PIERCE® ONE-SOURCE SOLUTIONS

TRAINING MANUAL

ALL-STEERÒ DRIVING INSTRUCTION MANUAL

Part No. PRC-AWSDRMAN-1005
Revised 10/05

AGENDA & CLASS OUTLINE

DO NOT DRIVE APPARATUS IN ANY ALL STEER™ MODE UNTIL TRAINED

3 MIN. **INTRODUCTION**

40 MIN. **REVIEW OPERATORS MANUAL**
DWELL ON CAUTIONS, WARNINGS, & DANGERS

10 MIN. **BREAK**

15 MIN. **TEACH LEVELS/MODES OF DRIVING**
NON-EMERGENCY
EMERGENCY
REVIEW CONFIDENCE vs. RISK LEVEL

45 MIN. **TEACH MODES OF OPERATION IN CONJUNCTION WITH VEHICLE POSITIONING AND MENTAL PREPAREDNESS**
INSIDE HUG/OUTSIDE LOOK vs. OUTSIDE HUG/INSIDE LOOK
USE OF MIRRORS AND WHEN
USE OF SPOTTERS AND WHEN
ESTABLISH POSITIONING MILESTONES/BENCHMARKS
DRIVER'S SIDE
PASSENGER'S SIDE
DANGER ZONES
PEOPLE, BUILDINGS, SIGNS, TRAFFIC, POLES, ETC.

10 MIN. **BREAK**

30 MIN. **DISCUSS OUTSWING**
FRONT ONLY MODE
NORMAL COORDINATED MODE
FIREGROUND COORDINATED MODE

15 MIN. **DISCUSS USE OF CRAB STEER**

10 MIN. **BREAK**

60 MIN. **SCENARIO TRAINING - THREE 20 MINUTE BLOCKS**
MULTITUDE OF SCENARIOS
STAY ALERT FOR SAFETY

AGENDA & CLASS OUTLINE

SCENARIO TRAINING (cont'd)

(20 MIN.)

NORMAL DRIVING WITH NORMAL COORDINATED & FIREGROUND
- LANE CHANGE
- 2 LANE/2 LANE
  - LEFT TURN
  - RIGHT TURN
- 2 LANE/4 LANE
  - LEFT TURN
  - RIGHT TURN
- 4 LANE/4 LANE
  - LEFT TURN
  - RIGHT TURN
- ALLEY-SINGLE LANE/ALLEY-SINGLE LANE
  - LEFT TURN
  - RIGHT TURN

(20 MIN.)

EMERGENCY DRIVING WITH NORM. COORDINATED & FIREGROUND
- CLEAN INTERSECTION
- DIRTY INTERSECTION
- YIELDING & NON-YIELDING TRAFFIC
- MULTI-MODE SWITCHING

CLOSE QUARTERS DRIVING WITH NORM. COORD. & FIREGROUND

(20 MIN.)
- ENTERING & LEAVING STATION / FIREGROUND
- IN TRAFFIC
- APPROACHING / LEAVING SCENE
- ON SCENE

5 MIN. **BREAK**

12 MIN. **TEST (20 QUESTIONS TOTAL - 10 Multiple Choice + 10 Fill In The Blank)**

7 MIN. **REVIEW TEST**

10 MIN. **BREAK**

4 HOURS **FIELD TRAINING WITH APPARATUS**
- DEMONSTRATION OF OUTSWING USING CONES
- DEMONSTRATION OF 5 MPH/7° CRAMP
- DEMONSTRATION OF TOO TIGHT ON AN OBJECT ON INSIDE OF TURN
  - MULTI-MODE SWITCHING
- DEMONSTRATION OF ESTABLISHING BENCHMARKS FOR TURNS
- DEMONSTRATION OF WHERE TO LOOK, WHEN TO LOOK, WHY TO LOOK
- DEMONSTRATION OF DANGER ZONES
- DEMONSTRATION OF ATA/VFIS/NSC COURSE
- DRIVER PRACTICE OF APPARATUS

⚠ CAUTION

This vehicle is equipped with an Oshkosh ALL STEER® all-wheel steering system.

The use of all-wheel steering significantly changes vehicle handling, particularly on a slippery road surface caused by rain, snow, or icy conditions.

If the ALL STEER® system looses power, the rear wheels will remain in the position they were in when the power was lost.

Do not drive this vehicle in traffic in any ALL STEER® mode until you have thoroughly read this manual and had behind-the-wheel training from an individual who is an experienced ALL STEER® all-wheel steering system vehicle operator. Your operational training should take place on an empty parking lot and, as a minimum consist of the following operations:

Operator Training Check List

- Learn each of the Oshkosh ALL STEER® all-wheel steering system controls.
- Practice 90 degree turns operating in front steer mode. Notice how the rear-end of the vehicle tracks inside of the front and possibly crosses over your traffic lane line toward the inside of a turn.
- Practice 90 degree turns operating in coordinated steer mode. Notice how much tighter the turn can be made. Pay special attention to the rear-end of the vehicle. It will swing-out away from the turn and likely cross over your traffic lane line toward the outside of the turn. The sharper you turn, the greater the rear-end will swing-out. More clearance is needed between your vehicle and any adjacent objects to avoid hitting them due to rear-end swing.
- Make lane change maneuvers at speeds up to 35 mph in both front steer and coordinated steer modes to learn the handling characteristic of the vehicle.
- Turn the steering wheel right and left through progressively larger angles at speeds ranging from 1 to 10 mph, to establish a feel for the point at which the rear wheels actually start to turn.
- Familiarize yourself with the low speed-coordinated and the low speed-crab steering modes. Experience how much sharper the vehicle turns in the low speed-coordinated mode. Experience how the vehicle moves diagonally, right or left, in low speed-crab mode.
- Practice backing the vehicle in each of the available steering modes.
- Return to the training area when rain or snow makes the pavement slippery, and practice several low speed, panic brake stops and sharp steering maneuvers in both front steer and coordinated steer modes. Learn the difference in how quickly the vehicle changes direction when recovering from a skid or when making a hard turn in the coordinated steer mode, compared to the way the vehicle handles while in the front steer mode.

Non-Emergency Driving Level

- **REMEMBER - YOU control the amount of Rear Steer. Know the Mode you're in!**
  - If not needed, drive in a relatively normal fashion and leave in the Normal AWS mode.
  - If you don't satisfy the minimum speed requirement (5 MPH) before you reach the 7° cramp of the front wheels you will get minimal or no assist from the rear wheels.
  - Be less aggressive but use as many lanes as needed to negotiate the turns while keeping other traffic out of the Danger Zones.
  - Consider **ALL** other traffic (including Fire Dept. vehicles) as **novice drivers**. When using AWS **always** watch out for their unpredicted maneuvers. **STOP** if trouble seems imminent.

Emergency Driving - Response Mode

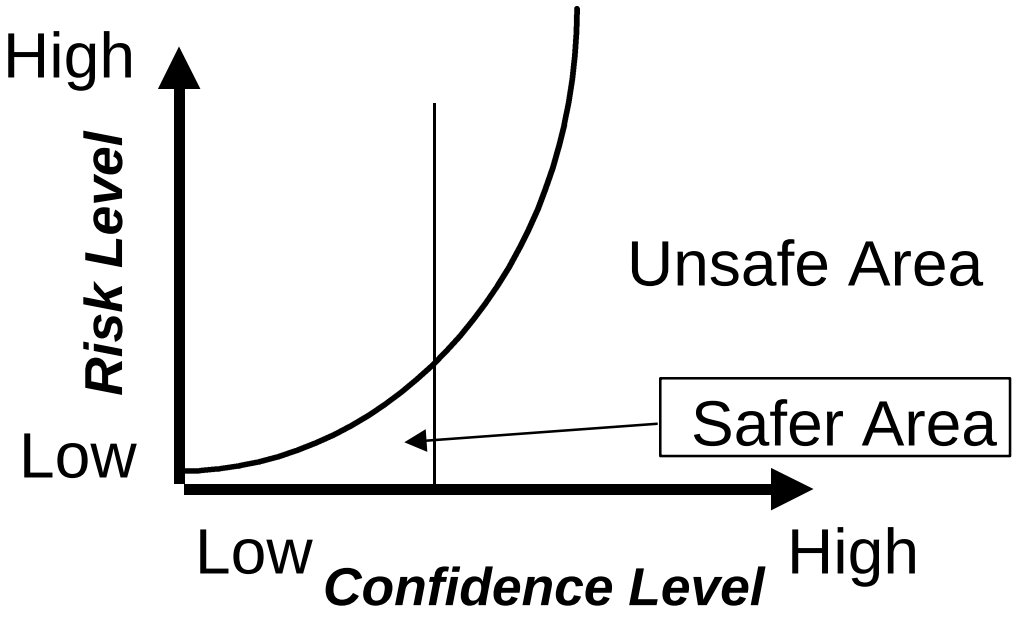
- **FACT - OVERALL RISKS GO SKY HIGH**
- **FACT - ADRENALINE INCREASES**
- **FACT - YOU REVERT TO YOUR INSTINCTS MORE UNDER STRESSFUL CONDITIONS**
  - It's OK to drive aggressively - but DON'T OVERDO IT
  - Stay closer to the inside of the turn
    - Set yourself up properly
    - Take the required lanes necessary to block traffic from your rear Danger Zones.
    - **<u>Know where the Danger Zones are!!</u>**
- **REDUCE YOUR SPEED AND INCREASE YOUR SAFETY**

Emergency Driving - Response Mode

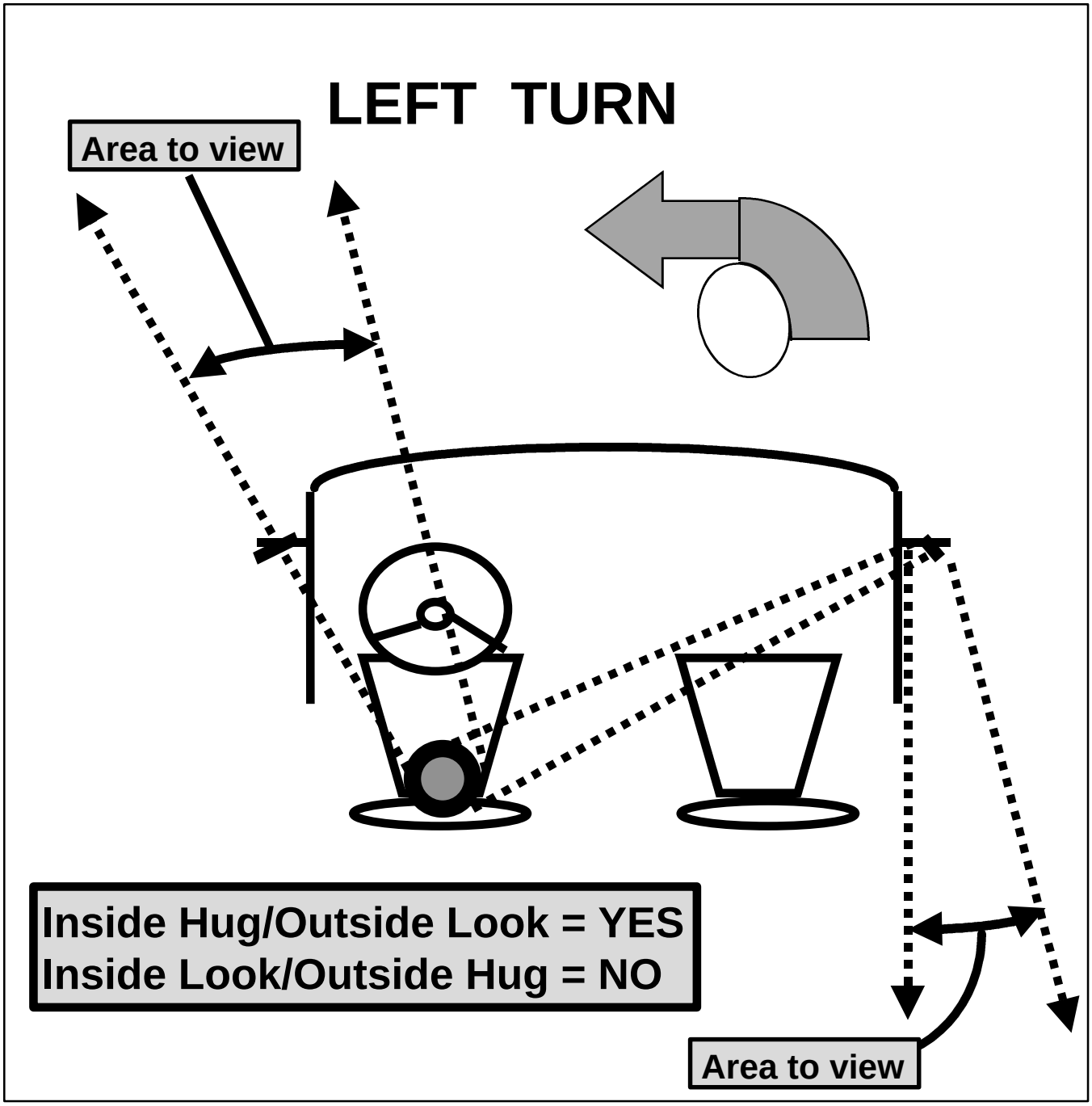
- **Based upon traffic conditions be ready to change your MODE of AWS**
  - Select your switch positions
  - Have front wheels pass center position
  - *Be prepared to STOP to make the mode change effective*
- **Treat this apparatus with the same respect as a tiller.**
- **Your safety outlet is always to STOP. Do NOT take chances. STOP to be SAFE**

LEVELS OF DRIVING

- **No one else on the road knows that you are an All-Wheel-Steer vehicle**
- **RULE - When your confidence level gets greater, your risk factor goes up exponentially!**

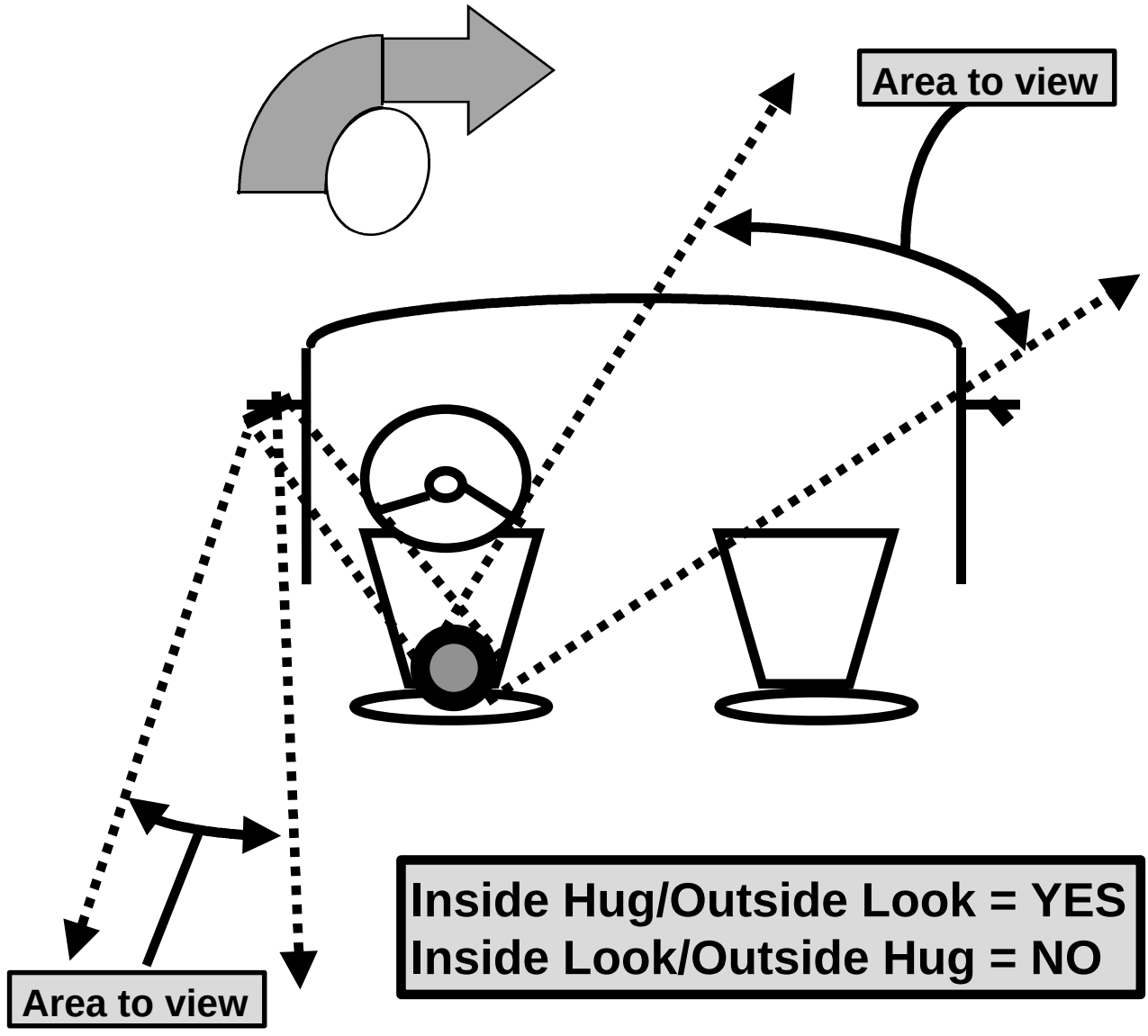


WHERE TO LOOK
- DURING TURNS -



WHERE TO LOOK
- DURING TURNS -

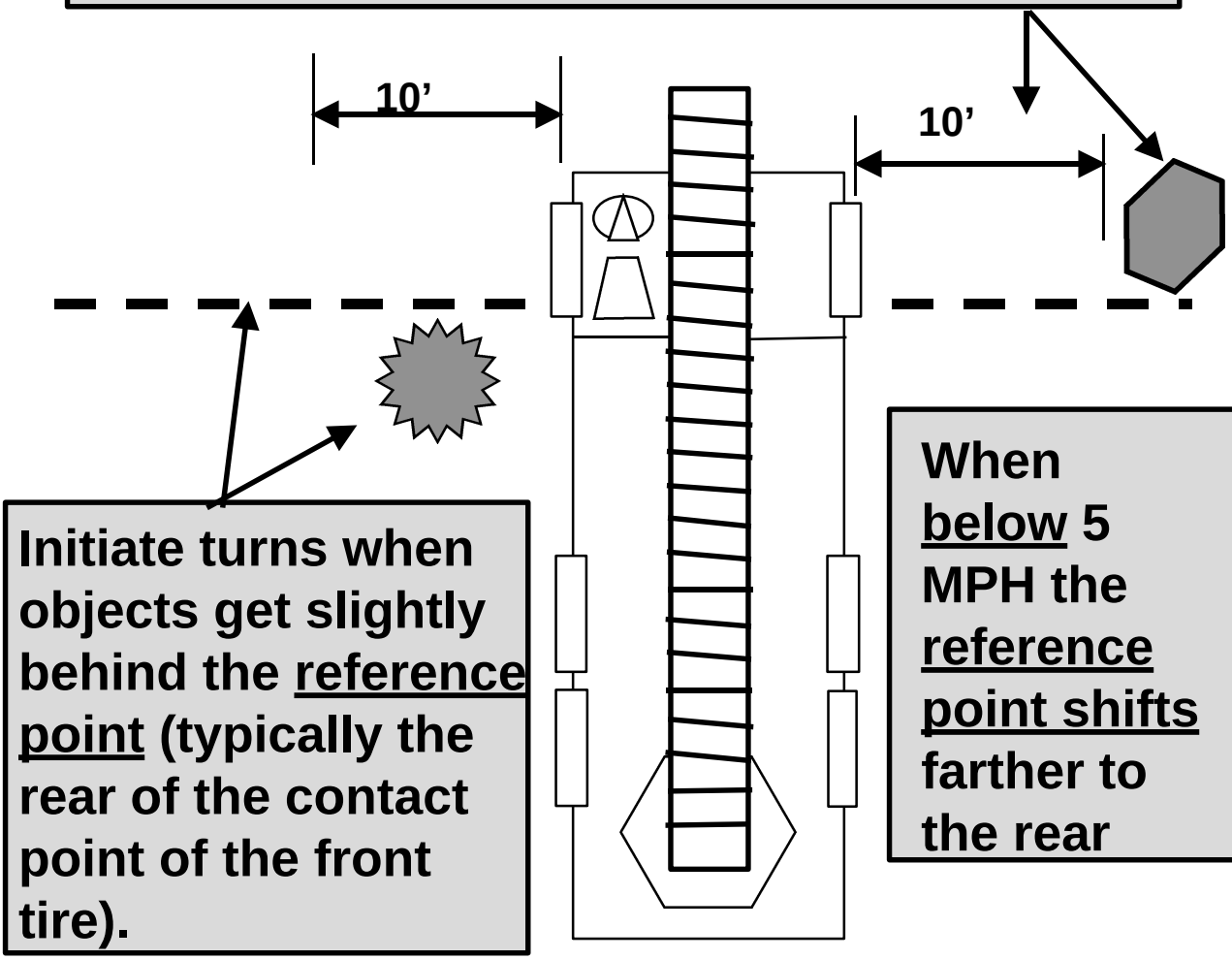
RIGHT TURN



Establishing Benchmarks / Target Points

Know when & where to start turning

A 10 ft. "buffer zone" on the outside of your turn is generally a safe allowance...<u>but be SURE!</u>



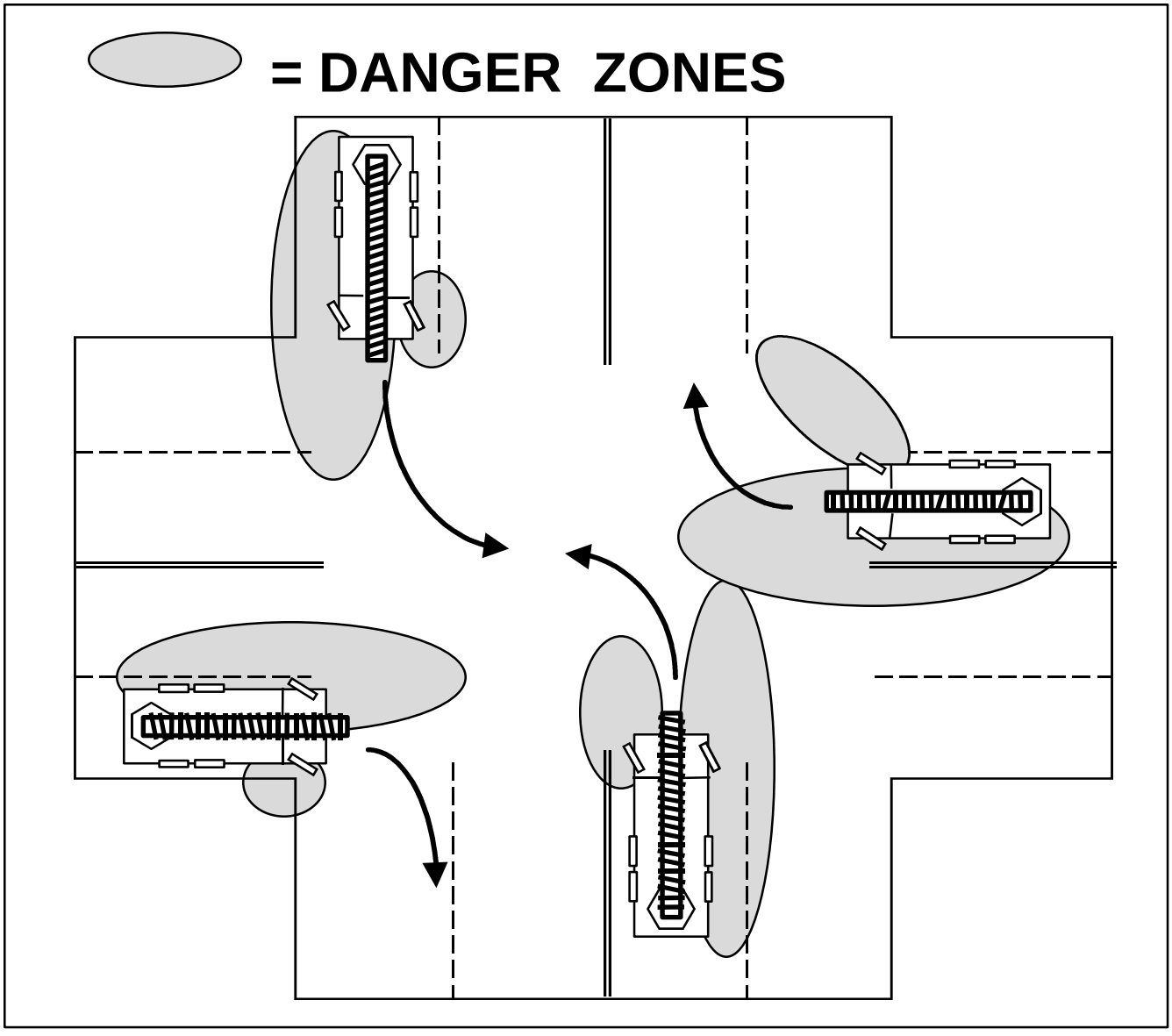
Initiate turns when objects get slightly behind the <u>reference point</u> (typically the rear of the contact point of the front tire).

When <u>below</u> 5 MPH the <u>reference point shifts</u> farther to the rear

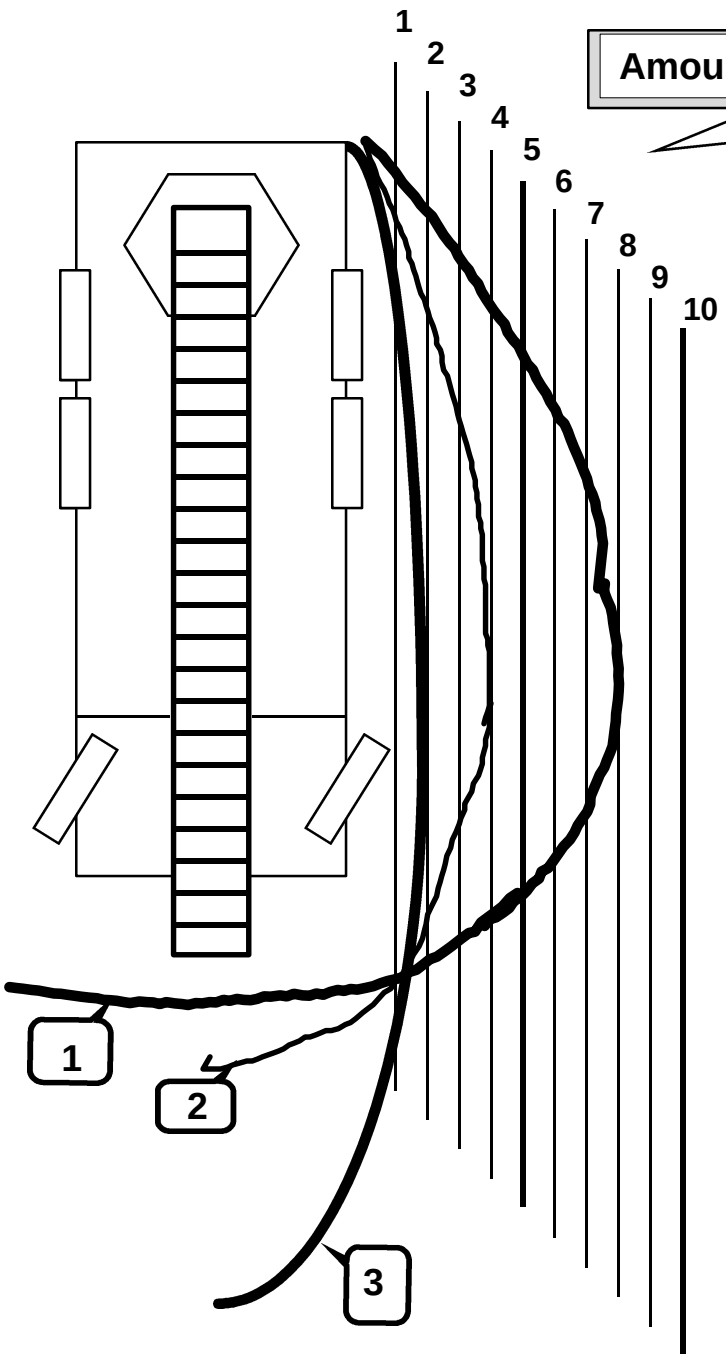
USE SPOTTER(S) IF <u>ANY</u> DOUBT EXISTS!!!

DANGER ZONES

Know where they are and why they exist.
<u>You</u> are the responsible person!



REAR OUTSWING



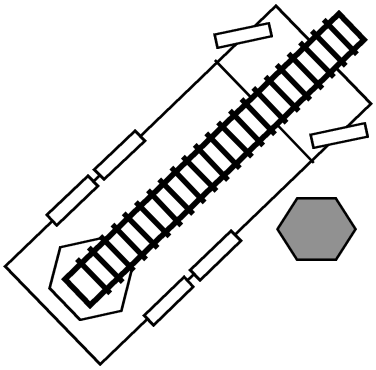
1 = Fireground Coordinated Outswing up to 8’

2 = Normal AWS Coordinated Outswing up to 4’

3 = Front Steer Only - Rear Steer is locked Outswing up to 2’

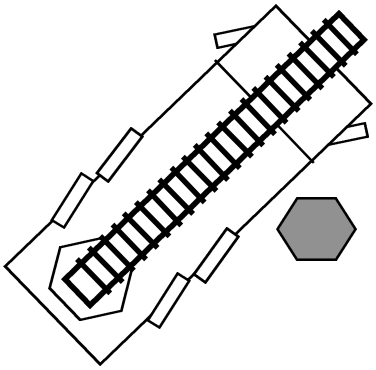
Maneuvering with Fireground Crab Mode Being Too Close to an Object

Mode : Front Only, Normal AWS, or Fireground Coordinated AWS

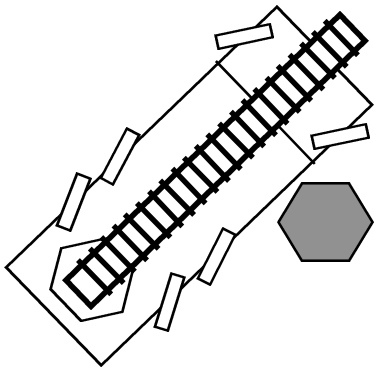


Front Only Steering

Apparatus is too close to the object to complete a turn without making contact with the object. This is common.

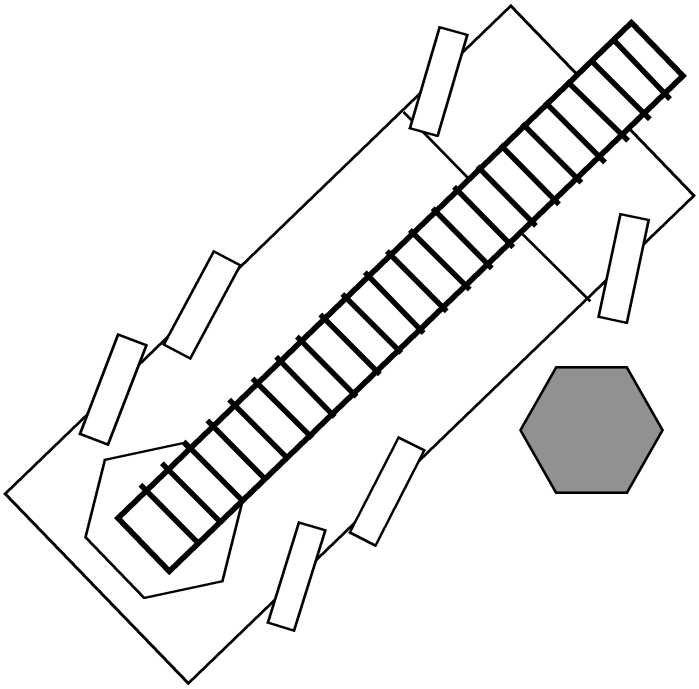


<u>Normal</u> Coordinated AWS in the 5+ MPH range



<u>Fireground</u> Coordinated AWS in the 0-10 MPH range

Maneuvering with Fireground Crab Mode
Being Too Close to an Object

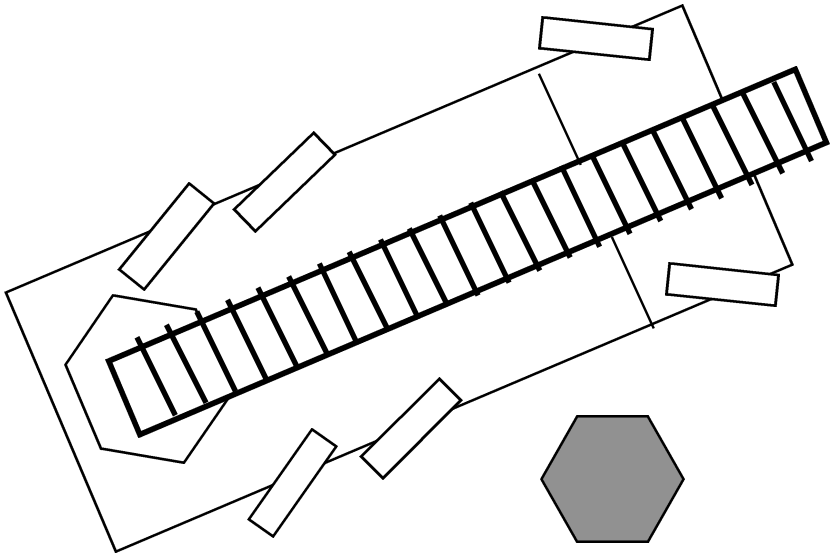


STOP !! Then change modes to Fireground Crab

- **Switch to Fireground Crab**
- **Turn wheels FULLY *away* from object to be cleared**
- **This requires front wheels to pass center and effects the mode change**
- **Switch mode back to Fireground Coordinated**
- **Let truck idle forward enough to clear object (18” +/-)**
- **Turn wheels toward object to complete turn around it**

NOTE: Turning back in towards the object after rolling in crab allows you to complete the turn and also causes the front wheels to pass center and effects the mode change from Fireground Crab to Fireground Coordinated.

Maneuvering with Fireground Crab Mode Being Too Close to an Object

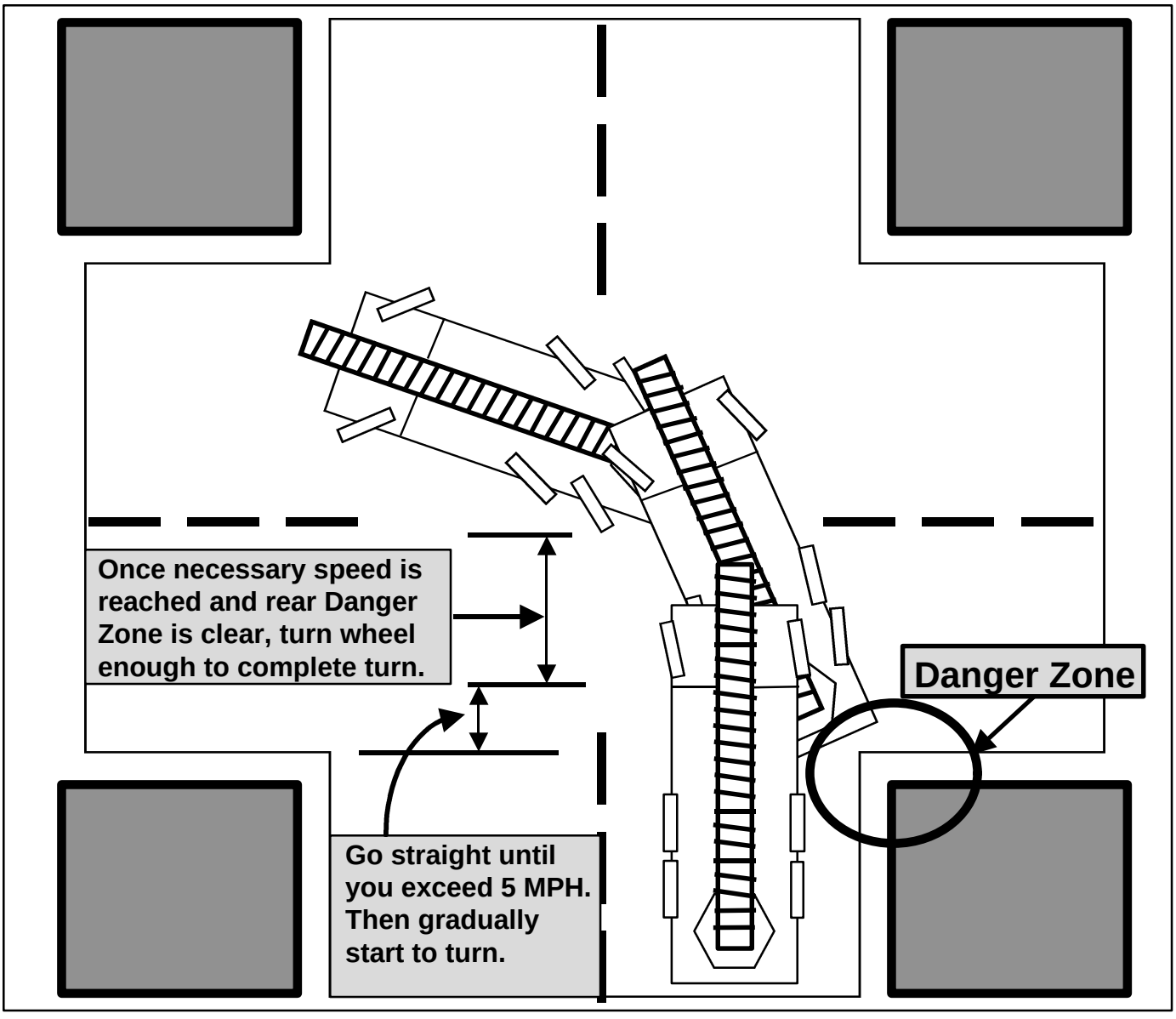


End result is the apparatus clears the object comfortably with a minimum of effort and a minimum of additional space required.

REMEMBER : This is a low speed maneuver which requires a FULL stop at the beginning. Be patient and THINK.

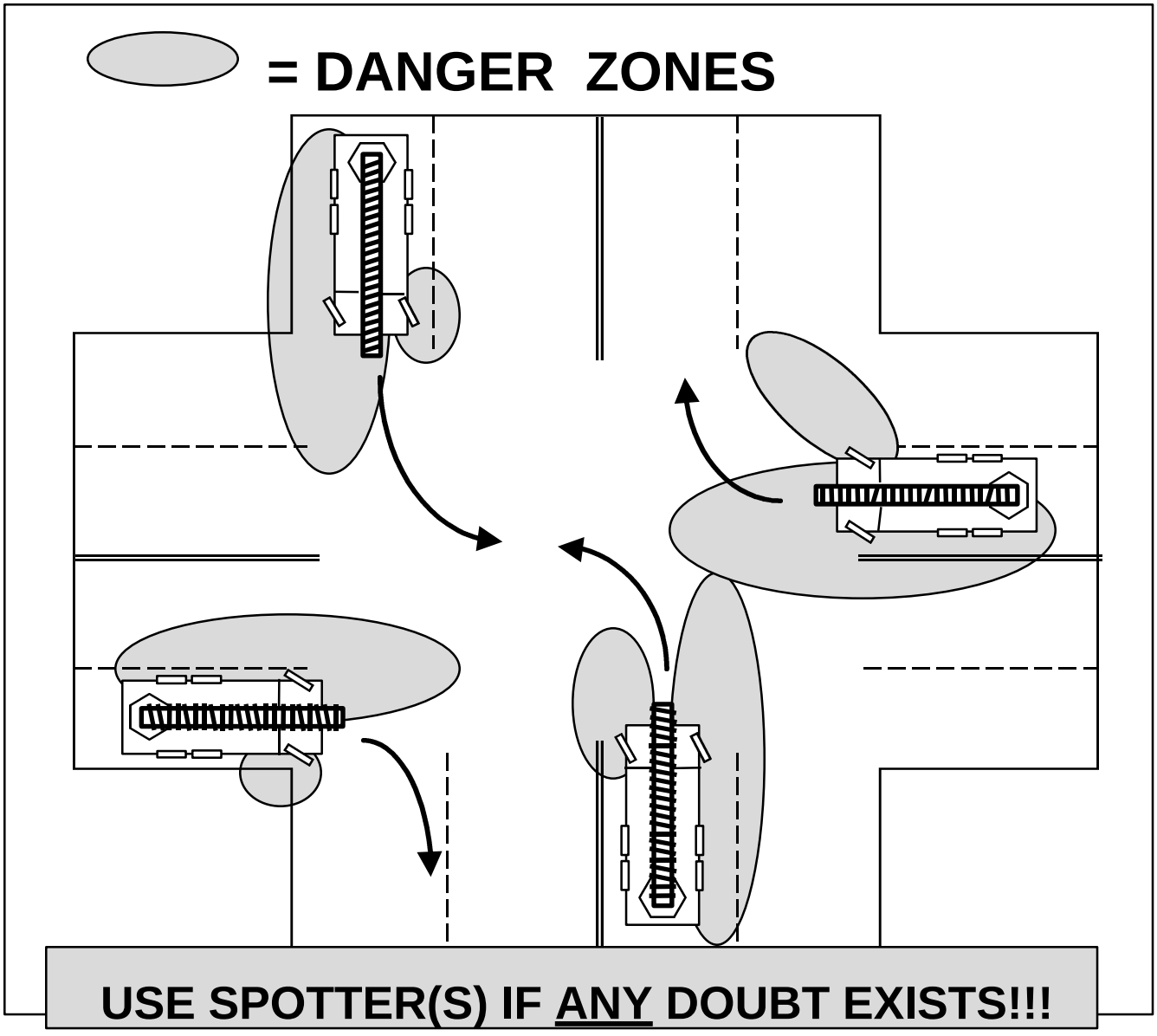
Tight Quarters Turns

Two lane/Two lane turn with solid objects on street corners



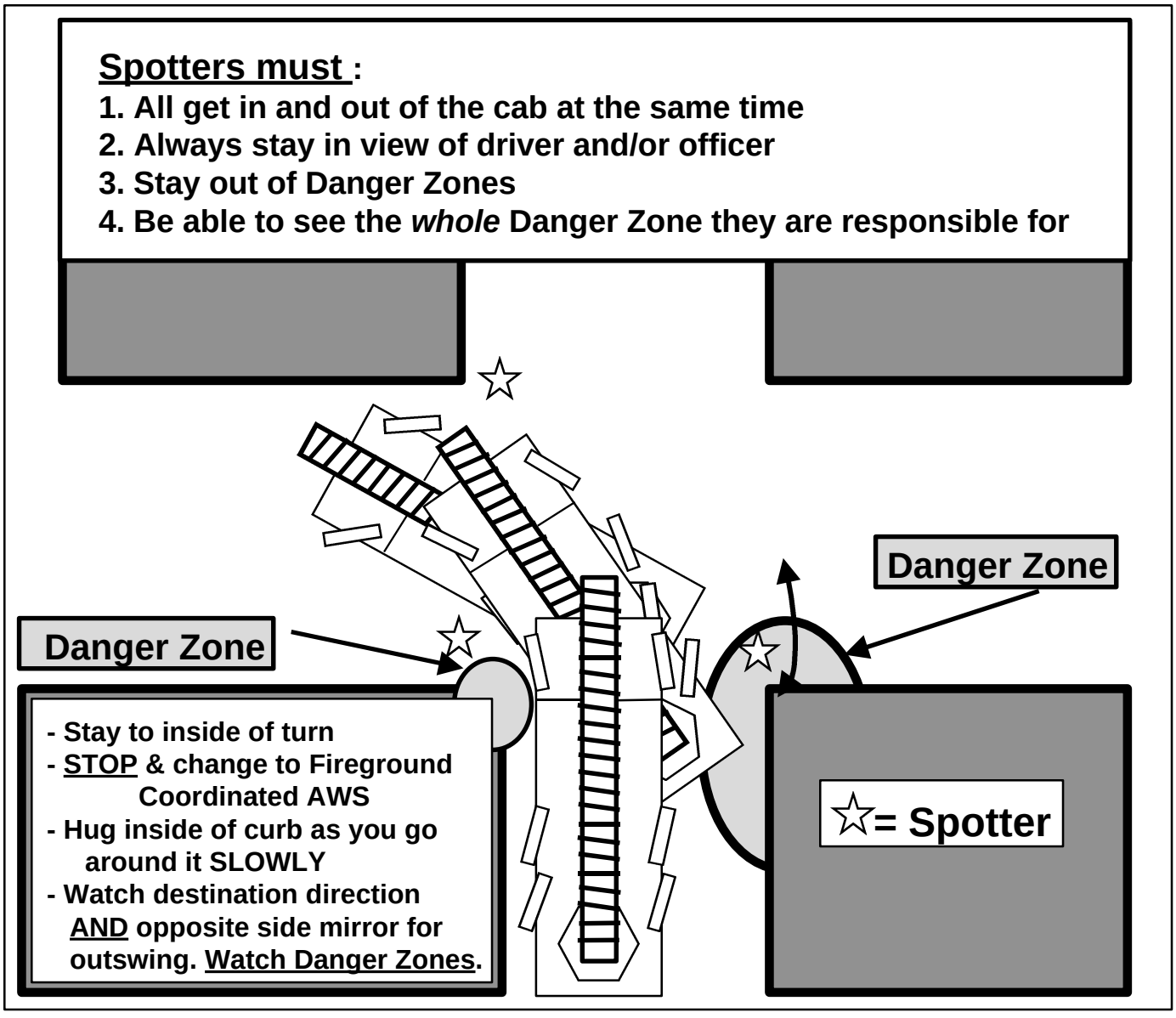
Two Lane/Four Lane Turns
Four Lane/Four Lane Turns

Know where they are and why they exist.
<u>You</u> are the responsible person!



Tight Quarters Turns

Alley-Single lane/Alley-Single lane with solid objects on street corners



Driver Preparedness

- Be alert (“ever vigilant” applies)
- Forward Look - Distance CRITICAL
  - » Be aware of your surroundings
  - » Where am I going?
  - » Where do I need to be?
- Forward Look - **What’s coming**?
  - » Traffic Front & Sides
- Forward Look - **What’s there**?
  - » Fixed Objects
  - » Traffic Control Items (Lights, etc.)
  - » People!!!

Driver Preparedness

- Rearward Look - **What's there**?
  - » Are there people walking?
  - » Are there cars in the next lane?
  - » Where are items in relationship to my benchmarks & outswing?
- Rearward Look - **What's coming**?
  - » Cars approaching
  - » Other fire apparatus approaching
  - » Who will be in my Danger Zones by the time I need to make my maneuver - PRE-PLAN!!!

THE BIG PICTURE

Drivers of All Steer Fire Apparatus have more to be aware of than drivers of conventional apparatus.

They must assume this responsibility and be more responsible during

All Steer operation.

There is no substitute for solid initial training, followed by repeated hands on review, and a program of continuing education.

Name :_____ Fire Dept. :_____
Station / Unit # :_____ID # :_____ Date : ____/____/____

TEST - ALL WHEEL STEER TRAINING

1) What happens to the ALL STEER™ system if the fireground mode audible alarm is disabled/tampered with?

   A) - The system will still function normally.
   B) - The system will only function in normal coordinated mode.
   C) - The system will lock with the rear axle centered and not operate until repaired.
   D) - The system will lock in place even if not centered.

2) In ALL STEER™ modes the use of the mirror on the outside of the turn becomes:

   A) - Less necessary
   B) - Very critical
   C) - - More difficult as visibility is reduced
   D) - None of the above

3) When changing modes of ALL STEER™, you must first move the switch(es) and then _____ before the change of modes will take effect.

   A) Stop the truck
   B) Accelerate above seven (7) mph
   C) Slow down to below ten (10) mph
   D) Turn the front wheels past center

4) Before switching into an ALL STEER™ mode from conventional front only steering your must first:

   A) - Be trained and certified in ALL STEER™ operation
   B) - Ask permission of the apparatus officer
   C) - Place the transmission in neutral.
   D) - Release the parking brake

5) The use of ALL STEER™ can reduce the turning radius of your apparatus by:

   A. - around 20%.
   B. - around 30%.
   C. - around 45%.
   D. - none of the above.

Name :_____ Fire Dept. :_____
Station / Unit # :_____ID # :_____ Date : ____/____/____

TEST - ALL WHEEL STEER TRAINING

6. When driving your apparatus in an ALL STEER™ mode you should:

   A. - Drive more quickly in and out of traffic.
   B. - Not use spotters while baking up or operating in extremely confining areas.
   C. - Drive more aggressively because you have greater control.
   D. - None of the above.

7. When making turns with the ALL STEER™ engaged, you should:

   A. - Use regular apparatus set-up/placement since ALL STEER™ has minimal effect in the rain.
   B. - Set-up and position the apparatus as dictated in training and practice.
   C. - Use the opposite turn signal since the outswing of the apparatus will be that way.
   D. - Make sure that no one says anything so you, as a driver, can concentrate.

8. When driving on ice or slippery surfaces while in an ALL STEER™ mode you should:

   A. - Turn it off quickly so as not to damage the computer.
   B. - Use your brakes less.
   C. - Engage your retarder to full power.
   D. - Drive within control at all times.

9. When using conventional tire chains on an apparatus equipped with ALL STEER™ you must:

   A. - Get permission from the district/battalion chief.
   B. - Stop and tighten the chains every 300 revolutions.
   C. - Place the ALL STEER™ mode switch into “front” and not use ALL STEER™ while the chains are applied.
   D. - Not put the apparatus in reverse while turning.

10. After initial ALL STEER™ training is completed you should:

    A. - Not have to receive any additional training
    B. - Document your training and fulfill all department mandated C. E. requirements.
    C. - Discard your training manual.
    D. - Buy your instructor a cold beverage.

11. Fireground mode can be utilized between the speeds of _____ mph and _____ mph.

12. To complete a mode change the front tires must pass the _____ position.

Name :_____ Fire Dept. :_____

Station / Unit # :_____ID # :_____ Date : ____/____/____

TEST - ALL WHEEL STEER TRAINING

13. To initiate rear axle assist while in the normal ALL STEER™ mode, you must be traveling at least _____ mph and must then move the front wheels past a _____ degree cramp angle.

14. The two fireground modes are _____ and _____.

15. The normal outswing of the rear end is:_____ feet in front only mode.

16. The normal outswing of the rear end is:_____ feet in normal coordinated ALL STEER™ mode.

17. The normal outswing of the rear end is:_____ feet in fireground coordinated ALL STEER™ mode.

18. The speed range for normal coordinated ALL STEER™ to function is __ mph to _____ mph.

19. When driving the apparatus in ALL STEER™ modes, should you become unsure of safe clearance from objects near the rear of the apparatus, your “relief valve” or “safety net” is the _____ _____.

20. If allowed in your jurisdiction, it may be best to leave your _____ warning lights illuminated at all times to warn of potential rear outswing in the Danger Zones.

Name :_____ Fire Dept. :_____ ID # :_____ Date : ____/____/____
Station / Unit # :_____

TEST - ALL WHEEL STEER TRAINING

1. What happens to the ALL STEER™ system if the fireground mode audible alarm is disabled/tampered with?

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   B. - The system will only function in normal coordinated mode.
   C. - The system will lock with the rear axle centered and not operate until repaired.
   D. - The system will lock in place even if not centered.

2. In ALL STEER™ modes the use of the mirror on the outside of the turn becomes:

   A. - Less necessary
   B. - Very critical
   C. - More difficult as visibility is reduced
   D. - None of the above

3. When changing modes of ALL STEER™, you must first move the switch(es) and then _____ before the change of modes will take effect.

   A. - Stop the truck
   B. - Accelerate above seven (7) mph
   C. - Slow down to below ten (10) mph
   D. - Turn the front wheels past center

4. Before switching into an ALL STEER™ mode from conventional front only steering your must first:

   A. - Be trained and certified in ALL STEER™ operation.
   B. - Ask permission of the apparatus officer.
   C. - Place the transmission in neutral.
   D. - Release the parking brake.

5. The use of ALL STEER™ can reduce the turning radius of your apparatus by:

   A. - around 20%.
   B. - around 30%.
   C. - around 45%.
   D. - none of the above.

6. When driving your apparatus in an ALL STEER™ mode you should:

   A. - Drive more quickly in and out of traffic.
   B. - Not use spotters while baking up or operating in extremely confining areas.
   C. - Drive more aggressively because you have greater control.
   D. - None of the above.

Name :_____ Fire Dept. :_____ ID # :_____ Date : ____/____/____
Station / Unit # :_____

TEST - ALL WHEEL STEER TRAINING

7. When making turns with the ALL STEER™ engaged, you should:

   A. - Use regular apparatus set-up/placement since ALL STEER™ has minimal effect in the rain.
   B. - Set-up and position the apparatus as dictated in training and practice.
   C. - Use the opposite turn signal since the outswing of the apparatus will be that way.
   D. - Make sure that no one says anything so you, as a driver, can concentrate.

8. When driving on ice or slippery surfaces while in an ALL STEER™ mode you should:

   A. - Turn it off quickly so as not to damage the computer.
   B. - Use your brakes less.
   C. - Engage your retarder to full power.
   D. - Drive within control at all times.

9. When using conventional tire chains on an apparatus equipped with ALL STEER™ you must:

   A. - Get permission from the district/battalion chief.
   B. - Stop and tighten the chains every 300 revolutions.
   C. - Place the ALL STEER™ mode switch into "front" and not use ALL STEER™ while the chains are applied.
   D. - Not put the apparatus in reverse while turning.

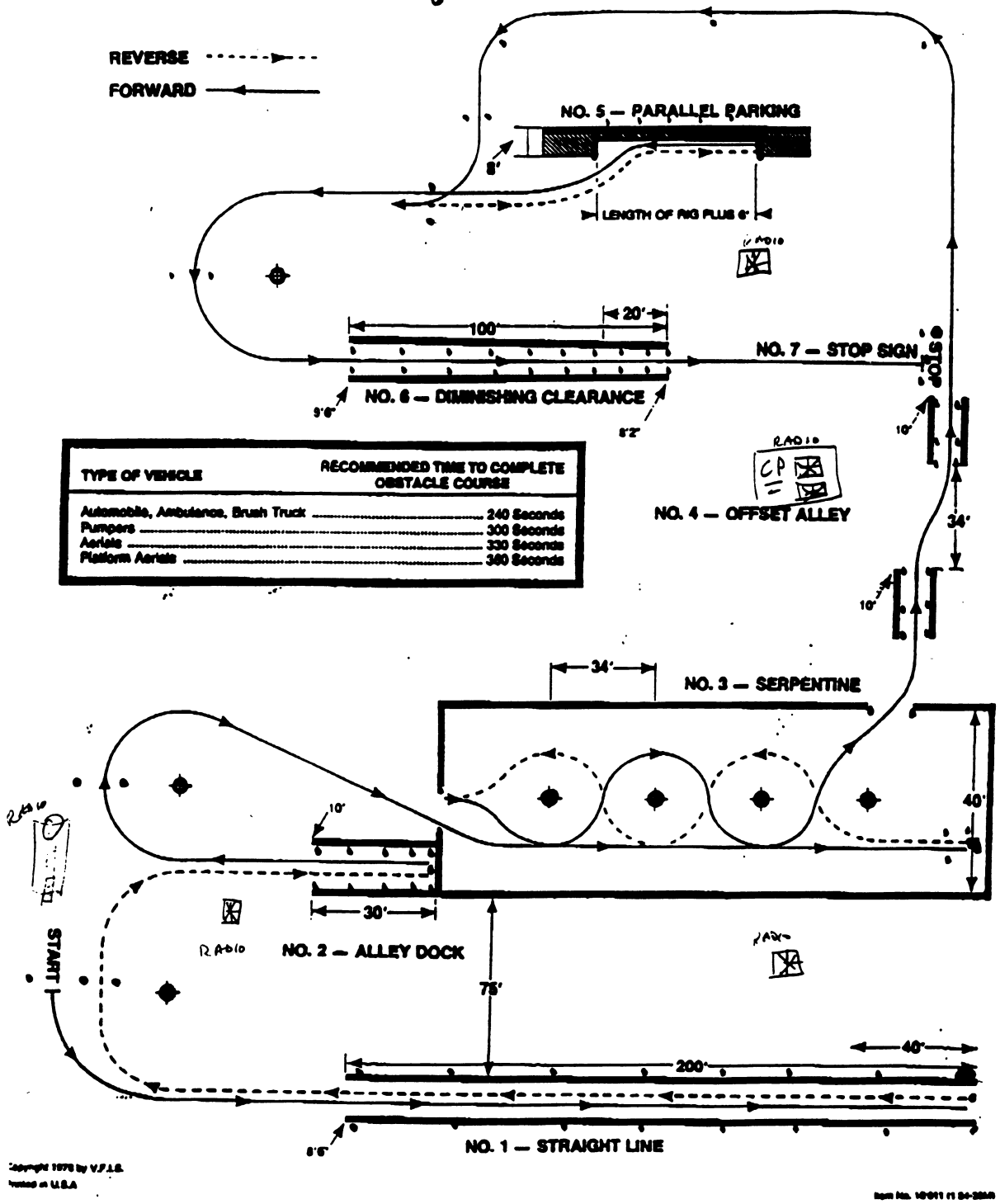
10. After initial ALL STEER™ training is completed you should:

   A. - Not have to receive any additional training
   B. - Document your training and fulfill all department mandated C. E. requirements.
   C. - Discard your training manual.
   D. - Buy your instructor a cold beverage.

11. Fireground mode can be utilized between the speeds of **0** mph and **10** mph.
12. To complete a mode change the front tires must pass the **CENTER** position.
13. To initiate rear axle assist while in the normal ALL STEER™ mode, you must be traveling at least **5** mph and must then move the front wheels past a **7** degree cramp angle.
14. The two fireground modes are **COORDINATED** and **CRAB** .
15. The normal outswing of the rear end is **2** feet in front only mode.
16. The normal outswing of the rear end is 4 feet in normal coordinated ALL STEER™ mode.
17. The normal outswing of the rear end is **8** feet in fireground coordinated ALL STEER™ mode.
18. The speed range for normal coordinated ALL STEER™ to function is **5** mph to **35** mph.
19. When driving the apparatus in ALL STEER™ modes, should you become unsure of safe clearance from objects near the rear of the apparatus, your "relief valve" or "safety net" is the **BRAKE PEDAL** .
20. If allowed in your jurisdiction, it may be best to leave your **REAR** warning lights illuminated at all times to warn of potential rear outswing in the Danger Zones.

DRIVING OBSTACLE COURSE

100 orange cones, 100' measuring tape



TYPE OF VEHICLE	RECOMMENDED TIME TO COMPLETE OBSTACLE COURSE
Automobile, Ambulance, Brush Truck	240 Seconds
Pumpers	300 Seconds
Aerials	330 Seconds
Platform Aerials	360 Seconds

Form No. 10-011 rl 04-2008

Volunteer Firemen's Insurance Services, Inc.

DRIVER'S OBSTACLE COURSE

This obstacle course is designed to measure the skills of drivers of emergency vehicles. Through its use, training officials can determine the progress each trainee has made over a given period of time. The "Recommended Time" allocated to each vehicle type indicates an ideal score toward which trainees may use as their objective. It may also be used to test present drivers' skills against a norm. The obstacle course is planned to duplicate seven situations in which driver skill, judgement and knowledge of the limitations of his vehicle are required for effective maneuvering. This course of driving tests is listed in the N.F.P.A. Publication #1002 titled FIRE APPARATUS DRIVER/OPERATOR PROFESSIONAL QUALIFICATIONS, 1976, in Appendix A. Scoring is based on total time required to complete the course plus the penalties assigned for mis-maneuvers.

NOTE: CREW MAY ASSIST DRIVER IN ALL OBSTACLES EXCEPT STOP SIGN NO. 7.

NAME: _____

COMPANY: _____

VEHICLE: _____

PENALTY SCHEDULE

OBSTACLE NO.	DESCRIPTION	ERROR	PENALTY
No. 1	Straight Line	Each cone brushed, moved or overturned Crossing any line, each time	10 sec. 3 sec.
No. 2	Alley Dock	Each cone brushed, moved or overturned Crossing any line, each time Stopping 18" or more short of dock stop Stopping 12"-17" short of dock stop Stopping 6"-11" short of dock stop	10 sec. 3 sec. 10 sec. 6 sec. 3 sec.
No. 3	Serpentine	Each pilon brushed, moved or overturned Failure to stop in time, either end of course Crossing any line, each time	10 sec. 10 sec. 3 sec.
No. 4	Offset Alley	Each cone brushed, moved or overturned Crossing any line, each time	10 sec. 3 sec.
No. 5	Parallel Parking	Each cone brushed, moved or overturned Crossing any line, each time If distance from curb line is 12" or more	10 sec. 3 sec. 3 sec.
No. 6	Diminishing Clearance	Each cone brushed, moved or overturned Crossing any line, each time	10 sec. 3 sec.
No. 7	Stop Sign	Crossing stop line Stopping 18" or more short of line Stopping 12" to 17" short of line Stopping 6" to 11" short of line	10 sec. 10 sec. 6 sec. 3 sec.

SCORE CARD

OBSTACLE NO.:	RUN NO. 1	RUN NO. 2	RUN NO. 3	RUN NO. 4	RUN NO. 5	RUN NO. 6
	Date:	Date:	Date:	Date:	Date:	Date:
1.						
2.						
3.						
4.						
5.						
6.						
7.						
TOTAL PENALTIES +						
DRIVING TIME						
SCORE:						
INITIALS OF SCOREKEEPER:						