


Business Continuity Manual

Business Continuity Plan: B1

Automated People Mover

		Signature	Revision	Effective Date
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A. Train operation during typhoon / rainstorm

1.0 Provision of train service

- 1.1 Normally, train service will not be affected by typhoon / rainstorm since trains are operated in tunnel. During typhoon / rainstorm, APM Operation Controller (APMOC) shall:
- i. maintain close communication with Airport Duty Manager (ADM) via APMAM;
 - ii. monitor and adjust the level of service in response to the demand;
 - iii. check the inspection items related to typhoon / rainstorm preparedness and monitoring of the condition of the tunnel via CCTV system.
 - iv. liaise with APM Maintenance Controller to dispatch a Maintenance Technician to ride on train regularly for checking track conditions.
 - v. if flooding occurs, refer to 'Flooding' of the Part B section 3.4 and Part D of this BCP-B1;
 - vi. ensure that all staff members and relevant parties stay alert;
 - vii. maintain close communication with APM Maintenance Controller (APMMC) to ensure that temporary structures, plant and other loose objects are properly secured;
 - viii. ensure that necessary equipment is ready for use in emergency;
 - ix. all staff shall refer to Corporate Notice / Corporate General Instruction for the relevant section regarding Safety and Health and corresponding team's working instruction; and
 - x. Coordination with APMMC to monitor the working conditions especially at tunnels. They shall ensure that the working conditions are safe. Otherwise, any work or operation shall be stopped and reported to APM Assistant Duty Manager (APMAM).

B. Incident and Emergency

1.0 Guidelines for suspension of service

1.1 When to suspend train service

APMOC shall seek approval of APMAM to declare train service suspension only when:

- i. the track is unsafe for operation;
- ii. tunnel door or emergency gate is opened;
- iii. an incident that disrupts train service occurs; and
- iv. remedial work must be carried out during service hours.

1.2 Action for APMMC

If train service suspension is decided, APMMC shall:

- i. communicate with APMOC for incident handling; and
- ii. dispatch a Maintenance Technician or Vehicle Operator to handle the incident according to Part B and C of this BCP-B1.

2.0 Handling passenger-related incident

2.1 Action for APMOC

2.1.1 Passenger injury on train between stations

When APMOC is informed that a passenger is injured on a train between stations, he/she shall:

- i. confirm the location at which the train will be held;
- ii. inform APMAM about the incident and then APMAM inform IAC-TOD or IAC-LD;
- iii. inform APMMC to dispatch a Maintenance Technician to the location of the incident and assists the Airport Authority (AA) staffs for handling the incident;
- iv. after the incident, seek approval of APMAM that normal service can be resumed; and
- v. inform APMMC of the incident for any follow-up action

2.1.2 Passenger injury on train at station

When APMOC is informed that a passenger is injured on a train at station, he/she shall:

- i. confirm the train will be held at station;
- ii. inform APMAM about the incident and then APMAM inform IAC-TOD or IAC-LD;
- iii. inform APMMC to dispatch a Maintenance Technician to the location of the incident and assists AA staffs for handling the incident;

- iv. after the incident, seek approval of APMAM that normal service can be resumed, and
- v. inform APMMC of the incident for any follow-up action

2.1.3 Passenger-activated emergency call

When APMOC receives an emergency call from a passenger, he/she shall:

- i. communicate with passengers via communication control panel;
- ii. ascertain the reason of the call and assess the situation;
- iii. check and acknowledge alarm, if any;
- iv. handle the incident by carrying out appropriate procedure in Part B of this BCP-B1;
- v. inform APMAM of the incident and solicit support as necessary; and
- vi. inform APMMC if follow-up is necessary.

2.2 Action for Maintenance Technician

2.2.1 If passenger injury occurs on train between stations / at station, Maintenance Technician will be dispatched by APMMC to the location of the incident. When arriving at the incident site, he/she shall:

- i. provide assistance to the AA staff on site;
- ii. inspect the concerned part of the train where injury occurs;
- iii. check to ensure that the train is safe for passenger service; and
- iv. inform APMMC and submit a report later as necessary.

3.0 Handling track-related incident

3.1 Person fallen onto the track

3.1.1 Action for APMOC

When APMOC is informed that a person has fallen onto the track, he/she shall:

- i. confirm with IAC-TOD or IAC-LD:
 - about the location of the incident;
 - whether the person was hit by the train; and
 - whether the Emergency PDS Trip button on Emergency Panel has been triggered;
- ii. inform APMMC to dispatch a Maintenance Technician to the location of the incident and assist to handle the incident;

- iii. inform IAC-TOD or IAC-LD that APMMC or Maintenance Technician will assist to handle the incident;
- iv. monitor the situation closely; and
- v. after receiving confirmation from APMMC that traction power has been resumed, APMOC shall resume APM service and inform IAC-TOD or IAC-LD accordingly.

Important Note: If it is likely that the removal of person from track will take 15 minutes or more, APMOC shall liaise with IAC-TOD or IAC-LD for detrainment.

3.1.2 Action for Maintenance Technician

When arriving at the incident site, Maintenance Technician shall:

- i. provide technical assistance to personnel of Fire Service Department if the train is required to be jacked up;
- ii. check both the train and track to ensure that they are safe for operation before resumption of service;
- iii. arrange restoration of traction power; and
- iv. report to APMOC.

3.2 Plinth and structure problems

3.2.1 Plinth and structure problem can be identified by the following symptoms:

- i. bumpy or jerky movement of APM;
- ii. abnormal noise;
- iii. damage to train body; or
- iv. frequent occurrence of inappropriate stopping position.

3.2.2 Handling procedure during non-service hours of APM, Maintenance Technician shall:

- i. assess the situation;
- ii. arrange remedial work to be carried out immediately; and
- iii. inform APMMC of any possible delay to the normal operation.

3.2.3 Handling procedure during service hours of APM, APMOC shall:

- i. inform APMMC to dispatch a Maintenance Technician to investigate the cause;

- ii. assess whether it is safe to continue APM service; and
- iii. if remedial work needs to be carried out immediately, inform concerned parties in IAC to arrange service suspension.

3.3 Switch failure

3.3.1 If the switch failure will not affect train service, APMOC shall:

- i. monitor the train service; and
- ii. inform APMMC to dispatch a Maintenance Technician to rectify the failure at a time that will cause minimal disruption to normal train service.

3.3.2 If the switch failure will affect train service, APMOC shall:

- i. seek approval of ADM via APMAM to stop the train service on the concerned lane;
- ii. switch off traction power after authorisation has been obtained from APMAM;
- iii. inform APMMC to dispatch a Maintenance Technician to manually operate the switch to the required position;
- iv. ensure that control at Maintenance Depot is maintained;
- v. confirm the position of the switch and the route established;
- vi. ensure that the lever is removed from the switch machine;
- vii. when all staff are clear of the track, switch on traction power; and
- viii. seek APMAM authorization to resume train service in degrade.

Important Note:

- i. Staff accessing track must follow the guidelines of access to track and emergency platform from APMOC and APMMC; and
- ii. Traction power must be switched off and the power rails earthed before staff access to track.

3.4 Flooding

3.4.1 When flooding occurs on the guideway, APMOC shall:

- i. inform IAC-TOD or IAC-LD;

- ii. inform APMMC to dispatch a Maintenance Technician to inspect the site; and
- iii. if the flood will not affect the power rails and switches, closely monitor the situation and continue train service.
- iv. if the flood is above the plinth surface, inform IAC-TOD or IAC-LD to suspend train service.

3.4.2 Upon arrival at the location of flooding, Maintenance Technician shall:

- i. identify the exact location;
- ii. assess the impact to train operation; and
- iii. report the details to APMOC and APMMC.

4.0 Train collision

4.1 At Maintenance Depot

4.1.1 When train collision occurs at Maintenance Depot, APMMC shall:

- i. disconnect power supply to the affected vehicles;
- ii. inform APMOC to summon Fire Services Department / ambulance if any staff is injured; and
- iii. inform APMOC of any impact to train service.

4.1.2 Responsibility of APM Maintenance Manager

- i. Subsequent to the incident, APM Maintenance Manager shall investigate the incident and submit a report to AA by the most expeditious means.

4.2 On main line

4.2.1 When train collision occurs on main line, APMOC shall:

- i. confirm that “Hold in Station” button on Emergency Panel has been triggered;
- ii. confirm that all passengers of the unaffected trains are detrained to station platforms;
- iii. confirm that “Emergency PDS Trip” and “Vehicle Stop” buttons on Emergency Panel have been triggered;
- iv. confirm that train doors on emergency walkway side of the affected train have been opened remotely;

- v. inform IAC-TOD or IAC-LD that APMOC or Maintenance Technician will assist to handle the incident;
 - vi. inform APMOC to dispatch a Maintenance Technician to apply earth cables, provide assistance for opening the doors of the affected train and provide technical assistance to personnel from Fire Services Department if necessary.
- 4.2.2 After detrainment, APMOC shall liaise with Maintenance Technician in removing the train to Maintenance Depot. He/she shall also update the APMOC of the progress and estimated time of service resumption.
- 4.2.3 After receiving Maintenance Technician's confirmation that traction power has been resumed and APMOC's authorisation, APMOC shall assist to resume APM service.

Important Note: Traction power must be switched off and power rails earthed before staff access to track.
- 4.2.4 When arriving at the incident site, Maintenance Technician shall:
 - i. provide technical assistance to personnel of Fire Services Department if the train is required to be jacked up;
 - ii. check both the train and track to ensure that they are safe for operation before resumption of service;
 - iii. arrange restoration of traction power; and
 - iv. report to APMOC.
- 4.2.5 Responsibility of APM Maintenance Manager

Subsequent to the incident, APM Maintenance Manager shall investigate the incident and submit a report to AA by the most expeditious means.

5.0 Handling fire

5.1 General guidelines

- 5.1.1 **Preservation of life** must always be regarded as the most important principle of firefighting;
- 5.1.2 Traction power must be switched off and power rails earthed when:
 - access to the guide-way is required; or
 - it is necessary to use water for fire fighting;

5.1.3 Members of staff shall provide assistance or technical support to personnel of Fire Services Department when required;

5.1.4 APMOC shall check fire panel's indication and check with IAC-TOD on location of fire through the fire alarm system. Confirm with IAC-FRT to switch on environmental control system to exhaust smoke when required.

5.2 Fire at station

5.2.1 When APMOC is informed that fire breaks out at a station, he/she shall:

- i. inform concerned parties in IAC of the incident;
- ii. regulate the train service if required.

5.3 Fire on train between two stations

When APMOC learns that fire breaks out on a train which is located between two stations, he/she shall keep close communication with concerned parties in IAC and assist to handle the incident if appropriate. The fire evacuation plan between West Hall (WH) and T1M shall refer to Section 5.6. The fire evacuation plan between East Hall (EH) and Maintenance Depot shall refer to Section 5.7.

5.4 Detraining passengers to emergency walkway

When detraining passengers to the emergency walkway is required, APMOC shall:

- i. confirm that "Hold in Station" button and "Emergency PDS Trip" button on Emergency Panel have been triggered;
- ii. inform APMMC to dispatch a Maintenance Technician to apply earthing cables; and
- iii. inform APMMC to dispatch a Maintenance Technician to direct personnel of Fire Services Department to the incident site.

5.5 Fire at Maintenance Depot/T&C/equipment room

Any staff member who knows that fire breaks out at Maintenance Depot/ equipment room shall:

- i. shout "fire";
- ii. activate an alarm by breaking the glass of the nearest fire call-point;
- iii. inform APMOC who must alert APMAM;
- iv. use portable fire extinguisher to put out the fire if it is safe to do so; and

- v. leave the Maintenance Depot/equipment room immediately and proceed to the designated Fire Assembly Point.

5.6 Evacuation between WH and T1M

Figure 1 – Exit Staircase between WH and T1M

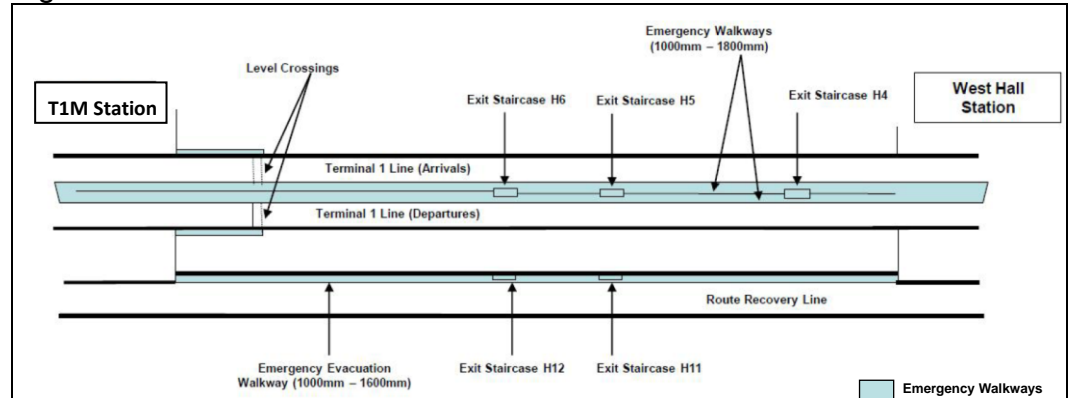


Figure 2 - Evacuation Scenario 1 - between WH and T1M

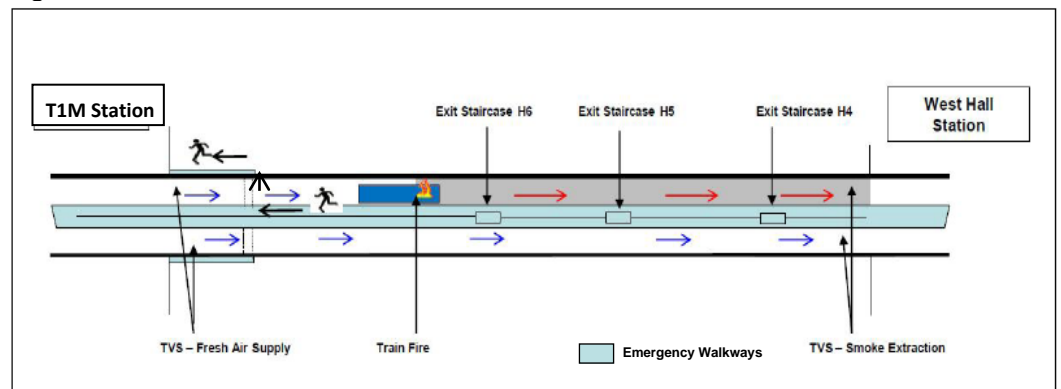


Figure 3 - Evacuation Scenario 2 - between WH and T1M

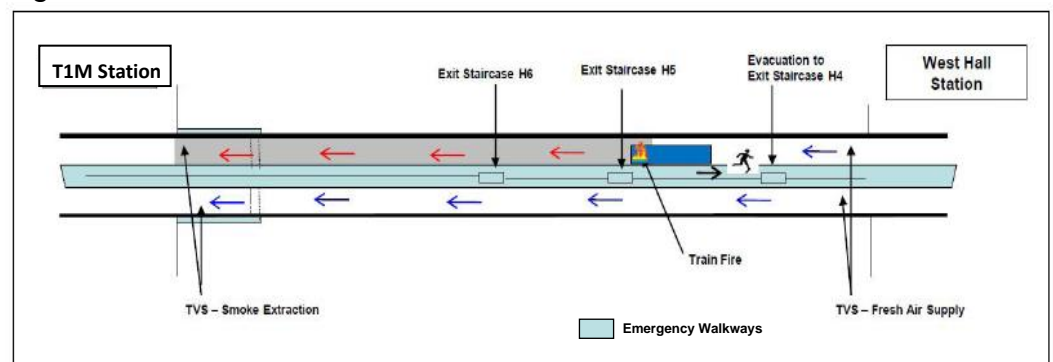


Figure 4 - Evacuation Scenario 3 - between WH and T1M

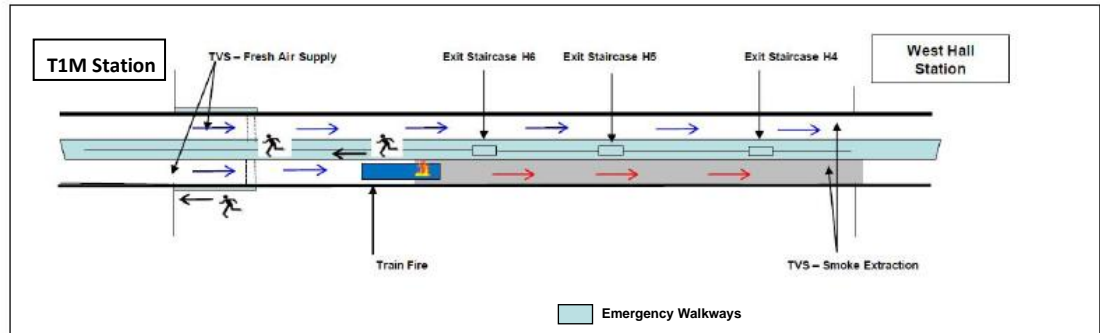
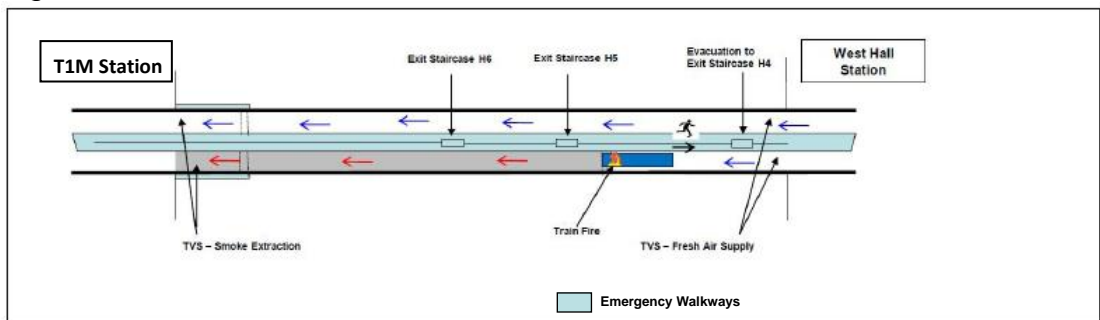
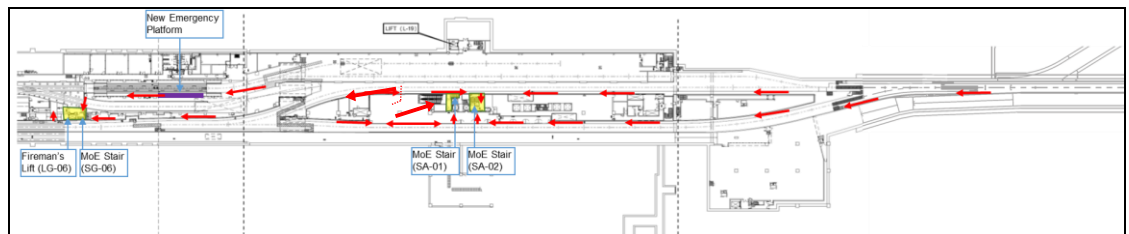


Figure 5 - Evacuation Scenario 4 - between WH and T1M



5.7 Evacuation between EH and Maintenance Depot

Figure 6 – Exit Staircase between EH and Maintenance Depot



6.0 Handling bomb threat

6.1 General guideline

Any bomb threat received must be treated as a real one unless there is strong evidence that it is only a mischievous trick.

6.2 Receiving threat by telephone

If a threat is received by telephone, the staff member shall:

- i. remain calm and talk to the caller in a neutral tone;
- ii. obtain as much of relevant information as possible;
- iii. report the details to APMAM immediately; and
- iv. provide assistance to the concerned parties in IAC when necessary.

6.3 Receiving threat in writing

If a threat in writing is received by a staff member, he/she shall:

- i. forward the threat to APMAM immediately;
- ii. report the details to APMAM and APMMC immediately; and
- iii. provide assistance to the concerned parties in IAC when necessary.

7.0 Handling activation of Emergency Panel

7.1 Description of Emergency Panel

The Emergency Panel located at IAC and Central Control Room (CCR), which serves as a back up site, consists of four push buttons. If:

- i. vehicle Stop button is pressed, all trains on the guideway will be stopped with emergency brake applied.
- ii. emergency PDS Trip button is pressed, traction power for the main line will be switched off.
- iii. hold in Station button is pressed, all trains will be stopped at stations after platform duty.
- iv. emergency Stop button – Intermediate Stop (ESB-IS) is pressed upon activation of in-saloon smoke detector, RRL train stops at next pre-defined intermediate stop. There is no ESB-IS button for T1 line.

7.2 When to operate

7.2.1 When APMOC or relevant parties is working at Central Control Room or assisting to perform APM testing, he/she should operate the button on Emergency Panel without delay in the event of emergency (e.g. passenger injury on train at station, person fallen onto the track, switch failure, train collision on main line, fire).

7.2.2 If the Emergency Panel is operated, APMOC or relevant parties shall handle the incident by following respective procedures stated in Part B of this BCP-B1.

7.3 Resetting operated button

7.3.1 Before resetting, APMOC must obtain APMAM's confirmation and understand the status through ATS workstation.

7.3.2 APMOC shall reset any operated button on Emergency Panel by:

- i. inserting an appropriate key in the key switch;
- ii. turning the key in clockwise direction; and
- iii. removing the key from the key switch.

7.3.3 For resumption of traction power, in addition to resetting Emergency PDS Trip button, traction power must be switched locally in East Hall LV Switch Room, RRL Switch Room, T1M Switch Room ~ For T1 and RR Line or Switchgear room 1 (landside) and Switchgear room 2 (old Skyplaza platform) ~ For SkyPier Line.

8.0 Handling activated alarm

General guidelines listed in this topic should be used in conjunction with respective procedures in Part B and C of this BCP-B1.

8.1 Type and consequence of alarm

8.1.1 Alarms of APM system are divided into two types based on their source: major fault alarm (e.g. when train moves with door opened) and minor fault alarm (e.g. when redundancy fails).

8.1.2 If major fault alarm is activated, APM system will be disrupted immediately. With minor fault alarm, the system can continue to operate with no significant impact to the overall performance.

8.2 Handling major fault alarm

8.2.1 When a major fault alarm is activated, APMOC shall:

- i. confirm with APMMC that Maintenance Technician will handle the fault;
- ii. identify the source of fault; and
- iii. rectify the fault immediately and follow the respective handling procedures.

8.3 Handling minor fault alarm

8.3.1 When a minor fault alarm is activated, APM Controller shall:

- i. confirm with APMMC that Maintenance Technician will handle the fault;
- ii. identify the cause of fault; and
- iii. rectify the fault immediately/in due course and follow the respective handling procedures.

9.0 Handling Tripping Door Event in T1 Line, Route Recovery Line and SkyPier Line

Details refer to the Technical Procedure for Resumption of Service after APM Door or Swing Gate Activation, NTS-3602-G-1324-C.

C. System And Equipment Failure

1.0 Handling traction power failure

1.1 Failure occurs before service hours

When traction power cannot be switched on at the start of service, Maintenance Technician shall:

- 1.1.1 inform APMOC and APMMC;
- 1.1.2 arrange Maintenance Technician- to:
 - i. check the cause of failure;
 - ii. assess the expected time that traction power can be restored; and
 - iii. carry out emergency repair of any defective equipment.
- 1.1.3 when it is ready to restore the traction power, make sure that the guideway is clear of persons/tools and inform APMOC and APMMC.

1.2 Failure occurs during service hours

1.2.1 Partial failure

When there is a partial failure of traction power, APMOC shall confirm with APMMC to switch over to the unaffected supply at the related LV Switch Rooms which coverage T1 line, SkyPier line and Route Recovery Line (RRL) inclusive. If power supply changeover fails, he/she shall:

- i. inform APMAM;
- ii. maintain service as far as practicable; and
- iii. inform APMMC to dispatch a Maintenance Technician to investigate the cause and handle the fault.

Non-emergency repair should be carried out during non-service hours as far as possible.

1.2.2 Total failure

When there is a total failure of traction power, APMOC shall:

- i. inform IAC-TOD and/or IAC-LD;
- ii. inform APMMC to dispatch a Maintenance Technician to:
 - check the cause of failure;
 - assess the expected time that traction power can be restored; and
 - carry out emergency repair of any defective equipment.

- iii. if traction power:
 - can be restored, make sure that the guideway is clear of persons and tools and inform APMMC before switching on traction power; or
 - cannot be restored within 15 minutes, seek approval of APMAM to detrain passengers to the station/emergency walkway according to 1.3 in this section procedure.

1.3 Detraining passengers to emergency walkway

When detraining passengers to the emergency walkway is required, APMOC shall:

- 1.3.1 confirm that “Hold in Station” button and “Emergency PDS Trip” button on Emergency Panel have been triggered; and
- 1.3.2 inform APMMC to deploy a Maintenance Technician to apply earthing cables with proper Personal Protective Equipment (e.g. insulation gloves).

2.0 Handling signaling failure

2.1 Automatic Train Operation (ATO/CBTC) failure

2.1.1 Failure affecting one train

In the event that the failure affects only one train, APMOC shall:

- i. For detrainment
 - inform IAC-TOD or IAC-LD, if required, to detrain passengers at station; and
 - if the affected train is stopped between stations, arrange inform APMMC to deploy a Vehicle Operator to ride on the train and instruct him/her to manually operate the train to the appropriated station for detrainment.
- ii. After detrainment
 - inform the Vehicle Operator to manually operate the affected train to Maintenance Depot or to a location where automatic operation can be resumed; and
 - arrange a replacement train to enter into service.

2.1.2 Failure affecting all trains

If the failure affects all trains, APMOC shall:

- i. inform IAC-TOD or IAC-LD, if required, to detrain passengers at stations;
- ii. if the affected train is stopped between stations, inform APMMC to deploy Vehicle Operator to ride on the train and instruct him to manually operate the train to the appropriated station for detrainment;
- iii. inform APMMC to deploy Maintenance Technician to investigate the cause and restore the system to normal operation.

2.2 Train overshoots/undershoots the stopping position

2.2.1 Action for APMOC

When a train has overshoot/undershot the stopping position at a station, APMOC shall:

- i. remote to align the vehicle via ATS as far as practicable (For CBTC only);
- ii. inform APMMC to deploy a Vehicle Operator to help passengers alighting; and
- iii. resume automatic operation of the train or arrange the train to return to Maintenance Depot/T&C Area for inspection.

2.2.2 Action for Vehicle Operator

After boarding the train, the Vehicle Operator shall:

- i. For train stopping within the access limit of platform doors
 - open the train doors and platform doors manually for passengers to alight.
- ii. For train stopping beyond the access limit of platform doors
 - move the train to the correct stopping position; and
 - open the train doors and platform doors manually for passengers to alight

3.0 Handling defective train

3.1 Train stalled between stations

3.1.1 Action for APMOC

When a train is stalled between stations due to a defect, APMOC shall:

- i. inform APMMC to dispatch Vehicle Operator to handle the incident;
- ii. inform the Vehicle Operator to check the defective train and drive the train manually;
- iii. if manual driving is not possible, arrange an assisting train to push/pull the defective train to Maintenance Depot/T&C Area/TB2; and
- iv. inform APMMC when the replacement train is ready for service.

3.1.2 Action for Vehicle Operator

When informed by APMMC, Vehicle Operator shall access the defective train via emergency walkway. Upon arrival, he/she shall:

- i. release the outside Emergency Cock and open the door manually;
- ii. operate the internal door manual release cock of the concerned door;
- iii. close the outside Emergency Cock;
- iv. enter the vehicle again via the opened door;
- v. resume the internal door manual release cock;
- vi. check the monitoring alarm code and report to the APMOC; and
- vii. attempt to rectify the fault

If the fault:

- a. can be rectified, Vehicle Operator shall obtain APMOC's authorisation to drive the train to the appropriated station for detrainment; or
- b. cannot be rectified, Vehicle Operator shall inform APMOC to arrange an assisting train to push/pull the defective train to Maintenance Depot/T&C Area/TB2. Subjected to the train consist to isolate the faulty unit and change the arrangement setting (see Appendix 1).

3.2 Detraining passengers to emergency walkway

When detraining passengers to the emergency walkway is required, APMOC shall:

- confirm that "Hold in Station" button and "Emergency PDS Trip" button on Emergency Panel have been triggered; and
- inform APMMC to deploy a Maintenance Technician to apply earthing cables.

3.3 Train stalled at station

When a train is stalled at a station due to a defect, APMOC shall:

- i. confirm that “Hold in Station” button on Emergency Panel has been triggered;
- ii. if required, to arrange a replacement train to pick up the detained passengers;
- iii. inform APMMC to deploy a Vehicle Operator to drive the train manually to Maintenance Depot/T&C Area/TB2;
- iv. if the defective train cannot be moved, arrange an assisting train to push/pull the defective train to Maintenance Depot/T&C Area/TB2. Subject to the train consist to isolate and change the arrangement setting (see Appendix 1); and
- v. inform APMAM when the replacement train is ready for service.

3.4 Procedure for rescuing a defective train by an assisting train

3.4.1 Introduction

It is preferable to use an assisting train to push rather than pull the defective train, whenever possible, since the healthy train will not be blocked by the defective train after the rescue operation. Besides, the vehicle speed shall be restricted to less than 10kph during push/pull operation.

3.4.2 Action for Vehicle Operator on defective train

Vehicle Operator on the defective train shall:

Before coupling to the assisting train

- i. apply choke to the defective train if it is stalled at gradient;
- ii. set vehicle direction from the driver's panel/by manual handle;
- iii. make sure that brake is applied and the train is at correct direction;
- iv. ensure “cut-out” mode is applied in both defective and assisting train
- v. ensure that “UNCOUPLE” light is illuminated; and
- vi. inform the Vehicle Operator of assisting train via trunk mobile radio that the defective train is ready for coupling.

Important Note: Remember to remove the choke after coupling.

During coupling to the assisting train

- i. the coupling vehicle should propel (both vehicles are set in right direction) max vehicle speed 5kph within the 10m.
- ii. the coupling vehicle should stop when distance was within 4m. Then the coupling vehicle should propel (both vehicles are set in right direction) again with max vehicle speed 2kph.
- iii. the coupling vehicle should stop when distance was within 1m. Then the coupling vehicle should propel (both vehicles are set in right direction) again with max vehicle speed 2kph until engage coupler.

After coupling to the assisting train

- i. release brake by operating brake isolating cocks (BC1 and BC2) at the floor panel;
- ii. make sure that Main Reservoir Pressure reads more than 0.5 MPa; and
- iii. standby the brake isolating cocks (BC1 and BC2) during push/pull operation by the assisting train.
- iv. A pull-out test shall be carried out to ensure that the coupling has been done properly.

Important Note: If the Main Reservoir Pressure of the defective train is lower than 0.5 MPa, then it is necessary to release the parking brake manually and propel the defective train in loose-shunting. Under this situation, caution must be taken to prevent accidental train movement.

3.4.3 Action for Vehicle Operator on assisting train

When informed that the defective train is ready for coupling, Vehicle Operator on assisting train shall:

- i. ensure that “UNCOUPLE” light is illuminated; and
- ii. drive the train towards and couple with the defective train.

When coupling is finished, the assisting train shall push/pull the defective train to the Maintenance Depot/T&C Area/TB2. Subject to the train, consist to isolate and change the arrangement setting (see Appendix 1).

3.4.4 Communication during pushing out/pulling out

Vehicle Operator of defective train shall reach a complete understanding with the Vehicle Operator of assisting train.

When giving instruction for pushing out/pulling out, Vehicle Operator in front must repeat “Proceed” at a 3-5 second interval to the Vehicle Operator at rear via mobile radio. Vehicle Operator of assisting train must stop the train if no “Proceed” message is received in 5 seconds. As soon as the defective train is likely to move, Vehicle Operator of the defective train shall set the brake isolating cocks to normal.

3.5 Procedure for assisting train to push a defective train to TB2

3.5.1 Action for Vehicle Operator on assisting train

- i. Keep the train speed less than 10kph during rescue operation.
- ii. Ready to stop the consist when observing “Ready to Stop” board (as shown in Appendix 2) on the wall of emergency walkway from leading cab.
- iii. Stop the consist immediately when:
 - the communication with Vehicle Operator on defective train is lost, or
 - receiving request from Vehicle Operator on defective train
- iv. Before coupling the defective train in TB2, obtain authorisation from APMOC and make sure that the brake on defective train is applied properly.
- v. Before driving assisting train away from TB2, obtain authorisation from APMOC.

3.5.2 Action for Vehicle Operator on defective train

- i. Give enough instructions to the Vehicle Operator on the assisting train as the consist is approaching the end of TB2.
- ii. Before the defective vehicle is uncoupled from the assisting train in TB2 with APMOC’s authorisation, normalize the brake isolating cocks on defective vehicle and make sure that brake is applied on the vehicle properly.

- iii. Switch off saloon lights on the vehicle after the defective vehicle is uncoupled from the assisting train.
- iv. Obtain APMOCs authorisation and leave the TB2 via emergency platform.

3.5.3 Action for APMOC after the defective train is stabled in TB2

- i. Confirm that:
 - the consist has stopped at the correct position and the assisting train has uncoupled from the defective train;
 - brake on the defective train has been applied after uncoupling;
 - Vehicle Operator on the defective train has left the refuge siding;
 - Vehicle Operator on the assisting train has been authorized to drive the train away from the refuge siding when situation permits; and
 - apply close track in TB2 after the assisting train has left the area.
- ii. Post notice board on the control console to remind that a defective train is stalled in TB2.
- iii. Ensure that does not set the system routing via TB2 except the defective train has withdrawn from TB2.

3.5.4 Action for APM Maintenance Manager after the defective train is stabled in TB2

- i. Alert Maintenance Team and APMMC that a defective train is outstable during changing shift.
- ii. Request Maintenance Team and APMMC to arrange the defective train to return to depot at the end of daily service.

3.6 Train moving with door(s) opened

When APMOC receives a notice or an alarm indicating that a train door is opened while the train is in motion, he/she shall:

- 3.6.1 if there is nothing abnormal:
 - inform APMMC to dispatch a Vehicle Operator to investigate the incident and assist APMOC to restore the train to automatic operation when it arrives at the next station.
- 3.6.2 if a train door is confirmed opened:

- inform APMMC to dispatch a Vehicle Operator to investigate the incident and conduct track inspection to ensure that no person or object has fallen onto the track;
- inform APMAM; and
- when everything resumes normal, arrange the Vehicle Operator to drive the train in restricted mode to Maintenance Depot for further investigation.

3.7 Flat tyre

3.7.1 Symptom




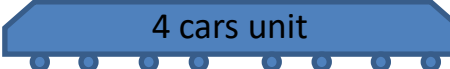


Bumpy / sluggish movement of the APM



3.7.2 Handling procedure

In the event of flat tyre, APMOC shall:

- arrange a replacement train to enter into service; and
- inform APMMC to deploy a Vehicle Operator to drive the train in manual mode to Maintenance Depot/T&C Area.

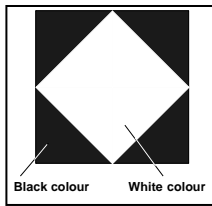
Appendix 1: Train arrangement for MHI-CM, IHI-old, IHI-new and NTS

Vehicle type	Vehicle number	Train consist	On-board arrangement setting (Apply to A car or Mc1)	Remark
IHI-new NTS	IHI new: V10 – V17 NTS: V18 – V25		D Type	
			A + C Type	
			A + B + C Type	
IHI-old IHI-new MHI-CM NTS	IHI old: V5 – V7 IHI new: V10 – V17 MHI-CM: V8 & V9 NTS: V18 – V25		1 or D Type	1 apply to MHI-CM D apply to IHI-old
			A + B or C Type	B apply to east side MHI-CM or C apply to 4 car IHI/NTS, A apply to 2 car
			A + C Type	A apply to west side 4 car and C apply to 2 car

 West
  East

* Isolate the defect unit and coupling with a healthy unit by mechanical coupling when rescue operation.

Appendix 2: The diagram below shows the Ready to Stop board.



4.0 Handling equipment failure

4.1 Train door failing to open

4.1.1 When APMOC learns that some or all doors of a train fail to open, he/she shall:

- i. inform APMMC to deploy a Maintenance Technician to inspect the defective train doors and try to fix the defect;
- ii. advise APMAM of the situation and update him/her of the expected time of delay when this is available;
- iii. if the defect cannot be fixed within 15 minutes:
 - detrain passengers;
 - partially suspend train service;
 - arrange a spare train for replacing;
 - inform concerned parties in IAC; and
- iv. resume train service after completing the repair work or replacing train.

4.2 Train door failing to close

4.2.1 When APMOC learns that some or all doors of a train fail to close, he/she shall:

- i. inform APMMC to deploy a Maintenance Technician to inspect the defective train doors and try to fix the defect;
- ii. advise APMAM of the situation and update him/her of the expected time of delay when this is available;
- iii. if the defect cannot be fixed within 15 minutes:
 - detrain passengers;
 - partially suspend train service;
 - arrange a spare train for replacing;
 - inform concerned parties in IAC; and
- iv. resume train service after completing the repair work or replacing train.

4.3 Platform door failing to open

4.3.1 When APMOC learns that the platform doors of a station fail to open, he/she shall:

- i. inform APMMC to deploy a Maintenance Technician to inspect the platform doors and try to fix the defect at station;
- ii. advise APMAM of the situation and update him/her of the expected time of delay when this is available;
- iii. if the defect cannot be fixed within 15 minutes:
 - detrain passengers;
 - suspend train service;
 - inform concerned parties in IAC; and
- iv. resume train service after completing the repair work.

4.4 Platform door failing to close

4.4.1 When APMOC learns that the platform doors of a station fail to close, he/she shall:

- i. inform APMMC to deploy a Maintenance Technician to inspect the platform doors and try to fix the defect at station;
- ii. advise APMAM of the situation and update him/her of the expected time of delay when this is available;
- iii. if the defect cannot be fixed within 15 minutes:
 - detrain passengers;
 - suspend train service;
 - inform concerned parties in IAC; and
- iv. resume train service after completing the repair work.

4.5 Communication equipment failure

4.5.1 Communication equipment failure on a train

In the event of failure of a train's on-board PA system and intercom, APMOC shall:

- inform APMMC to deploy a Maintenance Technician equipped with a mobile radio to ride on the affected train until the PA system and intercom resume normal working; and
- arrange a replacement train as soon as possible.

4.5.2 Total communication failure

If the cause of the problem is resulting in total communication failure with all trains, APMOC shall:

- control the communication at Backup Control Room if necessary;
- inform APMMC to deploy a Maintenance Technician equipped with a mobile radio to ride on the affected train(s) to check whether communication can be temporarily resumed;
- if it can be resumed, request Maintenance Technician to repair the communication system; and
- if it cannot be resumed, inform APMMC to deploy additional Maintenance Technicians equipped with mobile radios to ride on other affected trains until the PA system and intercom resume normal working.

D. Incident involving flooding

The handling procedure of incident involving flooding, APMOC shall refer to Part B section 3.4. Other actions include:

- i. To evaluate the situation by e.g. inspecting the flooding scene or other possible methods if there is a concern on the safe access to the flooding scene; and
- ii. To keep APMOC and APMMC informed on impact of APM System by the flooding periodically. Report and record for any equipment failure which is caused by flooding to above mentioned parties / personnel at once.

1.0 Handling flooding at a station

- 1.1 When there is flooding which may affect the station and APM operation, APMOC shall notify APMMC to follow up by following the procedure below.

Step	Action
1	IAC-TOD or IAC-LD requests APMOC to suspend the APM service.
2	AMPOC shall stop all the trains at the nearest stations, and notify APMMC to deploy Maintenance Technicians when required, to assist AA staff on site in the detrainment at stations. Upon the completion of the detrainment, APMOC shall notify APMMC, the APMMC shall proceed to trip the traction power supply and arrange earthing cable connection (if tunnel is safe to access). All people including staff shall evacuate from tunnels to safety as soon as possible.
3	Maintenance technician shall coordinate with other related parties to rectify the abnormalities.
4	Maintenance technician shall perform APM system equipment function test and APMOC shall inform IAC-TOD or IAC-LD that APM system is fit for service upon completion.

2.0 Handling flooding at tunnel

- 2.1 When there is a flooding at tunnel, APMOC shall notify APMMC to follow up by following the procedure below.

Step	Action
1	APMOC reports to IAC-TOD or IAC-LD and APMMC reports to FRTMO the location of flooding.
2	<p>If IAC-TOD or IAC-LD approves to carry out the tunnel inspection during the traffic hours, APMOC shall notify APMMC to arrange Maintenance Technician to the location of flooding. If the flooding is severe, Maintenance Technician also on board of vehicles for continuous monitoring of flooding situation.</p> <p>Maintenance technician shall check the following at the flooding scene and reports to APMOC and APMMC:</p> <ul style="list-style-type: none"> • Location of the flooding • Water/mud level • Source of water/mud, if possible • Any abnormalities
3	Maintenance technician shall monitor and update APMOC and APMMC the latest status periodically (every 10 minutes or when any abnormalities occur).
4	<p>If the water level is above the plinth surface, APMOC shall inform IAC-TOD or IAC-LD about the flooding situation at tunnel and obtain their consent to suspend APM service.</p> <p>After obtaining approval from IAC-TOD or IAC-LD, if the trains are able to stop at the nearest stations, go to step 5, 8 and 9. if the trains are not able to stop at the nearest stations, go to step 6-9.</p>
5	<p>APMOC shall stop all the trains at the nearest stations, and notify APMMC to deploy Maintenance Technicians when required, to assist AA staff on site in the detrainment at stations. All people including staff shall evacuate from tunnels to safety as soon as possible.</p> <p>Upon the completion of the detrainment, APMOC shall proceed to trip the traction power supply by pressing the “Emergency PDS Trip” and notify APM Maintenance Controller.</p>
6	APMOC shall trip the traction power supply by pressing the “Emergency PDS Trip” button and notify APMMC. Then, APMOC shall make PA announcement in

	Cantonese, English and Putonghua to instruct the onboard passengers to perform emergency evacuation inside tunnel and advise them on the evacuation direction.
7	APM Controller shall assist concerned parties in IAC in the evacuation of passengers inside tunnel. All people including staff shall evacuate from tunnels to safety as soon as possible.
8	Maintenance Technician shall coordinate with other related parties to rectify the abnormalities.
9	Maintenance Technician shall perform APM system equipment function test and APMOC shall inform IAC-TOD or IAC-LD that APM system is fit for service upon completion.

3.0 Handling flooding in Depot

- 3.1 When there is a flooding in Maintenance Depot/T&C Area, APMOC and APMMC shall follow up by following the procedure below.

Step	Action
1	APMMC reports to APMOC the location of flooding.
2	<p>APMMC shall arrange Maintenance Technician to inspect the site for any equipment damage caused by flooding and any service interruption that will be caused to the APM service.</p> <p>Maintenance Technician shall check the following at the flooding scene:</p> <ul style="list-style-type: none"> • Location of the flooding • Water/mud level • Source of water/mud, if possible • Any abnormalities
3	Maintenance Technician shall monitor and update APMMC and APMOC the latest status periodically (every 10 minutes or when any abnormalities occur).
4	If the water level reached the full height of the Light Maintenance Pit and CCR is identified to be non-operational, APMMC shall communicate with the APMOC at IAC for the depot evacuation.

5	APMOC shall inform IAC-TOD or IAC-LD about the flooding situation at depot.
6	Depot evacuation shall be performed.
7	Maintenance Technician shall coordinate with other related parties to rectify the abnormalities.
8	APMMC shall update the situation of depot and inform APMOC for resumption of depot.
9	APMOC shall inform IAC-TOD or IAC-LD about the resumption of depot.

4.0 Handling flooding in IAC

4.1 When there is a flooding in IAC, APMOC and APMMC shall follow up by following the procedure below.

Step	Action
1	APMOC reports to APMMC of the flooding.
2	If IAC is identified to be non-operational, APMOC shall communicate with the APMMC at CCR about the flooding condition of CCR.
3	If CCR is not flooded, go to step 4. If CCR is flooded, go to step 5-9.
4	If no flooding is found at CCR, APMOC shall perform IAC evacuation and APM control changeover from IAC to CCR upon the approval from ADM. If CCR is found flooded after changeover to CCR, go to step 5, 6, 8 and 9.
5	If flooding is found at CCR, APMOC shall inform IAC-TOD or IAC-LD about the flooding situation to obtain their consent to suspend APM service.
6	After Approval received from IAC-TOD or IAC-LD, APMOC shall stop all the trains at the nearest stations and assist IAC-TOD or IAC-LD the detrainment at stations. Upon the completion of the detrainment, APMOC shall notify APMMC to trip the traction power supply and

	arrange earthing cable connection (if tunnel is safe to access).
7	Depot evacuation shall be performed.
8	Maintenance Technician shall coordinate with other AA-TSSD/TSOD/ITD's maintenance team(s) via APMMC and FRTMO to rectify the abnormalities.
9	Maintenance Technician shall inform APMMC the completion of rectification works and APMOC shall inform IAC-TOD or IAC-LD that APM system is fit for service upon completion.

E. Service Suspension

The handling of APM service suspension of T1 Line, Route Recovery Line and SkyPier Line shall refer to TLPM/006 for detailed arrangement. Regarding to the emergency bonded bus, non-operating hours handling and APM outage backflow of SkyPier Terminal shall refer to TLPM/086 for detailed arrangement.

End of BCP – B1