

Morrow Project jackhammer 20mm utility launcher system

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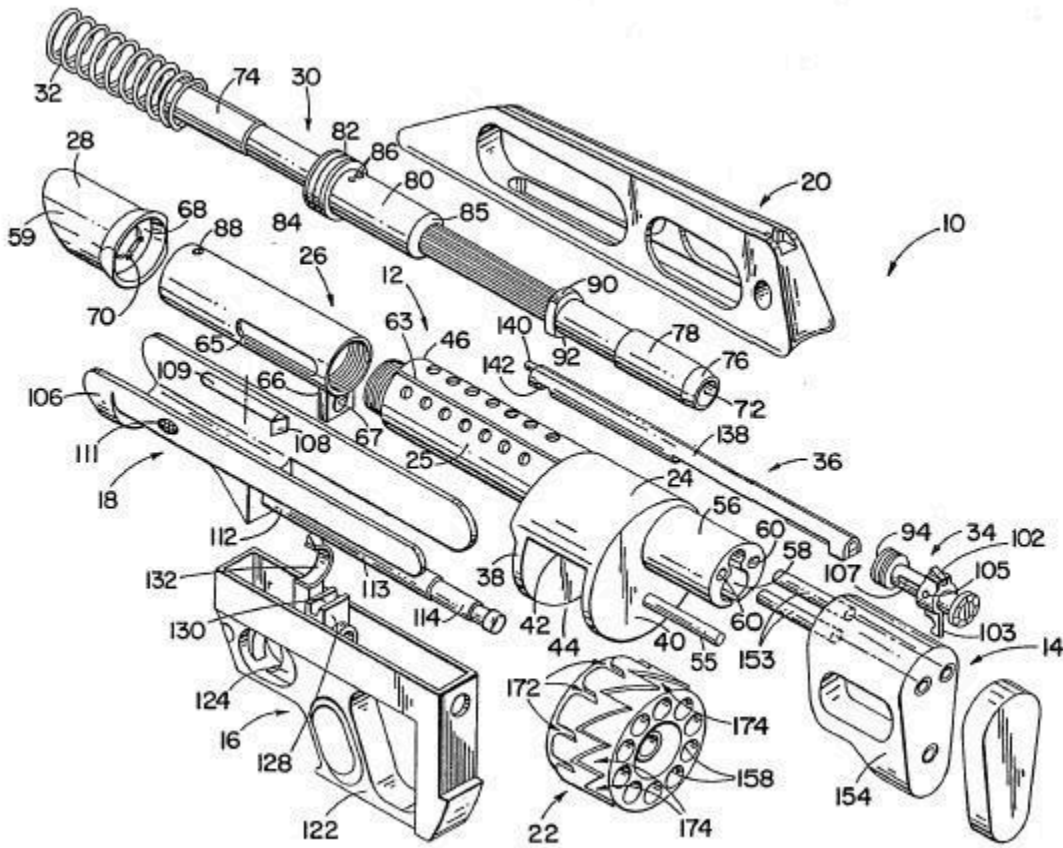
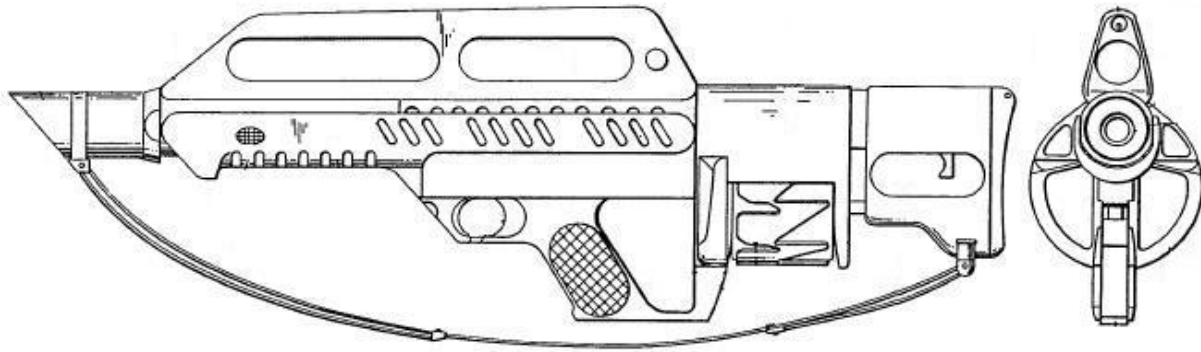


Morrow Industries in the early 2000's purchased the rights to the Inkunzi PAW and the Pancor Jackhammer as the project could see the advantages of the separate platforms were huge if combined. The previous generations such as the PAW20 and the Pancor had design problems and were not adopted by the militaries of the world due to many issues and funding problems. The project silently and through a 3rd party purchased all the rights and all existing prototypes and set the skill of the Morrow Industrial complex onto the weapon platforms to not just make a grenade launcher, but create a true multitool for the MARS teams.

The Morrow Jackhammer 20 (MJ20) was born out of a need for teams to rapidly deploy and defend areas as well as switch to lethal force by simply swapping out a magazine. The Jackhammer 20 is a select fire weapon that holds a rotary wheel magazine that holds 10 20mm rounds that can be rapidly swapped out and even reloaded quickly. This weapon is a multitasker as the 20mm chamber allows for multiple lethal and non lethal uses. Semi Auto and full auto modes are available.

The first step in Morrow upgrading and blending of these weapon systems was to make a stronger rifled barrel and firing system that could handle more than just the low pressure 20 mm grenades and shotgun rounds that the original systems were designed for. This increased the weight of the system by an extra 0.25 kilograms to 8.2 Kilos.

The weapon is 787mm long with a barrel length of 525mm. The barrel is rifled and there are no provisions at all for a choke and fitting one is not recommended as 20mm grenades are live as soon as they leave the end of the barrel after firing due to no room inside for the rotational safety. This leads to caution to NOT target something very close. Note: it is not recommended to disassemble a grenade round without the special tools.



The system retained its 240 RPM rate of fire while gaining a little more accuracy from the additional weight. Basically a large gas operated revolver, the barrel of the Jackhammer was driven forward and away from the cylinder by a ring-piston, using gas tapped from the bore. As the barrel moved forward, the breech cleared the front of the fired cartridge and an operating rod attached to the barrel rotated the cylinder through a "zig-zag" cam arrangement. As the next shell aligned with the bore, the barrel returned under spring pressure back into the front end of the cylinder. Spent shells are retained in the

cylinder, as in a traditional revolver. The Jackhammer has a charging handle in the forward grip to charge the weapon and a cocking lever in the buttstock to recock the firing mechanism in case of light strikes to the primer. For reloading, the cylinder is removed from the bottom of its housing and shells are manually extracted. Removing the cylinder required the barrel be moved and secured in the forward position. The heavier build of the seals and barrel allows for loading of a multitude of low and high pressure 20 mm grenades as well as any saboted 12Ga shotgun load making it a fully versatile weapon for team assault and defense. 12Ga shells having a plastic sabot easily expand the extra 1.5mm to make an effective seal and not lose much velocity. Being able to handle higher pressure grenades made it's effective range in the hands of a highly skilled grenadier close to the same as a higher pressure 40mm grenade at 250 meters. Wind will have a stronger effect on the lighter projectile at longer distances. A morrow digital tactical scope system can help the operator compensate for this factor. The digital scope system can plug into the ordinance interface on the weapon for use with smart ammunition for timed detonation, airburst distances and communication to non lethal rounds.

The shotgun can also be used for non lethality missions with rubber ball and beanbag rounds, as well as smoke, gas, and flashbang grenades. A single large grenade may have more volume but the smaller 20mm gas and flashbangs allow for surgical strike of effects or in full auto a wider area of effect as the 20mm grenades are more precise and accurate as they fly with a much flatter trajectory in the high pressure variants fire more like a rifle and less like a grenade launcher.

The platform can also be used to deploy sensors for tactical awareness. A 20mm high pressure motion sensor that will operate for up to 4 hours transmitting if it detects any motion in a 10 meter circle around it (5m radius) there is a observation round that will transmit back audio and video from up to 800 meters for 30 minutes that has a single 240 degree tip camera optic that is revealed after the sabot strips off that protected it and a spike to stick into a surface.

20mm motion sensor	Low pressure	5m radius for 8 hours
20mm observation sensor	Low Pressure	270 camera and audio for 30 minutes
20mm location marker	High Pressure	Dart to be fired into surface red/IR blinking low intensity strobe for 48 hours
20mm tracking marker	Low Pressure	Magnetic device that will emit a RF beacon for 3 hours
20mm drone	Low Pressure	Very short duration flying observation drone. 10 minutes flying and transmitting time Slow flying 5mph or loiter.

Doing Damage - Shotgun Shells

20mm is only 1.5mm larger than a 12Ga bore. The magazine can easily handle full length magnum shells. Saboted rounds like buckshot, slugs and the like can successfully be fired out of the system without any disadvantages as the sabot will expand to the walls and engage the rifling as well as produce a gas seal. Non sabot rounds will still fire but will lose muzzle velocity and can only be used for point blank range. Cut E factors in half in short range for non sabot rounds and by 75% at medium range. Buckshot will be spun due to the rifling and cause a star pattern and expand fast, useful only to 15 meters treat as a sawed off shotgun. E factor of 8 per pellet of standard 00 gauge combat rounds per pellet, E factor of 14 for a standard combat slug weighing 35 grams at short and medium range. I disagree with the calculation in the 4th ed book as a slug maintains energy really well in the first 10 meters. E factor of 12 past 10 meters. Treat effective range to be 15 meters with buckshot Degrees of success state how many pellets hit the target 9 pellets total in the shell. Note: point blank = all 9 hit if they hit, also exceptional success in my house rules all hit at point blank and close. Due to the heavier weapon platform firing shotgun rounds the next round penalty cut in half as the recoil is much lower and managed better along with the effect of the integrated muzzle break.



Other more modern projectiles such as the combination polymer and steel slugs designed for tactical use can be used in this system as long as it has a polymer expanding seal that replicates a sabot.

Doing Damage - Grenades



Any 20mm grenade can be fired in the system including the high pressure vehicle grenades. Grenade damage, take an equivalent 40mm grenade and cut it's damage and blast radius to 1/3rd of a 40mm round. For example a 40mm HE grenade does an E100 in the 20mm variant it does E33. due to the smaller size all 20mm grenades from HE to Frag use a very high

explosive component to get the most bang for the size. At first this sounds like a useless weapon to the average grunt, except that you can fire all 10 rounds in the weapon in the time it takes to fire two 40mm grenades from a M203. The smaller grenade system also allows more precise targeting and lower damage radius means the operator is in control of the area of effect. Due to the weight of the system and the heavy barrel the negatives for full auto are the same as a light machine gun. They are designed for a flatter trajectory and fire more like a gun in

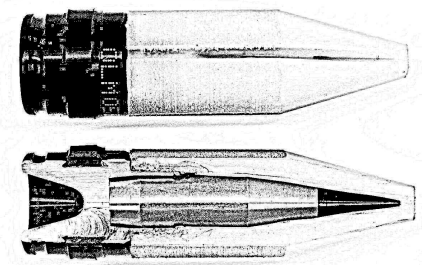
short to medium range (Up to 80 meters) due to their increased speed. Long range (>80 Meters) you have to lob like a grenade launcher.

This weapon system really shines when used with smart ammunition coupled with the smartgun platform. HE and fragmentation grenades that are used to airburst above the targets or as soon as they get through a window opening are extremely effective. Combatants that are taking cover can be attacked with the airbursting munitions. Even smart delayed flashbangs and gas can deliver a significant tactical advantage to the teams.

Doing Damage - APDS

There is a specialized 20 mm Armor Piercing Discarding Sabot (APDS) round that is a very high pressure designed for taking on enemy armored cars or APC's, this round designed for the platform has 100% of the powder charge as an autocannon round in a shorter shell. This will overpressure the weapons cycling system requiring a manual reset of the weapon and charging for the next round. Only on an exceptional success will the system properly cycle and rotate to the next round. Any failure will

be a hard jam that takes 2 combat turns to reset again requiring a 50% roll to reset. Any exceptional failure the weapon has a 25% chance of exploding roll 75% failure the round explodes in the chamber and the player takes E9 damage to the hands and arms, as the wheel seal failed and the extreme pressure gasses escaped in the gap cutting them, the weapon is damaged beyond any field repair and needs parts to be restored to operation. These rounds are special to the platform and are NOT used in any other platform. Unless the team salvages the shells, and has some 20mm autocannon rounds to take apart and make new ones, they are not going to get more ammunition anywhere except project caches and stores, and even then they were considered experimental rounds due to the higher possibility of critical failure resulting in significant injury of the operator. 25% chance of these in a cache of a team that was issued the weapon and if any were in the cache, 6 rounds are there in a small dark red pelican case with 20-APDS-TEST embossed on the lid. Inside the case will be a note about how dangerous they are and are to only be used in an emergency.



This round due to the shorter barrel and lower powder charge delivers an E factor of 57 but only at an effective range of 80 meters. This will put a round through a V150 and deliver E17 to what it hits inside. Firing this is not stealthy, it's really really loud. And the Kick is extremely significant. The player also takes E1 Blunt damage for firing this round. So next round negatives for taking damage the previous round. Only a lunatic would load up 10 rounds and try to fire full auto. Anyone reloading a magazine with these spent shells in them will have to pound them out as the overpressure expands the shells to be very tight. Roll % on each round fired anything above 80% means that chamber has a damaged gas seal and will malfunction and

possibly injure the operator due to high pressure gasses escaping between the wheel and firearm.

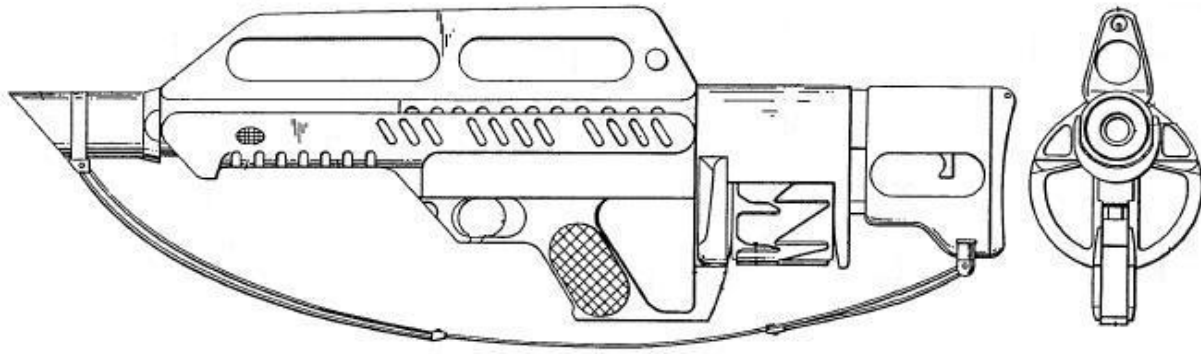
Smart Weapon Platform

Smart weapon platform delivers a +5% to skill when in use.

The system if using smart munitions or any of the tactical options will be supplied with the Smart weapons platform module. This module resembled a very large Eotec holographic sight that extends about 40mm forward of the optics and sits 20mm taller than normal. There is a multi button key pod that can be positioned wherever the handler desires on the weapon for ease of use for either left or right handed. This platform while acting like a standard holographic sight also shows information about number of rounds in the drum, types of rounds in each slot and loaded, laser rangefinder showing distance to target and allows setting of the burst distance of smart munitions. It also can be used as the visual display for the observation drones as well as indicators of the tripwire drones. Targets can be highlighted and sent to the personal tactical tablet for transmission over ATAK to other team members. This platform has a super capacitor technology power storage and requires charging. When the weapon is not in a raised position the smart platform is auto sleeping. Power storage handles 1 week in this mode. System only operates for 1 hour in full operation. Manual on and off is possible, full off will store power for up to 1 year. There is a 9 second boot time when switched to on from a full off. (3 combat rounds) the weapon can be fired without the smart platform powered, smart munitions will not arm. Standard munitions will operate as usual. -5% for firing without any sights until it boots. This can be negated by adding flip up iron sights or canted iron sights.

Magazine Wheels

The Magazines are round wheels holding 10, 20 mm rounds each. They are high temperature tech polymer wheels with very high strength steel sleeves for the ordinance to sit in and fire from. This reduces the weight significantly. 0.8Kg fully loaded with typical 20mm HE grenades. A simple lever push drops the magazine wheel from the weapon system and a new one can be slapped in with no regard for position. It will self-align as it is inserted and can be swapped as fast as any rifle magazine. When fired, the system pushes a sealing ring back to the wheel to seal pressures to protect the shooter from wheel gap gas release and ensure the maximum energy is imparted into the projectile. The Jamming the weapon system can experience is the sealing ring getting stuck from overpressure or lack of cleaning. Initial sealing is mechanical, but expansion gasses push on the rear of the sealing ring to further seal tighter than mechanical is capable of. Buildup of detonation byproducts can make this sticky and not cycle automatically. Overpressure can also damage this system and cause it to stick until serviced as well as damage seats on the magazine wheel. Pulling forward on the fore grip will manually reset the sealing ring by cycling the charging mechanism and it will rotate to the next round. Magazine wheels have their own molle pouch design and due to their size will not fit in standard magazine pouches due to it's 150mm diameter and 100mm length in order to support multiple ordinance types.



NAME	Morrow Jackhammer 20 (MJ-20)
CAL	20mm
E-Factor	Depends on projectile
WT (Empty)	8.2 Kg
BARREL	525 mm
LENGTH	787 mm
EFF RNG.	Depends on projectile
MAX RNG.	200 M
TYPE OF FIRE	Selectable SA/FA
RATE OF FIRE	240 RPM
FEED DEVICE	Wheel
FEED DEVICE WT.	0.8Kg
BASIC LOAD	30 Rounds (3 wheels)
LOAD WT.	2.4 Kg
TOTAL WT.	10.6 Kg
MP DEPLOYMENTS	2008+