



Matthews Buses Inc.
NEW YORK




First Responder Introduction

ELECTRIFICATION FOR ALL:

Thomas C2 Jouley

25

First Responder Information – Safety Features




C2 & eC2 Bus Body

The bodies on both the C2 and eC2 are identical. If a feature is found on one, it is available on the other.

There are no differences.

Jouley Chassis


High Voltage Component Labels



There are 5 additional levels of safety:

1. Safety by Mechanical & Functional Design
2. HV Safety Hardware Interlocks (HVIL)
3. Isolation Monitoring System (IMS)
4. Required Training
5. High Voltage Shutdown Procedure

But to be simple, think **Orange**



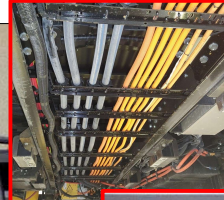
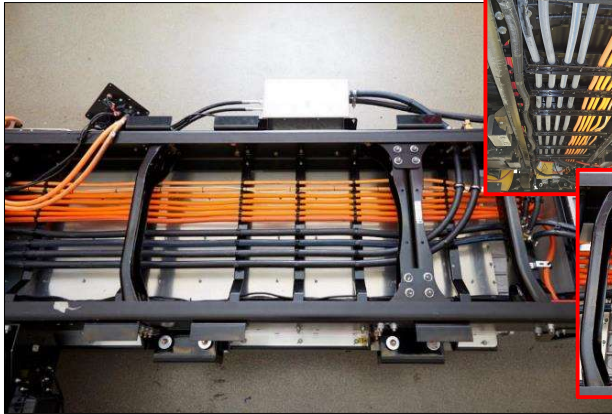
First Responder Information



Thomas
BUILT BUSES

1. Safety by Mechanical & Functional Design

Thomas eC2



Not Like This

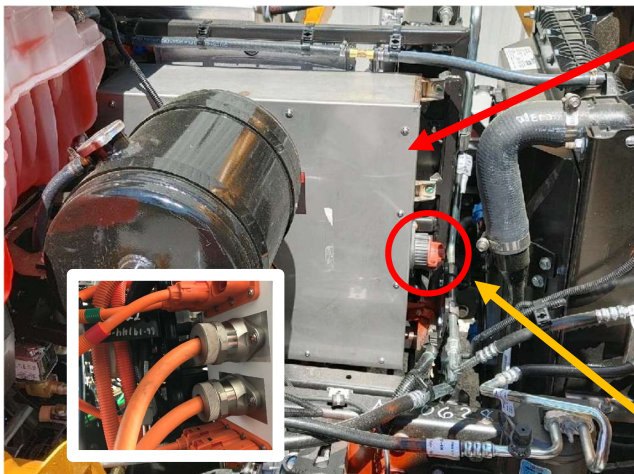


First Responder Information



Thomas
BUILT BUSES

2. High Voltage Interlock Loop (HVIL)



High Voltage Junction Box

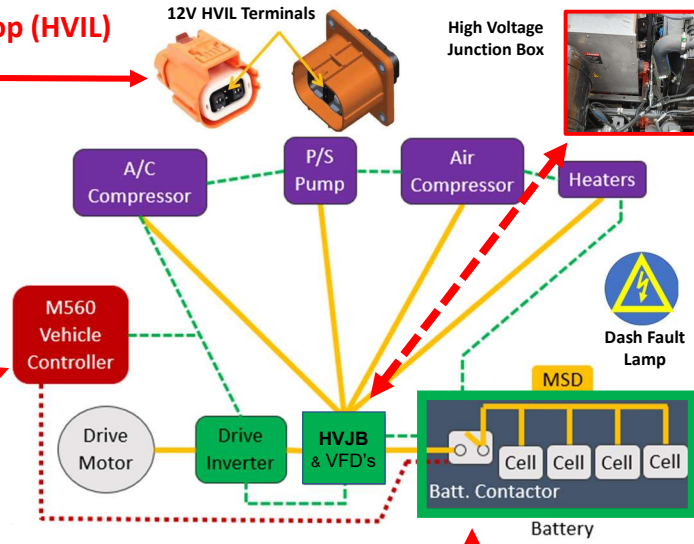
- The **HVJB** is the major mechanical component and controller of the **HV** system.
- **HV** from the Charge Port goes through here to the Batteries.
- **HV** from the Batteries is then distributed from here to all other components of the system.
- All **HV** connections are Safely located at the rear and on the bottom of the **HVJB**.
- It also provides a Disconnect Switch for the **HV** system.

First Responder Information



2. High Voltage Interlock Loop (HVIL)

- Each high voltage **connector** to the **HVJB** contains a set of **12 Volt** terminals that are designed to connect **last** and remove **first** when the connector is installed or removed .
- Several **units with covers** also have a switch to determine if their cover is removed or installed incorrectly.
- It is a continuous **series** loop, that if continuity is broken when a connector or cover is removed or not properly installed, the **M560 Vehicle Controller** will **prevent** the battery contactors from closing and energizing the high voltage system.

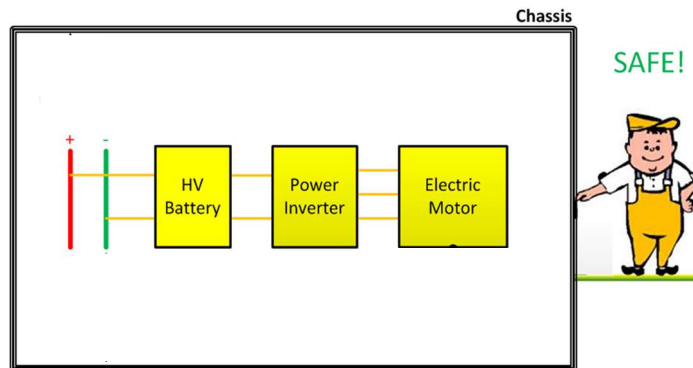


First Responder Information



3. Isolation Monitoring System (IMS)

- The **Isolation Monitoring System** constantly measures the resistance between the high voltage conductors and ground.
- It warns the vehicle operator if the resistance falls below a set threshold.



Dash Fault Lamp

The High Voltage system does NOT use Chassis Ground

First Responder Information



4. Training Requirements:

DTNA High Voltage Safety Training falls into three categories:

HV1, HV2 (Dealer ILT) & HV3 (Currently Factory Only)

Each category has specific task and roles the user is allowed to perform.

Job Classification or Function	HV1	HV2	HV3
(Minimum level of Training Required)			
Driver of a HV Vehicle	X	X	X
Tech not working on eVehicles but in the area	X	X	X
Tech working on "non-HV" Components		X	X
Tech working on "HV" Components			X
Decommissioning or Commissioning the "HV" System			NA

(NA – Not Yet Available for Customer Techs)

First Responder Information



5. BASIC Disabling of the High Voltage System (to remove the vehicle from service)

1. Turn off and remove the ignition key
2. Turn off the **low voltage battery disconnect** in the battery compartment
3. Turn off the **HV Disconnect** on the **HVJB**,
(High Voltage Junction Box)

1

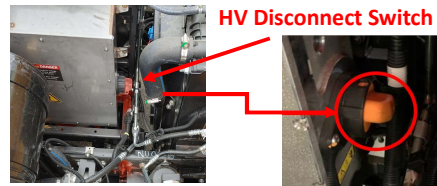


The High Voltage system is controlled by the 12V system. No LV = No HV

2



3



"Lockout –Tagout" Procedures must be followed at each step

ADA Chime



- The **Americans with Disabilities Act** requires that on all Electric Vehicles, a noise generating device be installed that will operate during vehicle operation below 18.6 mph (30 km/h).
- There is one on the front bumper of the vehicle and one at the rear in addition to the reverse warning device.
- Also referred to as the **AVAS**.
(Acoustic Vehicle Alerting System)

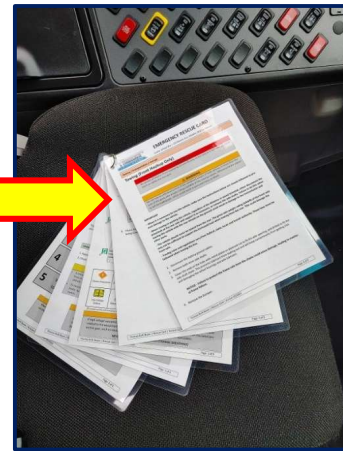


First Responder Information



Emergency Rescue Cards"

For Tow Truck Operators



Emergency Rescue Cards

First Responder Info – Removing Voltage



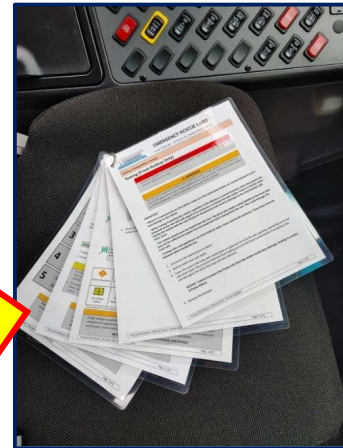
EMERGENCY RESCUE CARD
Jouley School Bus – C2 Electric Bus: Models 2020 to Present

Disable direct hazards / safety regulations

- 1 Turn off and remove the ignition key.
- 2 Turn off the low voltage battery disconnect and disconnect all battery ground cables in the battery compartment.
- 3 Turn off the HV disconnect on the High Voltage Junction Box Located under the hood.
- 4 Remove Manual Service Disconnects (MSDs).
(only performed when wearing High Voltage Arc Flash PPE)
- 5 Wait 5 Minutes for the HV components to discharge.

WARNING
Always wait five (5) minutes after deactivating the HV on the vehicle. This ensures the systems high voltage

ards”

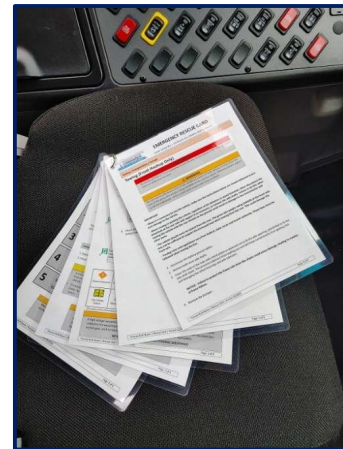
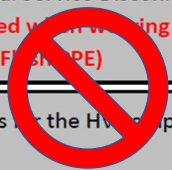


Emergency Rescue Cards

First Responder Info – Removing Voltage



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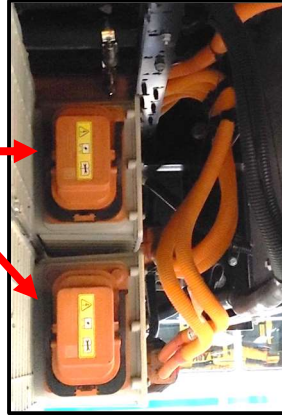
Emergency Rescue Cards

High Voltage Disabling "Decommission"



Manual Safety Disconnects (MSD's)

Rear of the Batteries Driver Side



Caution !!

After removal, the HV system must be verified that all residual voltage has been dissipated.

Decommissioning is to be completed only by an HV-3 Certified Technician.

First Responder Information



Applying the "Park Brake" also shifts the Transmission to Neutral

Emergency Rescue Cards

EMERGENCY RESCUE CARD
Jouley School Bus - C2 Electric Bus - Models 2020 to Present

Identification / recognition
The blue Thomas Built Buses logo is located off of the entrance door and rear surface below drivers side plate (may be omitted based on state specification)

The blue Thomas Built Buses hold emblem is located forward surface, center in the hood.
*Optional - The blue and yellow Jouley logo can be located off of the entrance door.

Immobilization / stabilization / lifting

1. Apply the Parking Brake.
2. Chock the wheels to immobilize the vehicle.

CAUTION
A transmission parking brake is NOT installed in this vehicle as is typical with a diesel / automatic transmission vehicle.

To secure the vehicle, you must engage the air parking brake. By pulling / lifting the yellow park brake electric switch.

WARNING
The parking brake is controlled by the yellow park brake electric switch. If the Low Voltage (12 VOLT) system is disabled, the yellow park brake electric switch is disabled. To set the park brake without power, the Service Brake pedal must be depressed to reduce air pressure until the parking brake engages.

Rescue Card | Version 02/2023 | Page 2 of 5

First Responder Information



You arrive at the incident location:

If the bus sets idle for **30** seconds with no throttle movement and the service brake is not applied, **Intellipark** is designed to:

- Apply the park brake
and
- Shift the transmission to neutral.

If, however, the ADA Chime is sounding, the system has failed and may still be in range with the PB unapplied.

The best situation for this would be to enter the bus and apply the Park Brake.



First Responder Information

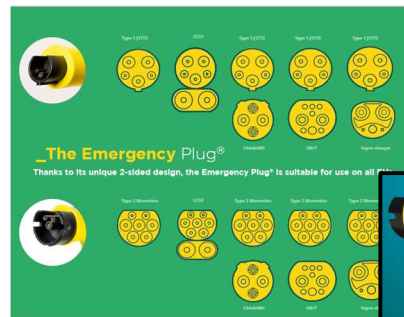


The Emergency Plug®





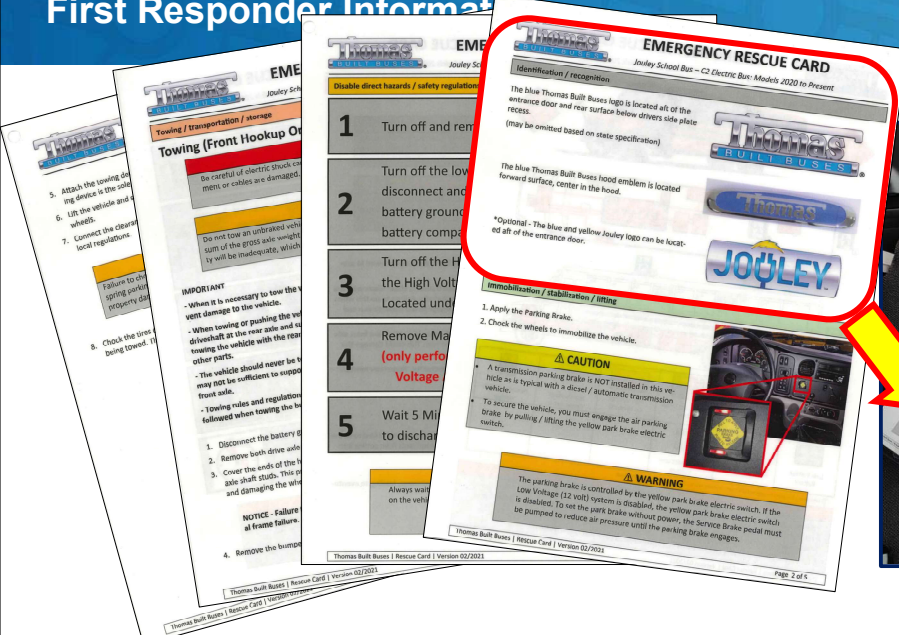
Will this work on Jouley?

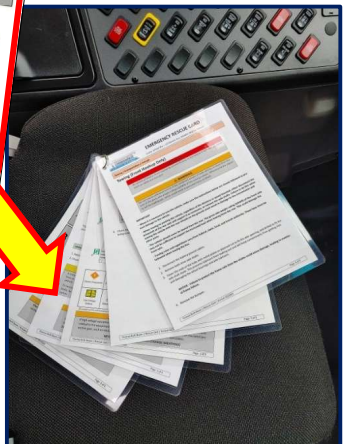
If the Park Brake is Set – Yes



First Responder Information





Emergency Rescue Cards

How To Identify a Jouley Chassis ?






Side & Rear Panel Badge



ID Badge

“E-Bus” Placard



Side Hood Emblem



Hood Badge



Blue = Batteries

First Responder Information – Identification



First Responder Information



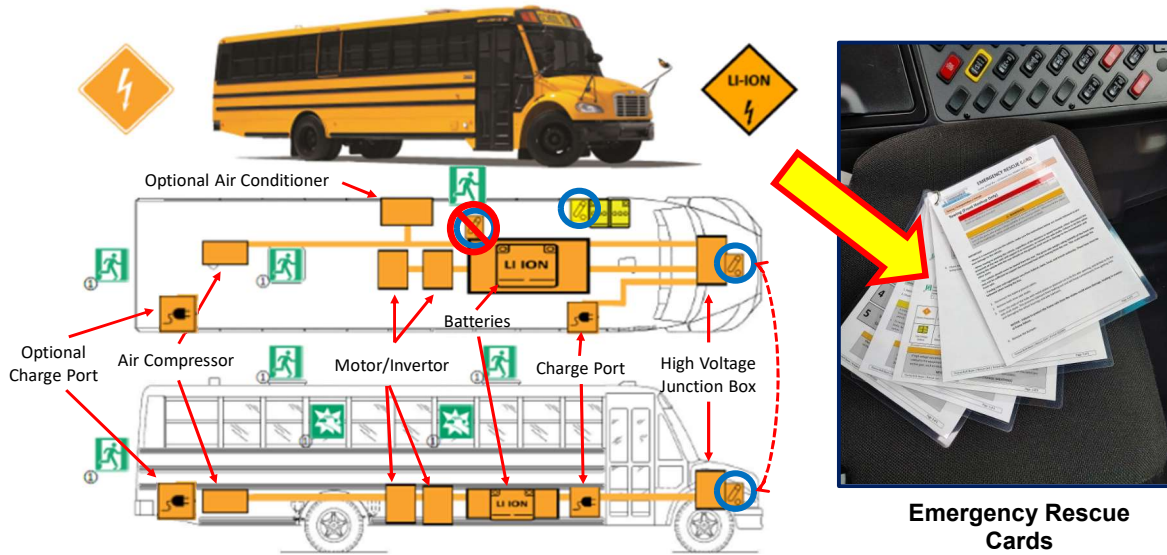
⚠ WARNING

If high voltage equipment of high voltage cables (orange sheathing) are damaged due to an accident related to the equipment shown above, there may be a short circuit. Be sure to put an insulated protective gear, such as insulated clothes and gloves, before starting rescue operations.

NEVER CUT HIGH VOLTAGE CABLES (ORANGE SHEATHING)

Emergency Rescue Cards

First Responder Info – Key HV Components

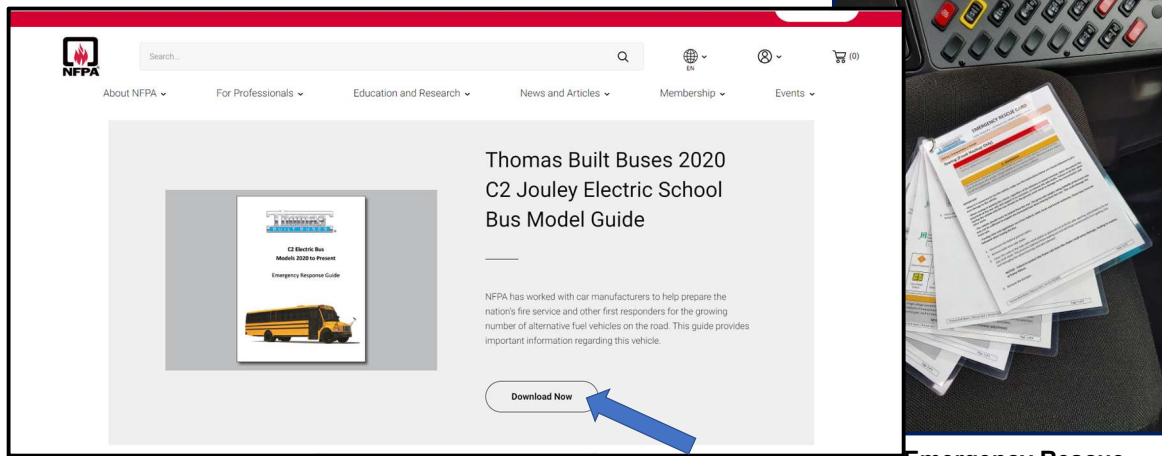


Emergency Rescue Cards

First Responder Information



Thomas Built Buses | NFPA



(Downloadable Version)

Emergency Rescue Cards