

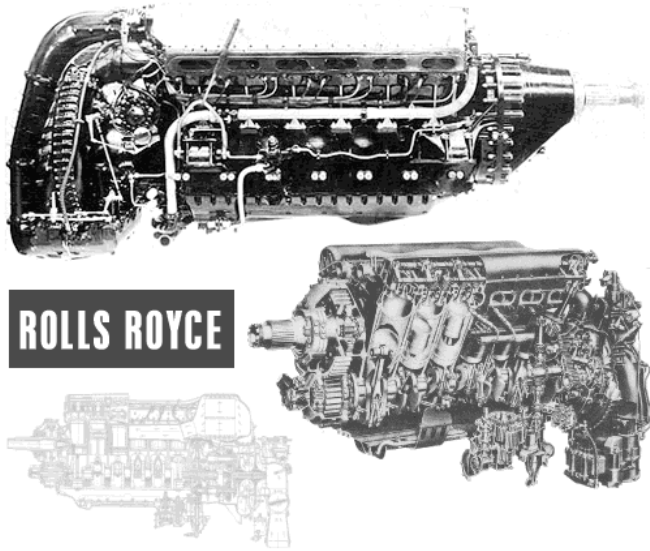
General Research

(Air, Naval, Military, Atomic and Intelligence)

All five general research tables are identical, although they are distinct for the purposes of RP allocation and results, as indicated on the research record sheets. When an "8+" result is achieved for a category of general research, further general research in that category starts from scratch.

Results:

- 1 No effect.
- 2 [+1]
- 3 [+2]
- 4 [+3]
- 5 [+4]
- 6 [+5]
- 7 [+6]
- 8+ Breakthrough.



Air Research Projects

Air Nationality DRM

(European Axis, Western Allies, Russia, Japan)

Modifiers:

- # For the Air Nationality DRM of the senior partner in the rolling alliance faction (-1 for an Air Nationality DRM of 1; -2 for an Air Nationality DRM of 2; and so on).

Results:

- 1-2 No effect.
- 3 [+1]
- 4 [+2]
- 5 [+3]
- 6 [+4]
- 7 [+5]
- 8 [+6]
- 9 [+7]
- 10+ Increase Air Nationality DRMs one level.



Jets

(Germany, Britain, U.S., Russia, Japan)

Jets are a high technology project. Only one RP may be allocated in the first year in which research is done, two RPs in the next year in which research is done, and so on.

Restrictions

The European Axis may not allocate RPs to jets until 1943. The Western Allies, Russia and Japan may not allocate RPs to jets until the 1944 YSS.

Results:

- 1-3 *Project cancelled.
- 4-5 No effect
- 6-7 [+1]
- 8 [+2]
- 9 One jet factor may be built. Jets have a range of two hexes in Europe and one hex in the Pacific. [+3]
- 10 Two jet factors may be built. [+4]
- 11 Three jet factors may be built. Jet range improves to three hexes in Europe and two hexes in the Pacific. [+5]
- 12+ *Four jet factors may be built. Jets achieve their full range of four hexes in Europe and three hexes in the Pacific.

Explanation:

After a successful result, jet factors are added to the successful alliance faction's force pool at no additional RP cost at the rate of one factor per turn.

Air Range

(Germany, Western Allies, Russia, Japan)

Air range is a high technology project. Only one RP may be allocated in the first year in which research is done, two RPs in the next year in which research is done, and so on.

Japan begins with a result of "7" [+5]. The Western Allies begin with a result of "5" [+3].

Modifiers:

- # For the air range of the rolling alliance faction (-1 for one air range result; -2 for two air range results; and so on).

Results:

- 1-2 No effect.
- 3 [+1]
- 4 [+2]
- 5 [+3]
- 6 [+4]
- 7 [+5]
- 8 [+6]
- 9 [+7]
- 10+ Air ranges for strategic bombers and escorting interceptors are increased (see Air Range Effects Table for details).



Strategic Bombers

(European Axis, Western Allies, Russia, Japan)

The Western Allies begin with a “9+” result.

Modifiers:

- 1 For each strategic bomber result achieved by the rolling alliance faction (-1 for one strategic bomber result, not including the initial Western Allied result; -2 for two strategic bomber results; and so on).

Results:

- 1-2 No effect.
- 3-4 [+1]
- 5 [+2]
- 6 [+3]
- 7 [+4]
- 8 [+5]
- 9+ Strategic bombers may be constructed. For each subsequent “9+” result for strategic bombers, friendly bomber SW combat dice rolls receive a favorable +/-1 DRM.



Air Defense

(European Axis, Western Allies, Russia, Japan)

Modifiers:

- 1 For each air defense result achieved by the rolling alliance faction (-1 for one air defense result; -2 for two air defense results; and so on).

Results:

- 1-2 No effect.
- 3 [+1]
- 4 [+2]
- 5 [+3]
- 6 [+4]
- 7+ The defender’s air defense level is increased by one against air attacks (23.42); the defender’s SW combat dice roll is increased by one against strategic bombing (26.461B); each flying bomb salvo effect is reduced by one (26.661A).

Air Production Projects

42.22 AIR:

A. AIR FORCE POOL INCREASES: 2, 3, 4, 5... Each result allows the alliance faction to add five BRPs of army air, naval air or interceptors, in any combination, to the force pool of one or more eligible major powers in that alliance faction.

- Army and naval air units are added to the owning major power’s force pool in the unit construction phase in which the RPs are triggered.
- Interceptors are added to the owning major power’s force pool and placed in a SW box for immediate use at the end of the research phase in which the RPs are triggered, provided the provided the owning major power commits to their construction in the turn of production (27.91A).
- France may not produce naval air units or interceptors; Russia may not produce naval air units; Italy may not produce interceptors; China may not produce army air, naval air or interceptors.
- Remnants may be retained for future use (42.336).

B. STRATEGIC BOMBERS: 2, 3, 4, 5... only after a “9+” research result for strategic bombers. Each result allows the alliance faction to add five BRPs of strategic bomber factors to the force pool of one or more eligible major powers in that alliance faction.

- Strategic bombers are added to the owning major power’s force pool and placed in a SW box for immediate use at the end of the research phase in which the RPs are triggered, provided the provided the owning major power commits to their construction in the turn of production (27.91A).
- Western Allied strategic bomber production in Europe is a separate production project from American strategic bomber production in the Pacific. Western Allied strategic bomber production for European use may begin in 1940; American strategic bomber production for Pacific use may begin in 1944.
- Italy, France and China may not produce strategic bombers. See 24.23 and 42.331B for restrictions.
- Remnants may be retained for future use (42.336).

C. AIR TRANSPORTS: 3, 4, 5, 6... Each result allows the alliance faction to add an air transport factor to the force pool of an eligible major power in that alliance faction. Italy, France and China may not produce air transport units.

D. JETS: One jet factor is added to the force pool of the eligible major powers in the rolling alliance faction, at no additional RP cost, for each research result for jets. A “9” research result for jets adds one jet factor; a “10” result, two jet factors; an “11” result, three jet factors, and a “12+” result, four jet factors. Germany, Japan and Russia may create no more than four jet factors; Britain and the U.S. may each create no more than two jet factors; Italy, France and China may not create jets.

E. AIRBASES: 1, 1 for no more than two additional airbases each year, at the rate of one airbase per turn. Germany, Italy, Japan, Russia, Britain and the U.S. only.

42.331 AIR UNITS: Army and naval air units may be added to force pools by either mobilization or production. Interceptor, strategic bomber, air transport and jet force pools may be increased only by production, subject to the following restrictions:

A. JETS: Jets are produced, at no additional RP cost, when research results for jets are achieved.

B. STRATEGIC BOMBERS: Strategic bombers may not be produced by a major power which has not achieved at least one “9+” result for strategic bombers. The Western Allies begin with one “9+” result for strategic bombers and one British and one American strategic bomber factor already built. Western Allied strategic bomber force pool additions for European use must be allocated so the British and American strategic bomber force pools remain at equal strength, with any odd factor going to either major power at the Western Allied player’s discretion (24.262).

Naval Research Projects



Naval Nationality DRM (European Axis, Western Allies, Japan)

Modifiers:

-# For the Naval Nationality DRM of the senior partner in the rolling alliance faction (-1 for a Naval Nationality DRM of 1; -2 for a Naval Nationality DRM of 2; and so on).

Results:

- 1-2 No effect.
- 3 [+1]
- 4 [+2]
- 5 [+3]
- 6 [+4]
- 7 [+5]
- 8 [+6]
- 9 [+7]
- 10+ Increase Naval Nationality DRMs one level.



Anti-submarine Warfare (European Axis, Western Allies, Japan)

ASW is a high technology project. Only one RP may be allocated in the first year in which research is done, two RPs in the next year in which research is done, and so on.

The Western Allies begin with a result of "3" [+1].

Restrictions:

Western Allied RPs may not be placed in ASW until the 1940 YSS. Japanese RPs may not be placed in ASW until the 1943 YSS.

Modifiers:

- +1 For each radar research result achieved.
- 1 For each ASW result achieved by the rolling alliance faction (-1 for one ASW result; -2 for two ASW results; and so on).

Results:

- 1-2 No effect.
- 3 [+1]
- 4 [+2]
- 5 [+3]
- 6-7 Enemy submarine SW combat and submarine attack dice rolls are decreased by one; friendly ASW SW combat dice rolls are increased by one.
- 8+ Enemy submarine SW combat and submarine attack dice rolls are decreased by two; friendly ASW SW combat dice rolls are increased by two.

Explanation:

Results for ASW are implemented gradually – see 41.84A.



Torpedoes (European Axis, Western Allies, Japan)

Japan begins with one "7+" torpedo result and a result of "1-2" [+0].

The European Axis begin with a result of "4" [+2].

Restrictions:

European Axis RPs may not be placed in torpedoes until the 1940 YSS. Western Allied RPs may not be placed in torpedoes until the 1943 YSS.

Modifiers:

- 1 For each torpedo result achieved by the rolling alliance faction (-1 for one torpedo result, not including the initial Japanese result; -2 for two torpedo results; and so on).

Results:

- 1-2 No effect.
- 3 [+1]
- 4 [+2]
- 5 [+3]
- 6 [+4]
- 7+ Friendly submarine SW combat and submarine attack dice rolls are increased by one; enemy ASW SW combat dice rolls are decreased by one.



Advanced Submarines (Germany)

Advanced submarines are a high technology project. Only one RP may be allocated in the first year in which research is done, two RPs in the next year in which research is done, and so on.

Restriction:

The European Axis may not allocate RPs to advanced submarines until 1943.

Results:

- 1-3 *Project cancelled.
- 4-5 No effect
- 6-7 [+1]
- 8 [+2]
- 9 One advanced submarine factor may be built. [+3]
- 10 Two advanced submarine factors may be built. [+4]
- 11 Three advanced submarine factors may be built. [+5]
- 12 Four advanced submarine factors may be built. [+6]
- 13 Five advanced submarine factors may be built. [+7]
- 14+ *Six advanced submarine factors may be built.

Explanation:

After a successful result, one advanced submarine factor is added to the German force pool at no additional RP cost at the rate of one factor per turn.



Harbor Attack
(European Axis, Western Allies, Japan)

Results:

- 1-2 No effect.
- 3 [+1]
- 4 [+2]
- 5 [+3]
- 6 One target in harbor may be attacked.
- 7 Two targets in harbor may be attacked.
- 8+ Three targets in harbor may be attacked.

Explanation:

Harbor attacks are resolved using the Harbor Attack Table.

Harbor Attack Table													
Dice roll	2	3	4	5	6	7	8	9	10	11	12	13	14+
Result	0	0	1	1	2	2	3	3	4	4	4	5	6
Modifiers													
<i>All harbor attacks:</i>													
-1 For each harbor attack previously conducted by any alliance faction in either theater, whether against one, two or three targets.													
-2 Defender applies a counter-intelligence result													
+/-1 Tactical codebreaking advantage (48.51C)													
<i>Submarine attacks:</i>													
+# Attacker's Naval Nationality DRM													
-# Defender's Naval Nationality DRM													
+/-# Net torpedo and ASW modifier													
<i>Carrier attacks:</i>													
+# Attacker's Air Nationality DRM													
-# Defender's Naval Nationality DRM													
-# Air defense level of the target hex (naval units are not counted).													
-1 Each uninverted AAF or naval air equivalent in the target hex													
Explanation													
Harbor attacks are resolved during the movement phase, immediately after patrols are resolved. Each harbor attack result must be used against a single hex – a “7” or “8+” result may not be split between two or more hexes. Harbor attacks may not be made against hexes which have been the target of counterair attacks in the current player turn or against mapboard boxes.													
The attacking player may conduct the harbor attack by submarine or carrier.													
Submarine attacks require one uninverted submarine factor to be based on the board in an operational port within 20 (Europe) or 10 (Pacific) hexes of the attacked port. In addition, a German submarine in the Atlantic SW box permits attacks on western front ports; Japanese and American submarines in the Pacific box permit attacks on Pacific front ports. This submarine factor is not actually used in the attack and may be used for other purposes.													
Once the attacking player has announced the target port he wishes to attack by submarine, the defender deploys into combat groups (22.93A). The attacker must select one combat group in that port as a target. The contents of that combat group are revealed. Targets are then selected from the naval units in the targeted combat group by following the targeting procedure set out in 22.93E.													
Submarine attacks are resolved by rolling two dice for each attack and applying the modifiers set out in the Harbor Attack Table (EXCEPTION: Advanced submarines always attack at a +1 modifier).													
Carrier attacks require one uninverted operational fast carrier to be based on the board in an operational port within 20 (Europe) or 10 (Pacific) hexes of a hex within air range of the attacked port. This fast carrier may not be intercepted, but is inverted when the attack is made.													
Once the attacking player has announced the target port he wishes to attack by carrier, all the defending ships in that hex are revealed. The attacker then selects one or more defending named ships or light ships as targets. One target may be selected for each level of Harbor Attack research result achieved, up to a maximum of three targets per harbor attack (after an “8+” result). The same named ship may not be targeted more than once in the same harbor attack.													
Carrier attacks are resolved by rolling three dice for each target and applying the modifiers set out in the Harbor Attack Table. On a modified result of “2” or less on any of the dice rolls, the fast carrier used in the attack is eliminated.													
Harbor attack research results may be held for future use, and may be accumulated, but two results may not be combined in a single attack against the same port.													
A result of less than “2” is treated as a “2” result; a result of more than “14” is treated as a “14+” result.													
Initial German harbor attack: Germany begins the game with the ability to make a harbor attack against one enemy target. This attack may be made in Fall 1939 or any subsequent turn, provided no other harbor attacks have been made. The execution of this attack does not modify subsequent harbor attacks.													

Naval Production Projects

42.23 NAVAL:

A. SUBMARINES:

- **CONVENTIONAL SUBMARINES:** 1 submarine factor for each RP, no limit. RPs allocated to conventional submarine production must be activated during the year in which they are allocated. Germany, Italy, Japan, Britain and the U.S. only.
- **ADVANCED SUBMARINES:** One advanced submarine factor is added to the German force pool, at no additional RP cost, for each research result for advanced submarines. A “9” research result for advanced submarines adds one advanced submarine factor; a “10” result, two advanced submarine factors; and so on, up to a maximum of six advanced submarine factors on a “14+” result. Germany only.

B. ASW: 2, 3, 4, 5... Each result allows an eligible major power to add one ASW factor to its force pool. Japan, Britain and the U.S. only.

C. TRANSPORTS: 1 transport for each RP, no limit. RPs allocated to transport production must be activated during the year in which they are allocated. Japan, Britain and the U.S. only.

D. NAVAL AIR TRAINING: 3, 4, 5, 6 for each level of naval air training, to a maximum increase of four per year, at the rate of one increase per turn. Germany, Italy, Japan, Britain and the U.S. only.

E. SHIPBUILDING: 2, 3, 4, 5 for each shipbuilding increase, to a maximum increase of four per year, at the rate of one increase per turn. All major powers except Russia and China.

- Each shipbuilding increase must be assigned to a specific shipyard controlled by the relevant alliance faction at the start of the game. The shipbuilding level of captured shipyards (27.713) may not be increased.
- The shipbuilding level of each shipyard may only be increased by production by one each year. This restriction does not apply to shipbuilding increases from mobilization.
- American shipbuilding may not be increased through production (as opposed to mobilization) in a theater until the U.S. is either at war in that theater or the U.S. tension level for that theater is greater than 50.

F. PORTS: 3 per port, for no more than two port counters each year, at the rate of one port counter per turn. Japan and the U.S. only.

42.334 NAVAL UNITS: Fleet (destroyer, cruiser, named capital ships) and carrier (CVE, CVL, CV, CVB) units do not have force pools and may be constructed and repaired without any investment of RPs. Heavy and light ship construction is restricted only by the constructing major power’s shipbuilding rate and shipyard capacity. There is no limit to the extent of submarine, ASW and transport force pool additions.

42.3341 SUBMARINE FORCE POOL INCREASES: Western Allied and Japanese RPs may not be assigned to submarine production until the 1942 YSS.

42.3342 JAPANESE ASW FORCE POOL INCREASES: Japanese RPs may not be assigned to ASW production until the 1943 YSS.

42.3343 JAPANESE TRANSPORT FORCE POOL INCREASES: Japanese RPs may not be assigned to transport production until the 1943 YSS.

42.3344 PORT PRODUCTION: Western Allied and Japanese RPs may not be assigned to port production until the 1942 YSS.

Military Research Projects



Combat Training

(European Axis, Western Allies, Russia, Japan)

Restriction:

The Western Allies may not roll for CTL research until the year after American ground forces first engage in attrition or offensive operations against opposing ground forces in the European theater, as either the attacker or defender, or 1943, whichever is earlier. This does not prohibit the Western Allies from allocating RPs to combat training research in earlier years.

Modifiers:

- # For the CTL of the senior partner in the rolling alliance faction (-1 for a CTL of 1; -2 for a CTL of 2; and so on).
- +1 For each year: 1941: +1; 1942: +2; 1943: +3; 1944: +4; and so on (applicable only to the first Western Allied CTL research roll).
- +1 If Russia fought a border war with Finland (applicable only to the first Russian CTL research roll made after the outbreak of the border war).

Results:

- 1-2 No effect.
- 3 [+1]
- 4 [+2]
- 5 [+3]
- 6 [+4]
- 7 [+5]
- 8 [+6]
- 9 [+7]
- 10+ Increase CTLs one level.



Rockets

(Germany, U.S., Russia, Japan)

Rockets are a high technology project. Only one RP may be allocated in the first year in which research is done, two RPs in the next year in which research is done, and so on.

Restriction:

The European Axis may not allocate RPs to rockets until 1943. The Western Allies, Russia and Japan may not allocate RPs to rockets until the 1944 YSS.

Results:

- 1-3 *Project cancelled.
- 4-5 No effect
- 6-7 [+1]
- 8 [+2]
- 9 Prototype flying bombs developed with a range of 3 hexes (2 hexes in the Pacific); prototype rockets developed with a range of 4 hexes (3 hexes in the Pacific). One rocket base may be used to launch flying bombs; one rocket base may be used to launch rockets. [+3]
- 10 Flying bomb and rocket production increased. Two rocket bases may be used to launch flying bombs; two rocket bases may be used to launch rockets. [+4]
- 11 Flying bomb and rocket mass production. Three rocket bases may be used to launch flying bombs; three rocket bases may be used to launch rockets. [+5]
- 12+ *Rocket range and payload capacity also improved; rocket attacks may be made at a range of 6 hexes (4 hexes in the Pacific). Rockets may be used to carry atomic weapons, with a maximum range of 3 hexes (2 hexes in the Pacific).

Explanation:

A “9” result gives a force pool of two rocket bases, a “10” result gives a force pool of four rocket bases and an “11” or greater result gives a force pool of six rocket bases. One rocket base may be placed each turn. In addition, one existing rocket base may be recycled each turn.

Military Production Projects

42.24 MILITARY:

A. INFANTRY, ARMOR, AND FLAK FORCE POOL INCREASES: 2, 3, 4, 5... Each result allows the alliance faction to add five BRPs of infantry, armor and flak units, in any combination, to the force pool of one or more major powers in that alliance faction. See 42.332 and 42.333 for restrictions. Remnants may be retained for future use (42.336).

B. SPECIALIZED UNIT FORCE POOL INCREASES: 2, 3, 4, 5... Each result allows the alliance faction to add one factor of airborne, Chindits, marines or commandos to the force pool of an eligible major

power in that alliance faction, up to the maximum allowed for each major power.

C. FORTIFICATIONS: 1 and five BRPs for each fortification, for a maximum of four fortifications per year, at the rate of one fortification per turn (EXCEPTION: Japanese fortifications do not require an RP expenditure). Instead of a fortification, two beach defenses may be constructed (32.53) or an island group may be fortified (32.61); this decision is made when the RP is triggered. Germany, Japan, Russia, Britain, and the U.S. only.

D. RAILHEADS: 2 and five BRPs for each railhead, for a maximum of four railheads per year, at the rate of one railhead per turn. Germany, Italy, Japan, Russia, Britain, and the U.S. only.

E. ROCKET BASES: Research results for rockets allow rocket bases to be placed, at no additional RP cost, as set out in 26.61. A “9” research result for rockets allows two rocket bases to be placed; a “10” result, four rocket bases; an “11” or “12+” result, six rocket bases. Germany, Japan, Russia and the U.S. only.

F. SYNTHETIC OIL PLANTS: 5 for each oil plant, to a maximum of two plants per year, at the rate of one plant per turn. Synthetic oil plants are produced at the start of the owning player’s turn and thus may be used as an oil source in the turn they are produced. Germany only.

G. INDUSTRIAL CENTERS (ICs): 5 for each IC, to a maximum of two ICs per year, at the rate of one IC per turn. Russia only.

H. WINTER PREPARATION: 3, once per year, up to a maximum winter preparation level of six. In addition, the European Axis and Japan may achieve automatic winter preparation results (34.442). Such automatic results do not count against the production limit of one winter preparation result per year. Winter preparation results apply to all members of the alliance faction which achieves the result. Germany, Japan and the Western Allies only.

I. SHOCK ARMIES: 2, 3, with two results permitted each year, to a maximum of six results. Each shock army result allows the Russian player to designate one 3-3 infantry unit as a shock army each turn. Shock armies may overstack at the end of the movement phase and may attack in excess of the normal limit of two ground units from a hex, up to a limit of three shock armies (nine factors) per ground attack. Shock armies may be taken as combat losses in the same manner as other ground units, but otherwise are eliminated once ground combat is resolved, prior to advancing after combat, regardless of the outcome. Shock armies may not be used for overruns, seaborne invasions, exploitation attacks or attritions. Russia only.

42.332 INFANTRY:

A. AXIS: No more than three Italian infantry factors may be added per year from production.

B. WESTERN ALLIES:

- No more than three British infantry factors may be added per year from production and no more than three British infantry factors may be added from production and mobilization in the same turn.
- The Australian and Indian infantry force pools may each be increased by up to three infantry factors of any denomination (one 2-2 and one 1-2; or three 1-2s) in any Allied player turn following the outbreak of war between Britain and Japan or in Spring 1942, whichever is earlier.
- If France has been conquered, Britain may add one Free French 2-3 infantry unit to its force pool from production for each French colony under Western Allied control. Once added, these Free French units remain in the British force pool even if the total number of French colonies under Western Allied control later decreases.

42.333 ARMOR:

A. GERMANY: Germany may produce 5-6 armor units in the year after the outbreak of war between Germany and Russia.

B. ITALY: Italy may mobilize or produce 2-5 armor units.

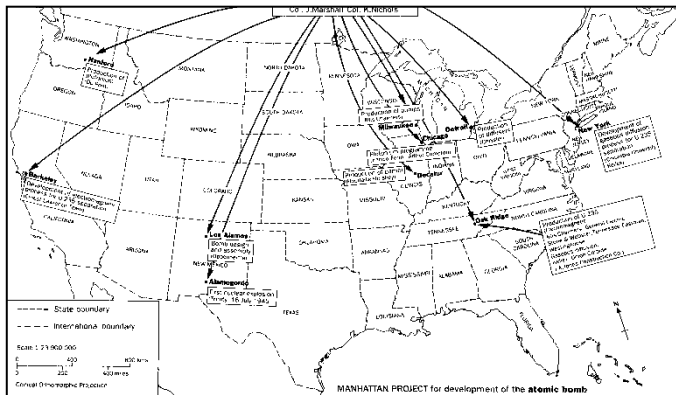
C. JAPAN: Japan may mobilize or produce 3-3 armor units.

D. BRITAIN: Britain may mobilize or produce 2-5 and 4-5 armor units.

E. FRANCE: France may not mobilize or produce armor units. If France has been conquered, Britain may produce one Free French 3-5 armor unit if Paris is under Allied control.

F. U.S.: The U.S. may mobilize or produce 5-6 armor units.

G. RUSSIA: Russia may mobilize or produce 4-5 and 5-6 armor units.



Atomic Research Projects

Radar

(European Axis, Western Allies, Russia, Japan)

Radar is a high technology project. Only one RP may be allocated in the first year in which research is done, two RPs in the next year in which research is done, and so on.

The Western Allies begin with a result of “7” [+5].

Modifiers:

- 1 For each radar result achieved by the rolling alliance faction (-1 for one radar result; -2 for two radar results; and so on).

Results:

- 1-2 No effect.
- 3 [+1]
- 4 [+2]
- 5 [+3]
- 6 [+4]
- 7 [+5]
- 8 [+6]
- 9 [+7]
- 10+ Radar result achieved.

43.1 OVERVIEW:

43.11 RESEARCH: Atomic bombs may only be constructed by Germany, Russia and the U.S. Atomic bomb production requires the research results set out below. All atomic research except atomic general research is subject to the restrictions on RP allocation which apply to high technology projects (41.31C):

A. CONTROLLED REACTION:

- RPs may not be allocated to controlled reaction research until the 1941 YSS.
- An “8+” research result for controlled reaction is required before a research roll may be made for plutonium production or the atomic bomb.

B. URANIUM SEPARATION:

- RPs may not be allocated to uranium separation research until the 1944 YSS.

C. PLUTONIUM PRODUCTION:

- RPs may not be allocated to plutonium production research until the 1944 YSS.

D. ATOMIC BOMB:

- RPs may not be allocated to atomic bomb research until the 1944 YSS.
- RPs allocated to atomic bomb research may not be activated until an “8+” research result for controlled reaction has been achieved and the material for at least one bomb is available.

- Provided the fissionable material is available, a “4-6” atomic bomb research result allows the construction of uranium bombs; a “7+” atomic bomb research result also allows the construction of plutonium bombs.

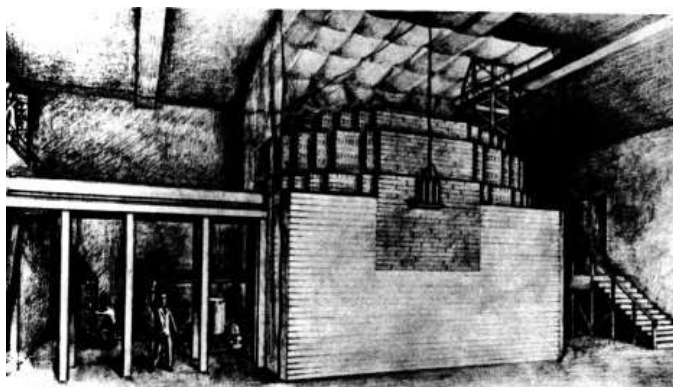
43.12 PRODUCTION OF FISSIONABLE MATERIALS: Atomic bombs require the production of fissionable material from uranium plants and/or plutonium reactors:

A. URANIUM PLANTS:

- Uranium plants are a high technology project. Each uranium plant costs 8 RPs. RPs may not be invested in uranium plant production until the 1942 YSS.
- Each uranium plant produces fissionable material for one atomic bomb either immediately or up to three turns after it is built, provided an “8” or greater research result for uranium separation has been achieved. The delay associated with receiving the fissionable material for the first atomic bomb depends on the research result for uranium separation.
- The rate at which uranium plants produce material for additional atomic bombs depends on the research result for uranium separation.

B. PLUTONIUM REACTORS:

- Plutonium reactors are a high technology project. Each plutonium reactor costs 6 RPs. RPs may not be invested in plutonium reactor production until the 1943 YSS.
- Each plutonium reactor produces fissionable material for one atomic bomb either immediately or up to three turns after it is built, provided an “8” or greater research result for plutonium production has been achieved. The delay associated with receiving the fissionable material for the first atomic bomb depends on the research result for plutonium production.
- Each plutonium reactor produces fissionable material for an additional atomic bomb every two turns after the material for the first bomb is produced.



Controlled Reaction

(Germany, U.S., Russia)

Controlled reaction is a high technology project. Only one RP may be allocated in the first year in which research is done, two RPs in the next year in which research is done, and so on.

Restriction:

RPs may not be placed in controlled reaction until the 1941 YSS.

Additional Modifier (Germany only):

- 2 If the Allies control Oslo or a Norwegian diplomatic result of “1-2” or less is in effect.

Results:

- 1-3 * Core meltdown. Project abandoned.
- 4 [+1]
- 5 [+2]
- 6 [+3]
- 7 [+4]
- 8+ * Controlled chain reaction achieved.



Uranium Separation (Germany, U.S., Russia)

Uranium separation is a high technology project. Only one RP may be allocated in the first year in which research is done, two RPs in the next year in which research is done, and so on.

Restriction:

RPs may not be placed in uranium separation research until the 1944 YSS.

Results:

- 1-3 [-2]
- 4-5 [-1]
- 6-7 No effect.
- 8 Each uranium plant produces material for one uranium bomb in three turns and produces material for one additional uranium bomb every four turns thereafter. [+1]
- 9 Each uranium plant produces material for one uranium bomb in two turns and produces material for one additional uranium bomb every four turns thereafter. [+2]
- 10 Each uranium plant produces material for one uranium bomb in one turn and produces material for one additional uranium bomb every four turns thereafter. [+3]
- 11 Each uranium plant produces material for one uranium bomb immediately and produces material for one additional uranium bomb every three turns thereafter. [+4]
- 12+ *Each uranium plant produces material for one uranium bomb immediately and produces material for one additional uranium bomb every two turns thereafter.



Plutonium Production (Germany, U.S., Russia)

Plutonium production is a high technology project. Only one RP may be allocated in the first year in which research is done, two RPs in the next year in which research is done, and so on.

Restriction:

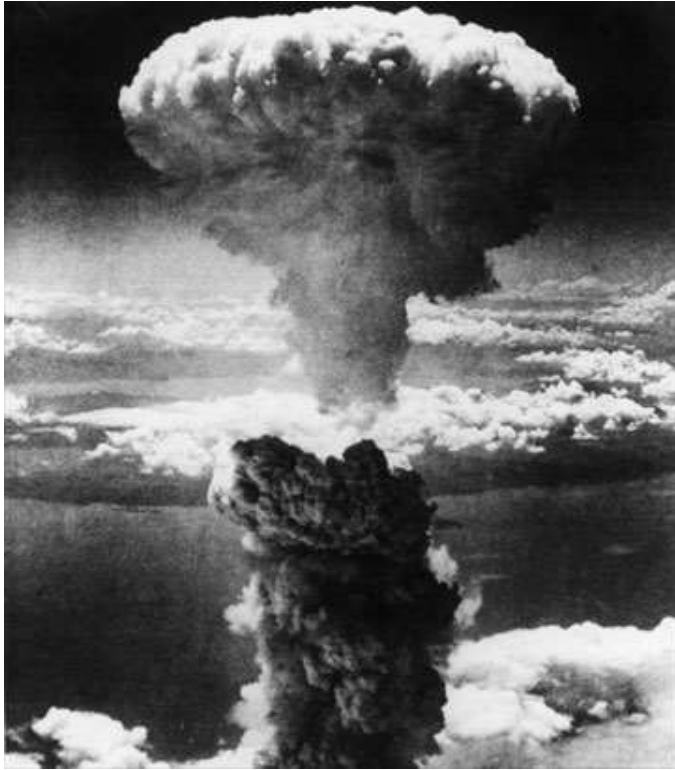
RPs may not be placed in plutonium production research until the 1944 YSS and may not be activated until an "8+" result for controlled reaction research has been achieved.

Modifiers:

- +1 If a controlled reaction result was achieved in 1941.
- 1 If a controlled reaction result was achieved in 1943 or later.

Results:

- 1-3 [-2]
- 4-5 [-1]
- 6-7 No effect.
- 8 Each plutonium reactor produces material for one plutonium bomb in three turns and produces material for one additional plutonium bomb every two turns thereafter. [+1]
- 9 Each plutonium reactor produces material for one plutonium bomb in two turns and produces material for one additional plutonium bomb every two turns thereafter. [+2]
- 10 Each plutonium reactor produces material for one plutonium bomb in one turn and produces material for one additional plutonium bomb every two turns thereafter. [+3]
- 11+ *Each plutonium reactor produces material for one plutonium bomb immediately and produces material for one additional plutonium bomb every two turns thereafter.



Atomic Bomb (Germany, U.S., Russia)

The atomic bomb is a high technology project. Only one RP may be allocated in the first year in which research is done, two RPs in the next year in which research is done, and so on.

Preconditions:

Before RPs allocated to the atomic bomb may be activated, a player must have produced a controlled reaction and must also have the material for at least one bomb.

Restriction:

RPs may not be placed in atomic bomb research until the 1944 YSS.

Results:

- 1-2 No effect.
- 3 [+1]
- 4-6 Uranium bomb gun trigger successfully designed. The number of uranium bombs which may be constructed and used is limited by the amount of available fissionable material from uranium separation plants. Bombs may be stockpiled before use. [+2]
- 7+ *Plutonium implosion trigger designed. One die is rolled whenever a plutonium bomb is used in a strategic or tactical atomic attack: the bomb detonates only on a die roll of "6". The material in a bomb which fails to detonate is wasted. The detonation die roll is modified by +1 for each turn after the first plutonium bomb is available for use and by +1 for each failed detonation.

A detonation roll is no longer required once a plutonium bomb is successfully used in a strategic or tactical atomic attack or if a plutonium bomb is tested. No detonation roll is required for a test.

Plutonium bombs are used sequentially: the +1 modifier for failed detonations and the effects of a successful detonation or test apply to the use of other plutonium bombs in the same and future turns.

The number of plutonium bombs which may be constructed and used is limited by the amount of available fissionable material from plutonium reactors. Bombs may be stockpiled before use.

Explanation:

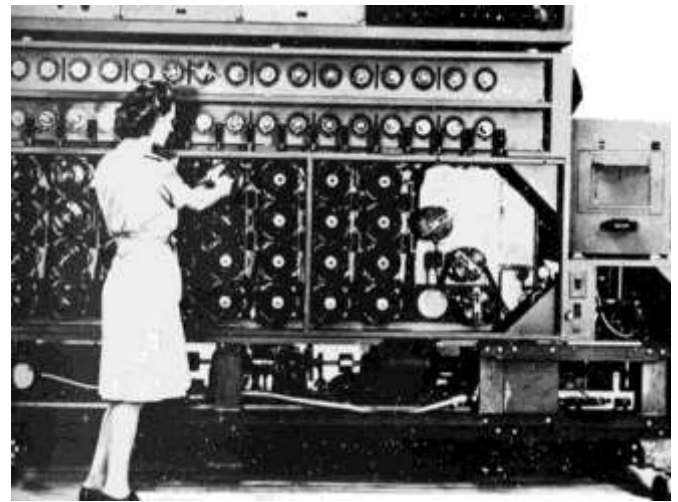
Provided the fissionable material is available, a "4-6" research result allows the construction of uranium bombs; a "7+" research result also allows the construction of plutonium bombs.

Atomic Production Projects

42.25 ATOMIC:

A. URANIUM PLANTS: 8 for each uranium plant, at the rate of one plant per year. Uranium plants are a high technology project. RPs may not be invested in uranium plants until the 1942 YSS. Uranium plants do not begin to produce material for atomic bombs until an "8" or greater research result for uranium separation has been achieved. Germany, Russia and the U.S. only.

B. PLUTONIUM REACTORS: 6 for each plutonium reactor, at the rate of one plutonium reactor per year. Plutonium reactors are a high technology project. RPs may not be allocated to the production of plutonium reactors until the 1943 YSS. Plutonium reactors do not begin to produce material for atomic bombs until an "8" or greater research result for plutonium production has been achieved. Germany, Russia and the U.S. only.



Intelligence Research Projects

Counter-intelligence (Germany, Britain, Russia, Japan)

Results:

- 1-2 No effect.
- 3 [+1]
- 4 [+2]
- 5+ Eliminate one enemy spy ring or negate one Russian, German or British covert operation attempt. Counter-intelligence capabilities may not be accumulated.

Covert Operations (Germany, Britain, Russia)

Results:

- 1-2 No effect.
- 3 [+1]
- 4 [+2]
- 5+ Gives a +1 (Axis) or -1 (Western Allies, Russia) modifier to one diplomatic die roll or European tension level. Covert operation capabilities may not be accumulated.

Espionage

(Germany, Britain, Russia, Japan)

Results:

- 1-2 No effect.
3 [+1]
4 [+2]
5 [+3]
6+ A spy ring is established in a minor country or an enemy major power. Japan may only place its spy rings in enemy major powers. See 46.4 for the effects of minor country and major power spy rings.

Subversion

(Russia)

Results:

- 1-2 No effect.
3 Russia receives a -1 modifier for any one diplomatic die roll for Hungary, Rumania, Bulgaria, Yugoslavia or Greece.
4 Russia receives a -2 modifier for any one diplomatic die roll for Hungary, Rumania, Bulgaria, Yugoslavia or Greece.
5 Russia receives a -3 modifier for any one diplomatic die roll for Hungary, Rumania, Bulgaria, Yugoslavia or Greece.
6 Russia receives a -4 modifier for any one diplomatic die roll for Hungary, Rumania, Bulgaria, Yugoslavia or Greece.
7+ Russia receives a -5 modifier for any one diplomatic die roll for Hungary, Rumania, Bulgaria, Yugoslavia or Greece.

Explanation:

If Russia acquires the ability to subvert, it may apply the subversion modifier to any one diplomatic die roll for Hungary, Rumania, Bulgaria, Yugoslavia or Greece, regardless of which player names the target, provided RGT are 15 or greater. The subversion modifier applies to only that diplomatic die roll. The results of the diplomatic die roll are then implemented normally.

Subversion results may not be accumulated.

Anglo-French Cooperation

(Britain)

Any successful Anglo-French Cooperation result is revealed at the start of the Allied player turn following the research phase in which the result is achieved.

Results:

- 1-2 No effect. Rule 53.2 applies normally.
3 [+1]
4-5 Hex restrictions in France and British and French colonies are lifted at the start of the next Allied player turn. [+2]
6 In addition to a "4-5" result, Anglo-French stacking and combat restrictions relating to ground and air units are lifted at the start of the next Allied player turn. [+3]
7+ * All Anglo-French cooperation restrictions are lifted at the start of the next Allied player turn. Britain receives a -1 modifier for the French surrender level.

Intelligence Production Projects

42.26 INTELLIGENCE:

A. CODEBREAKING: European codebreaking ("Ultra") and Pacific codebreaking ("Magic") production results are achieved separately – the Western Allies may achieve one result of each type each year. Codebreaking

production results are announced at the end of the research phase, immediately before Ultra and Magic cards are drawn (48.11).

B. ULTRA: 3, with one result permitted each year. Germany and Britain only.

C. MAGIC: 3, with one result permitted each year. Japan and the U.S. only.

The rules relating to codebreaking are set out in rule 48.

D. RUSSIAN OCCUPATION POLICIES: 4, 5, 6, with a maximum of three results permitted each game. Each Russian occupation policies result permits Germany to build one Vlasov infantry factor each turn once Germany and Russia are at war. Germany only.

- The cost of Russian occupation policies is reduced by one if the Ukraine has activated as a German minor ally (a "10" diplomatic result for the Ukraine).

Germany constructs Vlasov infantry factors (using 1-3, 2-3 or 3-3 counters) at the normal BRP cost.

Vlasov units may be constructed in any fully supplied city in Russia or pre-war Poland controlled by the Axis at the start of their player turn, may only operate in those countries, and may not be rebuilt if eliminated.

Germany may defer the construction of Vlasov infantry units in order to build a higher denomination Vlasov infantry unit in a subsequent turn. No more than two unbuild Vlasov factors may be accumulated for future turns in this manner.

Vlasov units are considered to be in their home country even when in Poland (15.33B).

For each Russian occupation policies result the number of partisans allowed in Russia and eastern Poland is reduced by one, to a maximum reduction of three partisans. No Russian partisans are eliminated if Germany achieves one of these results once Russian partisans are on the board, but the result might prevent the rebuilding of one or more partisans once they are eliminated.

For each Russian occupation policies result Germany receives a +1 modifier for the Ukraine diplomatic die roll, to a maximum modifier of +3.

E. CHINESE OCCUPATION POLICES: 4, with a maximum of one result permitted each game. A Chinese occupation policies result permits Japan to build one Wang infantry factor each turn, up to a limit of one 1-2 and one 2-2 infantry unit for each of Peking, Nanking, Shanghai, Canton and Chungking controlled by Japan. Japan only.

- The cost of Chinese occupation policies is reduced if the Chinese resistance level is below zero (-1 for a Chinese resistance level of -1; -2 for a Chinese resistance level of -2; and so on).
- Japan constructs Wang infantry factors (using 1-2 or 2-2 counters) at the normal BRP cost.
- Wang infantry may be constructed in any fully supplied city in China or Manchuria controlled by the Japanese at the start of their player turn and may only operate in those countries.
- Japan may defer the construction of a 1-2 Wang infantry unit in order to build a 2-2 Wang infantry unit in the next turn. No more than one unbuild Wang factor may be accumulated for future turns in this manner.

F. INDIAN SUBVERSION: 4, with a maximum of one result permitted each game. An Indian subversion result permits Japan to build one Indian National Army infantry factor and one Indian partisan each turn up to a limit of one 1-2 and one 2-2 infantry unit for each of Calcutta, Colombo, Dacca and Rangoon controlled by Japan, plus two Indian partisans regardless of the number of objectives controlled (72.92B, 72.93B). Japan only.

- The cost of Indian subversion is reduced by one for each of Calcutta, Colombo, Dacca and Rangoon under Japanese control (-1 for one of the four objectives, -2 for two of the four objectives, and so on).

For details of the Indian National Army, see 72.9.

Japan may construct up to two Indian partisans in India, whether or not Japan and Britain are at war (11.353B). Indian partisans may not be constructed in the India box.

G. MOSLEM UNREST: 2, 3, with two results permitted each year. Each Moslem unrest result allows Germany to add one Middle Eastern partisan to its force pool. Germany only.

At the start of the game, Axis construction of Middle Eastern partisans is prohibited. Each Moslem Unrest result increases the number of Axis Middle

Eastern partisans which may be built by expanding the force pools for one or more of the three Middle Eastern areas in which Axis partisans may be built (Egypt; Iraq, Kuwait, Palestine, Transjordan, Lebanon/Syria and Arabia; Persia). Once the force pool for an area is increased by a Moslem Unrest production result, the effect is permanent: the force pool cannot be reduced by Allied action and the Axis may not later switch the increase to another area.

The Axis may build one Axis partisan in each of the three Middle Eastern areas each turn, provided there are partisans in the force pool for that area. Germany pays the construction cost for Middle Eastern partisans. Axis Middle Eastern partisans may not leave the areas in which they are built.

The maximum size of the partisan force pool for each of the three Middle Eastern areas in which Axis partisans may be built is two per area.

Axis partisans may be built in Persia only if the Allies have declared war on Persia or activated the Persian BRP route. Axis partisans may only be built and operate in Lebanon/Syria if it is Allied-controlled. Axis partisans may only be built and operate in Arabia if it has been attacked by the Allies.

H. WESTERN ALLIED PARTISANS: 2, 3, with two results permitted each year. Each Western Allied partisan result allows the Western Allies to add one Western Allied partisan to their force pool. Western Allies only.

Additional Western Allied partisans may be built in any eligible location and, if eliminated, may be rebuilt in the same or a different location.

The number of Western Allied partisans in each eligible location may not exceed the maximum limit set out in the Minor Country Forces Table.

I. RUSSIAN PARTISANS: 2, 3, with two results permitted each year. Each Russian partisan result allows Russia to add one Communist partisan to its force pool. Russia only.

Additional Russian partisans may be built in any eligible location and, if eliminated, may be rebuilt in the same or a different location.

The number of Russian partisans in each eligible location may not exceed the maximum limit set out in the Minor Country Forces Table.

