



Objects vary widely in quality and usefulness. This variation gives seemingly identical objects a variety of positive and negative attributes. The QREBS system details these differences.

Despite the uniformity which mass production techniques impart to their output, individual pieces of equipment can vary widely due to the differences between manufacturers, and the different emphases that they give to design and quality.

THE QREBS EQUIPMENT EVALUATION SYSTEM

The QREBS (pronounced "krebs") system evaluates pieces of equipment for five essential characteristics:

Q	R	E	B	S
Quality	Reliability	Ease Of Use	Bulk /Burden	Safety
QUA	REL	EOU	BUR	SAF
2D-2	Flux	Flux	Flux	Flux

Objects. Any item which is subject to QREBS is called an **object** (or a device, a piece of equipment, a machine, an item, or an apparatus). QREBS is primarily concerned with devices and machinery, but it can also be used (judiciously omitting some parts of the system) with plants and animals, artwork, even books, drama, or music.

Multi-Component Objects. Where several objects are combined into a larger item (for example, components combined to become a groundcar), the proper use of the QREBS system is to treat each major subsystem separately.

THE QREBS FORMATS

Full QREBS

QREBS = 4 -4 -4 +4 0

Write the individual values (preceded by + / -.
Notice the first Digit Quality has no sign.

Individual QREBS Values

qreBs = - 4

Capitalize the appropriate value.

Burden = - 4

Write out the appropriate value as a word.

BUR = - 4

Abbreviate it.

B = -4

Use the appropriate value as a letter.

Use Equal (to avoid confusing a minus with a hyphen).
(B = - 4 rather than B - 4; B = +1 rather than B +4).

The essential rule is to state the value in an unambiguous way to ensure easy comprehension

THE FIVE QREBS VALUES

QREBS values (except for Quality) are Flux values from -5 to +5. Quality is a number (2D-2) from 0 to 10. Low values are poor or bad; high values are good (Burden is an exception; low Burden is better).

Quality is an overall measure of workmanship.

Reliability is compared to Flux for the occurrence of mishaps.

Ease of Use is a Mod on tasks using an object.

Burden is a Mod on the felt weight of an object.

Safety is compared to Flux for Dangerous and Destructive Mishaps.

Q Quality

Quality is a measure of the consistency of workmanship, merit, value, or worth of an object. It directly reflects the time period between reliability downgrades.

Determining Quality. Quality may be pre-specified for an object; if not, it is generated with 2D-2.

Quality Mod. The Quality Mod (=Q minus 5) is a Flux equivalent to Quality and is used as a Mod when using the object.

Quality Gives Period directly on the Quality table.

For example, a Vacc Suit Q= 5 is an average Quality piece of equipment. A Jump Drive Reciprocator Q= 9 is Better Than Most.

A Quality. The top value in ordinary situations for a QREBS object is 10. Expressing 10 in Ehex, top Quality objects are A Quality.

(Even higher quality is possible).

THE STANDARD OR EXPECTED VALUE IS...

The most common roll for any of the QREBS values is zero (or 5 for Quality). If values have not been created or calculated, the standard values apply.

The presence of standard or expected values makes the entire system optional, or applicable piecemeal.

P Period

Period is the elapsed non-storage time between Reliability downgrades.

Period= Quality.

As each Period ends, reduce Reliability for the object by minus 1.

For example, a Vacc Suit Q= 5 is an average Quality piece of equipment: Q = 5 translates to Six Month Periods and it degrades one level of Reliability every six months when in use. A Jump Drive Reciprocator Q= 9 is Better Than Most; Q= 9 translates to Four Year Periods. It degrades one level of Reliability every four years when in use; on the other hand, if the Jump Drive Reciprocator is in original packaging on the shelf, it probably does not degrade.

R Reliability

Reliability measures the dependability of an object.

Reliability = Flux. Or as specified otherwise.

Reliability Degradation. Reliability degrades at a rate determined by the Quality of the equipment. Quality indicates Period (usually the number of years between reliability downgrades). Reduce reliability by -1 at the end of each period.

Reliability is independent of Quality.

An object can be Low Reliability and High Quality. For example, a Jump Drive Reciprocator Q=9 and R= -2 is Somewhat Unreliable, BUT Q=9 states that its Reliability will not get any worse for at least four years.

An object can be High Reliability and Low Quality. A Vacc Suit Q= 3 R=+3 is Lesser Quality and Reliable. In any specific use, the Vacc Suit can be depended on to function properly, but it needs to be checked

Staving Off Reliability Downgrades. When (or before) an object reaches Reliability Downgrade, a competent technician can perform an IROAN (Inspect and Repair Only As Necessary).

To IROAN (1D Hours)

Average (2D) < Characteristic + Skill + Quality Mod + Mod
Uncertain 1D if Skill < 6

Success forestalls the Reliability Downgrade.

For example, Eleri Dinsha is comfortable with his Vacc Suit QREBS= 3 +3 +3 +3 +3. It is of Lesser Quality, but Reliable, Easy to Use, Easy to Wear, and Safe to Use. Since he likes it and is comfortable with it, and since he cannot afford better at the moment, he takes steps to keep it in good repair: Every week he has it IROAN checked by a Vacc Suit-6 technician.

No Downgrades in Quality Storage. Objects in proper storage (temperature controlled, anti-corrosion packaging, no energy cells installed) have Reliability Downgrades suspended.

Why Is It Unreliable?

Equipment may be less reliable due to wear, age deterioration, poor engineering, or poor craftsmanship.

E Ease of Use

Ease of Use measures the facility with which a piece of equipment can be put into operation.

Ease of Use = Flux. Or as specified otherwise.

Large Equipment: Ease of Use refers to individual systems rather than to the craft or vehicle or assembly as a whole.

For example, a Communicator with EOU= +5 is activated with the touch of a single button. An Inertial Navigator with EOU= -5 requires careful calibration before use and displays position as a series of 8-digit numbers.

Using Ease Of Use

Ease of Use is a Mod on tasks involving the object or device.

Why Is It Hard To Use?

An object may have low Ease of Use for several reasons.

Bad Design. The object may be designed by engineers who have not clearly considered how it will ultimately be used.

Cheap. Standard (but ill suited) components may have been used to reduce cost.

B Burden (or Bulk)

Burden measures the difficulty of carrying or using a piece of equipment. It expresses how ergonomically well-fitted to use the item is. Alternatively, it measures the bulk or unwieldiness of an object.

Burden = Flux. Or as specified otherwise.

Note that the sign on BURDEN runs opposite to the signs on the other elements of QREBS: minus is good and plus is bad. The reasoning is that negative Burden reduces felt weight or mass, and positive Burden increases felt weight or mass and becomes more burdensome.

For example, a Pistol Burden= -5 feels light in the hand and is barely noticeable in its holster. A Revolver Burden= +5 feels bulky, awkward, and unbalanced. It fits poorly in the holster and is difficult to remove.

Using Burden

Burden is the reduction in the perceived Load for a character (not to exceed its actual weight or mass). For example, an Advanced Combat Rifle-10 weighs 2.8 kilograms. A model with BUR= -4 reduces that felt weight by -4 kilograms (effectively cancelling its Burden on the character).

Why Is It Bulky?

An object may have poor Bulk for several reasons.

Lack Of Design. The designers may not have clearly understood the interaction of the user and the object.

Unwieldy. The object has no natural features for grasping, or such features may be uncomfortable or even painful.

Unbalanced. The object is not well balanced.

Why Is It Easier To Carry?

Objects with a low Burden are easier to carry. Possible reasons include:

Handles. An attached handle would make it easier to carry this object.

Straps. A strap or shoulder sling allows the object to be carried in a slung position without using the hands.

Packs. A pouch or bag with straps allows several different objects to be carried without using the hands.

Ergonomic. Some objects are naturally (or deliberately) configured so that they are easy to carry or manipulate.

S Safety

Safety measures the inherent safety or danger presented by an object when in use. It expresses the possibility or probability that use of a piece of equipment will inflict pain, injury, or even death.

Safety = Flux. Or as specified otherwise.

For example, a Respirator Safety= -5 lacks a battery reserve and a low energy warning; its compressor can catastrophically fail and send metal shavings into the face. A Filter Mask with Safety= +5 is constructed so replacement filters can only be inserted correctly. With Ease-of-Use +5, they can also be inserted while the Filter Mask is being used.

Using Safety

Safety is the roll which determines if a mishap is dangerous or destructive. If Safety is equal or less than Flux, then the mishap injures the operator. On a separate roll, if Safety is equal or less than Flux, then the mishap damages or destroys the object.

Why is It Unsafe?

There are many possible reasons why an item may be unsafe.

Lack of Safety Features. The item is poorly designed in terms of safety and lacks safety features, guards on moving parts, fail-safe mechanisms.

Inherently Hazardous. The item is inherently unsafe because it is intended to produce hazardous consequences: knives or cutters, poisons, explosives.

EVALUATING OBJECTS

The QREBS values for an object are initially unknown (and assumed to be QREBS = 5 0 0 0 0).

Inspecting An Object

A skilled individual can check an object: it takes about an hour to carefully look it over, test its operation, disassemble and reassemble it looking for flaws or problems.

The inspector must have a skill related to the object.

For each QREBS value,

Roll Flux plus the QREBS value.

The referee should reveal one correct (regardless of flux) QREBS value for each level of skill (to a maximum of 4).

POTENTIAL DISASTER

Every day, there is the potential for objects to fail.

The Daily Roll

At the beginning of each game day, the Referee rolls Flux.

Daily Zero or Greater. The QREBS system is ignored unless something important arises.

Daily Less Than Zero. There is the potential for Mishaps throughout the day. The QREBS system may come into play and this may turn into a Bad Day.

Why? QREBS is intended to add spice to adventures, not to bog them down in trivial accidents and mishaps.

The Potential Bad Day

When a significant piece of equipment is brought into use for the first time on a Potential Bad Day, roll for its Potential Failure.

Potential Failure if	Reliability <= Flux
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Passing. If the equipment passes this test, it performs properly throughout the day.

Failure. If it fails this test, roll 1D, which is the next use in which it fails. If the item is in continuous use, the result is the hour in which it fails.

Warnings of Failure. When a device starts to fail while in operation, it will emit warning signals (telltale warning lights, squeaks, smoke, dust, shavings, vibrations) for Reliability (in half-hours) before failure.

Over Until Tomorrow. Once it has been determined that a device will fail, the event is foreordained. If the failure doesn't happen during the current day, it will happen in immediate future use.

Dangerous and Destructive Mishaps. When the mishap occurs, determine if it is dangerous or destructive or both.

Roll Flux twice.

Dangerous Mishap if	Safety <= Flux
Destructive Mishap if	Safety <= Flux

A dangerous mishap may injure the user/operator.

A destructive mishap may destroy parts of the device.

AN ADVENTURE ON ZEYCUDE

Eneri Dinsha 777777 needs a new respirator. He checks at the Starport market and finds one, buys it and throws it in his pack for the day when he will need it.

The Referee quietly rolls QREBS for the item.

Q= 5. R= -2. E= +2. B= -1. S= -1.

Several weeks later, he arrives at Zeycude C330698-9 and its Atm-3 means he needs a Respirator. He digs in his pack and gets his out.

Mishaps. The Referee has privately determined today is a Potential Bad Day. He has also privately rolled for this Respirator. $2D + - 2 = 3 - 2 = -1$ = Failure. He further rolls $1D = 5$ = a failure in 5 hours.

Ease of Use. The first thing he notices is that it so easy to put on and adjust. EOU= +2.

Burden. The second thing he notices is that it feels heavy. BUR = -1.

Because reliability is less than 1, there is no warning of the impending mishap. Five hours later, Eneri has left his vehicle and is walking toward a maintenance shop. He's two minutes away from a doorway and the respirator stops working.

Atm 3 inflicts Suff-2 every minute. For the first minute, he rolls 2D and applies them to Int and Edu, even as he realizes that he has a problem and sprints to the doorway. For the second minute, he again applies 2D to Int and Edu.

He just makes it, and collapses inside the airlock door.

He rolls Flux against Safety for Dangerous (= +4 = no effect). He rolls Flux against Safety again for Damage (= -3 = Damaged) and finds that his Respirator has basically shut down with a bearing failure.

He needs a new Respirator. He notices some fine print on the tag that he can return this one (postpaid) for a refund or replacement.

WHY USE QREBS

The most common roll for any QREBS value is 0 (5 for Quality). The neutral QREBS value adds nothing or takes away nothing.

The purpose of QREBS is:

To add variation to otherwise standard objects. When the adventurers visit a store, they can buy communicators.

QREBS allows the store to offer a range of products instead of a single model.

To add variation to otherwise standard adventures. Devices have the potential of breaking down; new found treasures can turn out to be junk. Some acquisitions can prove to be especially reliable or useful.

Do I Use This Every Day?

Although players will certainly pursue devices and objects that are high quality, the primary beneficiary of QREBS is the referee.

QREBS is the mechanism that justifies special situations and special circumstances in the course of ordinary adventures. Without a rules basis, it is difficult for a referee to impose, and for players to accept, the sudden breakdown of vehicles and equipment, or the failure of a weapon at a crucial time. Under the QREBS regime, the catalog of equipment is vastly larger and filled with goods from the very good to the very bad.

But every day? No. QREBS can be safely ignored most of the time. In fact, the average QREBS value is 0 = no effect.



QREBS-1

Despite the uniformity which mass production techniques impart to their output, individual pieces of equipment can vary widely due to the differences between manufacturers, and the different emphases that they give to design and quality.

QREBS-1

THE QREBS EQUIPMENT EVALUATION SYSTEM

The QREBS (pronounced "krebs") system evaluates pieces of equipment for five essential characteristics: Quality, Reliability, Ease Of Use, Bulk (or Burden) and Safety.

Objects. Any item which is subject to QREBS is called an **object**. It may alternatively be called a device, a piece of equipment, a machine, an item, or an apparatus. While QREBS is primarily concerned with devices and machinery, it can also be used (judiciously omitting some parts of the system) with plants and animals, artwork, even books, drama, or music.

Multi-Component Objects. Where several objects are combined into a larger item (for example, components combined to become a groundcar), the proper use of the QREBS system is to treat each major subsystem separately.

Q QUALITY

2D-2	Description	Mod	Period
0	Very bad	- 5	Minutes
1	Bad	- 4	Hours
2	Poor	- 3	Days
3	Lesser	- 2	Weeks
4	Below average	- 1	Months
5	Average	0	Six Months
6	Better than some	+1	One Year
7	Better than many	+2	Two Months
8	Very good	+3	Three Years
9	Better than most	+4	Four Years
10	Excellent	+5	Ten Years
11	Superb	+6	Twenty Years
12	Masterpiece	+7	Centuries

Quality is a measure of the workmanship of an object. It directly reflects the Period between reliability downgrades.

Quality = 2D-2. Or as specified otherwise.

Quality Mod = Q minus 5.

Converted to Flux for use as a Mod.

When an Object fails, reduce its Quality by -1.

Period is the time between Reliability downgrades.

As each Period ends, reduce Reliability for the object by -1.

For example, an Average quality object with a Period of One Year is reduced in Reliability -1 every Year.

When an Object fails, reduce its Period -1.

R RELIABILITY

Value	Description
- 5	Very unreliable
- 4	More unreliable
- 3	Unreliable.
- 2	Somewhat unreliable
- 1	Slightly unreliable.
0	Reliability neutral.
+1	Better than some.
+2	Better than many.
+3	Reliable.
+4	More reliable.
+5	Very reliable.

Reliability measures the dependability of an object.

Reliability = Flux. Or as specified otherwise.

Reliability Degrades.
Reliability degrades -1 per Period.

E EASE OF USE

Value	Description
- 5	Very difficult to use
- 4	More difficult to use
- 3	Hard to use.
- 2	Somewhat hard to use
- 1	Slightly difficult to use.
0	Ease of use neutral.
+1	Better than some.
+2	Better than many
+3	Easy to use.
+4	Easier to use
+5	Very easy to use.

Ease of Use measures the facility with which a piece of equipment can be put into operation.

Ease of Use = Flux. Or as specified otherwise.

Large Equipment: Ease of Use refers to individual systems rather than to the craft or vehicle or assembly as a whole.

B BULK / BURDEN

Value	Description
- 5	Very easy-to-carry.
- 4	Easier to carry
- 3	Easy to carry.
- 2	Better than many
- 1	Better than some.
0	Burden neutral.
+1	Slightly un-ergonomic.
+2	Somewhat hard to carry
+3	Difficult to carry.
+4	More burdensome
+5	Very burdensome

Burden measures the difficulty of carrying or using a piece of equipment. It expresses how ergonomically well-fitted to use the item is. Alternatively, it measures the bulk or unwieldiness of an object.

Burden = Flux. Or as specified otherwise.

S SAFETY

Value	Description
-5	Very hazardous.
-4	More hazardous
-3	Hazardous.
-2	Somewhat hazardous.
-1	Slightly hazardous.
0	Safety neutral.
+1	Better than some.
+2	Better than many
+3	Safe to use.
+4	Safer to use
+5	Very safe.

Safety measures the inherent danger presented by an object when in use.

Safety = Flux. Or as specified otherwise.

Reliable / Unreliable

EaseOfUse / HardToUse

Burden/Ergonomic
Bulky/Compact

Safe / Hazardous



QREBS-2

QREBS allows an evaluation of used objects based on their age.

QREBS-2

NEW OBJECTS

New objects determine QREBS values without adjustment.

For example, a new Communicator Q=5 Period= 5 (= Six Months) R= 0 is Reliability Neutral when New. After six months, it falls to Reliability= -1, after another six months, it falls to Reliability= -2.

OLDER OBJECTS

When a used or older object is acquired, determine its

True Age and Working Age.

True Age (also Chronological Age) is the number of years since the object was created or manufactured. It is determined from the True Age Table.

Working Age is the number of years the object has been in use. Since use wears an object out, Working Age is the important value in determining Quality and Reliability.

WORKING AGE

Working Age = Good Flux (in Periods)

AGING THE OBJECT

Create QREBS. Determine its Working Age (= Good Flux in Periods). Reduce Reliability by Working Age in Periods. .

For example, Eleri Dinsha has acquired a Jump Drive Diagnosticator QREBS= 5 0 0 0 0. Period= 5 = 6 Months. Working Age = Good Flux times Period = +2 x 6 months = 1 Year. True Age (from Table) = Flux = -3 = 25 Years.

This device was manufactured 25 years ago, but has only been used for a year. Reduce Reliability Minus Working Age in Periods (= -2), downgrading Reliability to -2.

This Jump Drive Diagnosticator QREBS = 5 -2 0 0 0 is unremarkable except it has a -2 Reliability Mod.

TRUE AGE

Flux	Current	Antique	Artifact	Surplus	Experi
- 5	50	400	RR	100	20
- 4	35	300	1300	90	10
- 3	25	250	1200	80	9
- 2	21	210	1100	70	8
- 1	18	180	1000	60	7
0	15	150	900	50	6
+1	12	120	800	40	5
+2	9	100	700	30	4
+3	6	80	600	20	3
+4	3	60	500	10	2
+5	new	50	400	new	1

Values are in Years before the present date. Determine the current date and subtract the value on this table.

RR= Reroll and add 1000.

True Age. This table provides the true age of the object.

Storage. The Object has been in Storage (was not used, did not degrade in Quality) for the period between Working Age and True Age. A Communicator with True Age = 100 Years and Working Age = 1 year has been in Storage for 99 years: it is Like New.

CALCULATING QREBS

Q	R	E	B	S		Wa	P
Quality	Reliability	Ease Of Use	Bulk /Burden	Safety		Working Age	Period
QUA 2D-2	REL Flux	EOU Flux	BUR Flux	SAF Flux		Good Flux	=Quality

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Adjust R=
- Wa/P

1. Quality = 2D-2. Usually ranges from 10 Excellent to 0 Very Bad.
2. Reliability = Flux. Provides the value for a New object. Ranges from +5 Very Reliable to - 5 Very Unreliable.
3. Ease Of Use = Flux. Ranges from +5 Very easy to use to -5 Very difficult to use.
4. Bulk/Burden = Flux. Ranges from +5 very burdensome to -5. Very easy to carry
5. Safety = Flux. Ranges from +5 Very safe to -5 very hazardous.
6. Period = Quality. Determine the units of time from the Quality Table.
7. Working Age= Good Flux (in Periods).
8. True Age = from Table.
9. Adjust Reliability (= minus subtract Working Age divided by Period; drop fractions).