3.1.5 East-West traffic flow

- The E-W RED and AMBER lights will be extinguished.
- The E-W GREEN light will then be displayed.
- After a set time the E-W GREEN light will be extinguished.
- The E-W AMBER light will then be displayed.

Repeat steps 3.1.1 to 3.1.5

3.2 Pedestrian Control

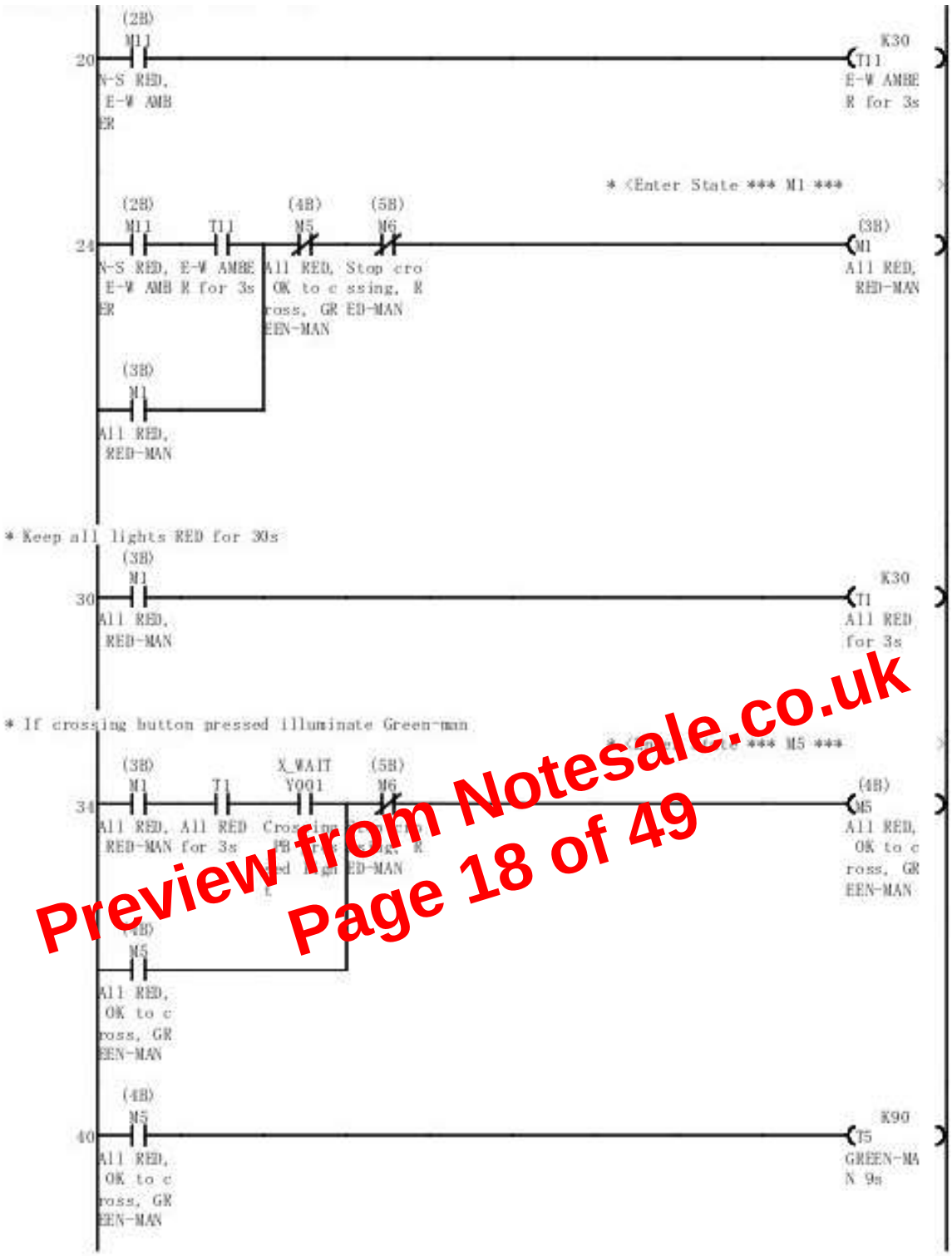
A PUFFIN crossing will be used to allow pedestrians to cross the road. This will be implemented in accordance with Highways Agency guidelines (Department for Transport, 2005). Appendix A is an extract covering PUFFIN crossings.

The 'Call Button', Red-Man (don't cross) and Green-Man (cross) (see Table 2) are all located on the nearside of the crossing in accordance with PUFFIN Crossing design.

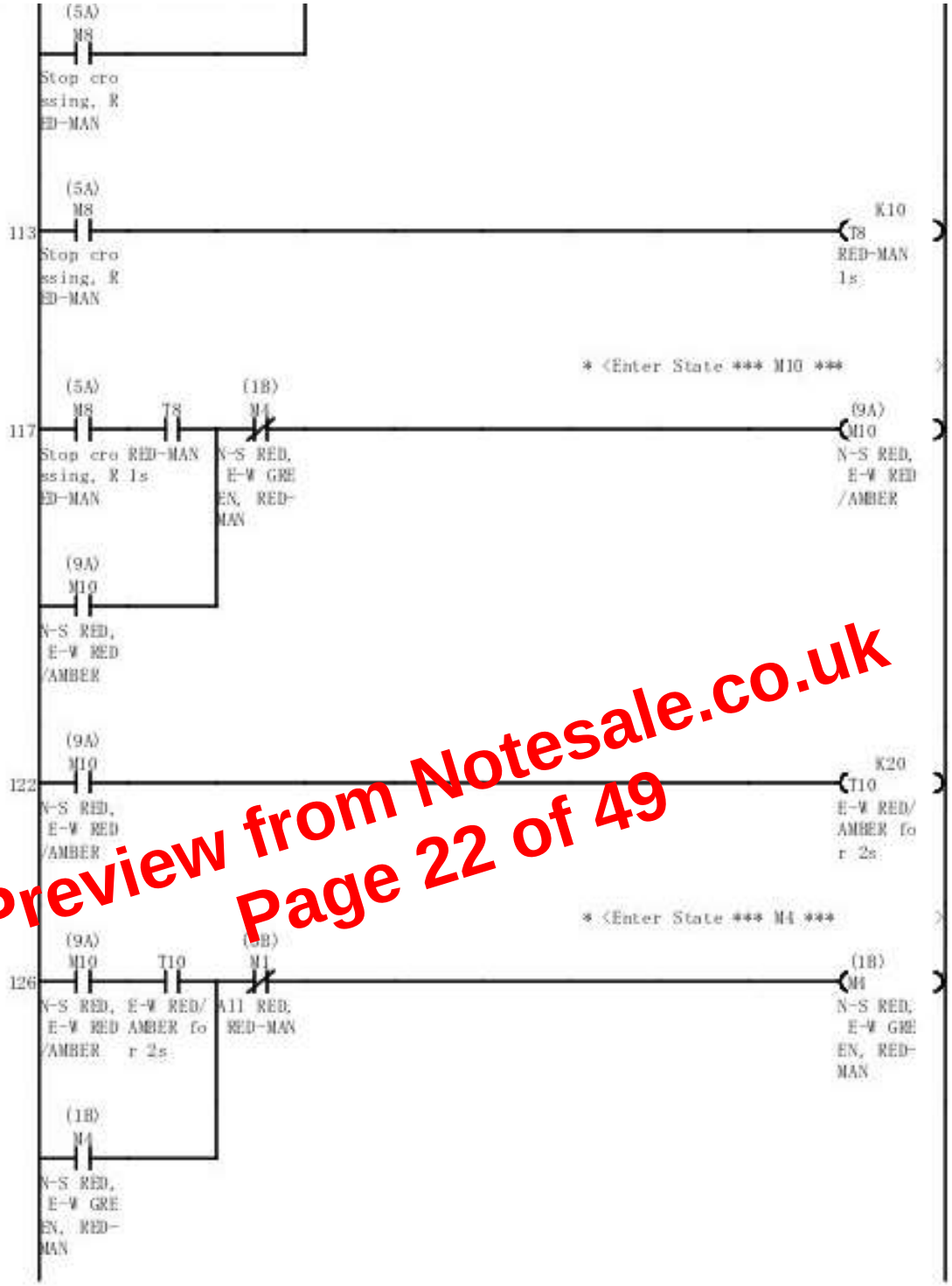
Table 2: Pedestrian Crossing Equipment

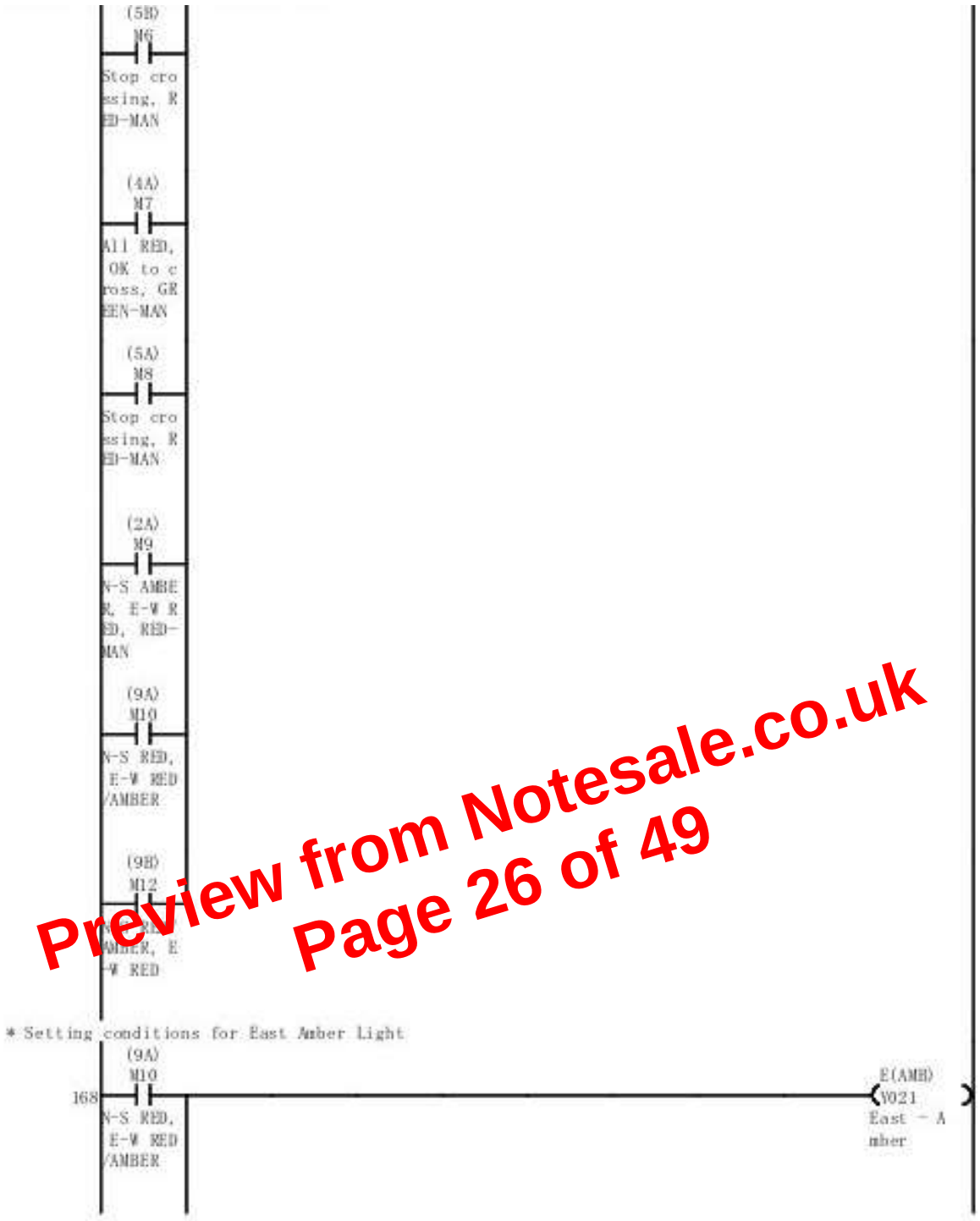
	
Crossing Push Button	Red Man – Don't Walk Green Man –Walk

(Gareth, 2014)

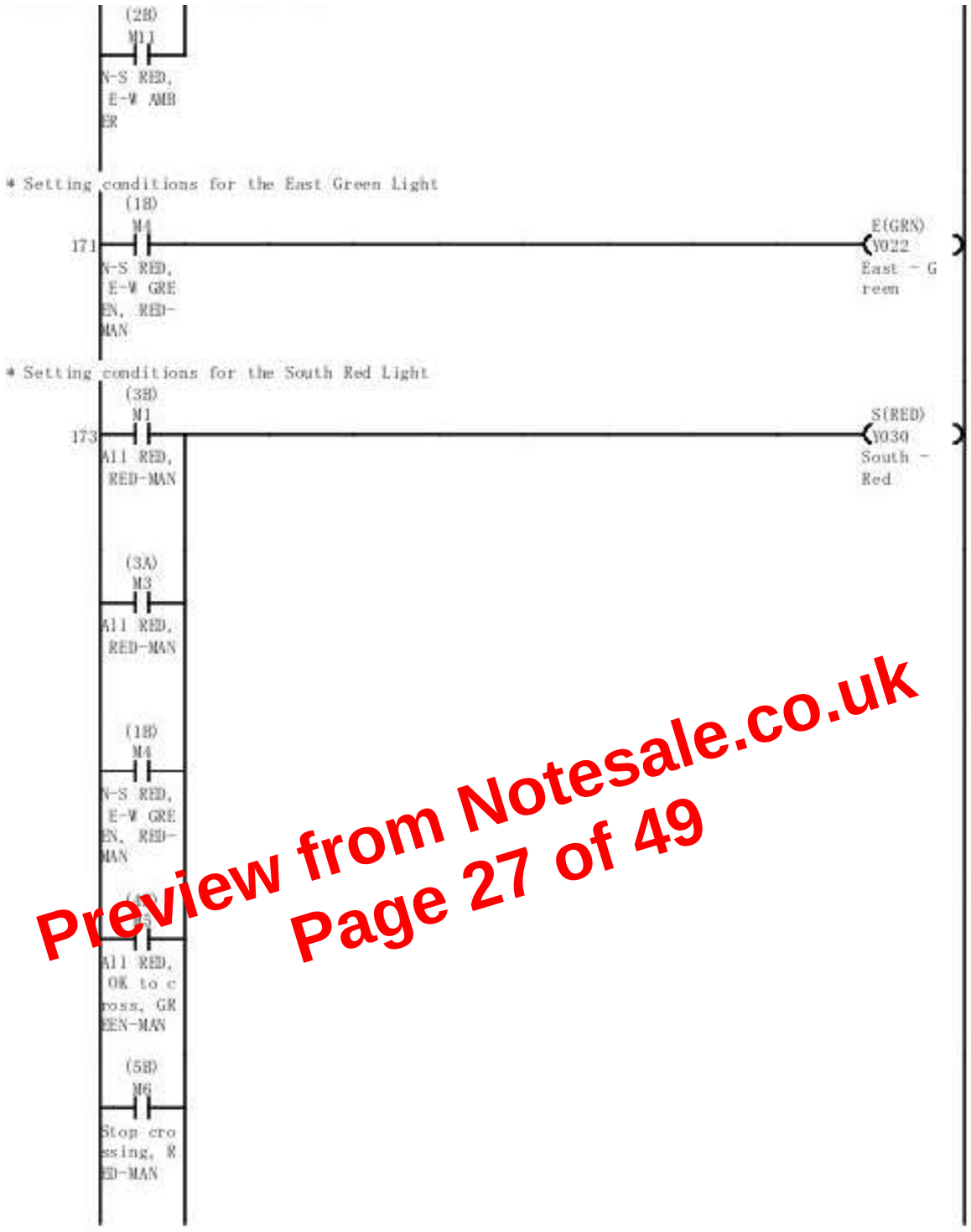


-3-2-





-3-10-



-3-11-

Cross reference list Target program : MAIN

Device	Step	Ld sym	Ins	Pos	Device comment	Alias
M4	204		LD	*	N-S RED, E-W GREEN, RED-MAN	(1B)
M5	27		ANI	*	All RED, OK to cross, GREEN-MAN	(4B)
M5	37		OR	*	All RED, OK to cross, GREEN-MAN	(4B)
M5	39		OUT	*	All RED, OK to cross, GREEN-MAN	(4B)
M5	40		LD	*	All RED, OK to cross, GREEN-MAN	(4B)
M5	44		LD	*	All RED, OK to cross, GREEN-MAN	(4B)
M5	137		ANI	*	All RED, OK to cross, GREEN-MAN	(4B)
M5	143		OR	*	All RED, OK to cross, GREEN-MAN	(4B)
M5	160		OR	*	All RED, OK to cross, GREEN-MAN	(4B)
M5	176		OR	*	All RED, OK to cross, GREEN-MAN	(4B)
M5	193		OR	*	All RED, OK to cross, GREEN-MAN	(4B)
M5	206		LD	*	All RED, OK to cross, GREEN-MAN	(4B)
M6	28		ANI	*	Stop crossing, RED-MAN	(5B)
M6	38		ANI	*	Stop crossing, RED-MAN	(5B)
M6	50		OR	*	Stop crossing, RED-MAN	(5B)
M6	52		OUT	*	Stop crossing, RED-MAN	(5B)
M6	53		LD	*	Stop crossing, RED-MAN	(5B)
M6	57		LD	*	Stop crossing, RED-MAN	(5B)
M6	144		OR	*	Stop crossing, RED-MAN	(5B)
M6	161		OR	*	Stop crossing, RED-MAN	(5B)
M6	177		OR	*	Stop crossing, RED-MAN	(5B)
M6	194		OR	*	Stop crossing, RED-MAN	(5B)
M7	87		ANI	*	All RED, OK to cross, GREEN-MAN	(4A)
M7	97		OR	*	All RED, OK to cross, GREEN-MAN	(4A)
M7	99		OUT	*	All RED, OK to cross, GREEN-MAN	(4A)
M7	100		LD	*	All RED, OK to cross, GREEN-MAN	(4A)
M7	104		LD	*	All RED, OK to cross, GREEN-MAN	(4A)
M7	138		ANI	*	All RED, OK to cross, GREEN-MAN	(4A)
M7	145		OR	*	All RED, OK to cross, GREEN-MAN	(4A)
M7	162		OR	*	All RED, OK to cross, GREEN-MAN	(4A)
M7	178		OR	*	All RED, OK to cross, GREEN-MAN	(4A)
M7	195		OR	*	All RED, OK to cross, GREEN-MAN	(4A)
M7	207		OR	*	All RED, OK to cross, GREEN-MAN	(4A)
M8	88		ANI	*	Stop crossing, RED-MAN	(5A)
M8	98		ANI	*	Stop crossing, RED-MAN	(5A)
M8	110		OR	*	Stop crossing, RED-MAN	(5A)
M8	112		OUT	*	Stop crossing, RED-MAN	(5A)
M8	113		LD	*	Stop crossing, RED-MAN	(5A)
M8	117		LD	*	Stop crossing, RED-MAN	(5A)
M8	146		OR	*	Stop crossing, RED-MAN	(5A)
M8	163		OR	*	Stop crossing, RED-MAN	(5A)
M8	180		OR	*	Stop crossing, RED-MAN	(5A)
M8	196		OR	*	Stop crossing, RED-MAN	(5A)
M9	69		ANI	*	N-S AMBER, E-W RED, RED-MAN	(2A)
M9	77		OR	*	N-S AMBER, E-W RED, RED-MAN	(2A)
M9	79		OUT	*	N-S AMBER, E-W RED, RED-MAN	(2A)
M9	80		LD	*	N-S AMBER, E-W RED, RED-MAN	(2A)
M9	84		LD	*	N-S AMBER, E-W RED, RED-MAN	(2A)
M9	151		LD	*	N-S AMBER, E-W RED, RED-MAN	(2A)
M9	164		OR	*	N-S AMBER, E-W RED, RED-MAN	(2A)
M9	184		LD	*	N-S AMBER, E-W RED, RED-MAN	(2A)
M9	197		OR	*	N-S AMBER, E-W RED, RED-MAN	(2A)
M10	119		OR	*	N-S RED, E-W RED/AMBER	(9A)
M10	121		OUT	*	N-S RED, E-W RED/AMBER	(9A)
M10	122		LD	*	N-S RED, E-W RED/AMBER	(9A)
M10	126		LD	*	N-S RED, E-W RED/AMBER	(9A)
M10	147		OR	*	N-S RED, E-W RED/AMBER	(9A)
M10	165		OR	*	N-S RED, E-W RED/AMBER	(9A)
M10	168		LD	*	N-S RED, E-W RED/AMBER	(9A)
M10	180		OR	*	N-S RED, E-W RED/AMBER	(9A)
M10	198		OR	*	N-S RED, E-W RED/AMBER	(9A)
M10	201		LD	*	N-S RED, E-W RED/AMBER	(9A)
M11	6		ANI	*	N-S RED, E-W AMBER	(2B)
M11	17		OR	*	N-S RED, E-W AMBER	(2B)
M11	19		OUT	*	N-S RED, E-W AMBER	(2B)
M11	20		LD	*	N-S RED, E-W AMBER	(2B)
M11	24		LD	*	N-S RED, E-W AMBER	(2B)
M11	148		OR	*	N-S RED, E-W AMBER	(2B)

-8-2-

18 Operators Manual

18.1 System Commissioning

If the highway to be controlled by the lights is in use then:

Ensure all lights are covered with hoods.

Display “No Traffic Lights” signs (see Figure 4) on all lighting posts.

Figure 4: No Traffic Lights

Open the road-side control panel.

Power up the PLC and ensure no warning or fault LEDs are displayed.

Hold down the Start push-button for five (5) seconds.

Ensure all sets of traffic lights are now showing (AMBER/RED lights.

Observe the lights for a number of complete cycles to ensure everything is operating correctly.

Check the lights are still operating in the correct sequence, over an extended period of time. For the first few hours of operation check every 30 minutes. For the remainder of the working day perform hourly checks. Then check daily for several days.

Record all results in the Site Acceptance Test result document.

If the site engineer needs to leave the control panel; close the door and LOCK IT!

18.2 System Maintenance

For maintenance (planned or otherwise) expected to last 30 minutes or more OR for highways with a high volume of traffic:

Control of traffic flow should be performed by an alternative method (e.g. Stop-Go signs, temporary traffic lights, etc.) before maintenance can commence.

Once traffic flow is under external control, the system may be powered off by pressing the RUN/STOP button on the PLC.

Period 5

The all-red period of 1-5 seconds.

Period 6

The all-red is extended by the on-crossing detectors up to 25 seconds. The extension period for the pedestrian on-crossing detector should normally be set within the range 1.6 to 2.2 seconds.

Period 7

If the normal maximum of the clearance period is reached when pedestrians are still being detected on the crossing, this operates to permit the pedestrians to clear before the Period 9 commences. The duration of this period is normally 3 seconds but can be adjusted between 0-3 seconds. The maximum duration of the pedestrian extendable clearance period (Periods 6 and 7 together), in seconds, should normally be set to 5 + 1.67 (the length of crossing - 3 metres).

Period 8

If the normal maximum of the clearance period is not reached Period 7 will be followed by this period. Normally set to 0 seconds but can be adjusted in steps of 1 second to a maximum of 3 seconds.

Period 9

The red/amber period is fixed at 2 seconds.

Table 5 PUFFIN CROSSINGS - OPERATIONAL CYCLE, USE & VARIATIONS

PERIOD	USE	VARIATION FOR
1	Vehicle running time	Traffic volumes
2	Standard amber to vehicles	None
3	Vehicle clearance period	Vehicle actuation
4	Pedestrian invitation to cross	Road width, disabled pedestrians, crossings with central refuge
5	Pedestrians must not start to cross	Type of detector
6	Completion of pedestrian crossing time	Road width
7	Additional pedestrian clearance time	Pedestrian detection
8	Additional pedestrian clearance time	Pedestrian gap change
9	Standard red/amber to vehicles	None