	Z
3.6	Check that the gatepost is stable and securely fixed into the ground.	Υ	Ζ
3.7	Check (if fitted) that the gate closing mechanism is effective.	Υ	Z

4. Audible Warnings

Is Th	Is This Section Applicable to the Crossing Under Test? Yes		No)
4.1	Check that the audible warning device and any exposed cables and conduit are undamaged and secure. Check that the device is correctly aligned.			Z
4.2	Check that there has been no water ingress into audible war Rectify or replace as necessary	ning device.	Υ	Z
4.3	Check that the sound output of the audible warning is sufficient for the crossing circumstances and (if applicable) is reduced for the night time. Some crossings have had the sound output of audible warning device reduced because of local conditions, check the diagrams.		V	Z
4.4	Check (if applicable) that the audible warning time clock is correct time and the day/night settings are correct. Some time clocks have a control to 'skip' the set controls on check this is not activated.		~	Z

5. Telephone System

Is This	Is This Section Applicable to the Crossing Under Test? Yes			O
5.1	Check the telephone and cord is undamaged and the corre and symbols are fitted inside and outside the case and the legible.		Υ	Z
5.2	Check that any associated signs are stable, undamaged and legible. Emergence telephones require having the yellow telephone symbol visible on three sides of the telephone case or on a separate plate above the telephone.			Z
5.3	Check that the correct crossing name is stated on any tele labels and signs.	phone	Υ	Z

NR/L3/SIG/10663 Signal Maintenance Specifications					
NR/SMS/PartD/LX81					
Miniature Stop Light Crossing (MSL) - Using A Level Crossing Predictor					
Issue No:	03	Issue Date:	07/03/2020	Compliance Date:	06/06/2020

5.4	Check that telephone numbers given on any sign are correct. The site plan will give information on the correct names/numbers that shall be displayed.	Υ	Ζ
5.5	If betalights are fitted Check they are lit. Betalights are usually fitted to older style telephones units that the public have access to.	Υ	Z
5.6	On emergency telephones Check that an ETD number is given for the public to call in case they cannot contact the monitoring point. Ring this number and Check the recipient gives correct procedures for the call.	Υ	Ζ
5.7	Ring the monitoring point and Check that the call is received correctly. Ask the monitoring point to ring back and Check the telephone rings correctly. Check that the quality of speech and hearing is clear and not distorted. On Whiteley PETS telephone systems there is a short time when answering a call at either end of the line where the system 'handshakes', during this period transmission and reception of speech is not possible	Υ	Ζ
5.8	Check that with one of the public access telephones left 'off the hook' calls on the other telephone can be made and received correctly. Whiteley PETS systems will indicate a fault at the monitoring point.	Υ	Ζ
5.9	If an absent switch is fitted to the telephone system operate it and Check that if an emergency call made this is indicated by a low level of illumination of the telephone unit and any audible devices do not sound. Operate the absent switch back to normal operation and Check that a normal emergence call is received.	Υ	Ζ
5.10	Switch off the mains power to the telephone system. After a period of time equal to the crossing sequence testing repeat tasks 5.7 to 5.9. Switch the mains power to the telephone system back on	Υ	Ζ

6. Red/Green Lamp Operation

6.1	With no trains approaching Check that the light units are showing a green light, operate either the replacement switch to 'red' or slip the test link and Observe that the light units are showing a red light.
	Operate the replacement switch to the 'auto' position or re-connect the test link and Observe that the light units are showing a green light.

NR/L3/SIG/10663 Signal Maintenance Specifications					
NR/SMS/PartD/LX81					
Miniature Stop Light Crossing (MSL) - Using A Level Crossing Predictor					

7. Sequence Test

Check in the crossing control tables for any special controls that affect the automatic control sequence.

7.1	Place a short circuit on the track at the 50% marker. Observe the following:				
7.2	The green lamps on both light units extinguish and the red lamps illuminate.	Up	Up X	Dn	Dn X
7.3	The audible warnings (if provided) sound.	Up	Up X	Dn	Dn X
7.4	Remove the short circuit from the 50% marker and allow the Observe the following:	ne cro	ssing	to rese	et.
7.5	The red lamps on both light units extinguish and the green lamps illuminate.	Up	Up X	Dn	Dn X
7.6	The audible warnings (if provided) cease	Up	Up X	Dn	Dn X
7.7	Repeat steps 7.1 to 7.6 for all other directions where controls are provided.	Up	Up X	Dn	Dn X

8. Double Lines Second Train Approaching Sequence

Is Thi	Is This Section Applicable to the Crossing Under Test?			Yes	No
8.1	Simulate a train striking in on line one by placing a short circuit on the track at the 50% marker				
8.2	Simulate a second train striking in on line two by placing a short circuit on the track at the 50% marker.				
8.3	Remove the short circuit from line one. Observe the following:				
8.4	The green lamps on both light units stay extinguished and the red lamps stay illuminated			Dn	Dn X
8.5	Operate the exit function for the train simulation on line two and Observe the following.				
8.6	The red lamps on both light units extinguish and the green lamps illuminate.	Up	Up X	Dn	Dn X
8.7	The audible warnings (if provided) cease	Up	Up X	Dn	Dn X
8.8	Repeat steps 8.1 to 8.7 for all other directions where controls are provided.	Up	Up X	Dn	Dn X

9. Special Control Function Sequence

Is This Section Applicable to the Crossing Under Test?	Yes	No
--	-----	----

9.1 Perform any special control functions according to the control tables (Stopping/Non-Stopping, Signal, TRTS etc). Record the function performed and its results.

Function	Result

10. Line Dimensions

Is This Section Applicable to the Crossing Under Test?	Yes	No
--	-----	----

Where track works have taken place since the pervious test.

10.1 Check and Record the approach length for both directions.specified on the signalling plan. Record the design and actual dimensions.

Line	Design Measurement	Actual Measurement
Up		
Dn		

10.2	Check and Record the island length. This shall be carried out on each line when more than one exists .
10.3	Note the exact position of the start and finish of areas where steel sleepers are present

NR/L3/SIG/10663 Signal Maintenance Specifications							
NR/SMS/PartD/LX81							
Miniature Stop Light Crossing (MSL) - Using A Level Crossing Predictor							
ssue No: 03 Issue Date: 07/03/2020 Compliance Date: 06/06/2020							

Line	Design Measurement	Actual Measurement
Up		
Dn		

Line	Start Mileage	Finish Mileage
Up		
Dn		

11. Warning Sequence Reset

Is This Section Applicable to the Crossing Under Test?					
11.1	Simulate a train striking in by placing a short circuit across the rails at the 50% marker, observe that the light units show a red light.	Up	Up X	Dn	Dn X
11.2	Remove the short circuit and start timing with a stopwatch from the time the track circuit is re-connected. Check that the red lights remain illuminated.	Up	Up X	Dn	Dn X
11.3	Observe that after 120 seconds the red lights are extinguished and the green lights illuminate.	Up	Up X	Dn	Dn X
11.4	Repeat 10.1 to 10.3 for all other directions where controls are provided. Record the results in the table below	Up	Up X	Dn	Dn X

Direction	Red Lamp Extinguishes (Seconds)
Up	
Up X	
Dn	
Dn X	

	63 Signal Maintenance Specifications	
Miniature Stop	Light Crossing (MSL) - Using A Level Crossing Predictor	
Issue No: 03	Issue Date: 07/03/2020 Compliance Date: 06/06/2020)
2. Power Su	pplies and Batteries	
or NR/S	ut <u>NR/SMS/PartB/Test/051</u> - Busbar Earth Test SMS/PartB/Test/053 - ELD Function Test.	
12.2 Carry of Barriers	ut NR/SMS/PartB/Test/052 - Dynamic Earth Tests (Level Crossing s).	
Power Supply I	dentification	
3. Motion D	etect Test (Harmon HXP-3R and HXP-3R2 only)	
Is This Section	Applicable to the Crossing Under Test?	No
131	e STANDBY/AUTO/NORMAL switch on the Transfer Logic Module the NORMAL position.	
13.2 Place th position.	e CW/MD switch on the Relay Driver Module (RYD) in the MD	
position.		
Place a	hard wire shunt on the track at the marker positioned at 90% of the h from the crossing.	
Place a approac	•	
Place a approact 13.4 Observe	h from the crossing.	
Place a approac 13.4 Observe 13.5 Remove	th from the crossing. It that a full crossing sequence occurs. It the hard wire shunt. It e STANDBY/AUTO/NORMAL switch on the TLM in the STANDBY	
Place a approact 13.4 Observe 13.5 Remove 13.6 Place th position.	th from the crossing. It that a full crossing sequence occurs. It the hard wire shunt. It e STANDBY/AUTO/NORMAL switch on the TLM in the STANDBY	
Place a approact 13.4 Observe 13.5 Remove 13.6 Place th position. 13.7 Repeat to Tempora Logic Me	th from the crossing. that a full crossing sequence occurs. the hard wire shunt. e STANDBY/AUTO/NORMAL switch on the TLM in the STANDBY	

Is This Section Applicable to the Crossing Under Test?

Yes No

NR/L3/SIG/10663 Signal Maintenance Specifications						
NR/SMS/P	NR/SMS/PartD/LX81					
Miniature Stop Light Crossing (MSL) - Using A Level Crossing Predictor						
Issue No:	03	Issue Date:	07/03/2020	Compliance Date:	06/06/2020	

14.1	Place a hard wire shunt on the track at the marker positioned at 70% of the approach from the crossing	
14.2	Observe that a full crossing sequence occurs.	
14.3	Remove the hard wire shunt.	
14.4	Observe that the crossing does not reset for at least 120 seconds.	
14.5	Repeat tasks 18.1 to 18.5 for each approach (both right and wrong direction).	

15. Returning the Level Crossing Predictor to Service

15.1	Once all tasks have been completed, note the values of Loop Impedance and Ballast Condition and check to see that these are comparable to the values noted on page two of this addendum, remembering to give due consideration to any environmental changes which may have occurred since the reading was first taken.	
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END



LEVEL CROSSING TESTING

AUTOMATIC OPEN CROSSING LOCALLY MONITORED + BARRIERS

NR/SMS/LX83

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NR/L3/SIG/10663 Signal Maintenance Specifications								
NR/SMS/PartD/LX83								
Automatic Open Crossing Locally Monitored + Barriers								
Issue No:								

GENERAL

This test plan covers the requirements of NR/SMS/PartC/LC10, NR/SMS/PartB/Test/083. It is for use of the person conducting the annual test of the level crossing and has relevant 'tick boxes' by each task so that particular item of the test can be correctly recorded as per the index in "crossing defects".

- a) The crossing ground plan.
- b) The level crossing order.
- c) The crossing control tables.
- d) The signalling plan.

Missing documentation shall be listed as a defect.

TEST SUMMARY

Test Summary				
Name of Level Crossing:				
Level Crossing Type:				
Name of Monitoring Signal Box(es):				
Date of Full Test:				
Time Full Test Commenced:				
Time Full Test Completed:				
Tested By:				
Signature:				
Date of Signature:				
Grade and Title:				

CROSSING DEFECTS

On the test plan each item shall be recorded with the following letters in the box provided:

- X: Found Incorrect, Action Required
- R: Found Incorrect, Rectified on Day of Test
- C: Correct
- **N**: Not Applicable to this Installation

Any items found incorrect (X or R) are to be listed on the summary pages. On items requiring action, list the party(s) responsible for rectifying them.

NR/L3/SIG/10663 Signal Maintenance Specifications							
NR/SMS/PartD/LX83							
Automatic Open Crossing Locally Monitored + Barriers							
Issue No: 04							

SUMMARY OF ITEMS FOUND INCORRECT (1)

List in the table below all sites found incorrect and rectified on the day of the test (code letter R).

Description of Items Found Incorrect and Rectified						

NR/L3/SIG/10663 Signal Maintenance Specifications							
NR/SMS/PartD/LX83							
Automatic Open Crossing Locally Monitored + Barriers							
Issue No:	04	Issue Date:	04/09/2021	Compliance Date:	04/12/2021		

SUMMARY OF ITEMS FOUND INCORRECT (2)

List in the table below items found incorrect and requiring action (code letter X).

Description of Items Found Incorrect and Requiring Action	Responsible Party (s)

NR/L3/SIG/10663 Signal Maintenance Specifications						
NR/SMS/PartD/LX83						
Automatic Open Crossing Locally Monitored + Barriers						
Issue No:	04	Issue Date:	04/09/2021	Compliance Date:	04/12/2021	

1. Road Arrangements

Check that the road markings are in accordance with the section order and plans.	
Check that the road markings on the approaches to the crossing (up to the stop line) are complete and visible.	
Check the condition and the sighting of the road signs on the crossing approaches. See NR/SMS/SG00 for details on reflective boards and signs.	
Check (if provided) the condition and security of any pedestrian guardrails.	
Any defects found in 1.2 to 1.4 shall be reported to the appropriate council via the SM(S)	
Check the condition of the road surface over the crossing.	
Check that the road markings between and including the stop lines are complete and visible.	
Check (if provided) that the cattle/anti-trespass guards are complete and securely fastened down.	
Check (if provided) the condition and security of any wicket gates.	
Check the condition and the security of any fencing on the approach to equipment room or locations.	
	plans. Check that the road markings on the approaches to the crossing (up to the stop line) are complete and visible. Check the condition and the sighting of the road signs on the crossing approaches. See NR/SMS/SG00 for details on reflective boards and signs. Check (if provided) the condition and security of any pedestrian guardrails. Any defects found in 1.2 to 1.4 shall be reported to the appropriate council via the SM(S) Check the condition of the road surface over the crossing. Check that the road markings between and including the stop lines are complete and visible. Check (if provided) that the cattle/anti-trespass guards are complete and securely fastened down. Check (if provided) the condition and security of any wicket gates. Check the condition and the security of any fencing on the approach to

2. Barrier and Machine (BR Spec. 843)

If no LCU is provided, the booms can be lowered and raised by train simulation, or disconnection/reconnection of the REPR (or equivalent) circuit in the barrier location.

	Check the following on the barrier pedestal unit:	Υ	Z
2.1	The pedestal is correctly aligned and stable.	Υ	Z
2.2	The locks and hinges are undamaged.	Y	Z
2.3	With the boom in the raised position there is adequate clearance between the side arm/counter balance weights and the ground/base.	Υ	Z
2.4	The main shaft to side arm fastenings. Check that there is not any excessive play in the keyway.	Υ	Z
2.5	Lower the barriers on local control and leave the LCU switch in the Lower position. Open the front and rear doors of the pedestal units and fully extend the manual pump handle. Pump the booms to the fully raised position and Observe they remain raised.	Υ	Ζ
2.6	Y pedestal lift the pump handle and allow the boom to fall to approximately 45°. Release the pump handle and Check that the boom movement is arrested. The (UP)KR circuit will need to be disconnected to power the barrier release valve. Once the boom has started to lower, reconnect the (UP)KR circuit.	Υ	Ζ

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2.7	Operate the LCU switch to the off position. Check the road audible warnings extinguish. Pump the boom to the raised	•	Υ	Z			
2.8	Observe that the boom lights are extinguished when the boabove 80° from the horizontal. Operate the LCU switch to to On/Lower/Hand position.	om is	Υ	Ζ			
2.9	Repeat 2.7 to 2.9 for Z pedestal		Y	Z			
2.10	On each barrier in turn raise the pump handle until the boom begins to lower. Check that the pump handle roll pin has not reached an alignment where its ton is above the bettem edge of the handle						
2.11	The boom takes 6 to 8 seconds to lower.		Y	Z			
2.12	The boom is damped during the last 10° to 15° of movement	nt.	Υ	Z			
2.13	The boom is horizontal when fully lowered.		Y	Ζ			
2.14	The boom is the correct length. Design	Υ	Z	7			
	Actual	Υ	Z	7			
2.15	Condition of the boom.		Y	Ζ			
2.16	The security of the boom.		Y	Ζ			
2.17	The boom fixing bolt 'E' clips are undamaged and the whole shear bolt assembly has had grease applied.						
2.18	The reflective strips are undamaged, clean and are in the c position.	orrect	Υ	Ζ			
2.19	The boom lamps, hoods, brackets, and fastenings are undamaged, free from corrosion and correctly aligned.						
2.20	The boom wiring, plugs, clamps, and terminations are unda	amaged.	Y	Z			
2.21	(If Fitted) the strainer wire, support bracket and fastenings a effective.	are	Υ	Z			
	Check the height of the boom from the road surface.						
2.22	Top of barrier at the centre of the road (0.9m Minimum).		Y	Ζ			
2.23	Underside of barrier at any point (1m Maximum).		Υ	Ζ			
2.24	Check the counter balance weights are secure and are the Measuring with a weight measuring device the tip weight by method:	using the f	ollowin				
	 At the tip end slowly lift the boom until it is approximately horizontal. 	ately 4° to 5	5° from	the			
	 Connect the weight measuring device to the tip end 	of the boom	١.				

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			ooom onto the red then take	e measuring de a reading.	evice ensur	ing that the	boom	has	
		Boom	Length	Tip Wei	ight				
		3.6m	to 4.1m	7.6K	g				
		4.6m	to 9.1m	6.1K	g				
2.25	positio	n.		by hand to the		ed	Υ	Z	
2.26			the pedestal n as necessa	for water ingre ry.	ess and		Υ	Z	
	Check	the following	on the hydrau	ılic pack assen	nbly:		Y	Z	
2.27	The pa	ick fastenings	.				Y	Ζ	
2.28	The top		pack trunnion	block mountin	ngs and loc	:k	Υ	Z	
2.29		•	innion to the c is are fitted co	operating lever orrectly.	are the co	rrect	Υ	Z	
2.30	The ra	m adjusting s	crew and lock	washer. Do no	ot adjust th	e screw.	Y	Z	
2.31		ito/manual va al are intact.	lve is set in th	e auto position	and the s	plit pin	Υ	Z	
2.32	can ca	use the B24 f		e pack. The mo eak internal st damage.		•	Υ	Ζ	
2.33		id level is cor ark on the inc		ole in the filter	strainer or	to the	Υ	Z	
2.34			They shall be t fully on the c	of sufficient le commutator.	ngth, slide	freely in	Υ	Z	
2.35		otor commuta ight coffee co	,	cessible). It sh	all be unda	amaged	Υ	Z	
2.36	Record the pack details (Mk and serial number). Check that the								
	Unit	Mk	Serial Numb	er					
2.37		that the shoc mm by finger		unger cannot b	e depress	ed more	Υ	Z	

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Chack the up and down step block striker nade. Penlace if were		
	Υ	Z
Unfasten the lid of the circuit controller and Check the following items:	Υ	Z
The spindle and control arm are lubricated and free from wear. Do not lubricate the spindle if fitted with Oilite bearings. This can be identified by a P or an R stamped on the controller lid.	Υ	Z
Terminations and wiring.	Υ	Z
Contact fingers. Replace any fingers that are worn or have lost their spring tension.	Υ	Z
Bands. Check they are clean and not worn (copper dust in the bottom of the casting) If worn the complete controller shall be renewed.	Υ	Z
Measure by use of an inclinometer and digital voltmeter (on resistance) the setting of the bands whilst raising the boom on 'hand' operation. Adjust if necessary (Appendix A).	Υ	Z
Close and fasten the circuit controller. Check if any adjustments have been carried out that all the terminations have been correctly tightened.	Y	Z
Check the circuit controller cam, cam slot and roller assembly.	Υ	Z
Check the earth-bonding strip is secure and undamaged.	Y	Z
Check the main shaft bearings and fastenings. Check that sufficient grease has been applied to the bearings	Y	Z
Check the bearing end cap seals are effective. Water ingress into the end caps can freeze and prevent the booms from lowering.	Υ	Z
Check that the pedestal fixing bolts are all fitted and correctly tightened.	Y	Z
Check the operator's door (rear) micro switch assembly, fastenings and wires. Check that they are secure and undamaged.	Y	Z
Raise the boom by hand pumping, Check that the boom does not lower between pumping strokes.	Y	Z
the operator's doors (rear). Raise the boom under 'power' operation by switching the LCU to off and Check the following: Check the barrier (CYC)SR if necessary, reset the circuits to normalise the crossing	Υ	Z
The booms are between 80° and 85° when fully raised.	Y	Z
The booms do not excessively oscillate when they come to rest in the raised position.	Υ	Z
The booms do not 'hunt' when fully raised. This is a sign of an internal fluid leak inside the hydraulic pack.	Υ	Z
	The spindle and control arm are lubricated and free from wear. Do not lubricate the spindle if fitted with Oilite bearings. This can be identified by a P or an R stamped on the controller lid. Terminations and wiring. Contact fingers. Replace any fingers that are worn or have lost their spring tension. Bands. Check they are clean and not worn (copper dust in the bottom of the casting) If worn the complete controller shall be renewed. Measure by use of an inclinometer and digital voltmeter (on resistance) the setting of the bands whilst raising the boom on 'hand' operation. Adjust if necessary (Appendix A). Close and fasten the circuit controller. Check if any adjustments have been carried out that all the terminations have been correctly tightened. Check the circuit controller cam, cam slot and roller assembly. Check the earth-bonding strip is secure and undamaged. Check the main shaft bearings and fastenings. Check that sufficient grease has been applied to the bearings Check the bearing end cap seals are effective. Water ingress into the end caps can freeze and prevent the booms from lowering. Check that the pedestal fixing bolts are all fitted and correctly tightened. Check the operator's door (rear) micro switch assembly, fastenings and wires. Check that they are secure and undamaged. Raise the boom by hand pumping, Check that the boom does not lower between pumping strokes. If necessary, reconnect the (UP)KR circuit. Lower both the booms; stow the pump handles and close and lock the operator's doors (rear). Raise the boom under 'power' operation by switching the LCU to off and Check the following: Check the barrier (CYC)SR if necessary, reset the circuits to normalise the crossing The booms are between 80° and 85° when fully raised. The booms do not excessively oscillate when they come to rest in the raised position.	Unfasten the lid of the circuit controller and Check the following items: The spindle and control arm are lubricated and free from wear. Do not lubricate the spindle if fitted with Oilite bearings. This can be identified by a P or an R stamped on the controller lid. Terminations and wiring. Contact fingers. Replace any fingers that are worn or have lost their spring tension. Bands. Check they are clean and not worn (copper dust in the bottom of the casting) If worn the complete controller shall be renewed. Measure by use of an inclinometer and digital voltmeter (on resistance) the setting of the bands whilst raising the boom on 'hand' operation. Adjust if necessary (Appendix A). Close and fasten the circuit controller. Check if any adjustments have been carried out that all the terminations have been correctly tightened. Check the circuit controller cam, cam slot and roller assembly. Check the earth-bonding strip is secure and undamaged. Check the main shaft bearings and fastenings. Check that sufficient grease has been applied to the bearings Check that the pedestal fixing bolts are all fitted and correctly tightened. Check that the pedestal fixing bolts are all fitted and correctly tightened. Check the operator's door (rear) micro switch assembly, fastenings and wires. Check that they are secure and undamaged. Raise the boom by hand pumping, Check that the boom does not lower between pumping strokes. If necessary, reconnect the (UP)KR circuit. Lower both the booms; stow the pump handles and close and lock the operator's doors (rear). Raise the boom under 'power' operation by switching the LCU to off and Check the following: Check the barrier (CYC)SR if necessary, reset the circuits to normalise the crossing The booms do not excessively oscillate when they come to rest in the raised position. The booms do not 'hunt' when fully raised. This is a sign of an

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2.57	The boom lights stay illuminated until both booms are above 80° from the horizontal.	Υ	Z
2.58	Check that the operator's door cannot be closed and locked unless the pump handle is in the stowed position	Υ	Z
2.59	Check that the guide pin is seated in the bottom of the guide slot when the pump handle is fully stowed. Check that the spiral pin is not bent and the spiral pin guide is not worn or does not have a 'step'. Close and fully lock the operator's door. When locking the operators' door check that the key is turned a further 90° clockwise then back again to the removal position to correctly operate the door proving micro switch. Check the barrier (CYC)SR if necessary, reset the circuits to normalise the crossing.	Υ	Z
2.60	Close and lock the front pedestal door.	Υ	Z

3. Local Control Unit

Is Th	Is This Section Applicable to the Crossing Under Test? Yes			0			
Open the local control unit door. Check when unlocked that the key is retained in the lock and cannot be withdrawn unless the door is locked again.				Z			
3.2	Operate the control switch to the lower position and Observ	e the follow	ing ite	ms:			
3.3	All the amber road signals illuminate and the audible warning commence concurrently (Yodalarms at normal warbling rate	-	Υ	Z			
3.4	After 3 seconds all the amber signals extinguish and all the red						
3.5	The crossing headlights illuminate the crossing at the same time the red road lights commence to flash.						
3.6	The DWL signals do not illuminate for any direction.		Υ	Ζ			
3.7	After approximately a further 4 seconds the booms commer lower.	nce to	Υ	Z			
3.8	The booms take 6 to 8 seconds to reach the fully lowered pe	osition.	Υ	Ζ			
3.9	Red flashing road lights continue to be illuminated. Audible continue to sound.	warnings	Υ	Z			
3.10	Open the operator's door (rear) of Y pedestal. Check the audible warnings are silenced. Extend the pump handle and hand pump the boom to the raised position. Observe the following items:						
3.11	The boom does not lower between pumping strokes.		Υ	Ζ			
3.12	The red flashing road signals and boom lights are illuminate	ed	Υ	Ζ			

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3.13	The audible warnings are sounding.	Υ	Ζ
	Open the operator's door (rear) of Z pedestal. Extend the pump handle pump the boom to the raised position. Observe the following items:	and h	and
3.14	The boom does not lower between pumping strokes.	Y	Z
3.15	The red flashing road signals stay illuminated until the Z boom is above 80° from the horizontal.	Υ	Z
3.16	The audible warnings are continuing to sound.	Y	Z
3.17	Operate the LCU control switch to the off position and check that the red flashing road signals and audible warnings are extinguished	Υ	Z
3.18	Operate the LCU switch to the on/lower/hand position.	Y	Z
3.19	On each pedestal lift the pump handle and allow the boom to fully lower. The (UP)KR circuit will need to be disconnected to power the barrier release valve. Once the boom has started to lower, reconnect the (UP)KR circuit.	Υ	Ζ
3.20	Operate the switch in the local control unit to the off position and Observe the following: Check the barrier (CYC)SR if necessary, reset the circuits to normalise the crossing.	Υ	Z
3.21	The audible warnings cease and both booms rise together.	Y	Z
3.22	The red road lights extinguish once the booms have started to rise.	Υ	Z
3.23	Check that the guide on the inside of the local control unit door prevents the door being closed and locked unless the switch is in the auto position.	Υ	Z
3.24	Operate the switch to the on/lower/hand position and Observe that a lowering sequence takes place, operate the switch to the Auto position, close and lock the local control unit door, and Observe that the booms rise as listed in section 15.	Υ	Z

4. Road Traffic Light Signals

	If auxiliary road traffic light signals are fitted (in addition to YO, YN, ZO and ZN), list the additional signal identification below:							
	Signal Number Signal Identification							
	Aux 1							
	Aux 2							
	On each of the road traffic light signals Check the following items:							
4.1	The signal structure	e is stable.	YO	YN	ZO	ZN	Aux 1	Aux 2

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4.2	The signal light units are undamaged and the hoods are securely fitted.	YO	YN	ZO	ZN	Aux 1	Aux 2
4.3	The signal lenses are undamaged, clean and correctly orientated.	YO	YN	ZO	ZN	Aux 1	Aux 2
4.4	Signs and notices attached to the signal post are undamaged, clean, and legible See NR/SMS/SG00 for details on reflective boards and signs.	YO	YN	ZO	ZN	Aux 1	Aux 2
4.5	Cables and conduit are undamaged and secure.	YO	YN	ZO	ZN	Aux 1	Aux 2
4.6	Check that if the signals are fitted with 50-watt Quartz Halogen lamps the road traffic light signal backboard is fitted with a red/white border. White only and red/white border backboards shall not be mixed together at the same crossing.	YO	YN	ZO	ZN	Aux 1	Aux 2

5. Audible Warnings

5.1	Check that the audible warning device and any exposed cables and conduit are undamaged and secure. Check that the device is correctly aligned.	YO	YN	ZO	ZN
5.2	Check that there has been no water ingress into audible warning device. Rectify or replace as necessary.	YO	YN	ZO	ZN
5.3	Check that the sound output of the audible warning is sufficient for the crossing circumstances and (if applicable) is reduced for the night time. Some crossings have had the sound output of audible warning device reduced because of local conditions, check the diagrams.	YO	YN	ZO	ZN
5.4	Check (if applicable) that the audible warning time clock is set to the correct				

6. Another Train Coming Signs

Is This Section Applicable to the Crossing Under Test?	Yes	No
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If auxiliary pedestrian signals are fitted (in addition to YO, YN, ZO and ZN), list the additional signal identification below:

1,	Signal Number	Signal Identification
	Aux 1	
	Aux 2	

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6.1	Check that the sign is securely fixed to the post, the post is stable; the sign is undamaged and correctly aligned.	YO	YN	ZO	ZN	Aux 1	Aux 2
6.2	Check that the hood is securely fitted and the signal face is clean and undamaged.	YO	YN	ZO	ZN	Aux 1	Aux 2
6.3	If a sun screen is fitted Check this is undamaged and securely fitted.	YO	YN	ZO	ZN	Aux 1	Aux 2

7. Pedestrian Signals

Is This Section Applicable to the Crossing Under Test?	Yes	No
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If auxiliary pedestrian signals are fitted (in addition to YO, YN, ZO and ZN), list the additional signal identification below:

Signal Number	Signal Identification
Aux 1	
Aux 2	

7.1	Check that the sign is securely fixed to the post, the post is stable; the sign is undamaged and correctly aligned	YO	YN	ZO	ZN	Aux 1	Aux 2
7.2	Check that the hood is securely fitted and the signal face is clean and undamaged	YO	YN	ZO	ZN	Aux 1	Aux 2
7.3	If a sun screen is fitted Check this is undamaged and securely fitted.	YO	YN	ZO	ZN	Aux 1	Aux 2

8. Crossing Headlight Unit

8.1	Check that the structure is stable and securely fixed in the ground.	Υ	Z
8.2	Check that the light unit is undamaged and correctly aligned.	Υ	Ζ
8.3	Check that the lens is clean and the hood is securely fixed.	Υ	Ζ

9. Drivers Crossing Indicators (DRL/DWL) Signals

Earlier installations usually only have a driver's white light unit, more recent installations have a combined driver's red light and white light unit.

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9.1	Check (on DRL/DWL units) that the flashing red signal is clearly visible from the speed restriction board.	UP	UP X	DN	DN X
9.2	Check that the structure is stable and securely fixed in the ground.	UP	UP X	DN	DN X
9.3	Check that the unit is undamaged, correctly aligned and sighted	UP	UP X	DN	DN X
9.4	Check that the lens(es) are clean and the hood(s) is/are securely fitted.	UP	UP X	DN	DN X
9.5	Check (on DRL/DWL units) that all the LED's on the DRL unit are flashing.	UP	UP X	DN	DN X

10. Lineside Notice Boards and Signs

10.1	Check that the sign is securely fixed to the post, the post is stable and securely fixed in the ground	UP	UP X	DN	DN X
10.2	Check that the sign is correctly aligned and sighted	UP	UP X	DN	DN X
10.3	Check that the sign is of the correct retro-reflective material (see 1.3)	UP	UP X	DN	DN X
10.4	Check that the sign is clean and the legend is correct and legible. The site plan will give details on the correct information that shall be displayed.	UP	UP X	DN	DN X

11. Telephone System

Most AOCL+B installations do not have public access telephones provided. Usually there is only an information sign giving contact details

Identify telephones at the installation under test in the grid below:

No.	Telephone Identity
1	
2	
3	
4	

		Tele		e Ideı Grid)	
11.1	Check the telephone and cord is undamaged.	1	2	3	4
11.2	Check the correct labels and symbols are fitted inside and outside the case and they are legible.	1	2	3	4
11.3	Check that any associated signs are stable, undamaged and legible. Emergency telephones require having the	1	2	3	4

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	yellow telephone symbol visible on three sides of the telephone case or on a separate plate above the telephone				
11.4	Check that the correct crossing name is stated on any telephone labels and signs. The site plan will give information on the correct names/numbers that shall be displayed	1	2	3	4
11.5	If betalights are fitted Check they are lit. Betalights are usually fitted to older style telephones units that the public have access to.	1	2	3	4
11.6	Ring the monitoring point and Check that the call is received correctly. Ask the monitoring point to ring back.	1	2	3	4
11.7	Check the telephone rings correctly. Check that the quality of speech and hearing is clear and not distorted. On Whiteley PETS telephone systems there is a short time when answering a call at either end of the line where the system 'handshakes' during this period transmission and reception of speech is not possible	1	2	3	4
11.8	Switch off the mains power to the telephone system. After a period of time equal to the crossing sequence testing repeat tasks 11.6 to 11.7. Switch the mains power to the telephone system back on.	1	2	3	4

12. Public Telephone Numbers

12.1	Check the information on all the public information signs is correct and legible.	
12.2	Ring the ETD number given for the public to call in an emergency, Check that the recipient gives correct procedures for the call. The site plan will give information on the correct names/numbers that shall be displayed.	

Public Telephone Numbers	Checked

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13. Barrier Proving

The booms can be lowered and raised by local control or train simulation.

13.1	Turn the mains power off.				
13.2	Allow the booms to lower. Restrain the tip of one of the booms then allow the barriers to rise.	YO	YN	ZO	ZN
13.3	Check that the motor cut-out for the restrained boom operates within 25 seconds. This time relates to a SPX Contactor only, if a different contactor is fitted refer to site diagrams and report to Section Manager.	YO	YN	ZO	ZN
13.4	Release the boom and check that the motor cuts in again within 3 minutes and the boom fully rises.	YO	YN	ZO	ZN
13.5	Repeat 13.1 to 13.4 for each of the other booms.				
	Turn the mains power on.				

14. Red Flashing Road Traffic Light and Drivers White Light (DWL) Signal Proving

The crossing shall be operated by train simulation. Check on the following tests that only the DWL for the direction in which the train simulation is applied operates.

If the (DWL)CR/CSR is a slow to pick relay the DWL will not illuminate with only one red road light connected. Check the diagrams

14.1	Simulate a train striking in and allow the crossing to operate. Check that all the red road signals are illuminated (flashing).	YO	YN	ZO	ZN	Aux 1	Aux 2
14.2	Measure the rate of flashing (Between 70 and 90 f minute)	lashes	per	FF	PM		
14.3	Check that the DWL is illuminated (flashing).	YO	YN	ZO	ZN	Aux 1	Aux 2
14.4	Disconnect the left and right lamps on one of the light units by slipping the links in the equipment room/loc and Check that the DWL extinguishes and (if provided) the DRL illuminates.	YO	YN	ZO	ZN	Aux 1	Aux 2
14.5	Re-connect the right-hand lamp and Check that the DRL (if provided) extinguishes and the DWL illuminates.	YO	YN	ZO	ZN	Aux 1	Aux 2
14.6	Disconnect again the right hand lamp and Check that the DWL extinguishes and the DRL (if provided) illuminates.	YO	YN	ZO	ZN	Aux 1	Aux 2

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14.7	Re-connect the left-hand lamp and Check that the DRL (if provided) extinguishes and the DWL illuminates.	YO	YN	ZO	ZN	Aux 1	Aux 2
14.8	Repeat 14.3 to 14.7 for all other light units.	YO	YN	ZO	ZN	Aux 1	Aux 2
14.9	Open the door of the LCU unit and Check that the DWL extinguishes and the DRL illuminates. Close and lock the door and Check that the DRL extinguishes and the DWL illuminates.						
14.10	In turn open the operator's door (rear) of the Y and Z pedestals, Check that the DWL is extinguished and the DRL is illuminated as the door is opened					Z	
14.11	Check that the DRL is extinguished and the DV illuminated as each door is correctly closed and		ed aga	ain.		Υ	Z
14.12	Operate the exit function and remove the train necessary, re-set the circuits to normalise the						

15. Local Control Sequence

15.1	Operate the LCU to the LOWER position and Check the following:	
15.2	All the amber road signals illuminate and the audible warnings commence concurrently (Yodalarms at normal warbling rate).	
15.3	After 3 seconds all the amber signals extinguish and all the red road signals and any pedestrian lights start to flash.	
15.4	The crossing headlights illuminate the crossing at the time the red road lights commence to flash.	
15.5	The DWL do not illuminate.	
15.6	The DRL continue to flash.	
15.7	After approximately a further 4 seconds at older the booms commence to lower and the boom lamps illuminate.	
15.8	The booms take 6 to 8 seconds to reach the fully lowered position.	
15.9	Red road lights and any pedestrian lights continue to be illuminated. Audible warnings continue to sound.	
15.10	Operate the LCU to the RAISE position and Check the following:	
15.11	The booms begin to rise.	
15.12	The lineside headlights extinguish and the audible warnings cease. The red road lights extinguish once the booms have started to rise.	
15.13	The boom lights extinguish when the booms have reached approximately 81° from the horizontal.	
15.14	The booms do not take more than 7 seconds to reach the fully raised position of between 81° and 85° from the horizontal.	

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	Check the barrier (CYC)SR. if necessary, reset the circuits to normalise the crossing.	
15.15	Operate the switch to the auto position and Observe that a lowering sequence as listed in 15.1 to 15.9 takes place and then the booms raise as listed in 15.12 to 15.14.	

16. Automatic Control Sequence

- Check in the crossing control tables for any special controls that affect the automatic control sequence.
- Where the word EXIT occurs the strike out treadle shall be operated.
- On single lines or where bi-directional controls exist the leaving track circuit shall also be operated.
- Where directional proving controls exists the bi-directional strike out treadle shall also be operated in the correct sequence.

16.1	Observe, with no train approaching, all DRL (if provided) are illuminated (flashing) and are visible from the speed restriction board.	Up	Up X	Dn	Dn X
16.2	Simulate an approaching train by shunting a controlling track circuit. Observe the following:	Up	Up X	Dn	Dn X
16.3	On double lines 10 seconds elapse before the crossing sequence commences. On single lines the sequence starts immediately.	Up	Up X	Dn	Dn X
16.4	All the amber road signals illuminate and the audible warnings commence concurrently (Yodalarms at normal warbling rate).	Up	Up X	Dn	Dn X
16.5	After 3 seconds all the amber signals extinguish and all the red road signals and any pedestrian lights start to flash	Up	Up X	Dn	Dn X
16.6	The crossing headlights illuminate the crossing at the time the red road lights commence to flash.	Up	Up X	Dn	Dn X
16.7	After approximately a further 4 seconds the booms commence to lower.	Up	Up X	Dn	Dn X
16.8	As the booms commence to lower the DRL extinguishes and the DWL commences to flash for the direction where the train simulation was applied. The DRL continues for the opposing directions.	Up	Up ×	Dn	Dn X
16.9	The booms take 6 to 8 seconds to reach the fully lowered position.	Up	Up X	Dn	Dn X

NR/L3/SIG/	/10663 S	ignal Mainten	ance Specificatio	ns	
NR/SMS/Pa	artD/LX8	33			
Automatic	Open C	rossing Loca	Ily Monitored +	Barriers	
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16.10	The crossing headlights, red road lights and any pedestrian lights continue to be illuminated and audible warnings continue to sound.	Up	Up X	Dn	Dn X
16.11	Operate the exit function and remove the train simulation. Observe the following:	Up	Up X	Dn	Dn X
16.12	The booms begin to rise.	Up	Up X	Dn	Dn X
16.13	The DWL for the direction where the simulation was applied extinguishes and the DRL commences to flash.	Up	Up X	Dn	Dn X
16.14	The red road lights and crossing headlights extinguish and the audible warnings cease when the booms have reached approximately 45° from the horizontal.	Up	Up X	Dn	Dn X
16.15	The boom lights extinguish when the booms have reached approximately 81° from the horizontal.	Up	Up X	Dn	Dn X
16.16	The booms do not take more than 7 seconds to reach the fully raised position of between 81° and 85° from the horizontal.	Up	Up X	Dn	Dn X
16.17	Repeat steps 16.2 to 16.16 for the opposite direction on a single line and the other direction on double lines.	Up	Up X	Dn	Dn X

17. Double Lines Second Train Approaching Sequence

Is This	Section Applicable to the Crossing Under Test?	Yes	No
17.1	Simulate a train striking in on line one.	Up	Dn
17.2	Simulate a second train striking in on line two. Observe the following:	Up	Dn
17.3	The booms remain lowered.	Up	Dn
17.4	The road lights and any pedestrian lights continue to flash.	Up	Dn
17.5	The audible warning rate continues at the normal rate	Up	Dn
17.6	The crossing headlights continue to illuminate	Up	Dn
17.7	Operate the exit function and remove the simulation on line one. Observe the following:	Up	Dn
17.8	The booms remain lowered.	Up	Dn
17.9	The road lights and any pedestrian lights continue to flash.	Up	Dn
17.10	The audible warning rate changes to the increased rate.	Up	Dn
17.11	The crossing headlights continue to illuminate	Up	Dn
17.12	The DWL for the direction of the simulation on line one extinguishes and the DRL commences to flash.	Up	Dn
17.13	The DRL for the simulation on line two extinguishes and the DWL commences to flash.	Up	Dn

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NR/SMS/Part[)/LX83			
Automatic Op	en Crossing Loca	ally Monitored +	Barriers	
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17.14	Operate the exit function and remove the simulation on line two. Observe that the sequence.	Up	Dn
17.15	Repeat steps 17.1 to 17.14 for a train striking in on line two first and a second train striking in on line one.	Up	Dn

18. Track Circuit Timing

18.1	Simulate an approaching train by shunting a controlling track circuit.	Up	Up X	Dn	Dn X
18.2	Start timing with a stopwatch as soon as the red flashing road signals and the DWL for the direction in which the simulation was applied illuminate.	Up	Up X	Dn	Dn X
18.3	Check that after 180 seconds the DWL extinguishes and the DRL (if applicable) commences to flash.	Up	Up X	Dn	Dn X
18.4	Check that 30 seconds after the DWL extinguishes the barriers perform a raising sequence as in 16.12 to 16.16. The only exception will be that the DWL will already be extinguished and the DRL will be flashing.	Up	Up X	Dn	Dn X
18.5	Remove the train simulation and operate the exit function. Check that the crossing controls return to their normal state. If necessary, re-set the circuits.	Up	Up X	Dn	Dn X
18.6	Repeat 18.1 to 18.5 for all other directions where controls are provided Record the results in the table below. If any adjustments have to be made to achieve these times, allow a period of time for the bi-metal strip in the timer to cool down.	Up	Up X	Dn	Dn X

Direction	TC Name	DWL Extinguishes (Seconds)	Booms Rise (Seconds)

19. Drivers Plunger Unit

These are normally fitted to modern installations.

NOTE: On some designs the DWL will not illuminate when the drivers plunger is operated after the crossing has timed out. The DRL (if provided) will remain flashing. Check the control tables and diagrams for the crossing you are testing.

				Mainten	ance Sp	ecificatio	ons				
		artD/LX		ing Loca	ally Moni	tored +	Barriers				
Issue		04		e Date:	04/09/2		Compliance D	ate:	04/12	2/2021	
			·								
Is Thi	s Se	ction App	olicabl	e to the (Crossing	Under T	est?			Yes	No
19.1							Dn X				
19.2		eck that mmence			guishes	and the I	ORL	Up	Up X	Dn	Dn X
19.3					and oper equence		olunger.	Up	Up X	Dn	Dn X
19.4	Check that DWL for the direction of the plunger operation illuminates (if designed to do so, see note at start of section)						Dn X				
19.5					alise the of the plur	_	controls.	Up	Up X	Dn	Dn X
19.6	Re	peat 19.	1 and	19.5 for	all other	driver's p	olunger units.	Up	Up X	Dn	Dn X
20.	Spec	ial Con	trol F	unction	Sequenc	е					
Is Thi	s Se	ction App	olicabl	e to the	Crossing	Under T	est?			Yes	No
	appli	cable to	the cr	ossing.			entrols functions	that a	ıre		
20.1	CO	ntrol tab	es (St	opping/N		oing, Sig	rding to the nal, TRTS results.	Up	Up X	Dn	Dn X
Fui	nctio	n		Result							

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Power Supply Identification

NR/L3/SIG	/10663 S	Signal Mainten	ance Specificatio	ns	
NR/SMS/P	artD/LX8	33			
Automatic	Open C	rossing Loca	Ily Monitored +	Barriers	
Issue No:	04	Issue Date:	04/09/2021	Compliance Date:	04/12/2021

APPENDIX A - Circuit Controller Band Settings

Band	Made Between
DN KR	0° and 4°
HJPR	42° and 90°
MR	0° and 83°
UP KR	81° and 90°

NOTE: It is important to obtain the over-lap between the UP KR band making and the MR band breaking. This is to ensure that if a boom drops slightly it will drive up again before the red road signals operate.

END



LEVEL CROSSING TESTING

MINIATURE STOP LIGHT CROSSING (MSL)

(RELIABILITY CENTRED MAINTENANCE)

NR/SMS/LX94

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NR/L3/SIG	/10663	Signal Mainten	ance Specification	ons	
NR/SMS/P	artD/LX	94			
Miniature	Stop Lig	ht Crossing (MSL) - (RCM)		
Issue No:	05	Issue Date:	04/06/2022	Compliance Date:	03/09/2022

GENERAL

This test plan is the NR/SMS/PartC/LC15. It is for use of the person conducting the annual test of the level crossing and has relevant 'tick boxes' by each task so that particular item of the test can be correctly recorded as per the index in 'crossing defects'.

- a) The crossing ground plan.
 - b) The level crossing order.
 - c) The crossing control tables.
- d) The signalling plan.

Missing documentation shall be listed as a defect.

TEST SUMMARY

Test Summary
Name of Level Crossing:
Level Crossing Type:
Name of Monitoring Signal Box(es):
Date of Full Test:
Time Full Test Commenced:
Time Full Test Completed:
Tested By:
Signature:
Date of Signature:
Grade and Title:

CROSSING DEFECTS

On the test plan each item shall be recorded with the following letters in the box provided:

- X: Found Incorrect, Action Required
- R: Found Incorrect, Rectified on Day of Test
- C: Correct
- **N**: Not Applicable to this Installation

Any items found incorrect (X or R) are to be listed on the summary pages. On items requiring action, list the party(s) responsible for rectifying them.

NR/L3/SIG	5/10663 S	ignal Mainten	ance Specification	ns	
NR/SMS/P	artD/LX9)4			
Miniature	Stop Lig	ht Crossing (MSL) - (RCM)		
Issue No:	05	Issue Date:	04/06/2022	Compliance Date:	03/09/2022

SUMMARY OF ITEMS FOUND INCORRECT (1)

List in the table below all sites found incorrect and rectified on the day of the test (code letter R).

Description of Items Found Incorrect and Rectified

Miniature Stop Light Crossing (MSL) - (RCM)

Issue No: Issue Date: 04/06/2022 Compliance Date: 05 03/09/2022

SUMMARY OF ITEMS FOUND INCORRECT (2)

List in the table below items found incorrect and requiring action (code letter X).

Description of Items Found Incorrect and Requiring Action	Responsible Party (s)

NR/L3/SIG	/10663 \$	Signal Mainten	ance Specificatio	ns	
NR/SMS/P	artD/LX	94			
Miniature Stop Light Crossing (MSL) - (RCM)					
Issue No:	05	Issue Date:	04/06/2022	Compliance Date:	03/09/2022

1. Red /Green Light Unit

	On each of the Red / Green Light units check the following items:		
1.1	The post is stable and undamaged	Υ	Z
1.2	The light unit is correctly aligned and the lights are clearly visible from the crossing entry point.	Υ	Z
1.3	The light units are undamaged and the hoods are securely fitted.	Y	Z
1.4	The red and green lenses are undamaged and clean.	Y	Z
1.5	If the crossing is an On-Demand type, check the touch buttons on each unit are not damaged.	Υ	Z
1.6	Signs and notices attached to post are undamaged, clean and legible.	Y	Z

2. Gates

Is Th	nis Section Applicable to the Crossing Under Test?	Yes	١	10
2.1	Check that any red roundels or signs attached to the gate as undamaged, clean and legible.	re	А	В
	Signs and roundels shall be of class 1 retro-reflective mater	al		

3. Audible Warnings

Is Th	is Section Applicable to the Crossing Under Test?	Yes	N	10
3.1	Check that the sound output of the audible warning is sufficient crossing circumstances and (if applicable) is reduced for the time.		А	В
	Some crossings have had the sound output of audible alarm reduced because of local conditions, check the diagrams.	S		
3.2	Check (if applicable) that the audible warning time clock is secorrect time and the day/night settings are correct.	et to the	A	В

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NR/L3/SIG	/10663	Signal Mainten	ance Specificatio	ns	
NR/SMS/P	NR/SMS/PartD/LX94				
Miniature	Miniature Stop Light Crossing (MSL) - (RCM)				
Issue No:	05	Issue Date:	04/06/2022	Compliance Date:	03/09/2022

4. Telephone Systems

Is Th	Is This Section Applicable to the Crossing Under Test?		N	10
4.1	Check the telephone and cord is undamaged.		A	В
4.2	Check that any associated signs are stable, undamaged and Emergency telephones shall have the yellow telephone symbol on three sides of the telephone case or on a separate plate a telephone.	bol visible	Α	В
4.3	Check that the correct crossing name is stated on any teleple labels and signs	none	Α	В
4.4	Check that telephone numbers given on any sign are correct plan will give information on the correct names/numbers that displayed.		А	В
4.5	If betalights are fitted, check they are lit. Betalights are usua older style telephone units that the public have access to.	lly fitted to	A	В
4.6	On emergency telephones, check that an ETD number is given the public to call in case they cannot contact the monitoring		Α	В
4.7	Ring this number and check that the recipient gives correct procedures for the call		Α	В
4.8	Ring the monitoring point and check that the call is received Ask the monitoring point to ring back	correctly.	Α	В
4.9	Check the telephone rings correctly. Check the quality of sphearing is clear and not distorted. On Whiteley PETS telephone systems there is a short time answering a call at either end of the line where the system		А	В
	'handshakes'. During this period transmission and reception speech is not possible.	of		
4.10	If lay-by and/or pedestal telephones are fitted Check that the ring differential at the monitoring point between them and the emergency telephones		Α	В
4.11	Check that with one of the emergency telephones left 'off the calls on the other telephones can be made and received cor Whitely PETS systems will indicate a fault at the monitoring	rectly	А	В
4.12	If an absent switch is fitted to the telephone system operate check that if an emergency call made this is indicated by a lo illumination of the telephone unit and any audible devices do sound. Operate the absent switch back to normal operation a	ow level of not	Α	В

Switch off the mains power to the telephone system. After a period of time equal to the crossing sequence testing, repeat tasks 4.9 to 4.12.

Switch the mains power to the telephone system back on.

4.13

that a normal emergence call is received.

NR/L3/SIG	/10663 S	Signal Mainten	ance Specificatio	ns		
NR/SMS/P	artD/LX9	94				
Miniature	Miniature Stop Light Crossing (MSL) - (RCM)					
Issue No: 05						

5. Red / Green Lamp Operation

5.1	With no trains approaching check that the light units are showing a green light, operate either the replacement switch to 'red' or slip the test link and observe that the light units are showing a red light. Operate the replacement switch to the 'auto' position or re-connect the test link and Observe that the light units are showing a green light.	
-----	---	--

6. Sequence Test

Check in the crossing control tables for any special controls that affect the automatic control sequence.

Where the word EXIT occurs, the strike out treadle shall be operated.

6.1	Simulate an approaching train by shunting a controlling track circuit.	Up	Up X	Dn	Dn X
	Observe the following:				
6.2	The green lamps on both light units extinguish and the red lamps illuminate.	Up	Up X	Dn	Dn X
6.3	The audible warnings (if provided) sound.	Up	Up X	Dn	Dn X
6.4	Operate the exit function and remove the train simulation.	Up	Up X	Dn	Dn X
	Observe the following:				
6.5	The red lamps on both light units extinguish and the green lamps illuminate.	Up	Up X	Dn	Dn X
6.6	The audible warnings (if provided) cease.	Up	Up X	Dn	Dn X

Repeat steps 6.1 to 6.6 for all other directions where controls are provided.

7. Double Lines Second Train Approaching Sequence

Is Th	nis Section Applicable to the Crossing Under Test?	Yes	3	No	
7.1	Simulate an approaching train as in 6.1 on line one.	Up	Up X	Dn	Dn X
7.2	Simulate a second train striking in on line two.	Up	Up X	Dn	Dn X
7.3	Operate the exit function for the train simulation on line one.	Up	Up X	Dn	Dn X

	/L3/SIG/10663 /SMS/PartD/L	•	nance Specificati	ons						
			(MSL) - (RCM)							
	iniature Stop Light Crossing (MSL) - (RCM) sue No: 05 Issue Date: 04/06/2022 Compliance Date:						te: 03/09/2022			
				•						
	Observe the	following:								
7.4	_	mps on both ligh s stay illuminate	s on both light units stay extinguished and tay illuminated.					Dn X		
7.5	The audible vate.	warnings (if prov	rnings (if provided) changes to the increased				Dn	Dn X		
7.6	•	exit function for that the sequer	Up	Up X	Dn	Dn X				
	Repeat step striking in or		a train striking in	on line two first	and a	secor	nd train	ı		
8.	Special Co	ntrol Function	Sequence							
Is Th	is Section App	olicable to the C	rossing Under To	est?		`	es l	No		
8.1			unctions according Record the function				/Non-			
	Function	Result	Result							
								\dashv		
9.	Track Circu	uit Resetting Te	ests.							
Is Th	s This Section Applicable to the Crossing Under Test?				Yes		No			
				-						
9.1			dropping a contunits show a red		Up	Up X	Dn	Dn X		
	Make up the	track circuit and	I start timing with	a stopwatch						

from the time the track circuit is re-connected. Check that

If any adjustments have to be made to achieve this time,

allow a period of time for the bi-metal strip in the timer to

Observe that after 120 seconds the red lights are extinguished and the green lights illuminate.

the red lights remain illuminated.

Χ

cool down.

9.2

9.3

	iature Stop Light								
Issu	ue No: 05 Is	sue Date: 0	4/06/202	2	Compliance	Date:	03/09	/2022	
9.4	Repeat 9.1 to 9.3 for all other directions where controls are provided						Up X	Dn	Dr X
	Direction	TC Nam	ne	Red	Road Light ex	ctingui	shes	(secor	nd)
	Up							•	
	UpX								
	Dn								
	DnX								
10. Leaving Track Circuit Monitoring. Is This Section Applicable to the Crossing Under Test?						Yes		No	
10.1	circuit, Observe th	triking in by dropping a controlling track nat the red lights illuminate.			Up	Up X	Dn	Dr X	
10.2	Drop the leaving track circuit, operate the exit function and make up the controlling track circuit. Check that the leaving track circuit remains dropped.					Up	Up X	Dn	Dr X
10.3	lights illuminate. S	that the red lights are extinguished and the green ninate. Start timing with a stopwatch as soon as plots are extinguished.			Up	Up X	Dn	Dr X	
10.4	Observe that afte	nat after 240 seconds the green lights extinguish d lights stay extinguished.			Up	Up X	Dn	Dr X	
10.5	Re-connect the leaving track circuit and reset the control circuits. Check that the green lights illuminate. Record the time in the table below.					Up	Up X	Dn	Dr X
				Time	in Seconds				
4.4	Dower Complian	and Dattaria							
11.	Power Supplies	and batterie	3						
11.1	Carry out NR/S or NR/SMS/Par								
11.2	Carry out NR/S Barriers).	MS/PartB/Tes	t/052 - D	ynami	c Earth Tests	(Level	Cross	ing	
Pov	wer Supply Identif	ication							

END