

TERRAFORMER

SHAPE YOUR WORLD



INVISIBILITY TECH

BY ROBERT J. GRADY



#12



Requires the use of the d20 Modern Roleplaying Game, published by Wizards of the Coast, Inc.

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Invisibility Tech

The idea of invisibility has been around for centuries. What man once only dreamed of with the aid of magic has been realized by the application of cutting-edge science. Early in the 21st century, scientists made significant breakthroughs in the development of so-called “metamaterials”, which can be made to interact with light and other electromagnetic waves in precise way.

Theory states that invisibility and interactivity are not simultaneously possible. True invisibility would permit light waves to pass through undisturbed. However, the millions of photons which make up a light wave cannot be replicated perfectly by current levels of technology. Moreover, an invisible person would be blind by virtue of their lack of interaction with the light waves.

However, for most practical purposes, near invisibility is just as good. It is not necessary to duplicate every photon if the character of a light wave can be duplicated or transmitted. For simple camouflage, even less precision is necessary. In all of these applications, to provide a useful form of invisibility, however, the device creating the invisibility effect must be able to respond to light in all colors and intensities and from any direction.

(Additional information about the actual research going on in the field of metamaterials and invisibility can be found in the following articles: <http://dukenews.duke.edu/2006/10/cloakdemo.html>;

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www.msnbc.msn.com/id/12961080; and the highly advanced site <http://www.metamaterials.net/>.)

Invisibility Rules

Per the Modern SRD, a truly invisible creature gains a +40 bonus on Hide checks if immobile, or a +20 bonus on Hide checks if moving. Pinpointing the location of an invisible character who isn't attempting to hide requires a Spot check against DC 40 if immobile or DC 20 if moving. The items described in this text do not confer true invisibility—but rather “near invisibility”. A creature with near invisibility gains a +32 bonus on Hide checks if immobile, or a +16 bonus on Hide checks if moving. Pinpointing the location of an invisible character who isn't attempting to hide requires a Spot check against DC 32 if immobile or DC 16 if moving. Additionally, near invisibility confers concealment against would-be attackers. Generally, near invisibility confers nine-tenths concealment, i.e., a 40% miss chance.

The items below provide specific descriptions of their mechanical effects.

Invisibility Tech Items

The following items make ample use of the latest development in invisibility tech.

Enhanced Camouflage Cloak

Often called simply the “N-cloak” by Republic operatives, the EC cloak comes from Old Earth, where the technology had recently been realized just prior to evacuation. Although the *Dawning Star* did not come with a significant amount of military hardware, Republic manufacturers were able to replicate cloaks for use by military scouts and other government personnel. Although Eos is a place of constant technological shortage, the cloak is a straightforward technology by Republic standards. Many private individuals have been able to illegally produce additional cloaks.

The cloak is made of a durable metamaterial that bends light waves, casting only the barest shadow. It resembles a long poncho with a hood. Effectively, the cloak provides constant concealment. If the user covers his face (generally leaving him unable to see), it provides nine-tenths concealment. Covering most of the body (such as leaving the hands and face exposed) provides one-half concealment. The cloak functions at a generous wavelength, but does not provide protection from either radio detection (including radar) or X-rays. The black inner lining provides some visual clues if visible, but if properly folded, the cloak itself can become nearly invisible. Military-issue cloaks are embedded with a tracking device to help locate them if inadvertently misplaced.

N-Cloaks have a hardness of 5 and have 5 hit points. Unlike other objects, they take normal damage from heat and lasers (as opposed to half damage), and they take 3d6 points of damage from exposure to strong light sources (such as a flash grenade).

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Enhanced Camouflage Veneer

This is a metamaterial coating commonly applied to metal plates for use on vehicles. Still early in development, it is rarely used for three reasons. First, it is expensive to manufacture. Second, it is incompatible with other outer coverings, including rust spore protection and armor materials, which limits its practical applications. Third, the veneer is relatively fragile, and vehicles often encounter hazards that would quickly destroy it.

However, the Republic does own a handful of light aircraft with the veneer, which are used as scouts and couriers. They have a generous spectrum protection and depend on low band radar for sight and communication during flight. Once deployed, they often lower protection on some portions of the craft (by opening screens or ports) or send out remote drones.

Typically, the veneer grants nine-tenths concealment under ideal circumstances, one-half when it is partially visible (due to UV or radar visibility, for instance), and none if a system is used that exceeds its spectrum (such as IR radar used to detect a vehicle that is not invisible to radar due to its own need for radar).

The Purchase DC of the veneer is 5 + one-half the base purchase DC of the vehicle.

Gear Blind

This item is essentially a small N-cloak, repurposed for use on small objects the size of a briefcase or a rifle. The blinds are equipped with remote engagement fobs, allowing the invisibility effect to be disabled with the push of a button. It sees frequent use on diplomatic pouches and sniper rifles.

Gear blinds have a hardness of 5 and have 5 hit points. Unlike other objects, they take normal damage from heat and lasers (as opposed to half damage), and they take 3d6 points of damage from exposure to strong light sources (such as a flash grenade).

Ghost Claws

The original “ghost claws” were Vaasi relics, discovered quite by happenstance in one of the ruins on Eos. They are nothing more than dagger-like blades made of near-invisible metamaterials, honed to extraordinary sharpness through advanced manufacture techniques. They can elude both radar and X-rays. A ghost claw can be easily spotted if it is covered in blood or gore. Otherwise, it is all but invisible save for the barest shadow.

Some faction-camp warlords have started manufacturing their own copycat blades using rudimentary N-cloak technologies stolen from Republic research facilities. These copies generally do not provide the same breadth of spectrum invisibility, although in theory they could. The blades themselves are usually affixed to a transverse handle and meant to be gripped between the third and fourth fingers of the hand (though other formats are certainly possible). The Republic does not manufacture ghost claws, viewing them as weapons of assassination. The target of an

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attack from someone armed with the claws often does not become aware of the attack until it is too late.

Ghost claws require the Exotic Weapon Proficiency (ghost claw) feat to properly wield.

Ice Drones

These small flying robots combine tech from three cutting-edge fields to create a spy drone that can capture video, biometrics, and other data from unsuspecting targets. The humans' nascent nanotech program allows for a much smaller design than prior spy drones (.5-2 cm depending on the model). Breakthroughs in telemetry and burst transmissions allow for greater and more secure information capture. And the recent enhancements to the EC cloak (along with the drones' small size) allow for practical invisibility.

The ice drones (officially referred to as information-capture electronically-camouflaged remote drones) are controlled in the field with a small unit that looks like and weighs as much as an ordinary portable computer. The drone can be pre-programmed to scout a particular area, locate a particular target (via face recognition software), or can be manually directed through the control unit.

In addition to information-gathering, a few of the drones have been augmented with small explosive devices or injectible toxicants (either poison or bioweapon material). When directed by its controller, these special drones can fly into the ear canal of a designated target and carry out their suicide assassinations.

Master Scout Suit

This is a fancier version of the N-cloak, designed as a collection of loose outer garments which can be worn over other clothing or light armor. The suit consists of a hood and mask, jacket, pants, durable gauntlets, and weatherproof boots. It provides the same advantages as the cloak but also retains its full effect even while the wearer is moving. The face visor has a built in UV vision system, effectively granting advanced nightvision, while allowing the wearer to cover his entire form (granting nine-tenths concealment). The visor itself is visible to ultraviolet light; other UV vision systems can detect the visor (negating the nine-tenths concealment and leaving only one-half concealment).

The master scout suit is substantially more expensive to produce than the enhanced camouflage cloak, but it also offers substantial advantages in the form of functionality and ease of use. Only a few of these suits have been produced to date, seeing use in the EDF's special forces. Obtaining one of these suits is a top priority for the EFL.

Master scout suits have a hardness of 5 and have 7 hit points. Unlike other objects, they take normal damage from heat and lasers (as opposed to half damage), and they take 3d6 points of damage from exposure to strong light sources (such as a flash grenade).

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Mirrored Camo Grease

This is a low-tech application to approximate invisibility under suitable environmental conditions. The grease itself is comprised of metallic particles suspended in a clear viscous material that adheres to and dries quickly when applied to human skin. Typical camouflage grease is smeared on exposed skin and comes in appropriate colors for the environment the wearer intends to be. Mirrored camo grease, as its name suggests, results in a reflective surface that captures the colors and patterns of the wearer's surroundings. This effect creates a more subtle and more accurate camouflage and allows the wearer to maintain the effect even when moving between different types of terrain. Mirrored camo grease confers one-half concealment on the wearer.

A typical container of mirrored camo grease has enough material for three full applications.

Robot Phantom Plating

The Republic has just taken to coating standard biodroid robots head-to-toe in metamaterials, making them all but invisible. However, they are still vulnerable to radar, due to their reliance on radio communication.

The Purchase DC of the plating is 5 + one-half the base purchase DC of the robot's frame

Video Camouflage System

The video camouflage system is a computer-based concealment system and alternative to the metamaterial tech in development. The entire surface of the object is covered with video sensors. The information captured by the sensor array is transmitted from one side of the covered object to the other. Someone viewing the object sees a replicated image of what is on the opposite, giving the illusion of invisibility. Due to the holographic properties of the material, the illusion of depth and space is complete. The system has significant drawbacks, however. First, it is vulnerable to electricity and powerful energy attacks. Second, because of the use of video processing, the system is not instantaneous. It does not cope well with rapid movement, producing a flickering, obvious effect. Third, the optical and electrical components can be detected by very sensitive devices.

There are three versions in use by the Republic. The Personal Video Camouflage System is a full body suit, including a light helmet. Because of the nature of the technology, vision is not impaired with the PVCS. The VCS Screen is a portable unit consisting of two screens, each 2m square, that conceal anything placed in the middle. The screens fold into a compact container capable of being worn on the back. Finally, vehicular versions are available—although they only work when the vehicle is at rest.

When the subject is still, VCS provides nine-tenths concealment. For a human to gain this bonus, they must make a Concentration check each round (DC 15). The system is ideal for robots, who can easily remain still. When moving up to 30 feet in a round, the system provides one-half concealment. Between 30 and 60 feet per round, it provides only one-

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quarter concealment. At more than 60 feet per round, it provides no advantage. At more than 120 feet per round, the system actually grants a +2 circumstance bonus to anyone attempting to Spot or Search the covered object, due to the flickering, discontinuous appearance. At distances less than 5 feet, it does not provide concealment, but confers a -2 equipment bonus to Spot checks made to locate the concealed object. The system does affect UV and IR vision, but not microwaves or radio.

Video camouflage systems have a hardness of 3 and have 5 hit points. Unlike other objects, they take normal damage from heat and lasers (as opposed to half damage), and they take 3d6 points of damage from exposure to strong light sources (such as a flash grenade).

The Purchase DC of the vehicular system is 8 + one-half the base purchase DC of the vehicle

The X-Globe

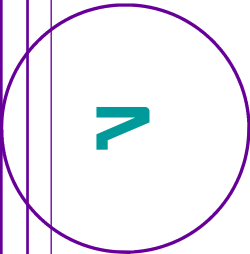
This small, silvery spheroid is approximately three inches in diameter and weighs approximately two pounds. Its surface is flawless and highly reflective with no noticeable seams. Only one of these items has been discovered, retrieved from the Council Ruins earlier this year by a Republic xenoarchaeology team. Activating the globe requires tracing a precise movement on its surface. Once activated, the globe generates a spherical field of invisibility with a diameter of ten feet. Anything within the field is truly invisible, enjoying the full bonuses to their Hide checks and total concealment against would-be attackers. However, creatures within the field are still able to see normally.

Republic researchers have not even scratched the surface of their examination of the globe, and they have only the barest idea of how it operates. The leading theory is that the globe generates a unique electromagnetic field that is able to guide light waves around it undisturbed. Simultaneously, the globe utilizes an array of pinpoint sensors to capture the environment outside the field and project a holographic replica for the wielder's benefit. Of course, this is all really just rank speculation. Researchers are terrified of "losing" the globe to its own invisibility field. They hypothesize that it contains some sort of locator system but have, as of yet, been unable to identify it.

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Item	PL	Size	Weight	Purchase DC	Restriction
Enhanced Camouflage Cloak	6	Medium	3 lbs.	20	Mil (+3)
Enhanced Camouflage Veneer	6	—	—	Special	Mil (+3)
Gear Blind	6	Small	2 lbs.	18	Mil (+3)
Ice Drones	6	Diminutive	—	28	Mil (+3)
Master Scout Suit	6	Medium	5 lbs.	22	Mil (+3)
Mirrored Camo Grease	5	Diminutive	—	14	—
Robot Phantom Plating	6	—	—	Special	Mil (+3)
Video Camouflage System (PVCS)	6	Medium	7 lbs.	21	Mil (+3)
Video Camouflage System (screen)	6	Large	12 lbs.	20	Mil (+3)
Video Camouflage System (vehicular)	6	—	—	Special	Mil (+3)

Weapon	PL	Damage	Critical	Damage Type	Size	Wgt	Purchase DC	Restriction
Ghost Claws	6	1d6	19-20	Piercing	Small	2 lbs.	20	Mil (+3)



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