



U.S. Coast Guard .40 Caliber Ammunition

Presented by:

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.40 Caliber Ammunition

History

- .40 S&W was introduced in the late 1980's as a law enforcement cartridge
 - Developed jointly by Winchester and Smith & Wesson
 - Testing revealed that a reduced velocity 10mm cartridge achieved desired terminal performance
 - Less powder



10mm



.40 S&W

.40 Caliber Ammunition

Transformation

- Less recoil than conventional 10mm ammunition
- More airspace in the cartridge case
- 10mm case could be shortened enough to fit within the medium-frame handguns
- Small pistol primer replaced the large pistol primer used in the 10mm cartridge
- New cartridge developed – 40 S&W



10mm



.40 S&W

.40 Caliber Ammunition

Requirement

- Department of Homeland Security chose .40 caliber as the common carry pistol
- Sig Sauer P229 & P239 were chosen as the replacement service pistols of the USCG

P229



P239



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Requirement (continued)

- USCG initially procured commercial ammunition to support new service pistol
- USCG directed NSWC Crane to obtain full type qualification for 3 cartridge types
 - 155 grain ball
 - 155 grain jacketed hollow point
 - 155 grain frangible

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Performance Requirements

- Performance requirements developed around the performance of commercial rounds procured by USCG
 - SAAMI dimensional requirements
 - Standard small pistol primer (Ball & JHP)
 - Non-toxic primer (Frangible)
 - Pressure & velocity - SAAMI
 - Accuracy – 1.5” average mean radius @ 25 yards, Ten 5-shot groups, ransom rest
 - Waterproof (Ball & JHP) – bubble test



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Performance Requirements (continued)

- Function – P229 & P239
- Penetration – JHP
 - Bare gelatin @ 10' & 25 yards
 - Gelatin with 4 layers of clothing @ 10'
 - Autoglass @ 10', gelatin with 2 layers of clothing placed 18" behind glass
 - Top edge of the glass will be tilted back 45° from vertical and angled 15° from the pistol's line-of-sight
 - Simulated car door @ 10', gelatin with 2 layers of clothing placed 18" behind door

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Performance Requirements (continued)

- Penetration – Frangible
 - 3/8” AR500 steel plate @ 5’, 50 shots into 1/2” diameter impact area shall not penetrate and no fragments shall return to the shooters position
 - Type II Body Armor @ 15’, 3 shots shall not penetrate, greater than 2” from previous shot, greater than 3” from edge
- Ballistic match (Frangible) – center of impact less than 2-1/2” from center of impact of standard ball ammunition (MK 309 MOD 0)

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Solicitation for Contract

- Full and open competition
 - All 3 cartridge types
- \$15M 5 year IDIQ contract awarded to Federal Cartridge Company for Ball & JHP cartridges



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Solicitation for Contract (continued)

- No contract award for 155 grain frangible cartridge
 - No samples met specification requirements
 - Frangible projectiles are larger than ball projectiles of the same weight due to varying material densities
 - Unable to meet the required velocity and ballistic match with 155 grain frangible projectile

.40 Caliber 155
Grain Projectiles



Ball

JHP

Frangible

.40 Caliber Ammunition

.40 Caliber Ball

MK 309 MOD 0

DODIC: DWGX

NSN: 1305-01-550-0179



.40 Caliber Ammunition

**.40 Caliber JHP
MK 308 MOD 0
DODIC: DWGW**

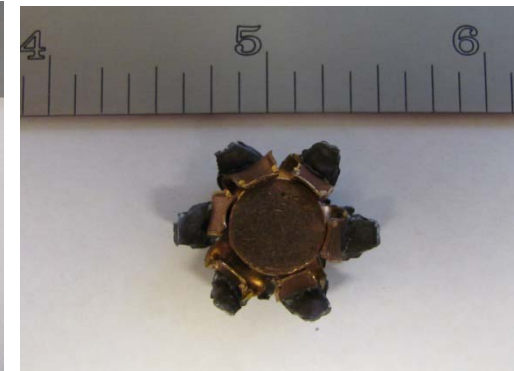
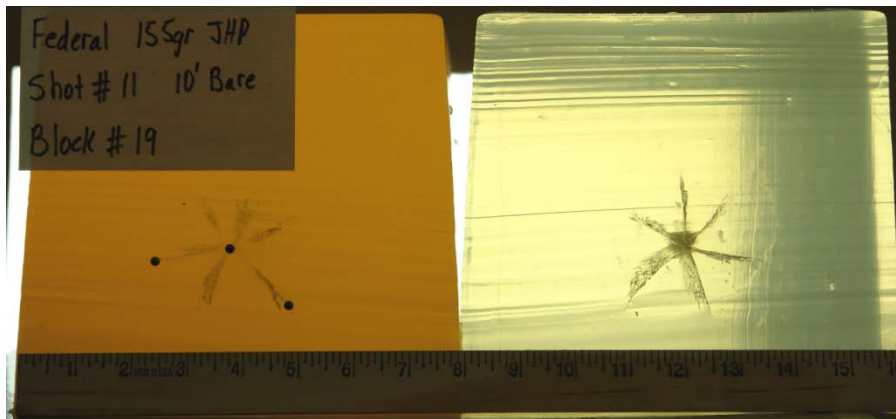
NSN: 1305-01-548-6279



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Terminal Performance

10' Bare Gelatin Penetration		
Cartridge	Average Depth of Penetration	Average Maximum Fracture Diameter
9mm JHP - 115 grain	9.3"	3.0"
9mm JHP - 147 grain	12.5"	2.1"
.40 Caliber JHP - 155 grain	10.3"	3.2"
.45 ACP JHP - 230 grain	13.7"	2.0"



.40 Caliber JHP



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Current Ball & JHP Status

- Completed Life Cycle Series Testing
 - 28 day temperature & humidity, transportation vibration, shipboard vibration, 4 day temperature & humidity, 40-foot drop
- Completed Safety Testing
 - 5-foot drop, transportation handling, shipboard shock
- Completed Environmental Testing
 - High temp storage, low temp storage, temp shock, aggravated humidity
- Completed post hazard testing
 - Pressure, velocity and function





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Current Ball & JHP Status (continued)

- Currently preparing Final Letter Data Package for full qualification of the cartridges
- Fielded via Limited Release
- Current users
 - USCG
 - Naval Criminal Investigative Service



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Current Frangible Status

- No bid samples met requirements on initial solicitation
- Specification revised
 - 115 grain minimum projectile weight
 - Accuracy requirement modified
 - 4" SAAMI test barrel
 - Ten 5-shot groups @ 50 yards
 - 4.5" maximum individual extreme spread
 - 3.5" maximum average extreme spread



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Current Frangible Status (continued)

- New solicitation
 - Full and open competition
 - Approximately \$10M
 - Product bid samples currently being tested:
 - Pressure, velocity, accuracy, function, penetration and ballistic match
- Anticipate contract award late FY11



Questions?