

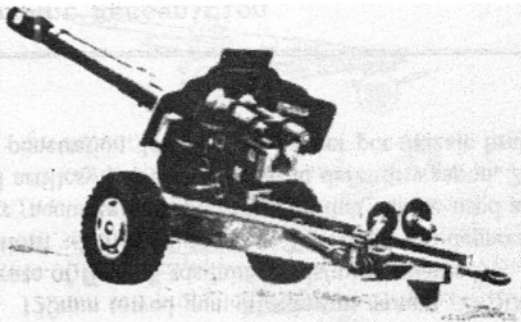
M-46

Type: 130mm towed gun **Maximum range:** 27,500m

Max rate of fire: 8 rds/min (5 rds/min sustained)

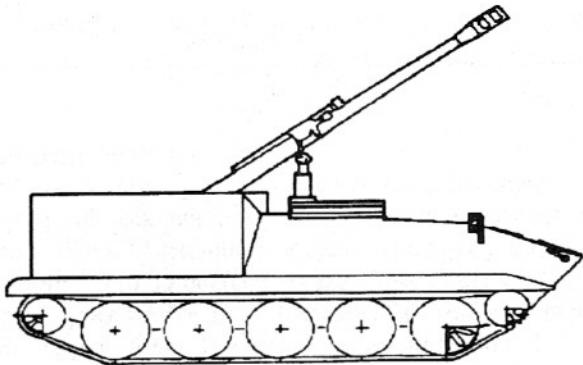
Elevation: -2.5 to 45 degrees **Traverse:** 50 degrees

Other: accurate multipurpose gun that can be used as both a field artillery piece and a coastal defense weapon, 239mm armor penetration, long barrel, pepper pot muzzle brake



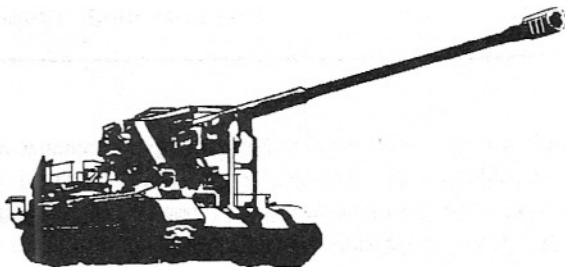
D-20

Type: 152mm towed howitzer **Maximum range:** 17,000m **Max rate of fire:** 6 rds/min (4 rds/min sustained)
Elevation: -5 to 45 degrees **Traverse:** 45 degrees
Other: armor penetration is 400mm with HEAT-SS, circular firing jack and 2 caster wheels make it possible to swiftly rotate entire D-20 360 degrees, short gun tube, double baffle muzzle brake



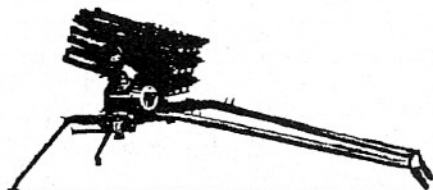
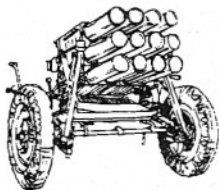
M-1977

Type: 122mm self propelled (SP) Gun/Howitzer (uses 122mm D-30 mounted on vehicle superstructure) **Max range:** 15,300m (21,900m rocket assisted projectiles) **Max rate of fire:** 7-8 rds/min (1.7-4 rds/min sustained) **Max speed:** 40 km/hr approx **Road range:** 400 km approx **Other:** produced in North Korea, sides enclosed, top open



M-1978 (KOKSAN)

Type: 170mm SP Gun **Max range:** 40,000m **Max rate of fire:** estimated 1-2 rds per 5 mins **Max speed:** 40 kph approx. **Road range:** 300 km **Other:** KOKSAN gun is probably mounted on a T-54 chassis



12 ROUND 107MM ROCKET LAUNCHER

Type: 107mm multiple rocket launcher (MRL) **Max effective range:** 8,500m **Rockets:** HE & Incendiary
Reload time: 3 mins **Elevation:** -4 to 58 degrees
Traverse: 32 degrees **Other:** 12 launch tubes in array of 3 rows of 4 tubes (two other SP versions exist: 1 with 18 tubes and 1 with 24 tubes), can be towed or mounted on a 4 leg stand. The 12 tube launcher can also be mounted on any suitable wheeled or tracked vehicle.



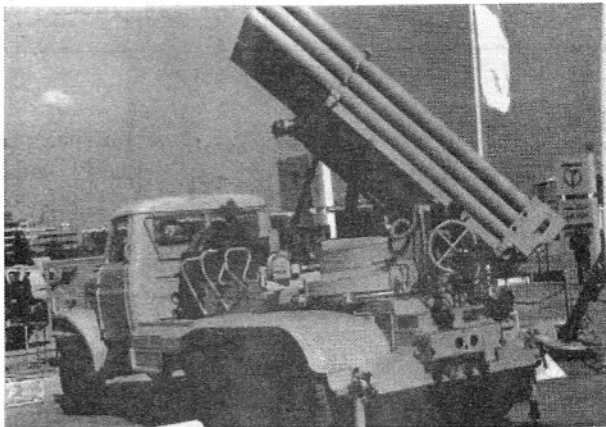
BM-21

Type: 122mm MRL **Max range:** 20,380m **Rocket:** Frag-HE, Incendiary, Smoke, possible Chem **Rate of fire:** .5 sec per rocket **Reload time:** 8 min **Elevation:** 0 to 55 degrees **Other:** 40 launch tubes in array of 4 rows of 10 tubes. Each tube is grooved to provide spinning motion, a combination of spin and fin stabilization. The rocket provides closely grouped fire that can be operated and fired from truck cab or fired remotely from up to 60 ft away. The BM -21 and other 122mm rocket launchers can fire all 122mm rockets designed to fit in Soviet derived 122mm launchers, including those that can achieve ranges of 30,000 to 36,000 meters, mounted on a URAL 375D (6x6) truck

LINE DIAGRAM UNAVAILABLE

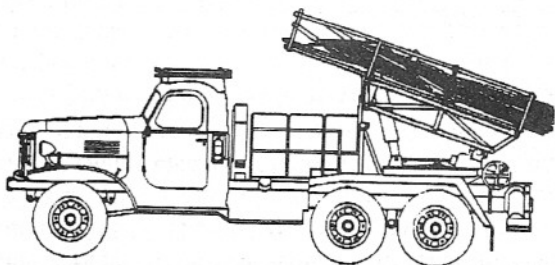
M-1985

Type: 122mm MRL **Other:** 40 rd, North Korean
produced, mounted on Isuzu truck



BM-11

Type: 122mm MRL **Max effective range:** estimated at 20,500m **Rocket:** all standard Russian, Chinese, and North Korean 122mm **Rate of fire:** 30 rds per 15 sec **Reload time:** 8-9 mins **Other:** 2 banks of 15 tubes mounted on single turntable, North Korean derivative of BM-21, mounted on URAL-375D or Japanese truck



BMD-20

Type: 200mm MRL **Max effective range:** 19,000m
Rocket: Frag HE **Rate of fire:** 4 rounds per 4 sec
Reload time: 6-10 mins **Elevation:** 9 to 60 degrees
Traverse: 20 degrees **Other:** Fires fixed fin rockets from a single row of 4 large, square, open framework launch tubes, mounted on ZIL-157 6X6 truck

**240MM ROCKET LAUNCHER M-1985 &
240MM ROCKET LAUNCHER M-1991**

Description: The North Koreans have produced two different 240mm rocket launchers, the 12 round M-1985 and 22 round M-1991. The M-1985 rocket pack is easily identified as it has 2 rows of 6 tubes, and is mounted on a cab behind engine chassis. The M-1991 is mounted on a cab over engine chassis. Both launch packs could be adapted to any suitable heavy cross country truck.

LINE DIAGRAM UNAVAILABLE

FROG-3

Type: Free Rocket Over Ground (FROG) artillery system
Range: 10,000 to 35,000m **Warhead:** 454kg **Other:**
unguided, spin stabilized, solid fuel, 30-40 mins to prepare
missile for firing, 60-70 mins to reload, mounted on wheeled
chassis

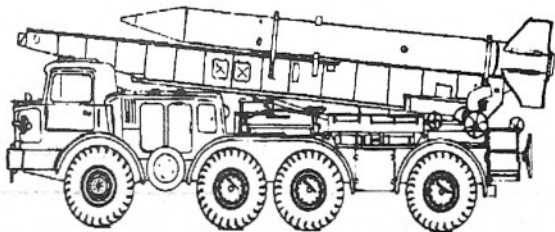
LINE DIAGRAM UNAVAILABLE

FROG-5

Type: FROG artillery system **Range:** 10,000 to 61,000m
Warhead: up to 800lbs **Other:** unguided, spin stabilized,
solid fuel, 30-40 mins to prepare missile for firing, 60-70
mins to reload, mounted on wheeled chassis, vehicle can
travel up to 44 km/hr

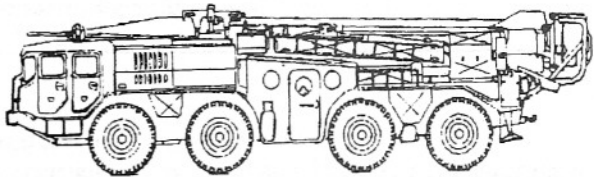
Equipment Recognition

6-52



FROG-7

Type: FROG artillery system **Range:** 70,000m
Warhead: up to 450kg, HE, possibly chemical **Other:**
unguided, spin stabilized, solid fuel, 20-30 mins to prepare
for firing, system consists of a Transporter-Erector-Launcher
(TEL) vehicle (ZIL-135 8x8) and a similar separate vehicle
used to transport 3 additional rockets



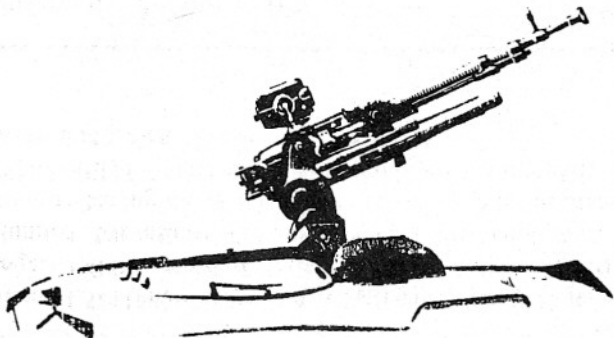
SCUD-B (SS-1C)

Type: surface-to-surface guided ballistic missile **Range:** approximately 300 km **Warhead:** 1,000kg, HE, Chemical
CEP: 1 km **Other:** 8 wheeled TEL, reload vehicle, fire control center van, several communication vehicles, 1-1.5 hrs to prepare for firing

LINE DIAGRAMS UNAVAILABLE

SCUD-C AND NODONG SURFACE-TO-SURFACE MISSILES

It has been reported in open source documents that North Korea has developed a SCUD-C ballistic missile, though to be an enhanced-range version of the SCUD-B with an alleged warhead of 700kg. The first of three successful test firings of the SCUD-C was reported to have been completed in June 1990. Recent open source reporting suggests that North Korea is developing the NODONG-1 and NODONG-2 missiles. The NODONG-1 has a reported estimated range of 1,000-3,000 km, which includes not only the entire Korean Peninsula, but also Japan. Mystery surrounds North Korea's effort to develop the NODONG-2. Initial reports suggest a 1,500-2,000 km range, although a prototype is reportedly not due until this year (1994) at the earliest.



M-38/46 DSHK

Type: 12.7x108mm heavy machinegun **Tactical anti-air (AA) range:** 1,000m **Rate of fire:** 540-600 rds/min
Azimuth: unlimited **Elevation:** -10 to 85 degrees **Fire control:** mechanical lead computing sight **Ammunition:** API, API-T **Other:** manufactured by Russia and China, towed tripod mount

LINE DIAGRAM UNAVAILABLE

ZGU-1 (Mountain Pack)

Type: 14.5x114mm heavy AA machinegun **Tactical AA range:** 1,400m **Rate of fire:** 550-600 rds/min **Azimuth:** unlimited **Elevation:** -20 to 90 degrees **Fire control:** optical reflex sight (AA), telescope (ground) **Ammunition:** API,-T, HEI, I-T **Other:** manufactured by North Korea, Russia, and China



ZPU-2

Type: 14.5x114mm twin heavy AA machinegun **Tactical AA range:** 1,400m **Rate of fire:** 550-600 rds/min
Azimuth: unlimited **Elevation:** -15 to 90 degrees **Fire control:** optical mech computing sight (AA), telescope (ground) **Ammunition:** API, API-T, HEI, I-T **Other:** manufactured by North Korea, Russia, and China



ZPU-4

Type: towed 14.5x114mm quad heavy machinegun
Tactical anti-air (AA) range: 1,400m **Rate of fire:** 550-600 rds/min per barrel **Azimuth:** unlimited **Elevation:** -8.5 to 90 degrees **Fire control:** optical mech computing sight (AA), telescope (ground) **Ammunition:** API, API-T, HEI, I-T **Other:** manufactured in North Korea, Russia, and China (Type-56)

LINE DIAGRAM UNAVAILABLE

M-1983

Type: Quad 14.5mm SP heavy machinegun **Tactical AA range:** 1,400m **Maximum vertical Range:** 3,600m **Maximum horizontal range:** 5,800m **Rate of fire:** 550-600 rds/min per barrel **Azimuth:** unlimited **Elevation:** -5 to 85 degrees **Fire control:** radar, optical speed ring **Ammunition:** API, API-T, HEI **Other:** manufactured in North Korea, main battle tank chassis, recoil operation, belt fed, 4 barrels

Equipment Recognition

6-60