OPERATIONS SHEET

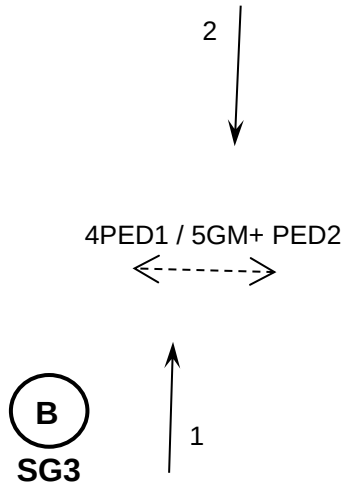
Location: Ang Mo Kio Ave 4 PC Blk 631 Int. No: 9241

Prepared by: Chen Eng Heng Date: 29 / 04 / 2021 Signal ID: 529

Checked by: Liu Guoqiang

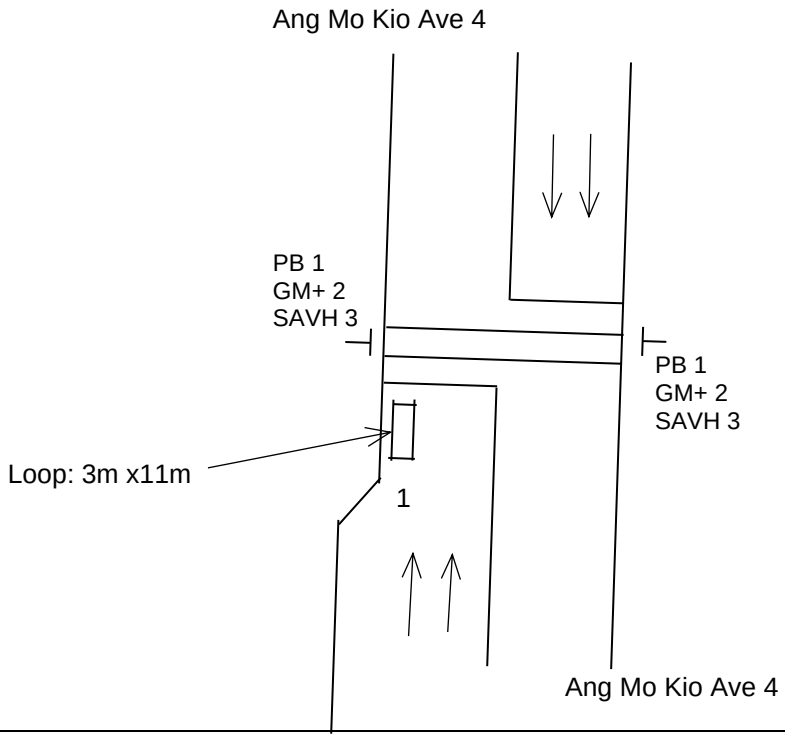
Approved by: Simon Ho

Interim Reinstatement
(Changed PED distance)



SG5 – GM+ PED2 for PED1
SG6 – Audio Tactile

PED7 – GM+ Fault Monitoring



PHASING DIAGRAM

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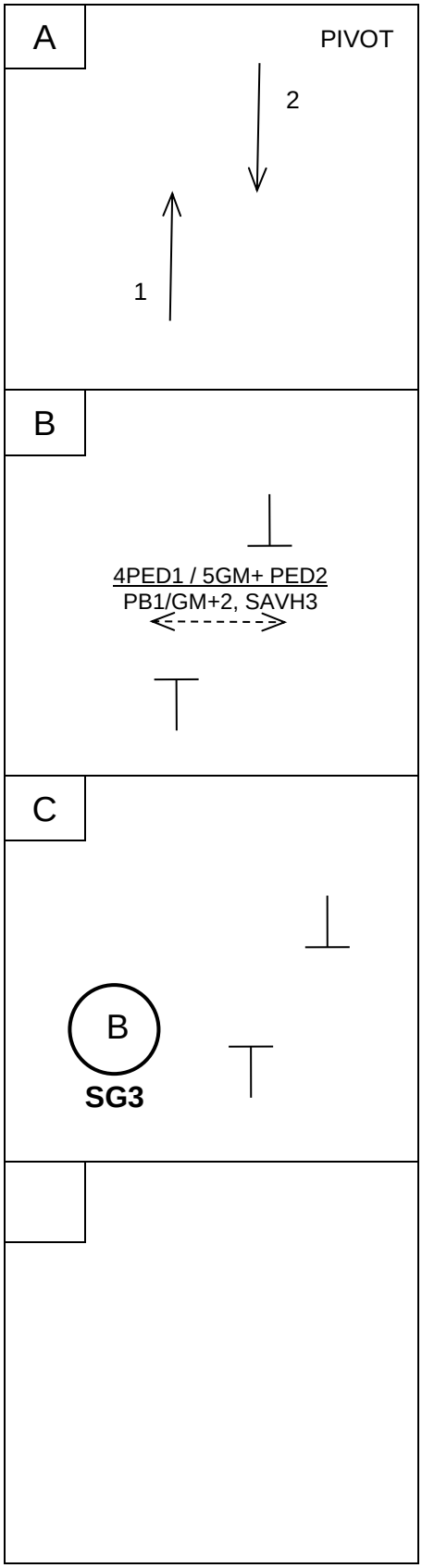

NOTES:-

- If phase change switch is equal or more than TSM 15, controller will send out MSS15 flag.
- A phase is placed on permanent demand in all modes.
- PED1 is introduced when Push Button 1 / GM+ 2 / SAVH 3 is activated.
- PED2 (Hidden) is introduced when GM+ 2 / SAVH 3 is activated.
- In Police Control Mode, running A and B phase only.
- In Masterlink Mode, PED1 is auto called if Y- flag is on.
- In Flexilink Mode, PED1 is auto called if Y+ flag is on.
- SG5GM+, PED2 will be hidden.
- Any GM+ Faulty => PED 7, **PB Faulty.**

Int: 9241

Bus Signal

SG 3 is (B) Signal

1. Introduced by Bus Detector 1 .
2. Detector 1 will call C phase.
3. Detector 1 will cancel demand for C phase during B phase (TSM 13).
4. If Detector 1 is still occupied after 3 times of the value specified in TSM 10, Detector 1 is ignored and set MSS 2 flag.
5. SG 3 auto release in all modes.
6. Bus Detector 1 is 3m x 11m loop.

DETECTOR FUNCTION

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DETECTOR /PUSH BUTTON NO	CALL PHASE	LOCKING	NON LOCKING	SET VIG ON PHASE	EXTEND PHASE	SPECIAL	DETECTOR ALARMS			PLAN REFERENCE
							FAULT SIMULATION			
							CALL & EXTEND	CALL ONLY	DISABLE	
1	C		C		C	Presence Loop		✓		
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12	A					VS for PB, GM+ & SAVH			✓	
13	A					VS for GM+			✓	
14	A					VS for SAVH			✓	
15						PHASE CHANGE SWITCH			✓	
16						POLICE CONTROL SWITCH			✓	
PB1	B	✓				***PUSH BUTTON PED1***		✓		
PB2	B	✓				***GM+ PED2 for PED1***		✓		
PB3	B	✓				***SAVH PED2 for PED1***		✓		
PB4										
PB5										
PB6										
PB7	A					GM+ Fault Monitoring			✓	
PB8										

TICK IF DETECTOR FAILURE CAUSES AN ALARM ON DET. 16.

INTERGREEN, PEDESTRIAN TIMES AND SPECIAL FUNCTIONS

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PHASE	CLEARANCE MOVEMENT	CLEARANCE DISTANCE	INTERGREEN		
			AMBER	RED	TOTAL
A			3	3	6
B			3		3
C			3		3
D					
E					
F					
G					

PED NO.	PHASE	WALK		CLEARANCE TIME	
		DISTANCE (m)	GREEN TIME	1	2
1	B	20.5	6	21	
2 GM+	B	20.5	6	26	
3					
4					
5					
6					
7					

Pedestrian Walking Speed: ___1.0___ m/s
(Near Food Centre))

GM+ Walking Speed: 0.8 m/s
(GM+ Minimum +3 Sec)

SPECIAL FACILITIES

SIGNAL GROUP	HOUR	MINUTE	SECOND	FUNCTION	REMARKS
SG6	21	00	00	Audio Tactile OFF	Control by Z+
	07	00	00	Audio Tactile ON	

Notes: 0700 to 2100 Every Day: Always set Z+"ON"
2100 to 0700 Every Day: If SAVH was demanded, Audio Tactile will turn on once.

PRE-EMPTION

SIGNAL GROUP	PHASE	FUNCTION	REMARKS

CONTROLLER TIMESETTING

Intersection No: 9241

	PHASE	A	B	C	D	
	INTERVAL	**1**	**2**	**3**	**4**	**Range**
RED/YELLOW	1					0 – 5
LATE START	2					0 – 20
MINIMUM GREEN	3	10	6	5		5 – 20
INCREMENT	4					0 – 5
MAX. V. I. G.	5					0 – 40
MAX. EXT. GREEN	6	37		0		0 – 150
EARLY CUT-OFF	7	3				0 – 20
AMBER	8	3	3	3		3 – 7
ALL RED	9	3				0 – 15
SPECIAL ALL RED	10					0 – 15
GAP 1	11					0 –10
GAP 2	12					0 –10
GAP 4	14					0 –10
HEADWAY 1	15					0 – 5
HEADWAY 2	16					0 – 5
HEADWAY 3	17					0 – 5
HEADWAY 4	18					0 – 5
WASTE 1	19					0 – 50
WASTE 2	20					0 – 50
WASTE 3	21					0 – 50
WASTE 4	22					0 – 50
MAXIMUM 1	23					0 – 150
MAXIMUM 2	24					0 – 150
MAXIMUM 3	25					0 – 150
MAXIMUM 4	26					0 – 150

ALTERNATE TIME SETTING (RANGE 0-200)
('B' ENTER)

ALT. NO	TIME
10	100
11	27s
12	
13	3
14	
15	50s
16	
*17	26s
18	
19	
20	5s
*17 – GM+ Clearance 1	

Presence (Range 0 – 5)

Det No.	Presence Time
1	1.7s
2	
3	

Maximum V. A. Cycle Time: _____

☑ In Flexilink Operation, If Z- flag = C (255), A phase = TSM 11

☑ In Isolated Operation, A phase = Max. Ext. Green

	Pedestrian NO.	1	2	3	4	5	6	7	8	
	Interval	17	18 GM+	19	20	21	22	23	**24**	**Range**
Delay	1									0 - 20
Walk	2	6	6							0 - 40
Clearance 1	3	21	26							0 - 40
Clearance 2	4									0 - 10
DAC		7	7					7		

CO-ORDINATION DATA

Intersection No: 9241

SPECIAL FUNCTIONS

SIGNAL	FUNCTION
Y− FLEXI	Continuous
Y− MASTER	Auto call Push Button PED1
Y+ FLEXI	
Z− FLEXI	A PHASE ALTERNATE MAXIMUM EXTENSION GREEN (TSM11)
Z− MASTER	
Z+ FLEXI	Set Audio Tactile SG6 “ON”
Z+ MASTER	
R− FLEXI	
R+ FLEXI	
Q− FLEXI	
Q+ FLEXI	
Z1 MASTER	
Z MASTER	
Z MASTER	
Z MASTER	

LOOK AHEADS AND RELEASES

Phase Sequence 1			Phase Sequence 2		
PHASE	**LOOK AHEAD**	**RELEASE**	**PHASE**	**LOOK AHEAD**	**RELEASE**
A	NO		A		
B	NO	Auto	B		
C			C		
D			D		
E			E		
F			F		
G			G		

The following phases can be inhibited in Flexilink by omitting the call pulses in the plan data _____

NO	PHASE SEQUENCE
1 (No)	A B C
2 ( )	

GLIDE INTERSECTION DATA

Intersection No: 9241

Note: The data shown on this page should be entered when the intersection is first placed on line. This data is not necessarily used for Master Link operation.

SLOT 22 = 3, 1, 2	E.g. x, y, z. x = No of Phases y = No of Split Plans z = No of PEDs

INT = 9241
VC =
CS =
COM = 25
PK =
S# =
LM = MF
RMN =
DCL =
VOLS = 1-14
VP# =
AT = 9
BT = 3
CT = 3
DT =
ET =
FT =
GT =

Date:	Date:
PP1 = 0, 0 ^A	PP1 =
PP2 = -24, -24 ^A	PP2 =
PP3 = 0, 0 ^A	PP3 =
PP4 = 18, 18 ^A	PP4 =

Note: Always LM = F initially

Variation Parameter (VP)

VP1 =	VP8 =	VP15 =	VP22 =	VP29 =
VP2 =	VP9 =	VP16 =	VP23 =	VP30 =
VP3 =	VP10 =	VP17 =	VP24 =	VP31 =
VP4 =	VP11 =	VP18 =	VP25 =	VP32 =
VP5 =	VP12 =	VP19 =	VP26 =	VP33 =
VP6 =	VP13 =	VP20 =	VP27 =	VP34 =
VP7 =	VP14 =	VP21 =	VP28 =	VP35 =

W1 = 0			W4 =		
W1T = 24	P−		W4T =	P−	P+
W2 =0			W5 =		
W2T = 29	P−	P+	W5T =	P−	P+
W3 =			W6 =		
W3T =	P−	P+	W6T =	P−	P+

SPLIT PLANS

	SF / FEATURES	1	2	3	4
A	0 PD FG NG B	0B			
B	C	30#			
C	A	8#			
D					
E					
F					
G					

SF / FEATURES	5	6	7	8

PLAN DATA

Intersection No: 9241

PLAN

('E' ENTER)

		1	2	3	4	5	6	7	8	9	10
0	**CL**										
1	**A**										
2	**B**										
3	**C**										
4	**D**										
5	**E**										
6	**F**										
7	**G**										
8	**R−**										
9	**R+**										
10	**Y−**	C	C		C	C	C	C			
11	**Y+**										
12	**Z−**					C					
13	**Z+**	C	C		C	N	N	C			
14	**Q−**										
15	**Q+**										
16	**XSF (9-16)***										
17	**XSF (1-8)***										

* A digit hexadecimal number which signifies which XSF bits are used; e.g. AO signifies bits 14 & 16 are set.

NOTE: C = Continuous (255) N = Not Used (254)

PLAN SCHEDULE

('F' ENTER)

CODE	HOUR	MINUTE	PLAN
8	0	0	5
8	**7**	**0**	**1**
8	9	0	7
8	12	0	2
8	17	0	4
8	**21**	**0**	**6**
8	23	0	5
7	0	0	5
7	**7**	**0**	**1**
7	9	0	7

CODE	HOUR	MINUTE	PLAN
7	12	0	4
7	15	0	2
7	**21**	**0**	**6**
7	23	0	5
1	0	0	5
1	**7**	**0**	**7**
1	9	0	7
1	14	0	2
1	**21**	**0**	**6**
1	23	0	5

Pedestrian and Vehicle Signal Groups Interlock Table

Intersection No: 9241

	Phase A	Phase B	Phase C	Phase D	Phase E	Phase F	Phase G
SG 1	GAR	RED	RED				
SG 2	GAR	RED	RED				
SG 3	OFF	OFF	SGRN				
SG 4	DON'T	WALK	DON'T				
SG 5 (GM+)	DON'T	WALK	DON'T				
SG 6	AUDIO TACTILE						
SG 7							
SG 8							
SG 9							
SG 10							
SG 11							
SG 12							
SG 13							
SG 14							
SG 15							
SG 16							

Legend:

GAR	Green, Amber, Red
GEAR	Green, Amber, Red (With ECO)
RED	Red
SGRN	Special Green
SOFF	Special Off
WALK	PED Walk, Clearance 1 and Clearance 2
SWALK	Special PED Walk, Clearance 1 and Clearance 2
DON'T	PED Red

Appendix A

Signal Groups Conflict Matrix

Intersection No: 9241

('C16' ENTER)

SG	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1			X	X	X											
2			X	X	X											
3	X	X		X	X											
4	X	X	X													
5	X	X	X													
6																
7																
8																
9																
10																
11																
12																
13																
14																
15																
16																