



DRIVING TECHNIQUES

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-HUMAN FACTORS



-DRIVER RELATED FACTORS



-ENVIRONMENTAL FACTORS



-VEHICLE FACTORS

Human Factors

Human factors are ingredients provided by the driver



Human Factors

ATTITUDE – Driver's disposition toward driving.

KNOWLEDGE – Defined as a clear perception of the truth, fact or subject.

MENTAL FITNESS – State of mind while driving.

JUDGEMENT – Ability to make the right decision.

Human Factors

PHYSICAL FITNESS – lack of physical impairments which may jeopardize the driver's ability to maintain full control of the vehicle.

AGE – where potential exists to have any of the human aspects impaired.

HABITS – a characteristic produced by constant repetition of an action.

Driver Related Factors

PERCEPTION SKILLS: observation and anticipation

ATTITUDE: risk acceptance, positive versus negative

ATTENTION: distractions, concentration

Driver Related Factors

PHYSICAL REACTION CAPABILITIES:

coordination and control

PHYSIOLOGICAL IMPAIRMENTS: tired or fatigued, hungry, medications, etc.

EMOTIONAL CONTROL: calm, nervous, unsure, timid, angry, aggressive, daydreaming

Environmental Factors

- 1. ROAD SURFACE:** wet, dry, type of material, temperature
- 2. ROAD DESIGN:** flat, uphill, downhill, curve
- 3. VISIBILITY:** weather (rain, fog), night time, blind spots, heavy traffic
- 4. WIND:** affects high profile vehicles





Vehicle Factors That Affect Vehicle Dynamics:



1. Braking System



2. Suspension And Steering



3. Tires



4. Weight Distribution/ Weight Of Vehicle

Concepts To Know

Longitudinal transfer:

- Front to back or back to front weight shift is caused by ***acceleration*** or ***deceleration***. (Inertia)

Lateral transfer:

- Side to side weight shift is caused by turning. (centrifugal force)

Concepts To Know

Definition of friction:

Resistance to motion of two moving objects or surfaces that touch. Adhesion between the tires and the road.

Traction limitation is affected by:

Tire pressure, tread depth, and the coefficient of friction.

Coefficient of friction:

The measurement of the stickiness / adhesion that exists between the tire and the roadway.

Hydroplaning

When a vehicle skims along the surface of a wet road

Three contributing factors to hydroplaning:

1. Water depth as little as 1/16 of an inch

2. Worn tires/ low air pressure

3. Vehicle speed

Skills Required of A Good Driver:

1. Precise steering control
2. Ability to negotiate intersections
3. Smooth stopping
4. Safe lane changes
5. Proper backing procedures

Skills Required of A Good Driver:

6. Safe passing / overtaking of other vehicles
7. Ability to adapt to adverse driving conditions
8. Knowledge of emergency procedures
9. Calm professionalism

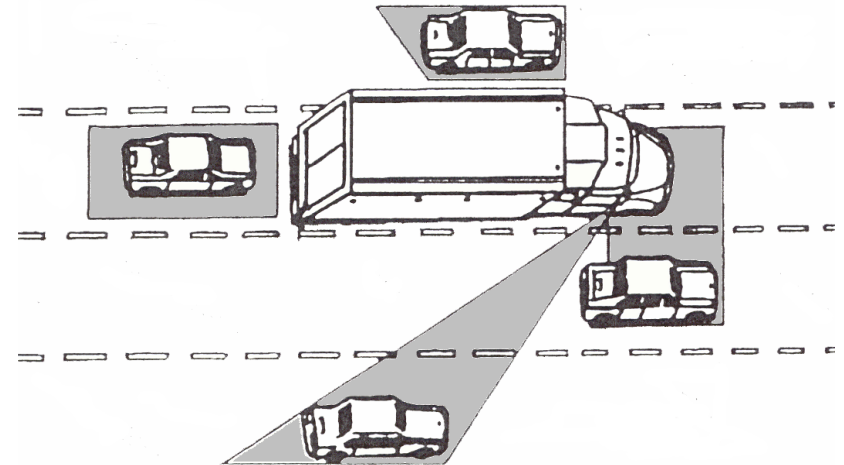
Requirements To Operate A Vehicle (Acquired Abilities)

1. Driver's License / Permit
2. Knowledge of State and Local Laws
3. Defensive Driving Techniques
4. Knowledge of vehicle characteristics
 - Type of vehicle*
 - Components - Engine, Drivetrain, Braking system, etc.*
 - Height and Weight of the Vehicle - Limitations of roads, bridges and overpasses*
5. Knowledge of Vehicle Handling Characteristics
 - Stopping distance*
 - Horsepower*
 - Top heavy*

Driving To Stay Alive

Be aware of blind spots;
yours and those of other
drivers.

Avoid Driving In **Blind
Spots**



Defensive Driving

Reduce the risk of driving by anticipating dangerous situations, adverse conditions and driving mistakes of others.

Common Causes Of Accidents:

1. Unsafe speed
2. Driving on the wrong side of the road
3. Improper turns
4. Violation of the right of way rules
5. Violation of stop signs and signals
6. Misjudgment of clearance

Negligence Defined

Failure to use a reasonable amount of care when such failure results in injury to another.

“FAILURE TO USE....”

Expresses that means were available or prescribed which should have been used but were not.

“...A REASONABLE AMOUNT OF CARE....”

What constitutes a reasonable amount of care is often the hinge pin in negligence cases.

Negligence Defined

Failure to use a reasonable amount of care when such failure results in injury to another.

“...WHEN SUCH FAILURE RESULTS IN INJURY....”

A negative result is the end product of the failure; in this case injury.

“...TO ANOTHER.”

When negligent, YOU were the cause of injury to another party.

Negligence Defined

Failure to use a reasonable amount of care when such failure results in injury to another

- You must conduct all emergency vehicle operations in strict accordance with existing statutes and our Emergency Vehicle Driving Policy.
- At all times you must exercise due regard for the safety of all people.

Basic Formula For Vehicle Spacing

1. Basic Formula= Count 1 full second for every 10 feet of vehicle length for speeds up to 40 mph.
2. For speeds above 40 mph, use the basic formula then add 1 second.
3. Adverse driving conditions- use the basic formula then add 1 second.
4. Night driving- use the basic formula then add one second.

The stopping distance for a two-axle truck at 55 miles per hour is 371 feet. Many variables can add to this distance, i.e., weight, length, tire condition, brake type, road surface. The biggest contributing factor is human reaction time. Always error on the side of caution for safe vehicle spacing.

Fourteen Driving Situations That Shout Watch Out

1. **You are entering an intersection against a red light.**

Watch speed, braking distance, visibility, limitations of warning devices, look, look.

2. **You are overtaking and passing a vehicle .**

Remember lane clearances, other driver's awareness and reaction, limitations of warning devices.

3. **You are driving a vehicle in inclement weather.**

Adjust road speeds and use extreme caution. Visibility will be reduced. Following distances are critical for safe stopping. There are limitations of warning devices. When operating outside the vehicle, mud may get on your shoes, which may impact your safe driving ability.

4. **You are operating a vehicle while fatigued .**

Fourteen Driving Situations That Shout Watch Out

5. **You are operating a vehicle against traffic.**

Your speed must be adjusted accordingly and the limitations of the apparatus warning device.

6. **You are operating a vehicle with less than full staffing.** There are backing obstacles, reduced visibility, tight spaces, and clearances. Close all compartment doors and ensure loose equipment is secured.

7. **You are backing into a station with low overhead clearance** . Stations 7, 28, 32. Remember the monitor nozzle and light standards; ensure they are at their lowest point.

Fourteen Driving Situations That Shout Watch Out

8. *You are operating a vehicle you are unfamiliar with.* Mirror locations, length, width, and height of vehicle may be different.

Do not forget the exhaust pipe location! Familiarize yourself with general controls and gauges.

Keep in mind that we operate high-powered vehicles. Start Slow!

9. *You are driving in areas that you are not familiar with.* Remember pedestrian hazards, blind intersections, bicycle riders, and road hazards. When on strike teams, stay especially alert for additional hazards of smoke, narrow roads, bridges, and heavy traffic.

Fourteen Driving Situations That Shout Watch Out

- 10.** *You are driving in an area not meant for vehicle traffic.* Consider the hazards of off-road driving. Keep in mind those areas where soft ground can be encountered. People are inattentive in parking lots. Stay alert to ensure other drivers are aware of your vehicle.
- 11.** *You are not driving defensively.*
You are driving in your comfort zone. You may have tunnel vision, crew chat over the headsets, may be sightseeing or falling into routine. Stay alert at all times when driving a vehicle in the high-speed traffic conditions we encounter.
- 12.** *You are approaching a street obstacle.*
These can be street bumps, dips, steep grades, potholes, and overhead obstructions. These obstacles can make control of the vehicle more difficult.

Fourteen Driving Situations That Shout Watch Out

13. You cannot see clearly for at least 500 feet in all directions.

Weather conditions such as fog, rain, and darkness require a high level of alertness. Following a large vehicle impairs your forward vision. Blind intersections are always hazardous.

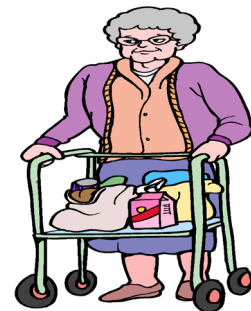
14. You are making a lane change.

Signal your intentions, don't hurry, and ask the crew to help determine clearances.

PRIOR TO MOVING APPARATUS

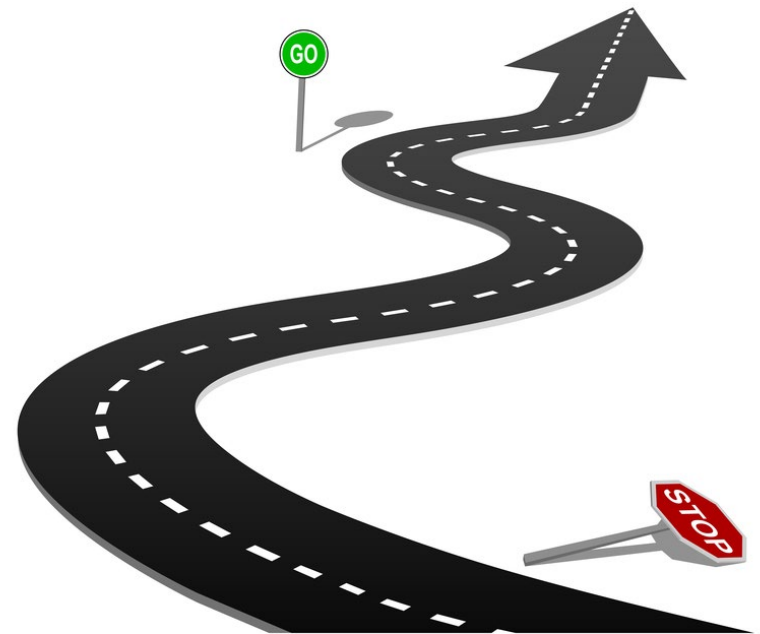
Walk around your apparatus and check:

1. All equipment must be secured
2. All compartment and cab doors are secured;
YOU OPEN A COMPARTMENT, YOU CLOSE IT!
3. Apparatus is clear of pedestrians and obstructions
4. WHEEL BLOCKS UP AND STOWED (2)



PRIOR TO MOVING APPARATUS

5. Crew is in proper uniform / PPE
6. Crew is seated with seatbelts on
7. Pathway is clear of obstructions



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Backing

- Should be avoided. Pre-plan parking and driving routes to eliminate the need to back up.
- Communicate with standard hand signals (Drill Manual).
- Back up with all Code 3 lights and sound horn twice to signify the beginning of movement.
- Drivers shall have a primary backer throughout the backing process. This person is positioned to discourage looking from mirror to mirror.
- If you lose sight of your backer, STOP THE APPARATUS IMMEDIATELY until contact is re-established.

Backing Into Stations

1. Drivers are to use all warning lights.
2. All crewmembers will exit, and Company Officer shall be at the rear of the apparatus (or one crew member).
3. When stopping the vehicle to off load the crew, place the vehicle in such a way as to provide the best protection for the disembarking crew.
4. Apparatus Bay lights on.

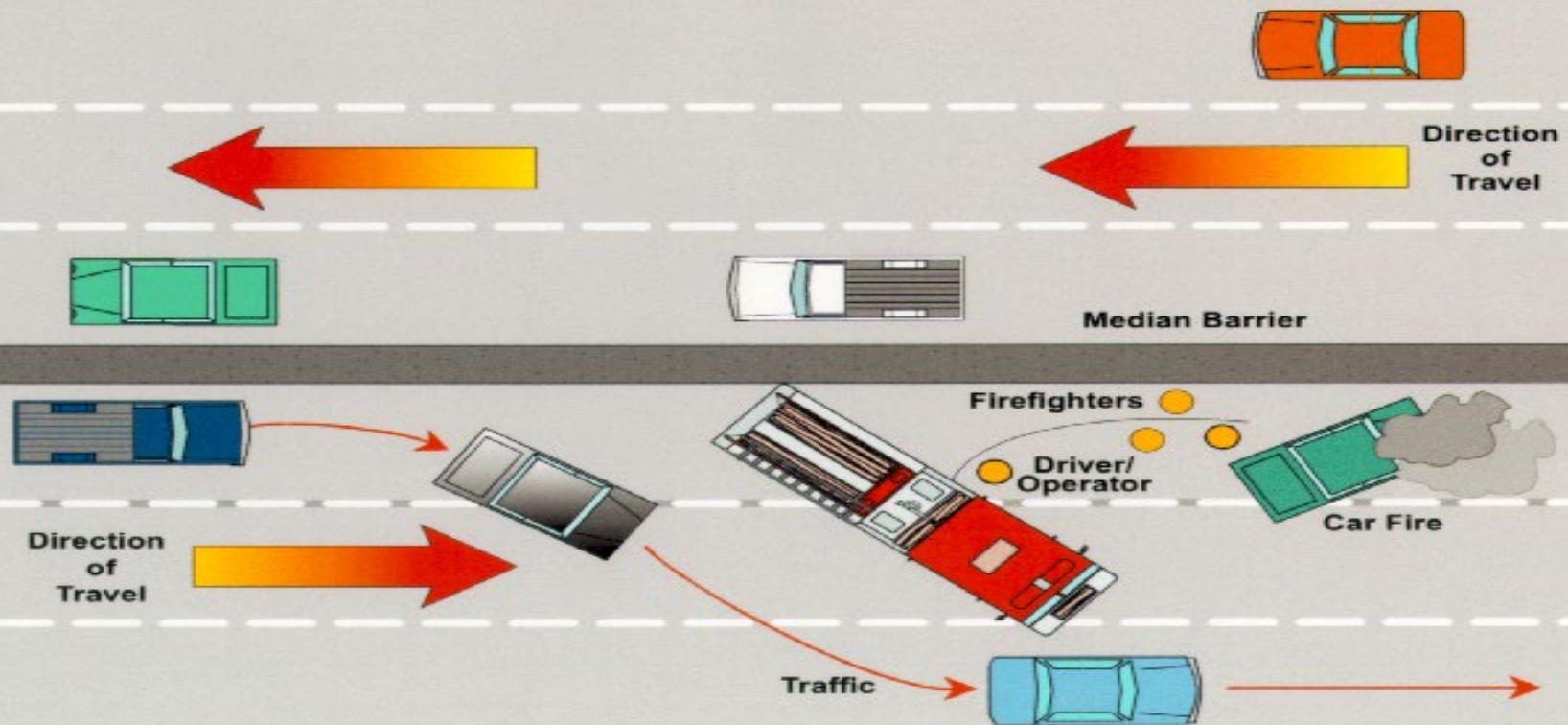
Safe Parking While Operating At Traffic Accidents

1. Position the apparatus to protect the scene, patient's, emergency personnel, and to provide a protected work area.
2. Where possible, place the apparatus at a 45° angle from the curb.
3. Use of traffic and scene control devices (i.e., cones and flares)



Safe Parking While Operating At Traffic Accidents

Highway Positioning











REVIEW

Three contributing factors to hydroplaning:

1. Water depth as little as $1/16$ of an inch
2. Worn tires/ low air pressure
3. Vehicle speed: total hydroplaning may be expected at or about 58 mph

REVIEW

COMMON CAUSES OF ACCIDENTS

1. Unsafe speed
2. Driving on the wrong side of the road.
3. Improper turns
4. Violation of the right of way rules
5. Violation of stop signs and signals
6. Misjudgment of Clearance

REVIEW

WHEN BACKING INTO STATIONS:

1. All warning lights on.
2. Apparatus Bay lights on.
3. Use Backers



REVIEW

PRIOR TO MOVING APPARATUS

1. All equipment must be secured
2. ALL COMPARTMENT AND CAB DOORS ARE SECURED; YOU OPEN A COMPARTMENT, YOU CLOSE IT.
3. Apparatus is clear of pedestrians and obstructions
4. Wheel blocks are UP and stowed (2)
5. Crew is in proper uniform / PPE
6. Crew is seated with seatbelts on
7. Pathway is clear of obstructions



REVIEW

SAFE PARKING WHILE OPERATING AT TRAFFIC
ACCIDENTS

LANE BLOCKING