

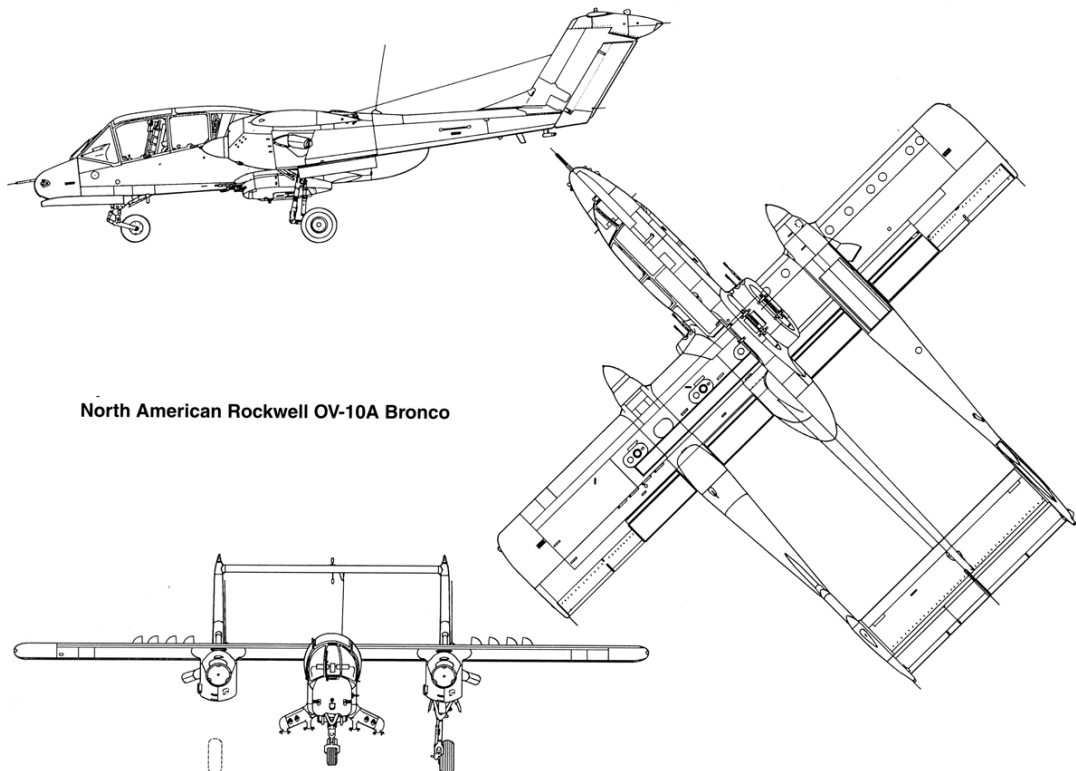
# North American Rockwell OV-10 Bronco



*ICAO: V10*

This **aircraft guide** is for the North American Rockwell OV-10 Bronco. The document is composed from a number of resources and data collected from Microsoft Flight Simulator. The checklist and some specs were taken from a POH for the OV-10D.

The North American Rockwell OV-10 Bronco is an American twin-turboprop light attack and observation aircraft. It was developed in the 1960s as a special aircraft for counter-insurgency (COIN) combat, and one of its primary missions was as a forward air control (FAC) aircraft. It can carry up to 3,200 lb of external munitions and internal loads such as paratroopers or stretchers, and can loiter for three or more hours.



North American Rockwell OV-10A Bronco

## Missions

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The aircraft may be configured for Night Observation Surveillance (NOS), strike-reconnaissance, forward air control, or cargo transport missions. The AN/AAS-37 Infrared Laser Detecting-Ranging Set provides the OV-10D aircraft with a night and day battlefield surveillance, a primary mission of target acquisition and a secondary mission of target designation for high performance attack aircraft carrying laser-guided weapons.

### STRIKE-RECONNAISSANCE OR TAC(A)

For a strike, strike-recon, or tactical air control (air-borne) mission, external armament, integral guns, and communications equipment provide the capabilities required.

## Checklist

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### PREFLIGHT CHECKS

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#### Interior Inspection, Pilot's

|   |                  |
|---|------------------|
| Battery   | OFF              |
| Landing Gear Handle   | DOWN AND LATCHED |
| Master Arm Switch   | OFF              |
| Laser Enable  | OFF              |
| Gust Lock   | REMOVED          |
| Battery   | ON               |
| Check voltage, power lever gates retracted and gear indication. |                  |
| INST PWR Switch   | INV NO. 1        |
| Fuel Quantity   | CHECK            |
| INST PWR Switch   | OFF              |
| Battery   | OFF              |

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#### Interior Inspection, Observer's

|                    |               |
|--------------------|---------------|
| No 3 INV CB        | OUT (IN-Solo) |
| FLIR Mode Switch   | OFF           |
| VIDEO Power Switch | ON            |
| Radar Altimeter    | OFF           |
| LASER ARM Switch   | OFF           |

## Exterior Inspection

|   |                   |
|---|-------------------|
| Chocks  | AS REQUIRED       |
| Right Propeller and Hub   | CHECK             |
| Right Engine Intake   | CLEAR             |
| Right Engine and Cowling  | CHECK             |
| Right Engine Oil Cap  | SECURED           |
| Right Engine Exhaust Stack  | CHECK             |
| Right Wing and Control Surfaces   | CHECK             |
| Stall Warning Sensor  | CHECK             |
| Right Main Landing Gear Down and Brake/Wheel Assembly                         | CHECK             |
| Right Battery Cover   | SECURED           |
| Right Avionics Bay Cover  | SECURED           |
| Right wing pylon/drop tank  | CHECK             |
| Right sponson access doors  | SECURED           |
| External stores   | CHECK             |
| Cargo bay for loose equipment   | SECURED           |
| Automatic video tracker boresight and reticle<br>position thumbwheel settings | PROPER SETTINGS   |
| BIT fault indicator panel (4 indicators reset)                                | CHECK             |
| Cargo bay door mounted equipment circuit breakers                             | ON                |
| Cargo bay door  | CLOSED AND LOCKED |
| Right boom for structural integrity   | CHECK             |
| Visual inspection of tail and horizontal stabilizer                           | CHECK             |

## Ejection Seat Inspection (P, O)

|                                |           |
|--------------------------------|-----------|
| Ejection “D” ring safety pin   | INSTALLED |
| Emergency radio beacon lanyard | SECURED   |
| Seat quick-disconnects         | SECURE    |
| Speed sensor lines             | SECURE    |
| Speed/altitude sensor          | CHECK     |
| Seat/man separator latch       | SECURE    |
| Thruster safety pin            | REMOVE    |

**WARNING.** Ensure that streamer is not routed through or entangled in the “D” ring handle.

|                            |        |
|----------------------------|--------|
| Thruster line slug         | SECURE |
| Chute thruster static line | SECURE |
| Catapult retention bolt    | SECURE |

## COCKPIT CHECK

|  |  |
|--|--|
| Canopy brace                           | INSTALLED                                |
| Survival kit                           | FASTEN (P, O)                            |
| Lap belt                               | FASTEN (P, O)                            |
| Riser straps                           | FASTEN (P, O)                            |
| Landing gear and drop tank safety pins | REMOVED AND STOWED IN STARBOARD MAP CASE |
| HF selector switch                     | OFF                                      |
| ICS                                    | SET, as desired (P, O)                   |
| FM selector switch                     | OFF                                      |
| FLAP handle                            | UP                                       |
| TRIM SELECT                            | NORM                                     |
| YAW DAMPER switch                      | OFF                                      |
| EXT LTS MASTER switch                  | EXT LTS                                  |
| Power levers                           | GROUND IDLE                              |
| Condition levers                       | FUEL SHUT OFF                            |

**CAUTION.** If the condition levers are found forward of the FUEL SHUT-OFF position, any attempt to start the engine may result in an engine fire.

|  |            |
|--|------------|
| BATTERY switch                           | OFF        |
| Generators switches                      | NORM       |
| INST PWR switch                          | OFF        |
| AIR START switches                       | AUTO       |
| UHF selector switch                      | OFF        |
| MASTER ARM switch                        | OFF        |
| FLIR COMD switch                         | OPERATOR   |
| LASER ENABLE switch                      | OFF        |
| Countermeasures POWER/FLARE SALVO switch | OFF        |
| Clock                                    | SET (P, O) |
| Radar altimeter                          | OFF        |
| ALT/TCN PWR switch                       | NORM       |
| TACAN selector switch                    | OFF        |
| Fuel GAGE SEL switch                     | INT        |
| EXT FUEL TRANS switches                  | OFF        |
| FUEL EMERG SHUT OFF switches             | NORM       |
| PITOT HEAT switch                        | OFF        |
| Windshield WIPER switch                  | OFF        |
| ANTI COLLISION switch                    | ON         |
| EX LIGHTS switch                         | AS DESIRED |

|                          |                    |
|--------------------------|--------------------|
| Oxygen regulator         | CHECK (P, O)       |
| Diluter switch           | 100% OXYGEN (P, O) |
| IFF MASTER switch        | OFF                |
| FM NO. 2 SELECTOR switch | OFF                |
| COMPASS                  | SLAVED             |
| BLEED AIR switches       | NORM               |
| Interior lights          | AS DESIRED (P, O)  |
| Circuit breakers         | IN                 |
| Cargo bay light          | OFF                |
| IFF ANT SEL              | BOTH               |
| Utility light            | AS DESIRED         |
| NO. 3 INV CB             | OUT (IN, if Solo)  |

## BEFORE START

|               |              |
|---------------|--------------|
| Parking brake | SET          |
| Access steps  | CLOSED       |
| Chocks        | REMOVE       |
| Propeller     | CLEAR (P, O) |

**CAUTION.** If propellers are feathered to any degree, unfeathering procedure shall be followed prior to starting engines.

|   |                        |
|---|------------------------|
| BATTERY switch  | ON; check voltage      |
| ICS   | CHECK OPERATION (P, O) |
| ICS TALK foot switch  | CHECK OPERATION (O)    |
| FIRE DET/WARN LTS   | TEST                   |
| Hold TEST switch in FIRE DET for d-c check, then hold in WARN LTS to test all warning lights, caution lights, the audio level of the over temperature warning tone, and rudder pedal shaker operation. The amber and green hydraulic lights must be separately pressed to test. |                        |
| WARN LTS TEST   | TEST (O)               |
| External power  | APPLIED, as required   |

## UNFEATHERING (IF REQUIRED)

|  |               |
|--|---------------|
| Condition lever  | FUEL SHUT-OFF |
| Power lever  | FULL REVERSE  |
| AIR START switch   | CRANK         |
| Hold in CRANK until blades reach full reverse, then release to AUTO. |               |
| Power lever  | GROUND IDLE   |
| Repeat for other engine  |               |

STARTING ENGINES

Engine starts may be made, either engine first, using aircraft battery power or external electrical power. For engine limits, including starter limits, refer to Section 1, Part 4.

|                 |  |
|-----------------|--|
| Propeller       | CLEAR (P, O)   |
| START switch    | START  |
|                 | Hold desired START switch momentarily in START and<br>check the START IGN ON light illuminated at approximately 10% RPM. |
| Condition lever | NORMAL FLIGHT ON PROPELLER ROTATION  |
|                 | Observe EGT rise at 10% to 12% rpm.  |

**CAUTION.** If external power unit fails during start, over-temperature could occur. Proceed as outlined in Section V.

Monitor rpm, oil pressure, EGT, and observe START IGN ON light and BOOST PUMP light out at approximately 52% rpm.

**WARNING.** If external electrical power unit fails when initiating start, the engine will be motored by the starter if the external power cable is unplugged. To prevent undesired engine rotation, execute ABORTED/HUNG START procedure.

**CAUTION.** Abort start if light-off is not indicated within 15-seconds or if rpm hangup occurs after initiating start. Four consecutive 15-second maximum duration start attempts, each to engine light-off, may be made with a 1-minute cooling period prior to a second attempt, a 2-minute cooling period prior to a third attempt, and a 10-minute cooling period prior to a fourth attempt. A 60-minute cooling period shall be observed prior to a repeat of the starter-generator duty cycle.

|                 |   |
|-----------------|---|
| Power lever     | minimum RPM (65% rpm)                                 |
| INST PWR switch | INV NO. 1   |
|                 | Check GEN, BOOST PUMP lights out (battery start only) |

**NOTE.** For external power starts GEN and BOOST PUMP lights remain on until external power plug is removed.

|                |  |
|----------------|--|
| Radios         | ON   |
| External power | DISCONNECT, if applicable.<br>Check GEN and BOOST PUMP lights out. |

**NOTE.** Pull external power control circuit breaker. Then turn off the ground power cart prior to disconnecting the ground power plug. Reset the external power control circuit breaker after ground power plug has been disconnected from aircraft.

Compute temperature and torque limits.  
Repeat procedures for second engine.

**NOTE.** If battery start, wait until generator has recharged battery and ammeter shows less than 100 amperes. If rpm of running engine decays more than 4% abort start of second engine.

|             |  |
|-------------|--|
| FLIR system | ON (Ensure NO. 3 INV CB-IN)<br>Rotate to forward azimuth position. |
|-------------|--|

**NOTE.** On SOLO flights, place FLIR COMD switch to WIDE position. The FLIR turret will drive to approximately zero degrees azimuth and elevation. Placing FLIR COMD switch to OPERATOR will turn FLIR system off with turret locked in forward pointing position.

## ABORTED/HUNG START

|                 |               |
|-----------------|---------------|
| Condition lever | FUEL SHUT-OFF |
| START switch    | ABORT         |

**WARNING.** If the start switch is energized and the engine fails to crank, move the start switch to ABORT to de-energize the automatic ignition circuit prior to attempting any further corrective action. Failure to do so may cause inadvertent engine start if the circuit is later completed.

## BEFORE TAXI

|                          |                               |
|--------------------------|-------------------------------|
| INST PWR INV NO. 2       | CHECK<br>Reset to INV NO. 1   |
| Radar altimeter          | ON                            |
| AM SEL switch            | CHECK NO. 1 GEN AND NO. 2 GEN |
| Compass PUSH TO SET knob | SET                           |
| Trim                     | CHECK                         |

|                              |  |
|------------------------------|--|
| ATTITUDE GYRO ERECT switch   | Set for take-off                                     |
| Attitude indicator           | NORM   |
| TACAN                        | CAGED (O)  |
| Cargo bay door caution light | SET, as required                                     |
| FUEL GAGE switch             | CHECK  |
| Fuel quantity                | TEST   |
| IFF switch                   | CHECK  |
| Radar altimeter              | STBY   |
| Flight controls              | TEST AND SET   |
| Flaps                        | CHECK FULL TRAVEL                                    |
|                              | CHECK OPERATION                                      |
| Ejection seat "D" ring pin   | Note operation of hydraulic pump indicating light.   |
| Power levers                 | REMOVED (P, O)                                       |
|                              | REVERSE MOMENTARILY                                  |
|                              | Observe slight RPM increase after propellers unlock. |
| Altimeter                    | SET (P, O)   |

## TAXI CHECKS

|        |       |
|--------|-------|
| Brakes | CHECK |
|--------|-------|

**CAUTION.** To prolong life of brake assemblies, maximum use of reverse thrust and differential power should be used, and condition levers should be maintained at NORMAL FLIGHT for taxiing.

|                                   |   |
|-----------------------------------|---|
| Nose wheel steering               | CHECK   |
| YAW DAMPER switch                 | TEST/OFF  |
|                                   | Hold YAW DAMPER switch in TEST while taxiing.   |
|                                   | Check for normal rudder pedal movement opposing turns.  |
| L, CTR, R EXT FUEL TRANS switches | ON  |
|                                   | Check applicable AUX FUEL caution lights on, then out, indicating transfer flow. Turn switches OFF after check. |

## BEFORE TAKE-OFF

|                                   |                   |
|-----------------------------------|-------------------|
| Seats                             | ARMED (P, O)      |
| Fuel quantity                     | CHECK             |
| Center tank                       | 240 TO 280 POUNDS |
| L, CTR, R AUX FUEL TRANS switches | OFF               |
| PITOT HEAT switch                 | AS DESIRED        |
| Cockpit heat                      | AS DESIRED        |



## FLAPS

Trim

AS DESIRED

SET FOR TAKE-OFF

Rudder/Aileron - NEUTRAL

Elevator (NORMAL) - ½ UNIT DOWN

Canopy

LOCKED (P, O)

Harness

LOCKED (P, O)

Condition levers

T.O./LAND (94% - 96%)

IFF switch

NORM

Controls

CHECK

**CAUTION.** To preclude foreign object damage, the FLIR turret should be pointed forward on take-off.

Power levers

MILITARY (101%)

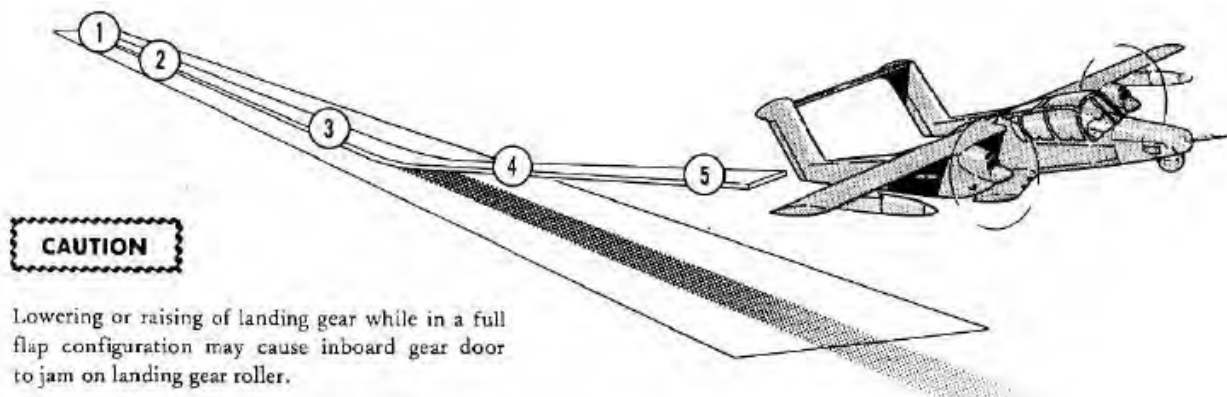
Maximum available torque is attained at 115-degree detent position (99.8% - 100.2%) which is slightly aft of the MILITARY position.

The maximum available thrust is attained at the MILITARY (101%) position.

Do not exceed TIT and torque limits.

## TAKE-OFF

Normal take-offs at gross weights below 12,000 pounds near Standard Day conditions result in short take-off runs. Take-off airspeed and distance should be computed from the performance data charts in Section XI, Part 2.



1. Advance power to maximum available within limits, check engine instruments, and release brakes.
2. Use rudder and/or nose wheel steering as required.
3. When speed approaches 5 KIAS below recommended take-off speed, use positive back stick pressure to rotate to lift-off attitude.
4. When safely airborne, retract landing gear.

5. Above 110 KIAS, retract flaps, if used.

## Normal Take-off

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## Crosswind Take-off

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### AFTER TAKE-OFF

|   |   |
|---|---|
| Landing gear                              | UP  |
|   | When safely airborne, retract the gear.                       |
|   | Ensure the gear is fully retracted before exceeding 158 KIAS. |
| FLAP handle                               | UP  |
|   | Above 110 KIAS, retract flaps.                                |
|   | Ensure flaps are fully retracted before exceeding 158 KIAS.   |
| Oxygen diluter lever                      | NORMAL OXYGEN, as required (P, O)                             |
| YAW DAMPER switch                         | ON, as desired.   |
| L AUX, CTR, R AUX EXT FUEL TRANS switches | ON, as required.  |
|   | Check AUX FUEL caution lights go out.                         |
| Condition levers                          | NORMAL FLIGHT, individually as desired above 1000 feet AGL.   |

**NOTE.** When retarding to NORMAL FLIGHT, take care not to inadvertently select FUEL SHUT-OFF.

### CLIMB

For climb speed schedules and climb performance data, refer to Section XI, Part 3.

### CRUISE

For cruise performance data, refer to Section XI, Part 4. To initially set up cruise power, move the condition levers to NORMAL FLIGHT and adjust the power levers to maintain the desired airspeed.

### DESCENT

For optimum descent, set condition levers to NORMAL FLIGHT and power levers to FLIGHT IDLE. For airspeed distance, time, and fuel usage, refer to Section XI, Part 7. Prior to descent, proceed as follows:

|                                  |             |
|----------------------------------|-------------|
| CPT AIR/DEFER knob               | AS REQUIRED |
| Altimeter                        | SET         |
| Radar altimeter minimum altitude | SET         |
| Oxygen                           | 100%        |

## BEFORE LANDING

|  |               |
|--|---------------|
| Condition lever                            | T.O./LAND     |
| Landing gear                               | DOWN          |
| Flaps                                      | AS DESIRED    |
| Brakes                                     | CHECK         |
| Harness                                    | LOCKED (P, O) |
| Message drop door                          | CLOSED        |
| Landing light                              | AS REQUIRED   |
| EXT FUEL TRANS switches                    | OFF           |
| MASTER ARM switch                          | OFF           |
| Countermeasures POWER/FLARE SALVO switches | OFF           |
| LASER ENABLED switch                       | OFF           |
| FLIR                                       | ON (O)        |

FLIR turret pointing forward.

## LANDING

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### Touch-and-Go Pattern

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### Crosswind Landing

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### Slippery Runways

## WAVE-OFF

|                                     |                                   |
|-------------------------------------|-----------------------------------|
| Power levers                        | MILITARY                          |
| Rotate nose up to arrest sink rate. |                                   |
| FLAP handle                         | T/O                               |
| Landing gear handle                 | UP                                |
| FLAP handle                         | UP, as desired (minimum 110 KIAS) |

## AFTER LANDING (WHEN CLEAR OF RUNWAY)

|                       |               |
|-----------------------|---------------|
| FLAP handle           | UP            |
| Condition levers      | NORMAL FLIGHT |
| Nonessential COMM/NAV | OFF           |
| Landing light         | AS REQUIRED   |
| LASER ARM switch      | OFF (O)       |
| Radar altimeter       | OFF           |
| FLIR mode switch      | STBY (O)      |
| FLIR mode switch      | OFF (O)       |
| NO. 3 INV CB          | OUT (O)       |

## SHUTDOWN

For operational convenience, shut down the engines with the propellers in flat pitch.  
Proceed as follows:

|   |                            |
|---|----------------------------|
| “D” ring safety pin   | INSERT (P, O)              |
| PARK BRAKE  | SET                        |
| Condition levers  | FUEL SHUT-OFF              |
| Power levers  | FULL REVERSE (monitor TIT) |
| For shutdown with propellers feathered, pull condition levers full aft to FEATHER & FUEL SHUT-OFF |                            |
| All radios/navigation equipment   | OFF (P, O)                 |
| INST PWR switch   | OFF                        |
| BATTERY switch  | OFF                        |
| External/interior lights  | OFF                        |

## BEFORE LEAVING AIRCRAFT

|  |                  |
|--|------------------|
| Wheel chocks                           | IN PLACE         |
| PARK BRAKE                             | SET, as desired  |
| Oxygen diluter lever - 100%            | OFF (P, O)       |
| Control gust lock                      | INSTALL          |
| Parachute thruster safety pin          | INSTALLED (P, O) |
| Landing gear and drop tank safety pins | INSTALL          |
| Engine oil quantity                    | CHECK            |
| LASER safety plug removed              | CHECK            |

## STOL OPERATIONS

## Performance

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This section covers how the airplane operates during certain phases of flight: climb, cruise, and descent.

Time = Distance / Ground Speed  
Fuel Used = (Time) (Fuel Flow)

### CLIMB

|               |        |
|---------------|--------|
| Fuel Burn     | GPH    |
| Rate of Climb | FT/MIN |

### CRUISE

|                        |          |
|------------------------|----------|
| Fuel Burn              |          |
| Maximum Cruising Speed | 244 KTAS |
| Normal Cruising Speed  | KTAS     |
| Economy Cruising Speed | KTAS     |

### DESCENT

|                 |        |
|-----------------|--------|
| Fuel Burn       | GPH    |
| Rate of Descent | FT/MIN |

## Technical Specifications

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|                 |           |
|-----------------|-----------|
| Occupancy       | 2 CREW    |
| Range           | 500 NM    |
| Service Ceiling | 24,000 FT |

### AIRSPED LIMITATIONS

|  |          |
|--|----------|
| V <sub>A</sub> MANEUVERING SPEED                     | 139 KIAS |
| V <sub>FE</sub> MAXIMUM FLAP EXTENSION SPEED         | 123 KIAS |
| V <sub>G</sub> BEST GLIDE SPEED                      | 110 KIAS |
| V <sub>LE</sub> MAXIMUM LANDING GEAR EXTENSION SPEED | 158 KIAS |
| V <sub>NE</sub> DO NOT EXCEED SPEED                  | 350 KIAS |
| V <sub>NO</sub> MAXIMUM STRUCTURAL CRUISE SPEED      | 165 KIAS |

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|  |         |
|--|---------|
| V <sub>R</sub> ROTATION SPEED            | 71 KIAS |
| V <sub>Y</sub> BEST RATE OF CLIMB SPEED  | 96 KIAS |
| V <sub>S</sub> CLEAN STALLING SPEED      | 64 KIAS |
| V <sub>SO</sub> DIRTY STALLING SPEED     | 52 KIAS |
| V <sub>X</sub> BEST ANGLE OF CLIMB SPEED | 77 KIAS |

## POWER PLANT

|   |                         |
|---|-------------------------|
| Engine Manufacturer                     | GARRETT-AIIRESEARCH     |
| Engine Model No.                        | T76-G-410/412 TURBOPROP |
| Maximum Horsepower                      | 715                     |
| Maximum Rotation Speed (RPM)            | 2,000                   |
| Maximum Manifold Pressure (In. Mercury) |                         |
| Maximum Oil Temperature                 |                         |
| Maximum Oil Pressure                    |                         |
| Maximum Fuel Pressure                   |                         |
| Fuel Grade                              | JET                     |
| Propeller Manufacturer                  |                         |
| Propeller Hub and Blade Model           |                         |

## DISTANCE

## OPERATING WEIGHTS

|                    |           |
|--------------------|-----------|
| Maximum Weight     | LBS       |
| Maximum cargo load | 3,200 LBS |

## FUEL

|                |                    |
|----------------|--------------------|
| Fuel type      | JET                |
|                | JP-4 (6.5 LBS/GAL) |
|                | JP-5 (6.8 LBS/GAL) |
| Total capacity | 77 US GAL          |
| Unusable fuel  | 5 US GAL           |
| Usable fuel    | 72 US GAL          |

## PERFORMANCE

### Raw Data

This is my attempt to capture data from Little Navmap in order to estimate what my climb, cruise, and descent performances might be.

### CLIMB

| True Airspeed | Vertical Speed | Fuel Flow, LBS | Altitude | Distance, NM | Time |
|---------------|----------------|----------------|----------|--------------|------|
| 135           | 1592           | 827            | FL175    | 27           | 0:25 |
| 145           | 936            | 789            | FL225    | 59           | 0:25 |
| 123           | 1404           | 866            | 7500     | 16           | 0:05 |

### Climb Profile

While keeping the indicated airspeed above **114 kts** I get the following FPM settings at various altitudes.

| Above Altitude | FPM |
|----------------|-----|
| 3,000          |     |
| 14,000         |     |
| 17,000         |     |

### CRUISE

| True Airspeed | Fuel Flow | Altitude |
|---------------|-----------|----------|
| 213           | 822       |          |
| 240           | 749       |          |

|     |     |                |
|-----|-----|----------------|
| 227 | 727 | 22500          |
| 213 | 838 | 7500           |
|     |     | <b>AVERAGE</b> |

### Calibrated Airspeed

| Weight | Altitude | Temp, °C | IAS | CAS |
|--------|----------|----------|-----|-----|
| 25644  | 18500    | -8       | 109 | 108 |

## DESCENT

| True Airspeed | Vertical Speed, FPM | Fuel Flow, LLB |                |
|---------------|---------------------|----------------|----------------|
| 149           | -1766               | 501            |                |
| 210           | -1289               | 447            |                |
| 208           | -1769               | 381            |                |
| 149           | -1316               | 467            |                |
|               |                     |                | <b>AVERAGE</b> |

## Add-on Observations

This add-on I'm flying was originally developed by [ariebaba](#) on Flightsim.to. While flying the plane here are some things I've noticed.

- **Recognition lights (0,1,2)** do not work well with LVAR:LIGHTING\_RECOGNITION\_1.
- **Active Nav Frequency:1** doesn't work with hardware. Swapping works fine with Standby.
- **Reverse Throttle.** When I set GENERAL ENG THROTTLE LEVER POSITION:1,2 then TURB ENG THROTTLE COMMANDED N1:1,2 shoots to 1503238616 even though I'm setting it to 62.



# Microsoft Flight Simulator 2020 Development

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## CHECKLIST MATRIX

While learning how to develop a checklist I saw a matrix of sorts in the MSFS Docs. So; I created one to help make things easier in my project.

|                   | ITEM              |             |  |   |                        |
|-------------------|-------------------|-------------|--|---|------------------------|
| Page              | Subject           | Expectation | Clue                                       | Feedback  | Status                 |
| Pre-flight Checks | Battery           | On          | Battery must be On                         | Check voltage, power lever gates retracted and gear indication. |                        |
| Pre-flight Checks | INST PWR Switch   | INV NO. 1   | Set Instrument Power Switch to "INV NO. 1" |   |                        |
| Pre-flight Checks | Fuel Quantity     | Check       | Verify fuel quantity                       |   |                        |
| Pre-flight Checks | INST PWR Switch   | Off         | Set Instrument Power Switch to "OFF"       |   |                        |
| Pre-flight Checks | Battery           | Off         | Battery must be Off                        |   |                        |
| Cockpit Check     | FLAP handle       | UP          | Flap handle must be UP                     |   |                        |
| Cockpit Check     | TRIM SELECT       | NORM        | Set Trim Select Switch to "NORM"           |   | Not functional in-game |
| Cockpit Check     | YAW DAMPER switch | OFF         | Set Yaw Damper Switch "Off"                |   | Not function in-game   |
| Cockpit           | EXT LTS           | EXT LTS     | Set Exterior                               |   |                        |

|               | ITEM                 |               |   |          |        |
|---------------|----------------------|---------------|---|----------|--------|
| Page          | Subject              | Expectation   | Clue  | Feedback | Status |
| Check         | MASER switch         |               | Lights Master Switch to “EXT LTS”                 |          |        |
| Cockpit Check | Power levers         | GROUND IDLE   | Set Power Levers to “GROUND IDLE”                 |          |        |
| Cockpit Check | Condition levers     | FUEL SHUT-OFF | Set Condition Levers to “FEATHER & FUEL SHUT-OFF” |          |        |
| Cockpit Check | BATTERY switch       | OFF           | Battery must be Off                               |          |        |
| Cockpit Check | Generator switches   | OFF           | Set L GEN and R GEN Switches to “OFF”             |          |        |
| Cockpit Check | INST PWR switch      | OFF           | Set Instrument Power Switch to “OFF”              |          |        |
| Cockpit Check | AIR START switches   | AUTO          | Set Air Start Switches to “AUTO”                  |          |        |
| Cockpit Check | Clock                | SET           | Adjust clock to desired setting                   |          |        |
| Cockpit Check | Radar Altimeter      | Off           | Radar Altimeter must be Off                       |          |        |
| Cockpit Check | Fuel GAGE SEL switch | INT           | Set Fuel Gage Select switch to “INT”              |          |        |

|               | ITEM                         |             |   |          |        |
|---------------|------------------------------|-------------|---|----------|--------|
| Page          | Subject                      | Expectation | Clue  | Feedback | Status |
| Cockpit Check | EXT FUEL TRANS switches      | OFF         | Set External Fuel Transfer switch to "OFF"                                    |          |        |
| Cockpit Check | FUEL EMERG SHUT OFF switches | NORM        | Set Fuel Emergency Shut Off switches to "NORM"                                |          |        |
| Cockpit Check | PITOT HEAT switch            | OFF         | Set Pitot Heat Switch to "OFF"  |          |        |
| Cockpit Check | Windshield WIPER switch      | OFF         | Set Windshield Wiper Switch to "OFF"  |          |        |
| Cockpit Check | ANTI COLLISION switch        | ON          | Set Anti Collision switch to "ON"   |          |        |
| Cockpit Check | EX LIGHTS switch             | AS DESIRED  | Set Strobe, Form, or Wing & Tail switches as desired                          |          |        |
| Cockpit Check | COMPASS                      | SLAVED      | Set Compass Switch to "SYNC"  |          |        |
| Cockpit Check | Interior lights              | AS DESIRED  | Set Consoles, Instruments dials, Flood and High Intensity switches as desired |          |        |
| Before Start  | Parking brake                | SET         | Parking brake must be set   |          |        |

|                            | ITEM              |               |  |          |        |
|----------------------------|-------------------|---------------|--|----------|--------|
| Page                       | Subject           | Expectation   | Clue   | Feedback | Status |
| Before Start               | Propeller         | Clear         | Make sure the area surrounding the Propellers is clear               |          |        |
| Before Start               | BATTERY switch    | ON            | Battery must be On; check voltage                                    |          |        |
| Before Start               | FIRE DET/WARN LTS | TEST          | Hold the FIRE DET/WARN LTS switch to test Warning and Caution lights |          |        |
| Unfeathering (If Required) | Condition lever   | FUEL SHUT-OFF | Set Condition Lever to "FUEL SHUT-OFF"                               |          |        |
| Unfeathering (If Required) | Power lever       | FULL REVERSE  | Set Power Lever to "FULL REVERSE"                                    |          |        |
| Unfeathering (If Required) | AIR START switch  | CRANK         | Hold in CRANK until blades reach full reverse, then release to AUTO  |          |        |
| Unfeathering (If Required) | Power lever       | GROUND IDLE   | Set Power Lever to "GROUND IDLE"                                     |          |        |
| Repeat for other engine    |                   |               |  |          |        |
| Starting Engines           | Propeller         | CLEAR         | Make sure the area surrounding the Propellers is clear               |          |        |

|                  | ITEM                |                                |  |          |        |
|------------------|---------------------|--------------------------------|--|----------|--------|
| Page             | Subject             | Expectation                    | Clue   | Feedback | Status |
| Starting Engines | START switch        | START                          | Hold desired START switch momentarily in START and check the START IGN ON light                                  |          |        |
| Starting Engines | Condition lever     | NORMAL FLIGHT ON PROP ROTATION | Observe EGT rise at 10% to 12% RPM   |          |        |
| Starting Engines | Monitor instruments |                                | Monitor rpm, oil pressure, EGT, and observe START IGN ON light and BOOST PUMP light out at approximately 52% rpm |          |        |
| Starting Engines | Power lever         | Minimum RPM (65%)              | Set Power Lever to minimum specs   |          |        |
| Starting Engines | INST PWR switch     | INV NO. 1                      | Check GEN, BOOST PUMP lights out (battery start only)  |          |        |
| Starting Engines | Radios              | On                             | Radios must be On  |          |        |
| Starting Engines | External power      | DISCONNECT, if                 | Check GEN and BOOST  |          |        |

|                        | ITEM                                |                           |  |          |        |
|------------------------|-------------------------------------|---------------------------|--|----------|--------|
| Page                   | Subject                             | Expectation               | Clue                                   | Feedback | Status |
|                        |                                     | applicable                | PUMP lights out                        |          |        |
| Starting Engines       | Temperature and Torque limits       | Compute                   | Compute temperature and torque limits  |          |        |
| Starting Engines       | Repeat procedures for second engine |                           |  |          |        |
| Aborted/<br>Hung Start | Condition lever                     | FUEL SHUT-OFF             | Set Condition Lever to "FUEL SHUT-OFF" |          |        |
| Aborted/<br>Hung Start | START switch                        | ABORT                     | Set Start Switch to "ABORT"            |          |        |
| Before Taxi            | INST PWR INV NO. 2                  | CHECK                     | Reset to INV NO. 1                     |          |        |
| Before Taxi            | Radar altimeter                     | ON                        | Check that radar altimeter is On       |          |        |
| Before Taxi            | AM SEL switch                       | CHECK NO. 1 AND NO. 2 GEN |  |          |        |
| Before Taxi            | Trim                                | CHECK                     |  |          |        |
| Before Taxi            | ATTITUDE GYRO ERECT switch          | NORM                      |  |          |        |
| Before Taxi            | Attitude indicator                  | CAGED (O)                 |  |          |        |
| Before Taxi            | TACAN                               | SET, as required          |  |          |        |

|             | ITEM                         |                      |  |          |        |
|-------------|------------------------------|----------------------|--|----------|--------|
| Page        | Subject                      | Expectation          | Clue   | Feedback | Status |
| Before Taxi | Cargo bay door caution light | CHECK                |  |          |        |
| Before Taxi | FUEL GAGE switch             | TEST                 |  |          |        |
| Before Taxi | Fuel quantity                | CHECK                |  |          |        |
| Before Taxi | IFF switch                   | STBY                 |  |          |        |
| Before Taxi | Radar altimeter              | TEST AND SET         |  |          |        |
| Before Taxi | Flight controls              | CHECK FULL TRAVEL    |  |          |        |
| Before Taxi | Flaps                        | CHECK OPERATION      | Note operation of hydraulic pump indicating light.   |          |        |
| Before Taxi | Ejection seat "D" ring pin   | REMOVED (P, O)       |  |          |        |
| Before Taxi | Power levers                 | REVERSED MOMENTARILY | Observe slight RPM increase after propellers unlock. |          |        |
| Before Taxi | Altimeter                    | SET (P, O)           |  |          |        |
| Taxi Checks | Brakes                       | CHECK                |  |          |        |

|                 | ITEM                              |                   |   |          |                      |
|-----------------|-----------------------------------|-------------------|---|----------|----------------------|
| Page            | Subject                           | Expectation       | Clue  | Feedback | Status               |
| Taxi Checks     | Nose wheel steering               | CHECK             |   |          |                      |
| Taxi Checks     | YAW DAMPER switch                 | TEST/OFF          | Hold YAW DAMPER switch in TEST while taxiing.   |          | Not function in-game |
| Taxi Checks     | L, CTR, R EXT FUEL TRANS switches | ON                | Check applicable AUX FUEL caution lights on, then out, indicating transfer flow. Turn switches OFF after check. |          |                      |
| Before Take-off | Seats                             | ARMED (P, O)      |   |          | Not applicable       |
| Before Take-off | Fuel quantity                     | CHECK             |   |          |                      |
| Before Take-off | Center tank                       | 240 TO 280 POUNDS |   |          |                      |
| Before Take-off | L, CTR, R AUX FUEL TRANS switches | OFF               |   |          |                      |
| Before Take-off | PITOT HEAT switch                 | AS DESIRED        |   |          |                      |
| Before Take-off | Cockpit heat                      | AS DESIRED        |   |          | Not applicable       |



|                 | ITEM             |                       |   |          |                |
|-----------------|------------------|-----------------------|---|----------|----------------|
| Page            | Subject          | Expectation           | Clue  | Feedback | Status         |
| Before Take-off | FLAPS            | AS DESIRED            |   |          |                |
| Before Take-off | Trim             | SET FOR TAKE-OFF      | Rudder/Aileron - NEUTRAL, Elevator (NORMAL) - 1/2 UNIT DOWN   |          |                |
| Before Take-off | Canopy           | LOCKED (P, O)         |   |          | Not applicable |
| Before Take-off | Harness          | LOCKED (P, O)         |   |          | Not applicable |
| Before Take-off | Condition levers | T.O./LAND (94% - 96%) |   |          |                |
| Before Take-off | IFF switch       | NORM                  |   |          |                |
| Before Take-off | Controls         | CHECK                 |   |          |                |
| Before Take-off | Power levers     | MILITARY (101%)       | Maximum available torque is attained at 115-degree detent position (99.8% - 100.2%) which is slightly aft of the MILITARY position. |          |                |

## CAMERA DEFINITIONS

The views or “definitions” for each camera view can be found in “./SimObjects/Airplanes/ariebab-bronco/cameras.cfg” file under “Title”. Here’s a list of all the views defined in this project.

- |                             |                     |
|-----------------------------|---------------------|
| 1. ClosePilot               | 16. Instruments04   |
| 2. CoPilot                  | 17. Instruments05   |
| 3. FixedOnPlane_Ailerons    | 18. Instruments06   |
| 4. FixedOnPlane_Belly       | 19. Instruments07   |
| 5. FixedOnPlane_Deice       | 20. Instruments08   |
| 6. FixedOnPlane_Elevator    | 21. Instruments09   |
| 7. FixedOnPlane_Flaps       | 22. LandingPilot    |
| 8. FixedOnPlane_LandingGear | 23. Pilot           |
| 9. FixedOnPlane_Rudder      | 24. QuickView1_Up   |
| 10. FixedOnPlane_Tail       | 25. QuickView2_Rear |
| 11. FixedOnPlane_WingLeft   | 26. QuickView3_R2   |
| 12. FixedOnPlane_WingRight  | 27. QuickView4_L2   |
| 13. Instruments01           | 28. QuickView5_L3   |
| 14. Instruments02           | 29. QuickView6_L1   |
| 15. Instruments03           | 30. QuickView7_R1   |
|                             | 31. QuickView8_R3   |

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### Pilot Views

ClosePilot

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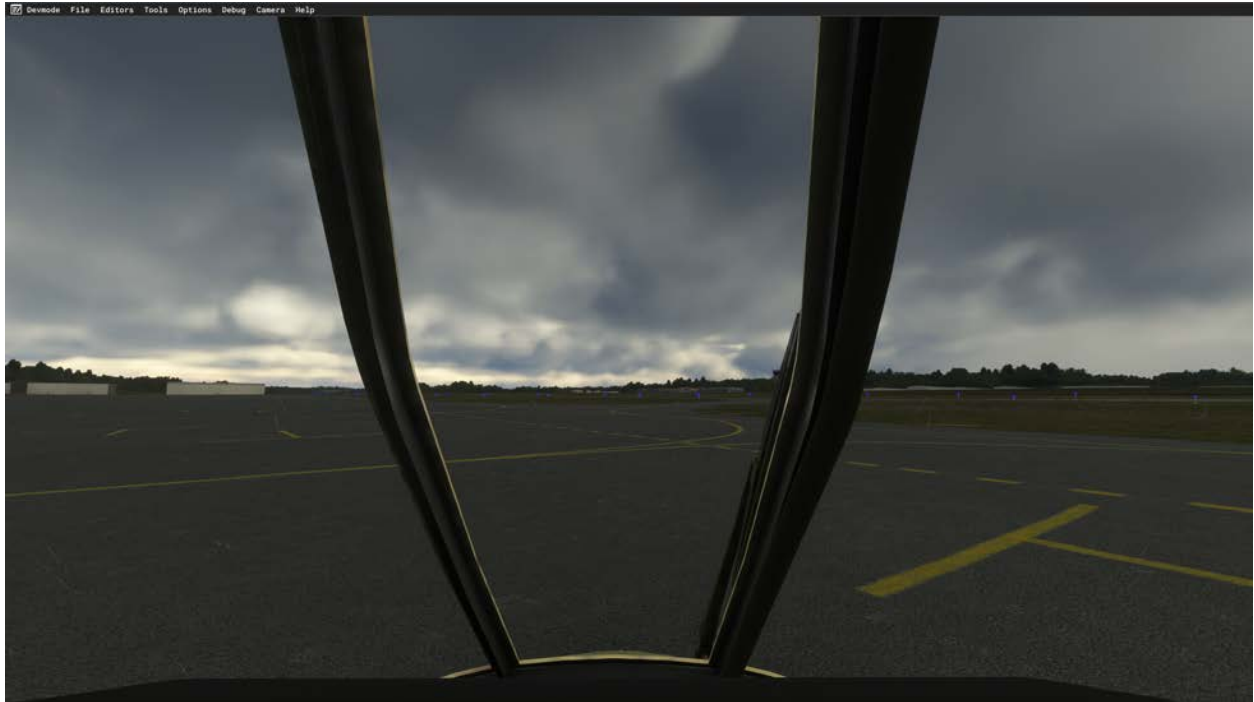


## CoPilot



## LandingPilot

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### Pilot

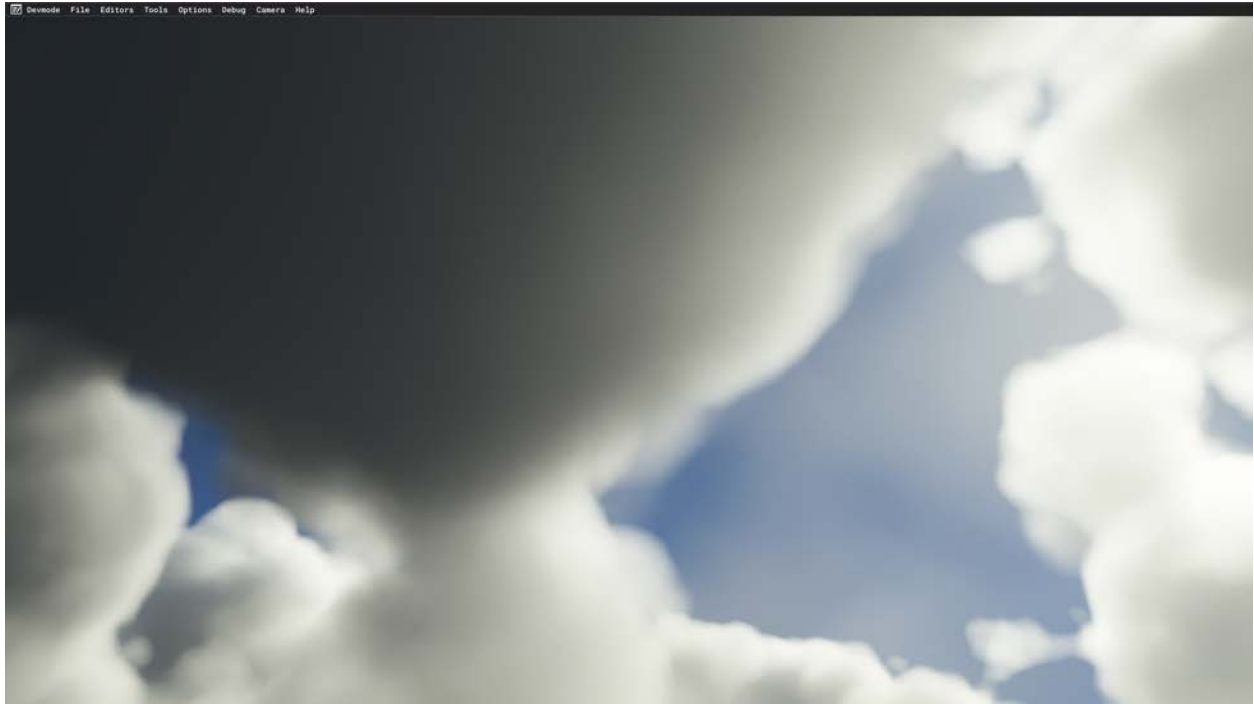


### Quick Views

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QuickView1\_Up

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### QuickView2\_Rear



### QuickView3\_R2



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## QuickView4\_L2



## QuickView5\_L3

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### QuickView6\_L1



### QuickView7\_R1

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### QuickView8\_R3



**Instrument Views**

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### Instruments01



### Instruments02



### Instruments03

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## Instruments04



## Instruments05

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## Instruments06



## Instruments07



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## Instruments08



## Instruments09

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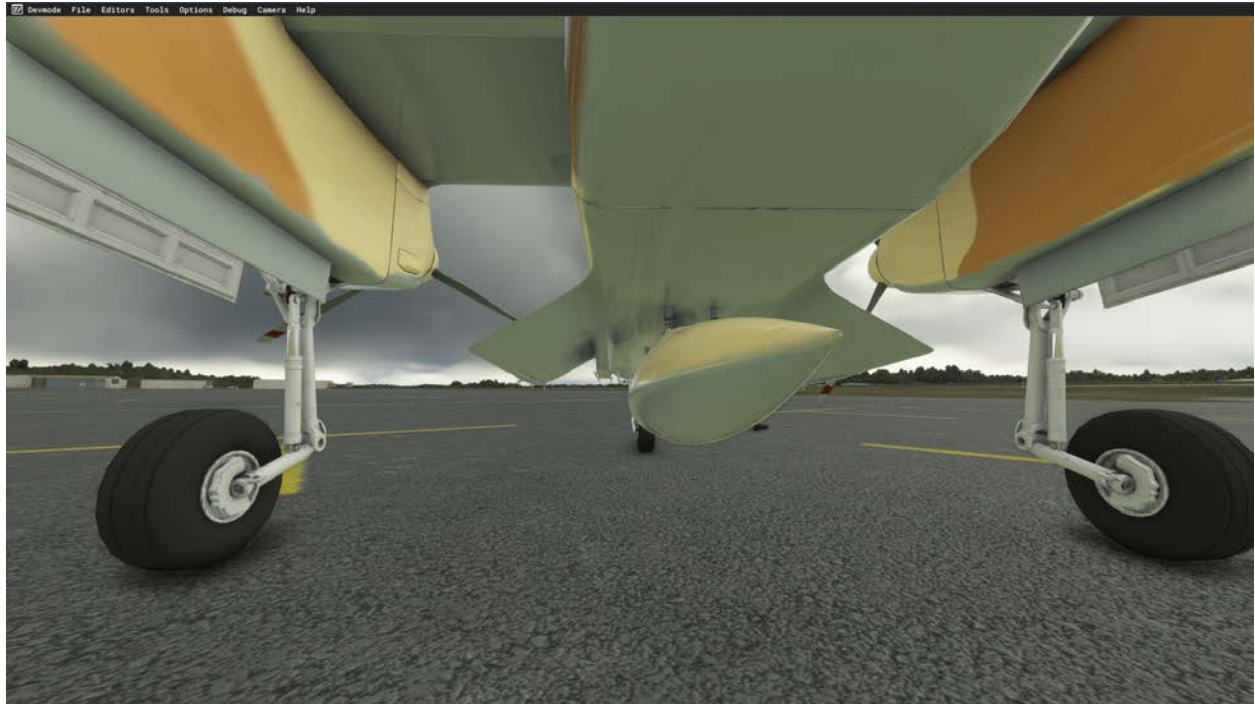
**Fixed on Plane**

FixedOnPlane\_Ailerons



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### FixedOnPlane\_Belly



### FixedOnPlane\_Deice



### FixedOnPlane\_Elevator



## Aircraft Guide for OV10 Bronco v0.1.0



### FixedOnPlane\_Flaps



### FixedOnPlane\_LandingGear

## Aircraft Guide for OV10 Bronco v0.1.0



### FixedOnPlane\_Rudder



### FixedOnPlane\_Tail



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### FixedOnPlane\_WingLeft



### FixedOnPlane\_WingRight



## References

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1. [https://en.wikipedia.org/wiki/North\\_American\\_Rockwell\\_OV-10\\_Bronco](https://en.wikipedia.org/wiki/North_American_Rockwell_OV-10_Bronco)
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7. [https://docs.flightsimulator.com/html/mergedProjects/How\\_To\\_Make\\_An\\_Aircraft/Contents/Files/Checklists/Checklist\\_Best\\_Practices.htm?agt=index](https://docs.flightsimulator.com/html/mergedProjects/How_To_Make_An_Aircraft/Contents/Files/Checklists/Checklist_Best_Practices.htm?agt=index)
8. <https://github.com/fergatron/ov10-bronco-checklist>