

Piper Arrow IV Landing Gear System Operation Overview



Landing Gear System Switches and Indicators

**WARN
GEAR
UNSAFE**




Gear Up/Down
Switch

Throttle
Position

Panel Light
Dimmer switch

**AUTO
EXT
OFF**

25 5
LANDING GEAR
PUMP LIGHTS


Gear down and
locked lights

Power & Lights

- Hydraulically operated, up and down. Hydraulic pressure holds gear up (there are no gear up-locks)
- For emergency extension, hydraulic pressure holding gear up is “dumped” to allow gear to freefall to extended position.
- Lights
 - Three green light means all gear are down and locked
 - No lights means gear retracted
 - Or in daylight with the panel lights on, the gear lights will be too dim to see.
 - Yellow “Auto Extend Off” light on panel – Blinks on & off when Auto Extend System is in override or “Off”
 - Red “Warn Gear Unsafe” light on panel
 - Will light during normal gear retraction and extension to indicate gear is in transit.
 - If one green down and locked light is out, try switching bulbs.

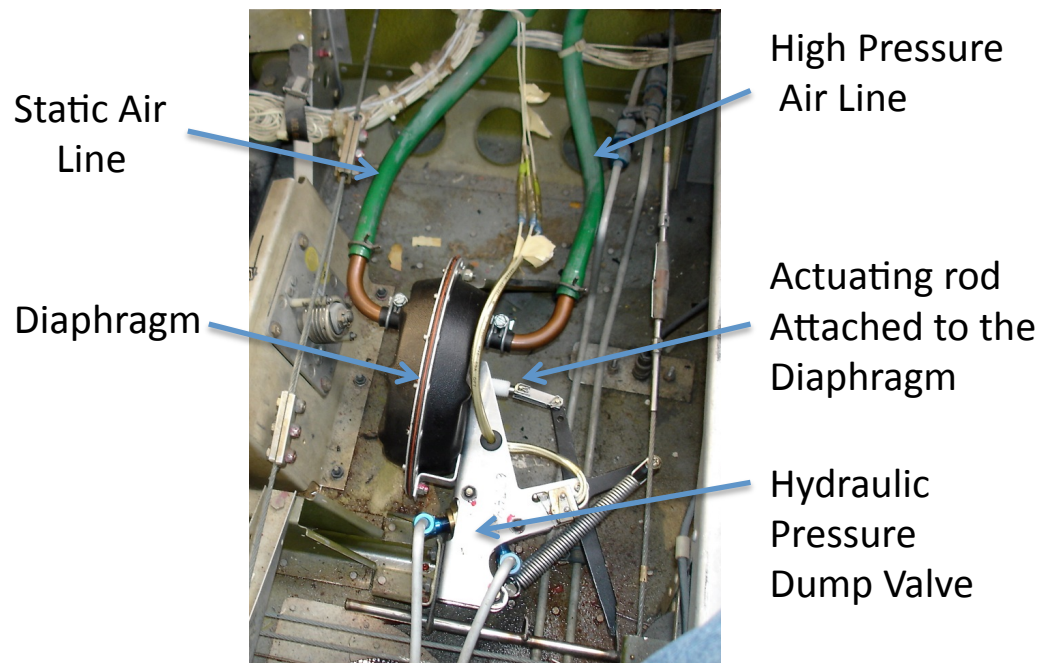
Normal Retraction & Extension

- Retraction
 - Do not retract above 109 KIAS
 - Takes about 7 seconds
 - Red “Warn Gear Unsafe” light should illuminate while gear is in transit. Light goes out when gear fully retracted
- Extension
 - Not above 130 KIAS for normal extension
 - Takes about 7 seconds to extend
 - Extended gear acts as speed brakes
 - Glide ratio seriously decreased with gear extended

Automatic Gear Extension System

- Designed to automatically extend gear when power is reduced and air speed is at or below approx 87 KIAS (unless system is turned off with override lever)
- Triggered by differential air pressure sensed by high pressure/static source mast on left side of fuselage and a diaphragm activated mechanism.

Note: *This mast is also heated when the Pitot heat switch is on to prevent icing. Icing would restrict pressure port causing the system to think aircraft speed is low and gear would automatically extend.*



System located under Passenger Seats



Note: If Red ground Cover is accidentally left on mast during flight, System thinks Airspeed is zero. Must override system to raise gear

Manual Emergency Extension

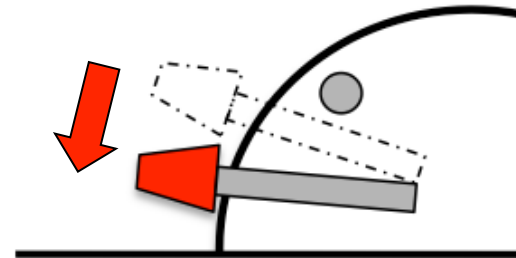
- Emergency gear “dump” by pushing red lever down to release hydraulic pressure after slowing to < 87 knots. Nose gear is helped down against airflow with a spring.
 - *Note: If Auto extend is in lockout Position, lift red lever slightly to allow lockout pin to slide out and then the lever can be pushed all the way down*
- Yaw plane if needed to get down and locked green lights for main gear






Auto Extension
Lockout Pin

Emergency Gear
Lever

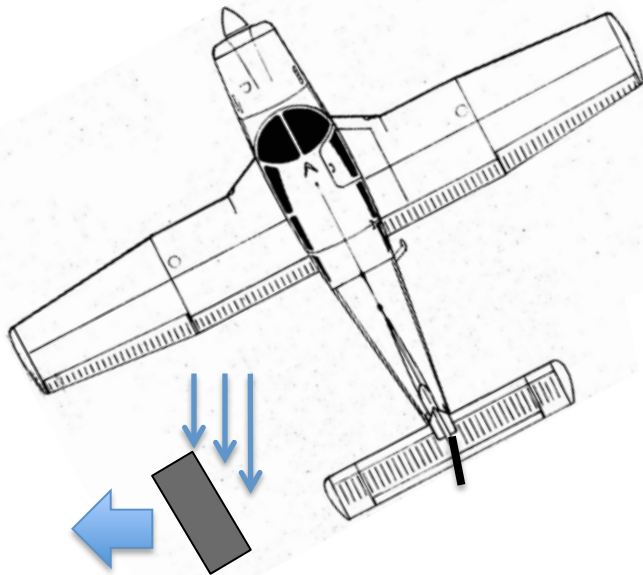
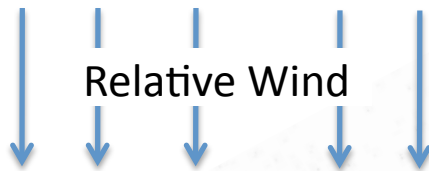
Push Lever Down for Manual
Emergency Gear Extension



YAW Aircraft to help move gear down to down and locked position



 Gear down &
  Locked lights

Relative Wind

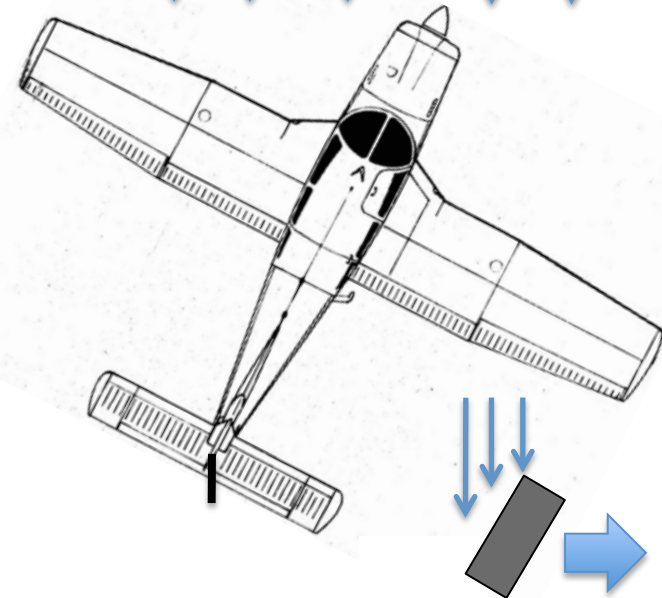


If Left gear not down; Yaw to the left

Gear down &
Locked lights

Relative Wind



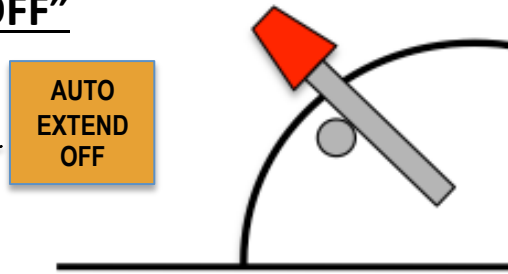
If Right gear not down; Yaw to the right

3 Positions for Override/Emergency Lever

Auto-Extend Override or "OFF"

Position – Held up by Auto-Extend Lockout Pin.

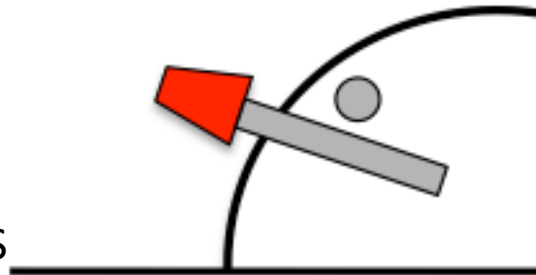
"AUTO EXTEND OFF" light will blink on and off when lever is in override position



Use position for take-off, practicing stalls, Or if engine out to improve glide ratio

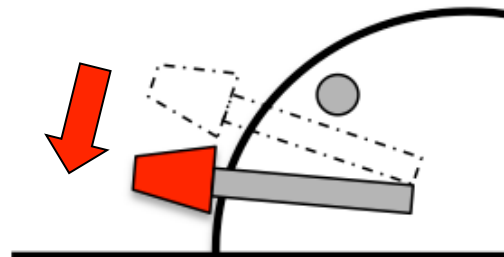
Auto-Extend "On" Position.

Gear will automatically come down when airspeed decreases to approx 87 KAIS



Use position when in cruise flight to provide auto-gear extend capability

Push Down for Manual Emergency Gear Extension Below 87 KAIS



Use manual gear extension to extend gear if auto extend fails to lower gear.

Override Gear Extension System When

- Taking off (otherwise gear does not want to come up during normal climb out speeds)
- For maximum glide in an engine out situation
- Practicing stalls with gear up
- Best practice is to remove the override and activate the automatic extension system once set-up in cruise and leave it on when entering the traffic pattern and landing
- If doing touch and goes, once you lower the gear for landing, put the lever in override position so you can raise the gear when you want after touch and go.

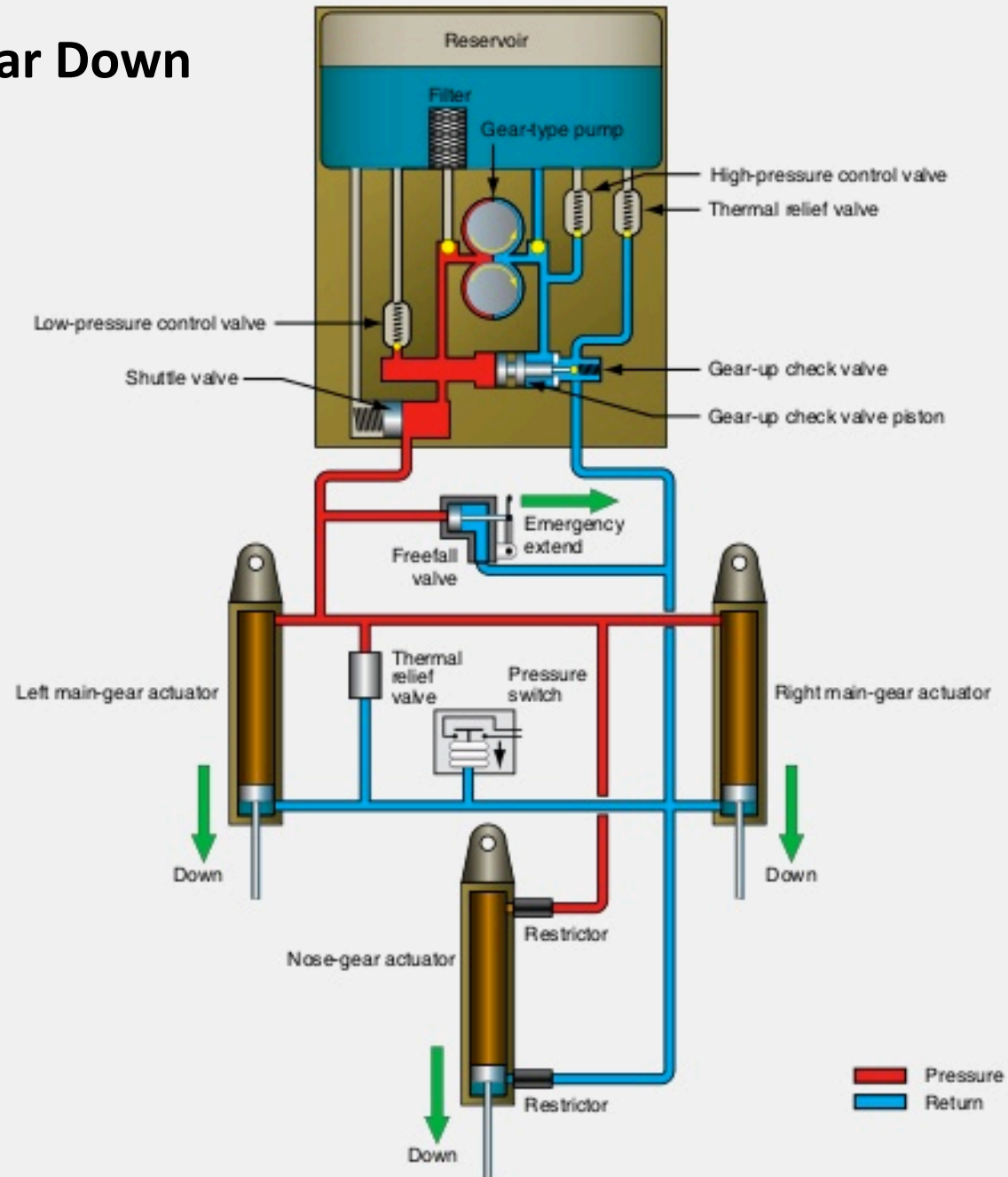
Landing Gear Warning System

- Steady horn and red “Warn Gear Unsafe” light comes on during the following conditions:
 - Gear is up and power is very low; approx 14” of MP
 - Auto extender system puts the gear down and the gear handle is still raised
 - Gear handle is raised when the plane is on the ground

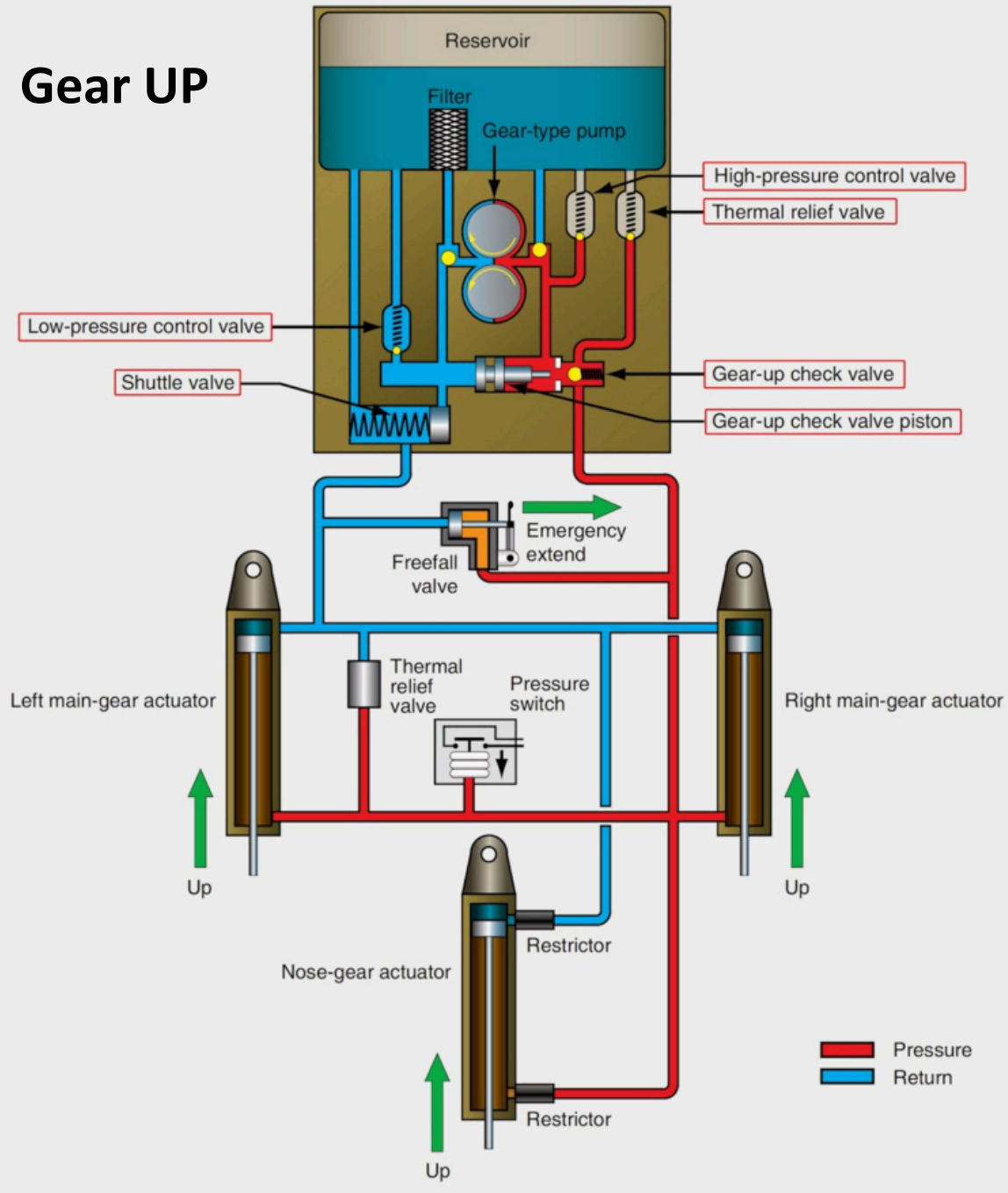
Other Things to Know

- The gear is held up with hydraulic pressure. If in cruise you hear/feel the hydraulic pump come on, this is usually an indication there is a small leak in hydraulic system which lets the hydraulic pressure drop. The pressure switch will automatically turn the pump on to bring hydraulic pressure back to the specified amount.
- Contact maintenance after flight to troubleshoot the system if you hear/feel the hydraulic pump come on during cruise.

Gear Down



Gear UP



Questions?