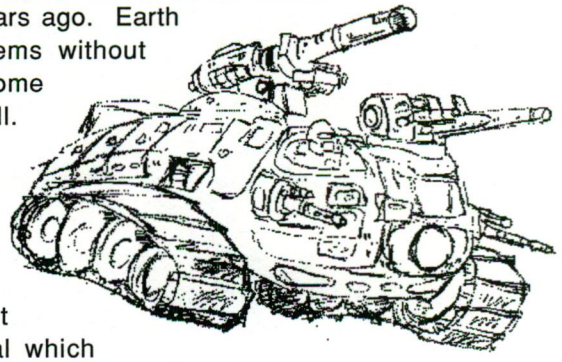
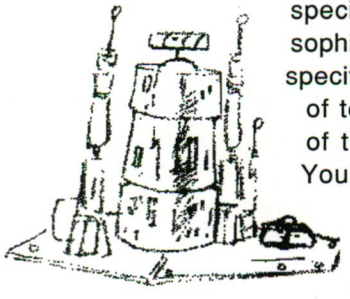
SCENARIO

It is the year 2420. For over 14 years, Earth has been under constant threat of invasion. By the beginning of the 24th century, half of the planets in our solar system had been terraformed and consequently colonized, the remaining planets being classified 'unusable'. Hence we had reached out into the next closest system. And that's when it all began. We found that we were not alone. Although no indigenous species had been found, another race of beings had also laid claim to the system. The first contact was disastrous - the Setti outpost had been completely obliterated from the surface of the far moon with absolutely no warning. Simultaneously, two delta-class transport ships were attacked and destroyed. 2250 lives lost, no survivors. Hence the beginning of the most intensive cold war period Earth had ever known.

They were known only as the Kraogs. All communications were rejected. Given the nature of our first interactions, a military buildup began, the likes of which had never been experienced. That was 14 years ago. Earth had since spread out over three other systems without occurrence. Some thought the threat over, some wondered if it had really ever existed at all. That is until three months ago. Abruptly, without any warning all communications had ended with the Archanum-7 base on the frontier of the Celiac system. A Class-2 Destroyer was dispatched to investigate. Upon arrival, it had reported that almost nothing was left of the station. The material which once made up the station had been literally vaporized. Moments later, static. Although no further information would be received, it was more than enough. It was all too familiar. Immediately, the Unified Planetary fleet was mobilized. You are a member of that fleet.



You were in the midst of battle maneuvers around Neptune. Now, because of your close proximity, you find yourself spearheading the armada. Your ship is a omega-class cruiser, specially fitted to deploy the new MegaTrak Attack Tank, the most sophisticated ground ship mankind had ever conceived. It was designed specifically to go head to head with the dreaded Kraog tanks, machines of terrifying destructive power. You had studied the archive records of their attack 14 years ago, what few there were, countless times. You had run one strategic simulation after another. But had the Kraog improved their weapons and strategies since then? There was little question in your mind. Could we match their firepower, their maneuvers? Those questions and more would soon be answered...



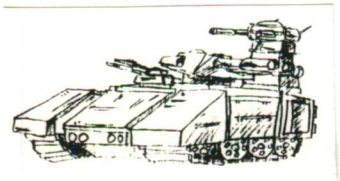
DESCRIPTION

In its simplest terms, TANK is a deluxe, linked, sitdown Battlezone game. It has a first-person viewpoint and fits into both the shooting and driving categories. It will have the look of a high-end game (such as Hard Drivin') but because it utilizes the less expensive GX2 hardware and the smaller 19" monitors, it will cost considerably less to build. Due to it's extensive use of miniature models and the use of translucency, I believe TANK's 'video look' will be unlike anything the players have ever seen. And in keeping with the recent trend towards head-to-head gameplay, TANK will allow the operator to link up to eight units together simultaneously.

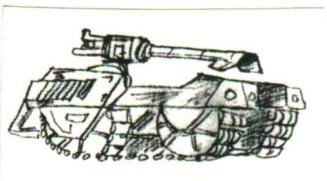
At game start, the player is offered the option of INDIVIDUAL, TEAM, or COMPETITIVE combat, the latter two modes utilizing the network capability. The gameplay is broken into waves called 'battles'. The battles takes place on a planet divided into quadrants, each battle terminating when the quadrant is conquered, requiring the destruction of a base or stronghold. The player selects the quadrant from a planetary map. In addition, the player is allowed to select from one of three tank configurations (described later). Once a quadrant is defeated, it is marked as conquered and is no longer accessible. The game is finished when all quadrants have been conquered, culminating in a spectacular planetary explosion.

GAMEPLAY ELEMENTS

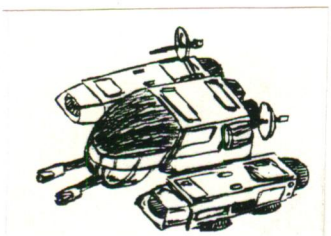
EARTH FEDERATION TANKS



The largest of the federation's fighting tanks is the L20. What it lacks in speed and maneuverability, it more than makes up for in firepower. It is equipped with dual particle accelerators, AG1000 guided missiles, and plasma grenade launcher. As with all three of our tanks, it has also been fitted to carry one tactical nuclear charge. It is also equipped with the "double-vision" ECM option. Last of all, the L20 is equipped with the new AXIS RADAR technology, the most sophisticated long range scan yet devised.



In addition, we are employing the X-68020, one of the best all around fighters we have. Although smaller than the L20, it has added maneuverability due to it's lack of the standard 'tank treads'. It boasts one photon gun, AG500 guided missiles, and pulse lasers. It is equipped with the Chameleon ECM and standard RADAR options. Like the L20, it has been retrofitted to carry one tactical nuclear charge.



Last but certainly not least we have the ASIS 2100 attack craft. While considerably lighter in size and hull design, it is extremely fast and maneuverable due to it's anti-grav propulsion system. It is believed to be the must agile tank in existence, a good match for the Kraog walkers. As for armament, it carries the standard arsenal, including cryogenic beam weapons (capable of immobilizing machinery).

KRAOG VEHICLES

Intelligence has identified five primary designs of Kraog fighting machines, identified below:

WALKER

Size:	Very small (believed to be unmanned)
Mobility:	Extremely mobile, extremely fast
Armament:	Dual pulse lasers
Other:	although easy to knock out, these number in the hundreds

STRIKER

Size:	Small, similar in size to ASIS tank
Mobility:	Although treads, still very mobile
Armament:	Pulse lasers
Other:	often used in reconnaissance

DAKTAR

Size:	Midrange (similar to X-68020)
Mobility:	std. treads, moderate mobility
Armament:	Hydrogen Ion beam; head-seeking missiles
Other:	indisputably the workhorse of the Kraog forces

BEHEMOTH

Size:	Approximately twice the size of the production L20
Mobility:	minimal, but unnecessary due to extreme armor shielding
Armament:	Ion Cannon (extremely powerful)
Other:	

COMMAND SHIPS

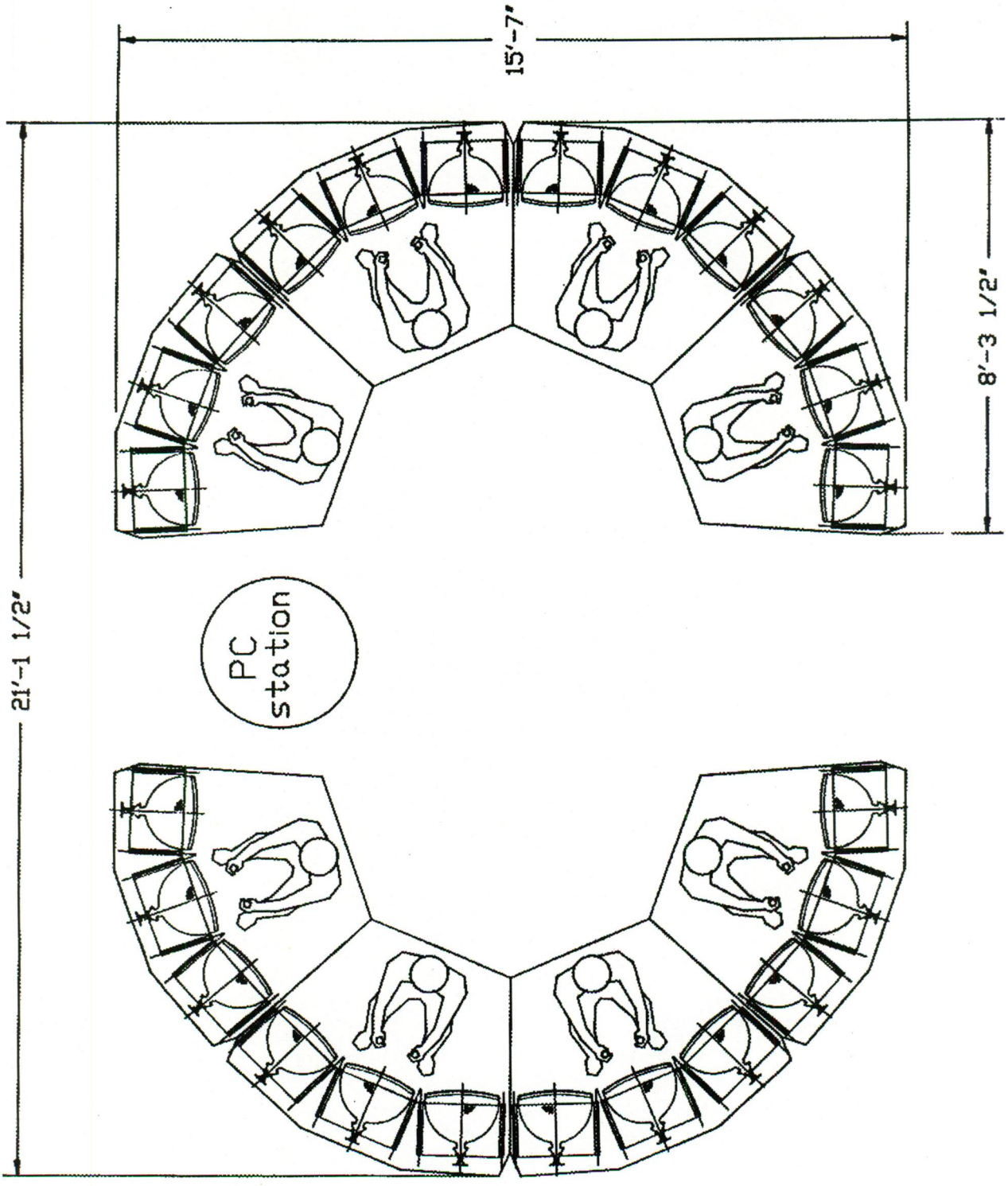
Size:	Not known (approx. the size of a DAKTAR)
Mobility:	hover (technology unknown)
Armament:	Neutron Pulser (technology unknown)
Other:	these are known only from probe reports - all other contacts were fatal; protected by force shielding

MISCELLANEOUS

Turrets	- used to guard base stations & key strategic positions
Trapdoor Turrets	- same as above, but harder to destroy
Mines	- part of enemy base defense
Force Fields	- destroy generator poles to disable
Deployment Ships	- sole purpose is relocation of Kraog tanks
Radar Dishes	- if destroyed, enemy can no longer coordinate with Deployment Ships
Enemy base	- the key objective

MULTIPLE-LINKED CONFIGURATION

TANK has the potential of being an economy version of BattleTek if a PC is added to the network to coordinate gameplay and produce printouts of player ratings.



ENABLEMENTS TO COMPANY

Further advances in game **networking technology**

Although not the first game to employ networking, TANK proposes to push this technology by linking up to 8 units together simultaneously.

Further development of **digitized model** technology

Again, while not the first game to digitized miniature models, TANK proposes to do so on a larger scale than has been so far attempted, further refining the process by building on our past experiences.

Development of **3-monitor version of GX2**

In the past, 3-monitor 'panorama' cabinets were synonymous with high-end games. By using less expensive hardware (not polygon) and less expensive monitors (19"), TANK will be a high-end unit in every respect except the price tag.

Development of true **translucency option in GX2**

Although a seldom appreciated technique by hardware & software engineers, this fea ture is crucial for many of the graphic techniques which will be employed in TANK. Al though hard to verbalize, true translucency is crucial for headlights, explosions, fire, and smoke effects. 'True' means actual color manipulation, not simple palette remap ping.

Development of a true **'video' look**

Ironically, the most important 'enablement' TANK has to offer is also the hardest to verbalize. Unlike every game Atari has ever done, TANK is going to attempt to create a 'video' look rather than the standard 'raster' look. The model which most closely approximates what we are attempting to accomplish is the footage of the tank & planet surface in the movie ALIENS.

Graphics Calculations

	DAYS	num	H angles	V angles	total cells	bytes/cell	TOTAL BYTES
MOBS							
Tanks	72	6	36	3	648	3000	1,944,000
exploding		6	9	4	216	4000	864,000
walker	15		40	3	120	1500	180,000
exploding			40	3	120	2000	240,000
bad deluxe + dome	12				36	4000	144,000
headlights	3				36	1000	36,000
rocks (3 @ 3 stages)	9	9	36	1	324	3000	972,000
force field	3		1	1	1	500	500
mines	1		1	1	1	300	300
radar dishes	6	3	36	1	108	800	86,400
fortifications	36	12	18	1	216	2000	432,000
turrets	4	2	36	1	72	1000	72,000
trapdoor turret	3	4	36	1	144	1000	144,000
transport ship	5		1	3	3	5000	15,000
							0
misc. damage effects	5	4	5	1	20	500	10,000
weapon fire	10	10	1	1	10	1000	10,000
explosions	10	6	1	1	6	5000	30,000
schrapnel	3	10	36	1	360	500	180,000
nuclear effect	5	1	40	1	40	4000	160,000
quadrant select screen	10	1				15000	15,000
planet explosion	5	1				10000	10,000
							5,545,200
PLF							
title screen	5	1				6000	6,000
high score screen	5	1				6000	6,000
attract screens	15	5				6000	30,000
playfield bkgs	18	6				8000	48,000
game startup (briefing)	10	4				12000	48,000
							138,000
ALPHA							
heads-up displays	15	3				8000	24,000
game credits	3	1				6000	6,000
	288	days					**30,000**
times 'fudge' factor	20%						
	346	**days**					

COST ESTIMATE - DELUXE SITDOWN

Description	Unit Cost	Total
ELECTRONICS		
CLARN PCB w/XGA (network?)		76.00
JSA-III audio board		83.00
GX2 PCB		299.00
GX2 mods for 3 monitors & translucency		299.00
		757.00
ELECTRICAL		
Power Supply		75.00
Display (Wells, 19")	3 x 189.00	567.00
PCB ground plane and hat assy.		20.00
AC/DC Power and video harness		40.00
IEC 3xxx cord/switch/fuse module		15.00
Control harness		6.00
		723.00
ROMS		
Program: 1M-100nS	4 x 2.60	10.40
MOB: 4M-100nS	16 x 9.75	156.00
PF: 1M-150nS	2 x 14.00	28.00
Alpha: 1M-150nS	1 x 3.25	3.25
Audio		
Program: 27512	1 x 2.25	2.25
PCM Data: 4M-150 nS	2 x 14.00	28.00
		227.90
COIN SYSTEM		
Coin door, coin counter, cash box & coin box encl.		53.00
CABINET		
Wood, cabinet		500.00
Vendor Kit (casters, glide plates, fan grill, locks, side decals)		42.83
Monitor Bezel	3 x 3.00	9.00
Monitor Glass	3 x 5.00	15.00
Attract Decal		10.00
Attract Panel, plastic		20.00
Retainers	3 x 4.00	12.00
Speakers	2 x 5.50	11.00
Speaker grilles	2 x 1.50	3.00
Undetermined chrome		35.00
Subwoofer, under seat		30.00
Light bar, bracket, and bulb		12.00
		699.83
CONTROL PANEL ASSEMBLY		
Control Panel w/ Hinge		21.00
Decal		7.00
Throttle controllers	2 x 33.00	66.00
Button assemblies	5 x 1.00	5.00
Draw latches	4 x 1.25	5.00
		104.00
OTHER		
Shipping Container		55.00
Labels, manuals, bags, &c.		8.00
Misc. Hardware		10.00
Reserve for Missing Parts		10.00
		83.00
TOTAL MATERIALS COST		2647.73
LABOR		
PCB (GX2, JSA III, CLARN)	3 x 8.57	25.71
Sub and Final Labor	6 x 5.89	35.34
Overhead	9 x 75.00	675.00
		736.05

FULLY ABSORBED COST **$3,384**

DISTRIBUTOR COST AT MARGIN OF:		
	36%	**$4,602**
	40%	**$4,737**
	44%	**$4,873**

COST ESTIMATE - FAMILY CABINET

Description	Unit Cost	Total
ELECTRONICS		
CLARN PCB w/XGA (network?)		76.00
JSA-III audio board		83.00
GX2 PCB		299.00
GX2 mods for 3 monitors & translucency		299.00
		757.00
ELECTRICAL		
Power Supply		65.49
Display (Wells, 25")	1 x 319.00	319.00
PCB ground plane and hat assy.		20.00
AC/DC Power and video harness		22.52
IEC 3xxx cord/switch/fuse module		15.00
Control harness		6.00
		448.01
ROMS		
Program: 1M-100nS	4 x 2.60	10.40
MOB: 4M-100nS	16 x 9.75	156.00
PF: 4M-150nS	2 x 14.00	28.00
Alpha: 1M-150nS	1 x 3.25	3.25
Audio		
Program: 27512	1 x 2.25	2.25
PCM Data: 4M-150 nS	2 x 14.00	28.00
		227.90
COIN SYSTEM		
Coin door, coin counter, cash box & coin box encl.		53.00
CABINET		
Wood, cabinet		108.83
Vendor Kit (casters, glide plates, fan grill, locks, side decals)		42.83
Cleats (pair)		2.16
Rear door		6.58
Speaker grill		1.14
Glass retainer		4.00
Monitor Bezel	1 x 3.00	3.00
Monitor Glass	1 x 6.00	6.00
Front Viewer (formed plastic)		75.00
Attract Decal		3.00
Attract Panel, plastic		3.00
Retainers	2 x 3.50	7.00
Speakers	2 x 5.50	11.00
Speaker Panel	1 x 5.00	5.00
Fluorescent light assy.		11.67
		290.21
CONTROL PANEL ASSEMBLY		
Control Panel w/ Hinge		21.00
Decal		7.00
Throttle controllers	2 x 33.00	66.00
Button assemblies	5 x 1.00	5.00
Draw latches	4 x 1.25	5.00
		104.00
OTHER		
Shipping Container		26.00
Labels, manuals, bags, &c.		8.00
Misc. Hardware		5.00
Reserve for Missing Parts		5.00
		44.00
TOTAL MATERIALS COST		1924.12
LABOR		
PCB (GX2, JSA III, CLARN)	3 x 8.57	25.71
Sub and Final Labor	4 x 5.89	23.56
Overhead	7 x 75.00	525.00
		574.27

FULLY ABSORBED COST **$2,498**

DISTRIBUTOR COST AT MARGIN OF:		
	36%	**$3,398**
	40%	**$3,498**
	44%	**$3,598**

COST ESTIMATE - TANK DOUBLE UPRIGHT

Description	Unit Cost	Total
ELECTRONICS		
CLARN PCB w/XGA (network?)		76.00
JSA-III audio board	2 x 83.00	166.00
GX2 PCB	2 x 299.00	598.00
GX2 mods for translucency	2 x 299.00	598.00
		1438.00
ELECTRICAL		
Power Supply		75.00
Display (Wells, 25")	2 x 319.00	638.00
PCB ground plane and hat assy.		20.00
AC/DC Power and video harness		40.00
IEC 3xxx cord/switch/fuse module		15.00
Control harness		6.00
		794.00
ROMS		
Program: 1M-100nS	4 x 2.60	10.40
MOB: 4M-100nS	16 x 9.75	156.00
PF: 4M-150nS	2 x 14.00	28.00
Alpha: 1M-150nS	1 x 3.25	3.25
Audio		
Program: 27512	1 x 2.25	2.25
PCM Data: 4M-150 nS	2 x 14.00	28.00
		227.90
Two sets needed	2 x 227.90	455.80
COIN SYSTEM		
Coin door, coin counter, cash box & coin box encl.	2 x 53.00	106.00
CABINET		
Wood, cabinet + attract panel		335.00
Vendor Kit (casters, glide plates, fan grill, locks, side decals)		42.83
Monitor Bezel	2 x 6.00	12.00
Monitor Glass	2 x 7.00	14.00
Attract Decal		10.00
Attract Panel, plastic		20.00
Retainers	4 x 3.00	12.00
Speakers	2 x 5.50	11.00
Speaker Enclosures	2 x 22.00	44.00
Light bar, bracket, plex	2 x 22.00	44.00
Formed plastic viewers	2 x 75.00	150.00
Fluorescent light bulb		12.00
		706.83
CONTROL PANEL ASSEMBLY		
Control Panel w/ Hinge		21.00
Decal		7.00
Throttle controllers	2 x 33.00	66.00
Button assemblies	5 x 1.00	5.00
Draw latches	4 x 1.25	5.00
		104.00
Two assys needed	2 x 104.00	208.00
OTHER		
Shipping Container		55.00
Labels, manuals, bags, &c.		8.00
Misc. Hardware		10.00
Reserve for Missing Parts		10.00
		83.00
TOTAL MATERIALS COST		3791.63
LABOR		
PCB (GX2, JSA III, CLARN)	6 x 8.57	51.42
Sub and Final Labor	6 x 5.89	35.34
Overhead	12 x 75.00	900.00
		986.76

FULLY ABSORBED COST **$4,778**

DISTRIBUTOR COST AT MARGIN OF:		
	36%	**$6,499**
	40%	**$6,690**
	44%	**$6,881**

SCHEDULE

As with most projects, the schedule is a function of several parallel efforts. Of these, the programming task has been determined to be the limiting factor. There are 1.5 programmers assigned to this project, my efforts being divided between programming and Project Leading. All programming tasks were itemized, giving a grand total of 31 months @ 1 programmer, 21 months @ 1.5 programmers.

Wildcards:
1) new development system (UNIX w/ AMS)
2) Gary Stark's first project be be P.L.'d from beginning to end
3) primary programming effort to be undertaken by a NEW programmer

Estimated FGA: Aug 1994 (21 months)

Concept approval:	6/ 3/92
Initiation:	9/16/92
Review #1:	5/1/93

Software Goal	- Simple gameplay (human Vs. computer, non-linked)
Hardware Goal	- N/A (presumably GX2 mods are in progress)
Design Goal	- prototype cabinet
Video Lab	- one tank graphic completed; remaining models under construction
Animation Goal	- one fully cleaned up tank graphic
Audio Goal	- not started (temporary sounds will be employed)

Review #2:	9/93
Review #3:	TBD
Focus:	TBD
Field Test:	TBD
Graphic Release:	3/94
Production Release:	6/94
Program Release & FGA:	8/94

NOTE: according to marketing, ideal release times are: APR-MAY and SEPT-OCT

TEAM ORGANIZATION

Project Leader	Gary Stark
Software Engineering	Gary Stark, John Grigsby
Hardware Engineering	Sam Lee, TBD
Technician	Minh Nguyen
Animation	Rizaldi Bugawan, Nick Stern, Chuck Eyler
Video Production	Rob Rowe, Dave Portera
Audio	TBD