





SERVE WITH HONOR
PROTECT WITH COURAGE
TRAIN WITH PASSION



Precision Intervention
Technique

P.I.T. WITH SUV's
P.I.T. ON VEHICLES WITH DEFLATED TIRES





THE GOALS

- Students will understand why P.I.T. should be used.
- Students will understand their Department P.I.T. policies and procedures.
- Students will demonstrate proficiency in P.I.T. through a series of practical exercises.





OBJECTIVES



1. Define the meaning of the acronym P.I.T. (Precision Intervention Technique).
2. Identify the situations in which P.I.T. can be used.
3. Discuss the need for radio communications prior to utilizing P.I.T.
4. Identify the hazards and/or roadway conditions that affect the decision to P.I.T. according to policy.
5. Explain the criteria that create deadly force P.I.T.

 PIT 



- What Is the Pit Maneuver?
- A. The Pursuit Immobilization Technique (PIT) is a tool used to help terminate a pursuit by making contact with the offender's vehicle, causing the offender's vehicle to spin. This will tend to disorient the offender, stall the engine, and stop the vehicle.

 NON-DEADLY FORCE 



- P.I.T. may be used as non-deadly force to apprehend violators at speeds 35 to 45mph
- and below after the violator has clearly demonstrated the intention to avoid arrest and if the circumstances do not create a substantial risk of death or serious bodily harm.
- (This is an agency specific policy, generally between 35 and 45 mph are deemed normal.)

 DEADLY FORCE 



- It is possible that, if used improperly, PIT may be considered to be "Deadly Force" depending on
- The manner in which, PIT is used:
- At speeds above those recommended
- In areas other than those recommended
- On vehicles other than those recommended

 **DEADLY FORCE** 


- The consequences of these actions
- Serious injury
- Death

 **BRIEF HISTORY** 

- 1985 – Fairfax County Police Dept. (Fairfax, VA) – 1st department in the U.S. to implement and utilize the P.I.T. (Precision Immobilization Technique) maneuver.
- 1998 – Utah Highway Patrol taught LVMPD EVOC the P.I.T. maneuver. LVMPD policy is developed based on a mixture of Utah Highway Patrol and California Highway Patrol policy.
- 2009 – LVMPD changed the acronym from Pursuit Immobilization Technique to Precision Intervention Technique.
- 2013 – Ford released the Interceptor Utility (Explorer) and conducted P.I.T. testing, rear crash testing, and pursuit testing to determine safety of the vehicle.


 **P.I.T. With SUV's** 

- **SUV Safety:**
 - Ford Interceptor Utility vehicles utilize AWD, Stability Control, Traction Control, and Roll Control
 - Ford Interceptor Utility is certified in 75mph rear crash test and pursuit rated.
 - Ford Interceptor Utility is higher than the Crown Victoria by only 0.9", 6.5' vs. 5.6" of ground clearance
 - Ford Interceptor Utility has been proven in real world conditions to feel more stable than Crown Vics
 - during P.I.T. maneuvers.
 - (Michigan State Police)




CENTER OF GRAVITY

Ford Crown Victoria:
22.37" from ground
50.60" behind front axle



43.63" from top of vehicle to COG




Ford Interceptor Utility:
27.93" from ground
45.20" behind front axle



49.07" from top of vehicle to COG

11.00" higher overall with only 5.56" higher center of gravity

CENTER OF GRAVITY








It is the height of the center of mass in comparison to the overall height of the object, not the height of the center of mass alone, that makes an object more or less stable.

P.I.T. With SUV's

FORD FACTORY TEST

Ford found no stability issues when the Ford Interceptor Utility was used to initiate a P.I.T. maneuver. (Steven Hoe – Ford Regional Fleet Sales Manager)





 P.I.T. With SUV's 

California Highway Patrol Tests 2013:



CHP found that the Ford Interceptor Utility was a very stable platform for the P.I.T. maneuver. (Sgt. Robin Johnson – Driver's Training CHP)

CHP's major concern was that there could be additional contact between vehicles when the suspect vehicle was equipped with stability/traction control, and the maneuver was applied incorrectly.

 P.I.T. With SUV's 

Other Agency Use of SUV Policies:

- California Highway Patrol has no restrictions on the use of any SUV to apply P.I.T.
- Utah Highway Patrol has no restrictions on use of any SUV to apply P.I.T.
- New Mexico State Police has no restrictions on use of any SUV to apply P.I.T.
- Fairfax County Police has no restriction on the use of any SUV to apply P.I.T.


 P.I.T. With SUV's 

Data Sought by EVOG Included:

- Is the Ford Interceptor Utility stable enough to safely initiate the P.I.T. maneuver in the field and during training?
- Will the front tire of the Ford Interceptor Utility make contact with the suspect vehicle which would cause a possible blowout?
- Will the Traction/Stability/Roll control systems interfere with the maneuver?
- Is it more difficult to perform/teach the maneuver due to visibility?
- Will LVMPD EVOG have to significantly modify training to teach the maneuver in the Ford Interceptor Utility?
- Which supplied P.I.T. bumper (Sentina / Westin) is best for repeated training of the P.I.T. maneuver.

P.I.T. With SUV's

- LVMPD EVOC conducted P.I.T. testing of the
- Ford Interceptor Utility on April 3, 2014.
- Video of testing captured by 1 static HD camera and 4 portable HD cameras attached to the vehicles.
- Data logging of Stability control systems, throttle, roll and speeds.
- All of the EVOC instructors involved
- with each instructor taking multiple
- passes in each of the (2) P.I.T. bumper
- equipped Utilities.
- Over 30 test runs conducted by the
- EVOC staff at speeds of 30 mph,
- 35 mph, 40 mph, 45 mph, and
- 50 mph.





P.I.T. With SUV's



TEST VIDEO



QUESTIONS?

 **P.I.T. On Vehicles With Deflated Tires** 

- **Deadly Force** - PIT could be considered deadly use of force in the following instances:
 1. At speeds of more than 35-45mph; (Over your department policy) (avg 35-45)
 2. When used on motorcycles; (Always)
 4. When used on high center of gravity vehicles likely to roll over, such as vans, SUVs, and jeeps;
 5. In circumstances creating a substantial risk of death or serious bodily injury.
- **Concern:**
- There are situations where P.I.T could be used on a suspect vehicle with deflated tires to stop a dangerous pursuit / incident with less than lethal consequences and the use of P.I.T. would outweigh the dangers in letting the pursuit / incident continue.



 **P.I.T. On Vehicles With Deflated Tires** 

Utah Highway Patrol 2012:





Completed deflated tire tests at 35, 47, 56 mph with left side tires deflated (rotational direction) and at 50 mph with all tires deflated.

UHP found that the deflated rear tires show no tendency to dig into the road surface and trip the vehicle. (Sgt. Greg Holley – Driver’s Training UHP)



UHP also found that when a vehicle has all four tires deflated, the vehicle behaved similarly to having two tires deflated. (Sgt. Greg Holley – Driver’s Training UHP)

 **P.I.T. On Vehicles With Deflated Tires** 

Utah Highway Patrol Test Videos:

21



 **P.I.T. On Vehicles With Deflated Tires** 

Other Agency PIT Policies:

California Highway Patrol has no restrictions on a vehicle with deflated tires.



NM State Police has no restrictions on a vehicle with deflated tires.

Fairfax County Police has no restrictions on a vehicle with deflated tires.

 **P.I.T. On Vehicles With Deflated Tires** 

- Utah Highway Patrol's new policy:
- **314.7 PURSUIT INTERVENTION**
 - Pursuit intervention is an attempt to terminate the ability of a suspect to continue to flee
 - in a motor vehicle through tactical application of technology, road spikes, blocking, boxing,
 - PIT (Pursuit Intervention Technique), ramming or roadblock procedures. In this context,
 - ramming shall be construed to mean maneuvering the police vehicle into contact with the
 - pursued vehicle to mechanically disable or forcibly position it such that further flight is not possible or practical.
- **314.7.1 WHEN USE IS AUTHORIZED**
 - In deciding whether to use intervention tactics, officers/supervisors should balance the risks
 - of allowing the pursuit to continue with the potential hazards arising from the use of each
 - tactic to the public, the officers and persons in or on the pursued vehicle. With these risks
 - in mind, the decision to use any intervention tactic should be reasonable in light of the
 - circumstances confronting the officer at the time of the decision. It is imperative that officers
 - act within the bounds of legality, good judgment and accepted practices.



♦ *Utah Highway Patrol has since changed their policy that allows for PIT on vehicles with deflated tires without a deadly force parameter. Utah is also considering raising the deadly force speed to 65 mph.*

 **Worst Case Scenario** 



- New Mexico State Police – March 9, 2012
- Police pursued a stolen school bus. Spike strips were used to deflate all of the buses tires. A P.I.T. maneuver was attempted with a Crown Victoria which was unsuccessful when the Crown Victoria suffered a blown front tire. A New Mexico state trooper with a 2012 Chevy Tahoe SUV was successful in applying a P.I.T. maneuver.
- Deadly Force was authorized during this pursuit.
- According to New Mexico State Police there were
 - no problems with the stability of the SUV used.
 - Police would not have been able to stop a dangerous pursuit without the use of the SUV.
 - (Officer Steven Martinez – Training Section NMSP)

Can you P.I.T. A bus?





 **LVMPD EVOG Conclusion** 

1. After testing the Ford Interceptor Utility with fender protectors, LVMPD EVOG has determined that the Ford Interceptor Utility is a viable and safe option for officers when performing a P.I.T. maneuver.
2. After researching and communicating with agencies across the country that have played key roles in the use of P.I.T. with SUV's and /or deflated tires. A review of that research and testing shows that deflated tires bear no more risk than inflated tires.

 **Portland Police Study 2015** 

- Portland Police Bureau, Lake Oswego and Oregon DPPST
- Conducted a large study on ESP/ESC and PIT
- Determined the vehicles with ESC/ESP are safer to PIT as the vehicle computer fights to maintain the stability of the spin.
- <https://www.portlandoregon.gov/police/article/635151>

 **COMMUNICATIONS** 

- If possible, notify communications of your intent to use P.I.T.
- This will give your partners the knowledge of your actions and allow them to prepare correctly.

**WHY DO WE
GIVE OUR INTENT**

- Heads up for the secondary unit.
- Supervisor awareness.
- Incidental Contact

P.I.T. - Hazardous Areas to Avoid

Areas with a high concentration of pedestrians



P.I.T. - Hazardous Areas to Avoid

Other Vehicular Traffic



P.I.T. - Hazardous Areas to Avoid

Parked Vehicles



P.I.T. - Hazardous Areas to Avoid

Telephone/Utility Poles



P.I.T. - Hazardous Areas to Avoid

Bridges/Overpasses



P.I.T. - Hazardous Areas to Avoid

Areas adjacent to paved roads with a large elevation change.



P.I.T. - Safe Locations to Consider

Non-congested areas with limited traffic and pedestrians



P.I.T. - Safe Locations to Consider

Straight Roadways



P.I.T. - Safe Locations to Consider

Roadways with a large emergency lane or shoulder



P.I.T. - Vehicle Considerations

Heavy Vehicles – Is it too heavy for you vehicle to move?



P.I.T. - Vehicle Considerations

Motorcycles will not stay upright



P.I.T. - Vehicle Considerations

High center of gravity vehicles likely to roll over



P.I.T. - Execution



P.I.T. - Execution



P.I.T. - Execution

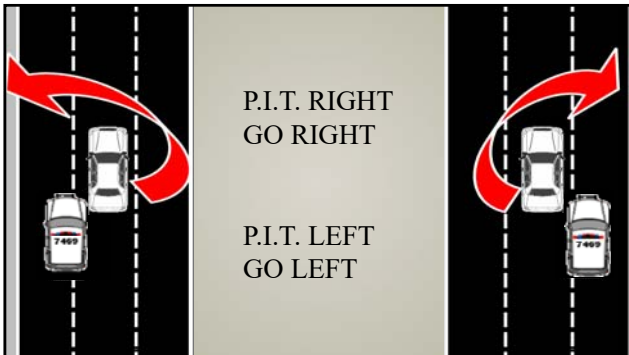






P.I.T.



“Finesse” is the key to the proper execution of the P.I.T. technique, and it is also what separates it from a ramming maneuver.

A P.I.T. should be planned well in advance, with the officer considering the safety of themselves, the public, and the suspect.





 **BACKUP** 



- As the primary unit P.I.T.s the suspect and passes by, the backup units will tactically position their vehicles to prevent the suspect from restarting and pulling out.
- The primary unit can then turn around and assist in blocking any escape routes.

 **PIT** 



- Implementation of the PIT Maneuver:
- A PIT can be performed from the left or right side of the deputy's car

 **PIT** 



- If, for example, PIT is going to be used on the deputy's right side:
- Deputy's vehicle is positioned to the left of the suspect's vehicle.
- Speeds are matched
- Deputy's vehicle steers right, until the right front of the deputy's car contacts the left rear axle area of the suspect vehicle

 PIT (Touch, Turn, Accelerate) 



- Deputy turns firmly and smoothly to the right
- (about 1/4 to 1/2 turn)
- Deputy moderately accelerates, causing suspect's rear \
- wheels to break traction (over 25°)
- As suspect vehicle spins, deputy straightens his/her vehicle
- Deputy then prepares to break (IF NEEDED)

 PIT 



- Deputy drives past suspect vehicle
- Caution: there may be a brief secondary contact with suspect vehicle
- The engine of the suspect vehicle should stall; this may not always occur

 PIT 



- NOTE: Conditions where the suspect's engine may not stall:
- • Able to place the automatic transmission in neutral.
- • Able to push in the clutch with a manual transmission.
- • Heavy wheel spin via acceleration.
- • A slick surface (grass/gravel) where tires cannot "bite".

 PIT 



- Primary PIT unit should continue on and not take immediate part in the High-Risk vehicle stop
- Remember:
 - a. PIT the suspect vehicle on its left side, it will spin to the left
 - b. PIT the suspect vehicle on its right side, it will spin to the right or...the suspect vehicle will always cross in front of the law enforcement vehicle.

 PIT 



- Tactical Considerations
- A third unit should be present to assist the second unit with the High-Risk vehicle stop effected at the conclusion of PIT

 PIT 



- Primary unit does not take immediate part in the High Risk stop, due to deputy safety considerations
- Primary PIT vehicle may circle safely around block to assist in stop

 PIT 

- For safety and clearance reasons, units following the primary PIT vehicle should stay a minimum of 100' to 150' behind
- Second and third units make the High-Risk stop

 PIT 

- PIT location and timing should be clearly communicated to other units
- DEPUTY/OFFICER SAFETY SHOULD NEVER BE COMPROMISED.

 PIT 

- Four easy steps-
- Touch
- Turn
- Accelerate
- Prepare to Break (ONLY IF NEEDED TO AVOID CRASH)

P.I.T. - FINAL REMINDER

Remember, P.I.T. is a great option, but it is one of many options that you have.

Primary & secondary units will consider other means of apprehension (i.e., Air Unit, stop sticks, or even discontinuing the pursuit) before attempting forcible stops.

You will only use a reasonable amount of force which is consistent with the accomplishment of the mission.



PIT vs RAMMING



- PIT- Is considered Less Lethal (IF used properly)
- PIT – is a finesse maneuver
- RAMMING- IS using Deadly Force
- RAMMING- IS Intentionally hitting the vehicle to damage it and stop the driver's actions immediately.



7.15.21 Capture of Pursuit Suspects



- Proper self-discipline and sound professional judgment are the keys to a successful conclusion of a pursuit and apprehension of evading suspects. Deputies shall use only that amount of force, which reasonably appears necessary under the circumstances, to properly perform their lawful duties.

PIT

- Post-Pursuit Discipline is critical -- factor in "High Speed Pursuit Syndrome"
- 1. Adrenaline dump
- 2. Elevated heart rate and breathing
- 3. Narrowed or tunnel vision
- 4. "Task shedding"
- 5. Major muscle groups primarily working only
- 6. Fine motor skills lost
- 7. Decision-making capabilities impaired
- 8. Difficulty in handcuffing and physical tasks

QUESTIONS?
