HINO

TECHNICAL TRAINING

EMERGENCY

SERVICE GUIDE

Hybrid

300 series

HQS HINO QUALITY SERVICE

HINO

The purpose of this manual is to provide basic knowledge and understanding of the ***300 Series Hybrid vehicle high voltage system***

For the assistance of
SPECIAL EMERGENCY SERVICE PERSONNEL
in the rescue of Hino 300 Series motor vehicles.
Rights for alteration to data and specification, at any time, are reserved.
Any such alteration will be advised by the Product Support Division via Bulletins

It is important to note, that the following information contained in this document is correct to our best knowledge, however errors may have occurred in its transcription. HMSA will not accept any liability for such errors.

This document is only intended as a guide.
Special Emergency Service Personnel must also refer to ***Hino Workshop Service Manuals***, where applicable.

Hino Motor Sales Australia
6-10 Parraweena Road, Taren Point, NSW 2224
Sydney Australia

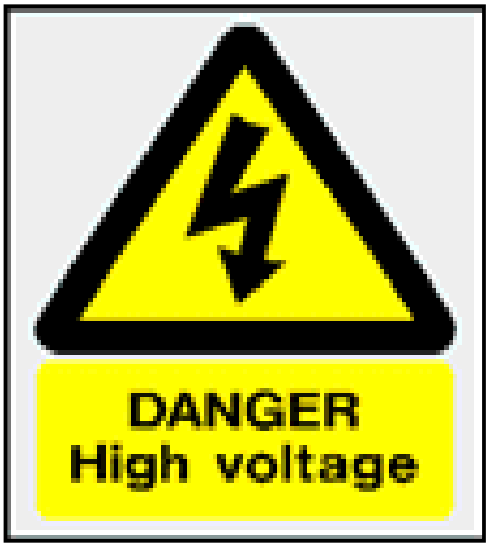
Publication # HMSA/EMERGENCYSERVICEGUIDE300HYBRID/0908
Version 1.2

CAUTION

It is imperative that ***SPECIAL EMERGENCY SERVICE*** personnel read and follow the correct safety guidelines, instructions and procedures contained herein before attempting to rescue the 300 Series Hybrid vehicle.

The 300 Series hybrid vehicle utilises a high voltage system ***(300 Volts)*** to assist the Diesel engine as a mean of propulsion. In the event rescue personnel fail to follow the correct safety guidelines, precaution and instructions provided herein, have a greater risk of receiving an electrical shock, personal injury or even death.

It is also important to note, that, the 300 Series Hybrid vehicle can only be serviced or repaired by trained personnel. Other parties involved in the service, repair or mounting body to this vehicle ***MUST*** have had an induction training prior to commencement of work. HMSA will not accept any liability for failing to follow the correct safety guidelines, instructions and procedures.



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CONTENTS

HINO

300

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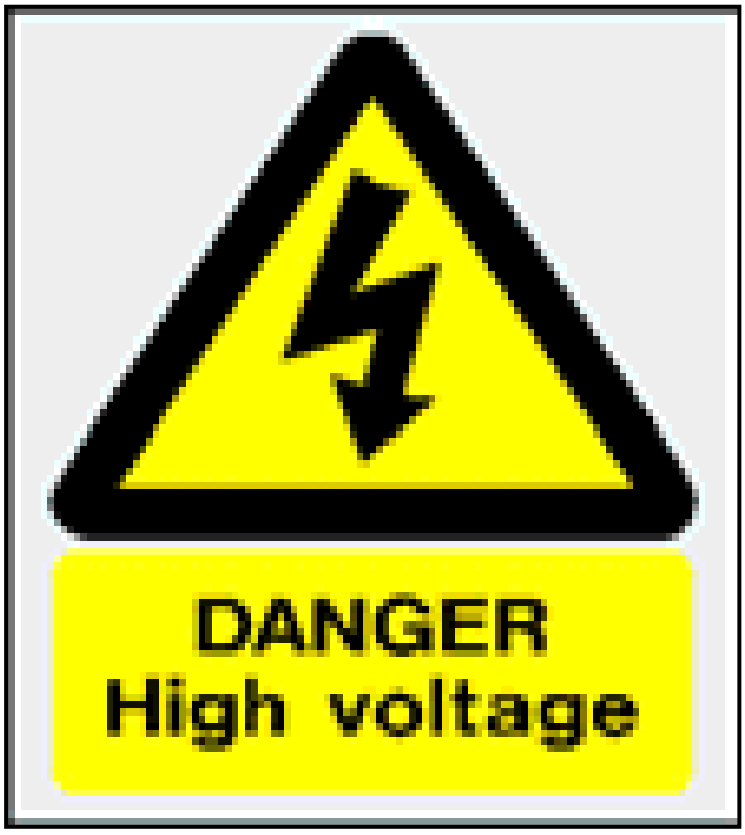
A TOYOTA GROUP COMPANY

HINO

TECHNICAL TRAINING

ISOLATION OF



HYBRID BATTERY

Hybrid

300 series

HQS

HINO

CAUTION

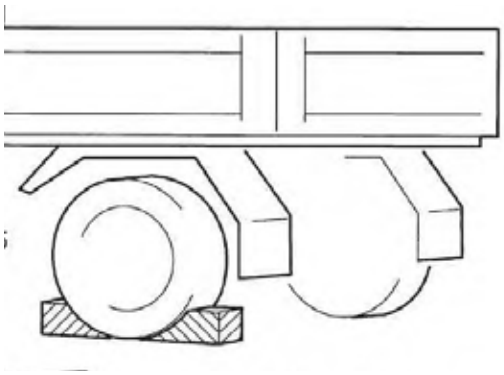
EMERGENCY RESPONSE GUIDELINES

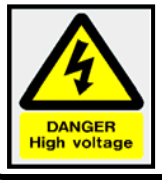
- On arrival, emergency personnel should follow their standard operating procedure to assist the vehicle involved in the accident.
  Emergency procedures involving the 300 Series vehicle Hybrid may be handled like other light duty trucks, however additional notes may assist the special service services personnel while dealing with Hino Hybrid vehicles.

Warning !

- **Never assume** the 300 Series Hybrid vehicle electrical power is completely OFF because the vehicle is silent.
- **Always observe** the combination meter warning lights status to verify whether the ignition switch is set to the “ON” position.

- **Immobilizing Vehicle**
  Chock the vehicle’s wheel and apply the parking brake.





CAUTION
HIGH VOLTAGE - 300 VOLTS

CAUTION

EMERGENCY RESPONSE GUIDELINES CONT'D

Disabling the 24 Volt Vehicle System

Performing any of the two procedures below will disable the vehicle 24 Volt system.

1) Disconnecting the (-) negative battery terminal, followed by disconnecting the (+) positive battery terminal to interrupt power supply to the vehicle electrical system.

2) With caution, snip the (-) negative battery terminal and then snip the (+) positive battery terminal avoiding contacting the metal chassis of the vehicle to avoid electrical sparks and cause a fire.

✓ (+)

(-) ✓

CAUTION
HIGH VOLTAGE - 300 VOLTS

CAUTION

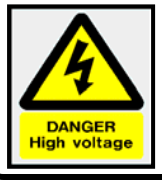
EMERGENCY RESPONSE GUIDELINES CONT'D

Disabling the 300 Volt Hybrid System

Performing procedure (2) only will disable Hybrid system.

1) In the event the Safety Plug can not be reached, disconnect the (-) negative battery terminal, followed by disconnecting the (+) positive battery terminal to interrupt power supply to the vehicle electrical system and Hybrid system.

2) When removing the Control Power Unit Safety Plug, allow 5 minutes for the system capacitor to discharge. After this time period, the vehicle can then be rescued.



CAUTION
HIGH VOLTAGE - 300 VOLTS

CAUTION

PLEASE READ THIS SECTION BEFORE ANY TYPE OF RESCUE IS COMMENCED !

Appropriate Rubber Gloves, rated at 600 volts must be worn at all times while working with the Hybrid Control Power Unit !

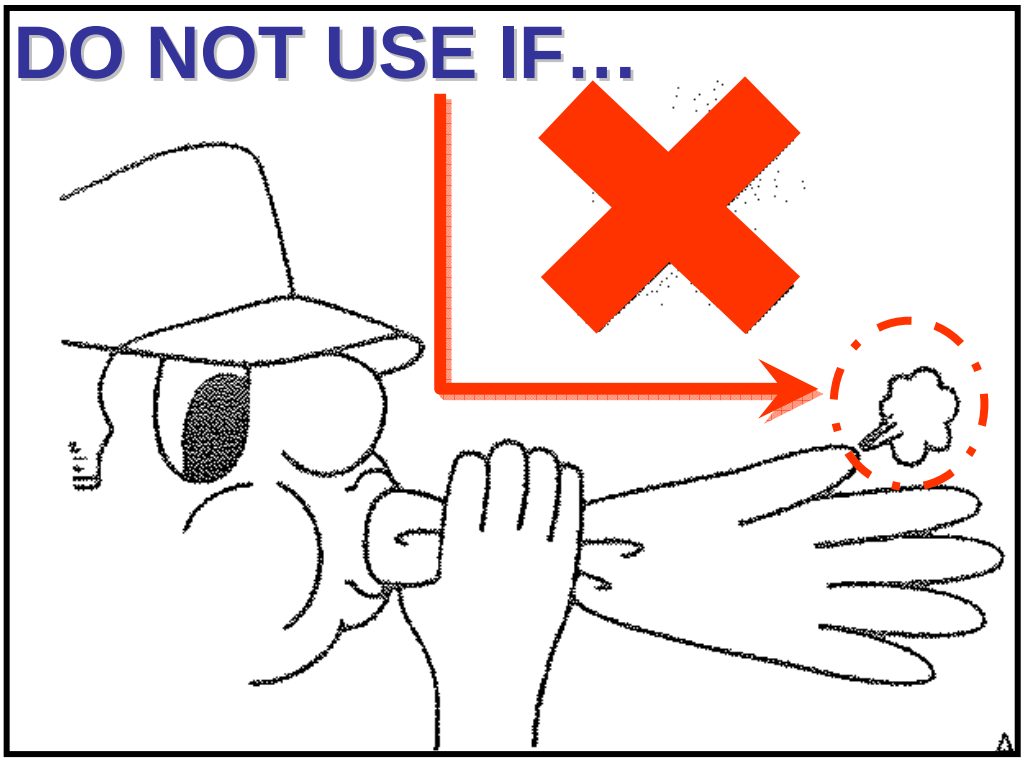
It is imperative that the Hybrid Battery be isolated before any type of work is commenced with the Hybrid vehicle (e.g. Vehicle servicing, removal of manual transmission, clutch replacement, repair to the Hybrid Control Power Unit or any other work while the vehicle is being serviced / repaired at the Dealership). It is also important to note that the Dutro Hybrid vehicle must be serviced only by authorised Hino Dealerships and authorised trained service personnel.

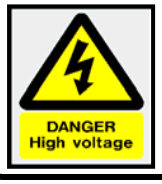
The failure to follow this guidelines may result in damage to the vehicle and personal injures, resulting in death !

CAUTION
HIGH VOLTAGE - 300 VOLTS

CAUTION

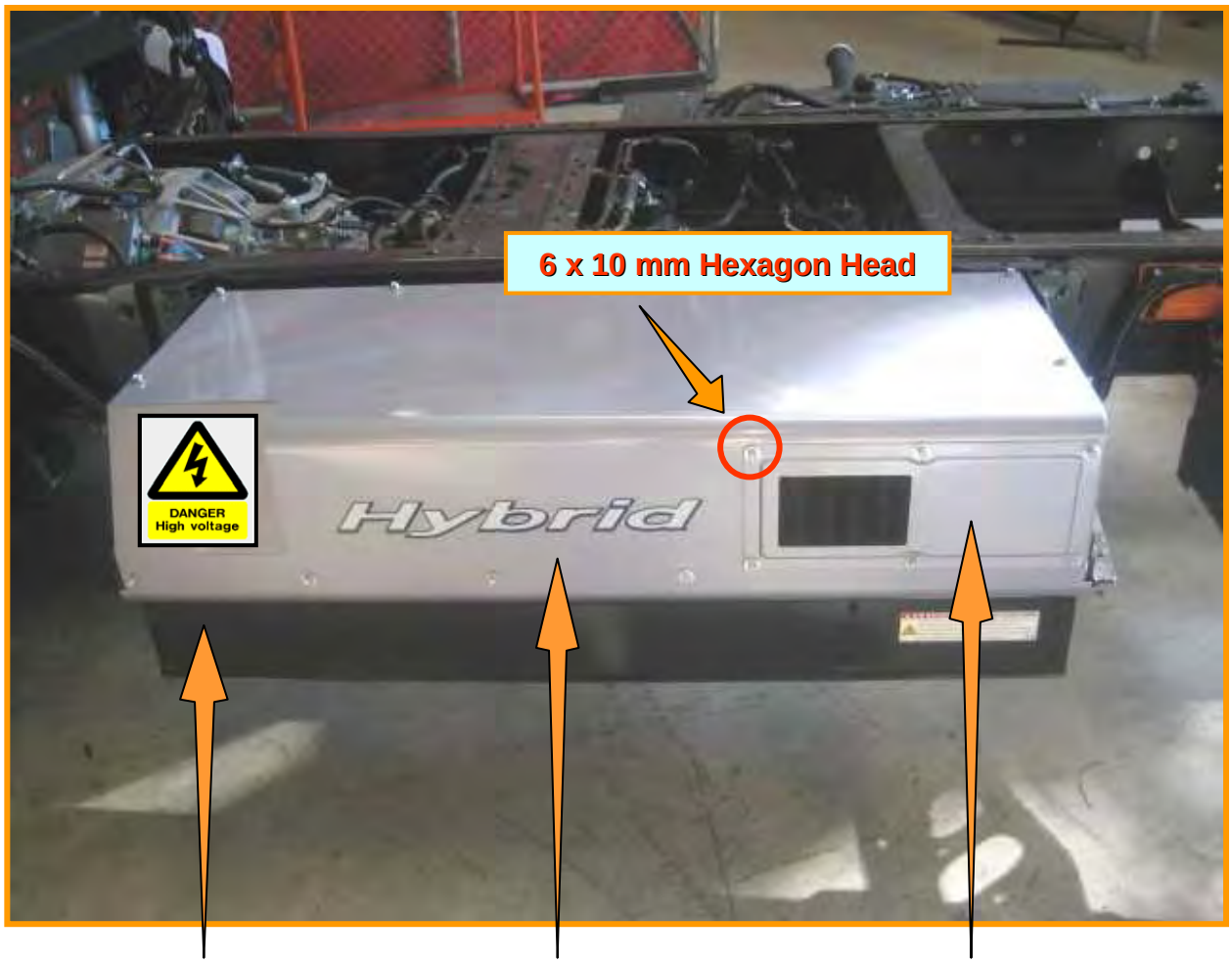
Before wearing insulated rubber gloves, check for cracks, flaws, tear. Avoid using wet insulated rubber gloves. ✓



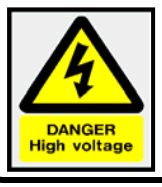


CAUTION
HIGH VOLTAGE - 300 VOLTS

CONTROL POWER UNIT



CPU BOTTOM COVER MAIN CPU COVER SAFETY PLUG COVER



CAUTION
HIGH VOLTAGE - 300 VOLTS

Step 1

Wearing Rubber Gloves

Remove Service Plug Cover

Step 2

Slide Service Plug Lever to the right to unlock

Step 3

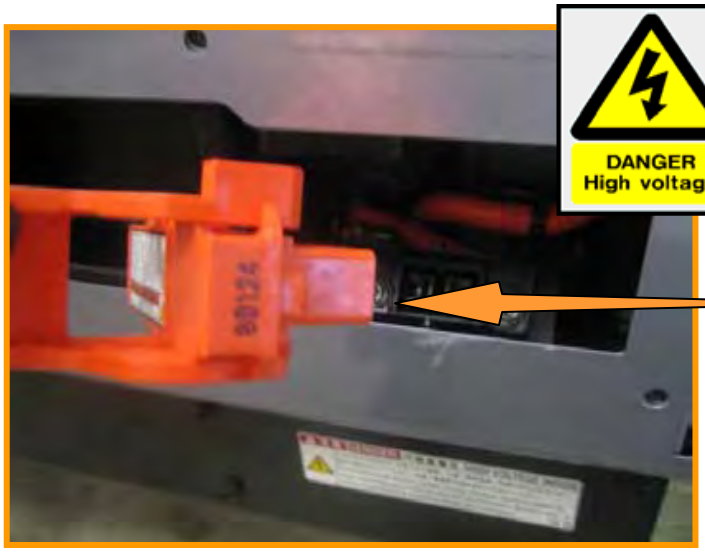
Rotate Safety plug Lever to the left to detach from connector !

DANGER
High voltage

CAUTION

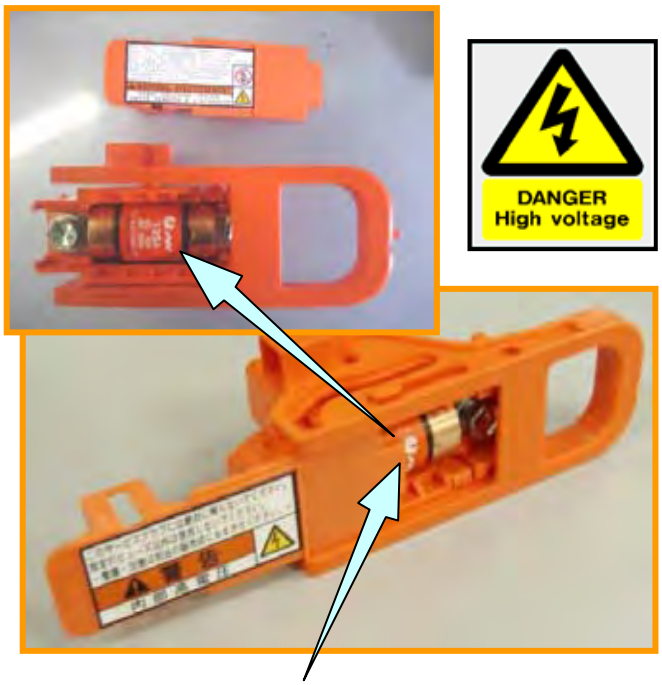
HIGH VOLTAGE - 300 VOLTS

DANGER
High voltage



Step 4

Remove Service Plug from Control Power Unit !



Step 5

Place the Service Plug in a safe place while the vehicle is being serviced or repaired !

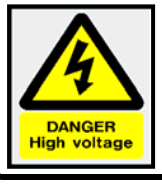
150 A Fuse

CAUTION

HIGH VOLTAGE - 300 VOLTS

Step 6

Once the Safety Plug has been removed, wait for a period of five minutes before any work can be commenced on the vehicle. This is required to allow the system capacitors to discharge.

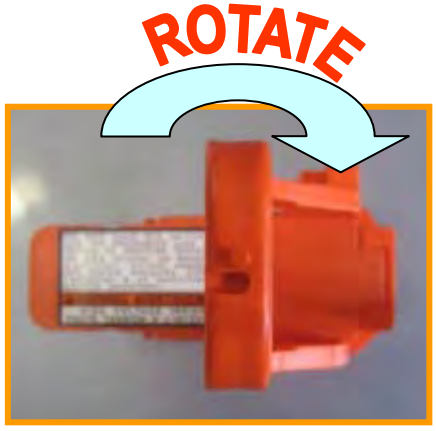


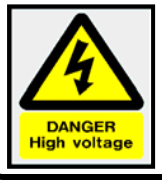
CAUTION
HIGH VOLTAGE - 300 VOLTS

Step 7

Once the service / repair has been completed on the vehicle, reinstall the Service Plug - reverse procedure.

Note: Insert, Rotate and slide it to the left to lock it in place

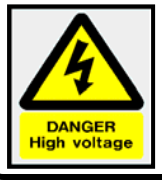




CAUTION
HIGH VOLTAGE - 300 VOLTS

NOTE !

Repairs relating to the Hybrid Control Power Unit, refer to the Hybrid Mechanical System and Hybrid Control System in this training manual.

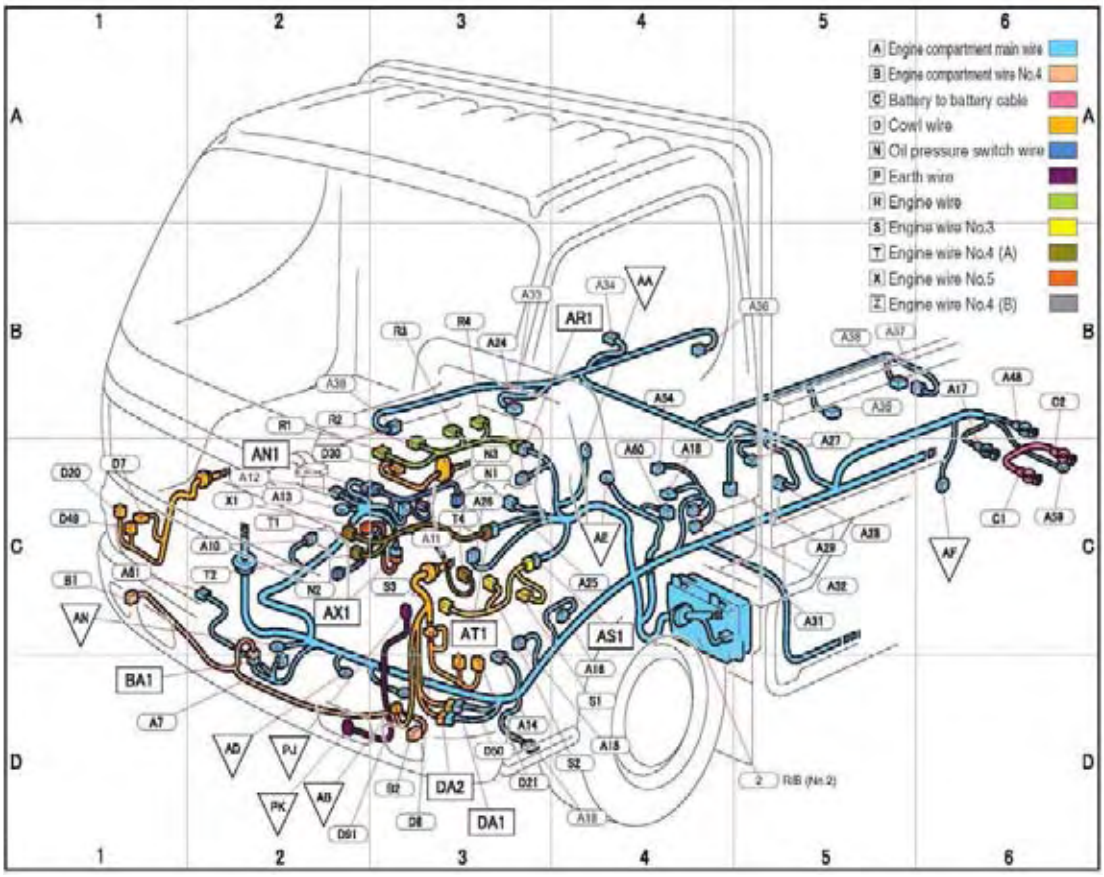


CAUTION
HIGH VOLTAGE - 300 VOLTS

HINO

TECHNICAL TRAINING

24 VOLT



CIRCUIT

Hybrid

300 series

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24 VOLT SYSTEM

■ Hybrid Vehicle (HV) 24 Volt System

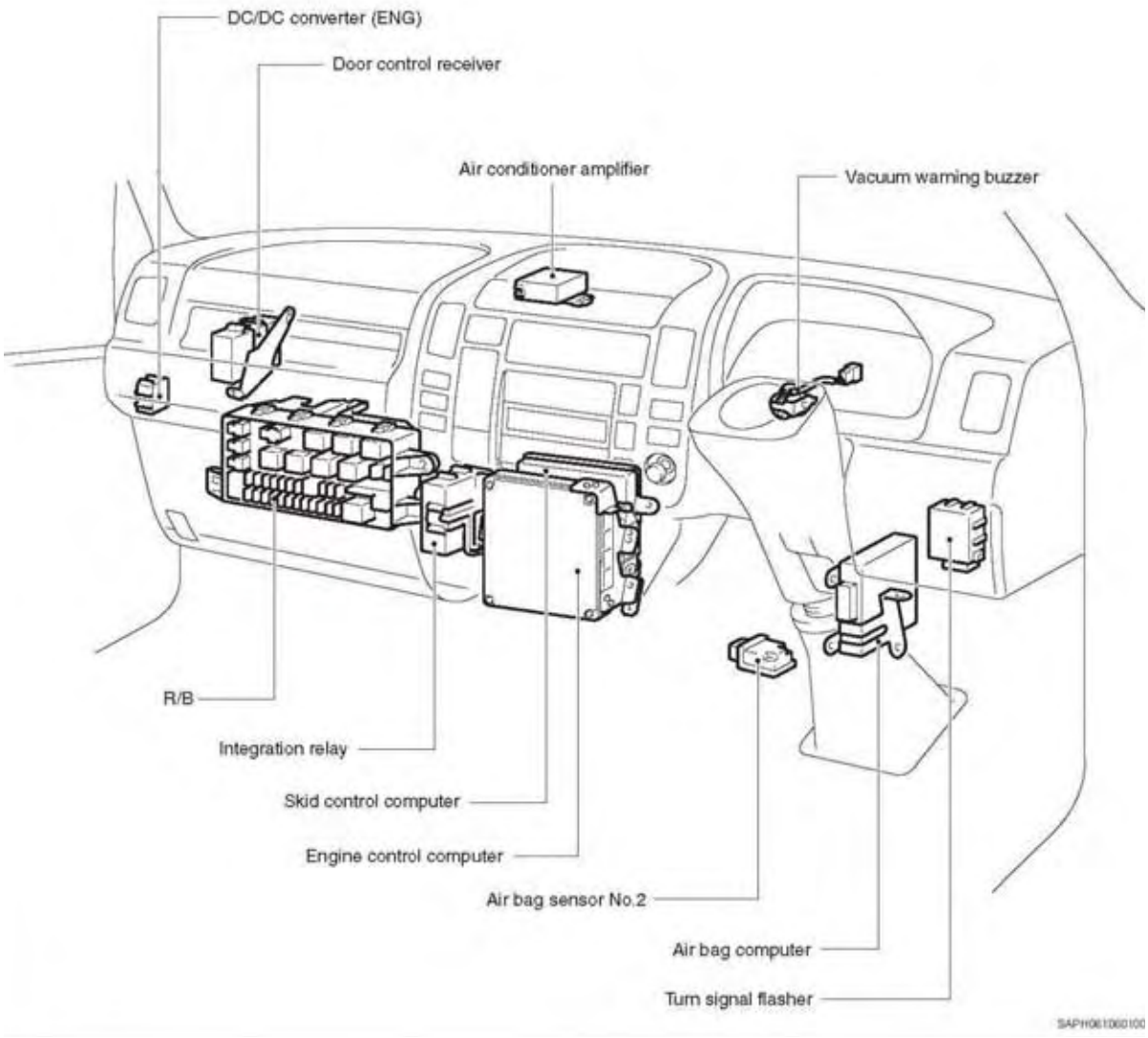
- **Wear Protective safety clothing at all times !**
  The 24 Volt system in the 300 Series vehicles is independent of the 300 Volt system. Although there are a number of components in the Hybrid Control Power Unit that is operated by a 24 / 12 Volt power supply, the Hybrid Control Power Unit must be treated as a high voltage system.

- **24 Volt Electrical Circuit**
  The electrical wiring diagrams included in this section relates to systems that operate with 24 / 12 Volt power supply.

- A **Red Tick** next to the electrical circuit description identifies circuits **that can be cut through with Jaws of Life**

CAUTION
HIGH VOLTAGE - 300 VOLTS

24 VOLT EQUIPMENT



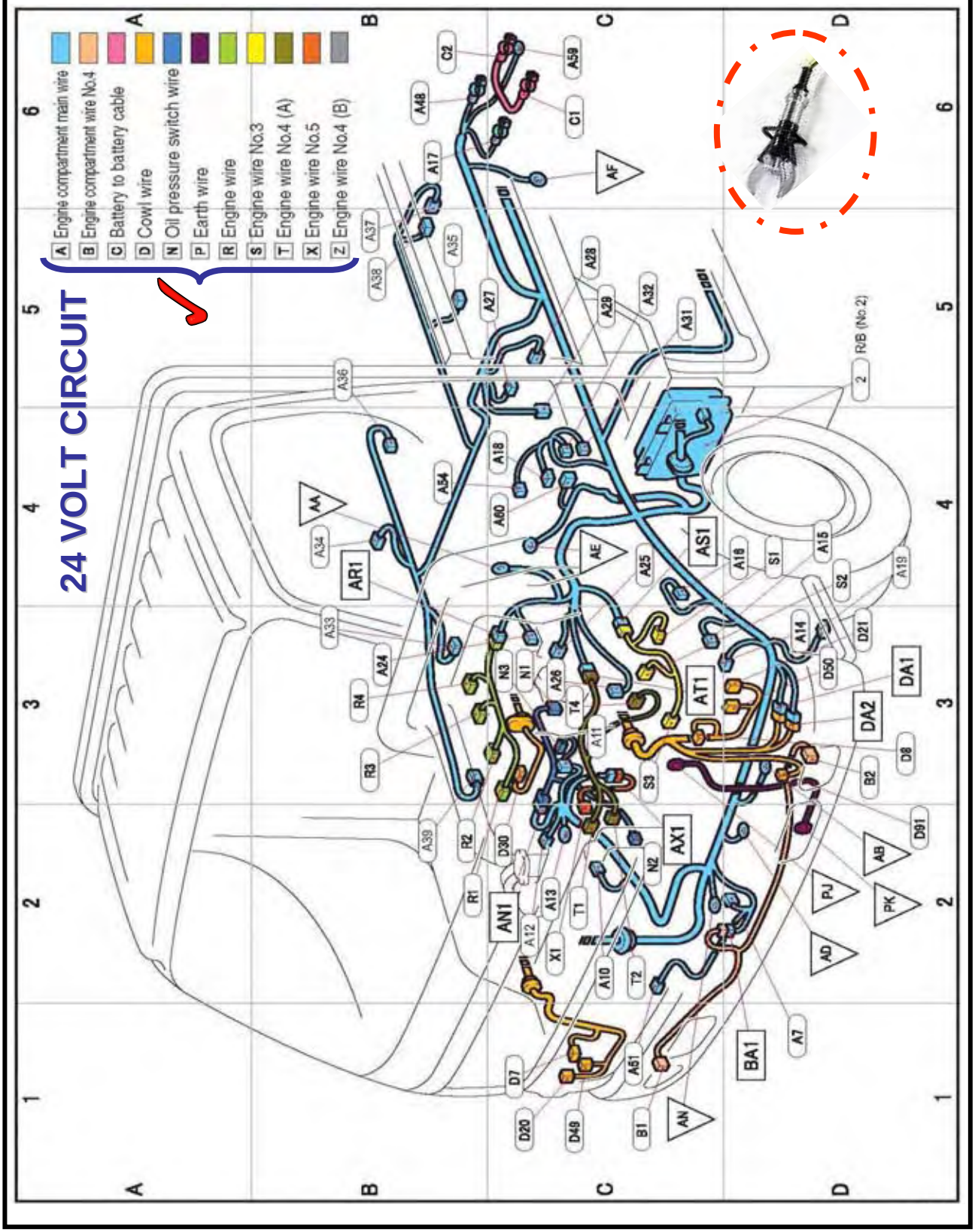
DANGER
High voltage

CAUTION

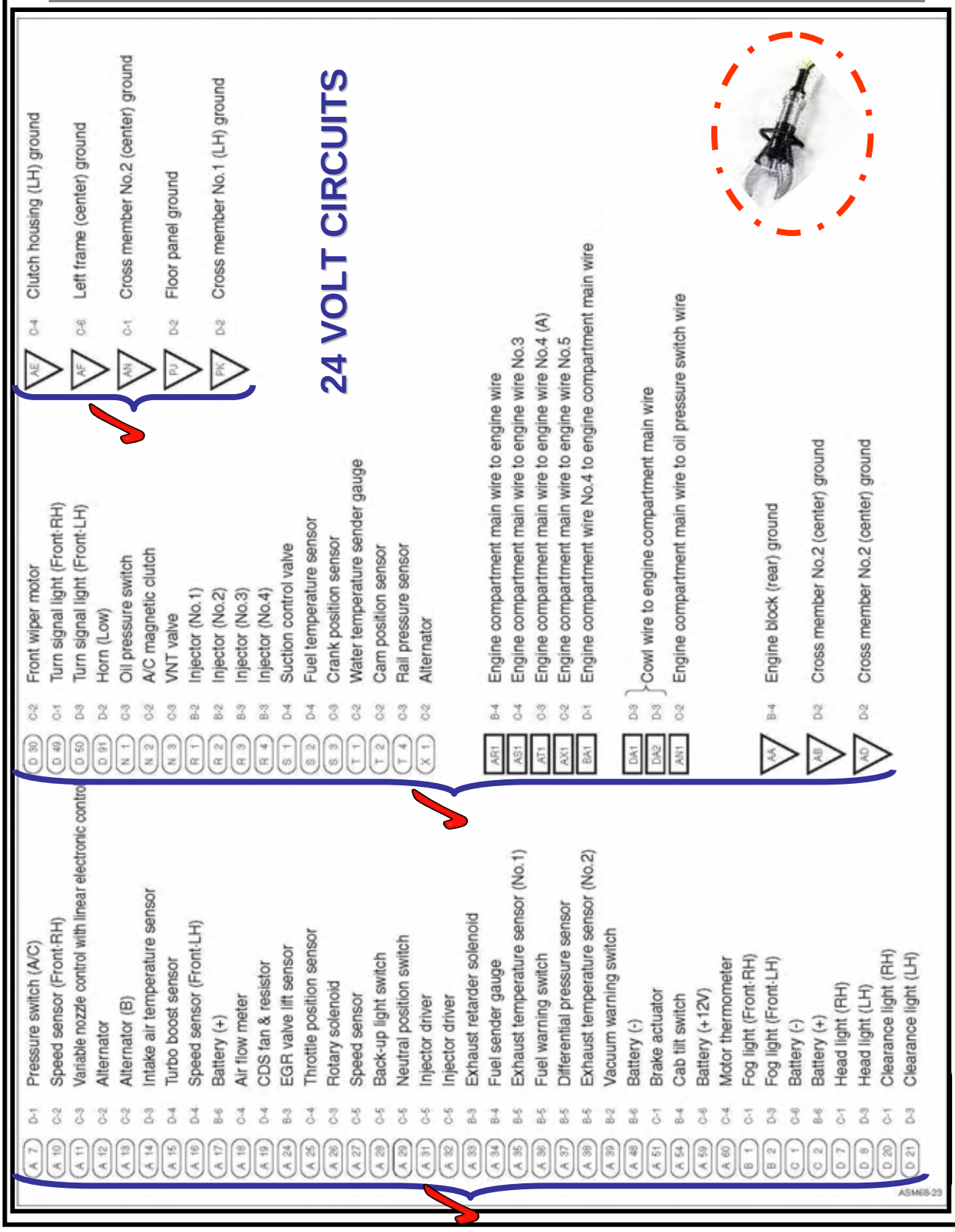
HIGH VOLTAGE - 300 VOLTS

DANGER
High voltage

JAWS OF LIFE CAN BE USED ON THIS CIRCUITS



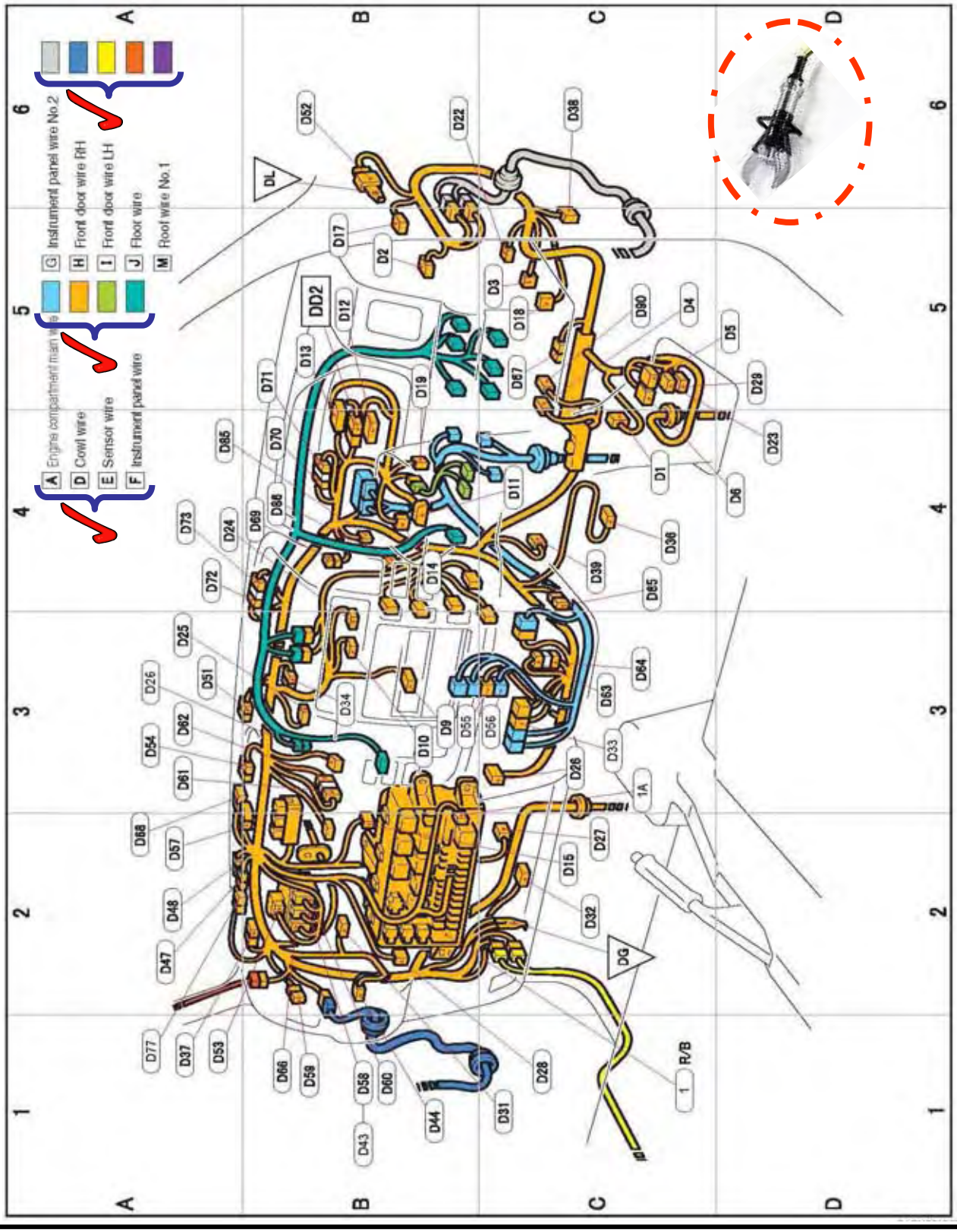
JAWS OF LIFE CAN BE USED ON THIS CIRCUITS



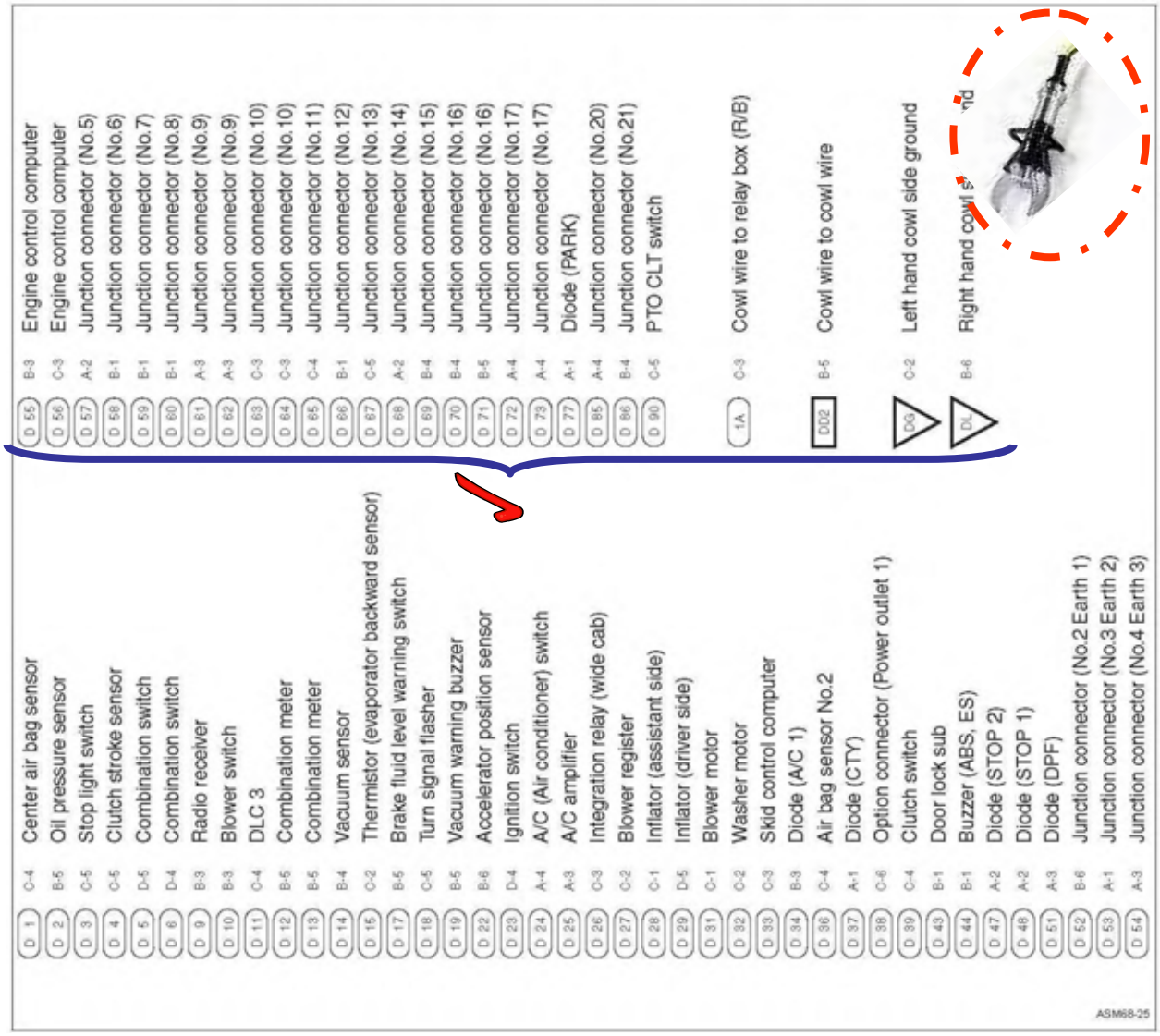
EMERGENCY SERVICE GUIDE	24 VOLT ELECTRICAL CIRCUIT	300 series Hybrid

24 VOLT CIRCUIT

JAWS OF LIFE CAN BE USED ON THIS CIRCUITS



JAWS OF LIFE CAN BE USED ON THIS CIRCUITS



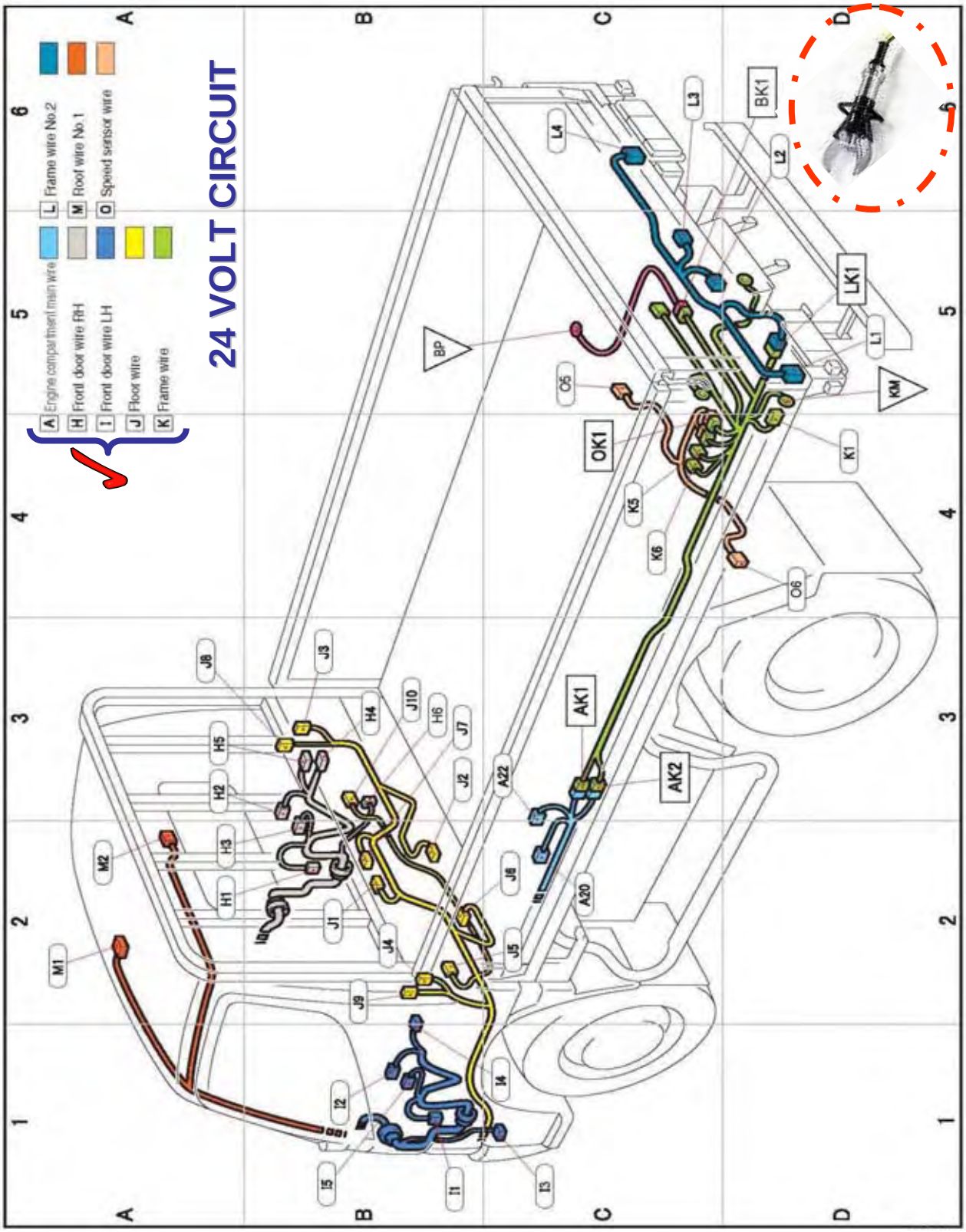
DANGER High voltage

CAUTION

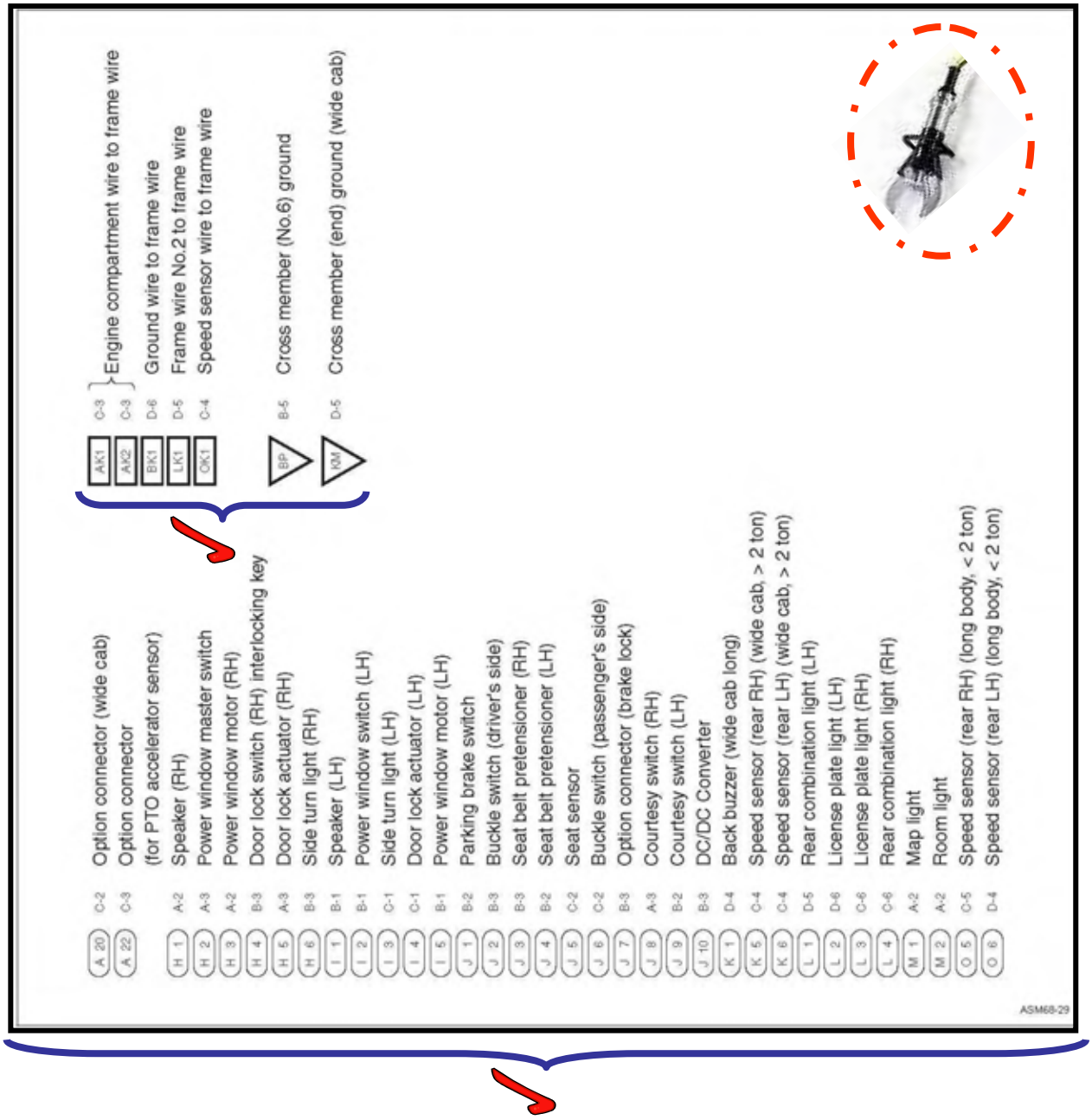
HIGH VOLTAGE - 300 VOLTS

DANGER High voltage

JAWS OF LIFE CAN BE USED ON THIS CIRCUITS



JAWS OF LIFE CAN BE USED ON THIS CIRCUITS

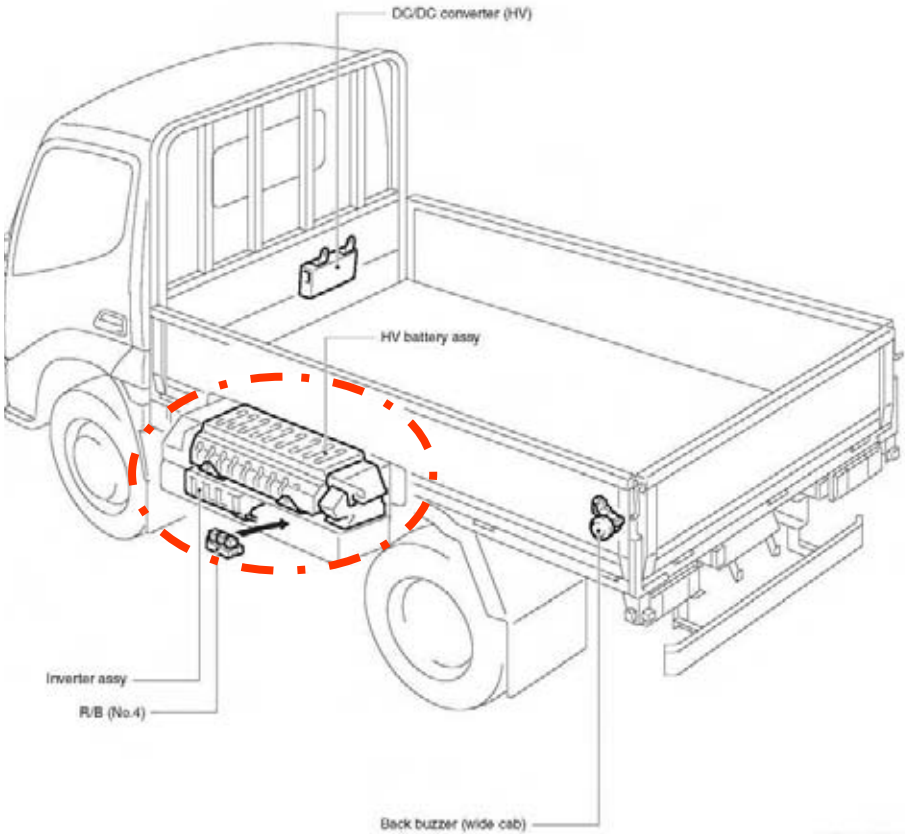


CAUTION

HIGH VOLTAGE - 300 VOLTS

HINO

300 VOLT



CIRCUIT

Hybrid

300 series

HINO

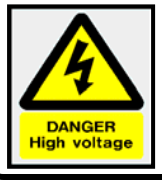
300 VOLT HYBRID SYSTEM

■ Hybrid Vehicle (HV) 300 Volt System

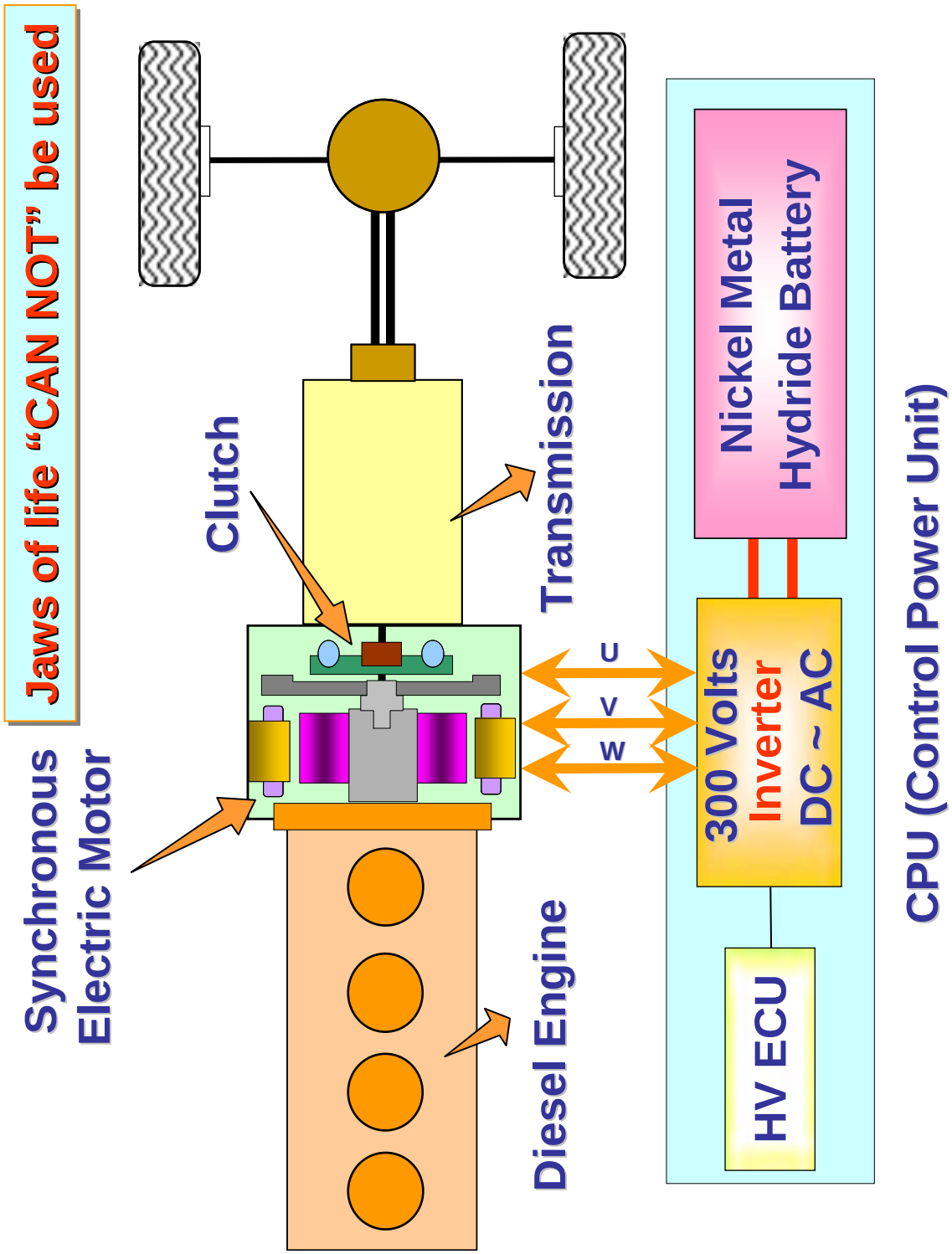
- **Wear Protective safety clothing at all times !**
  The 300 Volt system in the 300 Series vehicles is independent of the 24 Volt system. Although there are a number of components in the Hybrid Control Power Unit that is operated by a 24 / 12 Volt power supply, the Hybrid Control Power Unit must be treated as a high voltage system.

- **300 Volt Electrical Circuit**
  The electrical wiring diagrams included in this section relates to systems that operate with **HIGH VOLTAGE 300 VOLT POWER SUPPLY**.

- A **Cross** placed on top of the Jaws of Life and also next to the electrical circuit description indicate electrical circuits **that can NOT be cut through with Jaws of Life**



CAUTION
HIGH VOLTAGE - 300 VOLTS

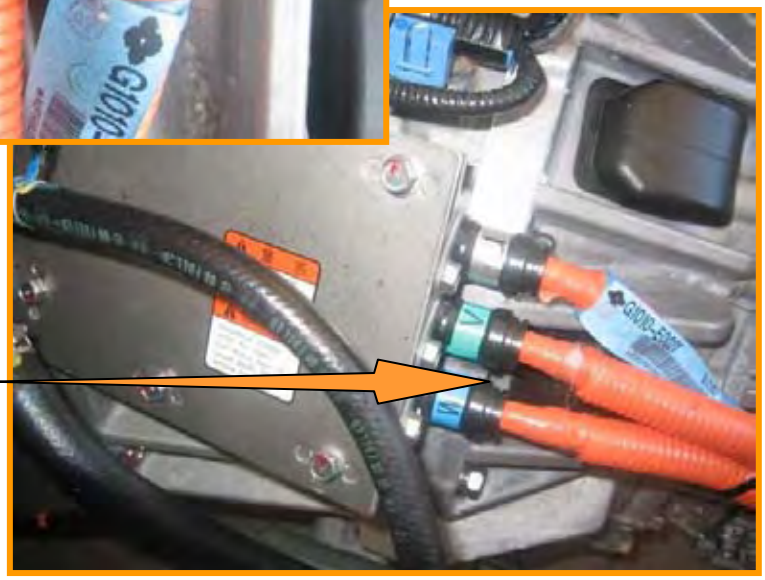

Jaws of life "CAN NOT" be used
Clutch
Transmission
Synchronous Electric Motor
Diesel Engine
U
V
W
Nickel Metal Hydride Battery
300 Volts Inverter DC ~ AC
HV ECU
CPU (Control Power Unit)
DANGER High voltage
CAUTION
HIGH VOLTAGE - 300 VOLTS
DANGER High voltage

CAUTION !

3 PHASE CIRCUIT

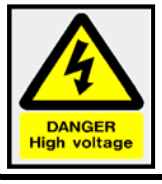
300 VOLTS

300 VOLTS



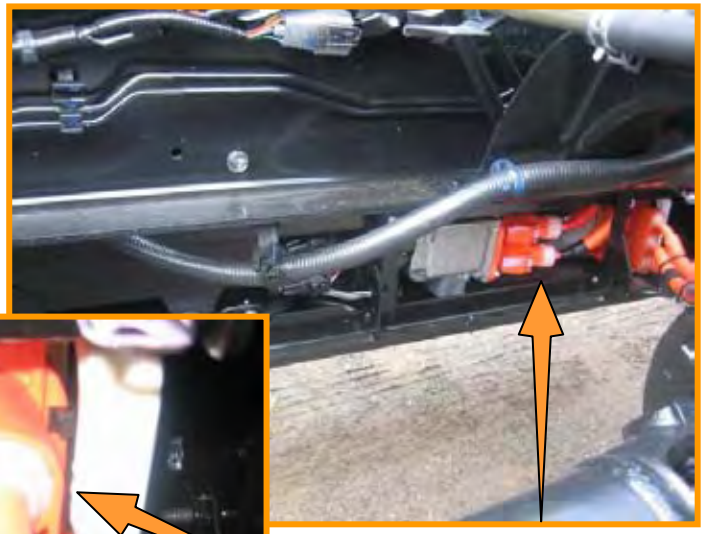
CAUTION

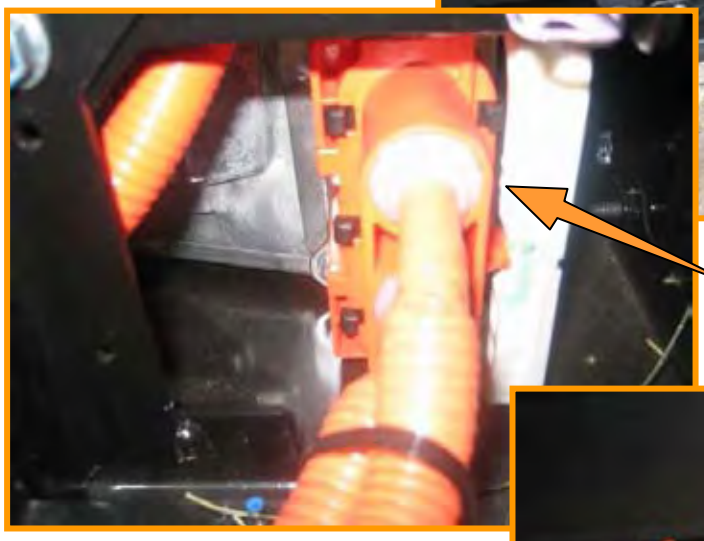
HIGH VOLTAGE - 300 VOLTS



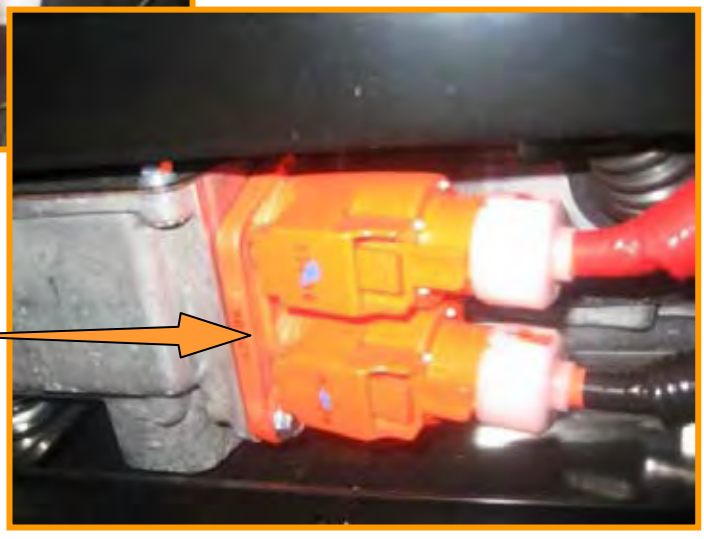
CAUTION !

300 VOLTS

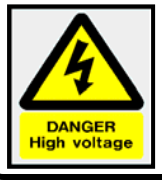




300 VOLTS



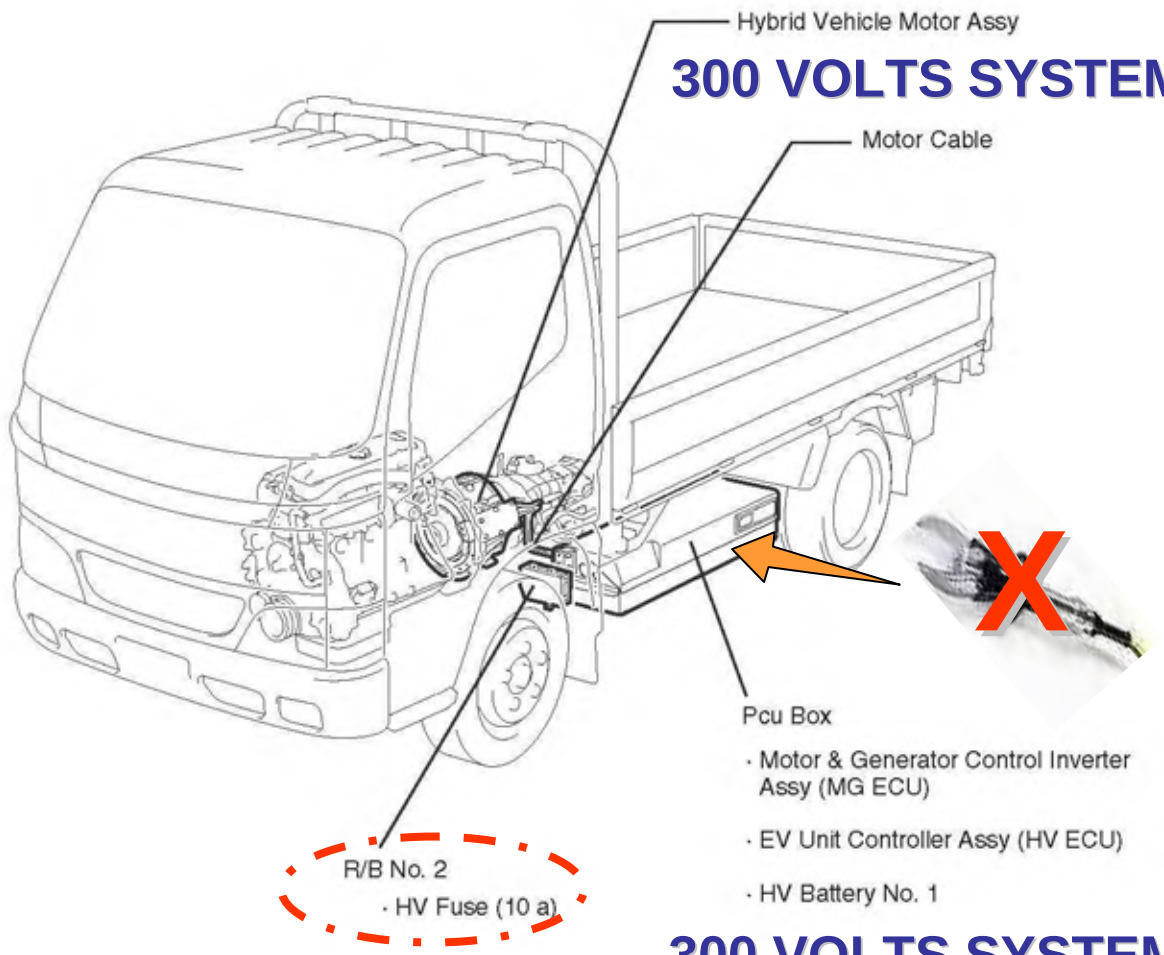
300 VOLTS



CAUTION
HIGH VOLTAGE - 300 VOLTS

COMPONENT LOCATOR

Jaws of life "CAN NOT" be used



CAUTION

HIGH VOLTAGE - 300 VOLTS

Jaws of life "CAN NOT" be used

300 Volts

Nickel Metal Hydride Battery

24 Volts

HV ECU

300 Volts

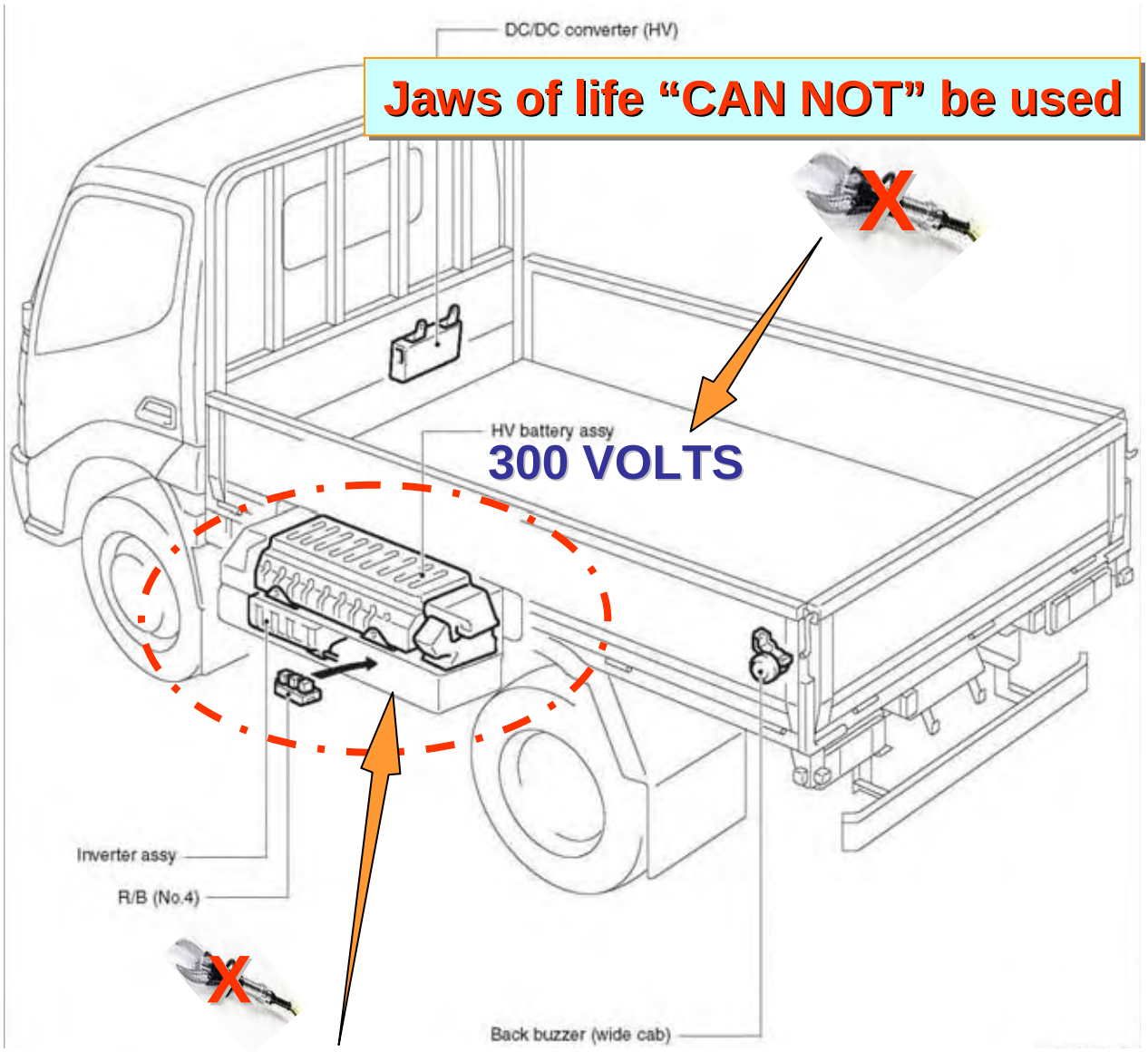
Inverter Assembly

DANGER High voltage

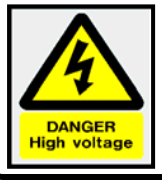
CAUTION

HIGH VOLTAGE - 300 VOLTS

DANGER High voltage

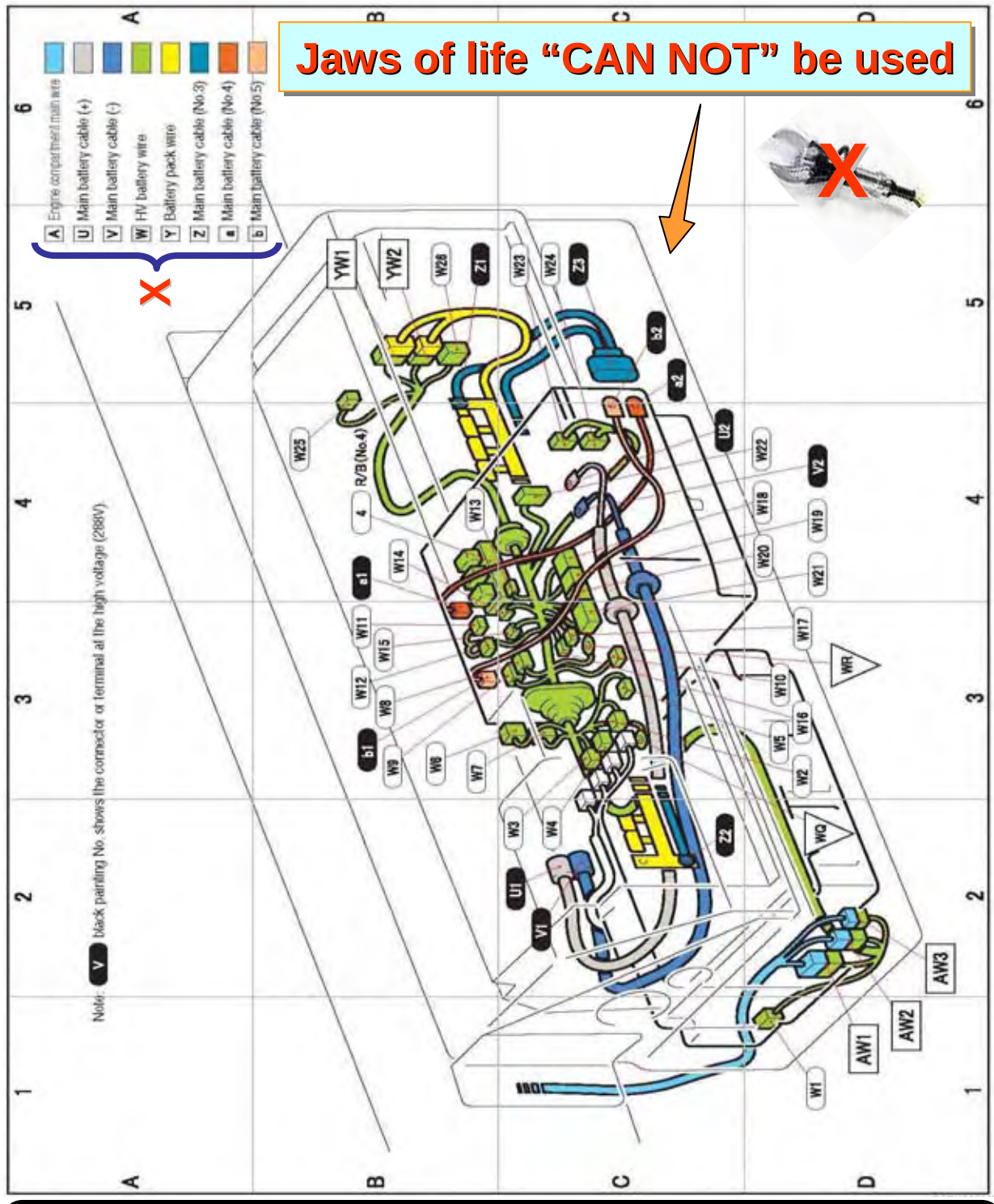


CONTROL POWER UNIT



CAUTION

HIGH VOLTAGE - 300 VOLTS



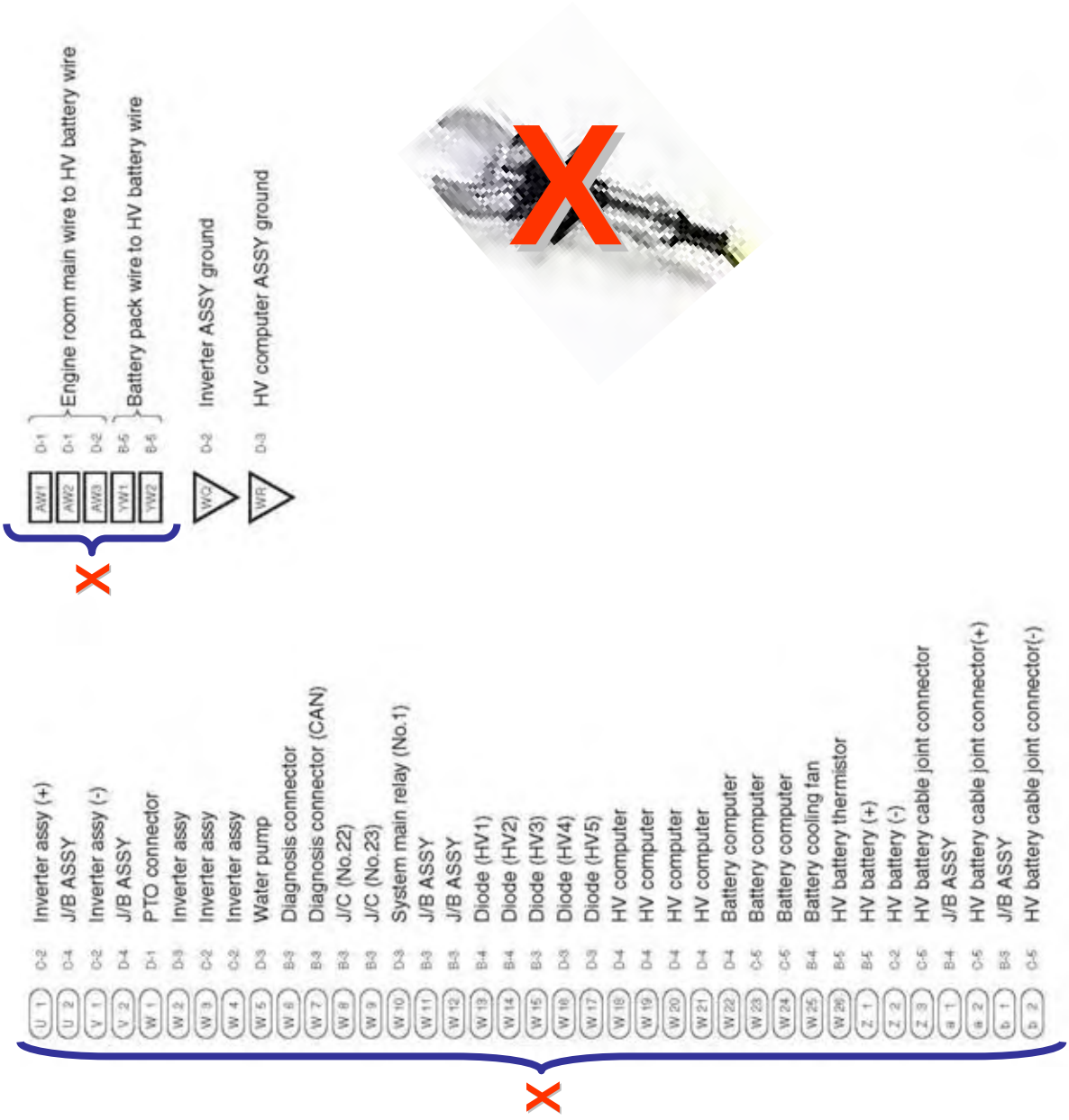
CAUTION

HIGH VOLTAGE - 300 VOLTS

DANGER High voltage

DANGER High voltage

Jaws of life "CAN NOT" be used



DANGER High voltage

CAUTION

HIGH VOLTAGE - 300 VOLTS

DANGER High voltage