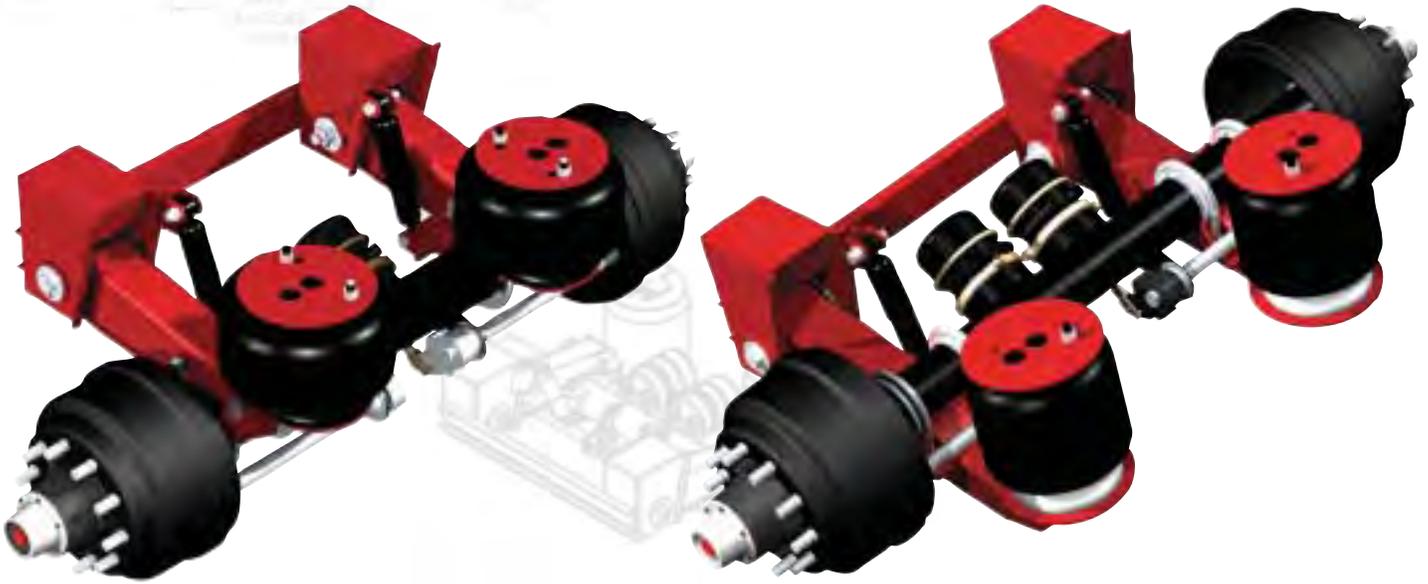




Watson Suspension Systems

TRAILER AIR & AIR LIFT SUSPENSIONS & LIFT KITS



LEADERSHIP IN SUSPENSION TECHNOLOGY

Model	Document Type	
TA	TRAILER AIR SUSPENSIONS	
TA150	SPRING AIR	NOT YET AVAILABLE
TA250U20	25K UNDERSLUNG Brochure	Go to page
TA250U20	25K UNDERSLUNG DWG	Go to page
TA250L20	25K LOWMOUNT Brochure	Go to page
TA250L20	25K LOWMOUNT DWG	Go to page
TA250T20	25K TOP MOUNT DWG	Go to page
TA250U21	25K UNDERSLUNG DISC BRAKE	NOT YET AVAILABLE
TY250U09	25K YOKE MOUNT UNDERSLUNG Brochure	Go to page
TY250U09	25K YOKE MOUNT UNDERSLUNG DWG	Go to page
TA300U09	30K UNDERSLUNG Brochure	Go to page
TA300U09	30K UNDERSLUNG DWG	Go to page
TA300L20	30K LOWMOUNT	NOT AVAILABLE
TA300T20	30K TOPMOUNT DWG	Go to page
TY300U09	30K YOKE MOUNT UNDERSLUNG DWG	Go to page
STA250	25K STEERABLE Brochure	Go to page
STA250	25K STEERABLE DWG	Go to page
TA280D	14K CAR HAULER DWG	Go to page
TL	TRAILER LIFTABLE	
9100	13K RIGID Brochure	Go to page
9100	13K RIGID DWG	Go to page
2200	25K RIGID Brochure	Go to page
2200	25K RIGID DWG	Go to page
STL2200	25K STEERABLE	Go to page
STL2200	25K STEERABLE DWG	Go to page
STL1186	13K STEERABLE DWG	Go to page
STL0890	8K Steerable DWG	Go to page
STL1191	13K STEERABLE NEW DWG	Go to page
STL1195	13K STEERABLE New Low Ride Ht DWG	Go to page
STL2095/96	20K STEERABLE Brochure	Go to page
STL2095/96	20K STEERABLE DWG	Go to page
STL2055	20K STEERABLE NEW DWG	Go to page
LIFT KITS		
AL75	DWG	Go to page
AL86	DWG	Go to page
AL95	DWG	Go to page
AL97	DWG	Go to page
UL90	DWG	Go to page
UL91	DWG	Go to page
UL92	DWG	Go to page
INSTALLATION & OPERATION MANUALS		
TA300-250	I&M Manual	Go to page

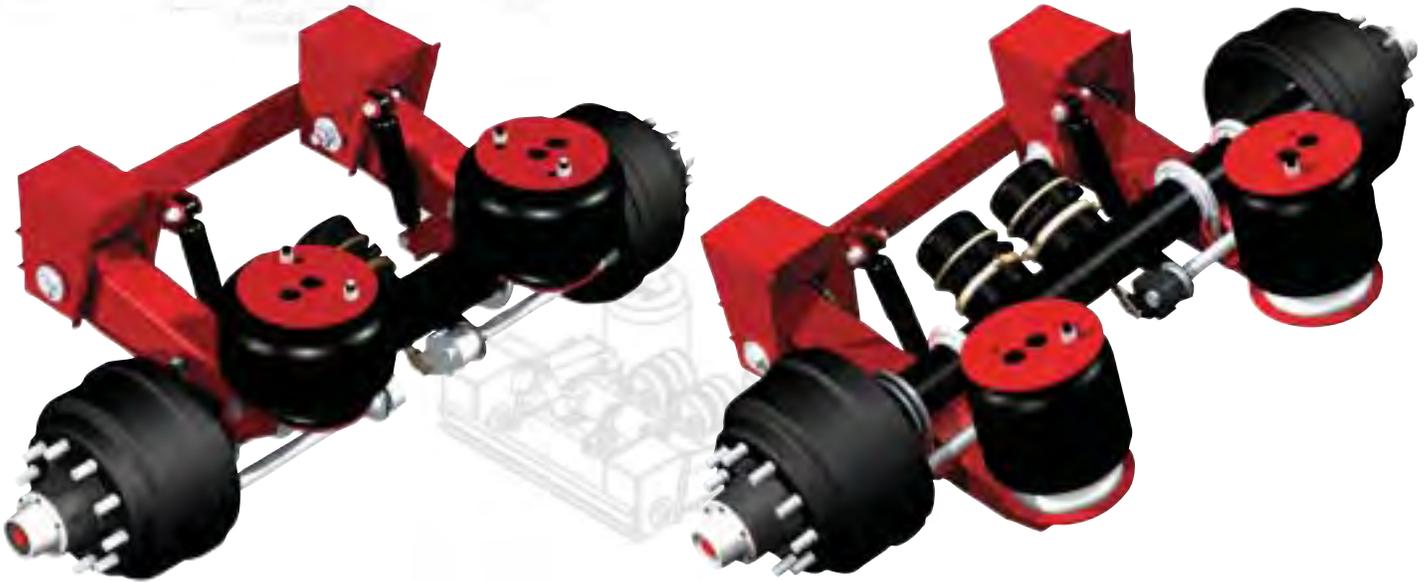


Watson Suspension Systems

TRAILER AIR SUSPENSION

TA-250T SERIES
TOP MOUNT

TA-250U SERIES
UNDER SLUNG



TA-250 SERIES

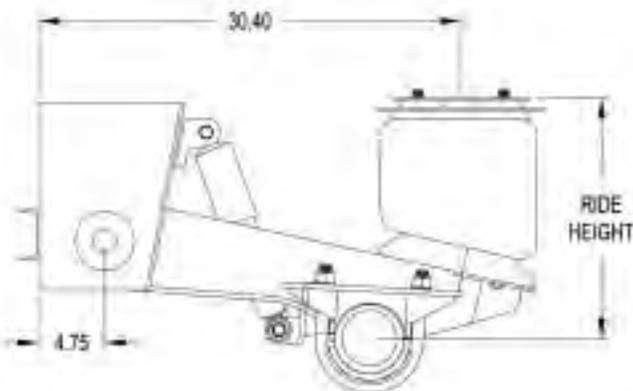
- 5 Year Warranty
- Maintenance Free with Huck Fasteners
- 25,000 lb. Capacity

LEADERSHIP IN SUSPENSION TECHNOLOGY

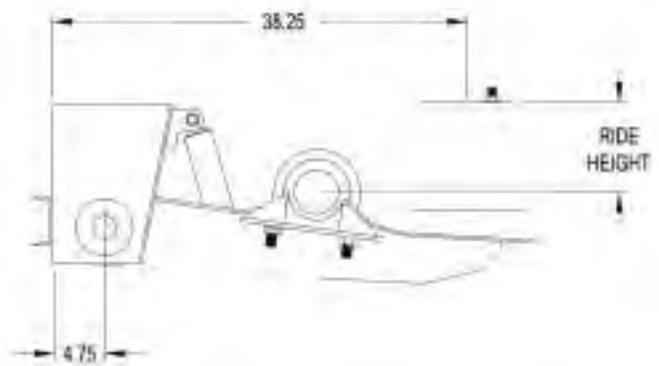
TA-250 Series

TRAILER AIR SUSPENSION

TA-250T TOP MOUNT



TA-250U UNDER SLUNG



- Axle Travel: 8 in.
- Ride Heights: 14 thru 19 in.

- Axle Travel: 8.5 in.
- Ride Heights: 5.5 thru 14 in.

Capacity: 25,000 lbs. • Factory Pre-Assembled • Compact in Design
HUCK Fasteners • Flush Mount Shocks • Extended Life Bushing • U-bolt Kit

Optional: *Restraint Strap Kit, Eccentric Alignment* (Requires Maintenance),

Rear Mount Shocks, Lift Kit



Watson Suspension Systems

972.547.6020 800.445.0736

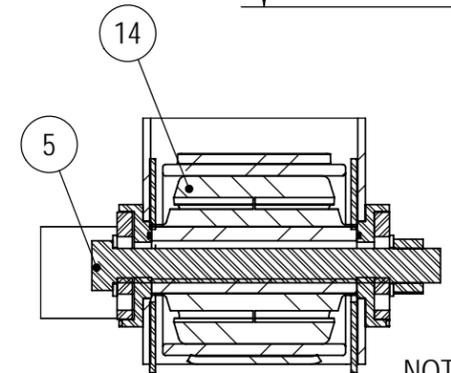
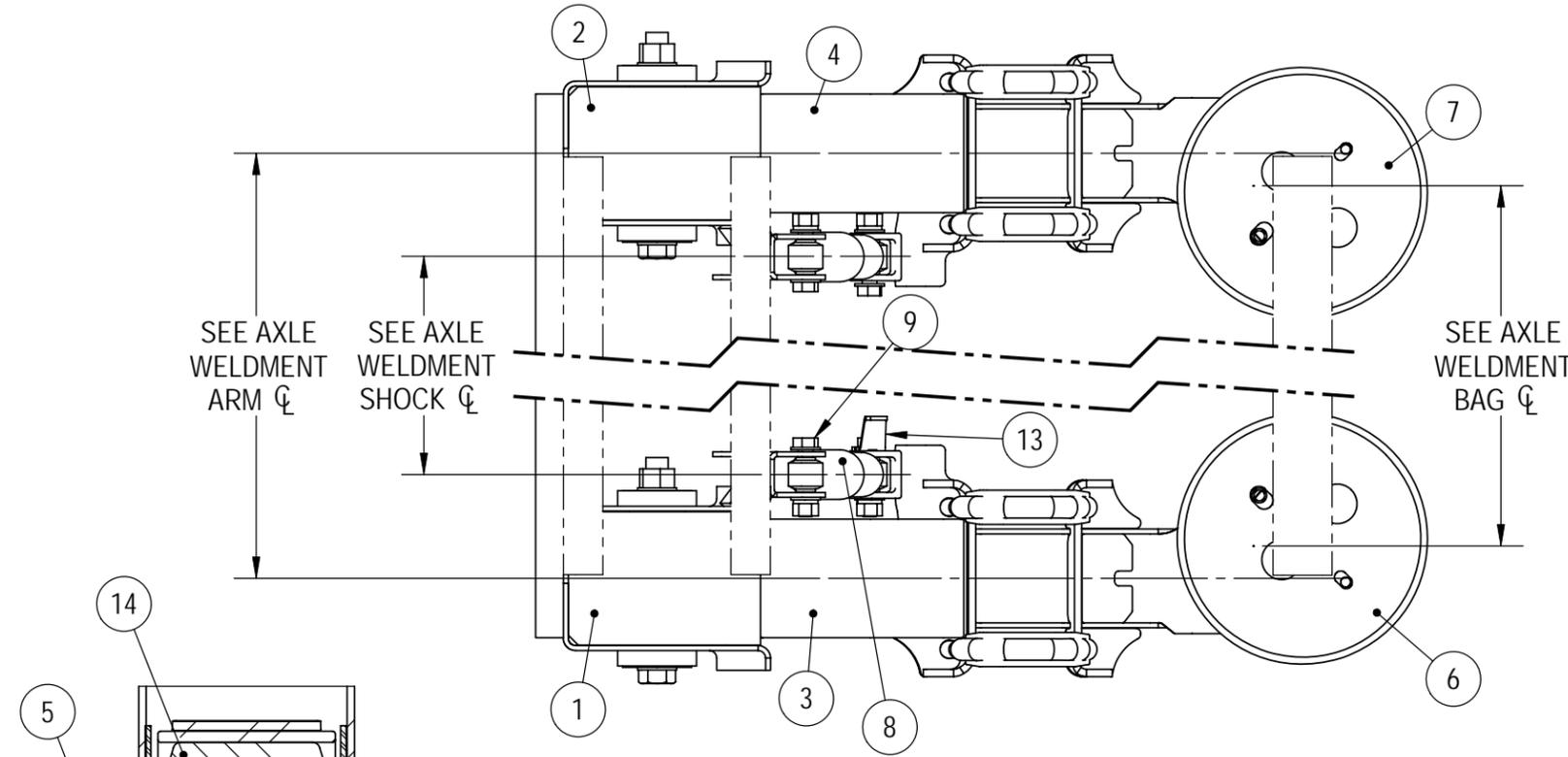
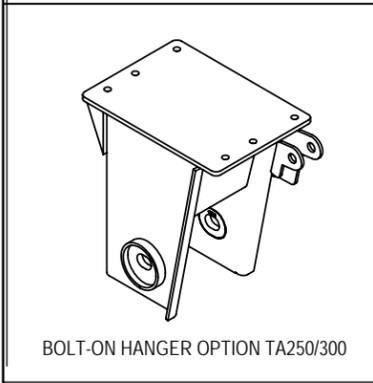
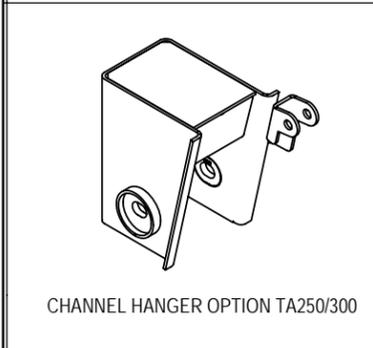
FAX: 972.542.0097

2060 COUCH DRIVE MCKINNEY, TEXAS 75069

www.WatsonSuspensions.com

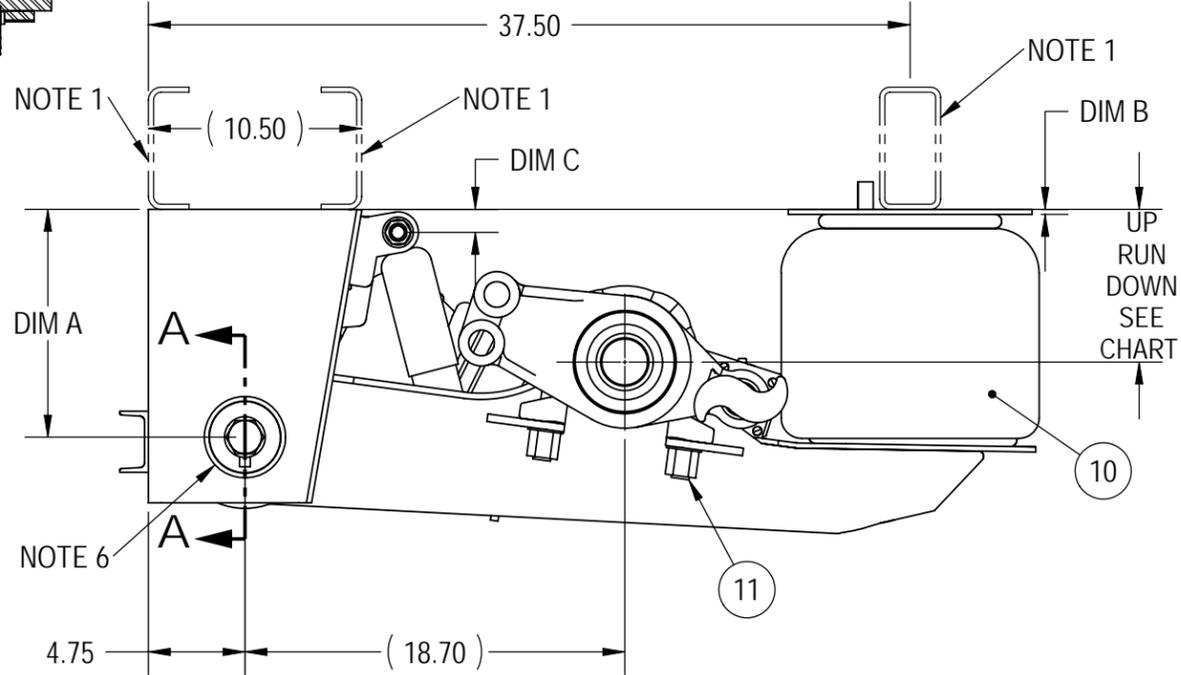
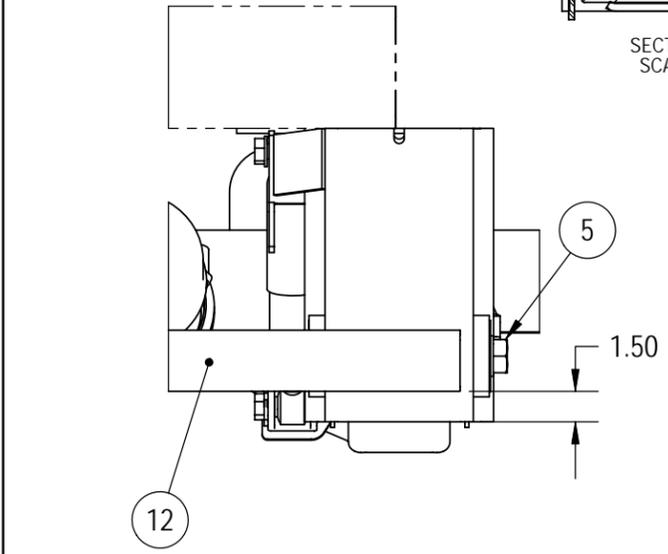
REV.	DESCRIPTION	ECN	DATE	BY
A	NEW DRAWING	7517	07/13/2010	EFR
B	ITEM #10 WAS AS0061-1CK	7758	9/9/2010	EFR

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	1	CHART	HANGER ASSEMBLY L.H.
2	1	CHART	HANGER ASSEMBLY R.H.
3	1	CHART	ARM ASSEMBLY UNDERSLUNG L.H.
4	1	CHART	ARM ASSEMBLY UNDERSLUNG R.H.
5	1	CHART	TI/TA COLLAR PACK
6	1	CHART	UPPER BAG PLATE
7	1	CHART	UPPER BAG PLATE
8	2	CHART	SHOCK ABSORBER
9	1	16002	VERTICAL SHOCK HARDWARE PACK
10	2	AS0061-1GK	AIR SPRING
11	1	16104	U-BOLT KIT WITH SPACER
12	1	CHART	CROSSBRACE WELD-ON
13	1	30259	LEVEL ROD CONNECTION BRACKET
14	2	17993-112	MULTIFUNCTION BUSHING (REF ONLY)



- NOTE:
1. SHOWN FOR REFERENCE PURPOSES ONLY, PROPER FRAME DESIGN AT SUSPENSION ATTACHMENT AREA IS THE RESPONSIBILITY OF INSTALLER.
 2. CAPACITY 25,000#.
 3. REFER TO INSTRUCTION MANUAL FOR SEAT TO AXLE WELDING INSTRUCTIONS.
 4. ECCENTRIC ALIGNMENT SHOWN.
 5. DIMENSIONS SHOWN FOR 71.50" TRACK AXLE, 35" ARM, AND 9" CHAMBER CENTERS. VARY ACCORDINGLY FOR OTHER TRACKS.
 6. WELD COLLARS MUST BE WELDED AFTER ALIGNMENT. (NOT FOR ECCENTRIC COLLARS!)

- CLEARANCE SPECS.
7. .75" MIN CLEARANCE MUST BE MAINTAINED AROUND AIR SPRING AT ITS MAX. DIAMETER.
 8. 1.0" MIN. CLEARANCE REQUIRED BETWEEN TOP OF TIRE AND BOTTOM OF TRAILER STRUCTURE WHEN AXLE IS IN FULL UP POSITION WITH BUMPER DEFLECTION.
 9. DUE TO LATERAL MOVEMENT, 2.00" CLEARANCE IS REQUIRED BETWEEN INSIDE OF TIRE AND TRAILER FRAME.



COLLAR TYPE CODES-A PAGE 2

COLLAR MUST BE WELDED AFTER ALIGNMENT COLLAR FACTORY INSTALLED ONLY.	ECCENTRIC COLLARS ARE NOT TO BE WELDED TO HANGER. NUT MUST BE PROPERLY TORQUED TO SPECS. SEE MANUAL.
W1 W2	E1

DEPTS AFFECTED	TOLERANCES (EXCEPT AS NOTED)	DESCRIPTION: MAIN ASSEMBLY UNDERSLUNG FOR CONFIGURATOR	
-	DECIMAL $\pm .06$	PREVIOUS ASSY: -	SHEET: 1 OF 2
-	FRACTIONAL $\pm 1/16$	SUSPENSION MODEL: TA250U20	SCALE: 1:9
WEIGHT: -	ANGULAR $\pm 1^\circ$	DATE: 07/13/10	DRAWN BY: EFR
		SIZE: B	DRAWING NO: TA250U20

NOTE: PARENTHESIS () DENOTES REFERENCE DIMENSION



AXLE WELDMENT

OPTION	DESCRIPTION	ITEM # 12
00	NO AXLE WELD	12524
35	35" ARM CENTERS 71.50" TRACK	12524
41	41" ARM CENTERS 77.50" TRACK	12524-09
43	43.50" ARM CENTERS 80.00" TRACK	12524-23
SP	SP ARM CENTERS SEE NOTES SEE AXLE CONFIG FOR AXLE REF ES006 FOR WELDING NOTE 5	SP

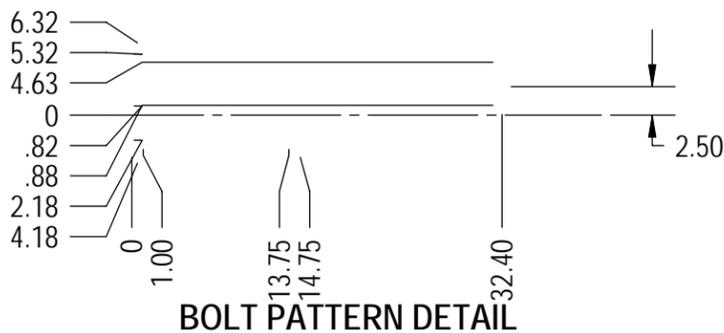
* BUMPER CONTACT, ADD .75"
FOR BUMPER DEFLECTION

MODEL NUMBER

MODEL NO.	OPTION	COLLAR	RIDE HEIGHT	UP*	DIM A	DOWN	DIM B	DIM C	ITEM # 1	ITEM # 2	ITEM # 3	ITEM # 4	ITEM # 5	ITEM # 6	ITEM # 7	ITEM # 8					
TA250U20-55XS1XXXXXXX	55XS	W	5.50	3.92	8.00	11.25	0.25	1.13	920700-108XS1.13	920700-208XS1.13	930289-10	930289-20	16079-01	50381	50381	17300					
TA250U20-55XE1XXXXXXX	55XE	E							920700-108XE1.13	920700-208XE1.13			16079-02								
TA250U20-65XS1XXXXXXX	65XS	W	6.50	3.92	8.00	11.25			1.13	920700-108XS1.13			920700-208XS1.13				16079-01				
TA250U20-65XE1XXXXXXX	65XE	E								920700-108XE1.13			920700-208XE1.13				16079-02				
TA250U20-75XS2XXXXXXX	75XS	W	7.50	5.25	11.00	13.75		1.13	920700-111XS1.13	920700-211XS1.13			16079-01								
TA250U20-75XE2XXXXXXX	75XE	E							920700-111XE1.13	920700-211XE1.13			16079-02								
TA250U20-90XS2XXXXXXX	90XS	W	9.00	5.25	11.00	13.75		1.13	920700-111XS1.13	920700-211XS1.13			16079-01								
TA250U20-90XE2XXXXXXX	90XE	E							920700-111XE1.13	920700-211XE1.13			16079-02								
TA250U20-12XS2XXXXXXX	12XS	W	12.00	6.75	12.00	15.25		2.00	2.38	920700-112XS2.38			920700-212XS2.38			930289-11	930289-21	16079-01	950172-12	950172-22	17297
TA250U20-12XE2XXXXXXX	12XE	E								920700-112XE2.38			920700-212XE2.38					16079-02			
TA250U20-14XS2XXXXXXX	14XS	W	14.00	8.75	14.00	17.25	4.00	4.38	920700-114XS4.38	920700-214XS4.38	16079-01	950172-14	950172-24								
TA250U20-14XE2XXXXXXX	14XE	E							920700-114XE4.38	920700-214XE4.38	16079-02										

STRAP KIT

RUN HT.	DESCRIPTION
00	NO KIT
55	980155U-5
65	980155U-6
75	980155U-7
90	980155U-9
12	980155U-122
14	980155U-142



TORQUE REQUIREMENTS GRADE 8

CAPSCREW-BOLT SIZE	3/8"	1/2"	5/8"	3/4"	7/8"	1"	1 1/8"
TORQUE MIN FOOT LBS	25	50	150	300	500	700	900
TORQUE MIN FOOT LBS	35	75	200	350	550	800	1000

TORQUE VALUES DO NOT APPLY TO AIR SPRINGS, OR LOWER GRADE FASTENERS

HANGER DRAWING NO.
LEFT HAND RIGHT HAND
HANGER HEIGHT DIM A
WELD / BOLT-ON
COLLAR TYPE ECCENTRIC / WELDED
SHOCK BRACKET HEIGHT DIM C

920700-1 05 W E 1.38

DESCRIPTION: TA250U20 CONFIGURATIONS

SHEET: 2 OF 2

DATE: 07/13/10 SCALE: 1:8 DRAWN BY: EFR SIZE: B DRAWING NO: TA250U20

Watson Suspension Systems

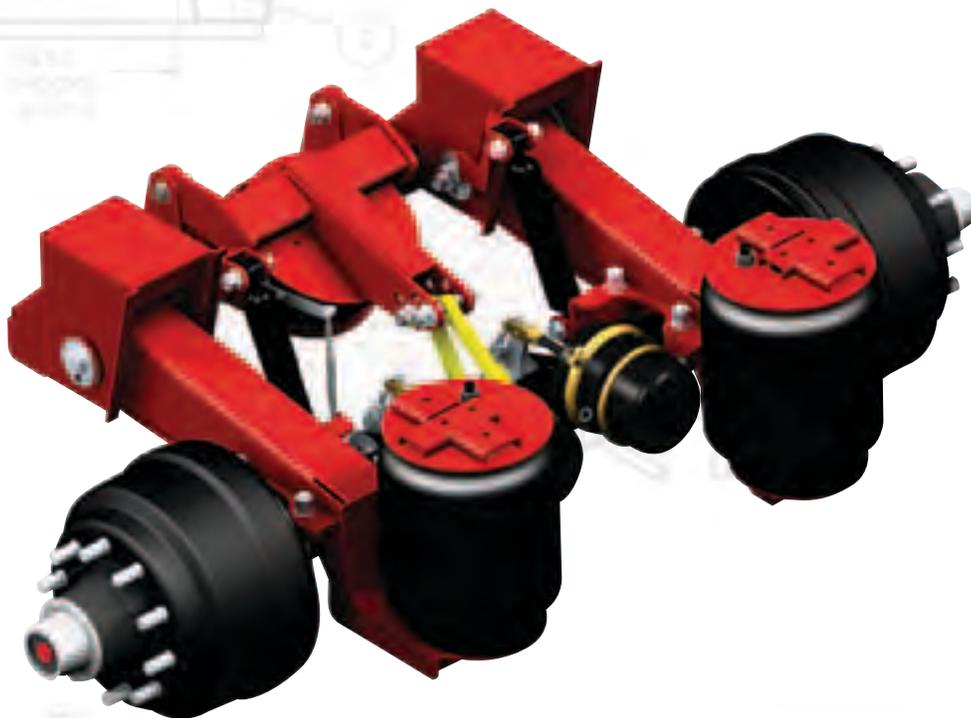


Watson Suspension Systems

TRAILER AIR SUSPENSION

TA-252 SERIES

TA-302 SERIES



TA-252/302 SERIES

- 5 Year Warranty
- Maintenance Free with Huck Fasteners
- 25,000 and 30,000 lb. Capacities

LEADERSHIP IN SUSPENSION TECHNOLOGY

TA-252/302 SERIES

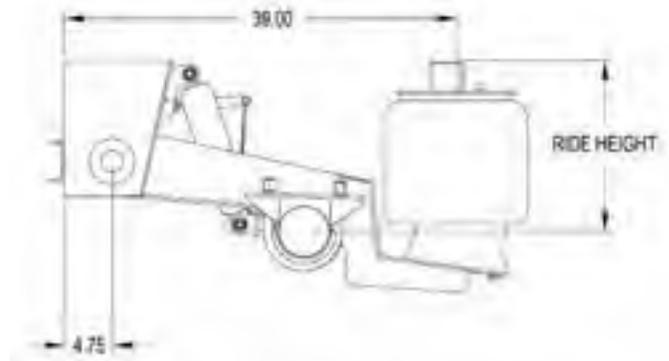
TRAILER AIR SUSPENSION

TA-252

with AL-85 Lift Kit

TA-302

DESIGNED WITH ADDITIONAL AXLE TRAVEL FOR LIFTING



- Axle Travel: 9 in.
- Ride Heights: 15 thru 19 in.
- Capacity 25,000 lbs.

- Axle Travel: 9 in.
- Ride Heights: 15 thru 19 in.
- Capacity 30,000 lbs.

Factory Pre-Assembled • Compact in Design • HUCK Fasteners

Flush Mount Shocks • Extended Life Bushing • U-bolt Kit

Optional: *Restraint Strap Kit, Eccentric Alignment (Requires Maintenance), Lift Kit*



Watson Suspension Systems

972.547.6020 800.445.0736

FAX: 972.542.0097

2060 COUCH DRIVE MCKINNEY, TEXAS 75069

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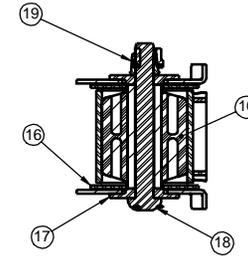
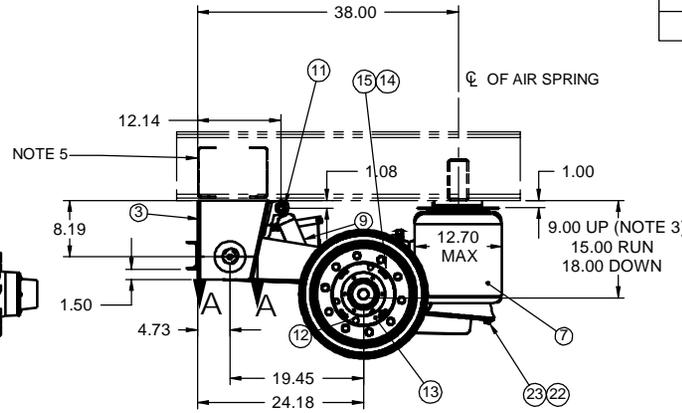
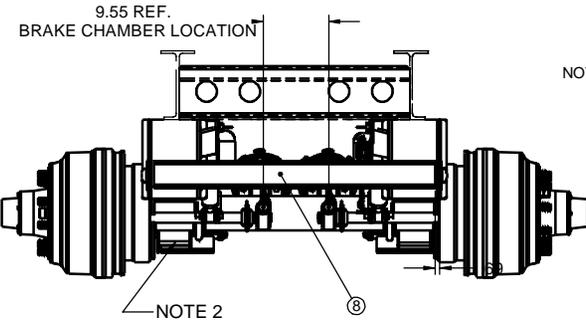
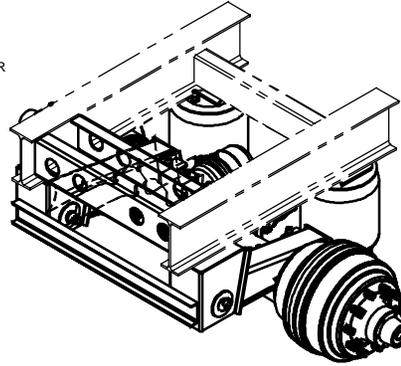
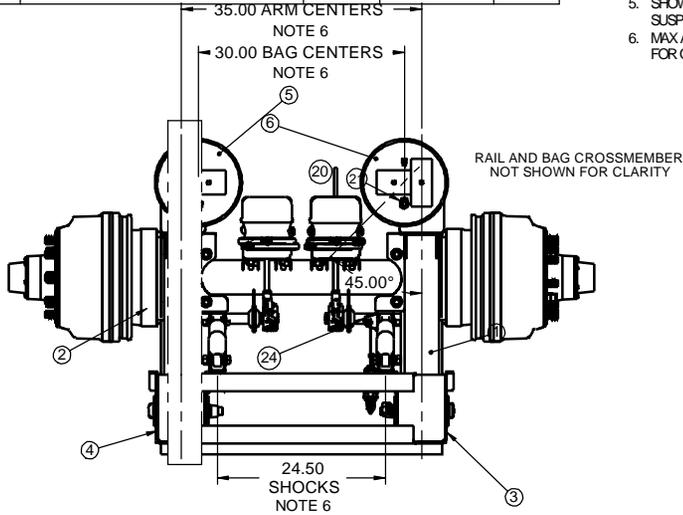
REV.	DESCRIPTION	ECN	DATE	BY
A	NEW DRAWING	2222	4/04/00	GWE
B	ADDED NEW BAG PLT, CORR SHOCK LOCATION	2341	11/12/01	GWE
C	ITEM #7 WAS AS0061-1G	C5951	12/11/2008	JFF

NOTES:

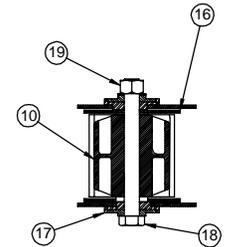
1. CAPACITY 25,000#
2. REFER TO INSTRUCTION MANUAL FOR SEAT WELDING INSTRUCTIONS
3. HEIGHT AT BUMPER CONTACT. DIMENSION WILL DECREASE BY .50 AT BUMPER DEFLECTION.
4. ECCENTRIC ALIGNMENT WITH SPIN OFF NUT AVAILABLE.
5. SHOWN FOR REFERENCE PURPOSES ONLY. PROPER FRAME DESIGN AT SUSPENSION ATTACHMENT AREA IS THE RESPONSIBILITY OF INSTALLER.
6. MAX ARM CENTERS SHOWN FOR 71.50 TRACK AXLE WITH DUAL 11R 225 TIRES. FOR OTHER AXLE TRACKS AND/OR TIRE, VARY MAX CENTER ACCORDINGLY.



ITEM NO.	QTY	PART NO	DESCRIPTION
1	1	930124-10	ARM ASSEMBLY
2	1	930124-20	ARM ASSEMBLY R.H.
3	1	CHART	HANGER ASSEMBLY L.H.
4	1	CHART	HANGER ASSEMBLY R.H.
5	1	950172-11	UPPER BAG ASSEMBLY L.H.
6	1	950172-21	UPPER BAG ASSEMBLY R.H.
7	2	AS-0061-1G	AIR SPRING 1R12-534
8	1	12524	CROSSBRACE WELD-ON 41" LENGTH
9	2	17297	SHOCK ABSORBER
10	2	17182-01	PIVOT BUSHING - W/DELRIIN LINER
11	1	16002	VERTICAL SHOCK HARDWARE PACK
12	4	17181	U-BOLT SPACER CASTING
13	4	17184	U-BOLT .875 X 8.00
14	8	17010	WASHER .875 HARDENED
15	8	17364	HIGHNUT .875-14
16	4	17183	HANG. SPACER WASHER (NYLON)
17	4	CHART	COLLAR
18	2	14165 (CHART)	HUCK PIN/CAPSCREW 1.12-12X10.50
19	2	11541 (CHART)	HUCK COLLAR/LOCK NUT 1.12
20	2	10026	.75 LOCKWASHER
21	2	10025	.75 HEX HEAD NUT
22	4	10042	.50 LOCKWASHER
23	4	10174	CAPSCREW .50-13 X 1.25
24	1	30259	LEVEL VALVE ROD CONN. BRKT



SECTION A-A
SCALE 1 : 8
STANDARD WELD ON COLLAR



SECTION A-A
ADJUSTABLE ALIGNMENT COLLARS
NOTE 4

MODEL NO.	ITEM # 9	APPLICATION	ITEM #3	ITEM #4	ITEM #17	ITEM #18	ITEM #19
TA-252T07-15WSF	17297 STD SHOCK	STANDARD	920245-1WS5	920245-2WS5	20203	14165	11541
TA-252T07H-15WSF	17297-01 HD SHOCK						
TA-252T07-15WEF	17297 STD SHOCK	OPTIONAL ADJ COLLARS	920245-1WE5	920245-2WE5	17234	17269	17267
TA-252T07H-15WEF	17297-01 HD SHOCK						

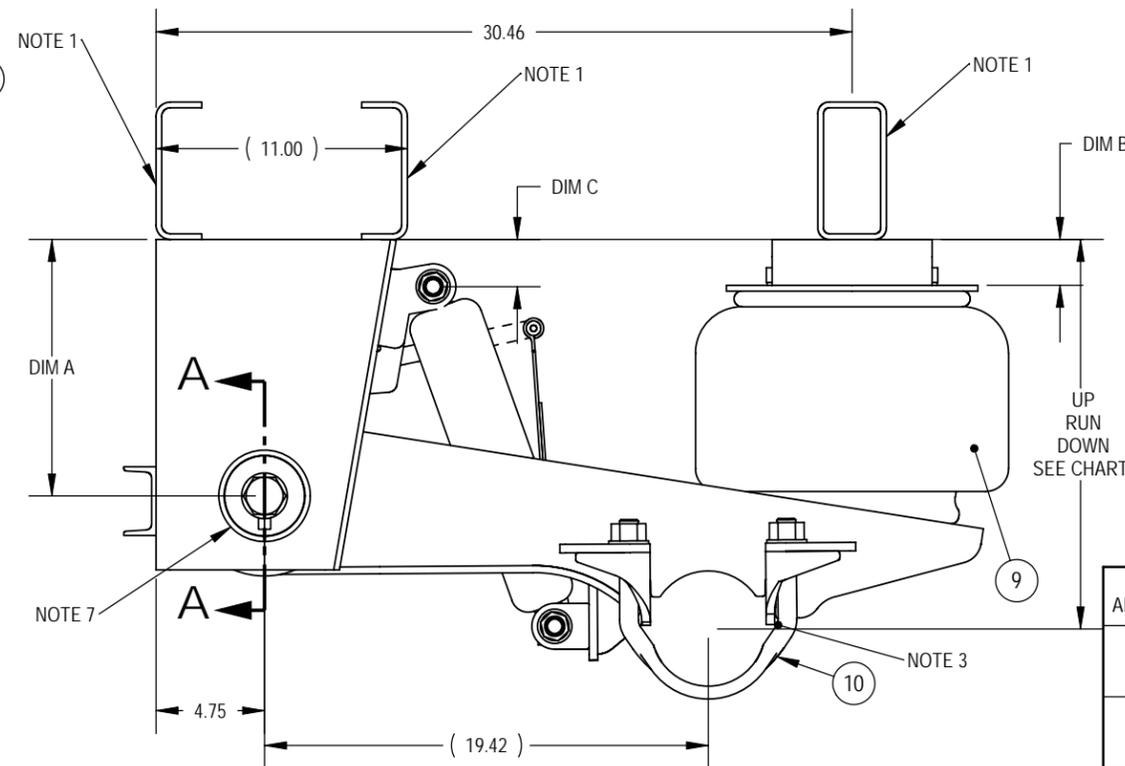
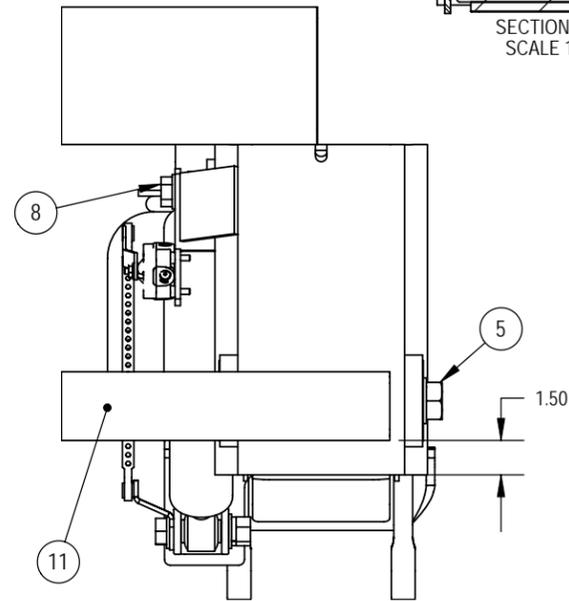
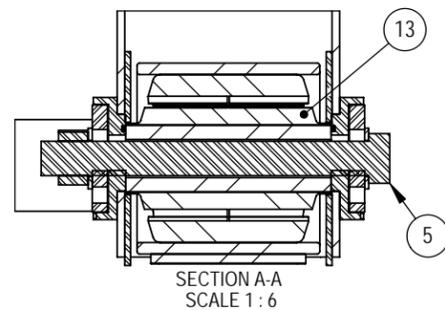
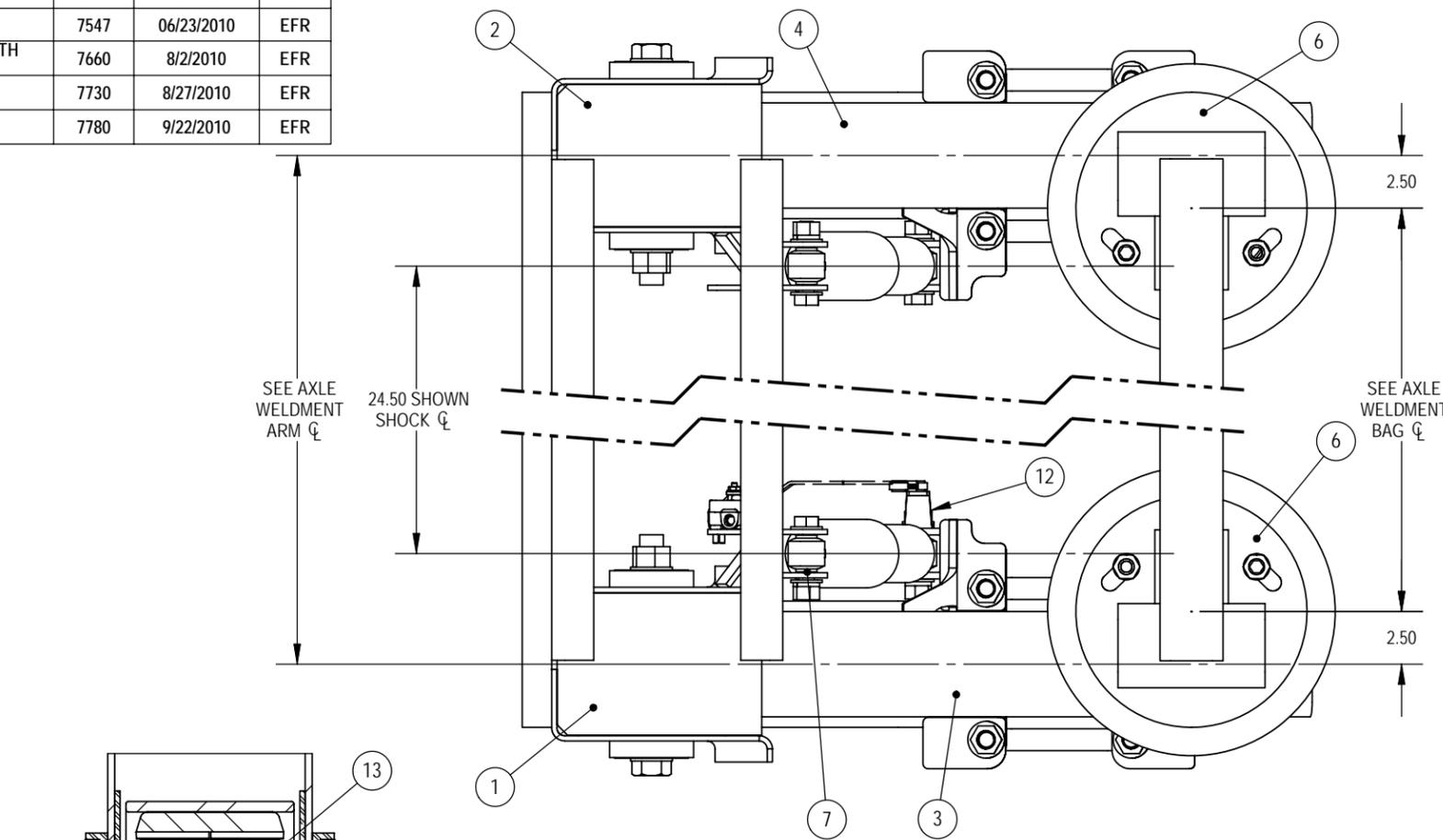
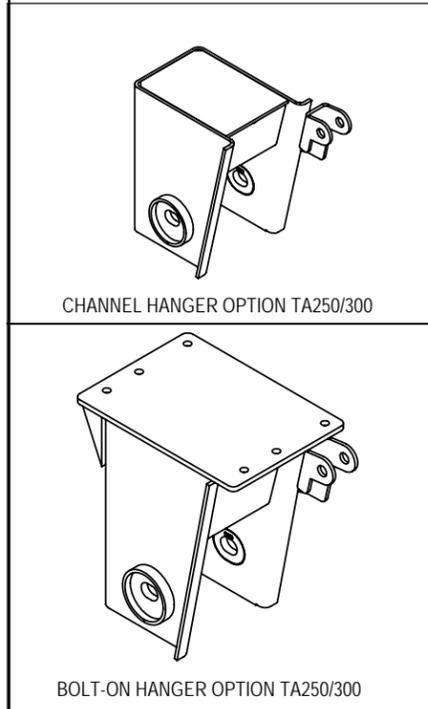
DEPTS AFFECTED	TOLERANCES (EXCEPT AS NOTED)	DESCRIPTION: MAIN ASSEMBLY TA252	
-	DECIMAL ± .06	PREVIOUS ASSY: 120277	SHEET: 1 OF 1
-	FRACTIONAL ± 1/16	SUSPENSION MODEL: TA252	SCALE: 1:18
WEIGHT:	ANGULAR ± 1°	DATE: 4/04/00	DRAWN BY: GWE
		SIZE: B	DRAWING NO: 120277



Watson Suspension Systems

REV.	DESCRIPTION	ECN	DATE	BY
A	NEW DRAWING	7547	06/23/2010	EFR
B	NEW SHOCK BRACKET TO RETROFIT WITH TA250T04	7660	8/2/2010	EFR
C	ITEM # 6 WAS 950167-05 ON TA250T20-19	7730	8/27/2010	EFR
D	ITEM #10 WAS 16078	7780	9/22/2010	EFR

ITEM NO.	QTY	PART NUMBER	DESCRIPTION
1	1	CHART	HANGER ASSY. L.H.
2	1	CHART	HANGER ASSY. R.H.
3	1	930296-10	ARM ASSEMBLY L.H.
4	1	930296-20	ARM ASSEMBLY R.H.
5	1	CHART	TI/TA COLLAR PACK
6	2	CHART	UPPER BAG PLATE ASSEMBLY
7	2	CHART	SHOCK ABSORBER
8	1	16002	VERTICAL SHOCK HARDWARE PACK
9	2	CHART	BAG CONFIGURATION ASSEMBLY
10	1	16106	U-BOLT KIT
11	1	CHART	CROSSBRACE WELD-ON
12	1	30259	LEVEL ROD CONNECTION BRACKET
13	2	17993-112	MULTIFUNCTION BUSHING (REF ONLY)



- NOTE:
1. SHOWN FOR REFERENCE PURPOSES ONLY, PROPER FRAME DESIGN AT SUSPENSION ATTACHMENT AREA IS THE RESPONSIBILITY OF INSTALLER. CAPACITY 25 000#.
 2. REFER TO INSTRUCTION MANUAL FOR SEAT TO AXLE WELDING INSTRUCTIONS.
 3. ECCENTRIC ALIGNMENT SHOWN.
 4. DIMENSIONS SHOWN FOR 71.50" TRACK AXLE, 35" ARM, AND 9" CHAMBER CENTERS. VARY ACCORDINGLY FOR OTHER TRACKS.
 5. CLEARANCE OF 2.00" NECESSARY BETWEEN FRAME AND INSIDE OF TIRE. WELD COLLARS MUST BE WELDED AFTER ALIGNMENT. (NOT FOR ECCENTRIC COLLARS!)
- CLEARANCE SPECS.
8. .75" MIN CLEARANCE MUST BE MAINTAINED AROUND AIR SPRING AT ITS MAX. DIAMETER.
 9. 1.0" MIN. CLEARANCE REQUIRED BETWEEN TOP OF TIRE AND BOTTOM OF TRAILER STRUCTURE WHEN AXLE IS IN FULL UP POSITION WITH BUMPER DEFLECTION. DUE TO LATERAL MOVEMENT, 2.00" CLEARANCE IS REQUIRED BETWEEN INSIDE OF TIRE AND TRAILER FRAME.

COLLAR TYPE CODES-A PAGE 2

COLLAR MUST BE WELDED AFTER ALIGNMENT COLLAR FACTORY INSTALLED ONLY.	ECCENTRIC COLLARS ARE NOT TO BE WELDED TO HANGER. NUT MUST BE PROPERLY TORQUED TO SPECS. SEE MANUAL.
W1 W2	E1

DEPTS AFFECTED	TOLERANCES (EXCEPT AS NOTED)	DESCRIPTION: MAIN ASSEMBLY TOP MOUNT FOR CONFIGURATOR	SHEET: 1 OF 2	
-	DECIMAL ± .06	PREVIOUS ASSY: -	SCALE: 1:8	
-	FRACTIONAL ± 1/16	SUSPENSION MODEL: TA250T20	DATE: 06/23/10	
WEIGHT: -	ANGULAR ± 1°	DATE: 06/23/10	DRAWN BY: EFR	
				DRAWING NO: TA250T20

NOTE: PARENTHESIS () DENOTES REFERENCE DIMENSION

TA250T20-14 C E 00 00 00

MODEL NUMBER

RUN HEIGHT

C-CHANNEL HANGER
B-BOLT-ON HANGER

E-ECCENTRIC COLLAR
W-WELD ON COLLAR

AIRSPRING

STRAP KIT

AXLE WELDMENT

AXLE WELDMENT

OPTION	DESCRIPTION	ITEM # 11
00	NO AXLE WELD	12524
35	35" ARM CENTERS 71.50" TRACK	12524
41	41" ARM CENTERS 77.50" TRACK	12524-09
SP	SP ARM CENTERS SEE NOTES SEE AXLE CONFIG FOR AXLE REF ES006 FOR WELDING NOTE 5	SP

STRAP KIT

RUN HT.	DESCRIPTION
LS	NO KIT
14	980155T-14
15	980155T-15
16	980155T-16
17	980155T-17
19	980155T-19

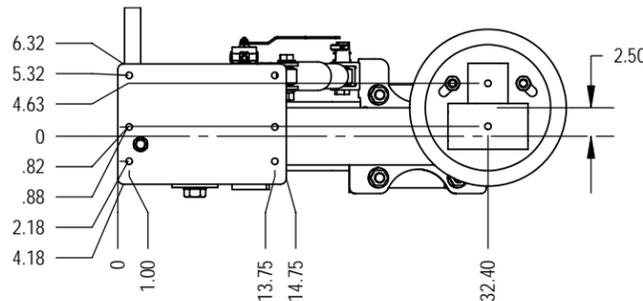
MODEL NUMBER

MODEL NO.	OPTION	COLLAR	RIDE HEIGHT	UP	DIM A	DOWN	DIM B	DIM C	ITEM # 1	ITEM # 2	ITEM # 5	ITEM # 6	ITEM # 7	ITEM # 9**
TA250T20-14XWXXXXXXXX	14XW	W	14.00	11.75	8.00	18.94	0.00	1.38	920700-108XS1.38	920700-208XS1.38	16079-01	50371	17297	AS0098-01FK
TA250T20-14XEXXXXXXXX	14XE	E							920700-108XE1.38	920700-208XE1.38	16079-02			
TA250T20-15XWXXXXXXXX	15XW	W	15.00	11.63	8.00	19.38			1.63	920700-108XS1.63	920700-208XS1.63			
TA250T20-15XEXXXXXXXX	15XE	E						920700-108XE1.63		920700-208XE1.63	16079-02			
TA250T20-16XWXXXXXXXX	16XW	W	16.00	11.89	9.00	20.00		1.13	920700-109XS1.13	920700-209XS1.13	16079-01			
TA250T20-16XEXXXXXXXX	16XE	E							920700-109XE1.13	920700-209XE1.13	16079-02			
TA250T20-17XWXXXXXXXX	17XW	W	17.00	12.89	10.00	20.81	1.00	2.06	920700-110XS2.06	920700-210XS2.06	16079-01	950167-01	10147	AS0107K
TA250T20-17XEXXXXXXXX	17XE	E							920700-110XE2.06	920700-210XE2.06	16079-02			
TA250T20-19XWXXXXXXXX	19XW	W	19.00	15.44	11.00	22.31	5.00	3.38	920700-111XS3.38	920700-211XS3.38	16079-01	950167-04	10147	
TA250T20-19XEXXXXXXXX	19XE	E							920700-111XE3.38	920700-211XE3.38	16079-02			

AIRBAG / ITEM # 9

OPTION	DESCRIPTION
00	STANDARD (AS0107K)
GY	GOODYEAR (AS0107GK)
14	FOR 14" RUN AND 19" OPTION FIRESTONE
SP	SP BAG SEE NOTES

**Bumper contact, suspension will travel up another .75" during full bumper compression



BOLT PATTERN DETAIL

TORQUE REQUIREMENTS GRADE 8

CAPSCREW-BOLT SIZE	3/8"	1/2"	5/8"	3/4"	7/8"	1"	1 1/8"
TORQUE MIN FOOT LBS	25	50	150	300	500	700	900
TORQUE MIN FOOT LBS	35	75	200	350	550	800	1000

TORQUE VALUES DO NOT APPLY TO AIR SPRINGS, OR LOWER GRADE FASTENERS

HANGER
DRAWING NO.

LEFT HAND
RIGHT HAND

HANGER HEIGHT
DIM A

WELD / BOLT-ON

COLLAR TYPE
ECCENTRIC / WELDED

SHOCK BRACKET HEIGHT
DIM C

920700-1 05 W E 1.38

DESCRIPTION:
TA250T20 CONFIGURATIONS

SHEET: 2 OF 2

DATE: 06/23/10	SCALE: 1:8	DRAWN BY: EFR	SIZE: B	DRAWING NO: TA250T20
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Watson Suspension Systems

YOKE MOUNT TRAILER AIR SUSPENSION

TY-250 SERIES

TY-300 SERIES



TY-250/300 SERIES

- 5 Year Warranty
- Maintenance Free with Huck Fasteners
- 25,000 and 30,000 lb. Capacities

LEADERSHIP IN SUSPENSION TECHNOLOGY

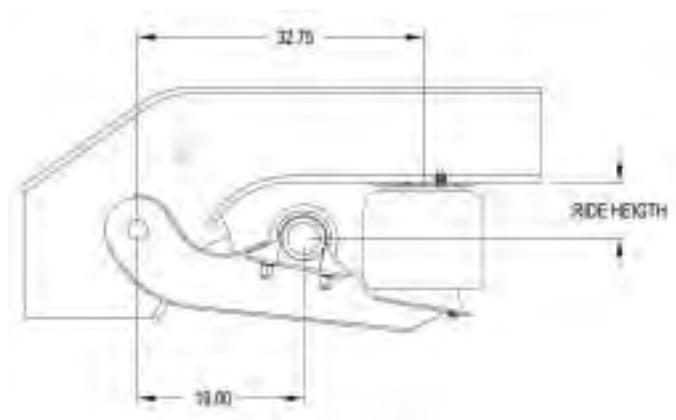
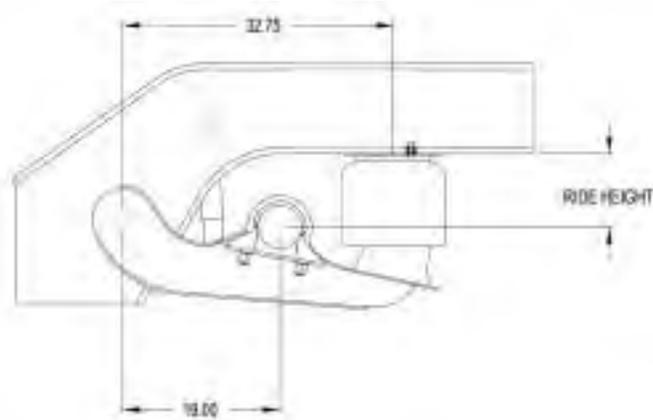
TY-250/300 SERIES

TRAILER AIR SUSPENSION

TY-250

TY-300

YOKE MOUNT DESIGN FOR DROP DECK TRAILERS



- Axle Travel: 8.5 in.
- Ride Heights: 6.5 thru 9 in.
- Capacity: 25,000 lbs.

- Axle Travel: 9 in.
- Ride Heights: 6.5 thru 9 in.
- Capacity: 30,000 lbs.

Factory Pre-Assembled • Compact in Design
Extended Life Bushing • U-bolt Kit



Watson Suspension Systems

972.547.6020 800.445.0736

FAX: 972.542.0097

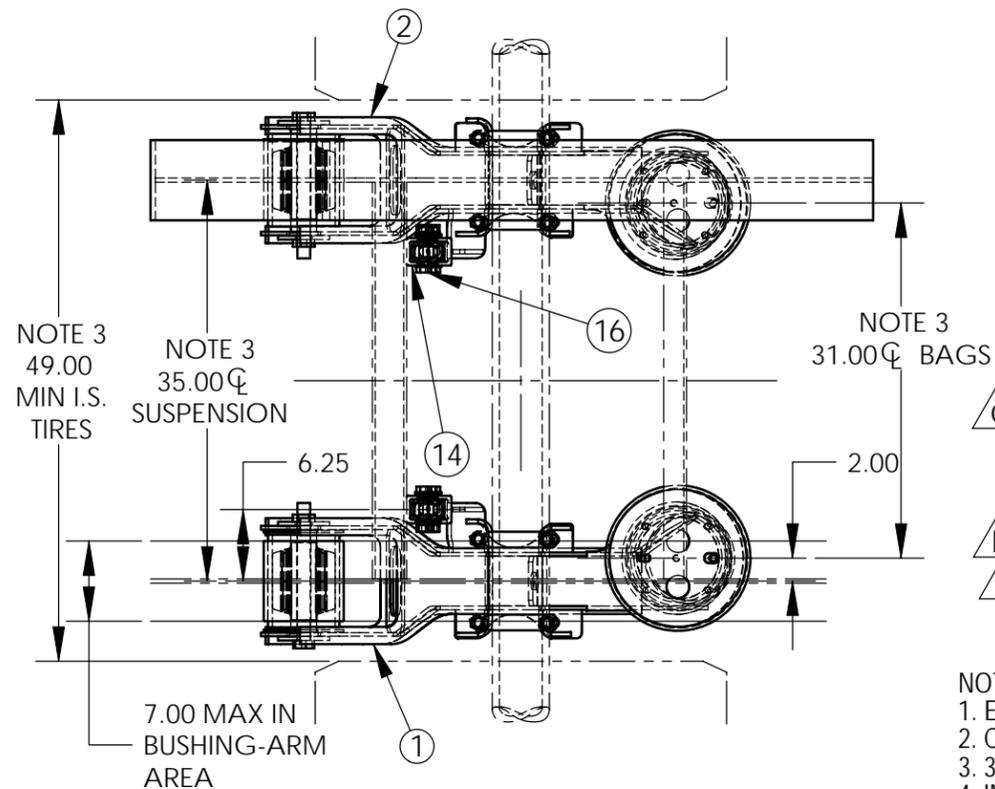
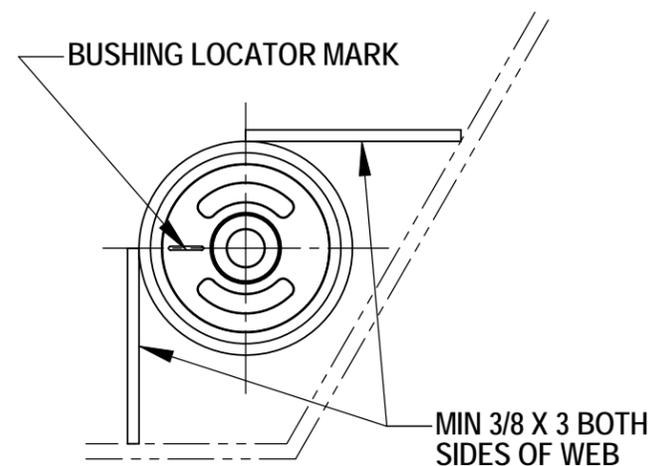
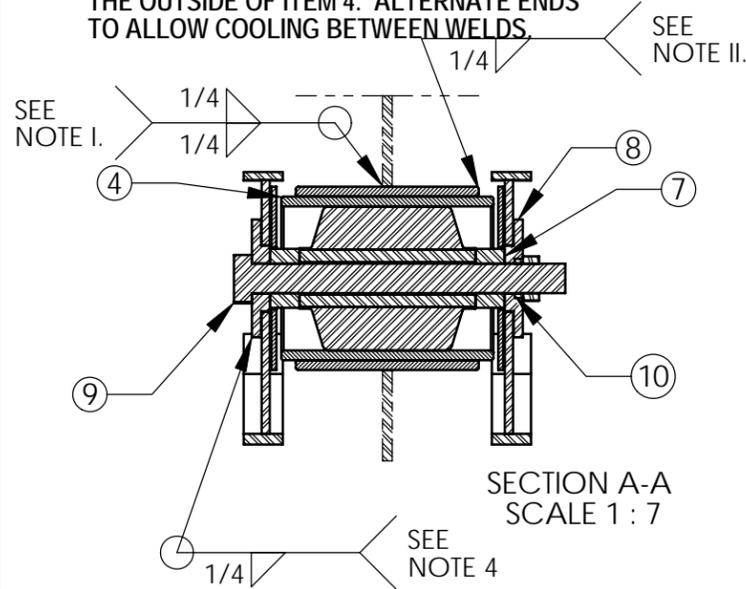
2060 COUCH DRIVE MCKINNEY, TEXAS 75069

www.WatsonSuspensions.com

REV.	DESCRIPTION	ECN	DATE	BY
A	NEW DRAWING	3115	2/11/2004	TEG
B	ITEM #12 WAS AS0113G	C-4618	4/27/2007	EFR
C	ITEM #11 WAS 50129	C-4618	5/10/2007	EFR
D	CHARTED AIRBAG HARDWARE PACK	C-5070	12/20/2007	EFR
E	ADDED NEW BAG AND U-BOLT KIT NUMBERS	7175	9/15/2009	TEG

I. CENTER ITEM 3 IN TRAILER FRAME
INSURE THAT SLEEVE IS PERPENDICULAR
TO FRAME

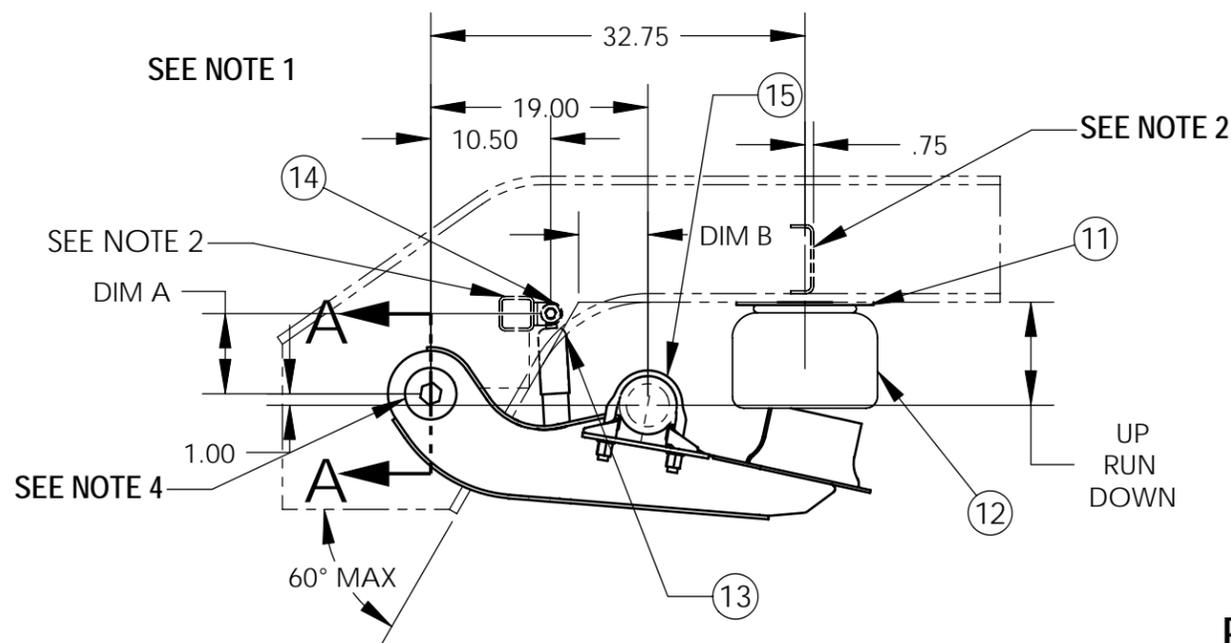
II. CENTER ITEM 4 (WITH BUSHING) INTO
ITEM 3 WITH BUSHING LOCATOR MARK
IN HORIZONTAL POSITION. APPLY (4) .25"
WELDS (SINGLE PASS) 1.00" LONG ON
THE OUTSIDE OF ITEM 4. ALTERNATE ENDS
TO ALLOW COOLING BETWEEN WELDS.



ITEM NO.	QTY	PART NUMBER	DESCRIPTION
1	1	930222-10	ARM ASSEMBLY LH
2	1	930222-20	ARM ASSEMBLY RH
3	2	30338	WELD SLEEVE
4	2	30339	BUSHING SLEEVE
5	2	17993-112	BUSHING MULTI FUNCTION
6	4	17183	HANG. SPACER WASHER (NYLON)
7	4	90644	PIVOT SPACER
8	4	20203	WELD COLLAR
9	2	11602	CAPSCREW 1.12X12.0UNF GR8
10	2	10023	1.125 LOCKNUT UNF GR8
11	2	50381	UPPER BAG PLATE
12	2	CHART	AIR SPRING
13	2	17297	SHOCK ABSORBER
14	2	17159	SHOCK OR STRAP BRACKET
15	4	17477K	U-BOLT KIT
16	1	16002	VERTICAL SHOCK HARDWARE PACK

NOTES:

1. EACH SHOCK ABSORBER MAY INITIATE AN 8000 LB. FORCE IN THE DOWN DIRECTION
2. CUSTOMER FURNISHED CROSSMEMBERS
3. 35.00 SUSPENSION CENTERS FOR 71.50 TRACK AXLE AND 49.00 MINIMUM I.S. TIRES.
4. IMPORTANT - WELD 360 ϕ (4) COLLARS AFTER ALIGNMENT. MINIMUM .25 FILLET.



PART NO.	DIM A	DIM B	UP	RUN	DOWN	ITEM 12
TY250U09-5.5	8.63	7.50	2.75	5.50	7.75	AS0133K
TY250U09-6.5	6.88	7.50	3.25	6.50	10.75	AS0113CK
TY250U09-7.5	7.00	6.06	4.50	7.50	13.75	AS0061-1CK
TY250U09-9	7.00	6.06	4.50	9.00	13.75	AS0061-1CK

REPLACES 120308

DEPTS AFFECTED	TOLERANCES (EXCEPT AS NOTED)	DESCRIPTION: YOKE ASSEMBLY			
10	DECIMAL + - .06	PREVIOUS ASSY: -	SHEET: 1 OF 1		 Watson Suspension Systems
-	FRACTIONAL + - 1/16	SUSPENSION MODEL: TY250U09	SCALE: 1:16		
-	ANGULAR + - 1°	DATE: 02/11/04	DRAWN BY: TEG	SIZE: B	DRAWING NO: 120472



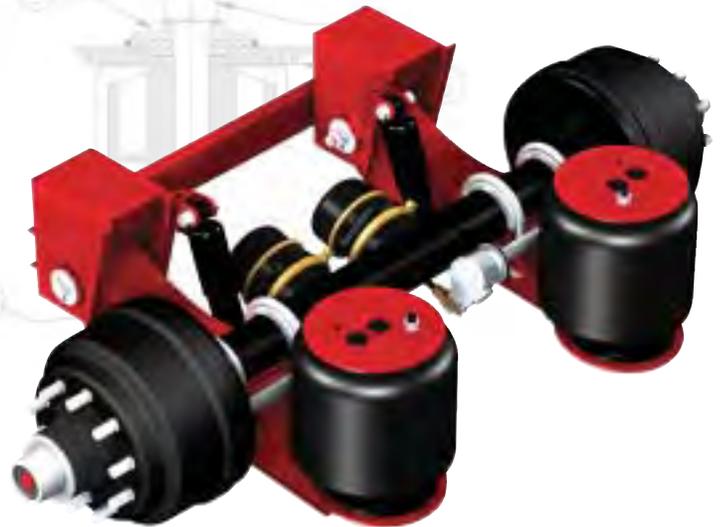
Watson Suspension Systems

TRAILER AIR SUSPENSION

TA-300T SERIES
TOP MOUNT



TA-300U SERIES
UNDER SLUNG



TA-300 SERIES

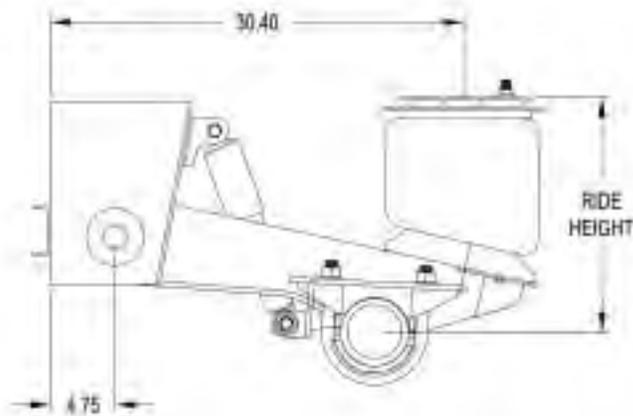
- 5 Year Warranty
- Maintenance Free with Huck Fasteners
- 30,000 lb. Capacity

LEADERSHIP IN SUSPENSION TECHNOLOGY

TA-300 SERIES

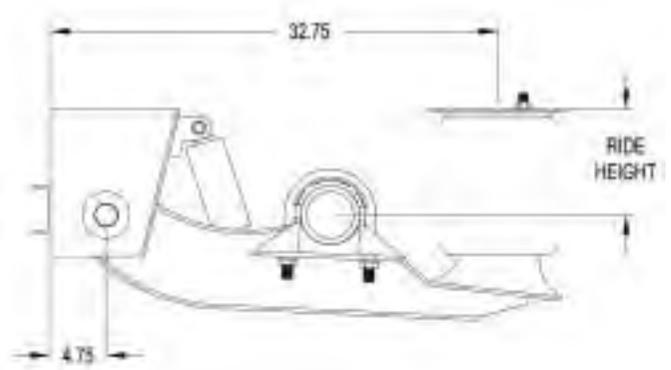
TRAILER AIR SUSPENSION

TA-300T TOP MOUNT



- Axle Travel: 8 in.
- Ride Heights: 15 thru 24 in.

TA-300U UNDER SLUNG



- Axle Travel: 9 in.
- Ride Heights: 6.5 thru 17 in.

Capacity: 30,000 lbs. • Factory Pre-Assembled

Compact in Design • HUCK Fasteners • Flush Mount Shocks

Extended Life Bushing • U-bolt Kit

Optional: *Restraint Strap Kit, Eccentric Alignment* (Requires Maintenance),
Rear Mount Shocks, Lift Kit



Watson Suspension Systems

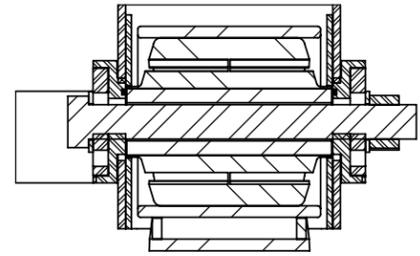
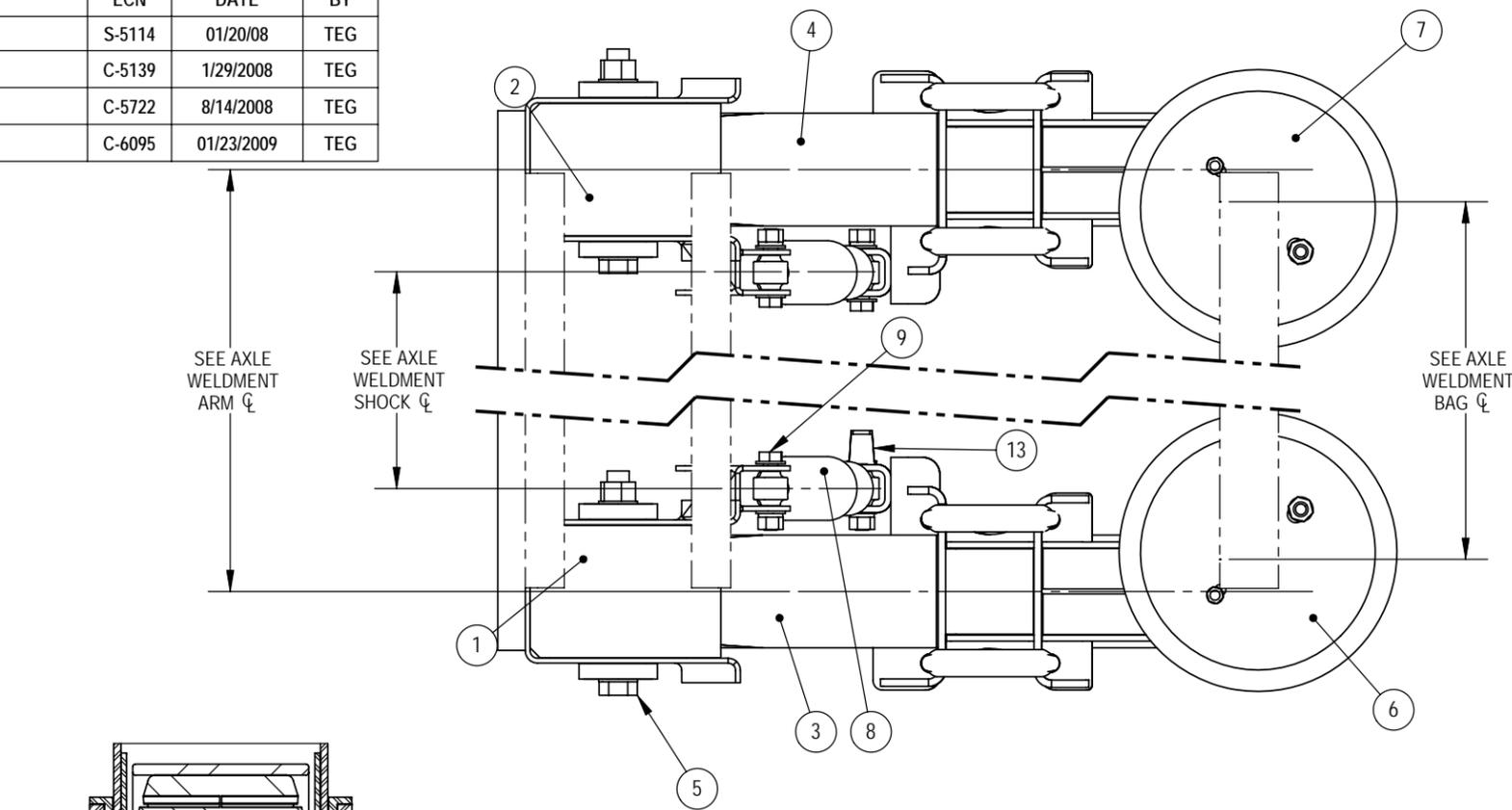
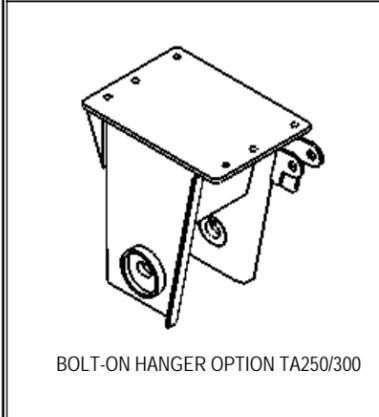
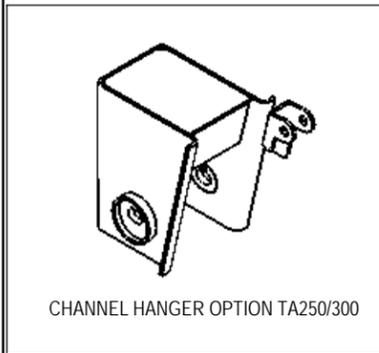
972.547.6020 800.445.0736

FAX: 972.542.0097

2060 COUCH DRIVE MCKINNEY, TEXAS 75069

www.WatsonSuspensions.com

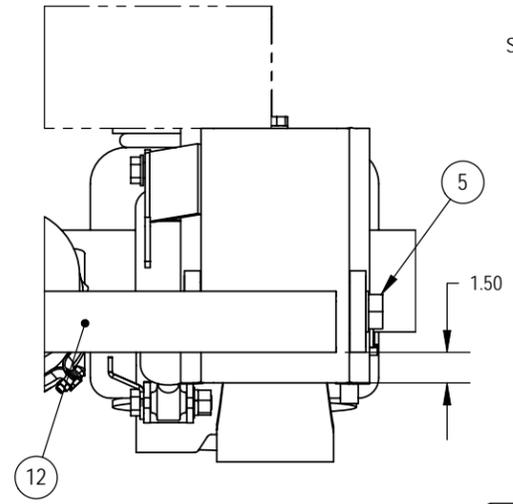
REV.	DESCRIPTION	ECN	DATE	BY
A	NEW DRAWING	S-5114	01/20/08	TEG
B	DIM A OFF COMPARED TO HANGERS	C-5139	1/29/2008	TEG
C	CHANGED TO U-BOLT KIT	C-5722	8/14/2008	TEG
D	CONVERTED TO NEW CONFIGURATOR	C-6095	01/23/2009	TEG



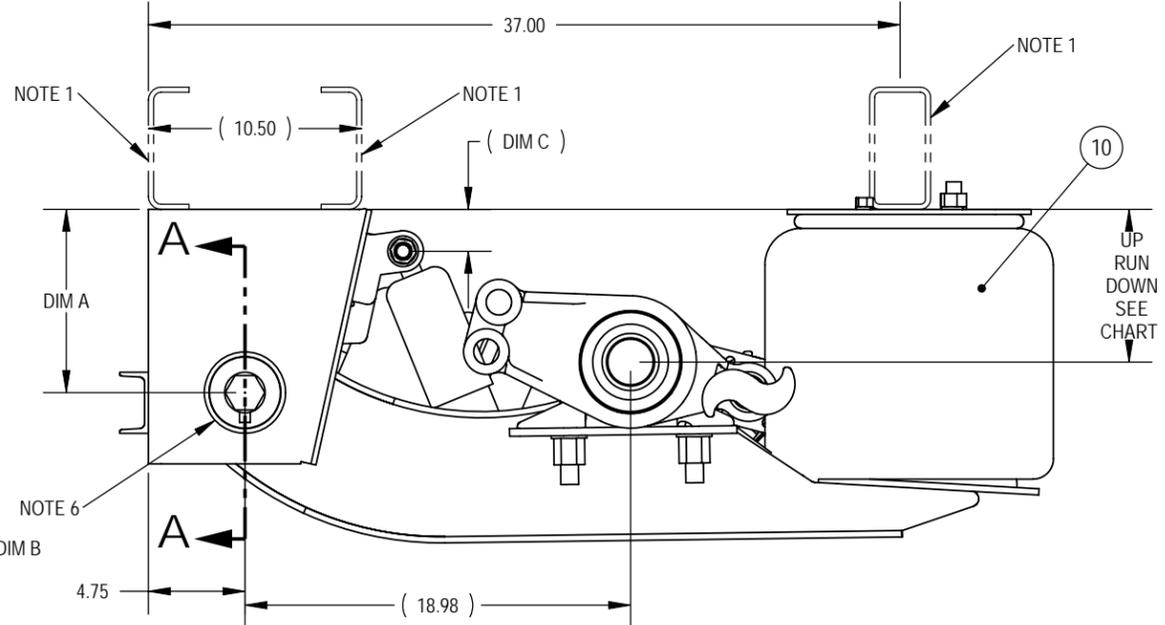
ITEM NO.	QTY	PART NUMBER	DESCRIPTION
1	1	CHART	HANGER ASSY. TA-TI LH
2	1	CHART	HANGER ASSY. TA-TI RH
3	1	930202-10	UNDERSLUNG ARM ASSEMBLY LH
4	1	930202-20	UNDERSLUNG ARM ASSEMBLY RH
5	1	CHART	TI COLLAR PACK
6	1	CHART	UPPER BAG PLATE
7	1	CHART	UPPER BAG PLATE
8	2	CHART	SHOCK ABSORBER
9	1	16002	VERTICAL SHOCK HARDWARE PACK
10	2	CHART	BAG CONFIGURATION ASSEMBLY
11	1	16078-01	U-BOLT KIT
12	1	12524	CROSSBRACE WELD-ON 41" LENGTH
13	1	30259	LEVEL ROD CONNECTION BRACKET
14	2	17993-112	MULTIFUNCTION BUSHING (REF ONLY)

NOTE:

- SHOWN FOR REFERENCE PURPOSES ONLY, PROPER FRAME DESIGN AT SUSPENSION ATTACHMENT AREA IS THE RESPONSIBILITY OF INSTALLER.
- CAPACITY 25,000#.
- REFER TO INSTRUCTION MANUAL FOR SEAT TO AXLE WELDING INSTRUCTIONS.
- ECCENTRIC ALIGNMENT SHOWN.
- DIMENSIONS SHOWN FOR 71.50" TRACK AXLE, 35" ARM, AND 9" CHAMBER CENTERS. VARY ACCORDINGLY FOR OTHER TRACKS.
- CLEARANCE OF 2.00" NECESSARY BETWEEN FRAME AND INSIDE OF TIRE.
- WELD COLLARS MUST BE WELDED AFTER ALIGNMENT. (NOT FOR ECCENTRIC COLLARS!)
- AIRSPRING CAN BE ROTATED @ 45 DEGREE INCREMENTS TO FIT A VARIETY OF APPLICATIONS.



SECTION A-A
SCALE 1:6



COLLAR TYPE CODES PAGE 2

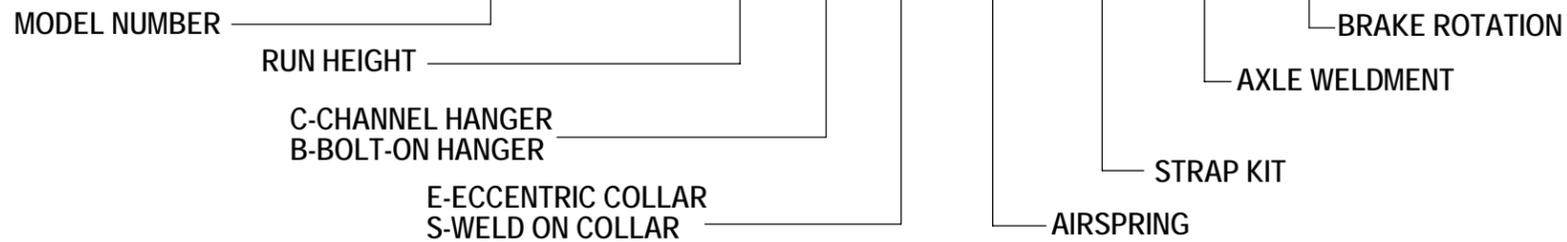
COLLAR MUST BE WELDED AFTER ALIGNMENT COLLAR FACTORY INSTALLED ONLY.	ECCENTRIC COLLARS ARE NOT TO BE WELDED TO HANGER. NUT MUST BE PROPERLY TORQUED TO SPECS. SEE MANUAL.
W1	E1

DEPTS AFFECTED	TOLERANCES (EXCEPT AS NOTED)	DESCRIPTION: MAIN ASSEMBLY UNDERSLUNG FOR CONFIGURATOR	
-	DECIMAL $\pm .06$	PREVIOUS ASSY: -	SHEET: 1 OF 2
-	FRACTIONAL $\pm 1/16$	SUSPENSION MODEL: TA300U09	SCALE: 1:9
WEIGHT: -	ANGULAR $\pm 1^\circ$	DATE: 01/20/08	DRAWN BY: TEG
			SIZE: B
			DRAWING NO: TA300U09



NOTE: PARENTHESIS () DENOTES REFERENCE DIMENSION

TA300U09-75 C E 2C 00 00 00



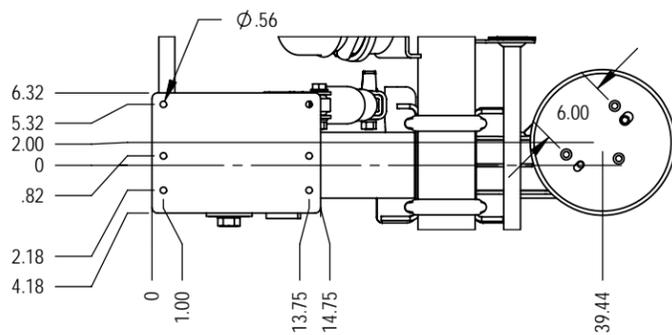
BRAKE ROTATION	
OPTION	DESCRIPTION
00	N/A
R1	BR1 STD CAMS REAR-CHAMBERS BOTTOM
R2	BR2 CAMS FRONT-CHAMBERS TOP
R3	BR3 CAMS REAR-CHAMBERS TOP
R4	BR4 CAMS FRONT-CHAMBERS BOTTOM

MODEL NUMBER

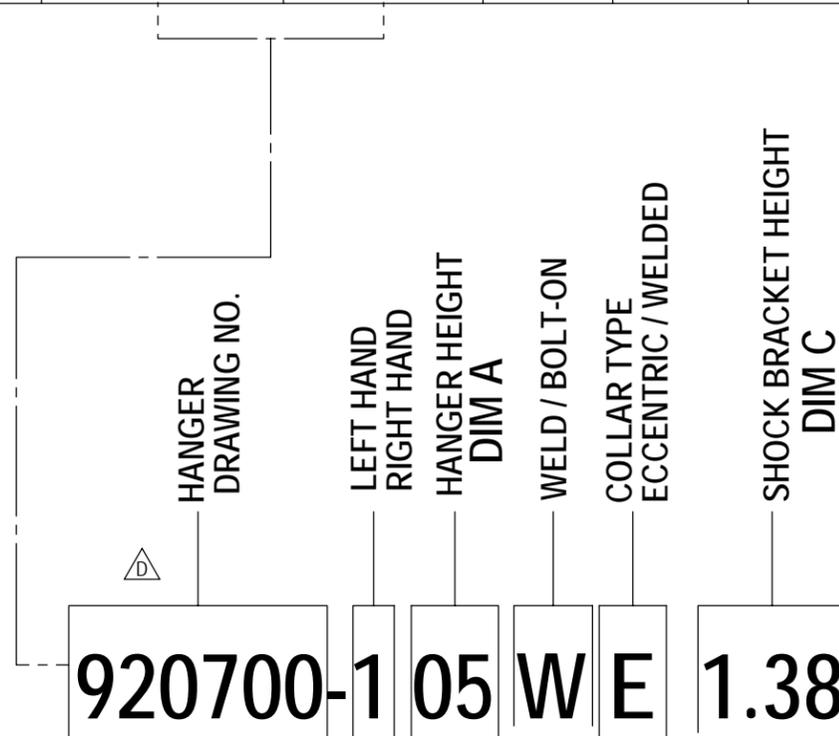
MODEL NO.	OPTION	COLLAR	RIDE HEIGHT	UP	DIM A	DOWN	DIM B	DIM C	ITEM # 1	ITEM # 2	ITEM # 5	ITEM # 6	ITEM # 7	ITEM # 8
TA300U09-65XS1XXXXXX	65XS	W	6.50	3.50	6.00	10.00	0.25	1.38	920700-106XS1.38	920700-206XS1.38	16079-01	13179	13179	17300
TA300U09-65XE1XXXXXX	65XE	E							920700-106XE1.38	920700-206XE1.38	16079-02			
TA300U09-75XS2XXXXXX	75XS	W	7.50	5.00	9.00	14.00	0.25	2.06	920700-109XS2.06	920700-209XS2.06	16079-01	13179	13179	17306
TA300U09-75XE2XXXXXX	75XE	E							920700-109XE2.06	920700-209XE2.06	16079-02			
TA300U09-90XS2XXXXXX	90XS	W	9.00	5.00	9.00	14.00	0.25	2.06	920700-109XS2.06	920700-209XS2.06	16079-01	13179	13179	17306
TA300U09-90XE2XXXXXX	90XE	E							920700-109XE2.06	920700-209XE2.06	16079-02			
TA300U09-12XS2XXXXXX	12XS	W	12.00	7.38	12.00	16.00	1.00	2.38	920700-112XS2.38	920700-212XS2.38	16079-01	950214-11	950214-21	17186
TA300U09-12XE2XXXXXX	12XE	E							920700-112XE2.38	920700-212XE2.38	16079-02			
TA300U09-14XS2XXXXXX	14XS	W	14.00	9.38	14.00	18.00	3.00	4.75	920700-114XS4.75	920700-214XS4.75	16079-01	950214-13	950214-23	17186
TA300U09-14XE2XXXXXX	14XE	E							920700-114XE4.75	920700-214XE4.75	16079-02			
TA300U09-15XS2XXXXXX	15XS	W	15.00	9.69	14.00	18.50	4.00	5.00	920700-114XS5.00	920700-214XS5.00	16079-01	950214-14	950214-24	17186
TA300U09-15XE2XXXXXX	15XE	E							920700-114XE5.00	920700-214XE5.00	16079-02			
TA300U09-17XS2XXXXXX	17XS	W	17.00	12.38	17.00	21.00	6.00	8.00	920700-117XS8.00	920700-217XS8.00	16079-01	950214-16	950214-26	17186
TA300U09-17XE2XXXXXX	17XE	E							920700-117XE8.00	920700-217XE8.00	16079-02			

AXLE WELDMENT	
OPTION	DESCRIPTION
00	NO AXLE WELD
35	35" ARM CENTERS 71.50" TRACK
41	41" ARM CENTERS 77.50" TRACK
SP	SP ARM CENTERS SEE NOTES
SEE AXLE CONFIG FOR AXLE REF ES006 FOR WELDING NOTE 5	

STRAP KIT	
RUN HT.	DESCRIPTION
00	NO KIT
65	19525-17300
75	980155U-7
90	980155U-9
12	980155U-123
14	980155U-143
15	980155U-153
17	980155U-17



BOLT PATTERN DETAIL



AIRBAG / ITEM #10		
OPTION	DESCRIPTION	ITEM # 10
1C	6.5" RH CONTITECH	AS0013CK
1G	6.5" RH GOODYEAR	AS0013GK
2C	7.5"-17" RH CONTITECH	AS0023K
2G	7.5"- 17" RH GOODYEAR	AS0023GK

TORQUE REQUIREMENTS GRADE 8

CAPSCREW-BOLT SIZE	3/8"	1/2"	5/8"	3/4"	7/8"	1"	1 1/8"
TORQUE MIN FOOT LBS	25	50	150	300	500	700	900
TORQUE MIN FOOT LBS	35	75	200	350	550	800	1000

TORQUE VALUES DO NOT APPLY TO AIR SPRINGS, OR LOWER GRADE FASTENERS

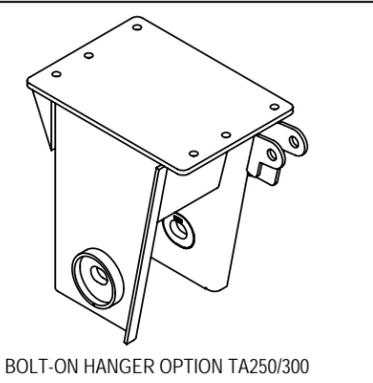
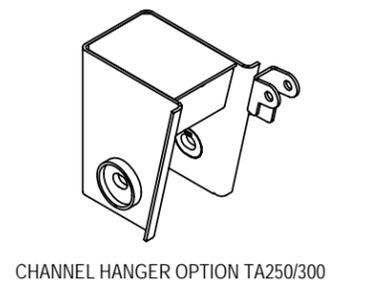
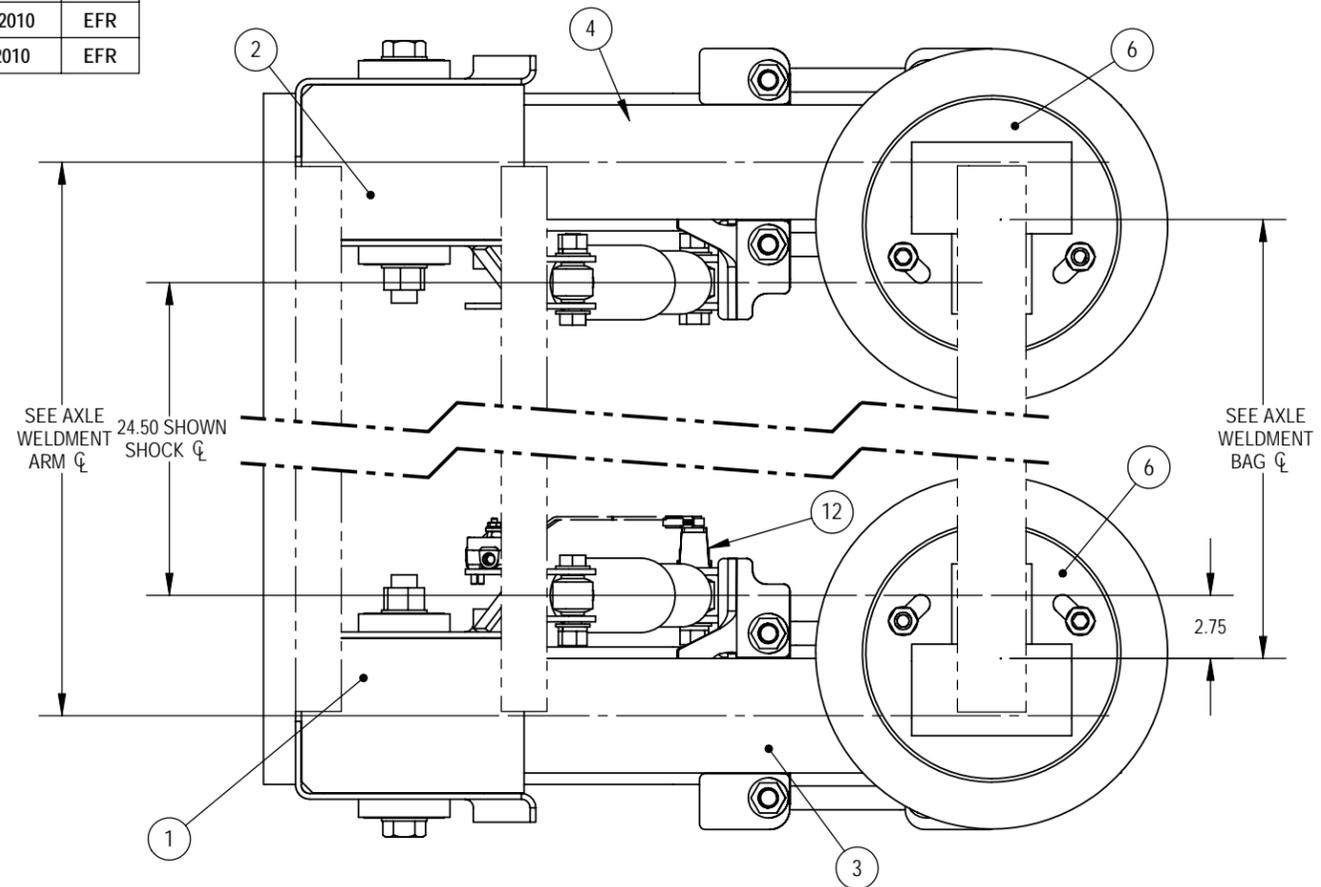
DESCRIPTION: TA300U09 CONFIGURATIONS

SHEET: 2 OF 2

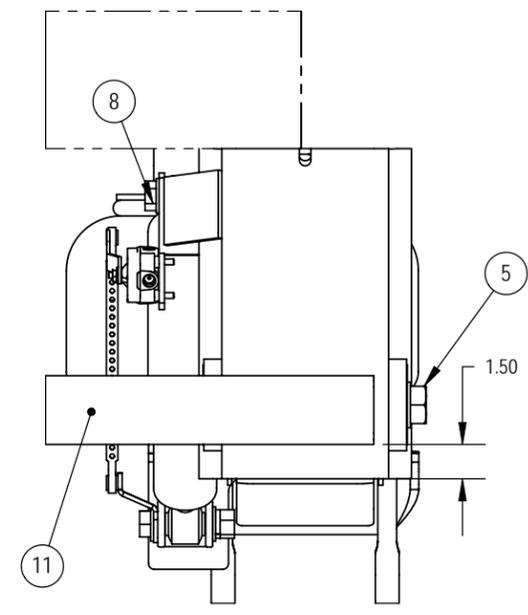
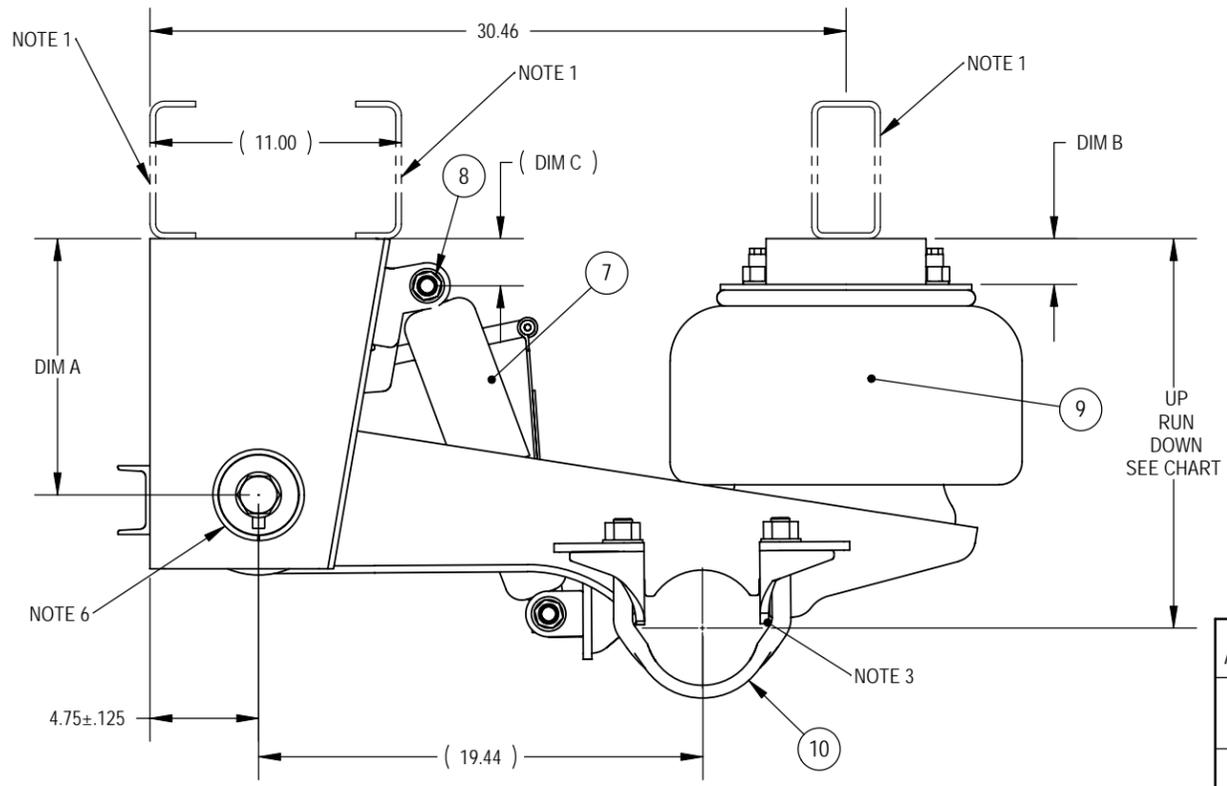
DATE: 01/20/08 | SCALE: 1:8 | DRAWN BY: TEG | SIZE: B | DRAWING NO: TA300U09

REV.	DESCRIPTION	ECN	DATE	BY
A	NEW DRAWING	7489	04/16/2010	EFR
B	ITEM #10 WAS 16078	7780	9/22/2010	EFR

ITEM NO.	QTY	PART NUMBER	DESCRIPTION
1	1	CHART	HANGER ASSY. L.H.
2	1	CHART	HANGER ASSY. R.H.
3	1	CHART	TA300 ARM ASSEMBLY L.H.
4	1	CHART	TA300 ARM ASSEMBLY R.H.
5	1	CHART	TI/TA COLLAR PACK
6	2	CHART	UPPER BAG PLATE ASSEMBLY
7	2	CHART	SHOCK ABSORBER
8	1	16002	VERTICAL SHOCK HARDWARE PACK
9	2	CHART	BAG CONFIGURATION ASSEMBLY
Δ 10	1	16106	U-BOLT KIT
11	1	CHART	CROSSBRACE WELD-ON
12	1	30259	LEVEL ROD CONNECTION BRACKET
13	2	17993-112	MULTIFUNCTION BUSHING (REF ONLY)



NOTE:
 1. SHOWN FOR REFERENCE PURPOSES ONLY, PROPER FRAME DESIGN AT SUSPENSION ATTACHMENT AREA IS THE RESPONSIBILITY OF INSTALLER.
 2. SUSPENSION CAPACITY 30,000#.
 3. REFER TO INSTRUCTION MANUAL FOR SEAT TO AXLE WELDING INSTRUCTIONS.
 4. ECCENTRIC ALIGNMENT SHOWN.
 5. DIMENSIONS SHOWN FOR 71.50" TRACK AXLE, 35" ARM, AND 9" CHAMBER CENTERS. VARY ACCORDINGLY FOR OTHER TRACKS.
 6. CLEARANCE OF 2.00" NECESSARY BETWEEN FRAME AND INSIDE OF TIRE.
 7. WELD COLLARS MUST BE WELDED AFTER ALIGNMENT. (NOT FOR ECCENTRIC COLLARS!)
 8. CLEARANCE OF MINIMUM 1.00" NECESSARY BETWEEN TOP OF TIRE & TRAILER COMPONENTS.



COLLAR TYPE CODES-A PAGE 2

COLLAR MUST BE WELDED AFTER ALIGNMENT COLLAR FACTORY INSTALLED ONLY.	ECCENTRIC COLLARS ARE NOT TO BE WELDED TO HANGER. NUT MUST BE PROPERLY TORQUED TO SPECS. SEE MANUAL.
W1 W2	E1

NOTE: PARENTHESIS () DENOTES REFERENCE DIMENSION

DEPTS AFFECTED	TOLERANCES (EXCEPT AS NOTED)	DESCRIPTION: MAIN ASSEMBLY TOP MOUNT FOR CONFIGURATOR	
-	DECIMAL ± .06	PREVIOUS ASSY: -	SHEET: 1 OF 2
-	FRACTIONAL ± 1/16	SUSPENSION MODEL: TA300T20	SCALE: 1:8
WEIGHT: -	ANGULAR ± 1°	DATE: 04/19/10	DRAWN BY: EFR
			SIZE: B
			DRAWING NO: TA300T20



TA300T20-14 C E 00 00 00

MODEL NUMBER

RUN HEIGHT

C-CHANNEL HANGER
B-BOLT-ON HANGER

E-ECCENTRIC COLLAR
W-WELD ON COLLAR

AXLE WELDMENT

STRAP KIT

AIRSPRING

AXLE WELDMENT

OPTION	DESCRIPTION	ITEM # 11
00	NO AXLE WELD	12524
35	35" ARM CENTERS 71.50" TRACK	12524
41	41" ARM CENTERS 77.50" TRACK	12524-09
SP	SP ARM CENTERS SEE NOTES	SP
SEE AXLE CONFIG FOR AXLE REF ES006 FOR WELDING NOTE 5		

MODEL NUMBER

MODEL NO.	OPTION	COLLAR	RIDE HEIGHT	UP**	DIM A	DOWN	DIM B	DIM C	ITEM # 1	ITEM # 2	ITEM # 3	ITEM # 4	ITEM # 5	ITEM # 6	ITEM # 7
TA300T20-15XWXXXXXXXX	15XW	W	15.00	11.75	9.00	19.75	0.25	1.81	920700-109XS1.81	920700-209XS1.81	930287-10	930287-20	16079-01	50371	17306
TA300T20-15XEXXXXXXXX	15XE	E							920700-109XE1.81	920700-209XE1.81			16079-02		
TA300T20-16XWXXXXXXXX	16XW	W	16.00	12.75	10.00	20.75	1.00	2.75	920700-110XS2.75	920700-210XS2.75	930287-11	930287-21	16079-01	950167-01	
TA300T20-16XEXXXXXXXX	16XE	E							920700-110XE2.75	920700-210XE2.75			16079-02		
TA300T20-17XWXXXXXXXX	17XW	W	17.00	14.00	11.00	21.50	2.00	2.06	920700-111XS2.06	920700-211XS2.06	930287-11	930287-21	16079-01	950167-02	17186
TA300T20-17XEXXXXXXXX	17XE	E							920700-111XE2.06	920700-211XE2.06			16079-02		
TA300T20-19XWXXXXXXXX	19XW	W	19.00	15.25	11.00	22.75	4.00	2.75	920700-111XS2.75	920700-211XS2.75	930287-11	930287-21	16079-01	950167-04	
TA300T20-19XEXXXXXXXX	19XE	E							920700-111XE2.75	920700-211XE2.75			16079-02		
TA300T20-21XWXXXXXXXX	21XW	W	21.00	17.25	14.00	25.25	6.00	5.44	920700-114XS5.44	920700-214XS5.44	930287-11	930287-21	16079-01	950167-06	
TA300T20-21XEXXXXXXXX	21XE	E							920700-114XE5.44	920700-214XE5.44			16079-02		
TA300T20-23XWXXXXXXXX	23XW	W	23.00	19.50	17.00	27.50	8.00	8.38	920700-117XS8.38	920700-217XS8.38	930287-11	930287-21	16079-01	950167-08	
TA300T20-23XEXXXXXXXX	23XE	E							920700-117XE8.38	920700-217XE8.38			16079-02		
TA300T20-24XWXXXXXXXX	24XW	W	24.00	19.50	17.00	27.50	9.00	8.38	920700-117XS8.38	920700-217XS8.38	930287-11	930287-21	16079-01	950167-09	
TA300T20-24XEXXXXXXXX	24XE	E							920700-117XE8.38	920700-217XE8.38			16079-02		

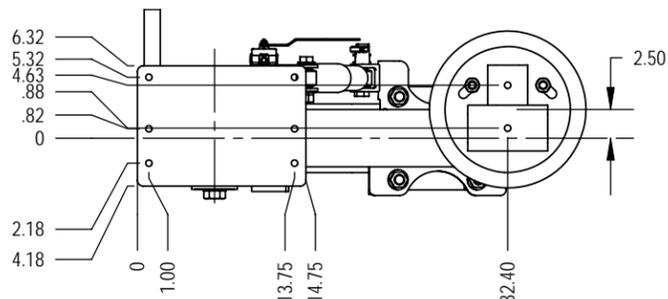
STRAP KIT

RUN HT.	DESCRIPTION
00	NO KIT
15	980155T-15
16	980155T-16
17	980155T-17
19	980155T-19
21	980155T-21
23	980155T-23
24	980155T-24

AIRBAG / ITEM # 9

OPTION	DESCRIPTION
00	STANDARD (AS0039K)
GY	GOODYEAR (AS0039GK)
SP	SP BAG SEE NOTES

** Bumper contact, suspension will travel up another .75" during full bumper compression



BOLT PATTERN DETAIL

TORQUE REQUIREMENTS GRADE 8

CAPSCREW-BOLT SIZE	3/8"	1/2"	5/8"	3/4"	7/8"	1"	1 1/8"
TORQUE MIN FOOT LBS	25	50	150	300	500	700	900
TORQUE MIN FOOT LBS	35	75	200	350	550	800	1000

TORQUE VALUES DO NOT APPLY TO AIR SPRINGS, OR LOWER GRADE FASTENERS

HANGER DRAWING NO.

920700-1

LEFT HAND
RIGHT HAND

05

HANGER HEIGHT
DIM A

WELD / BOLT-ON

W

COLLAR TYPE
ECCENTRIC / WELDED

E

SHOCK BRACKET HEIGHT
DIM C

1.38

DESCRIPTION:
TA300T20 CONFIGURATIONS

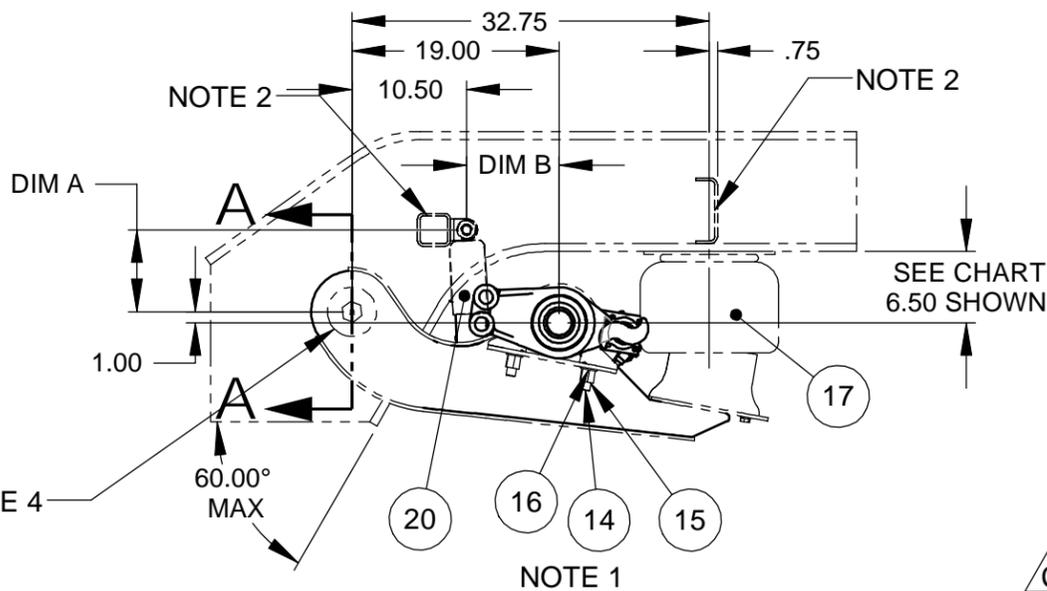
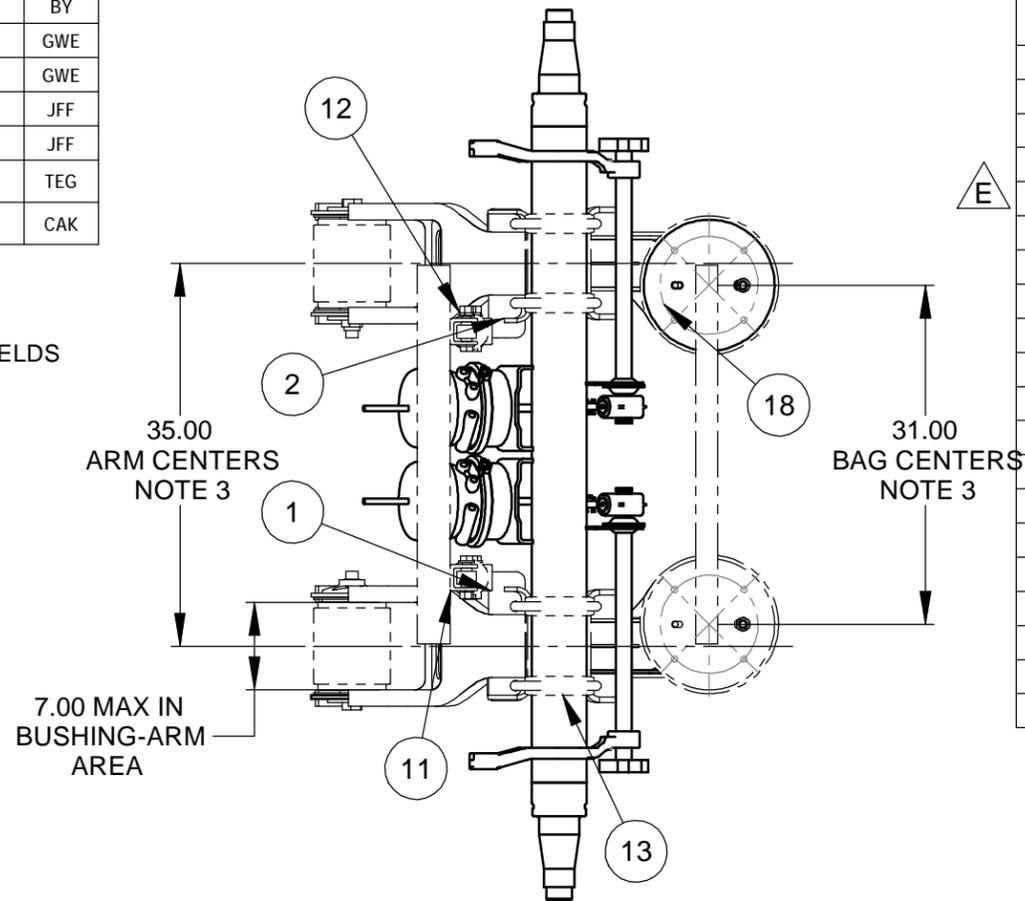
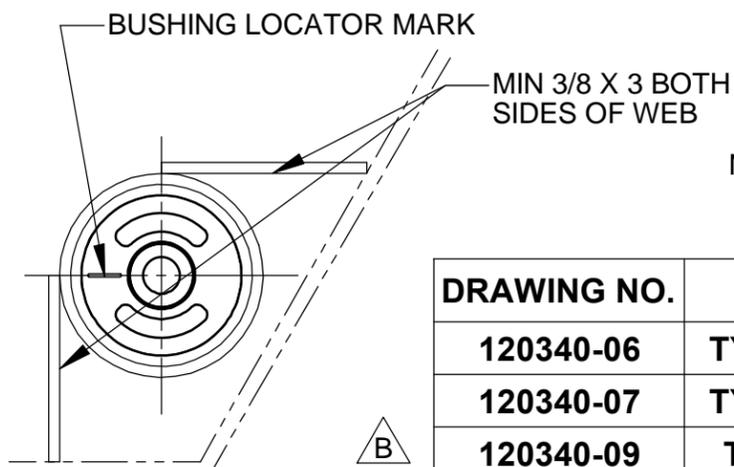
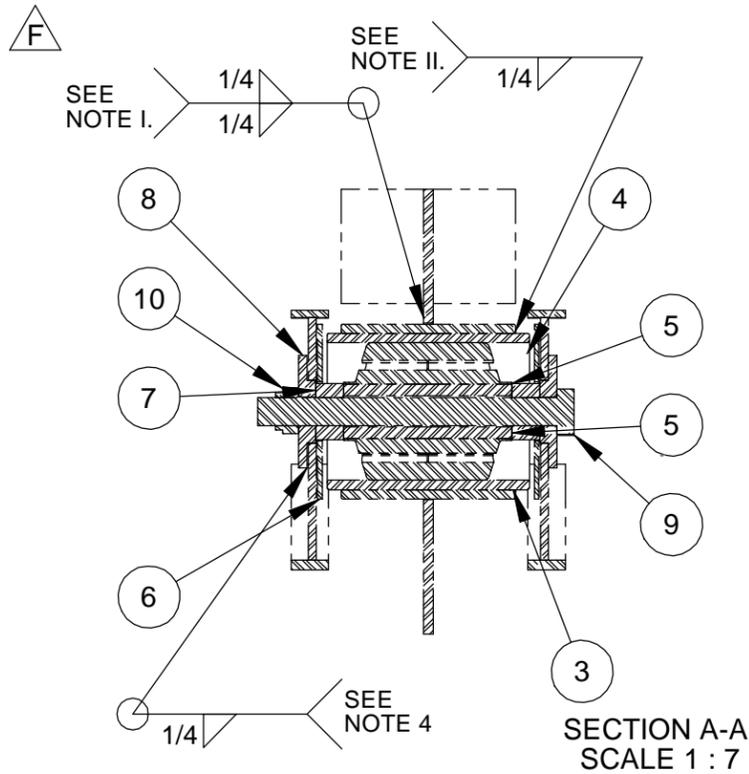
SHEET: 2 OF 2

DATE: 04/19/10	SCALE: 1:8	DRAWN BY: EFR	SIZE: B	DRAWING NO: TA300T20
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REV.	DESCRIPTION	ECN	DATE	BY
A	NEW DRAWING	2456	11/16/01	GWE
B	ADDED CHART	2508	02/27/02	GWE
C	WAS AS0023-1G	3052	01/21/03	JFF
D	ITEM 23 QTY WAS 4/ ADDED # 24	3508	03/22/05	JFF
E	WAS 17182-01 / ADDED HARDWARE PACK FOR AIRSPRING	C-4880	9/13/2007	TEG
F	ADDED WELD SYMBOLS AND NOTES TO SECTION A-A	7682	8/10/2010	CAK

- I. CENTER ITEM 3 IN TRAILER FRAME, INSURE THAT SLEEVE IS PERPENDICULAR TO FRAME.
 II. CENTER ITEM 4 (WITH BUSHING) INTO ITEM 3 WITH BUSHING LOCATOR MARK IN HORIZONTAL POSITION. APPLY (4) .25" WELDS (SINGLE PASS) 1.00" LONG ON THE OUTSIDE OF ITEM 4. ALTERNATE ENDS TO ALLOW COOLING BETWEEN WELDS.



ITEM NO.	QTY	PART NUMBER	DESCRIPTION
1	1	930174-10	ARM ASSEMBLY L.H.
2	1	930174-20	ARM ASSEMBLY R.H.
3	2	30338	WELD SLEEVE
4	2	30339	BUSHING SLEEVE
5	2	17993-112	MULTIFUNCTION BUSHING (REF ONLY)
6	4	17183	HANG. SPACER WASHER (NYLON)
7	4	90644	PIVOT SPACER
8	4	20203	WELD COLLAR
9	2	11602	CAPSCREW 1.12X12.0UNF GR8
10	2	10023	1.125 LOCKNUT UNF GR8
11	2	17159	SHOCK OR STRAP BRACKET
12	1	16002	VERTICAL SHOCK HARDWARE PACK
13	4	17181	U-BOLT SPACER CASTING
14	4	CHART	U-BOLT .875
15	8	17364	HIGHNUT .875-14
16	8	17010	WASHER .875 HARDENED
17	2	AS0113C	AIR SPRING
18	2	13179	UPPER BAG PLATE
19	1	16067-01	AIRBAG HARDWARE PACK (LOAD)
20	2	17306	SHOCK ABSORBER

- NOTES:
 1. EACH SHOCK ABSORBER MAY INITIATE AN 8000 LB. FORCE IN THE DOWN DIRECTION
 2. CUSTOMER FURNISHED CROSSMEMBERS
 3. 35.00 SUSPENSION CENTERS FOR 71.50 TRACK AXLE AND 49.00 MINIMUM I.S. TIRES.
 4. IMPORTANT - WELD 360° (4) COLLARS AFTER ALIGNMENT. MINIMUM .25 FILLET.
 5. OPTIONAL SINGLE STUD AIRSPRING AVAILABLE

DRAWING NO.	PART NO.	DIM A	DIM B	UP	RUN	DOWN	ITEM # 14	ITEM # 17
120340-06	TY300U04-6.5	7.50	7.50	3.25	6.50	9.50	17398	AS0013G
120340-07	TY300U04-7.5	6.38	6.06	5.25	7.50	13.75	17184	AS0023
120340-09	TY300U04-9				9.00			

DEPTS AFFECTED	TOLERANCES (EXCEPT AS NOTED)	DESCRIPTION:	PREVIOUS ASSY:	SHEET:
-	DECIMAL ± .06	MAIN ASSEMBLY TY300U04 6.5 THRU 9.00	-	1 OF 2
-	FRACTIONAL ± 1/16	SUSPENSION MODEL: TY300U04		SCALE: 1:16
WEIGHT:	ANGULAR ± 1°	DATE: 11/16/01	DRAWN BY: GWE	SIZE: B

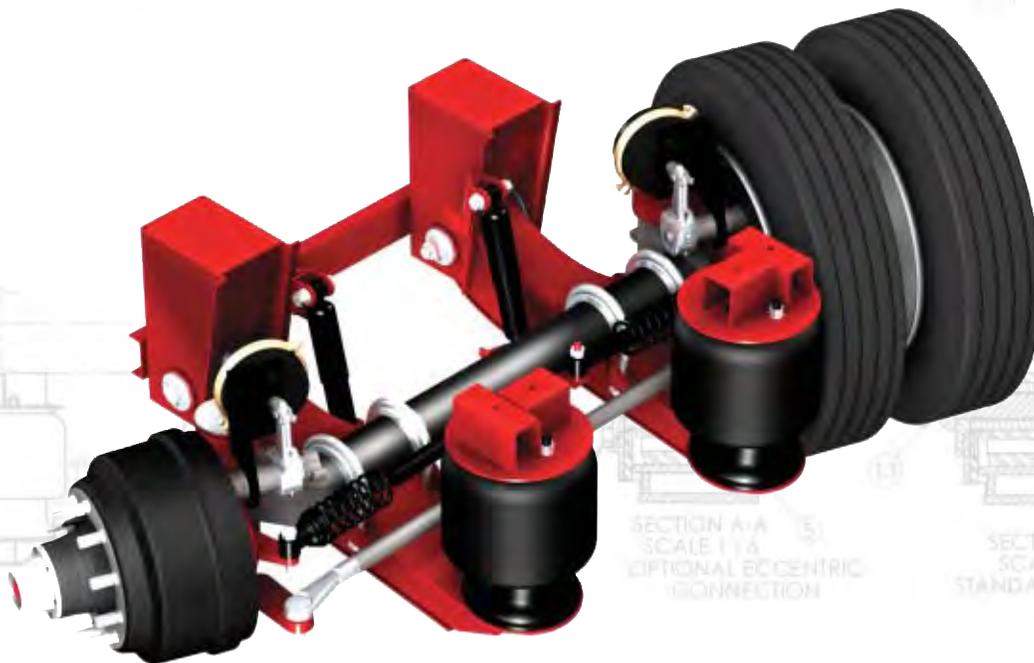


DRAWING NO:
120340



Watson Suspension Systems

STA-250/300 STEERABLE PRIMARY TRAILER AIR RIDE



STA-250/300 Series

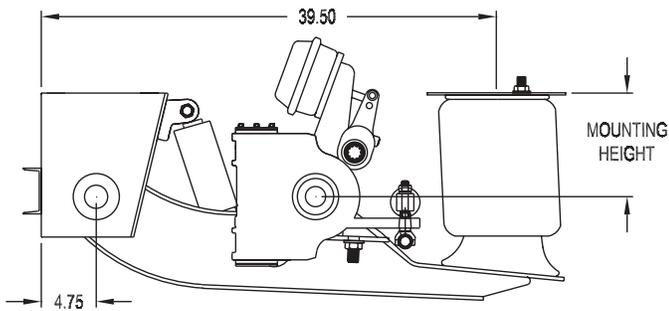
- Top Mount or Underslung
- Includes Reverse Lock-Out
- 5 Year Warranty
- Maintenance Free with Huck Fasteners
- 25,000 and 30,000 lb. Capacity

LEADERSHIP IN SUSPENSION TECHNOLOGY

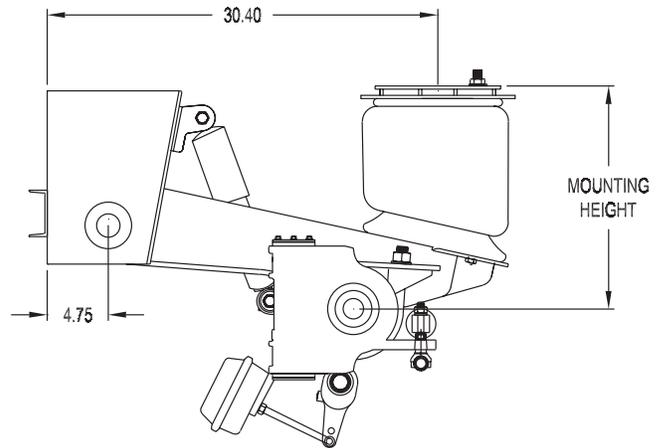
STA-250/300 SERIES

STEERABLE PRIMARY TRAILER AIR RIDE

**STA-250U/STA-300U
UNDERSLUNG**



**STA-250T/STA-300T
TOP MOUNT**



- Axle Travel: 8 in.
- Capacity: 25,000 and 30,000 lbs.
- Ride Heights: 7 thru 24 in.
- Maintenance Free HUCK Fasteners
- Factory Pre-Assembled
- Compact Design
- Flush Mount Shocks
- Extended Life Bushings

Optional: • **Eccentric Alignment** (Requires Maintenance)
• **Lift Kit**



Watson Suspension Systems

972.547.6020 800.445.0736

FAX: 972.542.0097

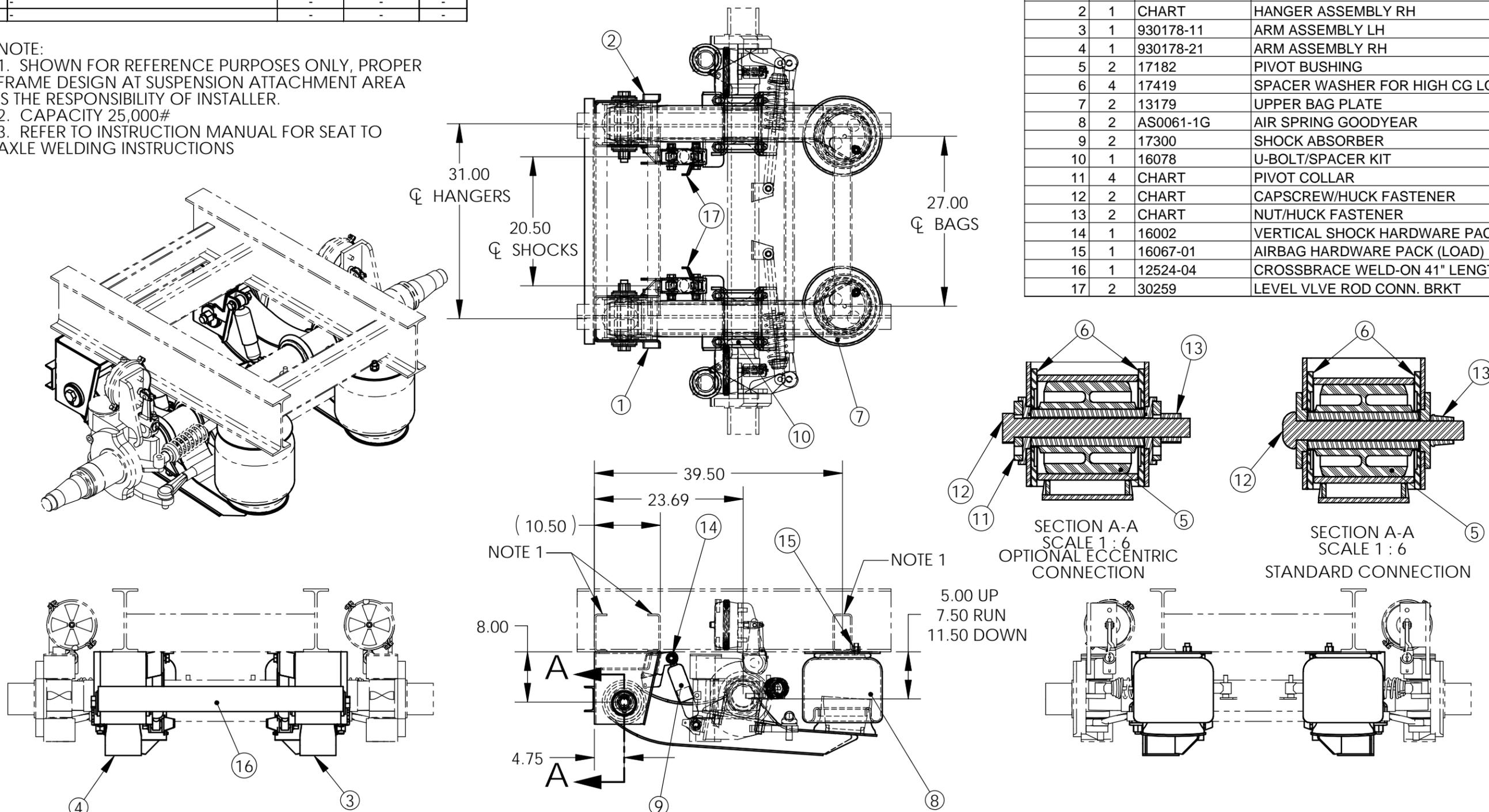
2060 COUCH DRIVE MCKINNEY, TEXAS 75069

www.WatsonSuspensions.com

LEVEL	REVISION DESCRIPTION	ECN	DATE	BY
A	NEW DRAWING	2591	6/26/2002	HDH
B	-	-	-	-
C	-	-	-	-

NOTE:
 1. SHOWN FOR REFERENCE PURPOSES ONLY, PROPER FRAME DESIGN AT SUSPENSION ATTACHMENT AREA IS THE RESPONSIBILITY OF INSTALLER.
 2. CAPACITY 25,000#
 3. REFER TO INSTRUCTION MANUAL FOR SEAT TO AXLE WELDING INSTRUCTIONS

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	CHART	HANGER ASSEMBLY LH
2	1	CHART	HANGER ASSEMBLY RH
3	1	930178-11	ARM ASSEMBLY LH
4	1	930178-21	ARM ASSEMBLY RH
5	2	17182	PIVOT BUSHING
6	4	17419	SPACER WASHER FOR HIGH CG LOADS
7	2	13179	UPPER BAG PLATE
8	2	AS0061-1G	AIR SPRING GOODYEAR
9	2	17300	SHOCK ABSORBER
10	1	16078	U-BOLT/SPACER KIT
11	4	CHART	PIVOT COLLAR
12	2	CHART	CAPSCREW/HUCK FASTENER
13	2	CHART	NUT/HUCK FASTENER
14	1	16002	VERTICAL SHOCK HARDWARE PACK
15	1	16067-01	AIRBAG HARDWARE PACK (LOAD)
16	1	12524-04	CROSSBRACE WELD-ON 41" LENGTH
17	2	30259	LEVEL VLVE ROD CONN. BRKT

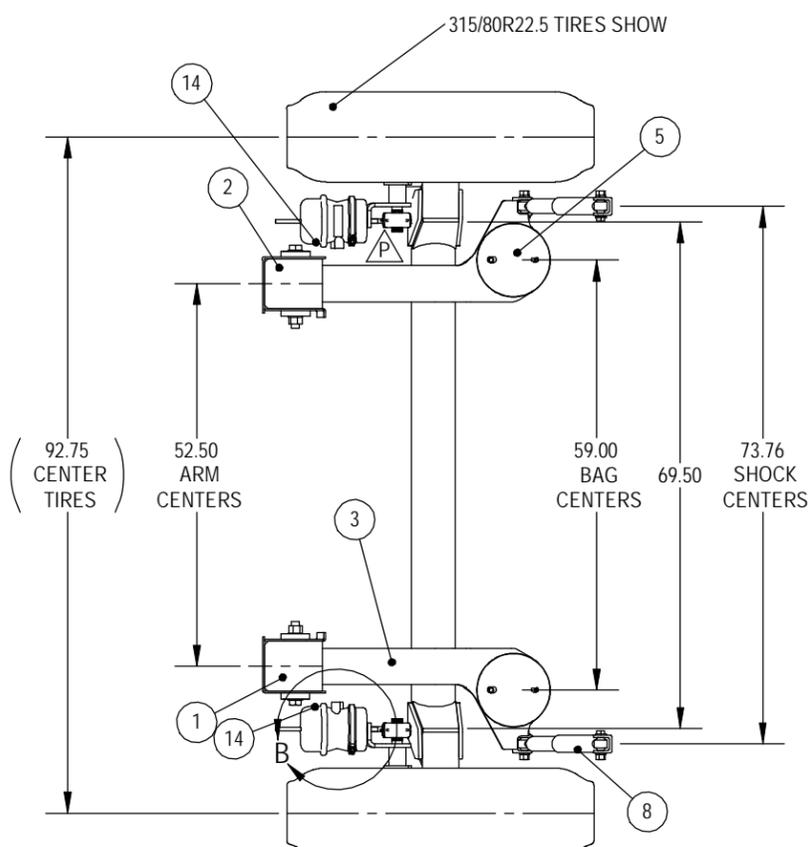


MODEL NO.	APPLICATION	ITEM #1	ITEM #2	ITEM #11	ITEM #12	ITEM #13
STA250U04-7.5WSF	STANDARD	920245-1WS5	920245-2WS5	N/A	14165	11541
STA250U04-7.5WEF	ADJUSTABLE COLLARS	920245-1WE5	920245-2WE5	17234	17269	10023

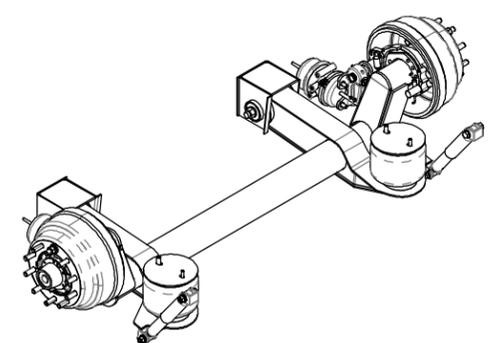
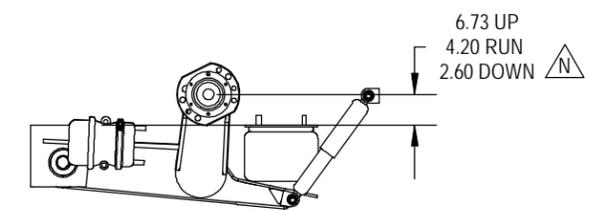
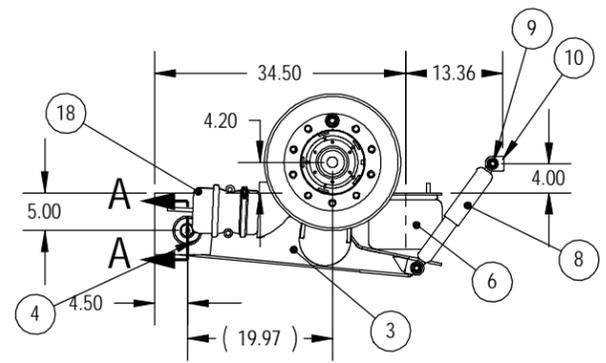
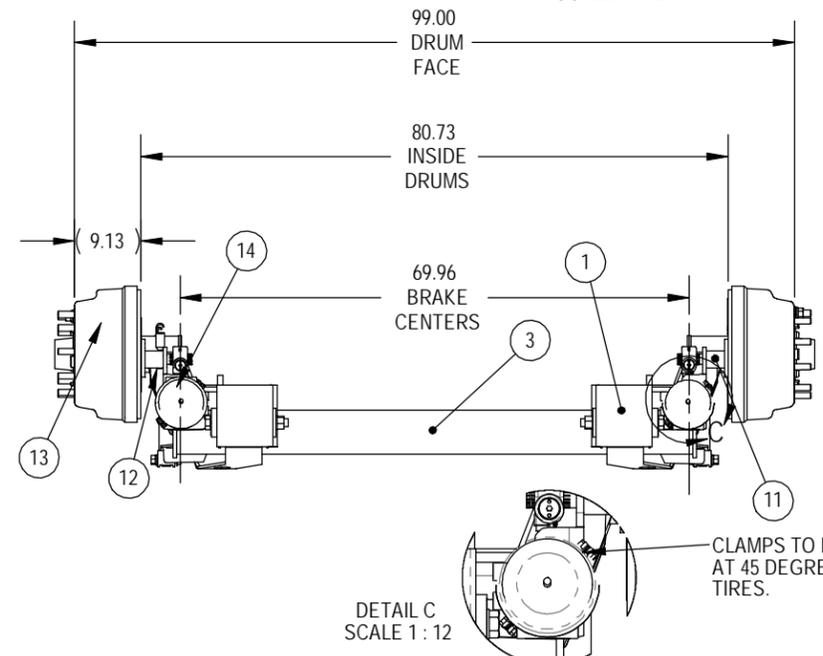
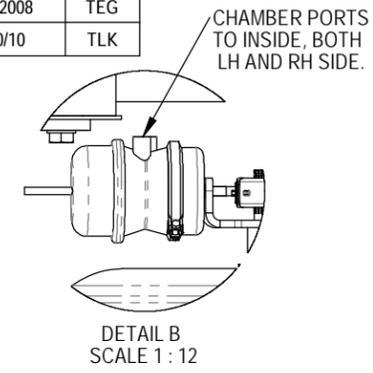
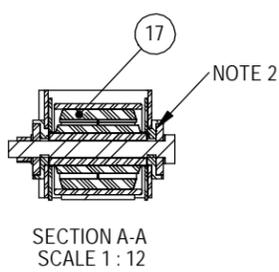
DEPTS AFFECTED:	TOLERANCES EXCEPT AS NOTED:	DESCRIPTION: MAIN ASSEMBLY WITH KGI STEER AXLE				
-	DECIMAL ± .06	SUSPENSION MODEL: STA-250U-7.5		SCALE: 1:16	SHEET: 1 OF 1	
-	FRACTIONAL ± 1/16	DATE: 6/26/2002	CHKD BY: -	DRAWN BY: HDH	SIZE: B	PREVIOUS ASSY: -
-	ANGULAR ± 1°	DRAWING NO.: 120389				

REV.	DESCRIPTION	ECN	DATE	BY
A	NEW DRAWING	1793	03/11/98	AFF
B	ADDED WELD NOT & CAPACITY	2228	03/06/00	CBD
C	ADDED NOTES	3257	06/21/04	JFF
D	ITEM # 18 WAS 17039	3301	08/02/04	JFF
E	TAB FOR ECCENTRIC COLLARS	3316	08/23/04	TEG
F	ADDED NOTE 3	3550	05/17/05	JFF
G	CHARTED #1,2 #7 WAS 17398	3640	08/09/05	JFF
H	ITEM # 12 WAS 16059	3652	08/22/05	JFF
J	TAB HUB & DRUM	C-4287	11/07/06	TEG
K	ADDED SEALS, BEARINGS, HUBCAPS	C-4836	08/27/07	TEG
L	ADDED WHEEL, & STUD PILOT HUBS	C-4836	09/04/07	TEG
M	INTO SOLIDWORKS/ NEW H&D ASSY.	C-4963	10/23/2007	TEG
N	SHOWED UP,RUN,DOWN DIMS	C-5190	2/18/2008	TEG
P	ROTATED CLAMP ON CHAMBER	C-5529	6/10/2008	TEG
Q	ADDED ITEM #18	7339	1/20/10	TLK

ITEM NO.	QTY	PART NUMBER	DESCRIPTION
1	1	CHART	HANGER ASSEMBLY
2	1	CHART	HANGER ASSEMBLY
3	1	160023	AXLE ARM ASSEMBLY
4	1	CHART	TI/TA COLLAR PACK
5	2	10059	UPPER BAG PLATE
6	2	AS0012K	AIR SPRING
7	1	16059-02	AIRBAG HARDWARE PACK (LOAD)
8	2	10148	SHOCK ABSORBER
9	1	16002	VERTICAL SHOCK HARDWARE PACK
10	2	17159	SHOCK OR STRAP BRACKET
11	1	17717-1	16 1/2" X 6" BRAKE ASSY RH
12	1	17717-2	16 1/2" X 6" BRAKE ASSY LH
13	2	CHART	HUB & DRUM ASSEMBLY
14	2	17712	TYPE 24/24 BRAKE CHAMBERS
15	1	19506-N	STANDARD STEMCO SEAL KIT
16	1	CHART	ABS PREP FOR ALUM HUBS.
17	2	17993-112	MULTIFUNCTION BUSHING (REF ONLY)
18	2	17365	CLEVIS PN .62 90013



NOTE:
 1. SPRING BRAKE IS OPTIONAL, TYPE 24/24 IS STANDARD.
 2. ECCENTRIC COLLAR OPTION SHOWN.
 3. REFERENCE 17339 ABS SENSOR LEAD STRAIGHT FOR ABS EQUIPPED OPTION.
 4. 5" DRUM SHOWN STANDARD.



NOTE: PARENTHESIS () DENOTES REFERENCE DIMENSION

MODEL NO.	DESCRIPTION	COLLAR	ITEM # 1	ITEM # 2	ITEM # 4	ITEM # 13	ITEM # 16
TA280DWS	HUB PILOT	WELDED	920129-1WS	920129-2WS	16079-01	18222-05A	N/A
TA280DWE		ECCENTRIC	920129-1WE	920129-2WE	16079-02		
TA280DWS-ABS	HUB PILOT	WELDED	920129-1WS	920129-2WS	16079-01	18222-05-ABS	17770R
TA280DWE-ABS		ECCENTRIC	920129-1WE	920129-2WE	16079-02		
TA280DWS-SP	STUD PILOT	WELDED	920129-1WS	920129-2WS	16079-01	18222-15	N/A
TA280DWE-SP		ECCENTRIC	920129-1WE	920129-2WE	16079-02		

WHEEL SPECS -3.12 OFFSET ON ALL STUD PILOT STEEL ACCURIDE 28192
 HUB PILOT STEEL ACCURIDE 29546
 HUB PILOT ALUMINUM ACCURIDE 893630

TIRE SPECS
 315/80R22.5
 305/70R22.5
 295/80R22.5
 295/75R22.5
 12R22.5

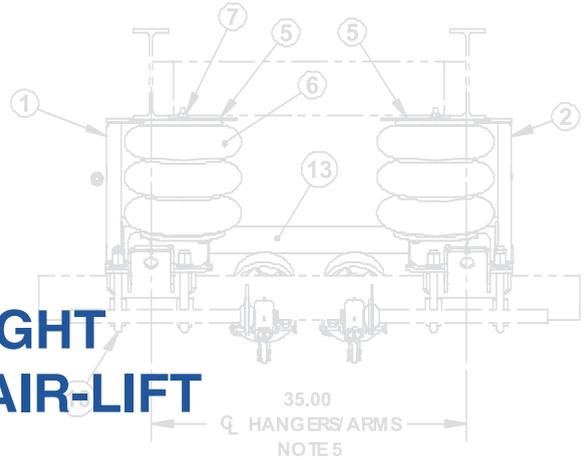
TOLERANCES (EXCEPT AS NOTED)	DESCRIPTION: MAIN ASSEMBLY TA280D	
DECIMAL ± .06	PREVIOUS ASSY: -	SHEET: 1 OF 1
FRACTIONAL ± 1/16	SUSPENSION MODEL: TA280D	SCALE: 1:24
ANGULAR ± 1°	DATE: 03/11/98	DRAWN BY: AFF
		SIZE: B
		DRAWING NO: 120155



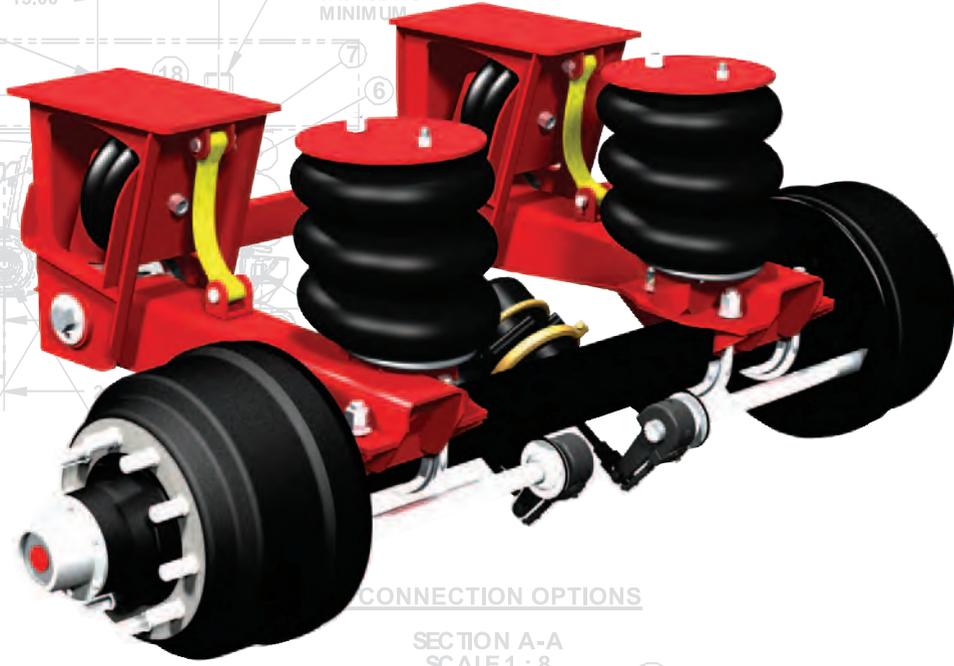
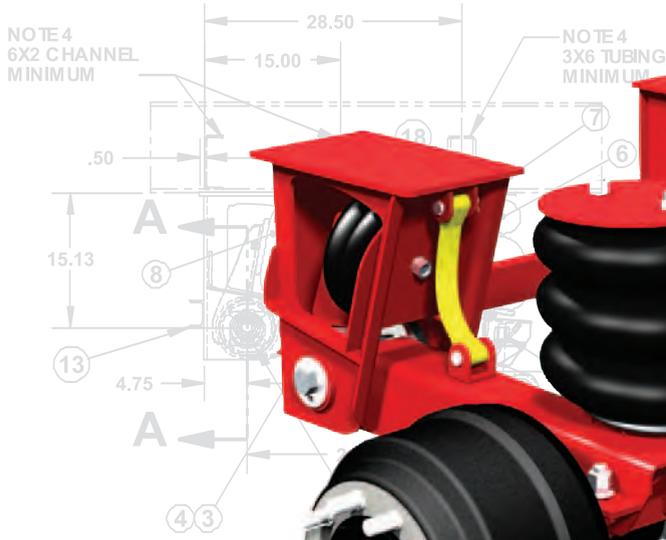


WATSON & CHALIN
MANUFACTURING INC.

Watson Suspension Systems

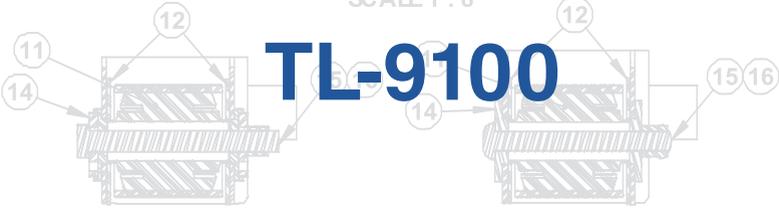


LIGHT WEIGHT TRAILER-AIR/AIR-LIFT



CONNECTION OPTIONS

SECTION A-A
SCALE 1 : 8



TL-9100

'E' OPTION - ECCENTRIC COLLAR CONNECTION
'S' OPTION - WELDED COLLAR CONNECTION
ECCENTRIC COLLARS TO BE WELDED TO HANGER
FACTORY INSTALLED COLLARS MUST BE WELDED AFTER ALIGNMENT

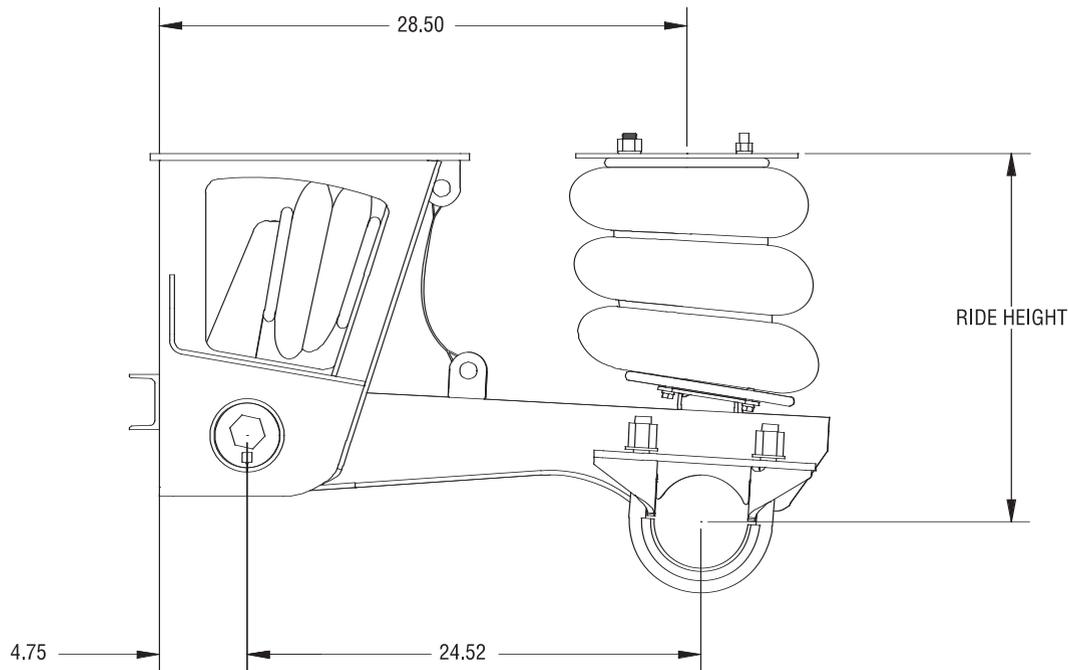
- 3 Year Warranty
- 19 - 21 in. Ride Height
- 13,200 lb. Capacity

LEADERSHIP IN SUSPENSION TECHNOLOGY

TL-9100 SERIES

LIGHT WEIGHT TRAILER-AIR/AIR-LIFT

RIDE HEIGHT: 19 - 21 IN.



- Axle Travel: 12.0 in.
- Air Ride-Air Lift
- Capacity: 13,200 lbs.
- Hardware HUCK Fasteners or Optional Eccentric Alignment
- Pre-Assembled - From Factory
- Compact in Design
- Positive Axle Stop
- Two Pin Axle Connection - Rubber Bushed



Watson Suspension Systems

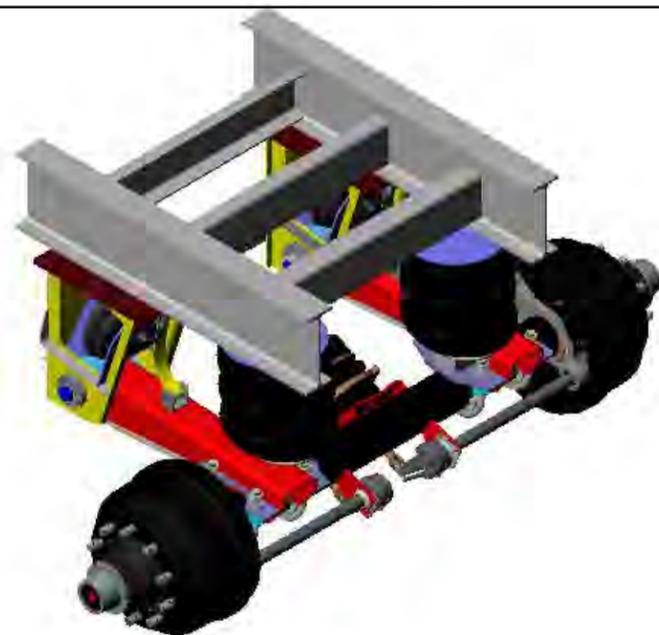
972.547.6020 800.445.0736

FAX: 972.542.0097

725 E. UNIVERSITY DR. MCKINNEY, TEXAS 75069

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REV.	DESCRIPTION	ECN	DATE	BY
A	NEW DRAWING	2932	08/12/03	HDH
B	ADDED NOTE 7	3047	12/05/03	JFF
C	WAS 13092-40	C-4729	6/26/2007	TEG
D	AIR BAG WAS AS0168-1G	C-4771	7/19/2007	EFR
E	ITEM #12 WAS 12514-03	C4798	8/8/2007	JFF

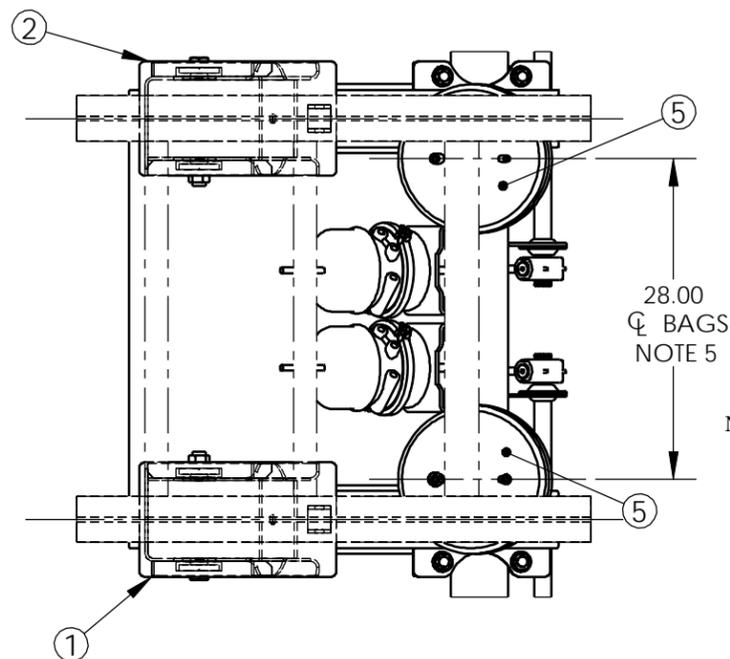


ITEM NO.	QTY	PART NUMBER	DESCRIPTION
1	1	CHART	HANGER ASSEMBLY L.H.
2	1	CHART	HANGER ASSEMBLY R.H.
3	1	930209-10	ARM ASSEMBLY L.H.
4	1	930209-20	ARM ASSEMBLY R.H.
5	2	13179	UPPER BAG PLATE
6	2	AS0168-1C	AIR BAG LOAD
7	1	16064	AIR BAG HARDWARE PACK
8	2	AS0058	AIR SPRING (6897) LIFT
9	1	16060	LIFT BAG HARDWARE PACK
10	1	16078	U-BOLT KIT
11	2	17993-112	MULTIFUNCTION BUSHING (REF ONLY)
12	1	12524-21	CROSSMEMBER WELD-ON 40" LENGTH
13	1	CHART	TI COLLAR PACK
14	2	17550-02	NYLON STRAP 11.50 LONG
15	1	16003	STRAP HARDWARE PACK

△ D

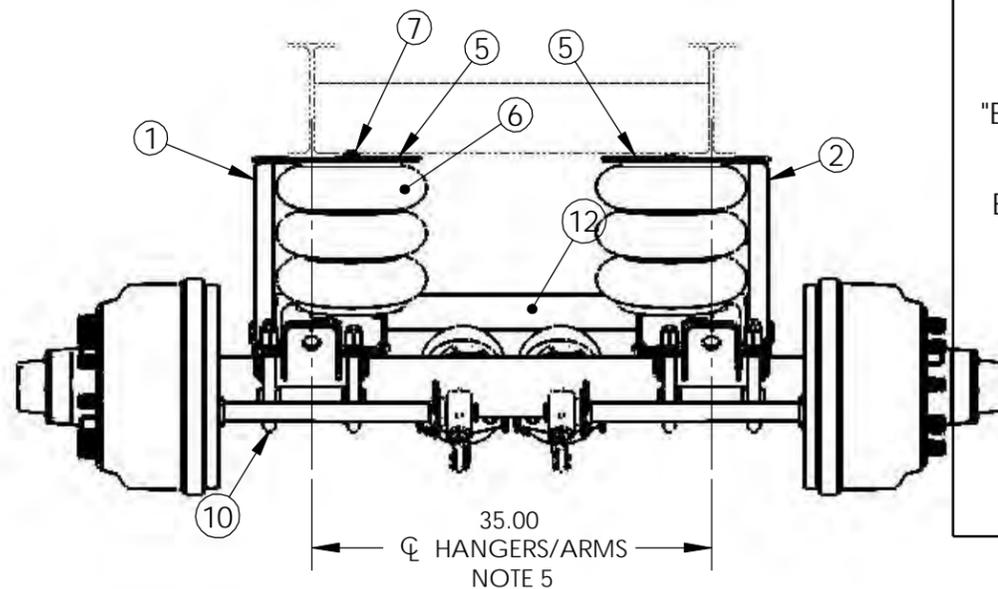
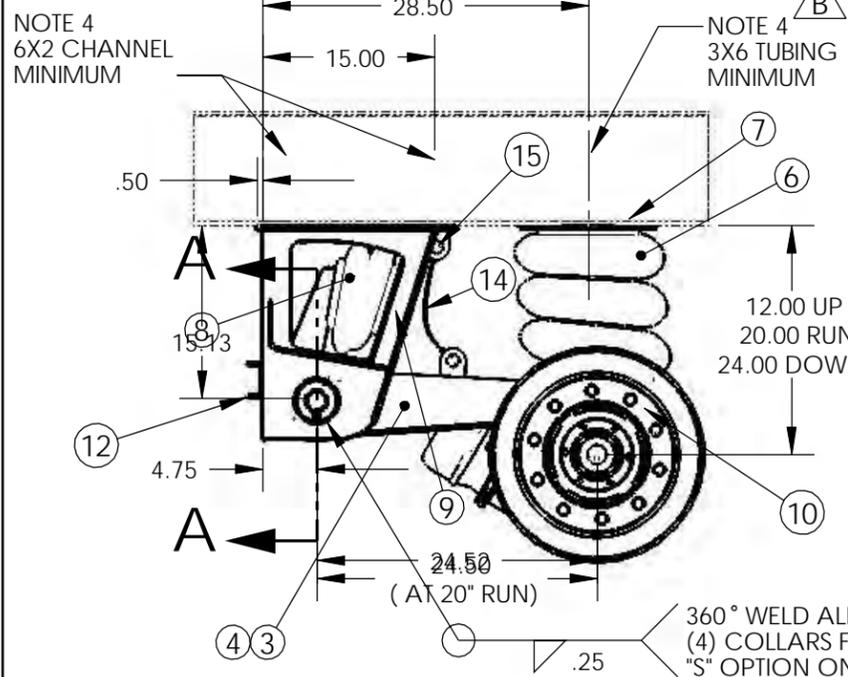
△ E

△ C



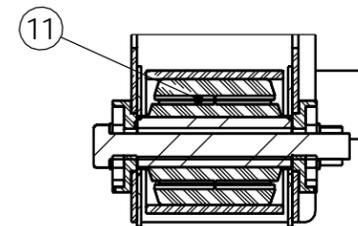
NOTE:

- CAPACITY: 14,000# FOR 19"-20" RUN HEIGHT
13,200# FOR 21" RUN HEIGHT
- REFER TO INSTALLATION MANUAL FOR SEAT TO AXLE WELDING INSTRUCTIONS.
- ECCENTRIC ALIGNMENT WITH SPIN-OFF NUT AVAILABLE.
- SHOWN FOR REFERENCE PURPOSES ONLY. PROPER FRAME DESIGN AT SUSPENSION ATTACHMENT AREA IS THE RESPONSIBILITY OF THE INSTALLER.
- MAX ARM/HANGER CENTERS SHOWN FOR 71.50" TRACK AXLE. ADJUST ACCORDING TO AXLE WIDTH.
- SEE "TA" INSTALLATION MANUAL FOR INFORMATION REGARDING ASSEMBLY, WELDING PROCEDURE, ALIGNMENT AND MAINTENANCE PROCEDURES.
- REMOVE LOWER BAG GIRDLE HOOPS BEFORE INSTALLING AND PACKAGING



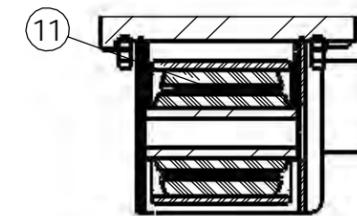
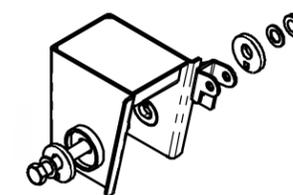
PIVOT CONNECTION OPTIONS

SECTION A-A
 SCALE 1 : 8



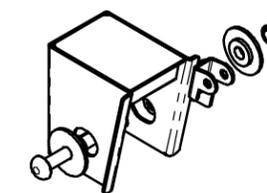
"E" OPTION - ECCENTRIC COLLAR CONNECTION

ECCENTRIC COLLARS ARE NOT TO BE WELDED TO HANGER



"S" OPTION - WELDED COLLAR CONNECTION

FACTORY INSTALLED COLLARS MUST BE WELDED AFTER ALIGNMENT

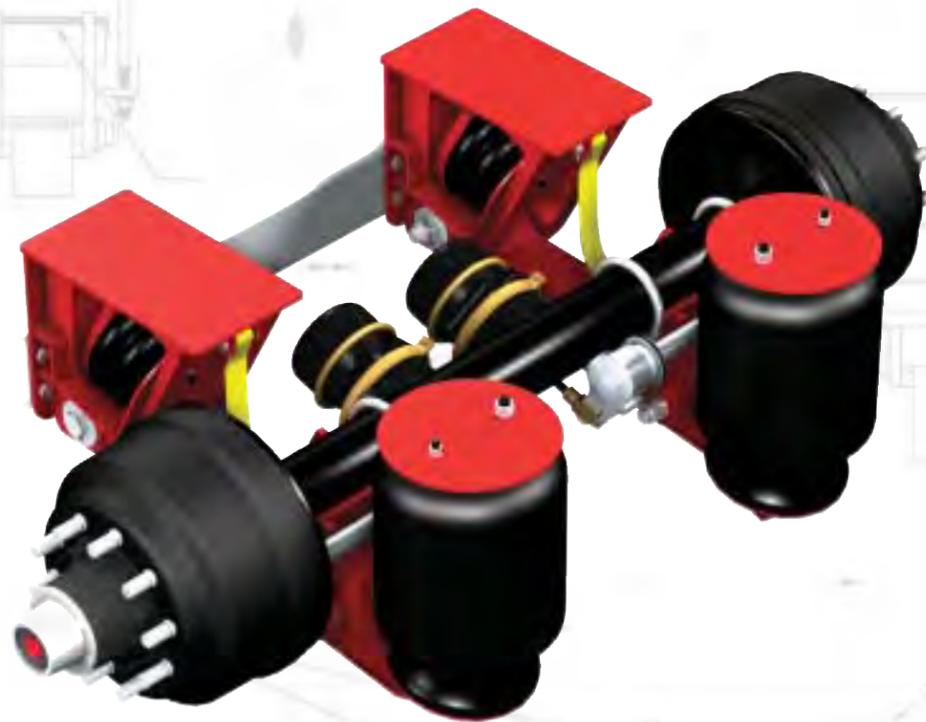


DEPTS AFFECTED	TOLERANCES (EXCEPT AS NOTED)	DESCRIPTION: MAIN ASSEMBLY 19"-21" RUN	
-	DECIMAL ± .06	PREVIOUS ASSY: -	SHEET: 1 OF 1
-	FRACTIONAL ± 1/16	SUSPENSION MODEL: TL9100	SCALE: 1:16
WEIGHT: -	ANGULAR ± 1°	DATE: 08/12/03	DRAWN BY: HDH
		SIZE: B	DRAWING NO: 130175

PART NO.	ITEM #1	ITEM #2	ITEM #13
TL9100-20WS	920430-1WS	920430-2WS	16079-01
TL9100-20WE	920430-1WE	920430-2WE	16079-02



TL-2200 NON-STEERABLE LIFT AXLE SUSPENSION

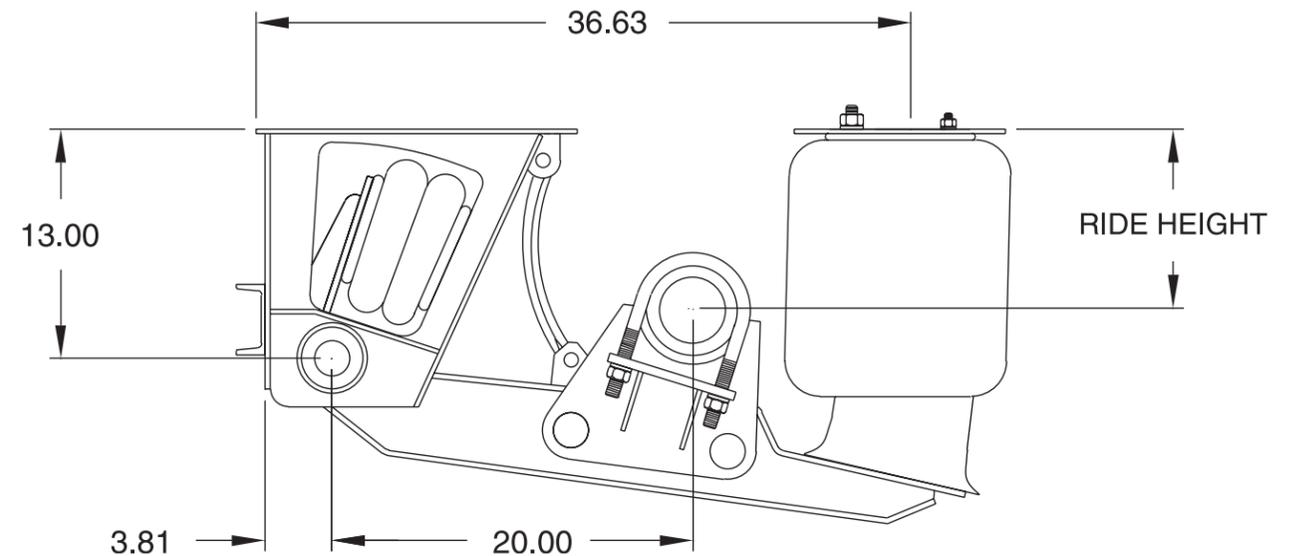


TL-2200 Series

- 5 Year Warranty
- Maintenance Free with Huck Fasteners
- 25,000 lb. Capacity

LEADERSHIP IN SUSPENSION TECHNOLOGY

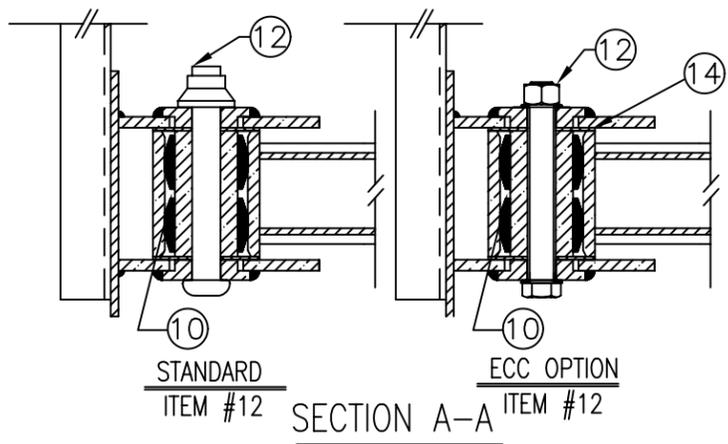
TL-2200 SERIES NON-STEERABLE LIFT AXLE



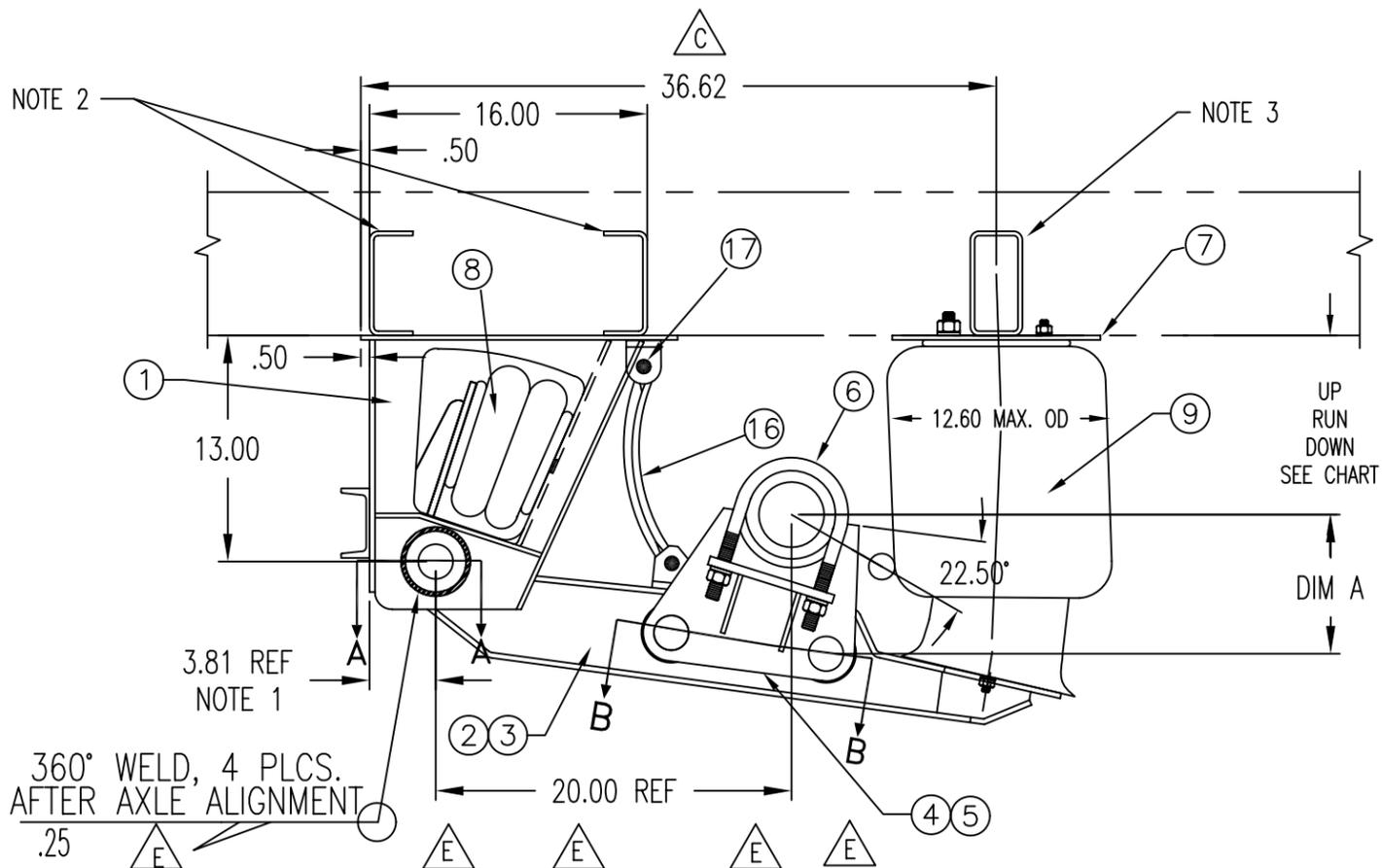
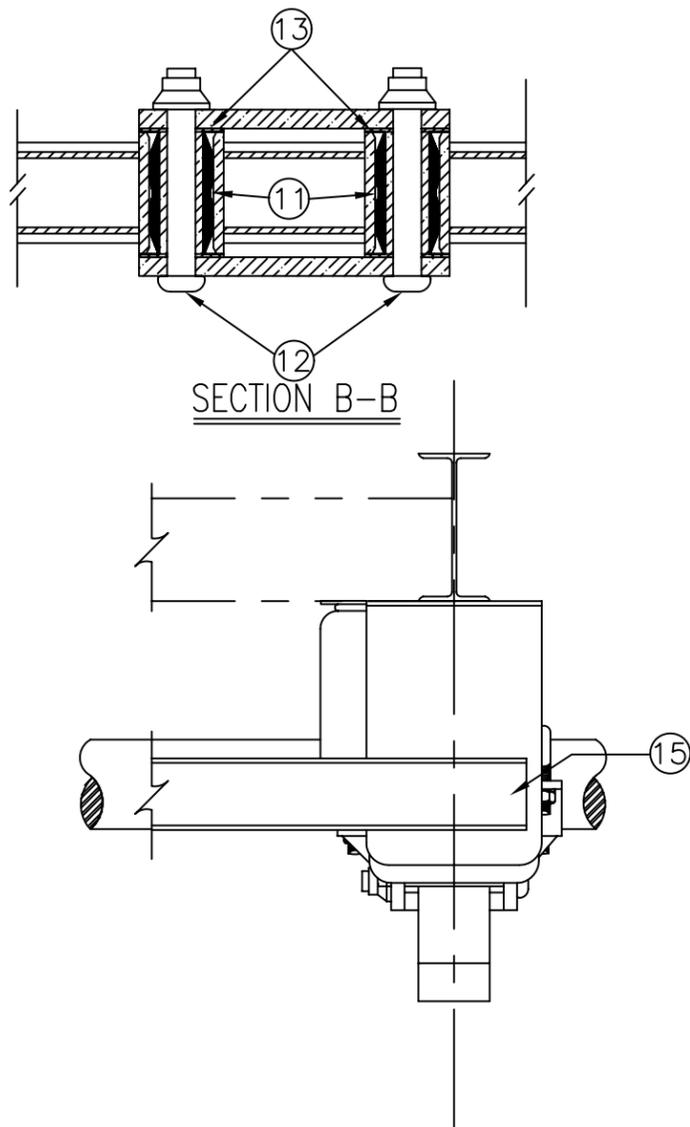
- Axle Travel: 10 in.
- Capacity: 25,000 lbs.
- Positive Axle Stop
- Ride Heights: 8 thru 19 in.
- Maintenance Free HUCK Fasteners
- Available as Kit or Complete with Axle
- Compact Design
- Air Ride-Air Lift
- Two Pin Axle Connection-Rubber Bushed

Optional: *Eccentric Alignment* (Requires Maintenance)

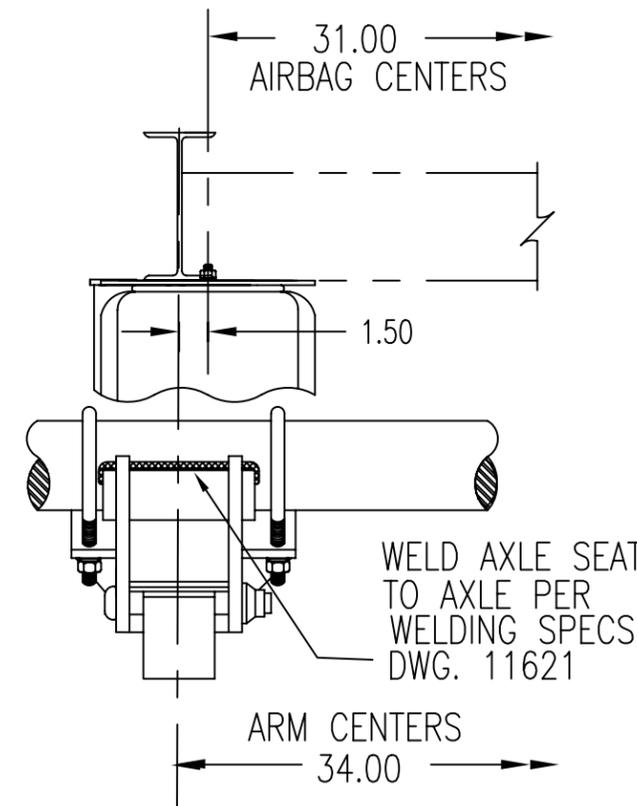
LEVEL	REVISION DESCRIPTION	ECN	DATE	BY
A	NEW DRAWING	1914	5/4/98	AFF
B	CORRECTED U-BOLT PACK	2088	3/22/99	JFF
C	DIM WAS 36.12	2419	10/01/01	JFF
D	ADDED ITEM#12 CHART,NOTE5	3416	11/13/04	JFF
E	ADD ECC OPT TO MAIN CHART ITM 12 ECC WAS 16005E ADD ITM 1,13,14,18 TO CHRT FOR ECC	C-5452	05/19/08	KDR
F	NEW BAG CALLOUT/REORDER NO. SEQ	C-6258	03/27/09	TEG



ITEM	PART NO.	QTY.	DESCRIPTION	ITEM	PART NO.	QTY.	DESCRIPTION
1	CHART $\triangle E$	2	HANGER ASSEMBLY	10	10050 $\triangle E$	2	PIVOT BUSHING (REF ONLY)
2	13107	1	ARM ASSEMBLY LH	11	11223 $\triangle E$	4	AXLE SEAT BUSHING (REF ONLY)
3	13108	1	ARM ASSEMBLY RH	12	CHART $\triangle E$	1	HUCK PACK
4	CHART	1	AXLE SEAT ASSEMBLY LH	13	CHART $\triangle E$	8	WASHER 3.380Dx.25
5	CHART	1	AXLE SEAT ASSEMBLY RH	14	CHART $\triangle E$	4	ALIGNMENT COLLAR
6	CHART $\triangle E$	1	U-BOLT PACK 3/4"	15	12524-01	1	CROSSBRACE 42" LENGTH
7	13179	2	UPPER BAG PLATE ASSEMBLY	16	11342	2	DOWN STRAP 13.75" LENGTH
8	AS0058K	2	AIRSPRING (LIFT) 6897	17	16003	1	STRAP HDWE PACK
9	AS0057K	2	AIRSPRING (LOAD) 9370				



- $\triangle D$ $\triangle E$ NOTES:
- ±.19 DEPENDING ON AXLE ALIGNMENT.
 - MIN. 6.00 X 2.00 X .25 CROSSMEMBER IS THE RESPONSIBILITY OF INSTALLER.
 - MIN. 6.00 X 3.00 X .25 CROSSMEMBER IS THE RESPONSIBILITY OF INSTALLER.
 - CAPACITY 25,000#



	PART NO.	UP	RUN	DOWN	DIM A	ITEM #1	ITEM #4	ITEM #5	ITEM #6	ITEM #12	ITEM #13	ITEM #14
$\triangle E$	TL2200-9	3.50	9.00	13.00	8.50	920000-03	13246	13247	16001-03	16005S	N/A	N/A
	TL2200-9WE	3.50	9.00	13.00	8.50	920000-03WE				16070	17140	17234
$\triangle E$	TL2200-10	3.63	10.00	14.00	8.50	920000-03	12490-10	12490-20	16001	16005S	N/A	N/A
	TL2200-10WE	3.63	10.00	14.00	8.50	920000-03WE				16070	17140	17234
$\triangle E$	TL2200-11	4.63	11.00	15.00	7.50	920000-03	11660-10	11660-20	16001	16005S	N/A	N/A
	TL2200-11WE	4.63	11.00	15.00	7.50	920000-03WE				16070	17140	17234
$\triangle E$	TL2200-12	5.63	12.00	16.00	6.50	920000-03	11660-10	11660-20	16001	16005S	N/A	N/A
	TL2200-12WE	5.63	12.00	16.00	6.50	920000-03WE				16070	17140	17234

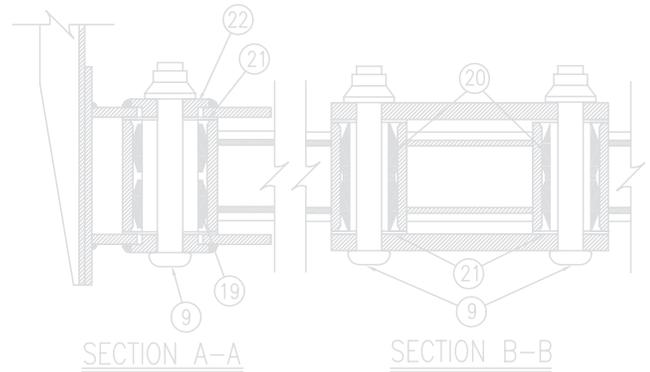
DEPARTMENTS AFFECTED	TOLERANCES (EXCEPT AS NOTED)	DESCRIPTION	MATERIAL
10	DECIMAL ± .06	ASSEMBLY 9.00-12.00 RUN	-
-	FRACTIONAL ± 1/16	SUSPENSION MODEL TL2200-9thru12	PREVIOUS ASSEMBLY -
-	ANGULAR ± 1°	DATE 4/28/98	CHKD BY - DRAWN BY AFF SIZE B DRAWING NO. 130087

CONFIGURED

WATSON & CHALIN MFG., INC.



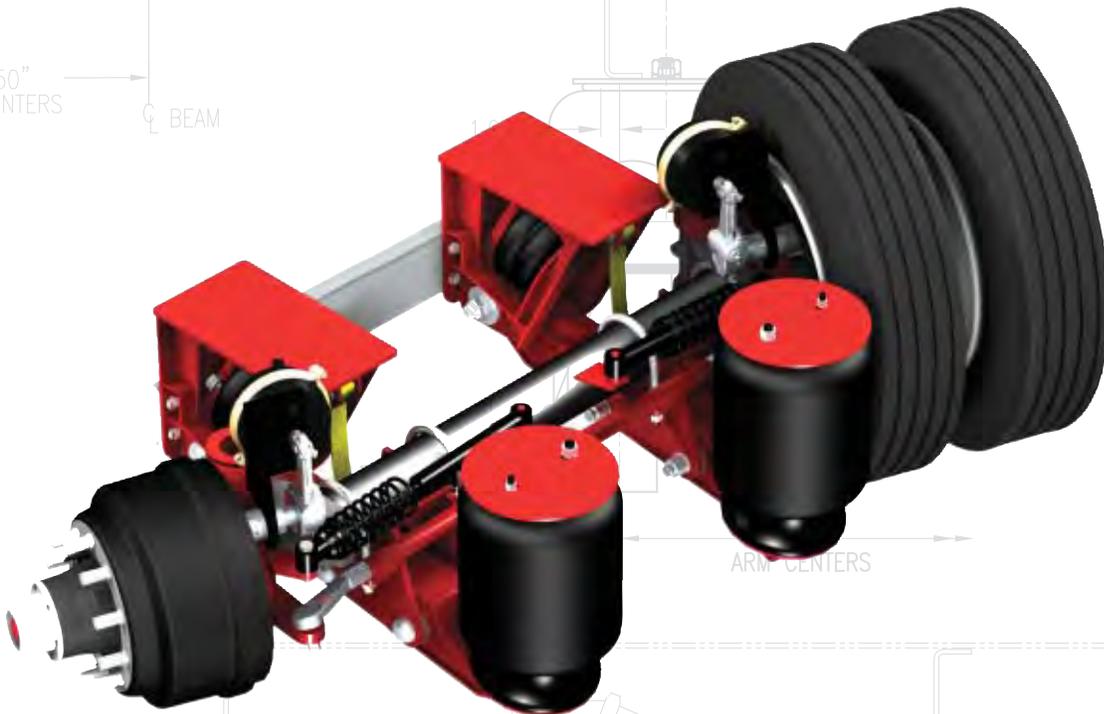
Watson Suspension Systems



STL-2200

STEERABLE TRAILER LIFT AXLE SUSPENSION

31.50" BEAM CENTERS
BEAM



STL-2200 Series

- Dual or Single Tires
- 5 Year Warranty
- Maintenance Free with Huck Fasteners
- 25,000 lb. Capacity

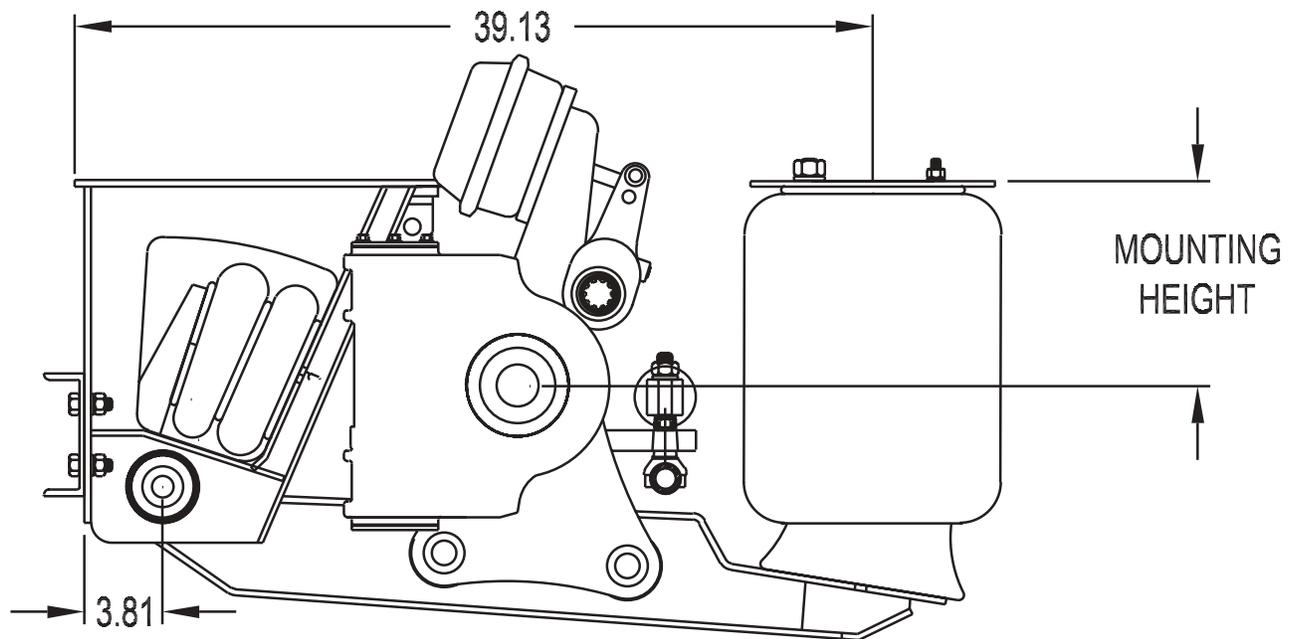
5.00 UP
10.00 RUN
13.75 DOWN

360° WELD 4-PLCS.
ITEM ⑫ COLLARS
AFTER AXLE ALIGNMENT
.25

LEADERSHIP IN SUSPENSION TECHNOLOGY

STL-2200 SERIES

STEERABLE TRAILER LIFT AXLE SUSPENSION



- Axle Travel: 10 in.
- Capacity: 25,000 lbs.
- Ride Heights: 8 thru 19 in.
- Maintenance Free HUCK Fasteners
- Two Pin Axle Connection-Rubber Bushed
- Factory Pre-Assembled
- Positive Axle Stop
- Air Ride-Air Lift
- Dual or Single Tires

Optional: *Eccentric Alignment* (Requires Maintenance)



Watson Suspension Systems

972.547.6020 800.445.0736

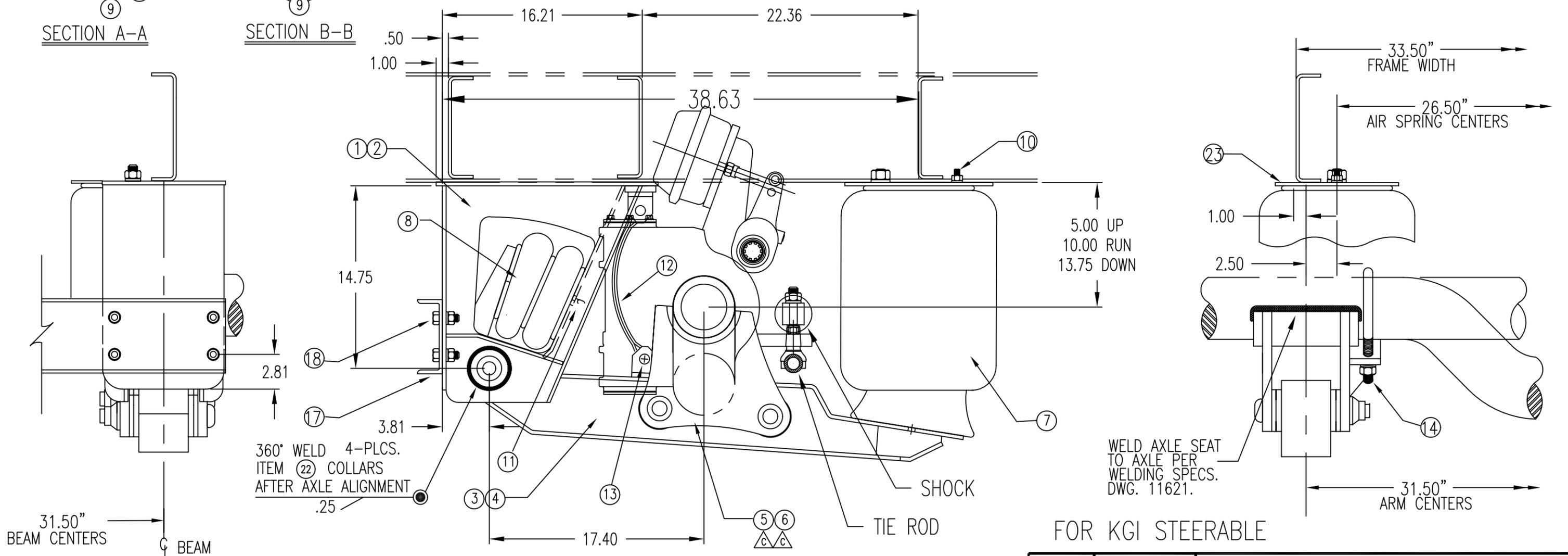
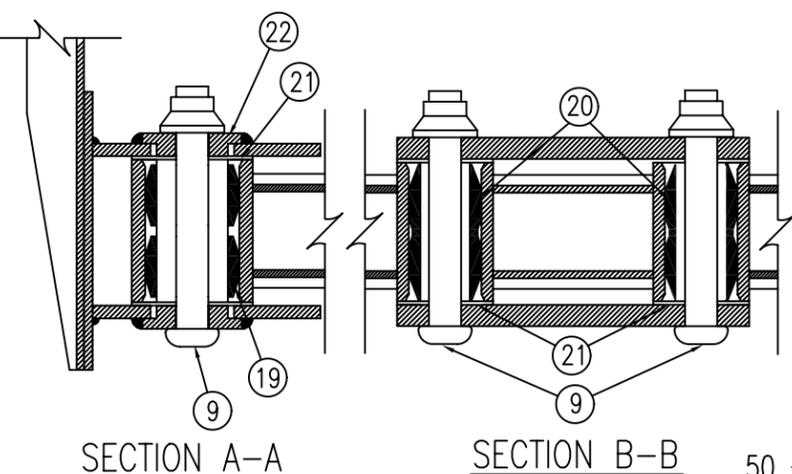
FAX: 972.542.0097

2060 COUCH DRIVE MCKINNEY, TEXAS 75069

www.WatsonSuspensions.com

LEVEL	REVISION DESCRIPTION	ECN	DATE	BY
A	RELEASED	1858	1/24/98	AFF
B	CORRECTED U-BOLT PACK	2088	3/31/99	JFF
C	CHG SEAT ASSY WAS 940083-1,-2	5331	4/14/08	KDR

ITEM	PART NO.	QTY.	DESCRIPTION	ITEM	PART NO.	QTY.	DESCRIPTION
1	920113-12	1	HANGER ASSY LH	13	16003	1	STRAP PACK
2	920113-22	1	HANGER ASSY RH	14	16001-02	1	U-BOLT PACK .75
3	930066-1	1	ARM ASSY LH	15	-	-	-
4	930066-2	1	ARM ASSY RH	16	-	-	-
5	940118-1	1	AXLE SEAT ASSY LH	17	90259	1	CROSSMEMBER
6	940118-2	1	AXLE SEAT ASSY RH	18	16000	1	CROSSMEMBER HDWE PACK
7	AS-0057	2	AIRSPRING LOAD (9370)	19	10050	2	PIVOT BUSHING
8	AS-0058	2	AIRSPRING LIFT (6897)	20	11223	4	AXLE SEAT BUSHING
9	16005	1	TRAILING ARM HUCK PACK	21	17140	12	WASHER
10	16059	1	AIRBAG PACK (LOAD)	22	10764	4	WELD COLLAR
11	16060	1	AIRBAG PACK (LIFT)	23	13179	2	UPPER BAG PLATE
12	11342	2	DOWN STRAP (13.75)	24	-	-	-



FOR KGI STEERABLE

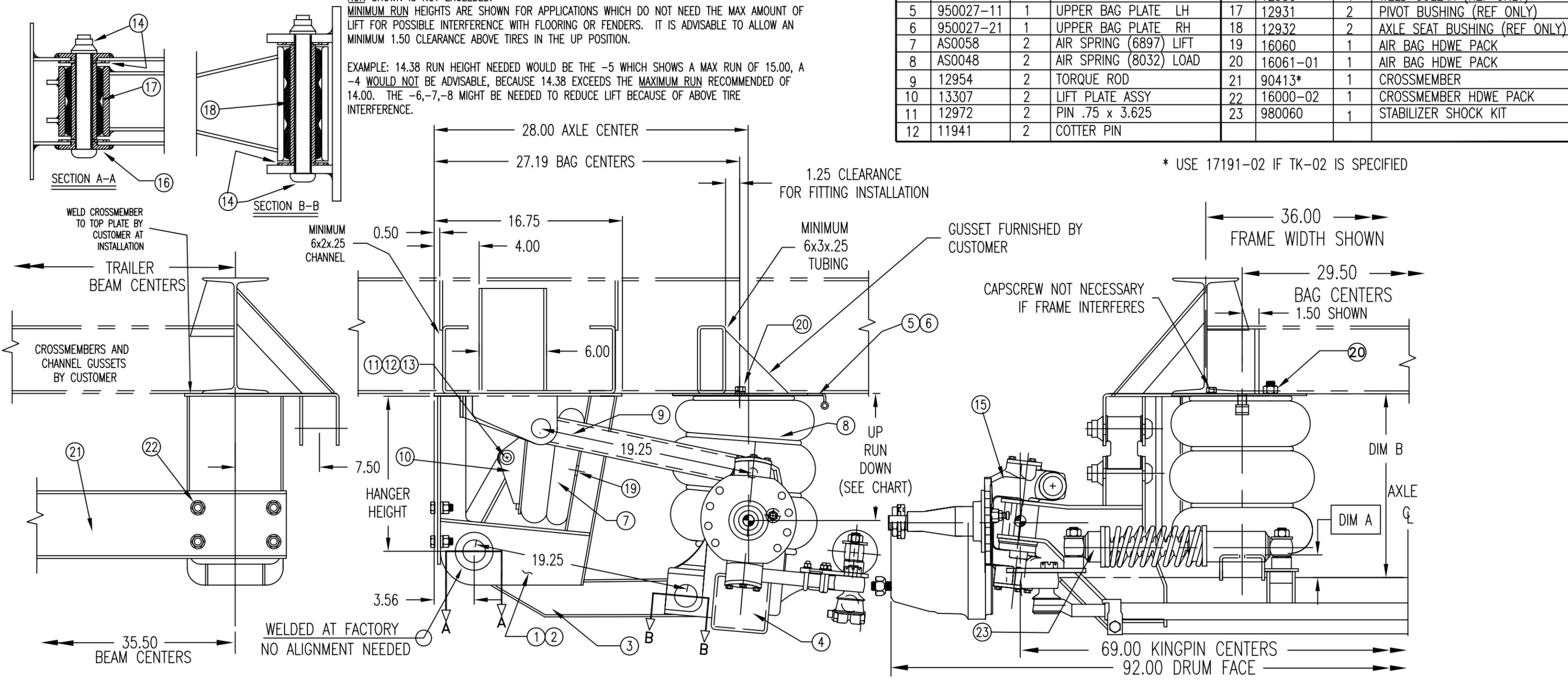
DEPARTMENTS AFFECTED	TOLERANCES (EXCEPT AS NOTED)	WATSON & CHALIN MFG., INC.		
10	DECIMAL ± .06	DESCRIPTION ASSEMBLY FOR STEERING	MATERIAL -	
-	FRACTIONAL ± 1/16	SUSPENSION MODEL STL-2200	SCALE 1/8	PREVIOUS ASSEMBLY -
-	ANGULAR ± 1°	DATE 1/24/98	CHKD BY -	DRAWN BY AFF
			SIZE B	DRAWING NO. 130079

LEVEL	REVISION DESCRIPTION	ECN	DATE	BY
A	NEW DRAWING	2138	6/2/99	AFF
B	CHANGED ITEM #1,2	2638	9/12/02	JFF
C	CHGD PART NO./ADDED DWG NO.	-	01/27/03	CKH

****NOTE:** RUN HEIGHT IS USUALLY SELECTED NEAR MAXIMUM RUN SHOWN TO ALLOW FOR THE MOST LIFT. SELECT THE MAXIMUM RUN CLOSEST BUT MORE THAN THE DESIRED RUN HEIGHT SO THE MAXIMUM RUN SHOWN IS NOT EXCEEDED. MINIMUM RUN HEIGHTS ARE SHOWN FOR APPLICATIONS WHICH DO NOT NEED THE MAX AMOUNT OF LIFT FOR POSSIBLE INTERFERENCE WITH FLOORING OR FENDERS. IT IS ADVISABLE TO ALLOW AN MINIMUM 1.50 CLEARANCE ABOVE TIRES IN THE UP POSITION.

EXAMPLE: 14.38 RUN HEIGHT NEEDED WOULD BE THE -5 WHICH SHOWS A MAX RUN OF 15.00, A -4 WOULD NOT BE ADVISABLE, BECAUSE 14.38 EXCEEDS THE MAXIMUM RUN RECOMMENDED OF 14.00. THE -6,-7,-8 MIGHT BE NEEDED TO REDUCE LIFT BECAUSE OF ABOVE TIRE INTERFERENCE.

ITEM	PART NO.	QTY.	DESCRIPTION	ITEM	PART NO.	QTY.	DESCRIPTION
1	SEE CHART	1	HANGER SIDERAIL ASSY LH	13	10043	4	.75 FLAT WASHER
2	SEE CHART	1	HANGER SIDERAIL ASSY RH	14	16017	1	LW HUCK PACK
3	CHART	2	ARM ASSEMBLY	15	18040	1	SPINDLE END KIT
4	CHART	1	AXLE ASSEMBLY	16	12930	4	WELD COLLAR (REF ONLY)
5	950027-11	1	UPPER BAG PLATE LH	17	12931	2	PIVOT BUSHING (REF ONLY)
6	950027-21	1	UPPER BAG PLATE RH	18	12932	2	AXLE SEAT BUSHING (REF ONLY)
7	AS0058	2	AIR SPRING (6897) LIFT	19	16060	1	AIR BAG HDWE PACK
8	AS0048	2	AIR SPRING (8032) LOAD	20	16061-01	1	AIR BAG HDWE PACK
9	12954	2	TORQUE ROD	21	90413*	1	CROSSMEMBER
10	13307	2	LIFT PLATE ASSY	22	16000-02	1	CROSSMEMBER HDWE PACK
11	12972	2	PIN .75 x 3.625	23	980060	1	STABILIZER SHOCK KIT
12	11941	2	COTTER PIN				



RUN HEIGHT RANGE**

PART NO.	DWG NO.	ITEM #3	DIM A SEAT THICKNESS	HANGER HEIGHT	ITEM #4	DIM B UP	UP	MINIMUM	MAXIMUM	DOWN	ITEM #1	ITEM #2
STL1186TT-11	130121-1	14119-02	1.00	13.75	160020-01	5.50	.50	6.00	11.00	14.00	920130-16	920130-26
STL1186TT-12	130121-2	14119	2.00	13.75	160020-02	6.50	1.50	7.00	12.00	15.00	920130-16	920130-26
STL1186TT-13	130121-3	14119-04	3.00	13.75	160020-03	7.50	2.50	8.00	13.00	16.00	920130-16	920130-26
STL1186TT-14	130121-4	14119-01	4.00	13.75	160020-04	8.50	3.50	9.00	14.00	17.00	920130-16	920130-26
STL1186TT-15	130121-5	14119-05	5.00	13.75	160020-05	9.50	4.50	10.00	15.00	18.00	920130-16	920130-26
STL1186TT-16	130121-6	14119-03	6.00	13.75	160020-06	10.50	5.50	11.00	16.00	19.00	920130-16	920130-26
STL1186TT-17	130121-7	14119-05	7.00	15.75	160020-07	11.50	6.50	12.00	17.00	20.00	920130-17	920130-27
STL1186TT-18	130121-8	14119-03	8.00	15.75	160020-08	12.50	7.50	13.00	17.75	21.00	920130-17	920130-27

DEPARTMENTS AFFECTED	TOLERANCES (EXCEPT AS NOTED)
10	DECIMAL ± .06
-	FRACTIONAL ± 1/16
-	ANGULAR ± 1°

WATSON & CHALIN MFG., INC.

DESCRIPTION: ASSEMBLY 6.00-17.75 RUN 5" DROP AXLE 92"

SUSPENSION MODEL: STL1100 TRU-TRACK

SCALE: NTS

PREVIOUS ASSEMBLY: -

DATE: 6/2/99

CHKD BY: -

DRAWN BY: AFF

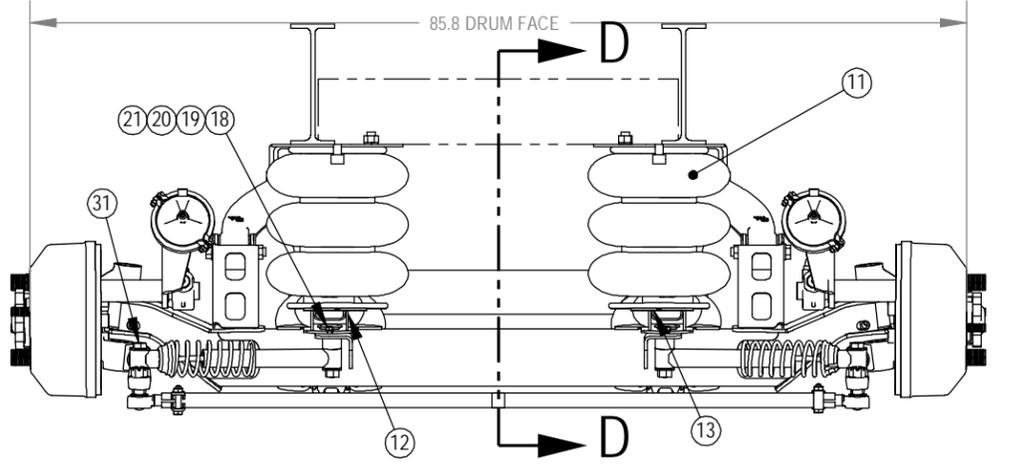
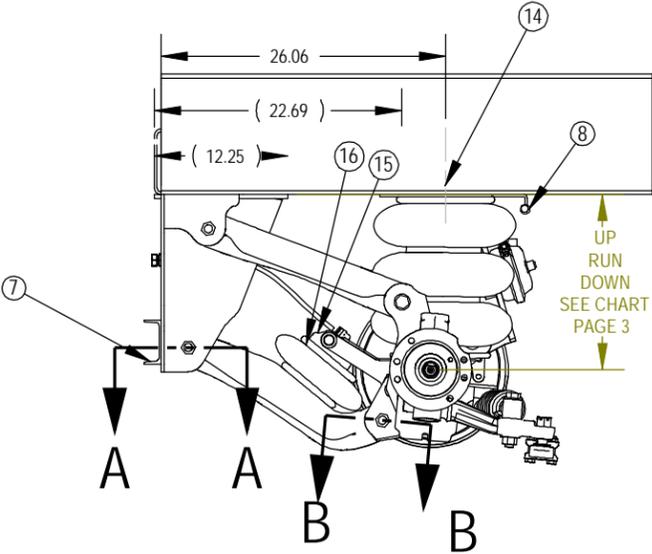
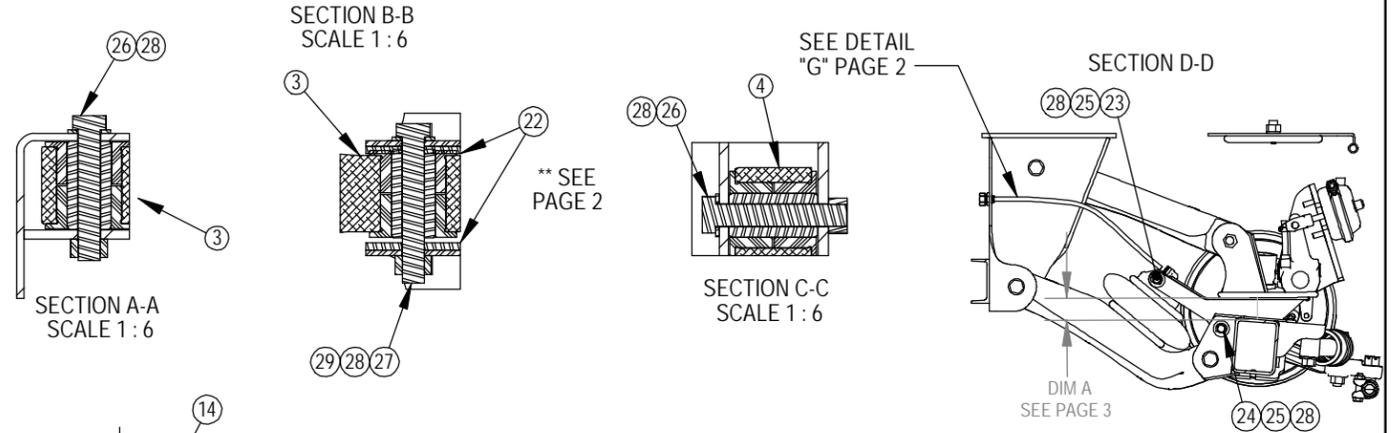
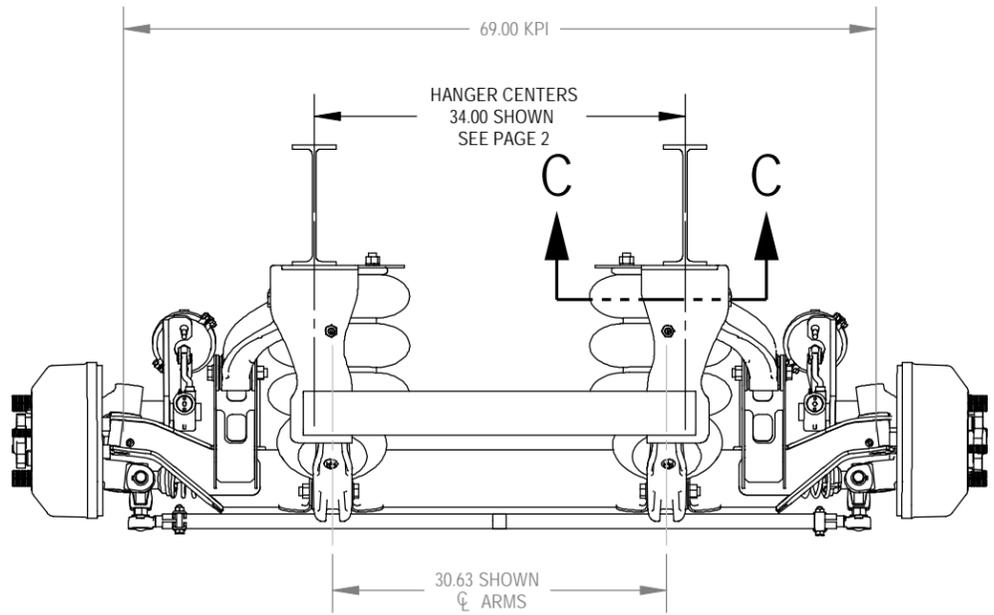
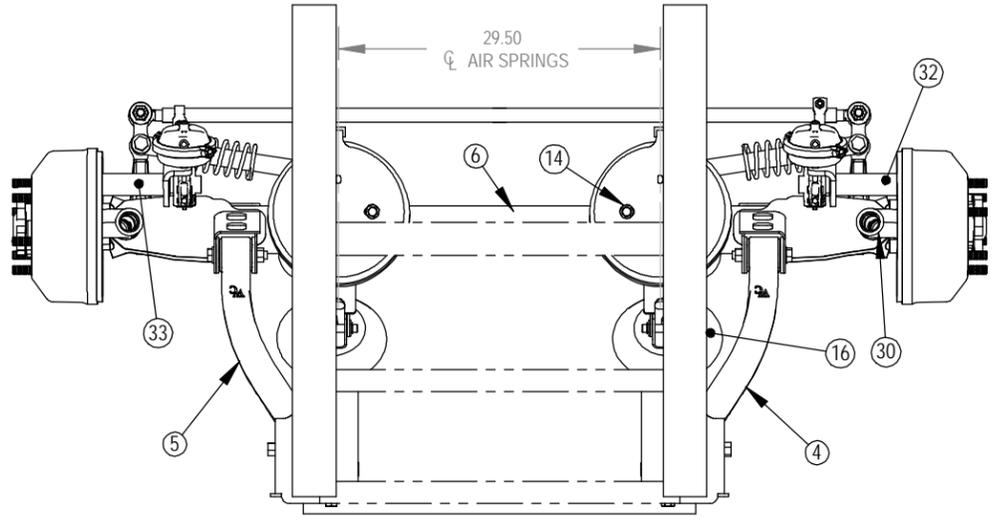
SIZE: B

DRAWING NO.: 130121

REV.	DESCRIPTION	ECN	DATE	BY
A	NEW DRAWING	S-4594	04/17/07	TEG
B	#1/2 WAS 920612, SHT3 #6 WAS 160077/160077-01	7475	4/7/2010	TLK



ITEM NO.	QTY	PART NUMBER	DESCRIPTION	ITEM NO.	QTY	PART NUMBER	DESCRIPTION
1	1	920612-11	HANGER ASSEMBLY	19	2	10041	.38 LOCK WASHER
2	1	920612-21	HANGER ASSEMBLY	20	2	17101	WASHER FLAT .38 X 1.00 X .06
3	2	CHART	ARM ASSEMBLY LOWER	21	2	11094	HEXNUT 3/8 UNC
4	1	CHART	ARM ASSEMBLY UPPER	22	8	12927-03	WASHER FLAT .75 X 3.25 X .25
5	1	CHART	ARM ASSEMBLY UPPER	23	2	19034-02	PIN CLEVIS .75 X 4.25
6	1	CHART	AXLE ASSEMBLY	24	2	19034-01	PIN CLEVIS .75 X 5
7	1	12524-08	CROSSMEMBER 36.00 LONG	25	4	19027	SNAP RING E-STYLE .75
8	2	17579	COUPLER	26	4	17057	CAPSCREW .75X4.50 UNF GR8
9	1	50000-11	UPPER BAG PLATE	27	4	10033	CAPSCREW .75X5.00 UNF GR8
10	1	50000-21	UPPER BAG PLATE RH	28	16	10043	WASHER FLAT .75 X 1.48 X .12 HARDENED
11	2	AS0048	AIR SPRING LOAD	29	8	10028	NUT LOCK .75 UNF GR C
12	1	CHART	LOWER BAG PLATE ASSY L.H.	30	1	19108K	KNUCKLE KIT 8K
13	1	CHART	LOWER BAG PLATE ASSY L.H.	31	1	980151	STEER STABILIZER KIT
14	1	16061	AIRSPRING HARDWARE PACK	32	1	17815-10	BRAKE ASSY LH TYPE 12 CHAMBERS
15	2	50193-01	LIFT BAG PLATE	33	1	17815-20	BRAKE ASSY RH TYPE 12 CHAMBERS
16	2	AS0058C	AIR SPRING (6897) LIFT	34	2	18255-01	HUB & DRUM ASSY 8K W/NUTS
17	1	16085	LIFT BAG HARDWARE PACK	35	1	CHART	LIFT BAG PLUMBING KIT
18	2	10038	CAPSCREW 3/8 X 1 UNC				

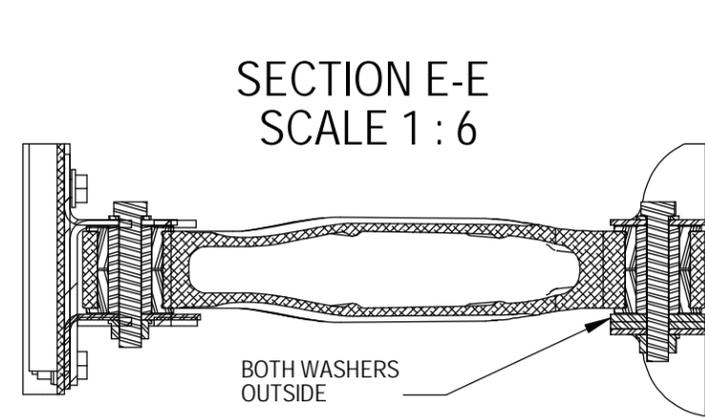


- NOTE:
- REFER TO "SL SERIES INSTALLATION AND OPERATION MANUAL"
 - CAPACITY 8,000# - ACHIEVED BY USE OF 17.5" X 6.0" WHEEL WITH OFFSET TOWARD INBOARD SIDE. USE OF OTHER WHEELS AND/OR MOUNTING WHEELS WITH OFFSET TO THE OUTSIDE IS NOT RECOMMENDED AND WILL SIGNIFICANTLY LOWER RATING.
 - MINIMUM 8" LIFT REQUIRED IN LOADED CONDITION.

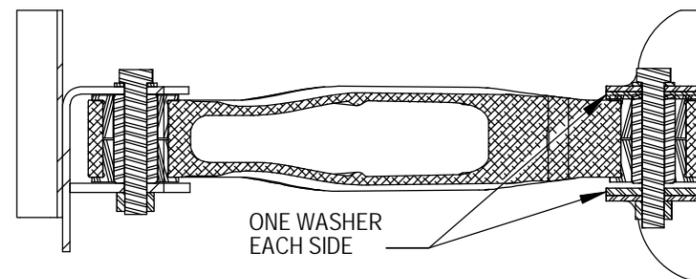
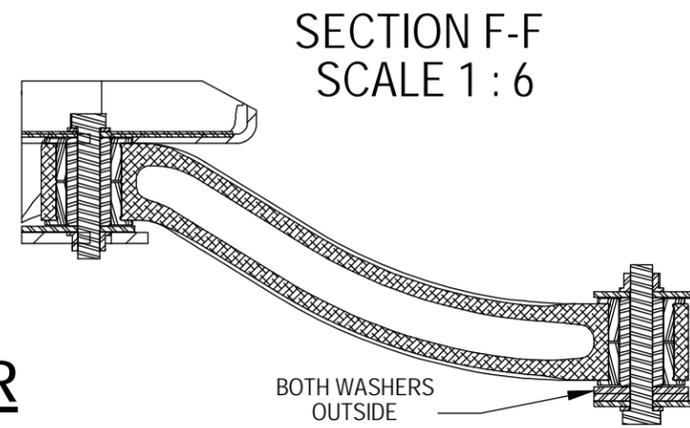
17.5" X 6.0" WHEEL NUT TORQUE VALUES:
 STEEL WHEELS - 220 - 260 Lbf.ft (300 - 350 N.m.)
 ALUMINUM WHEELS - 235 - 288 Lbf.ft (320 - 390 N.m.)

DEPTS AFFECTED	TOLERANCES (EXCEPT AS NOTED)	DESCRIPTION: 8K TRU-TRACK ASSEMBLY - 1" DROP AXLE WITH WESTPORT ENDS	
-	DECIMAL ± .06	PREVIOUS ASSY: -	SHEET: 1 OF 3
-	FRACTIONAL ± 1/16	SUSPENSION MODEL: STL0891	SCALE: 1:16
WEIGHT: -	ANGULAR ± 1°	DATE: 04/17/07	DRAWN BY: TEG
			SIZE: B
			DRAWING NO: 130225

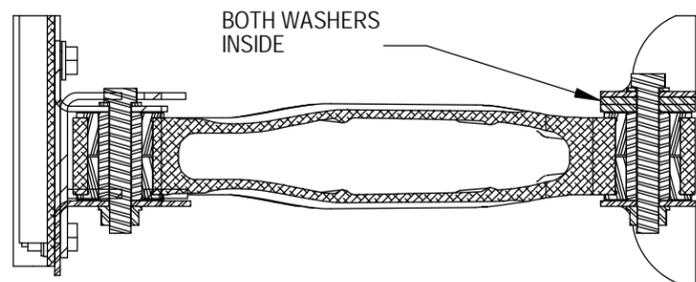
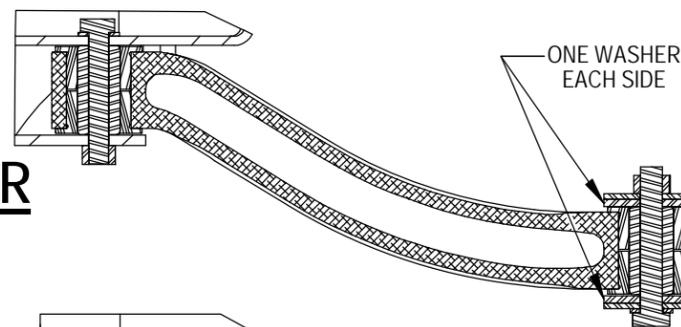




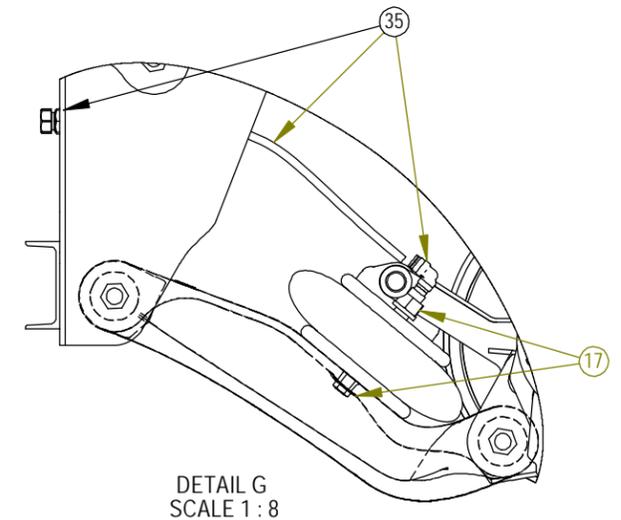
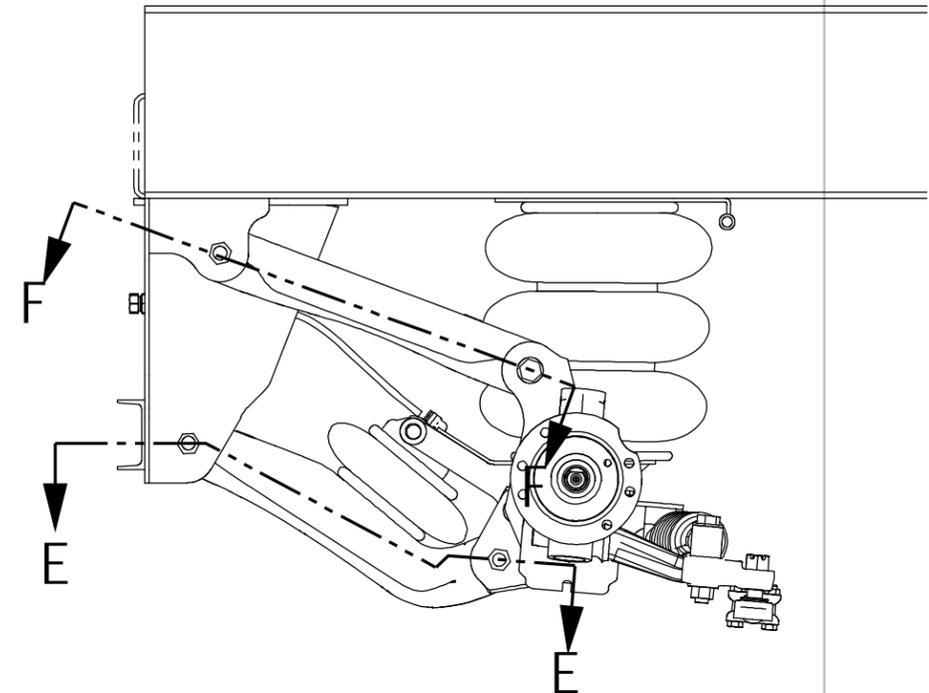
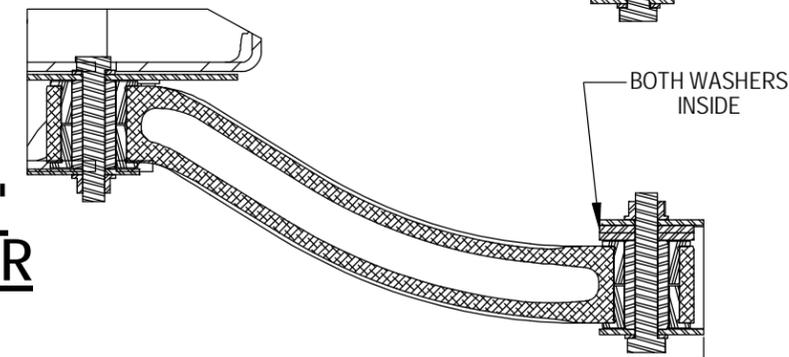

 CENTER OF VEHICLE
33.50"
HANGER CENTER



34.00"
HANGER CENTER



34.50" & 35.00"
HANGER CENTER



DESCRIPTION: STL0891 ASSEMBLY FRAME WIDTH SECTIONS				 <small>WATSON & CHALIN MANUFACTURING, INC. Watson Suspension Systems</small>
SHEET: 2 OF 3				
DATE: 04/17/07	SCALE: 1:10	DRAWN BY: TEG	SIZE: B	DRAWING NO: 130225

MODEL NO. - **STL0891 A BB - CC - DD GG H**

CONFIGURATOR - STL0891

A	ARM CODE			
	ARM TYPE	ITEM #3	ITEM #4	ITEM #5
S	STEEL	930238-01	930239	930239
A	ALUMINUM	930238-03	930239-11	930239-21

CC	HANGER CENTER CODE	
	FRAME WIDTH	ITEM #6
40	34.00	160092
50	35.00	160092-01



H	CONTROL PANEL CODE		
	TYPE	PANEL	VALVE
0	NO CONTROL PANEL	N/A	N/A
1	CONTROL PANEL W/12V SOLENOID	990138	INC. PANEL
2	CONTROL PANEL WITH SEPARATE PUSH/PULL	990099	17523-01
3	CONTROL PANEL WITH INTEGRATED PUSH/PULL	990022	INC. PANEL
4	NO CONTROL PANEL; WITH 12V SOLENOID AND REGULATOR	N/A	990251

BB	DWG NUMBER	ITEM #12	ITEM #13	ITEM #35	DIM A							
					UP				RUN		DOWN	
					BAG PLATE HEIGHT	WITH .19 BUMPER DEFLECTION	BUMPER CONTACT	DIM B	RUN RANGE	DIM B RANGE		DIM B
15	130225-1	950246-11	950246-21	980158-20	1.00	5.00	5.19	22.91	13.00 - 15.00	23.34 - 22.55	18.00	21.33
16	130225-2	950246-12	950246-22	980158-21	2.00	5.75	5.94	23.07	14.00 - 16.00	23.23 - 22.21	19.00	20.78
17	130225-3	950246-13	950246-23	980158-21	3.00	6.75	6.94	23.24	15.00 - 17.00	23.06 - 21.81	20.00	20.15
18	130225-4	950246-14	950246-24	980158-22	4.00	7.75	7.94	23.35	16.00 - 18.00	22.84 - 21.33	21.00	19.42
19	130225-5	950246-15	950246-25	980158-22	5.00	8.75	8.94	23.41	17.00 - 19.00	22.55 - 20.78	22.00	18.58
SP	SPECIAL APPLICATION RIDE HEIGHT											

GG	PLUMBING CODE	
	TYPE	PLUMBING KIT
00	NO PPAK (PRE-PLUMBED AIR KIT) - STD UPPER BAG PLATE	N/A
01	NO PPAK (PRE-PLUMBED AIR KIT) - UPPER BAG PLATE WITH COUPLER	N/A
12	PPAK50 WITH STEEL TANK INSTALLED	PPAK50-00-05

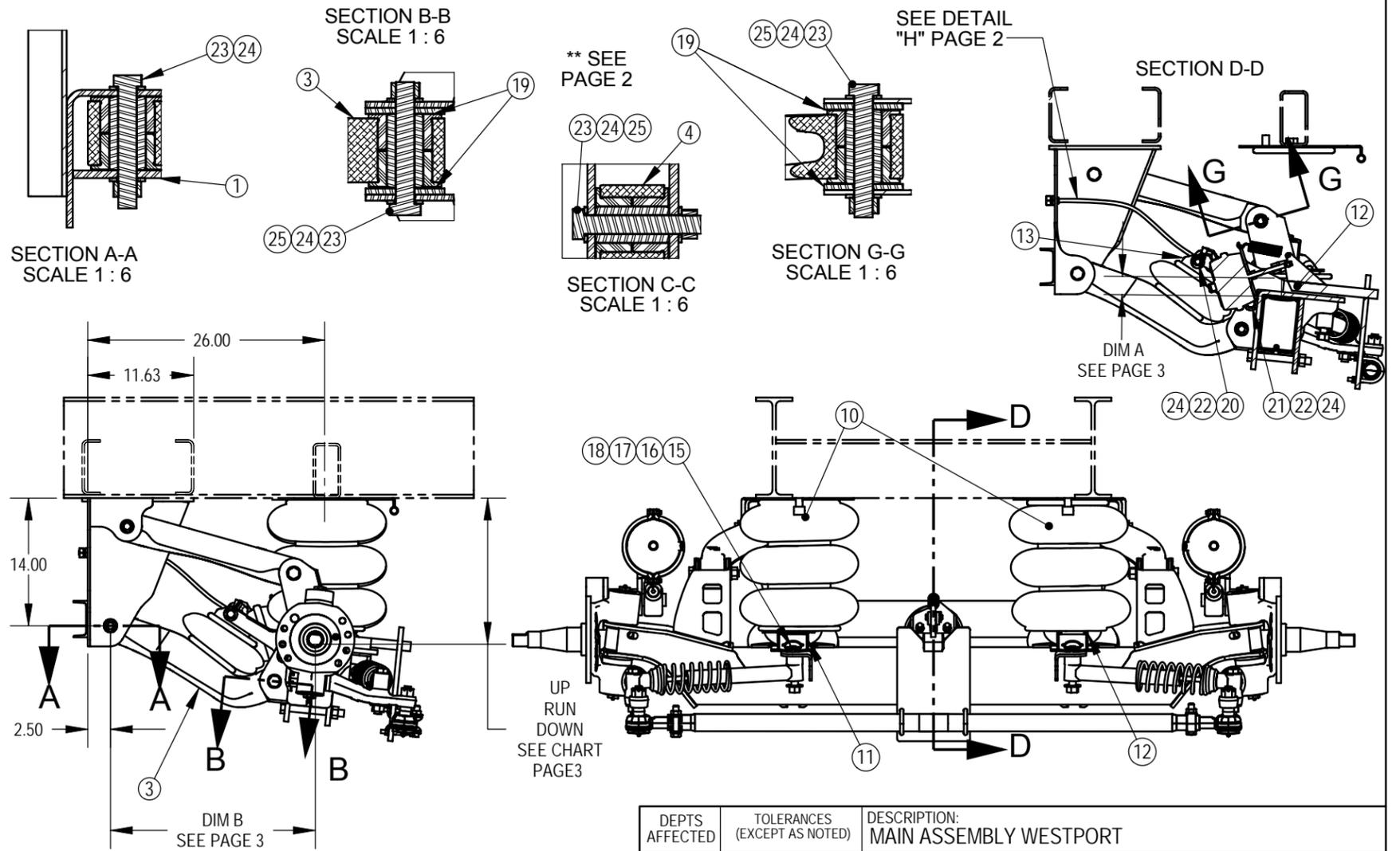
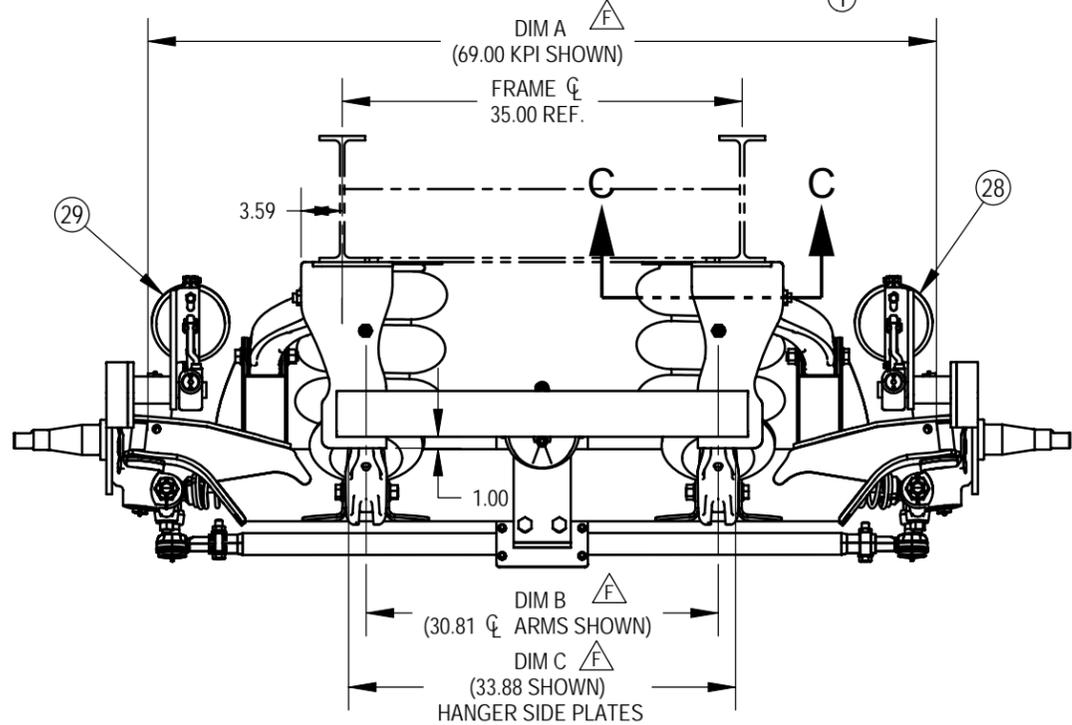
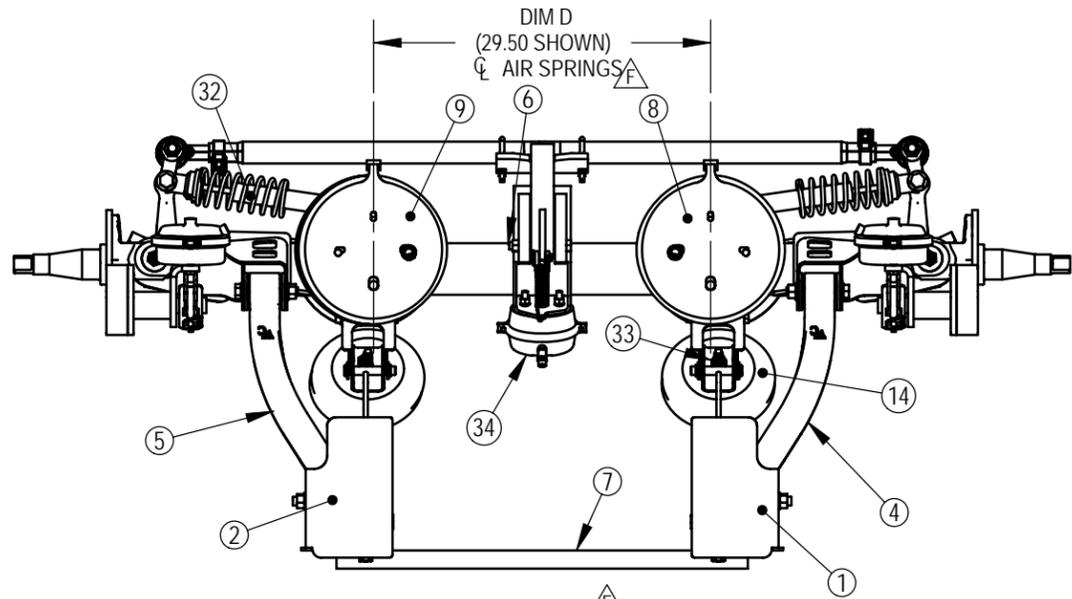
DD	HUB OIL CODE	
	OIL TYPE	PART NUMBER
01	NON- SYNTHETIC	P1001-01F8
02	SYNTHETIC	P1001-02F8

DESCRIPTION:				
STL0891 ASSEMBLY OPTION CHART				
SHEET: 3 OF 3				
DATE:	SCALE:	DRAWN BY:	SIZE:	DRAWING NO:
04/17/07	1:10	TEG	B	130225



REV.	DESCRIPTION	ECN	DATE	BY
A	NEW DRAWING	S-5710	08/11/08	TEG
B	ITEM #6 WAS 160093 AND ITEM #1 & 2 WAS 920612-10/-20	C-6022	12/9/2008	EFR
C	ITEM #8 & 9 WERE 50000-11/-21, REMOVED AIRBAG HARDWARE KITS AND CHANGED BAGS WITH HARDWARE KITS INCLUDED	C-6295	4/21/2009	EFR
D	CHARTED ITEM #1 & 2 FOR BOLT-ON OPTION	7331	1/11/2010	EFR
E	ADDED OPTION K FOR LOCK ON SHT 3	7361	2/3/2010	GWE
F	ADDED OPTION CC FOR WIDER TRACK ON SHT 3	7498	4/27/2010	GWE
G	TRACK WIDTH CHART ON SHT 3 CODE 97 ITEM 7 WAS 12534	7789	9/27/2010	GWE
H	ADDED 20,21,22 RIDE HEIGHT CODS SHT 3, REORDERED OPTIONS	7801	10/11/2010	GWE
J	SHT 3 TRACK WIDTH (EE) OPTIONS, OPTION 97 ITEM 6 WAS 160110	7832	10/28/2010	GWE
K	ADDED WELD ON TANK CROSSMEMBER TO OPTION HH ON SHT. 3	7922	12/21/2010	GWE

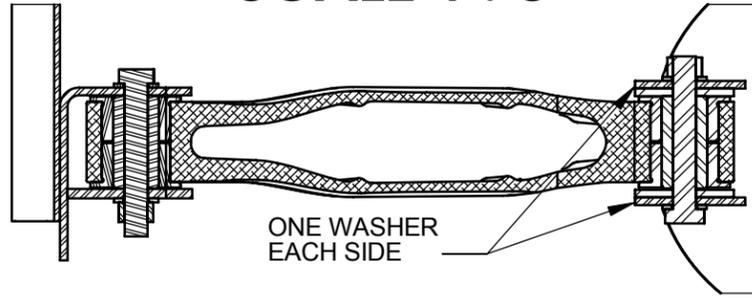
ITEM NO.	QTY	PART NUMBER	DESCRIPTION	ITEM NO.	QTY	PART NUMBER	DESCRIPTION
1	1	CHART	HANGER ASSEMBLY	17	2	17101	WASHER FLAT .38 X 1.00 X .06
2	1	CHART	HANGER ASSEMBLY	18	2	11094	HEXNUT 3/8 UNC
3	2	CHART	ARM ASSEMBLY LOWER	19	8	12927-03	WASHER FLAT .75 X 3.25 X .25
4	1	CHART	ARM ASSEMBLY UPPER	20	2	19034-02	PIN CLEVIS .75 X 4.25
5	1	CHART	ARM ASSEMBLY UPPER	21	2	19034-01	PIN CLEVIS .75 X 5
6	1	CHART	AXLE ASSEMBLY	22	4	19027	SNAP RING E-STYLE .75
7	1	CHART	CROSSBRACE WELD ON	23	8	10033	CAPSCREW .75X5.00 UNF GR8
8	1	CHART	BAG PLATE ASSY. LH	24	24	10043	WASHER FLAT .75 X 1.48 X .12 HARDENED
9	1	CHART	BAG PLATE ASSY. RH	25	8	10028	NUT LOCK .75 UNF GR C
10	2	AS0048K	AIR SPRING LOAD	26	1	CHART	KNUCKLE ASSEMBLY WESTPORT
11	1	CHART	LOWER BAG PLATE R.H.	27	1	980151	STEER STABILIZER KIT
12	1	CHART	LOWER BAG PLATE ASSY R.H.	28	1	17187-16	BRAKE ASSY LH TYPE 20 CHAMBERS
13	2	50193-01	LIFT BAG PLATE	29	1	17187-26	BRAKE ASSY RH TYPE 20 CHAMBERS
14	2	AS0058C	AIR SPRING (6897) LIFT	30	1	CHART	LIFT BAG PLUMBING KIT
15	2	10038	CAPSCREW 3/8 X 1 UNC	31	1	19506-FF	13K BEARING KIT
16	2	10041	.38 LOCK WASHER	32	1	16075	BRAKE ATTACHMENT HARDWARE PACK
				33	1	16085	LIFT BAG HARDWARE PACK
				34	1	CHART	V-BAR LOCK OUT



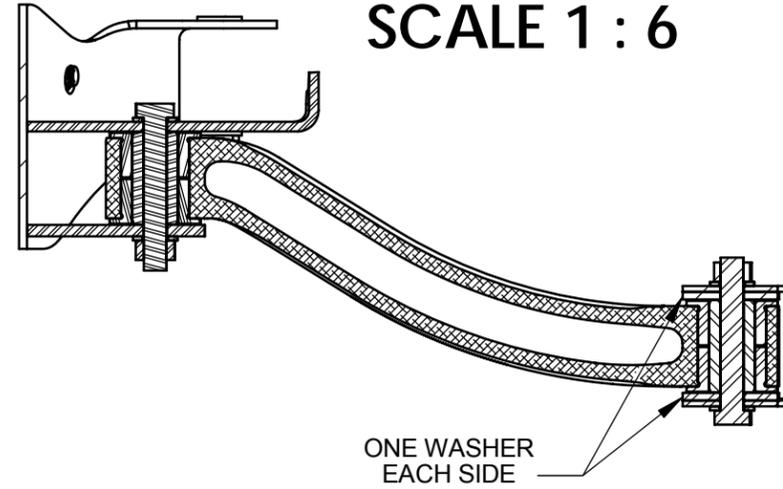
NOTE:
 1. REFER TO "STL SERIES INSTALLATION AND OPERATION MANUAL."
 2. CAPACITY 13,200# - ACHIEVED BY USE OF 22.5" X 8.25" WHEEL WITH OFFSET TOWARD INBOARD SIDE. USE OF OTHER WHEELS AND/OR MOUNTING WHEELS WITH OFFSET TO THE OUTSIDE IS NOT RECOMMENDED AND WILL SIGNIFICANTLY LOWER RATING.

DEPTS AFFECTED	TOLERANCES (EXCEPT AS NOTED)	DESCRIPTION: MAIN ASSEMBLY WESTPORT		
-	DECIMAL ± .06	PREVIOUS ASSY:	SHEET: 1 OF 3	
-	FRACTIONAL ± 1/16	SUSPENSION MODEL: STL1191	SCALE: 1:16	
WEIGHT:	ANGULAR ± 1°	DATE: 08/11/08	DRAWN BY: TEG	SIZE: B
				DRAWING NO: STL1191

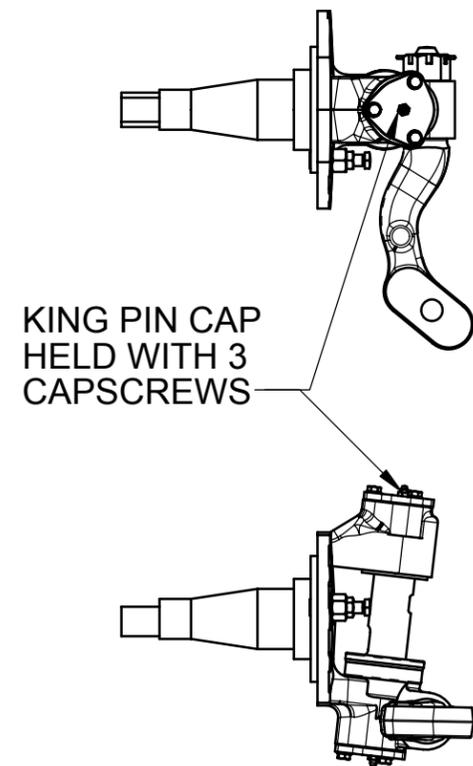
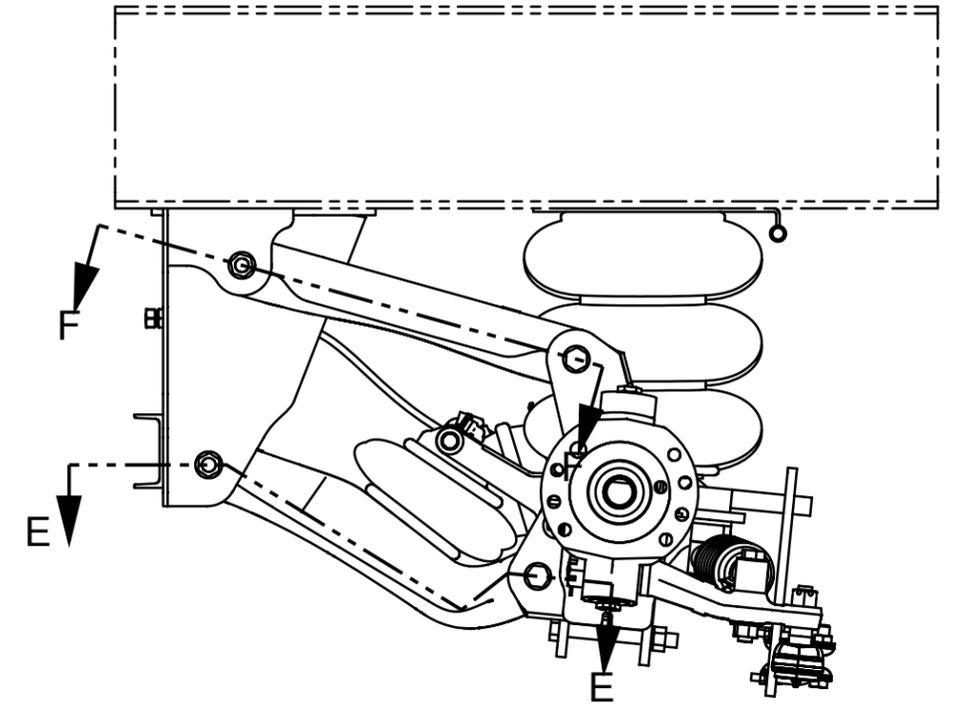
SECTION E-E SCALE 1 : 6



SECTION F-F SCALE 1 : 6

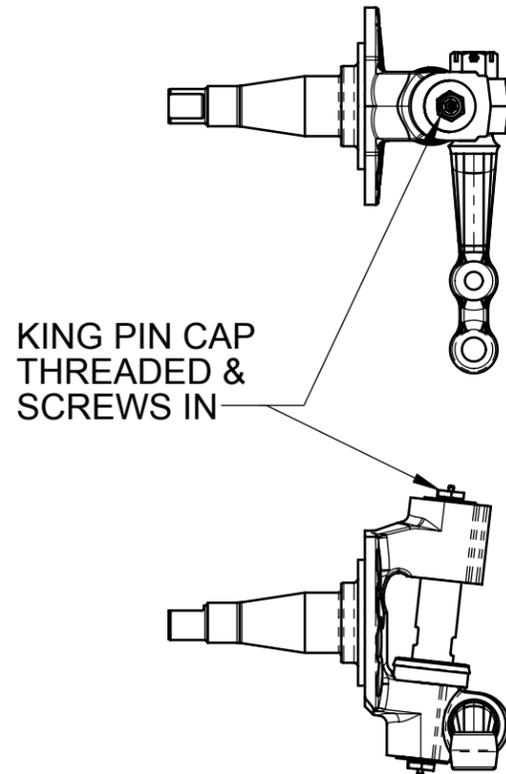


CENTER OF VEHICLE



KING PIN CAP
HELD WITH 3
CAPSCREWS

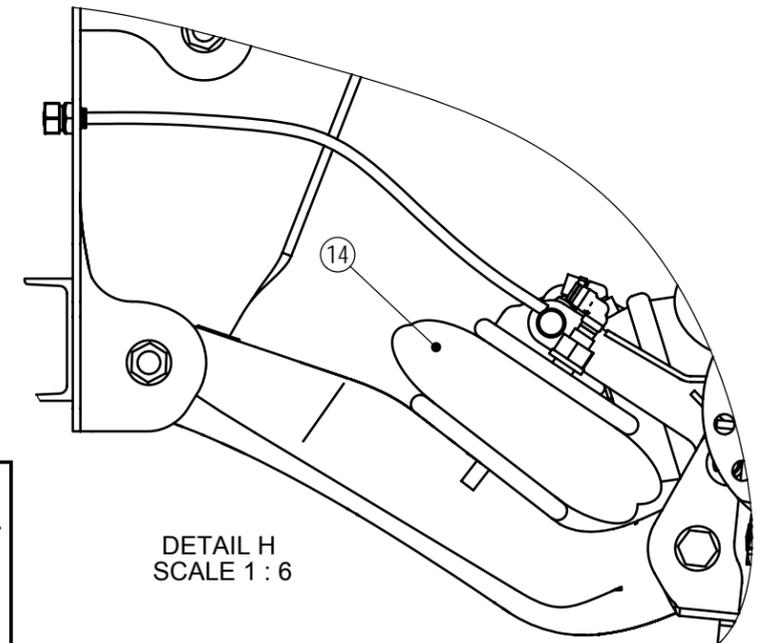
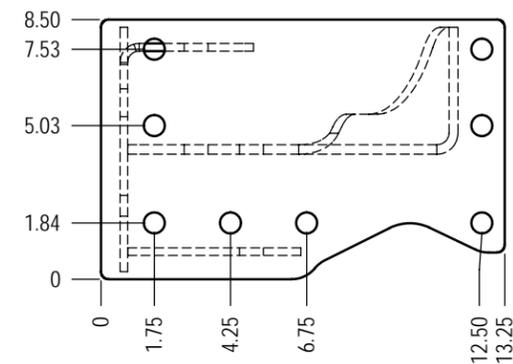
MERITOR KNUCKLE OLD STYLE



KING PIN CAP
THREADED &
SCREWS IN

WESTPORT KNUCKLE NEW STYLE

BOLT-ON HANGER HOLE PATTERN



DETAIL H
SCALE 1 : 6

DESCRIPTION:
STL1191 ASSEMBLY FRAME WIDTH
SECTIONS
SHEET: 2 OF 3

DATE: 06/05/07 SCALE: 1:10 DRAWN BY: TEG SIZE: B

WATSON & CHALIN
MANUFACTURING INC.
Watson Suspension Systems
DRAWING NO:
STL1191

MODEL NO. - STL1191 CC DD EE - F - HH - II - JJ - KK

CONFIGURATOR STL1191W

CC	RUN HEIGHT CODE											
	MODEL NUMBER	ITEM #11	ITEM #12	ITEM #30	DIM A	UP			RUN		DOWN	
					BAG PLATE HEIGHT	WITH .19 BUMPER DEFLECTION	BUMPER CONTACT	DIM B	RUN RANGE	DIM B RANGE		DIM B
15	STL1191XX X-15	950246-11	950246-21	980158-20	1.00	5.00	5.19	23.20	11.00 - 15.00	23.52 - 22.51	18.00	21.62
16	STL1191XX X-16	950246-12	950246-22	980158-21	2.00	5.81	6.00	23.38	12.00 - 16.00	23.35 - 22.10	19.00	21.07
17	STL1191XX X-17	950246-13	950246-23	980158-21	3.00	6.81	7.00	23.54	13.00 - 17.00	23.13 - 21.62	20.00	20.44
18	STL1191XX X-18	950246-14	950246-24	980158-22	4.00	7.81	8.00	23.65	14.00 - 18.00	22.85 - 21.07	21.00	19.72
19	STL1191XX X-19	950246-15	950246-25	980158-22	5.00	8.81	9.00	23.70	15.00 - 19.00	22.51 - 20.44	22.00	18.88
20	STL1191XX X-20	950246-13	950246-23	980158-21	3.00	9.81	10.00	23.16	16.00 - 20.00	23.07 - 21.94	23.00	20.43
21	STL1191XX X-21	950246-14	950246-24	980158-22	4.00	10.81	11.00	23.27	17.00 - 21.00	22.97 - 21.51	24.00	19.77
22	STL1191XX X-22	950246-15	950246-25	980158-22	5.00	11.81	12.00	23.33	18.00 - 22.00	22.62 - 21.00	25.00	19.01

HANGER/UPPER BAG PLATE CODE					
DD	RIDE HEIGHT CODES 15 THRU 19				
	ITEM #1	ITEM #2	ITEM #8	ITEM #9	UPPER BAG PLATE SPACER
W1	920612-11	920612-21	950069-11	950069-21	0.00
B1	920741-10	920741-20			
RIDE HEIGHT CODES 20 THRU 22					
W2	920821-10	920821-20	950291-13	950291-23	3.00
B2	TBD	TBD			

EE	TRACK WIDTH							
	ITEM #6	ITEM #7	ITEM #26	DIM A	DIM B	DIM C	DIM D	APPLICATION
92	160104	SEE HH PLUMBING CODE	19613	69.00	30.81	33.88	29.50	92.00 HUB FACE TO HUB FACE
97	160110-01		19613-97	74.00	36.31	39.38	34.50	97.00 HUB FACE TO HUB FACE

F	ARM CODE			
	ARM TYPE	ITEM #3	ITEM #4	ITEM #5
S	STEEL	930280-04	930281-12	930281-22
A	ALUMINUM	930280-02	930281-11	930281-21

KK	HUB & DRUM CODE			
	HUB MOUNTING	HUB TYPE	LEFT HAND	RIGHT HAND
65	10 STUD - 11.25 B.C. - STUD PILOT	IRON	18229A	18230A
66	10 STUD - 11.25 B.C. - HUB PILOT FOR 19.5" WHEELS	IRON	18256A	18256A
68	10 STUD - 11.25 B.C. - HUB PILOT	IRON	18228A	18228A
69	10 STUD - 11.25 B.C. - HUB PILOT	ALUMINUM	18216A	18216A
73	6 SPOKE 20"/22.5"	IRON	18209A	18209A
78	8 STUD - 275mm B.C. - HUB PILOT	ALUMINUM	18212A	18212A
SP	SPECIAL APPLICATIONS NOT YET DETERMINED			

JJ	LOCK-OUT CODE	
	TYPE	ITEM #34
0	NO STEER LOCK-OUT	N/A
1	V-BAR STEER LOCK-OUT	980161-03

II	CONTROL PANEL CODE		
	TYPE	PANEL	VALVE
0	NO CONTROL PANEL	N/A	N/A
1	CONTROL PANEL W/12V SOLENOID	990138	INC. PANEL
2	CONTROL PANEL WITH SEPARATE PUSH/PULL	990099	17523-01
3	CONTROL PANEL WITH INTEGRATED PUSH/PULL	990022	INC. PANEL
4	NO CONTROL PANEL; WITH 12V SOLENOID AND REGULATOR	N/A	990251

HH	PLUMBING CODE		ITEM #7	
	TYPE	PLUMBING KIT	92 HF TO HF	97 HF TO HF
01	NO PPAK (PRE-PLUMBED AIR KIT) - UPPER BAG PLATE WITH COUPLER	N/A	12524-08	12524
12	PPAK50 WITH STEEL TANK INSTALLED	PPAK50-00-05	91766	91766-01

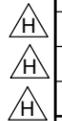
DESCRIPTION:
STL1191 ASSEMBLY OPTION CHART

SHEET: 3 OF 3

DATE: 06/05/07 SCALE: 1:10 DRAWN BY: TEG SIZE: B DRAWING NO: STL1191

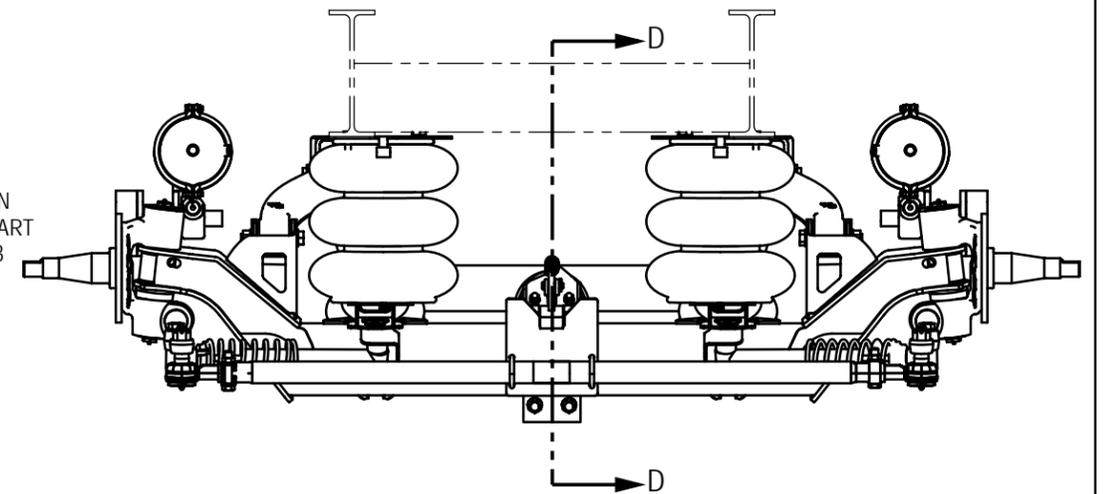
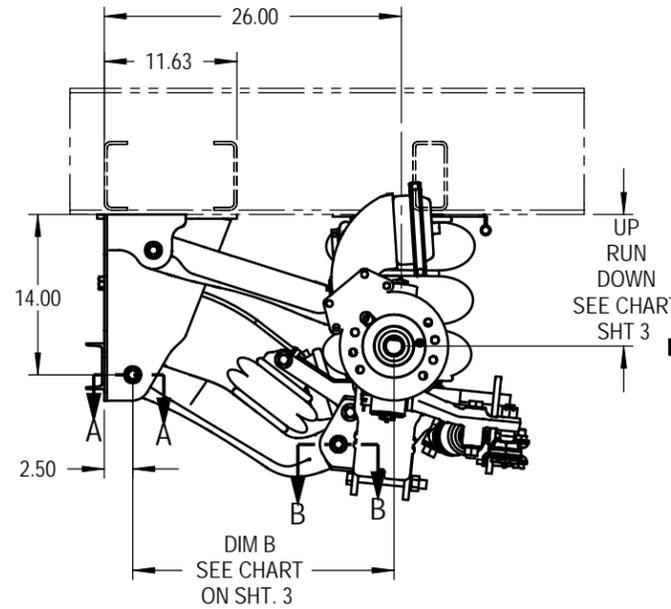
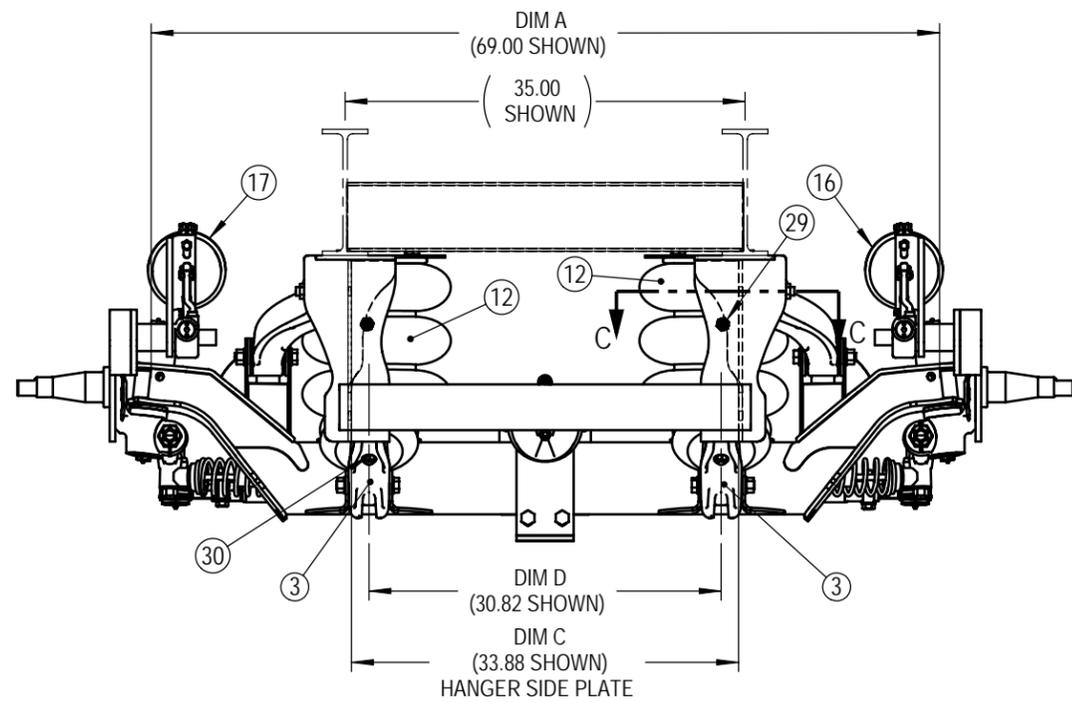
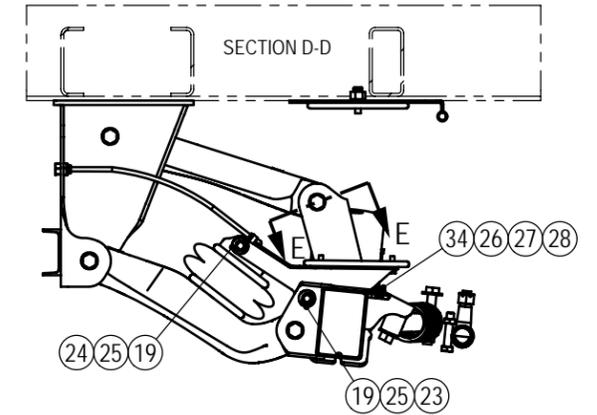
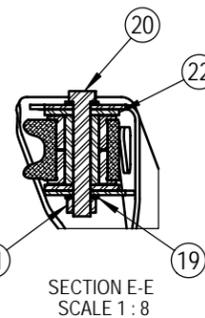
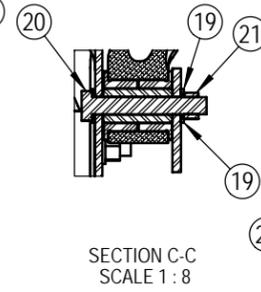
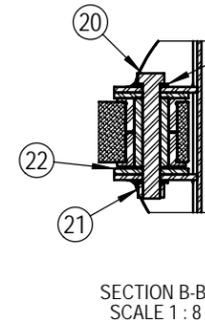
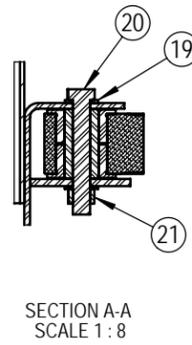
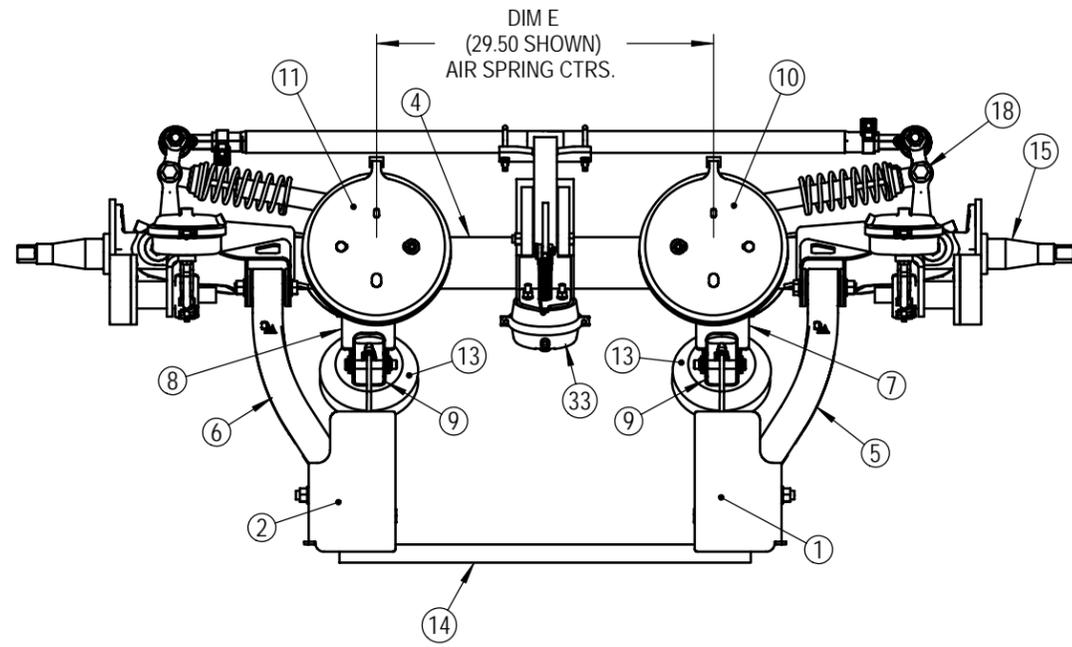


Watson Suspension Systems



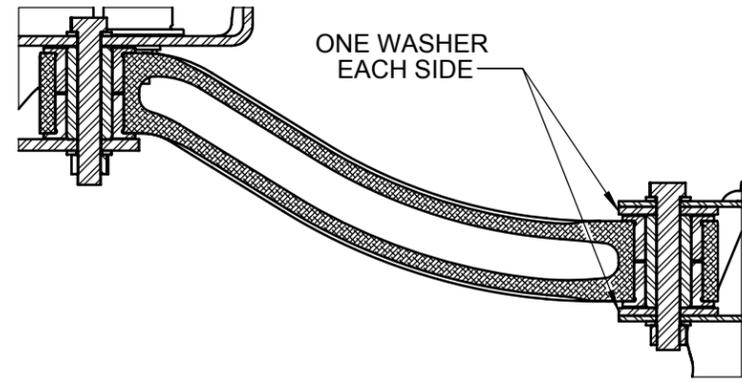
REV.	DESCRIPTION	ECN	DATE	BY
A	NEW DRAWING	7733	09/01/2010	GWE

ITEM NO.	QTY	PART NUMBER	DESCRIPTION	ITEM NO.	QTY	PART NUMBER	DESCRIPTION
1	1	CHART	HANGER ASSEMBLY	18	1	980151	STEER STABILIZER KIT
2	1	CHART	HANGER ASSEMBLY	19	24	10043	WASHER FLAT .75 X 1.48 X .12 HARDENED
3	2	CHART	ARM ASSEMBLY LOWER	20	8	10033	CAPSCREW .75X5.00 UNF GR8
4	1	CHART	AXLE ASSEMBLY	21	8	10028	NUT LOCK .75 UNF GR C
5	1	CHART	ARM ASSEMBLY UPPER	22	8	12927-03	WASHER FLAT .75 X 3.25 X .25
6	1	CHART	ARM ASSEMBLY UPPER	23	2	19034-01	PIN CLEVIS .75 X 5
7	1	CHART	LOWER BAG PLATE ASSY R.H.	24	2	19034-02	PIN CLEVIS .75 X 4.25
8	1	CHART	LOWER BAG PLATE ASSY R.H.	25	4	19027	SNAP RING E-STYLE .75
9	2	50193-01	LIFT BAG PLATE	26	2	17101	WASHER FLAT .38 X 1.00 X .06
10	1	950069-11	BAG PLATE ASSY. LH	27	2	10041	.38 LOCK WASHER
11	1	950069-21	BAG PLATE ASSY. RH	28	2	11094	HEXNUT 3/8 UNC
12	2	AS0048K	AIR SPRING LOAD	29	1	CHART	LIFT BAG PLUMBING KIT
13	2	AS0058C	AIR SPRING LIFT (6897)	30	1	16085	LIFT BAG HARDWARE PACK
14	1	CHART	CROSSBRACE WELD ON	31	1	16075	BRAKE MOUNTING HARDWARE PACK
15	1	CHART	KNUCKLE ASSEMBLY WESTPORT	32	1	19506-FF	13K BEARING/SEAL/CAP KITS
16	1	17187-16	BRAKE ASSY LH TYPE 20 CHAMBERS	33	1	CHART	LOCKOUT KIT
17	1	17187-26	BRAKE ASSY RH TYPE 20 CHAMBERS	34	2	10038	CAPSCREW .38 X 1.00 LG



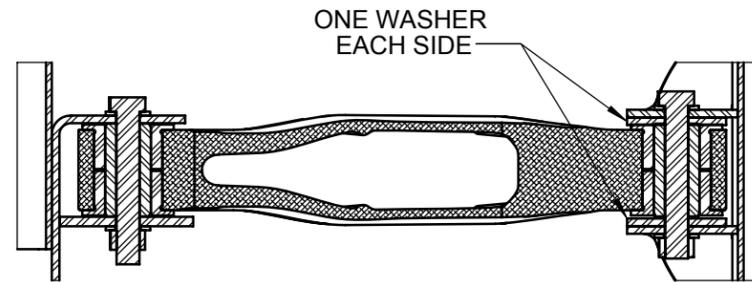
NOTE:
 1. REFER TO "STL SERIES INSTALLATION AND OPERATION MANUAL."
 2. CAPACITY 13,200# - ACHIEVED BY USE OF 22.5 X 8.25 WHEEL WITH OFFSET TOWARD INBOARD SIDE. USE OF OTHER WHEELS AND /OR MOUNTING WHEELS WITH OFFSET TO THE OUTSIDE IS NOT RECOMMENDED AND WILL SIGNIFICANTLY LOWER RATING.

DEPTS AFFECTED	TOLERANCES (EXCEPT AS NOTED)	DESCRIPTION: MAIN ASSEMBLY WESTPORT STL1195		
-	DECIMAL ± .06	PREVIOUS ASSY:	SHEET: 1 OF 3	 Watson Suspension Systems
-	FRACTIONAL ± 1/16	SUSPENSION MODEL: STL1195	SCALE: 1:16	
WEIGHT:	ANGULAR ± 1°	DATE: 09/01/2010	DRAWN BY: GWE	SIZE: B
-				DRAWING NO: STL1195

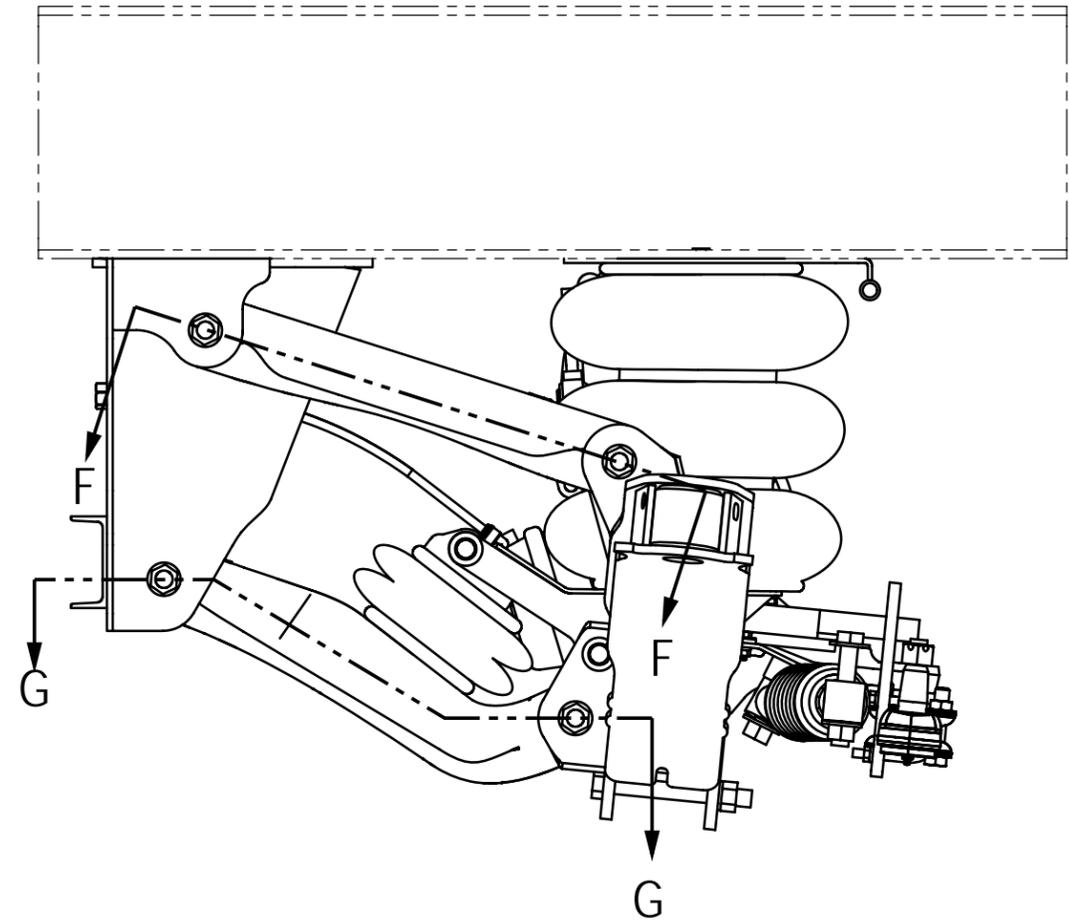


SECTION E-E
SCALE 1 : 6

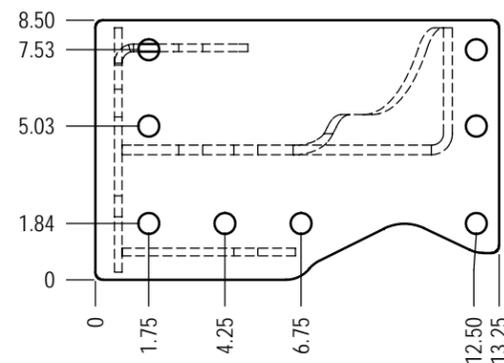
↑
CENTER OF
VEHICLE



SECTION F-F
SCALE 1 : 6



BOLT-ON HANGER HOLE PATTERN



DESCRIPTION:
STL1195 ASSEMBLY FRAME WIDTH
SECTIONS
SHEET: 2 OF 3



DATE: 09/02/2010	SCALE: 1:10	DRAWN BY: GWE	SIZE: B	DRAWING NO: STL1195
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MODEL NO. - STL1195 CC D E - FF - HH - II - JJ - KK

CONFIGURATOR STL1195W

CC	TRACK WIDTH							APPLICATION
	ITEM #4	ITEM #14	ITEM #15	DIM A	DIM D	DIM C	DIM E	
92	160108	12524-08	19613	69.00	30.81	33.88	29.50	92.00 HUB FACE TO HUB FACE
97	160116	12524	19613-97	74.00	35.81	38.88	34.50	97.00 HUB FACE TO HUB FACE

D	ARM CODE			
	ARM TYPE	ITEM #3	ITEM #5	ITEM #6
S	STEEL	930238-01	930239	930239
A	ALUMINUM	930238-02	930239-11	930239-21

E	HANGER STYLE CODE	
	ITEM #1	ITEM #2
W	920612-11	920612-21
B	920741-10	920741-20

FF	RUN HEIGHT CODE											
	MODEL NUMBER	ITEM #7	ITEM #8	ITEM #29	DIM A	UP			RUN		DOWN	
					BAG PLATE HEIGHT	WITH .19 BUMPER DEFLECTION	BUMPER CONTACT	DIM B	RUN RANGE	DIM B RANGE		DIM B
11	STL1195XX X-11	950246-11	950246-21	980158-20	1.00	1.00	1.19	23.20	7.00 - 11.00	23.52 - 22.51	14.00	21.62
12	STL1195XX X-12	950246-12	950246-22	980158-21	2.00	1.81	2.00	23.38	8.00 - 12.00	23.35 - 22.10	15.00	21.07
13	STL1195XX X-13	950246-13	950246-23	980158-21	3.00	2.81	3.00	23.54	9.00 - 13.00	23.13 - 21.62	16.00	20.44
14	STL1195XX X-14	950246-14	950246-24	980158-22	4.00	3.81	4.00	23.65	10.00 - 14.00	22.85 - 21.07	17.00	19.72
15	STL1195XX X-15	950246-15	950246-25	980158-22	5.00	4.81	5.00	23.70	11.00 - 15.00	22.51 - 20.44	18.00	18.88
SP	SPECIAL APPLICATIONS NOT YET DETERMINED											

KK	HUB & DRUM CODE			
	HUB MOUNTING	HUB TYPE	LEFT HAND	RIGHT HAND
65	10 STUD - 11.25 B.C. - STUD PILOT	IRON	18229A	18230A
66	10 STUD - 11.25 B.C. - HUB PILOT FOR 19.5" WHEELS	IRON	18256A	18256A
68	10 STUD - 11.25 B.C. - HUB PILOT	IRON	18228A	18228A
69	10 STUD - 11.25 B.C. - HUB PILOT	ALUMINUM	18216A	18216A
73	6 SPOKE 20"/22.5"	IRON	18209A	18209A
78	8 STUD - 275mm B.C. - HUB PILOT	ALUMINUM	18212A	18212A
SP	SPECIAL APPLICATIONS NOT YET DETERMINED			

JJ	LOCK-OUT CODE	
	TYPE	ITEM #33
0	NO STEER LOCK-OUT	N/A
1	V-BAR STEER LOCK-OUT	980161-03

II	CONTROL PANEL CODE		
	TYPE	PANEL	VALVE
0	NO CONTROL PANEL	N/A	N/A
1	CONTROL PANEL W/12V SOLENOID	990138	INC. PANEL
2	CONTROL PANEL WITH SEPARATE PUSH/PULL	990099	17523-01
3	CONTROL PANEL WITH INTEGRATED PUSH/PULL	990022	INC. PANEL
4	NO CONTROL PANEL; WITH 12V SOLENOID AND REGULATOR	N/A	990251

HH	PLUMBING CODE	
	TYPE	PLUMBING KIT
01	NO PPAK (PRE-PLUMBED AIR KIT) - UPPER BAG PLATE WITH COUPLER	N/A
12	PPAK50 WITH STEEL TANK INSTALLED	PPAK50-00-05

DESCRIPTION:
STL1195 ASSEMBLY OPTION CHART

SHEET: 3 OF 3

DATE: 09/02/2010 SCALE: 1:10 DRAWN BY: GWE SIZE: B DRAWING NO: STL1195



Watson Suspension Systems



Watson Suspension Systems

20K TRAILER TRU-TRACK SELF-STEERING AXLE & SUSPENSION SYSTEM



STL-2095/2096

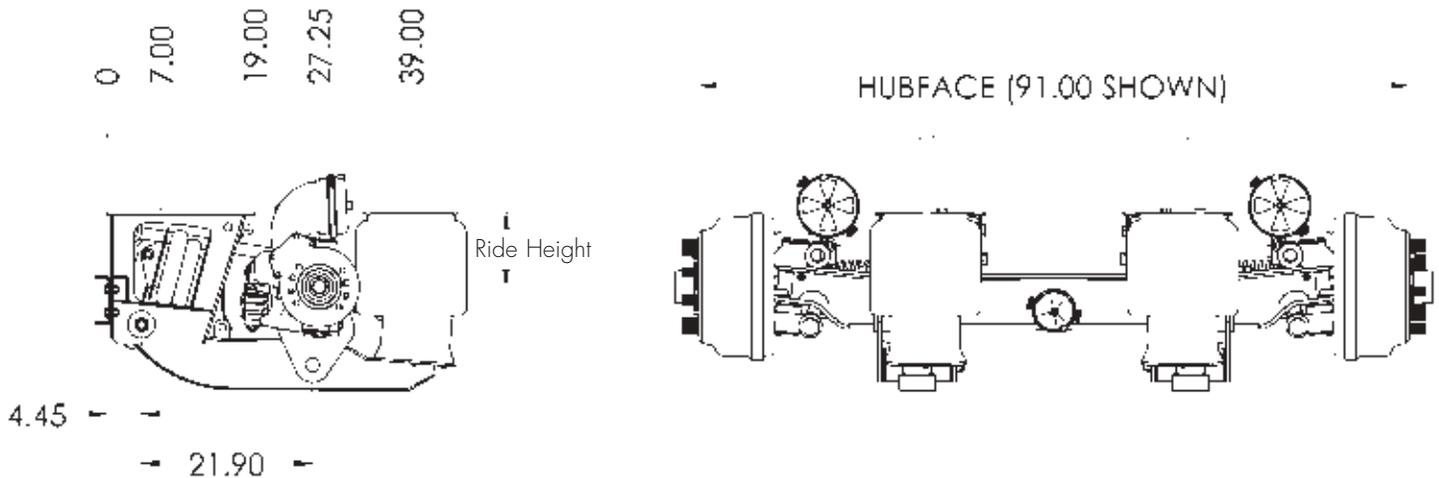
- 5 Year Warranty
- Parallelogram Design
- 20,000 lb. Capacity

LEADERSHIP IN SUSPENSION TECHNOLOGY

STL-2095/2096 Series

20K TRAILER TRU-TRACK

INTEGRATED SUSPENSION AND AXLE ASSEMBLY



- Parallelogram Design
- Capacity: 20,000 lbs.
- Axle Lift: 8 in.
- Lightweight: 1,475 lbs.
- STL-2095 91" HF/HF
- STL-2096 95" HF/HF
- 25° Wheel Cut
- 5 Year Warranty
- Ride Heights: 9.5 thru 20 in.
- Reverse Lock Optional
- Fabricated axle, Meritor Components



Watson Suspension Systems

972.547.6020 800.445.0736

FAX: 972.542.0097

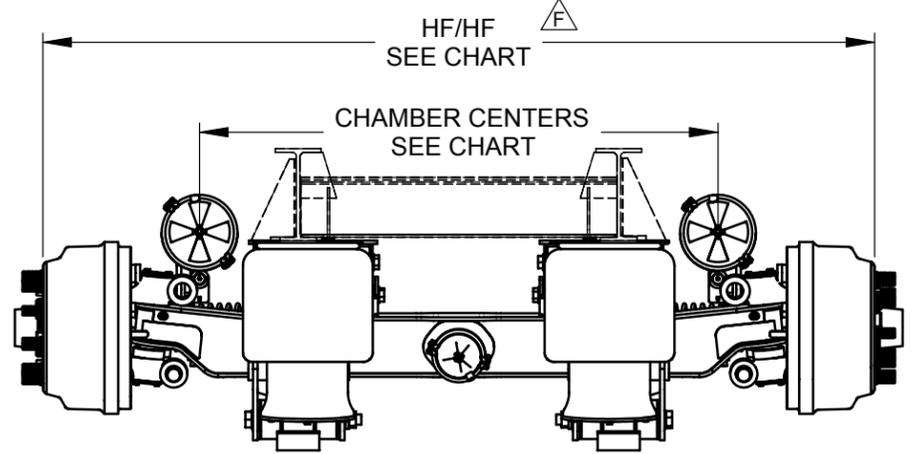
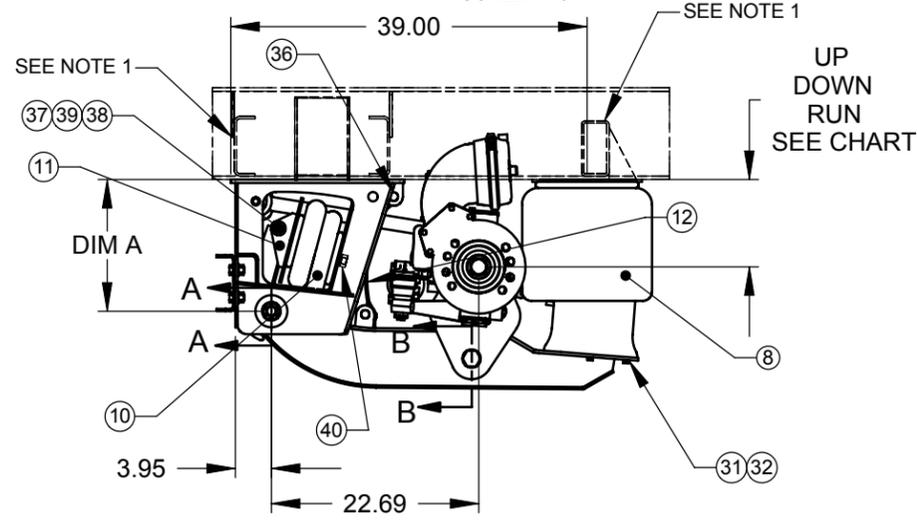
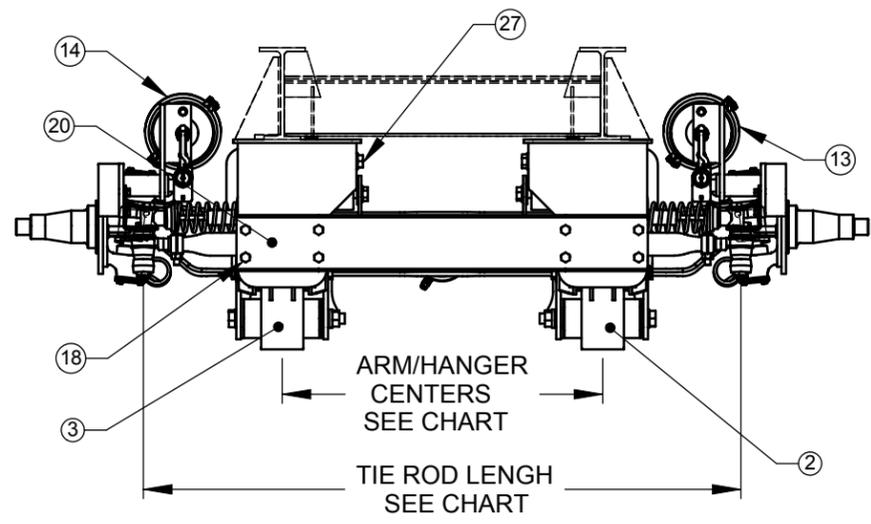
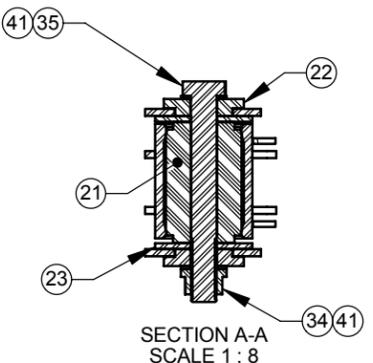
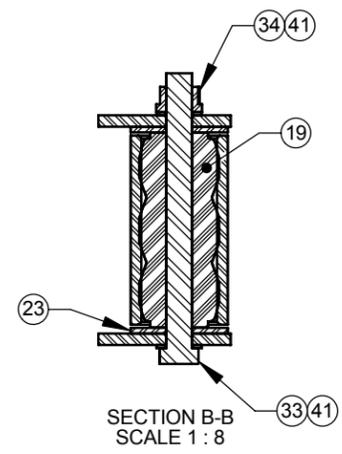
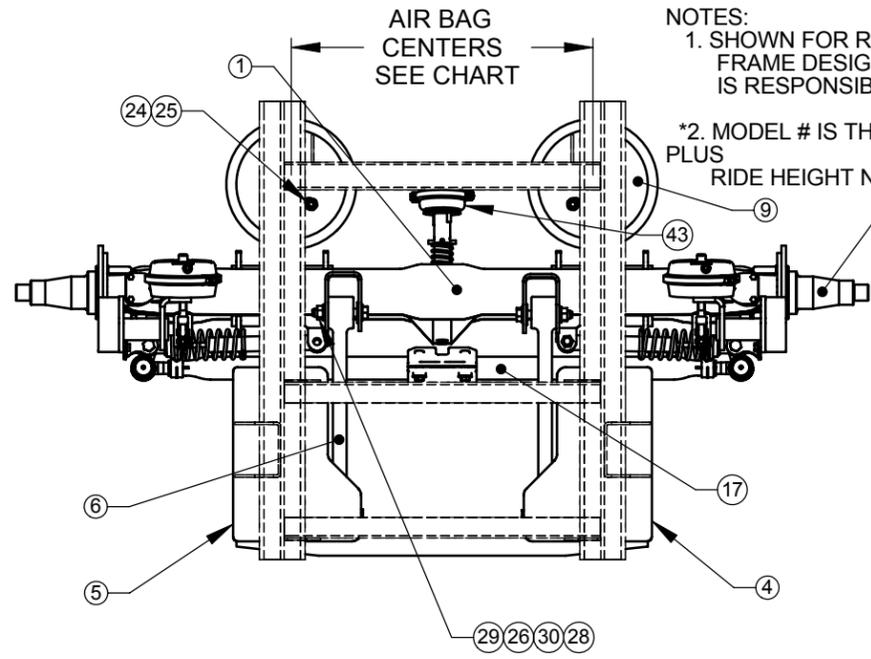
2060 COUCH DRIVE MCKINNEY, TEXAS 75069

www.WatsonSuspensions.com

REV.	DESCRIPTION	ECN	DATE	BY
A	NEW DRAWING	2432	9/8/2001	GWE
B	UPDATE BOM	2600	7/19/2002	GWE
C	CHANGED BRAKES TO -10 & -20 CONFIG. ADDED TIRE RESTRICTION NOTE ON SHT. 2	2598	9/23/002	GWE
D	UPDATE DOWN DIM & BAG SPACER-14 CONFIG	2754	8/18/2003	GWE
E	REVISED UP, DOWN DIMS IN CHART CHECK STRAP	2780	3/24/2003	GWE
F	ITEM 1 WAS 160037 FOR STL2095 & 160038 FOR STL2096, ITEMS 16 & 17 WERE 980160-13 & -23, ITEM 43 WAS 990217-03	2545	4/17/2003	GWE
G	ADDED ITEM 41	C3826	2/8/2006	GWE
H	ITEM 17 WAS 990188 FOR STL2095 & 990188-01 FOR STL 2096; ITEM 26 QTY WAS 8; ITEM 27 WAS 17800-01; ITEM 28 QTY WAS 4; ITEM 29 WAS 17922; ITEM 35 WAS 11225; MOVED FORMER ITEM 42 TO 43 (WAS 990217-01); ADDED NEW ITEM 42	4113	7/26/2006	HDH

ITEM NO.	QTY	PART NO	DESCRIPTION	ITEM NO.	QTY	PART NO	DESCRIPTION
1	1	CHART	AXLE ASSEMBLY	22	4	10764	WELD COLLAR
2	1	CHART	ARM ASSEMBLY L.H.	23	8	11222	FLAT WASHER 4.25ID X 1.15OD
3	1	CHART	ARM ASSEMBLY R.H.	24	2	10026	.75 LOCKWASHER
4	1	CHART	HANGER ASSEMBLY L.H.	25	2	10025	.75 HEX HEAD NUT
5	1	CHART	HANGER ASSEMBLY R.H.	26	6	17408	WASHER 2.25OD X .94ID TORQUE ROD
6	2	17975	TORQUE ARM	27	2	17800-03	CAPSCREW .87-14X6.50
7	2	18076	MERITOR 20K KIT MPS4589	28	8	17010	WASHER FLAT .875
8	2	AS0023-1G	AIR SPRING (9122) LOAD	29	4	19040F-088	NUT SPIRALOCK .88 UNF GR 8
9	2	CHART	UPPER BAG PLATE	30	2	17800-02	CAPSCREW .87-14 X 5.50
10	2	AS0058-1F	AIRSPRING (6886) LIFT	31	6	10041	.38 LOCK WASHER
11	2	13220	LIFT BAG PLATE ASSEMBLY	32	6	10038	CAPSCREW .38 X 1.00 LG
12	2	CHART	STRAP	33	2	11602	CAPSCREW 1.12X12.0UNF GR8
13	1	17400-10	16 1/2" X 6" BRAKE ASSY LH	34	4	19040F-113	NUT SPIRALOCK 1.13 UNF GR8
14	1	17400-20	16 1/2" X 6" BRAKE ASSY RH	35	2	19365	CAPSCREW 1.12X9.00 UNF GR8
15	1	980118-10	OUTER STABILIZER BRACKET L.H.	36	1	16003	STRAP HARDWARE PACK
16	1	980118-20	OUTER STABILIZER BRACKET R.H.	37	4	10043	FLAT WASHER .75 HARDENED
17	1	CHART	TIE ROD ASSEMBLY	38	2	11940	PIN .75 X 4.75
18	1	16000	BOLT-ON CROSSMEMBER PACK	39	2	11941	COTTER PIN
19	2	12789	BUSHING, AX SEAT SL1800	40	1	16060	LIFT BAG HARDWARE PACK
20	1	CHART	CROSSMEMBER	41	8	10045	WASHER FLAT 1.12 HARDENED
21	2	10050	PIVOT BUSHING (REF. ONLY)	42	2	11418	SHOCK STEERING STABILIZER

NOTES:
 1. SHOWN FOR REFERENCE PURPOSES ONLY. PROPER FRAME DESIGN AT SUSPENSION ATTACHMENT AREA IS RESPONSIBILITY OF INSTALLER.
 *2. MODEL # IS THE PART NUMBER FROM AXLE CHART PLUS RIDE HEIGHT NUMBER FROM RIDE HEIGHT CHART.



**OPTIONAL ORDER SEPARATELY

ITEM NO.	QTY	PART NO	DESCRIPTION
43	1	990217-03	LOCKOUT ASSEMBLY

AXLE CHART									
PART NO.	ARM/HGR CENTERS	AIR BAG CENTERS	KINGPIN CENTERS	HUB FACE TO HUB FACE	BRAKE CHAMBERS	TIE ROD	ITEM #1	ITEM #17	ITEM #20
STL2095-XX*	35.00	33.00	67.25	91.00	56.83	65.37	160043	990188-04	90005
STL2096-XX*	39.00	37.00	71.25	95.00	69.33	69.37	160055	990188-05	90707

PART NO.	RUN RANGE	UP (BC)	DOWN	DIM A	ITEM #2	ITEM #3	ITEM #4	ITEM #5	ITEM #9	ITEM #12	BAG PLATE SPACE
STL-20XX-10	9.50 - 11.00	3.75	14.00	14.00	930130-12	930130-22	920330-10	920330-20	13179	17550-04	0.00
STL-20XX-12	11.50 - 12.00	5.75	16.00	16.00	930130-12	930130-22	920345-10	920345-20	950022-32	17021	2.00
STL-20XX-14	12.50 - 14.00	7.50	17.50	17.00	930130-13	930130-23	920344-10	920344-20	950022-34	17021	4.00
STL-20XX-16	14.50 - 16.00	10.00	20.00	19.00	930130-11	930130-21	920329-10	920329-20	950022-39	11757	7.00

DEPTS AFFECTED	TOLERANCES (EXCEPT AS NOTED)	DESCRIPTION: ASSY. STANDARD 5" DROP ARM		
-	DECIMAL ± .06	PREVIOUS ASSY:	SHEET:	 Watson Suspension Systems
-	FRACTIONAL ± 1/16	-	1 OF 2	
WEIGHT:	ANGULAR ± 1°	SUSPENSION MODEL:	SCALE:	
		STL2095 & 96	1:20	
		DATE:	DRAWN BY:	SIZE:
		9/08/01	GWE	B
				DRAWING NO:
				130153

LEVEL	REVISION DESCRIPTION	ECN	DATE	BY
A	-	-	-	-
B	-	-	-	-
C	-	-	-	-

TIRE OUTSIDE DIMENSIONS AND CHAMBER INSIDE DIMENSIONS FOR STL-2095 AND STL-2096 (INCHES).

STL-2095 (91.00" HUB FACE TO HUB FACE)*2					
	WHEEL INSET (INCHES)				
		4.68	5.12	5.30 *1	5.75
TIRE SIZE	385	96.54	95.65		94.40
	425	97.74	96.85		95.60
	445			97.70	
*3 INSIDE OF CHAMBERS (TYPE 30) = 45.25"					

STL-2096 (95.00" HUB FACE TO HUB FACE)*2					
	WHEEL INSET (INCHES)				
		4.68	5.12	5.30 *1	5.75
TIRE SIZE	385	100.54	99.65		98.40
	425	101.74	100.85		99.60
	445			101.70	
*3 INSIDE OF CHAMBERS (TYPE 30) = 49.25"					

BOTH CHARTS BASED ON:

22.5 X 11.75 WHEEL FOR 385 TIRE SIZE

22.5 X 12.25 WHEEL FOR 425 TIRE SIZE

**22.5 X 13.00 WHEEL FOR 445 TIRE SIZE

14.90" TIRE WIDTH FOR 385/65R 22.5 TIRE

16.10" TIRE WIDTH FOR 425/65R 22.5 TIRE

**17.30" TIRE WIDTH FOR 445/65R 22.5 TIRE

**USE ONLY WITH LONG CAM BRAKES PN's: 17400-11 & -21
CHAMBER CENTERS WILL DECREASE BY 5.5. 

*1 5.30 INSET FOR 22.5 X 13.00 RIM SIZE

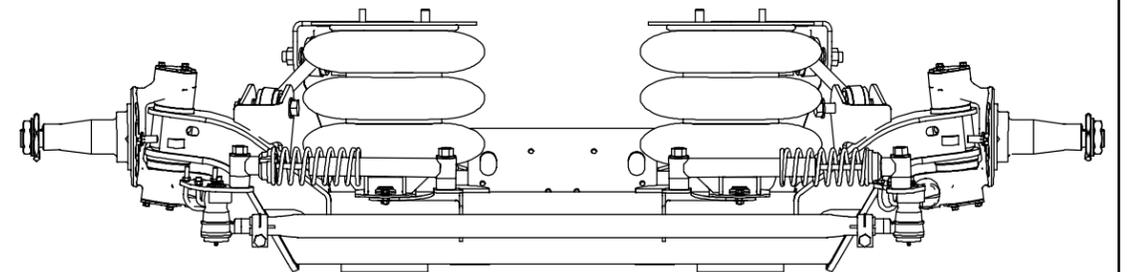
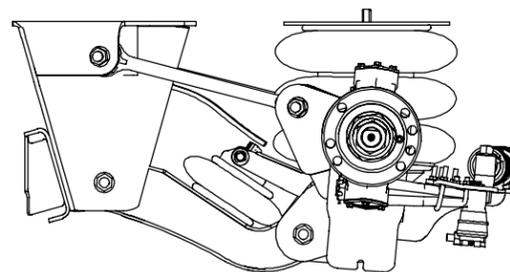
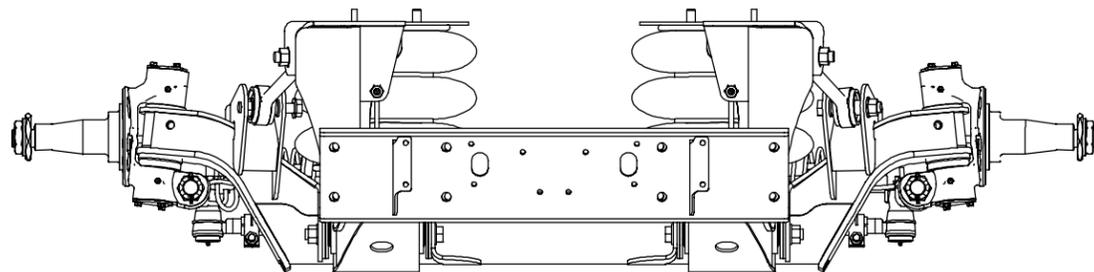
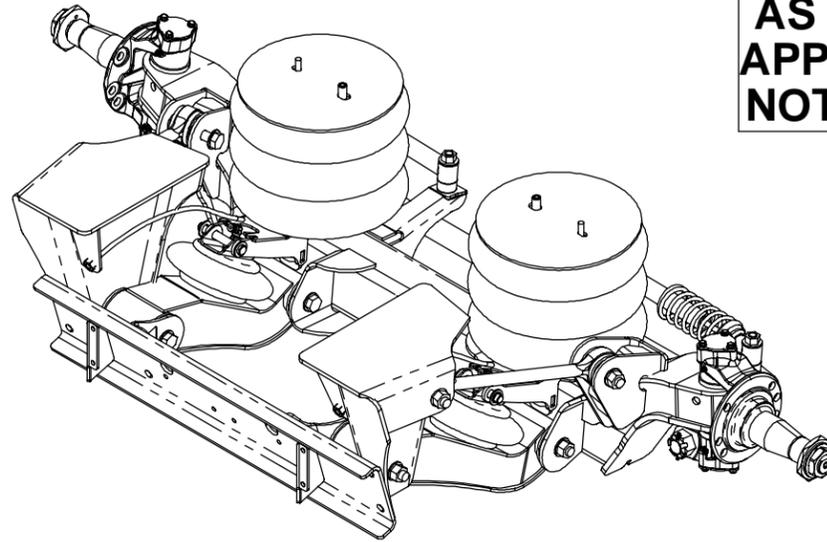
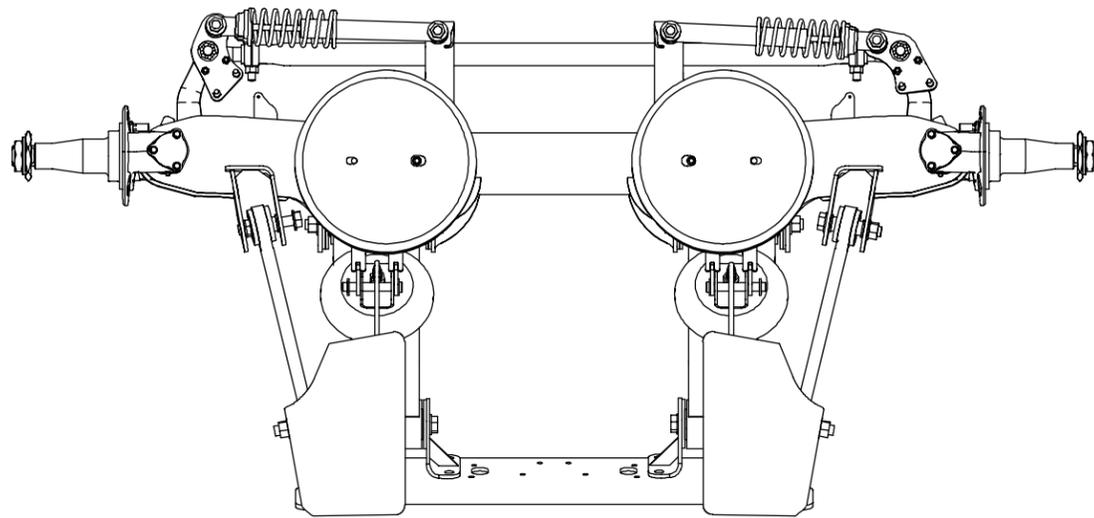
*2 DIMENSION WITH STANDARD 10 STUD
HUB PILOT, HUB AND 16½ X 6 CAST DRUM.

*3 TRAILER FRAME OUTSIDE TO CHAMBER CLEARANCE
NEEDS TO BE A MINIMUM OF 1.0".

DEPARTMENTS AFFECTED	TOLERANCES (EXCEPT AS NOTED)			
-	DECIMAL ± .06	DESCRIPTION: DIMENSION CHART FOR STL-2095 AND STL-2096		SHEET: 2 OF 2
-	FRACTIONAL ± 1/16	SUSPENSION MODEL: STL-2095 & 2096	SCALE: NONE	PREVIOUS ASSEMBLY: -
-	ANGULAR ± 1°	DATE: 10/26/2001	CHKD BY: -	DRAWN BY: GWE SIZE: B DRAWING NO.: 130153

REV.	DESCRIPTION	ECN	DATE	BY
A	NEW PRELIMINARY DRAWING	7403	2/22/2010	HDH

THIS DRAWING HAS BEEN ISSUED AS A PRELIMINARY VERSION FOR APPROVAL PURPOSES ONLY. IT IS NOT INTENDED FOR PRODUCTION.



SPECIAL CHARACTERISTICS SYMBOL LEGEND

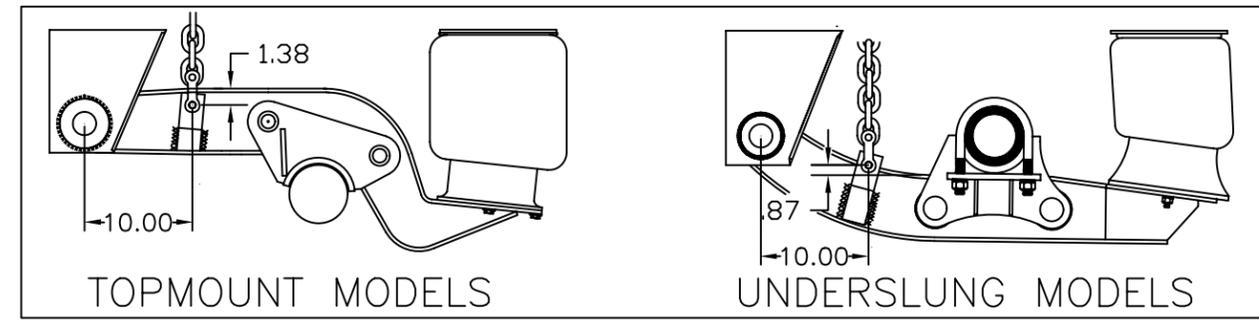
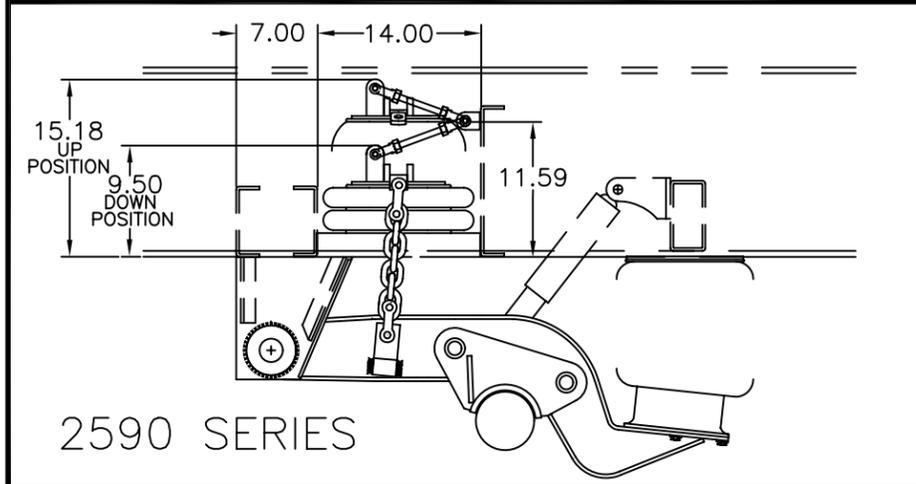
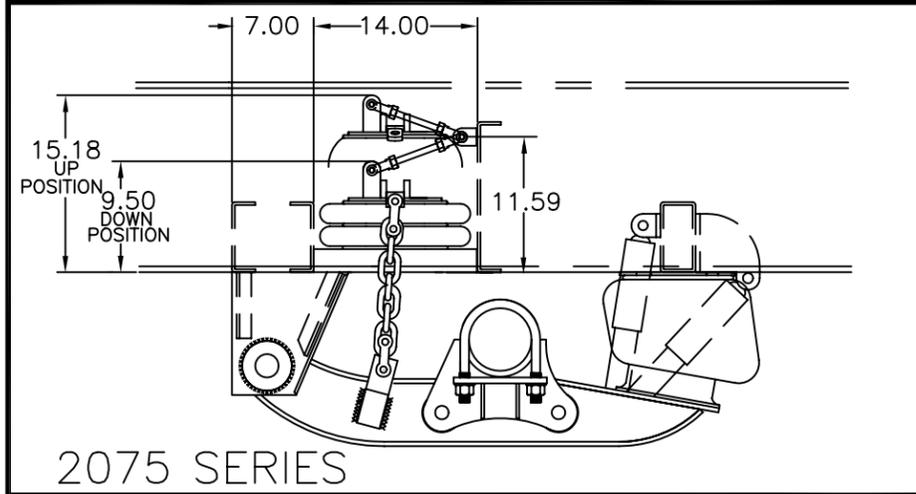
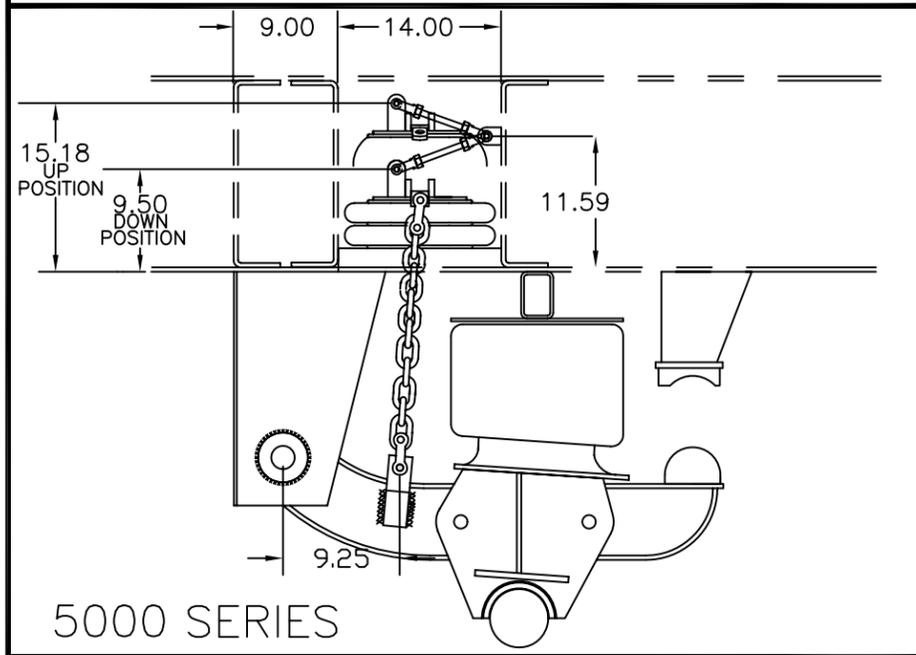
(X.XX) W/C CRITICAL DIM
 ** X.XX DESIGNATES A ± .125 TOL.
 * X.XX DESIGNATES A KEY CUSTOMER CHARACTERISTIC
 KEY CUSTOMER CHARACTERISTICS SYMBOLS

KCC NAVISTAR/INTERNATIONAL
 K FREIGHTLINER
 M MACK TRUCKS
 C PACCAR

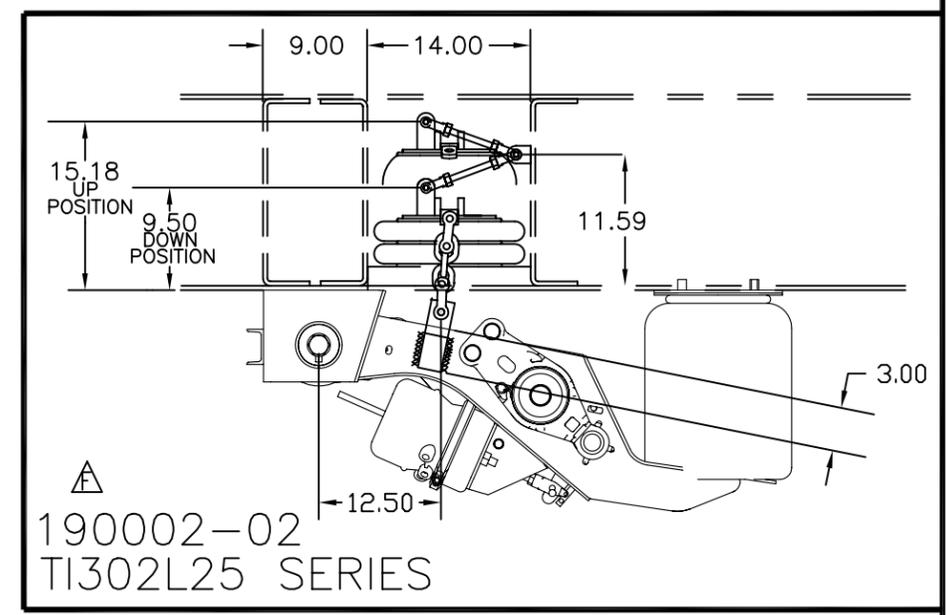
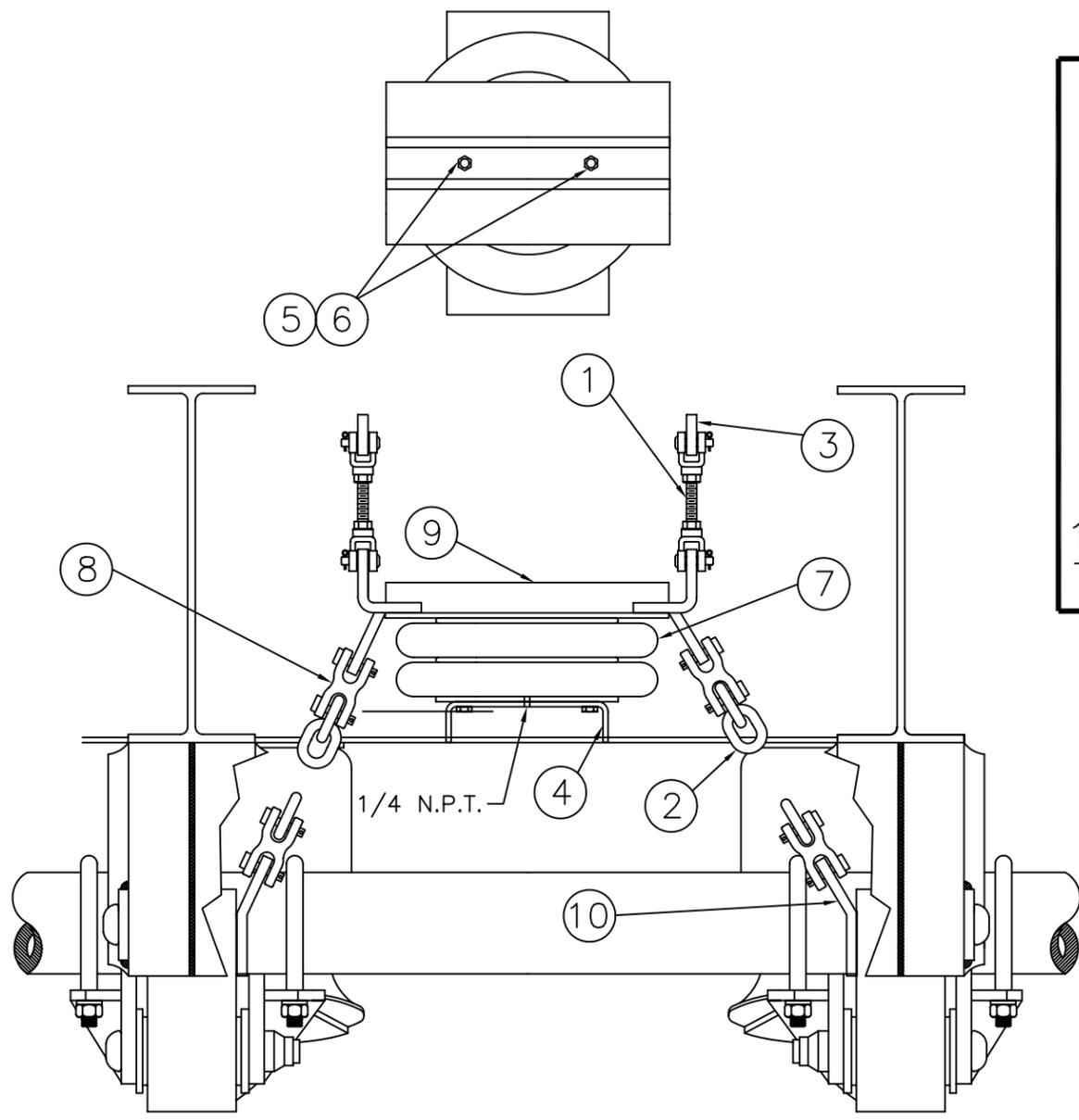
NOTE: PARENTHESIS () DENOTES REFERENCE DIMENSION

TOLERANCES (EXCEPT AS NOTED)	DESCRIPTION: MAIN ASSEMBLY		
DECIMAL ± .06	PREVIOUS ASSY: -	SHEET: 1 OF 1	 Watson Suspension Systems
FRACTIONAL ± 1/16	SUSPENSION MODEL: STL2055	SCALE: 1:16	
ANGULAR ± 1°	DATE: 02/22/2010	DRAWN BY: HDH	SIZE: B
			DRAWING NO: STL2055

LEVEL	REVISION DESCRIPTION	ECN	DATE	BY
A	GEN UPDATE	-	10/4/95	KDH
B	CORR DESCRIPTION	-	11/13/95	KDH
C	CHANGED QTY TO 1 WAS 4, WRONG ITEM WAS 8	-	5/8/96	GWE
D	ADDED-01 CONFIG, CHANGED QTY ON ITEM 10	4192	10/11/06	NJR
E	ITEM #3 WAS 10317	4694	6/7/07	NJR
F	ADDED T1302L25 SERIES	8097	04/29/11	EFR



ITEM	PART #	QTY.	DESCRIPTION
1	10749	2	ADJ. LINK ARM LIFT
2	CHART	2	LIFT CHAIN 12 LINKS
3	80073	2	BAR, LIFT CONNECTION
4	90001	1	LIFT SEAT
5	10038	4	CAPSCREW, .37 UNC X 1.0 LONG
6	10041	4	LOCKWASHER .375
7	AS-0003	1	AIRSPRING (7400)
8	10083	4	DOUBLE CLEVIS 1/2"
9	10181	1	LIFT SADDLE ASSEMBLY
10	CHART	2	PULL BAR ARM



DRAWING #	PART #	ITEM #2	ITEM #10
190002	AL75B	10084-12	10184
190002-01	AL75B-07	10084-07	-
190002-02	AL75B-05	10084-05	10184-02

PART PROPERTIES	TOLERANCES (EXCEPT AS NOTED)	WATSON & CHALIN MFG., INC.		
AREA	DECIMAL ±	DESCRIPTION		MATERIAL
CUT LENGTH	FRACTIONAL ±	AIR LIFT KIT AL75B		-
WEIGHT	ANGULAR ±	SUSPENSION MODEL	SCALE	PREVIOUS ASSEMBLY
-	-	DATE	NTS	-
-	-	12/9/94	CHKD BY	DRAWN BY
-	-	-	RON	SIZE
-	-	-	B	DRAWING NO.
-	-	-	-	190002

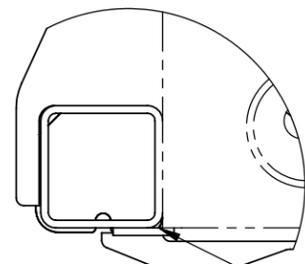
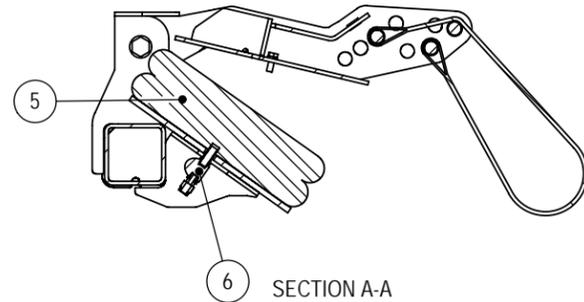
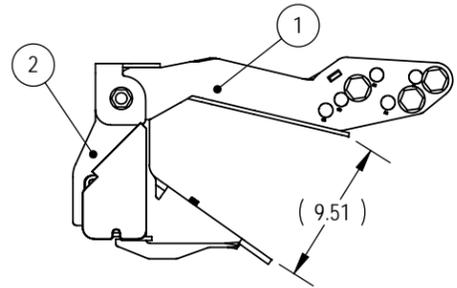
REV.	DESCRIPTION	ECN	DATE	BY
A	NEW DRAWING	R-6036	1/12/2009	TEG
B	ADDED REGULATOR INSTALL CALL OUT	C-6157	2/17/2009	TEG

DO NOT EXCEED 100 PSI IN AIRBAG!

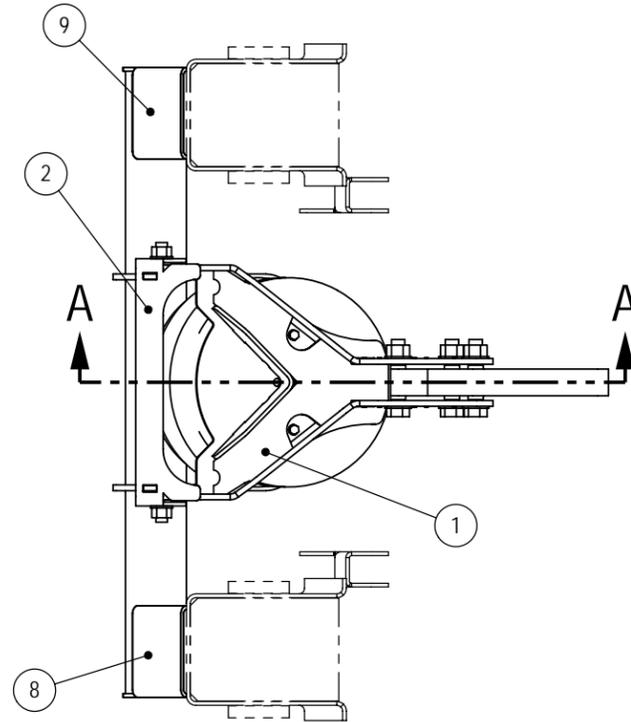
INSTALLATION INSTRUCTIONS:

1. REMOVE EXISTING CROSSMEMBER. MOUNT NEW CROSS MEMBER ASSY (ITEM#1) TO FRONT OF THE HANGERS.
2. ATTACH UPPER LIFTING ASSEMBLY (#1) TO THE CROSSMEMBER LOWER SUB ASSY WITH 3/4" BOLTS
3. ATTACH STRAP /PROTECTIVE SLEEVE #7 TO THE LIFT ARM #1 WITH 7/8" BOLTS (REF SHEET 2 FOR DETAILS.
4. INSTALL AIR SPRING #5 TO UPPER AND LOWER BAG PLATES USING 3/8" BOLTS & HARDWARE.
5. KIT REQUIRES CUTTING TUBE TO LENGTH & WELDING TUBE TO END CAP BRACKETS.
6. MAXIMUM DIMENSION AT LIFT 9.50/ TYPICAL 9.00.

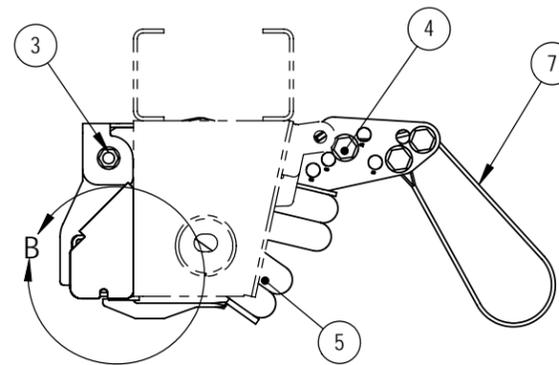
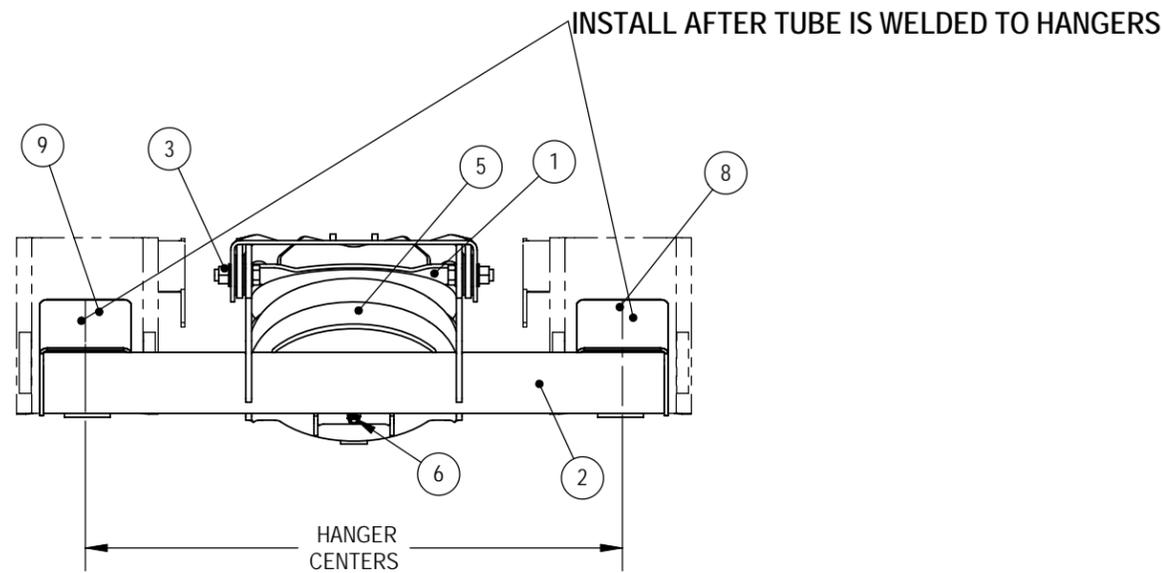
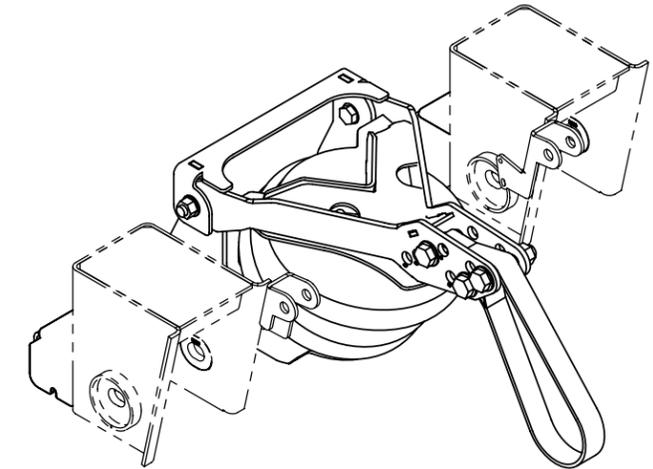
ITEM NO.	QTY	PART NUMBER	DESCRIPTION
1	1	990439	UPPER ASSEMBLY AL8X
2	1	CHART	LOWER SUB ASSEMBLY
3	1	16099	AL86 HARDWARE KIT
4	1	16099-01	AL86 HARDWARE KIT
5	1	AS0027GK	AIRSPRING (2B12-305) GOODYEAR ONLY
6	1	16099-02	AL86 REGULATOR KIT
7	1	CHART	NYLON STRAP 1.75" WIDE
8	1	90491-10	END CAP BRACKET LH
9	1	90491-20	END CAP BRACKET RH



DETAIL B
SCALE 1 : 6
CROSS TUBE FLUSH
WITH BOTTOM OF HANGER



UNIT SHOWN IN UP POSITION



NOTES:

1. MAXIMUM DIMENSION AT LIFT 9.50/TYPICAL 9.00
2. TORQUE .75 CAPSCREWS TO 150 FT LBS.
3. TORQUE .88 CAPSCREWS TO 50 FT LBS.
4. REF 190181LY IN AUTOCAD FOR LAYOUTS.
5. SHIP ITEMS #8, #9 LOOSE.
6. SEE 190047W FOR WELD ON PROCEDURES.

NOTE: PARENTHESIS () DENOTES REFERENCE DIMENSION

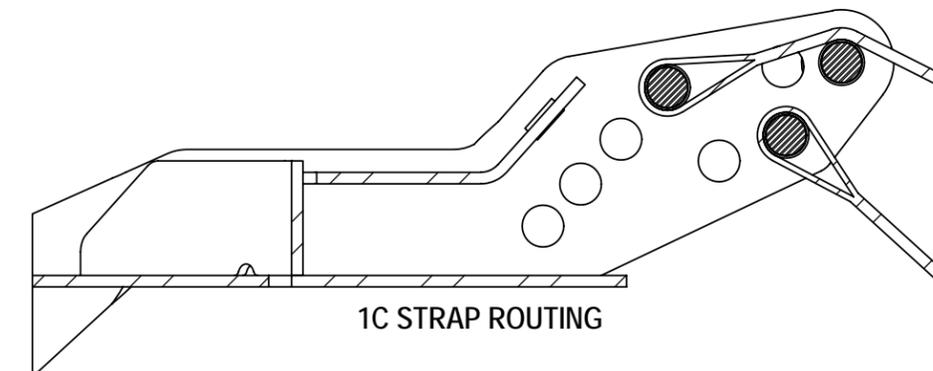
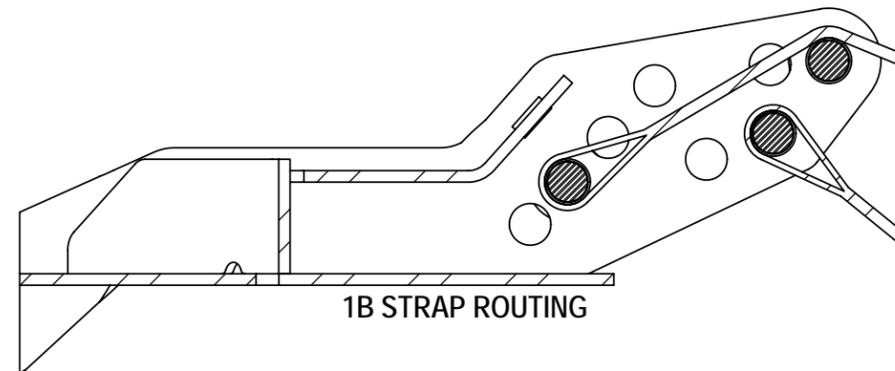
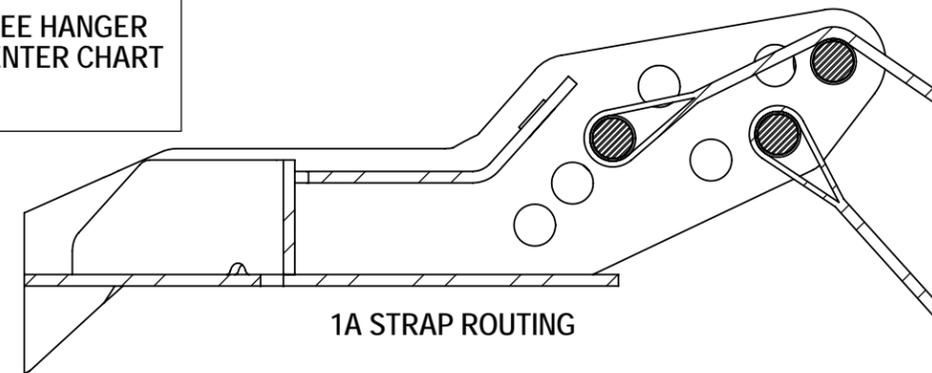
SPECIAL CHARACTERISTICS SYMBOL LEGEND	
(X.XX)	W/C CRITICAL DIM
** X.XX	DESIGNATES A ± .125 TOL.
* X.XX	DESIGNATES A KEY CUSTOMER CHARACTERISTIC
KEY CUSTOMER CHARACTERISTICS SYMBOLS	
KCC	NAVISTAR/INTERNATIONAL
K	FREIGHTLINER
M	MACK TRUCKS
C	PACCAR

DEPTS AFFECTED	TOLERANCES (EXCEPT AS NOTED)	DESCRIPTION: AL86 CENTER LIFT ASSEMBLY	
-	DECIMAL ± .06	PREVIOUS ASSY: -	SHEET: 1 OF 2
-	FRACTIONAL ± 1/16	SUSPENSION MODEL: -	SCALE: 1:12
WEIGHT: -	ANGULAR ± 1°	DATE: 01/12/09	DRAWN BY: TEG
			SIZE: B
			DRAWING NO: 190181



SEE SHEET 2 FOR CHARTS AND APPLICATIONS

PART NO.	STRAP ROUTING	ITEM # 7	APPLICATIONS	ITEM # 2
AL86-1A-01-XX	1A	17550-27.63	TI251L02/TI302L02- 77.50" TRACK ONLY	SEE HANGER CENTER CHART
AL86-1A-02-XX		17550-31.75	TI250/251/300/301T02-14,15,17,19,21,22	
AL86-1B-02-XX	1B	17550-31.75	TI250/251/300/301T02-16,18,20	
AL86-1C-02-XX	1C	17550-31.75	TI250/251/300/301T02-23,24	
AL86-1A-03-XX	1A	17550-34.75	TA250/300T04-14,15,16,17,19,21-TA252/302T07-14,15,17,18,19,20,23,24.	
AL86-1B-03-XX	1B	17550-34.75	TA300T04-23,24	



HANGER CENTER CHART	
HANGER CENTERS	ITEM # 2
35 CENTERS	990440-35
41 CENTERS	990440-41

STRAP ROUTING
1A
1B
1C

MODEL NO.

STRAP
1-17550-27.63
2-17550-31.75
3-17550-34.75

HANGER CENTERS**
35-35" CENTERS MAX
41-41" CENTERS MAX
99-SPECIAL CENTERS

REGULATOR INSTALL
1-INSTALLED
2-SHIP LOOSE

AL86-1X-X-0X-X

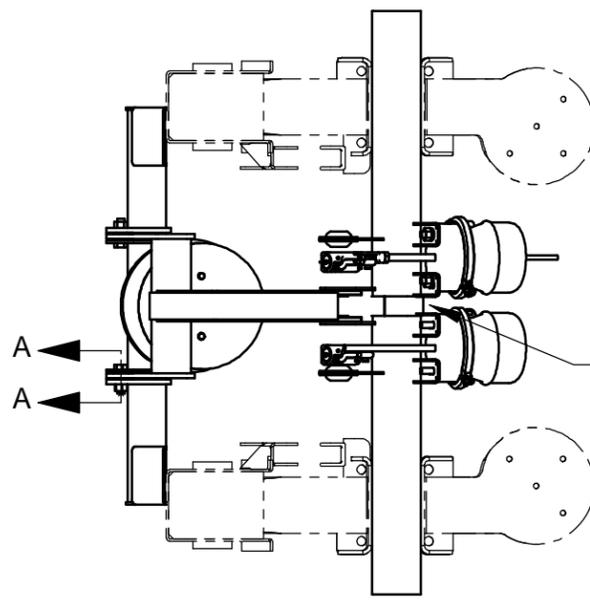
** MINIMUM ARM CENTERS 33"

DESCRIPTION: AL86 LIFT ASSEMBLY		 Watson Suspension Systems		
SHEET: 2 OF 2				
DATE: 01/12/09	SCALE: 1:4	DRAWN BY: TEG	SIZE: B	DRAWING NO: 190181

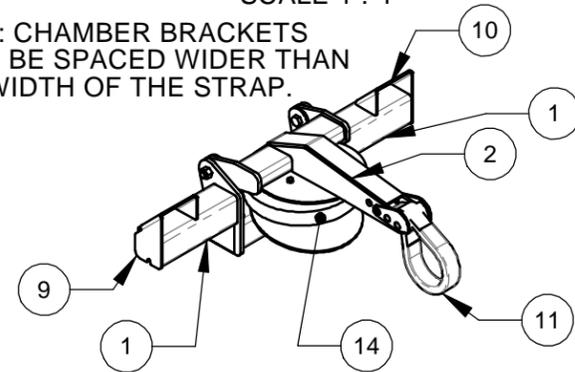
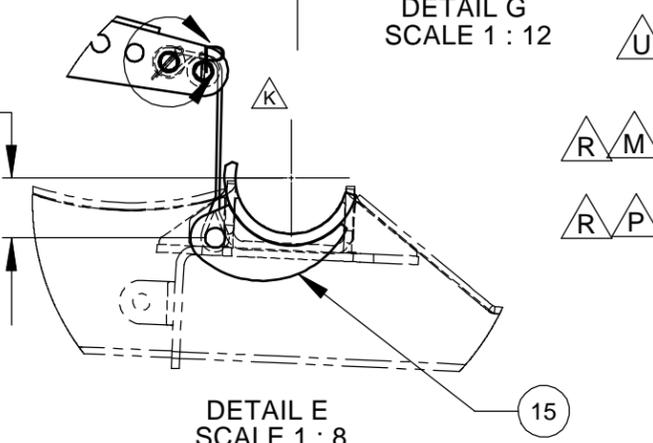
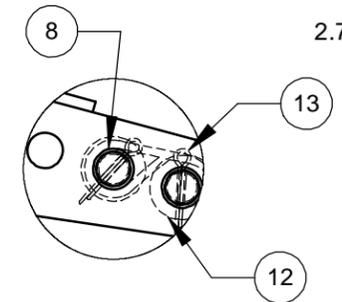
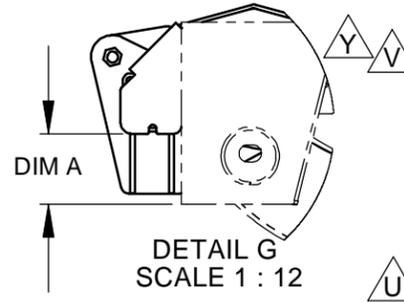
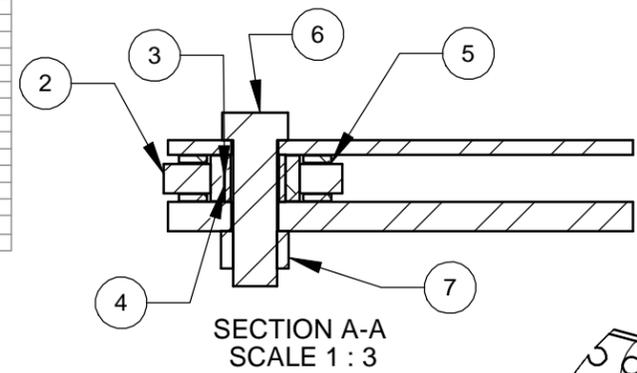
REV.	DESCRIPTION	ECN	DATE	BY
A	NEW DRAWING	2360	01/22/01	AFF
B	CLARIFIED VIEWS	2341	05/10/02	GWFE
C	TABULATED ITEM #17	2546	05/28/02	JFF
D	ADDED CONFIG FOR TA302-21/23 & TA300T-19/20	2619	08/21/02	GWFE
E	ITEM #11 WAS 17550-01, ADDED-01 TO ITEM #17	2631	08/27/02	JFF
F	ADDED HOLE CALL OUT TO CHART	2688	11/05/02	SJH
G	CHANGED TITLE BLOCK & ADDED T302-24 CONFIG	3122	2/19/2004	TEG
H	ADDED -02 CONFIGURATION	3310	8/20/2004	JFF
J	TABULATED FOR -03 THRU -05	3646	8/17/2005	JFF
K	CLEANED VIEWS AND DETAILS	C-3938	4/18/2006	TEG
L	REWORKED LIFT WITH CORRECT STRAPS	C-4462	2/12/2007	TEG
M	AIRSPRING WAS AS0027 NOW AS0027G	C-5210	2/27/2008	TEG
N	ADDED FOR TA300U09-6.5	C-5296	4/1/2008	TEG
P	ADDED PSI NOTE, ADDED REGULATOR	C-5802	9/19/2008	TEG
R	ADDED REGULATOR KIT AND NEW AIRBAG CALLOUT	C-6323	5/5/2009	TEG
T	ADDED -01-8A CONFIG	7274	11/16/2009	TEG
U	CHARTED #12 QTY	7290	11/30/2009	TEG
V	ADDED AL95-01-2A-NS TO CHART: ITEM 5 WAS 90490	7355	1/28/2010	HDH
W	#11 WAS 17424-03 ON AL95-01-3A AND 4A	7591	7/21/2010	TLK
Y	ITEM #5 WAS 90490-01	7862	11/9/2010	TLK

DO NOT EXCEED 100 PSI IN AIRBAG!

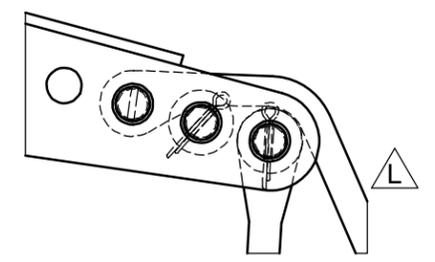
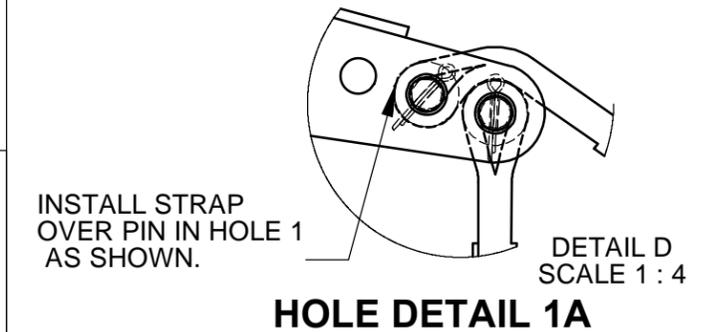
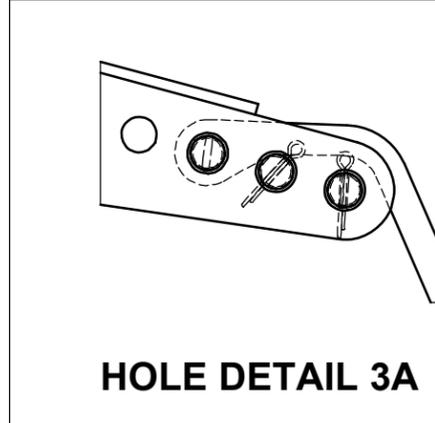
ITEM NO.	QTY	PART NO.	DESCRIPTION
1	1	990175	LOWER SUB-ASSEMBLY
2	1	990177	UPPER SUB-ASSEMBLY
3	2	XD.75-.81	SCHEDULE 40 PIPE SPACER
4	2	90497	PIVOT LINER UHMW
5	4	90490-02	SPACER WASHER UHMW
6	2	10896-01	CAPSCREW .75UNFx2.50
7	2	10028	NUT LOCK .75 UNF GR C
8	CHART	17423	STRAP PIN
9	1	90491-10	END CAP BRACKET LH
10	1	90491-20	END CAP BRACKET RH
11	1	CHART	NYLON STRAP
12	CHART	17152	FLATWASHER .75
13	CHART	11941	COTTER PIN
14	1	AS0027GK	AIRSPRING (2B12-305) GOODYEAR ONLY
15	1	CHART	AXLE LIFT BRACKET
16	1	16099-02	AL86 REGULATOR KIT



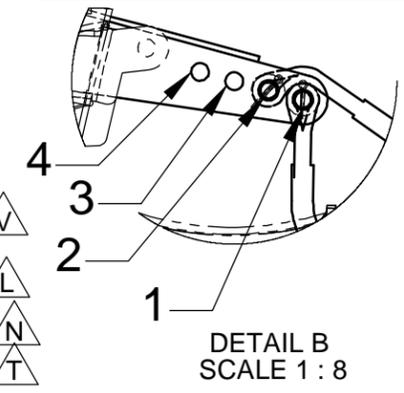
NOTE: CHAMBER BRACKETS MUST BE SPACED WIDER THAN THE WIDTH OF THE STRAP.



NOTE: FOR USE ON 5" DIA AXLES 11R-22.5 TIRES AND BELOW.



PART NO.	DIM A	HOLE DETAIL	ITEM # 11	ITEM # 15	QTY # 8, # 12, # 13	SUSPENSIONS
AL95-01-1A	2.38" UP					TA250U09-5.5/6.5 SEE DETAIL E
AL95-01-2A	3.38" UP	3A	17424-01	990146-01	4.00	TA250U09-7.5/9.0 SEE DETAIL E
AL95-01-2A-NS	3.38" UP	N/A	N/A			TA250U09-7.5/9.0 W/O STRAP - ORDER SEPARATELY
AL95-01-3A	2.00" UP	1A			2.00	TA250U09-12/14 TA300U09-12/14/17
AL95-01-4A	1.25" UP				2.00	TA300U09-7.5/9.0
AL95-01-5A	5.50" UP				3.00	TI250U01-7.5/9.0
AL95-01-6A	6.00" UP	2A	17424	N/A	3.00	TI250U01-6.5/14
AL95-01-7A	2.38" UP				3.00	TA300U09-6.5
AL95-01-8A	2.38" UP	1A			2.00	TI302L02-8,9

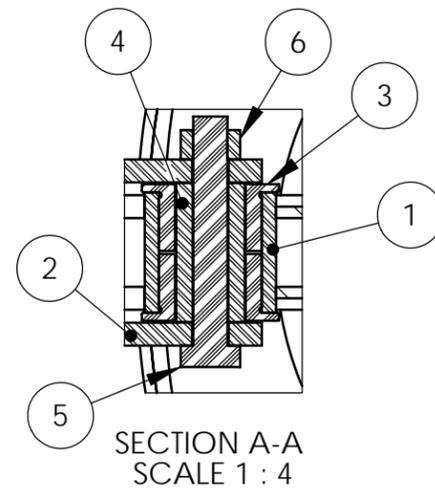
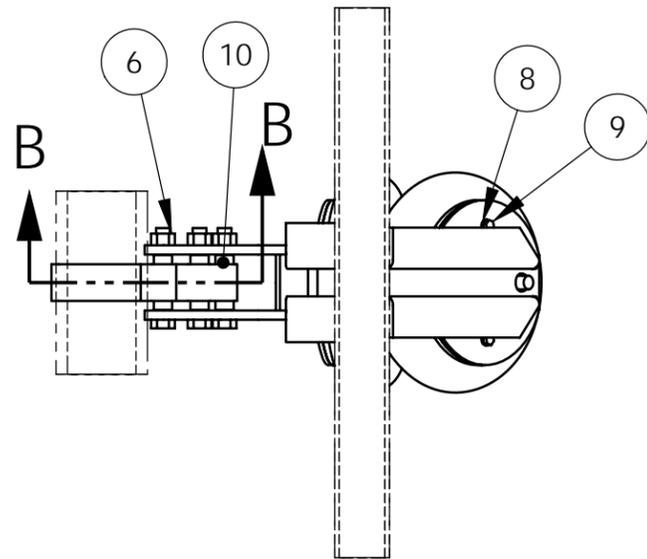


DEPTS AFFECTED	TOLERANCES (EXCEPT AS NOTED)	DESCRIPTION:	PREVIOUS ASSY:	SHEET:
10	DECIMAL + .06	CENTER LIFT ASSY ADD-ON	-	1 OF 2
-	FRACTIONAL + 1/16	SUSPENSION MODEL:	AL95	SCALE: 1:32
-	ANGULAR + 1°	DATE:	DRAWN BY:	SIZE:
		01/22/01	AFF	B

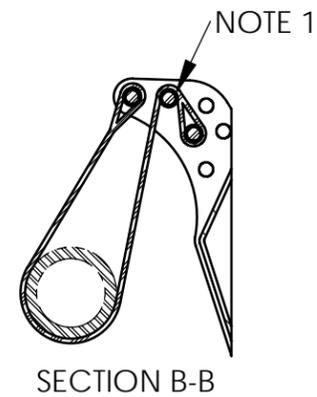
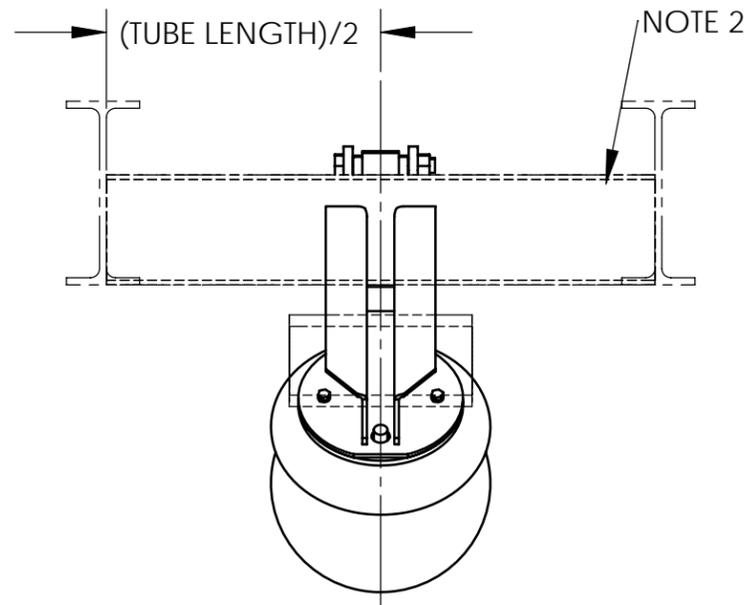
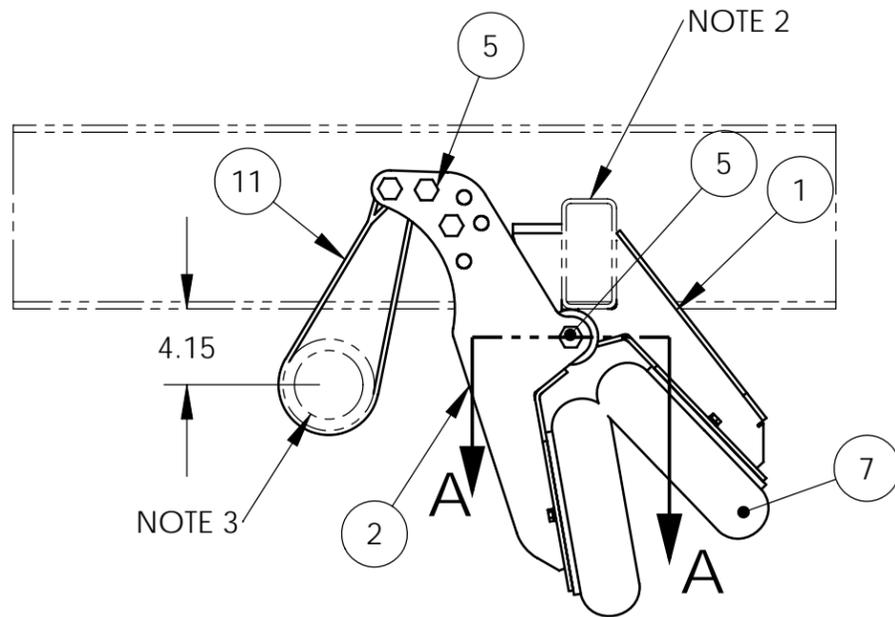
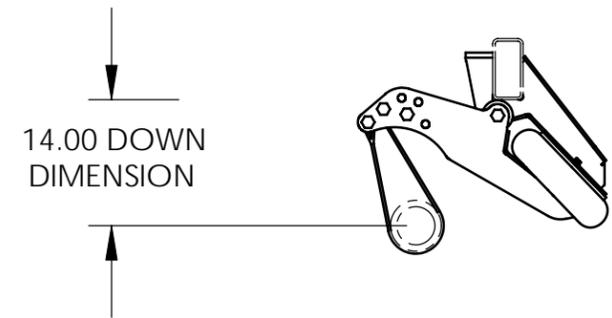


DRAWING NO: 190047

REV.	DESCRIPTION	ECN	DATE	BY
A	NEW DRAWING	3663	9/13/2005	TEG
B	#6 WAS 19040F-075. # 9 WAS 17610	C-5939	11/4/2008	TEG



ITEM NO.	QTY	PART NUMBER	DESCRIPTION
1	1	990291	LIFT ASSEMBLY ARM REAR MOUNT
2	1	990292	LIFT ARM FRONT ASSEMBLY
3	2	19204	BUSHING POLY FLANGE
4	1	91031	BUSHING SLEEVE
5	4	10033	CAPSCREW .75X5.00 UNF GR8
6	4	10028	NUT LOCK .75 UNF GR C
7	1	AS0188F	LIFT BAG 2B12-425 GY#
8	4	10041	.38 LOCK WASHER
9	4	10038	CAPSCREW 3/8 X 1 UNC
10	3	90313-03	DELTRIN LINER 8K
11	1	17336	STRAP 2.00" X 34.00" LONG



NOTE: PARENTHESIS () DENOTES REFERENCE DIMENSION

SPECIAL CHARACTERISTICS SYMBOL LEGEND	
(X.XX)	W/C CRITICAL DIM
** X.XX	DESIGNATES A KEY CUSTOMER CHARACTERISTIC
* X.XX	DESIGNATES A KEY CUSTOMER CHARACTERISTIC
KEY CUSTOMER CHARACTERISTICS SYMBOLS	
KCC	NAVISTAR/INTERNATIONAL
K	FREIGHTLINER
M	MACK TRUCKS
C	PACCAR

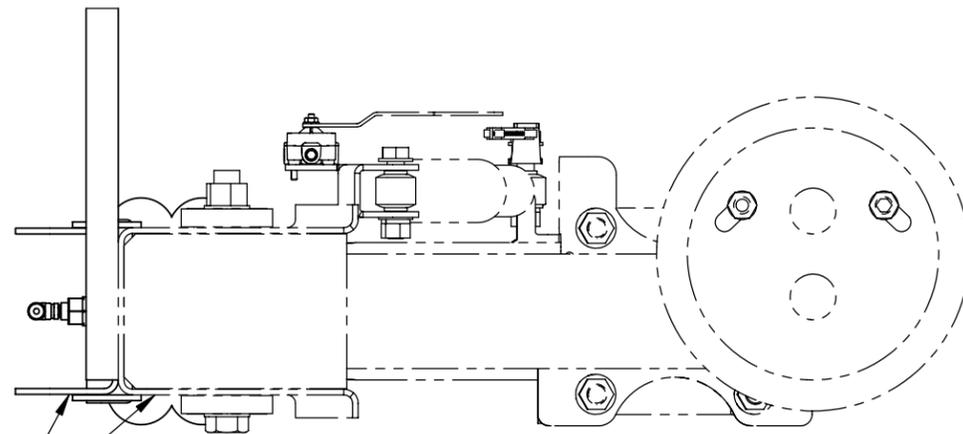
- NOTES:
- USE HOLES SHOWN FOR 7.5 RUN.
 - REF CROSSTUBE 3X6X3/8 MIN.
 - REF AXLE, 5"DIA.

DEPTS AFFECTED	TOLERANCES (EXCEPT AS NOTED)	DESCRIPTION: LIFT ASSEMBLY REAR MOUNT	
-	DECIMAL + .06	PREVIOUS ASSY: -	SHEET: 1 OF 1
-	FRACTIONAL + 1/16	SUSPENSION MODEL: AL97	SCALE: 1:10
WEIGHT: -	ANGULAR + 1°	DATE: 09/13/05	DRAWN BY: TEG
		SIZE: B	DRAWING NO: 190106



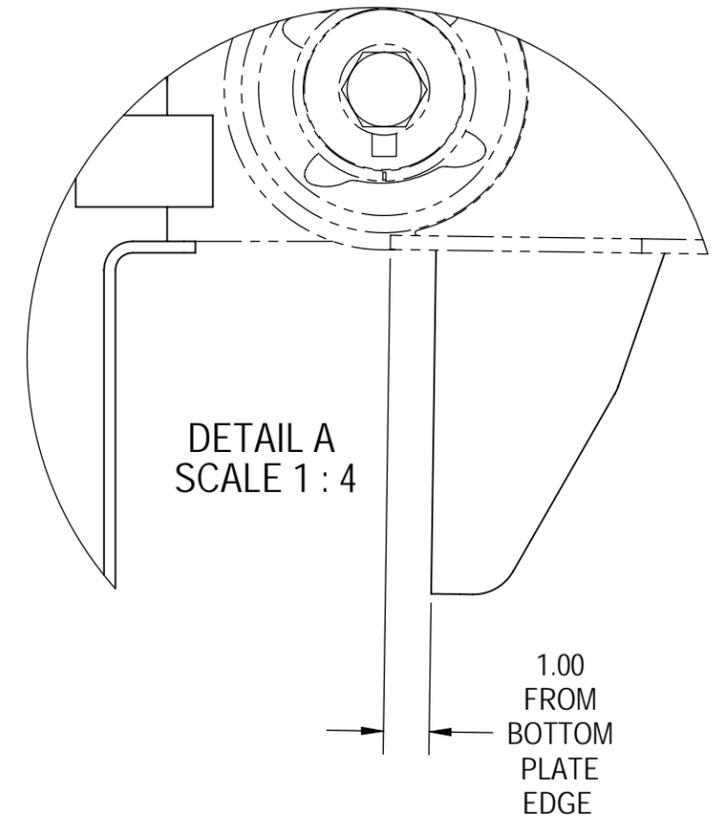
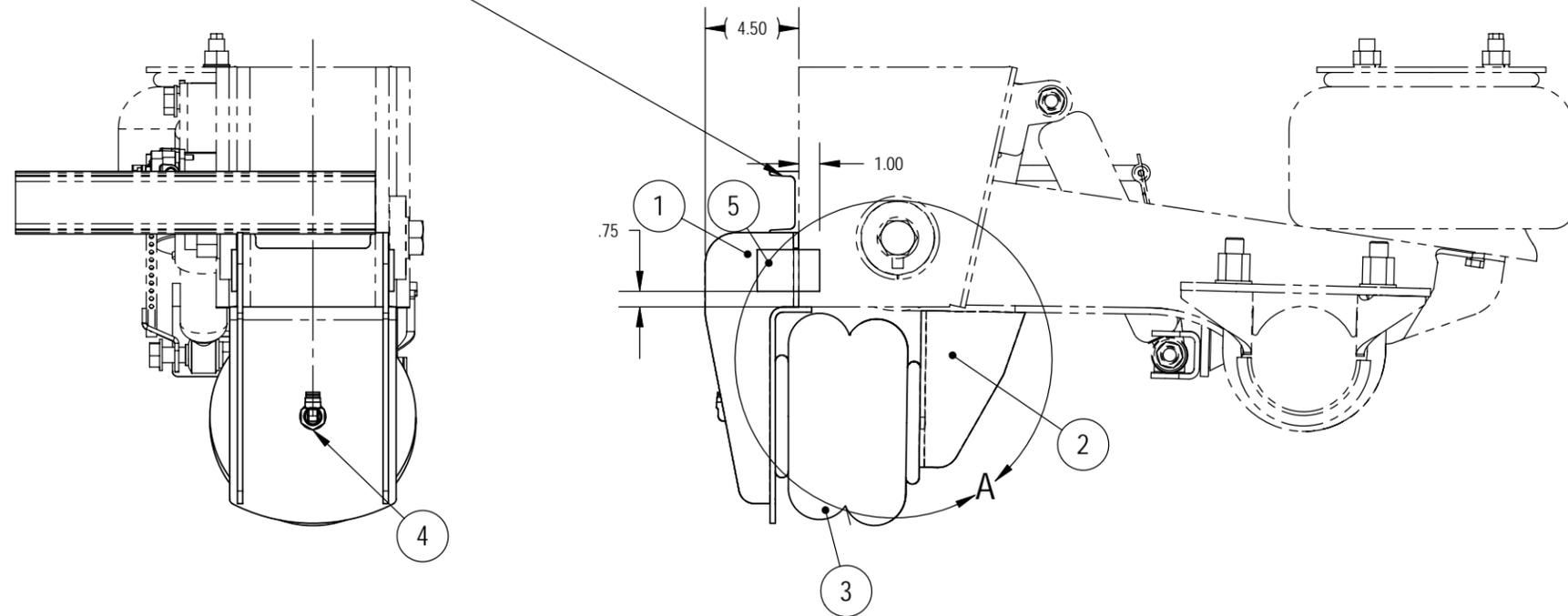
REV.	DESCRIPTION	ECN	DATE	BY
A	NEW DRAWING	C-4078	8/30/2006	TEG
B	REWORKED FOR NEW STYLE	C-4640	5/9/2007	TEG
C	ADDED 230 CONFIGURATIONS	C-5671	7/30/2008	TEG
D	ADDED PAGE 2 FOR WELD	7898	11/29/2010	EFR

ITEM NO.	QTY	PART NUMBER	DESCRIPTION
1	2	CHART	HANGER SUPPORT ASSEMBLY UL90&92
2	2	CHART	LIFT BAG PLATE REAR
3	2	AS0058-1F	AIRSPRING (6886) LIFT
4	1	16060	LIFT BAG HARDWARE PACK
5	4	XF.25X2.00-3.00	FLAT BAR A36 3.00 LONG



SIDES MUST BE FLUSH WHEN ASSEMBLED.

CROSS CHANNEL TO BE RELOCATED ABOVE ITEM # 1



NOTE: PARENTHESIS () DENOTES REFERENCE DIMENSION

APPLICATIONS: TA250/252/300/302T04 & TI250/302L02 & TI230L02 SUSPENSIONS.

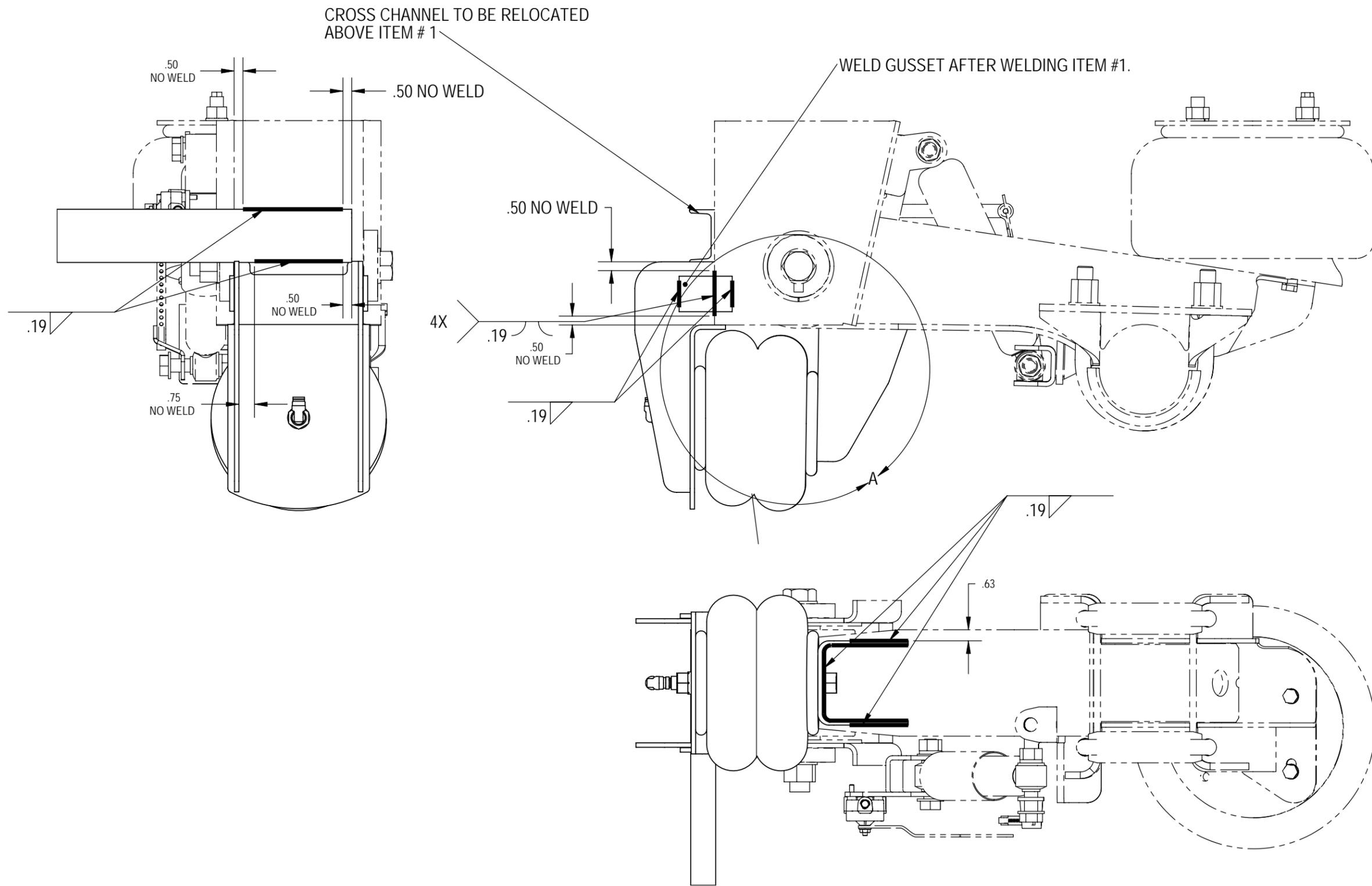
NOTES:

- INSTALLATION IS THE SAME FOR ALL RIDE HEIGHTS.
- MIN DISTANCE BETWEEN AXLES WHEN ADDITIONAL SUSPENSION IS FOWARD OF LIFT IS: TI230/250/302L-50.00" - TA250/252/300/302T-53.00"
- PLUMBING IS RESPONSIBILITY OF INSTALLER.

PART NO.	DESCRIPTION	ITEM # 1	ITEM # 2
190119	KIT ONLY CUSTOMER INSTALLED	990327	91228
190119-FI	FACTORY INSTALLED ON SUSPENSION		
190119-230	KIT ONLY CUSTOMER INSTALLED TI230	990327-230	91228-230
190119-FI-230	FACTORY INSTALLED ON SUSPENSION TI230		

TOLERANCES (EXCEPT AS NOTED)	DESCRIPTION: UL90 LIFT FOR TA250/252/300/302T/TI230/250/302L		
DECIMAL + .06 -	PREVIOUS ASSY: -	SHEET: 1 OF 2	 Watson Suspension Systems
FRACTIONAL ± 1/16	SUSPENSION MODEL: TA/TI	SCALE: 1:8	
ANGULAR ± 1°	DATE: 08/30/06	DRAWN BY: TEG	SIZE: B DRAWING NO: 190119



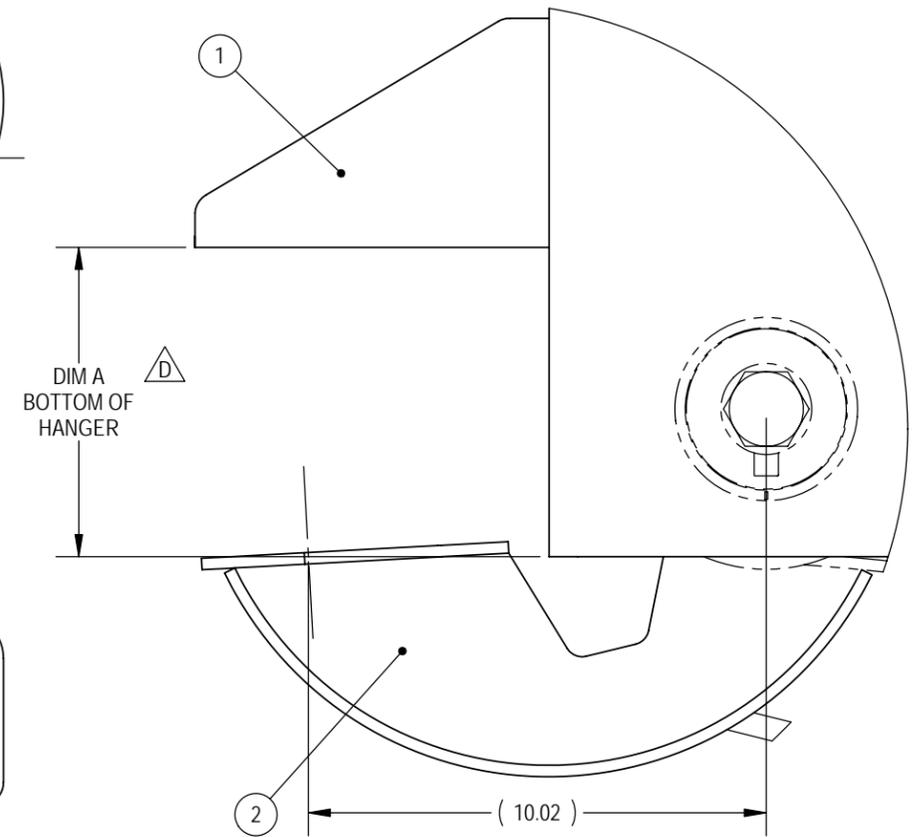
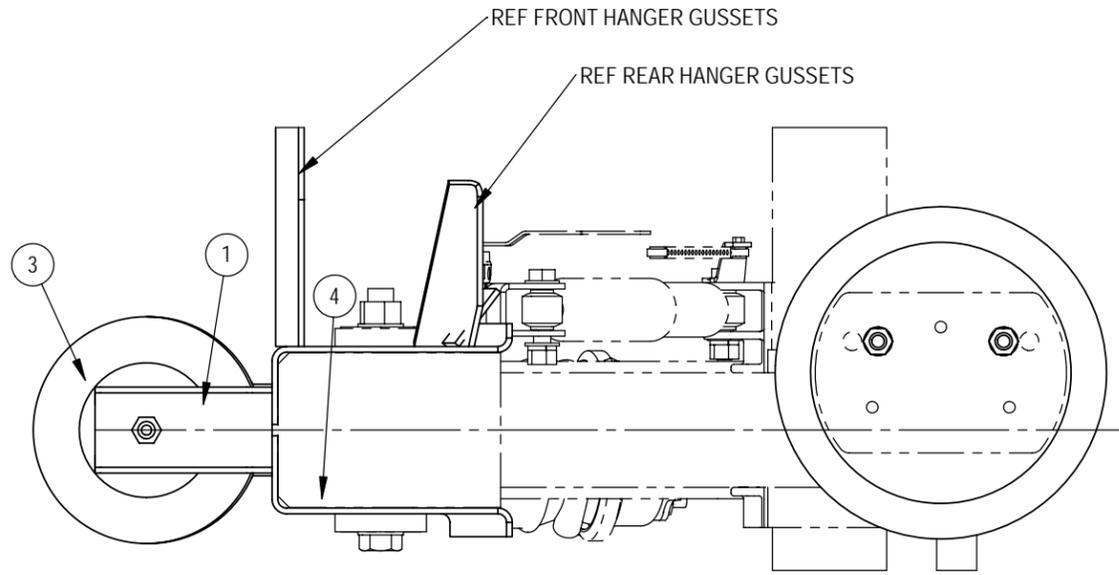
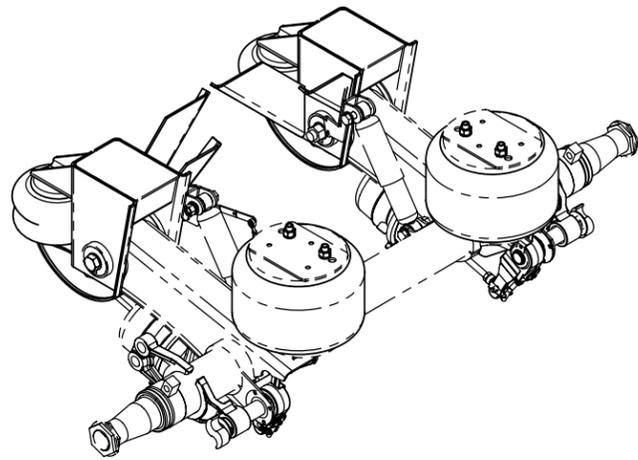


- NOTES:
1. ALL WELDS MUST COMPLY WITH AWS D1.1
 2. ALL TACK WELDS SHOULD BE INCORPORATED INTO FINAL WELD
 3. 19 TYP. WELD UNLESS OTHERWISE STATED

DESCRIPTION: UL90 LIFT FOR TA250/252/300/302T/T				 Watson Suspension Systems
SHEET: 2 OF 2				
DATE: 05/31/07	SCALE: 1:6	DRAWN BY: tgreaves	SIZE: B	DRAWING NO: 190119

REV.	DESCRIPTION	ECN	DATE	BY
A	NEW DRAWING	C-4657	5/21/2007	TEG
B	REMOVED CHART	C-4874	9/12/2007	TEG
C	ADDED GUSSETS TO BOM	C-4953	10/18/2007	TEG
D	ADDED DIMENSION FOR TA250U	C-5238	3/11/2008	TEG
E	ADDED TI250-302L02 14-19 RUN	C-5659	7/25/2008	TEG
F	ADDED TI250U01 12 RUN	8114	5/5/2011	EFR

ITEM NO.	QTY	PART NUMBER	DESCRIPTION
1	2	91042	LIFT BRACKET UPPER
2	2	990372	LOWER ARM ASSEMBLY UL91 LIFT
3	2	AS0058-1F	AIRSPRING (6886) LIFT
4	1	16060	LIFT BAG HARDWARE PACK
5	1	CHART	FRONT GUSSET
6	1	CHART	FRONT GUSSET RH
7	2	CHART	REAR GUSSET



DETAIL A
SCALE 1 : 4

SPECIAL CHARACTERISTICS SYMBOL LEGEND	
(X.XX)	W/C CRITICAL DIM
** X.XX	DESIGNATES A ± .125 TOL.
* X.XX	DESIGNATES A KEY CUSTOMER CHARACTERISTIC
KEY CUSTOMER CHARACTERISTICS SYMBOLS	
KCC	NAVISTAR/INTERNATIONAL
K	FREIGHTLINER
M	MACK TRUCKS
C	PACCAR

NOTE: PARENTHESIS () DENOTES REFERENCE DIMENSION

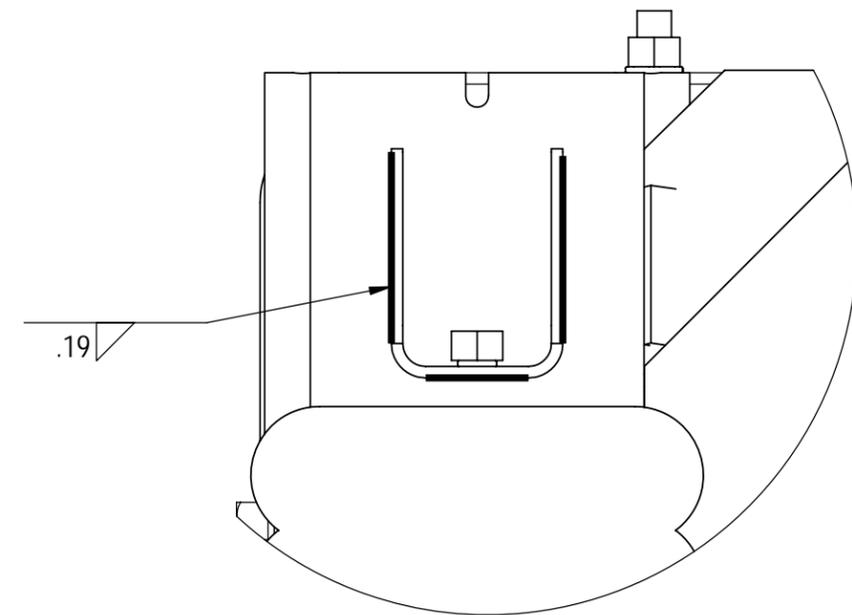
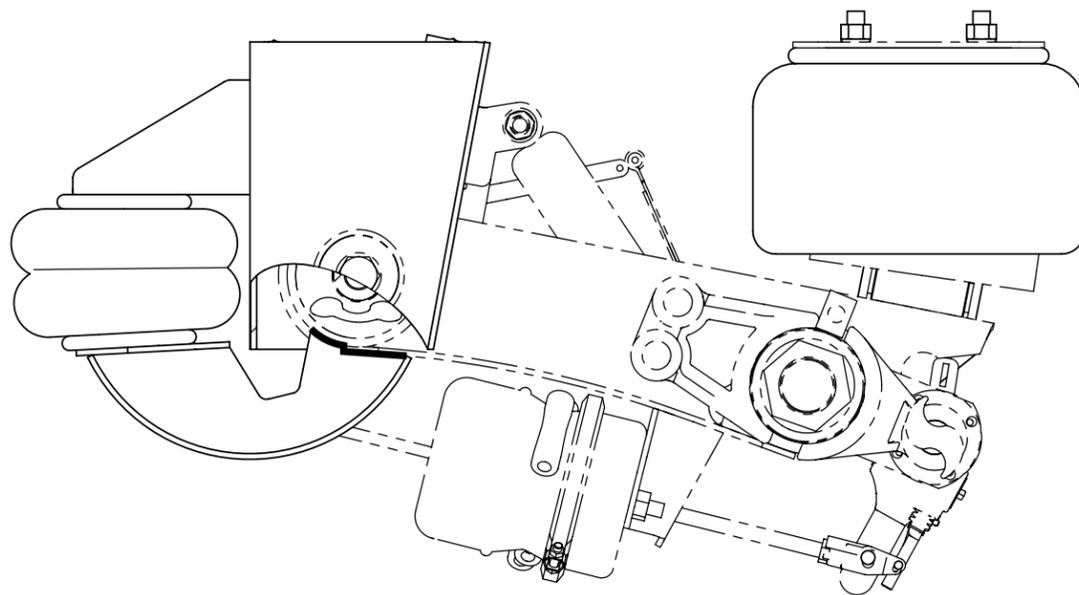
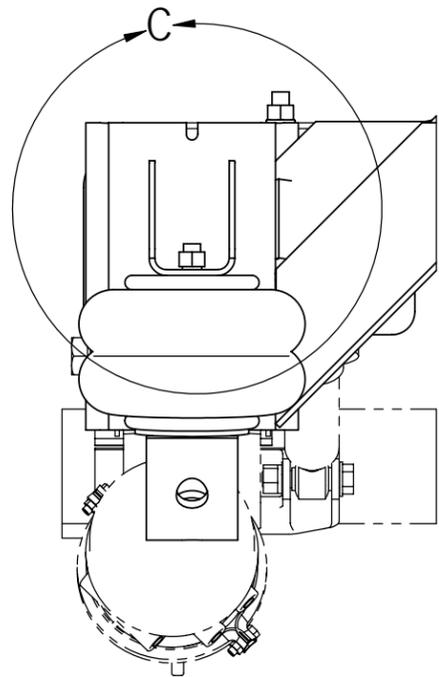
REMOVE CROSS CHANNEL & INSTALL GUSSETS.

APPLICATIONS:
 TI250/251/300/301/302T02
 TA250U09
 TI250-302L02 14-19 RUNS ONLY.
 TI250U01 12 RUN ONLY.

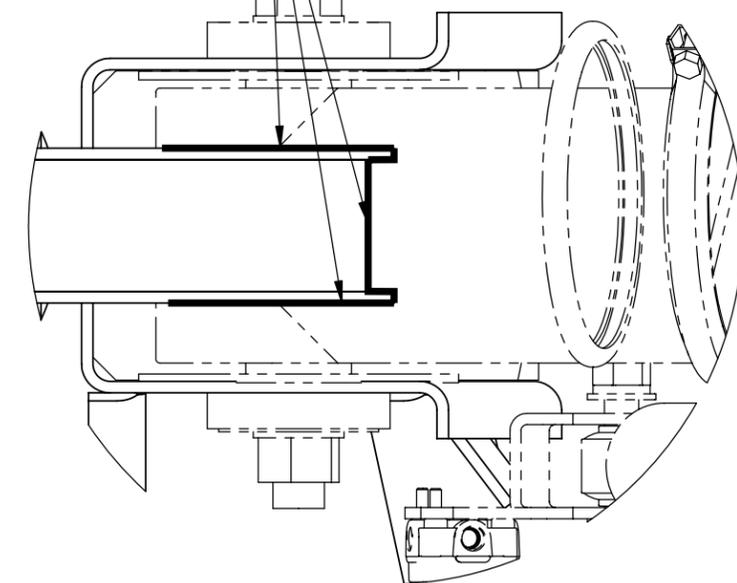
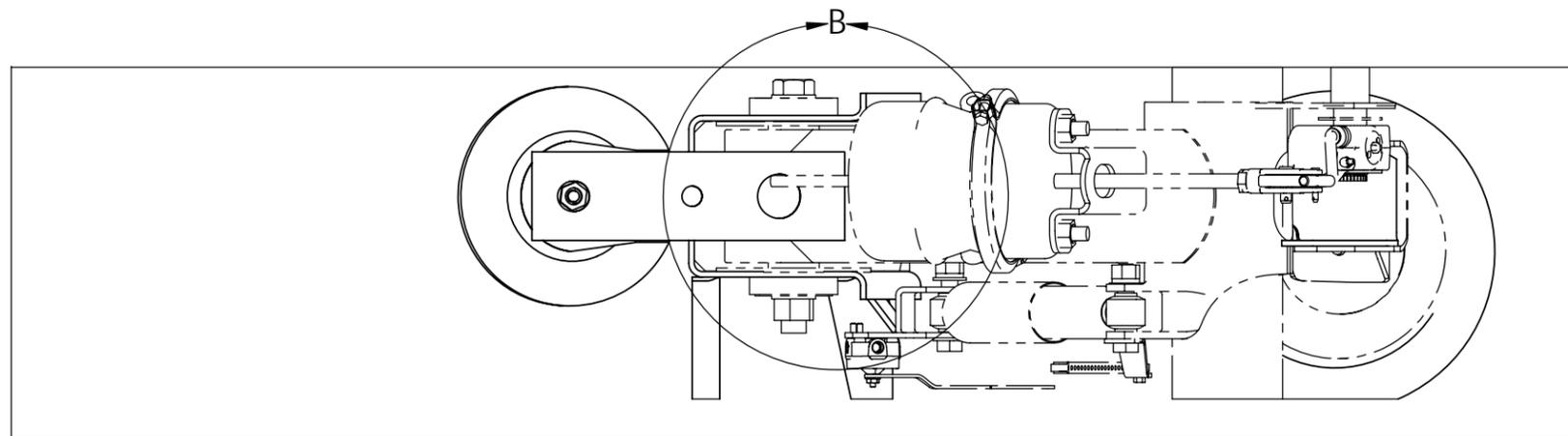
PART NO.	HANGER HEIGHT	ITEM # 5	ITEM # 6	ITEM # 7	DIM A TI TOP MOUNT	DIM A TA250U09	DIM A TI250-302L02	DIM A TI250U01
190136-01	6.00-7.00	11527	11527	11746	6.75	7.50	N/A	N/A
190136-02	8.00-9.00	11735	11735	11746			7.00	7.75
190136-03	10.00-15.00	11744	11744	11525			N/A	N/A
190136-04	16.00-18.00	11733	11734	11744			N/A	N/A

DEPTS AFFECTED	TOLERANCES (EXCEPT AS NOTED)	DESCRIPTION: UL91 FRONT LIFT ASSEMBLY TI-T02/TA250U09	
-	DECIMAL ± .06	PREVIOUS ASSY: -	SHEET: 1 OF 2
-	FRACTIONAL ± 1/16	SUSPENSION MODEL: TI-T/TA-U	SCALE: 1:8
WEIGHT: -	ANGULAR ± 1°	DATE: 05/21/07	DRAWN BY: TEG
		SIZE: B	DRAWING NO: 190136





WELDED TO BOTTOM OF ARM
 .19
DETAIL C
 SCALE 1 : 4



DETAIL B

NOTES:

1. ALL WELDS MUST COMPLY WITH AWS D1.1
2. ALL TACK WELDS SHOULD BE INCORPORATED INTO FINAL WELD
3. .19 TYP. WELD UNLESS OTHERWISE STATED

COSTING INFO - WELDING

WELD SIZE	.19
WELD LENGTH	27.50

DESCRIPTION:
 UL91 FRONT LIFT ASSEMBLY TI-T02/TA

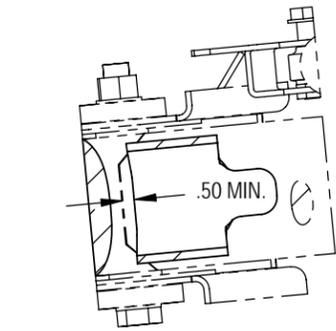
SHEET: 2 OF 2

DATE:	SCALE:	DRAWN BY:	SIZE:	DRAWING NO:
05/31/07	1:8	eramon	B	190136



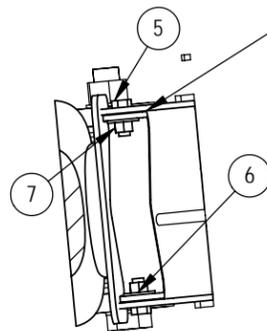
REV.	DESCRIPTION	ECN	DATE	BY
A	NEW DRAWING	C-5669	7/30/2008	TEG

ITEM NO.	QTY	PART NUMBER	DESCRIPTION
1	2	990327	HANGER SUPPORT ASSEMBLY UL90&92
2	2	990328	BEAM PLATE ASSEMBLY UL92
3	2	AS0058-1F	AIRSPRING (6886) LIFT
4	1	16060	LIFT BAG HARDWARE PACK
5	4	10174	CAPSCREW .50X1.25 UNC
6	4	17165	WASHER FLAT .50 HARDENED
7	4	17475	NUT LOCK .50 UNC GR C



SECTION A-A

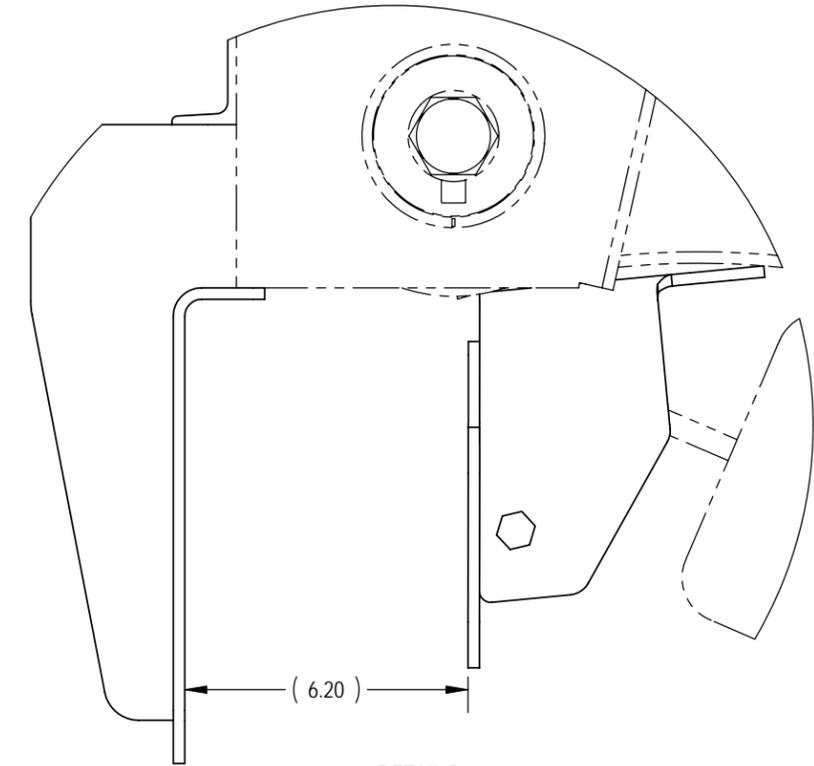
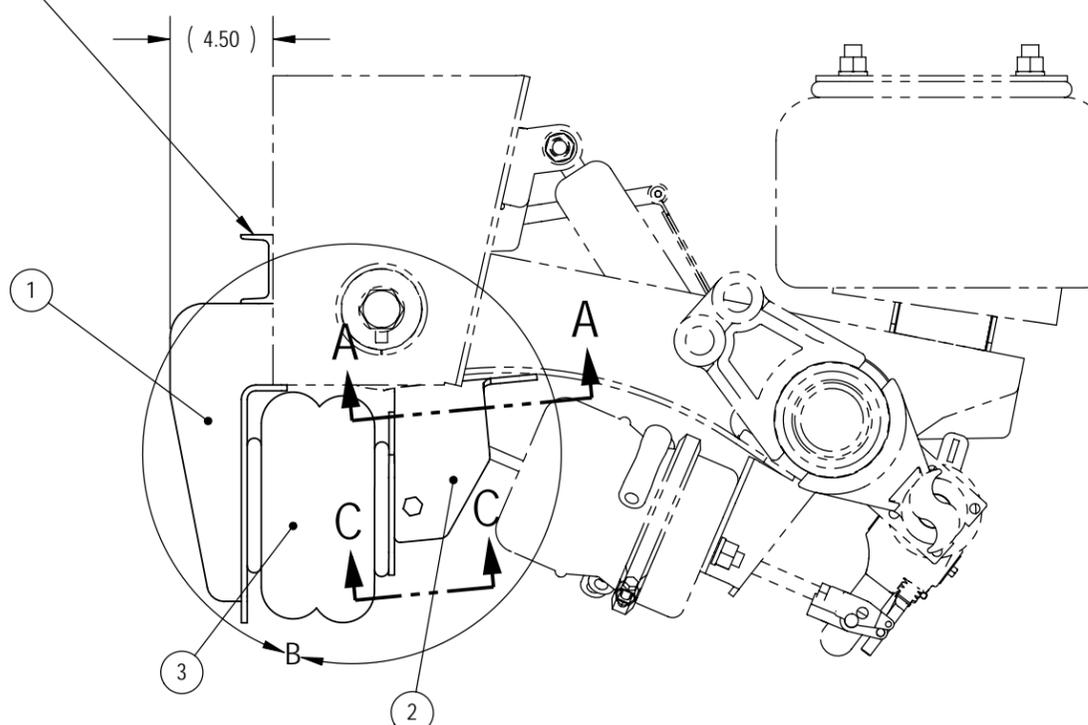
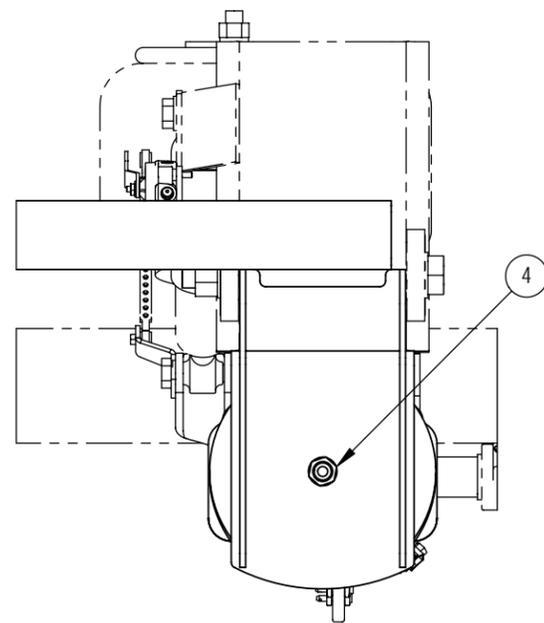
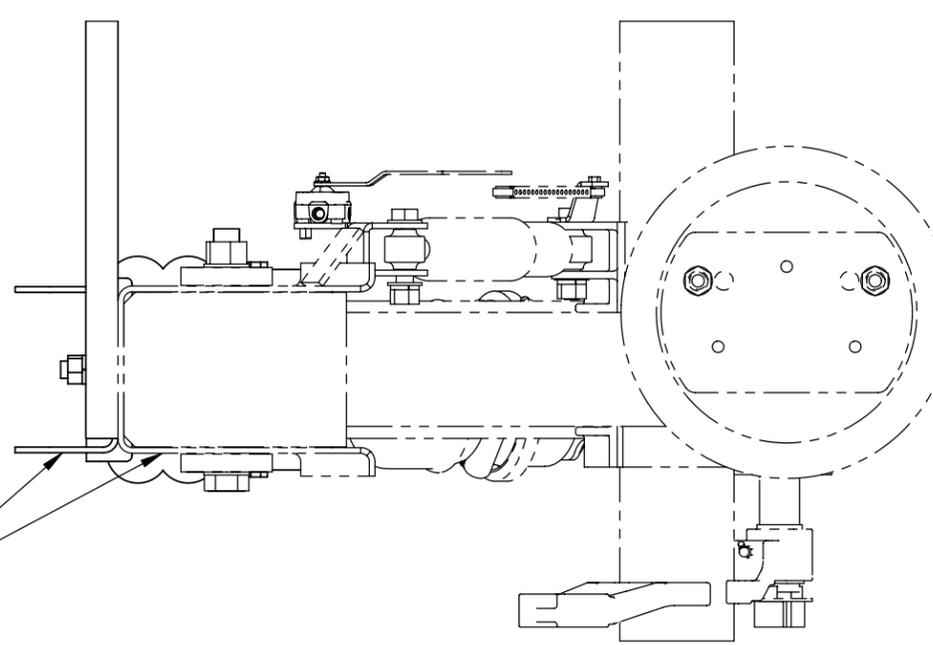
PARTS ARE CONNECTED BY CAPSCREWS TO BE ABLE TO REMOVE TO CHANGE BRAKE CHAMBERS.



SECTION C-C

SIDES MUST BE FLUSH WHEN ASSEMBLED.

CROSS CHANNEL TO BE RELOCATED ABOVE ITEM # 1.



DETAIL B
SCALE 1 : 4

SPECIAL CHARACTERISTICS SYMBOL LEGEND	
(X.XX)	W/C CRITICAL DIM
** X.XX	DESIGNATES A ± .125 TOL
* X.XX	DESIGNATES A KEY CUSTOMER CHARACTERISTIC
KEY CUSTOMER CHARACTERISTICS SYMBOLS	
KCC	NAVISTAR/INTERNATIONAL
K	FREIGHTLINER
M	MACK TRUCKS
C	PACCAR

NOTE: PARENTHESIS () DENOTES REFERENCE DIMENSION

- NOTES:
1. INSTALLATION IS THE SAME FOR ALL RIDE HEIGHTS.
 2. MIN DISTANCE BETWEEN AXLES WHEN ADDITIONAL SUSPENSION IS FOWARD OF LIFT IS:TI250/302T-53.00"
 3. PLUMBING IS RESPONSIBILITY OF INSTALLER.

APPLICATIONS: TI250-302T03 & TI300T05 HD.

DEPTS AFFECTED	TOLERANCES (EXCEPT AS NOTED)	DESCRIPTION: UL92 UNDER LIFT ASSEMBLY	
-	DECIMAL ± .06	PREVIOUS ASSY: -	SHEET: 1 OF 1
-	FRACTIONAL ± 1/16	SUSPENSION MODEL: TI250-302T03	SCALE: 1:8
WEIGHT: -	ANGULAR ± 1°	DATE: 07/30/08	DRAWN BY: TEG
		SIZE: B	DRAWING NO: 190167

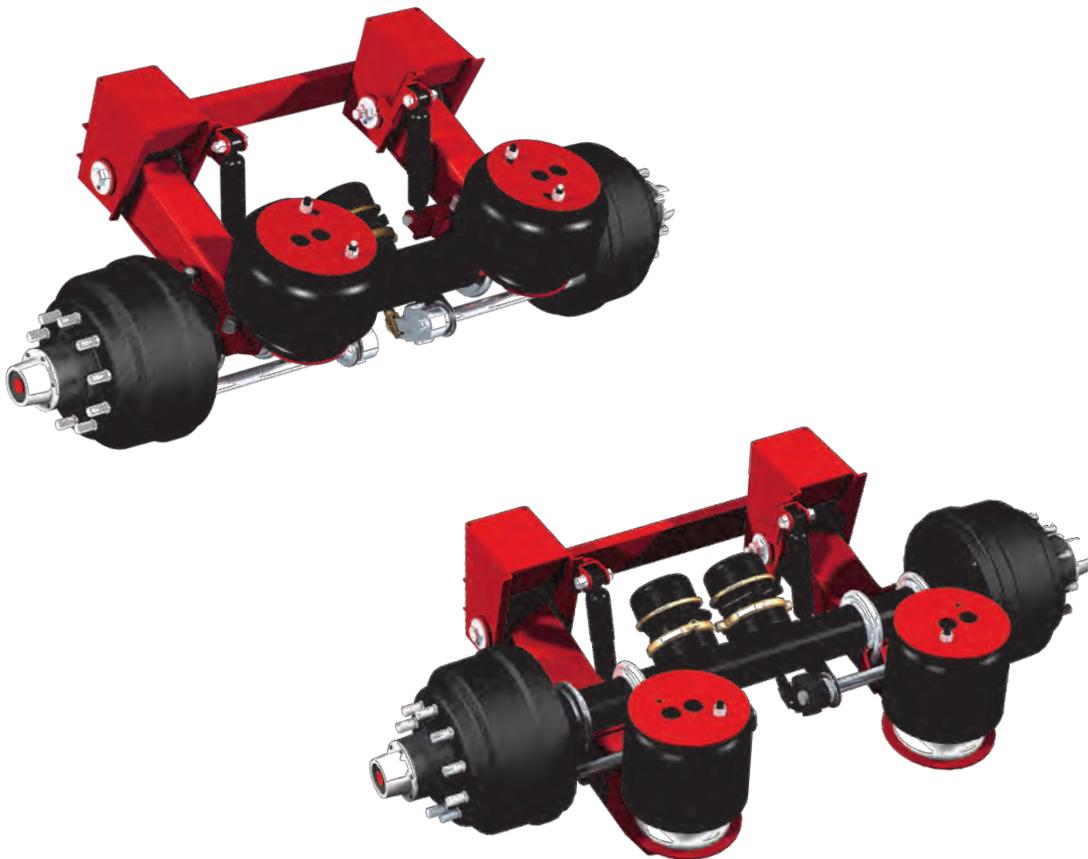


Watson Suspension Systems



TA-250 & TA-300

Installation and Manual



800.445.0736 • 972.547.6020 • FAX: 972.542.0097
725 EAST UNIVERSITY DRIVE. MCKINNEY, TEXAS 75069
www.WatsonSuspensions.com



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Introduction

Considerations

Things needed to insure proper installation:

- Assembly drawing from Watson & Chalin that matches the suspension being installed.
- Location of axle center.
- Ride Height of the suspension.
- Suspension / Hanger Centers (usually determined by axle track and or tire size).
- Brake Chamber / Cam Orientation (camshaft location recommendations are usually shown on the assembly drawing). Brake chamber orientation should be planned out before welding axle to suspension.

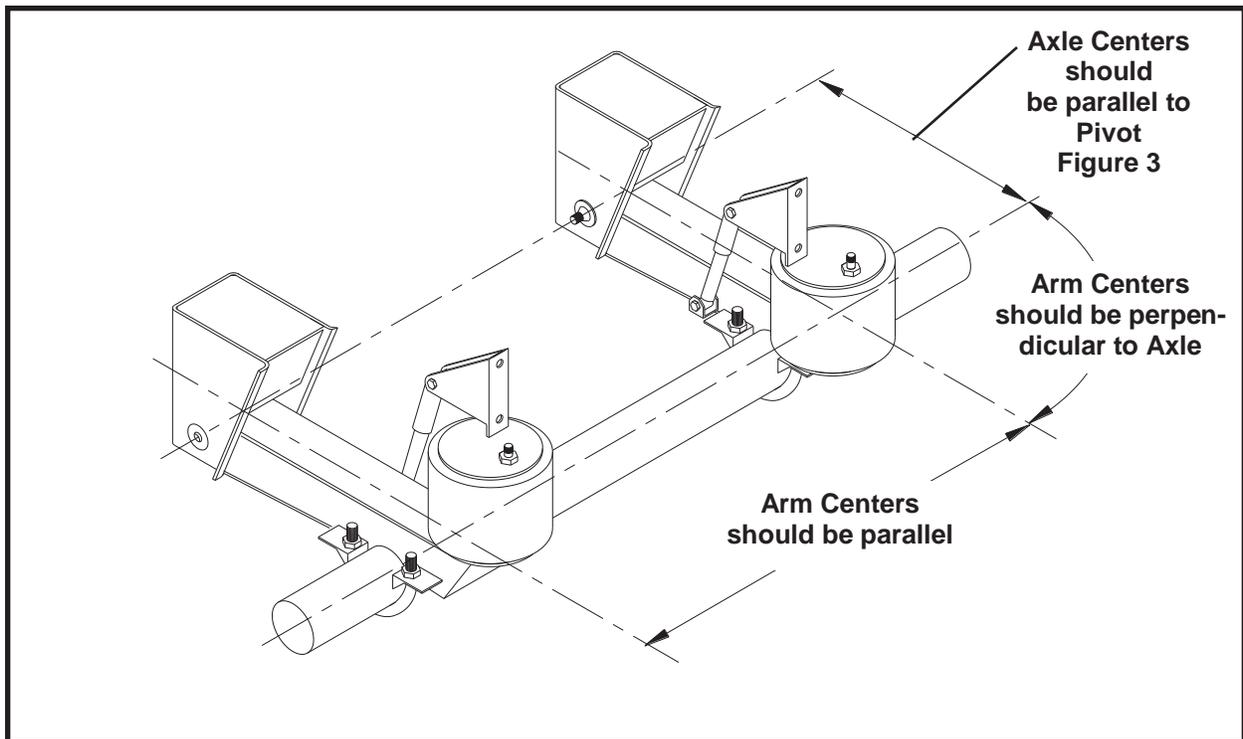


Figure 1

Important Notes:

These are the primary goals of a good installation (Refer to **Figure 1**):

1. The Axle to Arm Pivot Centers are Parallel (See **Figure 3**).
2. The Suspension Arms are Parallel to one another. The arm centers should not vary more than 1/8 inch from front to rear.
3. The Axle is perpendicular to the Suspension Arms and Suspension Arms are square.

Welding Axle to Suspension

Weld Specifications

Caution !

The welding procedures must be followed carefully to avoid damage to the axle and suspension which could cause an accident and or serious personal injury.

Standard Electrode: E-7018 (Oven Dried)
Determine diameter by fillet size needed.

Standard Wire: ER-70S-X
Determine diameter by fillet size needed.

Preparation

1. The surface must be free of paint, water, and other contaminants where welding is to occur.
2. Suspension parts must be at least 60°. *

* **Note:** Some axle manufacturers recommend preheating the axle before it is welded. Consult the axle manufacturer for recommended guidelines on welding to the axle.

3. Welding needs to be done in a flat horizontal position.

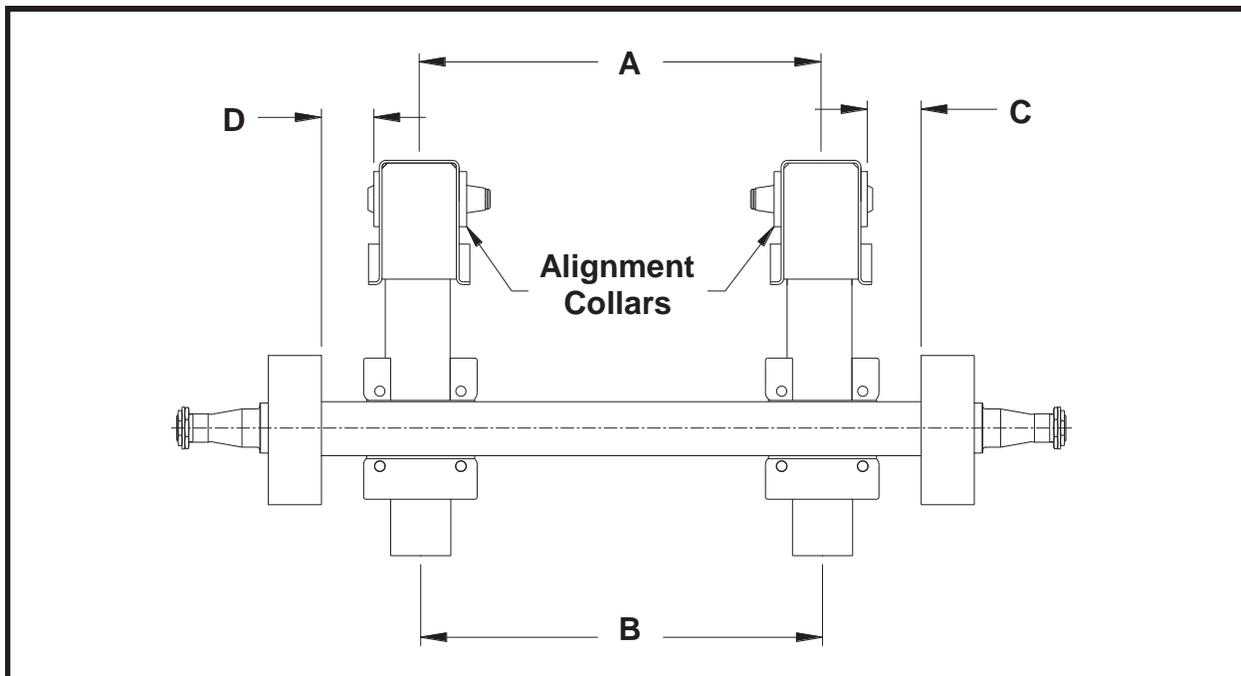


Figure 2

Setup for welding

1. Layout suspension arms and axle on a level surface.
2. Make sure axle camshafts are indexed (rotated) properly.
3. Mark or locate center mark on axle.
4. Mark arm centers from center of axle and move arms to their proper location.
5. Make sure arms are centered on axle properly.
6. Check to make sure arms are parallel within 1/8" front to rear. (**Figure 2**)
Dimension **A = B**, and dimension **C = D**.
7. Make sure arms are perpendicular to axle.
8. Verify that Pivots of arms are concentric to prevent the trailer from leaning. (**Figure 3**)
9. Clamp arms to axle to hold in the correct position and verify measurements before tacking.

Note: Arms do not need be clamped so tight to the axle that the arms appear to be twisting the pivots out of parallel. At least one side of the arm in the axle seat area must be touching the axle firmly, but the other side may have up to a 1/16" gap to allow the pivots to remain parallel. (**Figure 4**)

Tacking for preliminary placement

1. Tack arms to axle with (4) 1/2" tacks near the center (2 Front, 2 Rear) of the axle seat connection. (**Figure 5**)

Make sure tacks are within the weld area and not at the ends of the welds.

Checking setup

Check measurements before proceeding to welding.

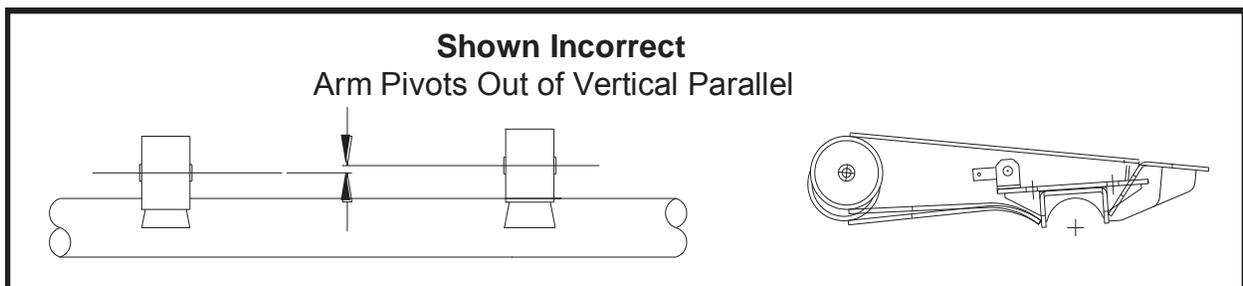


Figure 3

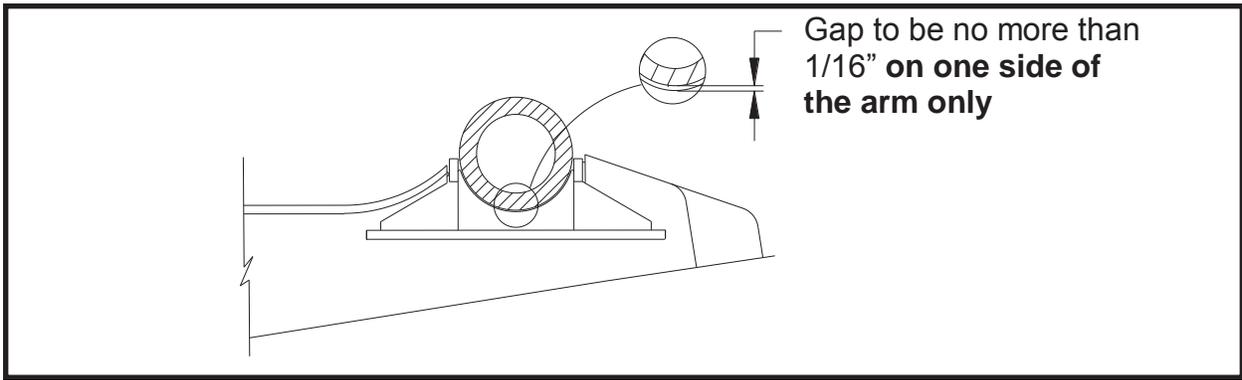


Figure 4

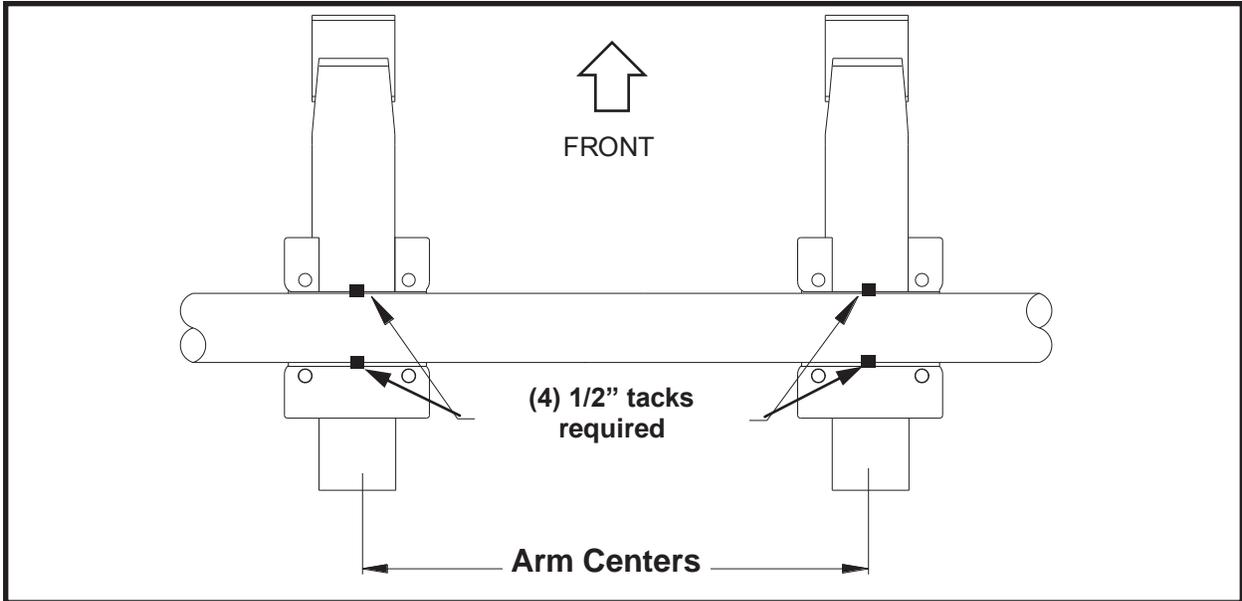


Figure 5

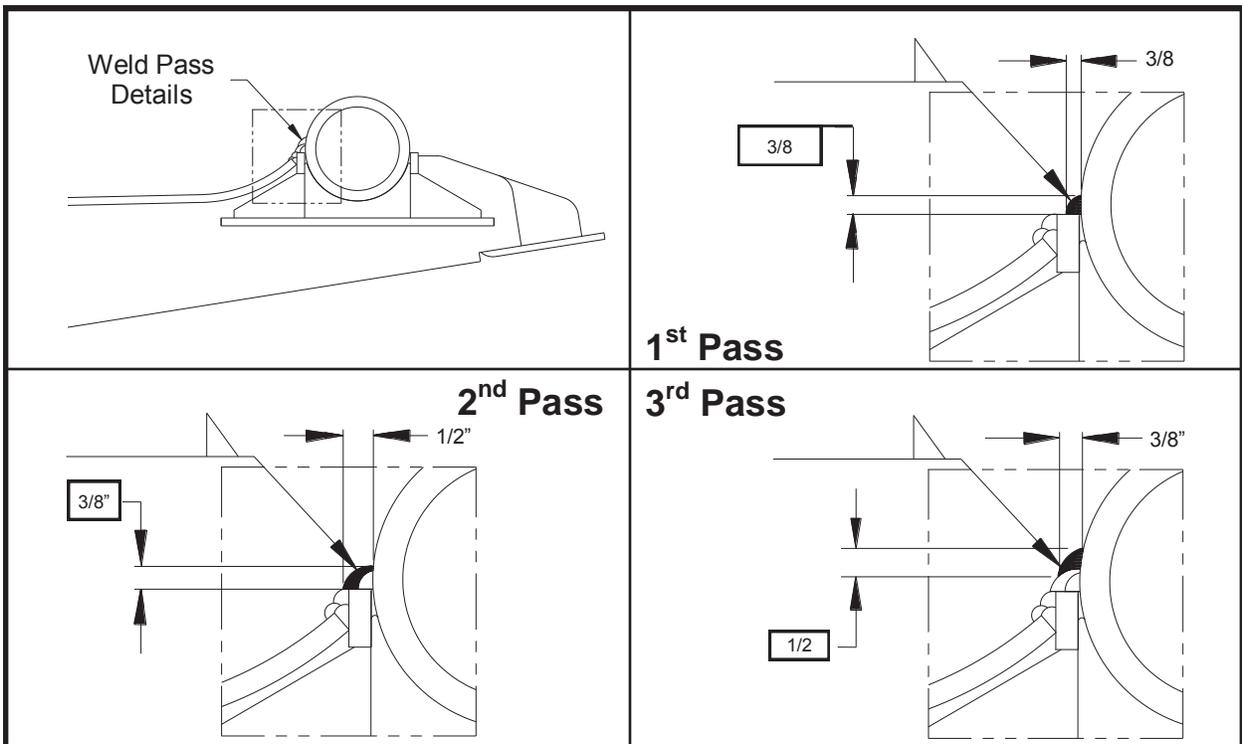


Figure 6

Welding Procedures

Warning ! Clean welds between passes and incorporate tacks into the first pass on the tacked side. Fill weld craters and avoid undercuts and cold laps over welds.

1. Three passes are required on each area where the axle is welded to the arms. **Figure 6** shows the size of the weld of each pass.
2. Start welding in the sequence shown in **Figure 7** at the rear side where the axle and seat meet. Make all first pass welds at all areas before proceeding to the second pass. **Welds should not be started or stopped at the end of the weld pass. They should stopped and started away from the ends as shown in Figure 7.**
3. **Figure 7** also shows the length of weld for both overslung and underslung models. **Do not wrap the corners of the axle seat while welding.**

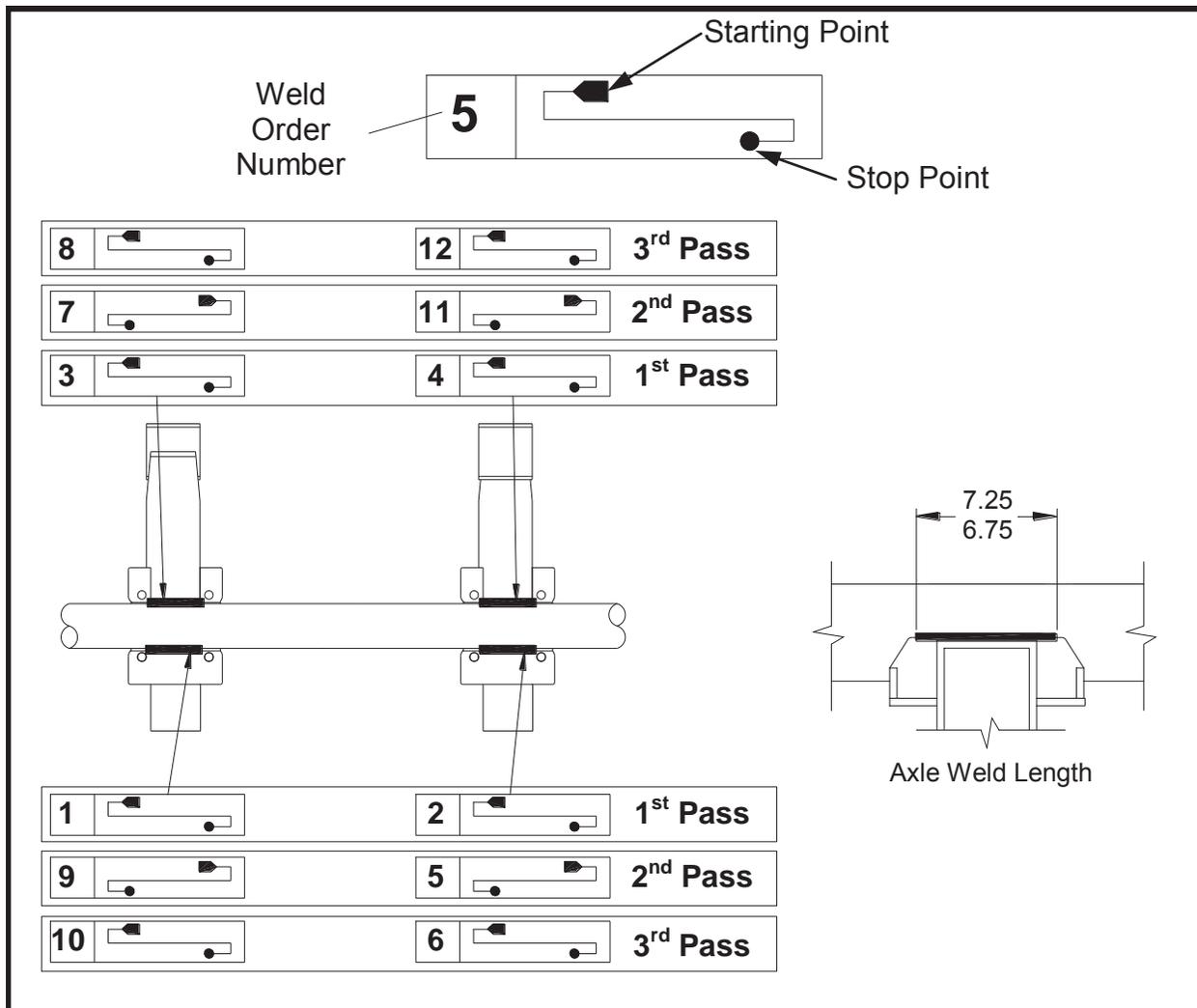


Figure 7

U-Bolt Installation

Note: Allow Welds to cool before installing U-bolts

1. Install U-bolt spacers, washers, and nuts on the U-bolts and snug up the nuts with a wrench. *Special welds may not use spacers.
2. Make sure U-bolt spacers are evenly spaced from the axle seats on both sides of the axle. See **Figure 8**.
3. Tighten the U-bolts by alternately tightening opposing corners of the clamp assembly. Torque U-bolts in a "X" pattern to **400 - 450 ft-lbs.** See **Figure 19**
4. The U-bolts should have an equal amount of thread showing above the nuts.

Figure 8

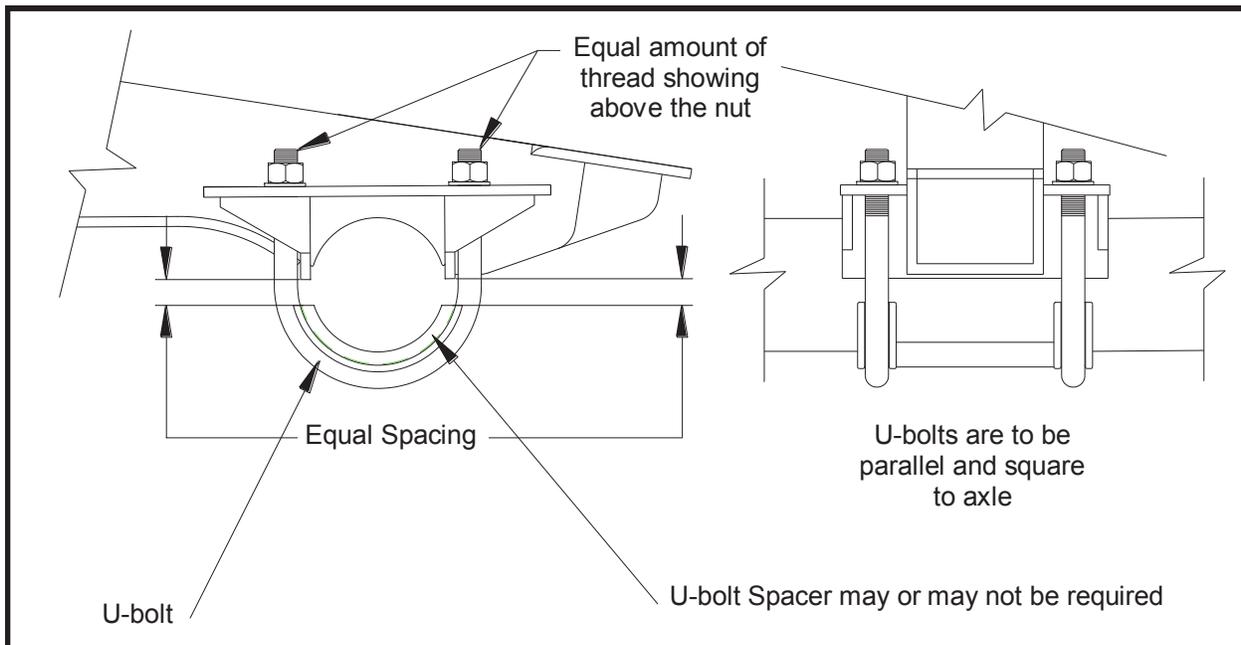


Figure 8

U-bolt Torque Instructions

To torque or re-torque u-bolts:

1. Partially tighten bolts #1 and #2 according to figure 1.

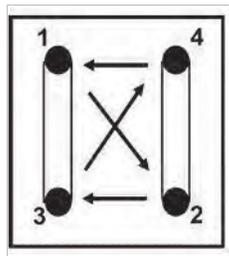


Figure 19: U-Bolt Torque Pattern

2. Partially tighten bolts #3 and #4.
3. Using the same sequence, torque to the proper torque as specified below.

Figure 19

Attaching suspension to frame

Note ! The suspension installer is responsible for ensuring the beams, crossmembers, and suspension attachment are adequate for the suspension. The following methods are common practices, but individual installations may vary.

Weld Note: It is important not to weld within .50 inch of any intersection of flange to flange between the Hangers and the frame components .

Preferred hanger to frame location

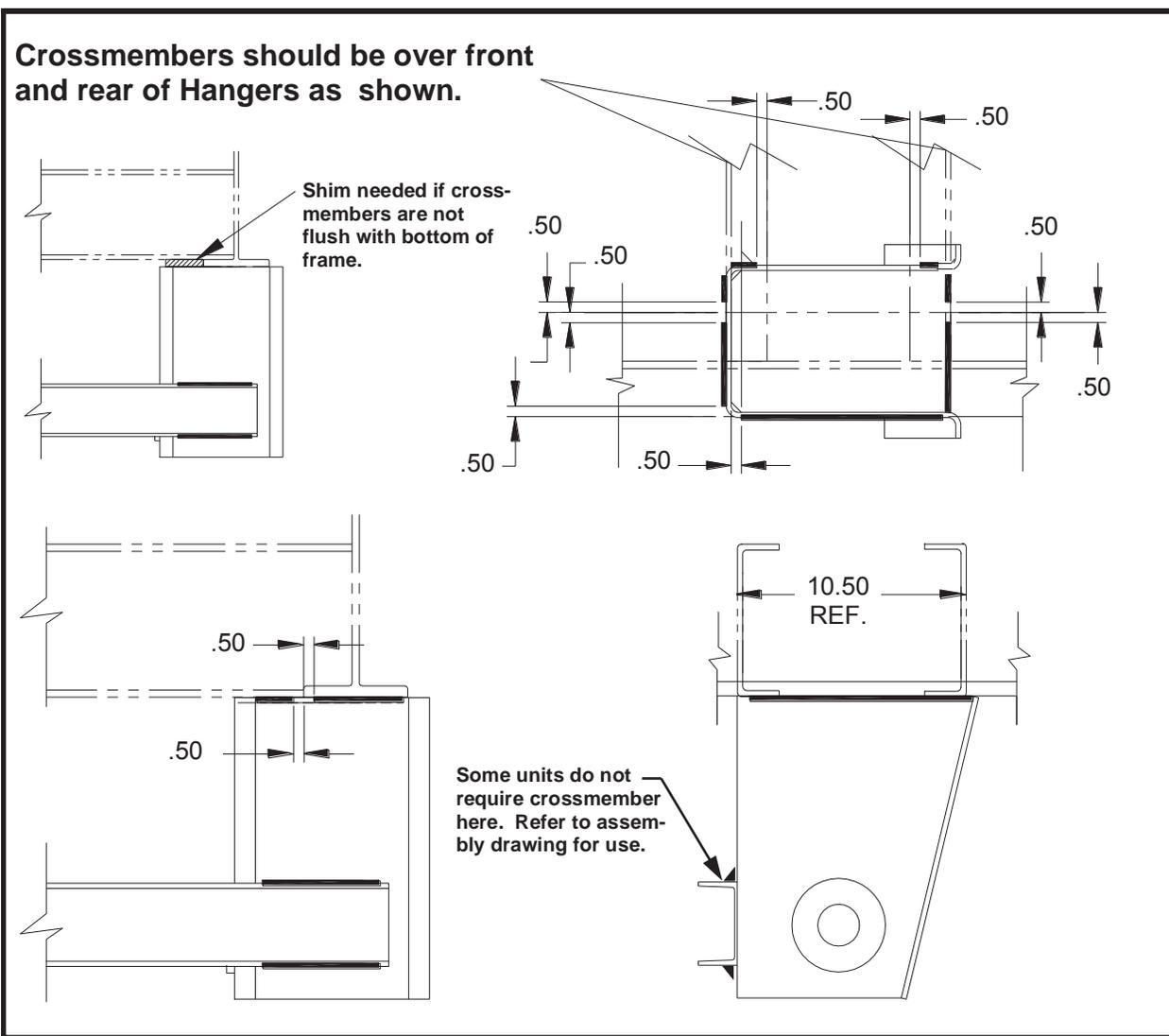


Figure 9

Optional outset orientation

Note: Figure 10 shows a common method, other methods may be necessary.

Gussets may be required if hanger extends past the center of the main beam of the trailer. Gussets are furnished by the installer.

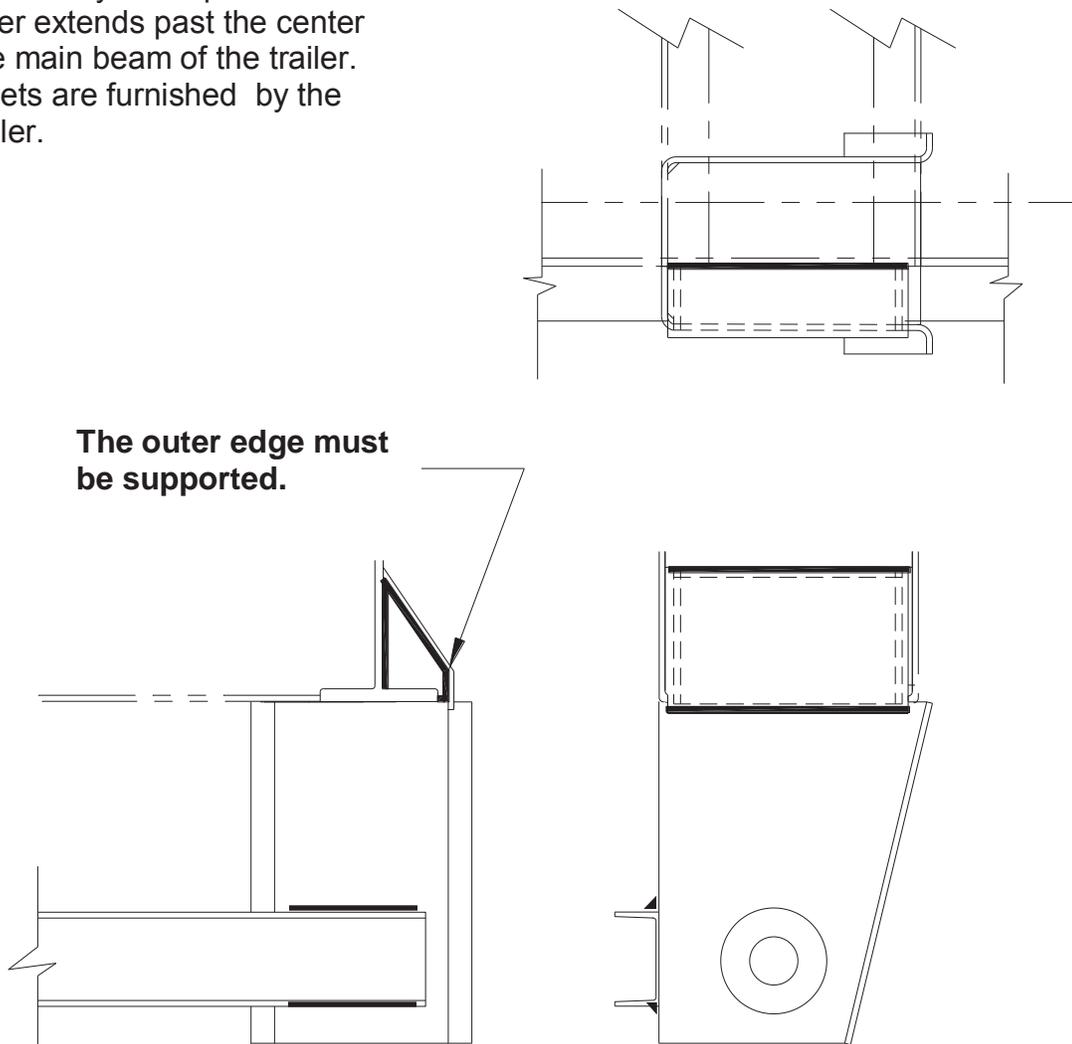
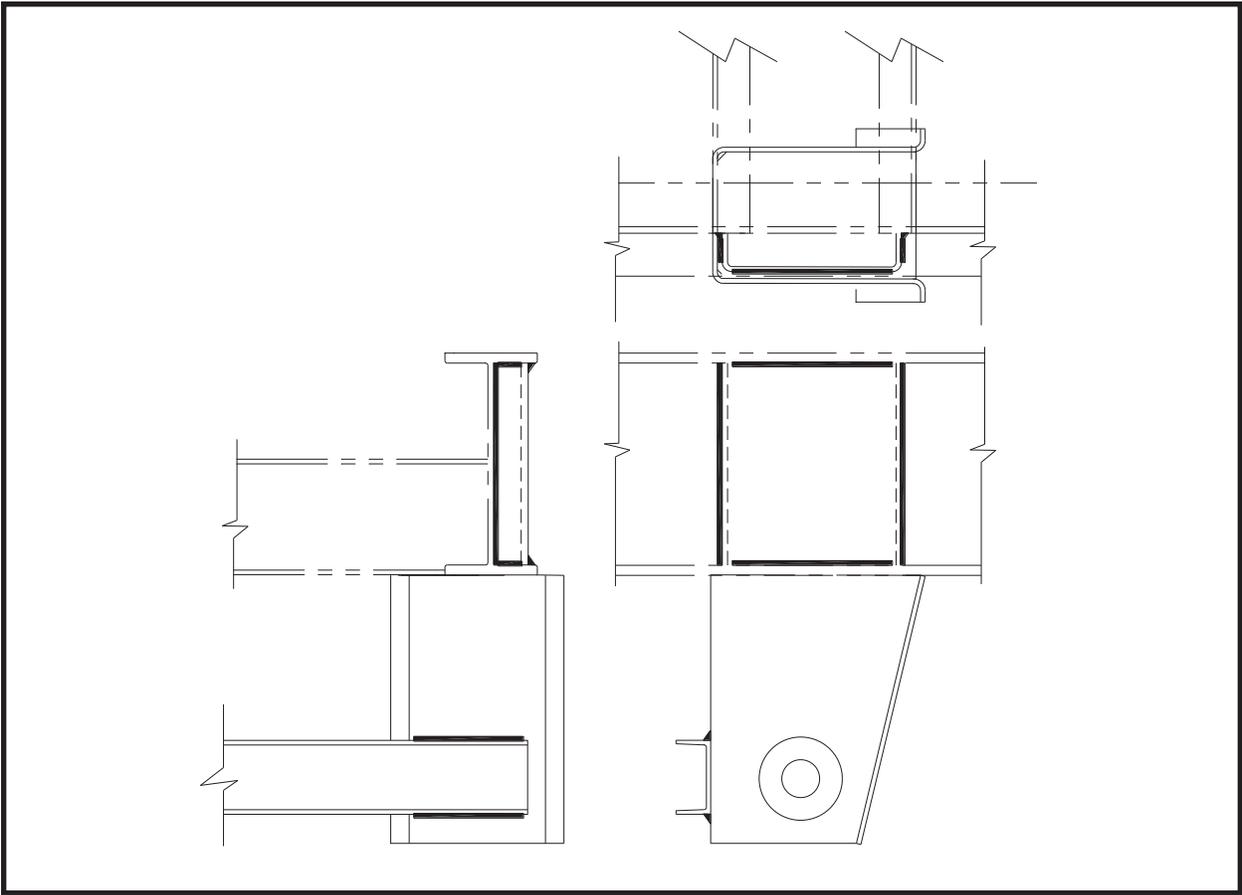
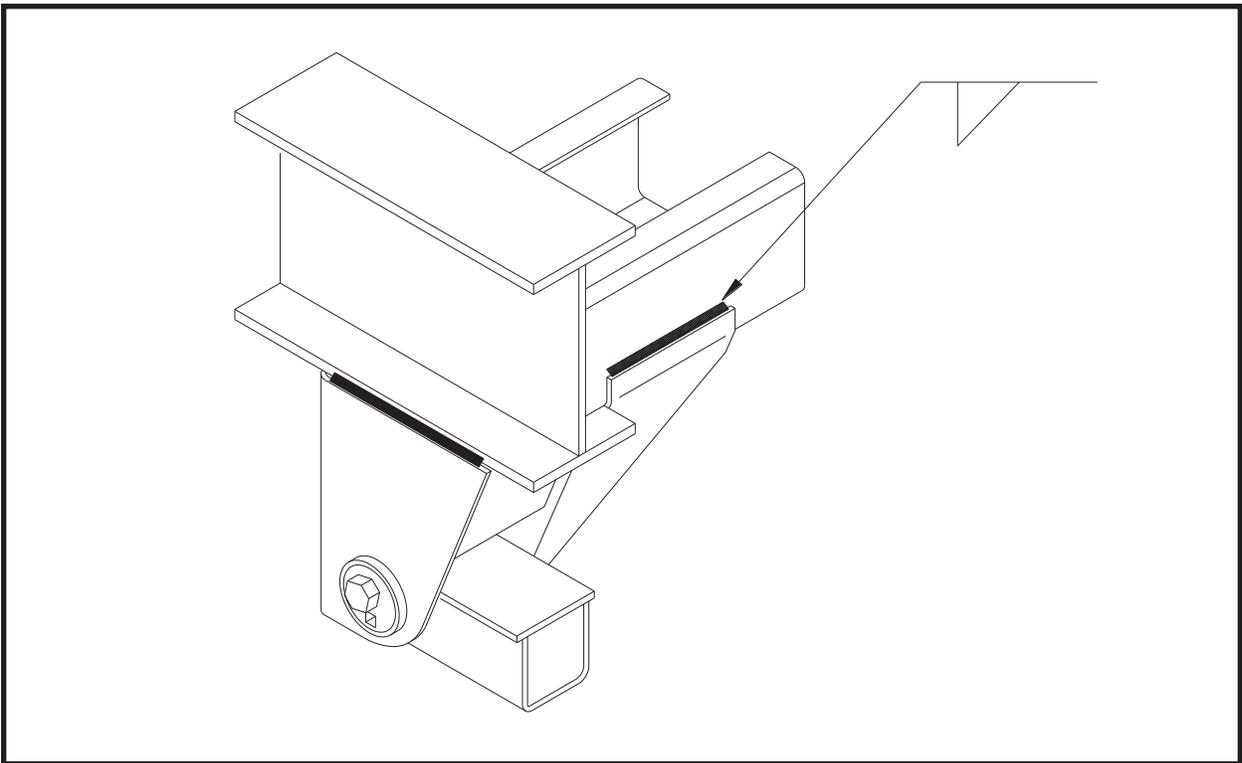


Figure 10



Optional Stiffener Mount
Figure 11



TA-250 Hanger with Gusset
Figure 12

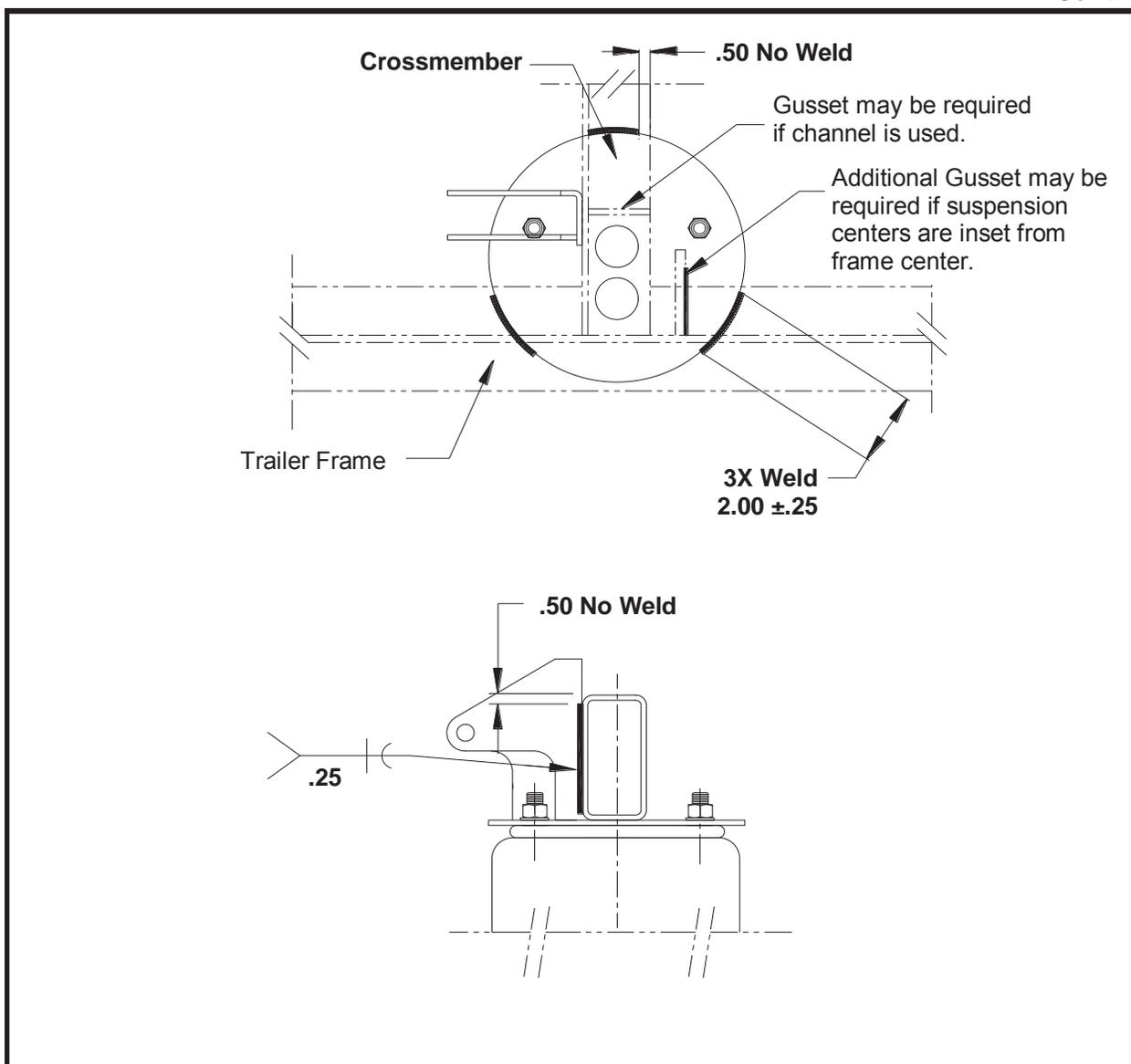
Attaching upper bag plate / spacer to frame

Note ! The suspension installer is responsible for ensuring the beams, crossmembers, and suspension attachment are adequate for the suspension. The following methods are common practices, but individual installations may vary.

Weld Note: It is important not to weld within .50 inch of any intersection of flange to flange between the Upper bag plates and the frame components as shown below.

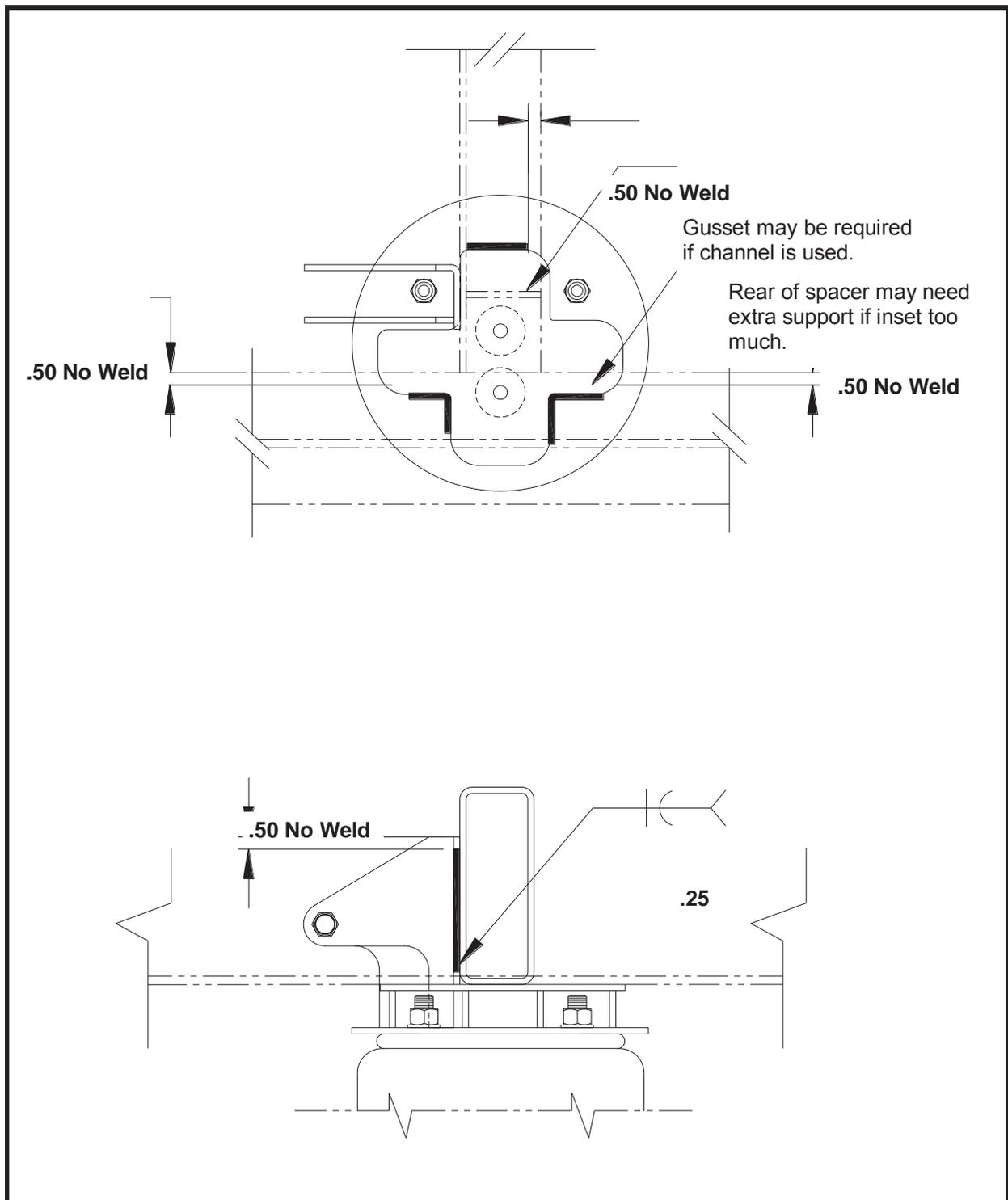
The bag plates need to be supported properly to ensure proper operation. The illustrations in **Figure 13** and **Figure 14** show the most common methods. Some installations may require additional bracing that is not shown due to the many different

Cont...



Bag plate without spacer
Figure 13

trailer styles and frame types. **Figure 13** shows a typical upper bag plate with no spacer. **Figure 14** shows a typical bag plate with spacer.



Spacer style bag plate
Figure 14

Final alignment for Weld Collar Type

Note ! The suspension installer is responsible for ensuring correct alignment and that all (4) collars on each suspension are welded completely.

Caution! **Failure to weld the collars voids the warranty and can cause severe suspension damage or failure and erratic trailer operation !**

Final Alignment of the axle, if done properly, will provide a maintenance free connection at the pivot of the suspension until bushing replacement. After several years of wear, it is normal to replace the bushing. If the original installation of the suspension is correct, the bushings can be replaced without the need to realign the suspension. **However, if the alignment is not correct, the bushing can wear prematurely and/or make the trailer track out causing tire wear.**

Sequence for alignment:

1. Tires must be the same size, diameter, and inflation pressure.
2. The suspension must be at the correct ride height to align properly. This can be done by adjust landing gear or using jacks to support the trailer. If trailer is upside down to mount suspension, the axles may be blocked to the proper ride height. Trailer and axles must be level. Refer to **Figure 15** and make sure ride height is the same on **both** sides of trailer frame.
3. Move one of the suspension arms to the middle of the adjustment slot and tack weld where shown in **Figure 16**.
4. Move the other arm on the suspension forward or backward to allow the distance from center of spindle to kingpin (**Figure 18** Dimension **A & B**) to be equal distance within 1/8".
5. Tack weld the other arm collars into place before welding.
6. Re-Check alignment before welding.
7. Make sure axles protrude evenly on both sides from frame. **Figure 18** dimensions **E** and **F** must be within 1/4" of each other
8. Weld all (4) collars with a .25 fillet completely around collars per **Figure 17**.
9. Additional suspensions should be aligned per **Figure 18** using the **C & D** dimensions with only 1/16" maximum variations.

Final alignment for Eccentric Collar Type

Final Alignment of the axle is very important. If done properly, will provide a low maintenance connection at the pivot of the suspension. After several years of wear, it is normal to replace the bushing. **If the alignment is not correct, the bushing can wear prematurely and/or make the trailer track out causing tire wear.**

Caution! Adjusting or rotating the two collars independently of each other can cause the pivot joint to loosen after being put into service. Both collars on a single hanger must be rotated and adjusted at the same time and in the same direction. Failure to adjust them together can lead to misalignment, tire wear, and bushing failure.

Sequence for alignment for Eccentric Collars:

1. Tires must be the same size, diameter, and inflation pressure.
2. The suspension must be at the correct ride height to align properly. This can be done by adjust landing gear or using jacks to support the trailer. If trailer is upside down to mount suspension, the axles may be blocked to the proper ride height. Trailer and axles must be level. Refer to **Figure 15** and make sure ride height is true on **both** sides of trailer frame.
3. Start out with the Adjustment-Square vertically aligned with pivot as shown in **Figure 20**.
4. Snug up one side so that the collars cannot rotate.
5. Using a 1/2" break over or ratchet, rotate the other two collars on the other hanger so the suspension moves forward or backward to allow the distance from center of spindle to kingpin (**Figure 18** Dimension **A & B**) to be equal distance within 1/8". Rotate inside and outside Eccentric Collar together and the same.
6. Snug up pivot bolt so the collar cannot move.
7. Re-Check alignment before proceeding. **If more suspension movement is needed to align, loosen the centered collar (unadjusted hanger) and rotate it to allow for more movement.** Again, move inside and outside Eccentric Collars together.
8. Make sure axles protrude evenly on both sides from frame. **Figure 18** dimensions **E** and **F** must be within 1/4" of each other.
9. Tighten fasteners to 800 - 900 ft-lbs. Weldment not required.
10. Additional suspensions should be aligned per **Figure 18** using the **C & D** dimensions with only 1/16" maximum variations.

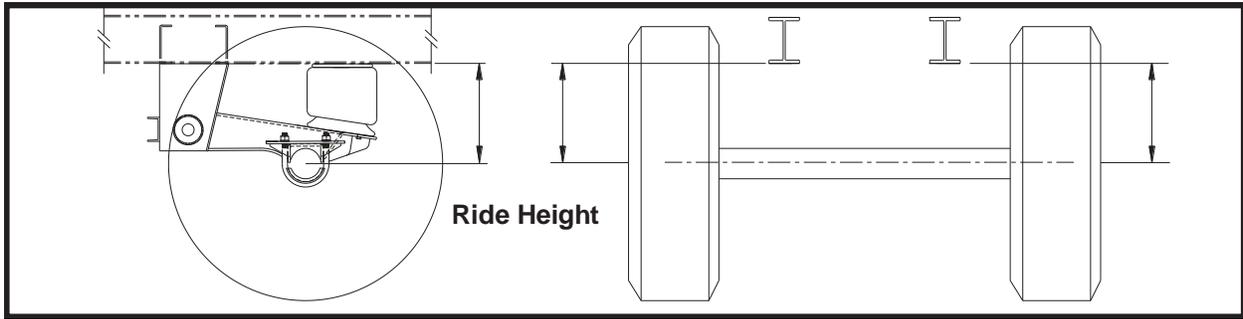


Figure 15

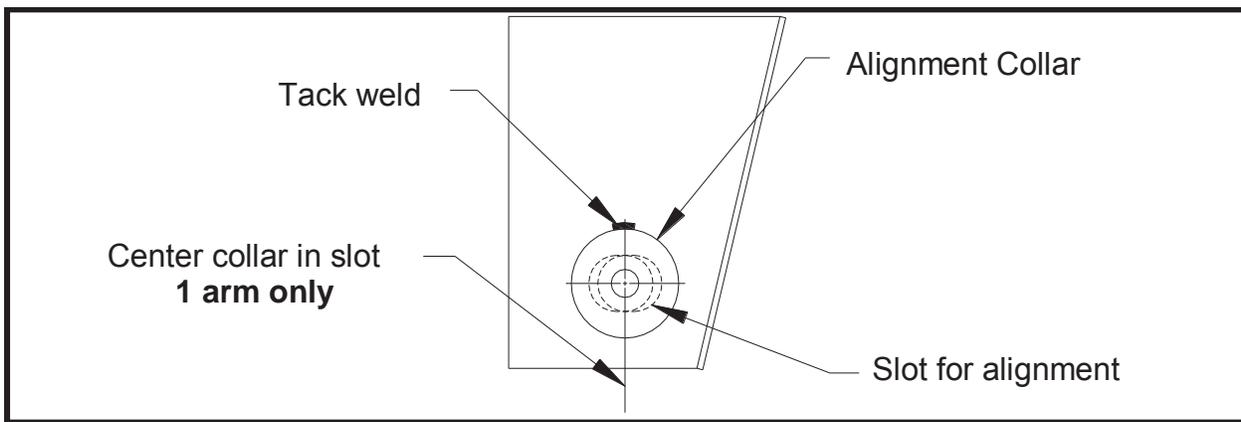


Figure 16

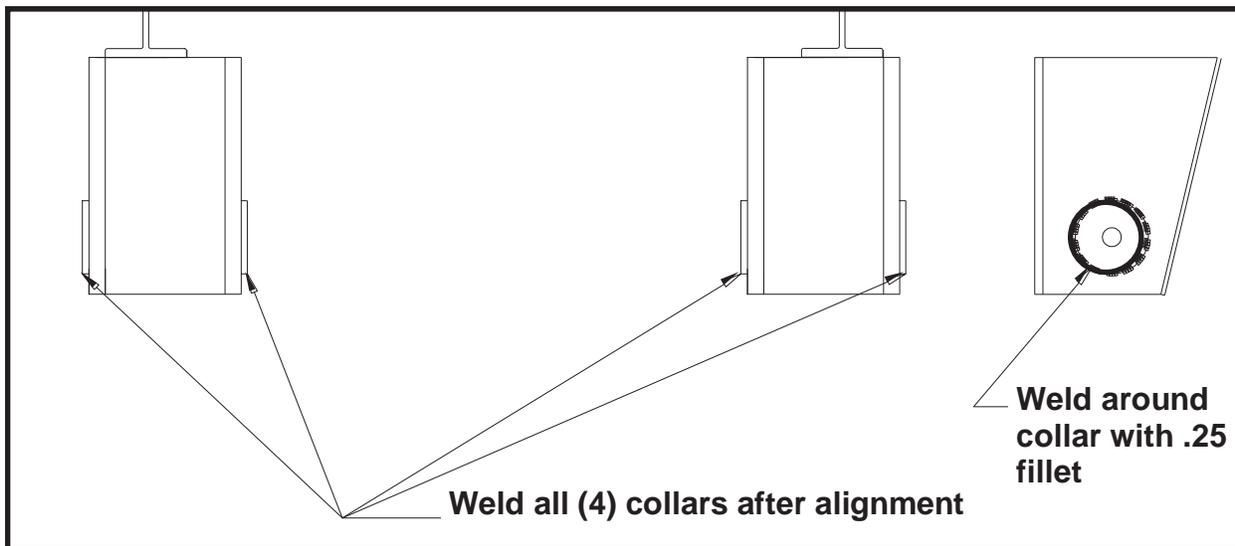


Figure 17

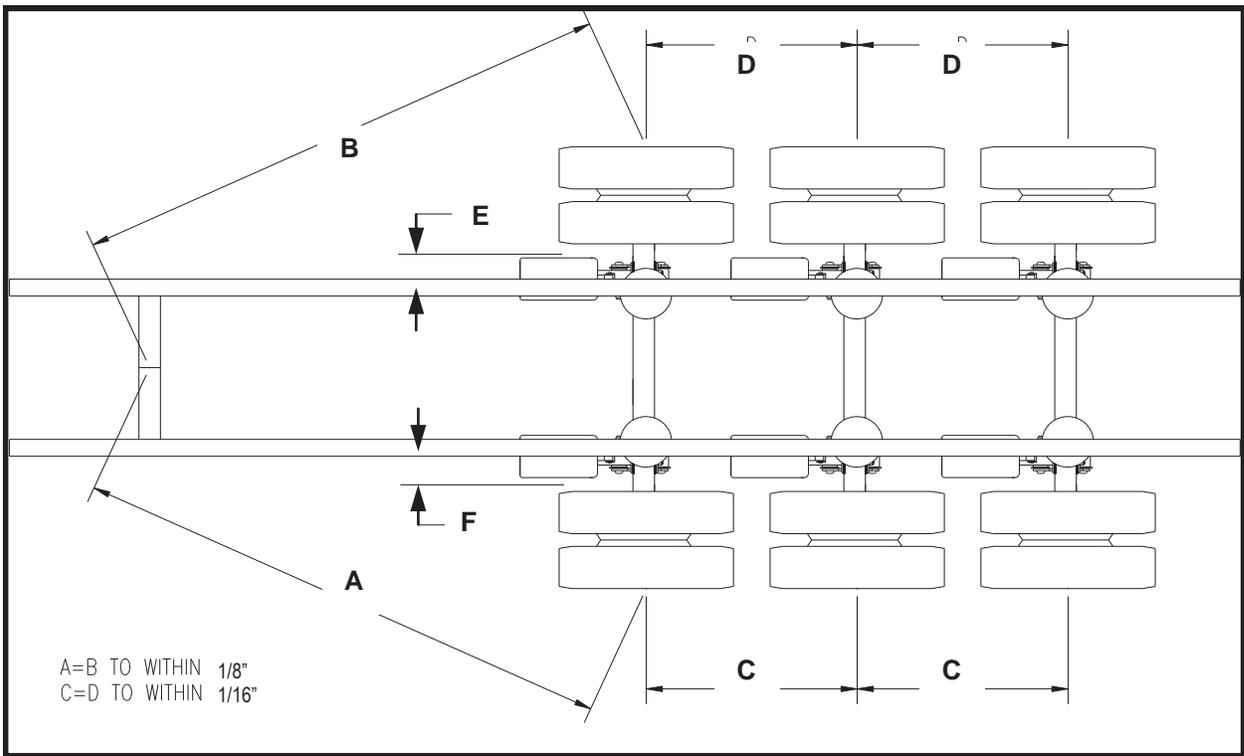


Figure 18

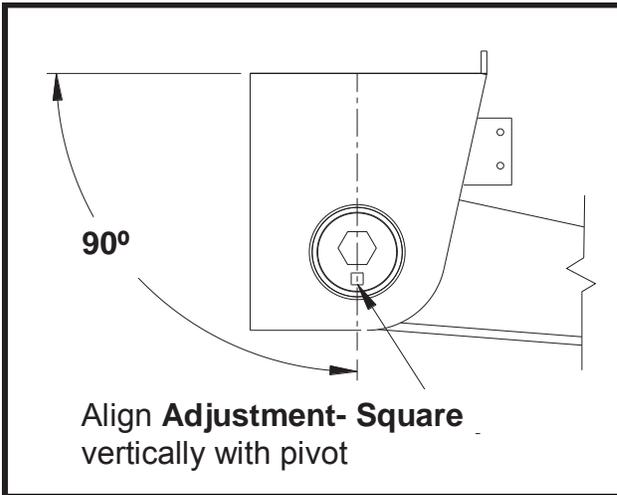


Figure 20

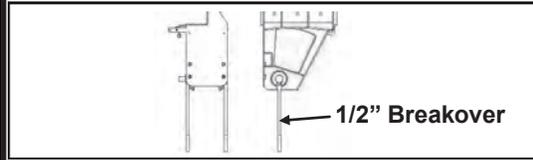
CAUTION

Adjusting or rotating the two collars independently of each other can cause the pivot joint to loosen after being put into service. Both collars on a single hanger must be rotated and adjusted at the same time and in the same direction. Failure to adjust them together can lead to misalignment, tire wear, and bushing failure.

IMPORTANT

Alignment Adjustment Requirements – When adjusting collars during the alignment of the axle, BOTH collars must be rotated at the same time.

- Use (2) 1/2" square-drive breakover bars to make the adjustments
- The square Adjustment Hole must line up from side to side.



Leveling Valve requirements

Caution ! Air lines are pressurized and may blow debris, **USE EYE PROTECTION.**

Major functions of the leveling valve:

The leveling valve (**Figure 21**) in conjunction with the air control kit is responsible for maintaining the proper ride height of the suspension. When the trailer is loaded, the leveling valve fills the airsprings with more air to bring the trailer back to proper ride height. When the trailer is emptied, the leveling valve releases air through the exhaust tube and lowers the suspension back to proper run height.

Watson and Chalin Mfg offers a variety of Air Control Kits to suit the most popular needs. The ACK203, -2 (**Figure 22**) is the most popular Air Control Kit. It provides the basic features that are needed to run an air suspension properly. Other Air Control Kits are available, such as the ACK201, (**Figure 23**) that provides a popular feature: dual leveling valves. Call Watson and Chalin Mfg for other specific needs.

Where to install the leveling valve:

Typically the leveling valve is located on the rear axle on a tandem or on the middle axle on a tridem.

Special considerations for spread tandems:

A spread tandem (over 50") may require special consideration about ride height adjustment. Aluminum or lightweight trailers that have a lot of camber (arc, rise) in the main deck need special consideration when determining proper ride height. The leveling valve (if placed on the rear axle) may have to be intentionally set to run at a slightly lower run height when the trailer is empty to keep the front suspension from running taller than it's intended run range. **It is recommended that ride height adjustments be checked in fully loaded and unloaded conditions to find an average run height that does not force a suspension to run past its maximum run range.**

Suspensions that run outside their intended run range can cause excessive wear on the shock absorbers and airsprings, plus cause increased stress at the axle connection.

Note: Consult separate Leveling Valve instructions that come in leveling valve box for specifics on installation.

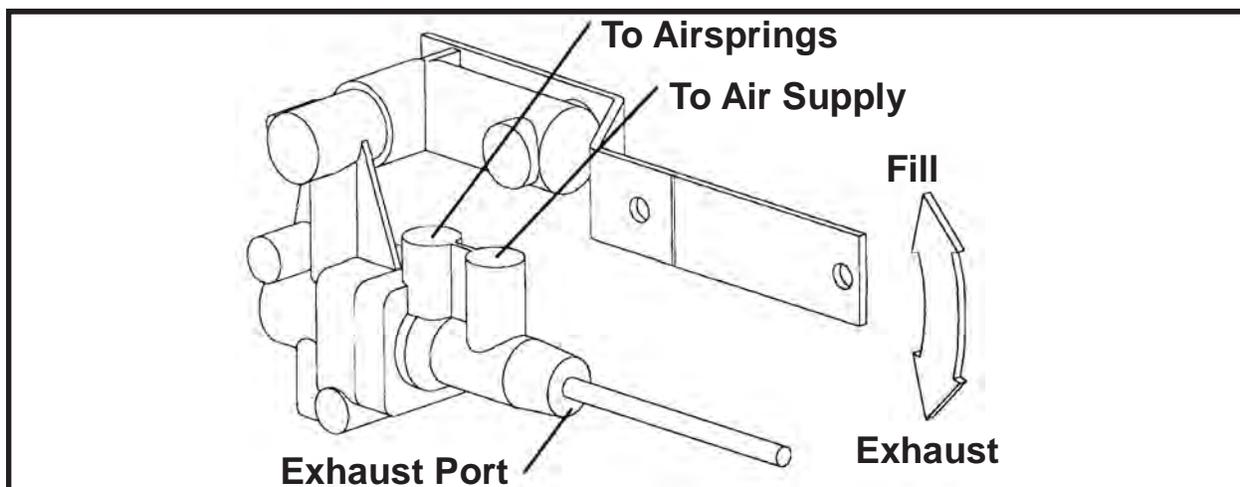
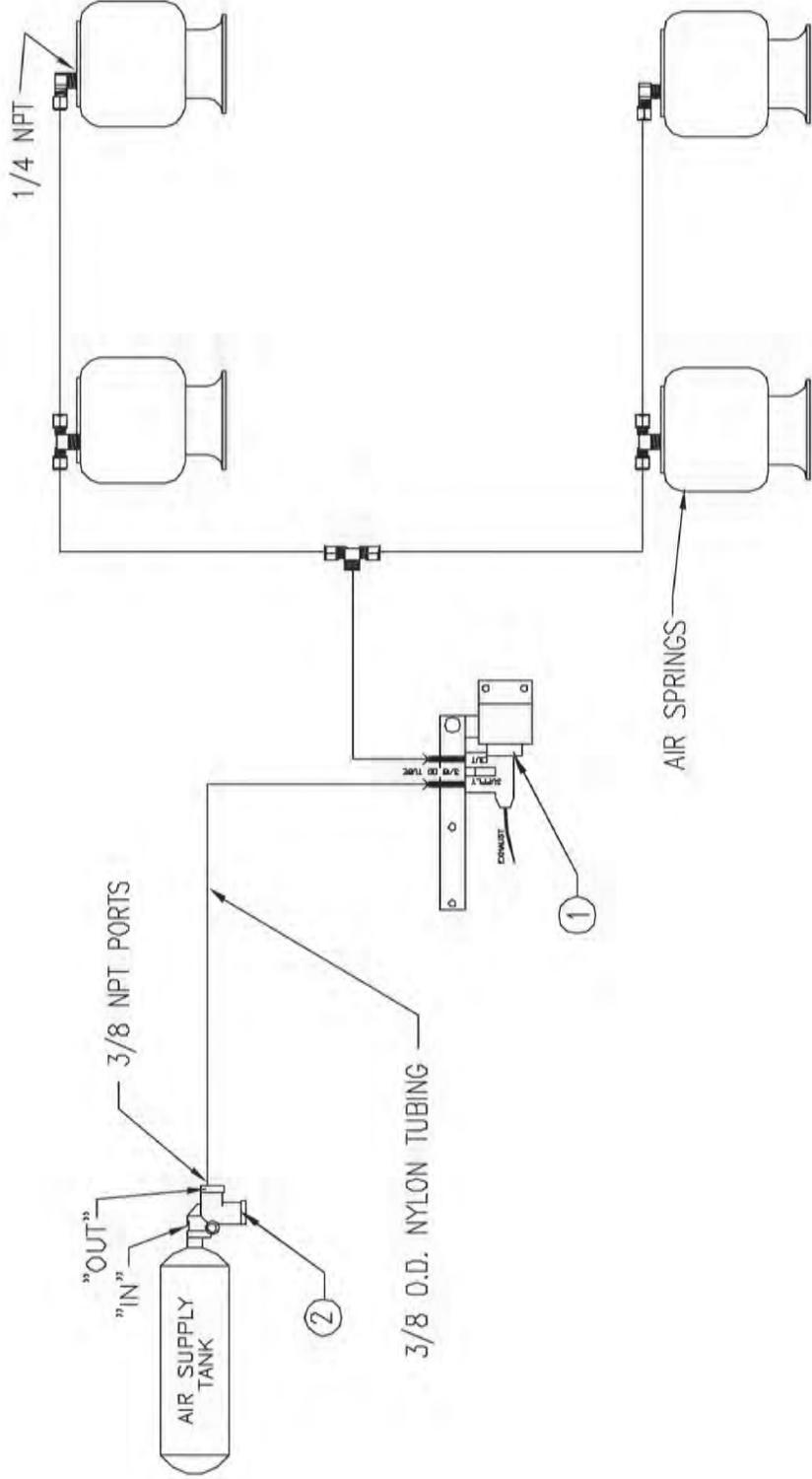


Figure 21

LEVEL	REVISION DESCRIPTION	EN	DATE	BY
A	NEW DRAWING		27/03/04/03	JFF
B	ITEM #1 WAS 17760		5/20/06/08/08	JLX
C				

B

ITEM	PART NO.	QTY.	DESCRIPTION
1	17760-04	1	LEVELING VALVE(HADLEY)
2	10100	1	BRAKE PROTECTION VALVE



NOTES:

1. DIAGRAM IS SHOWN FOR TANDEM SUSPENSION. FOR SINGLE SUSPENSION, OMIT FRONT AIR SPRINGS.
2. NYLON TUBING AND FITTINGS FURNISHED BY CUSTOMER.
3. ALL EXTERNAL EXHAUST PORTS MUST USE MINIMUM 6.00 LONG DRAIN TUBE FACING DOWN

SINGLE LEVELING VALVE SYSTEM

PART PROPERTIES (EXCEPT AS NOTED)		DESCRIPTION		MATERIAL	
AREA	±	DECIMAL	±	SEE ABOVE	—
CUT LENGTH	±	FRACTIONAL	±	SUSPENSION MODEL	PREVIOUS ASSEMBLY
WEIGHT	±	ANGULAR	±	DATE	DRAWING NO.
				3/04/03	ACK203
				—	JFF
				—	A
				—	NTS
				—	SCALE
				—	BY
				—	CHKD
				—	DATE
				—	BY
				—	SIZE
				—	APP
				—	NO.
				—	ACK203

WATSON & CHALIN MFG., INC.

Figure 22

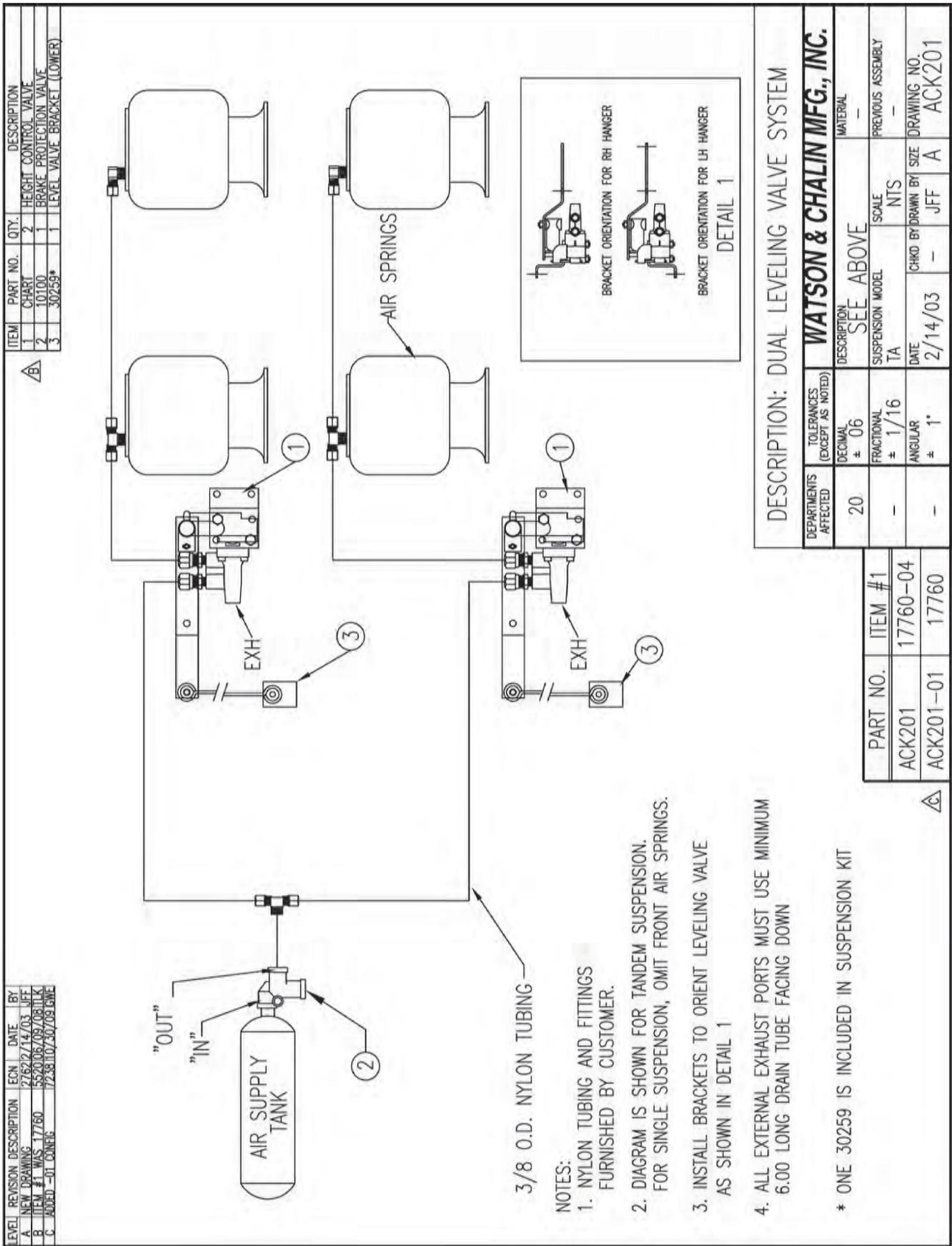


Figure 23

Torque Requirement Procedures

All fasteners should be re-torqued according to the following schedule.

- after 30 days
- every 6 months thereafter

Capscrew/Bolt (Grade 8 UNF) Torque Requirements

Capscrew/Bolt Size	3/8"	1/2"	5/8"	3/4"	3/4" (Stabilizer Shock Stud)	7/8"	1"	1 1/8"
Torque minimum feet/lbs.	25	50	150	300	150	500	700	900
Torque maximum feet/lbs.	35	75	200	350	175	550	800	1000

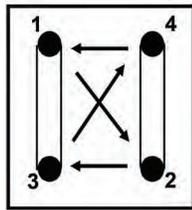
NOTE: Torque Values do not apply to air springs or lower grade fasteners.

U-bolt Torque Instructions

To torque or re-torque u-bolts:

1. Partially tighten bolts #1 and #2 according to figure 1.

Figure 1: U-Bolt Torque Pattern



2. Partially tighten bolts #3 and #4.
3. Using the same sequence, torque to the proper torque as specified below.

U-Bolt (Non-Plated Clean Lubricated Thread) Torque Requirements

UNF Grade 8 Size	3/8"	1/2"	5/8"	3/4"	7/8"	1"	1 1/8"
U-bolt minimum feet/lbs.	15	40	120	200	400	650	800
U-bolt maximum feet/lbs.	20	60	150	250	450	750	900

Airspring Torque Requirements

Size	Description	Max Torque Requirement (ft./lbs.)
3/8"	UNC Blind Nuts	50
1/2"	UNC Bolt or Stud	25
3/4"	UNC Stud	55
3/4"	UNF Combo Stud	50

Air Fitting Torque Requirements

Size	Max Torque Requirement (ft./lbs.)
1/4" NPTF	20
1/2" NPTF	20
3/4" NPTF	20

Final Inspection

Caution ! Be careful when inspecting trailer, especially if manually adjusting or cycling leveling valve, because the trailer will go up and down and this could cause serious injury.

1. Check welds to determine if they are placed correctly and make sure they are the right size for the following:
 - Axle seats to Axles to make sure the correct procedures on pages 5-8 were followed.
 - Check to make sure all (4) alignment collars were welded completely.
 - Check hangers and upper bag plates to make sure they are welded and positioned properly, and sufficient frame supports are in place.
2. Make sure the suspension can go through it's full range of motion without interfering with frame components, brake devices, valves, airtanks, or other such components.
3. Make sure the airspring has at least a 1" clearance all the way around it while it is fully inflated. This should be checked through the full range of motion to determine if possible contact may occur.
4. Through turns the suspensions may track out before returning to its proper position in a straight path, so make sure no interference will exist with tires and other suspension components.
5. Be sure the Ride-height of the suspension is in accordance with the assembly drawing from Watson and Chalin Mfg. Refer to page 18 for notes on ride height variations on spread tandems.
6. Check leveling valve to verify that the lever does not exceed 45° of movement in full up or down positions. Exceeding 45° can break the leveling valve.
7. Check U-bolt torque with specifications on page 9.
8. Make sure tire has at least 1" of clearance when suspension is dumped or in it's full up position.
9. Recheck alignment per pages 14 or 15. It is recommended that the trailer be pulled down the highway for a couple of miles to ensure proper tracking after inspection is finished.

General Troubleshooting

PROBLEM	POSSIBLE CAUSE	REMEDY
Trailer not tracking properly	Front alignment collars not welded	Align unit and weld alignment collars (refer to page 14)
	Axle misalignment	Cut loose front alignment collars & reweld collars (refer to page 14 for welded or 15 for eccentric non-weld type)
	Axle seats not properly installed to axle	Check axle seat location refer to page 5. If improperly installed cut loose and install properly as shown and realign.
Not getting the desired load on axle	Leveling valve incorrectly adjusted	Adjust the leveling valve per leveling valve instructions
	Air Control Kit not properly installed	Check piping of air system Check for kinks in hoses
	Suspension out of recommended travel range	Leveling valve needs adjustment (page 18) to proper run height
Insufficient air pressure to system	Defective brake protection valve	Replace brake protection valve and check air compressor
Not getting the correct axle travel	Interference with Trailer frame components	Inspect for interference And correct if needed
	Not installed properly	Check installation with factory installation drawing
	Leveling valve incorrectly adjusted	Adjust the leveling valve per leveling valve instructions or refer to leveling valve troubleshooting on page 22

Leveling Valve Troubleshooting and Testing

PROBLEM	POSSIBLE CAUSE
Airsprings flat	Obstruction in air line Defective Pressure Protection Valve Defective leveling valve-see test procedure Air leak in system
Air springs raise to full height but do not exhaust	Leveling valve linkage slipping (if clamped boot type) Obstructed air line Defective leveling valve-see test procedure Make sure any valves between leveling valve and airsprings are not one way valves
Air springs deflate when parked	Leak in air system-check with soapy water Defective leveling valve-see test procedure
Suspension will not maintain proper height	Leveling valve linkage slipping (if clamped boot type) Obstructed air line Defective leveling valve-see test procedure

Leveling valve test procedure

1. With a minimum of 90 psi at the supply port, rotate the lever up (as indicated on the side of the valve) 30° to 45° . Air should begin to flow into the air springs within seconds.
2. Rotate the lever to the neutral position. Air flow should stop.
3. Rotate the lever down 30° to 45° . Air should begin to exhaust from the air springs within seconds.
4. Rotate the lever to the neutral position. Air flow should stop.
5. If the valve fails to flow air or shut off as specified, replace leveling valve.

Reasons to replace leveling valve

- Did not pass the test procedure.
- Air leaks from the leveling valve.
- Leveling valve is damaged.