




OBSCURANT EFFECTS ON SENSORS AND SEEKERS

	DAY SIGHT	IMAGE INTENSIFIER	LASER	THERMAL IMAGERS	MILLIMETER WAVE
<u>CONVENTIONAL SMOKE</u>	Major	Major	Major	Minor	Minor
<u>IR SMOKE</u>	Major	Major	Major	Major	Minor
<u>WP SMOKE</u>	Major	Major	Major	Moderate	Minor
<u>ARTILLERY DUST</u>	Major	Major	Major	Major	Minor
<u>HEAVY FOG</u>	Major	Major	Major	Moderate	Moderate
<u>HEAVY RAIN, SNOW</u>	Major	Major	Major	Moderate	Moderate

DEGRADATION:  MAJOR  MODERATE  MINOR

EXAMPLES OF U.S. SYSTEMS:

DAY SIGHTS: (Direct and magnified optics)

- Target Acq. Designation Sight & Pilot Night Vision Sensor (TADS/PNVs)
- TOW day sight - M1, M2/M3 day sight - DRAGON day sight

IMAGE INTENSIFIERS:

- Night vision goggles - Crew-served weapon sights
- Starlight scope - M1 commander and gunner periscopes
- M1, M2/M3 driver's periscope

LASER:

- Ground/Vehicle Laser Locator Designator (GVLLD) - Laser Range Finder
- Hellfire seeker - TADS/PNVs (AH64, OH-58D) - Copperhead seeker

THERMAL IMAGERS

- AN/TAS 6 (Night Observation Device Long Range) (NODLR)
- AN/TAS 4X (TOW, GVLLD)
- AN/TAS 5 (Dragon) - M1 Gunner's sight
- TADS/PNVs (AH-64/OH-58D) - Handheld thermal viewer
- Chaparral FLIR - M2/M3 Gunner's sight

MILLIMETER WAVE:

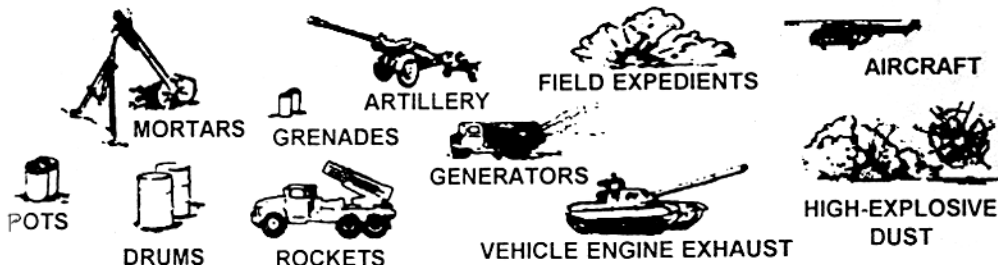
- Longbow seeker - Longbow fire control radar

HEADQUARTERS, DEPARTMENT OF THE ARMY

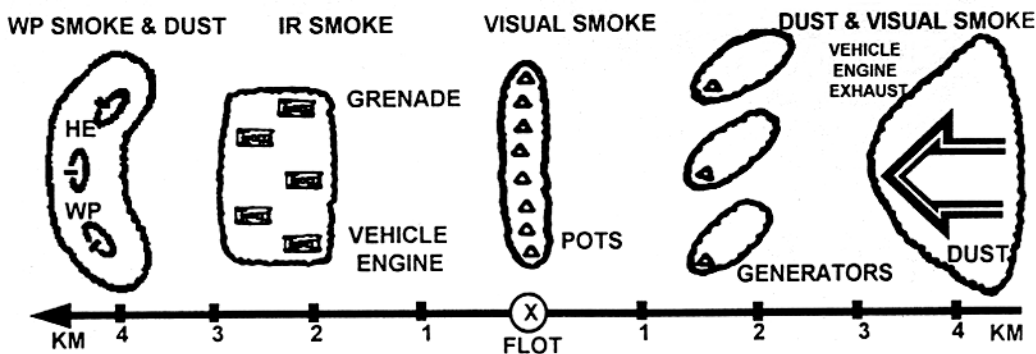
GTA 03-02-003

OBSCURANT COUNTERMEASURES TO BATTLEFIELD SENSORS

The Enemy Can Obscure the Battlefield by use of the Following Items:



POTENTIAL OBSCURANT LOCATIONS (THREAT IN ATTACK FROM THE MARCH COLUMN)



TACTICAL COUNTERMEASURES

- Disperse laterally and in-depth to increase lines-of-sight.
 - Position forward observers outside anticipated coverage.
 - Position laser designators to front or flanks to avoid preplanned smoke.
 - Position visual air defense systems on high ground.
 - Position thermal/MMW air defense systems in smoke.
 - Position thermal anti-armor systems in smoke.
- Use obstacles to disrupt enemy timing.
 - Use electronic jamming to preclude adjustments of fire.
 - Use remote sensor systems to track enemy progress.
 - Engage at choke points with indirect or pre-aimed direct fire.
- Deceive the enemy about unit location.
 - Prepare primary and alternate positions in friendly smoke.
 - Conduct rigorous counter-reconnaissance.
 - Employ camouflage, concealment, and deception (CCD) techniques.
- Use helicopters to identify and fire through gaps in smoke coverage. Use RPV to look down through smoke.
- Employ scatterable mines in friendly or enemy smoke to slow an attacking enemy.
- When traveling in smoke, plan for tighter formations, slower speeds, and easily recognized routes.
- In defense, prepare and rehearse movement to alternate and subsequent positions. Use range cards, T&E mechanisms, and multiple lines-of-sight for paired weapons. Plan for target hand-off.