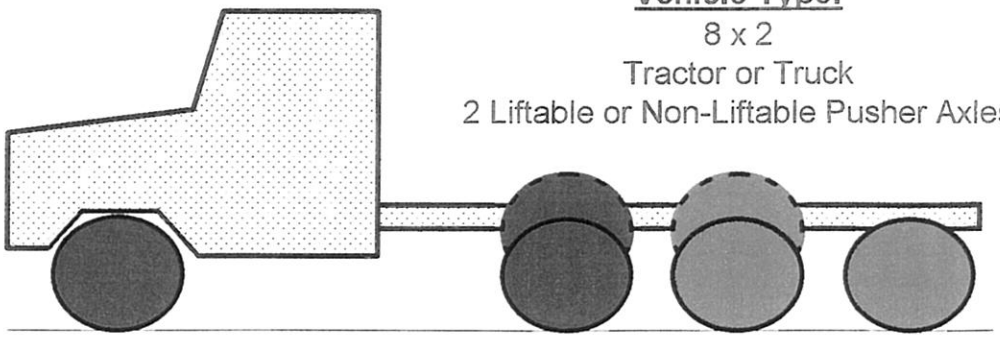
# Design Rules For Valves And ABS

**Vehicle Type:**
8 x 2
Tractor or Truck
2 Liftable or Non-Liftable Pusher Axles



| | Steering Axle | | Pusher Axles | | Drive Axle |
|---|---|---|---|---|---|
| **Standard Valve** | Quick Release | **Configuaration #1** | Relay-1 | Relay-2 | |
| **Hold-Off** | 6 psi sustained | 413-002, -011 | 5.5 psi | 5.5 psi | |
| **Circuit** | Secondary | 432-015, 22 | Secondary | Primary | |
| **ABS Sensor** | Sensed | | No | No | Sensed |
| **ABS Modulator** | Modulated | | No | Modulated | Modulated |
| **Chamber** | 24" or Less | | Any | Any | Any |
| **Brake** | 15 " x 4" | 402-KA1 | Any | Any | Any |
| **Suspension** | Any | | Any | For Any Suspension | |

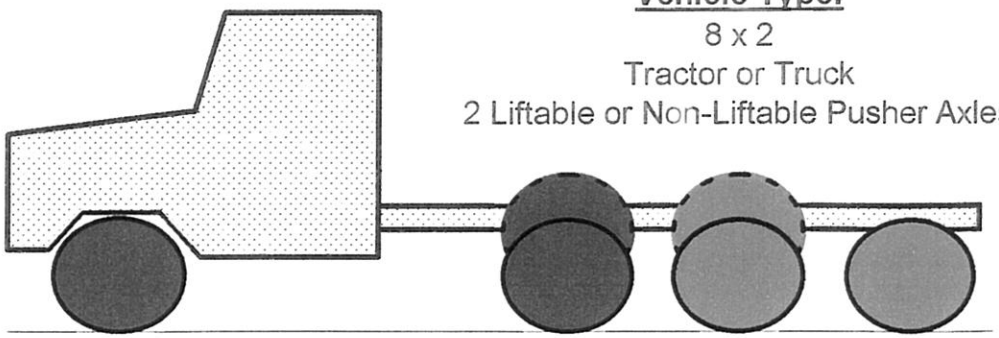
| | | | | | |
|---|---|---|---|---|---|
| **Standard Valve** | Quick Release | **Configuaration #2** | Relay-1 | Relay-2 | |
| **Hold-Off** | 3 psi sustained | 413-002, -012 | 4.0 psi | 5.5 psi | |
| **Circuit** | Secondary | 432-014, 23 | Secondary | Primary | |
| **ABS Sensor** | Sensed | | No | No | Sensed |
| **ABS Modulator** | Modulated | | No | Modulated | Modulated |
| **Chamber** | 24" or Less | | Any | Any | Any |
| **Brake** | 15x5 or Larger | Not 402-KA1 | Any | Any | Any |
| **Suspension** | Any | | Any | For Any Suspension | |

| | | | | | |
|---|---|---|---|---|---|
| **Optional Valve** | Quick Release | **Configuaration #3** | Relay-1 | Relay-2 | |
| **Hold-Off** | 3 psi sustained | 413-002, -012 | 4.0 psi | 4.0 psi | |
| **Circuit** | Secondary | 432-021, 024 | Secondary | Primary | |
| **ABS Sensor** | Sensed | | No | No | Sensed |
| **ABS Modulator** | Modulated | | No | Modulated | Modulated |
| **Chamber** | 24" or Less | | Any | Any | Any |
| **Brake** | 15" x 4" | 402-KA1 | Any | Any | Any |
| **Suspension** | Any | | Any | For Any Suspension | |

| | | | | | |
|---|---|---|---|---|---|
| **Optional Valve** | Quick Release | **Configuaration #4** | Relay-1 | Relay-2 | |
| **Hold-Off** | 0-1 psi | 413-006 | 4.0 psi | 4.0 psi | |
| **Circuit** | Secondary | 432-021, 024 | Secondary | Primary | |
| **ABS Sensor** | Sensed | | No | No | Sensed |
| **ABS Modulator** | Modulated | | No | Modulated | Modulated |
| **Chamber** | 24" or Less | | Any | Any | Any |
| **Brake** | 15x5 or Larger | Not 402-KA1 | Any | Any | Any |
| **Suspension** | Any | | Any | For Any Suspension | |

# Design Rules For Valves And ABS

**Vehicle Type:**
8 x 2
Tractor or Truck
2 Liftable or Non-Liftable Pusher Axles



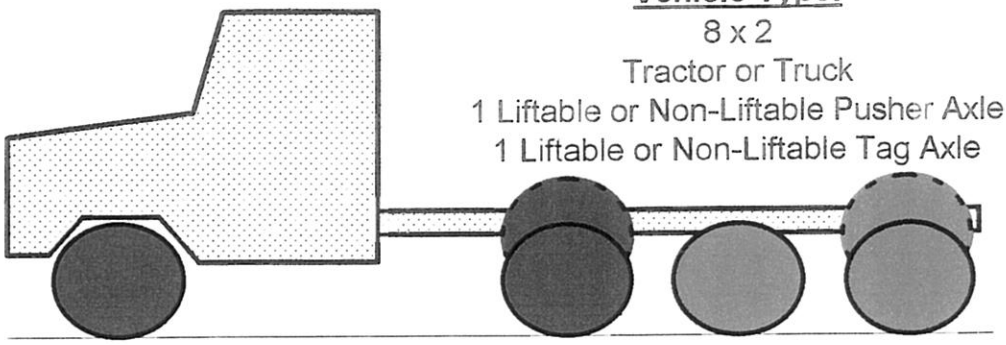
| | Steering Axle | | Pusher Axles | | Drive Axle |
|---|---|---|---|---|---|
| **Special Valve** | Quick Release | **Configuaration #5** | Relay-1 | Relay-2 | |
| **Hold-Off** | 0-1 psi | 413-006 Only | 4.0 psi | 4.0 psi | |
| **Circuit** | Secondary | 432-021, 24 | Secondary | Primary | |
| **ABS Sensor** | Sensed | | No | No | Sensed |
| **ABS Modulator** | Modulated | | No | Modulated | Modulated |
| **Chamber** | 25" or Larger | | Any | Any | Any |
| **Brake** | 15" x 4" | 402-KA1 | Any | Any | Any |
| **Suspension** | Any | | Any | For Any Suspension | |

| | | | | | |
|---|---|---|---|---|---|
| **Optional Valve** | Relay-1 | **Configuaration #6** | Relay-2 | Relay-3 | |
| **Hold-Off** | 5.5 psi | 413-002, -011 | 5.5 psi | 5.5 psi | |
| **Circuit** | Secondary | 432-015, 22 | Secondary | Primary | |
| **ABS Sensor** | Sensed | | No | No | Sensed |
| **ABS Modulator** | Modulated | | No | Modulated | Modulated |
| **Chamber** | 25" or Larger | | Any | Any | Any |
| **Brake** | 15" x 4" | 402-KA1 | Any | Any | Any |
| **Suspension** | Any | | Any | For Any Suspension | |

| | | | | | |
|---|---|---|---|---|---|
| **Optional Valve** | Relay-1 | **Configuaration #7** | Relay-2 | Relay-3 | |
| **Hold-Off** | 4.0 psi | 413-002, -012 | 4.0 psi | 4.0 psi | |
| **Circuit** | Secondary | 432-021, 024 | Secondary | Primary | |
| **ABS Sensor** | Sensed | | No | No | Sensed |
| **ABS Modulator** | Modulated | | No | Modulated | Modulated |
| **Chamber** | 25" or Larger | | Any | Any | Any |
| **Brake** | 15" x 4" | 402-KA1 | Any | Any | Any |
| **Suspension** | Any | | Any | For Any Suspension | |

| | | | | | |
|---|---|---|---|---|---|
| **Optional Valve** | Relay-1 | **Configuaration #8** | Relay-2 | Relay-3 | |
| **Hold-Off** | 4.0 psi | 413-002, -012 | 4.0 psi | 5.5 psi | |
| **Circuit** | Secondary | 432-014, 23 | Secondary | Primary | |
| **ABS Sensor** | Sensed | | No | No | Sensed |
| **ABS Modulator** | Modulated | | No | Modulated | Modulated |
| **Chamber** | 25" or Larger | | Any | Any | Any |
| **Brake** | 15x5 or Larger | Not 402-KA1 | Any | Any | Any |
| **Suspension** | Any | | Any | For Any Suspension | |

# Design Rules For Valves And ABS



**Vehicle Type:**
8 x 2
Tractor or Truck
1 Liftable or Non-Liftable Pusher Axle
1 Liftable or Non-Liftable Tag Axle

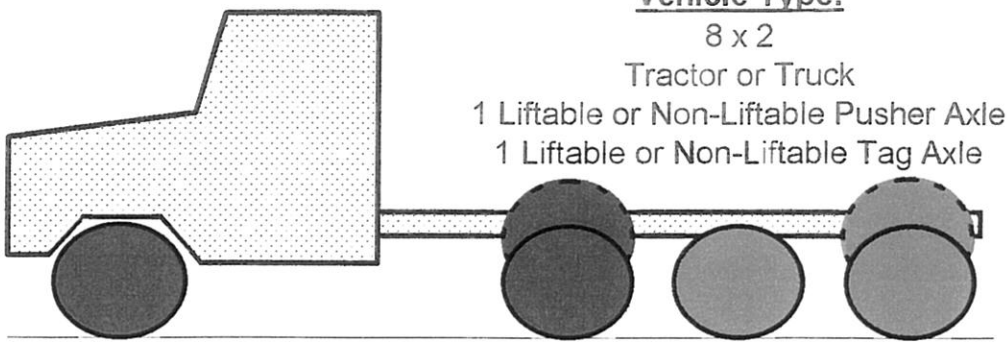
| | Steering Axle | | Pusher | Drive | Tag |
|---|---|---|---|---|---|
| **Standard Valve** | Quick Release | **Configuaration #1** | Relay-1 | Relay-2 | |
| **Hold-Off** | 6 psi sustained | 413-002, -011 | 5.5 psi | 5.5 psi | |
| **Circuit** | Secondary | 432-015, 22 | Secondary | Primary | |
| **ABS Sensor** | Sensed | | No | Sensed | No |
| **ABS Modulator** | Modulated | | No | Modulated | Modulated |
| **Chamber** | 24" or Less | | Any | Any | Any |
| **Brake** | 15 " x 4" | 402-KA1 | Any | Any | Any |
| **Suspension** | Any | | Any | For Any Suspension | |

| | | | | | |
|---|---|---|---|---|---|
| **Standard Valve** | Quick Release | **Configuaration #2** | Relay-1 | Relay-2 | |
| **Hold-Off** | 3 psi sustained | 413-002, -012 | 4.0 psi | 5.5 psi | |
| **Circuit** | Secondary | 432-014, 23 | Secondary | Primary | |
| **ABS Sensor** | Sensed | | No | Sensed | No |
| **ABS Modulator** | Modulated | | No | Modulated | Modulated |
| **Chamber** | 24" or Less | | Any | Any | Any |
| **Brake** | 15x5 or Larger | Not 402-KA1 | Any | Any | Any |
| **Suspension** | Any | | Any | For Any Suspension | |

| | | | | | |
|---|---|---|---|---|---|
| **Optional Valve** | Quick Release | **Configuaration #3** | Relay-1 | Relay-2 | |
| **Hold-Off** | 3 psi sustained | 413-002, -012 | 4.0 psi | 4.0 psi | |
| **Circuit** | Secondary | 432-021, 024 | Secondary | Primary | |
| **ABS Sensor** | Sensed | | No | Sensed | No |
| **ABS Modulator** | Modulated | | No | Modulated | Modulated |
| **Chamber** | 24" or Less | | Any | Any | Any |
| **Brake** | 15" x 4" | 402-KA1 | Any | Any | Any |
| **Suspension** | Any | | Any | For Any Suspension | |

| | | | | | |
|---|---|---|---|---|---|
| **Optional Valve** | Quick Release | **Configuaration #4** | Relay-1 | Relay-2 | |
| **Hold-Off** | 0-1 psi | 413-006 | 4.0 psi | 4.0 psi | |
| **Circuit** | Secondary | 432-021, 024 | Secondary | Primary | |
| **ABS Sensor** | Sensed | | No | Sensed | No |
| **ABS Modulator** | Modulated | | No | Modulated | Modulated |
| **Chamber** | 24" or Less | | Any | Any | Any |
| **Brake** | 15x5 or Larger | Not 402-KA1 | Any | Any | Any |
| **Suspension** | Any | | Any | For Any Suspension | |

# Design Rules For Valves And ABS



**Vehicle Type:**
8 x 2
Tractor or Truck
1 Liftable or Non-Liftable Pusher Axle
1 Liftable or Non-Liftable Tag Axle

| | Steering Axle | | Pusher | Drive | Tag |
|---|---|---|---|---|---|
| **Special Valve** | Quick Release | **Configuaration #5** | Relay-1 | Relay-2 | |
| **Hold-Off** | 0-1 psi | 413-006 Only | 4.0 psi | 4.0 psi | |
| **Circuit** | Secondary | 432-021, 24 | Secondary | Primary | |
| **ABS Sensor** | Sensed | | No | Sensed | No |
| **ABS Modulator** | Modulated | | No | Modulated | Modulated |
| **Chamber** | 25" or Larger | | Any | Any | Any |
| **Brake** | 15" x 4" | 402-KA1 | Any | Any | Any |
| **Suspension** | Any | | Any | For Any Suspension | |

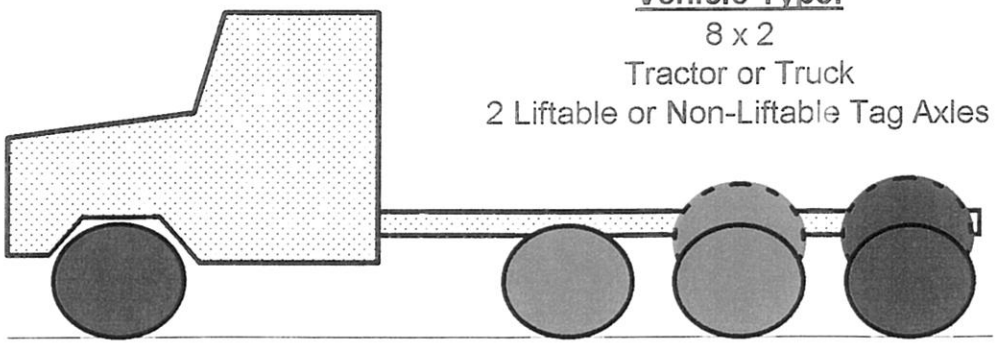
| | | | | | |
|---|---|---|---|---|---|
| **Optional Valve** | Relay-1 | **Configuaration #6** | Relay-2 | Relay-3 | |
| **Hold-Off** | 5.5 psi | 413-002, -011 | 5.5 psi | 5.5 psi | |
| **Circuit** | Secondary | 432-015, 22 | Secondary | Primary | |
| **ABS Sensor** | Sensed | | No | Sensed | No |
| **ABS Modulator** | Modulated | | No | Modulated | Modulated |
| **Chamber** | 25" or Larger | | Any | Any | Any |
| **Brake** | 15" x 4" | 402-KA1 | Any | Any | Any |
| **Suspension** | Any | | Any | For Any Suspension | |

| | | | | | |
|---|---|---|---|---|---|
| **Optional Valve** | Relay-1 | **Configuaration #7** | Relay-2 | Relay-3 | |
| **Hold-Off** | 4.0 psi | 413-002, -012 | 4.0 psi | 4.0 psi | |
| **Circuit** | Secondary | 432-021, 024 | Secondary | Primary | |
| **ABS Sensor** | Sensed | | No | Sensed | No |
| **ABS Modulator** | Modulated | | No | Modulated | Modulated |
| **Chamber** | 25" or Larger | | Any | Any | Any |
| **Brake** | 15" x 4" | 402-KA1 | Any | Any | Any |
| **Suspension** | Any | | Any | For Any Suspension | |

| | | | | | |
|---|---|---|---|---|---|
| **Optional Valve** | Relay-1 | **Configuaration #8** | Relay-2 | Relay-3 | |
| **Hold-Off** | 4.0 psi | 413-002, -012 | 4.0 psi | 5.5 psi | |
| **Circuit** | Secondary | 432-014, 23 | Secondary | Primary | |
| **ABS Sensor** | Sensed | | No | Sensed | No |
| **ABS Modulator** | Modulated | | No | Modulated | Modulated |
| **Chamber** | 25" or Larger | | Any | Any | Any |
| **Brake** | 15x5 or Larger | Not 402-KA1 | Any | Any | Any |
| **Suspension** | Any | | Any | For Any Suspension | |

# Design Rules For Valves And ABS

**Vehicle Type:**
8 x 2
Tractor or Truck
2 Liftable or Non-Liftable Tag Axles



| | Steering Axle | | Drive | Tag | Tag |
|---|---|---|---|---|---|
| **Standard Valve** | Quick Release | **Configuaration #1** | Relay-1 | | Relay-2 |
| **Hold-Off** | 6 psi sustained | 413-002, -011 | 5.5 psi | | 5.5 psi |
| **Circuit** | Secondary | 432-015, 22 | Primary | | Secondary |
| **ABS Sensor** | Sensed | | Sensed | No | No |
| **ABS Modulator** | Modulated | | Modulated | Modulated | No |
| **Chamber** | 24" or Less | | Any | Any | Any |
| **Brake** | 15 " x 4" | 402-KA1 | Any | Any | Any |
| **Suspension** | Any | | For Any Suspension | | Any |

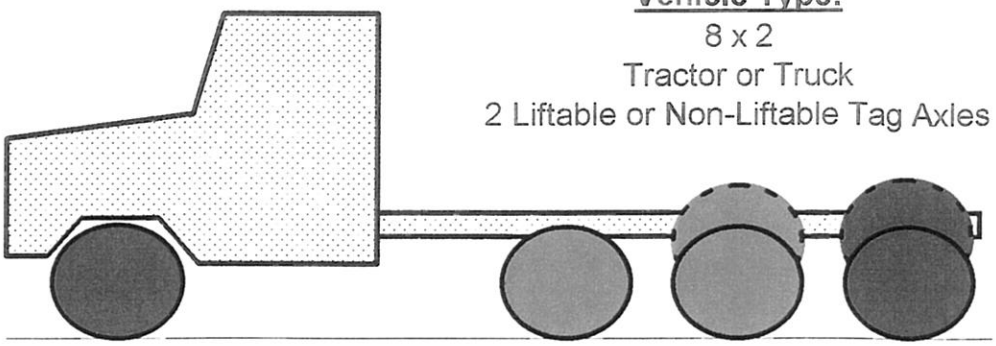
| | | | | | |
|---|---|---|---|---|---|
| **Standard Valve** | Quick Release | **Configuaration #2** | Relay-1 | | Relay-2 |
| **Hold-Off** | 3 psi sustained | 413-002, -012 | 5.5 psi | | 4.0 psi |
| **Circuit** | Secondary | 432-014, 23 | Primary | | Secondary |
| **ABS Sensor** | Sensed | | Sensed | No | No |
| **ABS Modulator** | Modulated | | Modulated | Modulated | No |
| **Chamber** | 24" or Less | | Any | Any | Any |
| **Brake** | 15x5 or Larger | Not 402-KA1 | Any | Any | Any |
| **Suspension** | Any | | For Any Suspension | | Any |

| | | | | | |
|---|---|---|---|---|---|
| **Optional Valve** | Quick Release | **Configuaration #3** | Relay-1 | | Relay-2 |
| **Hold-Off** | 3 psi sustained | 413-002, -012 | 4.0 psi | | 4.0 psi |
| **Circuit** | Secondary | 432-021, 024 | Primary | | Secondary |
| **ABS Sensor** | Sensed | | Sensed | No | No |
| **ABS Modulator** | Modulated | | Modulated | Modulated | No |
| **Chamber** | 24" or Less | | Any | Any | Any |
| **Brake** | 15" x 4" | 402-KA1 | Any | Any | Any |
| **Suspension** | Any | | For Any Suspension | | Any |

| | | | | | |
|---|---|---|---|---|---|
| **Optional Valve** | Quick Release | **Configuaration #4** | Relay-1 | | Relay-2 |
| **Hold-Off** | 0-1 psi | 413-006 | 4.0 psi | | 4.0 psi |
| **Circuit** | Secondary | 432-021, 024 | Primary | | Secondary |
| **ABS Sensor** | Sensed | | Sensed | No | No |
| **ABS Modulator** | Modulated | | Modulated | Modulated | No |
| **Chamber** | 24" or Less | | Any | Any | Any |
| **Brake** | 15x5 or Larger | Not 402-KA1 | Any | Any | Any |
| **Suspension** | Any | | For Any Suspension | | Any |

# Design Rules For Valves And ABS

**Vehicle Type:**
8 x 2
Tractor or Truck
2 Liftable or Non-Liftable Tag Axles



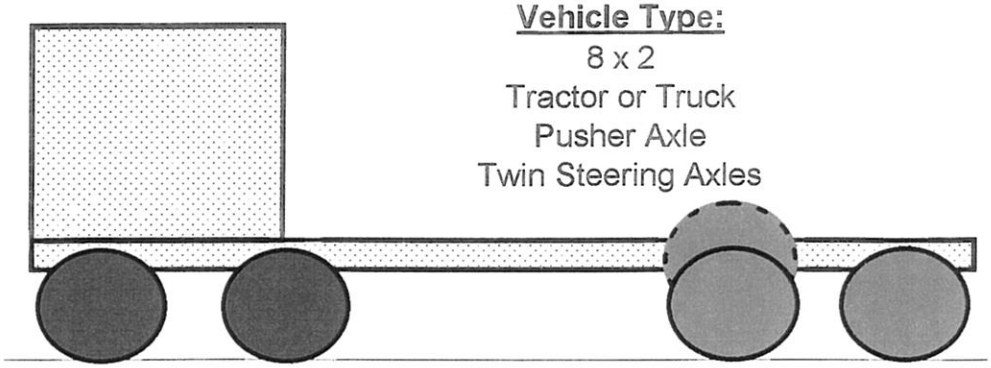
| | Steering Axle | | Drive | Tag | Tag |
|---|---|---|---|---|---|
| **Special Valve** | Quick Release | **Configuaration #5** | Relay-1 | | Relay-2 |
| **Hold-Off** | 0-1 psi | 413-006 Only | 4.0 psi | | 4.0 psi |
| **Circuit** | Secondary | 432-021, 24 | Primary | | Secondary |
| **ABS Sensor** | Sensed | | Sensed | No | No |
| **ABS Modulator** | Modulated | | Modulated | Modulated | No |
| **Chamber** | 25" or Larger | | Any | Any | Any |
| **Brake** | 15" x 4" | 402-KA1 | Any | Any | Any |
| **Suspension** | Any | | For Any Suspension | | Any |

| | | | | | |
|---|---|---|---|---|---|
| **Optional Valve** | Relay-1 | **Configuaration #6** | Relay-2 | | Relay-3 |
| **Hold-Off** | 5.5 psi | 413-002, -011 | 5.5 psi | | 5.5 psi |
| **Circuit** | Secondary | 432-015, 22 | Primary | | Secondary |
| **ABS Sensor** | Sensed | | Sensed | No | No |
| **ABS Modulator** | Modulated | | Modulated | Modulated | No |
| **Chamber** | 25" or Larger | | Any | Any | Any |
| **Brake** | 15" x 4" | 402-KA1 | Any | Any | Any |
| **Suspension** | Any | | For Any Suspension | | Any |

| | | | | | |
|---|---|---|---|---|---|
| **Optional Valve** | Relay-1 | **Configuaration #7** | Relay-2 | | Relay-3 |
| **Hold-Off** | 4.0 psi | 413-002, -012 | 4.0 psi | | 4.0 psi |
| **Circuit** | Secondary | 432-021, 024 | Primary | | Secondary |
| **ABS Sensor** | Sensed | | Sensed | No | No |
| **ABS Modulator** | Modulated | | Modulated | Modulated | No |
| **Chamber** | 25" or Larger | | Any | Any | Any |
| **Brake** | 15" x 4" | 402-KA1 | Any | Any | Any |
| **Suspension** | Any | | For Any Suspension | | Any |

| | | | | | |
|---|---|---|---|---|---|
| **Optional Valve** | Relay-1 | **Configuaration #8** | Relay-2 | | Relay-3 |
| **Hold-Off** | 4.0 psi | 413-002, -012 | 5.5 psi | | 4.0 psi |
| **Circuit** | Secondary | 432-014, 23 | Primary | | Secondary |
| **ABS Sensor** | Sensed | | Sensed | No | No |
| **ABS Modulator** | Modulated | | Modulated | Modulated | No |
| **Chamber** | 25" or Larger | | Any | Any | Any |
| **Brake** | 15x5 or Larger | Not 402-KA1 | Any | Any | Any |
| **Suspension** | Any | | For Any Suspension | | Any |

# Design Rules For Valves And ABS



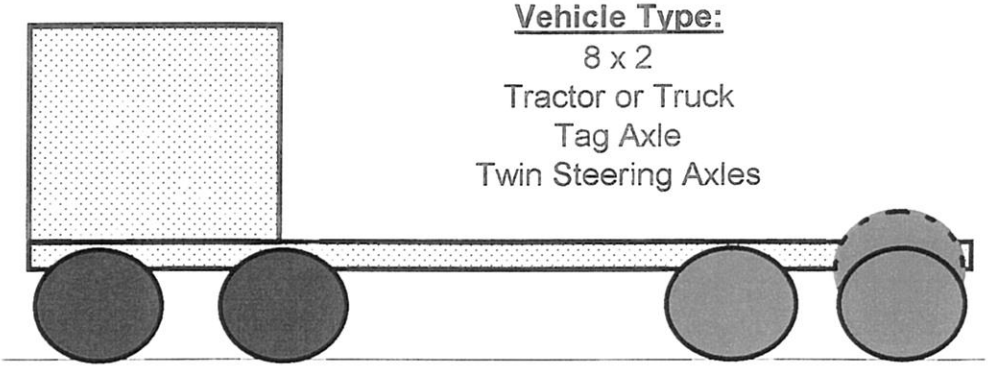
**Vehicle Type:**
8 x 2
Tractor or Truck
Pusher Axle
Twin Steering Axles

| | Steering Axles | | | Pusher | Drive |
|---|---|---|---|---|---|
| **Standard Valve** | Relay-1 | | **Configuration #1** | Relay-2 | |
| **Hold-Off** | 5.5 psi | | 413-002, -011 | 5.5 psi | |
| **Circuit** | Secondary | | 432-003, -A01 | Primary | |
| **ABS Sensor** | Sensed | No | | No | Sensed |
| **ABS Modulator** | Modulated | No | | Modulated | Modulated |
| **Chamber** | Any | Any | | Any | Any |
| **Brake** | 15" x 4" | 15" x 4" | 402-KA1 | Any | Any |
| **Suspension** | Any | Any | | Any | Any |

| | | | | | |
|---|---|---|---|---|---|
| **Standard Valve** | Relay-1 | | **Configuration #2** | Relay-2 | |
| **Hold-Off** | 4.0 psi | | 413-002, -012 | 5.5 psi | |
| **Circuit** | Secondary | | 432-003, -A01 | Primary | |
| **ABS Sensor** | Sensed | No | | No | Sensed |
| **ABS Modulator** | Modulated | No | | Modulated | Modulated |
| **Chamber** | Any | Any | | Any | Any |
| **Brake** | 15x5 or Larger | 15x5 or Larger | Not 402-KA1 | Any | Any |
| **Suspension** | Any | Any | | Any | Any |

| | | | | | |
|---|---|---|---|---|---|
| **Optional Valve** | Relay-1 | | **Configuration #3** | Relay-2 | |
| **Hold-Off** | 4.0 psi | | 413-002, -012 | 4.0 psi | |
| **Circuit** | Secondary | | 432-A02 | Primary | |
| **ABS Sensor** | Sensed | No | | No | Sensed |
| **ABS Modulator** | Modulated | No | | Modulated | Modulated |
| **Chamber** | Any | Any | | Any | Any |
| **Brake** | 15" x 4" | 15" x 4" | 402-KA1 | Any | Any |
| **Suspension** | Any | Any | | Any | Any |

# Design Rules For Valves And ABS



**Vehicle Type:**
8 x 2
Tractor or Truck
Tag Axle
Twin Steering Axles

| | Steering Axles | | | Drive | Tag |
|---|---|---|---|---|---|
| **Standard Valve** | Relay-1 | | **Configuration #1** | Relay-2 | |
| **Hold-Off** | 5.5 psi | | 413-002, -011 | 5.5 psi | |
| **Circuit** | Secondary | | 432-003, -A01 | Primary | |
| **ABS Sensor** | Sensed | No | | Sensed | No |
| **ABS Modulator** | Modulated | No | | Modulated | Modulated |
| **Chamber** | Any | Any | | Any | Any |
| **Brake** | 15" x 4" | 15" x 4" | 402-KA1 | Any | Any |
| **Suspension** | Any | Any | | Any | Any |

| | | | | | |
|---|---|---|---|---|---|
| **Standard Valve** | Relay-1 | | **Configuration #2** | Relay-2 | |
| **Hold-Off** | 4.0 psi | | 413-002, -012 | 5.5 psi | |
| **Circuit** | Secondary | | 432-003, -A01 | Primary | |
| **ABS Sensor** | Sensed | No | | Sensed | No |
| **ABS Modulator** | Modulated | No | | Modulated | Modulated |
| **Chamber** | Any | Any | | Any | Any |
| **Brake** | 15x5 or Larger | 15x5 or Larger | Not 402-KA1 | Any | Any |
| **Suspension** | Any | Any | | Any | Any |

| | | | | | |
|---|---|---|---|---|---|
| **Optional Valve** | Relay-1 | | **Configuration #3** | Relay-2 | |
| **Hold-Off** | 4.0 psi | | 413-002, -012 | 4.0 psi | |
| **Circuit** | Secondary | | 432-A02 | Primary | |
| **ABS Sensor** | Sensed | No | | Sensed | No |
| **ABS Modulator** | Modulated | No | | Modulated | Modulated |
| **Chamber** | Any | Any | | Any | Any |
| **Brake** | 15" x 4" | 15" x 4" | 402-KA1 | Any | Any |
| **Suspension** | Any | Any | | Any | Any |