	Patch type	Description	LTL formula	Reference
1	ADD	add arming check for windvane if sailing enabled	□ [(armed = false) ^ (SAIL_ENABLE = 1) ^ (WNDVN_TYPE = 0) → (pre_arm_checks = error)]	https://github.com/ArduPilot/ardupilot/commit/47caf886b184ded89273e43ed63437b6851bfff7
2	ADD	ArduPlane: Don't check variances if not available	□ [(get_variances = false) → (ekf_over_threshold = false)]	https://github.com/ArduPilot/ardupilot/commit/3a10838c65380cf1ce1193607ff999ccc4eabc89
3	UPDATE	fix _pwm_max is positive check returns true if params are valid constify method	□ [(T'<0) v (T'>2,000) v (T1>T2) v (T1 = 0 ^T2!=0) v (T1!=0 ^T2 = 0) → (check_mot_pwm_params = false) T1 = MOT_PWM_MIN T2 = MOT_PWM_MIN T1 = MOT_PWM_MIN T1 = MOT_PWM_MIN, MOT_PWM_MAX)	https://github.com/ArduPilot/ardupilot/commit/bff978570f1c2f9403e2bad8ed9b654ed7fe0bcb
4	UPDATE	Copter: speed up EKF failsafe by checking if velocity innovations > 2 X FS_EKF_THRESH	$ \begin{tabular}{ll} \square (vel_variance >= (2 * fs_ekf_thresh)$ \to (over_thresh_count_(t) = (over_thresh_count_(t-1) + 2))$ \square ((vel_variance >= fs_ekf_thresh) \wedge (vel_variance < (2 * fs_ekf_thresh))$ \to (over_thresh_count_(t) = (over_thresh$	https://github.com/ArduPilot/ardupilot/commit/6bee4216c06806224884ffe85b08a40083b109a8
5	ADD	Copter: do not permit RTL unless home is set	□ [(ignore_checks = false) ^ (home_is_set = true) → (mode != RTL)]	https://qithub.com/ArduPilot/ardupilot/commit/7ad4d95426aedef4f6def0cba34492bdf0f66d48
6	ADD	Plane: is_flying_vtol: if spool mode is shut down we are not flying	□ [(get_spool_mode = SHUT_DOWN) → (is_flying_vtol = false)]	https://github.com/ArduPilot/ardupilot/commit/cbb0bfb809cc451ef561d9a6867167d2279aeef8
7	ADD	AP_OpticalFlow: init checks if enabled	□ [(FOLL_ENABLE = false) → (opticalFlow = disable)]	https://github.com/ArduPilot/ardupilot/commit/cf24eef359d93eb80b6f116fd971249e06940c30
8	UPDATE	Plane: Don't check FS_SHORT_TIMEOUT if it's disable	[(FS_SHORT_ACTN = 3) -> (pre_arm_checks = disable)]	https://github.com/ArduPilot/ardupilot/commit/1a3ca43e862e17c86057666bf07ccffd1c432eb7
9	DISABLE	Copter: change pre-arm checks to allow interlock to be	□ [(using_interlock = true) ^ (motor_interlock_switch = true) → (pre_arm_checks_(t) = pre_arm_checks_(t-1))]	https://github.com/ArduPilot/ardupilot/commit/077b0627012f2d998fae61a201f0dbf7c13cf823
10	UPDATE	Copter: arming check ignores proximity if avoidance dis	□ [(proximity_avoidance_enabled = true) ^ (get_closeest_object = true) → (pre_arm_proximity_check = false)]	https://github.com/ArduPilot/ardupilot/commit/dbbf6cae5c6f5e534a4901f72c647d953b83d5f8
11	ADD	Plane: check if terrain following is enabled in AGL calcu	□ [(terrain_following = false) → (altitude = altitude_from_home)]	https://github.com/ArduPilot/ardupilot/commit/e05c7b3367867c12f6f8d9496b5087b0343a48aa
12	DISABLE	Sub: Remove auto_disarm_check	□ [(auto_disarm_check = disable)]	https://github.com/ArduPilot/ardupilot/commit/1a68fce2d0983497d5c2fa368e5c5008efd4c389
13	UPDATE	AP_Airspeed: airspeed healthy should also check if en	□ [(_healthy = true) ^ (_offset > 0) ^ (ARSPD_USE != 0) → (healthy = true)]	https://github.com/ArduPilot/ardupilot/commit/2e1eef7cf0d9debe93f1c00c536ea9c203a87526
14	UPDATE	Copter: sonar pre-arm check only if optflow enabled	□ [(FOLL_ENABLE = true) → (sonar.pre_arm_check = enable)]	https://github.com/ArduPilot/ardupilot/commit/5e40ad5c38f827f933265e40998dc6f07336e80f
15	UPDATE	AP_MotorsHeli: Colyaw function to check if rotor speed	$\Box [(speed \le _rsc_idle) \rightarrow (yaw_offset_(t) = yaw_offset_(t-1))]$	https://github.com/ArduPilot/ardupilot/commit/064cc63512ce971b175f82c7fe6e4142e1685b31
16	UPDATE	Copter: arming check for gps if GPS FS set to LAND_E	□ [(FS_GPS_ENABLE = 3) ^ (mode_requires_GPS = true) ^ (pre_ar,_gps_checks = false) → (pre_arm_checks = error)]	https://github.com/ArduPilot/ardupilot/commit/7a2f49f7da07a0bfed1e2b49625050ed161fb504
17	UPDATE	Copter: failsafe RTL vs LAND decision always based o	□ [(Failsafe = on) ^ (home_distance >= 2) → (mode = RTL)]	https://github.com/ArduPilot/ardupilot/commit/6a4f4c5f8d301768833f27ca7ef59774437ee42c
18	UPDATE	Sub: Default WP_YAW_BEHAVIOR to WP_YAW_BEH	[(WP_YAW_BEHAVIOR_DEFAULT = WP_YAW_BEHAVIOR_CORRECT_XTRACK)]	https://github.com/ArduPilot/ardupilot/commit/81065c567a69fd44353de94bfc25c1d2cf64dedb
19	DISABLE	Plane: is_crashed flag gets reset too easily	□ [(start_comand = on) → (is_crashed_(t) = is_crashed_(t-1))] □ [(crash = true) → (is_crashed_(t) = is_crashed_(t-1))]	https://github.com/ArduPilot/ardupilot/commit/fed50aa5c54787be28c6860607252d2511be5271
20	UPDATE	Sub: Change default GCS failsafe to disarm	□ [(land_parameters = on) → (FS_GCS_ENABLE = 2)]	https://github.com/ArduPilot/ardupilot/commit/6562e1463492e9c47ba998d3aa2fb4373f4d7409
21	UPDATE	AC_Fence: Disable fence floor when disabling the rest	$\label{eq:continuous} \ \square \ [\ (AC_Fence::enable = on) \land (value = false) \rightarrow (disable_floor = enable) \]$	https://github.com/ArduPilot/ardupilot/commit/e4f1e26b5c658981bd56b67ca2574eb80cff395b
22	ADD	ArduCopter: Ensure fence has opportunity to auto disa	□ [{(descent_start = enable) v (land_start = enable)} ^ (AC_FENCE = 1) → (auto_disable_fence_for_landing = enable)]	https://github.com/ArduPilot/ardupilot/commit/f14e1c2799b8e8336289b8ee87f760659dbda7c0
23	DISABLE	ArduCopter: Use auto enable and auto disable from AC	□ [{(descent_start = enable) v (land_start = enable)} ^ (AC_FENCE = 1) → (auto_disable_fence_for_landing = enable)]	https://github.com/ArduPilot/ardupilot/commit/a88f2721a8e4e1e1175a2f6f1cf1aaee9acee672
24	ADD	ArduCopter: Use auto enable and auto disable from AC	□ [{(descent_start = enable) v (land_start = enable)} ^ (AC_FENCE = 1) → (autoenable_fence_after_takeoff= enable)]	https://github.com/ArduPilot/ardupilot/commit/a88f2721a8e4e1e1175a2f6f1cf1aaee9acee672
25	DISABLE	ArduCopter: Use auto enable and auto disable from AC	□ [(mode = land) ^ (AC_FENCE = 1) → (disable_fence_for_landing = disable)]	https://github.com/ArduPilot/ardupilot/commit/a88f2721a8e4e1e1175a2f6f1cf1aaee9acee672
26	ADD	ArduCopter: Use auto enable and auto disable from AC	□ [(mode = land) ^ (AC_FENCE = 1) → (auto_disable_fence_for_landing= enable)]	https://github.com/ArduPilot/ardupilot/commit/a88f2721a8e4e1e1175a2f6f1cf1aaee9acee672
27	UPDATE	Plane: Quadplane disable forward	□ [{(in_vtol_land_final = true) ^ (throttle_lower = true)} v {(rangefinder_landing = true) ^ (status_orient = OutOfRa → (last_pct = 0) ^ (integrator = 0)]	https://github.com/ArduPilot/ardupilot/commit/8ebe64a274733d46b5132bc3a547da0a04bd43d2
28	UPDATE	L1: Do only check for wrong tangent_vel if in circle_mo	$\label{eq:condition} $$ \Box $ [(tangent_vel < 0.0f) ^(mode = circle) \to (lateral_accel_sp_circle_pd = MAX (lateral_accel_sp_circle_pd, 0))] $$ $$ \Box $ [(tangent_vel < 0.0f) ^(mode = circle) \to (lateral_accel_sp_circle_pd = MAX (lateral_accel_sp_circle_pd, 0))] $$ $$ \Box $ [(tangent_vel < 0.0f) ^(mode = circle) \to (lateral_accel_sp_circle_pd = MAX (lateral_accel_sp_circle_pd, 0))] $$ $$ \Box $ [(tangent_vel < 0.0f) ^(mode = circle) \to (lateral_accel_sp_circle_pd = MAX (lateral_accel_sp_circle_pd, 0))] $$ $$ $$ \Box $ [(tangent_vel < 0.0f) ^(mode = circle) \to (lateral_accel_sp_circle_pd = MAX (lateral_accel_sp_circle_pd, 0))] $$ $$ \Box $ [(tangent_vel < 0.0f) ^(mode = circle) \to (lateral_accel_sp_circle_pd = MAX (lateral_accel_sp_circle_pd, 0))] $$ $$ \Box $ [(tangent_vel < 0.0f) ^(mode = circle) \to (lateral_accel_sp_circle_pd = MAX (lateral_accel_sp_circle_pd, 0))] $$ $$ \Box $ [(tangent_vel < 0.0f) ^(mode = circle) \to (lateral_accel_sp_circle_pd = MAX (lateral_accel_sp_circle_pd, 0))] $$ $$ \Box $ [(tangent_circle_pd, 0)] $$ $$ $$ \Box $ [(tangent_circle_pd, 0)] $$ $$ \Box $ [(tan$	https://github.com/PX4/PX4-Autopilot/commit/646b5bb57817c663f6d7a1903f19546193357310
29	UPDATE	commander: skip continuous preflight check if calibrating	□ [(armed = false) ^ (condition_calibration_enabled = false) → (preArmCheck = enable)]	https://github.com/PX4/PX4-Autopilot/commit/7bb256f4b705197a46785930c5c00b05e9e6ef0c
30	ADD	fix batt_smbus: check if module running for custom_co	□ [(custom_command = enable) ^ (is_running = false) → (custom_command = -1)]	https://github.com/PX4/PX4-Autopilot/commit/60f55a4fa1dadf08a7bf7ccaf0cba2609ad303e1
31	ADD	FlightTaskAuto: check avoidance progress only if avoid		https://github.com/PX4/PX4-Autopilot/commit/ba4e633bd4d85ccd4ce584f8e453f16d2207f769
32	UPDATE	FlightTaskAutoLine: check if yaw_wp is finite	□ [(_generateXYsetpoints = enable) ^ (_yaw_wp = FINITE) → (yaw_diff = _wrap_pi(_yaw_wpyaw))]	https://github.com/PX4/PX4-Autopilot/commit/5551021d23f3ae6f91c57b504101550596820517
33	ADD UPDATE	FlightTaskAuto - Recover position control after local po	□ [_target = _origin) → (getMaxAcc = MPC_ACC_HOR_MAX.get)] □ [_triplet_target(0) = FINITE) ^ _triplet_target(1) = FINITE) ^ _triplet_target(2) = FINITE) ^ _triplet_target(2) = FINITE) ^ _triplet_target(1) - tmp_target(0) < 0.001) ^ _triplet_target(1) - tmp_target(2) < 0.001) ^ _triplet_target(2) - tmp_target(2) < 0.001) → (triplet_target(2) = fisse)]	https://github.com/PX4/PX4-Autopilot/commit/9e8c3ff0dcf2bb2a2614a16d6b8a84116bc96b97 https://github.com/PX4/PX4-Autopilot/commit/c5706f62832d9ee816c4559495ecde95a031d894
35	UPDATE	We used to check if we have actually landed not	☐ [(mode = LAND) ^ (get_land_detected.landed = true) → (get_mission_result.finished = true)]	https://github.com/PX4/PX4-Autopilot/commit/7c84e773120450280c21c12ad45024cb10c08391
36	UPDATE	mission reached in navigator FlighttaskManualPosition: check if estimator velocity m	□ [(mode = MANUAL_POSITION) ^ (_sub_vehicle_local_position.get.vxy_max = FINITE) → (_velocity_scale = MIN(_constraints speed_vxsub_vehicle_local_position.get.vxy_max)]	https://github.com/PX4/PX4-Autopilot/commit/4af9d7998673854085fe5573f31845a933f1ea27
37	UPDATE	commander: prevent ekf checking being bypassed if G	→ [_vellocity_scale = MIN(_constraints.speed_xysub_vehicle_local_position.get.vxy_max))] —[(preflightCheck = enable) ^ (estimator_type = 2) → (enforce_gps_required =time_last_no_gps_lock > 20 * 1000000) && checkGNSS))]	https://github.com/PX4/PX4-Autopilot/commit/c09eecbab14ec20717fc3b1927846c929e3ccea1
38	ADD	ekf2: check if vision_position pos/vel are valid before u	[(ev_pos.xy_valid = true) ^ (ev_pos.z_valid = true) ^ (ev_pos.v_xy_valid = true) ^ (ev_pos.v_z_valid = true) → (ex_pos.v_z_valid = true) ^ (ev_pos.v_z_valid = true) → (ex_pos.v_z_valid = true)	https://github.com/PX4/PX4-Autopilol/commit/66c67f89e66c6c27360feb4b1dce46650dc4a29f
39	UPDATE	geofence: disable altitude check if not configured	□ [(geofence = on) ^ (_altitude_max > _altitude_min) ^ {(altitude > _altitude_max) v (altitude < _altitude_min)} → (checkPolygons = false)]	https://github.com/PX4/PX4-Autopilot/commit/4c1328483d280a7f3e97e2d4e1e422caeff462b7
40	UPDATE	commander: fix abs bug / trigger POSCTL both ways	□ [(_last_sp_man.timestamp!= sp_man.timestamp) ^ (sp_man.xlast_sp_man.x > min_stick_change) ^ (sp_man.ylast_sp_man.y > min_stick_change) → (min_state_transition = enable)]	https://github.com/PX4/PX4-Autopilot/commit/404719953c58523a311e5cf78e4caa7ff5c7807d
41	UPDATE	pos estimator inav: check if map projection is initialized	□ [(home.timestamp != home_timestamp) ^ (map_projection_inited = true) → (home_timestamp = home.timestamp)]	https://github.com/PX4/PX4-Autopilot/commit/618ac319e63a6597cc62df9c810d76cdc094012b
42	ADD	navigator: check if mission reached on vehicle_status u	□ [{ (myState = NAV_STATE_MISSION) v (myState = NAV_STATE_RTL) v (myState = NAV_STATE_LAND)} ^(check_mission_item_reached = true) → (on_mission_item_reached = enable)]	https://github.com/PX4/PX4-Autopilot/commit/320c97c498cc6e8f2634f88147f0ef15ca9b24e3
43	UPDATE	navigator: check if yaw reached only when position rea	$\label{eq:continuous} $$ [(\waypoint_yaw_reached = false) \lor (\waypoint_position_reached = true) \lor (_vstatus.is_rotary_wing = true) } ^ (_do_takeoff = false) ^ (_mission_item.yaw = FINITE) \to (yaw_err = _wrap_pi(_mission_item.yawglobal_position_reached = true) $$ ($$ $$ $$ $$ $$ $$ $$ $$ $$ $$ $$ $$$	
44	ADD	GPS driver: Check return value of settime and notify sh		https://github.com/PX4/PX4-Autopilot/commit/c1f89dbd5c9de5f1bbb1bc0f858911a9f06d6f9d
45	UPDATE	Checking if fix status is less or equal to 0 rather than ju	$\Box [(fix_quality \le 0) \rightarrow (_gps_position -> fix_type = 0)]$	https://github.com/PX4/PX4-Autopilot/commit/686d3f4c7989f9b883b54fc26bb1974d10df98d3
46	UPDATE	mavlink: avoid sending uninitialized data	□ [(global_pos.terrain_alt_valid = true) ^ (_global_pos_time != 0) → (msg.altitude_terrain = global_pos.terrain_alt)]	https://github.com/PX4/PX4-Autopilot/commit/08dc3decb18126f975a49bb9e54138a57f112f60
47	ADD	mavlink: avoid sending uninitialized data	$\label{eq:continuous} \ \square \ [\ (_global_pos_time \ != 0) \ \rightarrow \ (msg.altitude_amsi \ = \ global_pos.alt) \ ^ \ (global_alt \ = \ global_pos.alt) \]$	https://github.com/PX4/PX4-Autopilot/commit/08dc3decb18126f975a49bb9e54138a57f112f60
48	ADD	mavlink: avoid sending uninitialized data	□ [(_global_pos_time = 0) → (msg.altitude_amsl = NAN)]	https://github.com/PX4/PX4-Autopilot/commit/08dc3decb18126f975a49bb9e54138a57f112f60

49	UPDATE	MulticopterLandDetector: remove always true call	□ [(_min_trust_start > 0) ^ (hrt_elapsed_time(&_min_trust_start) > 8 * 1000 * 1000))	https://github.com/PX4/PX4-Autopijot/commit/93acff86414d202bf643f8bf04a17f69b7e95439
50	UPDATE	commander: require local position for home	→ (get_landed_state = true)] □ [(condition_global_position_valid = false) ^ (condition_local_position_valid = false)	https://qithub.com/PX4/PX4-Autopilot/commit/ee6a79279f04c42b58e3f6c5c9b7042e45e63160
			- (commander_set_nome_position = disable)] (maylink_mission_item.command = MAV_CMD_DO_SET_RO)) ^ (maylink_mission_item.param1= MAV_ROI_NO_SET_RO)) ^ (maylink_mission_item.param1= MAV_ROI_NO_SET_RO)) ^ (mission_item.params(0) = MAV_ROI_NO_NO_NO_SET_RO)) ^ (mission_item.params(0) = MAV_ROI_NO_NO_NO_NO_NO_NO_NO_NO_NO_NO_NO_NO_NO_	
51	ADD	ROI: accept ROIs of type None in missions to enable 'c	→ (mission_item.nav_cmd = NAV_CMD_DO_SET_ROI) ^ (mission_item.params[0] = MAV_ROI_NONE)]	https://github.com/PX4/PX4-Autopilot/commit/add3692357bcec94e0ccb3017f3f6bc9d783e917
52	ADD	ArduPilot must check a minimum altitude (e.g., 10 mete - mode FLIP - mode FLIP - mode FLIP - mode FLIP	□ [(altitude < 10) → (mode != FLIP)]	PGFUZZ
53	DISABLE	Controling yaw values during circle mode - mode circle> ArduPilot allows users to change yaw angle	$\Box \ [\ (mode = CIRCLE) \to (yaw_{-}(t) = yaw_{-}(t-1)) \]$	PGFUZZ
54	REUSE	If the parameter in the below has a value outside the v. RV control software must deploying an error. ANGLE MAX PSC PGSZ P, PSC, ACCZ P PSC VELZ P, PSC, ACCZ J I - PSC, POSXY P COMPASS DIA X / COMPASS DIA, Y / COMPASS_I	where i is i-th configuration parameter	PGFUZZ
55	CHECK	if a logic bug occurs with out range of a parameter value we force the parameter to have a valid range of the parameter.	$\label{eq:continuity} \ \ \square \ [\ (\text{param}_(i) < \text{min}_(i)) \lor \ (\text{param}_(i) > \text{max}_(i)) \to \ (\text{param}_(i) = \text{default}_(i)\]$	PGFUZZ & RVFUZZER
56	ADD	AP_HAL_SITL: check to see if setting socket and fd op	□ [(_sitl_rc_in.reuseaddress = false) ∨ (_sitl_rc_in.set_blocking = false) ∨ (_sitl_rc_in.set_cloexec = false) → (_setup_fdm = disable)]	https://github.com/ArduPilot/ardupilot/commit/e420f62b6278c46ca0c317f5e2425c8eaeda85c2
57	ADD	ArduCopter: Improve auto-enable/disable of fence	[(mode = LAND) \(\) ((mode = GUIDED) \(\) (takeoff = on)\) \(\) \(\) ((mode = AUTO) \(\) (reached_wp_dest = true)\) \(\) \(\) (autoenable_fence_after_takeoff = enable) \(\)	https://github.com/ArduPilot/ardupilot/commit/f228adfa75b37ee8c71d63af395f3b9f00c51ae5
58	ADD	AC_Fence: Add common auto enable and auto disable	□ [(mode = LAND) → (auto_disable_fence_for_landing = enable)]	https://github.com/ArduPilot/ardupilot/commit/b6d29d746be3bab48340c9c49d3e8234ebe78879
59	ADD	GCS_MAVLink: Add reporting of fence floor breaches t	□ [(packet.param1 = 2) → (fence.disable_floor = enable) ^ (handle_command_do_fence_enable = true)]	https://github.com/ArduPilot/ardupilot/commit/c2abf27d78225a217c6618b845098ab1c5dc126b
60	ADD	Copter: add FLIGHT_OPTIONS param and options bits	□ [(FLIGHT_OPTIONS = 1) ^ (DISABLE_YAW_IMBALANCE_WARNING != 0) → (thrust_loss_check = disable)]	https://github.com/ArduPilot/ardupilot/commit/2e9c11fbdf7a8b15f2a03b03afe329439976145a
61	ADD	C_Fence: Add parameters from Geofence to AC_Fenc	□ [(check_fence_alt_max = enable) ^ (ALT_MAX <= _curr_alt) → (_alt_max_breach_distance = _curr_altalt_max_breach_distance = _curr_altaltalt_max_breach_distance = _curr_altaltaltaltaltaltaltalt_	https://github.com/ArduPilot/ardupilot/commit/87b66b4b49cbaf245a6884a02cd86ce65c3cc175
62	ADD	C_Fence: Add parameters from Geofence to AC_Fenc	□ [(pre_arm_check_alt = enable) ^ (ALT_MIN < -100) → (pre_arm_check_alt = false)]	https://github.com/ArduPilot/ardupilot/commit/87b66b4b49cbaf245a6884a02cd86ce65c3cc175
63	ADD	C_Fence: Add parameters from Geofence to AC_Fenc	□ [(get_enabled_fences_(t-1) = enable) ^ (AUTOENABLE = false) ^ (_enabled = false) → (get_enabled_fences_(t)	https://github.com/ArduPilot/ardupilot/commit/87b66b4b49cbaf245a6884a02cd86ce65c3cc175
64	ADD	C_Fence: Add parameters from Geofence to AC_Fenc	□ [(_enabled = false) ^ (AUTOENABLE = false) ^ (_enabled_fences = false) → (pre_arm_check = true)]	https://github.com/ArduPilot/ardupilot/commit/87b66b4b49cbaf245a6884a02cd86ce65c3cc175
65	ADD	C_Fence: Add parameters from Geofence to AC_Fenc	□ [(check_(t-1) = enable) ^ (_enabled = false) ^ (AUTOENABLE = false) ^ (_enabled_fences = false) → (check_(t)	https://github.com/ArduPilot/ardupilot/commit/87b66b4b49cbaf245a6884a02cd86ce65c3cc175
66	ADD	HTE: remove dist_bottom validity check	□ [(_landed = false) ^ (local_pos.dist_bottom > 1) → (_in_air = true)]	https://github.com/PX4/PX4-Autopilot/commit/c253badba4dfb52bc7e4a114d0f0646ccae320da
67	UPDATE	mc_pos_control: check if triplets are valid, otherwise ig	= [(pag on triplet current let = EINITE) \(\) non on triplet current len = EINITE) \(\)	https://github.com/PX4/PX4-Autopilot/commit/44e4beeeec5e74e47167a3981d6e937345e2f817
68	UPDATE	Merge pull request #1198 from PX4/wpwarningfix	$\label{eq:checkHomePositionAltitude} \ \ = \ \ \\ \ \ = \ \\ \ \ = \ \ \\ \ \ = \ \\ \ \ = \ \\ \ \ = \ \\ \ \ = \ \\ \ \ = \ \\ \ \ = \ \\ \ \ = \ \\ \ \ = \ \\ \ \ = \ \\ \ \ = \ \\ \ \ = \ $	https://github.com/PX4/PX4-Autopilot/commit/1fea1a6015a0af829a440b2bba176488d6e6a0a3
69	ADD	Merge pull request #1198 from PX4/wpwarningfix	□ [(checkHomePositionAltitude = enable) ^ (home_alt > wp_alt) ^ (throw_error = true) → (checkHomePositionAltitude)	1 2
70	ADD	Merge pull request #1198 from PX4/wpwarningfix	□ [(checkHomePositionAltitude = enable) ^ (home_alt > wp_alt) ^ (throw_error = false) → (checkHomePositionAltitude)	1 2
71	UPDATE	"if the copter is armed in Stabilize or Acro modes, and		PGFUZZ
72	UPDATE	ArduPilot does not follow EK2_ALT_SOURCE	□ [(EK2_ALT_SOURCE = 0) → (altitude = altitude_(barometer))]	PGFUZZ
73	DISABLE	Deploying a parachute requires following conditions: (1 the vehicle must not be in the FLIP or ACRO flight mod that the vehicle is not climbing, and (4) the vehicle's cu CHUTE_ALT_MIN parameter value.	□ (Parachute = on) → (Armed = true) ^ (Mode_(t) = FLIP/ACRO) ^ (ALT_(t) <= ALT_(t-1)) ^ (ALT_(t) > CHUTE_ALT_MIN)}	PGFUZZ
74	N/A	GPS_TYPE 14> if (lat, lon) = (0, 0), it causes an arith	□ [(EK2_ALT_SOURCE = 2) ^ (GPS_TYPE = 14) → (altitude = altitude_(GPS))]	PGFUZZ
75	UPDATE	param set FS_THR_VALUE 995 < it causes PreArm Mismatched GPS_RAW_INT value from MAVLink proto	□ [(throttle < FS_THR_VALUE) → (PreArmcheck = error)]	PGFUZZ
76	UPDATE	Regardless of GPS 3D fix, fix_type has always 6 on SI It seems likely to me that the fix_type is just the numbe (https://mavlink.io/en/messages/common.html#GPS_F	$\begin{tabular}{l} \square [(GPS = on) \rightarrow (GPS_RAW_INT = GPS_satellites)] \end{tabular}$	PGFUZZ
77		Changed parameters lead arithmetic exceptions as bel	□ [(RC3_DZ >= 0) ^ (RC3_DZ <= 200)]	PGFUZZ
78	CHECK	- param set GND_ABS_PRESS 0.000001 - param set PSC_POSXY_P 0.000000000001	□ [(RC3_MAX >= 0) ^ (RC3_MAX <= 200)]	PGFUZZ
79]	- param set RC3_DZ 0 && param set RC3_MAX 0 &&	□ [(RC3_MIN >= 0) ^ (RC3_MIN <= 200)]	PGFUZZ
	N/A	Sending the following user command leads to an arithr - MAV_CMD_ACCELCAL_VEHICLE_POS (7, 31, 65, 3)	□ [(accelcal= on) → (calibration= on)]	PGFUZZ
80	IN/A			
80 81	UPDATE	MIS_TAKEOFF_ALT (default: 2.5m / range: 0 - 80 m) , the drone keeps increase altitude and then RC failsafe	[(MIS_TAKEOFF_ALT >= 0) ^ (MIS_TAKEOFF_ALT <= 80)]	PGFUZZ
		MIS_TAKEOFF_ALT (default: 2.5m / range: 0 - 80 m), the drone keeps increase altitude and then RC fallsafe - QgroundControl (a ground control software) shows in - Altitude is coming from the wrong mavlink messages.	□ [(MIS_TAKEOFF_ALT >= 0) ^ (MIS_TAKEOFF_ALT <= 80)] □ [(GPS = off) ^ (Barometer = on)→ (altitude = altitude_(barometer))]	PGFUZZ PGFUZZ
81	UPDATE	the drone keeps increase altitude and then RC failsafe - OgroundControl (a ground control software) shows in - Altitude is coming from the wrong mavlink messages.		
81	UPDATE UPDATE	the drone keeps increase altitude and then RC failsafe - QgroundControl (a ground control software) shows in	□ [(GPS = off) ^ (Barometer = on)→ (altitude = altitude_(barometer))]	PGFUZZ

Fefuzz Fefuzz					
86	ADD	- failure motor off < not working (unimplemented user	$\square [(failure motor = off) \rightarrow (motor = off)]$	PGFUZZ	
87	ADD	- failure rc_signal off < not working (unimplemented u	\Box [(failure rc_signal = off) \rightarrow (rc_signal = off)]	PGFUZZ	
88	ADD	- failure mavlink_signal off < not working (unimplement	□ [(failure maylink_signal = off) → (maylink_signal = off)]	PGFUZZ	1
		Triggering some failure injections cause arithmetic exc	[(classed materials, 2) [100 [classed = 50]]	DOCU27	
89	N/A	- param set SIM_ACCEL_BLOCK 1	□ [(2IM_VCCET_BLOCK = 1) → (accel = 011)]	PGFUZZ	
90	N/A	- param set SIM GYRO BLOCK 1	$\square [(SIM_GYRO_BLOCK = 1) \rightarrow (gyro = off)]$	PGFUZZ	