CA-60 Thesis

Combined Arms

*

Integrating Mecha in the Marine Mobile Armored Cavalry Unit

A Proposal by General Scott A. Akers

* Combined Arms Logo designed by
Vice Admiral Kurt Roithinger

“Infantry, Cavalry, and Artillery can not do without one another; they should therefore by quartered so as to give mutual aid in case of surprise.”

Napoleon’s Maxim XLVII, Napoleon Bonaparte, 1830

In recent times the SFMC has developed the concept of Combined Arms to the ultimate degree and with much success. The defeat of the Dominion both in space and on the ground spoke volumes to the efficacy of Marine Combined Arms operations. The recent Voth War spoke again to the need of the SFMC to utilize EVERY tool available to the Corps, and using these tools in harmony and in complement to each other. The success of the Marine Mobile Armored Cavalry unifying the Infantry, Armor and Aerospace assets into one hard hitting and fast moving team was one example. Elsewhere, allying Mecha and Special Operations teams proved highly successful. Now it is time to go further, bringing Mecha into the Marine Mobile Armored Cavalry (M-MAC) team as one more element in ensuring victory for the Federation’s ground forces at the lowest cost possible.

This thesis then will explore the role of Mecha and an exploration of whether or not it belongs in the M-MAC battle. We will look at the positive and negative aspects of deploying these vehicles in a Combined Arms operation. And in the end decide whether further implementation of “jointness” between Mecha and M-MAC is beneficial.

In my IN-30 thesis it was shown, that the Marine Infantry component of the Mobile Cavalry is a very heavy unit, from the squad to the division level, but it is still a foot slogging, walking to here and there fighting unit. The AR-30 thesis detailed the structure of the Marine Mobile Armored Cavalry units: Troops, Squadrons and Regiments,

integrating the flexibility of the Infantry with the fire power and speed of Armor, and the overhead protection of organic Aerospace assets. Finally in the SU-30 paper on logistical support for the Mobile Armored Cavalry Unit we found the way to supply and support the M-MAC unit with the use of *Pumas, LeJeunes* and *Gallipolis* class starships bringing reinforcements and re-supply to the units on the ground, a fine unified and self contained team. But can it be better?

All of these previous papers built on one another to show that the Combined Arms nature of SFMC operations is endemic to modern warfare, and must be addressed. By exploring Mecha operation within the M-MAC sphere we can decide whether this futher "jointness" is justified. Hence, this paper will be divided into four sections covering roles that the Mecha can be successfully used to complement the MAC unit: Scouts - using Light Mechas equipped with holoflage generators. Communications - using Comm Mechas escorted by a lance of Medium Mechas to increase the C3 capability of the MAC unit. Heavy Assault - using Heavy/Assault Mechas as shock troops, much like Hannibal's intended use of Elephants accompanying his traditional cavalry during the Punic Wars. And, Aeromecha – using the multiple capabilities of this unique Mecha to fulfill any or all of these roles, while distribution of forces is stretched thin. We would then close with a review of the four usages, extrapolation of other possible uses and a judgment on the relative merits of such a Combined Arms integration.

I. RECON MECHA

First: we will examine the role that light Mecha would have on Recon forward of the M-MAC unit. While taller than the standard Cav vehicle and not nearly as fast. The Recon Mecha trades off some speed and a lot of stealth for the ability to move across much more rugged terrain than the standard hover vehicle. This ability to move over rough to extremely rough terrain actually increases its speed ratio versus the standard Cav Recon vehicle. In addition, advances in power generation and heat sink technology allow light Mecha the ability to move up to 130 knots, much faster than is necessary while trying to sneak up on an enemy contact.

What this means that approach to contact speeds for either the Mecha or the Hover-vehicle are approximately the same, but the Mecha would not be able to escape from combat as well as their Anti-Grav brethren, yet there are positive tradeoffs. Due to the designs of the Recon Mecha, Evasion and Eluding hostile forces is actually easier, while the Mecha's Defensive capability is enhanced not only by design, but by form, as the Mecha is much more able to dodge incoming fire, or hide and crouch behind available terrain.

Finally the light Mecha is an extremely successful platform for Holoflage technology, where through many low-powered generators placed on a mesh around the Mecha, the entire machine can be made to blend into the environs, much like a chameleon does in

the underbrush. Sensors that can detect the holoflage signature are just as likely to detect the power plant of the Mecha or even that of the Hover vehicle. Downside to this though is that the moving Mecha under a Holoflage shroud will shimmer much in the same way as the Jem'Hader under shroud shimmer while moving.

II. C3 MECHA

Next: we will examine the role that Communications Mecha would have on the C3 of the M-MAC unit. C3: Command, Control and Communications really devolves onto that last function, communications. The Commander who can know where his troops are at the moment he needs to make a decision, will have the decisive advantage over his enemy. The Commander who can then relay those decisions in real time to his troops can defeat his enemy. The Commander who can get feedback in that same real time from his troops can annihilate his enemy. In this modern day battle environment with subspace communications and satellite feeds, the casual observer would not think that communications are a problem. This casual observer would be wrong, DEAD wrong. Communications can be jammed. Sub-space can be cluttered. Satellites can be spoofed or shot down. The only reliable combat communications are line of site and point-to-point comms. Laser Communications are arguably the most reliable and least susceptible to jamming. But this requires the aforementioned line of site. With a Communications Mecha, this line of site is not only doubled, because of the height of the Mecha, the effective communications horizon can extended from the 5 kilometers of Commander to Troop, to 120 kilometers from Commander to Mecha and ANOTHER

120 kilometers from the Mecha to the Troop. This is a 48-fold increase of the Control Range for the Commander. Multiple teams of Communications Mecha can extend this range even farther, and two Mecha's can "see" each other with Laser Communications even further than a Commander on the ground can see his Comm Mecha. The downside of this, is that Comm Mechas are valuable targets both for enemy Mechas, and Aerospace Assets, but also for conventional Armor and Infantry. Standard Procedure then would be to assign a guard lance of Medium Mechas, two standard Mecha to Mecha combat types, one Anti-Infantry type, and one Anti-Air type.

III. ASSAULT MECHA

Next: we will examine the role that Heavy and Assault Mecha would have on the Main Armor Battle within the M-MAC unit. The best analogy of their role takes in the philosophy that M-MAC is the modern cavalry. Fast moving, hard hitting, and able to screen much larger units with a smaller logistics tail, the M-MAC fulfills all the roles of traditional horse cavalry of earth's ancient to pre-modern (Napoleonic and American Civil-War) eras. Now imagine adding Elephants. Ridden and organized along the same lines as the Pony Cavalry. Imagine the elephants move as fast as the ponies. Imagine the elephants can actually move over even rougher terrain as the ponies. Now imagine them hitting the enemy, moving from behind the screen of the ponies at the most opportune time, to create maximum destruction and mayhem. This is the role of the Heavy and more importantly the Assault Mecha in the M-MAC battle.

The standard Heavy Mecha will carry three to five times the firepower of a single hover tank. A lance of these, represent the firepower of an entire company of tanks. A platoon of Mecha, the same as a Battalion. Fewer Pilots, fewer crew, even less support personnel. And a smaller Logistics tail, in total a lot more destruction, in a more concentrated package. Density of Military Strength.

An even more extreme example are the standard Assault Mecha, with from seven to twenty times the firepower of the hover tank. A lance of Assault Mechas can represent the focused and concentrated firepower of an entire battalion. Four of these behemoths moving through and across the battle line, can mean the turning of the battle decisively to a M-MAC Regiment, and focus and exploit breakthroughs.

The negative aspect of this tactic, is that a lot of firepower and resources are focused on a single, platform. Once that platform is neutralized or destroyed, the Lance is hobbled, and the MECHA contribution to the battle is negated. Resources are needed to protect the wounded Mecha, and the dedicated Logistics tail for the Mecha is now useless and usually unable to contribute to the overall battle until their “elephant” is back off its knees.

IV. AEROSPACE MECHA

Finally: we will examine the role Aerospace Mecha would have on the M-MAC battle, these are unique weapons platforms, and extremely versatile, in that they can convert

from an aerospace platform, into a walking Mecha platform, fulfilling two roles on the battlefield. Usually a large light Mecha, or small medium Mecha, the Aerospace Mecha, bring the battlefield commander flexibility, and during those times when SFMC resources are stretched thin, it gives a magnifier to the available troops. In addition the Aerospace Mecha's ability to exploit successes increases their battlefield worth, as they can convert to Aero form and pursue or harass enemy formations, or come to walking form to assist troops on the ground, with that much more firepower on station.

Contrary to this is that the Aerospace Mecha is a much more complex and fragile platform, those moving gears and converting equipment is one more thing to breakdown. In addition unlike standard Mecha, the Aerospace Mecha needs some form of reaction fuel to provide motive power while in Atmospheric Operations. Creating an additional logistical demand on the local command.

CLOSING

The Recon Mecha, the C3 Mecha, the Assault Mecha, and the Aerospace Mecha, will multiply the M-MAC's commanders power, options, and capability, and more designs can and should be researched to complement and magnify the already highly successful and powerful Marine Mobile Armored Cavalry Troops, Squadrons, and Regiments.

Future Research can and should continue on Combined Arms operations, which would explore full utilization of all of the SFMC assets as well as integration in the larger Starfleet team. In addition more combined operations will be conducted with friendly non-Federation powers such as the Klingon Empire, and the Gorn Alliance, this will bring into play their

unique weapons capabilities and their own branch-like divisions. This interplay needs to be examined and predicative analysis needs to be conducted.

Furthermore, an advanced Professional Development project exploring the possibility of another SFMC branch: The Maritime Operations Branch is apparently needed and will be worked on. Finally, more in depth analysis of Historical combat operations can only shed more light and increase understanding for the SFMC Officers.

In closing, we have shown that any weapons platform has advantages and disadvantages in nearly any battlefield situation. However integrating the Mecha with M-MAC units would appear to be a positive approach, which would will save friendly lives and property, and increase the power relative to non-integrated enemy forces. It is this author's suggestion then, that limited teams of Mecha conduct operations with first M-MAC Troops, and later Squadrons, and if further successful in the field, Mecha Teams be assigned to Puma and LeJeune class M-MAC transport vessels for deployment during combat operations in the future.

The GUIDEBOOK FOR MARINES: 18th Revised Edition, Nov. 2001

. . . By any standards, Marine training has always been -- and will remain -- tough, realistic, and extremely demanding, a level of training which, experience has proven, is essential to survival in combat. Among the Corps' unchanging priorities is the team concept. Marines fight and train as a team.

The fully integrated air-ground team is the core of the Marine battle ethic, using all weapons and firepower assets available to the combat Marine in a coordinated skillful combination of infantry, armor, anti-armor, artillery, and air power.

THESIS PROPOSAL

Gentlemen:

Please find below my simple proposal for my CA-60 Thesis. I apologize in advance that this thesis will be one of my shorter ones, as I am under a time crunch from my real life commitments.

Combined Arms 60
Thesis Proposal
by General Scott A. Akers

The role of MECHA in the Marine Mobile Armor Cavalry Battle

This thesis will explore the role of MECHA and an exploration of whether or not it belongs in the MAC battle. We will look at the positive and negative aspects of deploying these vehicles in a Combined Arms operation. The paper will be divided into three sections covering roles that the MECHA can be successfully used to complement the MAC unit: Scouts - using Light Mechas equipped with holoflage generators. Communications - using Comm Mechas escorted by a lance of Medium Mechas to increase the C3 capability of the MAC unit. And the Heavy Assault - using Heavy/Assault Mechas as shock troops, much like Hannibal's intended use of Elephants accompanying his traditional cavalry during the Punic Wars.
We would then close with a review of the three usages, extrapolation of other possible uses and a judgment on the relative merits of such a Combined Arms integration.

General Scott A. Akers

Proposal Outline

OPENING
- A. Introduction
  1. Anecdote
  2. Suggestion
  3. Thesis
- B. Reference to Previous Works
  1. IN-30
  2. AR-30
  3. SU-30
- C. Layout of Paper
  1. Recon
  2. C3
  3. Assault
  4. Aerosmecha

I. Recon
   A. Speed
   B. Defense
   C. Holoflage

II. C3
   A. Communications
   B. Control
   C. Command

III. Assault
   A. Elephants and Ponies
   B. Heavy Mechas
   C. Assault Mechas

IV. Aeromecha
   A. Versus traditional Aerospace
   B. In flight
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CLOSING
   A. Review of Paper
      1. Recon
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   B. Refer to Future Research
      1. Advanced CA
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      3. Advanced PD
   C. Conclusion
      1. Thesis-Decision
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APPENDICES
   1. Recon Mecha
   2. Commo Mecha
   3. Assault Mecha
   4. Aeromecha

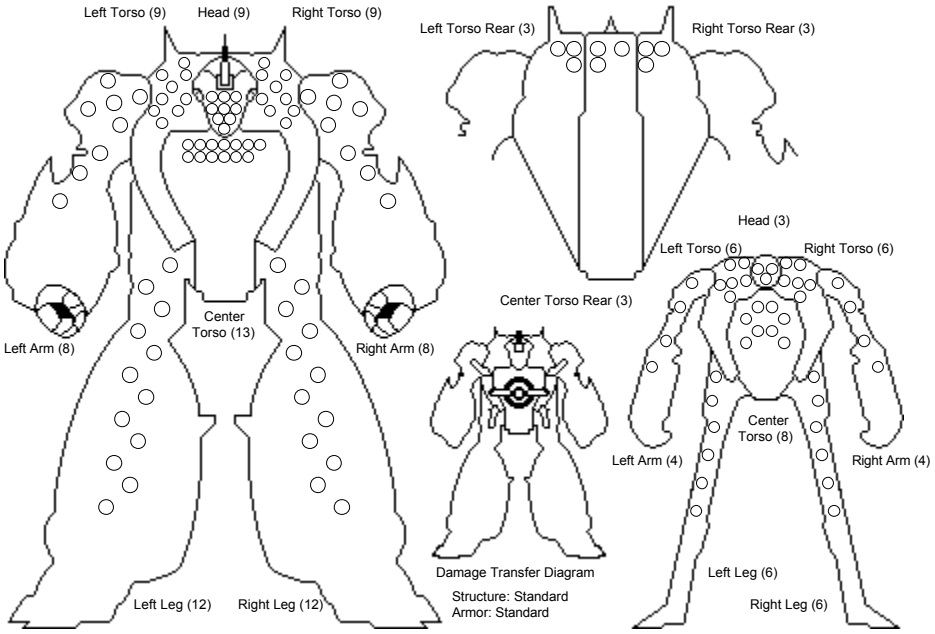
Appendix 1: see PR-MAC Prototype M-MAC Recon Mecha Record Sheet

Appendix 2: see PC3-MAC Prototype M-MAC C3 Mecha Record Sheet

Appendix 3: see PA-MAC Prototype M-MAC Assault Mecha Record Sheet

Appendix 4: see PAS-MAC Prototype M-MAC Aerospace Mecha Record Sheet

BattleTech Record Sheet - The Drawing Board - v2.0.7
Blackstone Interactive



PR-MAC Prototype M-MAC Recon

Tech Base: Mixed (IS Chassis) - Level 2
Mech Type: Biped
Tonnage: 25

Movement:
Walking: 8 [16]
Running: 12
Jumping: 0

Weapons and Equipment

#	Type	Loc
1	(C) ER Medium Laser	LA
1	(C) ER Medium Laser	RA

Max weapon heat: 10
Max heat dissipation: 20
Heat sink type: Double
OOOOOOOOOO

Pilot Name:
Gunnery: Piloting:

Hits Taken:

1st	2nd	3rd	4th	5th	6th
(3)	(5)	(7)	(10)	(11)	(Dead)

Weapon Range Data (hexes)

Weapon	BTH mod	Heat	Dam	Min	Short	Med	Long
(C) ER Medium Laser (x2)	-	5	7	-	5	10	15

Critical Hit Table

Left Arm
1. Shoulder
2. Upper Arm Actuator
3. Lower Arm Actuator
4. Hand Actuator
5. (C) ER Medium Laser
6. *Roll Again*

1. *Roll Again*
2. *Roll Again*
3. *Roll Again*
4. *Roll Again*
5. *Roll Again*
6. *Roll Again*

Left Torso
1. Double Heat Sink
2. Double Heat Sink
3. Double Heat Sink
4. *Roll Again*
5. *Roll Again*
6. *Roll Again*

1. *Roll Again*
2. *Roll Again*
3. *Roll Again*
4. *Roll Again*
5. *Roll Again*
6. *Roll Again*

Left Leg
1. Hip
2. Upper Leg Actuator
3. Lower Leg Actuator
4. Foot Actuator
5. *Roll Again*
6. *Roll Again*

Head
1. Life Support
2. Sensors
3. Cockpit
4. *Roll Again*
5. Sensors
6. Life Support

Center Torso
1. Engine
2. Engine
3. Engine
4. Gyro
5. Gyro
6. Gyro

1. Gyro
2. Engine
3. Engine
4. Engine
5. MASC
6. *Roll Again*

Engine hits: OOO
Gyro hits: OO
Sensor hits: OO
Life Support hits: O

Battle Value: 838
Cost: 2,252,916

Right Arm
1. Shoulder
2. Upper Arm Actuator
3. Lower Arm Actuator
4. Hand Actuator
5. (C) ER Medium Laser
6. *Roll Again*

1. *Roll Again*
2. *Roll Again*
3. *Roll Again*
4. *Roll Again*
5. *Roll Again*
6. *Roll Again*

Right Torso
1. Double Heat Sink
2. Double Heat Sink
3. Double Heat Sink
4. *Roll Again*
5. *Roll Again*
6. *Roll Again*

1. *Roll Again*
2. *Roll Again*
3. *Roll Again*
4. *Roll Again*
5. *Roll Again*
6. *Roll Again*

Right Leg
1. Hip
2. Upper Leg Actuator
3. Lower Leg Actuator
4. Foot Actuator
5. *Roll Again*
6. *Roll Again*

Heat Scale

_ [30] Shutdown
_ [29]
_ [28] Ammo Explosion, avoid on 8+
_ [27]
_ [26] Shutdown, avoid on 10+
_ [25] -5 Movement points
_ [24] +4 Modifier to fire
_ [23] Ammo explosion, avoid on 6+
_ [22] Shutdown, avoid on 8+
_ [21]
_ [20] -4 Movement points
_ [19] Ammo explosion, avoid on 4+
_ [18] Shutdown, avoid on 6+
_ [17] +3 Modifier to fire
_ [16]
_ [15] -3 Movement points
_ [14] Shutdown, avoid on 4+
_ [13] +2 Modifier to fire
_ [12]
_ [11]
_ [10] -2 Movement points
_ [09]
_ [08] +1 Modifier to fire
_ [07]
_ [06]
_ [05] -1 Movement points
_ [04]
_ [03]
_ [02]
_ [01]
_ [00]

BattleTech Record Sheet - The Drawing Board - v2.0.7
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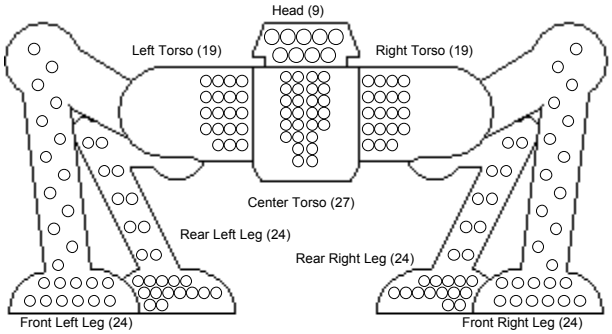
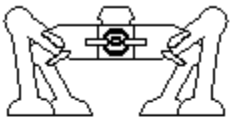
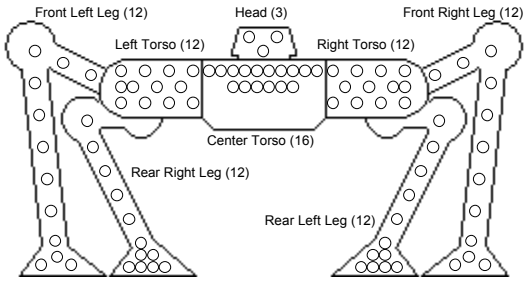
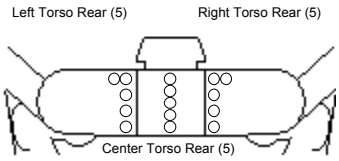




Armor: Standard
Structure: Standard





Weapon Range Data (hexes)

Weapon	BTH mod	Heat	Dam	Min	Short	Med	Long
(C) Medium Pulse Laser	-2	4	7	-	4	8	12
(C) Micro Pulse Laser (x4)	-	1	3	-	1	2	3

Critical Hit Table

Front Left Leg
1. Double Heat Sink
2. Double Heat Sink
3. Double Heat Sink
4. Foot Actuator
5. (C) Micro Pulse Laser
6. *Roll Again*

Left Torso
1. Double Heat Sink
2. Double Heat Sink
3. Double Heat Sink
4. (IS) C3 Computer
5. (IS) C3 Computer
6. (IS) C3 Computer

1. (IS) C3 Computer
2. (IS) C3 Computer
3. (IS) C3 Slave
4. (C) Medium Pulse Laser
5. *Roll Again*
6. *Roll Again*

Rear Left Leg
1. Hip
2. Upper Leg Actuator
3. Lower Leg Actuator
4. Foot Actuator
5. (C) Micro Pulse Laser
6. *Roll Again*

Head
1. Life Support
2. Sensors
3. Cockpit
4. Targeting Computer
5. Sensors
6. Life Support

Center Torso
1. Engine
2. Engine
3. Engine
4. Gyro
5. Gyro
6. Gyro

1. Gyro
2. Engine
3. Engine
4. Engine
5. (IS) C3i Computer
6. (IS) C3i Computer

Engine hits: OOO
Gyro hits: OO
Sensor hits: OO
Life Support hits: O

Front Right Leg
1. Hip
2. Upper Leg Actuator
3. Lower Leg Actuator
4. Foot Actuator
5. (C) Micro Pulse Laser
6. *Roll Again*

Right Torso
1. MASC
2. MASC
3. MASC
4. Double Heat Sink
5. Double Heat Sink
6. Double Heat Sink

1. (IS) Beagle Active Probe
2. (IS) Beagle Active Probe
3. (IS) Guardian ECM Suite
4. (IS) Guardian ECM Suite
5. *Roll Again*
6. *Roll Again*

Rear Right Leg
1. Hip
2. Upper Leg Actuator
3. Lower Leg Actuator
4. Foot Actuator
5. (C) Micro Pulse Laser
6. *Roll Again*

Battle Value: 978
Cost: 8,392,000

PC3-MAC Prototype M-MAC C3

Tech Base: Mixed (IS Chassis) - Level 2
Mech Type: Quad
Tonnage: 50

Movement:
Walking: 4 [8]
Running: 6
Jumping: 0

Weapons and Equipment

#	Type	Loc
1	(C) Micro Pulse Laser	LA
1	(IS) C3 Computer	LT
1	(IS) C3 Slave	LT
1	(C) Medium Pulse Laser	LT
1	(C) Micro Pulse Laser	LL
1	(C) Micro Pulse Laser	RL
1	(IS) Beagle Active Probe	RT
1	(IS) Guardian ECM Suite	RT
1	(C) Micro Pulse Laser	RA
1	(IS) C3i Computer	CT
	(C) Targeting Computer	H

Max weapon heat: 8
Max heat dissipation: 20
Heat sink type: Double
OOOOOOOOOO

Pilot Name:
Gunnery: Piloting:

Hits Taken:

1st	2nd	3rd	4th	5th	6th
(3)	(5)	(7)	(10)	(11)	(Dead)

Heat Scale

_ [30] Shutdown
_ [29]
_ [28] Ammo Explosion, avoid on 8+
_ [27]
_ [26] Shutdown, avoid on 10+
_ [25] -5 Movement points
_ [24] +4 Modifier to fire
_ [23] Ammo explosion, avoid on 6+
_ [22] Shutdown, avoid on 8+
_ [21]
_ [20] -4 Movement points
_ [19] Ammo explosion, avoid on 4+
_ [18] Shutdown, avoid on 6+
_ [17] +3 Modifier to fire
_ [16]
_ [15] -3 Movement points
_ [14] Shutdown, avoid on 4+
_ [13] +2 Modifier to fire
_ [12]
_ [11]
_ [10] -2 Movement points
_ [09]
_ [08] +1 Modifier to fire
_ [07]
_ [06]
_ [05] -1 Movement points
_ [04]
_ [03]
_ [02]
_ [01]
_ [00]

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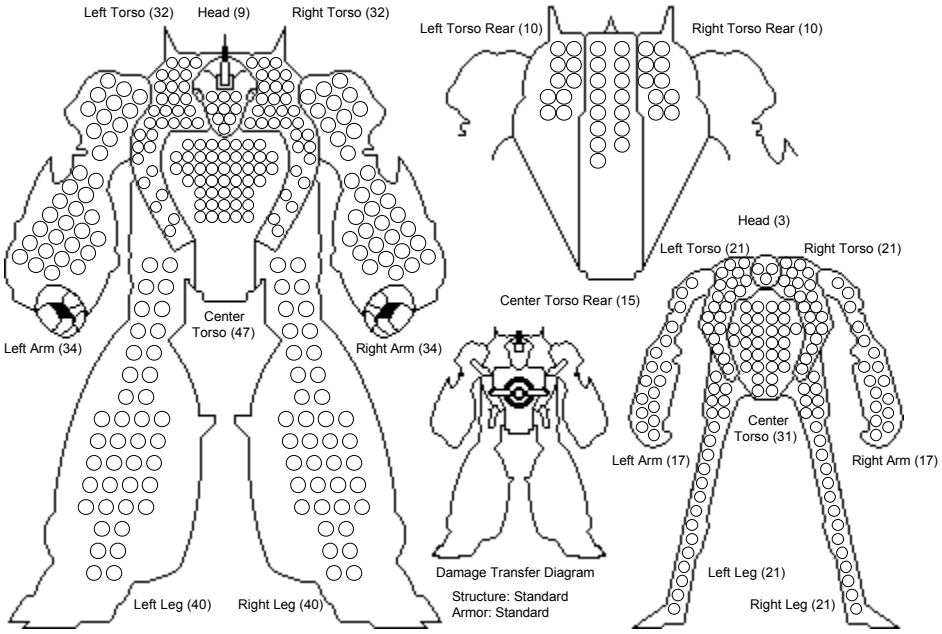


PA-MAC Prototype M-MAC Assault

Tech Base: Mixed (IS Chassis) - Level 2
Mech Type: Biped
Tonnage: 100

Movement:
Walking: 3 [6]
Running: 5
Jumping: 0

Weapons and Equipment

#	Type	Loc
1	(C) Gauss Rifle	LA
4	(IS) ER Medium Laser	LT
1	(C) Ultra AC/2	LT
2	(IS) ER PPC	RA

Ammo

Gauss Rifle Ammo (16)
Ultra AC/2 Ammo (90)

Max weapon heat: 52
Max heat dissipation: 24
Heat sink type: Double
OOOOOOOOOO
OO

Pilot Name:
Gunnery: Piloting:

Hits Taken:

1st	2nd	3rd	4th	5th	6th
(3)	(5)	(7)	(10)	(11)	(Dead)

Weapon Range Data (hexes)

Weapon	BTH mod	Heat	Dam	Min	Short	Med	Long
(IS) ER Medium Laser (x4)	-	5	5	-	4	8	12
(IS) ER PPC (x2)	-	15	10	-	7	14	23
(C) Gauss Rifle	-	1	15	2	7	15	22
(C) Ultra AC/2	-	1	2	2	9	18	27

Critical Hit Table

Left Arm
1. Shoulder
2. Upper Arm Actuator
3. Lower Arm Actuator
4. Hand Actuator
5. (C) Gauss Rifle
6. (C) Gauss Rifle

1. (C) Gauss Rifle
2. (C) Gauss Rifle
3. (C) Gauss Rifle
4. (C) Gauss Rifle
5. @Gauss Rifle (8)
6. @Gauss Rifle (8)

Left Torso
1. (IS) ER Medium Laser
2. (IS) ER Medium Laser
3. (IS) ER Medium Laser
4. (IS) ER Medium Laser
5. (C) Ultra AC/2
6. (C) Ultra AC/2

1. @Ultra AC/2 (45)
2. @Ultra AC/2 (45)
3. *Roll Again*
4. *Roll Again*
5. *Roll Again*
6. *Roll Again*

Left Leg
1. Hip
2. Upper Leg Actuator
3. Lower Leg Actuator
4. Foot Actuator
5. *Roll Again*
6. *Roll Again*

Head
1. Life Support
2. Sensors
3. Cockpit
4. *Roll Again*
5. Sensors
6. Life Support

Center Torso
1. Engine
2. Engine
3. Engine
4. Gyro
5. Gyro
6. Gyro

1. Gyro
2. Engine
3. Engine
4. Engine
5. *Roll Again*
6. *Roll Again*

Engine hits: OOO
Gyro hits: OO
Sensor hits: OO
Life Support hits: O

Battle Value: 1803
Cost: 13,704,000

Right Arm
1. Shoulder
2. Upper Arm Actuator
3. Lower Arm Actuator
4. Hand Actuator
5. (IS) ER PPC
6. (IS) ER PPC

1. (IS) ER PPC
2. (IS) ER PPC
3. (IS) ER PPC
4. (IS) ER PPC
5. *Roll Again*
6. *Roll Again*

Right Torso
1. MASC
2. MASC
3. MASC
4. MASC
5. MASC
6. *Roll Again*

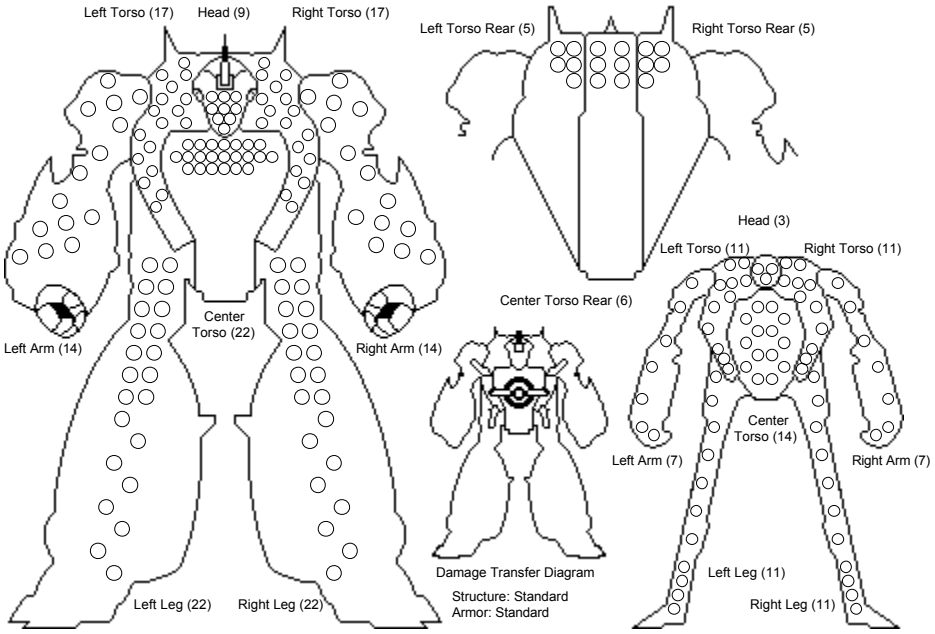
1. *Roll Again*
2. *Roll Again*
3. *Roll Again*
4. *Roll Again*
5. *Roll Again*
6. *Roll Again*

Right Leg
1. Hip
2. Upper Leg Actuator
3. Lower Leg Actuator
4. Foot Actuator
5. *Roll Again*
6. *Roll Again*

Heat Scale

_ [30] Shutdown
_ [29]
_ [28] Ammo Explosion, avoid on 8+
_ [27]
_ [26] Shutdown, avoid on 10+
_ [25] -5 Movement points
_ [24] +4 Modifier to fire
_ [23] Ammo explosion, avoid on 6+
_ [22] Shutdown, avoid on 8+
_ [21]
_ [20] -4 Movement points
_ [19] Ammo explosion, avoid on 4+
_ [18] Shutdown, avoid on 6+
_ [17] +3 Modifier to fire
_ [16]
_ [15] -3 Movement points
_ [14] Shutdown, avoid on 4+
_ [13] +2 Modifier to fire
_ [12]
_ [11]
_ [10] -2 Movement points
_ [09]
_ [08] +1 Modifier to fire
_ [07]
_ [06]
_ [05] -1 Movement points
_ [04]
_ [03]
_ [02]
_ [01]
_ [00]

BattleTech Record Sheet - The Drawing Board - v2.0.7
Blackstone Interactive



Weapon Range Data (hexes)

Weapon	BTH mod	Heat	Dam	Min	Short	Med	Long
(C) ER PPC	-	15	15	-	7	14	23
(C) Heavy Machine Gun (x2)	-	0	3	-	1	2	-

Critical Hit Table

Left Arm
1. Shoulder
2. Upper Arm Actuator
3. Lower Arm Actuator
4. Hand Actuator
5. *Roll Again*
6. *Roll Again*

1. *Roll Again*
2. *Roll Again*
3. *Roll Again*
4. *Roll Again*
5. *Roll Again*
6. *Roll Again*

Left Torso
1. @Heavy MG (100)
2. MASC
3. MASC
4. *Roll Again*
5. *Roll Again*
6. *Roll Again*

1. *Roll Again*
2. *Roll Again*
3. *Roll Again*
4. *Roll Again*
5. *Roll Again*
6. *Roll Again*

Left Leg
1. Hip
2. Upper Leg Actuator
3. Lower Leg Actuator
4. Foot Actuator
5. *Roll Again*
6. *Roll Again*

Head
1. Life Support
2. Sensors
3. Cockpit
4. *Roll Again*
5. Sensors
6. Life Support

Center Torso
1. Engine
2. Engine
3. Engine
4. Gyro
5. Gyro
6. Gyro

1. Gyro
2. Engine
3. Engine
4. Engine
5. (C) Heavy Machine Gun
6. (C) Heavy Machine Gun

Engine hits: OOO
Gyro hits: OO
Sensor hits: OO
Life Support hits: O

Battle Value: 1230
Cost: 5,439,675

Right Arm
1. Shoulder
2. Upper Arm Actuator
3. Lower Arm Actuator
4. Hand Actuator
5. (C) ER PPC
6. (C) ER PPC

1. *Roll Again*
2. *Roll Again*
3. *Roll Again*
4. *Roll Again*
5. *Roll Again*
6. *Roll Again*

Right Torso
1. Double Heat Sink
2. Double Heat Sink
3. Double Heat Sink
4. *Roll Again*
5. *Roll Again*
6. *Roll Again*

1. *Roll Again*
2. *Roll Again*
3. *Roll Again*
4. *Roll Again*
5. *Roll Again*
6. *Roll Again*

Right Leg
1. Hip
2. Upper Leg Actuator
3. Lower Leg Actuator
4. Foot Actuator
5. *Roll Again*
6. *Roll Again*

PAS-MAC Prototype M-MAC Aerospace

Tech Base: Mixed (IS Chassis) - Level 2
Mech Type: Biped (LAM)
Tonnage: 45

Movement:
Walking: 5 [10]
Running: 8
Jumping: 0

Weapons and Equipment

#	Type	Loc
1	(C) ER PPC	RA
2	(C) Heavy Machine Gun	CT

Ammo

Heavy Machine Gun Ammo (100)

Max weapon heat: 15
Max heat dissipation: 20
Heat sink type: Double
OOOOOOOOOO

Pilot Name:
Gunnery: Piloting:

Hits Taken:

1st	2nd	3rd	4th	5th	6th
(3)	(5)	(7)	(10)	(11)	(Dead)

Heat Scale

_ [30] Shutdown
_ [29]
_ [28] Ammo Explosion, avoid on 8+
_ [27]
_ [26] Shutdown, avoid on 10+
_ [25] -5 Movement points
_ [24] +4 Modifier to fire
_ [23] Ammo explosion, avoid on 6+
_ [22] Shutdown, avoid on 8+
_ [21]
_ [20] -4 Movement points
_ [19] Ammo explosion, avoid on 4+
_ [18] Shutdown, avoid on 6+
_ [17] +3 Modifier to fire
_ [16]
_ [15] -3 Movement points
_ [14] Shutdown, avoid on 4+
_ [13] +2 Modifier to fire
_ [12]
_ [11]
_ [10] -2 Movement points
_ [09]
_ [08] +1 Modifier to fire
_ [07]
_ [06]
_ [05] -1 Movement points
_ [04]
_ [03]
_ [02]
_ [01]
_ [00]