CUSH GENERAL INSTALLATION NOTES, SEE CUSH SERVICE/INSTALLATION MANUAL

INSTALLATION DISCLAIMER NOTES:
1) It is important that the proper Cush suspension is chosen for the trailer application. The following criteria must be considered when selecting a suspension: required suspension capacity, loaded frame-to-ground measurement, ride height, axle travel, axle spacing, and axle GAWR.
2) It is the responsibility of the installer to determine the correct location of the suspension in order to provide the proper trailer load distribution. The gross axle weight rating (GAWR) of each axle must not exceed the rated capacity of any of the components involved. The suspension capacity ratings are for suspension components and axle beam only.
3) Required cross member locations maybe shown. Actual size and shape may vary per trailer design. It is the responsibility of the suspension installer to ensure structural adequacy of the trailer frame and related cross members. Verify that the actual trailer cross member locations correspond with those specified on the suspension drawing.
4) It is the responsibility of the suspension installer to read the instructions on all the drawing sheets thoroughly before proceeding with a suspension installation.

CUSTOMER TORQUE INSTRUCTIONS:
1) *DUAL RATE PIVOT BUSHING JOINT SNUG FROM FACTORY. CUSTOMER TO TORQUE THIS JOINT TO SPECIFICATION AFTER AXLE ALIGNMENT.
2) It is the customer's responsibility to check and tighten fasteners to specified torque at installation, after the suspension has been in operation for 3000 miles, and at suspension inspection cycles. Failure to do so can result in loss of warranty.
3) Torque values given are specified for the fasteners in the condition supplied by Cush Corporation. DO NOT APPLY ANY ADDITIONAL LUBRICANTS.
4) CAUTION: Fasteners should never be reused if removed or loss of clamp load occurs. For proper joint clamping contact Cush for replacement fasteners.
5) CAUTION: Over-torquing fasteners could result in material failure.

DUAL ECCENTRIC ALIGNMENT NOTES:
OVERVIEW: The DUAL ECCENTRIC pivot joint features outside eccentric cam gear washers that cover the alignment slot, Final axle alignment is required for proper bushing and tire wear.
CAUTION: DO NOT APPLY undercoating to the area until after alignment and torque of the pivot bolt.
CAUTION: With dual eccentric alignment both gears at the pivot must be moved/adjusted together at the same time and in the same direction. If not adjusted together on the same hanger this may lead to an improper pivot joint clamp and cause failure.

· With both pivot bolts snug and suspension at ride height.
· For adjustment, use (2) ½" square-drive breakover bars or ratchet to move the axle forward/rearward on one hanger at a time. Must move inside and outside gears together for adjustment. The square Adjustment Holes must line up side to side on each hanger.
· The Slot gives you 1/4" pivot movement fore and aft per hanger side.
· Start with the eccentric gears in the neutral position with the ½" adjustment square at 12 o'clock and lined up with the inset ½" plug hole, you can use a ½" round bar to check.
· To align the axle, move both sides of the suspension gears to get the axle aligned. If needed, go to the other side of the suspension and move in the gears in the opposite direction to fully align the axle to within 1/16".
· After alignment, clamp the joint per Cush torque specifications.
· After alignment, the suspension installer can weld the gears to the hanger side with 1/2" welds at 12 & 6 o'clock to prevent tampering & for off-road applications.

INSTALLATION NOTES:
1) Measure trailing arm centers and track to verify your requirements.
2) DO NOT APPLY undercoating to the suspension until after completing the alignment. Undercoating will effect clamp load of the pivot connection fastener and can damage the hardware.
3) Mount hangers onto trailer frame per suspension drawing sheets.
4) Place plastic washers on both sides of bush inner metal and insert spacer collars into bush inner sleeve.
5) Measure for fitup then mount Cushride trailing arm/axle assembly into suspension hangers.
NOTE: If the assembly fits tightly, it may be necessary to spread the mounting. DO NOT GRIND material from suspension components.
6) Place"-Align" gear washer, with indicator in neutral position, and insert pivot bolt/washer
7) Mount pivot washer/nut and torque joint for a snug fit.
8) Adjust "-Align" for proper axle track alignment.
9) Torque bushing pivot bolts per Cush torque instructions.
NOTE: Failure to follow the procedures in the Cush Service and Installation manual and/or properly torque the pivot fasteners at this time can result in a failed pivot connection and a loss of warranty coverage!
10) Install air springs and shocks per suspension installation manual and drawing sheets.

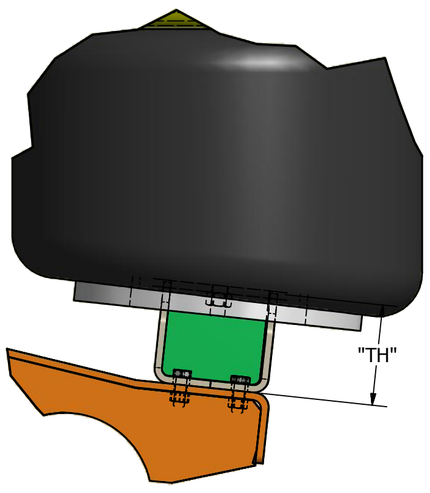
ORIGINAL-INSTALLATION INSPECTION NOTES, verify that:
1) The installation clearance requirements have been met.
2) The axles have been aligned properly.
3) The suspension frame bracketry and air spring plate welds have been properly completed per specifications.
4) All suspension bolt torques are to Cush specifications.
5) The suspension ride height is set properly.
6) The suspension can articulate freely through its entire travel and adequate component clearances have been provided.

INSPECTION: 30-DAY, 90-DAY, & at every brake lining change.
1) Check installation clearance requirements.
2) Check for any signs of wear or component interferences.
3) Check suspension attachment welds for signs of problems.
4) Check that all bolts are in place and securely torqued.
5) Check pivot bushings & clamping connections for problems.
6) Check that the trailer is level.
7) Check tire wear that might indicate an alignment problem.

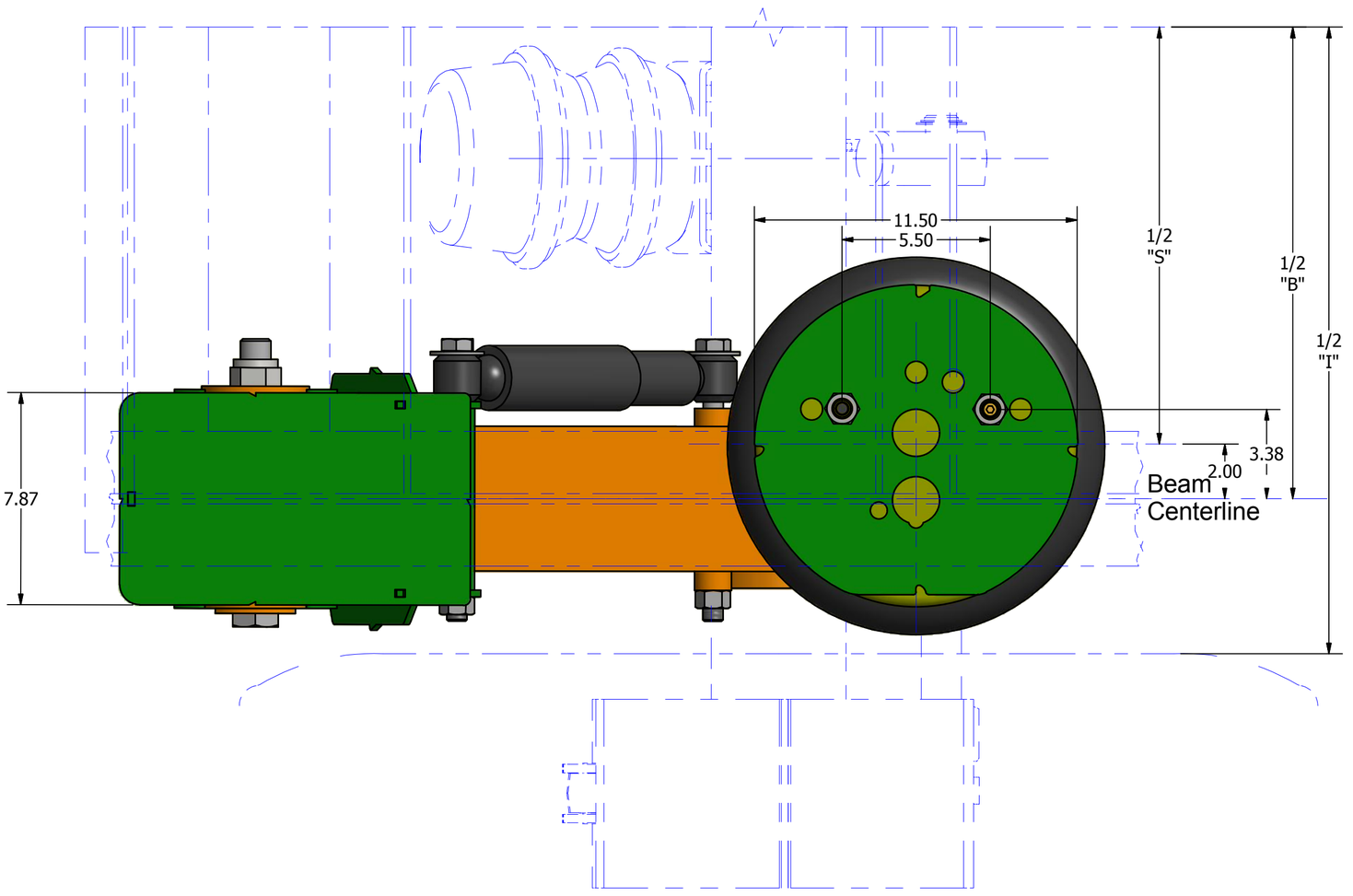
Part No. Suspension Model & RH	(in) RIDE HT	Bumper Deflection JOUNCE	Down REB'D	UP BUMPER CONTACT	Top Spacer Height "D" (in)	Hanger Pivot Height "P" (in)	Horz Pivot to Axle "F" (in)	Beam Tower Height "TH" (in)
CP25T15	14.0"	3.0"	5.5	2.75	0.18	9	19.7"	1.5
	14.5"	3.5"	5	3.25	0.18	9	19.5"	1.5
Shown-	*15.0"	4.0"	4.5	3.75	0.18	9	19.4"	1.5
	15.5"	4.5"	4	4.25	0.18	9	19.2"	1.5
	16.0"	5.0"	3.5	4.75	0.18	9	19.0"	1.5
	16.5"	5.5"	3	5.25	0.18	9	18.8"	1.5
CP25T16	15.0"	3.0"	5.5	2.75	0.18	10	19.7"	2.5
	15.5"	3.5"	5	3.25	0.18	10	19.5"	2.5
	16.0"	4.0"	4.5	3.75	0.18	10	19.4"	2.5
	16.5"	4.5"	4	4.25	0.18	10	19.2"	2.5
	17.0"	5.0"	3.5	4.75	0.18	10	19.0"	2.5
	17.5"	5.5"	3	5.25	0.18	10	18.8"	2.5
CP25T17	16.0"	3.0"	5.5	2.75	0.18	11	19.7"	3.5
	16.5"	3.5"	5	3.25	0.18	11	19.5"	3.5
	17.0"	4.0"	4.5	3.75	0.18	11	19.4"	3.5
	17.5"	4.5"	4	4.25	0.18	11	19.2"	3.5
	18.0"	5.0"	3.5	4.75	0.18	11	19.0"	3.5
	18.5"	5.5"	3	5.25	0.18	11	18.8"	3.5

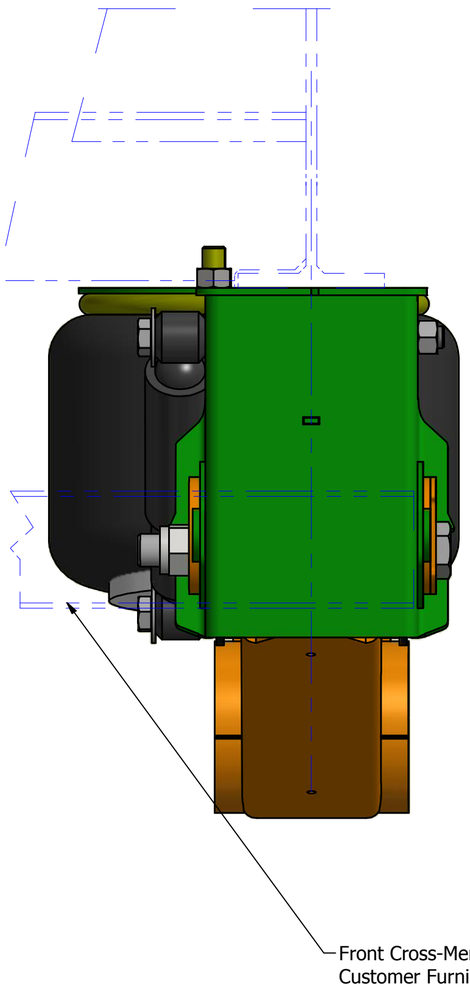
General Application Dimension Variables - Installation Clearance Notes Supersede all Common Variables Shown							
"B"	Ref. Suspension Beam(Hanger) Centers	34	35	40	41	40	39
"S"	Ref. Air Spring Centers (2" inset/side)	30	31	36	37	36	35
"I"	Ref. Axle Track	71.5"	71.5"	76.5"	77.5"	77.5"	77.5"
"C"	Approx. Chamber Centers for 16.5" x 7" Brake	9.75	9.75	14.75	15.75	15.75	15.75
"T"	Ref. Inside of Tires Min (Hanger Style)	46.5	46.5	51.5	52.5	52.5	52.5
	Installation Clearance Notes						
1	0.75" minimum clearance must be maintained around air spring when it is at maximum diameter.						
2	It is the responsibility of the installer to ensure that proper clearances exist at the tires: 1" minimum clearance required between top of tire and bottom of trailer structure when axle is at full jounce, 2" minimum clearance required between inside of tire and trailer frame structure for lateral movement, and there should be ample fore and aft clearances. 0.25" clearance is recommended between suspension beam and brake s-cam shaft.						

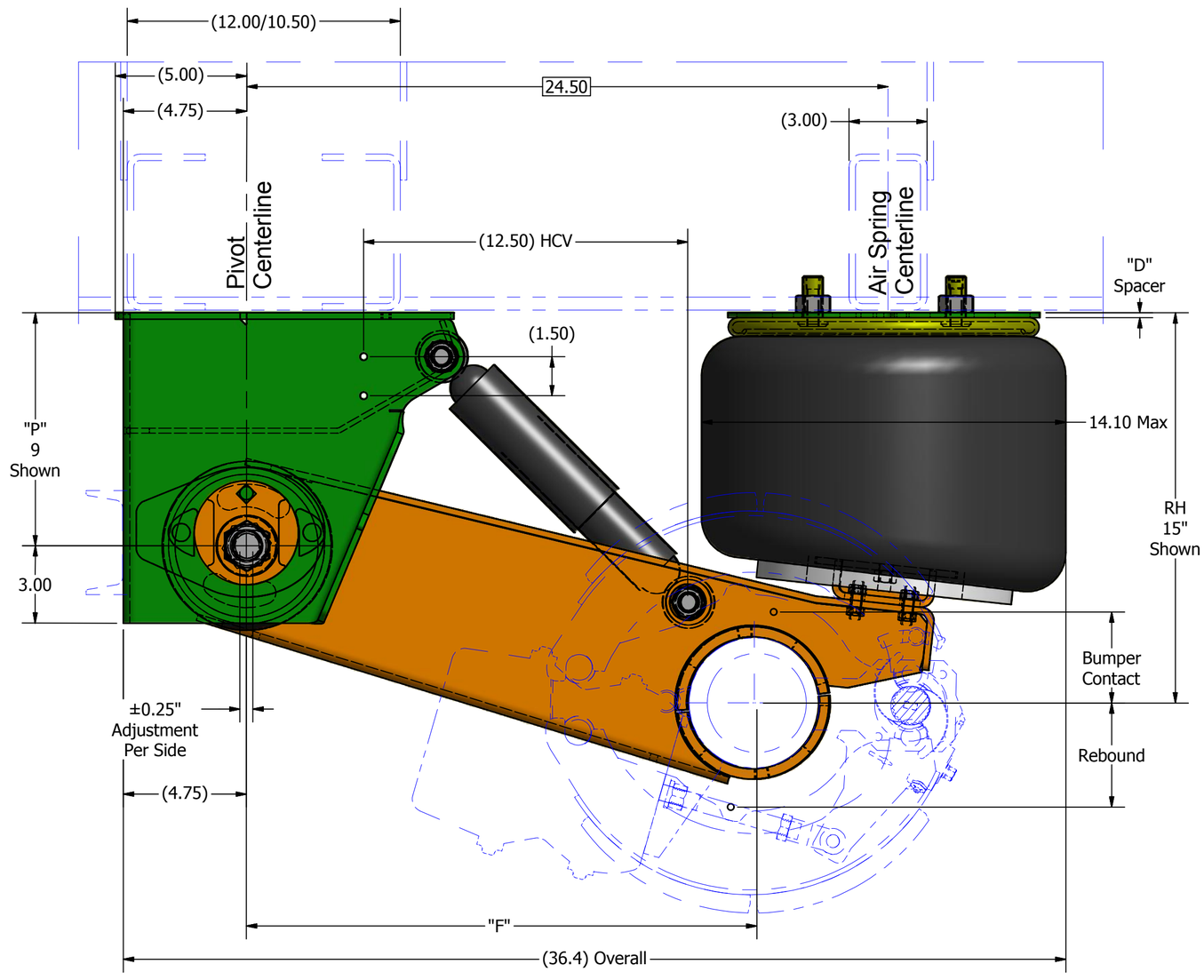
MODEL: CP25T				(Ft*Lbs)		(Nm)	
Fastener Torque Specs	**Size**	**Thread**	**Grade**	**Min.**	**Max.**	*Min*	*Max.*
Air Spring Tower Mount Nut	3/8	16-UNC	5/B	**30**	**45**	*41*	*61*
Air Spring Bottom Mount TopLock Nut	1/2	13-UNC	5/B	**25**	**35**	*34*	*47*
Air Spring Top Mount Nut	3/4	16-UNF	5/B	**40**	**50**	*54*	*68*
Shock Mount Nut/Bolt	3/4	10-UNC	5/B	**210**	**235**	*285*	*319*
Roughneck Pivot Bolt & Nut	1 1/8	7-UNC	8/C	**800**	**1100**	*1085*	*1491*



View A-A
Air Spring Lower Tower Height
"TH" =3.5" Shown
For T17_16"/18" RH







DCN#	A	Updated to Color Layout	2/3/15	DJW	CHK	APP

DRAFTSMAN: DJW 12/1/2014
CHECKED: CHK
RELEASED: APP
WEIGHT: N/A
MATERIAL:

TITLE: Part List Installation Sheet
Cush RoughNeck Top Mount
25K Full Wrap 5"rd Axle
14"/16" Ride Height
Weld-On, Wingless Hanger Mount

TOLERANCE UNLESS OTHERWISE STATED:
.XX = +/- .062 FRACTIONS = +/- 1/16
.XXX = +/- .031 ANGLES = +/- 1°

Nixa, MO. USA
PHONE: 417-724-1239
www.cushcorp.com

PROJECT NO:	SHEET:	SCALE:	REV:	PART/DRAWING NO:
14200	1 OF 2	A-SIZE: NTS B-SIZE: 1/X D-SIZE: 1/4	A	CR25TF(15/16/17)-X

CUSH TORQUE SPECIFICATIONS			(Ft*Lbs)		(N*m)	
Suspension Fastener Description	Size	Grade	Min.	Max.	Min	Max.
Air Spring Mount	3/8	5/B	15	20	20	27
Air Spring Mount	1/2	5/B	25	35	34	47
Air Spring Mount	3/4	5/B	40	50	54	68
Brake Chamber Mounting	5/8	5/B	100	110	136	149
Beam Tower for Air Spring Mount	3/8	5/B	30	45	41	61
Shock Eye Mount	3/4	5/B	210	235	285	319
U-Bolt Nut	7/8	8/C	475	525	644	712
Pivot Nut *(as supplied)*	7/8	8/C	550	600	746	813
Pivot Nut *(Wet_Oily_Anti-seize)*	1 1/8	8/C	800	1000	1085	1356

ROUGHNECK HANGER WITH 1.13" LARGE PIVOT BOLT

1. Bushings with 1.125" inner sleeve ID will not need plastic insert reducer for the 1-1/8" pivot bolt.
2. Use Cush Height Control Kit bracket from ACK-0206 or weld bracket to side of hanger.

DUAL ECCENTRIC ALIGNMENT NOTES:

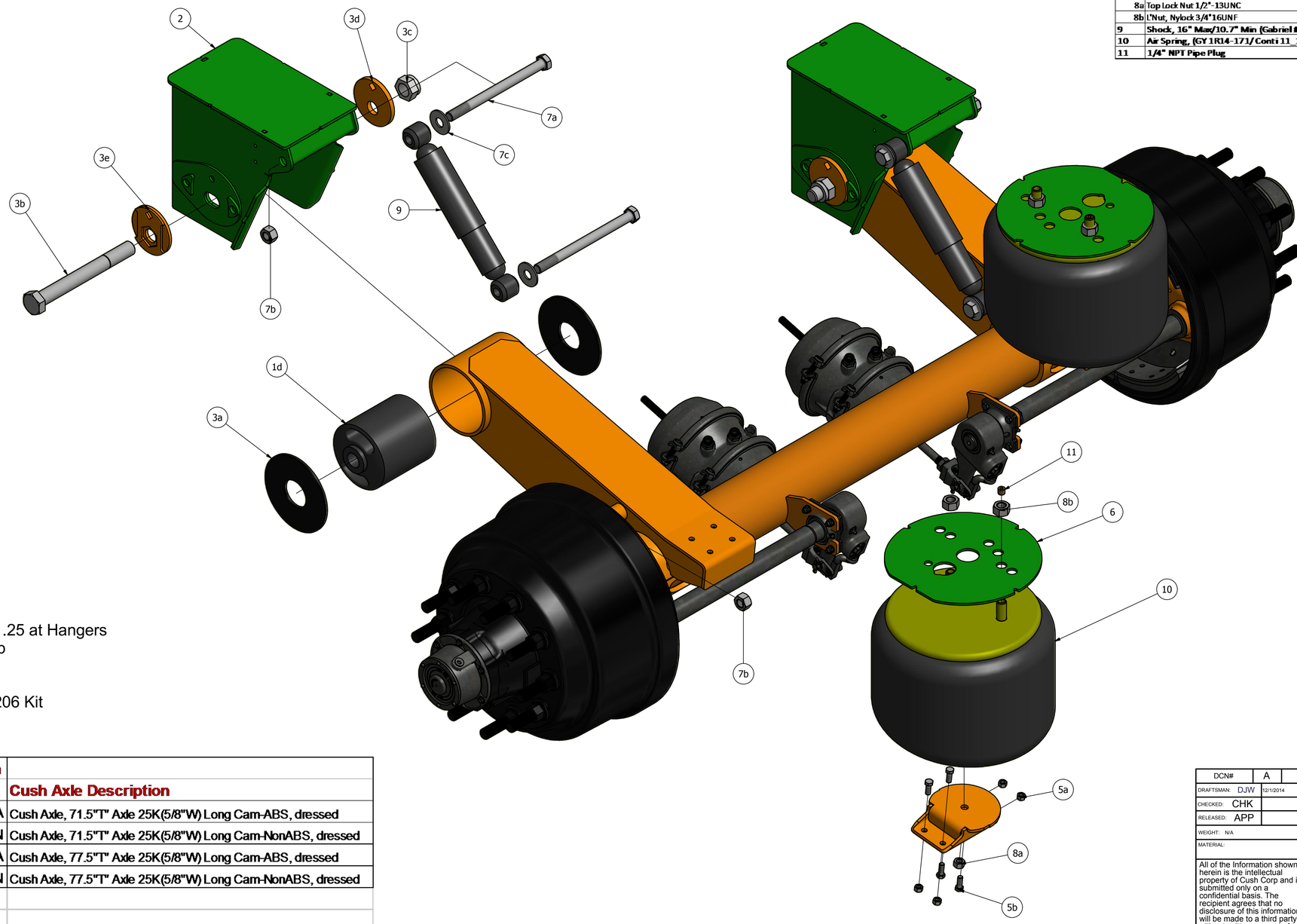
OVERVIEW: The DUAL ECCENTRIC pivot joint features outside eccentric cam gear washers that cover the alignment slot, Final axle alignment is required for proper bushing and tire wear.

CAUTION: DO NOT APPLY undercoating to the area until after alignment and torque of the pivot bolt.

CAUTION: With dual eccentric alignment both gears at the pivot must be moved/adjusted together at the same time and in the same direction. If not adjusted together on the same hanger this may lead to an improper pivot joint clamp and cause failure.

- With both pivot bolts snug and suspension at ride height.
- For adjustment, use (2) 1/2" square-drive breakover bars or ratchet to move the axle forward/rearward on one hanger at a time. Must move inside and outside gears together for adjustment. The square Adjustment Holes must line up side to side on each hanger.
- The Slot gives you 1/4" pivot movement fore and aft per hanger side.
- Start with the eccentric gears in the neutral position with the 1/2" adjustment square at 12 o'clock and lined up with the inset 1/2" plug hole, you can use a 1/2" round bar to check.
- To align the axle, move both sides of the suspension gears to get the axle aligned. If needed, go to the other side of the suspension and move in the gears in the opposite direction to fully align the axle to within 1/16".
- After alignment, clamp the joint per Cush torque specifications.
- After alignment, the suspension installer can weld the gears to the hanger side with 1/2" welds at 12 & 6 o'clock to prevent tampering & for off-road applications.

ITEM	DESCRIPTION	QTY	PART NUMBER		
			CR25TF15-X	CR25TF16-X	CR25TF17-X
1	H-Beam Assembly of Beams and Axle, HD Bushing	1	A0022-XXXX		
1a	Unv Beam Weldment	2	AW1192-C0535		
1b	Axle Wrap Shell	4	B1149		
1c	Integrated Axle per Spec Number	1	XXXX		
1d(ref)	Replacement Bushing, 6.75" Long, 1.125" ID (Balloned as Ref)	1	C0535		
2	Weld-On Hanger, Roughneck 1-1/8" pivot bolt, eccentric adjustment	2	W1251	W1251-10	W1251-11
3	Pivot Hardware Kit (Per Unit)	2	K0660		
3a	Wear Washer, 1/4" Thick	2	C0061		
3b	HHCS 1 1/8"-7UNCx10 Long, Grade 8	1	H0150		
3c	Nut, Hex, 1 1/8"-7UNC, Factory Wax, Grade C	1	H1109		
3d	Inside (Nut Side) Alignment Gear 4" OD	1	F1234-38		
3e	Outside Alignment Gear 4" OD, With Bolt Head Countersink	1	W1266		
4	Air Spring Tower/Beam Spacer, x" Tall	2	W0776-1.5	W0776-2.5	W0776-3.5
5	Kit, Air Spring Tower Mounting	1	K0419		
5a	L'Nut, Top Lock, 3/8"-16UNC	8	H1404		
5b	HHCS Bolt, 3/8"-16UNC x 1" Long	8	H0701		
	Box of Parts				
6	.19" Tall Spacer Weld-On Plate, Large	2	F0407		
7	Hardware Kit, Mounting For Shocks	1	K0025		
7a	HHCS, 3/4"-10UNC x 10" Long, Grade 5	4	H0225		
7b	Nut, Center Lock, 3/4"-10UNC, Grade C	4	H1201		
7c	Washer, 3/4" ID, USS	4	H2203		
8	AS Hardware Kit Bagged Together	1	K0030		
8a	Top Lock Nut 1/2"-13UNC	2	H1301		
8b	L'Nut, Nylock 3/4"16UNF	4	H1202		
9	Shock, 16" Max/10.7" Min (Gabriel #85064)	2	C0226		
10	Air Spring, (GY 1R14-171/ Conti 11_10.5-16 P523/FS W01-358-8091)	2	C0064		
11	1/4" NPT Pipe Plug	2	AC0151		



Roughneck Features

Full Wrapped Axle Connection
HD Pivot Bolt & Nut
HD Boxed Hanger
Dual Eccentric Axle Adjustment of +/- .25 at Hangers
Outside Gear Captured Bolt Head Tab
Dual Bushing Wear Washers
Integrated Shock Mounting
Integrated HCV Mounting, for ACK-0206 Kit

Suspension CR25TF15-X	Hanger Centers	TRACK "T"	Cush Axle	Cush Axle Description
CR25TF15-JC01A	35	71.5	_C01A	Cush Axle, 71.5"T" Axle 25K(5/8"W) Long Cam-ABS, dressed
CR25TF15-JC01N	35	71.5	_C01N	Cush Axle, 71.5"T" Axle 25K(5/8"W) Long Cam-NonABS, dressed
CR25TF15-KC02A	41	77.5	_C02A	Cush Axle, 77.5"T" Axle 25K(5/8"W) Long Cam-ABS, dressed
CR25TF15-KC02N	41	77.5	_C02N	Cush Axle, 77.5"T" Axle 25K(5/8"W) Long Cam-NonABS, dressed

DCN#	A	Updated to Color Layout	2/3/15	DJW	CHK	APP

DRAFTSMAN: DJW 12/1/2014
CHECKED: CHK
RELEASED: APP
WEIGHT: N/A
MATERIAL:

TITLE:
Part List Installation Sheet
Cush RoughNeck Top Mount
25K Full Wrap 5"rd Axle
14"/16" Ride Height
Weld-On, Wingless Hanger Mount

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.XXX = +/- .031 ANGLES = +/- 1°

Nixa, MO. USA
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PROJECT NO: 14200
SHEET: 2 OF 2
SCALE: A-SIZE: NTS B-SIZE: 1/X D-SIZE: 1/4
REV: A
PART/DRAWING NO: CR25TF(15/16/17)-X