“Be Device-Safe” Programme

Motorised active mobility (AM) devices provide a convenient way of travel for many in Singapore. However, the use of illegally modified and non-compliant versions of motorised AM devices, such as Power-Assisted Bicycles (PABs), e-scooters, and Personal Mobility Aids (PMAs), have been known to cause fires resulting in property damage, injuries, and even loss of innocent lives (refer to Annex for case studies).

The “Be Device-Safe” Programme is a joint initiative by the Land Transport Authority (LTA) and the Singapore Civil Defence Force (SCDF). It aims to provide AM device users with valuable tips on purchasing compliant and approved devices, ensuring the safe use of active mobility devices, and the responsible disposal of non-compliant devices.

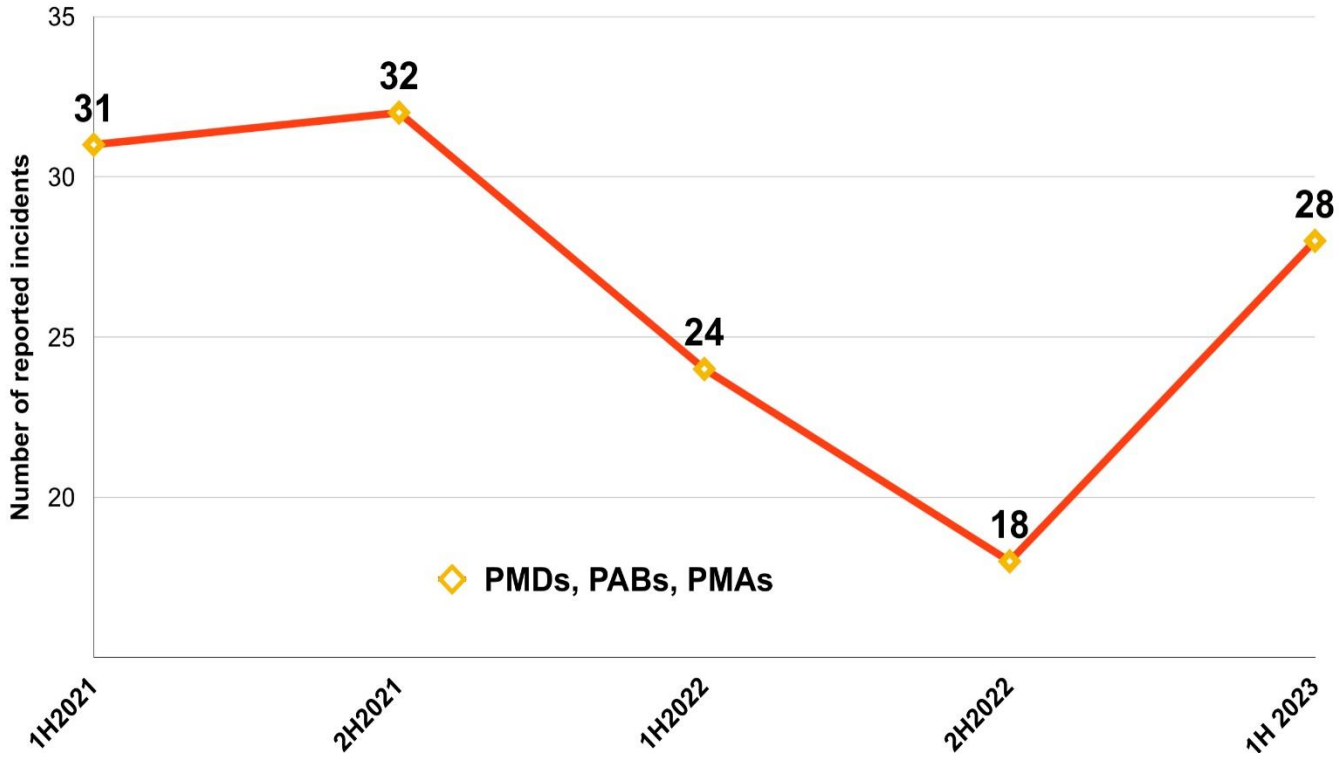
Equip yourself and your loved ones with tips on how to prevent AM device-related fires by checking out this “Be Device-Safe” information pack.

How long do you think it takes for a device fire to spread across your home?

- 3-5 seconds?
- 6-10 seconds?
- 15 seconds or more?

Click the thumbnail to watch the video to find out if your guess was right.

Statistics on active mobility device-related fires



(Source: Singapore Civil Defence Force)

In the first half of 2023, there was a significant uptick in fires involving active mobility devices with a sharp increase of 55.5% compared to the previous period.

How to “Be Device-Safe”

To safeguard yourself and your family, follow these important tips:

(i) For New Buyers - Purchase only Compliant Active Mobility (AM) Devices

When purchasing a new AM device, consider getting them from reputable shops or sources. However, if you are purchasing your AM device through online platforms or secondhand marketplaces, do ensure that the AM device is in its original and compliant state. Here are some tips on how to do so:

Power-Assisted Bicycles (PABs) or e-bikes

1. Ensure that the PAB is registered with LTA and sealed with an orange seal. This means that the PAB has previously passed an inspection at an LTA-Appointed Inspection Centre.

2. Ensure that the PAB still complies to the EN15194 standard, i.e. no illegal modifications relating to its electrical circuitry such as motor or battery has been performed, and no third-party electrical parts have been installed. Some visible examples of illegal modifications:

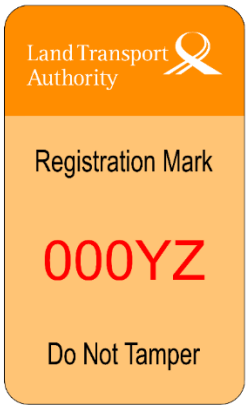
Presence of additional battery pack or extra cabling that leads to a bag concealing additional battery pack.

Power rating printed on Motorhub shows wattage value of more than 250W.

Handlebar grip should not rotate or be installed with any levers as it may suggest that the device is throttle powered to bypass the pedal-assisted function.

3. Power assist from the motor should only be present when pedalling. Continuous power assist even after pedalling stops suggests that device is throttle powered to bypass the pedal-assisted function.
4. Refer to LTA's list of approved PAB models (PDF, 1.7 MB). Battery model or specifications that differs from the information shown on LTA's approved list of PABs may suggest that PAB battery is non-original.
5. Owners/users should maintain their PAB in original/stock condition and only replace any PAB parts/components with original parts, preferably from authorised dealers of the PAB.
6. For more info on the full device requirements, please refer to the LTA Rules and Code of Conduct page. Do note that **non-compliant or unregistered devices may be subject to impoundment** and **additional penalties** may apply.

Motorised Personal Mobility Devices (PMDs) including e-scooters



1. For e-scooters, ensure that it is registered with LTA and carries an e-scooter registration mark. This means that the e-scooter has previously passed an inspection at an E-scooter Inspection Centre.
2. Ensure that the motorised PMD still complies to the UL2272 standard, i.e. no illegal modifications relating to its electrical circuitry has been performed, which includes the addition or use of third-party electrical parts such as batteries.
3. Refer to LTA's list of e-scooters acknowledged as UL2272 Models (PDF, 1MB)
4. For more info on the full device requirements, please refer to the LTA Rules and Code of Conduct page. Do note that **non-compliant or unregistered devices may be subject to impoundment** and **additional penalties** may apply.

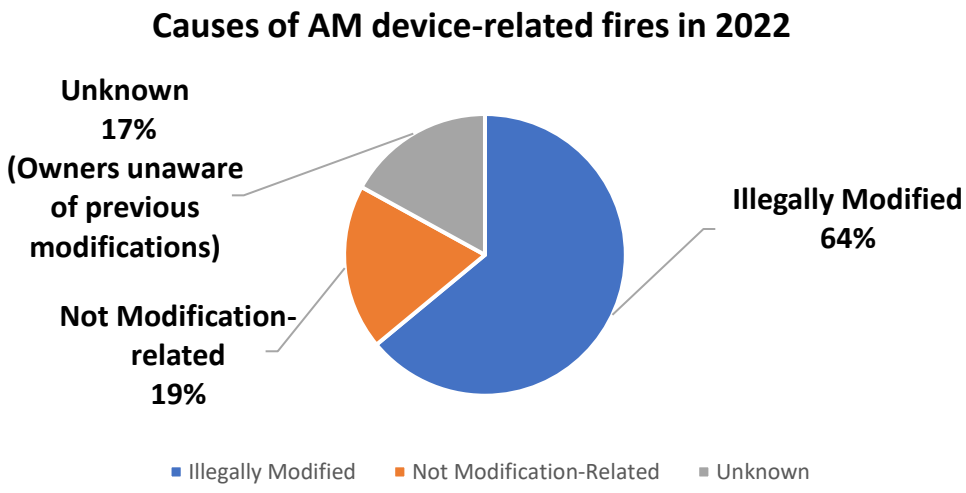
Personal Mobility Aids (PMAs)

1. Ensure that the PMA retains a maximum device speed of up to 10km/h and has not been illegally modified with non-compatible batteries or additional batteries.

For more info on the full device requirements, please refer to the LTA Rules and Code of Conduct page. Do note that **non-compliant or unregistered devices may be subject to impoundment** and **additional penalties** may apply.

(ii) For Existing Owners – Maintain AM Devices in their Safe States

Avoid use of third-party components



(Source: Singapore Civil Defence Force)

In 2022, at least 64% of AM device-related fires have been determined to be results of illegal device modifications or use of third-party electrical parts such batteries and motor hubs. If you need to replace your AM device's battery or perform repairs, make sure to only return to the authorised dealer or manufacturer for original parts to retain your AM device's safety certification.

Safe charging tips for AM devices

It is also important to observe these safe charging habits to reduce the risk of AM device fires:

Dos

- **Do** use a power adaptor that carries the **Safety Mark** and is recommended by the manufacturer.
- **Do** charge AM devices on a hard, flat surface to allow optimal dissipation of heat.
- **Do** regular examination of batteries for any damages or deformities such as bloating, corrosion or powdery residue.

Don'ts

- **Do not** charge AM devices or its batteries near combustible materials or along an escape path.
- **Do not** leave charging devices/batteries unattended for an extended period or overnight.
- **Do not** charge AM devices immediately after use.
- **Do not** tamper, modify, install additional batteries, or attempt to repair AM devices on your own.

Visit the SCDF website for more info and other fire safety tips.

(iii) For Owners of Non-Compliant Devices – Dispose of Non-Compliant AM Devices

Non-compliant/illegally modified AM devices or **AM devices in long storage** are fire risks; even if not in use. Dispose of it immediately through NEA-appointed e-waste recyclers and not at public places.

Refer to the **"Disposal of Motorised Active Mobility Devices"** tab on LTA Rules and Code of Conduct page for a list of e-waste recyclers.

Do note that if an AM device causes a fire that results in **property damage or death**, the owner may face further prosecution by the relevant authorities.

ANNEX

Case studies of active mobility device-related fires

Case Study 1 – Bedok North Road

The owner of the Power-Assisted Bicycle (PAB) charged his device battery once he arrived home and subsequently dozed off.

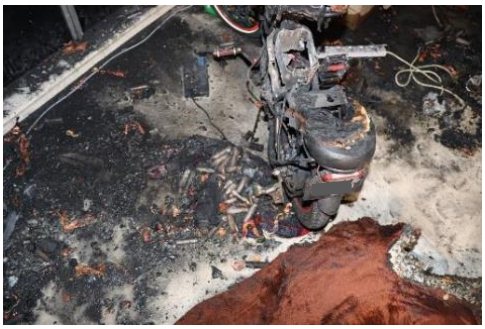
Shortly after, he was awoken by the sound of explosion and saw smoke emitting from the battery. A fire broke out from the device and attempts to put out the fire were unsuccessful. The fire continued to burn aggressively and spread to other parts of the room.

The fire caused substantial damage to his home and triggered residents from neighbouring units to self-evacuate.

Investigations revealed that that fire originated from the battery of the PAB and a third-party charger (without Safety Mark) bought from a Carousell seller was used at the time of the fire.

Case Study 2 – Tampines St 45

An owner of the Power-Assisted Bicycle (PAB) plugged his device's charger into the wall socket and switched it on.



Shortly after, smoke started emitting from the lithium-ion battery pack on the PAB and it exploded. The resulting fire spread rapidly in the unit, causing damages to the living room wall and its surrounding area. The owner also suffered from 2nd degree burns to his right forearm.

The fire also triggered residents from neighbouring units to self-evacuate.

Investigations revealed that the device was bought first-hand from a retail shop and the lithium-ion battery used at the time of fire was a third-party part bought from an online marketplace seller.

Case Study 3 – Lorong 6 Toa Payoh

The fire originated in a stationary Power-Assisted Bicycle (PAB) left in the kitchen of a residential unit.



The intense heat and fire caused extensive damage to the unit, the corridor ceiling, and even the unit above. The elderly PAB owner also suffered smoke inhalation. Neighbouring residents were prompted to self-evacuate.

Investigations revealed that the circuitry of the PAB was modified with an anti-theft alarm and had not been used for an extended period.

Case Study 4 – Woodlands Drive 16

The owner of the Personal Mobility Device (PMD) was taking the lift down from the ninth floor with his device when a burst of flames suddenly occurred and engulfed the entire lift car within seconds.



The PMD owner sustained serious burns to his body and unfortunately, succumbed to his injuries thereafter. The interior of the lift car, as well as areas located near the lift lobby, sustained varying degrees of heat, smoke and water damage.

Investigations revealed that the PMD was a non-compliant device and had been modified with a higher-powered battery pack. The motor of the PMD was also found to be modified. The probable causes of fire were a damaged battery pack and overheating of components.

Case Study 5 – Hougang Ave 7

The owner of the Personal Mobility Device (PMD) was riding his PMD along Hougang Ave 7 when sparks started emitting from the external battery compartment under his seat.

He then slowed down and stopped the device to make a check. Shortly after, the battery compartment was on fire. Fortunately, the owner did not sustain any injuries.

Investigations revealed that the PMD was non-compliant and was not registered. The device was also using an aftermarket lithium-ion battery that was purchased from an unknown seller from an online marketplace.