

IL-2 Sturmovik Forgotten Battles - Flyable Russian Aircraft Specs (From Advance Manual/Readme)

Version 3 03.25.03 (Tailspin's Tales - <http://mywebpages.comcast.net/Tailspin/index.htm>)

Note: Altitude in Meters		IAS km/h		Prop Pitch Type	Mixture	Super charger	Boost	RPM Settings			Performance Altitude Meters		Comments
Aircraft	Engine	Take-off	Landing		Type / Alt	Alt - Stage 2		Combat Engine	Best Cruise	Econo Cruise	Best	Worse	
Berezniak-Isaev BI-1	1100 kg/s	180	165	N/A	N/A	N/A	No	NA			0 - 5000	5000 +	Rocket Inteceptor, very little fuel, 45 shells
Bell P-39 "Aircobra" P-39N1, Q-1, Q-10	1200 HP	160 (95 KIAS)	155 (85 KIAS)	Constant	100 / 120	No	No	3000	2600	2500	1500 - 3000	5000 +	
Curtis P-40E	1150 HP	160 (95 KIAS)	155 (85 KIAS)	Constant	100 / 120 3000 +	2200 +	No	3000	2600	2500	1500 - 3500	6000 +	Instrumentation is 'Imperial', not Metric. Most Ops - 100% mixture, boost in power -120%
Curtis P-40E M105 (Field Mod.)	1200 HP	160 (95 KIAS)	155 (85 KIAS)	Constant	Manual 3000 +	2200 +	No	3000	2600	2500	1500 - 3500	6000 +	Instrumentation is 'Imperial', not Metric. Same engine as LaGG-3. Most Ops - 100% mixture, boost in power -120%
Curtis P-40M	1200 HP	160 (95 KIAS)	155 (85 KIAS)	Constant	100 / 120 3000 +	2200 +	No	3000	2600	2500	1500 - 3500	6000 +	Instrumentation is 'Imperial', not Metric. Most Ops - 100% mixture, boost in power -120%
Hawker Hurricane MkIIb, MkIIc, MkII Field Mod	1030 HP	150 (85 KIAS)	145 (50 KIAS)	Constant	100 / 120 Manual	2800 +, See Note	No	3000	2650	2500	Stage 1 1500 - 2800 Stage 2 4500 - 6500	3000 - 4500	Instrumentation is 'Imperial', not Metric. Most Ops - 100% mixture, boost in power -120%. Stage 2 can be used in combat/climb if 2-5 psi below max.
Ilyushin IL-2 Single Seats	1500 HP	150	150	Constant	Manual	No	No	2100	1800	1600			Covers 1941 1st, 2nd and 3rd series
Ilyushin IL-2 Two-Seater	1500 HP	160	150	Constant	Manual	No	No	2000	1800	1700			Covers 1941 Field Mod, all '42 / '43 models
Ilyushin IL-2I (Interceptor)	1500 HP	150	150	Constant	Manual	No	No	2100	1800	1600			Heavy Inceptor
Ilyushin IL-2T (Torpedo)	1500 HP	160	150	Constant	Manual	No	No	2000	1800	1700			Make torpedo runs < 350km/h and < 100 m
LaGG 3 1941	1500 HP	150	140	Constant	Manual 4000 +	2200 +	No	2750	2300	2100	1000 - 2500	4000 +	
LaGG-3 IT, LaGG 1943	1500 HP	150	140	Constant	Manual 3000 +	2200 +	No	2750	2300	2100	1000 - 2500	4000 +	

Constant: Constant Speed Prop, pitch control determines RPM setting and prop pitch governor determines pitch setting to maintain the RPM setting independent of throttle setting as much as possible.

Variable: Variable Prop, prop pitch must be set manually by pilot. Use combination of throttle and pitch settings to get required RPM setting. You can over-rev and destroy the engines with 100% pitch, be careful.

Prop Pitch: **0% = lowest rpm setting** (highest pitch setting). **100% = highest rpm setting** (lowest pitch setting). Coarse = high pitch = 0% pitch, fine/flat = low pitch=100%.

Throttle: Works pretty much like a car's gas pedal. It opens and closes the opening into the intake manifold (like a car's butterfly) and determines the amount of air in the fuel/air mixture gets to the cylinders. Most fighters have war emergency power (WEP), extending the throttle from 100 to 110% throw. Boost, if applicable, is used with WEP, after turned on with "w" key. Turn off when runs out.

Mixture: Determines how rich/lean the fuel/air mixture is and how rapidly/efficiently it burns. It's sets the amount of fuel in the fuel/air mixture. Unlike cars where fuel/air mixture is fixed, you must manually adjust it. Some aircraft only have two settings, auto rich (100%) and full rich (120%). At altitudes above numbers provided in mixture column, engines trail smoke and suffer power loss. Mixture adjustment is required.

Supercharger: Air density decreases with altitude above sea level and so does the pressure. Superchargers are used to increase air pressure in engines at the higher altitudes.

Power Setting: Power is set with the throttle and by "Controlling" the MAP Gauge, Tachometer (RPM) and Engine Temp. You can also effect the temperature and, to a degree, the RPM of the engine with the mixture. When everything is set properly, you get the results you expect. When it isn't, odd or even BAD things (like detonation possibly leading to catastrophic engine failure) happen.

The controls should be adjustment in the following sequence to avoid excessive pressures within the cylinders:

To Increase Power (used for take-off, landing, climbing, Combat/War Emergency Power)

Constant - Mixture Richer (Mixture % incr), **RPM** (Pitch % incr), **Manifold Pressure** (Throttle forward)

Variable - Mixture Richer (Mixture % incr), **Pitch** (% incr), **Manifold Pressure** (Throttle forward)

To Decrease Power (used for cruising / saving fuel / speed)

Constant - Manifold Pressure (Throttle back), **RPM** (Pitch % decr), **Mixture** Leaner (Mixture % decr)

Variable - Manifold Pressure (Throttle back), **Pitch** (% decr), **Mixture** Leaner (Mixture % decr)

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Note: Altitude in Meters		IAS km/h		Prop Pitch Type	Mixture	Super charger	Boost	RPM Settings			Performance Altitude Meters		Comments
Aircraft	Engine	Take-off	Landing		Type / Alt	Alt - Stage 2		Combat Engine	Best Cruise	Econo Cruise	Best	Worse	
Lavochkin LA-5	1850 HP	170	165	Constant	Manual 5000 +	3500 +	10 mins. Max	2500	2100	1950	1000 - 2500	4000 +	Throttle only goes to 100%
Lavochkin LA-5F	1850 HP	170	165	Constant	Manual 5000 +	3500 +	10 mins. Max	2500	2100	1950	1000 - 2500	4000 +	Radial M-82 engine can run max power with no time limit use
Lavochkin LA-5FN	1850 HP	160	155	Constant	Manual 5000 +	3500 +	10 mins. Max	2500	2100	2000	Stage 1 1500 - 2800 Stage 2 4500 - 6500	3000 - 4500	
Lavochkin LA-7, 3xB-20	1850 HP	165	160	Constant	Manual 5000 +	3500 +	10 mins. Max	2500	2100	2000	Stage 1 1500 - 2800 Stage 2 4500 - 6500	3000 - 4500	
Mikoyan-Guervich Mig-3 Series	1200 HP	165	160	Constant	Manual	No	No	2200	1850	1750	4500 +	1000 -	
Polikarpov M-62 and I-153P	800 HP	145	130	Constant	Manual 4000 +	2200 +	No	2200	1600	1400	0 - 2500	2500 +	
Poliparpov I-16	1500 HP	150	145	Constant	Manual 4000 +	2200 +	No	2500	1850	1600	0 - 3500	3500 +	Manual Landing Gear
Republic P-47 D-10 and D-27 "Thunderbolt"	2000 HP	175	150	Constant	Manual	Auto 4500 +	5 mins. Max	3000	2550	2400	Stage 1 3500 - 4800 Stage 2 6500 - 7500	0 - 2000	Use Anti Detonation Injection system (ADI) [water injection] to cool down engine. Fully automatic supercharger as the real life P-47 turbo supercharger was nearly automatic.
TB-3 4M-17	4 x 715 HP	100	95	Fixed	None	No	No	1400	1200	1150			Can't adj. prop pitch
Yakovlev Fighters-Early (Yak-1, -1B, -7)	1180 HP	165	155	Constant	Manual 4000 +	2000 +	No	2800	2300	2150	500 - 3000	4000 +	
Yakovlev Fighters-Late (Yak-9, -9D, -9K, -9T, -9U, Yak-3)	1180 HP	165	155	Constant	Manual 3000 +	2000 +	No	2800	2300	2150	500 - 2800	4500 +	

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Variable: Variable Prop, prop pitch must be set manually by pilot. Use combination of throttle and pitch settings to get required RPM setting. You can over-rev and destroy the engines with 100% pitch, be careful.

Prop Pitch: 0% = lowest rpm setting (highest pitch setting). **100% = highest rpm setting** (lowest pitch setting). Coarse = high pitch = 0% pitch, fine/flat = low pitch=100%.

Throttle: Works pretty much like a car's gas pedal. It opens and closes the opening into the intake manifold (like a car's butterfly) and determines the amount of air in the fuel/air mixture gets to the cylinders. Most fighters have war emergency power (WEP), extending the throttle from 100 to 110% throw. Boost, if applicable, is used with WEP, after turned on with "w" key. Turn off when runs out.

Mixture: Determines how rich/lean the fuel/air mixture is and how rapidly/efficiently it burns. It's sets the amount of fuel in the fuel/air mixture. Unlike cars where fuel/air mixture is fixed, you must manually adjust it. At altitudes above numbers provided in mixture column, engines trail smoke and suffer power loss. Mixture adjustment is required.

Supercharger: Air density decreases with altitude above sea level and so does the pressure. Superchargers are used to increase air pressure in engines at the higher altitudes.

Power Setting: Power is set with the throttle and by "Controlling" the MAP Gauge, Tachometer (RPM) and Engine Temp. You can also effect the temperature and, to a degree, the RPM of the engine with the mixture. When everything is set properly, you get the results you expect. When it isn't, odd or even BAD things (like detonation possibly leading to catastrophic engine failure) happen.

The controls should be adjustment in the following sequence to avoid excessive pressures within the cylinders:

To Increase Power (used for take-off, landing, climbing, Combat/War Emergency Power)

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Variable - Mixture Richer (Mixture % incr), **Pitch** (% incr), **Manifold Pressure** (Throttle forward)

To Decrease Power (used for cruising / saving fuel / speed)

Constant - Manifold Pressure (Throttle back), **RPM** (Pitch % decr), **Mixture** Leaner (Mixture % decr)

Variable - Manifold Pressure (Throttle back), **Pitch** (% decr), **Mixture** Leaner (Mixture % decr)

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Note: Altitude in Meters		IAS km/h		Prop Pitch Type	Mixture	Super charger	Boost	RPM Settings			Performance Altitude Meters		Comments
Aircraft	Engine	Take-off	Landing		Type / Alt	Alt - Stage 2		Combat Engine	Best Cruise	Econo Cruise	Best	Worse	
Messerschmitt Bf-109E-4, -4/B, -7/B	1175 HP	165	150	Variable	Manual	Auto	No	2200	2000	1900			Highest pitch (Coarse) setting of 0% = 9:30 on the prop pitch gauge, lowest (fine/flat) setting of 100% = 11:30. AVOID HIGH MP SETTINGS WITH LOW RPM on all E variants, keep RPMs below 3000.
Messerschmitt Bf-109E-7/Z	1175 HP	165	150	Variable	Manual	Auto	GM-1	2200	2000	1900			Highest pitch (Coarse) setting of 0% = 9:30 on the prop pitch gauge, lowest (fine/flat) setting of 100% = 11:30. Equiped with high-altitude nitrous oxide system (GM-1). Use only over 6500m, 5 mins max.
Bf109 F Series (Bf-109F-2, -4)	1200 HP	170	155	Aeromech / Variable	Manual	Auto	No	2500	2100	2000			Aeromech is default. Unstable gun platform < 350 km/h.
Bf-109G-2, -6	1355 HP	170	155	Aeromech / Variable	Manual	Auto	No	2600 2500	2200? 2100	2100 2000			Aeromech is default. Unstable gun platform < 350 km/h. Highest pitch (Coarse) setting of 0% = 3:30 on the prop pitch gauge, lowest (fine/flat) setting of 100% = 12:30.
Bf-109G-6/AS, G-10, G-14 & K-4	1355 HP	170	155	Aeromech / Variable	Manual	Auto	MW50	2500	2100	2000			Aeromech is default. MW50 Injection System turned on/off at engine idle or < 50% throttle to prevent damage. Switch off when run out of water-methanol mix else risk damaging engine. Also see G notes above.
Brewster Buffalo	1000 HP	140	135	Constant	Manual	Alt ????	5 mins. Max	----	----	----	500 - 2800	4500 +	(No RPM gauge)
FW-190 A4	1780 HP	175	160	Aeromech	Auto 9000 +	No	No	2500	2100	2000			Aeromech is default. If you switch to emergency variable pitch, it locks the propeller at an intermediate setting and you CAN'T switch back per flight. Adj mixture to 80% at 9000 +. Speed faster on auto.

Constant: Constant Speed Prop, pitch control determines RPM setting and prop pitch governor determines pitch setting to maintain the RPM setting independent of throttle setting as much as possible.

Variable: Variable Prop, prop pitch must be set manually by pilot. Use combination of throttle and pitch settings to get required RPM setting. You can over-rev and destroy the engines with 100% pitch, be careful.

Aeromech: Aeromechanical screw where both RPMs and prop pitch governor point are set by the throttle position. Prop pitch governor tries to maintain specific RPM set by the throttle by continually adjusting blade pitch angle. Use Prop Pitch Auto (Shift 0) to turn on/off. Just use the throttle and forget about the pitch/rpm control. **Don't turn off for the FW-190A/F series.** You're stuck in manual at emergency intermediate settings for the rest of flight!

Prop Pitch: 0% = lowest rpm setting (highest pitch setting). **100% = highest rpm setting** (lowest pitch setting). Coarse = high pitch = 0% pitch, fine/flat = low pitch=100%.

Throttle: Works pretty much like a car's gas pedal. It opens and closes the opening into the intake manifold (like a car's butterfly) and determines the amount of air in the fuel/air mixture gets to the cylinders. Most fighters have war emergency power (WEP), extending the throttle from 100 to 110% throw. Boost, if applicable, is used with WEP, after turned on with "w" key. Turn off when runs out.

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Power Setting: Power is set with the throttle and by "Controlling" the MAP Gauge, Tachometer (RPM) and Engine Temp. You can also effect the temperature and, to a degree, the RPM of the engine with the mixture. When **The controls should be adjustment in the following sequence to avoid excessive pressures within the cylinders:**

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FW-190 A5, A8, A9	1780 HP	175	160	Aeromech	Auto 9000 +	No	SEP 10 mins. Max	2500	2100	2000			Aeromech is default. If you switch to emergency variable pitch, it locks the propeller at an intermediate setting and you CAN'T switch back per flight. Adj mixture to 80% at 9000 +. Speed faster on auto.
FW190 F-8	1780 HP	175	160	Aeromech	Auto 9000 +	No	SEP 10 mins. Max	2500	2100	2000			Aeromech is default. Special emergency power can only be run < 1,000 meters. If you switch to emergency variable pitch, it locks the propeller at an intermediate setting and you CAN'T switch back per flight.
FW190 D-9 1944	1776 HP	170	155	Aeromech / Variable	Auto 9000 +	Auto	SEP 10 mins. Max	3000	2600	2500			Aeromech is default. SEP is "Erhöhte Notleistung" with C3 injection (petrol injection in the eye of the blower). Only use at full speed and 3,250 rpm. After using SEP, no form of emergency power can be used for at least five minutes.
FW190 D-9 1945	1776 HP	170	155	Aeromech / Variable	Auto 9000 +	Auto	MW50	3000	2600	2500			Aeromech is default. MW50 Injection System turned on/off at engine idle or < 50% throttle to prevent damage. Switch off when run out of water-methanol mix else risk damaging engine.
Hienkel He111H-2, H-6	2 x 1100 HP	160	150	Constant	No	2800 +	No	2600	2200	2100			
Ju-87B-2 and D-3	1200 HP	160	155	Constant	No	2800 +	No	2650	2200	2050			
Ju-87G-1	1400 HP	170	160	Constant	No	2800 +	No	2650	2200	2050			Tank Destroyer - (2) 37mm gun pods
Messerschmitt Me-262A	2 x 900 kg/s	195	180	N/A	No	No	No						

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To Decrease Power (used for cruising / saving fuel / speed)

Constant - Manifold Pressure (Throttle back), **RPM** (Pitch % decr), **Mixture** Leaner (Mixture % decr)

Variable - Manifold Pressure (Throttle back), **Pitch** (% decr), **Mixture** Leaner (Mixture % decr)