

Safety Tips for Repairing Electric Vehicles/Hybrid Vehicles

- Four-Panel Photo Story Telling Competition - Master Group
- Learning about Chemical Labels
- New Arrangements for Continuing Professional Development

Participate in the quiz
to earn **1** CPD hour



查詢

For enquiries



2808 3545



3968 7646

機電工程署
EMSD



In recent years, environment-friendly vehicles have become more popular, major vehicle manufacturers have launched high-performance electric vehicles (EVs) and hybrid vehicles (HVs) one after another, while the maintenance of EVs and HVs has too become a focus of the trade. Compared with conventional vehicles, the technical requirements involved in repairing EVs and HVs are more complicated; in particular, vehicle mechanics need to know the safety tips for repairing the electric propulsion systems well. To this end, we are specifically introducing to readers keys to the safe repair of EVs and HVs.

As the voltage of the electrical devices of EVs and HVs can reach 400V (volts) direct current, it is essential to read the manufacturer's maintenance documents carefully to learn about the safety measures to be taken during the entire maintenance process before repairing EVs and HVs, including:

- Warning signs shall be displayed in the vicinity of the vehicle repair work, strictly forbidding others from entering the works area and coming in contact with live parts to avoid danger.
- Suitable personal protective equipment (such as insulating gloves, insulating mats, insulating tools, insulating shoes, safety helmets and protective goggles, etc.) shall be used as advised by the manufacturer. Put on/use such equipment only after checking its condition (for example, whether the insulated gloves are damaged) and confirming that it functions properly.



The area near the vehicle repair work must be fenced off with warning signs displayed

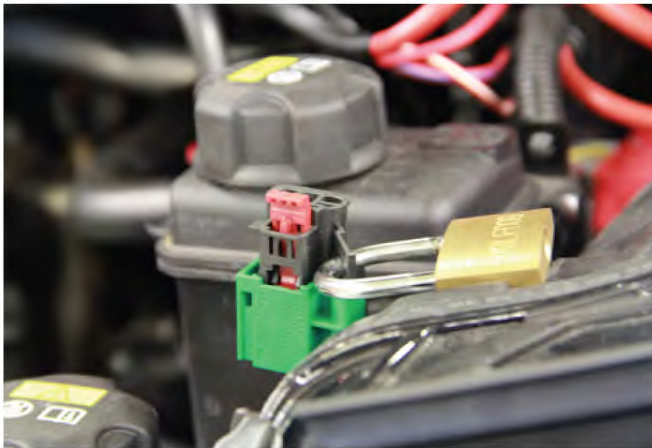


Use insulating gloves and insulating tools for maintenance to ensure safety

The most noticeable difference between conventional vehicles and EVs is that the latter are equipped with high-voltage devices. To avoid electric shock, mechanics should pay attention to the followings when they are preparing to repair EVs:

- Cut off the power source of the vehicle to avoid live maintenance work.
- The steps and requirements of cutting off the power source vary according to the design of the vehicle. Mechanics shall follow the instructions set out in the manufacturer's maintenance documents.
- The removed service plug should be properly stored or locked to prevent others from re-connecting the plug and causing danger.
- For safety reasons, mechanics should only repair a vehicle after the power source has been cut off for at least ten minutes (or in accordance with the time specified in the manufacturer's maintenance documents).
- Any cut power lines should be wrapped up immediately with insulating tape or the manufacturer's specified envelope to ensure complete insulation.
- Under no circumstances should a person disassemble or repair a vehicle's high-voltage battery pack on his/her own unless he/she has received specialised training.

Upon completion of the vehicle repair work, mechanics shall re-connect the high-voltage power source and the vehicle battery, and connect them to the diagnostic computer for fault code detection or programming after maintenance to ensure that the vehicle operates normally.



One of the high-voltage circuit breakers of a German car model shall be locked upon cutting off the vehicle's power source to prevent others from re-connecting it and causing danger



Confirmation displayed in the car after cutting off the power source



One of the high-voltage circuit breakers of a Japanese car model removes the service connector to cut off the high-voltage power source of the vehicle



The orange wires in both EVs and HVs carry high-voltage power supply, and should not be disassembled on your own unless you have received specialised training

As EVs and HVs differ from conventional vehicles in various maintenance aspects, employers should provide appropriate and adequate training and guidance for personnel engaged in the maintenance of EVs and HVs, as well as monitoring whether employees are working in compliance with the requirements. It is also necessary for mechanics to understand and implement thoroughly the relevant guidelines at work to ensure safety.

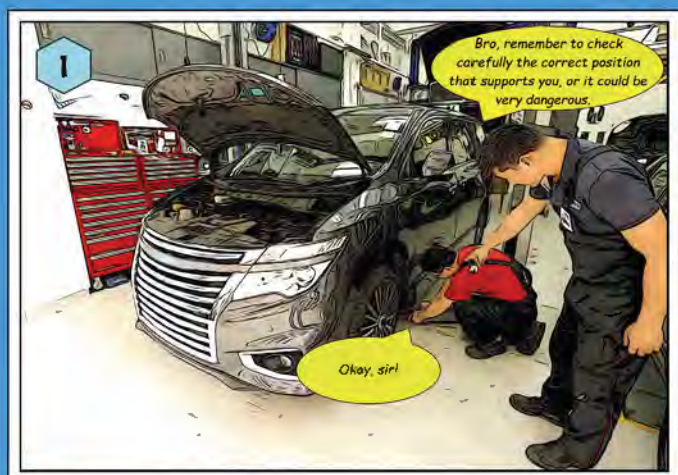
The Pro-Act Training and Development Centre of the Vocational Training Council (VTC) offers courses on EVs and HVs from time to time. For details, please refer to the following website:

<http://www.proact.edu.hk/proact/html/en/centres-and-programmes/automobile/information/index.html>



Pro-Act Training and Development Centre (Automobile)

The Four-Panel Photo Story Telling Competition, held last November, was divided into Open Group and Master Group, each participant was required to create a four-panel story with four photos to promote the quality services of the Voluntary Registration Scheme for Vehicle Maintenance Workshops (VRSVMW) and the Voluntary Registration Scheme for Vehicle Mechanics (VRSVM). The prize presentation ceremony was already held at the Electrical and Mechanical Services Department (EMSD) Headquarters Building on 19 July 2019. Due to limited space, winning entries of the Open Group have been published in Issue No. 26 of the RVM Newsletter. In this issue, the entries of the champion, first and second runners-up of the Master Group are showcased. The Vehicle Maintenance Technical Advisory Committee will soon organise a poster design competition too. For details, please refer to page 9 of this Newsletter.

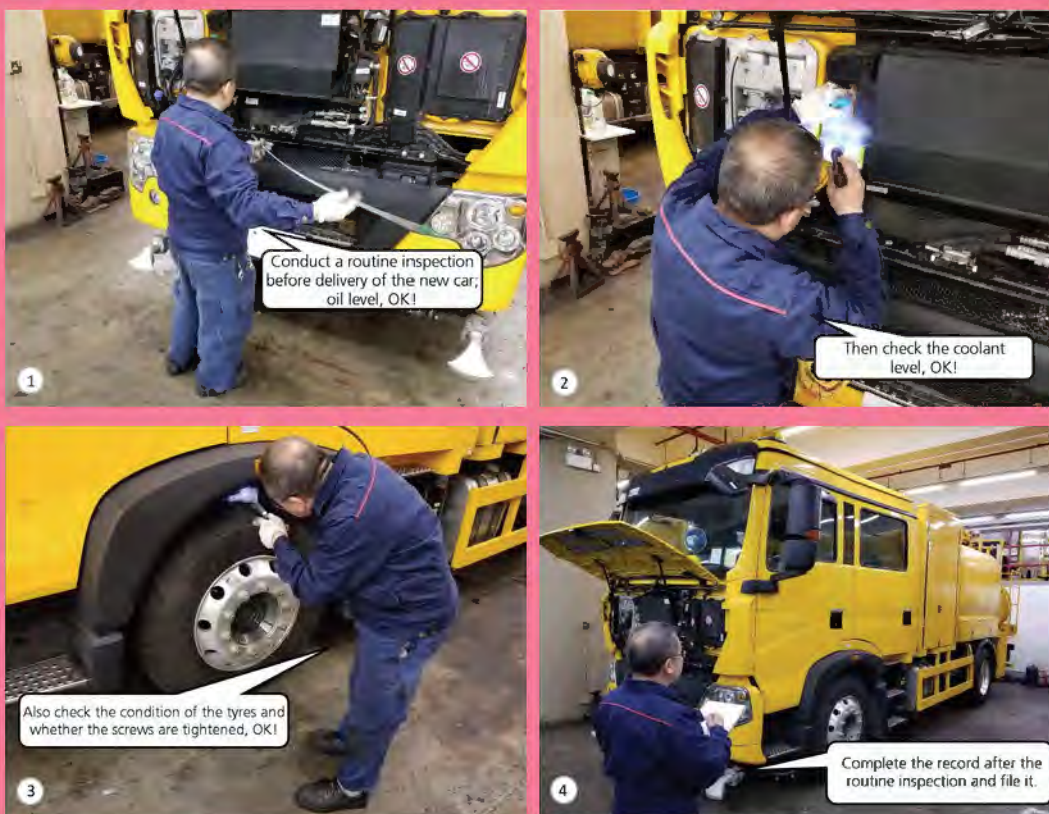


CHAMPION

Mr NG Siu-fai

The First Time We Meet Our New [Colleague]

Learning about Work Safety Helps You Repair Electric Vehicles at Ease



**1ST RUNNER-UP****Mr MAK Siu-man****2ND RUNNER-UP****Mr LAU Wing-yin**

Different types of chemicals are placed in a garage, such as lubricating oil in car engines, petrol/diesel oil in fuel tanks, refrigerants in air-conditioning systems, acetylene in compressed gas cylinders, etc. Before using and handling these chemicals, we should make sure that safety precautions listed on the chemical labels have been taken to prevent accidents.

Several chemical labels are commonly seen in a garage, including “harmful”, “toxic”, “flammable”, “corrosive” and “irritant”. In addition to relevant safety precautions, chemical labels also list the potential risks, reminding mechanics to pay extra attention to avoid fire, explosion and personal injury resulting from negligence. Take acetylene as an example, its chemical label is “flammable”, indicating that this gas is flammable in air at normal pressure. Hence, as shown on the label, the gas should be prevented from being heated and coming into contact with air, otherwise an explosion may occur. Mechanics should also take appropriate safety precautions, such as banning smoking, avoiding static discharges, and keeping containers in a well ventilated place. Careful reading of chemical labels can safeguard the lives and properties in a garage and should in no way be overlooked.

Chemicals are very dangerous substances. Mechanics and persons-in-charge of garages must exercise extreme care when handling chemicals and take adequate safety precautions to avoid accidents!

| | |
|---|--|
|  | 物質名稱 Name of Substance |
| | 乙炔 Acetylene |
| | 危險情況 Particular Risks |
| | <ul style="list-style-type: none"> * 加熱可能引起爆炸 Heating may cause an explosion * 不論是否與空氣接觸都容易爆炸 Explosive with or without contact with air * 高度易燃 Highly flammable |
|  | 安全措施 Safety Precautions |
| | <ul style="list-style-type: none"> * 容器必須放在通風的地方 Keep container in a well ventilated place * 切勿近火——不准吸煙 Keep away from sources of ignition - No Smoking * 採取措施，防止靜電發生 Take precautionary measures against static discharges |
| | 物質名稱 Name of Substance |
| | 滅鼠藥 Rodenticide |
|  | 危險情況 Particular Risks |
| | <ul style="list-style-type: none"> * 有累積效果的危險 Danger of cumulative effects * 吸入、沾及皮膚或吞食後會中毒 "Toxic by inhalation, in contact with skin and if swallowed" |
| | 安全措施 Safety Precautions |
| | <ul style="list-style-type: none"> * 切勿放近食物、飲品及動物飼料 Keep away from food, drink and animal feeding stuffs * 沾及皮膚後，立即用大量_____（須予指定）來清洗 After contact with skin, wash immediately with plenty of _____ (to be specified) * 如感不適，應就醫診治（可能的話，出示有關標籤） If you feel unwell, seek medical advice (show the label where possible) |

| | |
|---|---|
|  | 物質名稱 Name of Substance |
| | 引擎潤滑油 Engine Lubricating Oil |
| | 危險情況 Particular Risks |
|  | <ul style="list-style-type: none"> * 吞食後會對人體有害 Harmful if swallowed * 刺激眼睛及皮膚 Irritating to eyes and skin |
| | 安全措施 Safety Precautions |
| | <ul style="list-style-type: none"> * 容器必須蓋緊, 保持乾燥 Keep container tightly closed and dry * 穿著適當的防護衣物, 並戴上適當的防護手套及護眼/護面用具 (須指定適當字眼) Wear suitable protective clothing, gloves and eye/face protection (appropriate wording to be specified) |

| | |
|---|--|
|  | 物質名稱 Name of Substance |
| | 廢潤滑油 Spent Lubricating Oil |
| | 危險情況 Particular Risks |
|  | <ul style="list-style-type: none"> * 吞食後會對人體有害 Harmful if swallowed * 刺激眼睛及皮膚 Irritating to eyes and skin |
| | 安全措施 Safety Precautions |
| | <ul style="list-style-type: none"> * 如沾及眼睛, 立即用大量清水清洗, 並盡快就醫診治 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice |

| | |
|---|--|
|  | 物質名稱 Name of Substance |
| | 電池電解液 Electrolyte |
| | 危險情況 Particular Risks |
|  | <ul style="list-style-type: none"> * 引致灼傷 Causes burns * 刺激呼吸系統及皮膚 Irritating to respiratory system and skin |
| | 安全措施 Safety Precautions |
| | <ul style="list-style-type: none"> * 如沾及眼睛, 立即用大量清水清洗, 並盡快就醫診治 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice * 避免沾及皮膚和眼睛 Avoid contact with skin and eyes |

Photos are for reference only. Labels will be based on the safety precautions and particular risks listed for actual chemicals.

At present, vehicle mechanics who file new registration or apply for registration renewal are both required to have completed a minimum of 20 hours of continuing professional development (CPD) in the past three years. Applicants may participate in the following courses or activities to accumulate CPD hours:

- 1) Training/courses organised by the Department of Automotive Engineering of the Hong Kong Institute of Vocational Education or other relevant educational institutions
- 2) Training/courses organised by the VTC's Pro-Act Training and Development Centre (Automobile)
- 3) Training/courses provided for transportation and support services under the Skills Upgrading Scheme Plus by the Employees Retraining Board
- 4) Technical training/courses for the automobile trade or internal staff provided by vehicle suppliers
- 5) Training/courses/seminars organised by professional societies or automobile trade associations/unions
- 6) Technical talks/seminars for the automobile trade
- 7) Training/courses/seminars that can enhance personal knowledge of the automobile trade, including such areas as legislation, language, customer service, management skills, occupational safety and health, etc.
- 8) Technical visits related to the automobile trade
- 9) Take the quiz in or submission of articles to the RVM Newsletter

Apart from the above, starting from 1 November 2019, vehicle mechanics may accumulate training hours by answering the quiz in each issue of the RVM Newsletter. Participants who answer all the questions correctly before the deadline will earn one CPD hour. Participation is simple. Simply scan the QR code on the page of the quiz in the RVM Newsletter with your mobile phone, and you will be navigated to the "Take the Quiz" page. Follow the instructions on the page, answer the questions and fill in your personal information, then tap on "Submit" to complete. For more details on the quiz, please refer to page 11 of this Newsletter.

Besides, the EMSD will organise a series of five seminars on vehicle maintenance technology free-of-charge from November 2019 to December 2020 mainly to introduce the latest information on vehicle maintenance to vehicle mechanics, persons-in-charge of vehicle maintenance workshops and those who would like to enhance the relevant skills as well as service culture and standards of the trade. Details will be disseminated to registered vehicle mechanics via e-mail or WhatsApp.





Content

Participants are required to design a poster to promote the Voluntary Registration Scheme (VRS) for Vehicle Mechanics or VRS for Vehicle Maintenance Workshops. The poster should introduce the registration requirements, objectives and benefits of the Scheme to the trade and the public. Slogan(s) can be added to the entries to help deliver the desired message.

Prizes

Champion

Supermarket cash coupons
worth HK\$6,000

1st
Runner-up

Supermarket cash coupons
worth HK\$4,000

2nd
Runner-up

Supermarket cash coupons
worth HK\$2,000

*Each of the awardees will
receive a merit certificate.

Eligibility

Hong Kong permanent residents

Entry form

Entry form can be obtained from the EMSD or downloaded and printed at the following web page:

https://www.emsd.gov.hk/en/supporting_government_initiatives/registration_scheme_for_vehicle_maintenance/index.html

Participants may visit the above web page to view the latest information about the VRS .



Submission Deadline

14 February 2020 (Friday)

Participants who, upon submission of their entries, upload the photos of their submitted work on their personal social media platforms (e.g. Facebook, Instagram, etc.) may make an appointment with the Vehicle Maintenance Registration Unit of the EMSD at 2808 3545 to redeem a souvenir during office hours (from 9:00 am to 4:30 pm on Mondays to Fridays, except public holidays) on or before 14 February 2020. Participants will be required to present the information of their personal social media platforms for confirmation.

- 1 Registered vehicle mechanics who have switched to work in another vehicle maintenance workshop should **notify the VMRU by e-mail (vmru@emsd.gov.hk) or fax (3968 7646)** the name, address and telephone number of the new workshop.
- 2 If there is any change in the information of the vehicle maintenance workshop (such as name of the workshop, registration number of the workshop, address, contact number and business registration certificate, etc.) or alteration in the type of workshop being registered, the person-in-charge of the workshop must, within **14 working days** from such change, notify the VMRU of the change in writing, and submit the relevant documents for processing.

Information on the VRSVM:

| | |
|---|-----------------|
| Total number of vehicle mechanics | 10 382 (Note 1) |
| Number of registered vehicle mechanics (as at end-September 2019) | 9307 |

Information on the VRSVMW:

| | |
|---|---------------|
| Total number of vehicle maintenance workshops | 2783 (Note 2) |
| Number of registered workshops (as at end-September 2019) | 2055 |

Note 1: 2016 Manpower Survey Report (updated on 25 August 2017) by the VTC and the Automobile Training Board.

Note 2: Database of the VMRU (updated on 19 July 2019).

If you wish to help protect our environment by receiving the electronic version of RVM Newsletters and leaflets, please send us the completed reply slip by e-mail: **vmru@emsd.gov.hk** or WhatsApp: **9016 3185**. We will contact you by means of e-mail or mobile communication as far as possible.

Reply Slip

I/My company would like to receive the RVM Newsletters and other information leaflets by

☐ e-mail / ☐ WhatsApp.

Please provide the relevant contact details based on the above selected means of communication:

E-mail address: _____ WhatsApp: _____

The electronic version of RVM Newsletters is also available at the EMSD website:

https://www.emsd.gov.hk/en/supporting_government_initiatives/registration_scheme_for_vehicle_maintenance/publications_and_circulars/rvm_newsletter/index.html



Please note: Registered vehicle mechanics are required to apply for renewal on time. Those who have successfully registered in the past with the "ten-year experience" criterion but have yet to renew their registration may be required to meet the new registration requirements, i.e. to renew their registered status by obtaining craft certificates or passing the trade test. If the registration has expired for more than four months, please call 2808 3545 to enquire the renewal details.

Note
The criterion of "ten-year experience" as the means for vehicle mechanics to obtain registration has been disused since 31 December 2016

- Q1** After the power source has been cut off, which of the following is the waiting time required (or the specified time as recommended by the manufacturer) before one can repair an EV/HV's high-voltage device?
- A** No waiting required **B** At least 3 minutes
C At least 10 minutes **D** At least 12 hours
- Q2** As advised by the manufacturer, which of the following is the personal protective equipment to be put on for repairing the high-voltage devices of EVs/HVs?
- A** Slippers and gold-rimmed glasses **B** Labour gloves and cycling pants
C Sunglasses and vests **D** Insulating gloves, insulating shoes and protective goggles
- Q3** What is the chemical label of acetylene in a garage?
- A** Corrosive **B** Flammable
C Anesthetic **D** Carcinogenic
- Q4** It is mentioned in an earlier article that five chemical labels are commonly seen in a garage. Apart from "harmful", "flammable" and "irritant", which of the following items includes the other two chemical labels as suggested in the article?
- A** "Toxic", "corrosive" **B** "Toxic", "anesthetic"
C "Carcinogenic", "flammable" **D** "Radioactive", "drug-resistant"
- Q5** Starting from Issue No. 27 of the RVM Newsletter, how many CPD hour(s) can a vehicle mechanic earn if he/she answers the five questions in each issue of the Newsletter correctly?
- A** 1 hour **B** 5 hours
C 8 hours **D** 10 hours

How to participate? (Issue No. 27): Please submit the answers directly at the following website (<https://forms.gle/wZe1P7bdZAQKLWSU8>) by scanning the QR code. Vehicle mechanics may also complete the form below, circle the correct answers, and send it to the VMRU by fax or e-mail (fax: 3968 7646 or e-mail: vmru@emsd.gov.hk).



Deadline: 31 January 2020

| Question | Answer | | | |
|-----------|----------|----------|----------|----------|
| Q1 | A | B | C | D |
| Q2 | A | B | C | D |
| Q3 | A | B | C | D |
| Q4 | A | B | C | D |
| Q5 | A | B | C | D |

Name: _____

Vehicle Mechanic Registration No.: VM _____

E-mail Address: _____

Contact Tel. No.: _____

- Each winner will receive a souvenir. As there are ten souvenirs in all, the winners will be decided by lottery if more than ten participants answer all the questions correctly.
- Only registered vehicle mechanics with valid registration may participate, each not more than once in each quiz.
- The decision of the Vehicle Maintenance Registration Unit on the quiz will be final.
- The correct answers and list of prize winners will be announced in the next issue of RVM Newsletter. Prize winners will also be notified by the Vehicle Maintenance Registration Unit individually.

Results of the prize quiz in RVM Newsletter Issue No. 26

| The answers of the prize quiz in RVM Newsletter Issue No. 26 are as follows: | | | | | |
|--|----------|----------|----------|----------|----------|
| Question | 1 | 2 | 3 | 4 | 5 |
| Answer | C | B | D | A | C |

The ten winners who answered all the questions correctly and were drawn by lottery are:

| | | |
|------------------------|------------------|---------------|
| LAM Chi Ming | MAK Kam Cheung | KWOK Sui Tong |
| NG Pak Yeung | CHAN Kwan Kee | LI Chun Yiu |
| LEUNG Yu Kwan | PANG Wing Cheong | WAN Kam Tong |
| YEUNG Wai Keung Kelvin | | |



Providing Continuing Professional Development Courses for Vehicle Mechanics (in random order)

| Name of Training Institute | Website/Contents | Enquiry Tel. No. | QR Code |
|--|--|------------------|---|
| Traffic Services Employees Association | http://www.facebook.com/tseahk The 68th-70th courses will be held from September to December. Please visit the Association's website for more details." | 2575 5544 |  |
| Pro-Act Training and Development Centre (Automobile) | http://www.pro-act.edu.hk/automobile The Certificate in Vehicle Mechanical Repair programme# run by the Pro-Act Training and Development Centre (Automobile) may serve as another means for qualifying as registered vehicle mechanics. Mechanics who are interested in enrolling in the above programme may visit the Centre's website. # For details and latest developments of the programme, the information issued by the Pro-Act Training and Development Centre shall prevail. | 2449 1310 |  |
| The Institute of the Motor Industry Hong Kong | http://www.hkimi.org.hk/en/ The Institute of the Motor Industry Hong Kong (IMIHK), formerly known as the Institute of the Motor Industry (IMI) - Hong Kong Branch, brings the mission and vision of the IMI to the Hong Kong automobile industry. After the handover in 1997, the IMI - Hong Kong Branch applied to be renamed the IMIHK in Hong Kong. Eligible members of the trade are welcome to join the IMIHK or enrol in its courses or talks. | 2625 5903 |  |
| Hong Kong Vehicle Repair Merchants Association Limited | https://www.facebook.com/HKVRMA/ | 2399 7977 |  |
| Hong Kong Vehicle Repairing Industry Employee General Union | http://www.vrunion.hk | 2393 9955 |  |
| Occupational Safety and Health Council (OSHC) | www.oshc.org.hk The Safety Handling of Chemicals course aims to provide employees with basic knowledge of the safe handling of chemicals. The course content includes hazards of chemicals, labelling of chemicals, safety precautions, personal protective equipment, emergency procedures, etc. For more course details, please contact the OSHC's Training Centre. | 2311 3322 |  |
| The Society of Operations Engineers (Hong Kong Region) | http://www.soe.org.hk/ | 2617 0311 |  |
| Qualifications Framework recognised courses | http://www.hkqr.gov.hk | 2836 1700 |  |

Gentle Reminder

The contents in each issue help you catch up on the development of the registration schemes and enhance the quality of service. Please stay tuned!

Each issue can be downloaded from the EMSD website at:

https://www.emsd.gov.hk/en/supporting_government_initiatives/registration_scheme_for_vehicle_maintenance/publications_and_circulars/rvm_newsletter/index.html



For enquiries on the contents of the RVM Newsletter, please contact the VMRU of the EMSD.

Fax: 3521 1565

E-mail: vmru@emsd.gov.hk

Tel.: 2808 3545

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