

Thank you for your interest in Ridewell Suspensions! To view this catalog, please click the bookmarks on the left or the links on the next page. You can also use the navigational buttons on your Adobe Acrobat tool bar. If you have questions or require a drawing, please contact our customer service department at 800.641.4122.



RIDEWELL SUSPENSIONS

The Engineered Suspension Company

Truck Catalog

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Generic Tire Information



Size	Tire Size	Load Rating	Overall Width	Unloaded Diameter	Unloaded Radius	Static Loaded Radius	Weight	Single Capacity	Dual Capacity
15.0	7.50-15	F12	8.8	31.9	16.0	15.0	49	3,210	2,820
	8.25-15	F12	9.6	33.3	16.7	15.7	56	3,720	3,260
	8.25R15	G14	9.2	33.3	16.7	15.5	69	4,070	3,660
	8.25R15	J18	9.2	33.3	16.7	15.5	-	6,005	5,675
	9.00-15	F12	10.5	34.8	17.4	16.3	65	4,290	3,760
	10.00-15	G14	11.0	36.1	18.1	17.0	80	5,050	4,430
17.5	9R17.5HC	H16	8.9	33.3	16.7	15.4	72	4,410	3,970
	10R17.5	H16	9.5	33.9	17.0	15.6	-	4,675	4,410
	10R17.5	H16	9.4	33.7	16.9	15.6	64	4,675	4,410
	11R17.5HC	H16	10.7	36.3	18.2	16.9	93	5,530	4,850
	215/75R17.5	H16	8.4	30.6	15.3	14.0	59	4,805	4,540
	19.5	225/70R19.5	F12	8.6	31.9	16.0	15.0	56	3,640
245/70R19.5		F12	9.3	33.0	16.5	15.4	64	4,080	3,860
265/70R19.5		G14	10.2	34.1	17.1	15.7	82	4,940	4,750
285/70R19.5		H16	11.0	35.3	17.7	16.2	89	6,175	5,675
445/65R19.5		L20	17.4	42.6	21.3	19.5	-	11,400	-
20.0		8.25-20	E10	9.1	38.0	19.0	17.9	57	4,050
	8.25R20	F12	9.2	38.3	19.2	18.0	87	4,500	3,950
	9.00-20	E10	10.0	39.7	19.9	18.8	64	4,610	4,040
	9.00R20	F12	10.1	40.2	20.1	18.8	98	5,150	4,875
	10.00-20	F12	10.8	41.4	20.7	19.5	85	5,430	4,760
	10.00R20	G14	11.1	41.3	20.7	19.3	108	6,040	5,300
	11.00R20	G14	11.5	42.6	21.3	19.9	135	6,590	5,780
	12.00-20	G14	12.2	43.7	21.9	20.6	133	7,000	6,140
	14.00-24	L20	14.7	52.5	26.3	24.6	217	12,230	10,730
22.5	9R22.5	F12	9.1	38.3	19.2	18.0	88	4,500	3,950
	10R22.5	F12	9.9	39.7	19.9	18.5	100	5,150	4,875
	11-22.5	F12	10.8	41.4	20.7	19.5	96	5,430	4,760
	11R22.5	G14	10.9	41.3	20.7	19.3	112	6,040	5,300
	12R22.5	H16	11.5	42.9	21.5	20.1	145	7,200	6,320
	15-22.5	H16	14.7	42.9	21.5	20.2	164	8,520	-
	16.5-22.5	H16	16.3	44.6	22.3	20.9	192	9,230	-
	18-22.5	J18	17.4	42.7	21.4	19.7	206	10,060	-
	245/75R22.5	G14	9.5	37.0	18.5	17.2	84	4,675	4,410
	255/70R22.5	H16	9.8	36.4	18.2	17.0	86	5,510	5,070
	255/80R22.5	G14	10.0	38.4	19.2	17.8	-	5,205	4,810
	265/75R22.5	G14	10.0	38.7	19.4	18.0	94	5,205	4,805
	275/70R22.5	H#	11.0	38.1	19.1	17.6	112	6,610	6,175
	295/75R22.5	G14	10.9	40.1	20.1	18.7	108	6,175	5,675
	315/80R22.5	J18	12.4	42.3	21.2	19.7	140	8,270	7,610
385/65R22.5	J18	14.9	43.0	21.5	19.8	186	9,370	-	
425/65R22.5	J18	16.1	44.2	22.1	20.3	208	10,500	-	
425/65R22.5	J18	16.1	44.9	22.5	20.7	216	10,500	-	
445/65R22.5	L20	17.3	45.6	22.8	20.8	232	12,300	-	
22.0	10.00-22	F12	10.8	43.4	21.7	20.5	93	5,780	5,070
	10.00R22	G14	10.7	43.5	21.8	20.4	121	6,430	5,640
24.5	11-24.5	F12	10.8	43.4	21.7	20.5	104	5,780	5,070
	11R24.5	G14	10.7	43.5	21.8	20.4	124	6,430	5,640
	285/75R24.5	G14	10.8	41.2	20.6	19.3	111	6,175	5,675

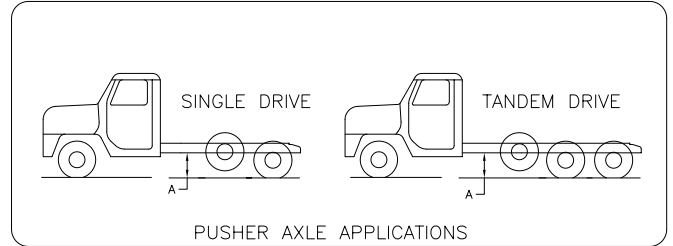
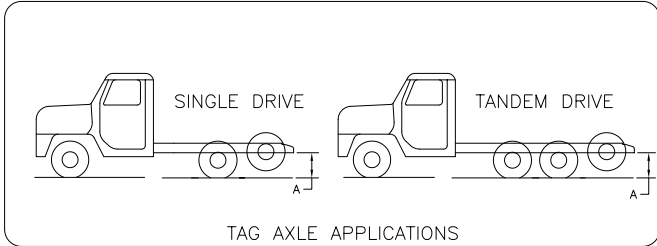


Ordering Information for Auxiliary Axle Suspensions

P.O. #: _____ Date: _____

Customer Name: _____ Contact: _____

Phone #: _____ Fax: _____ E-mail: _____



Please check all that apply to your application:

- Tag Pusher Self-Steering Non-Steering Bare Chassis Body is mounted
- Tandem Drive Axle Single Drive Axle
- Air suspension on drive axle Mechanical suspension on drive axle
- Disc Wheels
- Hub-piloted Stud-piloted Steel Aluminum
- Single tires Dual tires

Please supply the following information for specifying your unit-measurements.

Measurements should be taken at location of new add-on axle.

Capacity Needed _____ **Tag or Pusher Tire Size** _____

A = Frame Height For both tags and pushers, measure bottom-of-frame to ground _____

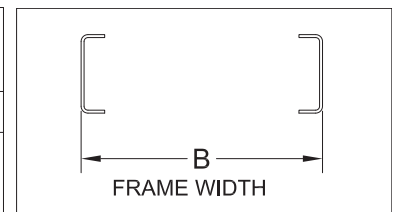
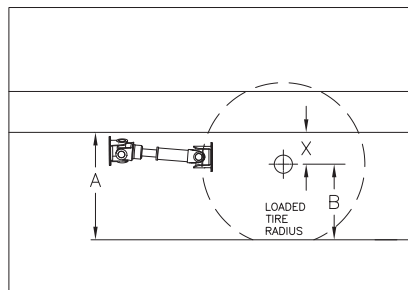
B = Loaded Tire Radius _____ (refer to your tire manufacturer information)

C = Frame Deflection Use 1" for tandem drive axle w/ bare chassis, 2" for single drive axle w/ bare chassis. 0" if drive axle suspension is an air-ride.

D = Drive Line Clearance for Pushers Only Measure bottom-of-frame to bottom-of-drive line at approximate center line of new axle _____

Mounting Height Determination

- A** (frame height) - _____
- Subtract B** (loaded tire radius) - _____
- Subtract C** (frame deflection) - _____
- X = Mounting Height** _____



Frame Width _____
(outside-to-outside)

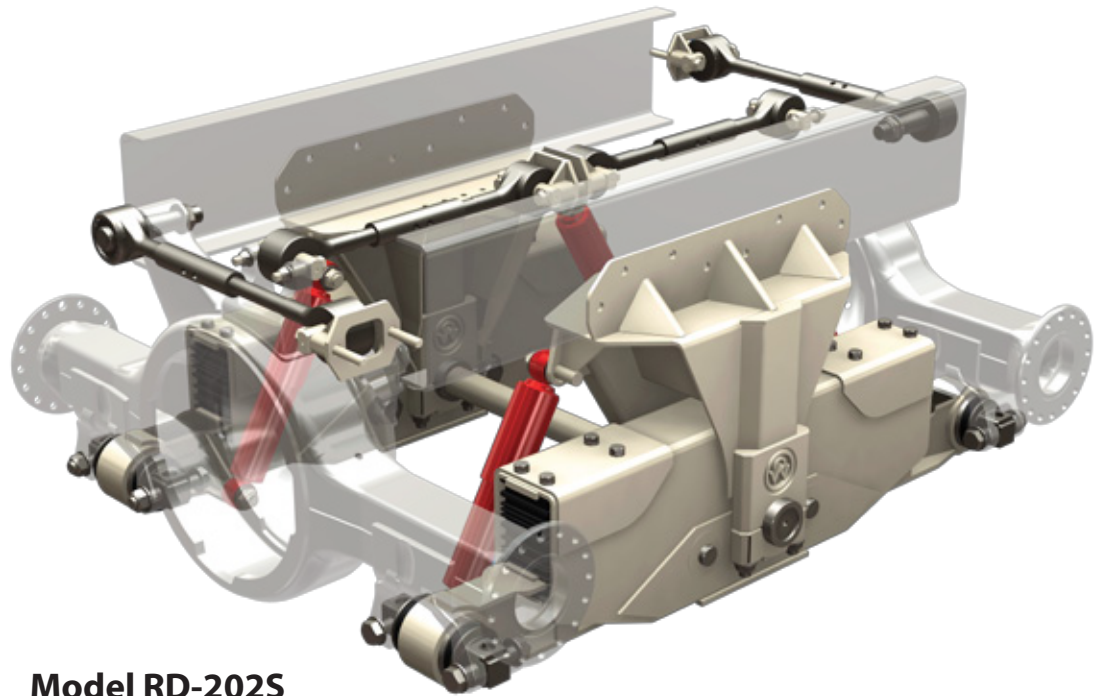
Pushers Only: X* + 3 1/2" (axle drop) - Up Travel must be at least 1" > D* - For 6" drop center axles

Pushers Only: X* + 5 1/2" (axle drop) - Up Travel must be at least 1" > D* - For 8" drop center axles

For axle UP TRAVEL refer to installation drawing of your selected suspension

Exceptions to "D" may occur based on location of drive line U-joint

RD-202S for trucks **Heavy-Duty Tandem Drive Suspension**



Model RD-202S

The most durable suspension on the market.

For severe service applications including refuse, military, firefighting, logging, and construction

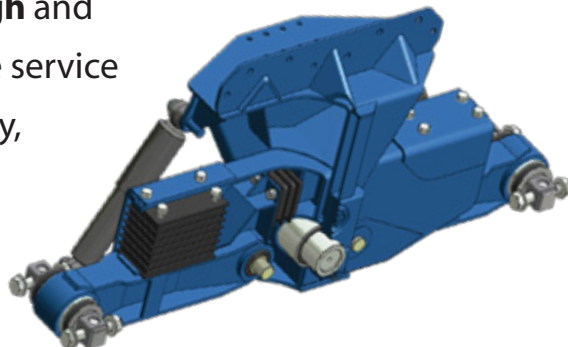
38,000 - 75,000 lb. capacity



Dynalastic™ 202S

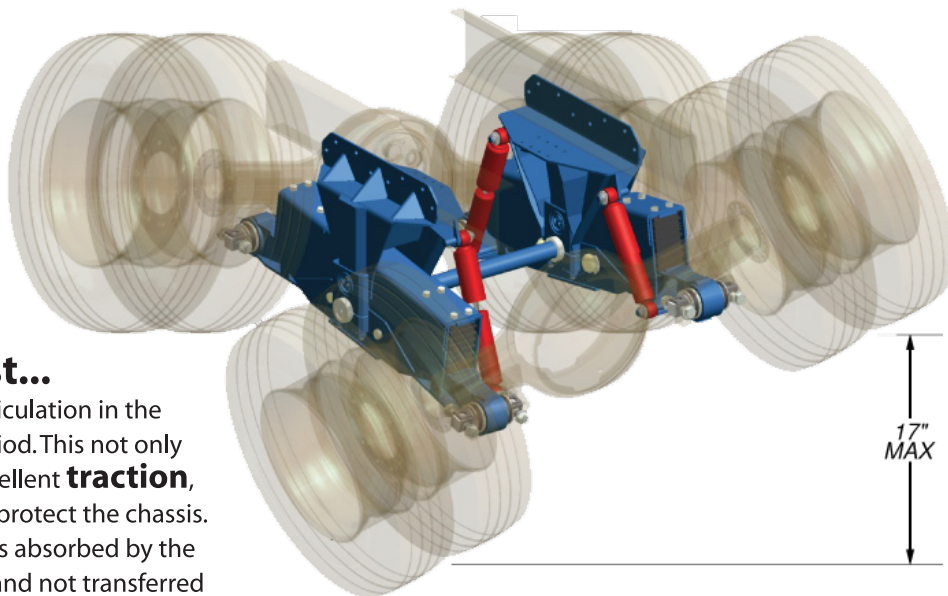
Heavy-Duty Tandem Drive Truck Suspension

The **Dynalastic 202S** is a **tough** and **durable** suspension for severe service applications like refuse, military, firefighting, logging, and construction. The independently articulating corners improve **traction**, ride **stability**, and **safety**. Add in **low-maintenance** bushings and a customizable ride quality and this **flexible** suspension really is the **best** in the industry, period.



The Best...

Severe service design in the industry, period. Independently articulating beams and custom load springs provide optimal **performance** and superior ride.



The Best...

Diagonal articulation in the industry, period. This not only provides excellent **traction**, it also helps protect the chassis. Road shock is absorbed by the suspension and not transferred to the vehicle.

The Best...

Durability in the industry, period. Ridewell's robust **design** minimizes maintenance and maximizes the life of the suspension and chassis.



P.O. Box 4586 ♦ Springfield, Missouri 65808

www.ridewellcorp.com ♦ 800.641.4122 ♦ Fax 417.833.4560

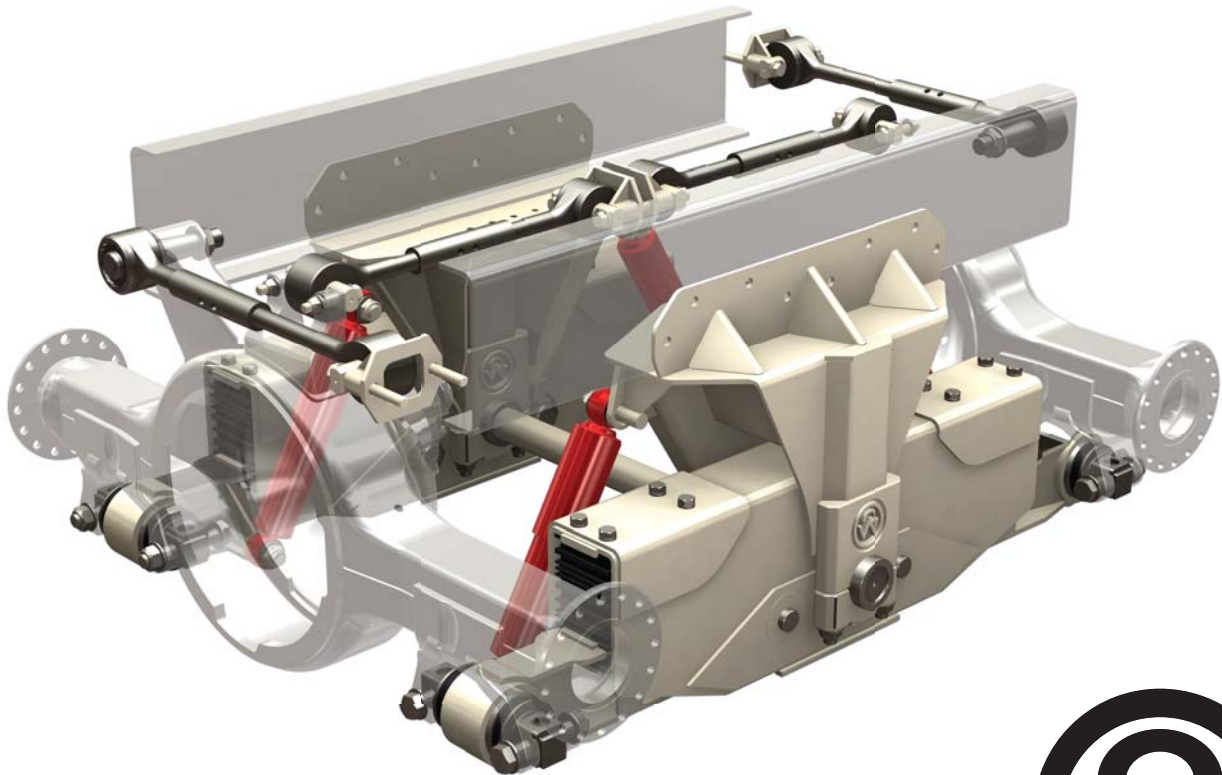
RIDEWELL SUSPENSIONS

The Engineered Suspension Company

RD-202S

Heavy-Duty Tandem Drive Truck Suspension

Owner's Manual



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Suspension Identification:

Ridewell Suspensions are identified by a metal tag attached to the pedestal that indicates part number, revision level, and serial number.

Parts:

For optimum suspension performance, order only Ridewell parts. Replacement parts for Model RD-202S are shown on pages 9-13 of this manual.

Sales, Service & Warranty:

If you need assistance regarding this product, please contact us and we will be glad to help you.

Mailing Address

Ridewell Corporation
P.O. Box 4586
Springfield, MO 65808

Shipping Address

Ridewell Corporation
3715 East Farm Rd. 94
Springfield, MO 65803

Phones, Fax, E-mail

800.641.4122, 417.833.4565
417.833.4560 (fax)
info@ridewellcorp.com

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Basic Operation

When properly maintained and operated within design limits, Ridewell's **Dynalastic Model RD-202S** will provide many years of trouble-free service.

The RD-202S provides the heavy-duty truck industry with a versatile tandem suspension. It has proven durability in **refuse, military, firefighting, logging and construction** applications for four continents.

How the Suspension Works

Being a single-point design suspension, all the load is first transmitted from the frame to the center bushing. There, the load is equally distributed along the compensator. Elastomer (rubber) springs housed at the ends of the compensator deflect according to load applied and transmit this load to the independent torque arms and engage as the suspension reaches a given load deflection. The overload springs act as an assist for the main load-carrying elastomer springs. The interaction of the components provide the vehicle with an exceptionally fine ride, both in a loaded and unloaded condition.

As the vehicle encounters a bump, the independent torque arms for the elastomer spring go into compression. This compression is absorbed in the compensator and equalizes the bump's dynamic force between front and rear elastomer springs before reaching the chassis of the vehicle.



Operational Inspection

1. Inspect all fasteners at the pedestal clamp and pedestal to frame connections. Refer to torque chart for proper torque requirements.
2. Inspect elastomer springs.
3. Inspect shocks and shock attach points.
4. Inspect torque beam end bushings and axle attachments.

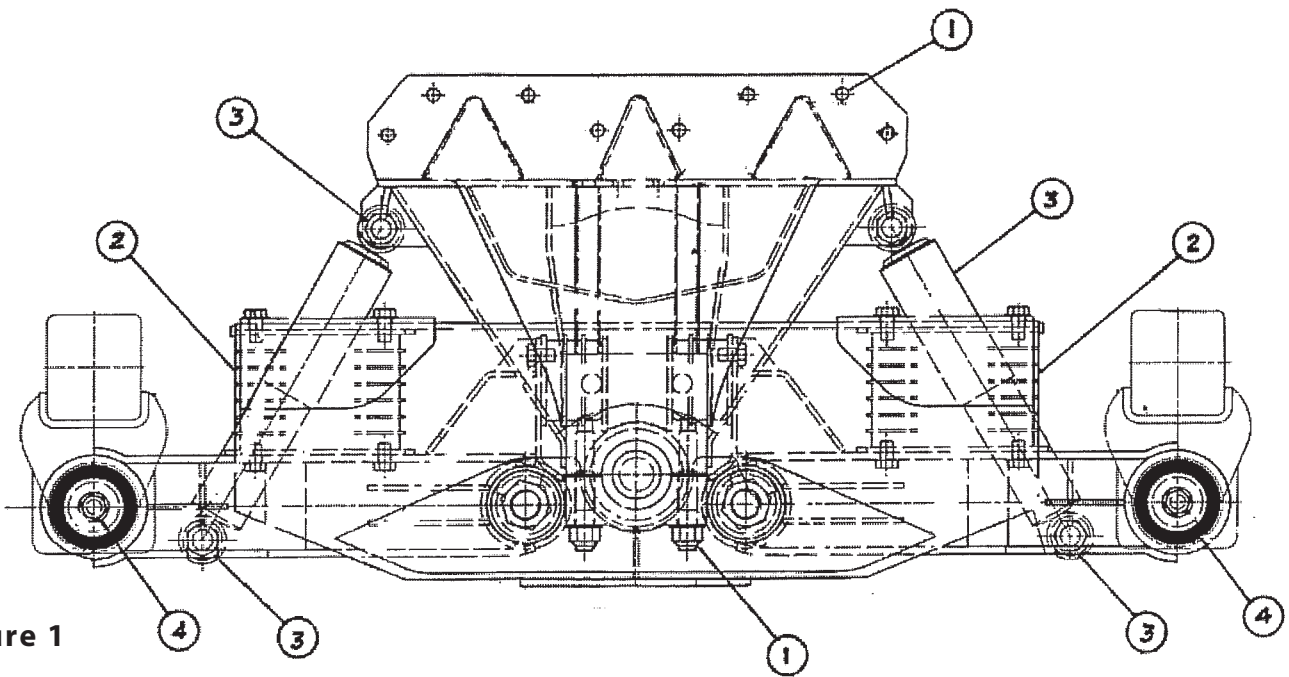


Figure 1

Preventative Maintenance

Daily

Check for loose or broken parts on or around suspension. If loose or broken parts are detected, immediate corrective action must be taken.

6,000 Miles

After suspension has been in operation for approximately 6,000 miles (10,000 KM), all fasteners must be re-tightened to specified torque.

Every 30 Days

Check clearances around all moving suspension parts, tires, and shock absorbers. Any signs of interference should be corrected immediately.

Every 90 Days & with Annual Inspection

Inspect items required in daily & 30-day inspections.

Inspect all welded connections.

Inspect all pivot and clamping connections such as the suspension pivots, elastomer springs, and shock mounts.

50,000 Miles

All fasteners must be re-tightened to specified torque. Repeat every 50,000 miles.

DO NOT PAINT THIS STICKER

RIDEWELL SUSPENSIONS TORQUE CHART	
BOLT SIZE	LUBRICATED THREADS
1 1/2"	1,100 FT. LB. (1,490 N•m)
1 1/4"	1,000 FT. LB. (1,350 N•m)
1 1/8"	500 FT. LB. (680 N•m)
1"	GRADE 5 360 FT. LB. (490 N•m)
1"	GRADE 8 460 FT. LB. (625 N•m)
7/8"	350 FT. LB. (475 N•m)
3/4"	GRADE 5 160 FT. LB. (220 N•m)
3/4"	GRADE 8 190 FT. LB. (260 N•m)
5/8"	100 FT. LB. (135 N•m)
*3/4"	50 FT. LB. (70 N•m)
*1/2"	25 FT. LB. (35 N•m)

***AIR SPRING CONNECTION ONLY**

After suspension has been in operation for approximately 6,000 miles (10,000 km), all fasteners must be re-tightened to specified torque. Repeat every 50,000 miles (80,000 km).

DO NOT OVER TORQUE!


 **RIDEWELL SUSPENSIONS** #1990020

Figure 2



Basic Troubleshooting

1. Vehicle pulls to left or right - check the following:
 - a. Tire pressure
 - b. All suspension bushings

2. Vehicle has excessive sway - check the following:
 - a. Sway bar
 - b. Torque beam bushings
 - c. Center bushing

3. Vehicle has axle walk or hop - check the following:
 - a. Torque beam bushings
 - b. Center bushings

4. Mounting height has changed - check the following:
 - a. Elastomer springs
 - b. Compensator
 - c. All suspension bushings



Bushing & Elastomer Replacement Procedure

It is recommended that torque beam pivot bushings and elastomer springs be replaced in pairs for maximum suspension performance.

1. Remove vehicle weight from suspension by raising and blocking vehicle chassis and axles. Remove tires and wheels.
2. Remove axle/axle bracket assembly from torque beams.
3. Remove shock absorbers.
4. Remove elastomer spring fasteners from compensator.
5. Remove locking plate from torque beam/compensator pivot bolt and remove 1½" bolt.
6. Remove torque beam/elastomer spring assembly from compensator.
7. Inspect torque beam pivot bushing, end beam bushing, elastomer spring, and overload spring for damage or excessive wear.
8. Replace defective parts using only genuine Ridewell replacement parts.
9. After servicing the assembly, re-assemble the suspension by reversing this procedure.
10. It is imperative that all fasteners be tightened to specified torque and bolt locking plates be re-installed on bolt heads.
11. If you require additional assistance, please contact Ridewell Corporation.



Shock Absorber Adjustment

If your suspension is equipped with Koni adjustable shock absorbers and requires adjustment, proceed as follows:

NOTE: READ THIS ENTIRE PROCEDURE BEFORE STARTING.

1. Remove the shock absorber from the vehicle and hold it vertically with the lower eye in a vice.
2. Press top of shock down while turning **gently** counter-clockwise until you feel the cams of the adjusting nut engage in the recesses of the front valve assembly. When engagement is made, turn top of shock 2 **half** turns clockwise and stop. Adjustment is complete.
3. Pull top of shock up about ½" and remove from vice.
4. Re-install on vehicle.

IMPORTANT NOTE:

Shock absorbers must be adjusted in pairs. There is a minimum of 5 half turns clockwise adjustment on your shock absorber. Do not use excessive force when making adjustments. If you are having difficulty, please contact Ridewell.



Parts Illustrations

NOTES:

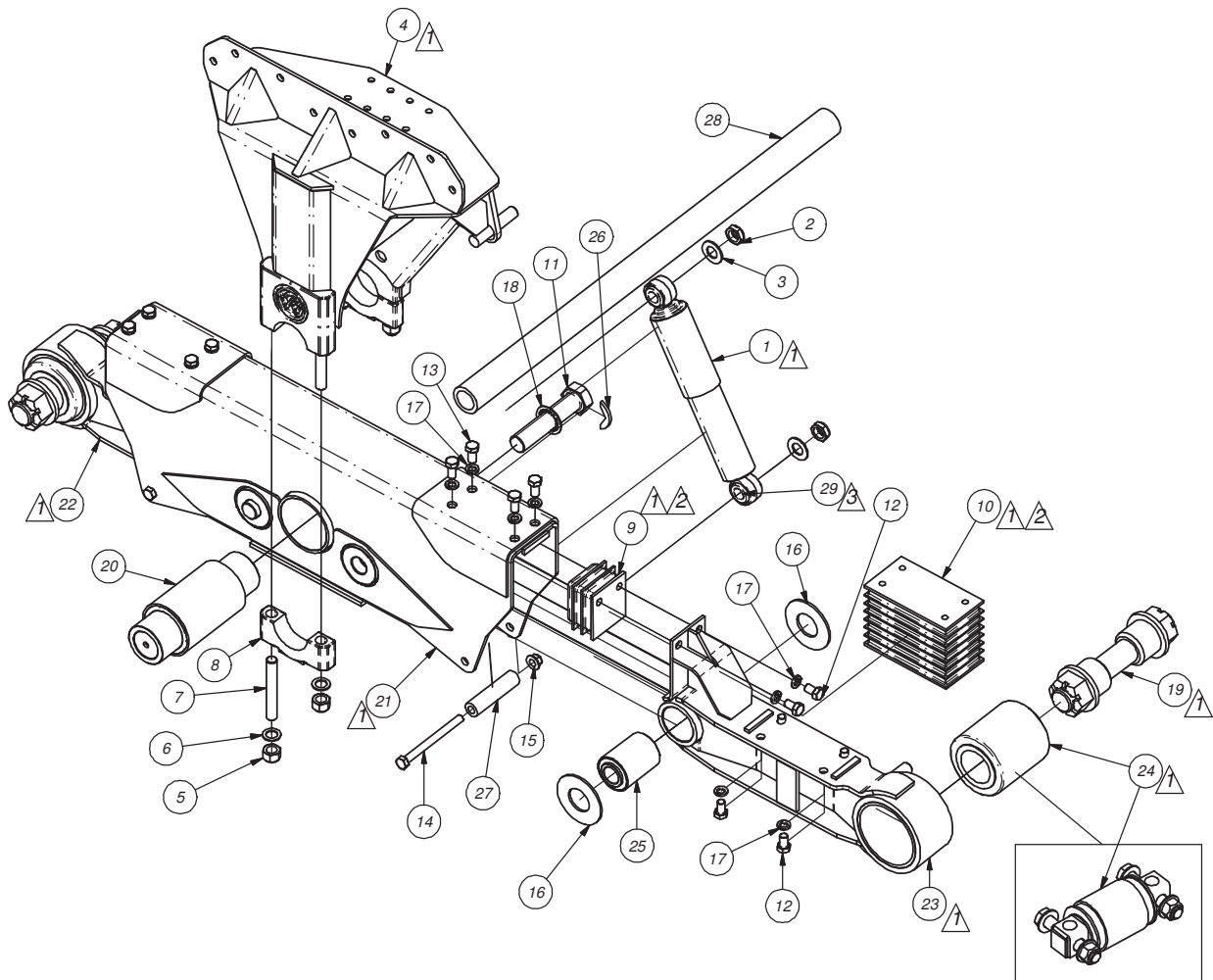
1- ITEMS PER CUSTOMER REQUIREMENTS. CONTACT RIDEWELL CUSTOMER SERVICE FOR PART NUMBERS AND SPECIFICATIONS

2- 4 OPTIONS AVAILABLE. CONTACT RIDEWELL CUSTOMER SERVICE FOR PART NUMBERS AND SPECIFICATIONS

3- ITEM 29 MUST BE ORDERED WITH GABRIEL SHOCKS

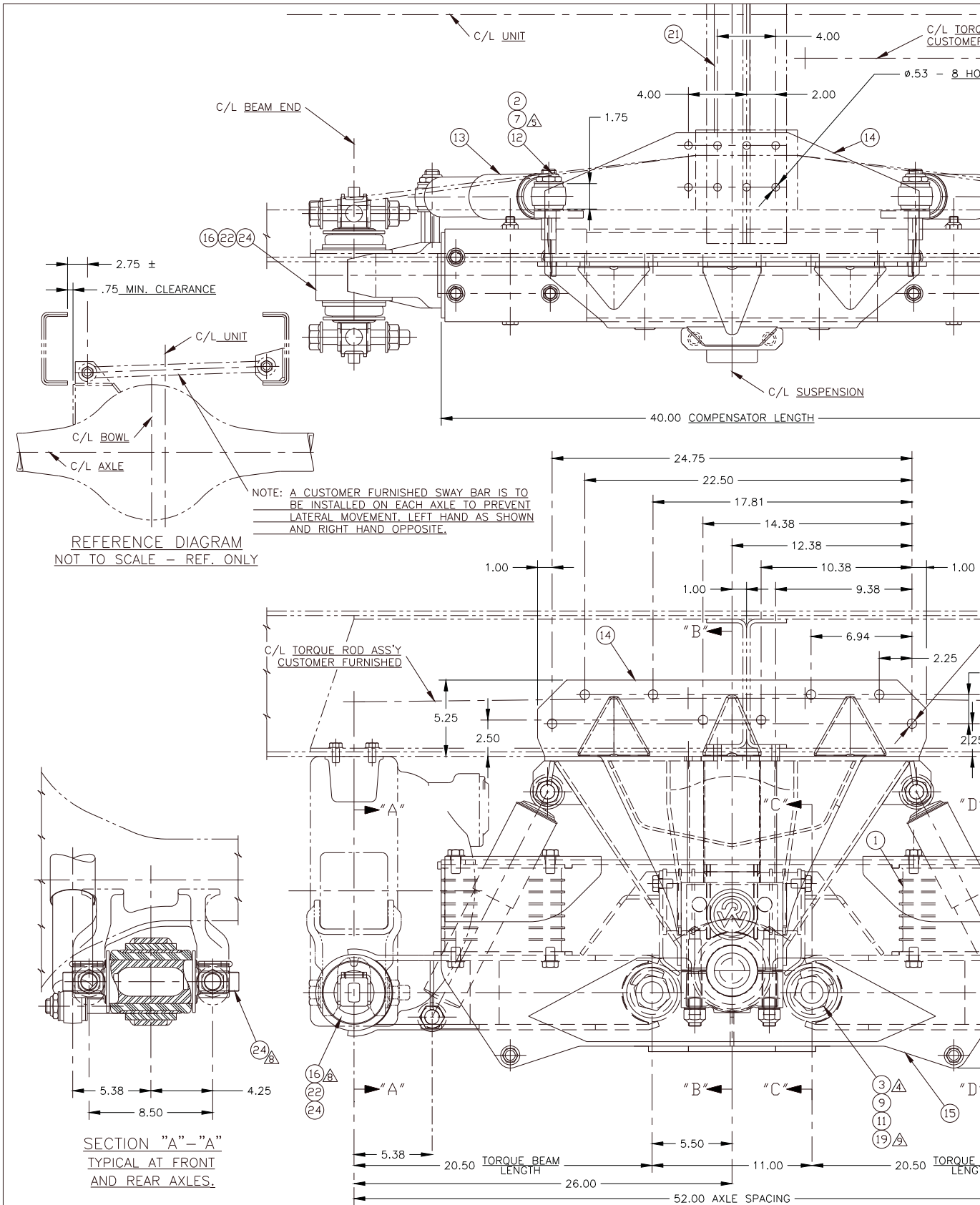
Parts List			
ITEM	PART NO.	DESCRIPTION	
1	1252607B000	SHOCK ASSY - GABRIEL	
	1265478B000	SHOCK ASSY - KONI. BUSHINGS INCLUDED	
2	1155939B102	L'NUT 1" 8NC THIN W/ NYL. GR 2, Z PLA	
3	1161677B100	WASHER 1" SAE FLAT ZINC	
4	-----	STRADDLE MOUNT PEDESTAL SMPA 202S	
5	1154718B105	L'NUT 7/8" 14NF TOP LOCK, GR 5 (B), Z PLA	
6	1164718B100	WASHER 7/8" TYPE B NAR. .1 THICK Z PLA	
7	1287594B000	7/8 X 6 CLAMP BLOCK STUD	
8	1747564B001	CAST COMP CAP MCH'D 3.5ID 7"	
9	1037261C00_	OVERLOAD SPRING J19368_ (1-4)	
10	1037326D00_	ELASTOMER SPG J19576_ (1-4)	
11	1130670B105	HHCS 1-1/2"-6NC x 7" LG GR 5 ZINC PLATED	
12	1140665B105	HHCS 5/8" 18NF 1"LG. GR 5, ZINC PLATE	
13	1142735B105	HHCS 5/8" 18NF 1-1/4"LG GR 5, ZINC PLATE	
14	1147414B108	HHCS 5/8" 11NC 7"LG GR 8, ZINC PLATE	
15	1157048B108	L'NUT 5/8" 11NC OVAL FLANGED	
16	1160519B302	WASHER- BEARING SLEEVE	

ITEM	PART NO.	DESCRIPTION
17	1160598B100	L'WASHER 5/8" S/T MED ZINC PLATE
18	1160673B000	L'WASHER 1-1/2" INT TOOTHLOCK
19	1304398B000	RETAINER KIT M.D. 3" x 6"
	1307564B001	RETAINER KIT 2.5" X 5.75"
	1304963B000	RETAINER KIT 2.5" X 6"
	1307561B000	RETAINER KIT 3" X 7"
20	1117558B000	BUSHING CENTER 4.75" X 7" BONDED
21	-----	COMPENSATOR ASS'Y 40" / 42"
22	-----	TORQUE BEAM ASS'Y - LH
23	-----	TORQUE BEAM ASS'Y - RH
24	1114398B000	S'BLK BUSH 6"X6"X3"
	1117564B001	S'BLK BUSH 5.75" X 2.5"
	1114964B000	S'BLK BUSH 6" X 2.5"
	1117561B000	S'BLK BUSH 7" X 6" X 3"
25	1120016	BUSHING 3.13ODX1.5IDX4.42LG UR
26	9004565B000	LOCKING PLATE
27	9117340B318	TUBE 1.25OD .28W 5.22"LG
28	9127564B000	C'TUBE 2.44"OD. x 44.88"LG. .356W.
29	1102608B000	SHOCK BUSHING (GABRIEL SHOCKS ONLY)





RD-202S Owner's Manual

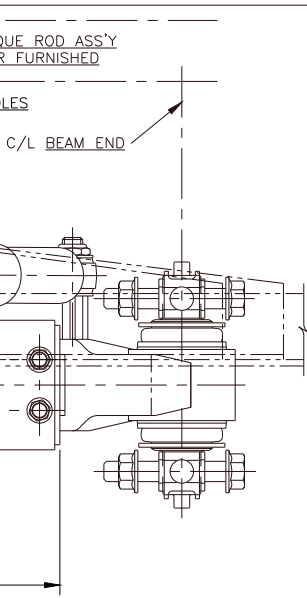


40,000 lbs. CAPACITY

50/50 AXLE WEIGHT DISTRIBUTION...
AXLE REF: RT-40-145

SUSPENSION MODEL NO.'S RD-202S-52-40-AB
SUSPENSION MODEL NO.'S RD-202S-52-40-AB

REV	PROJECT	REVISION DESCRIPTION	DATE	BY	CHK	APPD	SUSPENSION ASS'Y PART NO.	SUSPENSION ASS'Y MODEL NO.	PEDESTAL ASS'Y (ITEM NO. 14) PART NO.	DIMENSIONS	COMP/T'BEAM (SHIPPING ASS'Y PART NO.)
C	11100	NOTE 12 TORQUE WAS 210 FT LBS	12/15/11	G.H.	MDJ	M.J.					
B	00199	ADDED ITEM #18; ITEM #1 WAS P.N. 1037326D005 ITEM'S #16 & #17 WERE P.N. 5277731C120/220	8/02/02	GH	MDJ	M.J.	2027731D351	RD-202S-52-40-ABKR	3627594D001	34.00 17.00 0.656	6117731B03
A	02116	REMOVED ITEM #18, ITEM #15 WAS, PN.5257634C000 ITEM'S #5, #6, & #20 CHANGED AS A RESULT	06/10/02	GH	MDJ	DK					

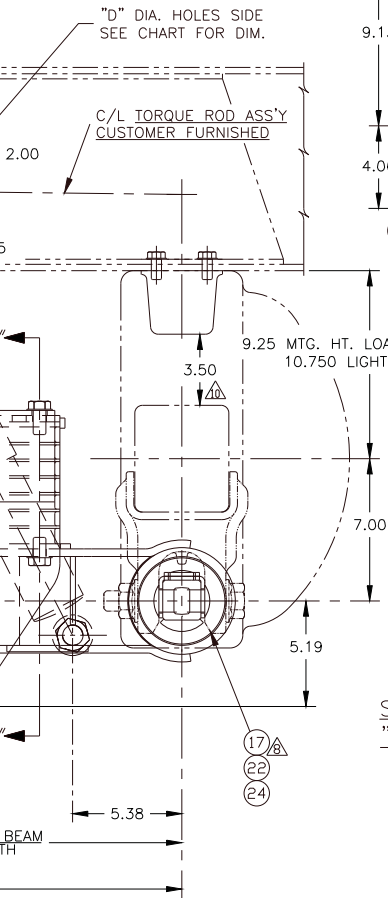
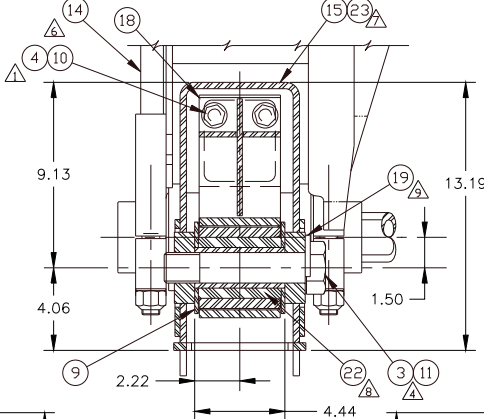


INSTALLATION AND SERVICE NOTES:

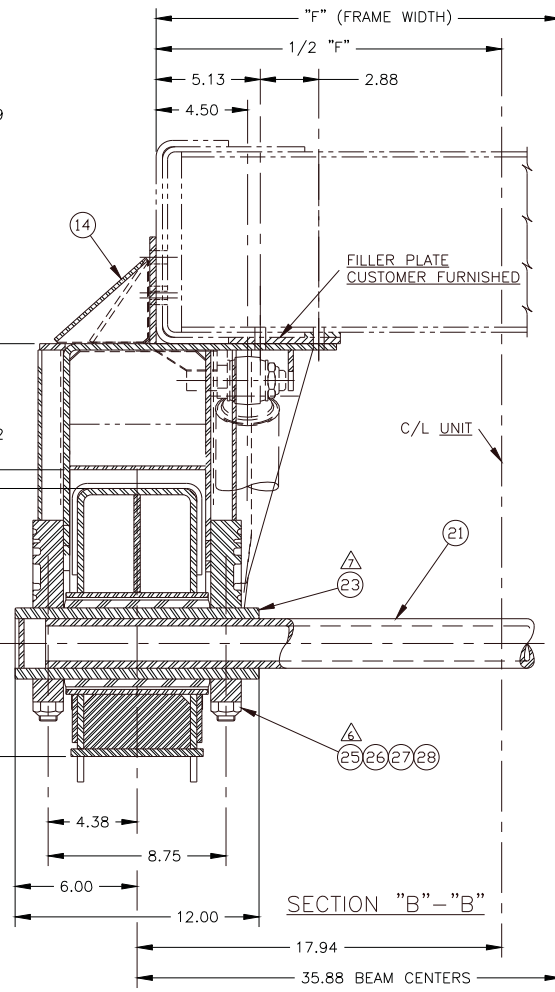
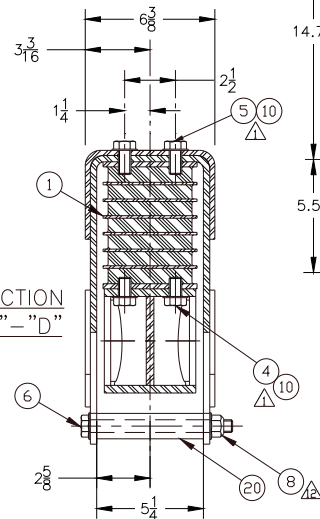
- ⚠ - TIGHTEN TO A TORQUE OF 50 ft. lbs. [68 Nm].
- ⚠ - TIGHTEN TO A TORQUE OF 100 ft. lbs. [135 Nm].
- ⚠ - TIGHTEN TO A TORQUE OF 350 ft. lbs. [475 Nm].
- ⚠ - TIGHTEN TO A TORQUE OF 1100 ft. lbs. [1490 Nm].
- ⚠ - TIGHTEN SHOCK ABSORBER NUT (ITEM #7) TO A 1.75" [44.5 mm] DIMENSION BETWEEN WASHERS, AS SHOWN.
- ⚠ - FASTENERS AND COMPRESSION CAP (ITEMS #25, #26, #27, #28) ARE PART OF THE PEDESTAL ASSEMBLY (ITEM #15) AND IS LISTED FOR REPLACEMENT REFERENCE ONLY.
- ⚠ - BUSHING (ITEM #23) IS PART OF THE COMPENSATOR ASSEMBLY (ITEM #15) AND IS LISTED FOR REPLACEMENT REFERENCE ONLY.
- ⚠ - BUSHINGS (ITEMS #22, #24) ARE PART OF THE TORQUE BEAM ASSEMBLY (ITEM #16, #17) AND ARE FOR REPLACEMENT REFERENCE ONLY. FASTENERS SHOWN ARE SUPPLIED AS PART OF BUSHING (ITEM #25). TIGHTEN TO: 450-600 FT/LBS OF TORQUE.
- ⚠ - INSTALL LOCKING PLATE (ITEM #19) OVER CORNER OF BOLT HEAD (ITEM #3) AND WELD TO BOSS, AS SHOWN.
- ⚠ - CUSTOMER FURNISHED AXLE STOPS REQUIRED OVER EACH AXLE. AXLE TRAVEL MUST BE LIMITED TO A MAXIMUM OF 3.50" (82.6 mm) OF "UP" TRAVEL FROM THE 9.25" (215.9 mm) LOADED POSITION.
- 11 - AFTER SUSPENSION HAS BEEN IN OPERATION FOR 6,000 MILES (10,000 km) ALL FASTENERS SHOULD BE RETIGHTENED TO THE SPECIFIED TORQUE. REPEAT EVERY 50,000 MILES (80,000 km).
- ⚠ - TIGHTEN TO A TORQUE OF 160 ft. lbs. "C"

ITEM No.	PART No. (REV)	PART DESCRIPTION	THIRD ANGLE PROJECTION (TYP)		
			No. REQD.	No. REQD.	No. REQD.
1	1037326D001	ELASTOMER SPG J19576-1		2	
2	1102608B000	BUSHING SHOCK 1"ID	16		
3	1130670B105	HHCS 1-1/2" 6NC 7"L		2	⚠
4	1140665B105	HHCS 5/8" 18NF 1"L		12	⚠
5	1142735B105	HHCS 5/8" 18NF 1-1/4"LG.		8	⚠
6	1147414B108	HHCS 5/8" 11NC 7"LG.		2	⚠
7	1155939B102	L'NUT 1" 8NC THIN NYL INSERT	8		⚠
8	1157048B108	L'NUT 5/8" 11NC OVAL FLANGED		2	⚠
9	1160519B302	WASHER BRN'G SLV 7GA		4	
10	1160598B100	L'WASHER 5/8" S/T MED		20	
11	1160673B000	L'WASHER 1-1/2" INT TOTHLOCK		2	
12	1161677B100	WASHER 1" SAE FLAT	8		
13	SEE CHART	SHOCK (KONI OR GABRIEL)	4		
14	SEE CHART	STR'DL PED ASS'Y / RD-202S		2	⚠
15	5250007	CDMP ASY 202S 40" 48K 1.5"DFST		1	⚠
16	5277765C110	TB ASY LH 20.5 202S-52-40-ABKR		1	⚠
17	5277765C210	TB ASY RH 20.5 202S-52-40-ABKR		1	⚠
18	1037261C002	OVERLOAD SPRING J19368-2		2	
19	9004565B000	LOCKING PLATE		2	⚠
20	9117340B318	TUBE 1.25D .281W 5.250LG		2	
21	9127564B000	C'TUBE 2.44"D 44.88"L .356"		1	
22	1110512B000	BUSHING 4-7/16"X1-1/2"70DUR			⚠
23	1117558B000	BUSHING CENTER 4.75"X7" BONDED			⚠
24	1117653B001	BUSHING ADJ. BAR PIN W/ FASTENERS			⚠
25	1154718B105	L'NUT 7/8" 14NF TOP LOCK			⚠
26	1164718B100	WASHER 7/8" TYPE B NARROW			⚠
27	1287594B000	STUD 7/8" 14NF/14NF-2A 6"L Gr5			⚠
28	1747564B001	CDMP CAP MACH'D 1537564C001			⚠

SECTION "C" - "C"



SECTION "D" - "D"

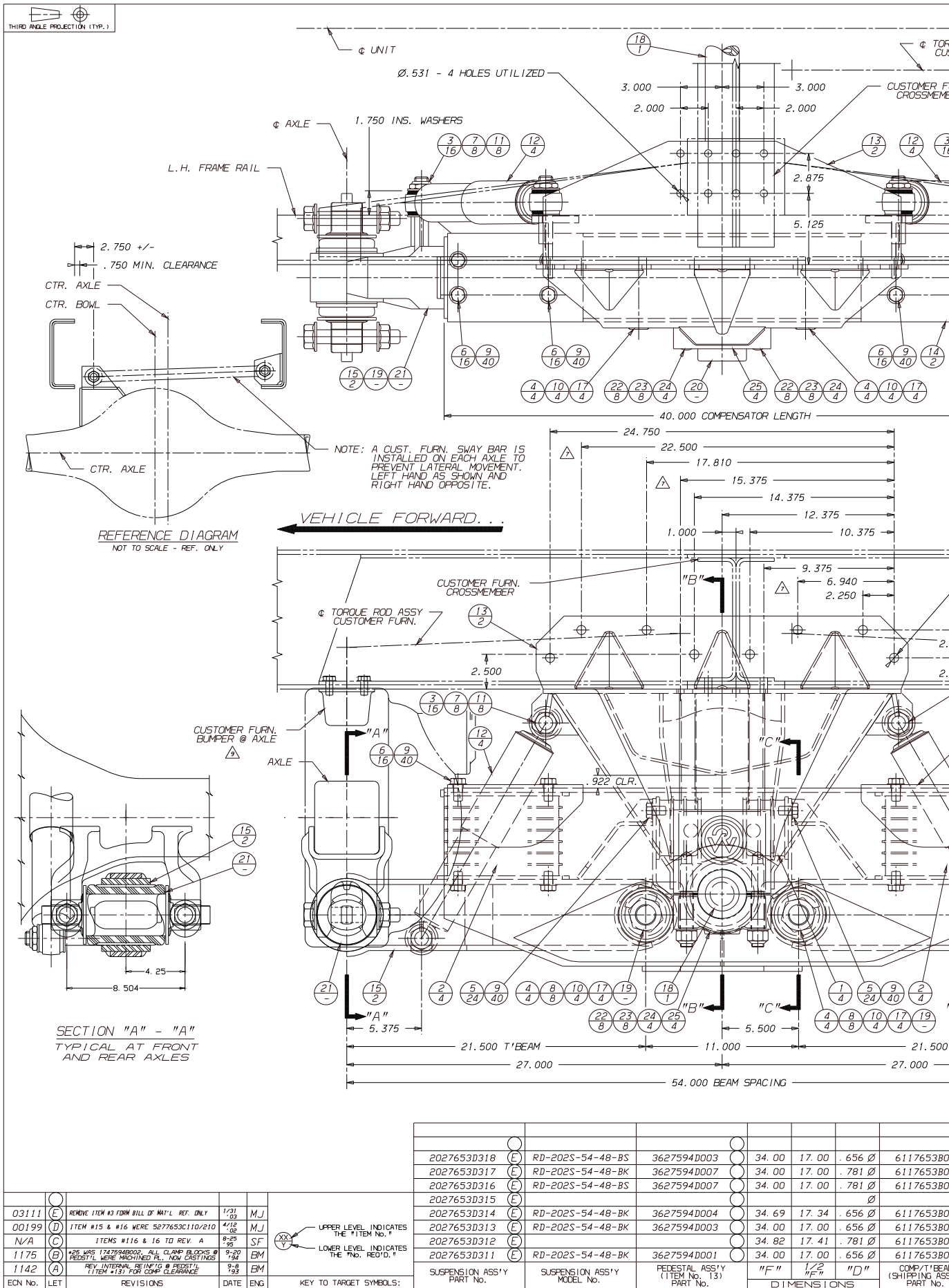


PKR USE KONI SHOCK ABSORBERS
 CSR USE GABRIEL SHOCK ABSORBERS

6007734B126	1267395B000	1225169	RIDEWELL CORP. SPRINGFIELD, MISSOURI U.S.A.				MATERIAL	DTR	CKR	ENG	MODELS	SCALE: 1/4" = 1"	PART NUMBER 2027731D351 DRAWING NUMBER SEE P/N REVISION LETTER C
SHOCK INSTALL PKG. SHIPPING ASSY PART NO.	SHOCK ASSY (ITEM NO. 13) PART NO.	CUSTOMER CODE/PART NO.	TITLE				SEE DETAILS	D3/LL	M/J	D/K	SCALE CHART		
			SUSPENSION ASS'Y-DYNASTIC* STRADDLE MOUNT WITH 4.5" LOAD SPRINGS AND ADJUSTABLE BAR PIN BUSHINGS W/SHOCKS FOR TRUCK APPLIC. 52" BEAM SPACING					DCT. '01	DCT. '01	DEC '01			
							WT.						



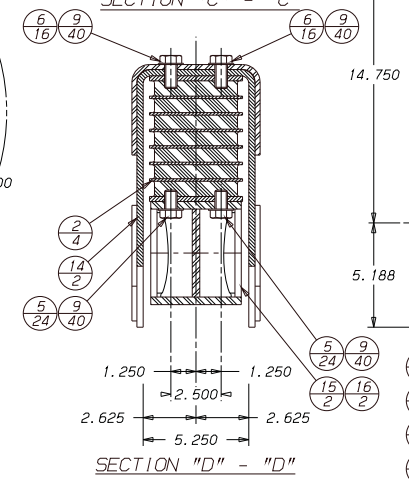
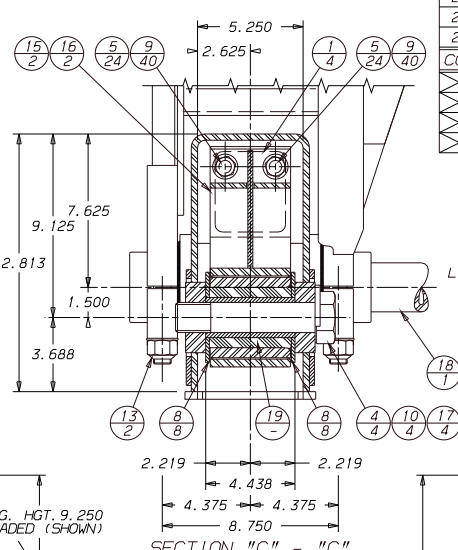
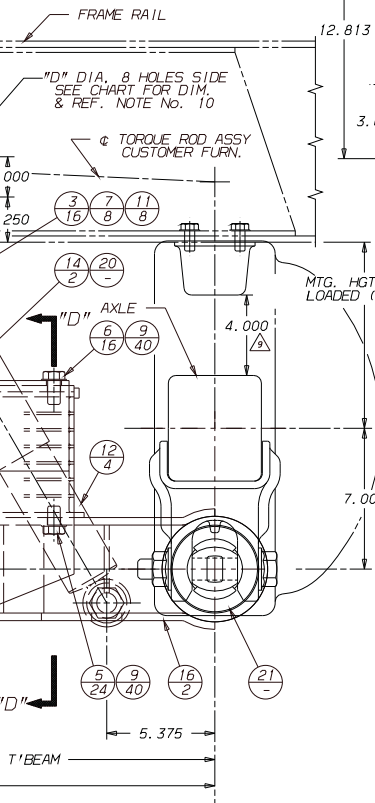
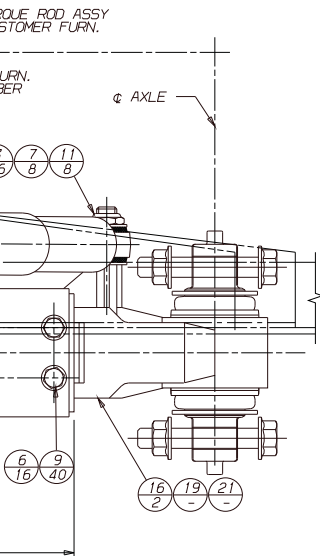
RD-202S Owner's Manual





INSTALLATION AND SERVICE NOTES:

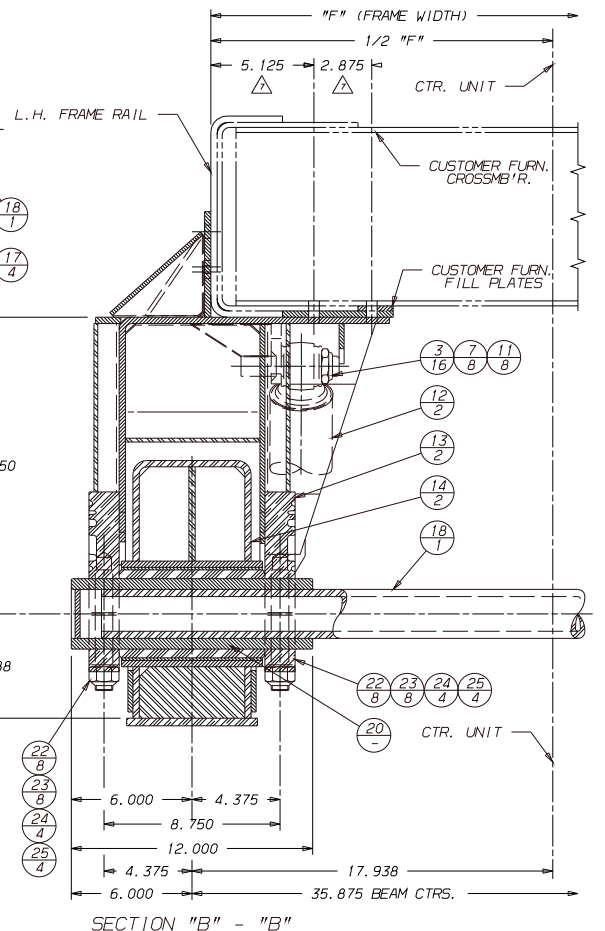
- ⚠ - TIGHTEN TO A TORQUE OF 50 FT/LBS
- ⚠ - TIGHTEN TO A TORQUE OF 350 FT/LBS
- ⚠ - TIGHTEN TO A TORQUE OF 1100 FT/LBS
- ⚠ - BUSHING (ITEMS No. 19 & 21) ARE PART OF THE T-BEAM ASS'Y (ITEM No. 15 & 16) AND ARE LISTED FOR REPLACEMENT REFERENCE ONLY. FASTENERS (SHOWN) ARE SUPPLIED AS PART OF BUSHING (ITEM #21). TIGHTEN TO 450-600 FT/LBS OF TORQUE.
- ⚠ - BUSHING (ITEM No. 20) IS A PART OF THE COMPENSATOR ASS'Y (ITEM No. 14) AND IS LISTED FOR REPLACEMENT REFERENCE ONLY.
- ⚠ - WELD LOCKING PLATE (ITEM No. 17) OVER CORNERS OF BOLT HEAD (ITEM No. 4) AND WELD TO THE BOSS, AS SHOWN.
- ⚠ - PEDESTAL ASS'Y (ITEM No. 13) PART No. AND HOLE PATTERN WILL VARY ACCORDING TO VEHICLE AND CUSTOMER SPECIFICATIONS. DIMENSIONS (AS SHOWN) REFLECT STANDARD DRILLINGS AND MAY CHANGE PER CUSTOMER REQUEST.
- ⚠ - FASTENERS AND COMPRESSION CAP (ITEMS No. 22, 23, 24, & 25) ARE A PART OF THE PEDESTAL ASS'Y (ITEM No. 13) AND ARE LISTED FOR REPLACEMENT REFERENCE ONLY.
- ⚠ - CUSTOMER FURNISHED AXLE STOPS OVER EACH AXLE ARE REQUIRED. AXLE TRAVEL MUST BE LIMITED TO A MAXIMUM OF 4.000" OF "UP" TRAVEL FROM THE 9.250" LOADED POSITION, AS SHOWN ON THE DRAWING.
- ⚠ - AFTER SUSPENSION HAS BEEN IN OPERATION FOR 6,000 MILES ALL FASTENERS SHOULD BE RETIGHTENED TO THE SPECIFIED TORQUE. REPEAT PROCEDURE EVERY 25,000 MILES THEREAFTER.
- ⚠ - BUSHING (ITEM No. 3) IS A PART OF THE SHOCK ASS'Y (ITEM No. 12) AND IS LISTED FOR REPLACEMENT REFERENCE ONLY.



ITEM No.	PART No. & PART	REV LET	PART DESCRIPTION	No. REQ'D	REV LET THIS DWG.	NOTE No. / TABULATED Dwg. No.
1	1037261C001	(B)	OVERLOAD SPRING J19368-1	4		
2	1037326D003		ELASTOMER SPG J19576-3	4		
3	1102608B000		SHOCK BUSHING 1" ID	16		⚠
4	1130670B105	(B)	HHCS 1-1/2 6NC 7LG	4		⚠
5	1140665B105		HHCS 5/8 18NF 1LG	24		⚠
6	1142735B105		HHCS 5/8 18NF 1-1/4LG	16		⚠
7	1155939B102		L'NUT 1 8NC THIN NYLON INSERT	8		
8	1160519B302	(B)	WASHER BRN'G SLV. 7GA	8		
9	1160598B100		L'WASHER 5/8 S/T MED	40		
10	1160673B000		L'WASHER 1-1/2 INT TOOTH	4		
11	1161677B100		WASHER 1 SAE FLAT	8		
12	SEE CHART		SHOCK (KONI OR GABRIEL)	2		⚠
13	SEE CHART		STRD'L PED ASS'Y / RD-202S	2	(B)(C)(D)	⚠
14	5257634C000	(B)	COMP ASY 40"/48K RD-202S	2		⚠
15	5277653C130		T'BM ASY/L 21.5" SPG#7 B'PIN	2		⚠
16	5277653C230		T'BM ASY/R 21.5" SPG#7 B'PIN	2		⚠
17	9004565B000		LOCKING PLATE	4		⚠
18	9127564B000	(A)	2.4400 X 44.88LG C'TUBE	1		⚠
19	1110512B000	(F)	BUSHING 4-7/16X1-1/2 70D	4		⚠
20	1117558B000	(A)	CT'R BSH'G 4.75X7 BONDED	⚠		⚠
21	1117653B000		B' END BSH'G B'PIN W/FASTENERS	⚠		⚠
22	1154718B105		L'NUT 7/8 14NF TL	8		⚠
23	1164718B100		WASHER 7/8" TYPE B NARROW	8		⚠
24	1287594B000	(A)	STUD 7/8 14NF/14NF-2A 6PL Gr5	4		⚠
25	1747564B001	(A)	COMP CAP MACH'D 1537564C001	4	(D)	⚠
26						

COMPONENTS LISTED ABOVE SHIP AS ASSEMBLIES SHOWN BELOW:

⚠	SEE CHART	STRD'L PED ASS'Y / RD-202S	2	(B)(C)(D)
⚠	SEE CHART	SHOCK INSTALL PKG 2027626D	1	
⚠	SEE CHART	LOWER UNIT LH/RH 2027626D	2	
⚠	9127564B000	(A) 2.4400 X 44.88LG C'TUBE	1	



10	(C)	6007626B125	1252607B000	PETE #03-08463
10	(C)	6007626B126	1265478B000	CCC #A94-274
10	(C)	6007626B125	1252607B000	CCC #A94-273
				FLN
10	(C)	6007626B126	1265478B000	N' STAR #
10	(C)	6007626B126	1265478B000	PETE #03-08423
				FORD#
10	(C)	6007626B126	1265478B000	RIDEWELL STANDARD
				CUSTOMER CODE/ PART No.

CAPACITY = 48,000 lbs.
50/50 AXLE WEIGHT DISTRIBUTION...

SUSPENSION MODEL No. 'S RD-202S-54-48-BK USE KONI SHOCK ABSORBERS.
SUSPENSION MODEL No. 'S RD-202S-54-48-BS USE GABRIEL SHOCK ABSORBERS.

COVERED UNDER EXISTING PATENTS OR PATENTS IN PROCESS...

RIDEWELL CORP.
SPRINGFIELD, MISSOURI U.S.A.

TITLE: SUSPENSION ASS'Y-"DYNALASTIC" STRADDLE MOUNT WITH 4.5" ELASTOMER SPRING AND 5.25" COMPENSATOR FOR TRUCK APPLICATIONS USING 54" BEAM SPACING AT 9.25" MTG. HGT.

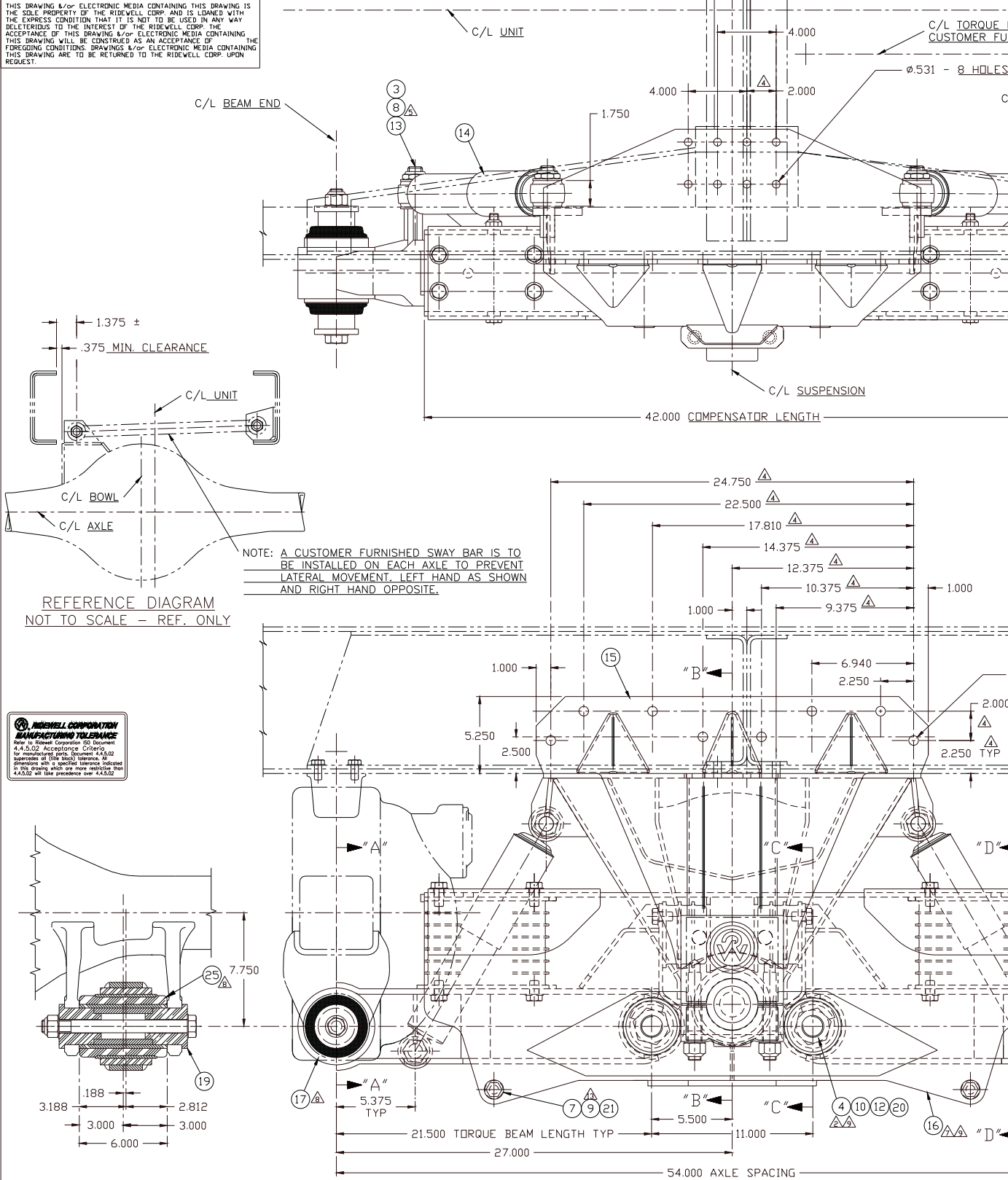
MATERIAL	DTR	ENR	ENG	MODELS	SCALE: 1/4" = 1"
SEE DETAILS					
BM					
ARTICULATION PER SK-1711C					
FEB 10, '93					

PART NUMBER	
2027653D31	
DRAWING NUMBER	
AS-7653D#2	

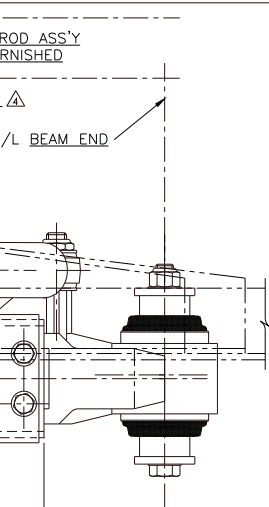


RD-202S Owner's Manual

THIS DRAWING &/OR ELECTRONIC MEDIA CONTAINING THIS DRAWING IS THE SOLE PROPERTY OF THE RIDEWELL CORP. AND IS LOANED WITH THE EXPRESS CONDITION THAT IT IS NOT TO BE USED IN ANY WAY DEPRECIATING TO THE INTEREST OF THE RIDEWELL CORP. THE ACCEPTANCE OF THIS DRAWING &/OR ELECTRONIC MEDIA CONTAINING THIS DRAWING WILL BE CONSIDERED AS AN ACCEPTANCE OF THE FOREGOING CONDITIONS. DRAWINGS &/OR ELECTRONIC MEDIA CONTAINING THIS DRAWING ARE TO BE RETURNED TO THE RIDEWELL CORP. UPON REQUEST.



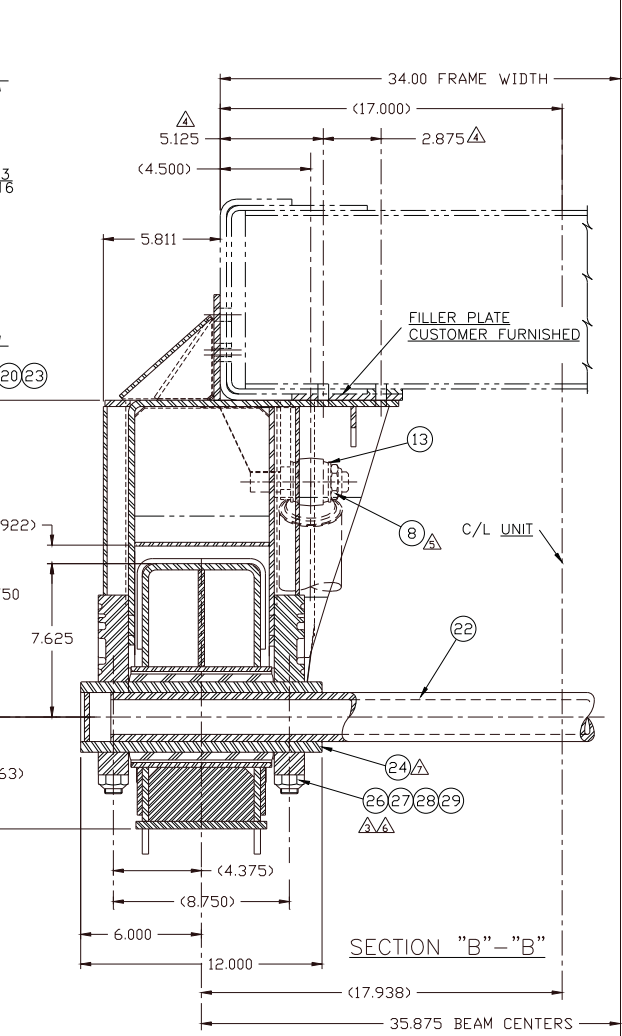
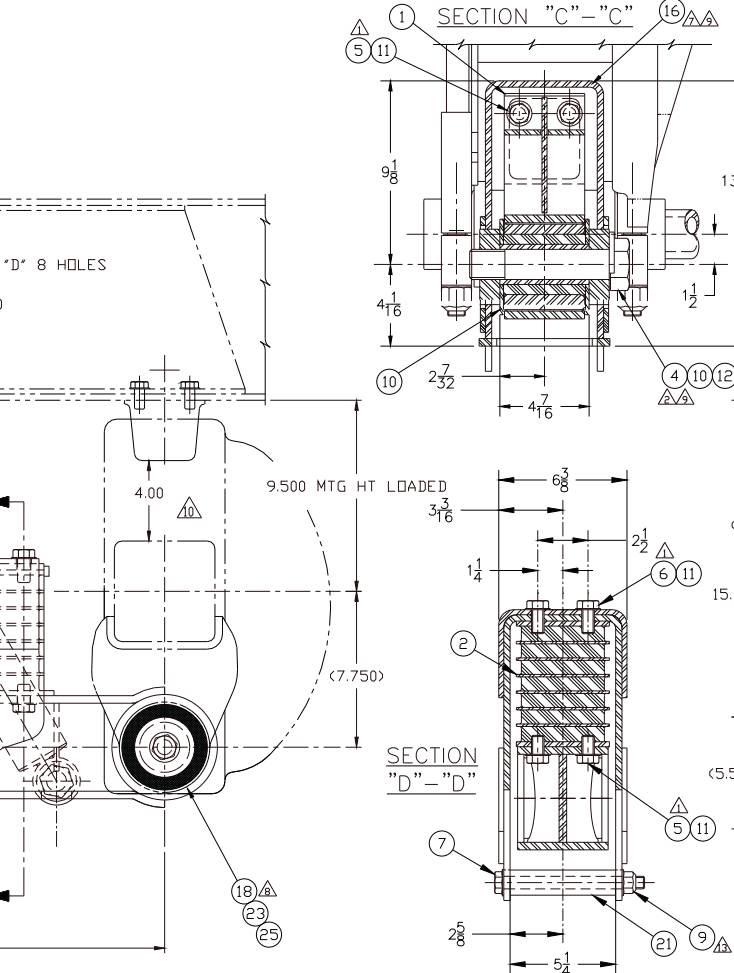
ECN No.	REV	REVISION DESCRIPTION	DATE	CHG BY	APPV'L	2027678D323 (A)	RD-2025-54-52T-KR	3627690D003	34.00	17.00	.781			
		NOTE 13 TORQUE WAS 210 FT LBS	12/15/11	G.H.	MDJ	2027678D322 (A)	RD-2025-54-52T-SR	3627690D002	35.00	17.50	.656			
		REMOVED ITEM 30; ITEM 16 WAS PN:5257678C000;	6/21/02	GH	MDJ	2027678D321 (A)	RD-2025-54-52T-KR	3627690D002	35.00	17.50	.656			
		ITM'S 6,7 & 21 AFFECTED BY CHANGE; ADDED NOTE 13												
		ITM'S 17&18 WERE 5277490C100/200	12/28/01	M.J.	MDJ							"F"	1/2"	"D"
						SUSPENSION ASS'Y PART No.	SUSPENSION ASS'Y MODEL No.	FEDESTAL ASS'Y (ITEM No. 13) PART No.						DIMENSIONS



INSTALLATION AND SERVICE NOTES:

- ⚠ - TIGHTEN TO A TORQUE OF 50 ft. lbs.
- ⚠ - TIGHTEN TO A TORQUE OF 1100 ft. lbs.
- ⚠ - TIGHTEN TO A TORQUE OF 350 ft. lbs.
- ⚠ - PEDESTAL ASS'Y (ITEM #15) PART No. AND HOLE PATTERN WILL VARY ACCORDING TO VEHICLE AND CUSTOMER SPECIFICATIONS. DIMENSIONS (AS SHOWN) REFLECT STANDARD DRILLINGS AND MAY CHANGE PER CUSTOMER REQUEST.
- ⚠ - TIGHTEN SHOCK ABSORBER NUT (ITEM #8) TO A 1-3/4" DIMENSION BETWEEN WASHERS, AS SHOWN.
- ⚠ - FASTENERS AND COMPRESSION CAP (ITEMS #26, #27, #28, #29) ARE PART OF THE PEDESTAL ASSEMBLY (ITEM #15) AND IS LISTED FOR REPLACEMENT REFERENCE ONLY.
- ⚠ - BUSHING (ITEM #24) IS PART OF THE COMPENSATOR ASSEMBLY (ITEM #16) AND IS LISTED FOR REPLACEMENT REFERENCE ONLY.
- ⚠ - BUSHINGS (ITEMS #23, #25) ARE PART OF THE TORQUE BEAM ASSEMBLIES (ITEM #17, #18) AND IS FOR REPLACEMENT REFERENCE ONLY.
- ⚠ - INSTALL LOCKING PLATE (ITEM #20) OVER CORNER OF BOLT HEAD (ITEM #4) AND WELD TO BOSS, AS SHOWN.
- ⚠ - CUSTOMER FURNISHED AXLE STOPS REQUIRED OVER EACH AXLE. AXLE TRAVEL MUST BE LIMITED TO A MAXIMUM OF 4" UP/ TRAVEL FROM THE 9-1/2" LOADED POSITION.
- ⚠ - AFTER SUSPENSION HAS BEEN IN OPERATION FOR 6,000 MILES ALL FASTENERS SHOULD BE RETIGHTENED TO THE SPECIFIED TORQUE REPEAT EVERY 50,000 MILES.
- ⚠ - RETAINER KIT (ITEM No. 19) IS INCLUDED AS STANDARD ON ALL SUSPENSIONS. IF DELETED, PART No. WILL REFLECT CHANGES PER DETAIL DRAWING.
- ⚠ - TIGHTEN TO A TORQUE OF 160 ft. lbs.

ITEM No.	PART No.	REV	PART DESCRIPTION	No. REQD.	No. REQD.	THIRD ANGLE PROJECTION (TYP.)	NOTE No. / FABULATED DVG. No.
1	1037261C003		OVERLOAD SPRING J19368-3		2		
2	1037326D003		ELASTOMER SPG J19576-3		2		
3	1102608B000		BUSHING SHOCK 1"ID	16			
4	1130670B105		HHCS 1-1/2" 6NC 7"L		2		⚠
5	1140665B105		HHCS 5/8" 18NF 1"L		12		⚠
6	1142735B105		HHCS 5/8" 18NF 1-1/4"L		8		⚠
7	1147414B108		HHCS 5/8 11NC 7" LG.		4		⚠
8	1155939B102		L'NUT 1" 8NC THIN NYL INSERT	8			⚠
9	1157048B108		L'NUT 5/8 11NC OVAL FLANGED	4			⚠
10	1160519B302		WASHER BR'NG SLV 7GA	4			⚠
11	1160598B100		L'WASHER 5/8" S/T MED	20			⚠
12	1160673B000		L'WASHER 1-1/2" INT TOTHLOCK	2			⚠
13	1161677B100		WASHER 1" SAE FLAT	8			⚠
14	SEE CHART		SHOCK ASY (KONI DR GABRIEL)	4			⚠
15	SEE CHART		STRADLE MOUNT PEDESTAL		2		⚠
16	5250005		COMP ASY RD-202S 42" 52K	1			⚠
17	5277490C101		TB ASY LH 21.5 202S-54-52	1			⚠
18	5277490C201		TB ASY RH 21.5 202S-54-52	1			⚠
19	1304963B000		RETAINER KIT 6" X 2.5"	4			⚠
20	9004565B000		LOCKING PLATE	2			⚠
21	9117340B318		TUBE 1.250D .281W 5.250' LG	4			⚠
22	9127564B000		C'TUBE 2.44"D 44.88"L .356"		1		⚠
23	1110512B000		BUSHING 4-7/16"X1-1/2"70DUR			PART OF #17 & #18	⚠
24	1117558B000		BUSHING CENTER 4.75"X7" BONDED			PART OF #16	⚠
25	1114964B000		BUSHING B'END 6.00" X 2.5"			PART OF #17 & #18	⚠
26	1154718B105		L'NUT 7/8" 14NF TOP LOCK			PART OF #15	⚠
27	1164718B100		WASHER 7/8" TYPE B NARROW			PART OF #15	⚠
28	1287594B000		STUD 7/8" 14NF/14NF-2A 6"L Gr-5			PART OF #15	⚠
29	1747564B001		COMP CAP MACH'D 1537564C001		6		⚠
30							



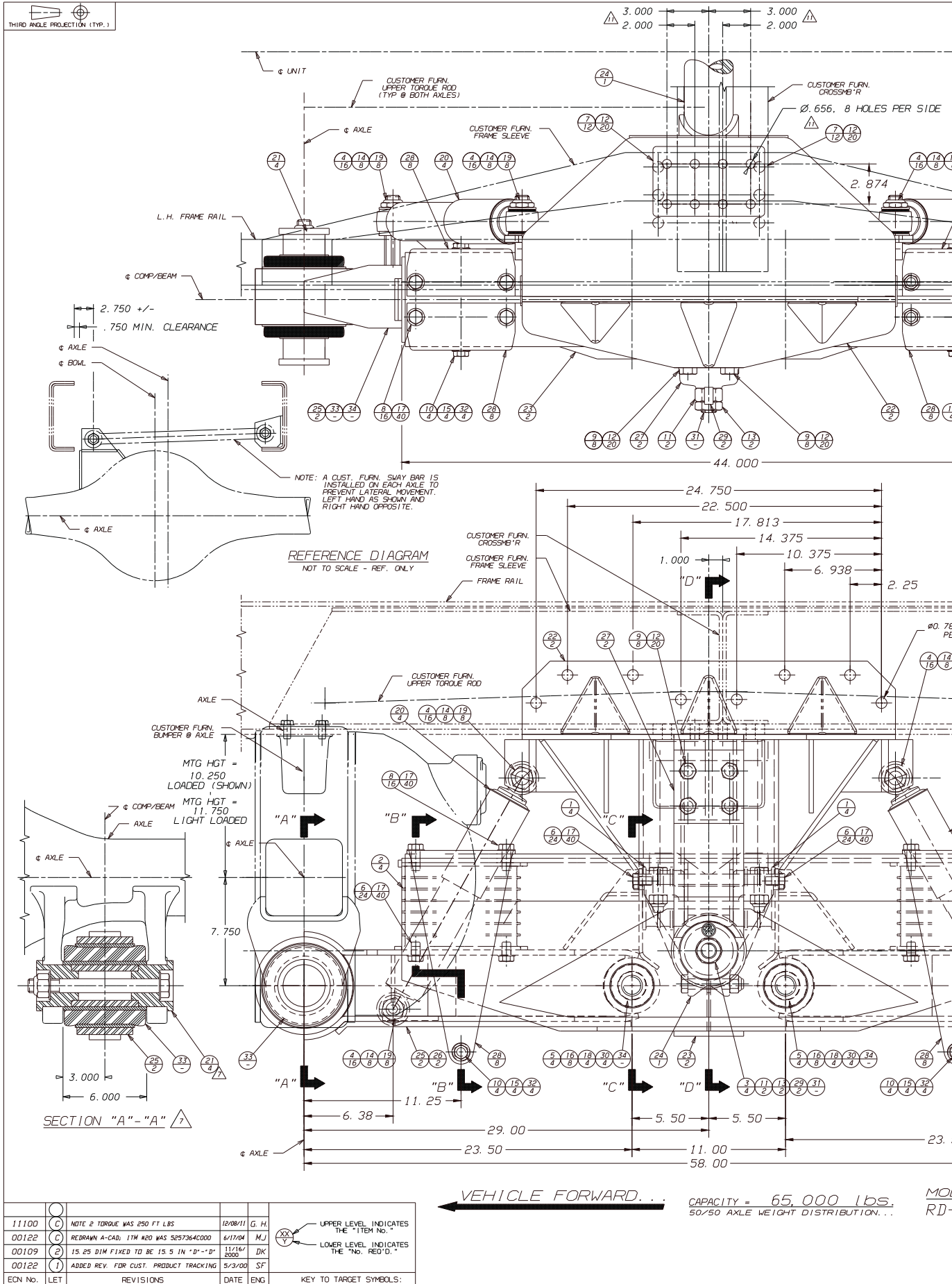
6117503B022	(A)	6007626B126	1265478B000	K.M.E.
6117503B022	(A)	6007626B125	1252607B000	1451-DD4-3
6117503B022	(A)	6007626B126	1264578B000	1451-DD4-2

52,000 lbs. CAPACITY
50/50 AXLE WEIGHT DISTRIBUTION...



DRAWN	R.H.	2/15/96	FILE	"D"
CHECKED			PART #	2027678D321
RELEASED			SCALE 1/4" = 1"	SIZE

SUSP ASSY "DYNALASTIC"
RD-202S-54-52T-KR



11100	C	NOTE 2 TORQUE WAS 250 FT LBS	12/08/11	G. H.
00122	C	REDRAWN A-CAD, 11M #20 WAS 52573640000	6/17/04	M. J.
00109	2	15.25 DIM FIXED TO BE 15.5 IN "D"-"D"	11/16/2000	DK
00122	1	ADDED REV. FOR CUST. PRODUCT TRACKING	5/3/00	SF
ECN No.	LET	REVISIONS	DATE	ENG

KEY TO TARGET SYMBOLS:

UPPER LEVEL INDICATES THE "ITEM No."

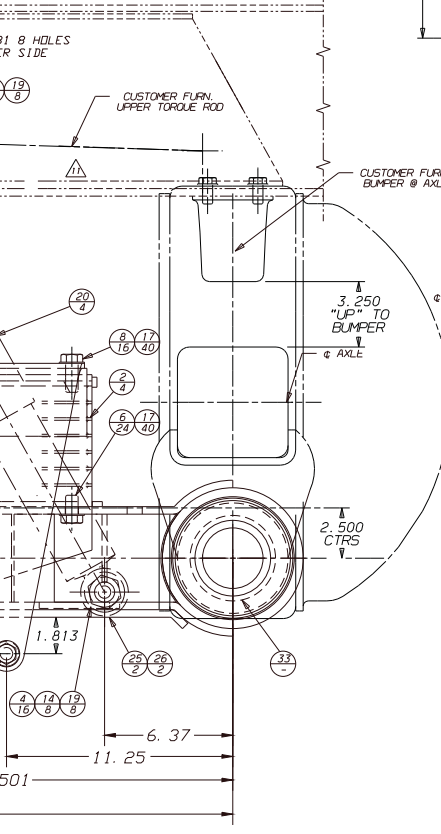
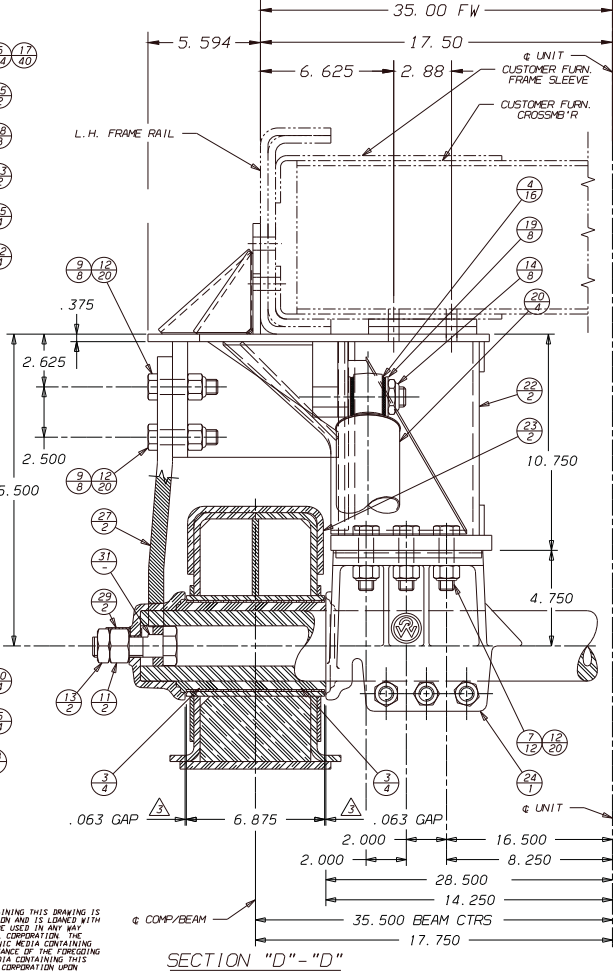
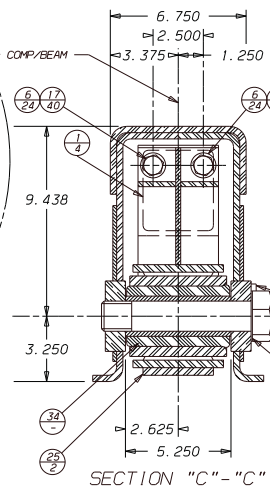
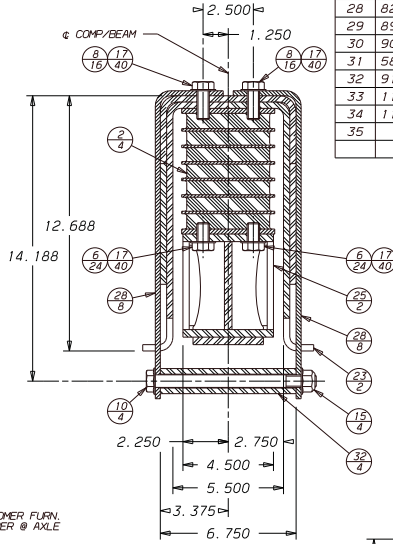
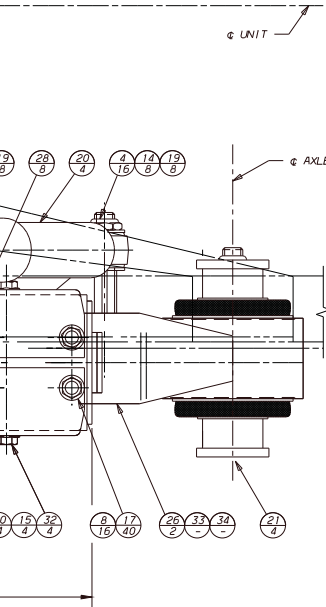
LOWER LEVEL INDICATES THE "NO. REV'D."



INSTALLATION AND SERVICE NOTES:

- ▲ - TIGHTEN TO A TORQUE OF 50 FT/LBS
- ▲ - TIGHTEN TO A TORQUE OF 160 FT/LBS
- ▲ - TIGHTEN TO A TORQUE OF 500 FT/LBS OR UNTIL .0625" GAP (AS SHOWN) IS ATTAINED
- ▲ - TIGHTEN TO A TORQUE OF 1100 FT/LBS
- ▲ - BUSHING (ITEMS No. 33 & 34) ARE PART OF THE T-BEAM ASS'YS (ITEM No. 25 & 26) AND ARE LISTED FOR REPLACEMENT REFERENCE ONLY
- ▲ - COMPRESSION BOLT ASS'Y (ITEM No. 31) IS A PART OF THE TRUNNION SHAF'T ASS'Y (ITEM No. 24) AND IS LISTED FOR REPLACEMENT REFERENCE ONLY
- ▲ - BUSHING RETAINER KIT (ITEM No. 21) IS NOT INCLUDED WITH THE SUSPENSION PACKAGE
- ▲ - WELD LOCKING PLATE (ITEM No. 30) OVER CORNERS OF BOLT HEAD (ITEM No. 5) AND WELD TO THE BOSS, AS SHOWN
- ▲ - CUSTOMER FURNISHED AXLE STOPS OVER EACH AXLE ARE REQUIRED, AXLE TRAVEL MUST BE LIMITED TO A MAXIMUM OF 3,250" OF "UP" TRAVEL FROM THE 9,500" LOADED POSITION, AS SHOWN ON THE DRAWING
- ▲ - TIGHTEN SHOCK NUT (ITEM No. 14) UNTIL A DIM. OF 1.750" INSIDE OF WASHERS (AS SHOWN) IS ATTAINED
- ▲ - BUSHING (ITEM No. 3) IS PART OF COMPENSATOR (ITEM No. 23). LISTING IS FOR REPLACEMENT REFERENCE ONLY
- ▲ - AFTER SUSPENSION HAS BEEN IN OPERATION FOR 6,000 MILES ALL FASTENERS SHOULD BE RETIGHTENED TO THE SPECIFIED TORQUE. REPEAT PROCEDURE EVERY 50,000 MILES THEREAFTER
- ▲ - BUSHING (ITEM No. 4) IS PART OF SHOCK ASSY (ITEM No. 20). LISTING IS FOR REPLACEMENT REFERENCE ONLY

ITEM No.	PART No. & PART	REV LET	PART DESCRIPTION	No. REQ'D	REV LET THIS DWG.	NOTE No. / TABULATED DWG. No.
1	1037261C003	(B)	OVERLOAD SPRING J19368-3	4		
2	1037326D004	(C)	ELASTOMER SPG J19576-4	4		
3	1120019	(C)	BUSHING - TRUNNION (URETHANE)	2		▲
4	1102608B000	(C)	BUSHING SHOCK 1"ID	16		▲
5	1133738B105	(B)	HHCS 1-1/2 6NC 7-1/2"LG	4		▲
6	1140665B105	(B)	HHCS 5/8 18NF 1LG	24		▲
7	1140709B103	(B)	HHCS 3/4 10NC 2-3/4 A325	12		▲
8	1144197B105	(B)	HHCS 5/8 18NF 1-1/2"LG	16		▲
9	1147364B105	(B)	HHCS 3/4 10NC 3"LG	8		▲
10	1147436B108	(B)	HHCS 5/8 11NC 8" LG FLANGED	4		▲
11	1150609B102	(B)	NUT 1-1/8 12NF STD	2		▲
12	1150709B105	(B)	L'NUT 3/4 10NC PL HVY-TL	20		▲
13	1150818B102	(B)	NUT 1-1/8 12NF JAM	2		▲
14	1155939B102	(B)	L'NUT 1 8NC NI-THIN	8		▲
15	1157048B108	(B)	L'NUT 5/8 11NC OVAL FLANGED	4		▲
16	1160519B302	(B)	WASHER BRN'G SLV. 7GA	8		▲
17	1160598B100	(B)	L'WASHER 5/8 S/T MED	40		▲
18	1160673B000	(B)	L'WASHER 1-1/2 INT TOOTH	4		▲
19	1161677B100	(B)	WASHER 1 SAE FLAT	8		▲
20	1265478B000	(B)	SHOCK ASSY	4		▲
21	1304398B000	(B)	RET KIT MED DUTY 3"x6" 21140-7	4		▲
22	3610004	(B)	PEDESTAL ASSEMBLY	2		▲
23	5250014	(B)	COMP/BUSHING ASSY 44" Lg 65,000 Cap	2		▲
24	5263747C325	(A)	TRUNNION ASSY 4.75" V=35.50"	1		▲
25	5277364C100	(A)	T-BEAM ASSY LH 23.5" W/SHK 6X3 BSNG	2		▲
26	5277364C200	(A)	T-BEAM ASSY RH 23.5" W/SHK 6X3 BSNG	2		▲
27	5807364B000	(B)	COMPRESSION CAP ASSY	2		▲
28	8257494B000	(B)	RESTRAINT ANGLE/58K 202	8		▲
29	8990777B000	(C)	BAR LOCK 14GA X 5/8"	2		▲
30	9004565B000	(C)	LOCKING PLATE	4		▲
31	5802876B302	(A)	COMP BOLT ASSY 1-31/32D	4		▲
32	9117340B315	(B)	TUBE 1.250 281W 6.688LG	4		▲
33	1114398B000	(B)	S'BLK BSH'G 6X6X3 #10363	4		▲
34	1116176B000	(B)	BUSHING 5-1/4LG 70-75DUR	4		▲
35						



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MODEL DESIGNATION:
RD-202F-58-65-KR

RIDEWELL CORP. SPRINGFIELD, MISSOURI U.S.A.	MATERIAL	DTR	OKR	ENG	MODELS	SCALE: 1/4"=1" UNO	PART NUMBER 2020018 DRAWING NUMBER	REVISION LETTER
	SEE DETAILS	M	M	D	DK	SEE MODEL DESIGNATIONS		
TITLE	SUSPENSION ASSEMBLY - "DYNALASTIC" WITH OVERLOAD SPRINGS FOR TRUCK APPLICATIONS USING 58" BEAM CTRS.					AUG 10 '99 AUG 10 '99 AUG 10 '99	WT.	



Ridewell Corporation ♦ P.O. Box 4586 ♦ Springfield, MO 65808
800-641-4122 (417) 833-4565 ♦ Fax (417) 833-4560
www.ridewellcorp.com ♦ info@ridewellcorp.com

Warranty DynaLastic Model RD-202S

The Ridewell Corporation warrants the suspension systems manufactured by it to be free from defects in material and workmanship, under proper use, installation, application, and maintenance on Refuse Trucks for a period of 4 years, with no mileage limit after delivery to the original purchaser. The responsibility of the Ridewell Corporation under this non-transferable warranty is limited to making good at the company factory by repair or replacement of any part or parts which it manufactures.

Written permission for any claim return must be first obtained from authorized Ridewell personnel. All returns must have transportation charges prepaid by the customer and accompanied with a complete written explanation of claimed defects and the circumstances of operational failure. On all component parts not manufactured by Ridewell their warranty is to the extent that the manufacturer of such parts warrant them to Ridewell Corporation. This is the only authorized Ridewell warranty and is in lieu of all other expressed or implied warranties or representations, including any implied warranties of merchantability or fitness, or of any obligations on the part of Ridewell Corporation. In no event will Ridewell be liable for business interruptions, loss of profits, personal injury, cost of delay, or for any other special, indirect, incidental or consequential losses, costs or damages.

Subject to all of the above conditions, if repair or replacement of any defective part is made by Ridewell Corporation, Ridewell will return the repaired or replaced part to the original purchaser with transportation charges prepaid.

1 - 12 months	100% parts & labor
13 - 36 months	100% parts & 50% labor
37 - 48 months	50% parts only

Ship-to Address:
Ridewell Corporation
3715 E. Farm Road 94
Springfield, MO 65803

Phone: 417-833-4565
Fax: 417-833-4560

RDS-209 for trucks **60/40 Tandem Air Drive/Steer Suspension**



Model RDS-209

***A road-friendly suspension for longer
vehicle component life!***

*Capacity of tandem drive axles with the
maneuverability of a single drive axle*

*Weight distribution is automatic - no driver control
required (or allowed)*

*1500-2000 pounds weight savings over traditional
tandem drive axles*

46,000 lb. capacity



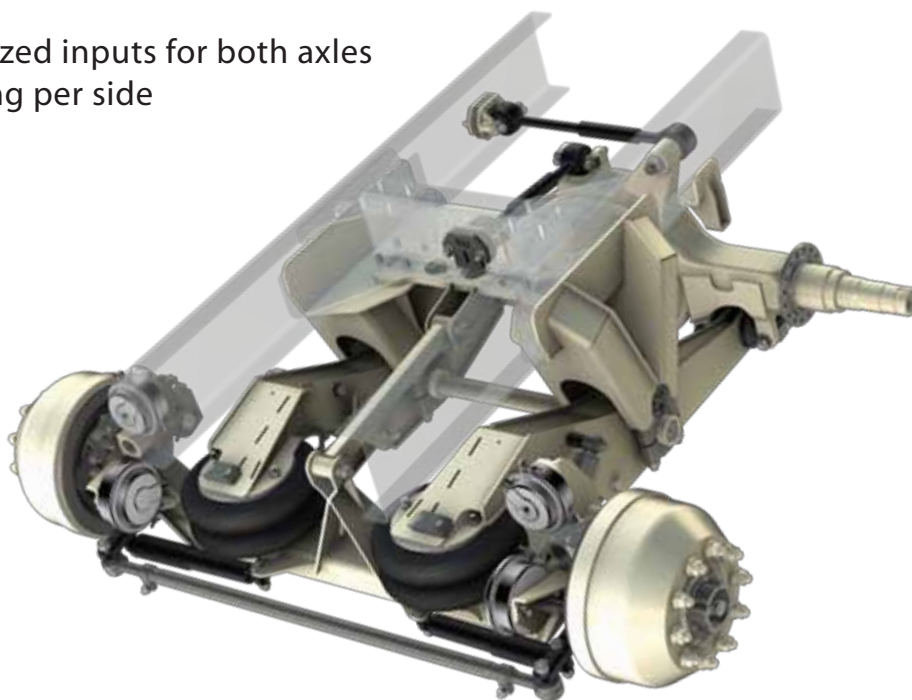
RDS-209

60/40 Tandem Air Drive/Steer Suspension

Ridewell's new 60/40™ is a single-point tandem suspension with an air equalizing walking beam. The system's parallelogram design offers 60/40 load distribution between drive axle and non-drive self-steering tag axle, while maintaining proper drive line and caster angles. The tag self-steer maintains positive caster in the forward position while continuing to maintain 40% load on the pusher and 60% on the driver.

Features

- Reduced turning radius of vehicle
- Reduced tire scrub when turning
- Increased tire life at all wheel positions
- Lower vehicle acquisition and operation costs
- Drive & tag axles with excellent articulation
- 60% load on drive for enhanced traction
- Shock kit standard
- Dampened & equalized inputs for both axles via a single air spring per side



RIDEWELL SUSPENSIONS

The Engineered Suspension Company

RDS-209

Tandem Air Drive/Steer Suspension

Owner's Manual



www.ridewellcorp.com

P.O. Box 4586 • Springfield, MO 65808 • 417.833.4565 • 417.833.4560 (fax)



Suspension Identification:

Ridewell's **RDS-209** suspension is identified by a metal tag attached to the outside of the drivers side beam just behind the trunnion connection, that indicates part number, revision level, and serial number.

Parts:

For optimum suspension performance, order only Ridewell parts. Replacement parts for **RDS-209** are shown on pages 8-15 of this manual.

Sales, Service & Warranty:

If you need assistance regarding this product, please contact us and we will be glad to help you.

Mailing Address

Ridewell Corporation
P.O. Box 4586
Springfield, MO 65808

Shipping Address

Ridewell Corporation
3715 East Farm Rd. 94
Springfield, MO 65803

Phones, Fax, E-mail

800.641.4122, 417.833.4565
417.833.4560 (fax)
info@ridewellcorp.com

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Service Parts.....	9
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Basic Operation

When properly maintained and operated within design limits, Ridewell's **RDS-209** Tandem Air Drive/Steer Suspension will provide many years of trouble-free service.

The **RDS-209** provides the refuse and heavy duty truck industries with a suspension that offers the capacity of a tandem drive axle with the maneuverability of a single drive axle. The weight distribution is automatic (no driver control required or allowed), distributing approximately 60% of the load to the drive axle and 40% to the self-steer tag axle. The **RDS-209** is a 46,000 lb. capacity suspension offering a 1500-2000 pound weight savings over traditional tandem drive axles.

Features

- Reduced turning radius of vehicle
- Reduced tire scrub when turning
- Increased tire life at all wheel positions
- Lower vehicle acquisition and operation costs
- 1500-2000 pound weight savings over traditional tandem drive axles
- Drive & tag axles with excellent articulation
- Shock kit standard
- Dampened & equalized inputs for both axles via a single air spring per side



How the Suspension Works

The RDS-209 60/40 Tandem Air Drive/Steer Suspension is a 46,000 lb. capacity, road-friendly suspension for longer vehicle and tire life. It is a single-point tandem suspension with an air-equalizing walking beam. The system's parallelogram design distributes approximately a 60/40 load distribution between the drive axle and the non-drive self-steering tag axle, while maintaining proper drive line and caster angles.

When the vehicle is backing, the steer axle is equipped with a steer locking mechanism which will forceably hold the axle to a centered position. The steer centering is pneumatically operated via a solenoid valve upon a reverse signal input.

Installation Checklist

1. Check that the steer locks straighten the wheels when the vehicle is placed in reverse.
2. Check the toe of the tag axle. Toe-in should be $1/32'' \pm 1/32''$.
3. Check that all fasteners, including wheel nuts, are tightened to the proper torque values.
4. Check that brakes and slack adjusters are properly adjusted and that wheels rotate freely.
5. Check hubs for proper oil levels.
6. Check that a caster angle of $5^\circ \pm 1^\circ$ is obtained at ride height.
7. Check that leveling valves are properly orientated. (See **Figure 1**).

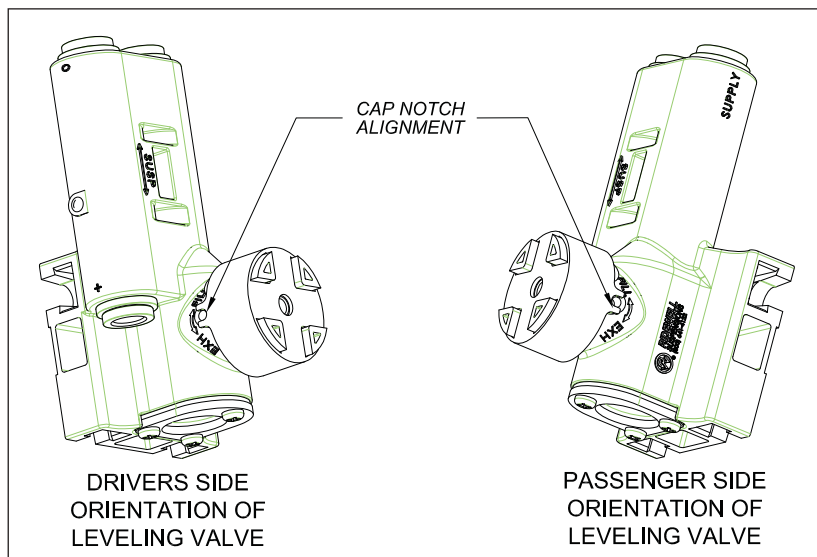


Figure 1



Operational Inspection

1. Inspect all fasteners at the pedestal clamp and pedestal-to-frame connections. Refer to the torque chart for proper torque requirements.
2. Inspect air springs and leveling valves for proper ride height and orientation. Air spring height should measure 7" from bead plate to bead plate. To adjust ride height (spring height) adjust the position of item 9 from page 15.
3. Inspect shocks and shock attachment points.
4. Inspect drive axle end bushings and axle attachments.
5. Inspect the three steer axle lever arms (2 lower & 1 upper) pivot points and bushings.
6. Inspect steering axle, tie rod, wheel ends, & brakes.

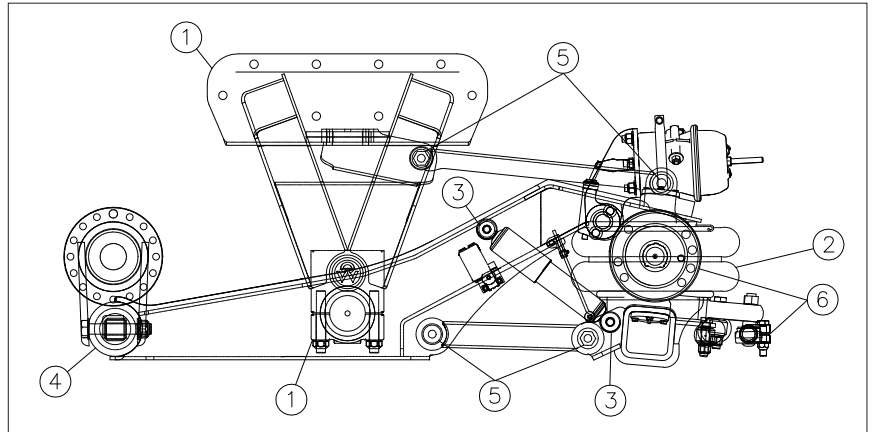


Figure 2

Basic Troubleshooting

1. Vehicle pulls to left or right - check the following:
 - a. Tire pressure
 - b. All suspension bushings
2. Vehicle has excessive sway - check the following:
 - a. Torque arm bushings
 - b. Center bushing
3. Vehicle has axle walk or hop - check the following:
 - a. Torque beam bushings
 - b. Center bushings
4. Mounting height has changed - check the following:
 - a. Air springs
 - b. Leveling valves position & orientation (see **Figure 1**, page 4)
 - c. All suspension bushings
5. Vehicle drive axle slipping (loosing traction)
 - a. If equipped, lock differential
 - b. Ensure automatic traction control is functioning



Preventative Maintenance Schedule

To keep your Ridewell suspension in optimum working order, we recommend the following maintenance:

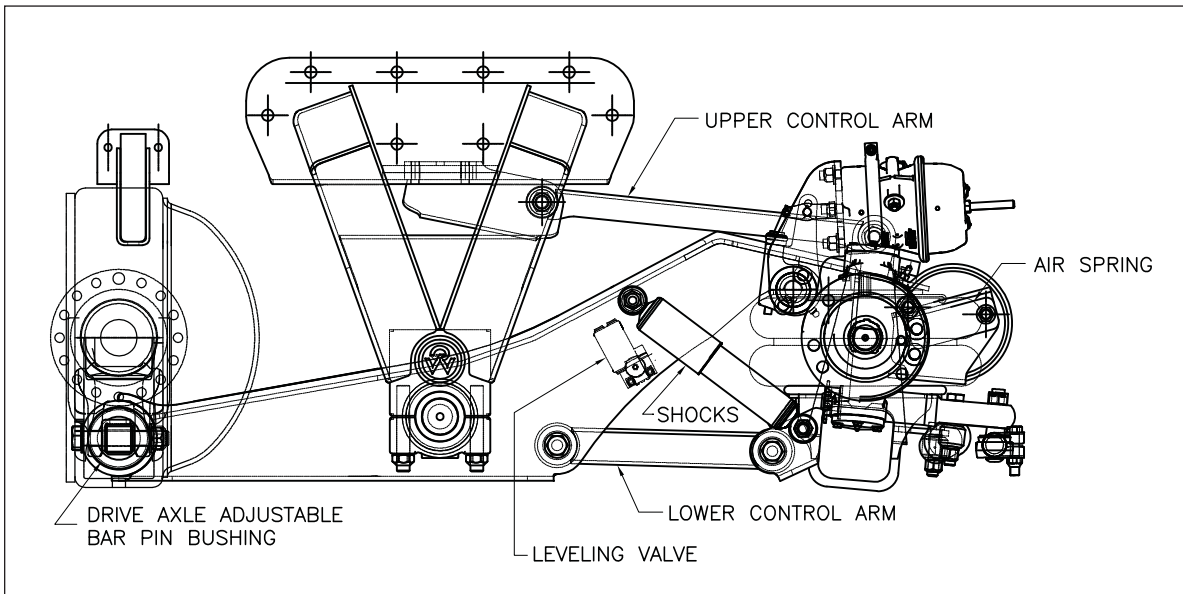
Service Intervals					
	1,000 miles	First 6,000 miles of operation	12,000 miles	36,000 miles	100,000 miles
Steering Mechanism					
Tie Rod/Tie Rod Ends			I,L		
King Pins and Bushings				L	
Thrust Bearings				L	
Steering Knuckle Vertical End Play Inspection			I		
Upper and Lower King Pin Bushings for Wear			I		
Steering Stabilizer			I		
Draw Key Nuts		T		T	
Wheels & Brakes					
Wheel Lubricant	I				R
Wheel Endplay					
Brake Cam			L		
Slack Adjuster			L		
Brake Lining					
Brake Drum					
Brake Function					
Wheel Nuts					
Suspension					
Bushings	I				
Air springs	I				
Structure	I				
Fastener Torque		T		T	

I=Inspect, L=Lubricate, T=Tighten, R=Replace

Lubricant Recommendations	
Tie Rod End, King Pin, Thrust Bearing, Brake Cam, Slack Adjuster	NLGI 1 or 2
Wheel Lubricant	API-GL-5

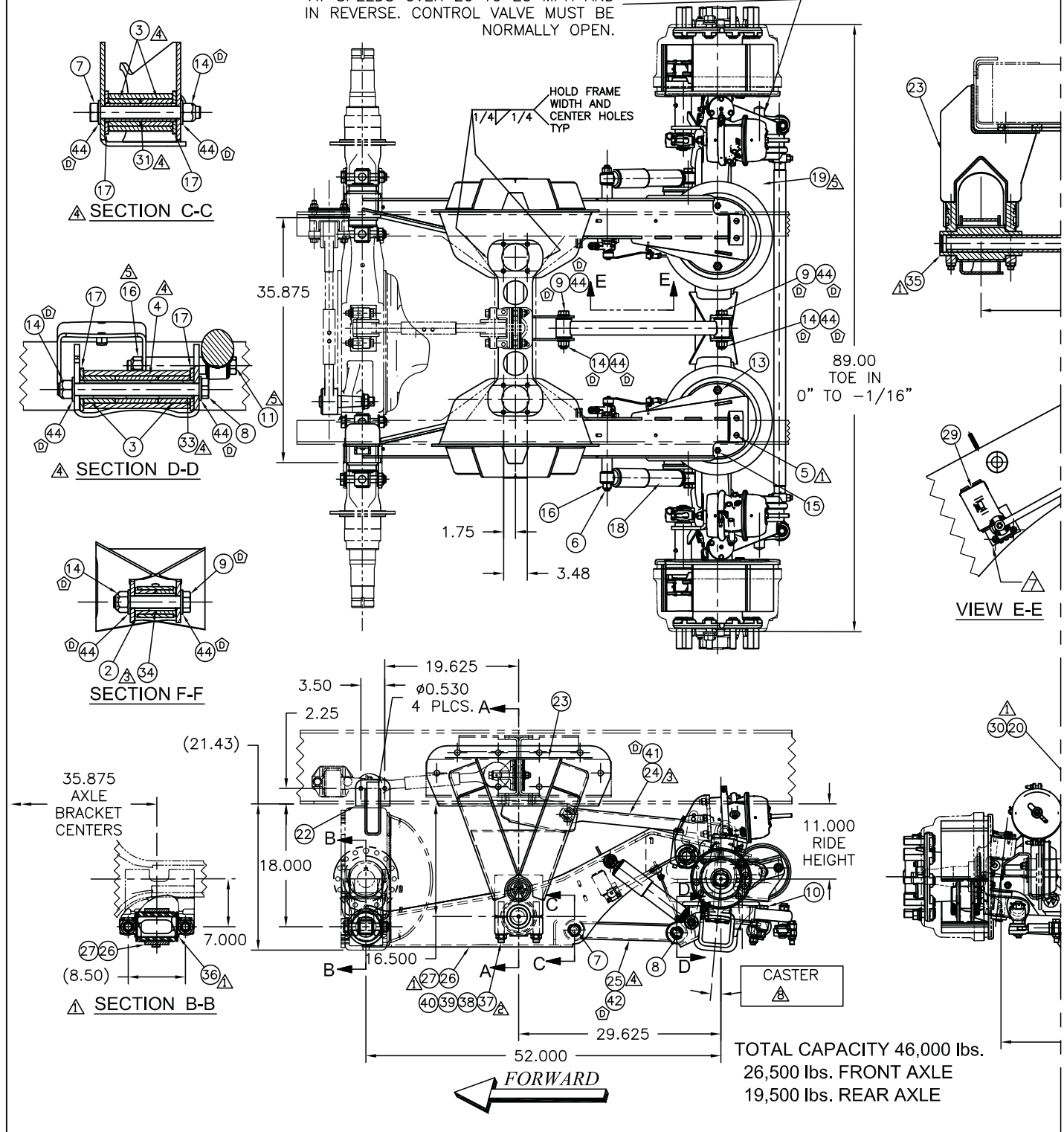
Note: The above intervals are minimum requirements and more frequent intervals are recommended for severe applications.

2090003 Service Parts 6/22/2012		
DESCRIPTION	PART #	QUANTITY PER SUSPENSION
AIR SPRING	1002B14385G	2
SHOCKS	1270563B003	2
LEVELING VALVE	6300CCAB03	2
UPPER TORQUE ARM BUSHING REPLACEMENT KIT	6040115	1
LOWER TORQUE ARM BUSHING REPLACEMENT KIT	6040116	2
DRIVE AXLE ADJUSTABLE BAR PIN BUSHING	1117653B001	2
PEDESTAL CENTER BUSHING	1117558B000	2
KING PIN REPLACEMENT KIT	1660324	2
BUSHING REPLACEMENT KIT FOR ENTIRE SUSPENSION	6040117	1
LOWER CONTROL ARM REPAIR KIT	6040120	2





STEER LOCK MUST BE SET TO ENGAGE AT SPEEDS OVER 20 TO 25 MPH AND IN REVERSE. CONTROL VALVE MUST BE NORMALLY OPEN.



TOTAL CAPACITY 46,000 lbs.
26,500 lbs. FRONT AXLE
19,500 lbs. REAR AXLE

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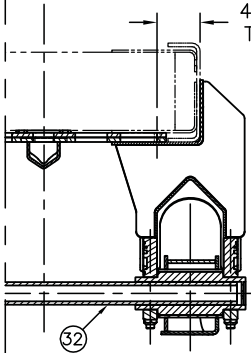
AXLE TRAVEL
FRONT: 3.75 UP/4.13 DN
REAR: 7.75 UP/9.50 DN

D	11100	9 WAS 1140952B
		KITS ITI
C	11100	RESTO
B	11100	CHANGED ORIENTATIO
A	10100	ADDED "CUS
REV	ECN#	R

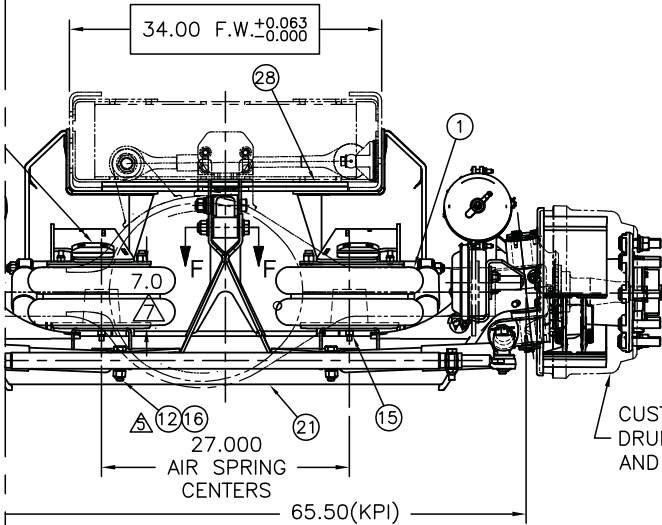
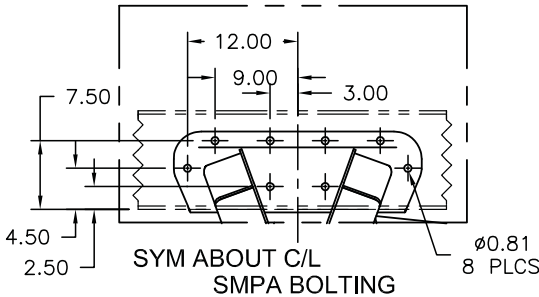
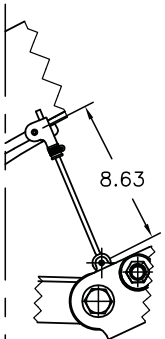


NOTES:

- △ - ITEMS 5, 20, 30, 35, & 36 ARE PART OF EQUALIZER ASSEMBLIES (ITEMS 26 & 27) AND ARE LISTED FOR REPLACEMENT REFERENCE ONLY.
- △ - FASTENERS AND COMPRESSION CAP (ITEMS 37, 38, 39, AND 40) ARE PART OF THE PEDESTAL ASSEMBLY (ITEM 23) AND ARE LISTED FOR REPLACEMENT REFERENCE ONLY.
- △ - ITEMS 2 & 34 ARE PART OF UPPER T'ROD (ITEM 24) AND ARE LISTED FOR REPLACEMENT REFERENCE ONLY.
- △ - ITEMS 3, 4, 31 & 33 ARE PART OF LOWER T'BEAM (ITEM 25) AND ARE LISTED FOR REPLACEMENT REFERENCE ONLY.
- △ - ITEMS 10, 11, 12, 16,(4pcs) & 19 ARE PART OF AXLE ASSEMBLY (ITEM 21) AND ARE LISTED FOR REPLACEMENT REFERENCE ONLY.
- △ - AFTER SUSPENSION HAS BEEN IN OPERATION FOR 6,000 MILES ALL FASTENERS SHOULD BE RETIGHTENED TO THE SPECIFIED TORQUE. REPEAT EVERY 50,000 MILES.
- △ - NOTCH ON DRIVE BEARING CAP (ITEM 29) MUST BE ON SAME SIDE AS LEVER. SET LENGTH OF VERTICAL LINK TO 8.63". CHECK RIDE HEIGHT, AIR SPRING (ITEM 1) MUST BE 7" TALL.
- △ - 5"±1' AT RIDE HEIGHT - 6"±1' FULLY DUMPED.
- ⊕ △ ITEMS 41-43 SHOWN FOR REPLACEMENT REFERENCE.



31.875 BEAM CENTERS
SECTION A-A



CARTON OF PARTS 6001034
SUSPENSION ASSEMBLY

ITEM No.	PART No.	PART DESCRIPTION	No. REQD.	No. REQD.
1	1002B14385G	A/SPG 2B14-385	2	-
2	1120029	BUSHING HALF, URETHANE	-	-
3	1120030	BUSHING, URETHANE 1.31 ID	-	-
4	1120031	BUSHING, URETHANE CNTR HARD	-	-
5	1135579B008	FHSCS 3/8"-16NC x 1-1/2" LG GR8	-	-
6	1140022	HHCS 3/4" 10NC 11"LG GR8	2	-
7	1140060	HHCS 7/8" 14NF 7.5"LG. GR8	2	-
8	1140066	HHCS 7/8" 14NF 10.5"LG GR8	2	-
9	1140063	HHCS 7/8" 14NF 5"LG, GR8	2	-
10	1143076B105	HHCS 3/4" 10NC 4-1/2"LG	-	-
11	1147570B105	HHCS 3/4" 10NC 7-1/2 LG, GR5	2	-
12	1147698B105	HHCS 3/4" 10NC 3-1/4LG	-	-
13	1150011	L'NUT 3/4"-16NF GR 2, NYL INSERT	2	-
14	1150052	L'NUT 7/8"-14NF TOP LOCK, GRC	6	-
15	1150555B112	L'NUT 1/2" 13NC NYLON INSERT, GR2	6	-
16	1150709B105	L'NUT 3/4" 10NC OVAL 3/4" HI	4	-
17	1160009	WASHER UHMW .25 X 3.125 X 1.3 (232)	8	-
18	1270563B003	SHOCK ASSY 6" MONROE	2	-
19	1310002	STEER DAMPER	-	-
20	1407750B000	WEAR PAD 2"x 4.5" 2 HOLE	-	-
21	1640101S	AXLE ASSEMBLY HUB PILOT, 65.5"KPI w/STUD	1	-
22	3570004	AXLE STOP, ASSY.	-	2
23	3620025	SMPA 209 16.5" TALL W/BOLTING RAIL	2	-
24	5320005	T'ROD UPPER CONTROL, W/BUSHINGS 209	1	-
25	5320009	T'BEAM LOWER CONTROL, W/BUSHINGS 209	2	-
26	5420012	EQUALIZER, BUSH BEAM ASSY,LH, 209	1	-
27	5420013	EQUALIZER, BUSH BEAM ASSY, RH, 209	1	-
28	5490024	SPACER ASSEMBLY, 209	1	-
29	6300CCAB03	HCK,Vlv,O_Lvr,9,V .31-2.5,	2	-
30	7002135	BUMPER SPACER PLATE,	-	-
31	9090056	SLEEVE,1.313 O.D. x .937 I.D. x 5.22 LG	-	-
32	9090063	CROSS TUBE	1	-
33	9090064	SLEEVE,1.313 O.D. X.937 I.D. X 8.82 LG	-	-
34	9090065	SLEEVE, 1.25 OD x .94 ID x 3 L	-	-
35	1117558B000	BUSHING CENTER 4.75" x 7" BONDED	-	-
36	1117653B001	BUSHING KIT S'BLK ADJ BAR PIN	-	-
37	1154718B105	L'NUT 7/8" 14NF TOP LOCK	-	-
38	1164718B100	WASHER 7/8" TYPE B NARROW	-	-
39	1287594B000	STUD 7/8" 14NF-2A 6"LG GR5	-	-
40	1747564B001	COM CAP MACH'D 153756C001	-	-
41	6040115	BUSHING SERVICE KIT 209 UPPER T'ROD	-	-
42	6040116	BUSHING SERVICE KIT 209 LOWER T'BEAM	-	-
43	6040117	BUSHING SERVICE KIT 2090003 TOTAL SUSP	-	-
44	1160868B100	WASHER 7/8" A-325 FLAT ZINC PLT	12	-

STEER AXLE TIRE & WHEEL CHART

RECOMMENDED TIRE SIZES	WHEEL* (DIAxWIDxINSET)	WHEEL MATERIAL	OVERALL** WIDTH	TIRE CAPACITY* (LBS)
315/80R22.5	22.5x9.00x6.02	ALUMINUM	94.3	20000 AVAILABLE
	22.5x9.00x4.75	STEEL	94.3	
	22.5x9.00x6.38	STEEL	94.3	
385/65R22.5	22.5x12.25x4.75	AL/STEEL	95.0	19840 AVAILABLE
	22.5x12.25x4.75	AL/STEEL	95.5	
425/65R22.5	22.5x13.00x5.25	AL/STEEL	94.5	22800 AVAILABLE
	22.5x13.00x5.25	AL/STEEL	95.8	

*CHECK WITH TIRE AND WHEEL MANUFACTURERS FOR MORE INFORMATION.
**BASED ON GOODYEAR TIRE AND ACCURIDE WHEEL DATA.

TORQUE VALUES △

ITEM	SIZE	TORQUE	
		(FT-LB)	(N·M)
5	3/8-16 NC	25	34
13	3/4-16 NF	50	68
14	7/8-14 NF	500	678
15	1/2-13 NC	25	34
16	3/4-10 NC	160	217
37	7/8-14 NF	350	475

DRAWN BY:	G.H.	09/01/10
CHECKED:	MDJ	9/20/10
APPROVED:	DK	9/20/10

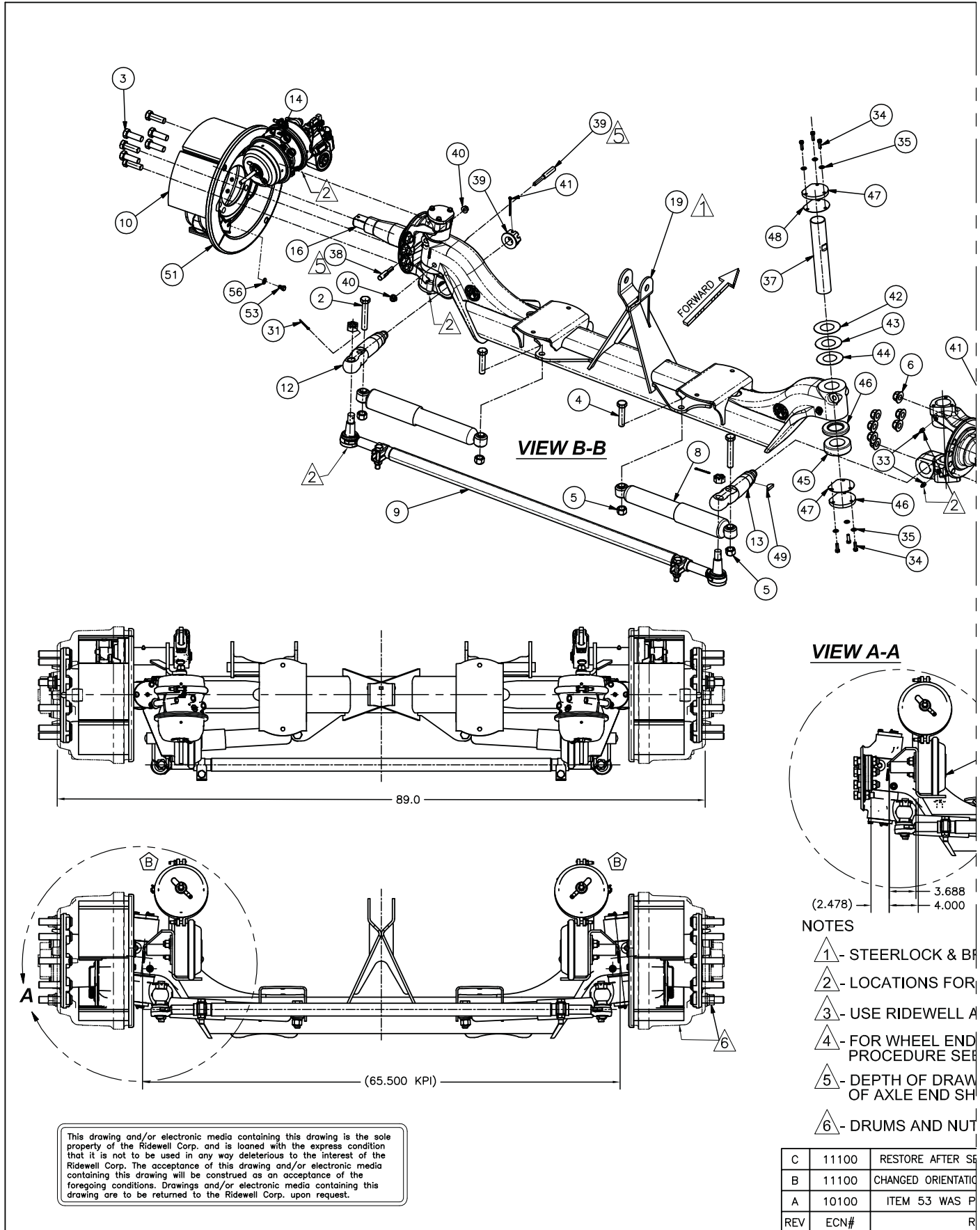


RIDEWELL CORPORATION
PO BOX 4586 SPRINGFIELD, MISSOURI 65808

ITEMS 14 WAS 1150028, ADD SERVICE	9/26/11	AAS	MDJ	MSK
ITEMS 41-43, ADD ITEM 44				
REPAIR AFTER SERVER LOSS	6/01/11	AAS	MDJ	M.J.
NUMBER OF BRAKE CHAMBERS (PER ECR G056)	2-24-11	G.H.	MDJ	BM
"CUSTOMER SUPPLIED DRUM" NOTE	11-3-10	DK	MDK	DK
REVISION DESCRIPTION	DATE	BY	CHK	APPD

PROJECT NO:	10100
SCALE:	B-SIZE: NTS D-SIZE: NTS
MATERIAL:	SEE BOM
WEIGHT:	-
TOLERANCES UNLESS OTHERWISE SPECIFIED:	
DECIMAL:	.X ±0.1 FRACTION: ±1/16
XX ±0.06 ANG: ±1°	
XXX ±0.030 DIA: ±0.001	
*WELD TOLERANCES PER ISO W045-02	

TITLE:	RDS-209 60/40-52-11 BOLT-ON W/BENDIX 16.5X7.0 BRAKE AXLE 46,000 Lb CAPACITY - CCC #094-0410		
SHEET 1 OF 1	PART NO:	2090003	REV: D

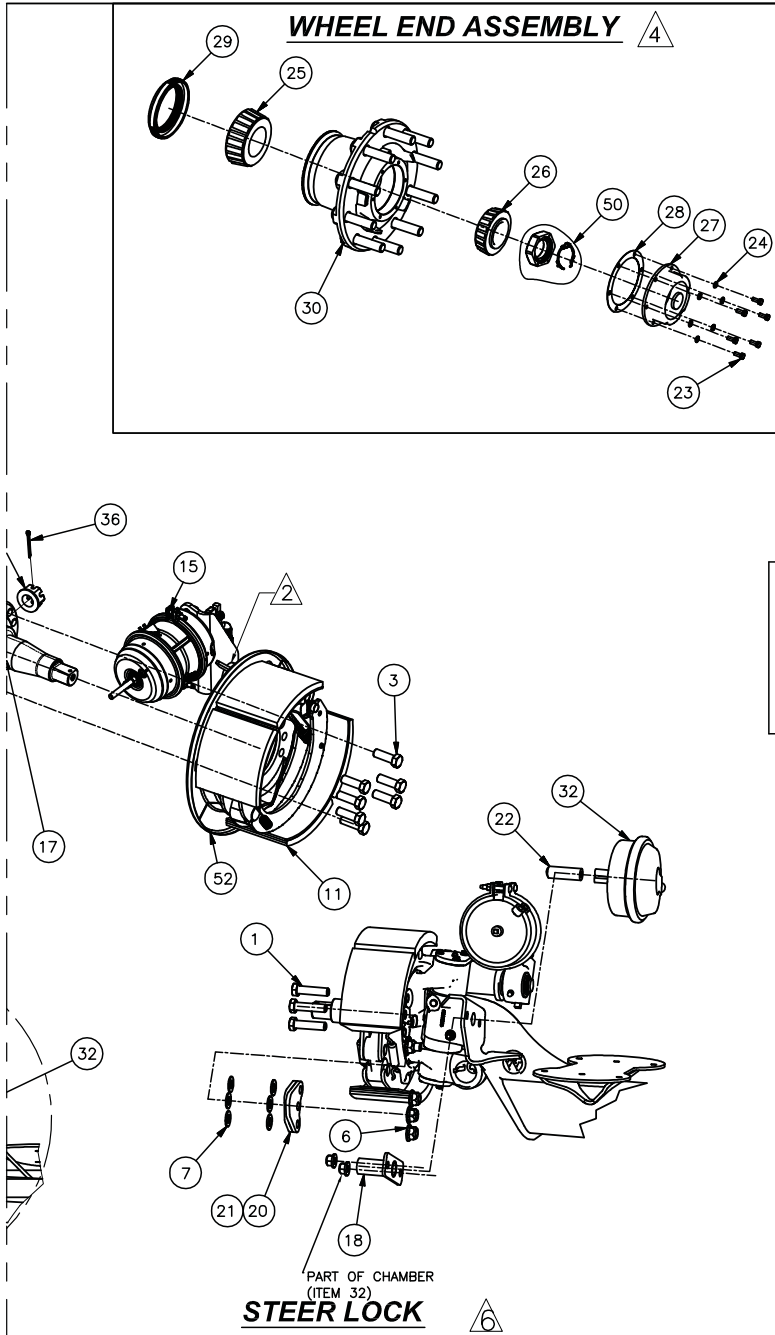


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VIEW A-A

- NOTES
- 1 - STEERLOCK & B...
 - 2 - LOCATIONS FOR...
 - 3 - USE RIDEWELL A...
 - 4 - FOR WHEEL END PROCEDURE SEE...
 - 5 - DEPTH OF DRAW OF AXLE END SH...
 - 6 - DRUMS AND NUT...

C	11100	RESTORE AFTER SE
B	11100	CHANGED ORIENTATIO
A	10100	ITEM 53 WAS P
REV	ECN#	R



PARTS LIST			
ITEM	PART NO.	DESCRIPTION	QTY
1	1140059	HHCS 3/4" 16NF 3" LG	6
2	1143076B105	HHCS 3/4" 10NC 4-1/2"LG	2
3	1140057	HHCS 3/4" 16NF 2" Lg.	8
4	1147698B105	HHCS 3/4" 10NC 3-1/4LG	2
5	1150709B105	L'NUT 3/4" 10NC OVAL 3/4" HI	4
6	1150016	L'NUT 3/4" 16NF FL-TL	14
7	1160576B100	WASHER 3/4" SAE FLAT	12
8	1310002	DAMPER (GABRIEL 665937)	2
9	1660183	TIE ROD ASSY. 20K	1
10	1667726B020	BRAKE ASSY LH 16.5X7 BNDX ES-165-07D	1
11	1667726B021	BRAKE ASSY RH 16.5X7 BNDX ES-165-07D	1
12	1740020	TIE ROD ARM LH W-PORT/FL (232-20K)	1
13	1740021	TIE ROD ARM RH W-PORT/FL (232-20K)	1
14	1667726B025	BRAKE CHAMBER, D-P LH 2424	1
15	1667726B026	BRAKE CHAMBER, D-P RH 2424	1
16	1660281	KNUCKLE LH W/PORT W/ABS (FL-943 SER.)	1
17	1660282	KNUCKLE RH W/PORT W/ABS (FL-943 SER.)	1
18	4660052	STEER LOCK TUBE ASSY.	2
19	5640045S	FAB AXLE, 65.5" KPI RDS-209	1
20	5340025	STOP PLATE ASSY LH (STEER LOCK) 232-20K	1
21	5340026	STOP PLATE ASSY RH (STEER LOCK) 232-20K	1
22	9290015	PLUNGER, STEER LOCK	2
23	1144206B105	HHCS 5/16" 18NC 3/4" LG.	12
24	1164263B100	L'WASHER 5/16" MED.	12
25	1667726B004	BEARING ASSY. #K6461A INNER FL	2
26	1667726B005	BEARING ASSY. #K5555 FL OUTER	2
27	1667537B005	HUB CAP 20K 5.5BC	2
28	1667537B006	GASKET H/C 5.5"B.C.	2
29	1667726B006	BEARING SEAL ASSY INNER FL	2
30	1667726B022	HUB ASSY STL #25301--T H/P FL	2
31	1130004	COTTER PIN 9/64"x1-3/4	2
32	1660090	BRAKE CHAMBER,TYPE 30L	2
33	1660134	FITTING GREASE 1/8" NPTF	4
34	1140064	HHCS 5/16-18 3/4"LG Gr8 PHOS & OIL	12
35	1160004	WASHER FLAT .34 x .62 x .06	12
36	1137409B002	COTTER PIN 3/16 x 2-1/4	2
37	1660221	KING PIN FL-943 SERIES (WESTPORT)	2
38	1660216	LOCK PIN .44/20 3.18"	2
39	1660217	LOCK PIN .44/20 4.75"	2
40	1150001	L'NUT 7/16" 16NF FLANGED	4
41	1660190	NUT 1-1/4 12UNF CASTLE FLANGED	2
42	1660218	SHIM - KING PIN .005 Thk FL-943 SERIES	2
43	1660219	SHIM - KING PIN .015 Thk FL-943 SERIES	2
44	1660220	SHIM - KING PIN .030 Thk FL-943 SERIES	2
45	1660224	BEARING ASSY T-208 FL-943 SERIES	2
46	1660225	SEAL T-208 KING PIN BEARING	2
47	1660222	KING PIN END CAP W-P 20K	4
48	1660223	GASKET KING PIN END CAP W-P 20K	4
49	1137409B003	WOODRUFF KEY #25	2
50	1660188	SPINDLE NUT KIT PRO-TORQ	2
51	1667726B023	DUST COVER LH BENDIX 16.5 X 7	1
52	1667726B024	DUST COVER RH BENDIX 16.5 X 7	1
53	1147376B105	HHCS 3/8" 16NC 5/8"LG.	8
54	1664702B010	ABS SENSOR #300151	2
55	1664702B002	ABS SENSOR CLIP #899 759 8154	2
56	1160015	WASHER 3/8" FLAT SAE ZINC	8

RACKET NOT SHOWN IN VIEW B-B

GREASE (TYP)

AXLE ASSEMBLY PROCEDURE 9710005

BEARING AND SEAL ASSEMBLY
DRAWING NO. 9710011

KEY (ITEM 38 & 39) BELOW THE FACE
SHOULD BE .125" MAX.

WASHERS ARE CUSTOMER PROVIDED

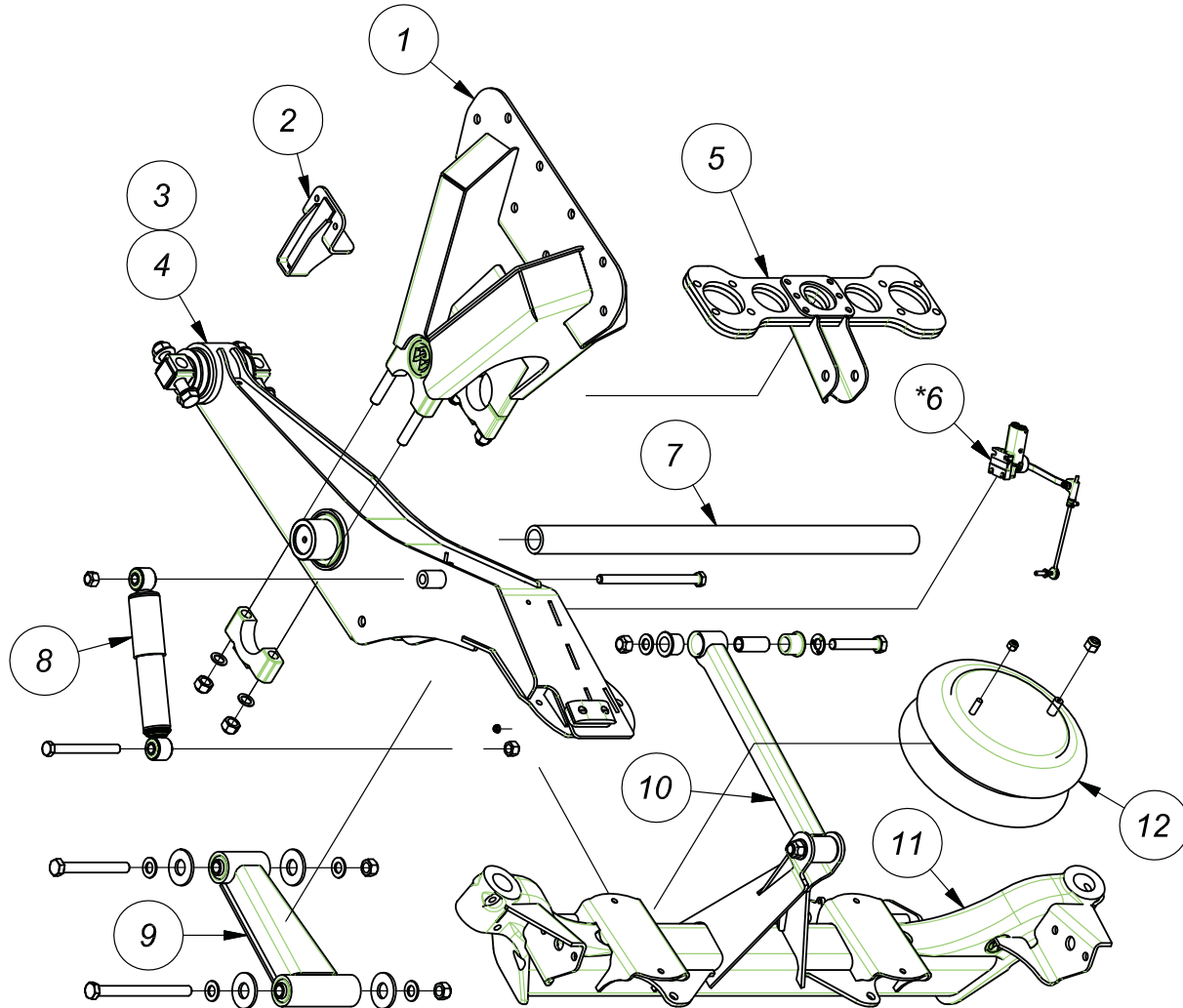
REVISION DESCRIPTION	DATE	BY	CHK	APPD
DRIVER LOSS; ITEM 55 WAS 1664702B007	5/17/11	G.H.	MDJ	MK
NUMBER OF BRAKE CHAMBERS (PER ECR G056)	2/24/11	G.H.	BM	MDJ
ADD ITEM 56	10/06/10	G.H.	MDJ	DK

DRAWN BY: GH	7/30/10
CHECKED: MDJ	9/17/10
APPROVED: DK	9/20/10
PROJECT NO: 10100	SCALE: B-SIZE: N/A D-SIZE: N/A
MATERIAL: SEE BOM	WEIGHT: -
TOLERANCES UNLESS OTHERWISE SPECIFIED: DECIMALS: .X ±0.1 FRACTION: ±1/16 .XX ±0.06 ANG: X ±1 .XXX ±0.030 (XXX) KCC *HELD TOLERANCES PER ISO W045-02	

RIDEWELL CORPORATION
PO BOX 4586 SPRINGFIELD, MISSOURI 65808

TITLE: AXLE 20K 5" FAB DROP W/SL
RDS-209 CRANE CARRIER
65.5 KPI W/BENDIX 16.5 x 7.0 BRAKE

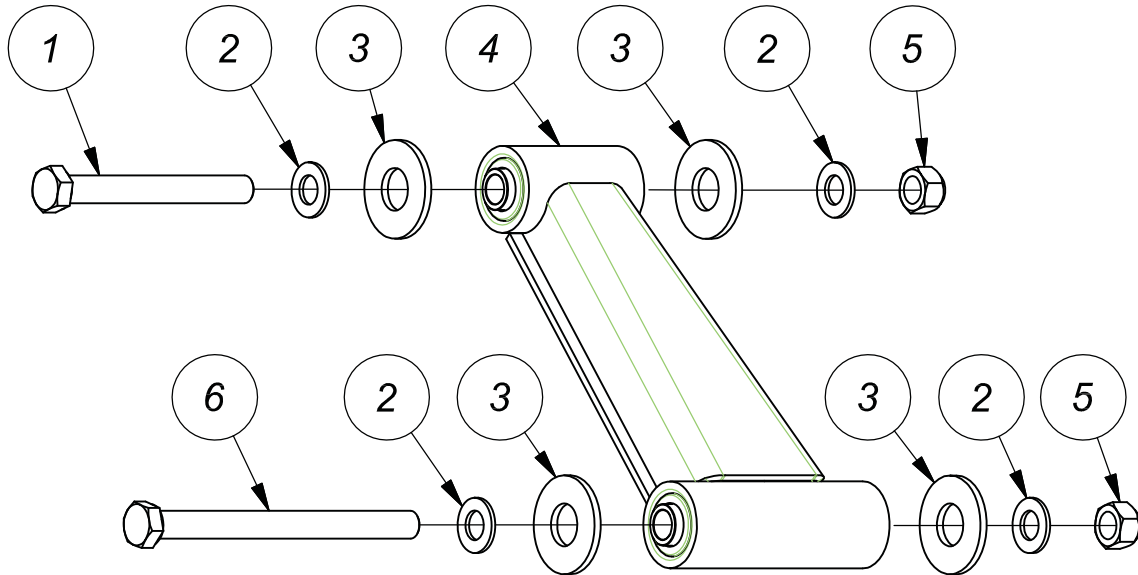
SHEET 1 OF 1	PART NO: 1640101S	REV: C
--------------	-------------------	--------



2090003 MAIN PARTS LIST

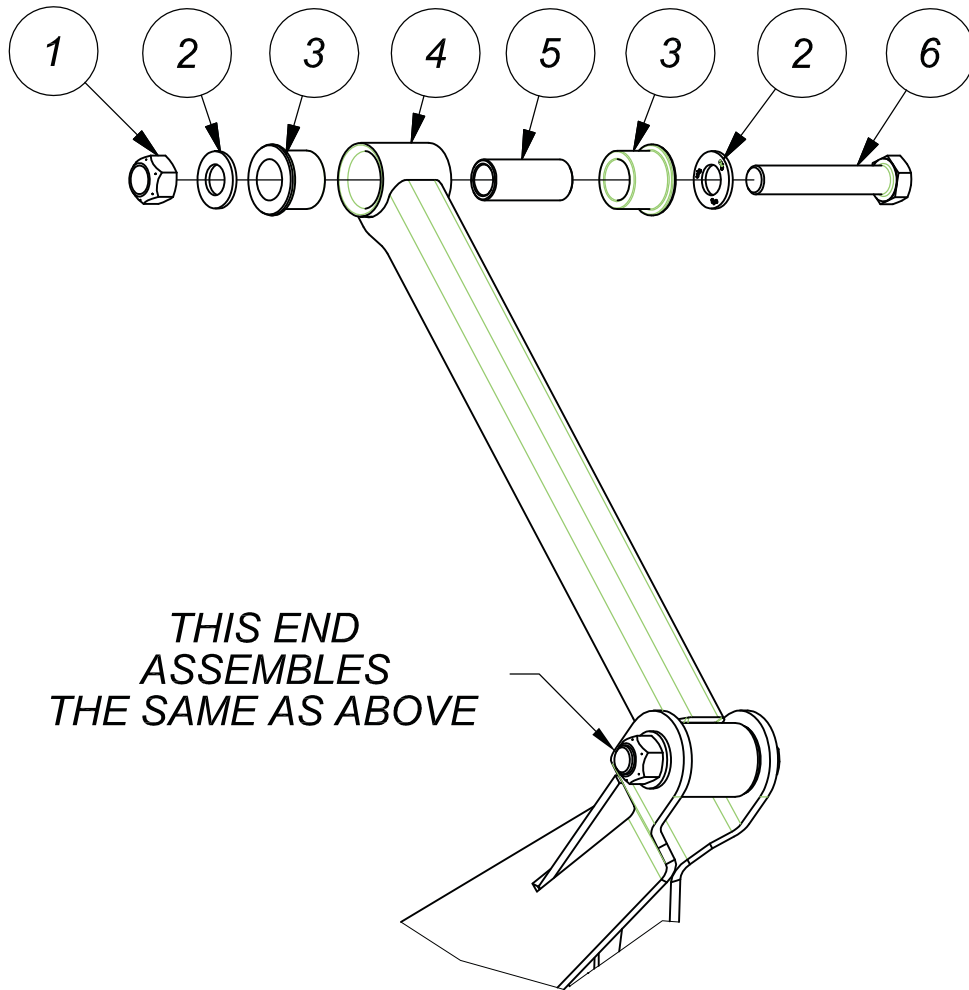
ITEM	PART NO.	DESCRIPTION	QTY
1	3620025	SMPA 209 16.5" TALL	2
2	3570004	STOP, ASSEMBLY, 209 AXLE	2
3	5420012	EQUALIZER, BUSH BEAM ASSY, LH	1
4	5420013	EQUALIZER, BUSH BEAM ASSY, RH	1
5	5490024	SPACER, UCA BRACKET ASSEMBLY	1
*6	6300CCAB03	HCK, Vlv, 0_Lvr, 9.V .31-2.5	2
7	9090063	CROSS TUBE, 209	1
8	1270563B003	SHOCK ASSY 6"	2
*9	5320009	T'BEAM ASSY. LOWER W/BUSHINGS	2
*10	5320005	T'ROD, UPPER CONTROL ARM	1
11	1640101S	AXLE ASSEMBLY 65.5" KPI HUB PILOT	1
12	1002B14385G	A/SPG 2B14-385	2

ITEM NUMBERS WITH AN * ARE DETAILED ON ADDITIONAL PAGES



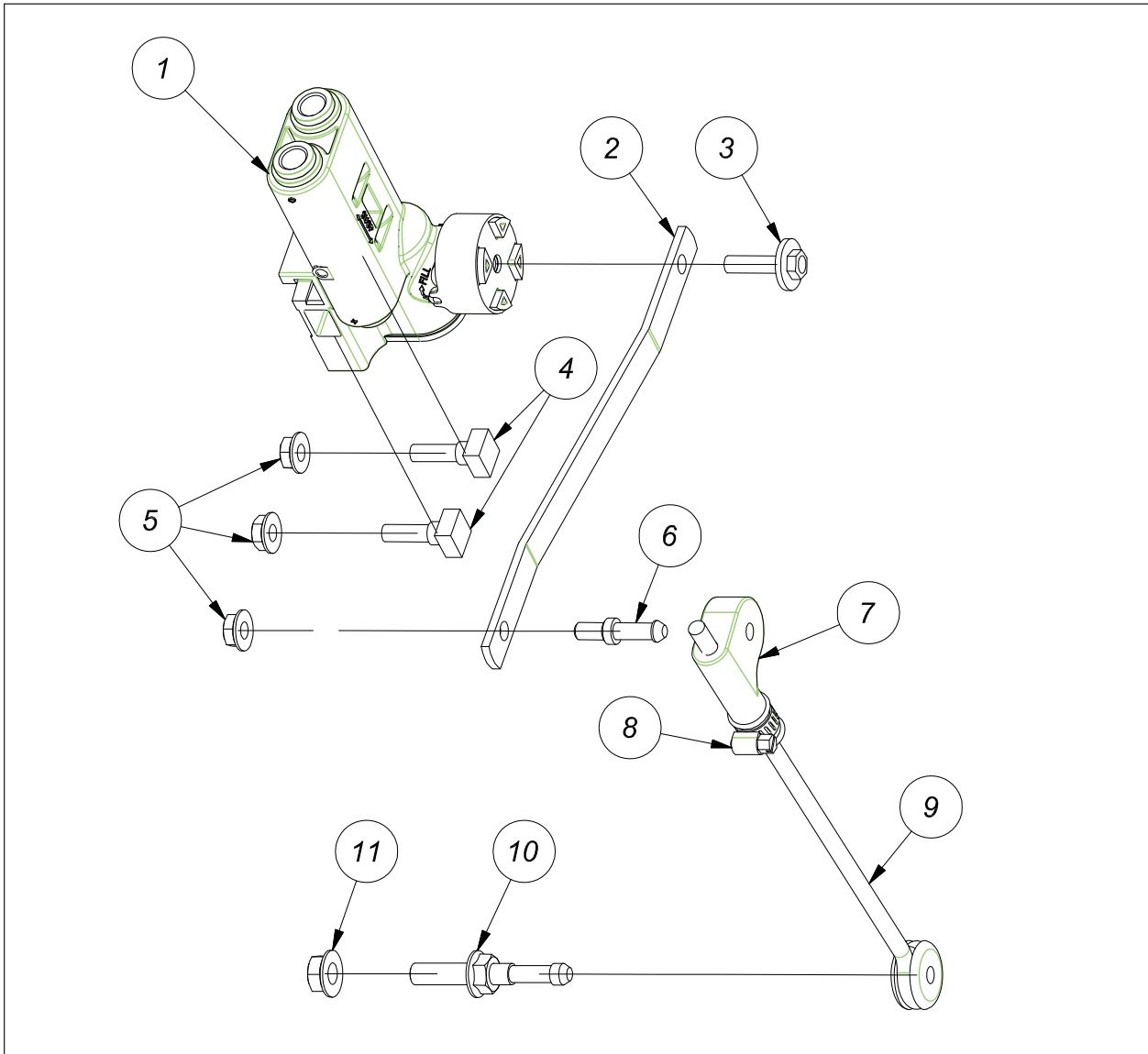
LOWER CONTROL ARM AND HARDWARE PARTS LIST

<i>ITEM</i>	<i>PART NO.</i>	<i>DESCRIPTION</i>	<i>QTY</i>
1	1140060	HHCS 7/8" 14NF 7.5"LG.	1
2	1160868B100	WASHER 7/8" A-325 FLAT	4
3	1160009	WASHER UHMW .25 X 3.125 X 1.3	4
4	5320009	T'BEAM ASSY. LOWER W/BUSHINGS	1
5	1150052	L'NUT 7/8" 14NF TOP LOCK	2
6	1140066	HHCS 7/8" 14NF 10.5"LG	1



UPPER CONTROL ARM AND HARDWARE PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY
1	1150052	L'NUT 7/8" 14NF TOP LOCK	1
2	1160868B100	WASHER 7/8" A-325 FLAT	2
3	1120029	BUSHING HALF, URETHANE	2
4	5030026	T'ROD, UPPER CONTROL ARM	1
5	9090065	SLEEVE, 1.25" OD X .94" ID X 3"LG	1
6	1140063	HHCS 7/8" 14NF 5"LG	1



LEVELING VALVE PARTS LIST			
ITEM	PART NO.	DESCRIPTION	QTY
1	6205004	HCV RW STANDARD	1
2	6212002	LEVER, HCVO6, 6-15/16"	1
3	1130021	SCREW W/WASHER, LEVER	1
4	1130020	T-BOLT 1/4" HCV06 MTG	2
5	1157740B101	L'NUT 1/4-20 WHIZ-LOC	3
6	1237740B001	CONNECTOR PIN, 1/4"	1
7	1235555B001	P-DAMPNER/CONNECTOR	1
8	1236478B000	CLAMP 3/16"-5/16" HOSE	1
9	1237423B049	V LINK SINGLE EYE 9"	1
10	1237423B003	LOWER STR CONN 5/16"	1
11	1150023	L'NUT 5/16" 18NC FL ZINC	1

LEFT HAND (DRIVERS SIDE) CONFIGURATION SHOWN RIGHT HAND SIDE CONFIGURATION IS MIRRORED

*** SEE FIGURE PAGE #4 FOR CAP NOTCH ALIGNMENTS ***

Warranty

The Ridewell Corporation warrants the suspension systems manufactured by it to be free from defects in material and workmanship, under proper use, installation, application, and maintenance for a period of 3 years after delivery to the original purchaser. The responsibility of the Ridewell Corporation under this non-transferable warranty is limited to making good at the company factory by repair or replacement of any part or parts which it manufactures.

Written permission for any claim return must be first obtained from authorized Ridewell personnel. All returns must have transportation charges prepaid by the customer and accompanied with a complete written explanation of claimed defects and the circumstances of operational failure. On all component parts not manufactured by Ridewell their warranty is to the extent that the manufacturer of such parts warrant them to Ridewell Corporation. This is the only authorized Ridewell warranty and is in lieu of all other expressed or implied warranties or representations, including any implied warranties of merchantability or fitness, or of any obligations on the part of Ridewell Corporation. In no event will Ridewell be liable for business interruptions, loss of profits, personal injury, cost of delay, or for any other special, indirect, incidental or consequential losses, costs or damages.

Subject to all of the above conditions, if repair or replacement of any defective part is made by Ridewell Corporation, Ridewell will return the repaired or replaced part to the original purchaser with transportation charges prepaid.

1 - 12 months - 100% parts & labor
13 - 36 months - 100% parts only



RSS-232 for trucks **Self-Steering Auxiliary Axle Suspensions**

All steel construction • Durable urethane bushings

Flexible system easily adjusts to various frame widths & ride heights

Factory pre-plumbing available (8K & 13K models)

RSS-232-8K

8,000 lb. capacity

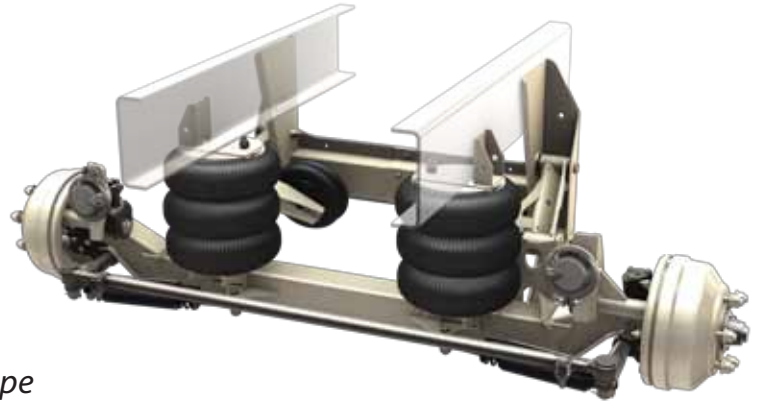
13.5" total travel, 10" up travel

28 degree wheel cut

Fits ride heights 10.5" to 16.5"

725 lbs. - standard wheel ends

Compact 21.7" mounting envelope



RSS-232-13K

13,200 lb. capacity

13.5" total travel, 10" up travel

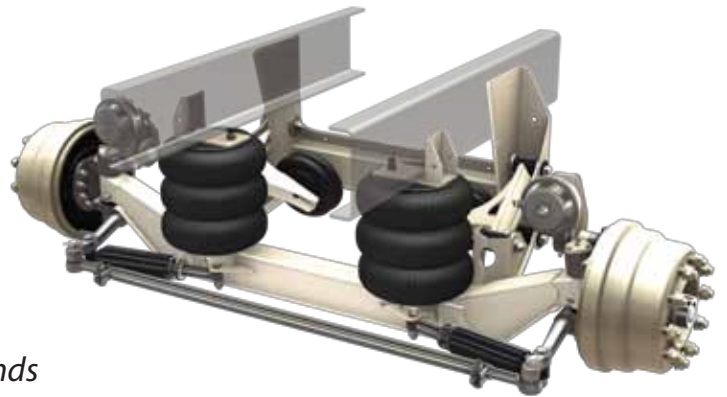
30 degree wheel cut

Fits ride heights 7" to 18"

842 lbs. - lightweight wheel ends

876 lbs. - standard wheel ends

Compact 22.0" mounting envelope



RSS-232-20K

20,000 lb. capacity

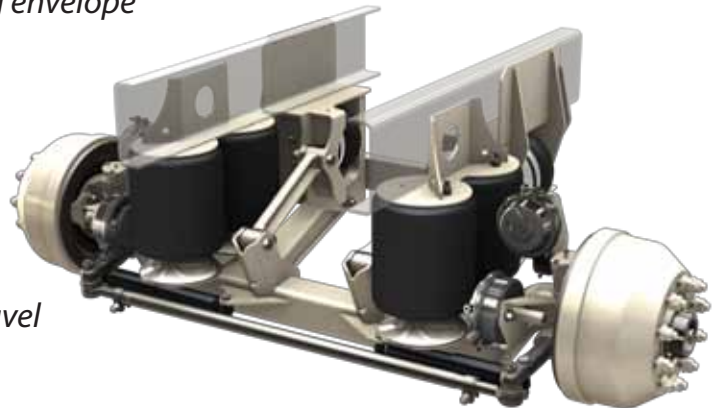
12.5" total travel, 9.5" up travel

20 degree wheel cut

Fits ride heights 8" to 15"

1,435 lbs. - standard wheel ends

Compact 29.5" mounting envelope

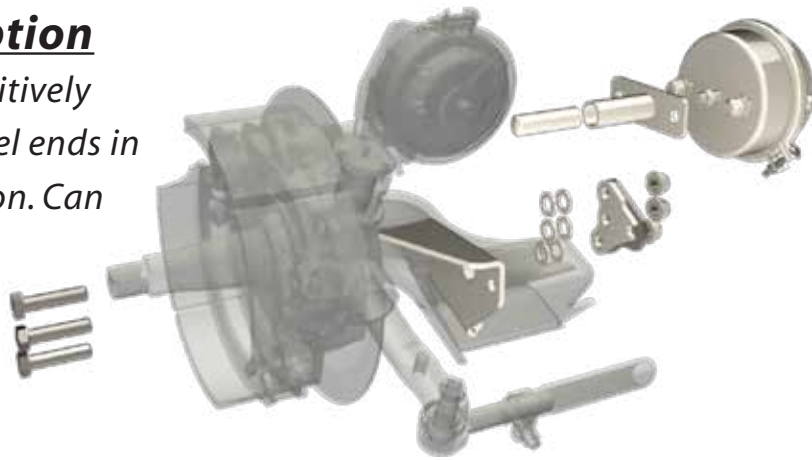


RSS-232

Self-Steering Auxiliary Axle Suspensions

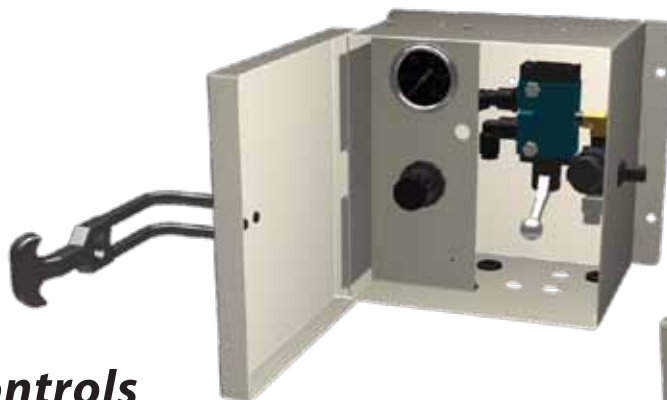
Steer Lock Option

Unique design positively locks on both wheel ends in the straight position. Can be activated at any wheel angle position.



Easy to adjust frame widths

The four torque arms of the RSS-232 (2 upper & 2 lower) work together to maintain the caster angle of the king pin. The frame can be easily adjusted to a range of frame widths by repositing the spacer washers. Frame width can be factory set or adjusted during installation.



Air Controls

Manual & Electric

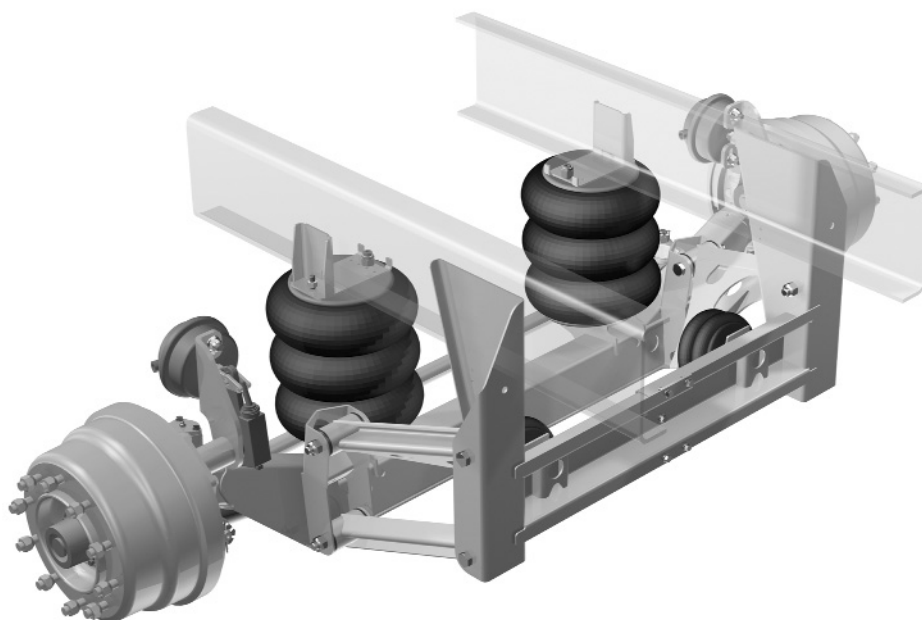
Wide range of custom options available





Owner's Manual

RSS-232 Flex-Trac™ Self-Steering Auxiliary Axle Suspension System



P.O. Box 4586
Springfield, MO USA 65808

(800) 641-4122
Fax (417) 833-4560

www.ridewellcorp.com

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Suspension Operation	Pg 10
Maintenance Schedule	Pg 11
Parts Illustrations	Pg 12
Warranty	Pg 14

SUSPENSION IDENTIFICATION: Ridewell Suspensions are identified by a metal tag attached to the left-hand hanger that indicates part number, revision level, and serial number.

PARTS: For optimum suspension performance, order only Ridewell parts. Replacement parts for Model RSS-232 are shown on pages 12 & 13 of this manual.

SALES, SERVICE & WARRANTY: If you need assistance regarding this product, please contact us and we will be glad to help you.

Mailing Address
Ridewell Corporation
P.O. Box 4586
Springfield, MO 65808

Shipping Address
Ridewell Corporation
3715 E. Farm Rd. 94
Springfield, MO 65803

Phones, Fax, Email
800-641-4122, (417) 833-4565
(417) 833-4560, fax
info@ridewellcorp.com

Pre-Installation Notes

1. Suspensions are designed to operate within specific parameters. Operating the suspension outside the design parameters may result in improper performance, damaged equipment, and void of warranty. See the Configuration section of this manual.
2. The total operating capacity of a suspension is determined by the component with the lowest load rating. Please consult with the manufacturers of tires and wheels to determine the maximum suspension system capacity.
3. Improperly locating an auxiliary suspension on a vehicle can unload or overload the vehicle's primary suspensions. The installer is responsible to ensure the auxiliary suspension is properly located for correct load distribution.
4. The installer is responsible to ensure that all local, state, and federal bridge laws are satisfied regarding axle spacing and capacity in the location where the vehicle is to be used before installing an auxiliary suspension.
5. The installer is responsible to ensure that air reservoir volume requirements are met. Consult the vehicle manufacturer or Federal Motor Vehicle Safety Standards (FMVSS) 121 for more information.
6. If vehicle chassis modifications are required, consult with the vehicle manufacturer to ensure that such changes are permitted.
7. Welding or altering suspension components is not permitted except where explicitly stated by Ridewell Corp.
8. The installer is responsible to ensure that there is sufficient clearance to the auxiliary suspension, tires, air springs, axle (including axle to driveline) and steering components.
9. When lowering an auxiliary axle on an unloaded vehicle, pressure to the load air springs must be reduced to below 10 psi. Failure to do so could cause the vehicle's drive axles to rise from the ground causing the vehicle to roll away.

Configuration

The Ridewell model RSS-232 suspension is designed with flexibility in mind so that one suspension fits as many vehicle configurations as possible while maximizing suspension performance. Each suspension must be configured to meet the following parameters before installation:

1. **Frame width.** All model RSS-232 suspensions can be configured to accommodate frame widths from 33.7 to 35.3 inches. Suspensions can be ordered with pre-set frame widths or can be field modified. Frame width adjustments are made by removing one or both ends of 4 torque rods and moving the shim washer from one side to the other. The proper location for the shim washers for a given frame width can be found in **Figure 1**.

For ease of installation, the hangers are temporarily bolted into place at the nominal frame widths of 34.0, 34.5, or 35.0 inches through a slot at the center of the cross-channel. Once the hangers have been bolted to the frame, 8 holes are to be drilled into the cross-channel, using the predrilled pilot holes, and fasteners installed to permanently secure the cross channels together.

Do not weld cross-channel.

<i>FRAME WIDTH</i>	<i>SHIM WASHER LOCATION</i>
$34.0 \pm .25$	<i>W - Z</i>
$34.5 \pm .25$	<i>X - Z</i>
$35.0 \pm .25$	<i>X - Y</i>

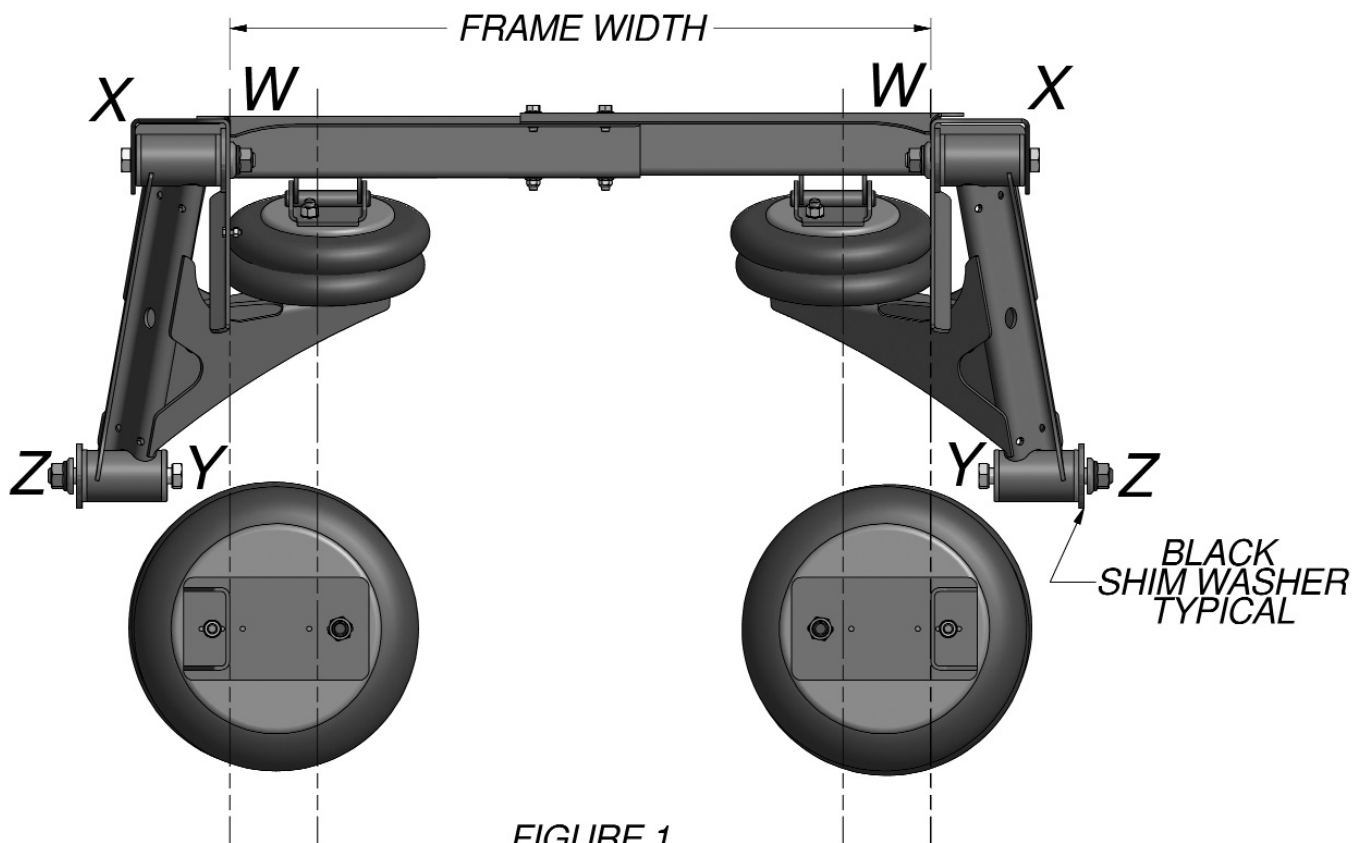


FIGURE 1

Configuration cont.

2. Ride height. Measured from the center of the wheel to the bottom of frame, ride height is related to frame height, which is ground to bottom of frame, by the following formula:

$$\text{Ride Height} = \text{Frame Height} - \text{Loaded Tire Radius}$$

The typical loaded radius for a given tire size can be found in **Chart 1**.

The frame height or ride height must be measured at the location that the auxiliary suspension is to be installed and when the vehicle is on level ground and loaded. If it is not possible to load the vehicle, the loaded frame deflection **must** be approximated to ensure that the auxiliary suspension operates within its designed ride height range. Consult the vehicle manufacturer or body builder's guide for further information.

The model RSS-232 suspension will accommodate the following ride heights:

- a. 13,200 lb capacity - 8.0 to 18.0 inches. These ride heights are covered by 3 different models, 232LM (low mount), 232MM (mid mount), and 232HM (high mount).
- b. 8,000 lb capacity - 10.5 to 16.5 inches. One model, 232-8k, covers this entire range.

Chart 2 shows the relationship between frame height and ride height and the models that will accommodate each. Suspensions must operate within their designed ride height.

The model RSS-232 suspension requires a guide to position the hanger properly on the frame for a given ride height. Either the air spring plate can serve as this guide or an installation tool is available. See **Figure 2**.

All RSS-232 suspensions can be spaced down 1 or 2 inches for maximum versatility and performance. The installation of a spacer requires a change from the standard 8 inch bolting rail height (the portion of the hanger extending above the bottom of the frame). Predrilled holes easily locate the air spring plate or installation tool for the correct bolting rail height. Fasteners are provided. See **Figure 3a** and **3b**.

**CHART 1
TIRE LOADED RADIUS**

Tubeless	Metric	Static Loaded Radius
	215/75R17.5	14
8.5R17.5	235/75R17.5	14.5
9R17.5	225/70R19.5	15
10R17.5	245/70R19.5	15.5
	265/70R19.5	16
	285/70R19.5	16
	305/70R19.5	16.5
8R22.5	255/70R22.5	17
	245/75R22.5	17
	235/80R22.5	17
	275/70R22.5	17.5
9R22.5	265/75R22.5	18
	255/80R22.5	18
	305/70R22.5	18.5
10R22.5	295/75R22.5	19
	275/80R22.5	19
11R22.5	295/80R22.5	19.5
	315/80R22.5	19.5
	285/75R24.5	19.5
	275/80R24.5	19.5

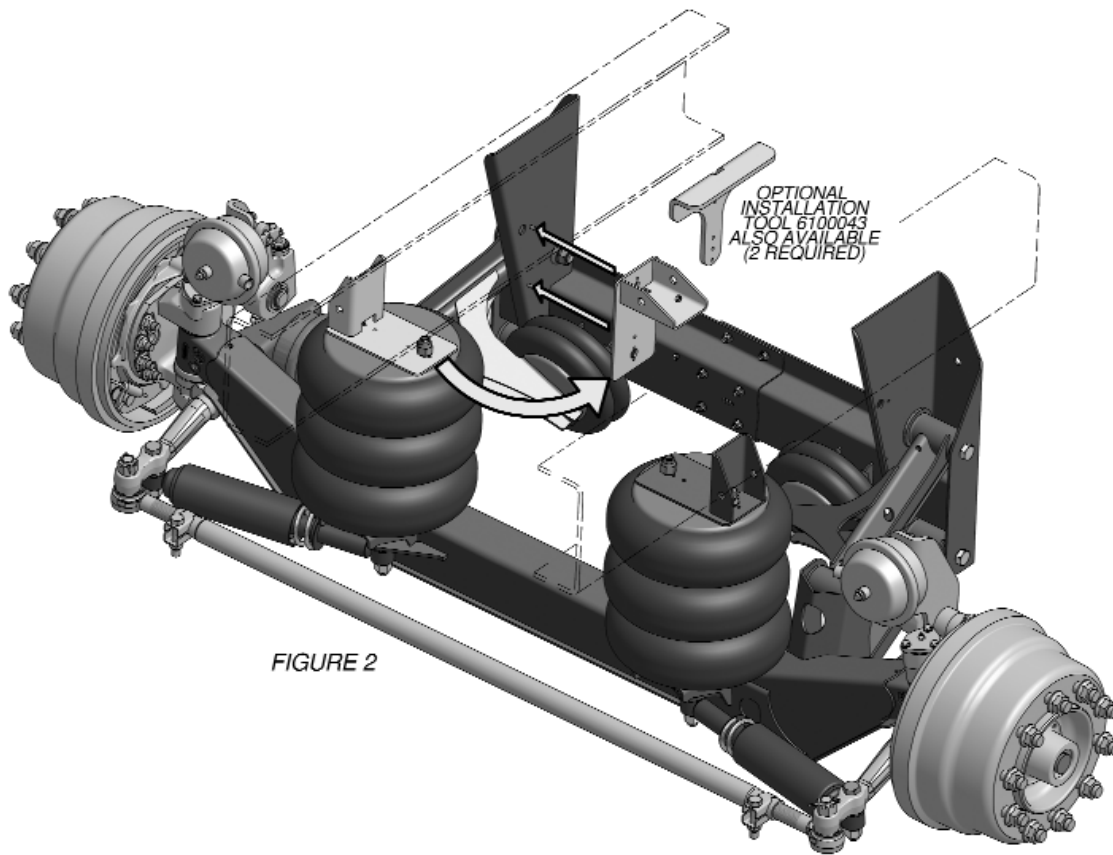


FIGURE 2

CHART 2 - SUSPENSION RIDE HEIGHT

Suspension Model		RIDE HEIGHT																					
		8.0	8.5	9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0	14.5	15.0	15.5	16.0	16.5	17.0	17.5	18.0	
RSS-232-8k	UP TRAVEL						6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	9.5*	10*	9.5**	10**				
RSS-232LM	UP TRAVEL	7.0	7.5	8.0	8.5	9.0	9.5	10.0	9.5*	10.0*	9.5**	10.0**											
RSS-232MM	UP TRAVEL						7.0	7.5	8.0	8.5	9.0	9.5	10.0	9.5*	10.0*	9.5**	10.0**						
RSS-232HM	UP TRAVEL												7.0	7.5	8.0	8.5	9.0	9.5	10.0	9.5*	10.0*	9.5**	10.0**

*Achieved with 1" spacers

**Achieved with 2" spacers

LOADED FRAME HT	LOADED TIRE RADIUS	RIDE HEIGHT																				
		8.0	8.5	9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0	14.5	15.0	15.5	16.0	16.5	17.0	17.5	18.0
25.0		17.0	16.5	16.0			14.5	14.0														
25.5		17.5	17.0	16.5	16.0		15.0	14.5	14.0													
26.0		18.0	17.5	17.0	16.5	16.0	15.5	15.0	14.5	14.0												
26.5		18.5	18.0	17.5	17.0	16.5	16.0	15.5	15.0	14.5	14.0											
27.0		19.0	18.5	18.0	17.5	17.0	16.5	16.0	15.5	15.0	14.5	14.0										
27.5		19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0	15.5	15.0	14.5	14.0									
28.0		20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0	15.5	15.0	14.5	14.0								
28.5		20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0	15.5	15.0	14.5	14.0							
29.0		21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0	15.5	15.0	14.5	14.0						
29.5			21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0	15.5	15.0	14.5	14.0					
30.0				21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0	15.5	15.0	14.5	14.0				
30.5					21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0	15.5	15.0	14.5	14.0			
31.0						21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0	15.5	15.0	14.5			
31.5							21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0	15.5	15.0			
32.0								21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0	15.5			
32.5									21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0			
33.0										21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0		
33.5											21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0	
34.0												21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0
34.5													21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5
35.0														21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0
35.5															21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5
36.0																21.0	20.5	20.0	19.5	19.0	18.5	18.0
36.5																	21.0	20.5	20.0	19.5	19.0	18.5
37.0																		21.0	20.5	20.0	19.5	19.0
37.5																			21.0	20.5	20.0	19.5
38.0																				21.0	20.5	20.0
38.5																					21.0	20.5
39.0																						21.0

RSS-232-8K

RSS-232LM/MM/HM

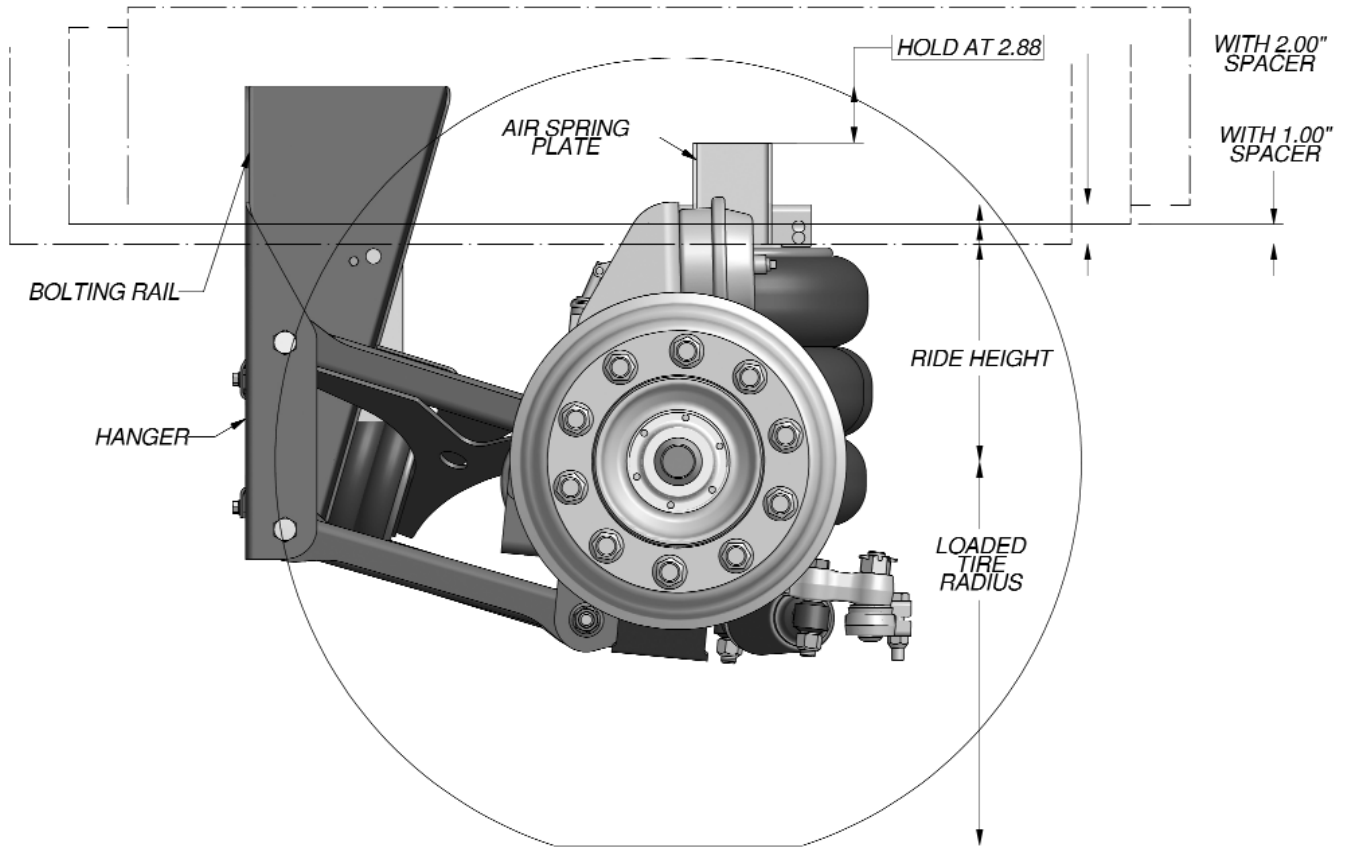


FIGURE 3a

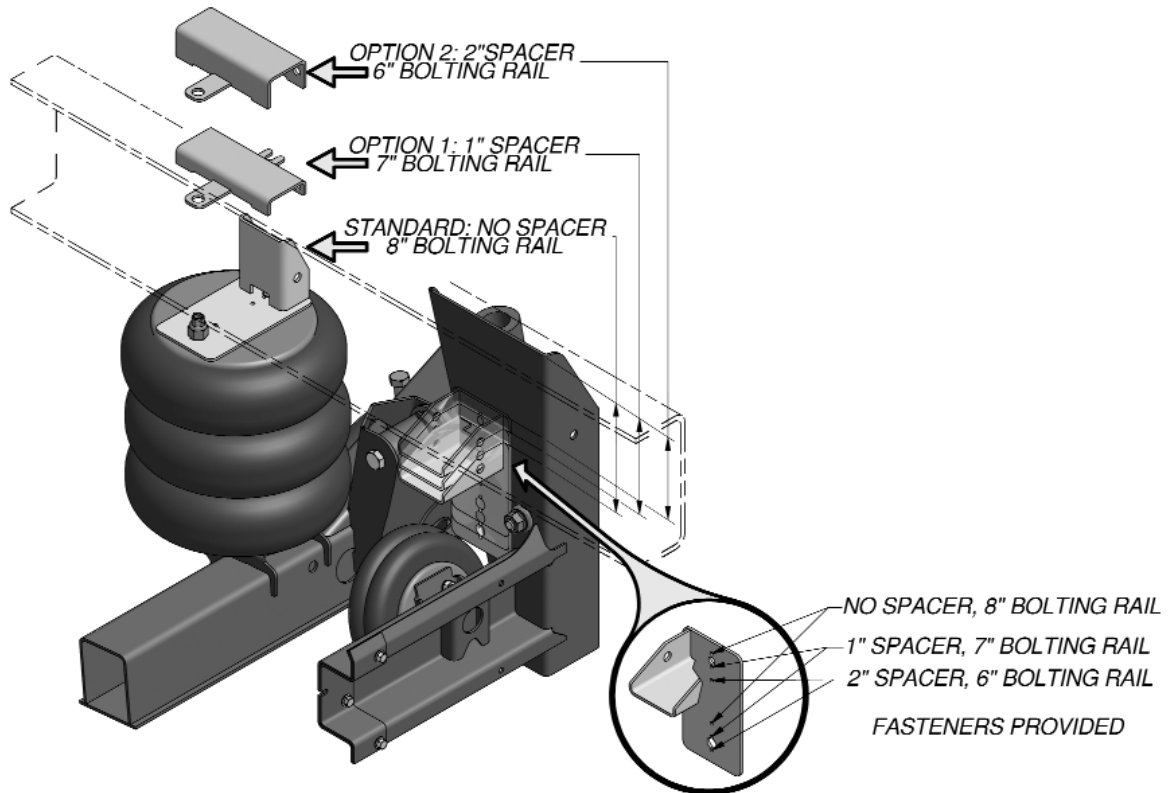


FIGURE 3b

Configuration cont.

3. Axle to driveline clearance. Measured from the top of the axle to the bottom of the driveline when the axle is in the lifted position. It is recommended that clearance be maintained between the axle and the driveline at all times during vehicle operation. Additional driveline clearance of 1 to 2 inches can be gained by spacers installed during suspension installation. See section 2 Ride Height for more information. **Chart 3** provides the bottom of frame to top of lifted axle dimensions for each model.

CHART 3 - TOP OF LIFTED AXLE TO
BOTTOM OF FRAME (INCHES)

SPACER	NONE	1"	2"
RSS-232-8k	5.8	6.8	7.8
RSS-232LM	5.7	6.7	7.7
RSS-232MM	8.2	9.2	10.2
RSS-232HM	10.7	11.7	12.7

4. Wheel ends. The model RSS-232 can be ordered for use with hub pilot or stud pilot wheels. Light weight hubs and drums and drums for use with 19.5" wheels are also available in hub pilot versions.
5. Operating in reverse. The RSS-232 is a self-steer suspension but will only do so when the vehicle is traveling forward. There are two ways to control the auxiliary axle when the vehicle is placed in reverse:
- Lift-in-reverse operation - A signal is sent to the air controls to lift the suspension when the reverse lights are activated. The air controls must be ordered with this feature.
 - Steer-lock operation - This option is preinstalled on the axle and locks the wheels in the straight ahead position when the vehicle is in reverse.

Installation Procedures

- After reading the *Pre-Installation Notes* and *Configuration* section of this manual, determine and mark the proper location of the suspension. The frame must be clear in this location for proper suspension fit-up. A cross member must be located within 6" of the leading or trailing edge of the hanger.
- Measure the vehicle frame width and make adjustments as necessary to the suspension frame width. Variations of +/-1/4 inch from the nominal frame width settings (34, 34.5, and 35.0 inches) do not require changes to the shim washers. See *Configuration, frame width* for more information. Temporarily secure the cross channel in place with a single bolt in the slotted hole.
- With the air spring plate or installation tool bolted to the inside of the hangers (see *Configuration, ride height* for more information), locate the hangers on the frame and clamp them firmly into place. The air spring plate or installation tool must be contacting the bottom of the frame. Ensure that the hangers are evenly located for proper axle alignment (fore and aft) and square to the frame. Also, the top of the hanger must be parallel to the bottom of the frame within 1/2 degree to maintain proper caster angle. Care should be taken to ensure that the hangers are precisely located and clamped tightly into place before drilling holes.

Installation Procedures cont.

4. Center punch and drill 12 total 21/32 inch holes in the locations shown in **Figure 4**. If it is not possible to use the recommended bolt locations, the total number fasteners must be maintained. Spacing groups of fasteners apart as far as possible provides the greatest strength. Use caution when drilling near wires, hoses or other components located within the frame rail. Bolt the hangers and air spring plates to the frame with 12 total 5/8 inch grade 8 bolts and prevailing torque lock nuts. Hardened washers or flanged fasteners are required.
5. Remove the air spring plate or installation tool from the hanger. Locate the air spring plates at the dimension shown in **Figure 4** and clamp them firmly into place. The spacer, if required, must also be clamped into place between the air spring plate and the frame rail. A 3/4 and a 1/2 inch fastener can be used to temporarily secure the spacer to the air spring plate through the air spring mounting holes. A dimension of 2.88 inches from the top of the hanger to the top of the air spring plate should be held at all times, with or without air spring spacers. Center punch and drill 4 total 21/32 inch holes in the locations shown in **Figure 4** and install 4 total 5/8 inch grade 8 bolts and prevailing torque lock nuts. Hardened washers or flanged fasteners are required.
6. Assemble the load air springs to the air spring plates.
7. Ensure that the hangers have remained parallel during installation. Drill 8 total 13/32 inch holes in the hanger cross channel using the pre-drilled pilot holes. Bolt the hanger cross channels using the 3/8" fasteners provided.
8. Install the air controls as required using 3/8" air lines. Refer to the installation drawing or air control manual for more information.
9. Ensure that all fasteners are tightened to the specified torque in **Chart 4**.

CHART 4 - TORQUE SPECIFICATIONS

Fastener size	Location	Torque (ft-lbs)
3/8" 16NC	Load Spring	25
1/2" 13NC	Load Spring (except 232HM)	25
1/2" 13NC	Load Spring (232HM)	50
3/4" 16NF	Load Spring	50
3/4" 16NF	Lift Spring	50
3/8" 16NC	Cross channel	30
3/4" 10NC	Stabilizer shock	160
3/4" 10NF	Torque Rod	450
7/16" 20NF	Draw Key / Axle Kingpin	35-50

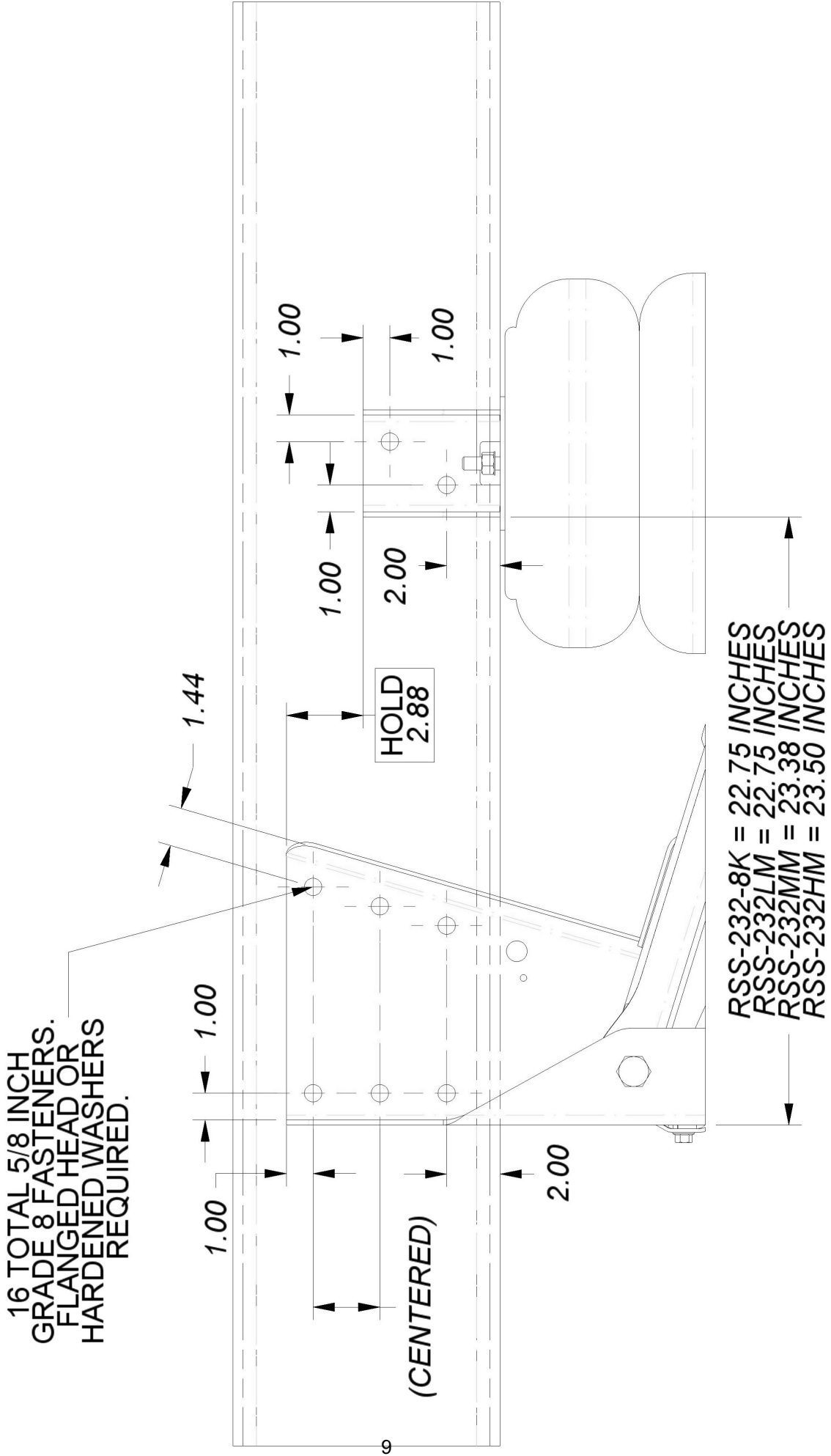


FIGURE 4

Installation Check

1. Reduce the air pressure to the load springs to below 10 psi. Operate the suspension up and down to ensure proper operation and suspension clearance to other components. Check that the driveline has adequate clearance when the suspension is lifted.
2. Check that the suspension either lifts or that the steer locks straighten the wheels when the vehicle is placed in reverse.
3. Check the toe of the suspension. See “Toe Setting” for more details.
4. Check that all fasteners, including wheel nuts, are tightened to the proper torque values.
5. Check that brakes and slack adjusters are properly adjusted and that wheels rotate freely.
6. Check hubs for proper oil levels.

Toe Setting

Toe is the difference between the dimensions, measured at spindle height, across the front of the tires versus the rear as shown in **Figure 5**. Therefore, $TOE = REAR - FRONT$. If FRONT is less than REAR, the suspension has “toe-in”. The toe of the suspension is critical to ensure proper tracking of the wheels, long tread life, stability and smooth operation. If there are problems with any of these items, the first thing to check is the toe. Toe is pre-set at the factory but there may be times that it must be checked in the field.

Check and Adjustment:

1. Deflate the air pressure from all air springs.
2. Raise the axle and support it with jack stands and ensure the tires are pointing straight ahead.
3. While spinning the tires, mark the center tread with chalk.
4. Measure the distances between tires, from the edges of the marked tread and at spindle height, as shown in Figure 5. $TOE = REAR - FRONT$. The toe should be between 1/32” and 3/32”.
5. The toe can be adjusted by loosening the clamps on both ends of the tie rod, twisting the rod forward or rearward to achieve the proper toe dimension, and re-tightening the clamps to 50 ft-lbs.

Bushing Replacement Notes

Bushings can be replaced with simple hand tools. Inner bushing sleeves must be greased with all-purpose grease prior to assembly. It is recommended that washers and bushings be replaced at the same time. Refer to **Figure 1** for the correct washer locations.

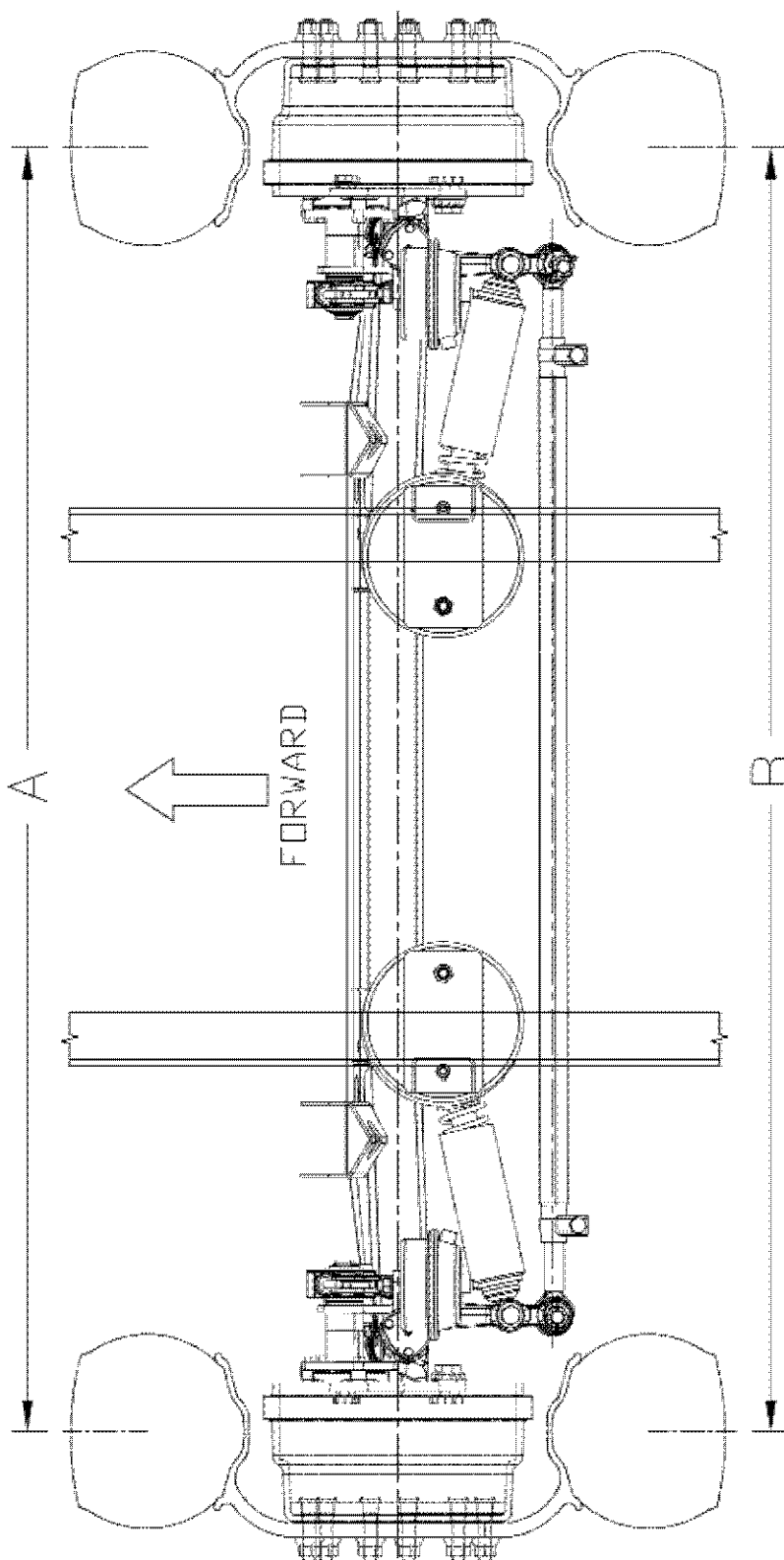


FIGURE 5

Suspension Operation

The controls of the RSS-232 should include a switch or push/pull knob to raise or lower the suspension, depending upon vehicle load carrying requirements, and a pressure regulator with gage to control the load carried by the suspension. The operator must be aware of the amount of pressure required to support a given load carried by the auxiliary suspension. Chart 5 shows the approximate air pressure, as shown on the gage, required to support a given load. To obtain a more accurate correlation, place scales under the lowered auxiliary axle and, while adjusting the gage pressure, read and make note of the load on the scales.

CHART 5 - LOAD AT GROUND VERSUS AIR PRESSURE (PSI)

13,000 lb capacity suspensions**

RSS-232LM and RSS-232MM			
Air Pressure	Air spring length (inches)		
	11.5	13	14.5
20	4175	3875	3575
30	5825	5425	4875
40	7475	6975	6175
50	9125	8475	7475
60	10775	9975	8775
70	12575	11475	10225
80	14375	12975	11675
90	16075	14575	13125
100	17775	16175	14575

8,000 lb capacity suspensions**

RSS-232-8k			
Air Pressure	Air spring length (inches)		
	11.5	13	14.5
20	3,925	3,625	3,325
30	5,575	5,175	4,625
40	7,225	6,725	5,925
50	8,875	8,225	7,225
60	10,525	9,725	8,525
70	12,325	11,225	9,975
80	14,125	12,725	11,425
90	15,825	14,325	12,875
100	17,525	15,925	14,325

RSS-232HM			
Air Pressure	Air spring length (inches)		
	14.0	15.5	17.0
20	3875	3975	3675
30	5325	5475	5075
40	6775	6975	6475
50	8325	8475	7725
60	9875	9975	8975
70	11325	11425	10275
80	12775	12875	11575
90	14275	14375	12925
100	15775	15875	14275

*The above charts show estimated values only. To determine an accurate suspension weight, calibration with a scale is recommended.

**Load values shaded gray exceed suspension rating. Do not operate at these pressures/loads.

Maintenance Schedule

To keep your Ridewell suspension in optimum working order, we recommend following maintenance.FH

SERVICE INTERVALS

	1,000 miles	First 6,000 miles of operation	12,000 miles	36,000 miles	100,000 miles
Steering Mechanism					
Tie Rod/Tie Rod Ends			I,L		
King Pins and Bushings				L	
Thrust Bearings				L	
Steering Knuckle Vertical End Play Inspection			I		
Upper and Lower King Pin Bushings for Wear			I		
Steering Stabilizer			I		
Draw Key Nuts		T		T	
Wheels & Brakes					
Wheel Lubricant	I				R
Wheel Endplay					
Brake Cam			L		
Slack Adjuster			L		
Brake Lining					
Brake Drum					
Brake Function					
Wheel Nuts					
Suspension					
Bushings	I				
Air springs	I				
Structure	I				
Fastener Torque		T		T	

I=Inspect, L=Lubricate, T=Tighten, R=Replace

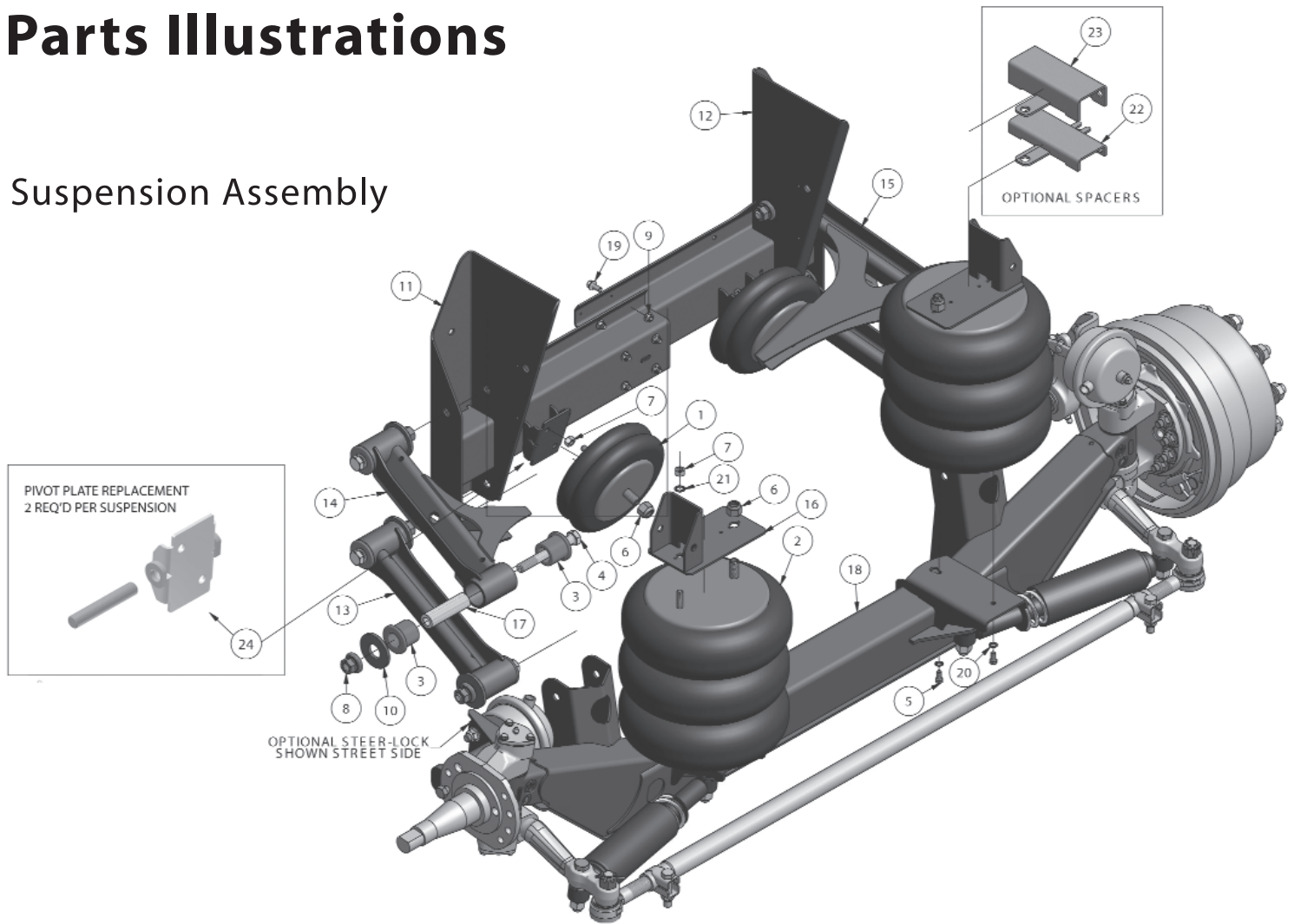
Lubricant Recommendations

Tie Rod End, King Pin, Thrust Bearing, Brake Cam, Slack Adjuster	NLGI 1 or 2
Wheel Lubricant	API-GL-5

Note: The above intervals are minimum requirements and more frequent intervals are recommended for severe applications.

Parts Illustrations

Suspension Assembly



SERIES
 0 = RSS-232LM/MM
 1 = RSS-232HM
 8 = RSS-232-8K

RSS-232 PART NUMBER CHART

232 X X X X S		SUFFIX	AXLE No
		(BLANK) - NO STEERLOCK	16401__
		S - WITH STEERLOCK	16401__S

HANGER DRILLING		FRAME WIDTH	
0 = NO HOLES	1 = 1" SPACING PREDRILLED	1 = 34.0"	
1 = 1" SPACING PREDRILLED	2 = 2" SPACING PREDRILLED	2 = 34.5"	
2 = 2" SPACING PREDRILLED		3 = 35.0"	

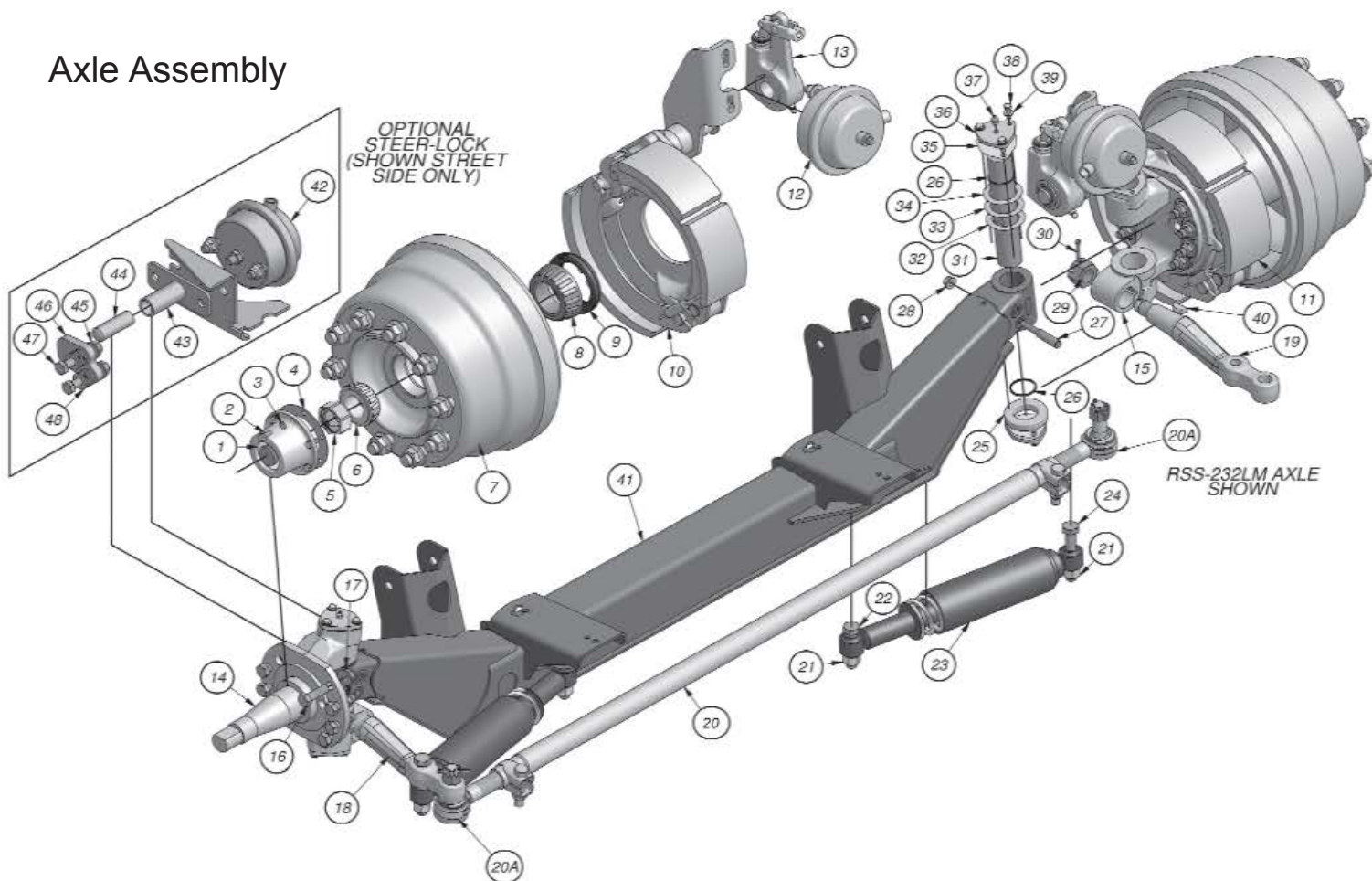
AXLE & WHEEL END ASSEMBLY			
No	WHEEL END	CAPACITY	AXLE No
0	HUB PILOT	8.0DK	1640130
1	HUB PILOT	13.0DK	1640150
2	STUD PILOT	13.0DK	1640151
3	HUB PILOT, LT WT	13.0DK	1640152
4	HUB PILOT, 19.5 SPL	13.0DK	1640153
5	HUB PILOT, TALL AXLE	13.0DK	1640160
6	STUD PILOT, TALL	13.0DK	1640161
7	HUB PILOT, LW TALL	13.0DK	1640162
8	HUB PILOT, 19.5 TALL	13.0DK	1640163

ITEM No.	PART No.	PART DESCRIPTION	RSS-232-8K	RSS-232LM	RSS-232MM	RSS-232HM
1	1002B09296G	A/SPG 2B9-296	2	2	2	2
2	1003B12347G	A/SPG 3B12-347	2	2	2	-
	1001R12584G	A/SPG 1R12-584	-	-	-	2
3	1120023	BUSHING, URETHANE 95DURD	16	16	16	16
4	1140049	HHCS 3/4" 16NF 6" LG.	8	8	8	a
5	1140044	HHCS 3/8" 16NC 3/4" LG.	4	4	4	a
6	1150011	L' NUT 3/4" -16NF	4	4	4	4
7	1150650B102	NUT 1/2" 13NC STD	2	2	2	-
8	1150027	L' NUT 3/4 16NF	8	8	8	8
9	1157482B105	L' NUT 3/8" 16NC FLNGD	8	8	8	8
10	1160009	WASHER UHM .25 x 3.1 x 1.3	8	8	8	8
	3170076	HANGER CROSSMEMBER ASSY. LH STD	1			a
11	3170084	HANGER CROSSMEMBER ASSY. LH MM	1	1	1	a
	3170077	HANGER CROSSMEMBER ASSY. RH STD	1			a
12	3170085	HANGER CROSSMEMBER ASSY. RH MM	1	1	1	a

ITEM No.	PART No.	PART DESCRIPTION	RSS-232-8K	RSS-232LM	RSS-232MM	RSS-232HM
13	5050006	TORQUE ROD ASSEMBLY	2	2	2	2
	5320003	TORQUE ROD ASSEMBLY W/BUSHINGS	2	2	2	2
14	5350027	UPPER LIFT ARM (LH)	1	1	1	1
	5320001	UPPER LIFT ARM (LH) W/BUSHINGS	1	1	1	1
15	5350028	UPPER LIFT ARM (RH)	1	1	1	1
	5320002	UPPER LIFT ARM (RH) W/BUSINGS	1	1	1	1
16	3450107	UPPER AIR SPRING BRACKET ASSY.	1	1	1	a
17	9090041	SLEEVE 1.313"ODx.751"IDx4.335" LG.	8	8	8	8
18	164013__	AXLE & WHEEL END ASSY 8K	b			
	164015__	AXLE & WHEEL END ASSY 13K	b	b		
	164016__	AXLE & WHEEL END ASSY 13K TALL			b	b
19	1140042	HHCS 3/8-16NC x 7/8" LG FLG.	1	1	1	1
20	1160011	L' WASHER 3/8" INTERNAL TOOTH	4	4	4	4
21	1167482B000	L' WASHER 1/2 INTERNAL TOOTH	2	2	2	-
22	6000711	1" AIR SPRING SPACER KIT	(2)	(2)	(2)	(2)
23	6000712	2" AIR SPRING SPACER KIT	(2)	(2)	(2)	(2)
24	6040088	PIVOT PLATE REPLACEMENT KIT	(2)	(2)	(2)	(2)

NOTES:
 a CONTACT RIDEWELL OR REFER TO AN INSTALLATION DRAWING FOR MORE DETAILS
 b SEE AXLE ASSEMBLY (ITEM 18) FOR FURTHER PARTS BREAKDOWN
 c SHIM WASHER (ITEM 10) MAY BE AT EITHER SIDE OF BUSHING.

Axle Assembly



ITEM	PART NO.	DESCRIPTION	RSS-232-8K	RSS-232LM	RSS-232MM	RSS-232HM
1	1667325B012	HUB CAP, 12/14K		2	2	
	1660151	HUB CAP, 8K	2			
2	1144206B105	HHCS 5/16" 18NC 3/4" L	B	12	12	
	1164263B100	L'WASHER 5/16"	B	12	12	
4	1667325B013	GASKET, HUB CAP, 12/14K		2	2	
	1660152	GASKET, HUB CAP, 8K	2			
5	1660093	SPINDLE NUT F-12 W/NUT CLIP		2	2	
	a	SPINDLE NUT 1-1/8 NF	1			
6	1667325B008	BEARING, WHEEL, 12/14K OUTER		2	2	
	1660149	BEARING, WHEEL, 8K OUTER	2			
7	a	HUB AND DRUM	2	2	2	
	1664206B009	BEARING, WHEEL, 12/14K INNER		2	2	
8	1660148	BEARING, WHEEL, 8K INNER	2			
	1667325B032	BEARING SEAL, INNER 12/14K		2	2	
9	1660150	BEARING SEAL, INNER 8K	2			
	1660028	BRAKE ASM LH 15X4, 45"		1	1	
10	a	BRAKE ASM LH 325X100, SLK&CBR	1			
	1660029	BRAKE ASM RH 15X4, 45"		1	1	
11	a	BRAKE ASM RH 325X100, SLK&CBR	1			
	1660037	BRAKE CHAMBER,TYPE 20L		2	2	
12	a	BRAKE CHAMBER,TYPE 12	2			
	1660036	SLACK ASSEMBLY		2	2	
14	1660101	KNUCKLE LH, FG		1	1	
	1660145	KNUCKLE LH, FC	1			
15	1660102	KNUCKLE RH, FG		1	1	
	1660146	KNUCKLE RH, FC	1			
18	1145237B108	HHCS 5/8" 18NF 2" L		14	14	
	1147587B108	HHCS 1/2" 20NF 1.5" L		12		
	1156315B108	L'NUT 5/8" 18NF TOP LK		14	14	
17	1154189B108	L'NUT 1/2" 20NF FLANGED		12		
	1660097	TIE ROD ARM LH, 13.2K		1	1	
	1740008	TIE ROD ARM LH, BK	1			
19	1660098	TIE ROD ARM RH, 13.2K		1	1	
	1740009	TIE ROD ARM RH, BK	1			
	1660015	TIE ROD ASSEMBLY 12/14K		1	1	
20	1660153	TIE ROD ASSEMBLY 8K	1			
	21	1150709B105	L'NUT 3/4" 10NC OVAL 3/4" HI	4	4	4
22	1147698B105	HHCS 3/4" 10NC 3-1/4L		2	2	2
	23	1317570B001	STEERING STABILIZER	2	2	2

ITEM	PART NO.	DESCRIPTION	RSS-232-8K	RSS-232LM	RSS-232MM	RSS-232HM
24	1143076B105	HHCS 3/4" 10NC 4-1/2" L GR5		2	2	
	1140021	HHCS 3/4" 10NC 3-3/4" L GR5		2		
25	1660009	BEARING, THRUST, FG T-18225 (1228D1356)		2	2	
	a	BEARING, THRUST, FC (1228V1530)	2			
26	1660131	GREASE SEAL, 13K KING PIN (1205X142B)		4	4	
	a	GREASE SEAL, 8K KING PIN (1205T2334)	4			
27	1660139	DRAW KEY 7/16" 20NF 3.8BL(7X111)		2	2	
	a	DRAW KEY 7/16" 20NF 3.8BL(7X1002)	2			
28	1150001	L'NUT 7/16" 20NF FLANGED (12272760)		2	2	2
	29	1660141	NUT, CASTLE 1-1/8" 12NF (1227X1610)	2	2	2
30	1137409B002	COTTER PIN 3/16 x 2-1/4 (K 2618)		2	2	2
	1660135	KING PIN, FG (3101D1070)		2	2	
31	a	KING PIN, FC (3101J1024)	2			
	32	1660138	SHIM .015", FG (AS REQ'D) (2203D2942)	NA	-	-
33	1660137	SHIM .010", FG (AS REQ'D) (2203K3001)		-	-	
	a	SHIM .010", FC (AS REQ'D) (2803G2633)	-			
34	1660136	SHIM .005", FG (AS REQ'D) (2203L3002)		-	-	
	a	SHIM .005", FC (AS REQ'D) (2803H2634)	-			
35	1660132	GASKET, KING PIN CAP, FG (3208M1027)		4	4	
	a	GASKET, KING PIN CAP, FC (3208D1070)	4			
36	1660133	CAP, KING PIN, FG (22974754)		4	4	
	a	CAP, KING PIN, FC (2297F6402)	4			
37	1660134	FITTING, GREASE 1/8" MPTF (1199N1850)		4	4	4
	38	1140007	HHCS 5/16" 18NC 1" L GR5 (5-25BP-2)	12	12	12
39	1160004	WASHER 5/16" SAE FLAT (1229E1669)	12	12	12	
	40	1660140	WOODRUFF KEY ANSI 1210 (16X1035)	2	2	2
41	5640030	AXLE RSS-232-8K	1			
	5640001(S)	AXLE RSS-232LM		1		
	5640020(S)	AXLE RSS-232MM/HM			1	
STEER-LOCK	42	1660037	BRAKE CHAMBER, TYPE 20L	NA	2	2
	43	4680052	TUBE ASSEMBLY, STEER-LOCK	NA	2	2
	44	9290015	PLUNGER, STEER-LOCK	NA	2	2
	45	1156315B108	L'NUT 5/8" 18NF TOP LK	NA	2	2
	46	7210048	STOP PLATE, STEER-LOCK RSS-232	NA	2	2
	47	1140026	HHCS 5/8" 18NF 2-3/4"	NA	4	4
48	1167369B100	WASHER 5/8" SAE/A-325	NA	12	12	

NOTES:
a CONTACT RIDEWELL OR REFER TO AN INSTALLATION DRAWING FOR MORE DETAILS
b AXLE NUMBERS WITH AN "S" SUFFIX INCLUDE STEER-LOCK (SHOWN STREET SIDE ONLY)
c RIDEWELL KING PIN REBUILD KITS:
RSS-232-8K : 166017D RSS-232LM,MM,HM: 1660106
KITS INCLUDE: 25,26,27,28,31,32,33,34,35,36,38,39 & BEARING

Warranty

Ridewell Suspensions warrants the suspension systems manufactured by it to be free from defects in material and workmanship, under proper use, installation, application, and maintenance for period of 3 years after delivery to the original purchaser. The responsibility of Ridewell Suspensions under this warranty is limited to making good at the company factory by repair or replacement of any part or parts which it manufactures.

Written permission for any claim return must be first obtained from Authorized Ridewell personnel. All returns must have transportation charges prepaid by the customer and accompanied with a complete written explanation of claimed defects and the circumstances of operational failure. On all component parts not manufactured by Ridewell, their warranty is to the extent that the manufacturer of such parts warrant them to Ridewell Suspensions. This is the only authorized warranty and is in lieu of all other expressed or implied warranties or representations, including any implied warranties of merchantability or fitness, or of any obligations on the part of Ridewell Suspensions. In no event will Ridewell be liable for business interruptions, loss of profits, personal injury, cost of delay, or for other special, indirect, incidental or consequential losses, costs or damages.

Subject to all of the above conditions, if repair or replacement of any defective part is made by Ridewell Suspensions, Ridewell will return the repaired or replaced part to the original purchaser with transportation charges prepaid.

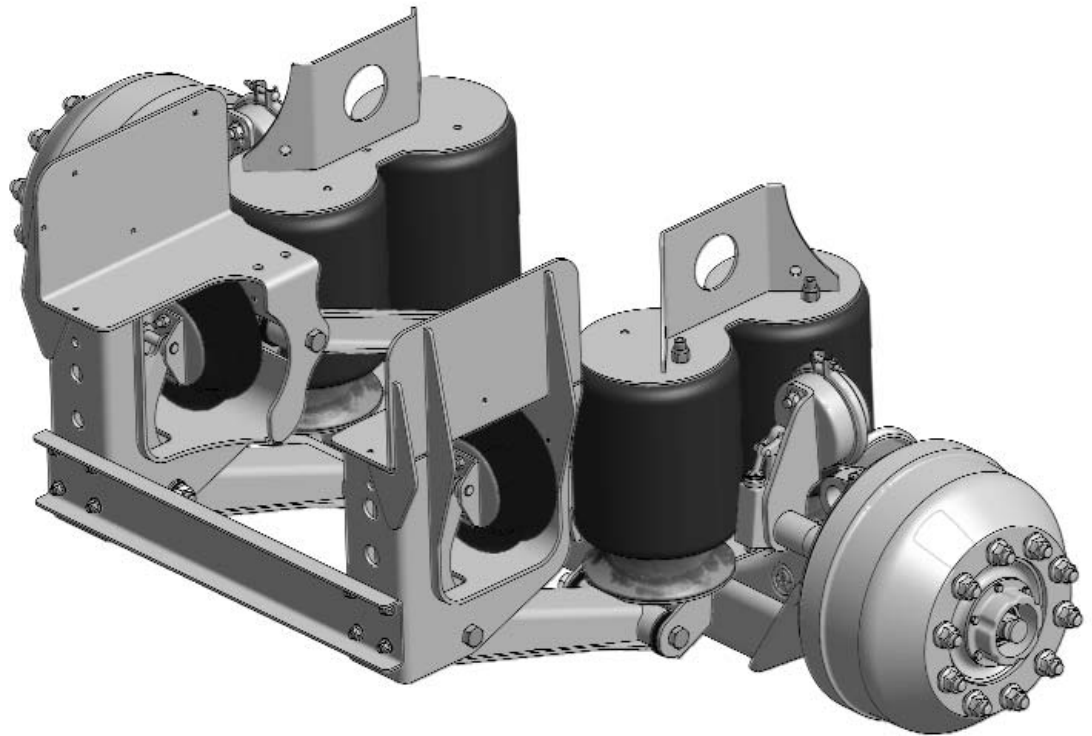
1 - 12 months
12- 36 months

100% Parts & Labor
100% Parts Only

Flex-Trac™ 232-20K

Self-Steering Auxiliary Axle Suspension System
for Trucks

Owner's Manual



RIDEWELL
SUSPENSIONS

P.O. Box 4586
Springfield, MO USA 65808
800.641.4122
Fax 417.833.4560
www.ridewellcorp.com

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SUSPENSION IDENTIFICATION: Ridewell Suspensions are identified by a metal tag attached to the left-hand hanger that indicates part number, revision level, and serial number.

PARTS: For optimum suspension performance, order only Ridewell parts. Replacement parts for Model RSS-232-20K are shown on pages 10 & 11 of this manual.

SALES, SERVICE & WARRANTY: If you need assistance regarding this product, please contact us and we will be glad to help you.

Mailing Address
Ridewell Corporation
P.O. Box 4586
Springfield, MO 65808

Shipping Address
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Springfield, MO 65803

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(417) 833-4560, fax
info@ridewellcorp.com

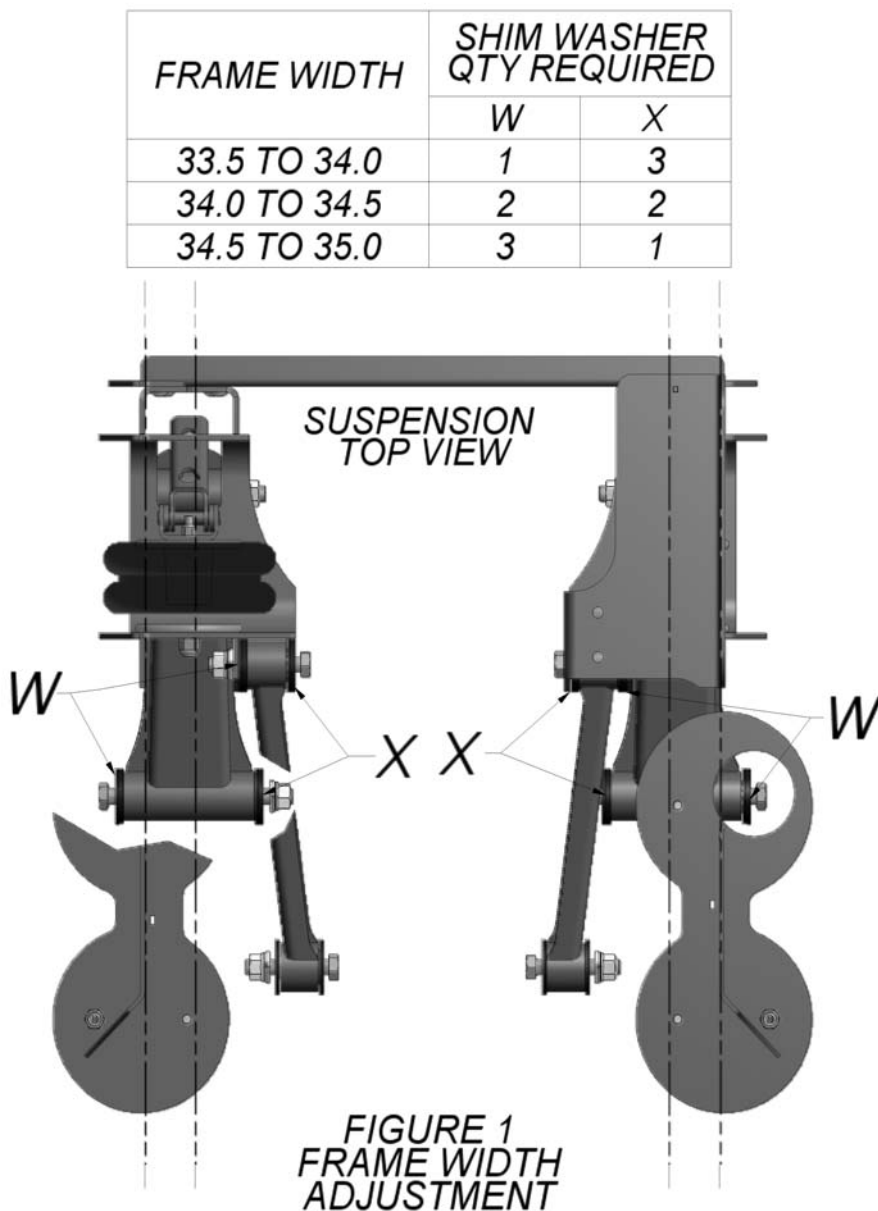
Pre-Installation Notes

1. Suspensions are designed to operate within specific parameters. Operating the suspension outside the design parameters may result in improper performance, damaged equipment, and void of warranty. See the 'Configuration' section of this manual.
2. The total operating capacity of a suspension is determined by the component with the lowest load rating. Please consult with the manufacturers of tires and wheels to determine the maximum suspension system capacity.
3. Improperly locating an auxiliary suspension on a vehicle can unload or overload the vehicle's primary suspensions. The installer is responsible to ensure the auxiliary suspension is properly located for correct load distribution.
4. The installer is responsible to ensure that all local, state, and federal bridge laws are satisfied regarding axle spacing and capacity in the location where the vehicle is to be used before installing an auxiliary suspension.
5. The installer is responsible to ensure that air reservoir volume requirements are met. Consult the vehicle manufacturer or Federal Motor Vehicle Safety Standards (FMVSS) 121 for more information.
6. If vehicle chassis modifications are required, consult with the vehicle manufacturer to ensure that such changes are permitted.
7. Welding or altering suspension components is not permitted except where explicitly stated by Ridewell Corp.
8. The installer is responsible to ensure that there is sufficient clearance to the auxiliary suspension, tires, air springs, axle (including axle to driveline) and steering components.
9. When lowering an auxiliary axle on an unloaded vehicle, pressure to the load air springs must be reduced to below 10 psi. Failure to do so could cause the vehicle's drive axles to rise from the ground causing the vehicle to roll away.

Configuration

The Ridewell model RSS-232-20K suspension is designed with flexibility in mind so that one suspension fits as many vehicle configurations as possible while maximizing suspension performance. Each suspension must be configured to meet the following parameters before installation:

1. **Frame width:** All model RSS-232-20K suspensions can be configured to accommodate truck frame widths from 33.5 to 35.0 inches. Suspensions can be ordered with pre-set frame widths or can be field modified. Frame width adjustments are made by loosening the cross-channel, removing the axle end of the lower torque rods, removing the hanger end of the upper torque rods and moving the shim washer(s) of each torque rod from one side to the other. The proper location for the shim washers for a given frame width can be found in **Figure 1**. Ensure that all fasteners are properly retightened. Do not weld cross-channel.



Configuration cont.

2. **Ride height:** Measured from the center of the wheel to the bottom of frame, ride height is related to frame height, which is ground to bottom of frame, by the following formula:

$$\text{Ride Height} = \text{Frame Height} - \text{Loaded Tire Radius}$$

The typical loaded radius for a given tire size can be found in **Chart 1**.

The frame height or ride height must be measured at the location on the vehicle that the auxiliary suspension is to be installed and with the vehicle loaded and on level ground. If it is not possible to load the vehicle, the loaded frame deflection must be approximated to ensure that the auxiliary suspension operates within its designed ride height range. Consult the vehicle manufacturer or body builder's guide for further information.

The model RSS-232-20K suspension will accommodate ride heights of 8" to 15" with a single model. Ride heights of 13.5" to 15" require the optional 2" spacer kit.

Chart 2 shows the relationship between frame height and ride height. Suspensions must operate within their designed ride height range.

**CHART 1
TIRE LOADED RADIUS**

Tubeless	Metric	Static Loaded Radius
8R22.5	255/70R22.5	17
	245/75R22.5	17
	235/80R22.5	17
	275/70R22.5	17.5
9R22.5	265/75R22.5	18
	255/80R22.5	18
	305/70R22.5	18.5
10R22.5	295/75R22.5	19
	275/80R22.5	19
11R22.5	295/80R22.5	19.5
	315/80R22.5	19.5
	285/75R24.5	19.5
	275/80R24.5	19.5
	385/65R22.5	19.5
12R22.5	365/80R20	20
13R22.5	425/65R22.5	20.5
11R24.5		20.5
12R24.5	445/65R22.5	21
13R24.5		21.5

3. **Axle to driveline clearance:** Measured from the top of the axle to the bottom of the driveline when the axle is in the lifted position. It is recommended that clearance be maintained between the axle and the driveline at all times during vehicle operation. Additional driveline clearance of 2 inches can be gained by spacers installed during suspension installation. See section 2 Ride Height for more information. The bottom of frame to top of lifted axle dimension is 8.25" without spacers or 10.25" with the 2" spacer kit.
4. **Operating in reverse:** The RSS-232 is a self-steer suspension but will only do so when the vehicle is traveling forward. There are two ways to control the auxiliary axle when the vehicle is placed in reverse:
- Lift-in-reverse operation** - A signal is sent to the air controls to lift the suspension when the reverse lights are activated. The air controls must be ordered with this feature.
 - Steer-lock operation** - This option is preinstalled on the axle and locks the wheels in the straight ahead position when the vehicle is in reverse.

CHART 2 RSS-232-20k RIDE HEIGHT CHART

SUSPENSION MODEL	UP TRAVEL	RIDE HEIGHT														
		8.0	8.5	9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0	14.5	15.0
RSS-232-20K		5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	8.5*	9*	9.5*	10*

FOOTNOTES: * Requires 2" spacer kit

FRAME HEIGHT	LOADED TIRE RADIUS	RIDE HEIGHT														
		8.0	8.5	9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0	14.5	15.0
25.0		17.0														
25.5		17.5	17.0													
26.0		18.0	17.5	17.0												
26.5		18.5	18.0	17.5	17.0											
27.0		19.0	18.5	18.0	17.5	17.0										
27.5		19.5	19.0	18.5	18.0	17.5	17.0									
28.0		20.0	19.5	19.0	18.5	18.0	17.5	17.0								
28.5		20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0							
29.0		21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0						
29.5			21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0					
30.0				21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0				
30.5					21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0			
31.0						21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0		
31.5							21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0	
32.0								21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0
32.5									21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5
33.0										21.0	20.5	20.0	19.5	19.0	18.5	18.0
33.5											21.0	20.5	20.0	19.5	19.0	18.5
34.0												21.0	20.5	20.0	19.5	19.0
34.5													21.0	20.5	20.0	19.5
35.0														21.0	20.5	20.0
35.5															21.0	20.5
36.0																21.0

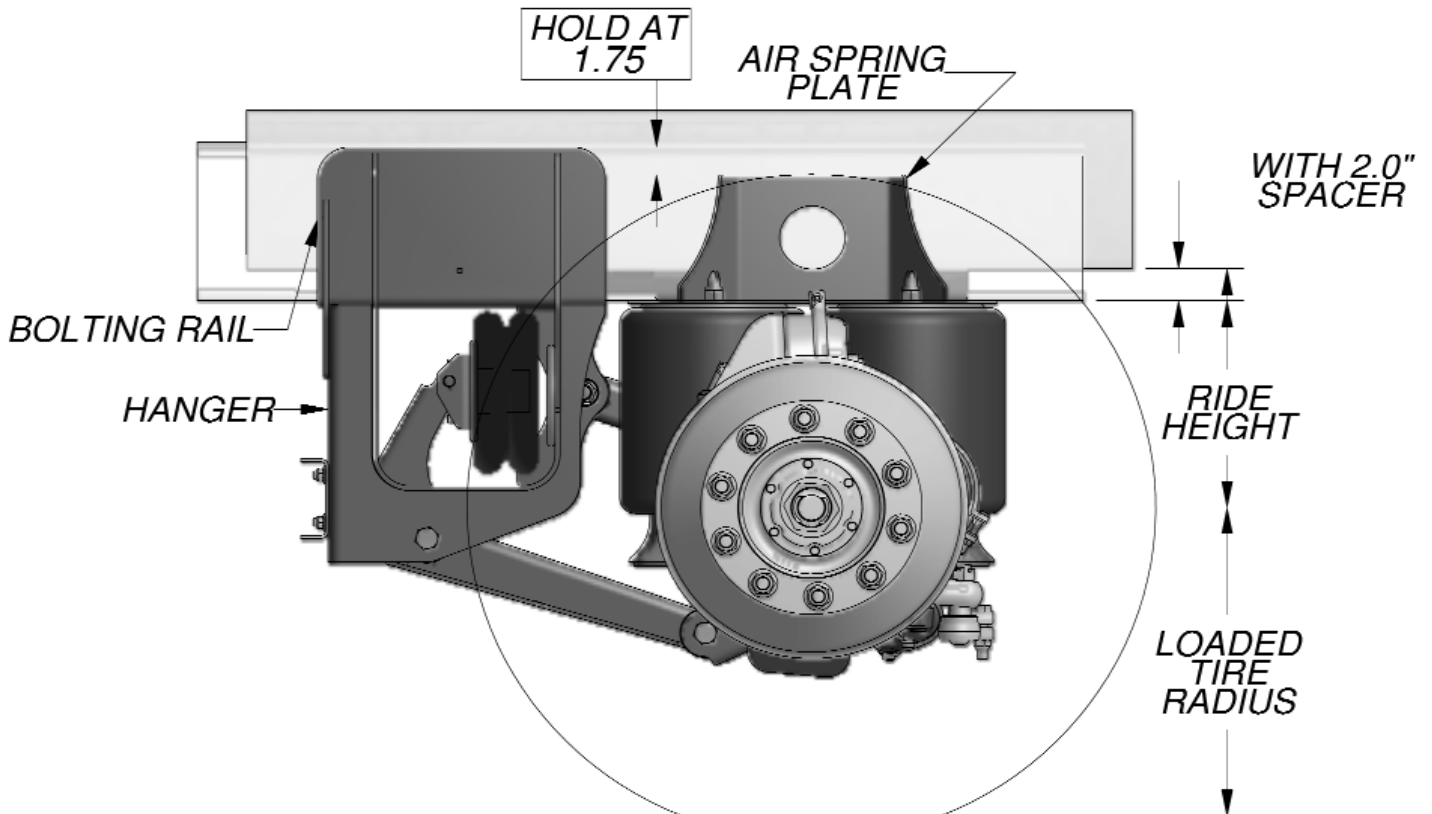


FIGURE 2

Installation Procedures

1. After reading the Pre-Installation Notes and Configuration section of this manual, determine and mark the proper location of the suspension on the chassis. The frame must be clear in this location for proper suspension fit-up. A cross member must be located within 6" of the leading or trailing edge of the hanger.
2. Measure the vehicle frame width and make adjustments as necessary to the suspension frame width. See Configuration, frame width for more information. The spacer kit, if required, must also be installed at this time. To facilitate fit up, slots on the hanger and air spring plate align with tabs on the spacer kit. Weld the spacers solid to the suspension with 1/4" fillet welds. All welds must stop 1/4" to 1/2" before edges.
3. Locate the hangers on the frame and clamp them firmly into place. The shelf at the top of the hanger must fully contact the bottom of the frame. Ensure that the hangers are evenly located for proper axle alignment (fore and aft) and square to the frame. Care should be taken to ensure that the hangers are precisely located and clamped tightly into place before drilling holes.
4. Center punch and drill 12 total 21/32 inch holes in the locations shown in **Figure 3**. If it is not possible to use the recommended bolt locations, the total number fasteners must be maintained. Spacing groups of fasteners apart as far as possible provides the greatest strength. Use caution when drilling near wires, hoses or other components located within the frame rail. Bolt the hangers to the frame with 12 total 5/8 inch grade 8 bolts and prevailing torque lock nuts. Hardened washers or flanged fasteners are required.
5. Locate the air spring plates at the dimension shown in **Figure 3** and clamp them firmly into place. The air spring plate must be in full contact with the bottom of the frame. Center punch and drill 8 total 21/32 inch holes in the locations shown in **Figure 3** and install 8 total 5/8 inch grade 8 bolts and prevailing torque lock nuts. Hardened washers or flanged fasteners are required.
6. Install the cross-channel, if necessary, and ensure all bolts are properly tightened to the torque listed in **Chart 3**.
7. Install the air controls as required using 3/8" air lines. Refer to the installation drawing or air control manual for more information.

CHART 3
TORQUE SPECIFICATIONS

Fastener size	Location	Torque (ft-lbs)
1/2" 13NC	Cross channel	55
1/2" 13NC	Load Spring/Lift Spring	25
3/4" 16NF	Load Spring/Lift Spring	50
7/8" 14NF	Torque Rods	500
3/4" 10NC	Stabilizer shock	160

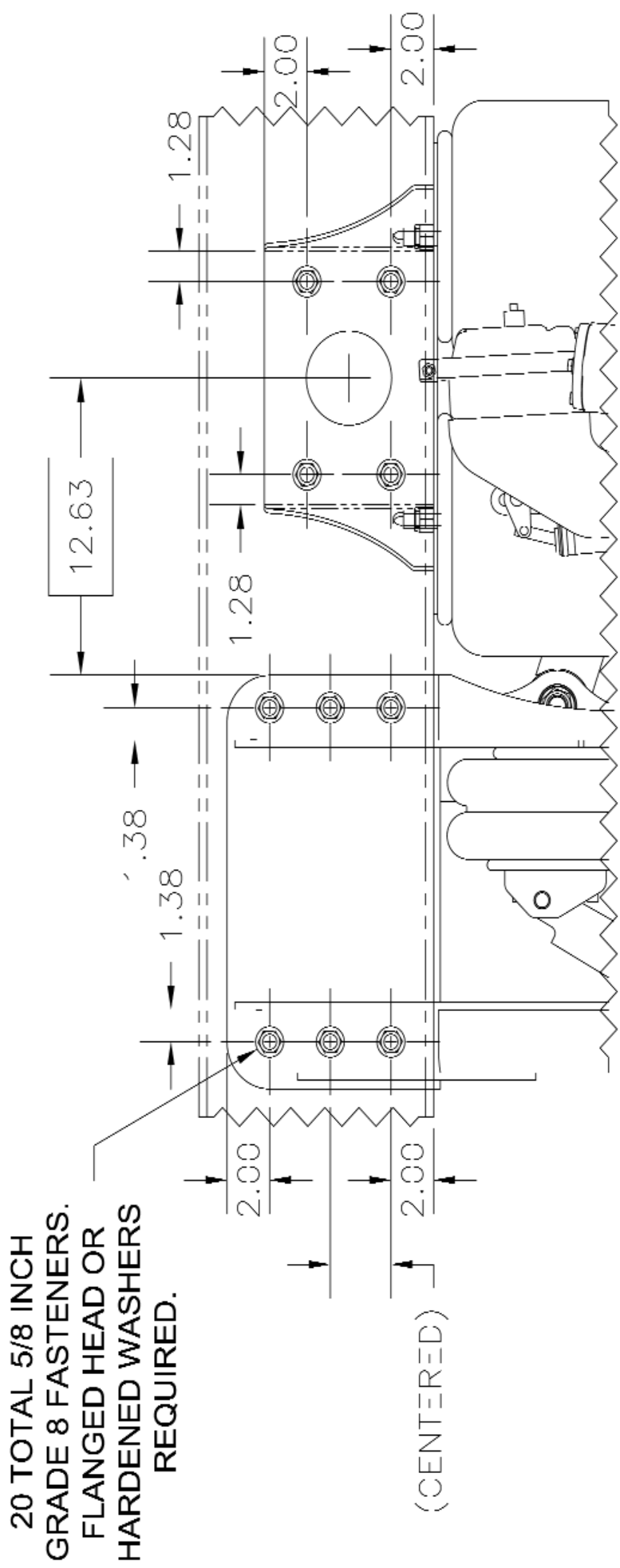


FIGURE 3
BOLT LOCATIONS

Installation Check

1. Reduce the air pressure to the load springs to below 10 psi. Operate the suspension up and down to ensure proper operation and suspension clearance to other components. Check that the driveline has adequate clearance when the suspension is lifted.
2. Check that the suspension either lifts or that the steer locks straighten the wheels when the vehicle is placed in reverse.
3. Check the toe of the suspension. Toe-in should be 1/32 +/-1/32.
4. Check that all fasteners, including wheel nuts, are tightened to the proper torque values.
5. Check that brakes and slack adjusters are properly adjusted and that wheels rotate freely.
6. Check hubs for proper oil levels.

Suspension Operation

The controls of the RSS-232 should include a switch or push/pull knob to raise or lower the suspension, depending upon vehicle load carrying requirements, and a pressure regulator with gauge to control the load carried by the suspension. The operator must be aware of the amount of pressure required to support a given load carried by the auxiliary suspension. **Chart 4** shows the approximate air pressure, as shown on the gauge, required to support a given load. To obtain a more accurate correlation, place scales under the lowered auxiliary axle and, while adjusting the gauge pressure, read and make note of the load on the scales.



Suspension Model: Part Number				Air spring PSI
RSS-232-20K: 2323				
Ride Height	8.5" - 13.0" (unspaced)			
Axle & Wheel weight (lb) (est)	1700			
Air spring	8494/8490			
	Air spring force, lbs per spring	Sprung load, lbs per suspension	Ground load, lbs	
	1,150	4,600	6,425	20
	1,800	7,200	9,025	30
	2,450	9,800	11,625	40
	3,100	12,400	14,225	50
	3,750	15,000	16,825	60
	4,425	17,700	19,525	70
	4,544	18,176	20,001	72
	5,100	20,400	22,225	80

Notes:

1. The above chart shows estimated values only.
2. To determine an accurate suspension weight, calibration with a scale is recommended.
3. Load values shaded gray exceed suspension rating. Operation at these pressures/loads is not advisable.

Maintenance Schedule

To keep your Ridewell suspension in optimum working order, we recommend following maintenance.

Service Intervals

	1,000 miles	First 6,000 miles of operation	12,000 miles	36,000 miles	100,000 miles
Steering Mechanism					
Tie Rod/Tie Rod Ends			I,L		
King Pins and Bushings				L	
Thrust Bearings				L	
Steering Knuckle Vertical End Play Inspection			I		
Upper and Lower King Pin Bushings for Wear			I		
Steering Stabilizer			I		
Draw Key Nuts		T		T	
Wheels & Brakes					
Wheel Lubricant	I				R
Wheel Endplay					
Brake Cam			L		
Slack Adjuster			L		
Brake Lining					
Brake Drum					
Brake Function					
Wheel Nuts					
Suspension					
Bushings	I				
Air springs	I				
Structure	I				
Fastener Torque		T		T	

I=Inspect, L=Lubricate, T=Tighten, R=Replace

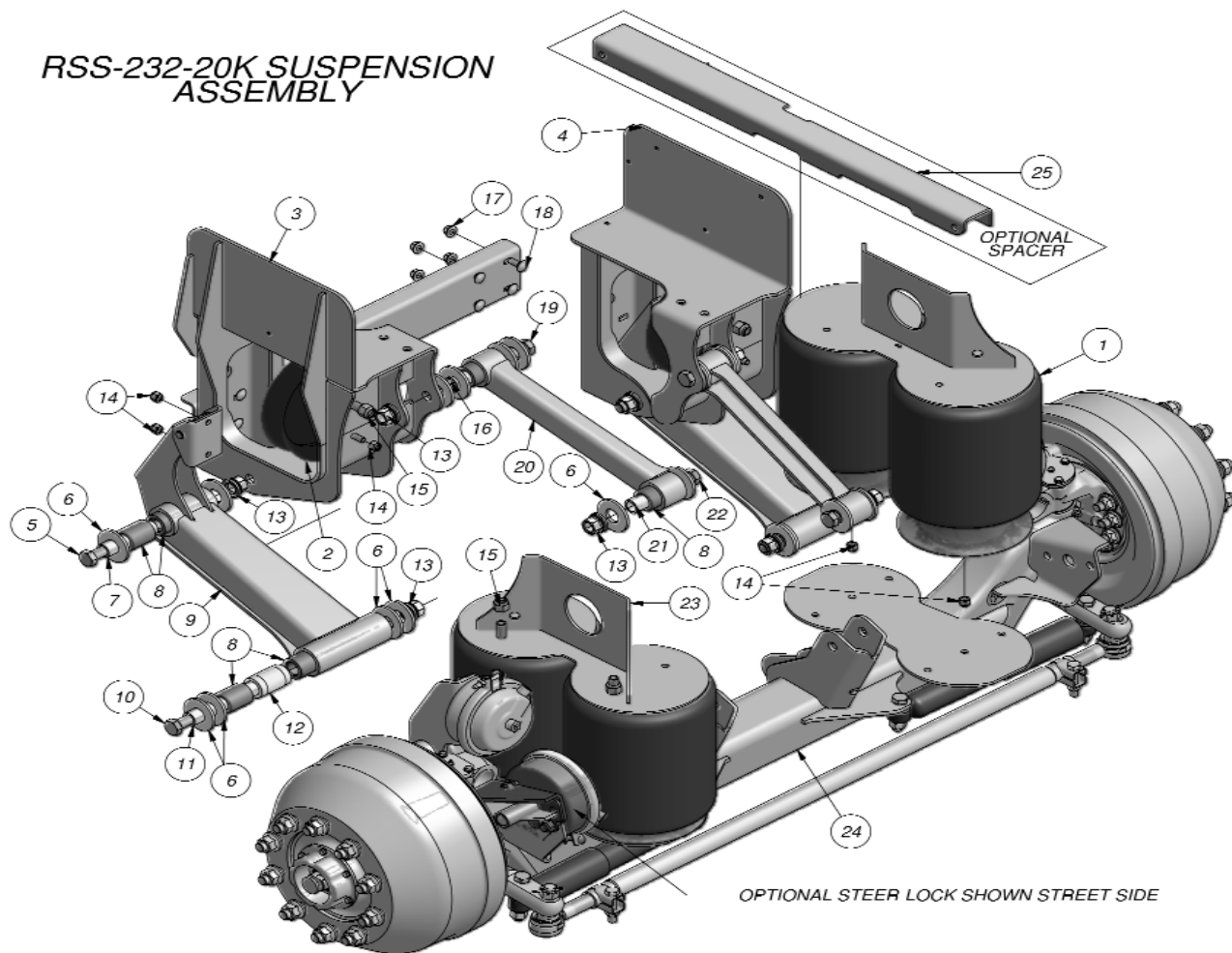
Lubricant Recommendations

Tie Rod End, King Pin, Thrust Bearing, Brake Cam, Slack Adjuster	NLGI 1 or 2
Wheel Lubricant	API-GL-5

Note: The above intervals are minimum requirements and more frequent intervals are recommended for severe applications.

Parts Illustrations

RSS-232-20K SUSPENSION ASSEMBLY



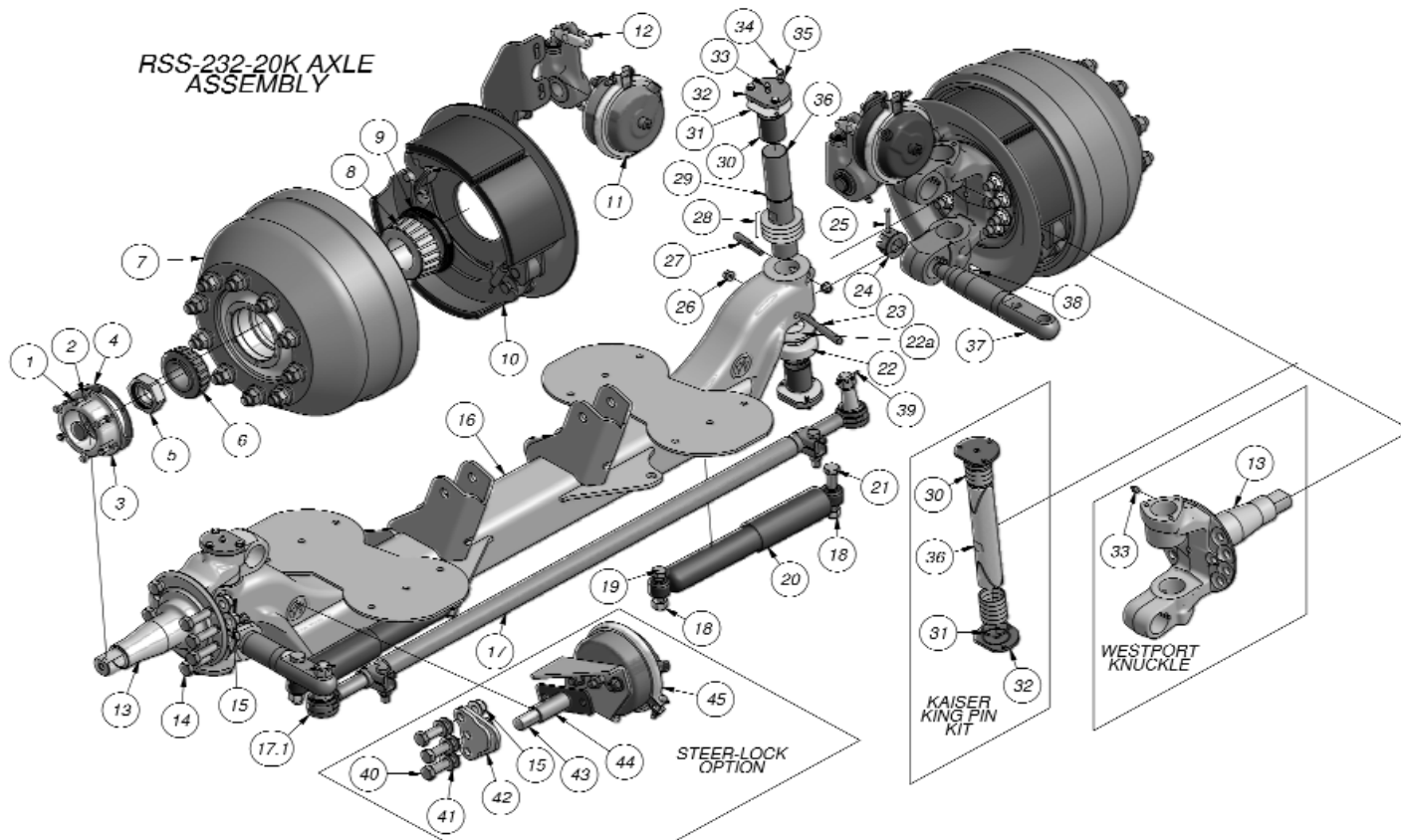
PART NUMBER 2323 _____

ITEM No.	PART No.	PART DESCRIPTION	QTY
1	1003588494C	AIR SPRING, LOAD	4
2	1003586707C	AIR SPRING, LIFT	2
3	3170086	HANGER ASSEMBLY LH	1
4	3170087	HANGER ASSEMBLY RH	1
5	1140060	HHCS 7/8-14NF 7-1/2"L	2
6	1160009	SHIM WASHER .25T	24
7	9090056	BUSHING SLEEVE 5.21L	2
8	1120030	BUSHING, URETHANE SOFT	12
9	5350034	LOWER T'ROD/LIFT ARM ASSEMBLY	2
10	1140023	HHCS 7/8-14NF 11"L	2
11	9090058	BUSHING SLEEVE 8.84L	2
12	1120031	BUSHING, URETHANE HARD	2
13	1150028	L'NUT 7/8-14NF SECURELOK	8
14	1150555B112	L'NUT 1/2-13NC NYLON INSERT	10
15	1150011	L'NUT 3/4-16NF	6

ITEM No.	PART No.	PART DESCRIPTION	QTY
16	9090059	BUSHING SLEEVE 3.36L	2
17	1150012	L'NUT 1/2-13NC FL TL	8
18	1130029	BOLT, CARRIAGE, 1/2-13NC .75L	8
19	1140062	HHCS 7/8-14NF 5-1/2"L	2
20	5050008	UPPER T'ROD 18"L, 1-15/16"OFFSET	2
21	9090057	BUSHING SLEEVE 2.86L	2
22	1140952B105	HHCS 7/8-14NF 5"L	2
23	3450139	AIR SPRING PLATE ASSEMBLY	2
24	a	AXLE ASSEMBLY	1
25	6000720	SPACER KIT 2" (OPTIONAL)	2

NOTES:

- a SEE AXLE ASSEMBLY (ITEM 24) FOR FURTHER PARTS BREAKDOWN
- b SHIM WASHER (ITEM 6) QUANTITY AT EACH LOCATION MAY VARY. SEE FIGURE 1.



AXLE PART NUMBERS

ITEM No.	PART No.	PART DESCRIPTION	QTY
1	1144206B105	HHCS 5/16" 18NC 3/4" L	12
2	1164263B100	L'WASHER 5/16"	12
3	1667537B005	HUB CAP, 5.5BC	2
4	1667537B006	GASKET, HUB CAP, 5.5"BC	2
5	1660188	SPINDLE NUT, 1.75"-12	2
6	1667726B005	BEARING ASY, OUTER, FL #K555S	2
7	1667726B003	HUB & DRUM, HUB PILOT	2
8	1667726B004	BEARING ASY, INNER, FL #K6461	2
9	1667726B006	BEARING SEAL, INNER, FL	2
10	d	BRAKE ASY, LH 16.5X6 Q-PLUS	1
10	d	BRAKE ASY, RH 16.5X6 Q-PLUS	1
11	d	BRAKE CHAMBER, TYPE 24, LH	1
11	d	BRAKE CHAMBER, TYPE 24, RH	1
12	1660036	SLACK ADJUSTER, 5.5", 1.5"X28	2
13	1660184	KNUCKLE, LH, FL MERITOR (SHOWN)	1
13	1660209	KNUCKLE, LH, FL WESTPORT	
13	1660229	KNUCKLE, LH, FL WESTPORT/KAISER	
13	1660185	KNUCKLE, RH, FL MERITOR (SHOWN)	
13	1660210	KNUCKLE, RH, FL WESTPORT	
13	1660230	KNUCKLE, RH, FL WESTPORT/KAISER	
14	1140057	HHCS 3/4" 16NF 2" L	14
15	1150016	L'NUT 3/4" 16NF	14
16	5640040	AXLE ASSEMBLY	1
16	5640040S	AXLE ASSEMBLY - W/STEER-LOCK	
17	1660183	TIE ROD ASSEMBLY	1
17.1	1660064	TIE ROD END, RH THREAD (PART OF 17)	-
17.1	1660065	TIE ROD END, LH THREAD (PART OF 17)	-
18	1150709B105	L'NUT 3/4" 10NC	4
19	1147698B105	HHCS 3/4" 10NC 3-1/4L	2
20	1310002	STEERING STABILIZER W/SPRING	2
21	1143076B105	HHCS 3/4" 10NC 4-1/2"L	2
22	1660224	BEARING ASSEMBLY, FL, T-208S	2
22a	1660225	BEARING SEAL, FL, T-208S	2

ITEM No.	PART No.	PART DESCRIPTION	QTY
23	1660217	DRAW KEY, LOWER 4.69" (7X114)	2
24	1660190	NUT, SLOTTED, 1.25"-12UNF (1227W1609)	2
25	1137409B002	COTTER PIN, 3/16 x 2-1/4	2
26	1150001	L'NUT 7/16-20NF, FLANGED	4
27	1660216	DRAW KEY UPPER 3.25" (7X1003)	2
28	1660218	SHIM .005 (USE AS NEEDED) (2203N3004)	-
28	1660219	SHIM .015 (USE AS NEEDED) (2203A2835)	-
28	1660220	SHIM .030 (USE AS NEEDED) (2203B2836)	-
29	d	SEAL, KING PIN (A1205Y1429)	4
29	d	BUSHING, KNUCKLE, WESTPORT (143622-0006)	
30	d	BUSHING, KNUCKLE, MERITOR (1225A1041)	4
30	d	BUSHING, KNUCKLE, KAISER (20M21-2)	
31	1660223	GASKET, KP CAP, W'PORT (143662-0004)	4
31	d	GASKET, KP CAP, MERITOR (3208N1028)	
31	1660233	O-RING, KP CAP, KAISER (92P1-9)	4
31	1660222	CAP, KING PIN, W'PORT (143661-0005)	
32	d	CAP, KING PIN, MERITOR (1199M3237)	4
32	1660232	CAP, KING PIN, KAISER (401.128.2)	
33	1660134	FITTING, GREASE 1/8" NPT	4
33	1140007	HHCS 5/16-18 1"L GR8 P&O MERITOR	
34	1140064	HHCS 5/16-18 3/4"L P&O W'PORT/KAISER	12
35	1160004	WASHER, 5/16" FLAT	12
35	1660221	KING PIN, FL, WESTPORT (143660-0006)	
36	1660221	KING PIN, FL, MERITOR (3101V178)	2
36	1660231	KING PIN, FL, KAISER (10M22-2)	
37	1740012	TIE ROD ARM, LH, BLACK, MERITOR FL	1
37	1740015	TIE ROD ARM, LH, ZINC, WESTPORT FL	
37	1740013	TIE ROD ARM, RH, BLACK, MERITOR FL	1
37	1740016	TIE ROD ARM, RH, ZINC, WESTPORT FL	
38	1660140	WOODRUFF KEY, ANSI 1210, MERITOR	2
38	1137409B003	WOODRUFF KEY, ANSI 1012, WESTPORT	
39	1130004	COTTER PIN 9/64"X1-3/4	2
40	1140059	HHCS 3/4" 16NF 3" L	6
41	1160576B100	WASHER 3/4" SAE FLAT	12
42	5340025	STOP PLATE ASSY LH (STEER LOCK)	1
42	5340026	STOP PLATE ASSY RH (STEER LOCK)	1
43	9290015	PLUNGER (STEER LOCK)	2
44	4660052	TUBE ASSEMBLY (STEER LOCK)	2
45	1660090	BRAKE CHAMBER, TYPE 30L	2

NOTES:

- c AXLE PART NUMBERS ENDING IN "S" INCLUDE OPTIONAL STEER-LOCK KIT. PART NUMBERS ENDING IN "B" INCLUDE STEER-LOCK BRACKETS ONLY
- d CONTACT RIDEWELL FOR MORE INFORMATION
- e KINGPIN REBUILD KITS INCLUDE ITEMS 22, 22a, 23, 24, 26, 27, 28, 29, 30, 31, 32, 34, 35, & 36.

MERITOR KIT (R201312): d
 KAISER KIT: 1660189
 WESTPORT KIT (143698-0113): d

Warranty

Ridewell Suspensions warrants the suspension systems manufactured by it to be free from defects in material and workmanship, under proper use, installation, application, and maintenance for period of 3 years after delivery to the original purchaser. The responsibility of Ridewell Suspensions under this non-transferable warranty is limited to making good at the company factory by repair or replacement of any part or parts which it manufactures.

Written permission for any claim return must be first obtained from Authorized Ridewell personnel. All returns must have transportation charges prepaid by the customer and accompanied with a complete written explanation of claimed defects and the circumstances of operational failure. On all component parts not manufactured by Ridewell, their warranty is to the extent that the manufacturer of such parts warrant them to Ridewell Suspensions. This is the only authorized warranty and is in lieu of all other expressed or implied warranties or representations, including any implied warranties of merchantability or fitness, or of any obligations on the part of Ridewell Suspensions. In no event will Ridewell be liable for business interruptions, loss of profits, personal injury, cost of delay, or for other special, indirect, incidental or consequential losses, costs or damages.

Subject to all of the above conditions, if repair or replacement of any defective part is made by Ridewell Suspensions, Ridewell will return the repaired or replaced part to the original purchaser with transportation charges prepaid.

1 - 12 months	100% Parts & Labor
13 - 24 months	100% Parts Only
25 - 36 months	50% Parts Only

RSS-232-8K & RSS-232-13K Ride Height Chart

8,000 lb. & 13,200 lb. Capacity Self-Steer Axle

	Model Part Number Series	Ride Height																						
		8.0	8.5	9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0	14.5	15.0	15.5	16.0	16.5	17.0	17.5	18.0	18.5	
Truck Suspensions	232-8K 23280__	LIFT						6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	9.5 ^a	10 ^a	9.5 ^b	10 ^b				
	232LM-13K 23201__	LIFT	7.0	7.5	8.0	8.5	9.0	9.5	10.0	9.5 ^a	10 ^a	9.5 ^b	10 ^b											
	232MM-13K 23202__	LIFT						7.0	7.5	8.0	8.5	9.0	9.5	10.0	9.5 ^a	10 ^a	9.5 ^b	10 ^b						
	232HM-13K 23203__	LIFT											7.0	7.5	8.0	8.5	9.0	9.5	10.0	9.5 ^a	10 ^a	9.5 ^b	10 ^b	

FOOTNOTES: ^a Achieved with 1" spacers ^y Ride height range is 13.25" to 16.25"
^b Achieved with 2" spacers ^z Ride height range is 15.75" to 18.75"
 LM=Lo-Mount MM=Mid-Mount HM=Hi-Mount T=Trailer

Frame Height	LOADED TIRE RADIUS	Ride Height																				RSS-232-8k 17.5" WHEELS ²	
		8.0	8.5	9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0	14.5	15.0	15.5	16.0	16.5	17.0	17.5		18.0
25.0		17.0	16.5	16.0	15.5	15.0	14.5	14.0															
25.5		17.5	17.0	16.5	16.0	15.5	15.0	14.5	14.0														
26.0		18.0	17.5	17.0	16.5	16.0	15.5	15.0	14.5	14.0													
26.5		18.5	18.0	17.5	17.0	16.5	16.0	15.5	15.0	14.5	14.0												
27.0		19.0	18.5	18.0	17.5	17.0	16.5	16.0	15.5	15.0	14.5	14.0											
27.5		19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0	15.5	15.0	14.5	14.0										
28.0		20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0	15.5	15.0	14.5	14.0									
28.5		20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0	15.5	15.0	14.5	14.0								
29.0		21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0	15.5	15.0	14.5	14.0							
29.5			21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0	15.5	15.0	14.5	14.0						
30.0				21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0	15.5	15.0	14.5	14.0					
30.5					21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0	15.5	15.0	14.5	14.0				
31.0						21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0	15.5	15.0	14.5	14.0			
31.5							21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0	15.5	15.0	14.5	14.0		
32.0								21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0	15.5	15.0	14.5	14.0	
32.5									21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0	15.5	15.0	14.5	14.0
33.0										21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0	15.5	15.0	14.5
33.5											21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0	15.5	15.0
34.0												21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0	15.5
34.5													21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0
35.0														21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5
35.5															21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0
36.0																21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5
36.5																	21.0	20.5	20.0	19.5	19.0	18.5	18.0
37.0																		21.0	20.5	20.0	19.5	19.0	18.5
37.5																			21.0	20.5	20.0	19.5	19.0
38.0																				21.0	20.5	20.0	19.5
38.5																					21.0	20.5	20.0
39.0																						21.0	20.5
39.5																							21.0

FOOTNOTES: ¹ 19.5" wheels require special brake drums
² 17.5" x 6" wide x 5" offset/4.25" inset 6 stud wheels required. Available through Ridewell as part number 1670001 or 1670002.

RSS-232-20K & RSS-232T-20K Ride Height Chart

20,000 lb. Capacity Self-Steer Lift Axle

	Model Part Number Series	Ride Height																											
		8.0	8.5	9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0	14.5	15.0	15.5	16.0	16.5	17.0	17.5	18.0	18.5	19.0	19.5	20.0	20.5	21.0	
Truck Suspensions	232-20K 232300_	LIFT	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	8.0 ^a	8.5 ^a	9.0 ^a	9.5 ^a												
	232R-20K 232303_	LIFT	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5																
	232RO-20k 232304_	LIFT	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5																
Trailer Suspensions Weld-on / Bolt-on	232LMT-20k 23250_ / 23253_	LIFT	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5																
	232MMT-20k 23251_ / 23254_	LIFT												5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5						
	232HMT-20k 23252_ / 23255_	LIFT																											

FOOTNOTES: ^a Requires 2" spacer kit
LM=Lo-Mount MM=Mid-Mount HM=Hi-Mount T=Trailer

Frame Height		Ride Height																											
		8.0	8.5	9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0	14.5	15.0	15.5	16.0	16.5	17.0	17.5	18.0	18.5	19.0	19.5	20.0	20.5	21.0	
26.5	LOADED TIRE RADIUS	18.5	18.0																										
27.0		19.0	18.5	18.0																									
27.5		19.5	19.0	18.5	18.0																								
28.0		20.0	19.5	19.0	18.5	18.0																							
28.5		20.5	20.0	19.5	19.0	18.5	18.0																						
29.0		21.0	20.5	20.0	19.5	19.0	18.5	18.0																					
29.5			21.0	20.5	20.0	19.5	19.0	18.5	18.0																				
30.0				21.0	20.5	20.0	19.5	19.0	18.5	18.0																			
30.5					21.0	20.5	20.0	19.5	19.0	18.5	18.0																		
31.0						21.0	20.5	20.0	19.5	19.0	18.5	18.0																	
31.5							21.0	20.5	20.0	19.5	19.0	18.5	18.0																
32.0								21.0	20.5	20.0	19.5	19.0	18.5	18.0															
32.5									21.0	20.5	20.0	19.5	19.0	18.5	18.0														
33.0										21.0	20.5	20.0	19.5	19.0	18.5	18.0													
33.5											21.0	20.5	20.0	19.5	19.0	18.5	18.0												
34.0												21.0	20.5	20.0	19.5	19.0	18.5	18.0											
34.5													21.0	20.5	20.0	19.5	19.0	18.5	18.0										
35.0														21.0	20.5	20.0	19.5	19.0	18.5	18.0									
35.5															21.0	20.5	20.0	19.5	19.0	18.5	18.0								
36.0																21.0	20.5	20.0	19.5	19.0	18.5	18.0							
36.5																	21.0	20.5	20.0	19.5	19.0	18.5	18.0						
37.0																		21.0	20.5	20.0	19.5	19.0	18.5	18.0					
37.5																			21.0	20.5	20.0	19.5	19.0	18.5	18.0				
38.0																				21.0	20.5	20.0	19.5	19.0	18.5	18.0			
38.5																				21.0	20.5	20.0	19.5	19.0	18.5	18.0			
39.0																					21.0	20.5	20.0	19.5	19.0	18.5	18.0		
39.5																						21.0	20.5	20.0	19.5	19.0	18.5		
40.0																							21.0	20.5	20.0	19.5	19.0		
40.5																								21.0	20.5	20.0	19.5		
41.0																										21.0	20.5	20.0	
41.5																											21.0	20.5	
42.0																												21.0	



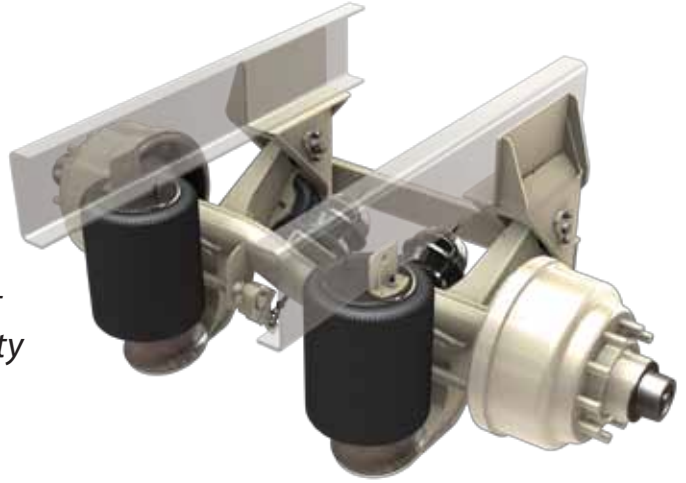
RCA-215 & RUL-245

Non-Steerable Auxiliary Axle Suspensions

For trucks

RCA-215

*22,500 lb. capacity
Designed for the aftermarket
installer with built-in flexibility*

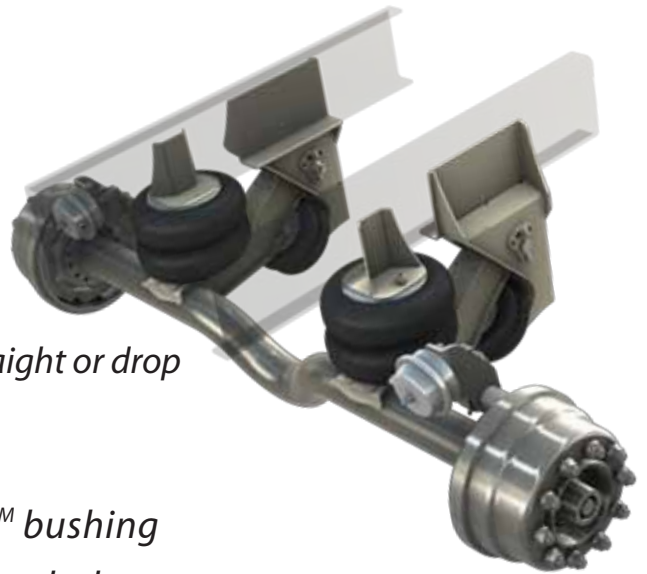


RUL-245I

*13,200 lb. capacity
For I-beam axles with
permanently locked tie rods*

RUL-245R

*13,200 lb. capacity
For 5" round axles, straight or drop*



*Durable, lightweight FiberTech™ bushing
Secure axle connection without u-bolts
Easily adjusts to various frame widths & ride heights
Easy axle alignment system
Axle integration optional*



RCA-215 & RUL-245

Non-Steerable Auxiliary Axle Suspensions

RCA-215 Features

Wide beam spacing reduces axle stress

Shock kit option available

Fits ride heights 7½" to 16"

10¼" total travel; up to 7" of lift

Axle alignment adjustment ⅜" at each hanger

Accepts axle drop up to 8"

RUL-245 Features

Lightweight, compact design fits tight spaces

Can incorporate an I-beam or round axle

245I fits ride heights 6⅜" to 14"

245R fits ride heights 11" to 17½"

Up to 11½" total travel; up to 8½" of lift (with I-beam axle)

Axle alignment adjustment ⅜" at each hanger

Accepts axle drop up to 8" (with round axle)



Air Controls

Manual & Electric

Wide range of custom options available

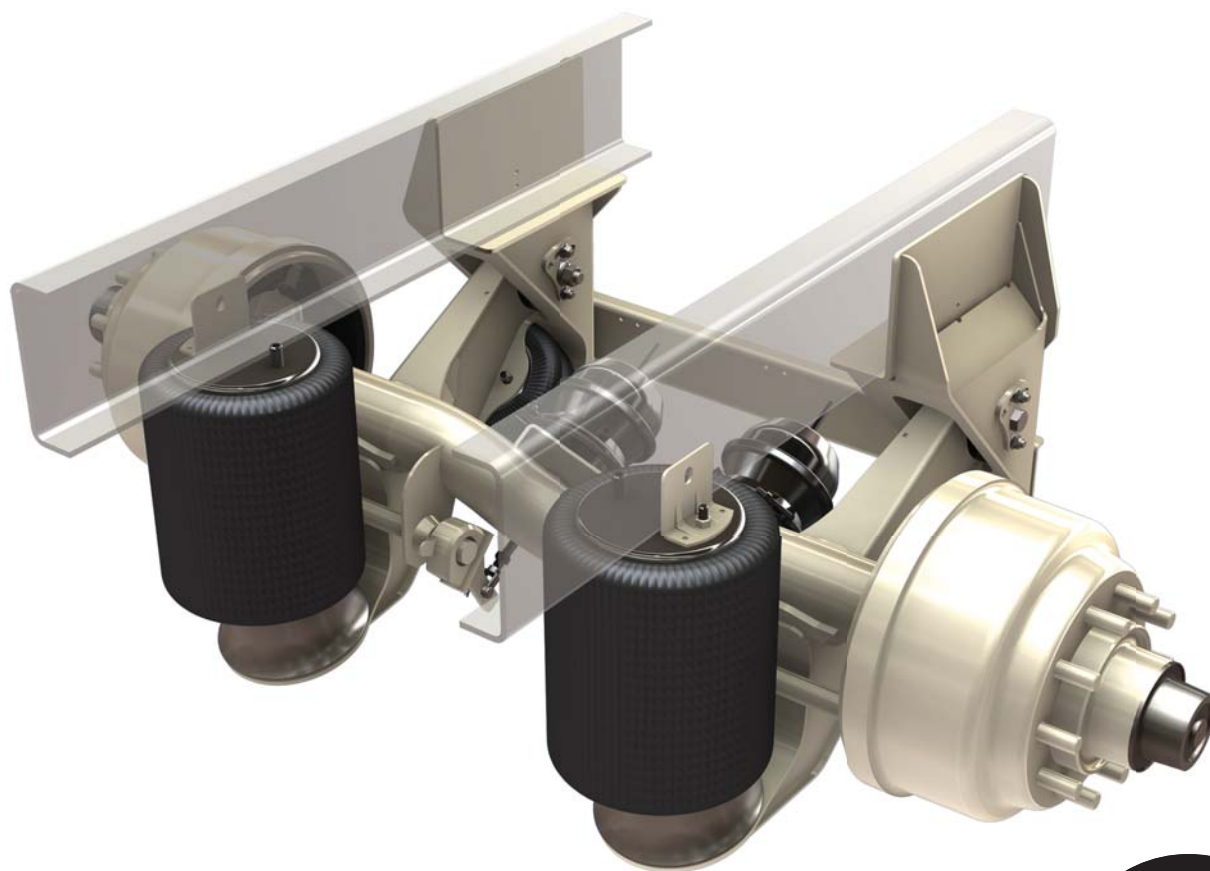


RIDEWELL SUSPENSIONS

The Engineered Suspension Company

RCA-215 Flex-Mount™

**Auxiliary Axle Suspension
Owner's Manual**



www.ridewellcorp.com

P.O. Box 4586 • Springfield, MO 65808 • 417.833.4565 • 417.833.4560 (fax)



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Suspension Identification:

Ridewell Suspensions are identified by a metal tag attached to the left-hand hanger that indicates part number, revision level, and serial number. Consult your vehicle manufacturer for your correct mounting height.

Parts:

For optimum suspension performance, order only Ridewell parts. Replacement parts for Model RCA-215 are shown on page 15 of this manual.

Sales, Service & Warranty:

If you need assistance regarding this product, please contact us and we will be glad to help you.

Mailing Address

Ridewell Corporation
P.O. Box 4586
Springfield, MO 65808

Shipping Address

Ridewell Corporation
3715 East Farm Rd. 94
Springfield, MO 65803

Phones, Fax, E-mail

800.641.4122, 417.833.4565
417.833.4560 (fax)
info@ridewellcorp.com



Pre-Installation Notes

1. Suspensions are designed to operate within specific parameters. Operating the suspension outside the design parameters may result in improper performance, damaged equipment, and void of warranty.
2. The total operating capacity of a suspension is determined by the component with the lowest load rating. Please consult with the manufacturers of tires, wheels, axles, and brakes to determine the maximum suspension system capacity. The RCA-215 suspension is rated for 22,500 lbs.
3. Improperly locating an auxiliary suspension on a vehicle can unload or overload the vehicle's primary suspensions. The installer is responsible for ensuring the auxiliary suspension is properly located for correct load distribution.
4. The installer is responsible for ensuring that all local, state, and federal bridge laws are satisfied regarding axle spacing and capacity in the location where the vehicle is to be used before installing an auxiliary suspension.
5. The installer is responsible for ensuring that air reservoir volume requirements are met. Consult the vehicle manufacturer or Federal Motor Vehicle Safety Standards (FMVSS) 121 for more information.
6. If vehicle chassis modifications are required, consult with the vehicle manufacturer to ensure that such changes are permitted.
7. Welding or altering suspension components is not permitted except where explicitly stated by Ridewell Corporation.
8. The installer is responsible for ensuring that there is sufficient clearance to the auxiliary suspension, tires, air springs, and axle (including axle to driveline).
9. When lowering an auxiliary axle on an unloaded vehicle, pressure to the load air springs must be reduced to below 10 psi. Failure to do so could cause the vehicle's drive axles to rise from the ground causing the vehicle to roll away.



Configuration

The Ridewell model RCA-215 suspension is designed with flexibility in mind so that one suspension fits as many vehicle configurations as possible while maximizing suspension performance. Each suspension must be configured to meet the following parameters before installation:

1. **Frame width** - All model RCA-215 suspensions can be configured to accommodate frame widths from 33.5 to 35.0 inches. Frame widths are set by the location to which the beam is welded to the axle. See **Figure 1**.

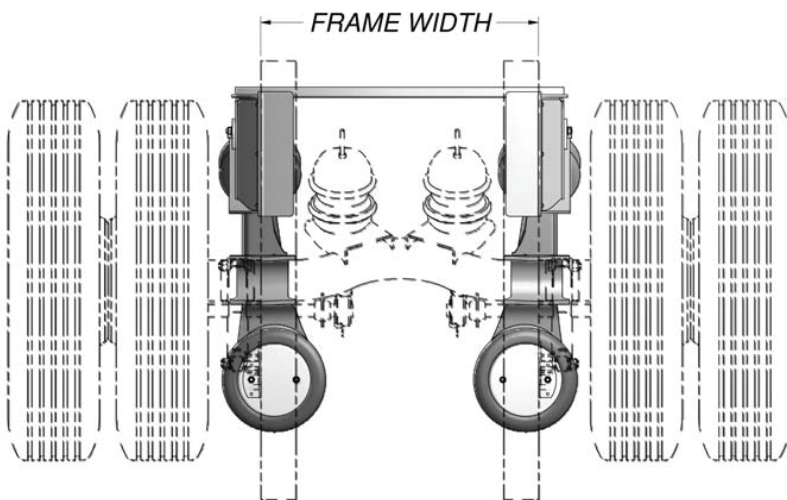


FIGURE 1

2. **Ride height** - Measured from the center of the wheel to the bottom of frame, ride height is related to frame height, which is ground to bottom of frame, by the following formula:

$$\text{Ride Height} = \text{Frame Height} - \text{Loaded Tire Radius}$$

The typical loaded radius for a given tire size can be found in **Chart 1**.

The frame height must be measured at the location that the auxiliary suspension is to be installed and when the vehicle is on level ground and loaded. If it is not possible to load the vehicle, the loaded frame deflection must be approximated to ensure that the auxiliary suspension operates within its designed ride height range. Consult the vehicle manufacturer or body builder's guide for further information.

CHART 1
TIRE LOADED RADIUS

Tubeless	Metric	Static Loaded Radius
	215/75R17.5	14
	235/75R17.5	14.5
9R17.5	225/70R19.5	15
10R17.5	245/70R19.5	15.5
	265/70R19.5	16
	285/70R19.5	16
	305/70R19.5	16.5
8R22.5	255/70R22.5	17
	245/75R22.5	17
	235/80R22.5	17
	275/70R22.5	17.5
9R22.5	265/75R22.5	18
	255/80R22.5	18
	305/70R22.5	18.5
10R22.5	295/75R22.5	19
	275/80R22.5	19
11R22.5	295/80R22.5	19.5
	315/80R22.5	19.5
	285/75R24.5	19.5
	275/80R24.5	19.5
	385/65R22.5	19.5
12R22.5	365/80R20	20
13R22.5	425/65R22.5	20.5
11R24.5		20.5
12R24.5	445/65R22.5	21
13R24.5		21.5



Chart 2 shows the relationship between frame height and ride height and the models that will accommodate each. Suspensions must operate within their designed range of ride heights.

CHART 2 - SUSPENSION RIDE HEIGHT

Suspension Model	RIDE HEIGHT														
		7.5	8.0	8.5	9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0
RCA-215LM	UP TRAVEL	4.5	5.0	5.5	6.0	6.5	7.0	6.5 ^a	7.0 ^a	6.5 ^b	7.0 ^b				
RCA-215MM	UP TRAVEL					4.5	5.0	5.5	6.0	6.5	7.0	6.5 ^a	7.0 ^a	6.5 ^b	7.0 ^b

Footnotes: ^a Achieved with 1" spacers
^b Achieved with 2" spacers

FRAME HEIGHT	LOADED TIRE RADIUS	RIDE HEIGHT														WHEEL SIZE
		7.5	8.0	8.5	9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0	
25.0	17.5 ³	17.5	17.0	16.5	16.0	15.5	15.0	14.5	14.0							
25.5		18.0	17.5	17.0	16.5	16.0	15.5	15.0	14.5	14.0						
26.0		18.5	18.0	17.5	17.0	16.5	16.0	15.5	15.0	14.5	14.0					
26.5		19.0	18.5	18.0	17.5	17.0	16.5	16.0	15.5	15.0	14.5	14.0				
27.0		19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0	15.5	15.0	14.5	14.0			
27.5		20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0	15.5	15.0	14.5	14.0		
28.0		20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0	15.5	15.0	14.5	14.0	
28.5		21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0	15.5	15.0	14.5	
29.0			21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0	15.5	15.0	
29.5				21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0	15.5	
30.0	19.5 ²				21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0	
30.5						21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5	
31.0							21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0	
31.5								21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	
32.0									21.0	20.5	20.0	19.5	19.0	18.5	18.0	
32.5	22.5 & 24.5 ¹								21.0	20.5	20.0	19.5	19.0	18.5	18.0	
33.0										21.0	20.5	20.0	19.5	19.0	18.5	
33.5											21.0	20.5	20.0	19.5	19.0	
34.0												21.0	20.5	20.0	20.0	
34.5													21.0	20.5	20.5	
35.0														21.0	20.5	
35.0															21.0	

Footnotes: ¹ Standard 16.5" diameter brake
² Requires a 15.0" or 12.25" diameter brake
³ Requires a 12.25" diameter brake

Spacing - All RCA-215 truck suspensions can be spaced down 1 or 2 inches for maximum versatility and performance with spacer kits available through Ridewell. The hangers and air springs must be spaced equal amounts. Air spring brackets must be removed and discarded. The new air spring plates with spacer must be fastened using the 1/2" nut from the discarded bracket and the 3/4" nut in the spacer kit. The hanger spacers are located by a pilot hole in each hanger and are welded into place. See **Figures 2** and **3** for more details.

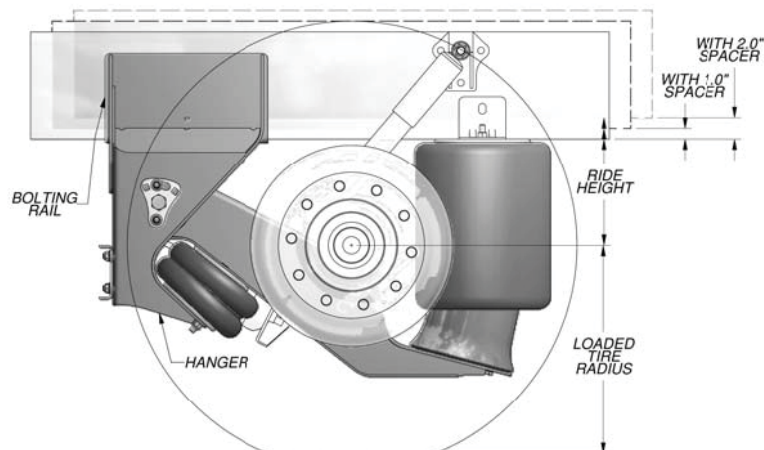


FIGURE 2



RCA-215 Auxiliary Axle Owner's Manual

3. **Axle to driveline clearance** - Measured from the top of the axle at the center of the drop section to the bottom of the driveline when the axle is in the lifted position. It is recommended that clearance be maintained between the axle and the driveline at all times during vehicle operation. Additional driveline clearance of 1 to 2 inches can be gained by spacers installed during suspension installation. See Section 2, *Ride Height*, for more information.

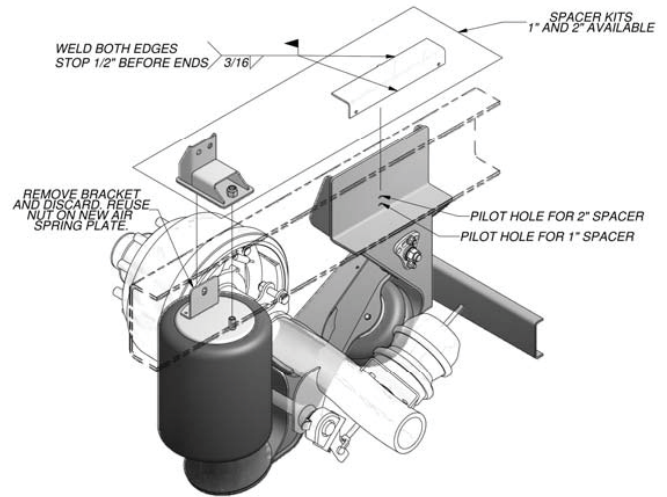
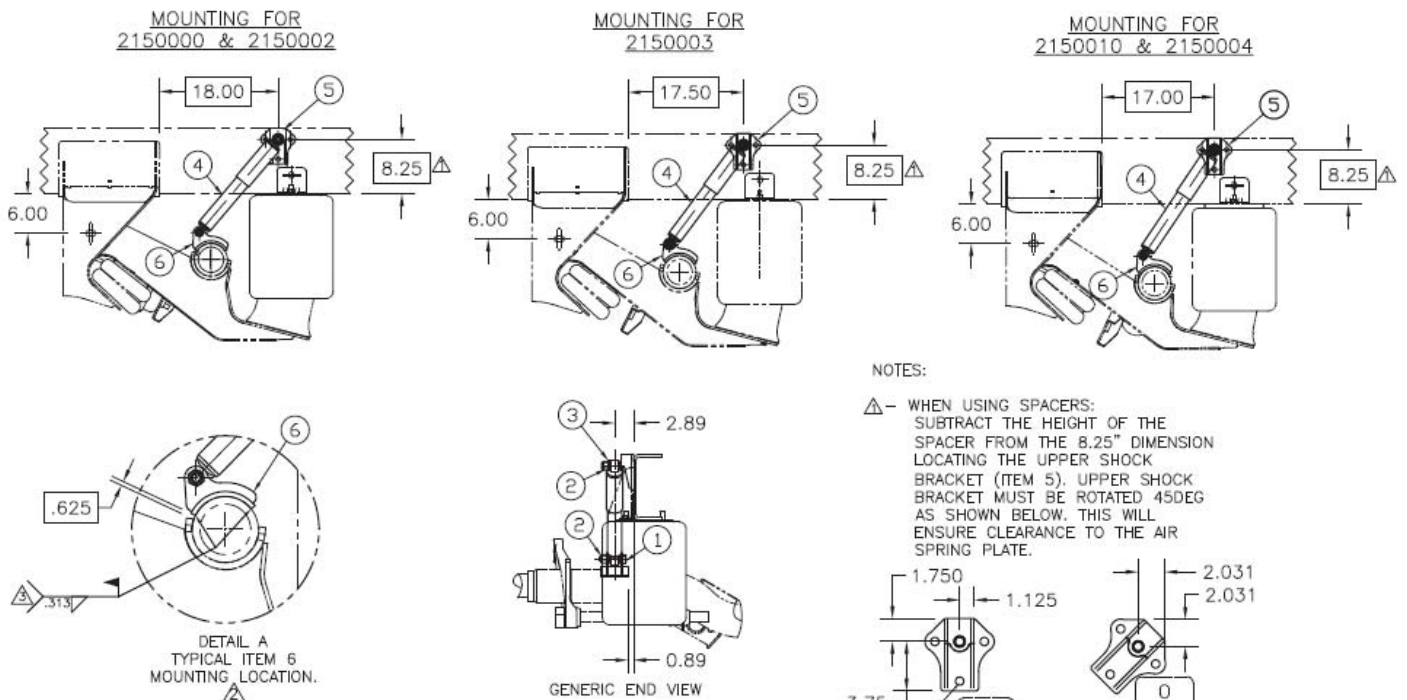


FIGURE 3:
OPTIONAL SPACER KIT INSTALLATION

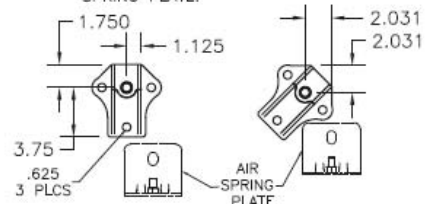
4. **Shocks** - Optional shock kits are available through Ridewell. The upper shock brackets bolt to the frame and the lower brackets are welded to the axle at the forward and rear edge with a 5/16" weld. Do not weld perpendicular to the axle centerline. See Figure 4 for installation details.

FIGURE 4
SHOCK KIT 6030105



NOTES:

△ - WHEN USING SPACERS: SUBTRACT THE HEIGHT OF THE SPACER FROM THE 8.25" DIMENSION LOCATING THE UPPER SHOCK BRACKET (ITEM 5). UPPER SHOCK BRACKET MUST BE ROTATED 45DEG AS SHOWN BELOW. THIS WILL ENSURE CLEARANCE TO THE AIR SPRING PLATE.



△ - MEASURE AXLE BRACKET DIMENSION FROM AXLE SEAT EDGE - NOT AXLE WELD.

△ - WELD FORWARD AND REAR EDGES ONLY. DO NOT WELD PERPENDICULAR TO AXLE CENTERLINE.

△ - NOT RECOMMENDED FOR USE WITH 2150005

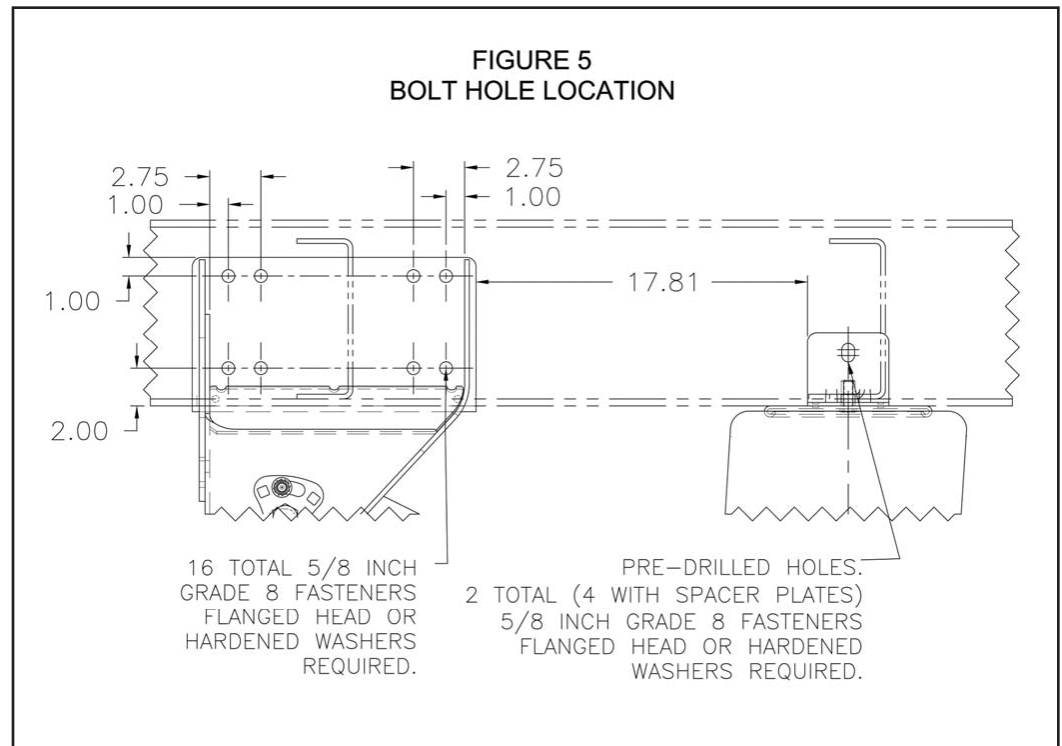
ITEM No.	PART No.	PART DESCRIPTION	No. REQD.
1	1143077B105	HHCS 3/4"-10NC 3-1/2"LG.	2
2	1151384B102	L'NUT 3/4"-10NC NYL INSERT-WAX	4
3	1160576B100	WASHER 3/4 SAE FLAT, ZINC PLATE	2
4	1250789B000	SHOCK ASSY. 8.01	2
5	3500026	UPPER SHOCK MT @ FRAME, (215)	2
6	4670013	LOWER SHOCK TO AXLE BRACKET	2



Installation Procedures

1. After reading the *Pre-Installation Notes* and *Configuration* sections of this manual, determine and mark the proper location of the suspension. The frame must be clear in this location for proper suspension fit-up. A cross member must be located within 6" of the leading or trailing edge of the hanger. It is also recommended that a cross member be located above the main air spring.
2. If the suspension has not been welded or bolted to the axle, see the "Axle Integration" section of this manual.
3. Locate the hangers on the frame and clamp them firmly into place. The hanger or hanger spacer must contact the bottom of the frame at the leading and trailing edge. Ensure that the hangers are evenly located for proper axle alignment (fore and aft) and square to the frame. Care should be taken to ensure that the hangers are precisely located and clamped tightly into place before drilling holes.
4. Center punch and drill 16 total 21/32 inch holes, 8 in each hanger, in the locations shown in **Figure 5**. Always maintain hole centers at 2" above the bottom of the frame and 1" below the top of the bolting rail whether spacers are used or not. Use caution when drilling near wires, hoses or other components located within the frame rail. Bolt the hangers to the frame with 16 total 5/8 inch grade 8 bolts and

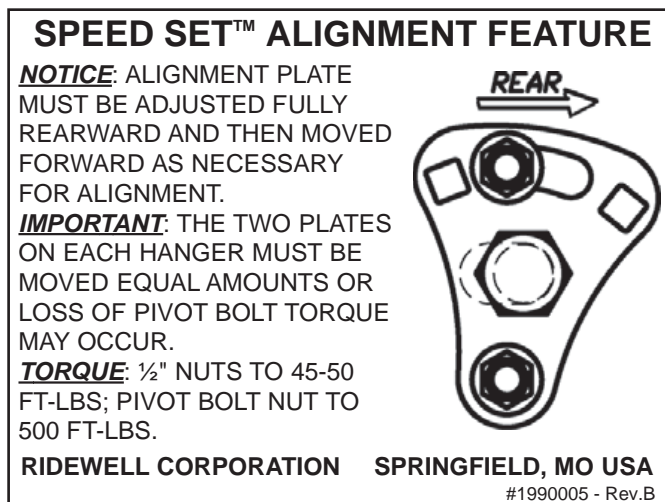
8 bolts and prevailing torque lock nuts. Hardened washers or flanged fasteners are required.



5. Locate the air spring plate at the dimension shown in **Figure 5** and clamp them firmly into place. The air spring or spacer must have full contact to the bottom of the frame. If spacers are required, hangers and air springs must be spaced equal amounts. Center punch and drill 2 or 4 total 21/32 inch holes in the frame. Install 5/8 inch grade 8 bolts and prevailing torque lock nuts. Hardened washers or flanged fasteners are required.



FIGURE 6



6. Assemble the load air springs to the air bracket or air spring plates.
7. Ensure that the hangers have remained parallel during installation. Bolt the hanger cross-channels using the 1/2" fasteners provided.
8. Align the suspension per TMC or SAE recommended standards. Alignment should be done with the suspension at the required ride height. Ensure the alignment plates are adjusted rearward fully at both hangers and moved forward as necessary. The two adjustment plates on each hanger must be moved equal amounts or loss of pivot bolt torque may occur. Torque all alignment fasteners to the values shown on the alignment label. See **Figure 6**.

Note: It is imperative that the pivot nuts be fully tightened prior to placing the suspension into service to avoid damage to the suspension. Failure to torque the pivot nuts will void warranty.

9. Ensure that all fasteners are tightened to the specified torque in **Chart 3**.
10. Install the air controls as required. Refer to the installation drawing or air control manual for more information.

CHART 3 - TORQUE SPECIFICATIONS

FASTENER SIZE	LOCATION	TORQUE	
		FT-LBS	N-M
3/8"-16NC	LOAD AIR SPRING	25	34
1/2"-13NC	LIFT AIR SPRING	25	34
1/2"-13NC	ALIGNMENT PLATE	50	68
3/4"-16NF	LOAD AND LIFT AIR SPRING	50	68
7/8"-14NF	PIVOT BOLT	500	678



Axle Integration

1. Locate the suspension beams on the axle with the correct frame width between hangers. The beams must be parallel and the axle centered between the beams. For drop center axles, locate the brake cam rearward and 1/4" off the rear plate of the beam; straight axles require that the cam be located forward and 1/4" off the top of the beam.
2. All axles should be clamped to the beam prior to integration. Check the gap between the axle and axle seat. The gap at the welded edge should be no greater than 1/8" wide. The gap at the bottom of the seat, both inboard and outboard, should be zero (see the illustration at the bottom of **Weld Process #1**).
3. Weld the axle to the beams per Ridewell **Weld Process #1** which is included in this manual. If the lift air springs are assembled to the suspension, they should be covered to protect them from weld spatter.

Installation Check

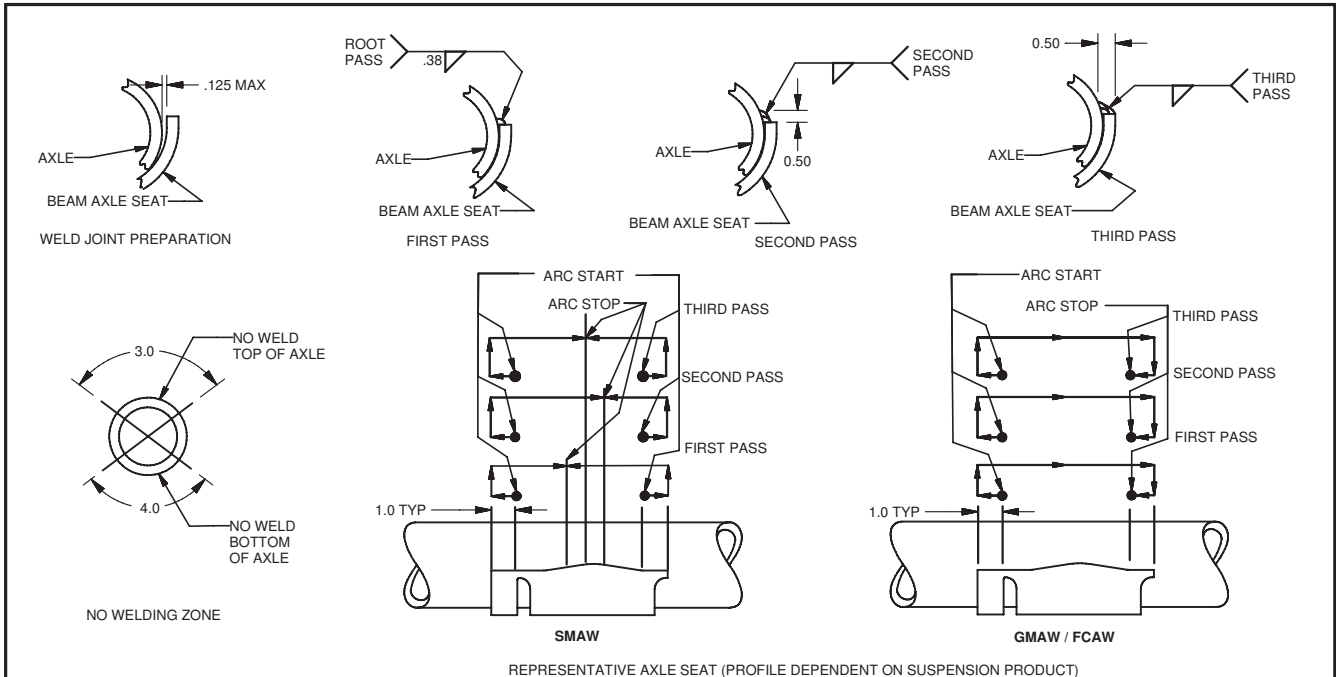
1. Reduce the air pressure to the load springs to below 10 psi. Cycle the suspension up and down to ensure proper operation and suspension clearance to other components. Check that the driveline has adequate clearance when the suspension is lifted.
2. Check that all fasteners, including wheel nuts, are tightened to the proper torque values.
3. Check that brakes and slack adjusters are properly adjusted and that wheels rotate freely.
4. Check hubs for proper oil levels.

Suspension Operation

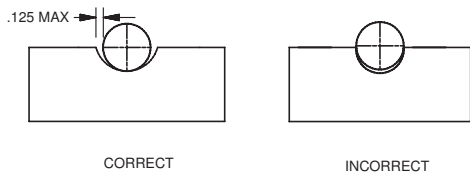
The controls of the RCA-215 should include a switch or push/pull knob to raise or lower the suspension and a pressure regulator with gage to control the load. The operator must be aware of the amount of pressure required to support a given load. **Chart 4** shows the approximate air pressure, as shown on the gage, required to support a given load. To obtain a more accurate correlation, place scales under the lowered auxiliary axle and, while adjusting the gage pressure, read and make note of the load on the scales.



RCA-215 Auxiliary Axle Owner's Manual



- 1 - WELD JOINT PREPARATION: ALL GREASE, DIRT, PAINT, SLAG OR OTHER CONTAMINANTS MUST BE REMOVED FROM THE WELD JOINT WITHOUT GOUGING THE AXLE TUBE. INSURE THE LOWER BEAM ASSEMBLY FITS THE AXLE WITH A ROOT GAP OF 0.125 INCH MAXIMUM BETWEEN THE AXLE AND THE BEAM AXLE SEAT AS ILLUSTRATED ABOVE. IT IS RECOMMENDED TO C-CLAMP THE AXLE TO AXLE BEAM SEAT PRIOR TO WELDING TO INSURE THAT PROPER CONTACT OCCURS BETWEEN THE AXLE AND THE BEAM SEAT. SEE ILLUSTRATION BELOW.
- 2 - WELDING PRECAUTIONS: ALL WELDS MUST BE KEPT AWAY FROM THE TOP AND BOTTOM OF THE AXLE WHERE MAXIMUM STRESSES OCCUR. THE "NO WELD" ZONES ARE ILLUSTRATED ABOVE. DO NOT TEST WELD THE ARC ON ANY PART OF THE AXLE TUBE. THIS CAN LEAD TO A SMALL CRACK THAT MAY EVENTUALLY GROW AND AFFECT THE FATIGUE LIFE OF THE AXLE.
- 3 - ALL WELDERS AND WELDING OPERATORS SHOULD BE CERTIFIED PER AMERICAN WELDING SOCIETY (AWS) D1.1 SECTION 5 PROCEDURES OR EQUAL.
- 4 - RECOMMENDED WELDING METHODS ARE SHIELDED METAL ARC (SMAW (STICK)), GAS METAL ARC (GMAW (SOLID WIRE)), OR FLUX CORED ARC (FCAW (FLUX WIRE)) WELDING. WHATEVER ELECTRODE AND METHOD USED MUST DEVELOP A MINIMUM WELD TENSILE STRENGTH OF 70,000 P.S.I. REFER TO THE ELECTRODE MANUFACTURER'S RECOMMENDATION FOR VOLTAGE, CURRENT AND SHIELDING MEDIUM FOR THE DIAMETER ELECTRODE TO BE USED SO THE BEST FUSION AND MECHANICAL PROPERTIES CAN BE OBTAINED. RECOMMENDED ELECTRODE IS E7018 IF SMAW IS USED. RECOMMENDED ELECTRODE IS E70S-1 OR E70T-1 IF GMAW OR FCAW WELDING IS USED.
- 5 - ALL ELECTRODES USED SHOULD MEET AWS SECTION 5 SPECIFICATIONS AND CLASSIFICATIONS FOR WELDING CARBON AND LOW ALLOY STEELS.
- 6 - IF SMAW ELECTRODES (STICK) ARE USED, THEY MUST BE NEW, DRY, FREE OF CONTAMINANTS AND COME FROM A STOCK THAT HAS BEEN PURCHASED AND STORED PER AWS SECTION 4.5.2, LOW HYDROGEN ELECTRODE STORAGE SPECIFICATIONS.
- 7 - GROUND THE AXLE TO ONE OF THE ATTACHED AXLE PARTS SUCH AS THE AIR CHAMBER BRACKETS, CAM BRACKETS OR BRAKE SPIDER. NEVER GROUND THE AXLE TO A WHEEL OR HUB AS THE SPINDLE BEARING MAY SUSTAIN DAMAGE.
- 8 - THE AXLE ASSEMBLY SHOULD BE AT A MINIMUM TEMPERATURE OF 60 DEGREES F (15 DEGREES C) PRIOR TO WELDING. PRE-HEATING THE WELD ZONE TO THE AXLE MANUFACTURER'S PRE-HEAT TEMPERATURE IS RECOMMENDED. THIS WILL MINIMIZE THE FORMATION OF MARTENSITIC OR BRITTLE METAL STRUCTURES IN THE FUSION LINE OR THE HEAT AFFECTED ZONE WHICH MAY CONTRIBUTE TO A PREMATURE FATIGUE FAILURE IN SERVICE.
- 9 - THE JOINT TO BE WELDED SHOULD BE POSITIONED IN THE FLAT OR HORIZONTAL POSITION.
- 10 - MULTIPLE PASS WELDING SHOULD BE USED ON THE BEAM/AXLE CONNECTION USING THE FOLLOWING GUIDELINES. TOTAL FILLET WELD SIZE SHOULD BE 0.5 INCH.
- 11 - MULTIPLE PASS WELD INITIATION AND TERMINATION SHOULD BE PERFORMED AS SHOWN ABOVE. ALL SLAG MUST BE REMOVED BETWEEN PASSES. BACKSTEP FILL ALL CRATERS. EACH PASS MUST BE ACCOMPLISHED IN ONE OR TWO SEGMENTS. NEVER START OR STOP WELDS AT THE END OF THE WELD JOINT. START WELDS AT LEAST 1" FROM END AND BACKWELD OVER THE START. WELDS MUST GO TO WITHIN 1/8" +/- 1/16" OF THE ENDS OF THE AXLE SEAT AND MUST NOT GO BEYOND OR AROUND THE ENDS.
- 12 - POST-WELD PEENING (RECOMMENDED, BUT NOT REQUIRED): NEEDLE PEEN THE ENTIRE TOE OF THE SECOND PASS, INCLUDING AROUND THE ENDS OF THE AXLE SEAT. HOLD THE NEEDLES PERPENDICULAR TO THE AXLE. A UNIFORM DIMPLED PATTERN WILL APPEAR WHEN PROPERLY PEENED.



APPLICABLE SUSPENSION MODELS: 200, 225, 240, 245R, 215, 243, 260.

C	10102	REVISED WELD DIMENSIONS.	6/25/10	G.H.	MDJ	CJB
B	10102	REVISED NOTES 11 AND 12.	2/3/10	G.H.	MDJ	CJB
A	07100	ADDED 215 TO LIST OF SUSPENSION MODELS COVERED	2/26/07	G.H.	MDJ	DK
REV	PROJECT	DESCRIPTION	DATE	BY	CHK	APPD
DRAWN BY: CBC		6/23/2010	RIDEWELL CORPORATION PO BOX 4586 SPRINGFIELD, MISSOURI 65808			
CHECKED: MDJ		2/21/2003				
APPROVED: CJB		2/21/2003				
PROJECT NO: 03103		SCALE: A-SIZE: NTS	TITLE: RIDEWELL WELD PROCESS #1, 5" DIA. AXLE, 3 PASS WELD			
MATERIAL: -		WEIGHT: -	PART NO: WELD PROCESS #1		REV: C	
SHEET 1 OF 1						



CHART 4 - LOAD AT GROUND¹ VERSUS AIR PRESSURE

Air Pressure (PSI)	Load Estimate ¹ (LB)
20	6100
30	8500
40	10800
50	13500
60	16200
70	18700
80	21200
90 ²	23800
100 ²	26500

NOTES:

¹ The above chart shows estimated values only. To determine an accurate suspension weight, calibration with a scale is recommended.

² Load values shaded gray exceed suspension rating. Do not operate at these pressures/loads.

Bushing Check Procedure

The bushings in the RCA-215 suspension should be checked during any scheduled maintenance or if there is a suspected problem. The bushings should be checked if any of the following conditions are observed:

1. Uneven tire wear.
2. Any abnormal fwd-aft or lateral movement of the axle during operation.
3. Rapid degradation of the wear washers.
4. Any abnormal noises coming from the suspension.

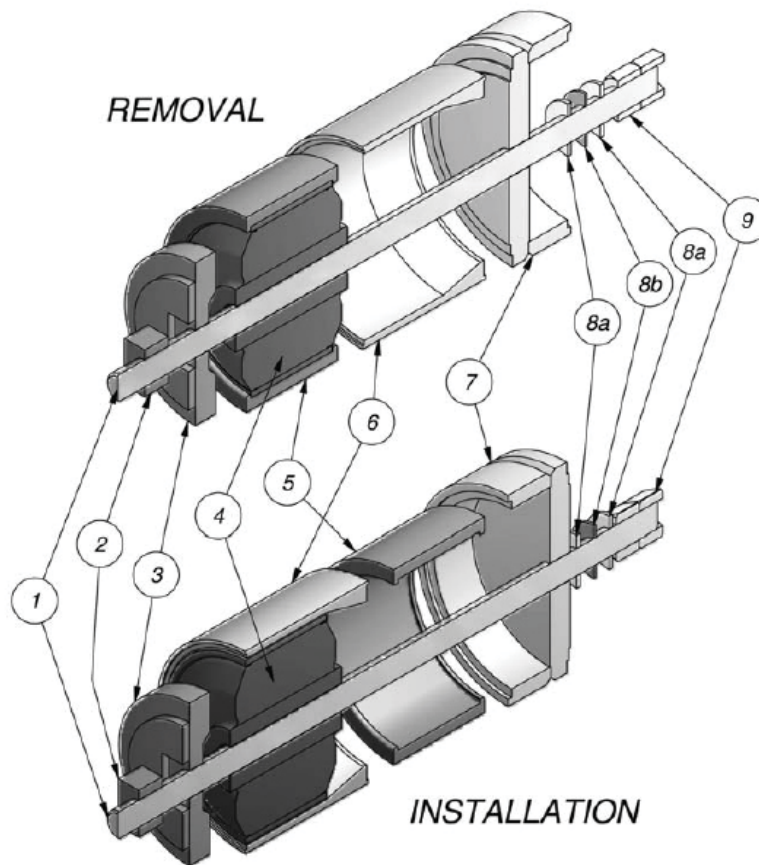
To check, insert the flat end of a pry-bar between the sidewall of the hanger and the eye of the beam. Applying moderate side load to the pry-bar, look for any relatively large or easy movement of the beam in relation to the hanger. Note that a small amount of movement under load due to deflection of the rubber is normal and acceptable. Repeat the process on the other side of the hanger. If large or easy movement is noted, drop the beams down per the bushing replacement procedure for further inspection of the bushing and replace if necessary.



Bushing Replacement Procedure

Order Ridewell part number 6040078 for RCA-215 bushing replacement kit. Bushing removal and installation requires FiberTech™ bushing press tool 6100044. Contact Ridewell for more information on obtaining these items.

1. Chock the wheels and secure the vehicle. Lift the auxiliary axle, remove the wheels, block up the axle and deflate the air springs. Remove the lift air spring, shock absorbers (if installed), and disassemble the load air spring top plate.
2. Remove pivot nuts and bolts and rotate trailing arm beams down and out of hangers. It is not necessary to remove the alignment plates.
3. Inspect pivot holes and hanger surfaces for unusual wear or damage. Repair or replace components as required.
4. Lubricate the threads and bearings of the FiberTech™ bushing press tool, part number 6100044. Lubricate liberally inside the cylinder of the press tool with P80 lubricant or a soap solution. **Petroleum lubricants must not come in contact with the bushing.**
5. Assemble the bushing press tool to the bushing and beams as shown in the “Removal” portion of **Figure 7** and ensure it is centered in the beam eye. Rotate the hex head of the threaded shaft with an impact wrench to press out the old FiberTech™ bushing.
6. Disassemble the bushing press tool.
7. Clean the bushing eye of corrosion and debris.
8. Apply P80 rubber lubricant or a soap solution to the new bushing outer diameter, inside the beam eye and the tool cylinder to ease installation.
9. Reassemble the bushing press tool as shown in the “Installation” portion of **Figure 7** and ensure it is centered in the eye. Rotate the hex head of the threaded shaft with an impact wrench to install a new FiberTech™ bushing.
10. Remove the bushing press tool and ensure the bushing is centered between the ridges of the beam eye.
11. Install new thrust washers on both sides of the new bushing and rotate the beams into the hangers.
12. Install new pivot bolts and nuts and tighten to the torque shown in **Chart 3**.
13. Reassemble the suspension in reverse order from above.



**FIGURE 7:
BUSHING TOOL ASSEMBLY**

6100044: BUSHING INSTALLATION TOOL PARTS LIST

ITEM No.	PART No.	PART DESCRIPTION	No. REQ'D
1	9240003	THREADED ROD, 7/8-6ACME	1
2	1130023	NUT, 7/8"-6 ACME SQR BRONZE	1
3	5340022	PLUNGER	1
4	1110083*	BUSHING, FIBERTECH, NARROW*	—*
5	-----*	BEAM EYE REFERENCE*	—*
6	9090047	CONE	1
7	7400007	END CAP	1
8a	1120026	THRUST BEARING WASHER	2
8b	1120025	THRUST BEARING CAGE	1
9	1230024	NUT, 7/8" ACME	2

* ITEM SHOWN FOR REFERENCE AND NOT INCLUDED WITH BUSHING INSTALLATION TOOL 6100044.



Maintenance Schedule

Recommended Service Intervals

	Every 1,000 miles	First 6,000 miles of operation	Every 12,000 miles	Every 36,000 miles	Every 50,000 miles	Every 100,000 miles
Wheels & Brakes						
Wheel Lubricant	I					R
Wheel Endplay				I		
Brake Cam			L			
Slack Adjuster			L			
Brake Lining				I		
Brake Drum				I		
Brake Function				I		
Wheel Nuts				T		
Suspension						
Bushings				I		
Air springs	I					
Structure	I					
Fastener Torque		T			T	

I=Inspect, L=Lubricate, T=Tighten, R=Replace

Lubricant Recommendations

Wheel Lubricant	API-GL-5
Brake Cam, Slack Adjuster	NLGI 1 or 2

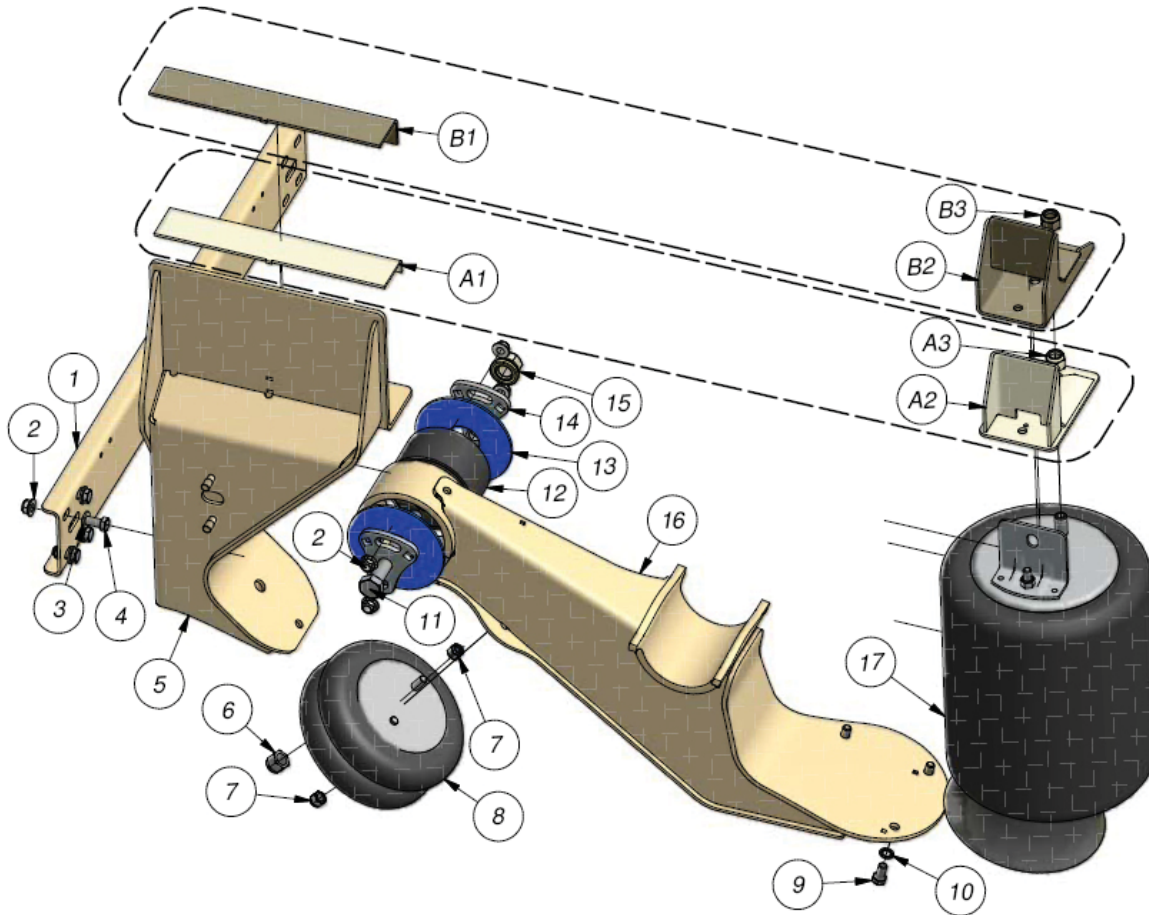
Warranty

The Ridewell Corporation warrants the suspension systems manufactured by it to be free from defects in material and workmanship, under proper use, installation, application, and maintenance for a period of 3 years after delivery to the original purchaser. The responsibility of the Ridewell Corporation under this warranty is limited to making good at the company factory by repair or replacement of any part or parts which it manufactures.

Written permission for any claim return must be first obtained from authorized Ridewell personnel. All returns must have transportation charges prepaid by the customer and accompanied with a complete written explanation of claimed defects and the circumstances of operational failure. On all component parts not manufactured by Ridewell their warranty is to the extent that the manufacturer of such parts warrant them to Ridewell Corporation. This is the only authorized Ridewell warranty and is in lieu of all other expressed or implied warranties or representations, including any implied warranties of merchantability or fitness, or of any obligations on the part of Ridewell Corporation. In no event will Ridewell be liable for business interruptions, loss of profits, personal injury, cost of delay, or for any other special, indirect, incidental or consequential losses, costs or damages.

Subject to all of the above conditions, if repair or replacement of any defective part is made by Ridewell Corporation, Ridewell will return the repaired or replaced part to the original purchaser with transportation charges prepaid.

1 – 12 months	100% parts & labor
13 – 36 month	100% parts only



RCA-215 PARTS LIST

ITEM No.	PART No.	PART DESCRIPTION	2150000	2150010	2150002	2150003	2150004
			No. REQ'D	No. REQ'D	No. REQ'D	No. REQ'D	No. REQ'D
1	8001809	CROSSMEMBER CHANNEL	1	1	1	1	1
2	1150012	L'NUT 1/2" 13NC FLANGED GR 8 (G)	16	16	16	16	16
3	1167053B100	WASHER 1/2" A-325 FLAT	8	8	8	8	8
4	1145383B105	HHCS 1/2" 13NC 1-1/4"L, GRADE 5, ZINC	8	8	8	8	8
5	3360046	HANGER ASSEMBLY, LH			1	1	1
	3360047	HANGER ASSEMBLY, RH			1	1	1
	3360064	HANGER ASSEMBLY, LH	1	1			
	3360065	HANGER ASSEMBLY, RH	1	1			
6	1150011	L'NUT 3/4"-16NF NYL	2	2	2	2	2
7	1150555B112	L'NUT 1/2" 13NC NYL	4	4	4	4	4
	1002B09611G	LIFT AIR SPRING	2	2	1	1	1
	1002B09614G	LIFT AIR SPRING (RH)			1	1	1
9	1140554B105	HHCS 1/2" 13NC 1"L, GR5, ZINC	6	6	6	6	6
10	1167482B000	L'WASHER 1/2 INTERNAL TOOTH	6	6	6	6	6
11	1140056	HHCS 7/8-14NF 7"L GR8 P&O	2	2	2	2	2
12	1110083	BUSHING, FIBERTECH, NARROW	2	2	2	2	2
13	1167680B000	WASHER, 6.25X2.125X.188	4	4	4	4	4
14	7001634	ADJUSTMENT PLATE	4	4	4	4	4
15	1150028	L'NUT 7/8" 14NF GR8 SECURELOK	2	2	2	2	2
	5970352	BUSHING/BEAM LH (LM)	1		1		
	5970353	BUSHING/BEAM RH (LM)	1		1		
	5970354	BUSHING/BEAM LH (MM)		1			1
	5970355	BUSHING/BEAM RH (MM)		1			1
	5970400	BUSHING/BEAM LH (LM+1)				1	
	5970401	BUSHING/BEAM RH (LM+1)				1	
17	1001R12444G	AIR SPRING 1R12-444	2	2	2	2	2

OPTIONAL KITS

ITEM No.	PART No.	PART DESCRIPTION	No. REQ'D
SPACER KIT, 1"			
A1	8001811	SPACER, HANGER, 1"	2
A2	3450126	A.S. PLATE/SPACER, 1"	2
A3	1150011	L'NUT 3/4 16NF NYL	2
SPACER KIT, 2"			
B1	8001812	SPACER, HANGER, 2"	2
B2	3450127	A.S. PLATE/SPACER, 2"	2
B3	1150011	L'NUT 3/4 16NF NYL	2

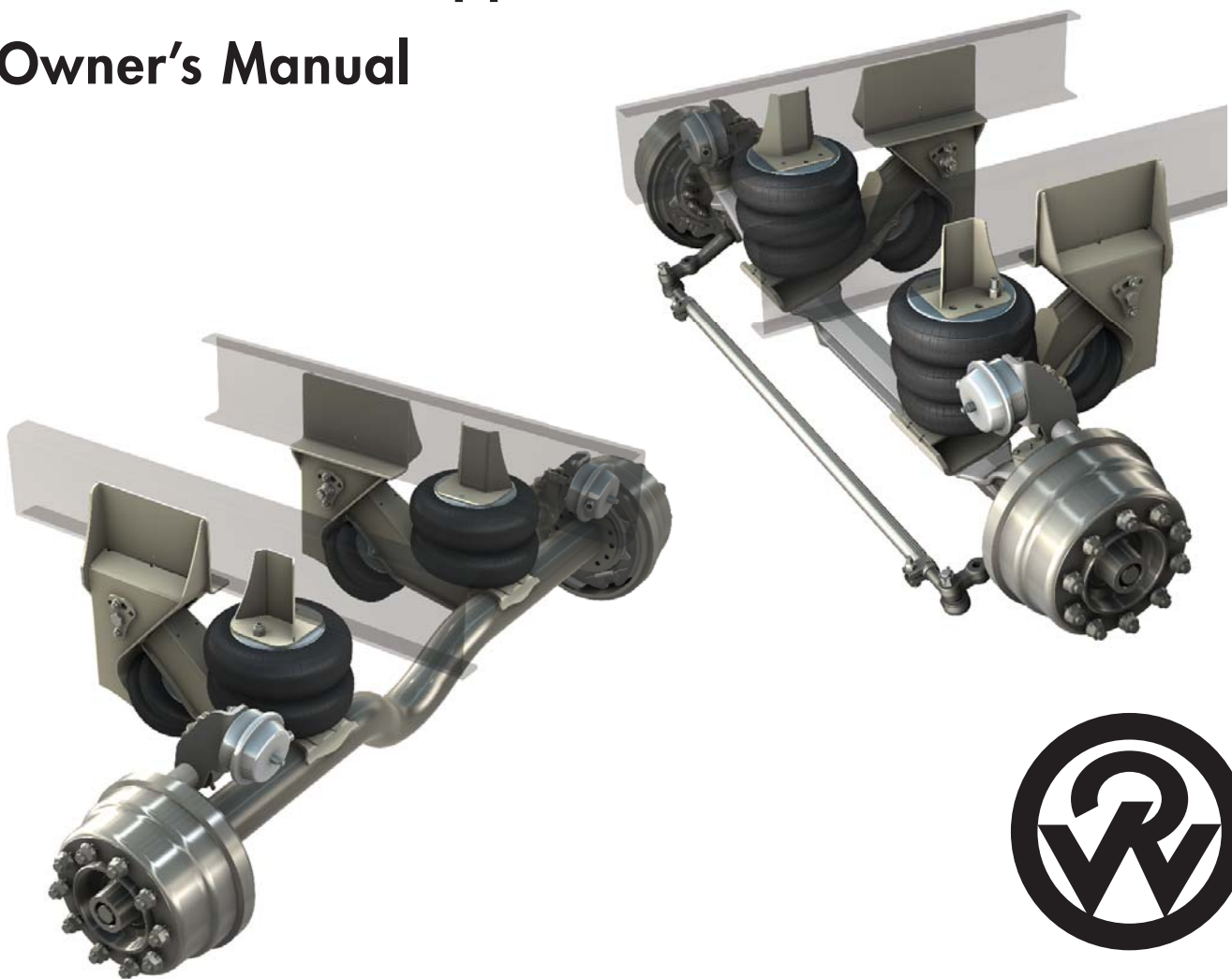
RIDEWELL SUSPENSIONS

The Engineered Suspension Company

RUL-245 "Bantamweight"

**Auxiliary Liftable Air-Rides for
Truck & Trailer Applications**

Owner's Manual



www.ridewellcorp.com

P.O. Box 4586 • Springfield, MO 65808 • 417.833.4565 • 417.833.4560 (fax)



RUL-245 Auxiliary Lifiable Air-Ride Owner's Manual

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Suspension Identification:

Ridewell Suspensions are identified by a metal tag attached to the left-hand hanger that indicates part number, revision level, and serial number.

Parts:

For optimum suspension performance, order only Ridewell parts. Replacement parts for Model RUL-245 are shown on page 15 of this manual.

Sales, Service & Warranty:

If you need assistance regarding this product, please contact us and we will be glad to help you.

Mailing Address

Ridewell Corporation
P.O. Box 4586
Springfield, MO 65808

Shipping Address

Ridewell Corporation
3715 East Farm Rd. 94
Springfield, MO 65803

Phones, Fax, E-mail

800.641.4122, 417.833.4565
417.833.4560 (fax)
info@ridewellcorp.com



Pre-Installation Notes

1. Suspensions are designed to operate within specific parameters. Operating the suspension outside the design parameters may result in improper performance, damaged equipment, and void of warranty.
2. The total operating capacity of a suspension is determined by the component with the lowest load rating. Please consult with the manufacturers of tires, wheels, axles, and brakes to determine the maximum suspension system capacity. The RUL-245 suspension is rated for 13,200 lbs., at ground.
3. Improperly locating an auxiliary suspension on a vehicle can unload or overload the vehicle's primary suspensions. The installer is responsible for ensuring the auxiliary suspension is properly located for correct load distribution.
4. The installer is responsible for ensuring that all local, state, and federal bridge laws are satisfied regarding axle spacing and capacity in the location where the vehicle is to be used before installing an auxiliary suspension.
5. The installer is responsible for ensuring that air reservoir volume requirements are met. Consult the vehicle manufacturer or Federal Motor Vehicle Safety Standards (FMVSS) 121 for more information.
6. If vehicle chassis modifications are required, consult with the vehicle manufacturer to ensure that such changes are permitted.
7. Welding or altering suspension components is not permitted except where explicitly stated by Ridewell Corporation.
8. The installer is responsible for ensuring that there is sufficient clearance to the auxiliary suspension, tires, air springs, and axle (including axle to driveline).
9. When lowering an auxiliary axle on an unloaded vehicle, pressure to the load air springs must be reduced to below 10 psi. Failure to do so could cause the vehicle's drive axles to rise from the ground causing the vehicle to roll away.



Configuration

The Ridewell model RUL-245 suspension is designed with flexibility in mind so that one suspension fits as many vehicle configurations as possible while maximizing suspension performance. Each suspension must be configured to meet the following parameters before installation:

1. Frame width. All model RUL-245 suspensions can be configured to accommodate frame widths from 33.5 to 35.0 inches. Frame widths are set by the location to which the beam is welded or bolted to the axle. See **Figure 1**.
2. Ride height. Measured from the center of the wheel to the bottom of frame, ride height is related to frame height, which is ground to bottom of frame, by the following formula:

$$\text{Ride Height} = \text{Frame Height} - \text{Loaded Tire Radius}$$

The typical loaded radius for a given tire size can be found in **Chart 1**.

The frame height must be measured at the location that the auxiliary suspension is to be installed and when the vehicle is on level ground and loaded. If it is not possible to load the vehicle, the loaded frame deflection must be approximated to ensure that the auxiliary suspension operates within its designed ride height range. Consult the vehicle manufacturer or body builder's guide for further information.

**CHART 1
TIRE LOADED RADIUS**

Tubeless	Metric	Static Loaded Radius
	225/70R19.5	15
	245/70R19.5	15.5
	265/70R19.5	16
	285/70R19.5	16
	305/70R19.5	16.5
8R22.5	255/70R22.5	17
	245/75R22.5	17
	235/80R22.5	17
	275/70R22.5	17.5
9R22.5	265/75R22.5	18
	255/80R22.5	18
	305/70R22.5	18.5
10R22.5	295/75R22.5	19
	275/80R22.5	19
11R22.5	295/80R22.5	19.5
	315/80R22.5	19.5
	285/75R24.5	19.5
	275/80R24.5	19.5
	385/65R22.5	19.5
12R22.5	365/80R20	20

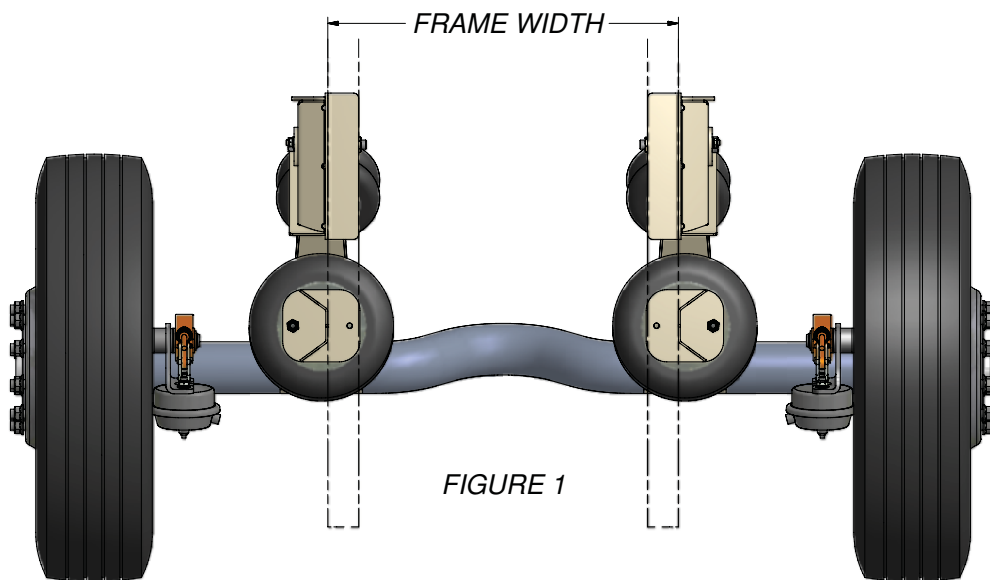
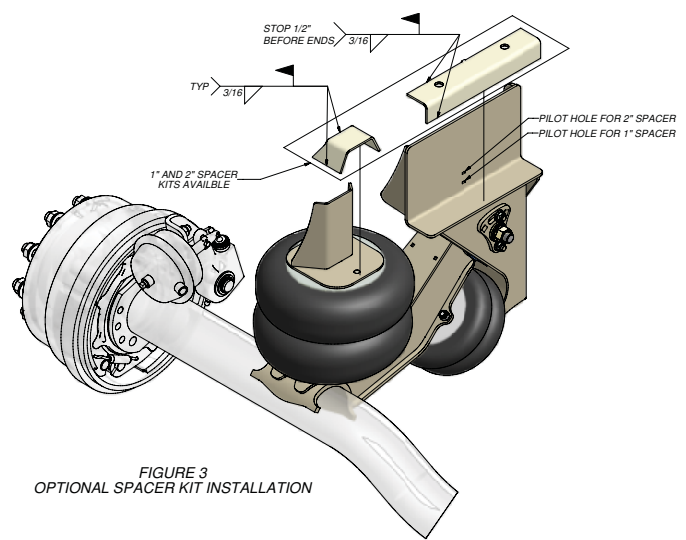
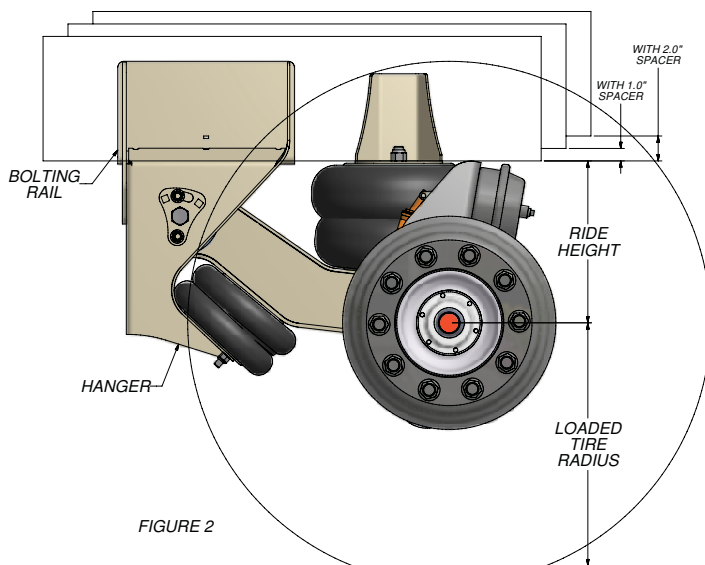




Chart 2 shows the relationship between frame height and ride height and the models that will accommodate each. Suspensions must operate within their designed range of ride heights.

Spacing: All RUL-245 truck suspensions can be spaced down 1 or 2 inches for maximum versatility and performance with available spacer kits. The hangers and air springs must be spaced equal amounts. Spacers are welded into place. See **Figures 2** and **3** for more details.



3. Axle to driveline clearance. Measured from the top of the axle at the center of the drop section to the bottom of the driveline when the axle is in the lifted position. It is recommended that clearance be maintained between the axle and the driveline at all times during vehicle operation. Additional driveline clearance of 1 to 2 inches can be gained by spacers installed during suspension installation.

4. Round axle versus I-beam. Models are available that accommodate I-beam axles, RUL-245I, or round axles, RUL-245R. I-beam axles must be configured so that knuckles will not steer. Furthermore, the amount of drop in an I-beam must be considered in ride height calculations for proper operation. See **Chart 2**.



RUL-245 Auxiliary Liftable Air-Ride Owner's Manual

CHART 2
245I & 245R RIDE HEIGHT CHART

Truck Suspensions		RIDE HEIGHT																							
		6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0	14.5	15.0	15.5	16.0	16.5	17.0	17.5	
245I	2450030 3.5" Drop	UP TRAVEL					5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	8.0 ^a	8.5 ^a	8.0 ^b	8.5 ^b							
	2450030 5.0" Drop	UP TRAVEL		5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	8.0 ^a	8.5 ^a	8.0 ^b	8.5 ^b										
	2450030 5.6" Drop	UP TRAVEL	5.1	5.6	6.1	6.6	7.1	7.6	8.1	8.0 ^a	8.5 ^a	8.0 ^b	8.5 ^b												
245R	2450040	UP TRAVEL										4.5	5.0	5.5	6.0	6.5	6.0 ^a	6.5 ^a	6.0 ^b	6.5 ^b					
	2450050	UP TRAVEL												5.0	5.5	6.0	6.5	7.0	7.5	8.0	7.5 ^a	8.0 ^a	7.5 ^b	8.0 ^b	

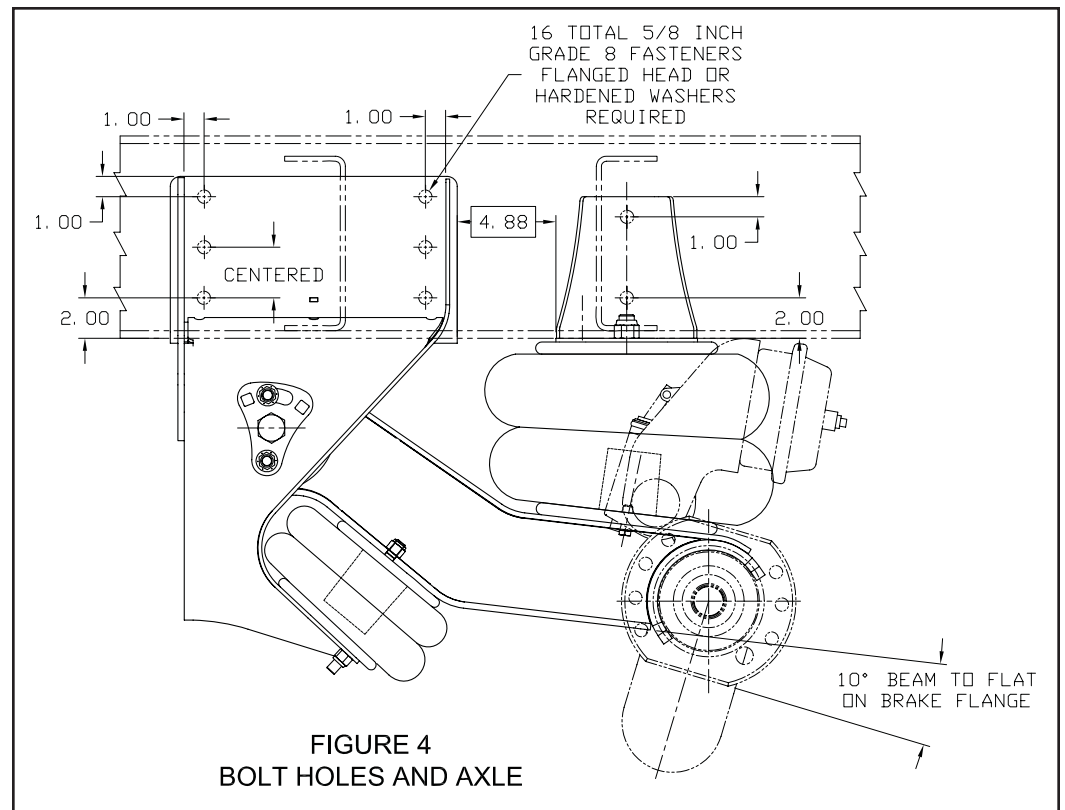
Footnotes: ^a Achieved with 1" spacers
^b Achieved with 2" spacers

FRAME HEIGHT	LOADED TIRE RADIUS	RIDE HEIGHT																			WHEEL SIZE			
		6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0	14.5	15.0	15.5	16.0	16.5	17.0	17.5
23.5		17.0	16.5	16.0	15.5	15.0																		
24.0		17.5	17.0	16.5	16.0	15.5	15.0																	
24.5		18.0	17.5	17.0	16.5	16.0	15.5	15.0																
25.0		18.5	18.0	17.5	17.0	16.5	16.0	15.5	15.0															
25.5		19.0	18.5	18.0	17.5	17.0	16.5	16.0	15.5	15.0														
26.0		19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0	15.5	15.0													
26.5		20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0	15.5	15.0												
27.0		20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0	15.5	15.0											
27.5		21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0	15.5	15.0										
28.0			21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0	15.5	15.0									
28.5				21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0	15.5	15.0								
29.0					21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0	15.5	15.0							
29.5						21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0	15.5	15.0						
30.0							21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0	15.5	15.0					
30.5								21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0	15.5	15.0				
31.0									21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0	15.5	15.0			
31.5										21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0	15.5	15.0		
32.0											21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0	15.5	15.0	
32.5												21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0	15.5	15.0
33.0													21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0	15.5
33.5														21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5	16.0
34.0															21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0	16.5
34.5																21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5	17.0
35.0																	21.0	20.5	20.0	19.5	19.0	18.5	18.0	17.5
35.5																		21.0	20.5	20.0	19.5	19.0	18.5	18.0
36.0																			21.0	20.5	20.0	19.5	19.0	18.5
36.5																				21.0	20.5	20.0	19.5	19.0
37.0																					21.0	20.5	20.0	19.5
37.5																						21.0	20.5	20.0
38.0																							21.0	20.5
38.5																								21.0



Installation

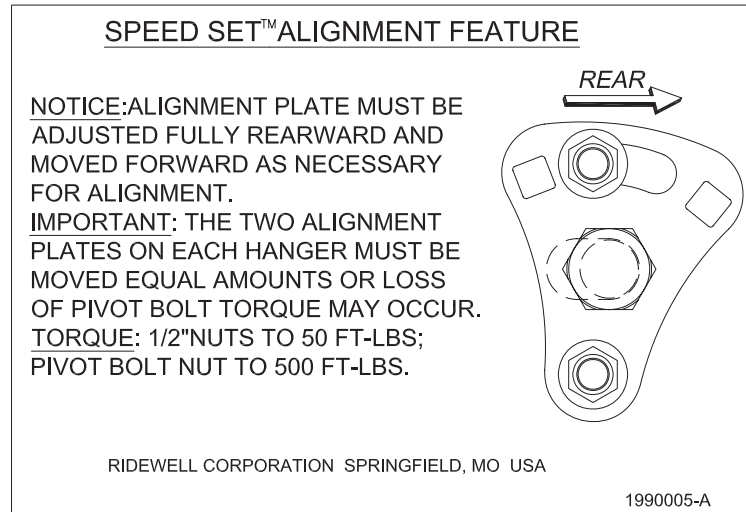
1. After reading the *Pre-Installation Notes* and *Configuration* section of this manual, determine and mark the proper location of the suspension. The frame must be clear in this location for proper suspension fit-up. A cross member must be located within 6" of the leading or trailing edge of the hanger. It is also recommended that a cross member be located above the main air spring.
2. If the suspension has not been welded or bolted to the axle, see the "Axle Integration" section of this manual.
3. Locate the hangers on the frame and clamp them firmly into place. The hanger or hanger spacer must contact the bottom of the frame at the leading and trailing edge. Ensure that the hangers are evenly located for proper axle alignment (fore and aft) and square to the frame. Care should be taken to ensure that the hangers are precisely located and clamped tightly into place before drilling holes.
4. Center punch and drill 12 total 21/32 inch holes, 6 in each hanger, in the locations shown in **Figure 4**. Always maintain hole centers at 2" above the bottom of the frame and 1" below the top of the bolting rail whether spacers are used or not. Use caution when drilling near wires, hoses or other components located within the frame rail. Bolt the hangers to the frame with 12 total 5/8 inch grade 8 bolts and prevailing torque lock nuts. Hardened washers or flanged fasteners are required.



5. Locate the air spring plate at the dimension shown in **Figure 4** and clamp them firmly into place. The air spring or spacer must have full contact to the bottom of the frame. If spacers are required, hangers and air springs must be spaced equal amounts. Center punch and drill 4 total 21/32 inch holes in the frame. Install 5/8 inch grade 8 bolts and prevailing torque lock nuts. Hardened washers or flanged fasteners are required.



FIGURE 5



6. Assemble the load air springs to the air spring plates.
7. A cross-channel between the hangers is not required in truck applications provided frame cross members are located above the hanger and air spring as shown in **Figure 4**.
8. Align the suspension per TMC or SAE recommended standards. Alignment should be done with the suspension at the required ride height. Ensure the alignment plates are adjusted rearward fully at both hangers and moved forward as necessary. The two adjustment plates on each hanger must be moved equal amounts or loss of pivot bolt torque may occur. Torque all alignment fasteners to the values shown on the alignment label. See **Figure 5**.

Note: It is imperative that the pivot nuts be fully tightened prior to placing the suspension into service to avoid damage to the suspension. Failure to torque the pivot nuts will void warranty.

9. Ensure that all fasteners are tightened to the specified torque in **Chart 3**.
10. Install the air controls as required.
Refer to the installation drawing or air control manual for more information.

CHART 3 - TORQUE SPECIFICATIONS

FASTENER SIZE	LOCATION	TORQUE	
		FT-LBS	N-M
3/8"-16NC	LOAD AIR SPRING	25	34
1/2"-13NC	LIFT AIR SPRING	25	34
1/2"-13NC	ALIGNMENT PLATE	50	68
3/4"-16NF	LOAD AND LIFT AIR SPRING	50	68
7/8"-14NF	PIVOT BOLT	500	678



Axle Integration

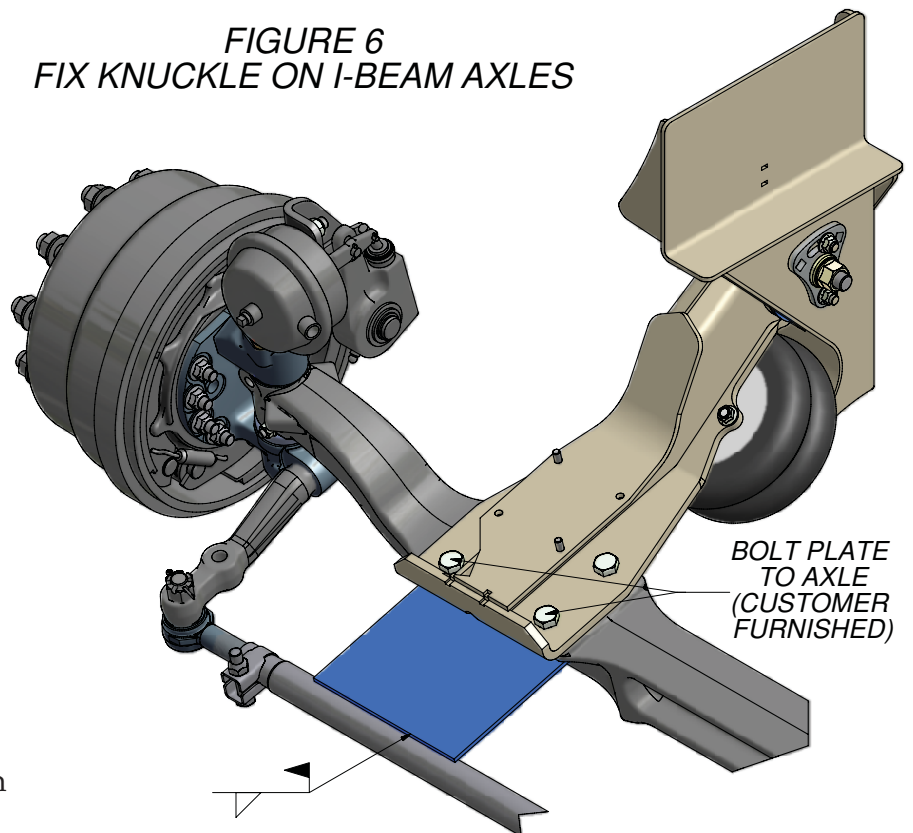
Round Axles:

1. Locate the suspension beams on the axle with the correct frame width between hangers and clamp them into place (see **Figure 1**). Axle should be centered between the beams and beams must be parallel to the axle.
2. Refer to **Figure 4** for correct axle clocking. Check the gap between the axle and axle seat. The gap at the welded edge should be no greater than 1/8" wide. The gap at the bottom of the seat, both inboard and outboard, should be zero (see the illustration at the bottom of **Weld Process #1**). Due to deformation of the axle tube during the fabrication process, drop axles may require some grinding of the axle seats to properly position the axle.
3. Weld the axle to the beams per Ridewell **Weld Process #1** which is included in this manual. If the lift or load air springs are assembled to the suspension, they should be covered to protect them from weld spatter.

I-beam axles:

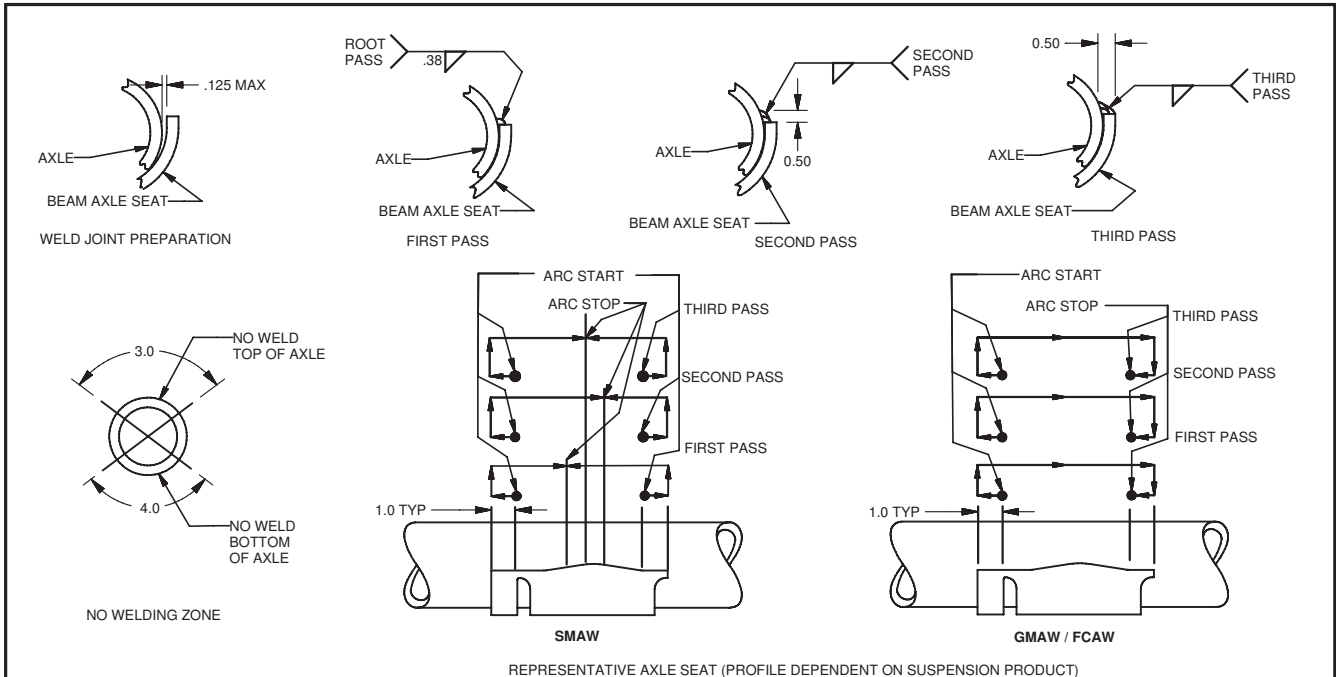
1. With the locator tabs on the bottom of the beams, locate the beams squarely on the axle with the correct frame width between hangers per **Figure 1**. Ensure that the axle is centered. Clamp the beams into place.
2. Determine if existing holes in the axle provide adequate clearance between the bolt head and beam. If not, new holes will be required. Center punch and drill 4 25/32" holes in each beam as needed, two on each side of the beam with 2 fore and 2 aft of the axle.
3. Fasten beams to axle with 8 total 3/4" Grade 8 fasteners. Ensure axle and beams are square before tightening nuts.
4. Align the wheels for proper toe in - 1/32" to 3/32" is generally recommended. Lock the knuckles into place to prevent them from steering. One suggested method is shown in **Figure 6**.

FIGURE 6
FIX KNUCKLE ON I-BEAM AXLES

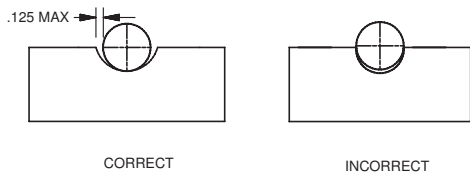




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- 1 - WELD JOINT PREPARATION: ALL GREASE, DIRT, PAINT, SLAG OR OTHER CONTAMINANTS MUST BE REMOVED FROM THE WELD JOINT WITHOUT GOUGING THE AXLE TUBE. INSURE THE LOWER BEAM ASSEMBLY FITS THE AXLE WITH A ROOT GAP OF 0.125 INCH MAXIMUM BETWEEN THE AXLE AND THE BEAM AXLE SEAT AS ILLUSTRATED ABOVE. IT IS RECOMMENDED TO C-CLAMP THE AXLE TO AXLE BEAM SEAT PRIOR TO WELDING TO INSURE THAT PROPER CONTACT OCCURS BETWEEN THE AXLE AND THE BEAM SEAT. SEE ILLUSTRATION BELOW.
- 2 - WELDING PRECAUTIONS: ALL WELDS MUST BE KEPT AWAY FROM THE TOP AND BOTTOM OF THE AXLE WHERE MAXIMUM STRESSES OCCUR. THE "NO WELD" ZONES ARE ILLUSTRATED ABOVE. DO NOT TEST WELD THE ARC ON ANY PART OF THE AXLE TUBE. THIS CAN LEAD TO A SMALL CRACK THAT MAY EVENTUALLY GROW AND AFFECT THE FATIGUE LIFE OF THE AXLE.
- 3 - ALL WELDERS AND WELDING OPERATORS SHOULD BE CERTIFIED PER AMERICAN WELDING SOCIETY (AWS) D1.1 SECTION 5 PROCEDURES OR EQUAL.
- 4 - RECOMMENDED WELDING METHODS ARE SHIELDED METAL ARC (SMAW (STICK)), GAS METAL ARC (GMAW (SOLID WIRE)), OR FLUX CORED ARC (FCAW (FLUX WIRE)) WELDING. WHATEVER ELECTRODE AND METHOD USED MUST DEVELOP A MINIMUM WELD TENSILE STRENGTH OF 70,000 P.S.I. REFER TO THE ELECTRODE MANUFACTURER'S RECOMMENDATION FOR VOLTAGE, CURRENT AND SHIELDING MEDIUM FOR THE DIAMETER ELECTRODE TO BE USED SO THE BEST FUSION AND MECHANICAL PROPERTIES CAN BE OBTAINED. RECOMMENDED ELECTRODE IS E7018 IF SMAW IS USED. RECOMMENDED ELECTRODE IS E70S-1 OR E70T-1 IF GMAW OR FCAW WELDING IS USED.
- 5 - ALL ELECTRODES USED SHOULD MEET AWS SECTION 5 SPECIFICATIONS AND CLASSIFICATIONS FOR WELDING CARBON AND LOW ALLOY STEELS.
- 6 - IF SMAW ELECTRODES (STICK) ARE USED, THEY MUST BE NEW, DRY, FREE OF CONTAMINANTS AND COME FROM A STOCK THAT HAS BEEN PURCHASED AND STORED PER AWS SECTION 4.5.2, LOW HYDROGEN ELECTRODE STORAGE SPECIFICATIONS.
- 7 - GROUND THE AXLE TO ONE OF THE ATTACHED AXLE PARTS SUCH AS THE AIR CHAMBER BRACKETS, CAM BRACKETS OR BRAKE SPIDER. NEVER GROUND THE AXLE TO A WHEEL OR HUB AS THE SPINDLE BEARING MAY SUSTAIN DAMAGE.
- 8 - THE AXLE ASSEMBLY SHOULD BE AT A MINIMUM TEMPERATURE OF 60 DEGREES F (15 DEGREES C) PRIOR TO WELDING. PRE-HEATING THE WELD ZONE TO THE AXLE MANUFACTURER'S PRE-HEAT TEMPERATURE IS RECOMMENDED. THIS WILL MINIMIZE THE FORMATION OF MARTENSITIC OR BRITTLE METAL STRUCTURES IN THE FUSION LINE OR THE HEAT AFFECTED ZONE WHICH MAY CONTRIBUTE TO A PREMATURE FATIGUE FAILURE IN SERVICE.
- 9 - THE JOINT TO BE WELDED SHOULD BE POSITIONED IN THE FLAT OR HORIZONTAL POSITION.
- 10 - MULTIPLE PASS WELDING SHOULD BE USED ON THE BEAM/AXLE CONNECTION USING THE FOLLOWING GUIDELINES. TOTAL FILLET WELD SIZE SHOULD BE 0.5 INCH.
- 11 - MULTIPLE PASS WELD INITIATION AND TERMINATION SHOULD BE PERFORMED AS SHOWN ABOVE. ALL SLAG MUST BE REMOVED BETWEEN PASSES. BACKSTEP FILL ALL CRATERS. EACH PASS MUST BE ACCOMPLISHED IN ONE OR TWO SEGMENTS. NEVER START OR STOP WELDS AT THE END OF THE WELD JOINT. START WELDS AT LEAST 1" FROM END AND BACKWELD OVER THE START. WELDS MUST GO TO WITHIN 1/8" +/- 1/16" OF THE ENDS OF THE AXLE SEAT AND MUST NOT GO BEYOND OR AROUND THE ENDS.
- 12 - POST-WELD PEENING (RECOMMENDED, BUT NOT REQUIRED): NEEDLE PEEN THE ENTIRE TOE OF THE SECOND PASS, INCLUDING AROUND THE ENDS OF THE AXLE SEAT. HOLD THE NEEDLES PERPENDICULAR TO THE AXLE. A UNIFORM DIMPLED PATTERN WILL APPEAR WHEN PROPERLY PEENED.



C	10102	REVISED WELD DIMENSIONS.	6/25/10	G.H.	MDJ	CJB
B	10102	REVISED NOTES 11 AND 12.	2/3/10	G.H.	MDJ	CJB
A	07100	ADDED 215 TO LIST OF SUSPENSION MODELS COVERED	2/26/07	G.H.	MDJ	DK
REV	PROJECT	DESCRIPTION	DATE	BY	CHK	APPD
DRAWN BY: CBC		6/23/2010	RIDEWELL CORPORATION PO BOX 4586 SPRINGFIELD, MISSOURI 65808			
CHECKED: MDJ		2/21/2003				
APPROVED: CJB		2/21/2003				
PROJECT NO: 03103		SCALE: A-SIZE: NTS	TITLE: RIDEWELL WELD PROCESS #1, 5" DIA. AXLE, 3 PASS WELD			
MATERIAL: -		WEIGHT: -	PART NO: WELD PROCESS #1			
APPLICABLE SUSPENSION MODELS: 200, 225, 240, 245R, 215, 243, 260.			SHEET 1 OF 1		REV: C	



Installation Check

1. Reduce the air pressure to the load springs to below 10 psi. Cycle the suspension up and down to ensure proper operation and suspension clearance to other components. Check that the driveline has adequate clearance when the suspension is lifted.
2. Check that all fasteners, including wheel nuts, are tightened to the proper torque values.
3. Check that brakes and slack adjusters are properly adjusted and that wheels rotate freely.
4. Check hubs for proper oil levels.

Suspension Operation

The controls of the RUL-245 should include a switch or push/pull knob to raise or lower the suspension and a pressure regulator with gage to control the load. The operator must be aware of the amount of pressure required to support a given load. **Chart 4** shows the approximate air pressure, as shown on the gage, required to support a given load. To obtain a more accurate correlation, place scales under the lowered auxiliary axle and, while adjusting the gage pressure, read and make note of the load on the scales.

CHART 4
AIR SPRING PSI VERSUS GROUND LOAD

Model:	Load At Ground (lbs)								
	2450030			2450040		2450050			
	Air Spring Length ³ (in)			Air Spring Length ³ (in)		Air Spring Length ³ (in)			
Air spring PSI	9.25	11.25	13.25	7.5	9.5	9.0	10.5	12.25	
20	4356	4024	3723	3679	3399	4287	4102	4019	
30	6034	5536	5085	5019	4599	5930	5654	5529	
40	7712	7048	6446	6358	5798	7574	7205	7038	
50	9390	8560	7808	7698	6998	9217	8756	8548	
60	11068	10072	9170	9038	8197	10860	10307	10058	
70	12747	11584	10531	10377	9397	12504	11858	11567	
80	14425	13096	11893	11717	10596	14147	13409	13077	
90	16103	14608	13254	13057	11796	15791	14961	14586	
100	17781	16120	14616	14396	12995	17434	16512	16096	

Notes:

1. Load values shaded gray exceed suspension rating.
2. The chart above shows an estimate only. Use scales to determine the relationship between spring air pressure and load at ground.
3. Data is calculated based on the length of the air spring as measured at the rear of the suspension and with the suspension at ride height.



Bushing Check Procedure

The bushings in the RUL-245 suspension should be checked during any scheduled maintenance or if there is a suspected problem. The bushings should be checked if any of the following conditions are observed:

1. Uneven tire wear.
2. Any abnormal fore-aft or lateral movement of the axle during operation.
3. Rapid degradation of the wear washers.
4. Any abnormal noises coming from the suspension.

To check, insert the flat end of a pry-bar between the sidewall of the hanger and the eye of the beam. Applying moderate side load to the pry-bar, look for any relatively large or easy movement of the beam in relation to the hanger. Note that a small amount of movement under load due to deflection of the rubber is normal and acceptable. Repeat the process on the other side of the hanger. If large or easy movement is noted, drop the beams down per the bushing replacement procedure for further inspection of the bushing and replace if necessary.

Recommended Service Intervals

	Every 1,000 miles	First 6,000 miles of operation	Every 12,000 miles	Every 36,000 miles	Every 50,000 miles	Every 100,000 miles
Wheels & Brakes						
Wheel Lubricant	I					R
Wheel Endplay				I		
Brake Cam			L			
Slack Adjuster			L			
Brake Lining				I		
Brake Drum				I		
Brake Function				I		
Wheel Nuts				T		
Suspension						
Bushings				I		
Air springs	I					
Structure	I					
Fastener Torque		T			T	

I=Inspect, L=Lubricate, T=Tighten, R=Replace

Lubricant Recommendations

Wheel Lubricant	API-GL-5
Brake Cam, Slack Adjuster	NLGI 1 or 2



Bushing Replacement Procedure

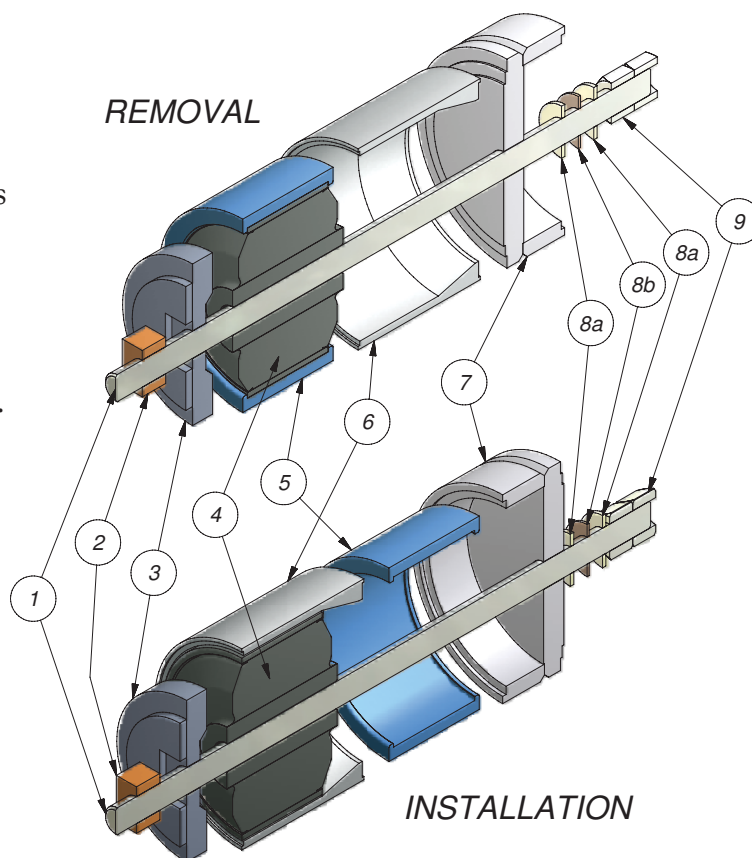
Order Ridewell part number 6040094 for RUL-245 bushing replacement kit. Bushing removal and installation requires FiberTech bushing press tool 6100044. Contact Ridewell for more information on obtaining these items.

1. Chock the wheels and secure the vehicle. Lift the auxiliary axle, remove the wheels, block up the axle and deflate the air springs. Remove the lift air spring, shock absorbers (if installed), and disassemble the load air spring top plate.
2. Remove pivot nuts and bolts and rotate trailing arm beams down and out of hangers. It is not necessary to remove the alignment plates.
3. Inspect pivot holes and hanger surfaces for unusual wear or damage. Repair or replace components as required.
4. Lubricate the threads and bearings of the FiberTech bushing press tool, part number 6100044. Lubricate liberally inside the cylinder of the press tool with P80 lubricant or a soap solution. Petroleum lubricants must not come in contact with the bushing.
5. Assemble the bushing press tool to the bushing and beams as shown in the "Removal" portion of **Figure 7** and ensure it is centered in the beam eye. Rotate the hex head of the threaded shaft with an impact wrench to press out the old FiberTech™ bushing.
6. Disassemble the bushing press tool.
7. Clean the bushing eye of corrosion and debris.
8. Apply P80 rubber lubricant or a soap solution liberally to the new bushing outer diameter, inside the beam eye, and the tool cylinder to ease installation.
9. Reassemble the bushing press tool as shown in the "Installation" portion of **Figure 7** and ensure it is centered in the eye. Rotate the hex head of the threaded shaft with an impact wrench to install a new FiberTech bushing.



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10. Remove the bushing press tool and ensure the bushing is centered between the ridges of the beam eye.
11. Install new thrust washers on both sides of the new bushing and rotate the beams into the hangers.
12. Install new pivot bolts and nuts and tighten to the torque shown in **Chart 3**.
13. Reassemble the suspension in reverse order from above.



**FIGURE 7:
BUSHING TOOL ASSEMBLY**

6100044: BUSHING INSTALLATION TOOL PARTS LIST

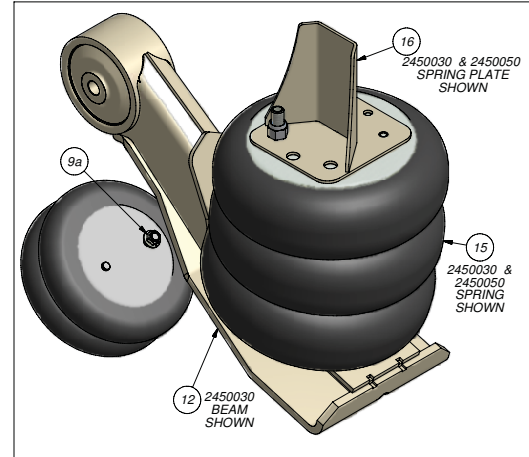
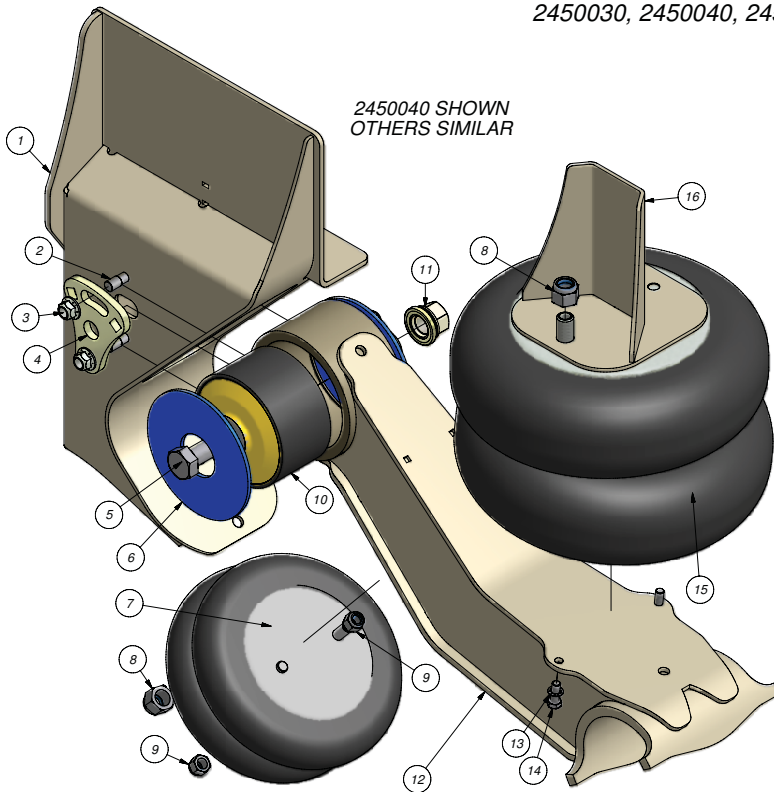
ITEM No.	PART No.	PART DESCRIPTION	No. REQ'D
1	9240003	THREADED ROD, 7/8-6ACME	1
2	1130023	NUT, 7/8"-6 ACME SQR BRONZE	1
3	5340022	PLUNGER	1
4	1110082*	BUSHING, FIBERTECH, NARROW*	-*
5	-----*	BEAM EYE REFERENCE*	-*
6	9090047	CONE	1
7	7400007	END CAP	1
8a	1120026	THRUST BEARING WASHER	2
8b	1120025	THRUST BEARING CAGE	1
9	1230024	NUT, 7/8" ACME	2

* ITEM SHOWN FOR REFERENCE AND NOT INCLUDED WITH BUSHING INSTALLATION TOOL 6100044.



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PARTS ILLUSTRATION 2450030, 2450040, 2450050



OPTIONAL KITS

Part No	Part Description	ALL MODELS
PART NO. 6040092: 1" SPACER KIT		
8002664	HANGER SPACER 1"	2
8002666	AIR SPRING SPACER 1"	2
PART NO. 6040093: 2" SPACER KIT		
8002665	HANGER SPACER 2"	2
8002667	AIR SPRING SPACER 2"	2

RUL-245 PARTS LIST

Item No	Part No	Part Description	2450030 QTY	2450040 QTY	2450050 QTY
1	3360072	HANGER, LH	1	1	1
	3360073	HANGER, RH	1	1	1
2	1130018	WELD STUD, 1/2- 13NC 1.1L	8	8	8
3	1150012	L'NUT 1/2"-13NC	8	8	8
4	7001634	ALIGNMENT PLATE	4	4	4
5	1140056	HHCS 7/8-14NF	2	2	2
6	1167680B000	THRUST WASHER	4	4	4
7	1002B09611G	LIFT SPRING - LEFT SIDE	1	1	1
	1002B09614G	LIFT SPRING - RIGHT SIDE	1	1	1
8	1150011	L'NUT 3/4-16NF NY	4	4	4
9	1150555B112	L'NUT 1/2-13NC NY	2	4	4
9a	1150042	L'NUT 1/2-13NC WIZ-LOC	2	-	-
10	1110082	BUSHING FIBERTECH	2	2	2
11	1150028	L'NUT 7/8-14NF	2	2	2
12	5970388	BEAM W/BUSHING - LEFT SIDE	1	-	-
	5970389	BEAM W/BUSHING - RIGHT SIDE	1	-	-
	5970390	BEAM W/BUSHING - LEFT SIDE	-	-	1
	5970391	BEAM W/BUSHING - RIGHT SIDE	-	-	1
	5970392	BEAM W/BUSHING - LEFT SIDE	-	1	-
	5970393	BEAM W/BUSHING - RIGHT SIDE	-	1	-
13	1160011	L'WASHER 3/8 INT TOOTH	4	4	4
14	1140674B105	HHCS 3/8-16NC X 1L	4	4	4
15	1002B12488G	AIR SPRING DOUBLE CONVOLUTE	-	1	-
	1003B12339G	AIR SPRING TRIPLE CONVOLUTE	1	-	1
16	3450153	AIR SPRING PLATE - 5.5" BC	-	1	-
	3450129	AIR SPRING PLATE - 6.2" BC	1	-	1



Warranty

The Ridewell Corporation warrants the suspension systems manufactured by it to be free from defects in material and workmanship, under proper use, installation, application, and maintenance for a period of 3 years with no milage limit after delivery to the original purchaser. The responsibility of the Ridewell Corporation under this non-transferable warranty is limited to making good at the company factory by repair or replacement of any part or parts which it manufactures.

Written permission for any claim return must be first obtained from authorized Ridewell personnel. All returns must have transportation charges prepaid by the customer and accompanied with a complete written explanation of claimed defects and the circumstances of operational failure. On all component parts not manufactured by Ridewell their warranty is to the extent that the manufacturer of such parts warrant them to Ridewell Corporation. This is the only authorized Ridewell warranty and is in lieu of all other expressed or implied warranties or representations, including any implied warranties of merchantability or fitness, or of any obligations on the part of Ridewell Corporation. In no event will Ridewell be liable for business interruptions, loss of profits, personal injury, cost of delay, or for any other special, indirect, incidental or consequential losses, costs or damages.

Subject to all of the above conditions, if repair or replacement of any defective part is made by Ridewell Corporation, Ridewell will return the repaired or replaced part to the original purchaser with transportation charges prepaid.

1 - 12 months	100% parts & labor
13 - 36 months	100% parts only