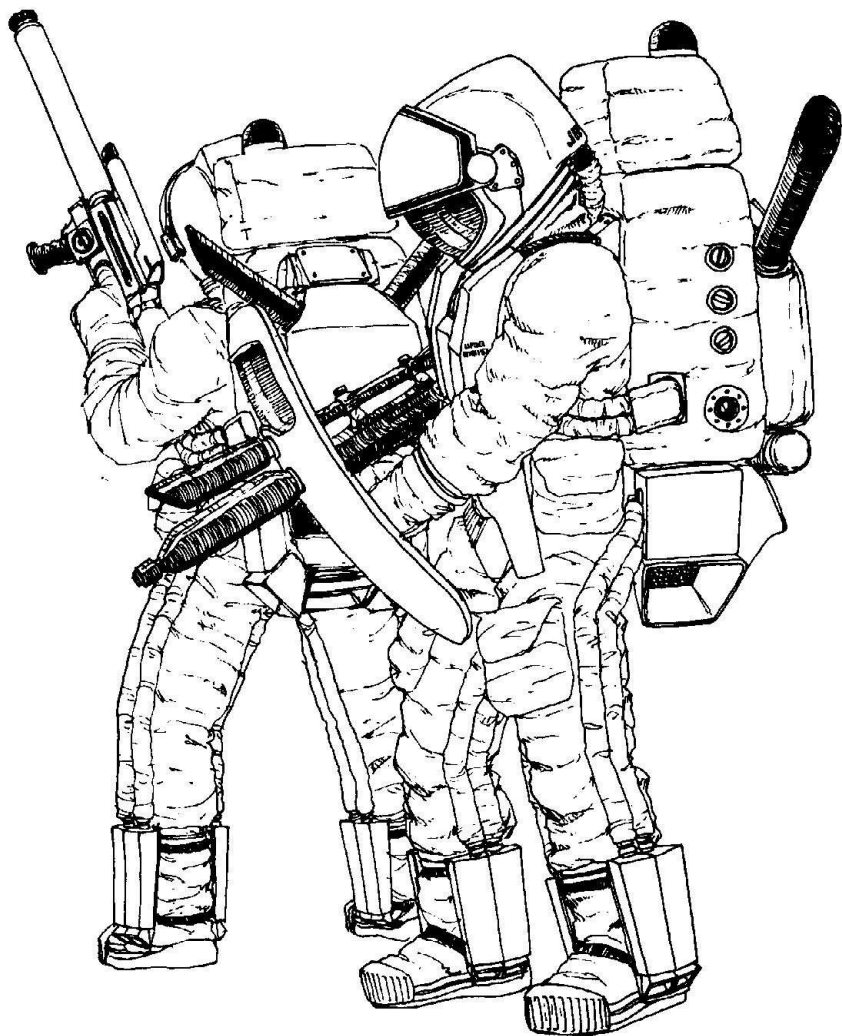


The Game of Galactic Conquest

STAR EMPIRES



STAR EMPIRES



The Game of Galactic Conquest

By John M. Snider

**SF 112
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FOREWORD

Ideas and concepts — those are the essence of science fiction. A look into the far future, with expansive stellar empires, a variety of peoples and races, and a plethora of fantastic machines — as well as the uncertainty of the unknown. The elements of science fiction that account for its unusual and growing appeal are many and varied, but undeniable.

This booklet of science-fiction gaming has all of the above elements and more. Above all, it is a booklet of ideas and concepts for those who desire the ultimate in space gaming campaigns. As such, it is a special type of game. Think of it almost as a game “kit,” allowing you to put together the pieces you desire for a space campaign of your own. Using the inspirations and outlines herein, create your own stellar empires as you wish, with as much detail as you like — there is plenty to choose from.

With the success of STAR PROBE and the considerable interest in its merit as a game, players have ever since been requesting a follow-up. No problem from the author's viewpoint, since John Snider is a prolific writer who has already written the *third* volume of this series. The wealth of material he has produced shows a keen interest in and widespread knowledge of science fiction writings and concepts.

Like its predecessor, STAR PROBE, STAR EMPIRES is not a game which is simply set up and played in a single sitting. It is, above all, a game campaign system which can be most effectively run by a referee and numerous players who may be exploring and acting independently of each other. Depending upon the referee and his methods of moderating the game, the play can unfold in many ways and along many avenues. The possibilities are legion — and yours to discover . . .

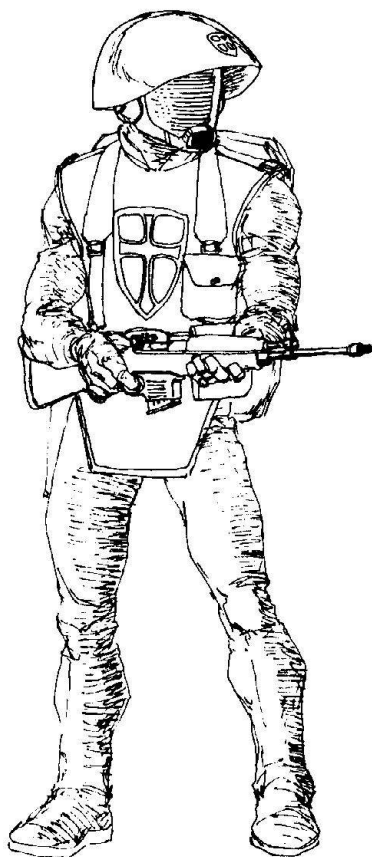
Mike Carr
16 March 1977

NOTE— The star map provided with STAR PROBE, or which can be purchased with this game, represents only a small portion of the galaxy. Feel free to expand it as you wish.

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INTRODUCTION

This is the second of a three part series designed to allow both comprehensive and enjoyable space gaming. The rules contained herein will allow you to start a space campaign or expand your STAR PROBE rules to a full campaign.

HISTORICAL BACKGROUND

All time frames are Terran, due to its wide acceptance. This is a basic history to add enjoyment to the play of the game.

Year	Event
10,034 BC	Foundation of the Moltrvrrz Empire. It reached its peak with a total control over 15,321 solar systems. Brought to a halt with the start of the Tri-Mind Wars. Approximately 20% of its empire was destroyed; including the Home System. A period of stagnation and decay then set in which lasted until the start of the Terran-Moltrvrrz Wars. These ended the Moltrvrrz Empire. The terran Confederacy embarked on the first phase of expansion which was ended by the 19 Month War. In this war, the military staged a coup and dissolved the Confederacy, at the same time defeating the Holrachian Tetrarch in two months. A period of peace lasting for 30 years ensued, followed by a seven hour revolt. The junta was replaced by a popular congress, marking the start of the second phase of Terran expansion, with Terra controlling close to 38,000 systems. During this period the Sect of the Hand was founded. They finally began a "holy war" to cleanse the Galaxy and convert all races to the faith. For the next 300 years a period of total war existed, which was ended only by the foundation of the Golden Empire of Terra and suppression of all religions. Another expansion left Terra controlling 43,250 solar systems. This ended with the War of Rightful Succession which collapsed the Empire and saw the founding of the Unitech Polity. Now, with a final period of expansion, Terra had over 60,000 systems. Then came the discovery of an empire of Terra's size, the Kolthumnx Swarm. Following repeated border clashes, the War of Extermination took place. This was followed by the Period of Shame, during which the remaining forces of each side were automated and programmed to seek out and destroy life. This resulted in the total collapse of Galactic civilization and the advent of the Three Millenia Dark Age. At present, with the foundation of the Young Kingdoms, nothing more is known of Terra and Kplthumhnx (not even the location of their home systems). It is hoped that history does not repeat itself.
2,425 BC	
933	
to	
521 BC	
2,351 AD	The terran Confederacy embarked on the first phase of expansion which was ended by the 19 Month War. In this war, the military staged a coup and dissolved the Confederacy, at the same time defeating the Holrachian Tetrarch in two months. A period of peace lasting for 30 years ensued, followed by a seven hour revolt. The junta was replaced by a popular congress, marking the start of the second phase of Terran expansion, with Terra controlling close to 38,000 systems. During this period the Sect of the Hand was founded. They finally began a "holy war" to cleanse the Galaxy and convert all races to the faith. For the next 300 years a period of total war existed, which was ended only by the foundation of the Golden Empire of Terra and suppression of all religions. Another expansion left Terra controlling 43,250 solar systems. This ended with the War of Rightful Succession which collapsed the Empire and saw the founding of the Unitech Polity. Now, with a final period of expansion, Terra had over 60,000 systems. Then came the discovery of an empire of Terra's size, the Kolthumnx Swarm. Following repeated border clashes, the War of Extermination took place. This was followed by the Period of Shame, during which the remaining forces of each side were automated and programmed to seek out and destroy life. This resulted in the total collapse of Galactic civilization and the advent of the Three Millenia Dark Age. At present, with the foundation of the Young Kingdoms, nothing more is known of Terra and Kplthumhnx (not even the location of their home systems). It is hoped that history does not repeat itself.
2,470	
2,703	
2,704	
2,734	
2,797	The terran Confederacy embarked on the first phase of expansion which was ended by the 19 Month War. In this war, the military staged a coup and dissolved the Confederacy, at the same time defeating the Holrachian Tetrarch in two months. A period of peace lasting for 30 years ensued, followed by a seven hour revolt. The junta was replaced by a popular congress, marking the start of the second phase of Terran expansion, with Terra controlling close to 38,000 systems. During this period the Sect of the Hand was founded. They finally began a "holy war" to cleanse the Galaxy and convert all races to the faith. For the next 300 years a period of total war existed, which was ended only by the foundation of the Golden Empire of Terra and suppression of all religions. Another expansion left Terra controlling 43,250 solar systems. This ended with the War of Rightful Succession which collapsed the Empire and saw the founding of the Unitech Polity. Now, with a final period of expansion, Terra had over 60,000 systems. Then came the discovery of an empire of Terra's size, the Kolthumnx Swarm. Following repeated border clashes, the War of Extermination took place. This was followed by the Period of Shame, during which the remaining forces of each side were automated and programmed to seek out and destroy life. This resulted in the total collapse of Galactic civilization and the advent of the Three Millenia Dark Age. At present, with the foundation of the Young Kingdoms, nothing more is known of Terra and Kplthumhnx (not even the location of their home systems). It is hoped that history does not repeat itself.
3,274	
3,575	
3,581	
4,024	
4,125	The terran Confederacy embarked on the first phase of expansion which was ended by the 19 Month War. In this war, the military staged a coup and dissolved the Confederacy, at the same time defeating the Holrachian Tetrarch in two months. A period of peace lasting for 30 years ensued, followed by a seven hour revolt. The junta was replaced by a popular congress, marking the start of the second phase of Terran expansion, with Terra controlling close to 38,000 systems. During this period the Sect of the Hand was founded. They finally began a "holy war" to cleanse the Galaxy and convert all races to the faith. For the next 300 years a period of total war existed, which was ended only by the foundation of the Golden Empire of Terra and suppression of all religions. Another expansion left Terra controlling 43,250 solar systems. This ended with the War of Rightful Succession which collapsed the Empire and saw the founding of the Unitech Polity. Now, with a final period of expansion, Terra had over 60,000 systems. Then came the discovery of an empire of Terra's size, the Kolthumnx Swarm. Following repeated border clashes, the War of Extermination took place. This was followed by the Period of Shame, during which the remaining forces of each side were automated and programmed to seek out and destroy life. This resulted in the total collapse of Galactic civilization and the advent of the Three Millenia Dark Age. At present, with the foundation of the Young Kingdoms, nothing more is known of Terra and Kplthumhnx (not even the location of their home systems). It is hoped that history does not repeat itself.
6,251	
6,582	
6,732	
6,893	
9,932	

EXPLORATION

If you do not have a copy of STAR PROBE the following should be used for the five year exploration phase preceding the actual start of the game. If you have STAR PROBE, you can modify it as indicated below.

1. Exploration is carried out by scouts only. Each player will have 15 to begin the game.
2. The time required to explore and classify a system is: one scout takes 3 months, two scouts take 2 months and three or more take 1 month. This does not include the time used to reach the system.
3. Determination of a system's class (generate a random number from 1-100).

Star Type	Dice Roll								
	01-15	16-25	26-40	41-60	61-80	81-90	91-94	95-99	100
square	5	D	1	2	3	4	SI	1	2SI
triangle	4	3	2	1	D	5	1	SI	2SI
circle	D	4	3	1	2	1	SI	5	2SI

= Class of system. (Class 5 has no value.)

D = Double, roll twice on above table ignoring D.

SI = Special Item, roll on table below and once again above.

2SI = Roll twice below and twice above.

Special Item	1	2	3	4	5	6
	Mineral	Fuel	Exotics	Drugs	Food Products	Animals

Special Items — found during exploration.

1. **Minerals:** Yield 500 mineral units per budget period.
 2. **Fuel:** Each fuel-giving location supplies enough fuel to support 20 fleets per budget period. This includes all ships with hyper-space drives except merchants, which do not have to be supplied.
Option — If you do not wish to keep track of fuel supplies for fleets, you may treat a fuel-giving location as a yield of 500 megarons (the monetary value in this game) per budget period.
 3. **Exotics:** Yield 250 Megarons per budget period.
 4. **Drugs:** Yield 750 Megarons per budget period.
 5. **Food Produce:** Yield 500 units of food produce per budget period.
 6. **Animals:** Yield 200 Megarons *and* units of food produce per budget period.
4. If system is class 1 you must determine:
- A) Race of inhabitants,
 - B) Technical social level, and
 - C) Whether the race is friendly
- For this consult following chart:

Technical Social Level and Race Type

Dice Roll	Level	Dice Roll	Race
1-25	1	1-5	Amoeboid
26-40	2	6-10	Plant
41-50	3	11-20	Insect
51-60	4	21-30	Feline
61-80	5	31-45	Canine
81-97	6	46-70	Humanoid
98-99	7*	71-80	Ursoid
100	8*	81-85	Avian
		86-90	Mammalian
		91-93	Reptile
		94-96	Ichthyoid/ Amphibian (50/50 either)
		97-98	Silicate Base
		99-100	Unknown

*Will have 1-6 of the nearest stars under their control.

HOSTILITY MATRIX

Systems Race	Your Race													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Amoeboid	3	8	4	7	10	14	12	7	10	5	7	6	12	6
2. Plant	7	4	5	8	8	10	10	5	6	6	6	6	5	10
3. Insect	4	5	6	10	9	11	12	8	9	9	7	8	7	9
4. Feline	7	8	13	4	15	6	8	10	7	9	9	9	7	10
5. Canine	11	8	12	16	4	5	7	9	6	8	10	12	10	10
6. Humanoid	16	10	14	6	5	4	6	8	7	10	9	8	10	10
7. Ursoid	13	10	12	8	7	6	4	8	7	9	12	12	10	10
8. Avian	7	5	7	9	10	7	8	4	8	7	9	9	5	10
9. Mammalian	12	7	11	7	6	7	7	7	4	8	8	8	7	10
10. Reptile	5	7	6	9	8	10	10	6	8	5	8	6	5	10
11. Ichthyoid	6	6	5	10	10	9	12	9	7	9	4	6	7	10
12. Amphibian	5	6	7	9	10	8	12	9	7	8	5	4	5	10
13. Silicate	9	7	9	9	10	11	10	8	10	12	9	7	2	5
14. Unknown	10	13	12	12	15	10	13	11	10	12	12	10	6	8

Generate a random number from 1 to 20, and if it is equal to or higher than the number shown on the chart when you cross index the two races, the race is friendly. If the number generated is lower, the race is unfriendly as follows (Technical Social Level is abbreviated TSL):

Needed Number	Meaning
1-8	UNFRIENDLY. A show of force is needed and must be equal to 2 fleets for one year or 20 Megarons × TSL in bribes to get them to join your empire.
9-12	HOSTILE. A show of force is needed and must be equal to 4 fleets for three years or pay 50 Megarons × TSL to get them to join your empire.
13-20	XENOPHOBIC. Race attacks you! If the unfriendly race is TSL 6 or higher, your scout ship is destroyed. The system must be conquered.

TURN SEQUENCING

- 1) **Pre-Game Turn:** (executed only once at start of play)
 - a) Each player starts with treasury of 10,000 Megarons, 5,000 Mineral units and 2,000 Food Produce units.
 - b) Players spend or save this as desired.
 - c) Existing units and units purchased in step b) are placed as desired within the region the player explored on the Star Map by using STAR PROBE or the section on exploration given herein. This turn only, new units are placed at the turn's start; hereafter new units are placed on the map on the turn after purchase. Conduct exploration as described on page 6.
 - d) Research phase. If any programs have been started, roll 10 times now as in the **RESEARCH** section of the rules.
- 2) **Normal Sequence:** Each budget period lasts three years:
 - a) Conduct intelligence operation functions. Initiate research.
 - b) Determine income from controlled systems, trade, and special deposits.
 - c) Determine support requirements.
 - d) Spend or save any excess — compare b) and c) — as desired and record new expenditures.
 - e) Place new units either at the Home System, an Armaments World, or a Supply Nexus.
 - f) Movement: 36 moves may be made on the star map during one budget period. Each month, each player generates a random number from 1-10, the highest score moves first, and the low moves last. Any and all units may be moved up to the maximum distance they are capable of moving (for ground units this is the jump distance of merchants). Repeat this for each month of the budget period, then return to (2-a) above.

If war breaks out between two or more players, the order of play changes as follows:

- 3) **War Movement Sequence:**
 - a) **Strategic Movement:** In the first month of war, after the attacker moves, the defender moves (if the defender hasn't moved already during the current month). Other players not involved move in their normal sequence. After the first month, the order of movement is calculated normally.
 - b) If a battle occurs, it is fought for one month and then play returns to the movement sequence. All space battles must be resolved *before* any ground combat is begun.
 - c) Research Phase: See the **RESEARCH** section.
 - d) Every other budget period optionally roll for social and historical events.
 - e) The game ends when one player has captured all of the other players' worlds, or by mutual consent.

ECONOMIC VALUE OF SOLAR SYSTEMS

The solar systems the players find may be exploited economically. To successfully exploit them, a player must send various kinds of teams to the system: these teams represent the player's control of the system. The player begins to receive a tariff revenue (in Megarons) from the

system in the budget period following the initial placement of the teams. The tariff value and types of teams required of the system are determined in the tables below.

SYSTEMS CLASS

- Class 1:** Inhabited by a native race. The player must send **Police Administration Teams** to control the system.
- Class 2:** Capable of supporting life (player may colonize). Player must send **Colonization Teams** to control the system.
- Class 3-4:** Useful for mining purposes only. Player must send **Mining Teams** to control the system.

TARIFF REVENUE PER BUDGET PERIOD (in Megarons)

Class 1 Systems

Technical Social Level:	1	2	3	4	5	6	7	(+ 1)
Tariff Revenue	60	75	105	90	90	105	120	(+ 15)

Class 2 Systems

The tariff revenue of class 2 systems is determined by the number of Colonization Teams that *must* be sent, and their efficiency in colonization (Colonization Indicator). The tariff revenue equals the number of teams which must be sent times their Colonization Indicator. Roll for each result separately and then compute tariff revenue.

Die Roll	1	2	3	4-5	6
No. of Col. Teams	10	12	15	20	25
Colonization Indicator	10	12	15	20	25

Class 3 & 4 Systems Tariff Revenue (or less)

Die Roll	1	2	3-4	5	6
Class 3	-5	-15	-10	+ 10	+ 5
Class 4	-10	-20	-10	+ 15	+ 0

A negative number means the player must pay that amount in Megarons each budget period to support the mines.

ECONOMIC VALUE OPTIONAL: Although the variable system simulates planetary differences, players may agree that they do not wish to use the randomly determined values of solar systems. In this case the following tariff revenues are used:

System Class 1: TSL, 6 — Tariff Revenue, 105

System Class 2: Number of Teams, 20 — Colonization Indicator, 15

System Class 3: Tariff Revenue, -5

System Class 4: Tariff Revenue, -10



ADMINISTRATIVE DATA

ESTABLISHING HOME SYSTEM VALUE:

A. Government Types (GT):

- | | | |
|------------------|--------------|-------------------|
| 1. Anarchy | 5. Republic | 9. Military Junta |
| 2. Feudal | 6. Oligarchy | 10. Autocracy |
| 3. Democracy | 7. Theocracy | 11. Hive* |
| 4. Parliamentary | 8. Monarchy | |

*Only available to Insects and Amoeboids. Each player may choose his own GT. Each GT has various advantages and disadvantages.

B. Home System Value and TSL:

At the start of the game each Home System is at TSL 7 and is a class 1 solar system. The home system automatically has mineral deposits. The table below is used to determine any other special value.

ADDITIONAL SYSTEM VALUE

Roll	Additional Planet Classes	Additional Special Classes	
1	1* and 3	1 mineral, 2 other	*A second class 1 will double all naval and ground force personnel available and the Empire may collect tariff at the TSL 7 rate.
2	3 and 3	2 mineral, 1 other	
3	1*	2 other	
4	3	1 mineral, 1 other	
5	4	1 other	
6-10	Nothing	1 other	

Each planet with special minerals will have one or more of the four below:

Roll	Special Mineral	Output
1-2	Jolumite	2
3-5	Hatheirite	3
6-9	Interpion	3
10	Dhulterium	1

All other special items are rolled on the normal special item table for exotics, drugs, fuel, etc. Randomly determine on which planet each special minerals and items are, if the home system has more than one planet.

C. Space Forces:

A home system has an external supply nexus and does not need supply. In addition, a home system will have the following number of space ports and shipyards:

Player's Government Type	1-3	4-5	6-8	9-10	11
Space Ports	3-5	2-5	2-4	1-3	2-5
Shipyards	1-3	2-3	2-3	3-4	1-4

Determine the exact number in random manner — done with a random number generation of 1-4 or 1-6.

Players begin with 10 Battle Wagons, 5 Assault Cruisers, 50 Pursuit Craft, 20 Merchant Ships and 15 Scout Craft.

D. Colonization and Mining Teams:

At the start of the campaign each player has 50 Colonization and 20 Mining Teams available. Availability of additional teams each budget period is as follows:

Player's Government Type	1	2	3-5	6	7-8	9-10	11
Colonization Teams	25	10	20	10	15	10	20
Mining Teams	30	20	40	35	25	50	20

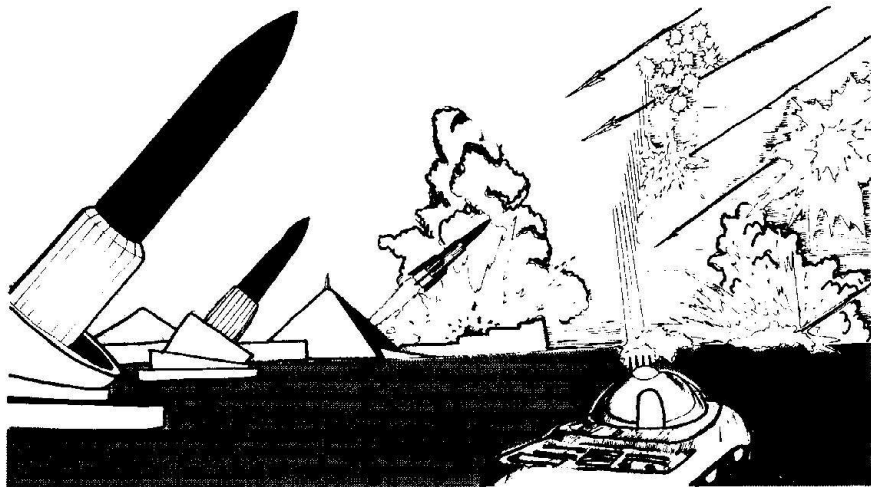
E. Naval and Ground Force Personnel:

At the start of the game each player has the following number of Naval and Ground Force units available: 20 Naval, 40 Ground, and 30 Police-Administration teams. Additional units are available each budget period as follows:

Personnel Available per Budget Period

Government Type	1	2	3	4-5	6	7-8	9-10	11
Naval	30	15	20	25	20	15	20	20
Ground	20	35	15	15	25	20	35	20
Police-Admin.	10	20	20	25	20	25	30	20

The above personnel are available only from the home system and may not be saved up. If the system is double class 1, then double the above personnel are available each period.



NON-PLAYER SYSTEMS DATA SECTION:

The following chart is used to determine the forces of the various non-player systems which a player may encounter.

TECHNICAL SOCIAL LEVEL OF A NON-PLAYER SYSTEM

FORCES		1-2	3-4	5	6	7 & up
S	Battlewagon	—	—	10	20	10
P	Assault	—	—	10	10	5
A	Pursuit	—	—	30	40	50
C	Merchant	—	—	10	10	20
E						
G	Infantry	25	100	120	50	30
R	Armor	—	10	10	30	30
O	Other*	—	10	20	30	20
U						
N						
D						

*Type determined randomly.

If a non-player system is controlled by a player, the player may draft the following from it:

TSL of System		GOVERNMENT TYPE OF PLAYER'S EMPIRE							
Units/Items		1	2	3-5	6	7-8	9-10	11*	
1 & 2	Naval	3	—	1	—	—	—	—	
	Ground	1	—	—	—	—	5	—	
	Police-Admin.	—	—	—	—	—	3	—	
	Colonization	—	—	—	—	—	—	—	
	Mining	—	—	—	—	—	3	—	
3	Naval	3	—	2	1	—	—	—	
	Ground	6	3	4	2	—	3	5	
	Police-Admin.	—	—	—	—	—	4	—	
	Colonization	—	—	—	—	—	1	—	
	Mining	—	—	—	—	—	3	—	
4 & 5	Naval	5	1	3	—	1	—	2	
	Ground	9	2	6	4	2	2	5	
	Police-Admin.	—	1	—	2	—	2	—	
	Colonization	—	3	—	5	3	5	5	
	Mining	—	—	—	—	—	—	—	
6	Naval	3	2	4	1	3	1	5	
	Ground	10	4	9	2	6	1	10	
	Police-Admin.	1	2	1	4	3	1	5	
	Colonization	3	5	5	5	5	9	10	
	Mining	—	—	—	—	—	—	—	
7 o n u p	Naval	3	3	5	3	4	5	5	
	Ground	10	5	10	5	9	5	10	
	Police-Admin.	3	4	3	6	4	5	5	
	Colonization	5	5	10	10	5	10	5	
	Mining	3	5	5	5	10	9	10	

Minor Empires, Additional Forces: For each additional system that a minor empire has (excluding the home system) add the following to the forces available to it as shown on the preceeding table.

1 Battlewagon	5 Pursuit Craft	5 Infantry Units	1 Other Ground Unit
2 Assault Cruisers	2 Merchant Ships	1 Armor Unit	

Minor Empire Data:

- a) Players cannot collect a trade tariff revenue from them unless the empire joins the player's Empire or the player's Empire conquers them.
- b) The only income a player's Empire will derive from them is, normally, through inter-Empire trade.
- c) All systems in the minor empire are controlled by it.
- d) Subsidy: If a player's Empire pays the minor empire it will act as a border guard, and the player may use one-half of its fleet up to 20 Light Years (4 squares) from the minor empire. The subsidy per budget period is equal to 75 Megarons + 10 Megarons per system in the minor empire.
- e) Minor empires, unallied to any major one, advance in Technical Social Level every seven budget periods. If allied with a player's Empire, they gain the major empires new level one turn after the major empire does.
- f) Minor empires will be able to maintain their forces up to strength (with losses replaced during the next budget period), and their forces' characteristics will always be at the minor empire's current Technical Social Level.
- g) Location of the forces within a minor empire will be determined by a third (neutral) party if it is attacked.
- h) A minor empire's home system will have a Class V Fort.

Relationships: Upon initial contact with a minor empire, and every seven budget periods (21 years) thereafter, the racial relationship of the empire player to the contacted minor empire is checked on the **Hostility Matrix**. The difference between what was required and what was rolled is then matched on the **Minor Empire Relationships Table** to determine trade and political interactions.

- a) If a Xenophobic (-13 or worse) reaction is indicated the minor empire is *never* checked again — it is always and forever hostile to everyone.
- b) A player may call for a recheck of non-Xenophobic minor empire relations every three budget periods, if he so desires, in order to improve relations — he need not wait for the required check every seven budget periods.
- c) Bribery (loans, aid, gifts, etc.) may be used to help improve relations; for every 100 Megarons so expended, the player adds 1 to his die roll, up to a maximum expenditure of 500 Megarons (+ 5 on the die roll).

CONTACT BETWEEN PLAYER EMPIRES

When contact is made between players they must use the **RELATIONSHIPS** section above to determine trade and political interaction. Note that *bribery* is not possible in this case, however.

Minor Empire Relationships Table

Difference	Trade	Political Implications
+ 12 on up	Heavy	Have complete defensive/offensive alliance: May use a minor empire's forces anywhere on star map. The minor empire will join you in 5 budget periods.
+ 7 to + 11	Medium	Have defensive alliance: May use the minor empire's forces anywhere within the major empire's space.
+ 1 to + 6	Light	Limited defense treaty: The minor empire's forces will operate up to 40 light years (8 squares) from their empire.
-2 to 0	Light	Empire neutral: The minor empire will only defend themselves, unless a Major Empire pays them a subsidy.
-3 to -8	No	Unfriendly: A minor empire will give raiders two months sanctuary and passively assist the major empire's enemies, unless the major empire pays them a subsidy.
-9 to -12	No	Hostile: As above but, if the player's empire is attacked by another major empire, the minor empire is on the attacker's side on roll of 1 or 2 (roll every month).
-13 down	No	Xenophobic: The minor empire automatically attacks the player.

If a system is controlled by a player's empire, it will have only 1/5 of the forces listed for local defense against attack by other players or raiders. These forces may not be used outside of their home system. If a system revolts, its available forces are as detailed in the **Non-Player Systems Forces** table.

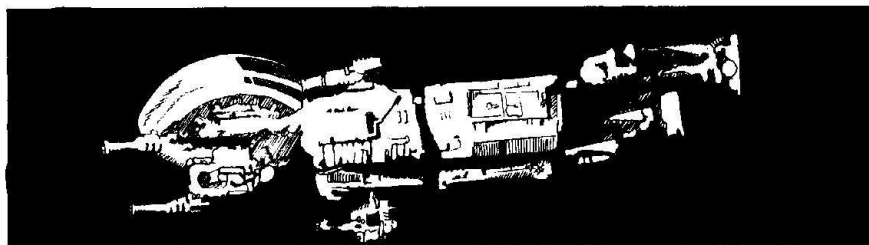
ADDITIONAL SOURCES OF INCOME

1. **Inter-Empire Trade:** Income is according to the number of Class 1 and 2 systems of an Empire which trade with another Empire. Total the number of systems and multiply by the number given below. This yields the income derived per budget period.

Type Trade	Your Government Type						
	1	2	3-5	6	7-8	9-10	11
Heavy	25	15	20	30	20	15	20
Medium	15	10	15	20	20	15	15
Light	5	10	10	15	10	10	10

Megarons of trade per class 1 or 2 solar system

Trade may be taxed by any Empire that a player must pass through, including the one the Empire is trading with. (Empires passed through is determined by drawing the main trade route, which is a straight line between your home system to the home system of empire traded with.)



Piracy. For each Empire passed through or into (including yours and the one you are trading with) roll on the following table each budget period to determine the percentage loss of trade to piracy.

	Government Type of Empire Traded with											
Piracy	1-3			4-6			7-9			10-11		
Roll	1-2	3-7	8-10	1-2	3-6	7-10	1-3	4-8	9-10	1-4	5-8	9-10
Loss	5	15	30	0	10	20	0	10	15	0	5	20

- Space Ports:** The cost of Space Ports is 200 Megarons, 75 Mineral units, and 50 Food Produce units. Space Ports can handle up to 100 ships (10 Pursuit Craft equal to 1 larger ship) at one time. Space Ports may only be built on Class 1 or 2 systems. A Class 2 system may have 2 ports only; Class 1 system may have ports as shown below.

System's Technical Social Level

	1-2	3-4	5-6	7-10	11-13	14-19	20-25	26-29	30-40	41
Number Ports	1	2	3	5	4	6	4	6	5	7

Space Ports increase the tariff revenue collectable from a system by 20% per port over and above the value (in Megarons) listed in the tariff section. Increases are additive.

Example: 2 Ports are built in a TSL 4 system. Tariff = 90 Megarons; 40% of this is 36, therefore the tariff revenue now equals $90 + 36 = 126$ Megarons.

- Ship Yards:** Ship Yards cost 300 Megarons, 150 Mineral Units, and 100 Food Produce units. Ship Yards may produce 10 ships or forts per budget period if the needed raw materials (Megarons and Minerals) are supplied. Merchants and Pursuit Ships count as $\frac{1}{2}$ of a larger ship for capacity purposes. Ship Yards must be built in systems with planets which have TSL higher than 4, or around a Supply Nexus. A planet with a ship yard *must* have a Space Port. If a ship yard is not used in a budget period, the Empire will receive 100 Megarons in the next period from civilian production in the yard.

- Deriving Extra Income from a System:**

Route A: Rebuilding a planet in a system which was destroyed by war: This brings the planet back up to a point where the Empire can collect tariffs and other items which can not be collected until this is accomplished.

System Class		Government Type of Attacker*							
		1	2	3-5	6	7	8-9	10	11
C	TSL								
L	1-2	250	100	150	50	200	125	175	350
A	3&6	500	200	300	100	400	250	350	200
S	4-5	450	175	250	100	350	200	300	300
S	7	600	250	350	125	500	300	400	200
1	(+1)	(+75)	(+25)	(+50)	(+10)	(+60)	(+40)	(+50)	(+25)

Class 2	250	200	300	100	350	250	200	700
Class 3&4	50	20	30	10	40	25	40	50

*Player that attacked and destroyed the system's economic value. The resulting number is the cost in Megarons to rebuild one planet. If the system was inhabited by the same race as the attacker, reduce the cost by ½.

Route B: Industrial development will increase the output of a system as follows: Tariff is increased or decreased 25% of its original value (if value is negative it becomes more negative); Mineral output will increase or decrease correspondingly by 20%, and Food Produce by 10%. This may be done up to 10 times to a Class 1, 3, or 4 system, and 20 times to a Class 2 system.

The cost each time this is done is found on the following chart. Only one increase per budget period per system is allowed. The increased output is available one budget period *after* the appropriate Megarons were paid to develop the system.

Systems Class		Your Government Type							
		1	2	3-5	6	7	8-9	10	11
1		500	350	250	200	300	350	400	250
2		350	250	200	250	200	300	350	250
3 & 4		100	75	50	50	75	75	100	50

Route C: A system may be looted in one of two manners, *Fast* or *Deliberate*. The table below gives multipliers for the government type of the looting Empire which are multiplied by the tariff revenue of the system. This yields the base value of the loot, half of it is in Megarons, one-quarter of it is in Mineral Units, and one-quarter of it is in Food Produce Units.

	Looter's Government Type								Time/Force Requirements	
	1	2	3-5	6	7	8-9	10	11	Result	
Fast	1	2	1	2	4	3	4	2	1 month 1 fleet	Drop system's TSL 1 level
Deliberate*	12	16	17	24	20	18	22	16	1 year 1 fleet 2 armies	Drop system's TSL 1 level

*Possible only in a conquered system.

Time/Force: The force listed above is required to be present in the system for the time listed to be able to loot a planet. Double the force cuts the time required by one-half. Each doubling lowers the duration another 50%.

Result: The result is applied immediately after looting.

5. **Emergency War Measures:** These increase the output of a home system to meet war needs. The *increase* is equal to the system's tariff value $\times 5$. This is collected only at quarterly intervals, starting with the month when the measures are instituted. An Empire may start these measures at any time it is at war. *Penalties* will occur when these measures are used. If the system is isolated, (the space around it is controlled by enemy fleets which are twice the number of friendly fleets) for each 2,500 units collected (Megarons, Minerals, or Food), the Technical Social Level for production of new combat units and weapons drops by 1. All units produced thereafter have lower level characteristics, and if the TSL is lowered below the level needed to develop a particular weapon, that weapon may no longer be made. This is non-permanent, and will go back up after the isolation of the system is broken.

After the war, the Empire must pay back five times the amount collected; no tariff revenue collected from the system can be spent until this is done. If repayment is not made within seven budget periods, the Technical Social Level will drop by 2. This drop is permanent.

TEAMS

Police-Administration Teams: These teams cost 20 Megarons and 30 Food Produce units to raise and are used to control Class 1 systems. They may also protect space ports, mines research programs, and other fixed items. Ten Police-Administration Teams equal one *Intelligence Operation*. The table below gives the required number of teams needed to control a system.

		Player's Government Type										
		1	2	3	4	5	6	7	8	9	10	11
Technical	1-3	0	2	1	1	2	2	2	3	3	3	2
Social	4-6	1	3	2	2	2	3	3	3	4	4	3
Level	7-10	2	4	3	3	3	3	4	4	5	5	4
of Ruled	11-13	3	3	3	3	3	3	3	2	2	1	3
System	14-19	3	5	4	4	4	5	5	5	5	5	4
-	20 & up	4	6	5	5	5	5	5	6	6	7	6

If the player is of the same race as the ruled system, subtract one from the required number of teams. The tariff/economic units' revenue may not be collected until the required number of teams are established.

Colonization Teams: These are people sent out to Class 2 systems to establish a colony. All the teams that a system needs for colonization must be established at the same time. When the system is colonized record it in the player's *System Record Book*. (If the map is covered with plastic circle the star with a grease pencil.)

- 1) The cost to establish a colony in a system:

	Number of Teams				
	10	12	15	20	25
Megarons	100	150	200	250	300
Food Produce units	50	75	100	125	150

- 2) Colonization Indicator (CI). This number represents the efficiency of the player's Empire in developing and exploiting a colony. The efficiency is modified by the player's Technical Social Level (TSL):

Colonization Indicator Modifier

TSL	4-5	6	7-10	11-13	14-19	20-25	26-29	30-40	41-44	45-50	(+5)
CI	½	1	3	4	6	7	8	9	10	11	(+2)

Example: If the player's TSL were 9, and he had to send 20 teams to colonize a system, the CI modifier would be 3 and the system tariff would be 60 Megarons (20×3) per budget period.

Mining Teams: These teams are needed to obtain the values from Class 3 and 4 systems. Once the teams are paid for they may be automatically placed in the desired system. When a Class 3 or 4 system is producing output, record the system in the player's *System Record Book*. (Put a square around star if map is covered with plastic)

- 1) Cost of establishing teams:

	Number of Teams				
	1	2	3	4	+ 1
Megarons	10	20	30	40	+ 10
Food Produce Units	40	70	100	120	+ 20

- 2) Output: Each team will mine an output of 25 Mineral Units.

Example: If the teams were at TSL 9 (with CI variable 3) the Mineral unit output would be $25 \times 3 = 75$ Mineral units per budget period.

Natural Resources: Minerals and Food Produce. Each system will have either a positive, zero, or negative output. Minerals are all items of metallic nature with food produce being those items of non-metallic nature.

OUTPUT OF MINERALS AND FOOD PRODUCE:

System Class	Technical-Social Level	Mineral Output	Food Produce Output
1	1-2 or 12 or 22 or 31	+ 200	+ 50
	3 or 13 or 23 or 38 or 46	+ 150	+ 75
	4 or 14 or 24 or 39	+ 100	+ 50
	5 or 15 or 25 or 40 or 47	+ 50	+ 50
	6 or 16 or 26 or 41	0	+ 50
	7 or 17 or 27 or 42 or 48	0	0
	8 or 18 or 28 or 33 or 49	-50	0
	9-11 or 19-21 or 29-36 or 44-45 or 50	-50	-50

System Class	Die Roll	Mineral Output	Food Produce Output
2	1	-50	+ 100
	2	+ 100	-50
	3	+ 50	+ 50
	4-5	0	0
	6	+ 100	+ 100

System Class	Die Roll	Mineral Unit Output	Food Unit Output	Mining Teams Needed
3	1	+ 25	+ 25	1
	2	+ 50	-25	2
	3-4	+ 75	-25	3
	5	+100	-50	4
	6	+ 75	+ 25	3
4	1	+ 50	-50	2
	2	+ 25	0	1
	3-4	+ 50	-25	2
	5	+ 75	-50	3
	6	+100	-50	4

1. In Class 1 systems for TSL's of 51-55, 56-60, etc., repeat 46-50 sequence. In Class 1 systems, mineral and food outputs are additive, so use the sum of the current level plus all lower levels.
2. Determine each system value separately. Only add those controlled with appropriate teams. Adding all systems together then yields the total Empire's production.
3. If the result is negative, the Empire must either:
 - a) purchase the needed items from the civilian market to bring the deficit up to zero, or
 - b) lose 2 Megarons for each unit of Minerals or Food Produce that the Empire is below the zero output.
4. If the result is positive, the Empire may use the excess to build new units, sell, or save as desired.
5. Civilian Market. The standard cost to buy or sell is: 1 Mineral Unit = 1 Megaron. 1 Food Produce Unit = 1/2 Megaron. Surplus units that are available for purchase are: Mineral Units = a quantity equal to 75% of the number of controlled systems of the Empire. If the Empire has 80 controlled systems, it may purchase up to 60 Mineral units. Food Produce units = a quantity equal to 50% of the number of controlled systems. If the Empire has 80, then 40 units are available.

SUPPLY:

The first part of this section deals with the general supply needs of units, and the second deals with the needs of those units in combat. Figures are in Megarons.

GENERAL SUPPLY:

Non-Variable Units

Unit	Supply Cost
Police-Administration	10
Ship Yard	15
Supply Nexus (1)	20
Intelligence Operative	20
Naval Crew Unit	3

Variable Units

Type	Technical Social Level								(+ 10)
	1-5	6-15	16-25	26-35	36-45	46-55	56-65		
Ships and Ports*	10	20	30	40	50	60	75	(+ 15)	
Supply Nexus (E)	—	30	40	50	65	80	95	(+ 15)	
Army Ground Unit	1	3	6	9	12	12	15	(no change)	

* Pursuit craft and merchants do not require supply.

The above amounts must be supplied in each budget period. If they are not supplied, the following happens:

The unit not supplied is moved to either the home system, a supply nexus or an armaments world immediately at the start of the turn, where it is stored. It will be incapable of any strategic movement and will only be capable of tactical movement with all acceleration rates halved. Stored units may not attack, and may only defend at half strength with all systems.

If, in the next budget period, supply is not restored, then the unit automatically goes to the player's home system where it will be decommissioned. When decommissioned, all personnel are either released or transferred. When a ground unit is sold the equipment is sold off with owner receiving 50% of the original cost of the unit. A space ship will be mothballed, costing 25% of its original cost to recommission it. Also, a recommissioned ship must be remanned. If a player wishes he may instead sell a ship for 50% of its original cost. Forts are broken up for their minerals with the owner receiving the full mineral value of the fort's original mineral cost.

War Supply: War supply is used only by combat units during periods of hostilities. Needed war materials and personnel come from an armament world via a supply nexus.

Nexuses: There are two types of supply nexuses, *Internal* and *External*. Their costs are:

Internal: 50 Megarons, 25 Mineral Units, 25 Food Produce Units

External: 150 Megarons, 50 Mineral Units, 50 Food Produce Units.

The above costs are necessary to *establish* a nexus; the following are the operating requirements:

1. At least one system of TSL 5 or above must be devoted solely to the maintenance of the nexus, with an internal nexus needing one supporting system, and an external nexus three. The systems used must be within 15 light years (3 squares) of the nexus.
2. Systems thus allotted are called "armaments worlds" and will produce nothing in the way of Megarons, Minerals or Food Produce to the Empire. After arriving in a battle area, a player may, at his option have a nexus create a distribution point on the tenth turn after the arrival of the fleet in the battle area. A player must decide immediately upon arriving whether he wants a point to appear. The point breaks out of hyper-space at a distance of no more than 10 hexes from where the fleet, arrived on the battle board. The distribution point will always come on the tenth turn, regardless as to what happens to the fleet which arrived previously.

3. Capture of an enemy distribution point is worth 150 Megarons to the player who does so. The player losing it pays nothing, as it will be automatically replaced by the nexus. A distribution point, once established in space, may not move. Three turns after arrival, it may make a hyper-jump back to the nexus, at the player's discretion.
4. A distribution point may establish a "branch point" on the surface of a planet for the support of ground operations. A distribution point may set up a branch point two turns after ground units capture one of the control points on the tactical ground map. Distribution points must be manned by a Naval Personnel Unit.
5. The operational range of a distribution point is 20 light years (4 squares) from the parent nexus for an internal nexus. For an external nexus, the range varies by TSL as follows:

TSL	7-10	11-13	14-19	20-25	26-29	30-40	41-44	45-55	(+ 10)
Range in Light Years	50	55	70	60	80	70	90	100	(+ 15)

6. A distribution point is able to resupply and repair units as follows:
Resupply: If a unit moves into the same hex with a point, the point will resupply any needed materials. The unit to be resupplied must have a velocity of zero at the time of resupply. Items of resupply may also be carried by merchant ships to a ship or fort. On the ground, resupply range is 1500 miles.
Repair: A distribution point can repair a total of 10 Megarons worth of damage to any unit or combination of units per turn, if the unit is in the same hex with it. Repair ability is not cumulative.
7. Combat without the benefit of a distribution point suffers the following penalties:
 - a. No unit can receive resupply except from a merchant or repair ship.
 - b. After 15 turns of combat, the probability of hitting a target will deteriorate as follows:
 - A. SPACE: Subtract 1 from tech indicator once per 10 combat turns. Also subtract 10 from Hit probability every 20 combat turns. To figure these, consult tables 1 & 2 on pages 34 and 35. All subtracters mentioned above commence from the first turn of combat.
 - B. GROUND: Lower odds 1 level for every 10 combat turns beginning with the first.
 - c. Location of each nexus and the system(s) supporting it must be kept track of in the *System Record Book* and by placing a counter on the star map at its location. A nexus may be on a world, in a system, or in interstellar space.
 - d. Normally nexus and distribution points do not have any attack or defense value. You may build a Class V Spacial Fort into a nexus and a Class 1 Spacial Fort into a distribution point. The fort will cost twice the normal amount of Megarons, with mineral cost and structure unchanged. More than one fort may be built into a nexus if a player desires.

Combat Pay: Increased support costs are necessary for conduct of operations. This cost varies as follows:

Intensity of Combat	Number of Systems Attacking/Defending	Cost In Megarons Per Month Government Type						
		1	2	3-5	6	7-8	9-10	11
Light	1-10	50	80	75	60	70	70	60
Moderate	11-49	200	250	300	250	250	300	200
Heavy	50 + up	400	600	500	450	550	650	450

The number of systems attacking/defending is the total number of controlled systems that the Empire has. Minor empires always pay at the light intensity level; if they attack another player he pays at the moderate level.

The cost is per war, and is not additive. If an Empire is attacked by more than one enemy, it must pay only once while the others each must pay the full amount.

Any month in which the Empire cannot pay will result in the withdrawal from combat of one army *and* one fleet. These will return when payment is restarted. Forces withdrawing are drawn back to the nearest nexus.

SPACE FORCES:

Each Empire's space forces consist of ships, forts and the personnel to man them.

1. The ship classes for the basic game are: Battle Wagon, Assault Cruiser, Watch Cruiser, Carrier, Pursuit Craft, Patroller, Controller, Scout, Merchant.
2. The 11 classes of forts are:
Planetary I, II, III, IV, V, and X.
Spatial I, II, III, IV, V.

Once forts are placed, they may not be moved. When a Spatial Fort is paid for it is immediately placed in the desired system within the Empire.

3. The defense or attack value for any ship or fort component is determined by multiplying the weight factor by the Technical Component Value TCV, (which varies according to the Technical Social Level). All fractions derived from this procedure are always rounded up to the nearest number. Technical Components are:
 - a. **Beam Attack:** This is the permanent attack ability of a ship or fort. One unit of beam attack will cause one Megaron of damage on a target. A ship may only fire at targets it is pointed at (the beam has a frontal spread of 60 degrees). A fort has all around fire equal to its beam attack value. A fort may fire at any one target at full value, or at more than one target at appropriate fractions of the value.
 - b. **Missile Salvo:** A missile is a non-permanent attack ability of a ship or fort. A missile salvo has an acceleration equal to two times the player's TSL. When fired a missile salvo will move at this speed forever. If the salvo does not hit its target during the first half of its acceleration, the target may fire at it with a beam attack. Scramblers may always react and fire. The number of salvos carried by each type of ship is 5 times the TCV of the ship.

c. **Megarons of Beam Attack Needed to Destroy One Missile:**

SALVO'S TSL

	4-6	7-10	11-13	14-19	20-25	26-29	30-40	41-44	45-50	(+5)
Megaron Beam Attack Needed	1	2	3	5	6	8	9	10	11	(+1)

d. **Megaron Attack per Missile Salvo:**

Missile	TSL	Attack	Missile	TSL	Attack
Atomic	4	2	Nuclear Fusion	4	4
Implosion	5	5	Stun	6	4
Stronite	7	6	Neutron	7	7
Lusterite	8	9	Anti-Matter	8	11
Vortex	9	16	Gravity	15	30
Neuronic	20	40	Sonic	26	50
Disrupter	30	60	Sonic Laser	41	75
Mutagenic	45	80	Multi Fusor	51	100
Probability	60	*			

*Probability missiles have a 60% chance of totally destroying anything. Each 1 Megaron of screen defense that the target has up will reduce the chance ¼ %. Each salvo either destroys the target or has no effect.

Paralyser: A paralyser is only mounted on Controller Ships and Certain Forts. It is used against individual ships, forts or ground units. The effect of a paralyser places the target in stasis which lasts for five days. Stasis means the victim is unable to move of its own volition for five days. For the effect to take place the value of the structure must be exceeded in one turn. Damage on successive attacks is cumulative, reducing the strength of the attack needed to be effective. Attacks from different controllers or forts are additive. The range in hexes of a paralysis attack is equal to the players TSL. If the target has any functioning screens the attack will have no effect. An affected ship continues moving at the same velocity and course on which it was going at the time of the effect. If the ship was moving four hexes per turn it will continue doing so for the next five days. To take over such a vessel another ship must attempt to board (60% chance of boarding per turn). Once boarded it takes one turn to seize the ship. To board, the attacker must match the velocity of the affected ship and end the turn in the same space.

If the affected crew comes out of paralysis during a boarding attempt, they automatically will capture any boarding party, and get two times the value for beam attack on boarder.

Affected units or forts are frozen in place (except forts given a velocity by the player). If a fort has velocity, it must be boarded (as for spacecraft). Ground units affected by a controller or fort may either be killed or captured at the attacker's option. Likewise, forts affected may simply be seized by boarding or landing.

Screen Defense: Screens are protective energy fields which will absorb five beam attacks on a ship or fort. Screens will absorb up to their Megaron value in any one turn before overloading and collapsing.

a. All damage received after screens collapse is scored on the ship or fort.

- b. Screens will regenerate after two turns if no damage has been received on the unit itself.

Scramblers: Scramblers are the permanent defense against missile attack, the number of missiles scramblers destroy is equal to the weight factor times the TCV. Scramblers are effective until destroyed. The effect of scramblers may be used to protect only one target per turn, and it is only effective in the same hex. If two fleets are in the same hex, one may use its scramblers to defend the other leaving itself without scrambler defense if attacked by missiles.

Structure: The structure value is the amount of damage a vessel can sustain before it is destroyed. Once the value is exceeded by 1 Megaron the ship is destroyed. Structural damage may only be repaired at a shipyard or supply nexus.

Stress Sensors: The stress sensor detects the structure value and course of units passing through hyperspaces one through six (see **HYPERSPACE**). Information is gathered if the ships are within range ($WF \times TCV$) and only gives the total structure value of units and course. (Sensors will not operate through or into clouded regions of the star map.)

If a player fails to detect a ship, he may not act upon its presence.

If a player detects ships *entering* hyperspace, he may be at their exit point with every unit within one hyper jump of the exit point.

If he detects ships *exiting* from hyperspace, he may intercept them with any unit within 10 light years (2 squares) of the exit point. He may send everything within one hyper jump during the next month.

Stress Sensors can detect ship units entering or leaving hyperspaces if within range. If the sensor detects units entering hyperspace it will tell the point in space the ship unit enters, the new course being taken, and the end point of turn movement.

If the sensor detects the ships leaving hyperspace, it will tell the point in space the ship units exits and the course the ship took to get there, but not the entry point.

Range Finders: Range finders aim and align beam weapons. They determine how far a player may shoot (in hexes) on the planetary or deep space board. They will not work through clouded regions. Asteroid regions cost 3 range factors per hex to go through. The range finder will tell exact details about the target vessel, including whether it is carrying bombs or missiles, has hyperspace capability, or is carrying a paralysis generator. The range finder will not tell how much damage the target vessel has sustained.

Acceleration: A ship's acceleration is its ability to increase and decrease its velocity in one turn. For example, if a ship had an acceleration factor of 3 it would vary its speed plus or minus 3 in any given turn. If it was moving 6 hexes per turn one turn it could be moving anywhere from 3 to 9 hexes per turn on the next turn.

Turning: For each 60 degrees turned a ship uses one unit of acceleration. The distance a ship must go straight before it can turn again is based on velocity as follows:

Velocity	1-4	5-8	9-12	13-16	17-21	22-25	26-50	51-75	76-100	+ 25
Straight Distance	1	2	3	5	7	8	12	20	25	+ 5

A ship may only turn in increments of 60 degrees at a time. All velocity must be used; if a ship's velocity is 15, it must move 15 spaces. This is modified only by the vessel's ability to increase and decrease velocity — its acceleration factor.

Each hex of clouds a ship moves through reduces velocity by two. A ship may only go safely through asteroid areas at a velocity no greater than 4. At any higher velocity a collision could occur. The percentage chance of collision is 5 times the velocity, and is checked for each asteroid hex passed through. If a collision results, structural damage to the ship is equal to twice the velocity in megarons.

TECHNICAL COMPONENT VALUE

Technical Social Level	Beam Attack	Missile Salvo	Paralyser	Screen Defense	Scrambler	Range Finder	Acceleration	Hyper Jump	Structure	Stress Sensor	Cargo Hold	Beam and Screen Operating Frequency
5	1	1	0	3	0	5	1	0	30	0	1	2
6	2	2	0	5	2	6	1	0	40	0	1	3
7	4	3	20	10	3	7	1	4	50	3	1	4
8	6	4	25	15	3	8	1	5	50	4	1	5
9	8	4	30	20	4	9	1	5	55	5	1	7
10	10	5	30	30	4	10	1	6	60	5	1	8
11-13	15	6	35	40	5	12	1	7	70	6	1	10
14	20	7	45	70	6	14	2	8	80	7	2	15
15	25	7	45	75	7	15	2	9	85	8	2	17
16	30	8	50	80	7	16	2	9	90	8	2	20
17	35	8	50	90	8	17	2	9	95	9	2	22
18	40	9	55	100	8	18	2	10	100	9	2	24
19	45	9	60	125	9	19	2	11	105	10	2	26
20-25	50	11	65	150	10	22	2	12	120	10	2	27
26	75	13	75	200	12	26	2	13	125	13	2	30
27	85	13	85	225	12	27	2	13	130	13	2	33
28	95	14	95	250	13	28	2	14	135	14	2	35
29	105	14	105	275	14	29	2	15	140	14	2	38
30-40	125	18	125	300	17	35	3	17	200	16	2	40
41	150	20	130	400	19	41	3	18	240	20	3	45
42	165	21	140	450	20	42	3	19	250	21	3	47
43	180	21	150	500	21	43	3	20	260	21	3	49
44	200	22	160	550	21	44	3	21	300	22	3	53
45-50	225	24	200	600	23	47	4	22	300	22	3	55
+ 1	+25	+1	+10	+50	+1	+1	+0	+1	+10	+1	+0	+3

Cargo Holds: The capacity of one cargo hold is 25 megarons worth of manufactured goods, minerals, food produce, etc. Combat units are carried at the rate of one unit per hold. Also carried at the rate of one unit per hold are Police-Admin. and mining teams and bombs. One hold will also carry ¼ of a colonization team, on pursuit craft, and ten missile salvos.

Cost of Vessels: The mineral cost of a ship or fort is equal to the structural value of the vessel, one mineral unit per structural unit. The megaron cost is equal to the structural value of the vessel, one megaron per structural unit. The total cost is *both* mineral and megaron; *no* vessel may be built without both.

Beam and Screen Operating Frequency: The strength of a beam weapon or a screen is influenced by its frequency, which is found in the Technical Component Value table above. To find the effect, subtract your opponent's frequency from your own. The resultant value times two is added to your beam attack and screen defense. Example: You are a tech 8 attacking a tech 6; frequency would be (5-3) x 2, or a plus to both your beam attack and shield defense of 4 megarons. For the Tech 6 it is a minus of 4 megarons from both beam and screens. Beam and screen values will never go below one, regardless of the size of the subtractor.

WEIGHT FACTORS FOR SHIPS' AND FORTS' WEAPON SYSTEMS

Ship Model	Beam Attack	Missile Salvo	Paralyser	Scrambler	Range Finder	Acceleration	Hyper Jump	Structure	Stress Sensor	Cargo Holds	Screen Defense
Battlewagon	1.25	1	0	1	1	2	1	1	1	0	1
Assault Cruiser	1	2	0	1	2	2	1	.8	0	0	½
Patrol Cruiser	½	1	0	1	1	2	½	.5	2	0	1
Destroyer	1	1	0	½	1	4	1	.6	1	1	½
Carrier	½	4	0	2	1	1	1	1.2	1	10	1½
Pursuit Craft	0	½	0	1	0	6	0	.3	0	0	½
Scout	½	½	0	1	1	3	½	.4	1	1	½
Controller	0	1	1	1	0	2	1	1	0	0	1
Merchant Ship	0	0	0	1	0	1	½	.5	0	3	½
Fort Model											
I Planetary	1	3	0	2	1	0	0	1	1	0	1
Spacial	2	3	0	2	1	0	0	.8	1	0	1
II Planetary	3	4	0	3	1	0	0	1.3	1	0	2
Spacial	3	4	0	3	1	0	0	1.1	1	1	2
III Planetary	2	5	0	4	2	0	0	1.5	1	0	2
Spacial	3	6	1	4	2	0	0	1.3	1	1	3
IV Planetary	3	6	0	5	2	0	0	1.6	1	0	3
Spacial	4	7	1	5	2	0	0	1.6	1	2	3
V Planetary	4	8	1	6	3	0	0	2	3	0	4
Spacial	5	8	2	6	3	0	0	2	0	2	4
X Planetary	8	10	3	10	4	0	0	4	0	5	7

MILITARY PERSONNEL:

Naval: Crew units are needed to operate ships and forts. The initial cost of each is 1 megaron and 4 food produce units. The number needed per vessel is equal to the ship's structural value divided by 20, with all fractions rounded down. Spacial forts are the same as ships, with planetary forts being divided by 40 instead of 20.

Army Ground Forces: Each unit's attack, defense, and movement is listed on the Ground Forces Table. Units are as follows:

Regular infantry: Attack range 1 space. In all cases the first hex is the one the unit is occupying. Therefore these units must be in the same space as the defender to attack.

Armor: Attack range 2 spaces.

Space Strike: Attack range 1 space, with the additional advantage that they may be placed on any space desired and that their combat value is not halved as are other units on the first turn they arrive on a planet.

SUPPORT UNITS:

Missile Launch Section: Attack range is twice the Technical Social Level. They may only attack every third turn, and if they are not supplied by a nexus they may only fire 3 times.

Screen Defense Force: No attack ability, but this unit establishes a screen in the space it is in. All units in the space are defended by the screen whether hostile or friendly.

Ground combat units of tech 5 and below are incapable of affecting screens with their attack. Units of tech 6 or more are reduced as follows:

Infantry -1/5

Armor -1/3

Space Strike -1/10

Aerial Combat -1/4

Missile Launch normal

Heavy Artillery normal

Ships attack screens normally, and the above divisors apply only to ground forces' attacks on ships and forts.

Aerial Combat Section: Attack range of 3 spaces. Does not count against attack limitations. Only three of these units may be in the air over any one space for attacking purposes. These units may be dropped from orbiting merchants or carriers (if above tech 6). The units must return to a base after a mission is completed.

Heavy Artillery Section: Line of sight attacks are possible for a range of twice the TSL for planet-to-space fire. For ground-to-ground fire the range is 2 spaces. These units may fire every turn at either a space or ground target.

COST OF GROUND UNITS:

Unit	Cost in Megagons
Regular Infantry	Attack Value/2
Armor	Attack Value
Space Strike	Attack Value/2
Missile Launch Section	Attack Value/3
Screen Defense Force	Defense Value/5
Aerial Combat Section	Defense Value
Heavy Artillery Section	Attack Value/2

For attacks by paralysers and other space weapons, the structural value of a unit is equal to the megaron cost of the unit involved.

GROUND FORCES TABLE

T S Main L Weapon	Combat Units												Support Units											
	Regular Infantry			Armor			Space Strike			Missile Launch			Screen Defense			Aerial Combat			Heavy Artillery					
	A	D	M	A	D	M	A	D	M	A	D	M	A	D	M	A	D	M	A	D	M			
1 Bow / Hand	¼	3	1	N.A.			N.A.			N.A.			N.A.			N.A.			N.A.					
2 Bow + / Hand	½	3	1	1	4	2	N.A.			N.A.			N.A.			N.A.			N.A.					
3 Musket	1	4	1	1	4	2	N.A.			N.A.			N.A.			N.A.			N.A.					
4 Rifle	2	5	2	5	5	4	N.A.			12	1	1	N.A.			1	2	4	N.A.					
5 Rifle +	3	6	2	6	6	4	1	3	3	15	1	1	3	1	1	2	5	2	1	0				
6 Laser	4	7	3	8	8	6	1	3	4	12	1	1	5	1	2	4	6	2	1	0				
7 Stunner	2	7	3	8	9	6	1	3	4	20	2	1	10	1	5	7	3	1	0					
8 Needle	12	15	4	N.A.			10	7	5	30	3	1	15	1	10	5	8	N.A.						
8 Heat Ray	5	8	3	11	11	6	2	4	4	30	3	1	15	1	2	4	8	3	1	0				
9 Blaster	6	9	3	13	13	6	3	5	4	40	4	1	20	1	3	6	9	4	1	0				
10 Impulse	7	10	3	16	16	6	4	5	4	50	5	1	30	1	4	8	10	5	1	0				
11-13 Imploder	10	13	3	22	22	6	5	6	4	60	6	1	40	1	5	10	12	6	1	0				
14 Neutron	14	17	4	32	32	7	7	8	5	80	8	2	70	1	7	14	14	9	1	0				
15 Heat Ray																								
Mk III	15	18	4	33	33	7	6	9	5	90	9	2	75	1	6	12	15	9	1	0				
16 Blaster Mk III	18	21	4	39	39	7	9	10	5	95	9	2	80	1	9	18	16	12	1	0				
17 Catabolic	19	22	4	43	43	7	10	11	5	100	10	2	90	1	10	20	17	12	1	0				
18 Imploder																								
Mk II	20	23	4	44	44	7	10	12	5	110	11	2	100	1	11	22	18	12	1	0				
19 Impulse																								
Mk III	21	24	4	48	48	7	12	12	5	115	11	2	125	1	12	24	19	15	1	0				
20-25 C-Amp	24	27	4	54	54	7	12	13	4	120	12	2	150	1	15	30	22	15	2	1				
26 Stunner																								
Mk XIX	38	41	5	58	58	9	19	20	6	150	15	2	200	1	19	38	26	19	2	1				
27 P-Wave	36	39	5	75	75	9	18	20	6	160	16	2	225	1	18	36	27	21	2	1				
28 Neuronic																								
Imploder	40	43	5	86	86	9	20	21	6	165	16	2	250	1	20	40	28	24	2	1				
29 Laser Mk XI	44	47	5	88	88	9	22	23	6	175	17	2	275	1	22	44	29	22	2	1				
30-40 Fusion Ray	60	63	5	110	110	9	30	31	6	180	18	2	300	1	30	60	35	30	3	1				
41 P-Wave Mk II	72	75	6	150	150	11	36	37	7	225	22	3	400	2	36	72	41	42	4	1				
42 Catabolic (IV)	76	79	6	172	172	11	40	40	7	225	22	3	450	2	40	80	42	48	5	1				
43 Neutron																								
Mk VI	85	87	6	192	192	11	42	42	7	230	23	3	500	2	42	84	43	54	5	1				
44 Imploder																								
Mk IX	90	93	6	200	200	11	45	45	7	235	23	3	550	2	45	90	44	54	5	1				
45-50 Multi Wave	100	103	6	210	210	11	50	50	7	240	24	3	600	2	50	100	48	60	6	2				
+1	+5	+5	+1	+10	+10	+2	+2	+2	+1	+10	+1	-	+50	-	+3	+6	+1	+6	+1	-				

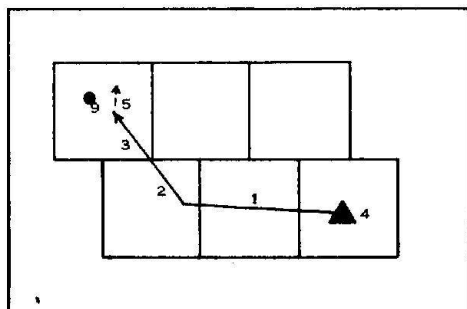
A = Attack Value
D = Defense Value
M = Movement in Spaces

Hyper Jump:

A) TIME: Each jump is instantaneous, with it taking one month to program and align the ship for it. The only exceptions to this are the supply nexuses and systems with space ports. A ship may jump immediately from one of these upon arrival. In one month where a ship could normally make only one jump, it can make as many jumps as desired as long as it can always arrive at a nexus or a space port.

B) DISTANCE: The hyper-space jump distance is the number of hexes a ship may move on the Star Map. If your jump distance is 4 then you could go up to 4 hexes (20 light years) in one month's turn. A hyper-space jump consists of moving your ship from point A to point B on the Star Map (see the illustration below). To determine how far it is from one point to the other first find the number of hexes they are apart on the Star Map and then the number of levels between the two points. Thus, if you were going from a star that was on level 0 to a star that is 3 hexes away and at level +5, then the distance apart is 3 hexes and the level distance is 5 hexes. Once the distance apart has been found then the jump distance will be: THE GREATER NUMERICAL DISTANCE PLUS ONE HALF THE SMALLER DISTANCE. In the above example then the

jump distance would be 5 plus $3/2$ or $6\frac{1}{2}$ hexes. To make such a jump in one month you would need a jump ability of at least the above; if your jump distance was 4 it would take you 2 months to get to your destination; if it was 2 then it would take 4 months to get there.



TO GET FROM STAR ▲ 4 TO STAR ● 9 YOU MUST GO THROUGH 3 SQUARES AND THEN UP 5 LEVELS WHICH GIVES A JUMP DISTANCE OF 5 PLUS $3/2$ OR 32.5 LIGHT YEARS OR $6\frac{1}{2}$ HEXES.

ILLUSTRATION . JUMP DISTANCE

Unit Organizations and Map Symbols

Players are provided with a small sheet of unit counters with which they will make game markers appropriate to their particular space forces. These units are drawn up as follows:

1. Unit Organization

Star Map: Space ships are organized into Fleets — maximum 10 vessels of the same type per counter. The exceptions are that Scouts may be represented as individual ships and Carrier Fleets have only 3 to 5 Carriers plus their Pursuit Craft.

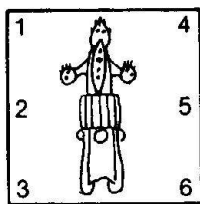
Ground Units and Forts are not represented on the Star Map; players keep track of their location in their *system record book*.

Battle Boards: Space ships are organized into fleets of the same type of space ship or individual ships. The counter is marked by the player like this:

total beam attack

total # missile salvos

total # of scramblers



total screen defense

structure value of individual ship

acceleration

Forts are represented on a one-for-one basis. Fort counters are marked the same way as ship counters.

Ground units are organized into one of four different unit designations: 1) individual units; 2) corps — 5 units of the same type; 3) armies — 10 units of the same type; or 4) assaults — 15 units, 10 of one type and 5 of another type of unit. The counter is marked by the player like this:

Unindividual unit,
corps, army, assault
forces symbol

Total Attack Value

1	2
()	
3	4

Total Defense Value

Defense Value of
Individual Unit

Movement Rate

Assault troops move at the movement rate of the slowest type of unit and both defense values of each type are put on the counter: 3A/3B.

2. **Star Map Symbols:** To show controlled systems place a triangle around Class 1 stars, a circle around Class 2 stars, and a square around Class 3 or Class 4 stars. Fleets, ships, supply nexus, etc. may be represented by different colored sequins (players should devise their own color code). Sequins should be tagged for identification and recorded as below:

ID

A number

Unit

Type

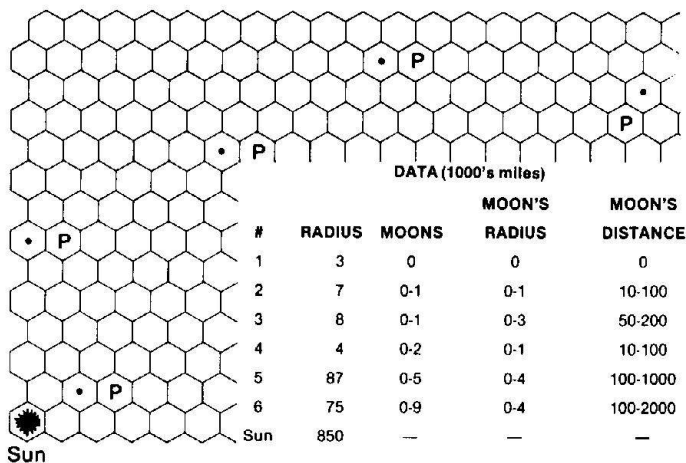
Location

System in or
Square or Level

SPACE COMBAT

Battle Boards: Use the hex grid on the map for the various types of space battles.

1. **Deep Space.** Deep space is represented by leaving the hex map blank.
2. **System Maneuver.** The planets of a system are set up in a manner similar to the sample provided, using markers.



- a) Fleets will enter this board from the same side they entered the star map square containing the system.
 - b) If one side has a fleet there prior to the turn in which the other(s) arrive, it sets it up on the board before the others are placed.
 - c) Battle results when units end their move in the same hex. Go to a planetary board set up if the hex contains a planet; if not use a deep space set up.
3. **Planetary.** A marker representing a planet is placed in the center of the battle area.
 - a) The radius of the planet is on the sample of the system maneuver board in thousands of miles.
 - b) If there are moons around the planet, indicate them with markers.
 4. **Navigational Hazards.** If a battle occurs in a hex with a planet, roll on the following chart for hazards. If the battle is in deep space, always use number 5 sample # only.

Die Roll	Tables Used
1	Cloud and Asteroid Tables
2	Cloud and Comet Tables
3	Cloud and Asteroid Tables
4	Cloud Table
5*	Cloud and Radiation Tables *Used if battle in deep space.
6	None

Hazards are set upon the Battle Board prior to the start of combat.

Table 1 — Clouds

Die Roll	Clouds	Distance	Hexes
1	4	12	10
2	5	15	6
3-4	6	20	12
5	1	25	30
6-10	0	0	0

Table 2 — Asteroid Belts

Die Roll	Belts	Distance	Hexes
1-5	0	0	0
6-7	1	15	20
8	2	20	14
9	1	25	30
10	6	20	10

Distance: Distance is measured from the mid-point of the battle area. One hazard is placed out each of the six sides.

Hexes: Number of hexes on the board that hazard will occupy.

Table 3 — Radiation Fields

Die Roll	Fields	Distance	Hexes
1	1	10	20
2	2	15	7
3	5	25	12
4	1	20	20

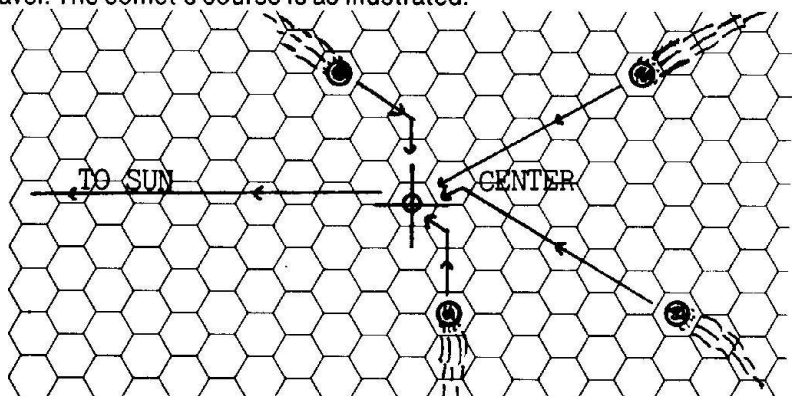
All ships in radiation fields will sustain 2 Megarons damage per hex of field which they go through.

Table 4 — Comets

Die Roll	Comets	Distance	Velocity
1	2	20	3
2	1	10	2
3	1	15	1
4-10	0	0	0

A comet occupies only one hex. It will move to the center of board and then head for the sun. Ships in the same hex receive damage equal to 5 times the comet's velocity.

Velocity: Velocity is the number of hexes per turn that the comet will travel. The comet's course is as illustrated:



Scale: System Maneuver Board: 1 hex = 20 million miles across. Planetary and Deep Space Battle Boards: 1 hex = 5,000 miles across.

Movement:

1. Stacking: 50 ships, forts or any combination of the two are allowed in one space.
2. Ships may not move through a space that is *entirely* filled by a planet or a moon. If a ship is forced to pass through such a space, it crashes (Option: 10% chance to land safely).
3. Partial planet or moon hexes may be moved through. The ship loses velocity for each such hex it passes through. The velocity loss is equal to the planet's number (1 to 6, numbering from the sun: a moon is treated the same as 1). If a ship's velocity falls to 0 as it enters a space with a planet or moon it goes into orbit; if the velocity goes to less than 0, a ship is forced to land on a planet.

4. **Landing:**

- a. Planet: Only ships of structural value 60 or less (excluding Merchants, Pursuit Craft, and Scouts which can always land) may land on a planet's surface at other than a Space Port. Larger ships automatically crash if forced to land.
- b. Space Ports. As above, but structural limit is 200.
- c. If a ship lands on one turn, it may not take off until the next turn. Gravity may be ignored on take off.

5. **Velocity:** A ship's velocity is the number of spaces a ship may move in a straight line in one turn. It is the sum of all previous accelerations and decelerations. On leaving hyperspace, a ship's velocity is equal to the distance the ship jumped, in spaces. On entering the battle board, it is equal to the last velocity on the System Maneuver Board.

6. **Maneuvering:** Governed by the rules in under **Acceleration**.

7. **Turn Sequence:**

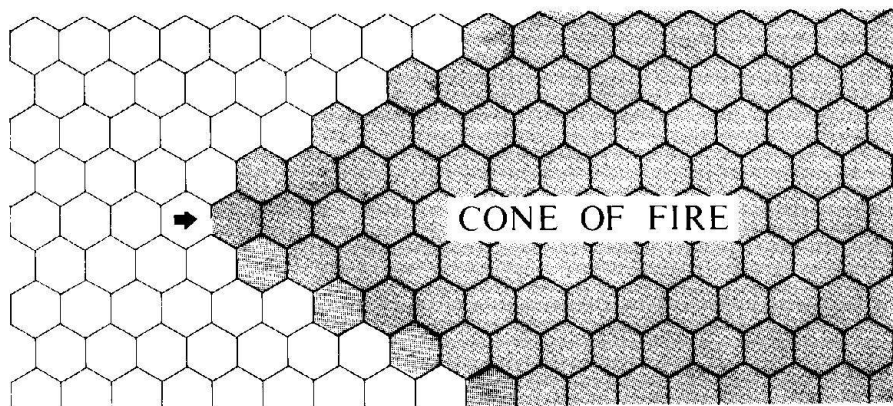
- a. Both players roll a die, high scorer moves first, low scorer last, roll over if a tie.
- b. Each player moves one of his fleets (or components equalling a fleet), taking turns with the high scorer moving one fleet, then the low scorer moving one fleet until all fleets have moved.
- c. Once all units have been moved, the players proceed to the combat sequence.

- d. This completes one combat turn on the Battle Board.
8. **Time:** 30 combat turns on the Space Battle Board equals one month. On the System Maneuver Board, there are 6 turns to a month. Each month all units make inter-stellar moves. Therefore, it is 1 turn on the Star Map, to 6 on the System Maneuver Board, to 30 on the Battle Board.

COMBAT

1. Sequence of Fire:

- a. **Missile Fire:** Hits are determined by first subtracting the number of salvos stopped by scramblers, and then rolling on the **Hit Probability Chart** for the rest of the missiles (individually or in groups). Damage caused by missiles is then determined.
 - b. **Beam Fire:** Record attack patterns for all fleets or units firing. Fleets not firing, but being fired upon, will state a pattern after the other side has recorded theirs (One pattern per fleet or components). Each player then cross-indexes his pattern against that of the target and determines damage.
 - c. **Paralyzer Fire:** Structural damage sustained in steps a. and b. counts for determining the effect of paralyzer fire. Hits are determined by using the **Hit Probability Chart**.
 - d. Return to movement sequence.
2. **Damage:** After the screens of a fleet are down, each time that the structural value of a ship of the fleet is reached, one ship is destroyed. Loss of a ship lowers the attack and defense capability of the fleet by 10%.
3. **Firing Orientation:** The front of the counter must be pointed at (or no more than 60 degrees off) the target to be able to fire. This is illustrated below:



4. **Firing is Simultaneous:** Destroyed units are removed only at step d. in **Sequence of Fire**. Both players go through the sequence at the same time.
5. **Forts:** Forts fire and are fired upon at the same time and in the same manner as ships.
6. **Individual Ship Actions:** Each ship is represented by a single counter in individual ship actions.

Table 1: Beam Attack Table

FIRER'S PATTERN

T
A
R
G
E
T

F
I
R
E

P
A
T
T
E
R
N

	1	2	3	4	5	6	7	8	9	10
1. Belters Bomb	5 .1	4 .2	½ .9	2 .7	3 .3	1 .8	1 .6	1 .5	½ .8	4 .1
2. Null Voider	4 .2	5 .1	1 .5	3 .1	1 .1	4 .1	½ .8	2 1.0	1 .7	½ 1.0
3. Denebian Climb	1 .8	½ .8	5 .1	1 .4	½ .6	3 .5	2 1.0	4 .1	1 .6	4 .1
4. Solar Spin	1 .4	3 .7	½ .9	5 .1	2 .8	1 .3	4 .1	4 .5	½ .5	1 1.0
5. Bulls Horn	2 .9	1 .2	4 .1	4 .3	5 .1	½ .8	1 .6	½ .5	3 .4	1 .8
6. Hyades Twist	½ .7	4 .4	2 .5	½ .8	4 .4	5 .1	1 .3	1 .4	1 1.0	3 .1
7. Cyn Corridor	1 .8	2 .2	1 .5	4 .1	½ .9	1 1.0	5 .1	3 .4	4 .2	½ .7
8. Centurian Blade	4 .1	½ .1	3 .8	1 .7	1 .6	4 .2	½ .4	5 .1	2 .3	1 1.0
9. Sirian Shield	½ .6	1 1.0	4 .1	1 .3	4 .5	½ .4	3 .5	1 1.0	5 .1	2 .1
10. Orion Circle	3 .1	1 .3	1 1.0	½ .8	1 1.0	2 .1	4 .2	½ .5	4 .1	5 .1

Number 1: What the fleet's beam attack is multiplied by — yields total damage caused to target units.

Number 2: Indicates up to what range fractions get the multiplier from number 1. Range fraction is your beam range times the number on the table (round up to a whole number). The multiplier goes down by 2 for each hex past determined range.

Example: If you are TSL 8, normal range is 8. If a fraction is determined to be .3 then the range fraction is $8 \times .3 = 2.4 = 3$. Three is then the range up to which you will get the full multiplier value.

- Boards and sequences are the same as for fleet actions.
- Determination of hits is made in the same manner as for fleets. **Restriction:** No more than two **Fire Patterns** may be employed against one target, no matter how many ships fire at it.

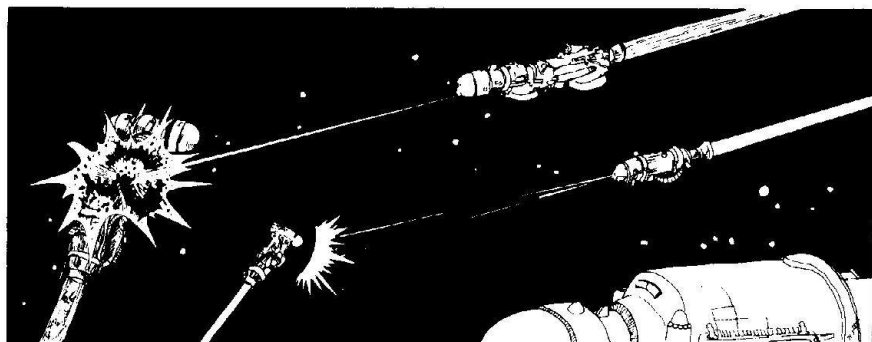


TABLE 2: HIT PROBABILITY CHART

Range to Target	Technical-Social Level of Firer									
	4-5	6-10	11-13	14-19	20-25	26-29	30-40	41-44	45-50	(+5)
0	75	85	80	95	90	97	94	98	95	(98*)
1-2	70	80	70	90	80	93	85	95	90	(98)
3-5	50	70	60	80	65	85	75	88	80	(+3)
6-10	20	60	50	70	55	75	65	78	70	(+3)
11-15	10	40	40	60	45	65	55	68	60	(+3)
16-20	5	30	30	40	35	50	45	58	50	(+3)
+5	-5	-5	-5	-5	-5	-5	-5	-5	-5	(-5)

*The maximum probability of hitting a target is 98%.

Numbers in above chart are the base percent chance of hitting a target with missiles, paralyzers, or when firing at a fort at the given ranges.

Range is determined at the start of the **Sequence of Fire**. It is the number of hexes from the firer to the target.

Option: Increase in base % chance.

- Add or subtract the difference in TSL times three.
- The increase is based on number of ships in the target hex where you are firing:

Number Ships/ Forts	1-10	11-10	21-30	31-40	41-50	over 50
Increase	0	+5	+15	+30	+50	+60

- Alternate. Use Table 2 (above) to determine if a ship hits with beam attacks. The probability of a hit is zero at ranges past a ship's capability. Each player must determine if more or less than normal damage is done, using the below table. Range fractions are based on the maximum range a beam is capable of firing (equal to the player's TSL in hexes).

GROUND COMBAT

- To resolve tactical ground combat the players use the hex map on the back of the Star Map. Designate any control points that exist, i.e. cities, mines, forts or other important representations on the map. The scale is 75 miles to the hex.

Terrain features may also be represented, but this is optional. If terrain is being used, the effects on movement, attack and defense are listed in the chart below:

Terrain	Movement	Attack	Defense
Clear	normal	normal	normal
Rough	-25%	normal	+10%
Desert	normal	normal	-10%
Jungle	-50%	-25%	+50%
Mountain	-75%	-50%	+75%
Ice Field	-75%	-50%	-25%

The numbers in the table are the % of losses or gains used to adjust a unit's parameters. These effects only apply to the three types of Ground Combat Units, not the Support Units.

- B. The defending player sets his units up first. Up to one-half of the defending units may be hidden (turned upside down). One dummy counter is allowed for every upside-down counter.

C. **Battle Sequence:**

1. Planetary Bombardment (attacker first, defender second)
2. Planetary landing
3. Ground Movement & Combat
 - a. Any or all defending units may be moved.
 - b. Defender's support fire phase.
 - c. Defender's ground assault phase.
 - d. Attacker executes step 3. a.-c.
4. Mark off one ground turn (equal to 5 days) and return to 1. (There are 6 ground combat turns to one month.)

Planetary Bombardment:

The attacker drops bombs, fires missiles, and fires beams at the planet from his orbiting ships.

- a. Orbits — Orbits are in straight lines running north to south or east to west. All ships that take part in bombardment must be assigned to orbits. The attacker may only bombard those targets that are directly below or adjacent to his ship's orbit. A ship's orbit may be changed left or right of the path a maximum number of hexes equal to the ship's acceleration; it may not fire or drop bombs in the turn the orbit is changed. The direction of travel will remain the same. Ships in orbit traverse the board once per turn.
- b. Hit Probability — To see if attacks actually reach their targets, use the **Hit Probability Table** in the **SPACE COMBAT** section. Missile and beam attacks use the 0 range numbers on that table; Bombs use the 1-2 range numbers.

Terrain effects lower or raise the chance of hitting a target up to the maximum of 98%.

	Control Point	Clear	Rough	Desert	Jungle	Mountain	Ice Field
Spotter	+ 15%	+ 10%	normal	-10%	-20%	- 5%	-10%
No Spotter	normal	normal	-10%	-25%	-40%	-20%	-30%

To "spot" a player must have a unit in an adjacent hex to that of the target, or have an aerial combat section over the same hex.

- c. Damage — The damage done to defending units is equal to the Megaron attack of all attacking units that hit the target. Missile damage is on all units in the hex; each defending unit takes the full effect of the missile attack. Bomb damage is determined by the bomb's attack per unit mile (explained in the **RESEARCH AND DEVELOPMENT** section) and is on all units in the hex. Beam attacks are selective; only the units designated and actually hit suffer any damage.

The amount of damage defending units can take is equal to the defense value expressed in Megarons. For example, a TSL 8 Armor Unit, equipped with heat rays can take up to 11 Megarons of

damage. If the unit took 6 Megarons of damage in an attack it would have a defensive value of 5 from that time on. The player should erase the 11 on the unit counter and replace it with a 5. Attack and movement values are not affected.

Planetary Landing:

The attacker now lands his ground forces. He places merchant/troop ships, and/or drops space strike units in the desired hexes. On the turn which units are landed their attack and defense values are at half value, their screens may not be activated, and the units may not move. Space strike units have full capabilities on the turn after they are landed.

Ground Movement & Combat:

- a. Movement — The player moves any or all his units up to their full movement value, taking into consideration any terrain effects. Movement along lines connecting control points is normal at all times. Aerial combat sections always move at normal rates.

There are three types of Zones of Control (ZOC) — *Rigid*, *Fluid*, and *None* — based on differences in Technical Social Level:

		Type of ZOC	
Difference in TSL	Higher TSL		Lower TSL
0 to 2	Fluid		Fluid
3 or higher	Rigid		None

The player who is 3 or more TSL levels greater than his opponent has a *rigid* ZOC and his opponent may not move through hexes adjacent to his units; they must stop. It costs one extra movement factor to go through a *fluid* ZOC and no extra to go through *none*.

- b. Support Fire Phase — Aerial combat sections, heavy artillery sections, missile launch sections, and space ships (which did not fire in the Bombardment Phase) may fire at enemy units. They may only fire once per ground combat turn.

- i. The player designates ground targets and determines which units are to fire at them. (Restriction: only 10 aerial combat sections and 10 space ships may fire at a given hex in one turn. Only 1 missile launch section and 1 heavy artillery section may fire out of one side of a hex at a time.

- ii. Hit Probability — This is the same as explained in the Bombardment Phase. For missile launch sections firing at a ground target multiply the ranges listed in the table by 5. The other ranges are determined by the straight separation between the firing unit and the target, i.e. count the number of hexes.

- iii. Damage — Damage is determined in the same manner as explained in the Bombardment Phase.

The player may elect to fire at orbiting ships. Hit Probability ranges are: Heavy artillery sections shooting at space targets use 1-2 range numbers; shooting at aerial combat sections use 0 range numbers. Missile launch sections shooting at space targets use 3-5 range numbers; shooting at aerial combat sections use 1-2 range numbers. See **SPACE COMBAT** section to determine damage.

c. **Ground Assault Phase:**

- i. The player designates which ground units are to be attacked and which of his ground units are attacking them. (Restriction: the attacking player may attack with up to three units of equal size, i.e., three corps can attack one corp, if his units are in the same hex as the defender. The attacking player may attack only with one unit per hex per one unit defending if his units are in adjacent hexes.)
- ii. The attacking player assigns any support unit and/or space ships which have not fired previously to make a co-ordinated assault. Their attack values are added in at this time after determining their Hit Probability. Note: if the attacking units are in the same hex as the defending unit no missiles may be fired into the hex.
- iii. The combat odds are determined (fractions are dropped) and the results are found on the **Ground Combat Resolution Table**.

GROUND COMBAT RESOLUTION TABLE

Die Roll	Odds									
	1:3	1:2	1:1	2:1	3:1	4:1	5:1	6:1	7:1	8:1
1	DR	1DD	1DD	2DD	2DD	3DD	3DD	4DD	5DD	6DD
2	DR	DR	1DD	2DD	2DD	3DD	3DD	3DD	4DD	5DD
3	AR	DR	DR	1DD	1DD	2DD	2DD	3DD	3DD	4DD
4-7	AR	AR	DR	DR	1DD	1DD	1DD	2DD	2DD	3DD
8	1AD	AR	AR	DR	DR	DR	1DD	1DD	2DD	2DD
9	1AD	1AD	AR	AR	DR	DR	DR	1DD	1DD	1DD
10	2AD	1AD	1AD	AR	AR	DR	DR	DR	DR	1DD

DD = Defending unit is destroyed. The number in front determines how many units are destroyed. Which of his units are to be removed from the board is the attacker's option.

DR = Defending forces must retreat one hex. If the force is unable to retreat, one unit is captured or destroyed, the attacking player's option as to which unit and its fate.

AR = Attacking forces must retreat one hex. If the force is unable to retreat, one unit counter is captured or destroyed, the defending player's option as to which unit and its fate.

AD = Attacking unit is destroyed. The number in front determines how many units are destroyed. Which units are removed from the board is the defender's option.

General Considerations:

Defending players must turn over hidden unit counters when they fire, attack, when they are fired upon, or when attacking units move next to them. Dummy counters are removed from play when fired upon or when an attacking unit moves next to them.

Victory is achieved when all the defenders have been captured or destroyed, or all the attacking forces are captured or destroyed.

Planets that are seized will have to be reconstructed (see **RESEARCH & DEVELOPMENT** section).

Captured units may be sold as slaves at a profit of 20 Megarons per TSL of the captured unit; i.e. a unit with a TSL of 7 is worth 140 Megarons.

RESEARCH AND DEVELOPMENT

This chapter is divided into two sections:

Part I — Procedure to conduct a research program.

Part II — Programs that may be researched:

A. How to raise the TSL of a system.

B. Weapons development.

Part I. Procedure to conduct a research program.

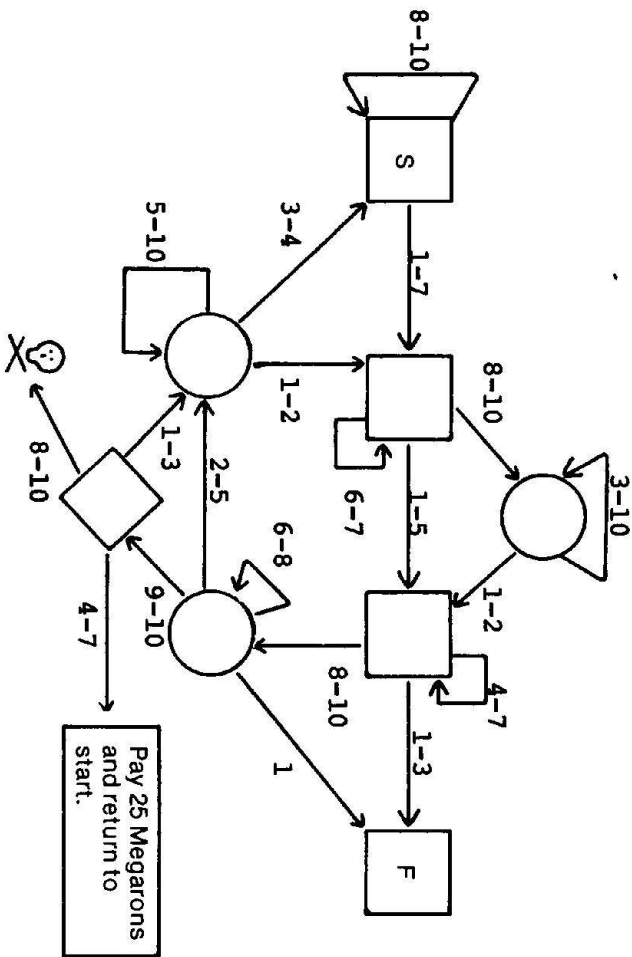
1. A player must first obtain *Research Teams*. The cost per team is 25 Megarons and 50 Food Produce Units. A team can only work on one program at a time but more than one team can work on the same program at the same time. To reflect the advantage of multiple effort a player uses the following table:

Advantage Table

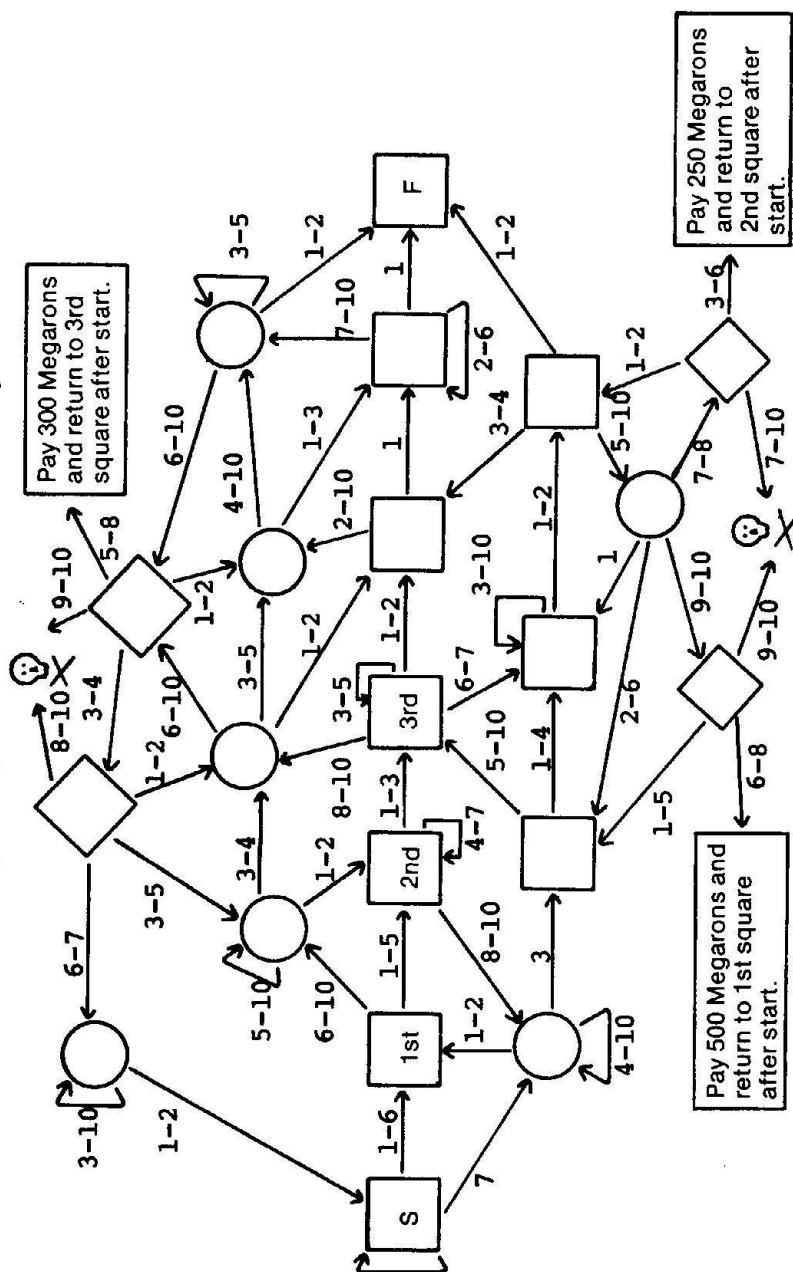
# Teams on same program	1	2-3	4-5	6-9	10 or more
Subtractor	0	-1	-2	-3	-4

- A player subtracts the appropriate number from numbers generated for the research flow charts.
- One or more teams are assigned to the desired program, and the program is recorded on the back of a counter and the # of teams is written on the front of the counter.
- The counter is placed on the appropriate **Research Flow Chart** (determined by the program's difficulty factor) at the start of a budget period.
- At the end of a budget period, the player generates ten numbers from 1 to 10 for each program being worked on, and moves the counter across the chart according to the numbers generated.
- If a player does not finish a given program, he leaves the counter where it ended, and rolls again at the end of the next budget period.
- If the player completes the program, he removes the counter and either disbands the teams or assigns them another program. A team must be working on a program, or it is automatically disbanded.
- If at any time an accident occurs on the flow chart (the skull and cross-bones symbols), and teams working on the program are destroyed, the program must be begun over from scratch, with the player paying all costs again.
- If a program is voluntarily stopped by the player before completion, the player will receive one-half of his original investment back.
- If the player has a model of the device he is trying to develop (i.e., he has a captured weapon that he is trying to duplicate), he may subtract one from each die roll on that program. It also allows the

player to start on a project which is one TSL higher than he could normally. The difficulty factor remains the same.



RESEARCH FLOW CHART 4. (Difficulty 4)



Part II

A. Improving a Technical Social Level:

1. Raising the TSL of a system by one level uses the following chart:

NEW TSL AREA									
	2-10	11-13	14-19	20-25	26-29	30-40	41-44	45-50	(+ 1)
Difficulty Factor	1	3	2	3	2	3	3	4	(No Change)
Cost of Advancing	100	250	200	300	250	350	300	500	(+ 50 Megarons)

Note: A controlled system can never be advanced to a higher level than the home system.

2. Raising the TSL of a system by two levels uses the following chart:

NEW TSL AREA										
	2-4	5-8	9-13	14-19	20-25	26-29	30-40	41-44	45-50	(+ 2)
Difficulty Factor	1	2	3	3	4	3	4	4	4	(No Change)
Cost of Advancing	150	250	500	450	700	600	800	750	1250	(+ 150) Megarons)

If a player succeeds in attaining the new Technical Social Level, his Empire may:

- a. Collect the Megarons at the new Level to which the system is advanced;
- b. Collect Minerals and Food Produce Units as per the following Table:

Example: Technical Social Level 1 raised to TSL 3 will turn out Minerals and Food Produce as a Level 1.

Mineral and Food Production Levels

New Level	Old Technical Social Level				
	1	2	3	4	5 and above
2	1	—	—	—	—
3	1	2	—	—	—
4	1	2	3	—	—
5	1	2	3	4	—
6	2	3	4	5	6
7	3	4	5	6	7
(+ 1)	(+ 1)	(+ 1)	(+ 1)	(+ 1)	(+ 1)

If the TSL of a system drops, reverse the levels on the chart to find the new production levels. "—" means "no change".

- c. Production of space and ground forces of the new TSL: If a system increases in TSL, it may build ships with the characteristics of the new level and turn out ground units armed with weapons of the new level.

B. Optional Weapons Development Research:

The use of this section is optional. Each numbered section may be used or dropped by agreement of the players.

1. Explosive Devices

Explosive Devices Chart

Device	Available at TSL	Diff. Factor	Program Cost (Megaron)	Megarons Damage Can Cause	Blast Radius in Miles
Atomic Bomb	4	1	100	15	5
Hydrogen Bomb	4	1	150	100	25
Cobalt Bomb*	4	2	250	—	500
Cold Fusion*	5	2	150	200	25
Implosion	5	2	250	400	50
Stun Bomb	6	1	200	250	100
Stronite Bomb	6	2	500	750	50
Neutron Bomb	7	1	350	1,000	100
Lusterite Bomb	7	2	500	3,000	150
Anti-Matter	8	2	350	9,000	200
Vortex Bomb	8	2	400	10,000	350
Hellburner	9	2	750 +	100,000	650
Zephyr Bomb*	13	3	1,000 +	1,000,000	2,500
Gravity Bomb	14	3	500 +	200,000	1,000
Neuronic Bomb	19	2	650 +	250,000	800
Sonic Bomb	25	3	750 +	350,000	700
Planet Buster*	27	4	1,250 +	2 billion	50,000
Disrupter Bomb	29	2	500 +	400,000	1,200
Sonic Lase	40	2	650 +	600,000	1,800
Nova Bomb*	43	4	3,000 +	200,000 billion	5,000,000
Mutagenic	44	3	1,000 +	750,000	2,000
Multi Fusor	50	2	1,500 +	1,000,000	2,500
Probability*	59	4	2,500 +	—	300,000,000

The blast radius figures are for explosions in an atmosphere or on a planet. If a weapon is exploded in space, the radius is *ten times* that listed above. *All* units within the blast radius are affected by the Megarons damage the device can cause.

+ indicates that to construct one of these devices, special minerals are required. See the section on page 58 for how to find these needed minerals.

a. Devices Explained:

Cobalt Bomb: This poisons the atmosphere of a planet with large amounts of radioactive elements. 100 of these exploded on a planet will destroy all life on it and convert the system from a Class 1 to a Class 4. The cost is 50 Megarons per bomb.

Cold Fusion Bomb: This type is jammable by the *Flux Field* rules for hydrogen or atomic bombs.

Zephyr Bomb: This bomb destroys by creating large scale atmospheric disturbances. If a planet were blanketed with them, it would go from a Class 1 to a Class 2.

Planet Buster: This completely fragments an entire planet, destroying it. (The planet becomes Class 5.)

Nova Bomb: This type causes the sun to go nova; the system

becomes Class 5. The attacker must get the device to within 1,000,000 miles of the target sun to be effective.

Probability Bomb: This bomb works on the *Uncertainty Principle*. It creates the probability that the system it explodes within does not exist as previously. The device is only effective within the orbit of the 4th planet. The device has a 60% chance of causing something to happen (if it does, use the table below).

Dice Roll	Result
1-45	The system and everything in it cease to exist in this dimension.
46-50	The system is replaced by another one (determine the class using the Exploration Rules).
51-60	No visible change, the effect is too small to be noticeable.
61-80	The system becomes a Class 3 with special deposits (determined in random manner).
81-90	The system becomes a Class 2 with special deposits.
91-95	The system is replaced by 2 systems, (determine the Class using the Exploration Rules).
96-99	The system is replaced with from 1 to 10 new systems.
100	The system disappears and is replaced by a space vortex. The vortex will spread 5 light years (1 square in all directions). 1 square per budget period on same plane as the target for 1 to 30 budget periods. The vortex destroys all matter it comes in contact with, and it disappears at end of the time determined.

A player may improve the Probability Bomb by additional research. The difficulty factor drops by 1 each time until difficulty factor 1 is reached. Each successful program will increase the chance of causing something by 5%. The cost of each additional research is 500 Megarons.

- b. **How to Transport Bombs:** Ships may carry bombs in cargo holds. The maximum allowable number of bombs per hold is:

Number of Bombs per Hold	5	4	3	2	1
Cost of Bomb Program	0-300*	301-500	501-700	701-1,000	1,000 on up

*Only two cobalt bombs to a cargo hold.

- c. **Production of the Explosive Devices:** Those devices not requiring special minerals are available through any supply nexus, except the cobalt bomb. Each nexus maintains 50 of each kind of bomb the player has successfully researched.

The number will be brought back up to 50 each and every budget period and will never exceed 50 per bomb type. Those bombs requiring special minerals are built as the available sources of minerals (determined by the output of the special minerals per budget period). The cost to build these bombs — excluding special minerals — is equal to 20% of the original program cost in Megarons.

- d. **Missiles:** Missile salvos correspond to the completion of the bomb program. No additional cost is involved. Production of all missiles is through the supply nexus. *Each distribution point* of the nexus has 100 salvos of each type of missile available per budget

period. The number will be brought back up to that level each budget period. It never exceeds 100.

At the start of the game the players can produce the following bombs and missiles: Atomic, Hydrogen, Cobalt bomb only (no missile), Cold Fusion, Implosion, Stun, and Stronite.

2. Hyperspace Research— There are a total of 28 known spaces.

Hyperspace 1 to 6: These spaces make possible faster-than-light travel. They differ only in the distance from a sun before a player can enter or break out of hyperspace, and in the structural size of the object that may be moved by one engine.

Hyper-Space	Minimum Distance in Miles from Sun	Structure Size per Engine	TSL Automatically Available at
1	300,000,000	50	7
2	200,000,000	100	14
3	150,000,000	150	26
4	100,000,000	250	33
5	75,000,000	300	41
6	50,000,000	400	51

Two engines move twice the structure size listed, three engines move three times the structure listed, and so on. Engines only affect objects which they are built into.

Hyperspace to 28 — Program Data:

Program Cost

Hyper-Space	TSL May Start	Megarons	Minerals	Food Produce	
1-6	—	—	—	—	
7	60	750	600	400	
8	30	400	100	50	Hyperspaces 8 to 12 must be re-searched in order
9	40	450	150	50	
10	45	500	200	100	
11	50	700	250	150	
12	53	800	300	150	
13	43	500	300	350	
14	8	450	350	100	Hyperspaces 14 to 20 must be re-searched in order
15	10	400	300	150	
16	15	350	350	150	
17	21	400	400	200	
18	27	400	350	200	
19	34	400	300	300	
20	40	350	350	350	
21	53	600	400	400	
22	47	900	200	250	
23	55	750	500	350	
24	67	1000	600	500	
25	52	1200	400	250	Hyperspaces 25 to 27 must be re-searched in order
26	57	750	500	500	
27	59	800	500	300	

Hyperspaces 7 to 13:

Field Generators: The cost of each generator (after the hyperspace has been successfully researched) depends on the radius of the field. The field is created around the generator, and cannot be projected to another point.

	Field Radius (in miles)							
	1	10	100	1,000	5,000	10,000	100,000	1,000,000
Generator Megarons	5	15	50	500	1000	2,000	5,000	8,000
Cost in Mineral Units	1	3	10	100	200	400	1,000	2,000
Food in Produce Units	—	1	3	30	75	125	350	500

Doubling the radius above 1 million miles increases all costs by 50 per cent. Decreasing the radius below 1 mile decreases all costs by one-half each time the radius is cut by one-half. All generators with a radius of less than 1 miles may be carried by a single person.

Hyperspace 7: Using this causes instantaneous transportation of all objects within the field to any point in the player's known space or to another field. The known space is any point on the star map within the player's Empire or another player's Empire. (A ship must jump regular ship-to-break-out point first if going into another player's empire.) If two or more fields are set up and tuned to each other, the field will stay up and permit constant transportation between them. The cost for such tuned fields is 100 Megarons per field.

Restrictions: If a jump is to another field, it must be of the same radius or larger than the one the ship is coming from. There is no chance of error when jumping to another field. If jumping to open space, there is a 5% chance something fails, and the objects that were making the jump disappear for from 1 to 10 budget periods and then reappear at their start point.

Hyperspace 8 to 12: This block causes entities bathed in the field to either go crazy (and kill themselves) or to notice nothing. If the field has no affect on a race (in a particular system) the first time it is used on them, it will never affect them. Any system affected by this field will go from a Class 1 to a Class 2.

Percent Chance of a Field Affecting a Race

Race	8	9	10	11	12
Amoeboid	N.E.	10	30	75	50
Plant	15	N.E.	N.E.	50	60
Insect	N.E.	N.E.	40	60	25
Feline	30	60	25	N.E.	10
Canine	60	30	25	10	N.E.
Humanoid	60	40	30	N.E.	N.E.
Ursoïd	55	45	10	10	N.E.
Avian	25	N.E.	50	N.E.	60
Mamillian	50	50	25	N.E.	N.E.
Reptile	N.E.	N.E.	80	20	15
Ichthyoid	N.E.	30	70	10	N.E.
Amphibian	N.E.	N.E.	75	35	N.E.
Silicate	10	10	50	N.E.	10
Unknown	N.E.	N.E.	50	N.E.	50

Hyperspace 13: Causes complete docility and satisfaction in those bathed in the field for one budget period. There is a 90% chance that it will work on all races except:

Amoeboid	75%	Ichthyoid	80%
Insect	80%	Silicate	55%
Reptile	65%	Unknown	50%

If the field doesn't work the first time it is used against a race (in a particular system), it will never work against them.

Side Affect: Races bathed in the field will not resist invasion by anybody. The system will yield no Naval, Ground, Colonization, Mining or Police — Administration Personnel while affected by the field. If a player fails to maintain the field on a race they will revolt, having twice the normal forces and their attack will be twice normal.

Income Source: Players may establish pleasure centers (each center has a 1 mile generator) on inhabited worlds. The number of centers an empire may establish is equal to its Technical Social Level. The income is 45 Megarons per center per budget period. No Naval or Ground Personnel may be drafted from worlds yielding this income.

Hyperspace 14-20: Cloaks the emmissions from hyperspace engines (hyperspace 1-6) and allows ships to travel undetected through hyperspace.

The Field: This covers only the unit in which it is mounted; a player must also have a hyperspace (1-6) engine. The cost per field generator is 50 Megarons and 50 Mineral Units; one is needed for each engine.

Side Affect: After breakout, the field continues to work for up to four weeks; it covers the ship from all forms of detection until it is released or the four weeks end. During the four weeks, ships may move by normal space engines and may attack targets in real space. If they do the field is discharged and ships can then be detected by opposing ships.

Detection: To detect units moving in these spaces players must establish stress sensors in the space. These sensors may only detect objects in the hyperspace they are set up in.

Hyperspace 21 and 23: The cost of field generators to enable entrance into these hyperspaces depends on the number of Megarons the field will contain. The field is created as a circular plane on one side of the generator.

Megarons Containable

	1	10	100	1,000	10,000	25,000	50,000	(+ 50,000)
Megarons	1	5	20	250	1,000	3,000	5,000	(+ 5,000)
Generator Minerals	—	1	5	25	100	300	500	(500)
Food Produce	1	1	5	100	250	600	1,000	(+ 1,000)

All generators with capacity of 10 Megarons or less may be carried by one person.

Uses: Hyperspace 21 generators are matter storage devices coupled with temporal suspension for objects placed inside. Players may store any object desired inside until needed. There are no support costs for stored objects.

Field: The radius (in miles) of the field is 1/1,000 of the Megarons containable. Objects enter the field by being pushed in, either volun-

tarily or involuntarily. Players may withdraw objects from the field as needed with an *Extractor* (which costs 200 Megarons). All objects in the field will come out when it is turned off. Players must pay support costs *immediately* on objects removed from the field.

Restrictions: People placed inside may revolt on coming out. The chance of revolt is equal to the number years within $\times 5$, minus the player's government type $\times 10$.

Hyperspace 23: This duplicates inorganic objects that are pushed through the field. The duplicate costs only one-half of the Megaron cost of the object being duplicated.

Field: Objects to be copied are pushed in one side, left for three months, and then pulled out. As they come out from one side, the copy emerges from the other. Players may only copy one object at a time per field. A copy lasts only 10 budget periods, then falls apart. One original will only make 30 copies before it falls apart. There is a 15% chance of something going wrong during duplication; and if it does, roll on the following table:

Hyperspace 23 Possible Malfunction Table

1: The duplicate is anti-matter, the generator and the original are destroyed.

2-6: The copy and original are inverted; both are useless.

7-15: The copy is inverted and useless.

16-100: Both the copy and the original are all right.

Hyperspace 22: The field projector cost for this space is determined by the radius of the field and the distance from the projector at which it will be established. Use this formula:

$$\text{Cost (in Megarons)} = \frac{\text{Field Radius (in miles)}}{100} + \frac{\text{Projection Range (in miles)}}{50}$$

All projectors costing less than 10 Megarons may be carried by one person.

Effect. All entities bathed in the field are subject to total sensory deprivation. Casualties are 100 percent if the race is bathed in the field for the proper length of time. If the field is not maintained for the proper length of time, the race will be stunned for three times the number of days they were under the field.

Time in Days Each Race Must be Subjected to Field

Amoeboid	15	Plant	5
Insect	10	Feline	3
Canine	2	Humanoid	8
Ursoid	6	Avian	5
Mammalian	5	Reptile	15
Ichthyoid	9	Amphibian	4
Silicate	20		

Hyperspace 24: Field generators cost 500 Megarons, 600 Mineral Units, and 350 Food Produce Units. The generator will only operate on a planetary surface, and the field affects the entire world.

Effect. The natural laws of the system alter, causing science to be an uncertain art and the arcane arts (such as magic) to be reliable.

Side Effects. The operation of scientific devices (excluding those of TSL 1 and 2) are determined as below each time they are used. Magic works at all times inside the field (for rules on magic try DUNGEONS & DRAGONS).

Random

Roll	Result
1-5	Device turns to a fine powder.
6-60	Device fails to operate.
61-70	Device operates with twice the normal output.
71-75	Device operates with five times the normal output. Directional weapons fire in the opposite direction from the one pointed in.
76-80	Device operates at five times the normal output.
81-90	Device operates at 10 times the normal output.
91-95	Device operates at 25 times its normal output, but a radiation field causing genetic mutation is set up in a 100' radius until device is shut off.
96	Device operates at 100 times normal output. Directional weapons as 71-75 above.
97	Device operates at 100 times normal output. There is a 10% chance per turn of operation that a portal to another dimension will be opened.
98	Device operates at 500 times normal output. Directional weapons as 71-75 above.
99	Operates at 500 times normal output.
100	Operates at 1,000 times normal output, then explodes.

This generator makes a Technical civilization impossible. Any world with one of these generators on it can have a Technical Social Level no higher than 2. On activation a planet will go into a period of chaos lasting for 10 budget periods. No trade tariffs may ever be collected from such a system.

Hyperspace 25-27: The field generator cost is according to how many Megarons of energy the field will absorb or release.

	Megarons of Energy						
	1	50	500	5,000	50,000	100,000	(+ 100,000)
Generator Cost							
in Megarons	½	1	10	100	2,500	5,000	(+ 5,000)
Mineral Units	—	3	30	300	500	1,000	(+ 1,000)
Food Produce Units	1	2	10	100	250	500	(+ 500)

All generators that cost less than 2 Megarons may be carried by a single person.

Hyperspace 25: Generators absorb energy that impacts on their fields.

Field: The field is established around the generator. The radius in miles is equal to the amount of Megarons absorbable divided by 500. Once the field has absorbed all the energy it is capable of absorbing, the field collapses. If the limit is reached *and exceeded* in the same turn, the generator is destroyed. The generator may not be reactivated for three days after the limit is reached, but it will have full ability at that time.

Hyperspace 26: Generators release energy from hyperspace at a point in real space and can be used to attack targets.

Field: The field is established at a point in space. The range is equal to the amount of energy releasable in Megarons divided by two. The radius in miles is equal to the amount of energy released, divided by 500. Any targets at the release point are subject to all or part of energy that the field contains. Once all the energy is released, or the field is deactivated, reactivation is the same as a hyperspace 25 generator. One Megaron of energy is the same as one Megaron of beam attack.

Hyperspace 27: Generators are capable of *both* releasing and absorbing energy.

Field: The field is the same as Hyperspace 25 and 26.

Special Effect: Players may elect to pay twice the cost listed for a generator and get one with a variable field radius. Such a generator can expand or reduce the radius of the field by a factor of 50.

3. **Tactical Ground and Space Weapons and Space Cannons:**

- a. Basic weapons are: Laser, Stunner, Needler, Heat Ray, Blaster, Impulser, Imploder, Neutron Ray, Catabolic Ray, C-Amplifier, P-Wave, Neurodic Imploder, Fusion Ray, and Multi-Wave Fusor. The designator after the type of weapon indicates the model number and gives the sequence in which they are developed.

Mk I, II, III, IV Tactical Ground Weapon Model

SMk I, II, III, IV Tactical Space Weapon Model

CMk I, II, III, IV Space or Heavy Cannon Model

Development Order. A player may not develop the corresponding SMk until the Mk with the same model number has been developed. A player may not develop the CMk until the corresponding SMk has been developed. If a player has the first model (I), he may develop the more advanced ones (II, III, . . .). Original models are automatically available only at the TSL listed on the **Ground Forces Table** on page 28. Advanced models are available at set intervals unless developed earlier. The cost to develop weapons is computed at 25 times the difficulty factor times 2 if Mk, 3 if SMk, or 5 if CMk. The operating frequency varies only with Technical Social Level, not with weapon model number.

- b. **Megaron Attack Value.** Mk and CMk attack values go up by 50% per advance over the previous value for the SMk. Original beam attack values in the **Technical Component Table** on page 25, and corresponding weapon type are found in the **Ground Forces Table**.

- c. **Limitations.**

- i) The Needler may not be developed into SMk or CMk.
- ii) Lasers, Heat Rays, Blasters, and Neuronic Imploders are only developable to Mk XXX.
Impulser, Imploder, C-Amplifier, and P-Wave units are only developable to MK XXV.
Neutron Ray, Catabolic Ray, and Fusion Ray units are only developable to Mk XX.
Multi-Wave Fusor, Stunner, and Needler units have no limit on developability.

d. **Difficulty Factor:**

Model Number	DF
II-V	1
VI-X	2
XI-XX	3
XXI up	4

e. **Re-arming Cost:**

- i. Ground Units: 75% of original cost of the unit.
- ii. Space Ships and Forts: 30 Megarons and Mineral Units for each point of value.
- iii. Heavy Artillery Section: Same as a new unit.

4. **Strategic Space Weapons.**

a. Program Data.

Program Cost Table

Dice Roll	Megarons	Minerals	Food Produce	Additional
1	400	150	150	Roll for each of the costs separately. Reroll each time a program is restarted. You may <i>restart</i> the program 3 TSLs after listed level in part c. below.
2	300	300	100	
3-5	250	250	200	
6	200	400	100	
7	250	300	250	
8	150	150	400	
9	350	200	300	
10	150	100	50	

b. **Weapon Generator:** Cost varies with Technical Social Level of player.

Weapon Generator Cost

TSL	Megarons	Minerals	Food Produce
7-13	80	40	10
14-19	140	100	30
20-25	280	140	50
26-29	200	100	40
30-40	400	100	150
41-44	500	150	200
45-49	600	200	200
50-60	700	200	300
(+ 7)	(+ 100)	(+ 20)	(+ 50)

c. **Available Weapons:** For each of the Technical Social Levels listed below the players may choose *one and only one* of the weapons listed at that level or a previous level, research it, and then start production:

Weapon	TSL Available	Field Duration	Effect of a Screen on Weapon	Weapons Effects
Relaxation Field	7	3	stops completely	causes structure to fall apart.
Sonic Magnifier	7	1	as normal	induces vibratory motion
Gravity Intensifier	7	2	blocks 1/2 attack value	increases gravity violently
Plasma Sphere	7	1	as normal	creates hot ionized gas
Disruption Beam	15	2	as normal	causes atoms to repel each other
Anti-Matter Collimator	15	1	double attack	creates an anti- matter flow
Spor Line Field	15	4	stops completely	corrodes struc- ture
Neuron Impacter	28	7	blocks 3/4 attack value	destroys all organic matter (crews)
Fusion Activator	28	4	as normal	causes limited fusion in struc- ture
C-AMP Multi-Phase	28	4	as normal	accelerates par- ticle to near speed of light
Multi-Wave Fusor	44	8	as normal	causes structure to fuse together
Molecular Polarizer	44	3	no effect	causes molecules to flow in one direction
Nega Spheres	44	16	stop completely	negates all struc- tures
Omega Beam	52	20	blocks 1/2 attack value	distorts time frame destroying target
Tractor/Pressor*	52	5	no effect	pushes and pulls objects as desired
Solar Field Activator	52	10	as normal	generates intense heat
Cosmic Flamer	52	30	blocks	creates cosmic storms

*Tractor/Pressor Field.

Effect: All matter trapped in the Tractor/Pressor Field is immobilized if its structure value is less than or equal to the attack listing.

Field: The field is moved by one hex each and every turn as desired by the player generating it. The duration of the field is five turns and may be immediately re-activated. Ships or targets at the edge of the field have a 50% chance of escaping. A field doesn't destroy the target, it just moves it. If the target is a planet, it will destroy any civilization on it by making it TSL 1.

Field Duration: This is the number of turns after firing that the field will maintain itself. The weapon generator is not used to maintain the field.

Screen Effects: Describes what effect, if any, screens, irrespective of strength, will have on the field being generated.

d. **Weapon Parameters.**

- i. **Attack and Range:** The value of an attack is listed in the **Technical Component Table** on page 25 for beam attack and range is multiplied by the number below. Roll individually for each attack. All units in the field are subject to the attack by these weapons at the values below. If a program is successfully restarted, use the advanced models section of this table and change the multiplier as indicated.

	Dice Roll					
	1	2-3	4-7	8	9	10
First Model	1	2	3	4	4½	5
Advanced Model	-1	NC	NC	NC	+1	+1

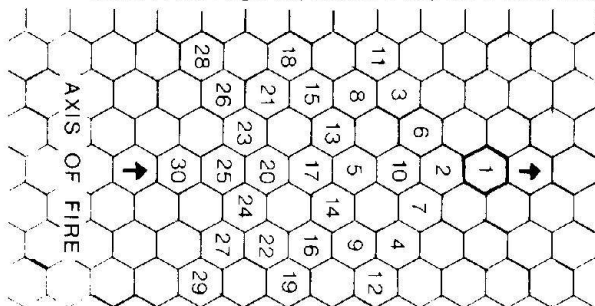
The multiplier will always be at least *one*. The multiplier is for the Technical Social Level at which it is determined and those after until a new multiplier is determined.

Example: First multiplier determined at TSL 7, next at TSL 10, next at TSL 14. The first is good only up to TSL 9, the second is good only up to TSL 13, and the last is good until the next multiplier is determined.

- ii. **Weapon's Dimensions:** The table below gives the number of hexes that will be contained in the weapon's field.

TSL	Number of Hexes, Original Model	Additional Hexes, Advanced Model
7-13	1	+0
14-19	2	+1
20-25	2	+0
26-29	5	+2
30-40	4	+1
41-44	15	+3
45-50	15	+2
(+ 5)	(+ 4)	(+ 1)

The pattern chart below corresponds to the number of hexes (1 through 30) that a weapon's field will occupy:



- iii. The structural value of a weapon generator is equal to one-half of the cost of the generator in Mineral Units.
- iv. Special Minerals: Each generator requires one Mineral Unit to work. (See Section 7 for the specific mineral needed.)
- v. Difficulty Factor (DF): The sequence for the DF runs as follows for the first, second, third and additional models: 4:2:3:1: and then 2 for any further models.

5. Flux Fields.

a. Field Characteristics:

- i. **Effect:** A flux field cancels the effects of weapons (bombs, hyperspaces, etc.) previously fired inside or into the field.
- ii. **Field:** Each field is specific to what weapon or device it can cancel. It must be built to cancel the particular weapon and model of it (if there is a model number). If the generator is built with more than one field, only one may be active at one time per generator.

b. Program Data:

- i. **Cost:** A program costs one-half of the value of the device to be cancelled's program costs.
- ii. **Difficulty Factor:** The DF is equal to the DF of the device to be cancelled, minus 1. The minimum is one; if the DF goes below one, subtract 2 from each die roll in on the R & D charts.

Restriction: The player must have researched the device to be cancelled.

c. Generator Data:

i. Cost and Field Radius:

	Radius in Miles								
	1	10	100	1,000	5,000	10,000	50,000	100,000	+ 50,000
C. Megarons	1	3	30	300	1,000	2,000	10,000	20,000	+ 10,000
O Minerals	—	1	10	75	250	500	2,000	4,000	+ 2,000
S Food Produce	½	1	10	50	200	400	1,500	3,000	+ 1,500
T									

- ii. Special Minerals: If a generator is made to cancel a device that requires special minerals, the generator will need 1 unit of the same mineral.
- iii. The structure value is equal to the mineral cost of the generator.

d. Flux fields will *never* work against weapons of Technical Social Level 1 and 2, the Needler, Stun weapons, Multi-Wave weapons, and Chemical/Biological weapons.

- e. If a flux field can cancel Technical Social Level 5 Mk weapons; it can also cancel TSL 4 and 3 weapons. If it can cancel a bomb, it can cancel the missile version of the same bomb.

6. Chemical/Biological Weapons:

a. Characteristics.

i.

Chemical
Kill*

Effect

Turn into mindless automatons (sell as slaves)*

Biological

Kill*

Incapacitate for 1 to 10 days*

*Only the lifeform it is designed for.

- ii. The strains are specific as to race and effect; they may be designed to affect only one race in one specific way (kill, incapacitate, or enslave).

The lifespan of a strain is three days once it is released from its cannister; on the fourth day it is ineffective.

Availability: Starting at Technical Social Level 7, and at 2 Level intervals, one new strain is available. The player must specify what race it is to be effective against:

- iii. **Area Coverage:** The RADIUS OF EFFECT IS EQUAL TO THE STRAIN NUMBER TIMES 250 (in miles). One cannister of gas or virus is needed to cover the above area.
- b. The program cost per strain is 100 Megarons, 100 Mineral Units, and 150 Food Produce Units. The difficulty factor is 2.

Restrictions: Strains must be researched in numerical order. A player may go from the first strain to the second strain, third, fourth, and so on in biological weapons, or he may go from the first strain chemical to first strain biological, then to second strain chemical or biological, then to the third of whichever he has the second of. A player may not go from the first chemical to second biological or vice versa, but he must have researched and developed all previous strains of chemical or biological weapon.

c. Cannister Cost:

- i. Cost = Strain Number \times 25 Megarons, for chemical.
- ii. Cost = Strain Number \times 20 Food Produce Units, for biological.
- iii. **Special Minerals:** Each cannister requires one-quarter of a unit of various special minerals. See the section on **Special Minerals**, for specifics.

d. Anti-Toxic Agents:

- i. The program is one-half of the cost of the active agent, and the Difficulty Factor is 1.
- ii. The cannister cost is the same as the toxin cost for one cannister. If the toxin requires special minerals, so does the anti-toxin, but only one-tenth of a unit.
- iii. **Area Coverage:** As in a., iii., above.
- iv. **Restrictions:** The player must have researched the strain to be countered to develop the anti-toxin to it.
- v. **Effect:** If the anti-toxin is released within 2 days of the initial contamination of an area, it will counter its effects.
- vi. **Strains.** To counter a strain, the anti-toxin for the same race and the same effect as the toxin must be designed.

e. **Delivery.**

- i. Cannisters may be dropped from orbiting space craft at 10 cannisters per cargo hold.
- ii. The equivalent of 1 cannister may be fitted on one missile salvo at no cost.

7. **Special Minerals:**

- a. Different Minerals and their uses.

Special Mineral Table

	Dice Roll	Mineral	Bomb	Hyper Strategic Space Beam Weapon	Chem/Bio Strain #	Cost of Mining & Refining per Budget Period
	1-25	Jolumite	Gravity	14-20 Gravity Intensifier	none	100
●	26-49	Hatheirite	Hellburner	none Plasma Sphere	1-4 C/B	150
	50-75	Interpion	Zephyr	none Relaxation Field	1-7 C	120
	76-90	Dhulterium	Sonic	22 Sonic Magnifier	none	200
	91-100	Ritdarum	Disrupter	none Disrupter Beam	7-17 B	50
	1-30	Nthoion	Neuronic	8-12 Neuron Impacter	1-5 B	125
	31-60	Ehtglitite	Sonic Lase	none Spor Line Field	5-15 C/B	75
■	61-74	Moltorim	Planet Buster	none Fusion Activator	none	200
	75-89	Nhltruon	Mutagenic	24 Omega Beam	15-20 C/B	100
	90-95	Otritium	Multi Fusor	none Multi-Wave Fusor	1-4 B	150
	96-100	Solarithe	Nova	25-27 Solar Field Activator	3-9 C/B	300
	1-10	Stheurite	Probability	28 Cosmic Flamer	1-20 C	500
	11-40	Golthetium	none	none Anti-Matter Collimater	none	100
	41-60	Ashternum	none	21 C-amp Multi Phase	7-12 C/B	150
	61-87	Bthidite	none	23 Molecular Polarizer	none	200
▲	88-89	Fabricium	*	13 Nega Sphere	4-14 C/B	300
	90-97	Pcidrite	none	7 Tractor/Pressor	1-20 C/B	400
	98	Impervium	*	* none	none	700
	99	Eternum	*	none *	none	1,000
	100	Unlversite	*	* *	*	2,000

* Will substitute for any of the other minerals above it.

- b. **Finding Deposits:** There is a 30% chance per square on the Star Map that the square will have a source of special minerals.

i. **Roll Dice:**

1-15 = Deposit on ● star type.

16-25 = Deposit on ■ star type.

26-30 = Deposit on ▲ star type.

31-100 = No source in this square.

A player must have totally explored the square before he can roll on the table.

- ii. The player picks the particular system and using the **Special Minerals Table** determines the type of Mineral. Location and Mineral are then recorded.

- iii. Squares controlled by more than one player: Determine location of the mineral deposit, if one, in a random manner to find who controls it.

- c. **Output of Deposit:** Output is stated per find per budget period.

	Unit Output Die Roll				
	1-4	5-6	7-8	9	10
Output	1/2	1	1 1/2	2	2 1/2

INTELLIGENCE OPERATIONS AND OTHER OPTIONS

After players have assimilated the basic rules of **STAR EMPIRES** they may wish to add the following rules to increase the complexity and add more "realism" to the game. These optional rules may be applied selectively or in their entirety as they cover several different areas of play.

A. Intelligence Operations (can only be used in conjunction with Option G)

Players may invest in Intelligence Operations (IO) either to affect events on the Historical Flow Chart or to engage in espionage/counter-espionage activities in other empires (or even their own). The Intelligence Operation, if successful, can allow the player to have a chance to influence the historical events in his Empire to his advantage. He also can attempt to influence the events in other player's Empires, either by indirect intervention or active sabotage.

1. Each Intelligence Operation costs 150 Megarons and 100 Mineral Units.
2. The number of operations a player can have depends on his Government Type:

	Government Type							
	1	2	3-5	6	7	8-9	10	11
Number Available	7	10	8	10	8	9	10	9

3. A player's Intelligence Operation Level is determined by how many Intelligence Operations he purchases and his Government Type:

Advantages: Level 2, add or subtract one; Level 3, add or subtract two; Level 4, add or subtract three from their die rolls.

The Counter has an 'IO' on the front with the Level printed below; on the back is printed which empire the IO is from and in which empire it is operating in.

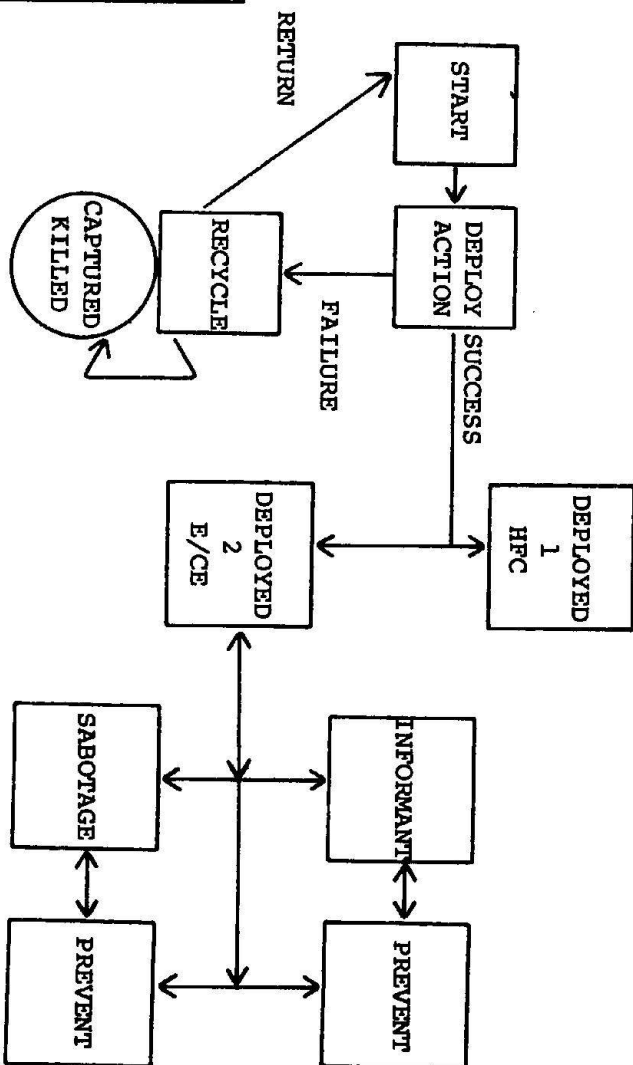
Your G.T.	# of Intell. Ops.			
	1-7	8	9	10
1	1	3	3	4
2	1	2	2	4
3-6	1	2	3	4
7-8	1	1	3	4
9-10	1	3	3	3
11	1	2	3	4

4. Using the Sequence: Having bought the Intelligence Operations, the player places it in the start square of the flow chart below. At the beginning of each budget period the player moves any number of his operations to the **Deployment Action Square** and determines for each Operation whether it deploys successfully or fails. The G.T. on the success chart signifies the Government Type of the Empire the Operation is attempting to deploy into. For example, if the Government Type of the Empire being deployed in-

to is 1, the number needed is one thru seven. (If deploying into the player's own Empire, ignore the Deploy Action Square; the Operation is automatically deployed.)

RECYCLE	
G.T.	RETURN
1	1-3
2	1-5
3-5	1-4
6	1-3
7	1-5
8-9	1-6
10	1-7
11	1-5

DEPLOY	
G.T.	SUCCESS
1	1-7
2	1-5
3-5	1-6
6	1-7
7	1-5
8-9	1-4
10	1-3
11	1-2



If successful, the Operation is deployed to either the Historical Flow Chart (HFC) or to the Espionage and Counter-Espionage(E/CE) square (player's choice).

If an operation fails then to deploy it is moved to the Recycle Square. The owning player then determines if the operation returns to the start square or is captured and/or killed by rolling on the recycle chart. The G.T. signifies the Government Type of the player attempting to capture. If the operation is captured, the capturing player has a 10% chance to subvert it. A subverted operation does not count towards the limit of operations a player may have. Subverted operations may be placed into service in the next budget period. Players may move only from the start square to the D.A. square once per budget period per operation. If returned to start, the operation must wait until the next period to redeploy.

a. Deploying to The Historical Flow Chart (HFC)

- i. Place the operations either in the start square of the HFC or on one of the blank ones connected to it. At the beginning of each budget period randomly determine a number from one to ten, twice, for each operation, and move it in the same manner as the flow counters of the HFC. Operations must move in the directions indicated by the numbers. If an operation finishes its movement on one of the squares labelled with Roman Numerals — I, II, V, VII, VIII-1, VIII-2, IX-1, XI-1, XI-2, or XVI — it may attempt to induce or prevent an event there.
- ii. Induced Event: There is a 10% chance of inducing an event in the Empire the operation is functioning in. If an opposing operation is already on the square, combat between the operations must be resolved first. If successful, the induced event takes place in the next budget period.
- iii. Preventing an Event: There is a 20% chance for an operation to prevent an event in the empire it is operating in. If an opposing operation is there, combat must be resolved first. Induced events may be prevented in the same budget period or in the following budget period after they are induced. The events induced by the player's flow counter may also be prevented in the same manner but only on the squares mentioned in i. above.

b. Deploying to The Espionage and Counter-Espionage Square:

- i. Information Gathering and Sabotage Operations: Place the operation counter on either the Info. or Sabotage Square depending on what the player intends to do. There are four categories of items on which an operation may gather information or sabotage. The table below contains the limits and chances of success:

Category	Value Limits	Chance		Examples of Items
		Information	Sabotage	
I	Megaron value of 150 or less	60%	40%	Individual Ships, Forts, Ground Units, System (info only), and Weapons
II	Megaron value of 500 or less	40%	30%	Fleets, Armies, Research Programs, Forts, Special Items, and Minerals
III	Megaron value of 1000 or less	30%	20%	Fleets, Research Programs, Weapons
IV	Megaron value of 1001 or more	20%	10%	Other player's budget (info only) and anything else referee can figure out

The limits refer to the total cost of the item or, if the operation is after information, the total amount mentioned or contained in the item per budget period. For example, if the item (a set of plans, a report, etc.) is for a Fort worth 400 Megarons, the chance of getting information is 40% and for sabotaging it is 30%. Sabotage of an item will knock it out for that budget period.

- ii. Preventive Action: Players may assign operations to prevent other players from sabotaging or information gathering. The player assigns any number of operations to each category. When a player announces to the referee that he is attempting to sabotage or gather information and states which category he is working in, the referee checks to see whether the operation will be detected or not:

	Number of Operations on Prevent			
	1	2-3	4	5 on up
Chance to Detect	30%	40%	60%	90%

The Intelligence Operation Level additives and subtractors are compared to adjust the odds. For example, if the player who is preventing has an Intelligence Operation Level of 2 and has assigned 3 Operations to prevent in Cat. III, he would raise the odds to detect from 40% to 50%; if the opposing operation has an Intelligence Operation Level of 3 he would reduce the odds from 40% to 20%. The net result to detect the operation would be 30%. If the operation is detected, combat must be resolved before the operation attempt to gather information or sabotage.

5. Combat: Combat is simultaneous and odds are computed by comparing the number of attacking operations to the number

of defenders. If an invading operation fails to drive off all defending operations in three turns it must abandon its mission as reinforcements are considered to have arrived. Combat may only take place between operations in the same empire:

Odds	1:2	1:1	2:1	3:1	4:1
Chance to Capture/Kill Defenders	10%	20%	40%	50%	80%

Once an invading operation has successfully driven off the defenders the player may attempt whatever he intended to do, i.e. sabotage, induce, etc.

6. In general, a player may only gather one piece of information or sabotage one item per operation per budget period. If an operation is captured or killed the owning player cannot buy another for two budget periods.

B. Phantom Fleets

This option allows players to use dummy fleet counters. They are placed on the Star Map and moved as normal units. For all indications they are real until they engage in combat where they have the combat characteristics of a Scout. They cost 150 Megarons and 50 Mineral Units. There is no limit to the number a player may have. They do not require fuel support if that option is being used.

C. Ramming

To find the chance of ramming use the **Hit Probability Table** (the range is always taken as at 6-10). If the ram is successful the damage is equal to the structure value of the ramming ship times its velocity. Only the ship being rammed gets its defensive fire and may fire at the ramming ship.

D. Variance of System Classification by Race

Not all races would classify a system in the same manner. Using this option would allow for these different outlooks. A Class 1 system is always a Class 1 no matter who finds it, but for the other systems use the following comparison table:

Finding Race	System Classification			
Feline, Canine				
Humanoid, Ursoid				
Mammalian	2(1)	3	4	5
Plant, Insect,				
Avian, Reptile	3	2(1)	5	4
Ichthyoid, Amphibian	2(1)	5	3	4
Amoeboid, Unknown	4	2(1)	3	5
Silicate	3	4	5	2(1)

For example, a Class 5 system for a Humanoid race is a Class 2 system for a Silicate race.

Optionally, a Class 1 system can be cross-classified for its habitability by other races by consulting this chart. The (1) shows under which area such systems fall.

E. Terra-Forming

This option allows players to convert a system from one Class to another (but not to a Class 1). The cost to move a system up one Class is 500 Megarons and 500 Mineral Units. A system can be raised after every two budget periods. The normal progression of a system is Class 5 to 4 to 3 to 2. If Option D is being used, the progression will vary from race to race; the progression tends towards Class 2.

A corollary to Terra-Forming is *Ecological Warfare*. Players may attempt to convert other player's planets by seeding. Each seeding costs the same as Terra-Forming. The seeding will succeed unless the other player pays the required amount to bring the system back to normal Class (in this case a Class 1 is the same as a Class 2). The seed can be carried by 3 Merchants or 1 Carrier.

F. Building Time for Ships and Forts

This option takes into effect the physical time limitations of building large projects. The time in days to build a project is equal to the Structure Value plus the Megaron cost of the project.

G. Referee

It is suggested that if at all possible someone should judge the game. The referee co-ordinates players' moves, budgets, Intelligence Operations, Research Programs, and other items (location of Special Items, Minerals, etc.) He also can add spice and play the pirates, invaders from off the board, and a central information agency which sells information to the players for a price.

H. Luck

This option is used by the minor empires and systems when invaded by the big Empires. The first time a system is invaded by a big Empire there is a 10% chance that some unlucky occurrence will happen. If the player is unlucky he randomly determines what happens on the following table:

Die Roll

Occurrence

- | | |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Complete Ineptitude: Player must retreat from system losing 10% of the attacking force. |
| 2 | Clever Natives: Neutralized attacker's ground weapons. Player cannot attack until he gets new ones. |
| 3 | Storm: Invasion fleet caught and cannot attack for 3 budget periods. |
| 4 | Bum Information: Natives have 5 times the forces they should have. |
| 5-7 | Superior Fighters: In Space, increase number 2 on Beam Attack Table by 0.2; increase odds on Hit Probability Table by 10%; on ground the odds are up 1 level. |
| 8 | Sly Devils: Player loses ¼ of his ground invasion force. |
| 9 | Suicidal Fanatics: In Space all ships will ram with chances of hitting up 10%. On ground double the attack factor, but cut defense factor in half. |
| 10 | Mental Block: Natives do not believe player exists. There is no fight. There is also no tariff or protection; the natives just ignore the player no matter what he does. |

(Items 4, 5-7, 9, and 10 are permanent for the system.)

SOCIAL AND HISTORICAL EVENTS (OPTIONAL)

There are certain events over which the player has no control, and the following procedure is used to reflect them:

1. Each player places a chit on the start square of the Historical Flow Chart.
2. Every three budget periods, starting with the first one in the game, players roll one decimal die (add 2 to the roll if the player has increased tariffs in his empire), look for the number rolled on the lines leaving the square and follow the correct line to the next square.
3. If the square has a roman numeral or letter in it, consult the Results Table.

Result Table

Number	Gains or Loses	Duration (B.P.)	Meaning
I	-600 to + 600 Megarons	N.A.	Raid. See footnote 1.
II	See footnote 2.		Disturbance and Revolt.
III-1	-20 or 30% of Mineral Produce.	1 to 6	Mine failures.
III-2	-40% of Mineral Production.	1 to 8	Mine failures. See footnote 3.
IV	-25 or 40% of Food Produce.	1 to 10	Crop failures.
V	-10, 20 and 25% of Megaron, Mineral and Food Produce.	1 to 10	Plague. See Footnote 4.
VI	See footnote 5.		Geological upheavals.
VII	Lose 1-10 colonies	till recolonized.	Colonial failures.
VIII-1	-100 x (your G.T.) in Megarons.	1 to 4	Assassinations and social unrest.
VIII-2	See footnote 6.		Assassinations and social unrest.
IX-1	-10 or 20% of Megaron tariff.	1 to 8	Religious upheavals.
IX-2	See footnote 2.		Religious war.
X	All items bought cost 10, 20, 30 or 40% above normal.	1 to 10	Inflation.
XI-1	5% of Ground and Space force destroyed.	N.A.	Unsuccessful military coup.
XI-2	As above, but -2,000 Megarons from next budget.	N.A.	Successful Military coup. G.T. now 9.
XII	-500 or -1,000 Megarons.	1 to 10	Bureacratic ineptitude.
XIII	See footnote 7.	1 to 6	Stagnation.
XIV	See footnote 7.	1 to 6	Decadence.
XV	See footnote 7.	1 to 6	Expansionism.
XVI	See footnote 8.	1 to 6	Racial Persecution.
XVII	See footnote 9.	1 to 10	Cosmic Storms.

A	Advance your TSL + 1	N.A.	Scientific Genius.
B	+ 250 or + 500 Megarons	1 to 10	Tariff collection streamlined.
C	+ 500 Minerals	1 to 10	Mother Lode discovered.
D	+ 500 Food Produce	1 to 10	New method production.
E	One source Special Minerals.	Permanent	Determine which type, then place randomly.

Footnote 1. A bordering Empire is raided. Determine using the Hostility Matrix on page 7. Roll for each empire (major and minor) that borders the player's Empire in any order. The first race that the player fails to beat the required number for is the one which is raided, if the player beats all the scores, no raid is launched. If the player raids a minor empire, it becomes hostile; if it already was hostile it becomes xenophobic. What the player gains, the raided empire loses (next budget period) and vice versa. On a 1, 2, or 3, the player will gain 100 to 600 Megarons, and on a 4, 5, or 6, the player loses 100 to 600 Megarons (roll randomly).

Footnote 2. The size of the uprising, force considerations, cost to put down, and permanent damage are given below:

Roll (once for all)	1-5	6-9	10
Size	minor	secondary	major
Force (Fleets)	2	5	10
Cost (Megarons)	500	1,000	3,000
Damage (Systems)	0/0	1/0	3/1

Force: This is the number of fleets that must be moved to the approximate center of the player's empire or within 15 light years (3 squares) of it. The fleets must stay there for one budget period, if they leave earlier, roll again for a new rebellion (which will double the cost and damage figures above).

Cost: This is how much it costs the player to quell the uprising (deduct it from the next budget period).

Damage: The number before the "I", is how many Class 1 systems are reduced to Class 2. After the "I", is the number that are rendered useless (becoming Class 5).

Location: Determine randomly from among the Class 1 systems of the Empire in question.

Religious War: As above but the cost and damage are doubled.

Time Reduction: Each time the player doubles the number of fleets used to quell the rebellion, the time required will be halved.

Footnote 3. Additionally, there is a 40% chance that one current source of special minerals peters out for the time period rolled.

Footnote 4. For each budget period past the fifth one that the plague lasts, there is a 15% chance that it will spread to any empire bordering

on you (roll for *each* one). If the plague spreads to a minor empire, they become hostile; if they already were hostile, they become xenophobic.

Footnote 5. This causes changes in the Classification of systems (exclude the player's Home System).

Random Roll	1	2-3	4-6	7	8-9	10
Number of Systems	1	2	3	4	6	8

Determine new classification using the table on page 6.

Location: Determine the original Class of each system (roll a six-sided die; roll over on six), then determine randomly the location of each as in footnote 2.

Footnote 6. Losses are four times that listed in VIII-1. Also the player has been assassinated, and he must pick a new Government Type differing by three or four columns on the chart from his present one.

Footnote 7.

- a. **Stagnation.** The player may not start any new projects (R & D Programs, new ships, system exploration, etc.) but may finish ones he is already working on, during this time. His Empire may not go to war with another player in the game, unless the other player attacks first. The Empire may not trade with more than two other players.
- b. **Decadence.** As above except those projects currently being worked on are cancelled. The Empire may not trade with any other and will only fight to defend systems that are above Technical Social Level 3 which were colonized by the Empire if they are within 100 light years of the Empire Home System, or have either special items or minerals. Also, the player must spend 1,000 Megarons per budget period on entertainment.
- c. **Expansionism.** If the Empire goes from a. or b. into this condition on the next opportunity, the Technical Social Level will go up by 2 or 3 automatically.

The Empire *must* include 2 to 3 new systems per budget period in the Empire. If the Empire does not, it will have a military coup (1 to 5 = XI-1; 6 to 10 = XI-2), followed by an attack on any bordering empire (determine which randomly).

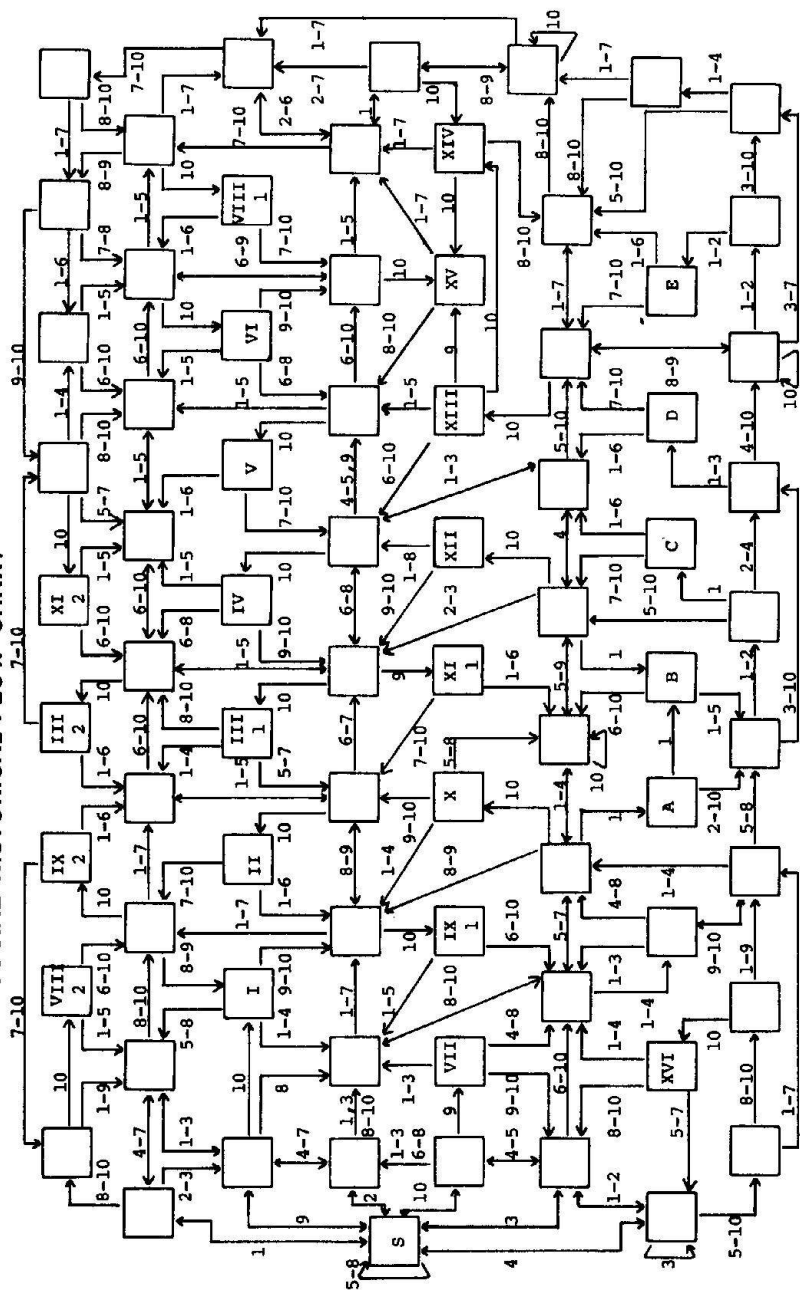
During this period all military equipment costs 10 per cent less than normal, and double the number of personnel are available from the home system.

Footnote 8. The race persecuted is determined on the **Hostility Matrix**. The race with the highest number in the matrix under the players' race column will be enslaved (Route C, page 16). The empire must enslave one system per budget period for as long as the trouble lasts. There is a 5% chance per budget period that the race being persecuted will revolt (Footnote 2).

Footnote 9. The dimensions of the storm are 10 by 10 by 10 light years. The location is determined in a random manner on the star map and may overlap into other empires. Travel through the region of the storm is ex-

tremely hazardous (50% chance per ship that it is destroyed). No income or value may be collected for the duration of the storm from those systems within the storm area (excluding home systems).

SOCIAL HISTORICAL FLOW CHART



OPTIONAL UNIT DESIGN

A. Basic components of ships and forts.

Component	Unit	Meaning	Cost	
			Megarons	Minerals
Weapon Pod	Primary	Gives beam attack listed in TCT*.	10	10
Screen	Primary	Yields screen defense listed in TCT.	10	20
Missile Launcher	Primary	Contains and fires <i>one</i> missile salvo.	1	5
Paralysis Generator	Primary	Yields value listed in TCT.	30	10
Scrambler	Primary	One unit will stop one missile salvo.	5	0
Range Finder	Primary	Gives range listed in TCT.	5	5
Stress Sensor	Primary	Gives detection range in TCT.	10	10
Hyperspace Engine	Primary	One engine enables ship to jump distance in TCT.	15	30
Reactor	Primary	Power supply needed for various components.	1	4
Cargo Hold	Central	Carries items listed in Chap. II.	5	5
Magnetic Activation	Primary	Space — Used to determine acceleration. (see details later)	2	5
Engine		Ground — Used to determine number hexes move.	2	2
Missile Storage		Carries 2 salvo — hooked to launcher.	1	5
Life Support	Central	Determines how many continuous turns battle can fight before internal controls collapse.	5	5
Repair Structure	Central Sub-Value	Allows ship to make own repairs.	10	10
	Total	Sum of all the mineral cost but Mag. Act. Eng. and their reactors, will include any structure added for special devices.		
	Total	Same as above but include engines and reactors. This determines damage a design can take.		
		Note: If it is desired you may add as much superfluous structure as desired to increase the designs ability to take punishment, part of sub total.		
		1 unit of Minerals = 1 unit of Structure.		

*TCT is the **Technical Component Table** on page 25. It lists the maximum value one of the above units would give a ship or fort.

Option: Variance of cost with Technical Social Level. Multiply total design cost by numbers below.

Your TSL	5-6	7-8	9-10	11-13	14-19	20-25	26-29	30-40	41-44	(+ 10)
Multiplier	0.4	0.6	1	2½	2	3	2½	3½	3	(+ 1)

Smaller Units. May be built for the components from the Weapon Pod to the Hyperspace Engine, inclusive. Develop a fraction of the output of the Primary unit — any fraction ($\frac{1}{2}$, $\frac{1}{4}$, etc.) that is desired. $COST = FRACTION \times COST\ OF\ THE\ PRIMARY\ UNIT$. Do the cost for both the Megaron and Mineral Unit components.

B. Notes on the various components:

1. **Weapon Pod:** When more than one pod is put into a ship, the player must record where it is located. Four units, one on each side of the counter, would give all around fire equal to value on the TCT, whereas 4 in the front gives four times the value on the TCT, but only in one direction.
2. **Screen Generator:** The output of multiple screens is additive. Option: The defense value of screens is one-half normal at the rear of a ship.
3. **Multiple Units:** Paralysis Generator, Range Finder, Stress Sensor, and Hyperspace Engine. The output from multiple units of these units is additive.
4. **Reactor:** The primary units below need reactors in the listed amounts to operate.

Unit	Number of Reactors
Weapon Pod	4
Scrambler	1
Hyperspace Engine	10
Screen Generator	4
Range Finder	1
Magnetic Activation Engine	1
Paralysis Generator	8
Stress Sensor	4
Planetary Screen	50

For smaller units, reduce the above amounts by the appropriate percentage. Double the number of reactors will increase the output of a unit by 50%.

5. **Magnetic Activation Engines** are used to provide motive power in space, in the air, and on the ground. For space flight this yields an acceleration, for the other two a velocity. To compute acceleration/velocity use the following equation:

$$\text{Acceleration (or velocity)} = \frac{200}{\text{Structure}}$$

Structure is here defined as the mineral cost of all components except the magnetic engines and their needed reactors.

- C. **Planetary Screens:** One screen will cover up to one-quarter of a world. The cost is equal to 25 times that listed previously for screens. The Megaron defense is 50 times normal. More than one screen may cover the same area; the defense values are not additive, but when one screen collapses the other takes over. If a planetary screen collapses, all of its reactors overload and must be replaced at one-half of their original cost.

CREDITS

Game Design: John Snider

Development: Richard Snider, Greg Svenson, Brian Blume

Editing: Gary Gygax, Brian Blume

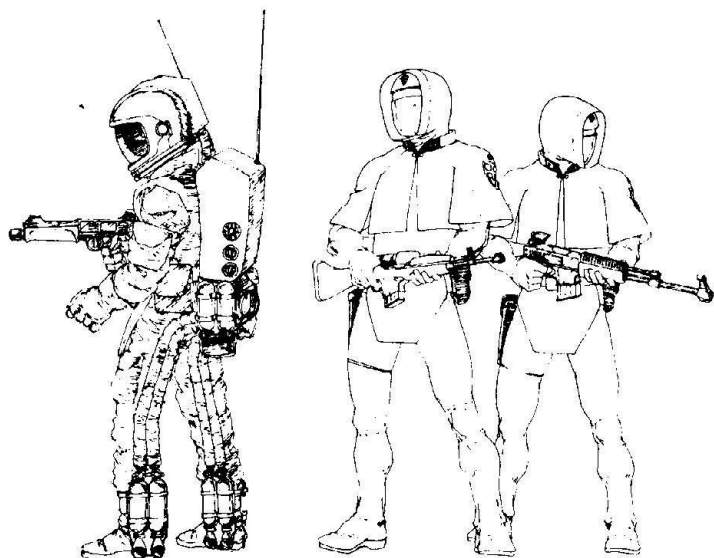
Art: Dave Sutherland, David Nolte

Assistance: Tim Jones

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