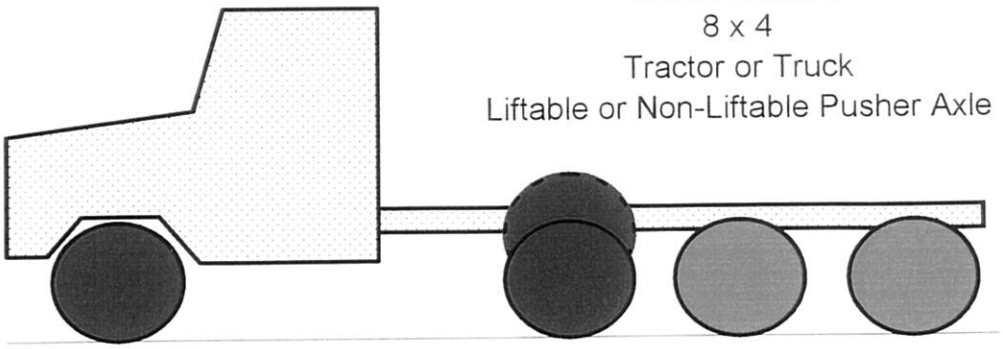
Design Rules For Valves And ABS

Vehicle Type:
8 x 4
Tractor or Truck
Liftable or Non-Liftable Pusher Axle



	Steering Axle		Pusher	Drive Axles	
Standard Valve	Quick Release	**Configuaration #1a**	Relay-1	Relay-2	
Hold-Off	6 psi sustained	413-002, -011	5.5 psi	5.5 psi	
Circuit	Secondary	432-015, 22, 26	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 Suspension Group #1	

Standard Valve	Quick Release	**Configuaration #1b**	Relay-1	Relay-2	
Hold-Off	6 psi sustained	413-002, -011	5.5 psi	5.5 psi	
Circuit	Secondary	432-015, 22, 26	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 Suspension Group #2	

Standard Valve	Quick Release	**Configuaration #2a**	Relay-1	Relay-2	
Hold-Off	3 psi sustained	413-002, -012	4.0 psi	5.5 psi	
Circuit	Secondary	432-014, 23, 27	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 Suspension Group #1	

Standard Valve	Quick Release	**Configuaration #2b**	Relay-1	Relay-2	
Hold-Off	3 psi sustained	413-002, -012	4.0 psi	5.5 psi	
Circuit	Secondary	432-014, 23, 27	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 Suspension Group #2	

Suspension Group #1: All Air Suspensions, Hendrickson Beam, Chalmers, R/W 6-Rod, Ridewell
Suspension Group #2: F/L Spring, Reyco Tandem

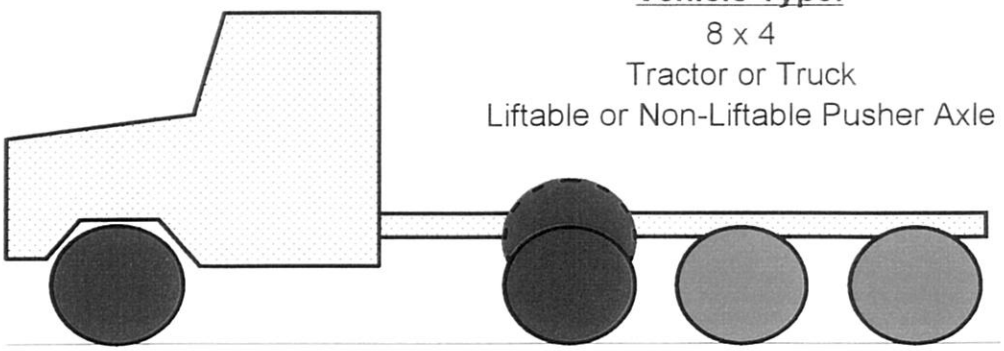
Design Rules For Valves And ABS

Vehicle Type:

8 x 4

Tractor or Truck

Liftable or Non-Liftable Pusher Axle



	Steering Axle		Pusher	Drive Axles	
Optional Valve	Quick Release	**Configuaration #3a**	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 Suspension Group #1	

Optional Valve	Quick Release	**Configuaration #3b**	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 Suspension Group #2	

Optional Valve	Quick Release	**Configuaration #4a**	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 Suspension Group #1	

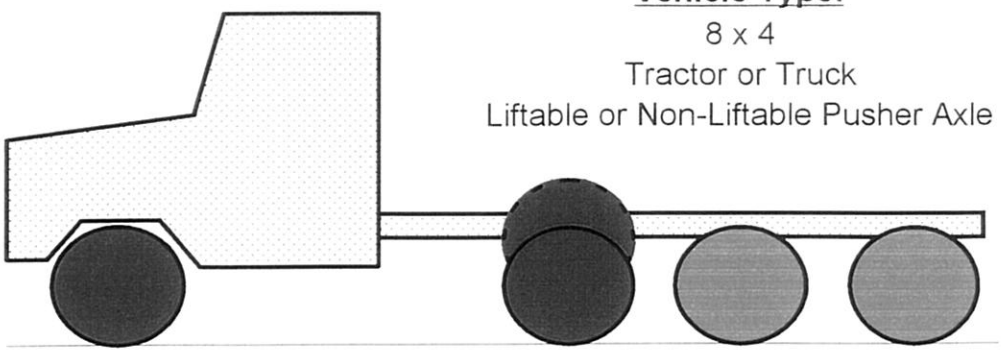
Optional Valve	Quick Release	**Configuaration #4b**	Relay-1	Relay-2	
Hold-Off	0-1 psi	413-006	4.0 psi	4.0 psi	
Circuit	Secondary	432-021, 024	Secondary	Primary	
ABS Sensor	Sensed		No	Sensed	No
ABS Modulator	Modulated		No	Modulated	Modulated
Chamber	24" or Less		Any	Any	Any
Brake	15x5 or Larger	Not 402-KA1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

Suspension Group #1: All Air Suspensions, Hendrickson Beam, Chalmers, R/W 6-Rod, Ridewell

Suspension Group #2: F/L Spring, Reyco Tandem

Design Rules For Valves And ABS

Vehicle Type:
8 x 4
Tractor or Truck
Liftable or Non-Liftable Pusher Axle



	Steering Axle		Pusher	Drive Axles	
Special Valve	Quick Release	**Configuaration #5a**	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 Suspension Group #1	

Special Valve	Quick Release	**Configuaration #5b**	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 Suspension Group #2	

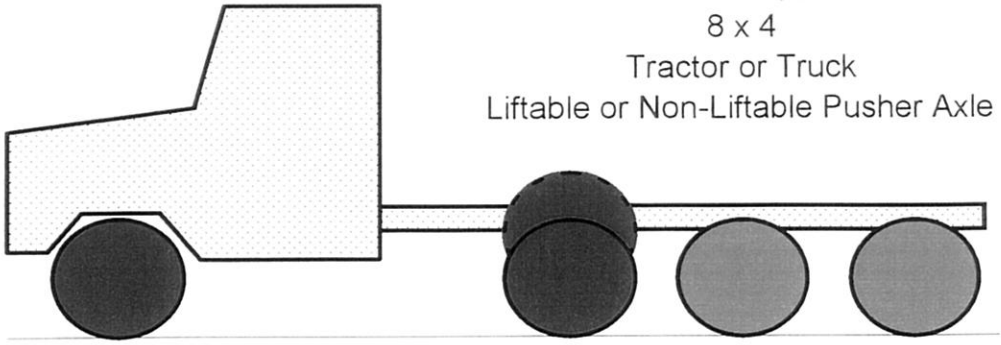
Optional Valve	Relay-1	**Configuaration #6a**	Relay-2	Relay-3	
Hold-Off	5.5 psi	413-002, -011	5.5 psi	5.5 psi	
Circuit	Secondary	432-015, 22, 26	Secondary	Primary	
ABS Sensor	Sensed		No	No	Sensed
ABS Modulator	Modulated		No	Modulated	Modulated
Chamber	25" or Larger		Any	Any	Any
Brake	15" x 4"	402-KA1	Any	Any	Any
Suspension	Any		Any	For Suspension Group #1	

Optional Valve	Relay-1	**Configuaration #6b**	Relay-2	Relay-3	
Hold-Off	5.5 psi	413-002, -011	5.5 psi	5.5 psi	
Circuit	Secondary	432-015, 22, 26	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 Suspension Group #2	

Suspension Group #1: All Air Suspensions, Hendrickson Beam, Chalmers, R/W 6-Rod, Ridewell
Suspension Group #2: F/L Spring, Reyco Tandem

Design Rules For Valves And ABS

Vehicle Type:
8 x 4
Tractor or Truck
Liftable or Non-Liftable Pusher Axle



	Steering Axle		Pusher	Drive Axles	
Optional Valve	Relay-1	**Configuaration #7a**	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 Suspension Group #1	

Optional Valve	Relay-1	**Configuaration #7b**	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 Suspension Group #2	

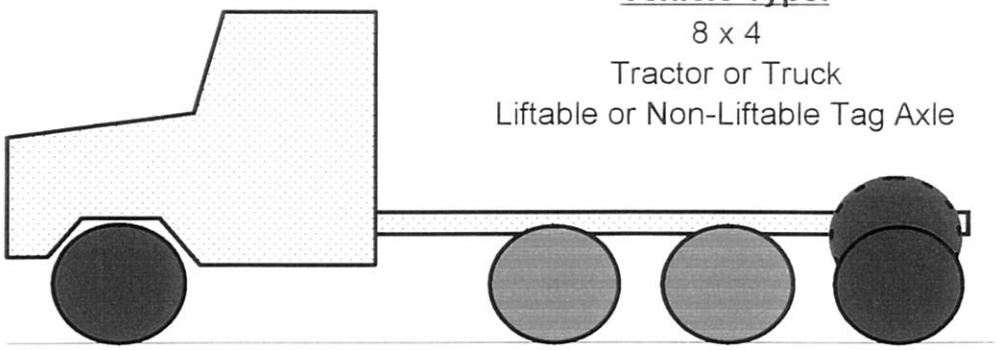
Optional Valve	Relay-1	**Configuaration #8a**	Relay-2	Relay-3	
Hold-Off	4.0 psi	413-002, -012	4.0 psi	5.5 psi	
Circuit	Secondary	432-014, 23, 27	Secondary	Primary	
ABS Sensor	Sensed		No	No	Sensed
ABS Modulator	Modulated		No	Modulated	Modulated
Chamber	25" or Larger		Any	Any	Any
Brake	15x5 or Larger	Not 402-KA1	Any	Any	Any
Suspension	Any		Any	For Suspension Group #1	

Optional Valve	Relay-1	**Configuaration #8b**	Relay-2	Relay-3	
Hold-Off	4.0 psi	413-002, -012	4.0 psi	5.5 psi	
Circuit	Secondary	432-014, 23, 27	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 Suspension Group #2	

Suspension Group #1: All Air Suspensions, Hendrickson Beam, Chalmers, R/W 6-Rod, Ridewell
Suspension Group #2: F/L Spring, Reyco Tandem

Design Rules For Valves And ABS

Vehicle Type:
8 x 4
Tractor or Truck
Liftable or Non-Liftable Tag Axle



	Steering Axle		Drive Axles		Tag Axle
Standard Valve	Quick Release	**onfiguration #1**	Relay-1		Relay-2
Hold-Off	6 psi sustained	413-002, -011	5.5 psi		5.5 psi
Circuit	Secondary	432-015, 22, 26	Primary		Secondary
ABS Sensor	Sensed		No	Sensed	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 Suspension Group #1		Any

Standard Valve	Quick Release	**onfiguration #1**	Relay-1		Relay-2
Hold-Off	6 psi sustained	413-002, -011	5.5 psi		5.5 psi
Circuit	Secondary	432-015, 22, 26	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 Suspension Group #2		Any

Standard Valve	Quick Release	**onfiguration #2**	Relay-1		Relay-2
Hold-Off	3 psi sustained	413-002, -012	5.5 psi		4.0 psi
Circuit	Secondary	432-014, 23, 27	Primary		Secondary
ABS Sensor	Sensed		No	Sensed	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 Suspension Group #1		Any

Standard Valve	Quick Release	**onfiguration #2**	Relay-1		Relay-2
Hold-Off	3 psi sustained	413-002, -012	5.5 psi		4.0 psi
Circuit	Secondary	432-014, 23, 27	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 Suspension Group #2		Any

Suspension Group #1: All Air Suspensions, Hendrickson Beam, Chalmers, R/W 6-Rod, Ridewell
Suspension Group #2: F/L Spring, Reyco Tandem

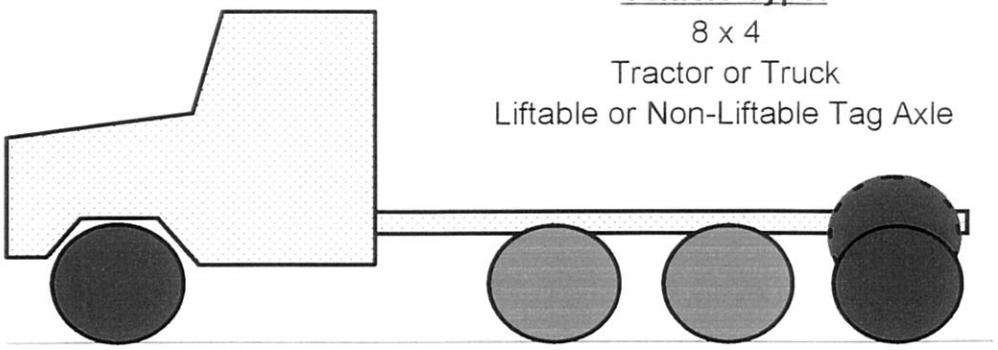
Design Rules For Valves And ABS

Vehicle Type:

8 x 4

Tractor or Truck

Liftable or Non-Liftable Tag Axle



	Steering Axle		Drive Axles		Tag Axle
Optional Valve	Quick Release	**onfiguration #3**	Relay-1		Relay-2
Hold-Off	3 psi sustained	413-002, -012	4.0 psi		4.0 psi
Circuit	Secondary	432-021, 24	Primary		Secondary
ABS Sensor	Sensed		No	Sensed	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 Suspension Group #1		Any

Optional Valve	Quick Release	**onfiguration #3**	Relay-1		Relay-2
Hold-Off	3 psi sustained	413-002, -012	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	24" or Less		Any	Any	Any
Brake	15" x 4"	402-KA1	Any	Any	Any
Suspension	Any		For Suspension Group #2		Any

Optional Valve	Quick Release	**onfiguration #4**	Relay-1		Relay-2
Hold-Off	0-1 psi	413-002, -006	4 psi		4 psi
Circuit	Secondary	432-021, 24	Primary		Secondary
ABS Sensor	Sensed		No	Sensed	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 Suspension Group #1		Any

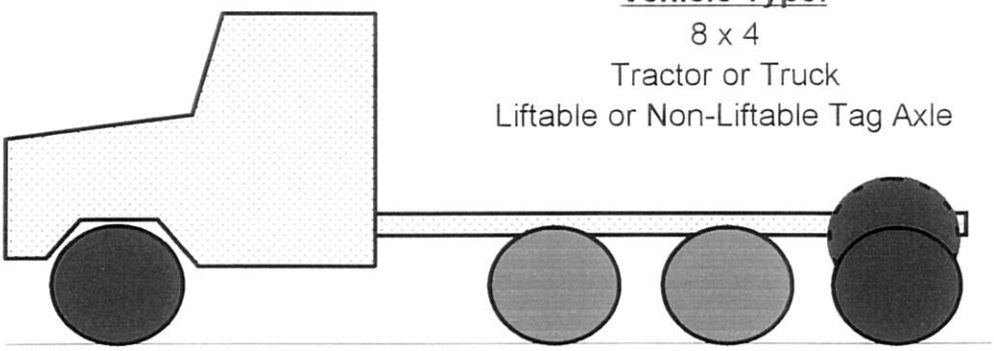
Optional Valve	Quick Release	**onfiguration #4**	Relay-1		Relay-2
Hold-Off	0-1 psi	413-002, -006	4 psi		4 psi
Circuit	Secondary	432-021, 24	Primary		Secondary
ABS Sensor	Sensed		Sensed	No	No
ABS Modulator	Modulated		Modulated	Modulated	No
Chamber	24" or Less		Any	Any	Any
Brake	15x5 or Larger	Not 402-KA1	Any	Any	Any
Suspension	Any		For Suspension Group #2		Any

Suspension Group #1: All Air Suspensions, Hendrickson Beam, Chalmers, R/W 6-Rod, Ridewell

Suspension Group #2: F/L Spring, Reyco Tandem

Design Rules For Valves And ABS

Vehicle Type:
8 x 4
Tractor or Truck
Liftable or Non-Liftable Tag Axle



	Steering Axle		Drive Axles		Tag Axle
Special Valve	Quick Release	**onfiguration #5**	Relay-1		Relay-2
Hold-Off	0-1 psi	413-006 Only	4 psi		4 psi
Circuit	Secondary	432-021, 24	Primary		Secondary
ABS Sensor	Sensed		No	Sensed	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 Suspension Group #1		Any

Special Valve	Quick Release	**onfiguration #5**	Relay-1		Relay-2
Hold-Off	0-1 psi	413-006 Only	4 psi		4 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 Suspension Group #2		Any

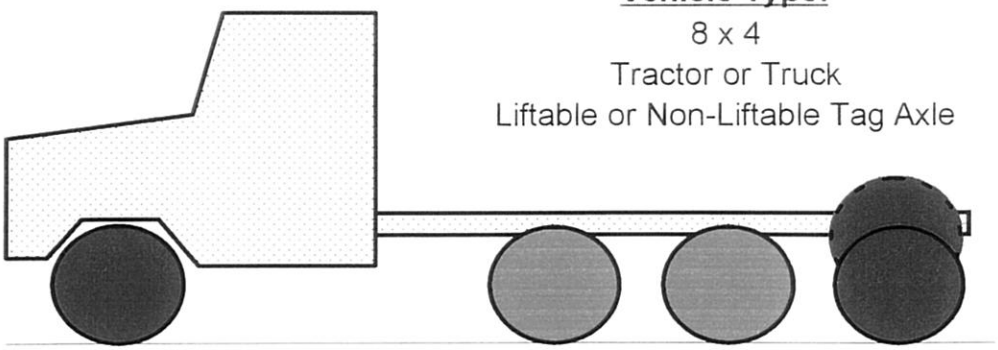
Optional Valve	Relay-1	**onfiguration #6**	Relay-2		Relay-3
Hold-Off	5.5 psi	413-002, -011	5.5 psi		5.5 psi
Circuit	Secondary	432-015, 22, 26	Primary		Secondary
ABS Sensor	Sensed		No	Sensed	No
ABS Modulator	Modulated		Modulated	Modulated	No
Chamber	25" or Larger		Any	Any	Any
Brake	15" x 4"	402-KA1	Any	Any	Any
Suspension	Any		For Suspension Group #1		Any

Optional Valve	Relay-1	**onfiguration #6**	Relay-2		Relay-3
Hold-Off	5.5 psi	413-002, -011	5.5 psi		5.5 psi
Circuit	Secondary	432-015, 22, 26	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 Suspension Group #2		Any

Suspension Group #1: All Air Suspensions, Hendrickson Beam, Chalmers, R/W 6-Rod, Ridewell
Suspension Group #2: F/L Spring, Reyco Tandem

Design Rules For Valves And ABS

Vehicle Type:
8 x 4
Tractor or Truck
Liftable or Non-Liftable Tag Axle



	Steering Axle		Drive Axles		Tag Axle
Optional Valve	Relay-1	**onfiguration #7**	Relay-2		Relay-3
Hold-Off	4.0 psi	413-002, -012	4.0 psi		4.0 psi
Circuit	Secondary	432-021, 24	Primary		Secondary
ABS Sensor	Sensed		No	Sensed	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 Suspension Group #1		Any

Optional Valve	Relay-1	**onfiguration #7**	Relay-2		Relay-3
Hold-Off	4.0 psi	413-002, -012	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 Suspension Group #2		Any

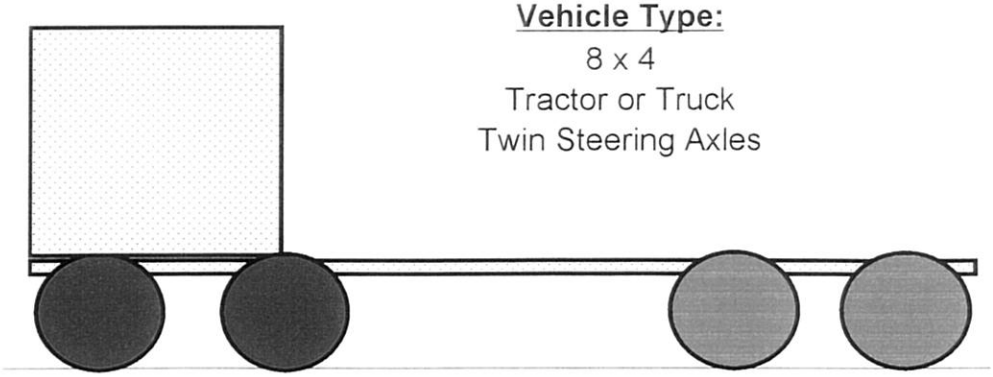
Optional Valve	Relay-1	**onfiguration #8**	Relay-2		Relay-3
Hold-Off	4.0 psi	413-002, -012	5.5 psi		4.0 psi
Circuit	Secondary	432-014, 23, 27	Primary		Secondary
ABS Sensor	Sensed		No	Sensed	No
ABS Modulator	Modulated		Modulated	Modulated	No
Chamber	25" or Larger		Any	Any	Any
Brake	15x5 or Larger	Not 402-KA1	Any	Any	Any
Suspension	Any		For Suspension Group #1		Any

Optional Valve	Relay-1	**onfiguration #8**	Relay-2		Relay-3
Hold-Off	4.0 psi	413-002, -012	5.5 psi		4.0 psi
Circuit	Secondary	432-014, 23, 27	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 Suspension Group #2		Any

Suspension Group #1: All Air Suspensions, Hendrickson Beam, Chalmers, R/W 6-Rod, Ridewell
Suspension Group #2: F/L Spring, Reyco Tandem

Design Rules For Valves And ABS

Vehicle Type:
8 x 4
Tractor or Truck
Twin Steering Axles



	Steering Axles			Drive Axles	
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		For Suspension Group #1	

	Steering Axles			Drive Axles	
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		For Suspension Group #2	

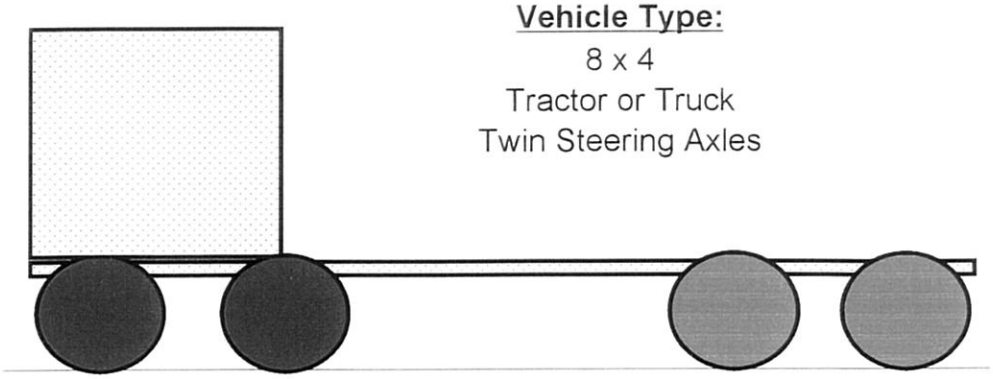
	Steering Axles			Drive Axles	
Standard Valve	Relay-1		**Configuration #2**	Relay-2	
Hold-Off	4.0 psi		413-002, 012	5.5 psi	
Circuit	Secondary		432-003, -A01	Primary	
ABS Sensor	Sensed	No		No	Sensed
ABS Modulator	Modulated	No		Modulated	Modulated
Chamber	Any	Any		Any	Any
Brake	15x5 or Larger	15x5 or Larger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

	Steering Axles			Drive Axles	
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		For Suspension Group #2	

Suspension Group #1: All Air Suspensions, Hendrickson Beam, Chalmers, R/W 6-Rod, Ridewell
Suspension Group #2: F/L Spring, Reyco Tandem

Design Rules For Valves And ABS

Vehicle Type:
8 x 4
Tractor or Truck
Twin Steering Axles



	Steering Axles			Drive Axles	
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		For Suspension Group #1	

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		For Suspension Group #2	

Suspension Group #1: All Air Suspensions, Hendrickson Beam, Chalmers, R/W 6-Rod, Ridewell
Suspension Group #2: F/L Spring, Reyco Tandem