In-Station Training

TM 24-15 MVA with Entrapment & Fire

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Purpose

Vehicle collisions with entrapment and vehicle fires each present different critical factors. The challenge of size-up and sequencing tactical operations increases when confronted with a motor vehicle accident with a trapped occupant when the vehicle is on fire.

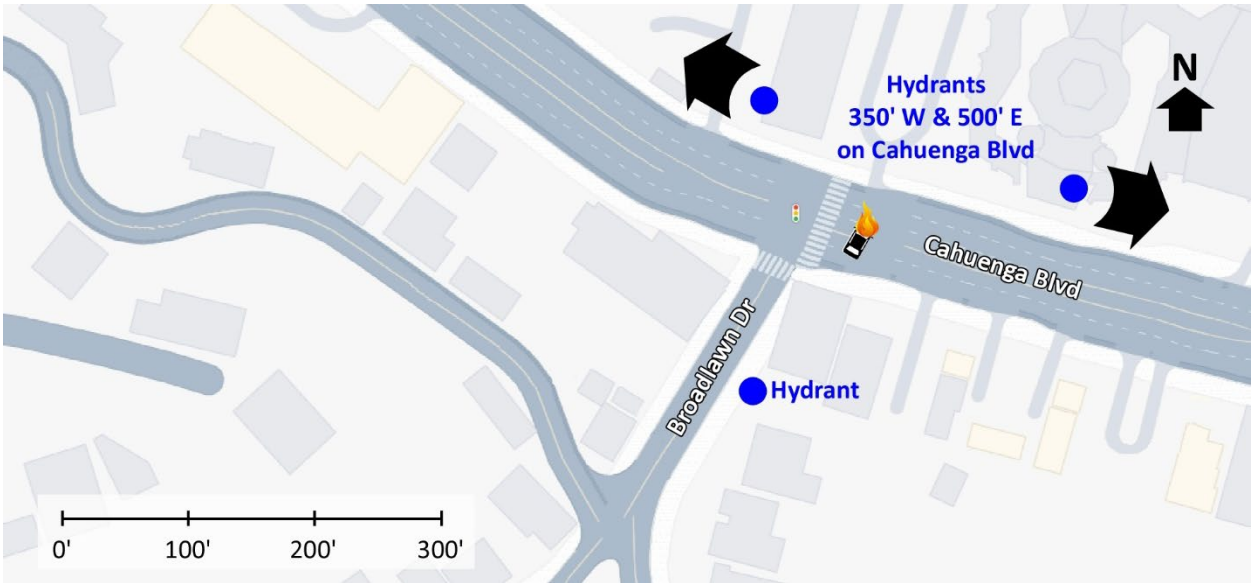
Learning Outcomes

Firefighters and officers perform an effective size-up, select an appropriate strategy, and implement tactics based on the strategic decision-making model.

Conducting the Drill

This incident involved a single vehicle crash at Broadlawn Drive and Cahuenga Boulevard in Studio City, California on January 28, 2024, at 00:30 (Undistorted TV, 2024). Review the map and photos (Figures 1-5) to gain an understanding of the incident area.

Figure 1. Map of the Incident Area



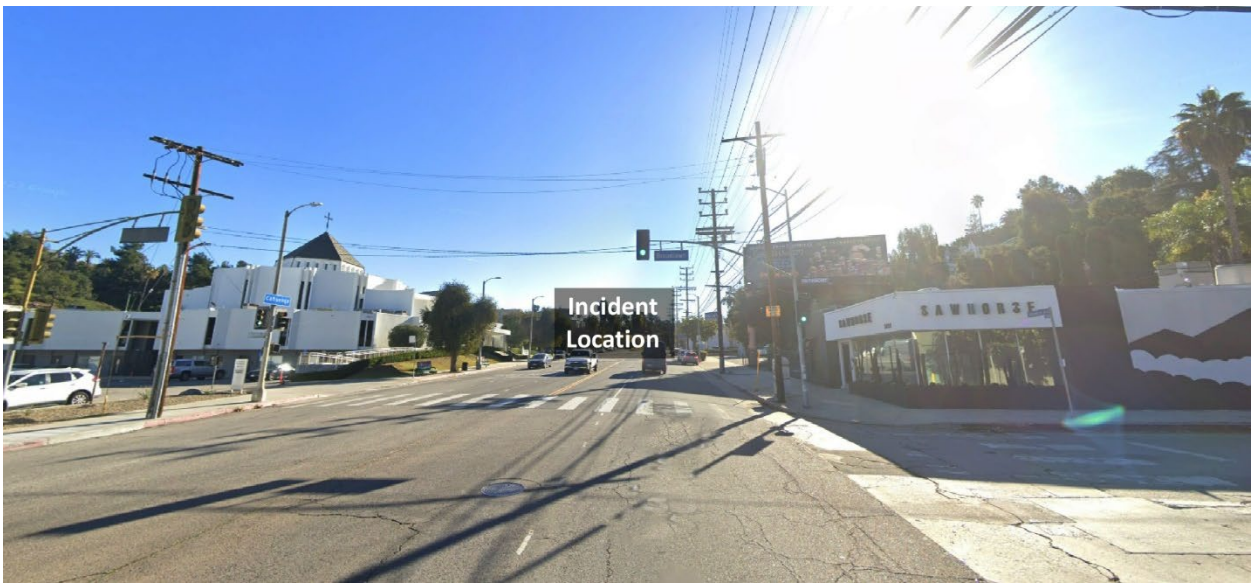
Note: Adapted from Google. (2024a). [Map, Broadlawn Dr and Cahuenga Blvd, Studio City, CA]. https://bit.ly/48N7Y6b.

Figure 2. Aerial View

Note: Adapted from Google. (2024b). [Aerial view Broadlawn Drive and Cahuenga Blvd, Studio City, CA]. https://bit.ly/3Ppd7KA.

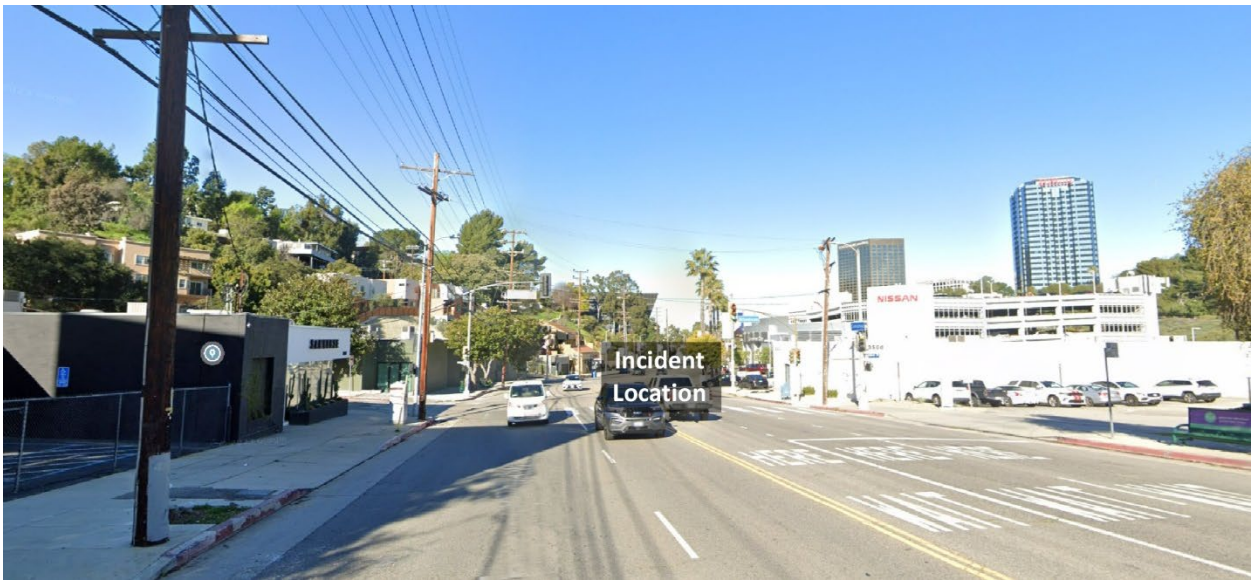
The closest hydrant is on Broadlawn Drive, just south of Cahuenga Boulevard e as shown in Figures 1 and 2.

Figure 3. Incident Location Viewed from the West Northwest on Cahuenga Boulevard



Note: Adapted from Google. (2017a). [Street view, Broadlawn Dr and Cahuenga Blvd, Studio City, CA]. https://bit.ly/3x22ZBq.

Figure 4. Incident Location Viewed from the East Southeast on Cahuenga Boulevard



Note: Adapted from Google. (2017b). [Street view, Broadlawn Dr and Cahuenga Blvd, Studio City, CA]. https://bit.ly/3ThMecR.

Figure 5. Incident Location Viewed from Broadlawn Drive

Note: Adapted from Google. (2017c). [3d aerial view, Broadlawn Dr and Cahuenga Blvd, Studio City, CA]. https://bit.ly/48Yf2wD.

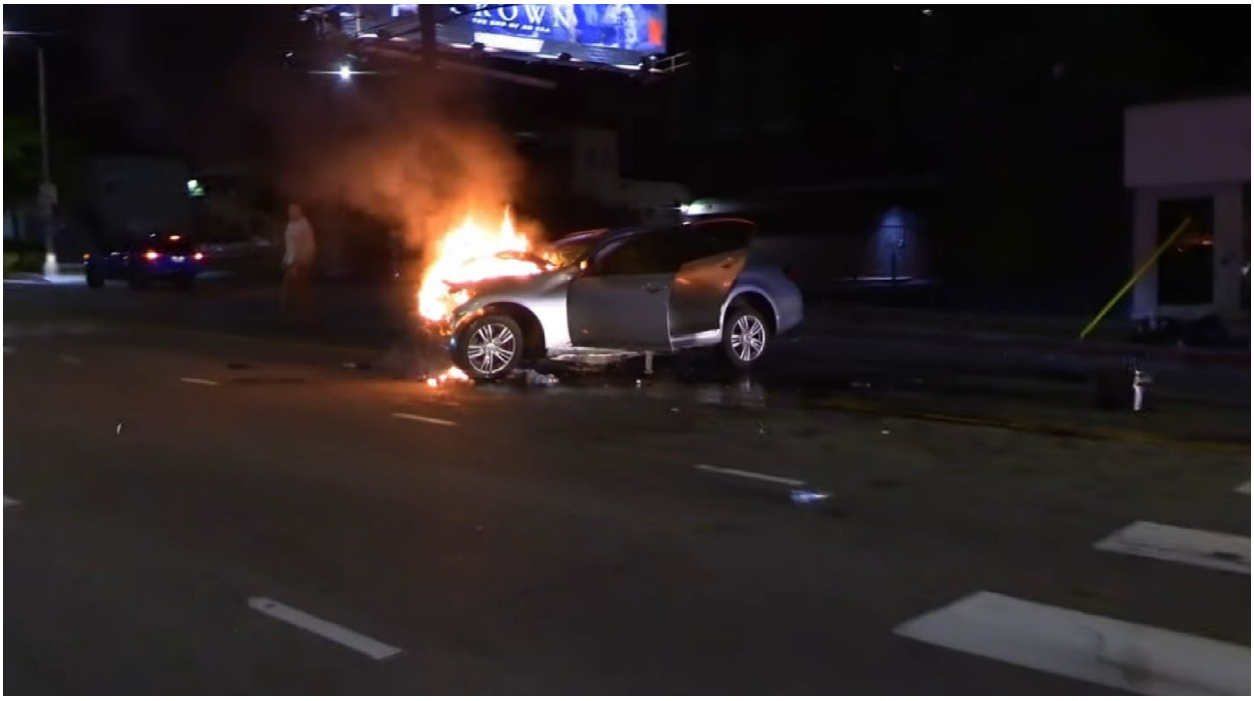
The temperature is currently 58° F with wind from the east at 3 mph (Weather Underground, 2024). You have been dispatched to Broadlawn Drive and Cahuenga Boulevard for a report of a vehicle crash and fire with entrapment at 00:30. You are the company officer or AIC of the first arriving engine and have your company's typical staffing.

1. What critical factors would you consider when dispatched and during response and what conversations would you have with your crew while responding?

Dispatch provides an update reporting multiple calls for a single vehicle crash and fire with entrapment. You hear a command officer, another engine, and an advanced life support (ALS) ambulance with typical staffing for your agency go enroute. You will arrive from the west northwest on Cahuenga Boulevard. The second engine and ALS ambulance will arrive from the same direction six minutes after you. The command officer will arrive shortly after the second engine. Any additional resources on the initial alarm or requested while enroute will arrive after the command officer.

Watch the first 00:15 of the incident video (Undistorted TV, 2024) and examine Figure 6 illustrating conditions on arrival.

Figure 6. Conditions on Arrival



Note: Adapted from Undistorted TV. (2024). *LAFD saves trapped passenger in dramatic car fire rescue In Studio City* [video]. https://bit.ly/3Vfr7KO.

2. State your initial radio report (IRR) exactly as you would transmit it to dispatch.

3. What specific actions would you take (as the company officer) immediately upon arrival and exiting the apparatus and what task orders you would give your crew?

Bystanders report an occupant in the vehicle and initial reconnaissance confirms that the passenger of the vehicle has their eyes closed but is responsive to voice. The passenger is entrapped and will require extrication. The driver of the vehicle is lying on the sidewalk at the intersection of Broadlawn Drive and Cahuenga Boulevard. The driver is conscious.

4. Would you change the action you are taking or modify the assignments given to your crew? If so, what task orders would you provide?

5. State your update report exactly as you would transmit it to dispatch.

6. Engine 2 arrives and reports that they are Level 1 on Cahuenga Boulevard. State the tactical assignment you would give them exactly as you would transmit it.

7. Medic 1 arrived and reports that they are Level 1 on Cahuenga Boulevard. State the tactical assignment you would give them exactly as you would transmit it.

8. Based on the anticipated effectiveness of your tactical operations, state your conditions, actions, and needs (CAN) report that you would provide to the first arriving command officer as part of command transfer to IC #2.

Watch the incident video (Undistorted TV, 2024) from 00:20 to 00:46 before answering the next two questions.

9. Describe the problem presented by this incident?

10. What critical factors influenced your decision-making and initial incident action plan?

11. What risk management profile were you operating in? Why?

12. The first arriving engine used a dry chemical fire extinguisher to knock down the fire in the engine compartment. Was this consistent with your initial actions to achieve fire control? What critical factors influenced your approach to controlling the fire?

13. It appears that the apparatus operator of the first arriving engine deployed an attack line and continued fire control without structural firefighting clothing and self-contained breathing apparatus. What potential risks were presented by this action?

14. The vehicle was not stabilized prior to firefighters working in and around the vehicle. In this 10-Minute Training did you stabilize the vehicle? Why or why not? If you did, when did you take this action (in the sequence of incident operations)?

15. What was your initial plan of action to extricate the passenger of the vehicle? If this was not fully successful, what was your Plan B?

Additional Learning: How much do you know about fire extinguishers? Most firefighters think of portable extinguishers as a simple tool without giving much thought to their capabilities and limitations. A 2 ½ gallon pressurized water extinguisher (aka "the can") is commonly carried when investigating automatic alarms or other "nothing showing" conditions in buildings. It is less common for firefighters to deploy a dry chemical extinguisher.

First consider the extinguishing agents used in dry chemical extinguishers:

- Multi-Purpose (ABC) monoammonium phosphate based dry chemical extinguishing agent. This agent is suitable for use on Class A, B or C type fires and is particularly effective on fires that involve a combination of Class A and B fuels (Chemguard, 2024). Monoammonium phosphate extinguishing agents cannot be used in conjunction with foam as application concurrent with or after foam will cause deterioration of the foam blanket.
- Regular or Standard (BC) sodium bicarbonate based dry chemical extinguishing agent (Chemguard, 2024). Sodium bicarbonate extinguishing agents may or may not be compatible with foam. If not compatible, application concurrent with or after foam will cause deterioration of the foam blanket.
- Purple K (PK) potassium bicarbonate based dry chemical extinguishing agent. (Chemguard, 2024). Potassium bicarbonate based extinguishing agents provide faster knockdown of flammable liquid fire and are compatible with foam. Purple K can be applied prior to, concurrent with, or after application of foam.

Examine the differences in rating between a 2 ½ gallon pressurized water extinguisher and dry chemical extinguishers using different types of Ansul Sentry 20 lb. dry chemical extinguishing agents and extinguisher flow rates. As a starting point, a 2 ½ gallon pressurized water extinguisher has a rating of 2A.

Table 1. Ansul Sentry Dry Chemical Fire Extinguisher Characteristics and Ratings

Model	Standard Flow			High Flow (Pressurized Fires)	
	AA20	PK20	C20	HF-AA20-1	HF-PK20
Extinguishing Agent	ABC	PK	BC	BC	PK
Discharge Time	28 sec	30 sec	21 sec	18.2	18.2
Agent Flow Rate	0.73 lb/sec 0.33 kg/sec	0.67 lb/sec 0.30 kg//sec	0.99 lb/sec 0.45 kg/sec	1.20 lb/sec 0.54 kg/sec	1.19 lb/sec 0.54 kg/sec
UL Rating	10A 120BC	120 BC	80BC	4A 60BC	4A 60BC

Note: Adapted from Johnson Controls. (2024a). Data sheet Sentry dry chemical hand portable fire extinguishers. https://on.jci.com/43lOJ2g and (2024b). Data sheet Sentry high-flow dry chemical fire extinguishers. https://on.jci.com/3PqYZAq.

Examine the portable extinguishers carried on your apparatus and determine their capabilities and limitations. Discuss potential applications where a portable extinguisher could be used to advantage.

References

Chemguard. (2024). *Dry chemical agents*. Retrieved March 17, 2024, from https://bit.ly/3PrCsDL.

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