

COMMANDER'S FIELD MANUAL

COMPLETE GAME GUIDE / ILLUSTRATED FACTION REFERENCE SHEETS

29 pages / v0.1.10 / October 2026

Contents

COMMANDER'S INDEX / 0 ENTRIES ON THIS SHEET

Command, factions & battlefield handbook 3
Superweapons: three doctrines 6
ADC / Buildings & defences 7
ADC / All units 8
ESD / Buildings & defences 9
ESD / All units 10
MLF / Buildings & defences 11
MLF / All units 12
Field kits & defence upgrades 13
Neutral structures & battlefield assets 14
All factions / Research catalogue 15
Weapons, armour & command powers 23
Maps, conditions & complete controls 28

FIND ANY ENTRY

Use the contents and PDF bookmarks to jump between faction sheets. Search by name in the PDF or the offline reader. In the reader, expand an entry to inspect its complete statistics, orders, requirements and research links without adding pages.

Command, factions & battlefield handbook

COMMANDER'S GUIDE / 11 ENTRIES ON THIS SHEET

Take command.

Your orders: Strike Order is a modern military real-time strategy game. Construct a base, gather credits, train units and research upgrades. Combine reconnaissance, infantry, armour and support weapons to overcome the enemy. Campaign objectives and the selected skirmish victory rule determine how each battle is won.

Start here: New commanders should begin with TUTORIAL on the main menu. For a self-contained battle, choose SKIRMISH. CAMPAIGN opens the story campaigns and mission briefings. The ARMOURY lets you inspect units, structures and doctrine before deploying.

Using this manual: The opening chapters teach command. The full reference then covers all three factions, every building and unit definition, every research purchase, strategic weapons, naval operations, doctrine, field kits, base weapons and controls. Use search, contents, links or the alphabetical index. Figures are base values before battle modifiers.

FIELD NOTE / COMMAND PRINCIPLE / Scout first. Protect supply. Keep a reserve.

Installation guide

01 Prepare your PC: Use the Windows x64 setup supplied with this build. Close Strike Order before installing or updating. Setup checks available disk space; the Windows drive also needs space for temporary installation files. Hardware minimums are still being established for this development edition.

02 Choose a location: Open Strike Order Setup and select INSTALL GAME. Choose a folder or drive, check the available space, and decide whether to create a desktop shortcut. A Start menu shortcut is included. Select INSTALL STRIKE ORDER and keep setup open until it finishes.

03 Read, then deploy: The STRIKE ORDER MANUAL button in setup opens this guide before, during or after installation. On completion, choose LAUNCH GAME. You can also open the game later from its desktop or Start menu shortcut. The main menu's MANUAL entry returns here.

Updates and removal: Setup recognises an existing installation and updates that copy. If its drive is disconnected, reconnect it first. Saves, custom maps and settings are stored separately in %APPDATA%/Strike Order and are kept during updates and uninstall. Use Windows Installed apps to remove the game.

FIELD NOTE / OFFLINE ACCESS / The reader and PDF are included with the game and setup. No internet connection is needed to read them.

Your first skirmish

Choose the battlefield: Open SKIRMISH. Select a map and your army, then configure the AI opponents, teams, starting positions and difficulty. Review starting credits, fog, game speed and the victory condition. For your first match, use one AI opponent and a smaller map.

Establish supply: Locate nearby supply and build the structures needed to collect it. ADC and ESD bases also need power. MLF structures operate off-grid. Keep builders working and leave clear routes for supply vehicles.

Build a balanced force: Train an initial infantry screen, then add vehicles and support. Send a small reconnaissance force ahead of the main army. Protect supply vehicles, builders and production structures: replacements need time as well as credits.

Advance with purpose: Use attack move when pushing through uncertain ground. Bring anti-air cover when aircraft threaten your force. Reinforce a successful attack, but retain units to defend your own base. Check the chosen victory rule rather than assuming every match ends the same way.

FIELD NOTE / TRAINING ORDER / Play the interactive tutorial for guided practice with selection, construction and combat.

Read the battlefield



Read the battlefield / continued

1 Status and objectives: Watch credits, power and mission objectives. A power shortage can undermine an otherwise strong base. Read objective updates and radio messages as the operation changes.

2 Radar and battlefield: Use the radar to track the wider battle and move your view. Fog limits your information: a quiet area is not necessarily safe. Scouts and detection units reveal what your main force cannot see.

3 Sidebar and command bar: Selection determines available construction, production, research and orders. The sidebar's SPECIALS contains research and abilities. The command bar includes orders for selected units, with a SHORTCUTS strip showing relevant keys.

FIELD NOTE / MAKE ROOM / F9 changes the sidebar state. F10 changes the command bar. End folds the shortcuts strip. These keys can be rebound.

Essential controls

INPUT	ORDER
Left-click / drag	Select one unit or box-select a force
Right-click	Give a context order: move, attack or interact
W A S D / arrow keys	Pan the camera
Q / E	Rotate the camera
Mouse wheel / Home	Zoom / reset the camera
R, then click	Attack move
Z / H / G	Stop / hold position / guard area
F / X	Cycle formation / scatter
Shift + order	Queue orders
Ctrl + number / number	Assign / select a control group
; (semicolon)	Select an idle builder or drone hub
Space / Backspace	Jump to last alert / centre on base
F5 / F4	Quick save / load newest quick save
Escape / F11	Game menu or cancel / fullscreen

FIELD NOTE / CHECK THE CONTEXT / A selected builder, infantry unit and vehicle can offer different actions. Hover a command to read its current shortcut.

Save, return & recover

Saved battles: Use the in-game save interface to keep a battle for later. F5 makes a quick save; the newest three quick saves are kept. F4 requests a load of the latest quick save. LOAD GAME on the main menu opens saved battles. Campaign progress is also retained between sessions.

Settings and accessibility: Settings contains graphics, audio, gameplay, controls and accessibility options. Adjust the interface to a readable size and rebind controls to suit your keyboard. If performance drops, try lower graphics settings or a smaller skirmish with fewer opponents.

Moving between editions: The desktop game and browser edition use separate storage. Export saves and custom maps from the browser and import them into the desktop game when moving across. Back up important exported files somewhere you can find again.

If something goes wrong: For installation failures, read setup's message, check free space and confirm that the game is closed. Reconnect the installation drive if it is unavailable. After a game crash, restart and load a recent save. When reporting a problem, include the build version, mission or map, and what happened immediately beforehand.

FIELD NOTE / BEFORE YOU EXIT / Save your battle. Exit from the game menu or use Alt+F4. Your manual remains available in the installation folder.

Before the next order

Observe: Where is the enemy? What can your scouts actually see? Are there concealed threats, exposed flanks or a new objective?

Sustain: Is supply flowing? Is power sufficient? Are builders idle, production queues empty or damaged structures waiting for repair?

Prepare: Does your force have a screen, support and an answer to enemy aircraft? Have you protected the route home and saved before a major commitment?

Act: Choose a clear objective. Give the order, watch the response and reinforce only while the attack still has a purpose. Be ready to withdraw and regroup.

FIELD NOTE / STRIKE ORDER / BUILD. ORDER. ATTACK. / Preseli Games

American Defence Command



Operational identity: A high-technology expeditionary force built around reconnaissance, durable units and precise strikes. ADC has extensive research, advanced aircraft and directed-energy upgrades. Its expensive forces reward careful preservation.

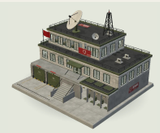
Build and sustain: Armoured Dozers construct the base. Keep your power grid healthy and protect your supply. The Technology Centre and Supply Air Pad provide additional economic options as the base develops.

Command advice: Find the enemy before committing. Combine a protected ground force with air support and sensors. Research the detection and weapon upgrades that solve the threat in front of you.

Signature equipment: Armoured Dozer / Spectre Operator / Sentinel MBT / Halberd Missile Carrier / Kestrel Attack Helicopter / Wraith UCAV / Ground Sonar Array / Cruise Missile Battery

FIELD NOTE / DOCTRINE / See first. Preserve your force. Strike the decisive target.

Eastern Strategic Directorate



Operational identity: The Directorate fields heavy tanks, rocket artillery and strong air defence. Satellite-linked reconnaissance helps uncover concealed enemies. Its strength depends on keeping an industrial base and power network working under pressure.

Build and sustain: Construction drones deploy from the Command HQ and Drone Hives. Multiple drones can work on a site; the size of the structure limits the crew. Protect them from enemy fire. Hackers and state-revenue research add economic options.

Command advice: Build a protected core of armour, anti-air and artillery. Maintain power and use reconnaissance to choose where that force advances. A strong battle line still needs its flanks and supply routes defended.

Signature equipment: Gongfeng Construction Drone / Hacker / Hacker Den / Kaishan Heavy Tank / Liuxing Rocket Artillery / Yunqiang Heavy SAM / Thermal Power Plant / Fortress Howitzer / Nuclear Bomb

FIELD NOTE / DOCTRINE / Sustain the grid. Cover the armour. Advance with support.

Maldan Liberation Front



Command, factions & battlefield handbook

COMMANDER'S GUIDE / 10 ENTRIES ON THIS SHEET

Maldan Liberation Front / continued

Operational identity: The Front combines fighters, defectors, miners and engineers. Its bases operate without power plants. Cheap, fast units, concealed structures, underground movement and toxin weapons support attacks from unexpected directions.

Build and sustain: Workers construct and repair the base; several can work together. They can also recover credits from scrap. MLF has no aircraft, so ground reconnaissance, positioning and air defence are especially important.

Command advice: Pressure exposed supply and isolated targets. Use camouflage and underground routes to create uncertainty, but remember that enemy detection can uncover hidden positions. Avoid trading your whole force in a single unsupported frontal attack.

Signature equipment: Worker / Saboteur / Tank Hunter / Gun Technical / Longfang Missile Launcher / Listening Post / Black Market / Toxin Silo

FIELD NOTE / DOCTRINE / Conceal your position. Disrupt supply. Choose when to fight.

Build the war effort

Construction teams: ADC uses Armoured Dozers. ESD sends construction drones from its Command HQ and Drone Hives. MLF Workers can work together on a site. Select a building card, choose a valid location and confirm placement. Keep construction crews protected while the structure is going up.

Supply and power: Supply collection funds new units and structures. Secure routes between the resource and the collection point. ADC and ESD must support demand with power generation; MLF does not use a power grid. Check the top bar before expanding production.

Production and research: Select a production structure to train the units it offers. Research appears in SPECIALS. Locked cards explain their prerequisites, which can include another structure, earlier research or a higher Command Centre level. Spend on the upgrades your present force will use.

Keep the base working: Repair damaged structures, replace lost builders and protect the approach to your supply. Expansion should bring income or a useful position. A distant outpost without support can become an expensive distraction.

FIELD NOTE / LOGISTICS CHECK / Before ordering another tank, check income, power, production queues and the defence of your supply route.

Fight as a combined force

Reconnaissance and detection: Scout the approach before sending valuable units forward. Camouflage and underground movement can conceal enemies. Use your faction's detection tools, and check their research requirements in the Armoury.

Infantry, armour and support: Use infantry to screen and secure positions, armour to push and absorb fire, and support weapons to answer specific threats. Protect artillery from close attacks. Keep anti-air units near forces that enemy aircraft can reach.

Terrain and crossings: High ground improves battlefield awareness and can help in a firefight. Ramps and bridges concentrate movement. Heavy explosives can destroy bridges; engineers and builders can rebuild fallen crossings. Clear your own troops from a bridge before demolishing it.

Orders matter: Attack move lets a force engage along its route. Hold position keeps a unit in place. Guard and Protect help defend an area or friendly asset. Queue orders to plan movement, and use formations or scatter when the terrain or enemy weapons demand it.

FIELD NOTE / FIELD WARNING / On maps with active railways, approaching trains are announced. Move units off the tracks when the warning sounds.

Research & command

Command Centre levels: Command Centre progression unlocks higher ranks of research and access to advanced capabilities. Level 3 requires earlier progression, your technology structure and the faction's command doctrine research. Read locked cards for the exact requirements.

Skills and doctrine: Command Centre skill tracks improve areas such as durability, defence, weapon reload and production. Doctrine offers additional strategic choices. Use the in-game cards to compare effects, requirements and costs before spending.

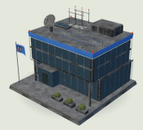
Strategic weapons: Strategic weapons are late-game investments. Skirmish rules can disable them, and campaign missions may restrict them. Once available, monitor readiness and choose targets that justify the commitment. Defend the installation while it prepares.

Research & command / continued

The living reference: This complete manual includes every current unit, structure, research upgrade, doctrine power and base weapon definition. Follow its linked requirements to plan an unlock. ARMOURY adds live models, while battle tooltips and panels show active modifications for the installed build.

FIELD NOTE / RESEARCH PRIORITY / Choose upgrades for a purpose: surviving a threat, unlocking a response or strengthening your main force.

Build a technology plan



A practical build order: Establish your Command Centre and construction capability, secure supply, support power demand where required, then add production and reconnaissance. Choose the next production structure for a threat you have identified. Defend what you have before extending the supply route.

Levels, tiers and ranks: Command Centre Level is your headquarters progression. Unit and building tiers describe technology gates. A research track's rank I, II or III is a separate purchase within that track. These are different systems: researching one rank does not automatically raise the Command Centre level.

Unlock the advanced roster: The faction technology structure supports further research. Strategic Authorisation, Heavy Industry Mandate and Black Market Contracts are the respective advanced-unit unlocks, with their own Command Centre requirements. Some units additionally require Command Centre Level 3. Each catalogue entry lists the exact requirements generated by the game's unlock graph.

Research where it matters: Select the relevant structure and open SPECIALS. The complete research catalogue groups every upgrade by its research location and states its price, time, requirements and effect. Ranked-track descriptions state the whole effect of the highest rank: do not add every previous rank to it.

FIELD NOTE / DECISION / Buy the prerequisite that unlocks your response, then budget for the unit itself.

Supply, power & expansion



Supply lines: Supply vehicles collect from map supply zones and return to a Supply Hub. Keep the crane, loading bay and hub approach clear. Zones can deplete; the chosen skirmish rules control supply amounts and regrowth. A truck travelling a long route spends more time away from the economy than one collecting nearby.

Faction income: ADC Technology Centres sell data and Supply Air Pads receive deliveries. ESD Hackers earn online, steal from enemy Supply Hubs or improve friendly hub deliveries. MLF Black Markets attract a smuggler delivery. Couriers are physical targets: a delivery can be lost before reaching its destination. Each relevant structure and courier has its own reference entry.

Power and emergency support: ADC and ESD structures can consume power; MLF operates off-grid. Watch demand when adding defences or strategic weapons. Power technologies, advanced plants and support units offer different solutions. Read a power plant's destruction warning before clustering valuable units beside it.

Coastal expansion: The ADC ocean structures and Naval Oil Collector provide a distinct offshore economy. Suitable deep water and exploration are required. Naval yards need an appropriate shoreline and deep water in front. Guard collectors and the water approaches with escorts; an offshore economy still needs defence.

FIELD NOTE / ROUTE CHECK / A new resource is useful only if your collectors can reach it, return and survive.

Take the controls



Enter and return: Select an eligible unit and use TAKE CONTROL or its bound key. The camera moves to that unit and mouse input aims its weapons. Use the interface's displayed prompts; the RTS key layout and direct-control layout perform different jobs. Escape returns to command view.

Infantry and vehicles: WASD moves the controlled unit. Infantry can sprint with Shift and crouch with C; sprinting uses stamina. The left mouse button fires and holding the right button steadies the aim. Vehicles build speed and turning momentum; Space brakes. Tracked vehicles can pivot, while wheeled vehicles need movement to steer effectively.

Work by hand: A controlled builder can work on a nearby site or repair a structure, and a controlled supply truck can load or unload. Approach within working reach, slow down, face the task and hold the action shown by the crosshair. Construction mode and direct work do not make the rest of your economy self-managing.

Aircraft, boats and missile rides: Direct flight, boat steering and submarine controls use the relevant vehicle HUD. Aircraft still need fuel, service and clear approaches. Missile Ride attaches to eligible friendly strikes and can guide supported terminal flight; it does not create another strategic weapon. Check active prompts rather than assuming ground controls apply unchanged.

FIELD NOTE / COMMAND BALANCE / The wider battle continues to need orders while you concentrate on one unit.

Modes, missions & creation

Campaign and tutorial: Campaign opens faction stories, theatre maps, briefings and mission objectives. Missions can limit the units available, script reinforcements or change victory conditions. Follow the briefing and objective updates. Tutorial provides guided practice; a campaign catalogue entry does not guarantee every unit can be built in every mission.

Skirmish rules: Skirmish lets you choose armies, AI difficulty and style, teams, colours and starts. Review victory conditions, credits, supply amount and regrowth, speed, fog, crates, capture rules, trains, starting force and strategic weapons. Team settings make allies; they change which forces you can safely treat as friendly.

Editors and Armoury: MAP EDITOR creates battlefields. MISSION STUDIO authors campaigns, cinematic events and mission content. ARMOURY previews current units, structures and doctrines with live models. This manual supplies the full offline reference; active in-game cards show modifications and availability in the battle you are actually playing.

Availability and version: The multiplayer menu is currently marked Coming soon. Do not assume online or LAN play is available in this development build. This guide includes automatic support and alternate definitions for recognition and completeness, clearly labelled separately from normal production.

FIELD NOTE / REFERENCE BASIS / Catalogue figures are base values for the edition on the cover. Research, doctrine, experience, weather, terrain and mission scripting can change the result.

Infantry & specialists



Screens and counters: Rifle infantry screens against hostile infantry. Anti-tank teams threaten armour but need protection from riflemen and snipers. Anti-air troops add mobile air cover. Medic, engineer and hacker units perform support work; sending them alone into a fight wastes their role.

Snipers: Snipers have faction-specific special shots, selectable fire stances, stationary or sneaking camouflage and Ghillie research. An ADC sniper marks a target, an ESD sniper uses an EMP round, and an MLF sniper can remove vehicle crews. Consult each unit's entry for the actual special ability. Detection rules for snipers are stricter than ordinary stealth detection.

Command, factions & battlefield handbook

COMMANDER'S GUIDE / 8 ENTRIES ON THIS SHEET

Infantry & specialists / continued

Garrison and transport: Eligible infantry can enter suitable buildings and transports. Passenger firing ports are a property of the vehicle: a transport seat does not guarantee a firing port. Unload from the command bar or passenger panel. Protect the vehicle while boarding, since soldiers approach its doors and need time to enter.

Veteran crews: Eligible tanks have crew places. An ordinary soldier can garrison a tank; a higher-ranked veteran joining it is consumed and permanently promotes the tank to that rank. The catalogue flags eligible tanks. Do not board a valuable specialist without considering whether the crew transfer will use it up.

FIELD NOTE / SPECIALIST RULE / Protect the unit that answers a threat; it does not have to lead the attack.

Armour, artillery & salvage



Facing and movement: Direct hits on ground vehicles do more damage from the side and rear than the front. Use Reverse when withdrawing under direct fire to retain the facing you want. A rushed move is faster but makes moving fire inaccurate; do not treat speed as a free accuracy bonus.

Artillery deployment: Indirect weapons reach positions that direct-fire units cannot engage safely, but often have a minimum range or require deployment. Protect them against raiders, aircraft and counter-battery fire. Attack-ground orders can bombard a position without an exposed enemy target; heavy explosives can also deny bridges.

Crushing and obstacles: Heavy tanks can crush eligible light vehicles at speed. Super-heavies can also crush medium vehicles and stronger obstacles. Walls differ: the heaviest wall classes require missile or rocket damage. Check the wall entry instead of assuming a larger cannon will eventually break it.

Field kits and recovered scrap: Special tanks can buy sensor, weapon and armour attachments. Specialist infantry have their own equipment. Sensor alternatives replace one another, so long view and deep detection are different choices. Eligible MLF salvage vehicles improve through recovered wreck crates; Goliath uses a separate rank-based gun and plate progression.

FIELD NOTE / FORCE PACKAGE / Bring reconnaissance, air defence and repair support with the armour.

Run an air operation



Airbases and servicing: Train aircraft at a compatible airfield. Aircraft use stands, hangar space and runway or helipad routes. Right-click a service base to send an aircraft home. Fuel, ammunition and damage can force another service cycle. The runway and compact airfield layouts have separate catalogue entries describing their arrangements.

Aircraft roles: Helicopters hover and strafe. Recon drones provide information; detection research can change what they reveal. Fighters and interceptors protect the sky, strike jets attack ground targets, and heavy bombers deliver large payloads with their own runway and capacity restrictions. A stealth-shaped model is not by itself a gameplay camouflage flag.

Air defence and evasion: Weapons have explicit air-target rules: some reach only low aircraft, some engage all aircraft, and some are ground-only. SAMs, flak, missiles and gunfire behave differently. Flares and Evasive Manoeuvres improve survivability but do not make an aircraft immune. Read both the weapon and aircraft entries.

Weather, carriers and lifts: Adverse weather can recall and ground aircraft, with aircraft powers delayed until conditions permit. Carriers service only compatible aircraft and have limited deck and hangar places. Transport helicopters carry eligible infantry; a cargo hook lifts a vehicle only within its weight limit. MLF delivery aircraft are automatic support, not a trainable MLF air force.

FIELD NOTE / AIR TASKING / Scout the target, check hostile air defence and the forecast, then preserve a route back to service.

Control the water



Yards and deep water: Place a Naval Yard with its rear on land and its front facing deep water. A boat needs a connected navigable route, not just a visible water texture. Shallow crossings can permit ground movement while still restricting a ship. Currents change a boat's travel pace; use the flow display when planning a route.

Build an escort group: Patrol boats threaten light targets and shore infantry. Missile boats add heavier anti-ship weapons and sonar. ADC cruisers provide long-range shore fire; escort frigates cover specialised threats. Carriers need escorts because their defensive weapons do not make them general anti-ship combatants.

Submarines and sonar: A submerged submarine is visible to an enemy only inside that side's sonar coverage. Only torpedoes and depth charges reach it underwater. Submarines surface to fire and remain up briefly afterward, so attacking exposes an opportunity. Shipyards and sonar-equipped escorts help guard approaches; an ordinary radar is not a substitute for sonar.

Landing operations: Use light landing craft for appropriate infantry and light-vehicle loads. Heavy landing ships and carrier holds use weighted cargo places: a heavy vehicle consumes more capacity than infantry. Some vessels beach and unload over ramps; a carrier uses a side gangway and cannot beach. Select a suitable shore, protect the unloading area and leave room for the cargo to clear the exit.

FIELD NOTE / NAVAL CHECK / Depth, route, sonar, escort, cargo weight and landing space all matter.

Detection & underground war



Camouflage: Camouflaged units or structures may be absent from the enemy's view and radar. Firing or close contact can reveal them. Ordinary detectors find hidden units; deep detection is needed for camouflaged structures. ESD satellite-linked reconnaissance starts with this broader detection. ADC recon may require its thermal-imaging research.

Sniper concealment: Stationary or sneaking snipers require closer detection than ordinary hidden units. The Ghillie ability is a further concealment state. A satellite reveal or detection effect should not be assumed to counter every form of sniper concealment. Read the effect description and the target sniper's entry.

MLF underground movement: Eligible MLF infantry and ground vehicles can dig in and travel underground. Seismic sensors detect underground movement; specialised weapons and underground barriers answer it. The supply pickup, command vehicle, Goliath and naval vessels do not automatically inherit every underground ability.

Tunnels and nets: Tunnel Reinforcements creates temporary hidden tunnel ends that eligible ground units can use. A discovered end can be attacked. MLF camouflage nets are fitted to structures through their panel; netting and building research are separate purchases. Hide the network, but prepare for enemy deep detection and seismic coverage.

FIELD NOTE / INTELLIGENCE RULE / Ask what is hidden, then choose the sensor that reveals that specific kind of target.

Capture, fortify & repair



Capture, fortify & repair / continued

Capture orders: Engineers selected on their own can capture through their context order; other eligible infantry use CAPTURE. A flag shows progress on neutral facilities. Enemy faction structures also take time to seize. Multiple capturers can help, but incoming attacks and the approach still need protection.

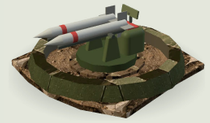
Captured technology: A captured enemy structure can provide its production or eligible research. Faction-only research, equivalent research already obtained and technologies without a useful counterpart follow captured-technology restrictions. Taking one enemy building does not instantly grant that faction's whole technology tree.

Fortifications: Walls, gates, posts, sandbags, hedgehogs, wire and barriers have different purposes. Gates open for friendly and allied traffic. Some barriers stop vehicles while allowing infantry; others slow infantry. Engineers can clear supported fortifications. Each structure entry states its counters and placement role.

Bridges and repairs: Heavy explosives can destroy a bridge; ordinary small arms and tank fire do not necessarily damage it. Engineers can set charges or clear mission charges, and engineers or builders can rebuild fallen crossings from a bank. Repair units and structures restore different target types: a field medic is not a vehicle mechanic.

FIELD NOTE / ENGINEERING PLAN / Secure the approach before committing an unarmed engineer to a long job.

Design a defence network



Match weapon to target: Gun defences suppress infantry; anti-vehicle weapons threaten armour; SAM and flak cover aircraft; artillery reaches approaches at a distance. A bunker needs useful occupants unless it has weapons of its own. A cliff bunker depends on its cliff edge, firing arc and access from the top.

Type-wide upgrades: Defence upgrades are purchased for one definition of defence tower and apply to every owned tower of that type, including future construction. Damage and Fire Rate have two levels. The tower's family determines whether it can buy airburst ammunition, tracking radar, double salvo or reinforcement. Garrison Crew supplies riflemen when the requirements are met.

Power and overlap: Keep the power network supported where your faction uses it. Overlap suitable defences around approaches while leaving access for repairs and reinforcements. A static line that can only shoot one target type leaves an obvious weakness.

Hazards and special installations: Advanced power plants can have damaging destruction effects. A nuclear silo also has a launch hazard around its own position. Strategic-weapons defences have explicit interception limits. Site valuable structures with these effects in mind rather than packing every installation into one block.

FIELD NOTE / DEFENCE IN DEPTH / Scouts identify the threat, towers slow it, mobile reserves finish the response.

Superweapons: three doctrines

FIELD REFERENCE / 4 ENTRIES ON THIS SHEET

Each strategic installation needs Command Centre Level 3, its technology unlocks and the skirmish strategic-weapons rule enabled. Values below describe the base weapon unless an upgrade is named.

Choose the effect, not just the blast

ADC / Cruise Missile Battery: $5,000; 60 s construction; 300 s recharge; 25 power demand **ESD / Nuclear Bomb:** $5,000; 90 s construction; 450 s recharge; 30 power demand **MLF / Toxin Silo:** $4,500; 50 s construction; 320 s recharge; 0 power demand

ADC / repeated precision: Four cruise missiles in a full rack create overlapping impacts. Its research adds cluster bomblets, a toxic cloud and, finally, attacks against aircraft and underground targets.

ESD / catastrophic area strike: One large nuclear strike devastates a broad area and leaves radiation. Its research hardens the launch installation with missile defence and heavy walls rather than changing the warhead.

MLF / persistent denial: The Toxin Silo starts with a large anti-infantry cloud, then gains corrosive damage, two independently aimed missiles and radiation that harms structures.

Counterplay: Scout for the installation, disrupt its supporting base and spread valuable production. Warning and flight time allow movement; persistent clouds still deny a position after the initial hit. Ordinary air defence does not intercept strategic missiles. Art of Defence does not intercept superweapons.

Cruise Missile Battery



What makes it unique: The rack loads one missile every 75 s and fires only when all 4 are ready. A single order launches the full rack with 0.75 s between missiles. Four impact points surround the aim point, so overlapping explosions cover an area rather than concentrating on one point.

Base strike: 4 x 1350 BOMB damage; 26 m blast per missile **Recharge:** 300 s from empty; 75 s per visible missile pip

Cluster Warheads: Each missile splits into 7 bomblets: a central 3200-damage blast (24 m) and 6 ring bomblets, each 1500 damage (20 m). Their 24 m scatter overlaps. A complete rack releases 28 bomblets.

Toxin Payload: 28 m cloud at each missile's point for 32 s. Particularly lethal to infantry; lighter damage to vehicles and structures. The cloud spares the owner's side.

Deep Strike & Skyburst: Adds attacks on tunnels and buried units within 42 m and enemy aircraft within 56 m at any height, up to 1100 base damage. This is a researched extension, not a property of the base warhead.

Installation and sequential research: Cruise Missile Battery / Cluster Warheads / Toxin Payload / Deep Strike & Skyburst

Nuclear Bomb



What makes it unique: A single high-yield strike: 8000 peak BOMB damage across a 100 m radius, falling to 20% at its edge. Allied sides and airborne aircraft are spared by the impact logic. The immediate blast on a Command Centre is capped at 85% of its maximum HP: a full-health centre survives that blast, though a damaged one can still be destroyed.

Fallout: 75 m radiation zone lasts 30 s and can harm every side, including the owner's forces and allies. Damage per second: infantry 60; light 25, medium 20, heavy vehicles 12. The fallout does not damage structures. Do not confuse the radiation radius with the larger blast radius.

Launch hazard: Ignition lasts 3.5 s; flight takes at least 11.5 s. The launch itself creates a 40 m local danger zone around the silo, up to 520 damage, and weakens walls nearby. Leave space around the installation; an intervening own wall reduces launch-blast damage.

Art of Defence I: Laser interception within 80 m, one attempt every 0.25 s, against eligible guided anti-tank/anti-air missiles. It does not stop shells, rockets, bombs, cruise missiles or strategic weapons.

Art of Defence II: Adds a heavy wall ring. Engineers can cut a piece in 6 s; tunnelling forces can emerge inside. Missiles and rockets can break the ring. Retains the laser.

Installation and research: Nuclear Bomb / Art of Defence I / Art of Defence II

Toxin Silo



What makes it unique: A warhead plus a percentage-of-maximum-health hazard. The cloud matters after the initial explosion, and successive research changes which targets it threatens. Twin Silo allows two target zones, each with its own missile.

Base warhead: 1 missile(s); 1500 BOMB damage over 24 m. 40 m toxin cloud for 25 s. Per-second maximum-health loss: infantry 25%, light 2%, medium 1.5%, heavy 1%, structures 0%.

Corrosive Warhead: 1 missile(s); 1700 BOMB damage over 27 m. 42 m toxin cloud for 30 s. Per-second maximum-health loss: infantry 30%, light 4.5%, medium 3.5%, heavy 2.5%, structures 0.4%.

Twin Silo: 2 missile(s); 1700 BOMB damage over 27 m. 42 m toxin cloud for 30 s. Per-second maximum-health loss: infantry 30%, light 4.5%, medium 3.5%, heavy 2.5%, structures 0.4%.

Meltdown Payload: 2 missile(s); 1950 BOMB damage over 30 m. 46 m radiation cloud for 36 s. Per-second maximum-health loss: infantry 35%, light 6%, medium 5%, heavy 3.5%, structures 1.7%. Molten ground remains visible for 90 s; the damaging cloud has the shorter duration stated above.

Use and counterplay: Separate the two aim points to deny more ground, or overlap them around a valuable position. Move mobile forces out of the cloud. The base cloud does not damage buildings; corrosive and meltdown research are what turn it into a threat to a base.

Installation and sequential research: Toxin Silo / Corrosive Warhead / Twin Silo / Meltdown Payload

ADC / Buildings & defences

ADC / 41 ENTRIES ON THIS SHEET

Every structure definition, including walls, gates, field fortifications and alternative command/airfield layouts. Costs and footprints are base values for this build.



Command Centre
Heart of an ADC base.
$3,000 / 18 s / 3600 HP / STRUCT armour / Produces 20



Fuel Cell Plant
Compact fuel-cell generator. +30 power.
$600 / 12 s / 950 HP / STRUCT armour / Produces 30



Supply Hub
Logistics centre where supply trucks deposit cargo.
$1,500 / 16 s / 1400 HP / STRUCT armour / Consumes 5



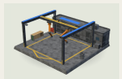
Barracks
Trains ADC infantry.
$500 / 12 s / 1200 HP / STRUCT armour / Consumes 5



Vehicle Factory
Assembles ADC ground vehicles.
$1,800 / 20 s / 1800 HP / STRUCT armour / Consumes 10



Satellite Uplink
Satellite communications and radar.
$900 / 15 s / 1000 HP / STRUCT armour / Consumes 12



Repair Bay
Vehicles parked on the bay are repaired quickly.
$900 / 15 s / 1100 HP / STRUCT armour / Consumes 8



Technology Centre
Advanced research facility.
$2,000 / 25 s / 1500 HP / STRUCT armour / Consumes 15



Airbase / Runway airfield
Produces and rearms aircraft.
$1,400 / 22 s / 2400 HP / STRUCT armour / Consumes 12



Supply Air Pad
Drop zone for supply aircraft.
GOOD / One aircraft delivers $2,500 every 3 min **WEAK /** Costs a lot
$2,800 / 30 s / 1300 HP / STRUCT armour / Consumes 10



Gas Turbine Plant
Large combined-cycle generator. +70 power.
WEAK / Static shock when destroyed
$1,500 / 20 s / 1400 HP / STRUCT armour / Produces 70



Hardened Bunker
Concrete bunker for up to 4 infantry, who fire out with extra range and protection.
GOOD / Holds 4 infantry with +20% range **WEAK /** Needs infantry inside to fight
$400 / 10 s / 1200 HP / DEF armour / No power demand



Cliff Casemate
A concrete casemate cut into a cliff edge: it can only be built into a cliff 4 m high or more, facing out over the drop.
GOOD / Built into a cliff: fires down on the low ground **WEAK /** Fires only forward: blind behind
$600 / 13 s / 1800 HP / DEF armour / No power demand



Sentry Gun
Stabilised automated heavy machine gun with precision optics and rapid tracking.
GOOD / Good against infantry **WEAK /** Bad against tanks and artillery
$500 / 10 s / 800 HP / DEF armour / Consumes 3



Lancer Missile Post
Guided anti-tank emplacement with faster missiles and a 60m engagement range.
GOOD / Good against tanks and vehicles **WEAK /** Bad against infantry and aircraft
$900 / 12 s / 900 HP / DEF armour / Consumes 6



Palisade SAM Site
Radar-guided six-canister launcher firing paired high-speed missiles out to 104m.
GOOD / Good against aircraft **WEAK /** Can't hit ground targets
$900 / 12 s / 800 HP / DEF armour / Consumes 6



Flak Cannon
Radar-laid twin 35mm cannon firing air-burst shells: each bursts near an aircraft in a black cloud of splinters that hurts every enemy aircraft close by.
GOOD / Shreds helicopters and drones **WEAK /** Can't hit ground targets
$700 / 11 s / 850 HP / DEF armour / Consumes 4



Longreach Emplacement
Emplaced 155mm howitzer with improved grouping and a 6.5-second reload.
GOOD / Good against infantry from afar **WEAK /** Bad up close, can't hit aircraft
$1,600 / 18 s / 1100 HP / DEF armour / Consumes 10



Cruise Missile Battery
A launcher with four large cruise missiles that sleeps in its armoured housing.
GOOD / One command fires all 4 huge cruise missiles **WEAK /** Takes 5 minutes to load the full rack
$5,000 / 60 s / 2800 HP / STRUCT armour / Consumes 25



Ground Sonar Array
Geophone spikes and a ground sonar listen to the earth: enemy units moving underground within 70 m show up as outlines on your screen and radar, with an early warning.
GOOD / Detects units underground (70 m) **WEAK /** Needs power, cannot fire
$600 / 12 s / 700 HP / STRUCT armour / Consumes 6



Naval Yard
Trains ADC boats.
$1,500 / 20 s / 1800 HP / STRUCT armour / Consumes 8



Security Fence
Steel posts and mesh panels.
GOOD / Stops infantry and light vehicles **WEAK /** Tanks drive over and flatten it
$50 / 2 s / 350 HP / DEF armour / No power demand



Concrete Wall
Precast concrete wall.
GOOD / Stops infantry and vehicles **WEAK /** Heavy tanks smash through it
$150 / 4 s / 1400 HP / DEF armour / No power demand



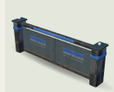
Composite Blast Wall
Armoured composite blast wall.
GOOD / Stops everything **WEAK /** Guns, shells, bombs and fire do nothing to it - so bring missiles
$300 / 7 s / 2600 HP / DEF armour / No power demand



Security Gate
Steel swing gate in concrete posts.
GOOD / Opens for your units and allies **WEAK /** Heavy tanks smash through it
$300 / 6 s / 1600 HP / DEF armour / No power demand



Blast Gate
Armoured lifting gate.
GOOD / Opens for your units and allies **WEAK /** Expensive
$600 / 10 s / 2800 HP / DEF armour / No power demand



Wide Security Gate
Wide steel swing gate between concrete piers.
GOOD / 12 m wide: every tank drives through **WEAK /** Heavy tanks smash through it
$450 / 8 s / 2300 HP / DEF armour / No power demand



Wide Blast Gate
Wide armoured lifting gate.
GOOD / 12 m wide: every tank drives through **WEAK /** Expensive
$900 / 14 s / 4000 HP / DEF armour / No power demand



Security Fence Corner Pier
A corner pier for the security fence: a stout tower in its own materials, taller than the wall.
GOOD / The wall line puts it at every corner and join **WEAK /** Tanks drive over and flatten it
$20 / 1 s / 315 HP / DEF armour / No power demand



Concrete Wall Corner Pier
A corner pier for the concrete wall: a stout tower in its own materials, taller than the wall.
GOOD / The wall line puts it at every corner and join **WEAK /** Heavy tanks smash through it
$60 / 2 s / 1260 HP / DEF armour / No power demand



Composite Blast Wall Corner Pier
A corner pier for the composite blast wall: a stout tower in its own materials, taller than the wall.
GOOD / The wall line puts it at every corner and join **WEAK /** Guns, shells, bombs and fire do nothing to it
$120 / 4 s / 2340 HP / DEF armour / No power demand



Sandbag Position
A half ring of sandbags.
GOOD / Infantry inside take 40% less damage **WEAK /** Tanks flatten it
$100 / 4 s / 500 HP / DEF armour / No power demand



Tank Traps
Steel hedgehogs.
GOOD / Stops every vehicle, tanks too **WEAK /** Does not stop infantry
$75 / 3 s / 800 HP / DEF armour / No power demand



Barbed Wire
A coil of barbed wire.
GOOD / Infantry crawl through at 40% speed **WEAK /** Vehicles drive over it
$40 / 2 s / 200 HP / DEF armour / No power demand



Concrete Barrier
Concrete blocks.
GOOD / Stops vehicles **WEAK /** Heavy tanks shove it aside
$60 / 3 s / 900 HP / DEF armour / No power demand



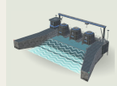
ADC Command Center (Concept B) / Alternate command model
DESIGN CONCEPT: the redesigned ADC Command Center, to compare with the original.
$3,000 / 18 s / 3600 HP / STRUCT armour / Produces 20



ADC Command Center (Concept C) / Alternate command model
DESIGN CONCEPT: the ADC Command Center in the gunmetal bunker look, with its vehicle shutter at the right of the front.
$3,000 / 18 s / 3600 HP / STRUCT armour / Produces 20



Ocean Command Centre
Seabed-anchored naval command structure.
$3,200 / 32 s / 3600 HP / STRUCT armour / Produces 20



Ocean Wave Power Plant
Dam-style wave collector lifts overtopping water into a raised reservoir.
$900 / 24 s / 1500 HP / STRUCT armour / Produces 50



Naval Oil Refinery
Refines oil delivered at its port-side berth into credits.
$1,800 / 32 s / 2200 HP / STRUCT armour / Consumes 10

Airbase / Compact airfield
Compact protected aircraft servicing base.
$1,400 / 22 s / 2400 HP / STRUCT armour / Consumes 12

ADC / All units

ADC / 42 ENTRIES ON THIS SHEET

Infantry, ground vehicles, aircraft, naval forces and automatic support. Base roles and matchups; research and battlefield conditions can change the result.



Rifleman

Professional volunteer infantry with modern optics and body armour.

GOOD / Infantry; Anti-tank teams **WEAK /** Vehicles; Snipers

$150 / 7 s / 100 HP



Lancer AT Team

Fire-and-forget guided missile team.

GOOD / Tanks; Vehicles **WEAK /** Infantry; Aircraft

$300 / 10 s / 90 HP



Combat Engineer

Captures enemy buildings (right-click: 12-60 s by building), neutral structures and abandoned vehicles, repairs buildings.

GOOD / Captures buildings; Repairs **WEAK /** Everything (unarmed)

$400 / 10 s / 80 HP



Overwatch Sniper

Camouflaged precision marksman.

GOOD / Infantry; Marking targets for the army **WEAK /** Vehicles; Aircraft

$600 / 14 s / 80 HP



Skylance AA Trooper

Man-portable air defence.

GOOD / Helicopters; Aircraft **WEAK /** Infantry; Vehicles

$350 / 10 s / 90 HP



Field Medic

Combat medic.

GOOD / Heals infantry **WEAK /** Everything (unarmed)

$300 / 10 s / 90 HP



Spectre Operator

Elite special-forces operator.

GOOD / Infantry; Structures (demolition) **WEAK /** Vehicles; Snipers

$1,000 / 20 s / 150 HP



Titan Exo-Trooper

A soldier in a powered exo-suit: a rotary cannon shreds infantry and a shoulder pod fires pairs of guided micro-missiles at vehicles and helicopters.

GOOD / Infantry; Light vehicles **WEAK /** Heavy tanks; Snipers

$1,400 / 24 s / 450 HP



Logistics Truck

Armoured 6x6 logistics truck.

GOOD / Gathers supplies **WEAK /** Everything (unarmed until Supply Hub guns)

$400 / 10 s / 380 HP



Outrider Recon Vehicle

Fast wheeled scout with a mast-mounted sensor suite and remote weapon station.

GOOD / Scouting; Infantry **WEAK /** Tanks; Anti-tank infantry

$500 / 8 s / 260 HP



Warden MRAP

Mine-resistant ambush-protected patrol vehicle.

GOOD / Infantry; Light vehicles **WEAK /** Tanks; Anti-tank infantry

$700 / 10 s / 480 HP



Bastion IFV

Tracked infantry fighting vehicle with a 30mm autocannon and twin ATGM launcher.

GOOD / Light vehicles; Infantry **WEAK /** Tanks; Anti-tank infantry

$950 / 13 s / 620 HP



Sentinel MBT

Third-generation main battle tank with composite armour, stabilised 120mm gun and advanced fire control.

GOOD / Tanks; Vehicles **WEAK /** Anti-tank infantry; Attack helicopters

$1,400 / 18 s / 1100 HP



M1A3C Bulldog Heavy Tank

Seventy-tonne breakthrough tank with layered armour, a long-range 120mm cannon and a turret machine gun for infantry defence.

GOOD / Tanks; Heavy armour **WEAK /** Attack helicopters; Massed anti-tank infantry

$2,300 / 28 s / 1750 HP



Palisade Mobile SAM

Tracked short-range air defence system with radar-guided missiles.

GOOD / Helicopters; Aircraft **WEAK /** All ground units

$1,000 / 14 s / 460 HP



Mechanic Recovery Vehicle

Armoured recovery vehicle with crane and field workshop.

GOOD / Repairs vehicles **WEAK /** Everything (unarmed)

$800 / 12 s / 620 HP



Halberd Missile Carrier

Long-range guided missile tank destroyer.

GOOD / Tanks; Heavy armour **WEAK /** Infantry; Aircraft

$1,300 / 18 s / 700 HP



Longreach SPH

Self-propelled 155mm howitzer.

GOOD / Structures; Defences **WEAK /** Everything up close; Aircraft

$1,600 / 22 s / 520 HP



Command Vehicle

Mobile headquarters.

GOOD / Deploys a Command Centre **WEAK /** Everything (unarmed)

$3,000 / 40 s / 1600 HP



Field Generator Truck

Select it, then left-click it again (or Deploy, V) to unfold its support legs and activate the field generator in 2 seconds.

GOOD / Powers a forward Barracks and Supply Hub **WEAK /** Unarmed; Deploy to supply power

$800 / 14 s / 650 HP



Armoured Dozer

Armoured bulldozer and construction crew: it builds every ADC structure.

GOOD / Builds structures; Repairs structures **WEAK /** Everything (unarmed)

$800 / 12 s / 900 HP



Mastodon Super-Heavy Tank

Super-heavy tank on four tracks.

GOOD / Tanks; Everything on the ground **WEAK /** Massed anti-tank infantry; Artillery

$4,000 / 42 s / 4200 HP



Kestrel Attack Helicopter

Tandem-seat attack helicopter with fire-and-forget missiles and a chin chain gun.

GOOD / Tanks; Vehicles **WEAK /** Mobile SAM; AA infantry

$1,500 / 18 s / 480 HP

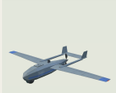


Condor Transport Helicopter

Medium utility helicopter.

GOOD / Moves 8 infantry anywhere; Lifts one vehicle up to 60 t **WEAK /** Anti-air

$1,100 / 15 s / 620 HP



Overwatch Recon Drone

Medium-altitude long-endurance surveillance drone with a huge vision radius.

GOOD / Scouting; Sees hidden enemies (UAV Thermal Imaging) **WEAK /** Anti-air

$500 / 10 s / 160 HP



Wraith UCAV

Armed unmanned combat aircraft.

GOOD / Vehicles; Artillery **WEAK /** Anti-air; Fighters

$1,200 / 18 s / 280 HP



Stiletto Multirole Fighter

Stealth-shaped multirole fighter.

GOOD / Aircraft; Helicopters **WEAK /** SAM sites; Mobile SAM

$1,800 / 22 s / 380 HP



Hammerhead Strategic Bomber

Fast stealthy flying-wing bomber, the fastest aircraft in the air.

GOOD / Tanks; Structures **WEAK /** Fighters; SAM sites

$2,500 / 30 s / 460 HP



Naval Oil Collector

Twin-hull oil collector.

GOOD / Collects offshore oil **WEAK /** Unarmed

$650 / 18 s / 600 HP



Barracuda Patrol Boat

Fast patrol boat with a 40mm deck gun and a twin heavy machine gun.

GOOD / Infantry; Light vehicles **WEAK /** Tanks; Anti-tank infantry

$750 / 12 s / 520 HP



Tidewater Landing Craft

Armoured landing craft with a bow ramp.

GOOD / Carries 8 infantry or 2 vehicles; Lands on any shore **WEAK /** Everything (a light MG only)

$900 / 15 s / 950 HP



Trident Missile Corvette

Sleek missile corvette: twin guided missiles out to 72 m against tanks and structures, a SAM for aircraft, depth charges, and sonar that finds enemy submarines within 45 m.

GOOD / Tanks and structures far off; Aircraft **WEAK /** Gunboats up close; Massed infantry

$1,800 / 22 s / 1300 HP



Bulwark Artillery Cruiser

Long-range bombardment cruiser.

GOOD / Shells land, structures and groups out to 150 m; Tough for a ship **WEAK /** Needs a spotter (sees only 78 m); Gunboats and submarines up close (30 m dead zone)

$2,300 / 28 s / 1650 HP



Vigil Escort Frigate

Fast escort frigate: a SAM and a close-in flak gun keep aircraft off the fleet, hull sonar finds enemy submarines within 40 m and depth charges kill them.

GOOD / Aircraft (SAM and flak); Submarines (sonar 40 m, depth charges) **WEAK /** Everything on the surface (no gun against boats or land); Tanks

$1,300 / 18 s / 950 HP



Moray Attack Submarine

Sleek attack submarine with heavy torpedoes against boats (and structures by the water, at half).

GOOD / Boats; Structures by the water **WEAK /** Missile Boats and depth charges; Land units and aircraft (cannot hit them)

$1,350 / 20 s / 950 HP



Atlas Heavy Landing Ship

Tank landing ship: a long low hull with a bow ramp and a bridge aft.

GOOD / Carries 4 heavy tanks, 6 medium or 8 light vehicles; Or one super-heavy tank and two heavy ones **WEAK /** Slow; Everything but aircraft (a close-in AA gun only)

$1,500 / 30 s / 2600 HP



Sovereign Aircraft Carrier

Compact double-deck carrier: two planes park on the upper deck, two in the lower aircraft hangar and one helicopter on the stern pad.

GOOD / Two aircraft on deck, two in the lower aircraft hangar; One helicopter on the aft pad **WEAK /** Very slow and costly; No weapon against boats or land

$4,500 / 90 s / 6500 HP



Longhaul Supply Plane

Not built: it comes with each supply convoy of a finished Supply Air Pad ($2,500 every 3 min shared between the aircraft).

GOOD / Brings its share of $2,500 every 3 min **WEAK /** Unarmed; Anti-air

Automatic / mission or ability support; not normal production / 1100 HP



Packhorse Supply Helicopter

Not built: it comes with each supply convoy of a finished Supply Air Pad ($2,500 every 3 min shared between the aircraft).

GOOD / Brings its share of $2,500 every 3 min **WEAK /** Unarmed; Anti-air

Automatic / mission or ability support; not normal production / 700 HP



Condor Airlift

Not built: Airborne Reinforcements (doctrine) sends two from the map edge behind your base.

GOOD / Lands 3 soldiers **WEAK /** Unarmed; Anti-air

Automatic / mission or ability support; not normal production / 620 HP

Packhorse Heavy Lift

Not built: from Command Centre Level 2, Airborne Reinforcements (doctrine) also sends a Packhorse with a Warden MRAP slung under it.

GOOD / Sets a Warden MRAP down **WEAK /** Unarmed; Anti-air

Automatic / mission or ability support; not normal production / 900 HP

Longhaul Cargo Plane

Not built: from Command Centre Level 3, Airborne Reinforcements (doctrine) also sends this four-engine cargo plane.

GOOD / Drops a Bastion IFV by parachute **WEAK /** Unarmed; Anti-air

Automatic / mission or ability support; not normal production / 1100 HP

ESD / Buildings & defences

ESD / 38 ENTRIES ON THIS SHEET

Every structure definition, including walls, gates, field fortifications and alternative command/airfield layouts. Costs and footprints are base values for this build.



Command HQ
Fortified ESD headquarters.
$3,000 / 18 s / 4300 HP / STRUCT armour / Produces 20



Power Station
Coal-fired power station. +45 power (Grid Overcharge at the Command HQ raises it).
$750 / 14 s / 1250 HP / STRUCT armour / Produces 45



Logistics Depot
Receives supply truck deliveries.
$1,500 / 16 s / 1650 HP / STRUCT armour / Consumes 5



Garrison Barracks
Trains ESD infantry.
$500 / 12 s / 1450 HP / STRUCT armour / Consumes 5



Armour Works
Heavy vehicle plant.
$1,800 / 22 s / 2200 HP / STRUCT armour / Consumes 12



Radar Station
Early-warning radar.
$800 / 15 s / 1100 HP / STRUCT armour / Consumes 12



Repair Depot
Vehicle repair pad.
$800 / 15 s / 1300 HP / STRUCT armour / Consumes 8



Research Institute
Military research institute.
$1,800 / 25 s / 1700 HP / STRUCT armour / Consumes 15



Airfield / Runway airfield
Produces and rearms aircraft.
$1,400 / 22 s / 2400 HP / STRUCT armour / Consumes 12



Thermal Power Plant
Large thermal plant with a cooling tower. +90 power (Grid Overcharge at the Command HQ raises it).
WEAK / Blows up when destroyed
$1,800 / 22 s / 1800 HP / STRUCT armour / Produces 90



Concrete Pillbox
Thick-walled pillbox for 5 infantry.
GOOD / Holds 5 infantry with +20% range **WEAK /** Needs infantry inside to fight
$400 / 10 s / 1600 HP / DEF armour / No power demand



Cliff Pillbox
A heavy concrete pillbox cut into a cliff edge: it can only be built into a cliff 4 m high or more, facing out over the drop.
GOOD / Built into a cliff: fires down on the low ground **WEAK /** Fires only forward: blind behind
$600 / 13 s / 2400 HP / DEF armour / No power demand



MG Emplacement
Twin heavy machine guns behind concrete.
GOOD / Good against infantry **WEAK /** Bad against tanks and artillery
$450 / 10 s / 1000 HP / DEF armour / Consumes 2



AT Gun Emplacement
Dug-in 100mm anti-tank gun.
GOOD / Good against tanks and vehicles **WEAK /** Bad against infantry and aircraft
$800 / 12 s / 1150 HP / DEF armour / Consumes 5



Yunqiang SAM Battery
Long-range heavy SAM launcher.
GOOD / Good against aircraft, long range **WEAK /** Can't hit ground targets
$1,100 / 14 s / 1100 HP / DEF armour / Consumes 8



Baoyu Flak Battery
57mm anti-aircraft guns firing time-fused shells that burst in black clouds among enemy aircraft.
GOOD / Shreds helicopters and drones **WEAK /** Can't hit ground targets
$800 / 12 s / 1000 HP / DEF armour / Consumes 5



Fortress Howitzer
Casemated 203mm howitzer.
GOOD / Good against infantry from afar **WEAK /** Bad up close, can't hit aircraft
$1,500 / 18 s / 1300 HP / DEF armour / Consumes 10



Nuclear Bomb
A specialised weapon: a NUCLEAR BOMB that takes longer than any other to build and 7 minutes 30 seconds to count down.
GOOD / Nuclear missile: hits anywhere, cannot be shot down
WEAK / Its launch burns the ground round the silo: build a wall round it
$5,000 / 90 s / 3300 HP / STRUCT armour / Consumes 30



Seismic Listening Post
A concrete listening post over a field of buried geophones: enemy units moving underground within 70 m show up as outlines on your screen and radar, with an early warning.
GOOD / Detects units underground (70 m) **WEAK /** Needs power, cannot fire
$600 / 12 s / 850 HP / STRUCT armour / Consumes 6



Hacker Den
A hardened bunker-office full of servers.
GOOD / Hides 10 Hackers: they keep earning **WEAK /** Low power halves the income
$1,000 / 30 s / 1450 HP / STRUCT armour / Consumes 8



Drone Hive
Automated drone hangar.
$600 / 12 s / 900 HP / STRUCT armour / Consumes 4



Flotilla Works
Trains ESD boats.
$1,500 / 22 s / 2100 HP / STRUCT armour / Consumes 10



Barbed-Wire Fence
Steel pickets and barbed wire.
GOOD / Stops infantry and light vehicles **WEAK /** Tanks drive over and flatten it
$50 / 2 s / 380 HP / DEF armour / No power demand



State Concrete Wall
Heavy concrete wall with red trim.
GOOD / Stops infantry and vehicles **WEAK /** Heavy tanks smash through it
$160 / 4 s / 1550 HP / DEF armour / No power demand



Bunker Wall
Armoured bunker wall with firing slits.
GOOD / Stops everything **WEAK /** Guns, shells, bombs and fire do nothing to it - so bring missiles
$320 / 7 s / 2900 HP / DEF armour / No power demand



Steel Gate
Steel swing gate with a red band.
GOOD / Opens for your units and allies **WEAK /** Heavy tanks smash through it
$320 / 6 s / 1750 HP / DEF armour / No power demand



Bunker Gate
Armoured lift gate.
GOOD / Opens for your units and allies **WEAK /** Expensive
$640 / 10 s / 3100 HP / DEF armour / No power demand



Wide Steel Gate
Wide steel swing gate with a red band.
GOOD / 12 m wide: every tank drives through **WEAK /** Heavy tanks smash through it
$480 / 8 s / 2600 HP / DEF armour / No power demand



Wide Bunker Gate
Wide armoured lift gate.
GOOD / 12 m wide: every tank drives through **WEAK /** Expensive
$960 / 14 s / 4500 HP / DEF armour / No power demand



Barbed-Wire Fence Corner Pier
A corner pier for the barbed-wire fence: a stout tower in its own materials, taller than the wall.
GOOD / The wall line puts it at every corner and join **WEAK /** Tanks drive over and flatten it
$20 / 1 s / 342 HP / DEF armour / No power demand



State Concrete Wall Corner Pier
A corner pier for the state concrete wall: a stout tower in its own materials, taller than the wall.
GOOD / The wall line puts it at every corner and join **WEAK /** Heavy tanks smash through it
$64 / 2 s / 1395 HP / DEF armour / No power demand



Bunker Wall Corner Pier
A corner pier for the bunker wall: a stout tower in its own materials, taller than the wall.
GOOD / The wall line puts it at every corner and join **WEAK /** Guns, shells, bombs and fire do nothing to it
$128 / 4 s / 2610 HP / DEF armour / No power demand



Sandbag Position
A half ring of sandbags.
GOOD / Infantry inside take 40% less damage **WEAK /** Tanks flatten it
$100 / 4 s / 500 HP / DEF armour / No power demand



Tank Traps
Steel hedgehogs.
GOOD / Stops every vehicle, tanks too **WEAK /** Does not stop infantry
$75 / 3 s / 800 HP / DEF armour / No power demand



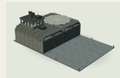
Barbed Wire
A coil of barbed wire.
GOOD / Infantry crawl through at 40% speed **WEAK /** Vehicles drive over it
$40 / 2 s / 200 HP / DEF armour / No power demand



Concrete Barrier
Concrete blocks.
GOOD / Stops vehicles **WEAK /** Heavy tanks shove it aside
$60 / 3 s / 900 HP / DEF armour / No power demand



ESD Command HQ (ChatGPT V3) / Alternate command model
TEST BUILDING: the ESD Command HQ with the ChatGPT V3 model, to compare with the built-in one.
$3,000 / 18 s / 4300 HP / STRUCT armour / Produces 20



Airfield / Compact airfield
Compact protected aircraft servicing base.
$1,400 / 22 s / 2400 HP / STRUCT armour / Consumes 12

ESD / All units

ESD / 43 ENTRIES ON THIS SHEET

Infantry, ground vehicles, aircraft, naval forces and automatic support. Base roles and matchups; research and battlefield conditions can change the result.



Line Rifleman

Mass-trained line infantry.

GOOD / Infantry (in numbers) **WEAK /** Vehicles; Machine guns

$100 / 5 s / 90 HP



Machine Gunner

Belt-fed general purpose machine gun team.

GOOD / Infantry **WEAK /** Vehicles; Snipers

$250 / 8 s / 115 HP



Rocket Grenadier

Heavy rocket-propelled grenade team with tandem warheads.

GOOD / Tanks; Vehicles **WEAK /** Infantry; Aircraft

$300 / 10 s / 100 HP



Field Engineer

Sapper-engineer.

GOOD / Captures buildings; Repairs **WEAK /** Everything (unarmed)

$400 / 10 s / 90 HP



Luoyan AA Trooper

Shoulder-launched surface-to-air missile team.

GOOD / Helicopters; Aircraft **WEAK /** Infantry; Vehicles

$350 / 10 s / 95 HP



Recon Scout

Lightly equipped reconnaissance soldier with binoculars, a laser rangefinder and a satellite uplink.

GOOD / Scouting; Sees hidden enemies **WEAK /** Everything in a straight fight

$250 / 8 s / 85 HP



Shenshe Sniper

Hooded long-range marksman with capacitor rounds.

GOOD / Infantry; Stopping vehicles (EMP Round) **WEAK /** Vehicles; Aircraft

$550 / 13 s / 85 HP



Huben Commando

Elite commando in heavy armour.

GOOD / Infantry; Structures (demolition) **WEAK /** Vehicles; Snipers

$900 / 18 s / 170 HP



Hacker

State cyber-warfare specialist with a ruggedised laptop and an uplink backpack.

GOOD / Earns credits; Steals from enemy Supply Hubs **WEAK /** Everything (unarmed)

$600 / 12 s / 70 HP



Fengci Drone Commando

Cyber commando with three armed drones circling over him: their guns cut down infantry and helicopters, their small guided missiles hit vehicles, while he fires his carbine.

GOOD / Infantry; Vehicles **WEAK /** Snipers; Artillery

$1,200 / 22 s / 210 HP



Supply Truck

Rugged 6x6 cargo truck with a tarpaulin bed.

GOOD / Gathers supplies **WEAK /** Everything (unarmed until Supply Depot guns)

$450 / 11 s / 460 HP



Xiaoqi Light Tank

Fast, cheap light tank with a 100mm gun.

GOOD / Light vehicles; Infantry **WEAK /** Tanks; Anti-tank infantry

$650 / 9 s / 540 HP



Hongliu APC

8x8 wheeled armoured personnel carrier.

GOOD / Infantry; Transport **WEAK /** Tanks; Anti-tank infantry

$600 / 9 s / 500 HP



Tiemao IFV

Tracked IFV with a 30mm cannon and ATGM rail.

GOOD / Light vehicles; Infantry **WEAK /** Tanks; Anti-tank infantry

$850 / 12 s / 580 HP



Menghu MBT

Compact, low-profile main battle tank with a 125mm autoloaded gun.

GOOD / Tanks; Vehicles **WEAK /** Anti-tank infantry; Attack helicopters

$1,100 / 15 s / 1000 HP



Kaishan Heavy Tank

Super-heavy breakthrough tank with a 152mm gun and thick layered armour.

GOOD / Tanks; Structures **WEAK /** Attack helicopters; Massed anti-tank infantry

$2,200 / 26 s / 2100 HP



Baoyu AA Vehicle

Self-propelled anti-aircraft gun with four radar-directed 23mm cannons.

GOOD / Helicopters; Drones **WEAK /** Tanks; Anti-tank infantry

$800 / 11 s / 480 HP



Yunqiang Heavy SAM

Long-range surface-to-air missile carrier.

GOOD / Aircraft; Helicopters **WEAK /** All ground units

$1,300 / 16 s / 520 HP

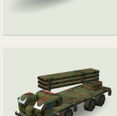


Leigu SPG

Tracked 152mm self-propelled gun.

GOOD / Structures; Defences **WEAK /** Everything up close; Aircraft

$1,200 / 17 s / 540 HP

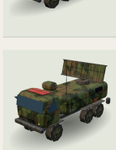


Liuxing Rocket Artillery

Heavy multiple rocket launcher on an 8x8 chassis.

GOOD / Area saturation; Infantry **WEAK /** Everything up close; Aircraft

$1,500 / 20 s / 480 HP



Qianli Mobile Radar

Truck-mounted surveillance radar.

GOOD / Reveals area when deployed; Sees hidden enemies **WEAK /** Everything (unarmed)

$700 / 12 s / 380 HP

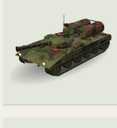


Command Vehicle

Mobile field headquarters.

GOOD / Deploys a Command HQ **WEAK /** Everything (unarmed)

$3,000 / 40 s / 1900 HP

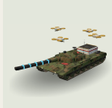


Liehuo Flame Tank

Flamethrower tank.

GOOD / Infantry; Troops in buildings and bunkers **WEAK /** Tanks; Anything firing from beyond 30 m

$950 / 14 s / 680 HP



Julong Super-Heavy Tank

Super-heavy rail tank with an instant-hit 60 m cannon and four armed escort drones that fight infantry and helicopters.

GOOD / Tanks at long range; Everything on the ground **WEAK /** Jets; Massed anti-tank infantry

$4,200 / 44 s / 4600 HP



Wuyun Attack Helicopter

Heavily armoured assault helicopter with rocket pods and a 30mm cannon.

GOOD / Vehicles; Infantry **WEAK /** Mobile SAM; AA infantry

$1,300 / 16 s / 580 HP



Tuoma Transport Helicopter

Large twin-engine transport helicopter.

GOOD / Moves 10 infantry; Lifts one vehicle up to 60 t **WEAK /** Anti-air

$1,000 / 14 s / 700 HP



Yexiao Recon Drone

Tactical reconnaissance drone.

GOOD / Scouting; Sees hidden enemies **WEAK /** Anti-air

$400 / 10 s / 150 HP



Yuyan Interceptor

Fast twin-engine interceptor carrying six air-to-air missiles.

GOOD / Aircraft; Helicopters **WEAK /** SAM sites; Ground targets (cannot attack)

$1,600 / 20 s / 400 HP



Jinsun Strike Jet

Armoured close-air-support jet.

GOOD / Vehicles; Infantry **WEAK /** Fighters; SAM sites

$1,700 / 22 s / 480 HP



Dapeng Heavy Bomber

Long-bodied supersonic bomber, the fastest thing in the sky: it outruns missiles, jinks under fire and is very hard to shoot down.

GOOD / Tanks; Structures **WEAK /** Fighters; SAM sites

$2,400 / 28 s / 500 HP



Hujing Gunboat

Armoured river gunboat with a bow-turret railgun and a twin heavy machine gun.

GOOD / Boats and light vehicles at range (railgun 54 m); Armoured for a gunboat **WEAK /** Needs power: 4 a boat, and a low grid slows it; Tanks

$700 / 12 s / 680 HP



Haixiang Landing Barge

Heavy landing barge with a bow ramp.

GOOD / Carries 8 infantry or 2 vehicles; Lands on any shore **WEAK /** Everything (a light MG only)

$850 / 15 s / 1000 HP



Jinglei Missile Boat

Heavy armoured missile boat: twin guided missiles out to 72 m against tanks and structures, a SAM for aircraft and depth charges.

GOOD / Tanks and structures far off; Aircraft **WEAK /** Needs power: 7 a boat; Gunboats up close

$1,700 / 22 s / 1600 HP



Anyong Submarine

Dark red-grey patrol submarine, heavier and slower than its rivals, with heavy torpedoes against boats (and structures by the water, at half).

GOOD / Boats; Structures by the water **WEAK /** Missile Boats and depth charges; Land units and aircraft (cannot hit them)

$1,300 / 20 s / 1100 HP



Juxiang Heavy Landing Ship

Armoured tank landing ship, the toughest hull afloat: tumblehome sides, a red-banded bow ramp and a faceted bridge aft.

GOOD / Carries 4 heavy tanks, 6 medium or 8 light vehicles; Or one super-heavy tank and two heavy ones **WEAK /** Slow; Everything but aircraft (a close-in AA gun only)

$1,500 / 30 s / 3000 HP

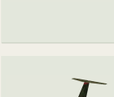


Fengdu Aircraft Carrier

Armoured fleet carrier: a broad flight deck with a ski-jump bow, a faceted island with a red band on the starboard side.

GOOD / Carries and launches 8 aircraft and 4 helicopters; Rearms, refuels and mends them **WEAK /** Very slow and costly; No weapon against boats or land

$4,500 / 90 s / 7200 HP



Honghu Cargo Plane

Not built: Emergency Reinforcements (doctrine) sends three of these four-jet cargo planes.

GOOD / Drops tanks by parachute **WEAK /** Unarmed; Anti-air

Automatic / mission or ability support; not normal production / 1200 HP



Gongfeng Construction Drone

Automated construction drone ("worker bee").

GOOD / Builds structures (together: faster) **WEAK /** Rifles and machine guns; Anti-air

Automatic / mission or ability support; not normal production / 40 HP



Xiuli Repair Drone

Small, fast automated repair drone.

GOOD / Repairs structures and vehicles (together: faster); Fast **WEAK /** Rifles and machine guns; Anti-air

Automatic / mission or ability support; not normal production / 30 HP



Mafeng Swarm Drone

Not built: the Hornet Swarm (Command HQ, Drone Wing research) sends five of these.

GOOD / Vehicles; Structures **WEAK /** Anti-air; Machine guns

Automatic / mission or ability support; not normal production / 40 HP

Yihu Aid Drone

Not built: the Aid Wing (Command HQ, Drone Wing research) sends four of these.

GOOD / Repairs vehicles and structures; Fast **WEAK /** Anti-air; Machine guns

Automatic / mission or ability support; not normal production / 55 HP

Tuoma Airlift

Not built: a skirmish map can bring a side's starting soldiers in by helicopter.

GOOD / Automatic support **WEAK /** Unarmed; Anti-air

Automatic / mission or ability support; not normal production / 700 HP

Heavy Lift Helicopter

Not built: from Command Centre Level 2, Airborne Reinforcements (doctrine) also sends a Packhorse with a Warden MRAP slung under it.

GOOD / Automatic support **WEAK /** Unarmed; Anti-air

Automatic / mission or ability support; not normal production / 900 HP

MLF / Buildings & defences

MLF / 29 ENTRIES ON THIS SHEET

Every structure definition, including walls, gates, field fortifications and alternative command/airfield layouts. Costs and footprints are base values for this build.



Field Command

Mobile headquarters of the Maldan Liberation Front.

$2,400 / 14 s / 3000 HP / STRUCT armour / Off-grid



Supply Camp

Open-air supply camp.

$1,100 / 10 s / 1100 HP / STRUCT armour / Off-grid



Training Camp

Trains MLF fighters and Workers.

$400 / 8 s / 1000 HP / STRUCT armour / Off-grid



Motor Pool

Converts, repairs and armours vehicles.

$1,300 / 14 s / 1400 HP / STRUCT armour / Off-grid



Listening Post

Radio intercept and radar post on a tall mast.

$600 / 10 s / 800 HP / STRUCT armour / Off-grid



Scrapyard

Repairs vehicles with scavenged parts.

$600 / 10 s / 1000 HP / STRUCT armour / Off-grid



Black Market

Grey-market arms broker.

$1,400 / 16 s / 1100 HP / STRUCT armour / Off-grid



Fighting Position

Camouflaged dug-in position for 4 fighters.

GOOD / Hides 4 infantry until they fire **WEAK /** Needs infantry inside to fight

$250 / 6 s / 900 HP / DEF armour / Off-grid



Cave Nest

A cave nest cut into a cliff edge: it can only be built into a cliff 4 m high or more, facing out over the drop.

GOOD / Hidden until it fires **WEAK /** Fires only forward: blind behind

$375 / 8 s / 1350 HP / DEF armour / Off-grid



Gun Nest

Sandbagged heavy machine gun nest.

GOOD / Good against infantry **WEAK /** Bad against tanks and artillery

$350 / 7 s / 700 HP / DEF armour / Off-grid



RPG Pit

Hidden anti-tank ambush pit.

GOOD / Good against tanks and vehicles **WEAK /** Bad against infantry and aircraft

$600 / 8 s / 700 HP / DEF armour / Off-grid



Flak Gun

Twin 23mm towed AA gun firing air-burst rounds: every burst hurts each enemy aircraft near it, so helicopters flying together suffer.

GOOD / Good against aircraft **WEAK /** Can't hit ground targets

$650 / 8 s / 750 HP / DEF armour / Off-grid

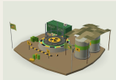


Rocket Pit

Dug-in rocket battery.

GOOD / Good against infantry from afar **WEAK /** Bad up close, can't hit aircraft

$1,200 / 12 s / 900 HP / DEF armour / Off-grid



Toxin Silo

A buried missile silo.

GOOD / Heavy blast anywhere on the map

$4,500 / 50 s / 2600 HP / STRUCT armour / Off-grid



Smugglers' Jetty

Patches up MLF boats.

$1,100 / 16 s / 1400 HP / STRUCT armour / Off-grid



Sandbag Line

A line of sandbags.

GOOD / Stops infantry and light vehicles **WEAK /** Tanks drive over and flatten it

$40 / 1.5 s / 320 HP / DEF armour / Off-grid



Scrap Barricade

Sandbags reinforced with fence panels and scrap.

GOOD / Stops infantry and vehicles **WEAK /** Heavy tanks smash through it

$120 / 3 s / 1300 HP / DEF armour / Off-grid



Stone Wall

Thick wall of hard stone.

GOOD / Stops everything **WEAK /** Guns, shells, bombs and fire do nothing to it - so bring missiles

$260 / 6 s / 2500 HP / DEF armour / Off-grid



Scrap Gate

Corrugated swing gate.

GOOD / Opens for your units and allies **WEAK /** Heavy tanks smash through it

$260 / 5 s / 1450 HP / DEF armour / Off-grid



Stone Gate

Scrap-plated lift gate between stone towers.

GOOD / Opens for your units and allies **WEAK /** Expensive

$520 / 9 s / 2700 HP / DEF armour / Off-grid



Wide Scrap Gate

Wide corrugated swing gate.

GOOD / 12 m wide: every tank drives through **WEAK /** Heavy tanks smash through it

$390 / 7 s / 2150 HP / DEF armour / Off-grid



Wide Stone Gate

Wide scrap-plated lift gate between stone towers.

GOOD / 12 m wide: every tank drives through **WEAK /** Expensive

$780 / 13 s / 4000 HP / DEF armour / Off-grid



Sandbag Line Corner Pier

A corner pier for the sandbag line: a stout tower in its own materials, taller than the wall.

GOOD / The wall line puts it at every corner and join **WEAK /** Tanks drive over and flatten it

$16 / 1 s / 288 HP / DEF armour / Off-grid

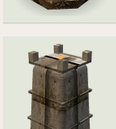


Scrap Barricade Corner Pier

A corner pier for the scrap barricade: a stout tower in its own materials, taller than the wall.

GOOD / The wall line puts it at every corner and join **WEAK /** Heavy tanks smash through it

$48 / 2 s / 1170 HP / DEF armour / Off-grid



Stone Wall Corner Pier

A corner pier for the stone wall: a stout tower in its own materials, taller than the wall.

GOOD / The wall line puts it at every corner and join **WEAK /** Guns, shells, bombs and fire do nothing to it

$104 / 3 s / 2250 HP / DEF armour / Off-grid



Sandbag Position

A half ring of sandbags.

GOOD / Infantry inside take 40% less damage **WEAK /** Tanks flatten it

$100 / 4 s / 500 HP / DEF armour / Off-grid

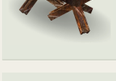


Tank Traps

Steel hedgehogs.

GOOD / Stops every vehicle, tanks too **WEAK /** Does not stop infantry

$75 / 3 s / 800 HP / DEF armour / Off-grid



Barbed Wire

A coil of barbed wire.

GOOD / Infantry crawl through at 40% speed **WEAK /** Vehicles drive over it

$40 / 2 s / 200 HP / DEF armour / Off-grid



Concrete Barrier

Concrete blocks.

GOOD / Stops vehicles **WEAK /** Heavy tanks shove it aside

$60 / 3 s / 900 HP / DEF armour / Off-grid

MLF / All units

MLF / 33 ENTRIES ON THIS SHEET

Infantry, ground vehicles, aircraft, naval forces and automatic support. Base roles and matchups; research and battlefield conditions can change the result.



Irregular Fighter
Locally recruited fighter.
GOOD / Infantry (in numbers); Capturing **WEAK /** Vehicles; Machine guns
$90 / 4 s / 95 HP



Veteran Regular
Combat-hardened contractor.
GOOD / Infantry **WEAK /** Vehicles; Snipers
$220 / 9 s / 125 HP



Tank Hunter
RPG ambusher trained to lie in wait.
GOOD / Tanks; Vehicles **WEAK /** Infantry; Recon units
$250 / 8 s / 90 HP



Technician
Resourceful mechanic.
GOOD / Captures buildings; Repairs **WEAK /** Everything (unarmed)
$300 / 7 s / 85 HP



Marksman
Patient long-range shooter with an old but deadly rifle.
GOOD / Infantry; Vehicle crews (Snipe Out) **WEAK /** Vehicles; Recon units
$500 / 12 s / 80 HP



AA Gunner
Carries an older shoulder-fired SAM.
GOOD / Helicopters; Drones **WEAK /** Infantry; Vehicles
$300 / 9 s / 85 HP



Saboteur
Permanently camouflaged infiltrator.
GOOD / Structures (demolition); Infiltration **WEAK /** Recon units; Detectors
$800 / 16 s / 110 HP



Worker
Cheap labourer who builds every MLF structure.
GOOD / Builds structures (together: faster); Repairs structures
WEAK / Everything (unarmed until WORKER ARMS)
$150 / 5 s / 90 HP



Front Captain
Battle-hardened MLF commander with a belt-fed machine gun and an RPG, arriving at Elite rank.
GOOD / Infantry; Vehicles **WEAK /** Snipers; Artillery
$1,100 / 20 s / 320 HP



Tunnel Rat
Small, quick miner with a shovel on his back and a machine pistol.
GOOD / Digging tunnels for the army; DETONATE GROUND: blows the ground under an enemy (Ground Charges research)
WEAK / Tanks; Anything at range
$280 / 8 s / 85 HP



Supply Pickup
Civilian pickup piled with crates.
GOOD / Fast gathering **WEAK /** Everything (unarmed until Supply Camp guns)
$300 / 7 s / 280 HP



Sandrunner Buggy
Fast tubular-frame dune buggy with a rocket pod.
GOOD / Supply trucks; Light vehicles **WEAK /** Tanks; Machine guns
$350 / 6 s / 230 HP



Gun Technical
Pickup truck with a heavy machine gun bolted into the bed.
GOOD / Infantry; Light vehicles **WEAK /** Tanks; Anti-tank infantry
$400 / 7 s / 360 HP



Ironside Armoured Truck
Commercial truck clad in welded steel plate with a 23mm cannon turret.
GOOD / Infantry; Light vehicles **WEAK /** Tanks; Anti-tank infantry
$650 / 10 s / 580 HP



Mortar Carrier
Pickup carrying a heavy 120mm mortar.
GOOD / Infantry; Defences **WEAK /** Everything up close; Aircraft
$700 / 10 s / 330 HP



Hailstorm Rocket Truck
Truck-mounted rocket rack.
GOOD / Infantry; Structures **WEAK /** Everything up close; Aircraft
$1,000 / 14 s / 380 HP



Trophy Tank
Captured older-generation tank patched with scavenged parts and slat armour.
GOOD / Tanks; Vehicles **WEAK /** Anti-tank infantry; Attack helicopters
$900 / 14 s / 950 HP



Sandhammer Heavy Tank
Captured heavy tank rebuilt with patchwork armour, slat cages, a salvaged 120mm cannon and a remote machine gun.
GOOD / Tanks; Vehicles **WEAK /** Attack helicopters; Massed anti-tank infantry
$1,750 / 22 s / 1600 HP



Flak Truck
Truck carrying a twin 23mm anti-aircraft cannon.
GOOD / Helicopters; Drones **WEAK /** Tanks; Anti-tank infantry
$600 / 9 s / 300 HP



Longfang Missile Launcher
Tactical ballistic missile on an 8x8 transporter-erector.
GOOD / Structures; Defences **WEAK /** Everything up close; Aircraft
$2,000 / 24 s / 460 HP



Command Truck
Field Command packed onto a heavy truck.
GOOD / Deploys a Field Command **WEAK /** Everything (unarmed)
$2,400 / 30 s / 1300 HP



Goliath Scrap Tank
Super-heavy tank welded together from wrecks.
GOOD / Tanks; Everything on the ground (at full rank) **WEAK /** Aircraft; Massed anti-tank infantry
$3,200 / 38 s / 3400 HP



Mole Tank
Welded-together drilling machine: a big auger on the nose, scrap plates over a tracked hull and a stub cannon in a small turret.
GOOD / Surprise attacks from below; Light vehicles and infantry
WEAK / Heavy tanks; Detectors and seismic sensors
$820 / 13 s / 520 HP



Raider Skiff
Fast fishing skiff with a recoilless gun and a pintle machine gun welded on.
GOOD / Ambush: unseen while it lies still; Infantry **WEAK /** Tanks; Anti-tank infantry
$480 / 8 s / 400 HP



Rust Ferry
A rusty river ferry with a welded bow ramp.
GOOD / Carries 8 infantry or 2 vehicles; Lands on any shore
WEAK / Everything (a light MG only)
$620 / 12 s / 820 HP



Hellfish Missile Trawler
Fishing trawler rebuilt with guided missiles, shoulder SAMs and depth charges.
GOOD / Tanks and structures far off; Aircraft **WEAK /** Gunboats up close; Fragile for its size
$1,450 / 20 s / 1150 HP



Barnacle Mini-Sub
Scrappy home-built mini-sub, a welded tube with torpedoes strapped under it, against boats (and structures by the water, at half).
GOOD / Boats; Structures by the water **WEAK /** Missile Boats and depth charges; Fragile
$1,000 / 15 s / 720 HP



Scrapwhale Heavy Barge
A rusty river barge welded into a tank carrier from three hulls: a crooked bow ramp, a ramshackle cabin aft, tyres and drums everywhere.
GOOD / Carries 4 heavy tanks, 6 medium or 8 light vehicles; Or one super-heavy tank and two heavy ones **WEAK /** Slow; Light MG only: escort it
$1,250 / 26 s / 2200 HP



Smugglers' Pickup
Automatic Black Market delivery: smugglers arrive from the map edge, unload $1,750 every 3 minutes, then leave.
GOOD / Brings $1,750 every 3 min **WEAK /** Unarmed; Everything
Automatic / mission or ability support; not normal production / 320 HP



Hidden Tunnel
Not built: Tunnel Reinforcements (doctrine) digs one at each end of a hidden tunnel.
GOOD / Hidden: only detectors and seismic sensors find it **WEAK /** Explosives, once found
Automatic / mission or ability support; not normal production / 1400 HP



Smuggler Chopper
Not built: Airborne Reinforcements (doctrine) sends two from the map edge behind your base.
GOOD / Automatic support **WEAK /** Unarmed; Anti-air
Automatic / mission or ability support; not normal production / 620 HP



Heavy Smuggler Chopper
Not built: from Command Centre Level 2, Airborne Reinforcements (doctrine) also sends a Packhorse with a Warden MRAP slung under it.
GOOD / Automatic support **WEAK /** Unarmed; Anti-air
Automatic / mission or ability support; not normal production / 900 HP



Smuggler Cargo Plane
Not built: from Command Centre Level 3, Airborne Reinforcements (doctrine) also sends this four-engine cargo plane.
GOOD / Automatic support **WEAK /** Unarmed; Anti-air
Automatic / mission or ability support; not normal production / 1100 HP

Field kits & defence upgrades

FIELD REFERENCE / 19 ENTRIES ON THIS SHEET

Field kits attach to individual units. Defence upgrades are purchased once for a defence definition and apply to every tower of that type you own now or later in the match.

Salvaged Gun Upgrade

Cost / fitting: Recovered from salvage **Eligibility:** Eligible salvage vehicles

Effect: Main gun fires faster and hits harder

Mounted weapon:

Scrap Missile Pod

Cost / fitting: Recovered from salvage **Eligibility:** Eligible salvage vehicles

Effect: Missiles against armour and aircraft

Mounted weapon: Scrap Missile Pod

Long-View UAV

Cost / fitting: $400 / 6 s **Eligibility:** Special tanks / excludes MLF **Replaces:** Detector UAV

Effect: Scout drone: sees twice as far

Mounted weapon:

Detector UAV

Cost / fitting: $500 / 6 s **Eligibility:** Special tanks / excludes MLF **Replaces:** Long-View UAV

Effect: Sees hidden units, camouflaged buildings and into smoke (snipers: half range)

Mounted weapon:

Long-View Mast

Cost / fitting: $400 / 6 s **Eligibility:** Special tanks / MLF only **Replaces:** Detector Mast

Effect: Periscope mast: sees twice as far

Mounted weapon:

Detector Mast

Cost / fitting: $500 / 6 s **Eligibility:** Special tanks / MLF only **Replaces:** Long-View Mast

Effect: Sees hidden units, camouflaged buildings and into smoke (snipers: half range)

Mounted weapon:

AA Missile Pod

Cost / fitting: $500 / 7 s **Eligibility:** Special tanks

Effect: Fires missiles at aircraft

Mounted weapon: AA Missile Pod

Anti-Infantry Gun

Cost / fitting: $350 / 5 s **Eligibility:** Special tanks

Effect: Remote heavy MG shreds infantry

Mounted weapon: Remote Heavy MG

Bolt-on Armour Plates

Cost / fitting: $600 / 8 s **Eligibility:** Special tanks

Effect: +25% hull strength, -10% damage taken

Mounted weapon:

Advanced Body Armour

Cost / fitting: $250 / 5 s **Eligibility:** Armed tier-2/3 specialist infantry

Effect: +40% health, -15% damage taken

Mounted weapon:

Advanced Optics

Cost / fitting: $200 / 4 s **Eligibility:** Armed tier-2/3 specialist infantry

Effect: +20% range, +25% vision

Mounted weapon:

Combat Stims

Cost / fitting: $200 / 4 s **Eligibility:** Armed tier-2/3 specialist infantry

Effect: +25% speed, fires 10% faster

Mounted weapon:

Damage

Effect: +25% damage

Level 1: $300 / 8 s / Command Centre Level 1 **Level 2:** $450 / 12 s / Command Centre Level 2

Availability: gun defences; anti-tank guns; missile posts; SAM defences; flak defences; artillery defences

Ownership: Applies to every owned tower of the purchased definition, including later construction and captures. A tower captured by another side follows that side's upgrades. It is not one purchase for every faction or every defence family.

Fire Rate

Effect: Fires 20% faster

Level 1: $300 / 8 s / Command Centre Level 1 **Level 2:** $450 / 12 s / Command Centre Level 2

Availability: gun defences; anti-tank guns; missile posts; SAM defences; flak defences; artillery defences

Ownership: Applies to every owned tower of the purchased definition, including later construction and captures. A tower captured by another side follows that side's upgrades. It is not one purchase for every faction or every defence family.

Garrison Crew

Effect: 2 riflemen inside fire out of it

Level 1: $350 / 10 s / Command Centre Level 1

Availability: gun defences; anti-tank guns; missile posts; SAM defences; flak defences; artillery defences; bunkers; also requires a Barracks

Ownership: Applies to every owned tower of the purchased definition, including later construction and captures. A tower captured by another side follows that side's upgrades. It is not one purchase for every faction or every defence family.

Airburst Shells

Effect: Each round bursts over the target into 3 bomblets

Level 1: $600 / 14 s / Command Centre Level 2

Availability: artillery defences

Ownership: Applies to every owned tower of the purchased definition, including later construction and captures. A tower captured by another side follows that side's upgrades. It is not one purchase for every faction or every defence family.

Tracking Radar

Effect: +15% range, turns 60% faster

Level 1: $450 / 10 s / Command Centre Level 2

Availability: SAM defences; flak defences

Ownership: Applies to every owned tower of the purchased definition, including later construction and captures. A tower captured by another side follows that side's upgrades. It is not one purchase for every faction or every defence family.

Double Salvo

Effect: Twice the missiles each shot

Level 1: $600 / 12 s / Command Centre Level 2

Availability: missile posts; SAM defences

Ownership: Applies to every owned tower of the purchased definition, including later construction and captures. A tower captured by another side follows that side's upgrades. It is not one purchase for every faction or every defence family.

Reinforced

Effect: +30% health

Level 1: $300 / 10 s / Command Centre Level 1

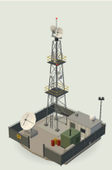
Availability: gun defences; anti-tank guns; bunkers

Ownership: Applies to every owned tower of the purchased definition, including later construction and captures. A tower captured by another side follows that side's upgrades. It is not one purchase for every faction or every defence family.

Neutral structures & battlefield assets

FIELD REFERENCE / 31 ENTRIES ON THIS SHEET

Outposts, resource facilities and civilian structures are map assets, not normal faction construction. Capture rules, garrisons, resources and destruction effects are listed separately.



Comms Relay

Lets you see far across the battlefield around it and reveals camouflaged and stealthy units close by (not snipers standing still or sneaking, nor camouflaged buildings).

GOOD / Wide vision · reveals hidden units (not still or sneaking snipers) **WEAK /** Ordinary neutral outposts are invulnerable; campaign objectives can use their own rules.

3000 HP / 90 m vision / 10 s base outpost capture time; engineer and crew modifiers apply



Field Hospital

Medics patch up your wounded infantry anywhere within 32 m of the hospital.

GOOD / Heals your infantry nearby **WEAK /** Ordinary neutral outposts are invulnerable; campaign objectives can use their own rules.

3000 HP / 34 m vision / 10 s base outpost capture time; engineer and crew modifiers apply



Repair Depot

Mechanics repair your vehicles and landed helicopters anywhere within 28 m of the depot.

GOOD / Repairs your vehicles nearby **WEAK /** Ordinary neutral outposts are invulnerable; campaign objectives can use their own rules.

3000 HP / 34 m vision / 10 s base outpost capture time; engineer and crew modifiers apply



Supply Cache

Pays $1000 the first time you take it, then $20 every 5 seconds while you hold it.

GOOD / +$1000 on first capture · +$20 / 5s **WEAK /** Ordinary neutral outposts are invulnerable; campaign objectives can use their own rules.

3000 HP / 30 m vision / 10 s base outpost capture time; engineer and crew modifiers apply



Gun Bunker

A heavy machine gun and an anti-tank gun that fire at your enemies.

GOOD / Heavy MG + anti-tank gun fight for you **WEAK /** Can be knocked out to neutral and recaptured.

2600 HP / 50 m vision / 10 s base outpost capture time; engineer and crew modifiers apply



Townhouse

Eligible infantry can occupy it for protection and additional firing range.

WEAK / Can be destroyed

900 base HP / STRUCT armour / 10 x 10 m



Bungalow

Eligible infantry can occupy it for protection and additional firing range.

WEAK / Can be destroyed

800 base HP / STRUCT armour / 8 x 12 m



Villa

Eligible infantry can occupy it for protection and additional firing range.

WEAK / Can be destroyed

1100 base HP / STRUCT armour / 14 x 12 m



Apartment Block

Eligible infantry can occupy it for protection and additional firing range.

WEAK / Can be destroyed

1800 base HP / STRUCT armour / 16 x 12 m

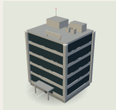


Tower Block

Eligible infantry can occupy it for protection and additional firing range.

WEAK / Can be destroyed

2400 base HP / STRUCT armour / 14 x 14 m



Office Building

Eligible infantry can occupy it for protection and additional firing range.

WEAK / Can be destroyed

2200 base HP / STRUCT armour / 16 x 16 m



Shops

Eligible infantry can occupy it for protection and additional firing range.

WEAK / Can be destroyed

1200 base HP / STRUCT armour / 20 x 10 m



Warehouse

A civilian map structure rather than a unit-production building.

WEAK / Can be destroyed

2000 base HP / STRUCT armour / 24 x 16 m



Factory

A civilian map structure rather than a unit-production building.

WEAK / Can be destroyed

2600 base HP / STRUCT armour / 28 x 20 m



Petrol Station

A civilian map structure rather than a unit-production building.

WEAK / Can be destroyed

700 base HP / STRUCT armour / 18 x 14 m



Farmhouse

Eligible infantry can occupy it for protection and additional firing range.

WEAK / Can be destroyed

900 base HP / STRUCT armour / 12 x 10 m



Barn

A civilian map structure rather than a unit-production building.

WEAK / Can be destroyed

800 base HP / STRUCT armour / 14 x 10 m



Church

Eligible infantry can occupy it for protection and additional firing range.

WEAK / Can be destroyed

2400 base HP / STRUCT armour / 14 x 22 m



Grain Silo

A civilian map structure rather than a unit-production building.

WEAK / Can be destroyed

700 base HP / STRUCT armour / 6 x 6 m

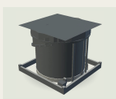


Water Tower

A civilian map structure rather than a unit-production building.

WEAK / Can be destroyed

600 base HP / STRUCT armour / 6 x 6 m



Storage Tank

A civilian map structure rather than a unit-production building.

WEAK / Can be destroyed

700 base HP / STRUCT armour / 10 x 10 m

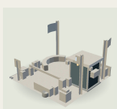


Industrial Chimney

A civilian map structure rather than a unit-production building.

WEAK / Can be destroyed

1200 base HP / STRUCT armour / 5 x 5 m

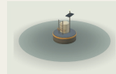


Checkpoint Post

Eligible infantry can occupy it for protection and additional firing range.

WEAK / Can be destroyed

1000 base HP / STRUCT armour / 8 x 8 m



Offshore Oil Well

Offshore resource node.

5 x 5 m



Oil Facility

Capture with eligible infantry; engineers capture four times faster.

8 x 8 m



Dustline Power Station

Capture to provide +50 power to a powered faction.

40 x 32 m



Container Yard

A supply-zone visual variant.

16 x 12 m



Industrial Warehouse

A supply-zone visual variant.

16 x 14 m



Fuel Depot

A supply-zone visual variant.

14 x 14 m



Supply Depot

A supply-zone visual variant.

14 x 12 m

Abandoned vehicles, wrecks & ruins

Recoverable vehicles: Eligible infantry and engineers can crew an abandoned vehicle. An intact abandoned vehicle starts at 55% maximum health and a damaged one at 25% in the standard map-state rules. Repair a recovered vehicle before relying on it. A wrecked vehicle is not a recoverable crew target.

Ruins and civilian life: Destroyed civilian structures leave rubble rather than usable production or a normal garrison. Vehicles must navigate around blocked ground; infantry can use rubble for cover. Civilian residents are separate from your trained army. Map and mission rules determine their presence and behaviour.

All factions / Research catalogue

RESEARCH / 24 ENTRIES ON THIS SHEET

Each rank is a separate purchase. The highest rank replaces earlier ranks; do not add rank effects together. Costs and times are base values. Research prerequisites are linked below each effect.

ADC / Machine Guns

Research: $900 / 25 s at Airbase

Effect: Mounts four heavy machine-gun turrets on the Airbase's roof corners. They fire by themselves at enemy infantry, light vehicles and helicopters within 45 m. They are part of the Airbase: they fall with it.

Limitation: Cannot stop tanks or jets

Previous research and unlocks: Technology Centre

ADC / Missile Launchers

Research: $1,600 / 35 s at Airbase

Effect: Adds a surface-to-air and an anti-tank missile launcher at each corner of the Airbase, 80 m range: the SAMs shoot down aircraft, the ATGMs knock out tanks and vehicles. They reload after every launch. Needs Machine Guns.

Previous research and unlocks: Machine Guns / Technology Centre

ADC / Countermeasures

Research: $1,000 / 30 s at Airbase

Effect: Flares and chaff. Aircraft have a 40% chance to spoof incoming anti-air missiles.

Previous research and unlocks: Technology Centre

ADC / Evasive Manoeuvres

Research: $1,200 / 30 s at Airbase

Effect: Combat flying drills: when fired on, your aircraft jink left and right. 35% of the missiles and rockets aimed at them fly past, and bullets and flak miss a little more often. Works together with Countermeasures (flares): at most 70% of anti-air missiles miss.

Previous research and unlocks: Technology Centre

ADC / UAV Thermal Imaging

Research: $1,200 / 30 s at Airbase

Effect: Thermal cameras for every UAV: the Recon Drone, the Wraith UCAV and the Drone Surveillance drone see hidden units, camouflaged structures and into smoke in their sight (a still or sneaking sniper within half of it). Without it, UAVs only show the area. (A sniper under its Ghillie still stays hidden.)

Limitation: Snipers only within half their sight

Limitation: Not snipers under a Ghillie

Previous research and unlocks: Technology Centre

ADC / Ghillie Suits

Research: $1,000 / 30 s at Barracks

Effect: Hand-tied ghillie suits in burlap and scrim. Snipers get the GHILLIE order: they lie down and cover up (2 s). Then no enemy can see them - not by eye, on radar, with drones, satellites or any detector - unless an enemy soldier or vehicle comes within 7 m. Their shots do not give them away: the enemy only hears them and gets a rough warning. Getting up takes 2.5 s.

Limitation: Seen by enemies within 7 m

Limitation: 2.5 s to get up

Previous research and unlocks: Technology Centre

ADC / Advanced Munitions

Research: $800 / 25 s at Barracks

Effect: Improved small-arms and missile rounds. Infantry weapons +20% damage.

Previous research and unlocks: Technology Centre

ADC / Heavy Armour Programme I

Research: $1,000 / 30 s at Command Centre

Effect: Heavier plating for every vehicle you field: +10% hit points.

Previous research and unlocks: Barracks

ADC / Heavy Armour Programme II

Research: $1,600 / 40 s at Command Centre

Effect: Vehicles +20% hit points.

Previous research and unlocks: Heavy Armour Programme I / Technology Centre / Command Centre Level 2

ADC / Heavy Armour Programme III

Research: $2,400 / 50 s at Command Centre

Effect: Vehicles +35% hit points.

Previous research and unlocks: Heavy Armour Programme II / Technology Centre / Joint Command Doctrine / Command Centre Level 3

ADC / Underground Wall

Research: $1,500 / 35 s at Command Centre

Effect: Barrier charges and grouted bedrock deep under your base: enemy units underground cannot come within 75 m of a Command Centre or 14 m of any of your finished structures. Tunnellers that try are forced to the surface at the edge and stunned. A faint dashed ring marks it round each Command Centre. Needs Command Centre Level 2.

Previous research and unlocks: Command Centre Level 2

ADC / Point Defence Grid I

Research: $900 / 30 s at Command Centre

Effect: Mounts a heavy machine gun on the Command Centre that fires at enemy infantry and helicopters that come close.

Previous research and unlocks: Barracks

ADC / Point Defence Grid II

Research: $1,400 / 35 s at Command Centre

Effect: Adds an anti-tank missile launcher to the Command Centre's machine gun.

Previous research and unlocks: Point Defence Grid I / Technology Centre / Command Centre Level 2

ADC / Point Defence Grid III

Research: $2,000 / 45 s at Command Centre

Effect: Adds an anti-air launcher, and all three Command Centre weapons get +20% range.

Previous research and unlocks: Point Defence Grid II / Technology Centre / Joint Command Doctrine / Command Centre Level 3

ADC / Hardened Command I

Research: $800 / 25 s at Command Centre

Effect: Command Centre +25% hit points and takes 10% less damage.

Previous research and unlocks: Barracks

ADC / Hardened Command II

Research: $1,300 / 35 s at Command Centre

Effect: Command Centre +50% hit points and takes 20% less damage.

Previous research and unlocks: Hardened Command I / Technology Centre / Command Centre Level 2

ADC / Hardened Command III

Research: $2,000 / 45 s at Command Centre

Effect: Command Centre doubles its hit points and takes 30% less damage.

Previous research and unlocks: Hardened Command II / Technology Centre / Joint Command Doctrine / Command Centre Level 3

ADC / Directed Energy I

Research: $1,000 / 30 s at Command Centre

Effect: Laser rangefinders: the direct-fire weapons of your vehicles, defences and Command Centre guns get +10% range and +10% accuracy.

Previous research and unlocks: Barracks

ADC / Directed Energy II

Research: $1,600 / 40 s at Command Centre

Effect: Laser point defences: Sentry Guns, Lancer Missile Posts and the Command Centre's machine gun and anti-tank launcher fire laser beams, an instant hit with 25% more damage. Keeps the rangefinders.

Previous research and unlocks: Directed Energy I / Technology Centre / Command Centre Level 2

ADC / Directed Energy III

Research: $2,400 / 50 s at Command Centre

Effect: Laser cannons: the Sentinel's 120mm gun, the Halberd's missile launcher and the Bastion's autocannon become lasers, an instant beam that never misses a moving target for lack of lead, with 20% more damage. Keeps the point defences and rangefinders.

Previous research and unlocks: Directed Energy II / Technology Centre / Joint Command Doctrine / Command Centre Level 3

ADC / Command Centre Level 2

Research: $2,000 / 40 s at Command Centre

Effect: Expands the Command Centre to Level 2: unlocks rank II of every skill track and the Strategic Authorisation research at the Technology Centre.

ADC / Command Centre Level 3

Research: $3,500 / 60 s at Command Centre

Effect: Expands the Command Centre to Level 3: unlocks rank III of every skill track and the Mastodon super-heavy tank. Needs Joint Command Doctrine researched at the Technology Centre.

Previous research and unlocks: Command Centre Level 2 / Joint Command Doctrine / Technology Centre

ADC / Battlefield Network I

Research: $900 / 30 s at Command Centre

Effect: Field maintenance over the datalink: a unit that has neither been hit nor fired for 8 seconds repairs itself, 0.75% of its hit points a second (from nearly wrecked to whole in about two minutes).

Previous research and unlocks: Barracks

ADC / Battlefield Network II

Research: $1,400 / 40 s at Command Centre

Effect: Shared sensor picture: every unit sees 15% further, and your aircraft get a 20% better chance to spoof anti-air missiles with flares. Keeps the self-repair.

Previous research and unlocks: Battlefield Network I / Technology Centre / Command Centre Level 2

All factions / Research catalogue

RESEARCH / 29 ENTRIES ON THIS SHEET

ADC / Battlefield Network III

Research: $2,200 / 50 s at Command Centre

Effect: Pulse-laser rifles: the rifles and carbines of your infantry and your snipers' rifles fire laser beams, an instant hit with 20% more damage. Keeps the self-repair, the vision and the countermeasures.

Previous research and unlocks: Battlefield Network II / Technology Centre / Joint Command Doctrine / Command Centre Level 3

ADC / Logistics Automation I

Research: $1,200 / 30 s at Command Centre

Effect: Units train and structures go up 10% faster.

Previous research and unlocks: Barracks

ADC / Logistics Automation II

Research: $1,800 / 40 s at Command Centre

Effect: Units train and structures go up 20% faster.

Previous research and unlocks: Logistics Automation I / Technology Centre / Command Centre Level 2

ADC / Logistics Automation III

Research: $2,600 / 50 s at Command Centre

Effect: Units train and structures go up 30% faster.

Previous research and unlocks: Logistics Automation II / Technology Centre / Joint Command Doctrine / Command Centre Level 3

ADC / Combat Readiness I

Research: $1,000 / 30 s at Command Centre

Effect: All your units and defences reload 8% faster.

Previous research and unlocks: Barracks

ADC / Combat Readiness II

Research: $1,600 / 40 s at Command Centre

Effect: All your units and defences reload 16% faster.

Previous research and unlocks: Combat Readiness I / Technology Centre / Command Centre Level 2

ADC / Combat Readiness III

Research: $2,400 / 50 s at Command Centre

Effect: All your units and defences reload 25% faster.

Previous research and unlocks: Combat Readiness II / Technology Centre / Joint Command Doctrine / Command Centre Level 3

ADC / Ground-Penetrating Sensors I

Research: $900 / 30 s at Command Centre

Effect: Every vehicle you field detects camouflaged units and sees into smoke within 60% of its vision (not a sniper standing still or sneaking: only detector units, Detector kits and drones that see hidden units find those).

Previous research and unlocks: Barracks

ADC / Ground-Penetrating Sensors II

Research: $1,400 / 40 s at Command Centre

Effect: Vehicles also pick up units moving underground (seismic detection) within 60% of their vision. Keeps the camouflage detection.

Previous research and unlocks: Ground-Penetrating Sensors I / Technology Centre / Command Centre Level 2

ADC / Ground-Penetrating Sensors III

Research: $2,000 / 45 s at Command Centre

Effect: Every detection range +40% (vehicles, detectors, Ground Sonar Arrays), and your defences detect camouflaged and underground units and see into smoke too (not a sniper standing still or sneaking).

Previous research and unlocks: Ground-Penetrating Sensors II / Technology Centre / Joint Command Doctrine / Command Centre Level 3

ADC / Composite Armour

Research: $1,500 / 40 s at Vehicle Factory

Effect: Bolt-on composite armour modules. Vehicles +20% hit points.

Previous research and unlocks: Technology Centre

ADC / Laser Warning Systems

Research: $1,500 / 40 s at Vehicle Factory

Effect: Warning receivers: vehicles take 20% less damage from anti-tank weapons, and tanks with smoke launchers fire them by themselves when an anti-tank missile or rocket hits them (if loaded).

Previous research and unlocks: Strategic Authorisation

ADC / Up-Armoured Cabs I

Research: $500 / 20 s at Supply Hub

Effect: Logistics Trucks +25% hit points and take 10% less damage.

ADC / Up-Armoured Cabs II

Research: $900 / 30 s at Supply Hub

Effect: Logistics Trucks +50% hit points and take 20% less damage.

Previous research and unlocks: Up-Armoured Cabs I / Command Centre Level 2

ADC / Up-Armoured Cabs III

Research: $1,400 / 40 s at Supply Hub

Effect: Logistics Trucks +80% hit points and take 30% less damage.

Previous research and unlocks: Up-Armoured Cabs II / Command Centre Level 3

ADC / Palletised Loading I

Research: $600 / 20 s at Supply Hub

Effect: Logistics Trucks carry 20% more per trip and load and unload 15% faster.

ADC / Palletised Loading II

Research: $1,000 / 30 s at Supply Hub

Effect: Logistics Trucks carry 40% more per trip and load and unload 30% faster.

Previous research and unlocks: Palletised Loading I / Command Centre Level 2

ADC / Palletised Loading III

Research: $1,500 / 40 s at Supply Hub

Effect: Logistics Trucks carry 60% more per trip and load and unload 45% faster.

Previous research and unlocks: Palletised Loading II / Command Centre Level 3

ADC / Hybrid Drive I

Research: $500 / 20 s at Supply Hub

Effect: Logistics Trucks drive 12% faster.

ADC / Hybrid Drive II

Research: $900 / 30 s at Supply Hub

Effect: Logistics Trucks drive 24% faster.

Previous research and unlocks: Hybrid Drive I / Command Centre Level 2

ADC / Hybrid Drive III

Research: $1,400 / 40 s at Supply Hub

Effect: Logistics Trucks drive 36% faster.

Previous research and unlocks: Hybrid Drive II / Command Centre Level 3

ADC / Convoy Protection I

Research: $600 / 20 s at Supply Hub

Effect: Mounts a heavy machine gun on top of your logistics trucks. It fires at infantry and helicopters in range while they keep hauling.

ADC / Convoy Protection II

Research: $1,000 / 30 s at Supply Hub

Effect: Adds an anti-air gun next to the machine gun: it shoots only at aircraft.

Previous research and unlocks: Convoy Protection I / Command Centre Level 2

ADC / Convoy Protection III

Research: $1,500 / 40 s at Supply Hub

Effect: Adds an anti-tank missile launcher that picks out vehicles.

Previous research and unlocks: Convoy Protection II / Command Centre Level 3

ADC / Satellite Communications

Research: $1,200 / 30 s at Satellite Uplink

Effect: Commander abilities recharge 25% faster.

Previous research and unlocks: Technology Centre

ADC / Global Radar Sweep

Research: $1,500 / 35 s at Satellite Uplink

Effect: Links the Satellite Uplink to orbital sensors. The SWEEP button on the structure (and this card, once done) pushes the fog of war back from it across the whole map, showing everything for 10 s (recharges in 2 minutes).

Previous research and unlocks: Technology Centre

ADC / Recovery Crews

Research: $1,000 / 30 s at Repair Bay

Effect: Every vehicle carries spares and tools: one that has neither been hit nor fired for 8 seconds repairs itself, 0.5% of its hit points a second.

Previous research and unlocks: Technology Centre

ADC / Robotic Repair Arms

Research: $600 / 20 s at Repair Bay

Effect: The Repair Bay repairs the vehicles on its pad 50% faster.

ADC / Naval Academy I

Research: $1,200 / 30 s at Naval Yard

Effect: Trained boat crews: every boat, those afloat and every one built from now on, is a Veteran (better aim and reload, tougher).

All factions / Research catalogue

RESEARCH / 27 ENTRIES ON THIS SHEET

ADC / Naval Academy II

Research: $2,000 / 40 s at Naval Yard

Effect: Boats are Elite: better still, and they repair themselves a little out of combat.

Previous research and unlocks: Naval Academy I / Command Centre Level 2

ADC / Turbine Drives I

Research: $700 / 20 s at Naval Yard

Effect: Better engines: every boat +10% speed.

ADC / Turbine Drives II

Research: $1,100 / 30 s at Naval Yard

Effect: Boats +20% speed.

Previous research and unlocks: Turbine Drives I / Command Centre Level 2

ADC / Turbine Drives III

Research: $1,700 / 40 s at Naval Yard

Effect: Boats +30% speed.

Previous research and unlocks: Turbine Drives II / Command Centre Level 3

ADC / Naval Gunnery I

Research: $1,000 / 25 s at Naval Yard

Effect: Better gunnery: every boat weapon +10% damage and +5% range (missiles, torpedoes and depth charges too).

ADC / Naval Gunnery II

Research: $1,600 / 35 s at Naval Yard

Effect: Boat weapons +20% damage and +10% range.

Previous research and unlocks: Naval Gunnery I / Command Centre Level 2

ADC / Naval Gunnery III

Research: $2,400 / 45 s at Naval Yard

Effect: Boat weapons +30% damage and +15% range.

Previous research and unlocks: Naval Gunnery II / Command Centre Level 3

ADC / Armoured Hulls I

Research: $900 / 25 s at Naval Yard

Effect: Plated hulls: every boat +15% hit points and takes 5% less damage.

ADC / Armoured Hulls II

Research: $1,400 / 35 s at Naval Yard

Effect: Boats +30% hit points and take 10% less damage.

Previous research and unlocks: Armoured Hulls I / Command Centre Level 2

ADC / Armoured Hulls III

Research: $2,100 / 45 s at Naval Yard

Effect: Boats +50% hit points and take 15% less damage.

Previous research and unlocks: Armoured Hulls II / Command Centre Level 3

ADC / Sonar Arrays

Research: $1,200 / 30 s at Naval Yard

Effect: Better sonar: the sonar of your Missile Boats and Naval Yards reaches 60% further (45 m to 72 m), so enemy submarines are found sooner. Every boat also sees 15% further.

Previous research and unlocks: Technology Centre

ADC / Cluster Warheads

Research: $2,000 / 45 s at Cruise Missile Battery

Effect: Each missile bursts in the air and shoots off 7 large bomblets: one drops straight down on its point (3200 damage, 24 m) and 6 more arc down in a ring 24 m round it (1500 damage, 20 m each), so the blasts overlap and cover the whole circle. A full rack of four throws 28: soldiers and light vehicles in the area are killed, tanks killed or crippled. No longer one big warhead.

Previous research and unlocks: Strategic Authorisation

ADC / Deep Strike & Skyburst

Research: $3,500 / 60 s at Cruise Missile Battery

Effect: The blast reaches below and above the ground. Tunnelling units, dug-in soldiers and tunnels within 42 m are destroyed underneath (a tunnel falls in), and every enemy aircraft over the blast at any height within 56 m takes up to 1100 damage: helicopters and drones are shot down, jets badly hurt. Needs Toxin Payload.

Previous research and unlocks: Toxin Payload / Strategic Authorisation

ADC / Toxin Payload

Research: $2,500 / 50 s at Cruise Missile Battery

Effect: The warheads carry a nerve agent: after the strike a green cloud (about 40 m round the target for a full rack) lingers on the target for 32 seconds. Soldiers in it die in seconds; vehicles take light damage, structures a little. Your own forces are safe in it. Needs Cluster Warheads.

Previous research and unlocks: Cluster Warheads / Strategic Authorisation

ADC / Joint Command Doctrine

Research: $1,500 / 40 s at Technology Centre

Effect: The staff work behind the Command Centre's most advanced skills. Unlocks Command Centre Level 3 and with it rank III of every Command Centre skill track (they still need rank II first).

Previous research and unlocks: Technology Centre

ADC / Drone Reconnaissance

Research: $1,000 / 35 s at Technology Centre

Effect: Persistent drone overwatch: all aircraft +25% vision. (UAV Thermal Imaging at the Airbase makes the UAVs see hidden enemies.)

Previous research and unlocks: Strategic Authorisation

ADC / Infrared Sight

Research: $1,800 / 45 s at Technology Centre

Effect: Infrared fire control on every gun. Units and defences +10% accuracy and aim true through smoke screens; night, fog, rain, snow and dust no longer cut their sight or their aim. Needs Thermal Optics and tier 3.

Previous research and unlocks: Thermal Optics / Strategic Authorisation

ADC / Advanced Targeting

Research: $1,200 / 35 s at Technology Centre

Effect: Networked fire control. Vehicles and defences +8% accuracy and +10% weapon range.

Previous research and unlocks: Technology Centre

ADC / Thermal Optics

Research: $1,000 / 30 s at Technology Centre

Effect: Thermal sights for all units: +20% vision. Vehicles can detect camouflaged units and see into smoke (not a sniper standing still or sneaking, nor camouflaged structures: for those, UAV Thermal Imaging at the Airbase).

Previous research and unlocks: Technology Centre

ADC / Strategic Authorisation

Research: $2,000 / 45 s at Technology Centre

Effect: Unlocks the heaviest arsenal: heavy weapons, advanced aircraft, long-range artillery and the Cruise Missile Battery. Needs Command Centre Level 2.

Previous research and unlocks: Command Centre Level 2 / Technology Centre

ESD / Machine Guns

Research: $900 / 25 s at Airfield

Effect: Mounts four heavy machine-gun turrets on the Airfield's roof corners. They fire by themselves at enemy infantry, light vehicles and helicopters within 45 m. They are part of the Airfield: they fall with it.

Limitation: Cannot stop tanks or jets

Previous research and unlocks: Research Institute

ESD / Missile Launchers

Research: $1,600 / 35 s at Airfield

Effect: Adds a surface-to-air and an anti-tank missile launcher at each corner of the Airfield, 80 m range: the SAMs shoot down aircraft, the ATGMs knock out tanks and vehicles. They reload after every launch. Needs Machine Guns.

Previous research and unlocks: Machine Guns / Research Institute

ESD / Evasive Manoeuvres

Research: $1,200 / 30 s at Airfield

Effect: Combat flying drills: when fired on, your aircraft jink left and right. 35% of the missiles and rockets aimed at them fly past, and bullets and flak miss a little more often.

Previous research and unlocks: Research Institute

ESD / Straw-Cape Ghillie

Research: $1,000 / 30 s at Garrison Barracks

Effect: Straw-cape drill and shaggy camouflage capes. Snipers get the GHILLIE order: they lie down and cover up (2 s). Then no enemy can see them - not by eye, on radar, with drones, satellites or any detector - unless an enemy soldier or vehicle comes within 7 m. Their shots do not give them away: the enemy only hears them and gets a rough warning. Getting up takes 2.5 s.

Limitation: Seen by enemies within 7 m

Limitation: 2.5 s to get up

Previous research and unlocks: Research Institute

ESD / Rifle Drill

Research: $800 / 25 s at Garrison Barracks

Effect: Longer training cycles and better kit. Infantry +20% hit points.

Previous research and unlocks: Research Institute

ESD / Aid Wing

Research: $1,300 / 35 s at Command HQ

Effect: Teaches the Command HQ to fly four Yihu repair drones to any point: they hover over it for 35 seconds and repair your vehicles and structures within 34 m, 1.5% of a vehicle's health a second each. Shoot them down and the repairs slow. Recharges in 2.5 minutes. Needs Command HQ Level 2.

Previous research and unlocks: Command HQ Level 2

ESD / Armour Plate Quotas I

Research: $1,000 / 30 s at Command HQ

Effect: Heavier plating for every vehicle you field: +10% hit points.

Previous research and unlocks: Garrison Barracks

All factions / Research catalogue

RESEARCH / 26 ENTRIES ON THIS SHEET

ESD / Armour Plate Quotas II

Research: $1,600 / 40 s at Command HQ

Effect: Vehicles +20% hit points.

Previous research and unlocks: Armour Plate Quotas I / Research Institute / Command HQ Level 2

ESD / Armour Plate Quotas III

Research: $2,400 / 50 s at Command HQ

Effect: Vehicles +35% hit points.

Previous research and unlocks: Armour Plate Quotas II / Research Institute / Centralised Command Doctrine / Command HQ Level 3

ESD / Underground Wall

Research: $1,500 / 35 s at Command HQ

Effect: Barrier charges and grouted bedrock deep under your base: enemy units underground cannot come within 75 m of a Command HQ or 14 m of any of your finished structures. Tunnellers that try are forced to the surface at the edge and stunned. A faint dashed ring marks it round each Command HQ. Needs Command HQ Level 2.

Previous research and unlocks: Command HQ Level 2

ESD / HQ Garrison Guns I

Research: $900 / 30 s at Command HQ

Effect: Mounts a heavy machine gun on the Command HQ that fires at enemy infantry and helicopters that come close.

Previous research and unlocks: Garrison Barracks

ESD / HQ Garrison Guns II

Research: $1,400 / 35 s at Command HQ

Effect: Adds an anti-tank missile launcher to the Command HQ's machine gun.

Previous research and unlocks: HQ Garrison Guns I / Research Institute / Command HQ Level 2

ESD / HQ Garrison Guns III

Research: $2,000 / 45 s at Command HQ

Effect: Adds an anti-air launcher, and all three Command HQ weapons get +20% range.

Previous research and unlocks: HQ Garrison Guns II / Research Institute / Centralised Command Doctrine / Command HQ Level 3

ESD / Power Dominance I

Research: $1,000 / 30 s at Command HQ

Effect: Spare power drives the whole war machine: every 5% of power produced beyond what your base uses speeds up unit production, construction and the reload of every weapon by 1%, up to +10%. The power bar's tooltip shows the bonus.

Previous research and unlocks: Garrison Barracks

ESD / Power Dominance II

Research: $1,600 / 40 s at Command HQ

Effect: Spare power drives the whole war machine: every 5% of power produced beyond what your base uses speeds up unit production, construction and the reload of every weapon by 1%, up to +20%. The power bar's tooltip shows the bonus.

Previous research and unlocks: Power Dominance I / Research Institute / Command HQ Level 2

ESD / Power Dominance III

Research: $2,400 / 50 s at Command HQ

Effect: Spare power drives the whole war machine: every 5% of power produced beyond what your base uses speeds up unit production, construction and the reload of every weapon by 1%, up to +30%. The power bar's tooltip shows the bonus.

Previous research and unlocks: Power Dominance II / Research Institute / Centralised Command Doctrine / Command HQ Level 3

ESD / Bunkered HQ I

Research: $800 / 25 s at Command HQ

Effect: Command HQ +25% hit points and takes 10% less damage.

Previous research and unlocks: Garrison Barracks

ESD / Bunkered HQ II

Research: $1,300 / 35 s at Command HQ

Effect: Command HQ +50% hit points and takes 20% less damage.

Previous research and unlocks: Bunkered HQ I / Research Institute / Command HQ Level 2

ESD / Bunkered HQ III

Research: $2,000 / 45 s at Command HQ

Effect: Command HQ doubles its hit points and takes 30% less damage.

Previous research and unlocks: Bunkered HQ II / Research Institute / Centralised Command Doctrine / Command HQ Level 3

ESD / Command HQ Level 2

Research: $2,000 / 40 s at Command HQ

Effect: Expands the Command HQ to Level 2: unlocks rank II of every skill track and the Heavy Industry Mandate research at the Research Institute.

ESD / Command HQ Level 3

Research: $3,500 / 60 s at Command HQ

Effect: Expands the Command HQ to Level 3: unlocks rank III of every skill track and the Julong super-heavy tank. Needs Centralised Command Doctrine researched at the Research Institute.

Previous research and unlocks: Command HQ Level 2 / Centralised Command Doctrine / Research Institute

ESD / Grid Overcharge I

Research: $800 / 25 s at Command HQ

Effect: Overdriven turbines and boosted transformers: Power Stations and Thermal Power Plants produce 20% more power.

Previous research and unlocks: Garrison Barracks

ESD / Grid Overcharge II

Research: $1,300 / 35 s at Command HQ

Effect: Power Stations and Thermal Power Plants produce 40% more power.

Previous research and unlocks: Grid Overcharge I / Research Institute / Command HQ Level 2

ESD / Grid Overcharge III

Research: $2,000 / 45 s at Command HQ

Effect: Power Stations and Thermal Power Plants produce 60% more power.

Previous research and unlocks: Grid Overcharge II / Research Institute / Centralised Command Doctrine / Command HQ Level 3

ESD / State Production Plan I

Research: $1,200 / 30 s at Command HQ

Effect: Units train and structures go up 10% faster.

Previous research and unlocks: Garrison Barracks

ESD / State Production Plan II

Research: $1,800 / 40 s at Command HQ

Effect: Units train and structures go up 20% faster.

Previous research and unlocks: State Production Plan I / Research Institute / Command HQ Level 2

ESD / State Production Plan III

Research: $2,600 / 50 s at Command HQ

Effect: Units train and structures go up 30% faster.

Previous research and unlocks: State Production Plan II / Research Institute / Centralised Command Doctrine / Command HQ Level 3

ESD / Drill Regimen I

Research: $1,000 / 30 s at Command HQ

Effect: All your units and defences reload 8% faster.

Previous research and unlocks: Garrison Barracks

ESD / Drill Regimen II

Research: $1,600 / 40 s at Command HQ

Effect: All your units and defences reload 16% faster.

Previous research and unlocks: Drill Regimen I / Research Institute / Command HQ Level 2

ESD / Drill Regimen III

Research: $2,400 / 50 s at Command HQ

Effect: All your units and defences reload 25% faster.

Previous research and unlocks: Drill Regimen II / Research Institute / Centralised Command Doctrine / Command HQ Level 3

ESD / State Revenue I

Research: $1,000 / 30 s at Command HQ

Effect: The state takes its cut: every supply delivery pays 10% more credits, and hackers earn and steal 25% more a second.

Previous research and unlocks: Garrison Barracks

ESD / State Revenue II

Research: $1,600 / 40 s at Command HQ

Effect: The state takes its cut: every supply delivery pays 20% more credits, and hackers earn and steal 50% more a second.

Previous research and unlocks: State Revenue I / Research Institute / Command HQ Level 2

ESD / State Revenue III

Research: $2,400 / 50 s at Command HQ

Effect: The state takes its cut: every supply delivery pays 30% more credits, and hackers earn and steal 75% more a second.

Previous research and unlocks: State Revenue II / Research Institute / Centralised Command Doctrine / Command HQ Level 3

All factions / Research catalogue

RESEARCH / 29 ENTRIES ON THIS SHEET

ESD / Sentinel Drone Net

Research: $900 / 30 s at Command HQ

Effect: Teaches the Command HQ to launch a net of three satellite-linked Yexiao sentinel drones over any point: they hold station for 75 seconds, watching 46 m round each and finding hidden units and camouflaged structures. Recharges in 2 minutes.

ESD / Hornet Swarm

Research: $1,600 / 40 s at Command HQ

Effect: Teaches the Command HQ to send five Mafeng loitering drones from behind your base at any point: 7 seconds after the call each dives on an enemy vehicle there (structures if there are none) and goes off in a shaped charge. Anti-air and machine guns shoot them down on the way. Recharges in 3 minutes. Needs Command HQ Level 2.

Previous research and unlocks: Command HQ Level 2

ESD / Extended Drone Link

Research: $1,200 / 30 s at Command HQ

Effect: Doubles construction-drone reach from completed Command HQs and Drone Hives: 120 m to 240 m. Build a Drone Hive to extend coverage farther. Repair drones retain their normal range.

ESD / Autoloader

Research: $1,500 / 40 s at Armour Works

Effect: Mechanical autoloaders. Tank guns reload 20% faster.

Previous research and unlocks: Heavy Industry Mandate

ESD / Improved Engines

Research: $1,000 / 30 s at Armour Works

Effect: Uprated diesel engines. Vehicles +15% speed and acceleration.

Previous research and unlocks: Research Institute

ESD / Reactive Armour

Research: $1,400 / 35 s at Armour Works

Effect: Explosive reactive armour bricks. Tracked vehicles take 25% less damage from anti-tank weapons.

Previous research and unlocks: Research Institute

ESD / Camouflage

Research: $1,200 / 35 s at Hacker Den

Effect: Camouflage netting and masked signals: enemies cannot see the Hacker Den, on the map or on their radar. It is seen only by enemies within 8 m, by ADC UAVs with Thermal Imaging or a Recon Satellite pass, ESD satellite recon or a detector kit. When its Rooftop Gun fires, it is seen for a few seconds.

Limitation: Seen within 8 m or when its gun fires

Limitation: Also by Thermal Imaging UAVs, satellite recon, Detector kits

Previous research and unlocks: Research Institute

ESD / Rooftop Gun

Research: $1,000 / 30 s at Hacker Den

Effect: A heavy machine-gun turret on the Hacker Den's roof fires at enemy infantry within 40 m (not at vehicles or aircraft). It works in low power. Firing gives a camouflaged Hacker Den away for a few seconds.

Limitation: Can't hit vehicles or aircraft

ESD / Escape Tunnel

Research: $600 / 20 s at Hacker Den

Effect: A tunnel out of the Hacker Den: if it is destroyed, the Hackers inside come out unharmed at your nearest Command HQ (at another of your structures if no Command HQ is left) instead of pouring out into the fight.

ESD / Reinforced Walls

Research: $800 / 25 s at Hacker Den

Effect: Steel-lined concrete: the Hacker Den gets +50% hit points and takes 25% less damage.

ESD / Armoured Convoys I

Research: $500 / 20 s at Logistics Depot

Effect: Supply Trucks +25% hit points and take 10% less damage.

ESD / Armoured Convoys II

Research: $900 / 30 s at Logistics Depot

Effect: Supply Trucks +50% hit points and take 20% less damage.

Previous research and unlocks: Armoured Convoys I / Command HQ Level 2

ESD / Armoured Convoys III

Research: $1,400 / 40 s at Logistics Depot

Effect: Supply Trucks +80% hit points and take 30% less damage.

Previous research and unlocks: Armoured Convoys II / Command HQ Level 3

ESD / Freight Quotas I

Research: $600 / 20 s at Logistics Depot

Effect: Supply Trucks carry 20% more per trip and load and unload 15% faster.

ESD / Freight Quotas II

Research: $1,000 / 30 s at Logistics Depot

Effect: Supply Trucks carry 40% more per trip and load and unload 30% faster.

Previous research and unlocks: Freight Quotas I / Command HQ Level 2

ESD / Freight Quotas III

Research: $1,500 / 40 s at Logistics Depot

Effect: Supply Trucks carry 60% more per trip and load and unload 45% faster.

Previous research and unlocks: Freight Quotas II / Command HQ Level 3

ESD / Heavy-Duty Engines I

Research: $500 / 20 s at Logistics Depot

Effect: Supply Trucks drive 12% faster.

ESD / Heavy-Duty Engines II

Research: $900 / 30 s at Logistics Depot

Effect: Supply Trucks drive 24% faster.

Previous research and unlocks: Heavy-Duty Engines I / Command HQ Level 2

ESD / Heavy-Duty Engines III

Research: $1,400 / 40 s at Logistics Depot

Effect: Supply Trucks drive 36% faster.

Previous research and unlocks: Heavy-Duty Engines II / Command HQ Level 3

ESD / Convoy Escort Guns I

Research: $600 / 20 s at Logistics Depot

Effect: Mounts a heavy machine gun on top of your supply trucks. It fires at infantry and helicopters in range while they keep hauling.

ESD / Convoy Escort Guns II

Research: $1,000 / 30 s at Logistics Depot

Effect: Adds an anti-air gun next to the machine gun: it shoots only at aircraft.

Previous research and unlocks: Convoy Escort Guns I / Command HQ Level 2

ESD / Convoy Escort Guns III

Research: $1,500 / 40 s at Logistics Depot

Effect: Adds an anti-tank missile launcher that picks out vehicles.

Previous research and unlocks: Convoy Escort Guns II / Command HQ Level 3

ESD / Exhaust Fans

Research: $1,100 / 30 s at Radar Station

Effect: Fits ESD units with high-output exhaust fans. The BLOW OUT button in the Selected panel blows the fog of war out of the way round every selected ESD unit for 12 s (about 55 m, less for infantry, more for big vehicles and aircraft; it goes with the unit). Vision only: it shows what the ground there shows and detects nothing hidden. Recharges in 45 seconds.

Previous research and unlocks: Research Institute

ESD / Radar Networking

Research: $1,000 / 30 s at Radar Station

Effect: Integrated air-defence network. Defences +15% range; anti-air weapons +10% range.

Previous research and unlocks: Research Institute

ESD / Static Surge Sweep

Research: $1,200 / 30 s at Radar Station

Effect: Overcharges the Radar Station's emitters. The SURGE button on the structure (and this card, once done) rolls a wave of static discharge across the map, tearing the fog open and showing everything for 10 s (recharges in 2 minutes).

Previous research and unlocks: Research Institute

ESD / Mechanic Brigades

Research: $1,000 / 30 s at Repair Depot

Effect: Every vehicle carries spares and tools: one that has neither been hit nor fired for 8 seconds repairs itself, 0.5% of its hit points a second.

Previous research and unlocks: Research Institute

ESD / Round-the-Clock Shifts

Research: $600 / 20 s at Repair Depot

Effect: The Repair Depot repairs the vehicles on its pad 50% faster.

ESD / Sailor Corps I

Research: $1,200 / 30 s at Flotilla Works

Effect: Trained boat crews: every boat, those afloat and every one built from now on, is a Veteran (better aim and reload, tougher).

ESD / Sailor Corps II

Research: $2,000 / 40 s at Flotilla Works

Effect: Boats are Elite: better still, and they repair themselves a little out of combat.

Previous research and unlocks: Sailor Corps I / Command HQ Level 2

All factions / Research catalogue

RESEARCH / 26 ENTRIES ON THIS SHEET

ESD / Heavy Diesels I

Research: $700 / 20 s at Flotilla Works

Effect: Better engines: every boat +10% speed.

ESD / Heavy Diesels II

Research: $1,100 / 30 s at Flotilla Works

Effect: Boats +20% speed.

Previous research and unlocks: Heavy Diesels I / Command HQ Level 2

ESD / Heavy Diesels III

Research: $1,700 / 40 s at Flotilla Works

Effect: Boats +30% speed.

Previous research and unlocks: Heavy Diesels II / Command HQ Level 3

ESD / Fire Control Drills I

Research: $1,000 / 25 s at Flotilla Works

Effect: Better gunnery: every boat weapon +10% damage and +5% range (missiles, torpedoes and depth charges too).

ESD / Fire Control Drills II

Research: $1,600 / 35 s at Flotilla Works

Effect: Boat weapons +20% damage and +10% range.

Previous research and unlocks: Fire Control Drills I / Command HQ Level 2

ESD / Fire Control Drills III

Research: $2,400 / 45 s at Flotilla Works

Effect: Boat weapons +30% damage and +15% range.

Previous research and unlocks: Fire Control Drills II / Command HQ Level 3

ESD / Riveted Plating I

Research: $900 / 25 s at Flotilla Works

Effect: Plated hulls: every boat +15% hit points and takes 5% less damage.

ESD / Riveted Plating II

Research: $1,400 / 35 s at Flotilla Works

Effect: Boats +30% hit points and take 10% less damage.

Previous research and unlocks: Riveted Plating I / Command HQ Level 2

ESD / Riveted Plating III

Research: $2,100 / 45 s at Flotilla Works

Effect: Boats +50% hit points and take 15% less damage.

Previous research and unlocks: Riveted Plating II / Command HQ Level 3

ESD / Hydrophones

Research: $1,500 / 30 s at Flotilla Works

Effect: Active sonar fitted at the dock: your Hujing Gunboats and Jinglei Missile Boats get sonar that finds enemy submarines within 55 m, and your Anyong Submarines hear within 40 m. Until now the fleet is deaf: only the Flotilla Works' own sonar (45 m, now 72 m) finds submarines. Every boat also sees 15% further. The emitters are drawn from the grid with each boat.

Previous research and unlocks: Research Institute

ESD / Art of Defence I

Research: $3,000 / 45 s at Nuclear Bomb

Effect: A laser defence on the silo: it shoots down one incoming missile every 250 ms within 80 m. Guided missiles only: tank shells, infantry rockets, cruise missiles, air strikes and other superweapons are not stopped. A barrage still gets through.

Limitation: Missiles only: not shells, rockets, cruise missiles, air strikes

Previous research and unlocks: Heavy Industry Mandate

ESD / Art of Defence II

Research: $4,000 / 55 s at Nuclear Bomb

Effect: Heavy walls rise round the silo and stop every ground unit. Engineers can cut through a piece, the Front's underground units come up inside it, and only missiles and rockets hurt the wall. Keeps the laser defence.

Limitation: Engineers cut through

Limitation: Underground units bypass it

Previous research and unlocks: Art of Defence I / Heavy Industry Mandate

ESD / Improved Ammunition

Research: $1,200 / 35 s at Research Institute

Effect: Tungsten penetrators and enhanced HE fillers. Armour-piercing and high-explosive weapons +15% damage.

Previous research and unlocks: Research Institute

ESD / Centralised Command Doctrine

Research: $1,500 / 40 s at Research Institute

Effect: The staff work behind the Command HQ's most advanced skills. Unlocks Command HQ Level 3 and with it rank III of every Command HQ skill track (they still need rank II first).

Previous research and unlocks: Research Institute

ESD / Fortified Structures

Research: $1,200 / 30 s at Research Institute

Effect: Reinforced concrete everywhere. All structures +25% hit points.

Previous research and unlocks: Research Institute

ESD / Thermobaric Warheads

Research: $1,600 / 40 s at Research Institute

Effect: Artillery and rockets +15% damage and +30% blast radius.

Previous research and unlocks: Heavy Industry Mandate

ESD / Heavy Industry Mandate

Research: $1,800 / 45 s at Research Institute

Effect: Unlocks the heaviest arsenal: Kaishan heavy tanks, rocket artillery, jets and the Nuclear Bomb. Needs Command HQ Level 2.

Previous research and unlocks: Command HQ Level 2 / Research Institute

MLF / Camouflage Cloaks

Research: $1,000 / 30 s at Training Camp

Effect: All infantry become camouflaged while stationary.

Previous research and unlocks: Black Market

MLF / Dust Ghillie Wraps

Research: $1,000 / 30 s at Training Camp

Effect: Sackcloth wraps rolled in the local dust. Snipers get the GHILLIE order: they lie down and cover up (2 s). Then no enemy can see them - not by eye, on radar, with drones, satellites or any detector - unless an enemy soldier or vehicle comes within 7 m. Their shots do not give them away: the enemy only hears them and gets a rough warning. Getting up takes 2.5 s.

Limitation: Seen by enemies within 7 m

Limitation: 2.5 s to get up

Previous research and unlocks: Black Market

MLF / Ground Charges

Research: $900 / 30 s at Training Camp

Effect: Demolition charges for the Tunnel Rats. DETONATE GROUND (Tunnel Rat order): he tunnels under an enemy building, soldier or vehicle and blows himself up there after a 1.5 s fuse. The blast destroys vehicles and kills soldiers in it, takes 50% of a building (40% of a defence), leaves main battle tanks at about 30% and super-heavy tanks at about 40% health, and hurts everything within 8 m, less the further out. The Tunnel Rat is lost.

Limitation: The Tunnel Rat is lost

Previous research and unlocks: Black Market

MLF / Tandem Warheads

Research: $900 / 25 s at Training Camp

Effect: Tandem-charge rockets. Anti-tank weapons +25% damage.

Previous research and unlocks: Black Market

MLF / Worker Arms

Research: $600 / 25 s at Training Camp

Effect: Old rifles for every Worker: weak, about half an Irregular's fire, but they shoot back. At work they shoot only at enemy troops and vehicles that can hit them, and stop work while they shoot.

MLF / Welded Plating I

Research: $1,000 / 30 s at Field Command

Effect: Heavier plating for every vehicle you field: +10% hit points.

Previous research and unlocks: Training Camp

MLF / Welded Plating II

Research: $1,600 / 40 s at Field Command

Effect: Vehicles +20% hit points.

Previous research and unlocks: Welded Plating I / Black Market / Field Command Level 2

MLF / Welded Plating III

Research: $2,400 / 50 s at Field Command

Effect: Vehicles +35% hit points.

Previous research and unlocks: Welded Plating II / Black Market / Warlord Playbook / Field Command Level 3

MLF / Underground Wall

Research: $1,500 / 35 s at Field Command

Effect: Barrier charges and grouted bedrock deep under your base: enemy units underground cannot come within 75 m of a Field Command or 14 m of any of your finished structures. Tunnellers that try are forced to the surface at the edge and stunned. A faint dashed ring marks it round each Field Command. Needs Field Command Level 2.

Previous research and unlocks: Field Command Level 2

All factions / Research catalogue

RESEARCH / 31 ENTRIES ON THIS SHEET

MLF / Rooftop Gun Nests I

Research: $900 / 30 s at Field Command

Effect: Mounts a heavy machine gun on the Field Command that fires at enemy infantry and helicopters that come close.

Previous research and unlocks: Training Camp

MLF / Rooftop Gun Nests II

Research: $1,400 / 35 s at Field Command

Effect: Adds an anti-tank missile launcher to the Field Command's machine gun.

Previous research and unlocks: Rooftop Gun Nests I / Black Market / Field Command Level 2

MLF / Rooftop Gun Nests III

Research: $2,000 / 45 s at Field Command

Effect: Adds an anti-air launcher, and all three Field Command weapons get +20% range.

Previous research and unlocks: Rooftop Gun Nests II / Black Market / Warlord Playbook / Field Command Level 3

MLF / Dug-In Command I

Research: $800 / 25 s at Field Command

Effect: Field Command +25% hit points and takes 10% less damage.

Previous research and unlocks: Training Camp

MLF / Dug-In Command II

Research: $1,300 / 35 s at Field Command

Effect: Field Command +50% hit points and takes 20% less damage.

Previous research and unlocks: Dug-In Command I / Black Market / Field Command Level 2

MLF / Dug-In Command III

Research: $2,000 / 45 s at Field Command

Effect: Field Command doubles its hit points and takes 30% less damage.

Previous research and unlocks: Dug-In Command II / Black Market / Warlord Playbook / Field Command Level 3

MLF / Field Command Level 2

Research: $2,000 / 40 s at Field Command

Effect: Expands the Field Command to Level 2: unlocks rank II of every skill track and the Black Market Contracts research at the Black Market.

MLF / Field Command Level 3

Research: $3,500 / 60 s at Field Command

Effect: Expands the Field Command to Level 3: unlocks rank III of every skill track and the Goliath super-heavy tank. Needs Warlord Playbook researched at the Black Market.

Previous research and unlocks: Field Command Level 2 / Warlord Playbook / Black Market

MLF / Night Shifts I

Research: $1,200 / 30 s at Field Command

Effect: Units train and structures go up 10% faster.

Previous research and unlocks: Training Camp

MLF / Night Shifts II

Research: $1,800 / 40 s at Field Command

Effect: Units train and structures go up 20% faster.

Previous research and unlocks: Night Shifts I / Black Market / Field Command Level 2

MLF / Night Shifts III

Research: $2,600 / 50 s at Field Command

Effect: Units train and structures go up 30% faster.

Previous research and unlocks: Night Shifts II / Black Market / Warlord Playbook / Field Command Level 3

MLF / Quick Hands I

Research: $1,000 / 30 s at Field Command

Effect: All your units and defences reload 8% faster.

Previous research and unlocks: Training Camp

MLF / Quick Hands II

Research: $1,600 / 40 s at Field Command

Effect: All your units and defences reload 16% faster.

Previous research and unlocks: Quick Hands I / Black Market / Field Command Level 2

MLF / Quick Hands III

Research: $2,400 / 50 s at Field Command

Effect: All your units and defences reload 25% faster.

Previous research and unlocks: Quick Hands II / Black Market / Warlord Playbook / Field Command Level 3

MLF / Silent Approach I

Research: $1,000 / 30 s at Field Command

Effect: Units underground move 25% faster, and dig in and surface twice as fast.

Previous research and unlocks: Training Camp

MLF / Silent Approach II

Research: $1,600 / 40 s at Field Command

Effect: Ambush: a unit that has just surfaced deals 50% more damage for 4 seconds. Keeps the faster tunnelling.

Previous research and unlocks: Silent Approach I / Black Market / Field Command Level 2

MLF / Silent Approach III

Research: $2,400 / 50 s at Field Command

Effect: Every unit you field, vehicles too, is camouflaged while it stands still. Keeps the ambush and the faster tunnelling.

Previous research and unlocks: Silent Approach II / Black Market / Warlord Playbook / Field Command Level 3

MLF / Toxin Weapons I

Research: $1,000 / 30 s at Field Command

Effect: Poisoned rounds: the rifles of your infantry poison every enemy soldier they hit (4 damage a second for 4 seconds; more hits keep it going, they do not stack).

Previous research and unlocks: Training Camp

MLF / Toxin Weapons II

Research: $1,600 / 40 s at Field Command

Effect: Toxic shells: mortars, rocket trucks, Rocket Pits and Longfang missiles leave a toxic cloud where they land for 6 seconds, deadly to infantry caught in it. Keeps the poisoned rounds.

Previous research and unlocks: Toxin Weapons I / Black Market / Field Command Level 2

MLF / Toxin Weapons III

Research: $2,400 / 50 s at Field Command

Effect: Refined toxins: poison and toxic clouds are 50% stronger, and poisoned rounds now poison vehicle crews as well.

Previous research and unlocks: Toxin Weapons II / Black Market / Warlord Playbook / Field Command Level 3

MLF / Scrap Armour

Research: $800 / 25 s at Motor Pool

Effect: Welded-on steel plate and slat cages. Vehicles +15% hit points.

MLF / Tuned Engines

Research: $900 / 25 s at Motor Pool

Effect: Stripped weight and tuned engines. Vehicles +20% speed.

Previous research and unlocks: Black Market

MLF / Welded Cages I

Research: $500 / 20 s at Supply Camp

Effect: Supply Pickups +25% hit points and take 10% less damage.

MLF / Welded Cages II

Research: $900 / 30 s at Supply Camp

Effect: Supply Pickups +50% hit points and take 20% less damage.

Previous research and unlocks: Welded Cages I / Field Command Level 2

MLF / Welded Cages III

Research: $1,400 / 40 s at Supply Camp

Effect: Supply Pickups +80% hit points and take 30% less damage.

Previous research and unlocks: Welded Cages II / Field Command Level 3

MLF / Overloaded Beds I

Research: $600 / 20 s at Supply Camp

Effect: Supply Pickups carry 20% more per trip and load and unload 15% faster.

MLF / Overloaded Beds II

Research: $1,000 / 30 s at Supply Camp

Effect: Supply Pickups carry 40% more per trip and load and unload 30% faster.

Previous research and unlocks: Overloaded Beds I / Field Command Level 2

MLF / Overloaded Beds III

Research: $1,500 / 40 s at Supply Camp

Effect: Supply Pickups carry 60% more per trip and load and unload 45% faster.

Previous research and unlocks: Overloaded Beds II / Field Command Level 3

MLF / Desert Tuning I

Research: $500 / 20 s at Supply Camp

Effect: Supply Pickups drive 12% faster.

MLF / Desert Tuning II

Research: $900 / 30 s at Supply Camp

Effect: Supply Pickups drive 24% faster.

Previous research and unlocks: Desert Tuning I / Field Command Level 2

MLF / Desert Tuning III

Research: $1,400 / 40 s at Supply Camp

Effect: Supply Pickups drive 36% faster.

Previous research and unlocks: Desert Tuning II / Field Command Level 3

All factions / Research catalogue

RESEARCH / 26 ENTRIES ON THIS SHEET

MLF / Technical Conversions I

Research: $600 / 20 s at Supply Camp

Effect: Mounts a heavy machine gun on top of your supply pickups. It fires at infantry and helicopters in range while they keep hauling.

MLF / Technical Conversions II

Research: $1,000 / 30 s at Supply Camp

Effect: Adds an anti-air gun next to the machine gun: it shoots only at aircraft.

Previous research and unlocks: Technical Conversions I / Field Command Level 2

MLF / Technical Conversions III

Research: $1,500 / 40 s at Supply Camp

Effect: Adds an anti-tank missile launcher that picks out vehicles.

Previous research and unlocks: Technical Conversions II / Field Command Level 3

MLF / Radio Intercepts

Research: $1,000 / 30 s at Listening Post

Effect: The Listening Post eavesdrops on enemy radio traffic: commander abilities recharge 20% faster.

Previous research and unlocks: Black Market

MLF / Ground Pulse Survey

Research: $1,000 / 30 s at Listening Post

Effect: Thumper charges buried round the Listening Post send frequency pulses through the ground. The PULSE button on the structure (and this card, once done) opens the fog in patches all over the map, quickly, showing everything for 10 s (recharges in 2 minutes).

Previous research and unlocks: Black Market

MLF / Roadside Mechanics

Research: $1,000 / 30 s at Scrapyard

Effect: Every vehicle carries spares and tools: one that has neither been hit nor fired for 8 seconds repairs itself, 0.5% of its hit points a second.

Previous research and unlocks: Black Market

MLF / Scrap Welders

Research: $600 / 20 s at Scrapyard

Effect: The Scrapyard repairs the vehicles on its pad 50% faster.

MLF / River Rats I

Research: $1,200 / 30 s at Smugglers' Jetty

Effect: Trained boat crews: every boat, those afloat and every one built from now on, is a Veteran (better aim and reload, tougher).

MLF / River Rats II

Research: $2,000 / 40 s at Smugglers' Jetty

Effect: Boats are Elite: better still, and they repair themselves a little out of combat.

Previous research and unlocks: River Rats I / Field Command Level 2

MLF / Tuned Outboards I

Research: $700 / 20 s at Smugglers' Jetty

Effect: Better engines: every boat +10% speed.

MLF / Tuned Outboards II

Research: $1,100 / 30 s at Smugglers' Jetty

Effect: Boats +20% speed.

Previous research and unlocks: Tuned Outboards I / Field Command Level 2

MLF / Tuned Outboards III

Research: $1,700 / 40 s at Smugglers' Jetty

Effect: Boats +30% speed.

Previous research and unlocks: Tuned Outboards II / Field Command Level 3

MLF / Salvaged Guns I

Research: $1,000 / 25 s at Smugglers' Jetty

Effect: Better gunnery: every boat weapon +10% damage and +5% range (missiles, torpedoes and depth charges too).

MLF / Salvaged Guns II

Research: $1,600 / 35 s at Smugglers' Jetty

Effect: Boat weapons +20% damage and +10% range.

Previous research and unlocks: Salvaged Guns I / Field Command Level 2

MLF / Salvaged Guns III

Research: $2,400 / 45 s at Smugglers' Jetty

Effect: Boat weapons +30% damage and +15% range.

Previous research and unlocks: Salvaged Guns II / Field Command Level 3

MLF / Scrap Plating I

Research: $900 / 25 s at Smugglers' Jetty

Effect: Plated hulls: every boat +15% hit points and takes 5% less damage.

MLF / Scrap Plating II

Research: $1,400 / 35 s at Smugglers' Jetty

Effect: Boats +30% hit points and take 10% less damage.

Previous research and unlocks: Scrap Plating I / Field Command Level 2

MLF / Scrap Plating III

Research: $2,100 / 45 s at Smugglers' Jetty

Effect: Boats +50% hit points and take 15% less damage.

Previous research and unlocks: Scrap Plating II / Field Command Level 3

MLF / Fish-Finders

Research: $1,200 / 30 s at Smugglers' Jetty

Effect: Better sonar: the sonar of your Missile Boats and Jetties reaches 60% further (45 m to 72 m), so enemy submarines are found sooner. Every boat also sees 15% further.

Previous research and unlocks: Black Market

MLF / Corrosive Warhead

Research: $2,000 / 40 s at Toxin Silo

Effect: A harder warhead and a nastier brew. The missile hits for 1700 (was 1500) over 27 m, and the cloud turns violet and green: it lasts 30 s, kills soldiers even faster, hurts vehicles properly (3-5% of their health a second) and eats slowly at structures.

Previous research and unlocks: Black Market Contracts

MLF / Twin Silo

Research: $3,000 / 50 s at Toxin Silo

Effect: A second missile bay rises beside the first. Fire two missiles at once: pick two target zones, each missile launches from its own bay and flies its own course. Keeps the Corrosive Warhead.

Previous research and unlocks: Corrosive Warhead / Black Market Contracts

MLF / Meltdown Payload

Research: $4,500 / 60 s at Toxin Silo

Effect: The warheads carry a melting agent. The ground round each target dissolves into glowing pools that stay for 90 s. The blast hits for 1950 over 30 m, and the cloud becomes pulsing violet-and-green radiation lasting 36 s that burns structures (about 1.7% of their health a second) as well as everything else.

Previous research and unlocks: Twin Silo / Black Market Contracts

MLF / Warlord Playbook

Research: $1,500 / 40 s at Black Market

Effect: The staff work behind the Field Command's most advanced skills. Unlocks Field Command Level 3 and with it rank III of every Field Command skill track (they still need rank II first).

Previous research and unlocks: Black Market

MLF / Captured Optics

Research: $1,300 / 35 s at Black Market

Effect: Looted fire-control systems. Indirect-fire weapons +15% range, all units +10% vision.

Previous research and unlocks: Black Market Contracts

MLF / Salvage Experts

Research: $800 / 25 s at Black Market

Effect: Salvage pickups are worth double: more credits and bigger upgrades.

Previous research and unlocks: Black Market

MLF / Black Market Contracts

Research: $1,500 / 40 s at Black Market

Effect: Unlocks the heaviest arsenal: Longfang missiles, Saboteurs, Rocket Pits and the Toxin Silo. Needs Field Command Level 2.

Previous research and unlocks: Field Command Level 2 / Black Market

Weapons, armour & command powers

FIELD REFERENCE / 34 ENTRIES ON THIS SHEET

Base weapon numbers are not damage guarantees. Armour multipliers, accuracy, range, veterancy, research, splash falloff and target eligibility all matter. The firing interval is seconds between firing cycles, not rounds per second.

Reading damage classes

How to read the table: Multiply base weapon damage by the listed target-armour multiplier before other combat modifiers. A zero multiplier does not grant targeting permission; weapons also have air, ground, submarine and structure restrictions.

Damage	INF	LIGHT	MEDIUM	HEAVY	HELI	AIR	STRUCT	DEF
SMALL	1	0.3	0.12	0.04	0.2	0.05	0.05	0.04
HMG	1.2	0.8	0.35	0.08	0.55	0.3	0.1	0.08
AUTOCAN	0.6	1.1	0.9	0.3	0.8	0.5	0.3	0.25
AP	0.35	1.1	1.2	1	0	0	0.6	0.7
HEAT	0.2	1.1	1.2	1.1	0.6	0	0.9	0.9
HE	1	0.85	0.6	0.35	0.2	0	1	0.8
SNIPER	4	0.05	0.02	0.01	0.05	0	0.01	0.01
AA	0.2	0.3	0.1	0.05	1.2	1.2	0	0
BOMB	0.8	1	1	1	0	0	1.2	1.1
HEAVYBOMB	1	1.2	1.05	1	0	0	0.78	0.75
DEMO	0.5	1	1	1	0	0	2.5	2.5
TOXIN	1	1	1	1	1	1	1	1
CRUSH	1	1	1	0	0	0	0	0
RADIATION	1	1	1	1	1	1	1	1
SHOCK	1	0	0	0	0	0	0	0
FIRE	1.5	0.9	0.45	0.15	0.6	0.6	0.5	0.4
BURN	1	1	1	1	1	1	1	1
TORPEDO	0	1.25	1.2	1.1	0	0	0.5	0.45
DEPTH	0	1.1	1.1	1	0	0	0	0

Directional armour: Direct fire on ground vehicles: front x1, side x1.3, rear x1.6. This does not apply to every indirect or area attack.

Assault Rifle

Performance: Assault Rifle: 12 base SMALL damage; 32 m range; 1 s firing interval; 75% base accuracy. ground targets.

Service Rifle

Performance: Service Rifle: 10 base SMALL damage; 30 m range; 1 s firing interval; 66% base accuracy. ground targets.

Battle Rifle

Performance: Battle Rifle: 11 base SMALL damage; 30 m range; 0.95 s firing interval; 64% base accuracy. ground targets.

Marksman Carbine

Performance: Marksman Carbine: 14 base SMALL damage; 34 m range; 0.85 s firing interval; 80% base accuracy. ground targets.

Old Rifle

Performance: Old Rifle: 8 base SMALL damage; 26 m range; 1.1 s firing interval; 55% base accuracy. ground targets.

Additional use: May be granted by research, field kits, passengers, a doctrine power or scripted support; absence from a base unit does not mean it is always available.

Machine Pistol

Performance: Machine Pistol: 6 base SMALL damage; 22 m range; 0.22 s firing interval; 60% base accuracy. ground targets.

Stub Cannon

Performance: Stub Cannon: 21 base AUTOCAN damage; 32 m range; 0.7 s firing interval; 66% base accuracy; 2-round burst. ground targets, low aircraft.

Suppressed Carbine

Performance: Suppressed Carbine: 16 base SMALL damage; 34 m range; 0.7 s firing interval; 86% base accuracy. ground targets.

General Purpose MG

Performance: General Purpose MG: 7 base HMG damage; 36 m range; 0.15 s firing interval; 50% base accuracy. ground targets, low aircraft.

Lancer Guided Missile

Performance: Lancer Guided Missile: 170 base HEAT damage; 42 m range; 4.5 s firing interval; 92% base accuracy. ground targets, guided.

Heavy RPG

Performance: Heavy RPG: 165 base HEAT damage; 36 m range; 4.4 s firing interval; 80% base accuracy. ground targets.

RPG Launcher

Performance: RPG Launcher: 155 base HEAT damage; 34 m range; 4 s firing interval; 74% base accuracy. ground targets.

Anti-Personnel Rifle

Performance: Anti-Personnel Rifle: 160 base SNIPER damage; 62 m range; 3.5 s firing interval; 95% base accuracy. ground targets.

MANPADS

Performance: MANPADS: 115 base AA damage; 62 m range; 5 s firing interval; 85% base accuracy. aircraft, guided.

Shoulder SAM

Performance: Shoulder SAM: 100 base AA damage; 54 m range; 5.5 s firing interval; 75% base accuracy. aircraft, guided.

Rotary Cannon

Performance: Rotary Cannon: 8 base HMG damage; 38 m range; 0.08 s firing interval; 55% base accuracy. ground targets, low aircraft.

Micro-Missile Pod

Performance: Micro-Missile Pod: 120 base HEAT damage; 42 m range; 6 s firing interval; 88% base accuracy; 2-shot salvo (0.3 s gaps). ground targets, low aircraft, guided.

Drone Guns

Performance: Drone Guns: 7 base HMG damage; 40 m range; 0.15 s firing interval; 60% base accuracy. ground targets, low aircraft.

Drone Missiles

Performance: Drone Missiles: 95 base HEAT damage; 44 m range; 5 s firing interval; 88% base accuracy. ground targets, low aircraft, guided.

Belt-Fed MG

Performance: Belt-Fed MG: 9 base HMG damage; 38 m range; 0.13 s firing interval; 60% base accuracy. ground targets, low aircraft.

Demolition Charge

Performance: Demolition Charge: 380 base DEMO damage; 5 m range; 9 s firing interval; 100% base accuracy; 4 m splash. ground targets, structures only.

120mm Smoothbore

Performance: 120mm Smoothbore: 165 base AP damage; 46 m range; 3.2 s firing interval; 86% base accuracy. ground targets.

125mm Cannon

Performance: 125mm Cannon: 175 base AP damage; 45 m range; 3.4 s firing interval; 80% base accuracy. ground targets.

152mm Heavy Gun

Performance: 152mm Heavy Gun: 290 base AP damage; 50 m range; 4.6 s firing interval; 80% base accuracy; 2.5 m splash. ground targets.

120mm Advanced Cannon

Performance: 120mm Advanced Cannon: 250 base AP damage; 56 m range; 3.6 s firing interval; 88% base accuracy; 1.5 m splash. ground targets.

120mm Salvaged Cannon

Performance: 120mm Salvaged Cannon: 235 base AP damage; 50 m range; 3.7 s firing interval; 76% base accuracy; 1.5 m splash. ground targets.

100mm Gun

Performance: 100mm Gun: 110 base AP damage; 42 m range; 2.8 s firing interval; 80% base accuracy. ground targets.

105mm Rifled Gun

Performance: 105mm Rifled Gun: 135 base AP damage; 42 m range; 3.6 s firing interval; 72% base accuracy. ground targets.

Coaxial MG

Performance: Coaxial MG: 6 base SMALL damage; 32 m range; 0.3 s firing interval; 60% base accuracy. ground targets.

Flame Projector

Performance: Flame Projector: 12 base FIRE damage; 30 m range; 0.2 s firing interval; 90% base accuracy; 2.5 m splash. ground targets.

Twin 140mm Cannons

Performance: Twin 140mm Cannons: 240 base AP damage; 52 m range; 4.4 s firing interval; 85% base accuracy; 1.5 m splash; 2-shot salvo (0.35 s gaps). ground targets.

AA Missile Pod

Performance: AA Missile Pod: 130 base AA damage; 70 m range; 3.2 s firing interval; 88% base accuracy; 2-round burst. aircraft, guided.

Rocket Pod

Performance: Rocket Pod: 60 base HE damage; 44 m range; 5 s firing interval; 70% base accuracy; 4 m splash; 6-shot salvo (0.12 s gaps). ground targets.

Weapons, armour & command powers

FIELD REFERENCE / 37 ENTRIES ON THIS SHEET

Rail Beam Cannon

Performance: Rail Beam Cannon: 400 base AP damage; 60 m range; 5.2 s firing interval; 93% base accuracy; 2 m splash. ground targets.

Escort Drone Guns

Performance: Escort Drone Guns: 10 base HMG damage; 42 m range; 0.12 s firing interval; 60% base accuracy. ground targets, low aircraft.

Scrap Cannon

Performance: Scrap Cannon: 190 base AP damage; 46 m range; 3.8 s firing interval; 78% base accuracy; 1.5 m splash. ground targets.

Twin Scrap Cannon

Performance: Twin Scrap Cannon: 190 base AP damage; 46 m range; 3.8 s firing interval; 78% base accuracy; 1.5 m splash; 2-round burst. ground targets.

Additional use: May be granted by research, field kits, passengers, a doctrine power or scripted support; absence from a base unit does not mean it is always available.

Triple Scrap Cannon

Performance: Triple Scrap Cannon: 190 base AP damage; 46 m range; 3.8 s firing interval; 78% base accuracy; 1.5 m splash; 3-round burst. ground targets.

Additional use: May be granted by research, field kits, passengers, a doctrine power or scripted support; absence from a base unit does not mean it is always available.

12.7mm HMG

Performance: 12.7mm HMG: 9 base HMG damage; 38 m range; 0.2 s firing interval; 60% base accuracy. ground targets, low aircraft.

Scrap Missile Pod

Performance: Scrap Missile Pod: 85 base HEAT damage; 38 m range; 3.4 s firing interval; 82% base accuracy. ground targets, aircraft, guided.

Additional use: May be granted by research, field kits, passengers, a doctrine power or scripted support; absence from a base unit does not mean it is always available.

AA Missile Pod

Performance: AA Missile Pod: 95 base AA damage; 58 m range; 4.5 s firing interval; 85% base accuracy. aircraft, guided.

Additional use: May be granted by research, field kits, passengers, a doctrine power or scripted support; absence from a base unit does not mean it is always available.

Remote Heavy MG

Performance: Remote Heavy MG: 9 base HMG damage; 38 m range; 0.16 s firing interval; 60% base accuracy. ground targets, low aircraft.

Additional use: May be granted by research, field kits, passengers, a doctrine power or scripted support; absence from a base unit does not mean it is always available.

Pintle HMG

Performance: Pintle HMG: 8 base HMG damage; 36 m range; 0.2 s firing interval; 55% base accuracy. ground targets, low aircraft.

Remote Weapon Station

Performance: Remote Weapon Station: 8 base HMG damage; 36 m range; 0.22 s firing interval; 65% base accuracy. ground targets, low aircraft.

30mm Autocannon

Performance: 30mm Autocannon: 22 base AUTOCAN damage; 40 m range; 0.45 s firing interval; 72% base accuracy; 3-round burst. ground targets, low aircraft.

23mm Cannon

Performance: 23mm Cannon: 16 base AUTOCAN damage; 38 m range; 0.5 s firing interval; 65% base accuracy; 2-round burst. ground targets, low aircraft.

40mm Deck Gun

Performance: 40mm Deck Gun: 30 base AUTOCAN damage; 46 m range; 1.1 s firing interval; 70% base accuracy; 2-round burst. ground targets, low aircraft.

Twin 12.7mm MG

Performance: Twin 12.7mm MG: 9 base HMG damage; 40 m range; 0.15 s firing interval; 60% base accuracy. ground targets, low aircraft.

Recoilless Gun

Performance: Recoilless Gun: 48 base AUTOCAN damage; 42 m range; 2.2 s firing interval; 62% base accuracy. ground targets.

Twin 155mm Naval Guns

Performance: Twin 155mm Naval Guns: 235 base HE damage; 150 m range, 30 m minimum; 6.5 s firing interval; 80% base accuracy; 8 m splash; 2-round burst. ground targets, indirect fire.

30mm Close-In AA Gun

Performance: 30mm Close-In AA Gun: 13 base AA damage; 56 m range; 0.12 s firing interval; 60% base accuracy. aircraft.

Naval Railgun

Performance: Naval Railgun: 88 base AP damage; 54 m range; 1.5 s firing interval; 82% base accuracy. ground targets, low aircraft.

Ship-Launched ATGM

Performance: Ship-Launched ATGM: 200 base HEAT damage; 72 m range; 4.4 s firing interval; 92% base accuracy; 2-round burst. ground targets, guided.

Ship SAM

Performance: Ship SAM: 150 base AA damage; 88 m range; 3.4 s firing interval; 90% base accuracy; 2-round burst. aircraft, guided.

Depth Charges

Performance: Depth Charges: 150 base DEPTH damage; 25 m range; 3.6 s firing interval; 100% base accuracy; 5 m splash; 2-round burst. ground targets, submarines only.

Heavy Torpedo

Performance: Heavy Torpedo: 360 base TORPEDO damage; 58 m range; 9 s firing interval; 85% base accuracy; 2-round burst. ground targets.

Launcher ATGM

Performance: Launcher ATGM: 150 base HEAT damage; 46 m range; 12 s firing interval; 90% base accuracy. ground targets, guided.

Halberd Twin ATGM

Performance: Halberd Twin ATGM: 240 base HEAT damage; 62 m range; 5.5 s firing interval; 93% base accuracy; 2-round burst. ground targets, guided.

Rocket Pods

Performance: Rocket Pods: 55 base HEAT damage; 38 m range; 1.6 s firing interval; 70% base accuracy; 2-round burst. ground targets.

Palisade SAM

Performance: Palisade SAM: 140 base AA damage; 82 m range; 3 s firing interval; 90% base accuracy; 2-round burst. aircraft, guided.

Long-Range SAM

Performance: Long-Range SAM: 230 base AA damage; 105 m range; 4.2 s firing interval; 88% base accuracy. aircraft, guided.

Quad 23mm Flak

Performance: Quad 23mm Flak: 13 base AA damage; 58 m range; 0.09 s firing interval; 55% base accuracy. ground targets, aircraft.

Twin 23mm Flak

Performance: Twin 23mm Flak: 12 base AA damage; 54 m range; 0.12 s firing interval; 50% base accuracy. ground targets, aircraft.

155mm Howitzer

Performance: 155mm Howitzer: 270 base HE damage; 165 m range, 35 m minimum; 7.5 s firing interval; 80% base accuracy; 9 m splash. ground targets, indirect fire.

152mm Howitzer

Performance: 152mm Howitzer: 260 base HE damage; 140 m range, 30 m minimum; 7 s firing interval; 80% base accuracy; 9 m splash. ground targets, indirect fire.

220mm Rocket Salvo

Performance: 220mm Rocket Salvo: 85 base HE damage; 175 m range, 40 m minimum; 18 s firing interval; 80% base accuracy; 7.5 m splash; 12-shot salvo (0.18 s gaps). ground targets, indirect fire.

107mm Rocket Rack

Performance: 107mm Rocket Rack: 66 base HE damage; 130 m range, 30 m minimum; 14 s firing interval; 80% base accuracy; 6.5 m splash; 8-shot salvo (0.2 s gaps). ground targets, indirect fire.

120mm Mortar

Performance: 120mm Mortar: 108 base HE damage; 95 m range, 20 m minimum; 3.8 s firing interval; 80% base accuracy; 6.5 m splash. ground targets, indirect fire.

Longfang Tactical Missile

Performance: Longfang Tactical Missile: 720 base BOMB damage; 210 m range, 40 m minimum; 32 s firing interval; 80% base accuracy; 11 m splash. ground targets, indirect fire.

Air-to-Ground Missiles

Performance: Air-to-Ground Missiles: 185 base HEAT damage; 56 m range; 2.2 s firing interval; 92% base accuracy; 8 ammunition. ground targets, guided.

Weapons, armour & command powers

FIELD REFERENCE / 36 ENTRIES ON THIS SHEET

30mm Chain Gun

Performance: 30mm Chain Gun: 16 base AUTOCAN damage; 46 m range; 0.25 s firing interval; 65% base accuracy; 240 ammunition. ground targets, low aircraft.

80mm Rocket Pods

Performance: 80mm Rocket Pods: 70 base HE damage; 50 m range; 3 s firing interval; 60% base accuracy; 4 m splash; 4-shot salvo (0.12 s gaps); 40 ammunition. ground targets.

30mm Cannon

Performance: 30mm Cannon: 18 base AUTOCAN damage; 46 m range; 0.3 s firing interval; 60% base accuracy; 200 ammunition. ground targets, low aircraft.

Door Gun

Performance: Door Gun: 6 base HMG damage; 32 m range; 0.2 s firing interval; 50% base accuracy. ground targets, low aircraft.

Air-to-Air Missiles

Performance: Air-to-Air Missiles: 230 base AA damage; 85 m range; 1.2 s firing interval; 90% base accuracy; 4 ammunition. aircraft, guided.

Guided Bombs

Performance: Guided Bombs: 430 base BOMB damage; 34 m range; 0.6 s firing interval; 95% base accuracy; 6 m splash; 2 ammunition. ground targets.

Interceptor Missiles

Performance: Interceptor Missiles: 210 base AA damage; 90 m range; 1 s firing interval; 88% base accuracy; 6 ammunition. aircraft, guided.

Cluster Bombs

Performance: Cluster Bombs: 260 base BOMB damage; 30 m range; 0.35 s firing interval; 90% base accuracy; 9 m splash; 4 ammunition. ground targets.

2,000 kg Bomb

Performance: 2,000 kg Bomb: 1150 base HEAVYBOMB damage; 40 m range; 1 s firing interval; 95% base accuracy; 13 m splash; 1 ammunition. ground targets.

Precision Missiles

Performance: Precision Missiles: 210 base HEAT damage; 62 m range; 2.8 s firing interval; 95% base accuracy; 4 ammunition. ground targets, guided.

Shaped Charge

Performance: Shaped Charge: 200 base HEAT damage; 4 m range; 1 s firing interval; 100% base accuracy; 4.5 m splash. ground targets.

Additional use: May be granted by research, field kits, passengers, a doctrine power or scripted support; absence from a base unit does not mean it is always available.

Automated HMG

Performance: Automated HMG: 10 base HMG damage; 46 m range; 0.12 s firing interval; 78% base accuracy. ground targets, low aircraft.

Twin Heavy MG

Performance: Twin Heavy MG: 10 base HMG damage; 40 m range; 0.13 s firing interval; 65% base accuracy. ground targets, low aircraft.

Emplaced HMG

Performance: Emplaced HMG: 9 base HMG damage; 38 m range; 0.15 s firing interval; 60% base accuracy. ground targets, low aircraft.

Casemate HMG

Performance: Casemate HMG: 9 base HMG damage; 40 m range; 0.13 s firing interval; 68% base accuracy. ground targets, low aircraft.

Twin Casemate MG

Performance: Twin Casemate MG: 10 base HMG damage; 40 m range; 0.14 s firing interval; 64% base accuracy. ground targets, low aircraft.

Cave HMG

Performance: Cave HMG: 9 base HMG damage; 38 m range; 0.15 s firing interval; 60% base accuracy. ground targets, low aircraft.

Lancer Launcher

Performance: Lancer Launcher: 230 base HEAT damage; 60 m range; 3.2 s firing interval; 94% base accuracy. ground targets, guided.

100mm AT Gun

Performance: 100mm AT Gun: 190 base AP damage; 50 m range; 3 s firing interval; 85% base accuracy. ground targets.

RPG Team

Performance: RPG Team: 150 base HEAT damage; 42 m range; 3.2 s firing interval; 78% base accuracy. ground targets.

SAM Launcher

Performance: SAM Launcher: 180 base AA damage; 104 m range; 2.4 s firing interval; 94% base accuracy; 2-round burst. aircraft, guided.

Heavy SAM Launcher

Performance: Heavy SAM Launcher: 240 base AA damage; 112 m range; 3.6 s firing interval; 90% base accuracy; 2-round burst. aircraft, guided.

Twin 23mm Flak Gun

Performance: Twin 23mm Flak Gun: 18 base AA damage; 62 m range; 0.3 s firing interval; 60% base accuracy; 6 m splash; 2-round burst. aircraft.

Twin 35mm Flak Cannon

Performance: Twin 35mm Flak Cannon: 55 base AA damage; 84 m range; 0.9 s firing interval; 78% base accuracy; 8 m splash; 2-round burst. aircraft.

57mm Flak Gun

Performance: 57mm Flak Gun: 110 base AA damage; 84 m range; 1.4 s firing interval; 68% base accuracy; 10 m splash. aircraft.

155mm Emplaced Howitzer

Performance: 155mm Emplaced Howitzer: 320 base HE damage; 185 m range, 30 m minimum; 6.5 s firing interval; 80% base accuracy; 9 m splash. ground targets, indirect fire.

203mm Fortress Howitzer

Performance: 203mm Fortress Howitzer: 335 base HE damage; 180 m range, 30 m minimum; 8 s firing interval; 80% base accuracy; 10 m splash. ground targets, indirect fire.

Rocket Battery

Performance: Rocket Battery: 70 base HE damage; 155 m range, 30 m minimum; 14 s firing interval; 80% base accuracy; 6.5 m splash; 6-shot salvo (0.22 s gaps). ground targets, indirect fire.

Command Post HMG

Performance: Command Post HMG: 10 base HMG damage; 44 m range; 0.13 s firing interval; 68% base accuracy. ground targets, low aircraft.

Additional use: May be granted by research, field kits, passengers, a doctrine power or scripted support; absence from a base unit does not mean it is always available.

Command Post ATGM

Performance: Command Post ATGM: 190 base HEAT damage; 52 m range; 4 s firing interval; 92% base accuracy. ground targets, guided.

Additional use: May be granted by research, field kits, passengers, a doctrine power or scripted support; absence from a base unit does not mean it is always available.

Command Post SAM

Performance: Command Post SAM: 150 base AA damage; 88 m range; 3.2 s firing interval; 90% base accuracy; 2-round burst. aircraft, guided.

Additional use: May be granted by research, field kits, passengers, a doctrine power or scripted support; absence from a base unit does not mean it is always available.

Airbase HMG

Performance: Airbase HMG: 10 base HMG damage; 45 m range; 0.13 s firing interval; 70% base accuracy. ground targets, low aircraft.

Additional use: May be granted by research, field kits, passengers, a doctrine power or scripted support; absence from a base unit does not mean it is always available.

Airbase SAM

Performance: Airbase SAM: 160 base AA damage; 80 m range; 3.4 s firing interval; 90% base accuracy; 2-round burst. aircraft, guided.

Additional use: May be granted by research, field kits, passengers, a doctrine power or scripted support; absence from a base unit does not mean it is always available.

Airbase ATGM

Performance: Airbase ATGM: 200 base HEAT damage; 80 m range; 4.2 s firing interval; 92% base accuracy. ground targets, guided.

Additional use: May be granted by research, field kits, passengers, a doctrine power or scripted support; absence from a base unit does not mean it is always available.

Airfield HMG

Performance: Airfield HMG: 9 base HMG damage; 45 m range; 0.12 s firing interval; 68% base accuracy. ground targets, low aircraft.

Additional use: May be granted by research, field kits, passengers, a doctrine power or scripted support; absence from a base unit does not mean it is always available.

Airfield SAM

Performance: Airfield SAM: 150 base AA damage; 80 m range; 3 s firing interval; 90% base accuracy; 2-round burst. aircraft, guided.

Additional use: May be granted by research, field kits, passengers, a doctrine power or scripted support; absence from a base unit does not mean it is always available.

Weapons, armour & command powers

FIELD REFERENCE / 25 ENTRIES ON THIS SHEET

Airfield ATGM

Performance: Airfield ATGM: 190 base HEAT damage; 80 m range; 3.8 s firing interval; 92% base accuracy. ground targets, guided.

Additional use: May be granted by research, field kits, passengers, a doctrine power or scripted support; absence from a base unit does not mean it is always available.

Rooftop HMG

Performance: Rooftop HMG: 9 base HMG damage; 40 m range; 0.14 s firing interval; 66% base accuracy. ground targets.

Additional use: May be granted by research, field kits, passengers, a doctrine power or scripted support; absence from a base unit does not mean it is always available.

Convoy HMG

Performance: Convoy HMG: 8 base HMG damage; 36 m range; 0.2 s firing interval; 55% base accuracy. ground targets, low aircraft.

Additional use: May be granted by research, field kits, passengers, a doctrine power or scripted support; absence from a base unit does not mean it is always available.

Convoy Flak Gun

Performance: Convoy Flak Gun: 11 base AA damage; 54 m range; 0.13 s firing interval; 50% base accuracy. aircraft.

Additional use: May be granted by research, field kits, passengers, a doctrine power or scripted support; absence from a base unit does not mean it is always available.

Convoy AT Launcher

Performance: Convoy AT Launcher: 125 base HEAT damage; 40 m range; 5.5 s firing interval; 85% base accuracy. ground targets, guided.

Additional use: May be granted by research, field kits, passengers, a doctrine power or scripted support; absence from a base unit does not mean it is always available.

ADC / Precision Airstrike

Unlock: 1 Commander Point(s); first node in branch **Mode:** Active / 150 s cooldown **Targeting:** point **Area / duration:** 14 m

Operation: Two strike jets bomb the target area 6 seconds after the call. Only you see the marked area: the enemy just hears "Incoming!".

ADC / Drone Surveillance

Unlock: 1 Commander Point(s); requires Precision Airstrike **Mode:** Active / 100 s cooldown **Targeting:** point **Area / duration:** 80 m; 60 s

Operation: A surveillance drone arrives over the target 1 second after the call and loiters for 60 seconds, revealing a wide area. With UAV Thermal Imaging (Airbase research) it also sees hidden units and camouflaged structures (a still or sneaking sniper within half of it).

Earlier node: Precision Airstrike

ADC / Cruise Missile Strike

Unlock: 2 Commander Point(s); requires Drone Surveillance **Mode:** Active / 220 s cooldown **Targeting:** point **Area / duration:** 13 m

Operation: A ship-launched cruise missile strikes the target with enormous force, 16 seconds after the call: it climbs straight up, arcs over high above the battlefield and dives onto the target about 14 seconds after launch. Watch it climb, then take control of its dive (steer the aim point a little). Air defences cannot shoot it down. The enemy is not shown where.

Earlier node: Drone Surveillance

ADC / Recon Satellite

Unlock: 1 Commander Point(s); first node in branch **Mode:** Active / 110 s cooldown **Targeting:** point **Area / duration:** 70 m; 18 s

Operation: After 1 second, a satellite pass reveals a large area for 18 seconds, including camouflaged units and camouflaged structures (netted buildings, hidden positions) in it, which you can see and target for the whole pass (not snipers standing still or sneaking, nor those under a ghillie).

ADC / Satellite Link

Unlock: 1 Commander Point(s); requires Recon Satellite **Mode:** Passive / no activation

Operation: All units +15% vision. Enemies attacking your structures are revealed on the minimap.

Earlier node: Recon Satellite

ADC / Electronic Warfare

Unlock: 2 Commander Point(s); requires Satellite Link **Mode:** Active / 170 s cooldown **Targeting:** point **Area / duration:** 28 m; 12 s

Operation: After 5 seconds, jams and disables enemy vehicles, aircraft and defences in the target area for 12 seconds.

Earlier node: Satellite Link

ADC / Emergency Supply Drop

Unlock: 1 Commander Point(s); first node in branch **Mode:** Active / 180 s cooldown **Targeting:** point **Area / duration:** 10 m

Operation: A cargo aircraft drops four supply crates ($400 each) at the target. Any unit can collect them - including the enemy.

ADC / Contractor Network

Unlock: 1 Commander Point(s); requires Emergency Supply Drop **Mode:** Passive / no activation

Operation: Supply trucks carry 25% more and structures are built 20% faster.

Earlier node: Emergency Supply Drop

ADC / Airborne Reinforcements

Unlock: 2 Commander Point(s); requires Contractor Network **Mode:** Active / 220 s cooldown **Targeting:** point **Area / duration:** 22 m

Operation: Aircraft fly in from behind your base by your Command Centre level. Level 1: two Condor helicopters land 3 Riflemen, 2 Lancer AT teams and a Sniper at the target. Level 2: a Packhorse also sets a Warden MRAP down. Level 3: a cargo plane also drops a Bastion IFV by parachute. An aircraft shot down on the way in loses what it carries.

Earlier node: Contractor Network

ESD / Artillery Barrage

Unlock: 1 Commander Point(s); first node in branch **Mode:** Active / 120 s cooldown **Targeting:** point **Area / duration:** 22 m; 10 s

Operation: Divisional artillery fires 14 heavy shells into the target area over 10 seconds, in volleys, the first 8 seconds after the call. Each shell bursts in a 9 m radius. An enemy with eyes on it or a radar sees the area coming, on the ground and on its radar.

ESD / Rocket Saturation Strike

Unlock: 1 Commander Point(s); requires Artillery Barrage **Mode:** Active / 200 s cooldown **Targeting:** point **Area / duration:** 32 m; 6 s

Operation: Rocket launchers saturate the target area with 36 rockets over 6 seconds, the first 8 seconds after the call. Each rocket bursts in a 7.5 m radius. An enemy with eyes on it or a radar sees the area coming, on the ground and on its radar.

Earlier node: Artillery Barrage

ESD / EMP Missile

Unlock: 2 Commander Point(s); requires Rocket Saturation Strike **Mode:** Active / 240 s cooldown **Targeting:** point **Area / duration:** 36 m; 20 s

Operation: An EMP warhead lands 10 seconds after the call (about 9 seconds in the air; you can ride it) and disables all enemy vehicles, aircraft and structures in a wide area for 20 seconds. The enemy is not shown where.

Earlier node: Rocket Saturation Strike

ESD / Rapid Mobilisation

Unlock: 1 Commander Point(s); first node in branch **Mode:** Active / 150 s cooldown **Targeting:** none

Operation: All production and construction runs at double speed for 30 seconds.

ESD / Heavy Armour Doctrine

Unlock: 1 Commander Point(s); requires Rapid Mobilisation **Mode:** Passive / no activation

Operation: Tanks gain +20% hit points and +10% damage.

Earlier node: Rapid Mobilisation

ESD / Emergency Reinforcements

Unlock: 2 Commander Point(s); requires Heavy Armour Doctrine **Mode:** Active / 240 s cooldown **Targeting:** point **Area / duration:** 24 m

Operation: Three cargo planes fly in from behind your base and drop an armoured column on the target by parachute: a Kaishan heavy tank, two Menghu MBTs and two Tiemao IFVs. Each lands on its own clear spot, ready to fight. A plane shot down before its drop loses its tanks.

Earlier node: Heavy Armour Doctrine

ESD / Fortified Positions

Unlock: 1 Commander Point(s); first node in branch **Mode:** Passive / no activation

Operation: Defensive structures +30% hit points and +10% range.

ESD / Recon Flight

Unlock: 1 Commander Point(s); requires Fortified Positions **Mode:** Active / 110 s cooldown **Targeting:** point

Operation: An old reconnaissance aircraft flies in over your base (1 second) and photographs a corridor 68 meters wide (34 m either side of its track) from your base to the target point. It stays revealed until 15 seconds after the plane has passed.

Earlier node: Fortified Positions

ESD / Iron Resolve

Unlock: 2 Commander Point(s); requires Recon Flight **Mode:** Active / 180 s cooldown **Targeting:** point **Area / duration:** 40 m; 20 s

Operation: Friendly units in the area are repaired by 35% and take 25% less damage for 20 seconds.

Earlier node: Recon Flight

ESD / Sentinel Drone Net

Unlock: Sentinel Drone Net **Cooldown:** 120 s **Duration:** 75 s

Operation: Three Yexiao sentinel drones fly in 1 second after the call and hold station in a ring over the target for 75 seconds, each watching 46 m round it. Satellite-linked: they see hidden units and camouflaged structures. Enemy anti-air and machine guns can shoot them down.

Required research: Sentinel Drone Net

ESD / Hornet Swarm

Unlock: Hornet Swarm **Cooldown:** 170 s

Operation: Five Mafeng loitering drones fly in from behind your base and reach the target 7 seconds after the call, then each dives on an enemy vehicle in the area (structures when there are none), exploding with a shaped charge: tanks and trucks suffer most, soldiers little. One-way; anti-air and machine guns shoot them down on the way.

Required research: Hornet Swarm

Weapons, armour & command powers

FIELD REFERENCE / 10 ENTRIES ON THIS SHEET

ESD / Aid Wing

Unlock: Aid Wing **Cooldown:** 150 s **Duration:** 35 s

Operation: Four Yihu repair drones fly to the target and hover over it for 35 seconds. Each beams repairs into your damaged vehicles and structures within 34 m: 1.5% of a vehicle's health a second, a structure's about half that. They are in the open: shoot them down and the repairs slow.

Required research: Aid Wing

MLF / Ambush Team

Unlock: 1 Commander Point(s); first node in branch **Mode:** Active / 130 s cooldown **Targeting:** point **Area / duration:** 8 m

Operation: Four camouflaged Tank Hunters and two Irregulars emerge at the target location.

MLF / Decoy Convoy

Unlock: 1 Commander Point(s); requires Ambush Team **Mode:** Active / 140 s cooldown **Targeting:** point

Operation: Six decoy vehicles that look real to the enemy drive from your base towards the target, drawing fire for 45 seconds.

Earlier node: Ambush Team

MLF / Electronic Jammer

Unlock: 2 Commander Point(s); requires Decoy Convoy **Mode:** Active / 170 s cooldown **Targeting:** point **Area / duration:** 45 m; 25 s

Operation: After 5 seconds, for 25 seconds enemy air defences in the area cannot fire, enemy vision there is halved and the enemy radar is jammed.

Earlier node: Decoy Convoy

MLF / Hidden Supply Cache

Unlock: 1 Commander Point(s); first node in branch **Mode:** Active / 150 s cooldown **Targeting:** point

Operation: Reveals a hidden cache worth $3,500 at the target location that supply trucks can harvest.

MLF / Scavengers

Unlock: 1 Commander Point(s); requires Hidden Supply Cache **Mode:** Passive / no activation

Operation: Every destroyed vehicle leaves salvage, and each pickup is worth an extra $100.

Earlier node: Hidden Supply Cache

MLF / Tunnel Reinforcements

Unlock: 2 Commander Point(s); requires Scavengers **Mode:** Active / 180 s cooldown **Targeting:** tunnel

Operation: Dig a hidden tunnel: click its entrance within 40 m of your own structures, then its exit anywhere you have explored. 3 Irregulars, 2 Tank Hunters and 2 Trophy Tanks travel underground and come out at the exit, hidden until they fire or are detected. Both tunnel ends stay 3 minutes, hidden unless enemy detectors or seismic sensors find them.

Earlier node: Scavengers

MLF / Mobile Artillery Strike

Unlock: 1 Commander Point(s); first node in branch **Mode:** Active / 110 s cooldown **Targeting:** point **Area / duration:** 18 m; 9 s

Operation: Hidden mortar teams drop 16 rounds on the target area over 9 seconds, in volleys, the first 8 seconds after the call. Each round bursts in a 6.5 m radius. An enemy with eyes on it or a radar sees the area coming, on the ground and on its radar.

MLF / Hit and Run

Unlock: 1 Commander Point(s); requires Mobile Artillery Strike **Mode:** Passive / no activation

Operation: All units +12% speed.

Earlier node: Mobile Artillery Strike

MLF / Longfang Salvo

Unlock: 2 Commander Point(s); requires Hit and Run **Mode:** Active / 220 s cooldown **Targeting:** point **Area / duration:** 14 m

Operation: Three Longfang tactical missiles from hidden sites slam into the target area, the first 10 seconds after the call (about 9 seconds in the air; you can ride one). The enemy is not shown where.

Earlier node: Hit and Run

Maps, conditions & complete controls

FIELD REFERENCE / 35 ENTRIES ON THIS SHEET

Night vision and forecasts

Time of day: Ordinary base sight is 90% at dusk and 75% at night. Eligible night-vision, recon and sensor equipment can retain full sight. The weather multiplier is a separate effect.

Forecast: Warnings begin 60 s before a weather event. Adverse weather grounds aircraft and delays affected aircraft abilities. A windy day is the current exception: it does not ground them.

Windy day

Sight multiplier: 100% **Aircraft:** Can operate **Aircraft accuracy:** 100% of normal **Infantry pace:** 100% **Duration:** 120-180 s at full event **Wind:** 14 m/s

Command advice: Maintain reconnaissance and air cover; wind presentation does not itself impose aircraft grounding.

Sandstorm

Sight multiplier: 50% **Aircraft:** Return home / grounded **Aircraft accuracy:** 100% of normal **Infantry pace:** 100% **Duration:** 80-110 s at full event **Wind:** 14 m/s

Command advice: Plan ground and naval cover while aircraft recover. Avoid basing a timed offensive on an aircraft power that must wait for the weather.

Fog

Sight multiplier: 50% **Aircraft:** Return home / grounded **Aircraft accuracy:** 60% of normal **Infantry pace:** 100% **Duration:** 90-120 s at full event **Wind:** 1.5 m/s

Command advice: Plan ground and naval cover while aircraft recover. Avoid basing a timed offensive on an aircraft power that must wait for the weather.

Snow squall

Sight multiplier: 50% **Aircraft:** Return home / grounded **Aircraft accuracy:** 100% of normal **Infantry pace:** 75% **Duration:** 60-90 s at full event **Wind:** 10 m/s

Command advice: Plan ground and naval cover while aircraft recover. Avoid basing a timed offensive on an aircraft power that must wait for the weather.

Rain

Sight multiplier: 75% **Aircraft:** Return home / grounded **Aircraft accuracy:** 75% of normal **Infantry pace:** 100% **Duration:** 90-120 s at full event **Wind:** 4 m/s

Command advice: Plan ground and naval cover while aircraft recover. Avoid basing a timed offensive on an aircraft power that must wait for the weather.

OPERATION DUSTLINE

Size: 512 m square **Starting positions:** 2 **Environment:** arid

Terrain and routes: A sun-baked river valley. Both bases sit on raised shelves reached only by their road ramps; the town of Varesto guards the highway bridge while the rail bridge and an old ford, each watched from a mesa-top comms relay, offer flanking routes under the cliffs of the wooded heights and the industrial plateau.

OPERATION IRON RIDGE

Size: 512 m square **Starting positions:** 2 **Environment:** temperate

Terrain and routes: Both bases hold high plateaus with three ramps each; the Kessel splits around a contested island crossed by two highway bridges and wadeable at either end, with an old ford and a road bridge on the flanks. Riverside ridges with guarded passes, quarry uplands and mesa-top relays stack the valley in layers.

OPERATION SCORPION CANYON

Size: 512 m square **Starting positions:** 2 **Environment:** desert

Terrain and routes: A 14 m deep wadi splits the desert. Storm the old Hajar dam over the oasis pool, or cut through the canyon at the east and west crossings; sandstone mesas with comms relays and oil tower over every exit from the wadi.

OPERATION FROSTBITE PASS

Size: 640 m square **Starting positions:** 2 **Environment:** winter

Terrain and routes: Two snowbound valleys split by the Kharsk range. Climb into the high gorge pass under the relay peak, fight through the river village of Kharsk between its terraces and cliff-top overlooks, or take the long lake-shore road past the hydro station. Bases sit on terraces with three ramps each.

OPERATION TERRACE FALLS

Size: 384 m square **Starting positions:** 2 **Environment:** temperate

Terrain and routes: Two hill estates step down to the Varna reservoir in three terraced tiers. Staggered ramps force a zig-zag descent to the dam, the fast road across the lake; long flank roads wind down the terrace arms to the lake ends, where mesas hold a Comms Relay and a Supply Cache.

OPERATION EIGHT CROWNS

Size: 1024 m square **Starting positions:** 8 **Environment:** temperate

Terrain and routes: A wide basin for up to eight commanders. Four edge bases on open ground with spoke roads to the Crown Ring, two corners behind river arcs (a bridge and two fords each), two corners up on plateaus with two ramps. The Crown mesa in the middle holds a Comms Relay; villages, farms, contested supply zones and a railway terminus lie between.

PELAGIC FRONTIER

Size: 640 m square **Starting positions:** 2 **Environment:** temperate

Terrain and routes: A broad sea between two coastal bases. Build the ADC ocean command centre, wave power plant and naval refinery in explored deep water. Neutral well buoys supply collector boats. The outer coastal routes keep ground armies in the battle.

OPERATION DEEP WATER

Size: 512 m square **Starting positions:** 2 **Environment:** temperate

Terrain and routes: Two bases at either end of a long lake, each with a deep bay for a Shipyard. The island in the middle holds the richest supply depot and two oil wells; a shallow causeway from the south shore lets trucks and tanks wade across, but boats rule the water. The Morava river flows into the north channel, crossed by the north road's bridge; the south road runs past the causeway.

Random Battlefield & custom maps

Random Battlefield: Choose a seed, theme, size and supported player count. The generator produces playable routes, resources and starts; change the seed for another arrangement. Larger maps and more AI commanders increase loading and simulation cost.

Custom maps: Use MAP EDITOR to shape ground, paint terrain, place roads, water, supplies, buildings and starts. Save and export the map; imported maps are available to skirmish setup. Check shoreline depth, ramps and crossing routes before distributing a naval map.

Camera: Pan Up

Input: W / Up

Camera: Pan Down

Input: S / Down

Camera: Pan Left

Input: A / Left

Camera: Pan Right

Input: D / Right

Camera: Rotate Left

Input: Q

Camera: Rotate Right

Input: E

Camera: Zoom In

Input: No default key; use the interface or assign a binding.

Camera: Zoom Out

Input: No default key; use the interface or assign a binding.

Camera: Tilt Up (toward the horizon)

Input: No default key; use the interface or assign a binding.

Camera: Tilt Down (more from above)

Input: No default key; use the interface or assign a binding.

Camera: Reset View

Input: Home

Attack Move

Input: R

Stop

Input: Z

Hold Position

Input: H

Guard Area

Input: G

Protect (then click a friendly unit or structure to escort it; or hold the key and right-click one)

Input: =

All Out (toggle: the selected armed units attack everything they see, ordinary buildings too)

Input: -

Blow Out (ESD, once researched: blows the fog away round the selected ESD units for 12 s)

Input: No default key; use the interface or assign a binding.

Cycle Formation

Input: F

Unload Passengers

Input: U

Maps, conditions & complete controls

FIELD REFERENCE / 41 ENTRIES ON THIS SHEET

Deploy / Pack Up

Input: V

Reverse (vehicles back up, front to the enemy)

Input: V

Dig In / Surface

Input: B

Construction (selected Engineer / Dozer / Worker: control it and build by hand)

Input: B

First Person (one selected unit: see through its eyes, drive and fire it; again or Esc: back to the map)

Input: Enter

Ride Missile (arms the ride from the call of your strike, then rides the missile in flight; else the key is Guard Area's)

Input: G

Hackers: Hack Building

Input: J

Hackers: Hack Online

Input: K

Hackers: Hack Resource

Input: L

Snipers: Ability (Snipe Out / Mark Target / EMP Round)

Input: C

Snipers: Fire Stance Hold

Input: T

Snipers: Fire Stance Defend

Input: Y

Snipers: Fire Stance Attack

Input: I

Snipers: Ghillie (hide / throw off)

Input: N

Smoke (launchers fire at once; grenades / artillery: then click a spot)

Input: C

Capture Building (then click it; engineers on their own also by right-click)

Input: C

Repair Mode (spanner)

Input: M

Sell Mode

Input: Delete

Self-Destruct (hold Ctrl and press it: a selected Thermal Power Plant, twice to confirm; again during the countdown: cancel)

Input: K

Turn Structure 90° While Placing (or middle-click)

Input: /

Scatter

Input: X

Select All Combat Units

Input: `

Select Idle Builder (Dozer / Worker / drone hub; Shift: all)

Input: ;

Sidebar: Open the Full Panel (pinned) / Fold it

Input: F9

Command Bar: Enlarged / Minimal

Input: F10

Fold / Show the Shortcuts Strip

Input: End

Unit Icons (OFF / SELECTED & HOVER / INFANTRY / ALL UNITS)

Input: \

Quick Save

Input: F5

Quick Load (your newest quick save)

Input: F4

Select Matching Units (on screen; again: whole map)

Input: No default key; use the interface or assign a binding.

Select All Aircraft

Input: No default key; use the interface or assign a binding.

Centre on Base

Input: Backspace

Jump to Last Alert

Input: Space

Doctrine Panel

Input: Tab

Objectives

Input: O

Pause

Input: Pause / P

Game Menu

Input: Escape

Commander experience and points

Level 1: 0 total XP / 1 point at match start **Level 2:** 1,400 total XP / 1 additional point **Level 3:** 4,000 total XP / 1 additional point **Level 4:** 8,000 total XP / 1 additional point **Level 5:** 14,000 total XP / 2 additional points

Specialisation: A standard match offers six Commander Points in total. Each doctrine branch must be purchased in order, and its third node costs two points. Buying a branch node does not raise your Command Centre level. ESD Drone Wing powers are research-gated instead of purchased with points.

Unit veterancy

ROOKIE: Experience threshold 0 times the unit's own cost-value destroyed. Accuracy bonus 0%; reload-time multiplier x1; incoming damage multiplier x1; reaction multiplier x1.

VETERAN: Experience threshold 1 times the unit's own cost-value destroyed. Accuracy bonus 8%; reload-time multiplier x0.94; incoming damage multiplier x0.93; reaction multiplier x0.8.

ELITE: Experience threshold 2.5 times the unit's own cost-value destroyed. Accuracy bonus 13%; reload-time multiplier x0.89; incoming damage multiplier x0.87; reaction multiplier x0.65; eligible out-of-combat regeneration 0.4% maximum HP/s.

ACE: Experience threshold 5 times the unit's own cost-value destroyed. Accuracy bonus 18%; reload-time multiplier x0.85; incoming damage multiplier x0.82; reaction multiplier x0.5; eligible out-of-combat regeneration 0.8% maximum HP/s.

Preservation: Veteran units are investments. Repair and rotate them out of a failing fight. Eligible veteran infantry can transfer their rank to a tank, and recovered salvage has faction-specific effects.

Smoke is concealment, not a wall

Smoke screens: Smoke reduces direct-fire accuracy through a sufficiently dense cloud and can hide units. It does not physically stop the projectile. Indirect fire, bombs and placed charges target positions and are not spoiled in the same way. Missed fire can still strike units standing in the cloud, including friendlies.

Detection: Appropriate detector or satellite-linked sensors see into smoke. A smoke kit, unit camouflage, Ghillie and underground concealment are separate mechanics. Use smoke to cover a withdrawal or break an accurate direct-fire exchange, not as invulnerability.

Fire, toxins, EMP and fallout

Fire: Flame weapons threaten infantry and garrisons and can ignite targets or leave burning ground. Burning units can continue losing health after the initial hit. The weapon damage class and the ongoing burn are separate effects.

Toxins and radiation: Clouds can use fixed damage per second or a percentage of maximum HP. Their descriptions identify the affected target classes. A base MLF toxin cloud does not damage structures; corrosive or meltdown research changes that. Nuclear fallout can harm the owner and allies as well as enemies.

EMP: EMP can disable engines and weapons without destroying a unit. Use it to interrupt a dangerous target, then exploit the opening with another part of the force. An EMP round and an area EMP power have different delivery and cooldown rules.