READ ALL INSTRUCTIONS COMPLETELY AND THOROUGHLY UNDERSTAND THEM BEFORE DOING ANYTHING.
CALL CHASSISWORKS TECH SUPPORT (916) 388-0288 IF YOU NEED ASSISTANCE.

INSTALLATION GUIDE

CHRIS ALSTON'S Chassisworks
THE HOME OF HIGHER TECHNOLOGY

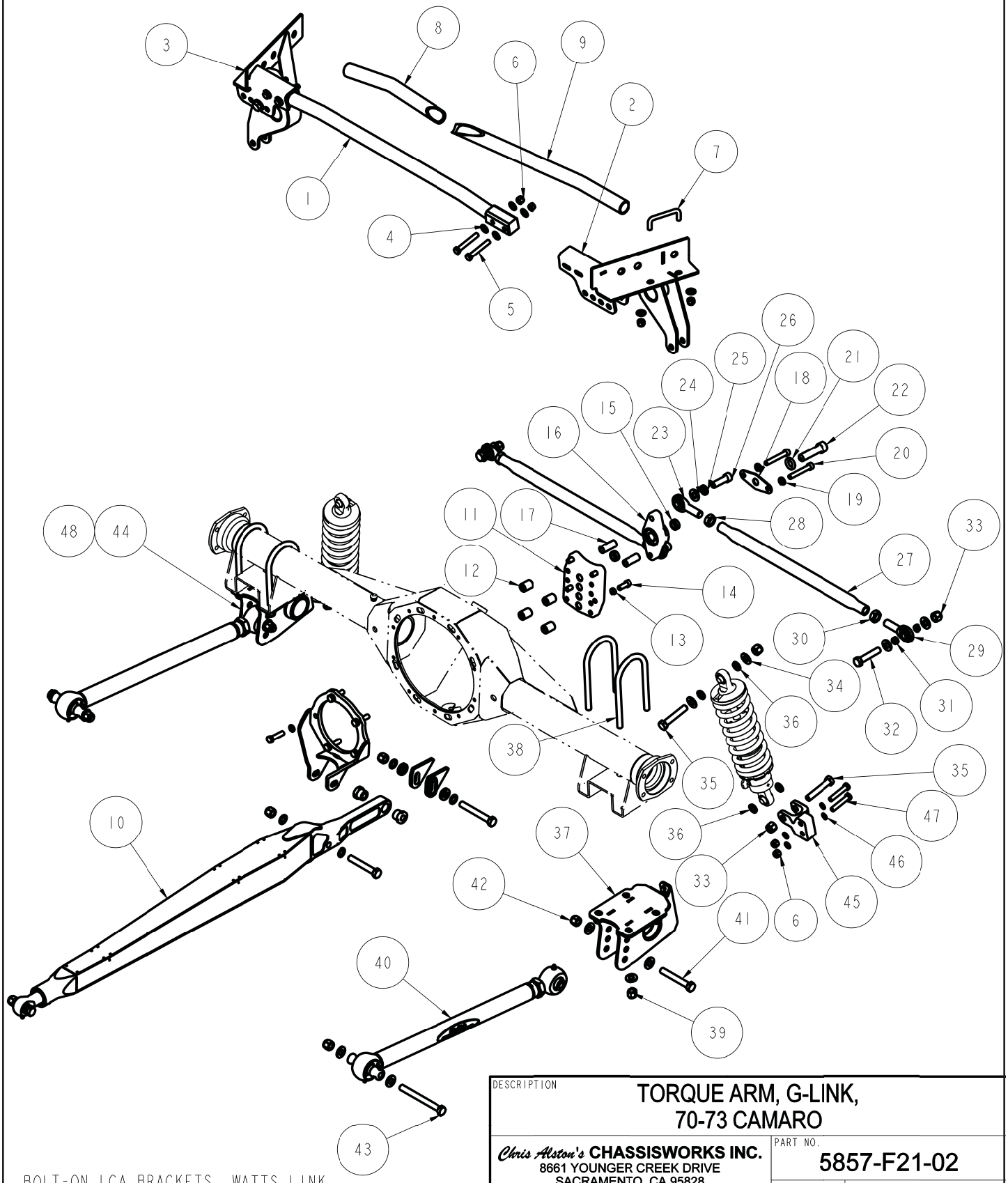
5857-F21-02
g-Link Torque Arm Coil-Over Suspension
1970-1973 Camaro/Firebird

Description: Torque arm rear coil-over suspension for 1970-1973 Camaro and Firebird. Includes fabricated torque arm, pivot-ball tubular lower links, panhard bar, VariShock coil-overs, weld-on frame brackets. Optional Watts link, billet-arm splined-end anti-roll bar and narrowed mini-tub configuration.

Notes: Installation requires welding. Outside of lower link is approximately 2-1/2” narrower than the outside of the leaf spring, per side.

IMPORTANT (Narrowed housings used with mini-tubs): If your wheels do not clear the bolt-on lower axle brackets, weld-on brackets can be installed at a narrowed position. Test fit the wheels, brackets, and arms. Undamaged parts can be exchanged if needed.

BOLT-ON AXLE BRACKETS WITH WATTS LINK



BOLT-ON LCA BRACKETS, WATTS LINK

DESCRIPTION

TORQUE ARM, G-LINK,
70-73 CAMARO

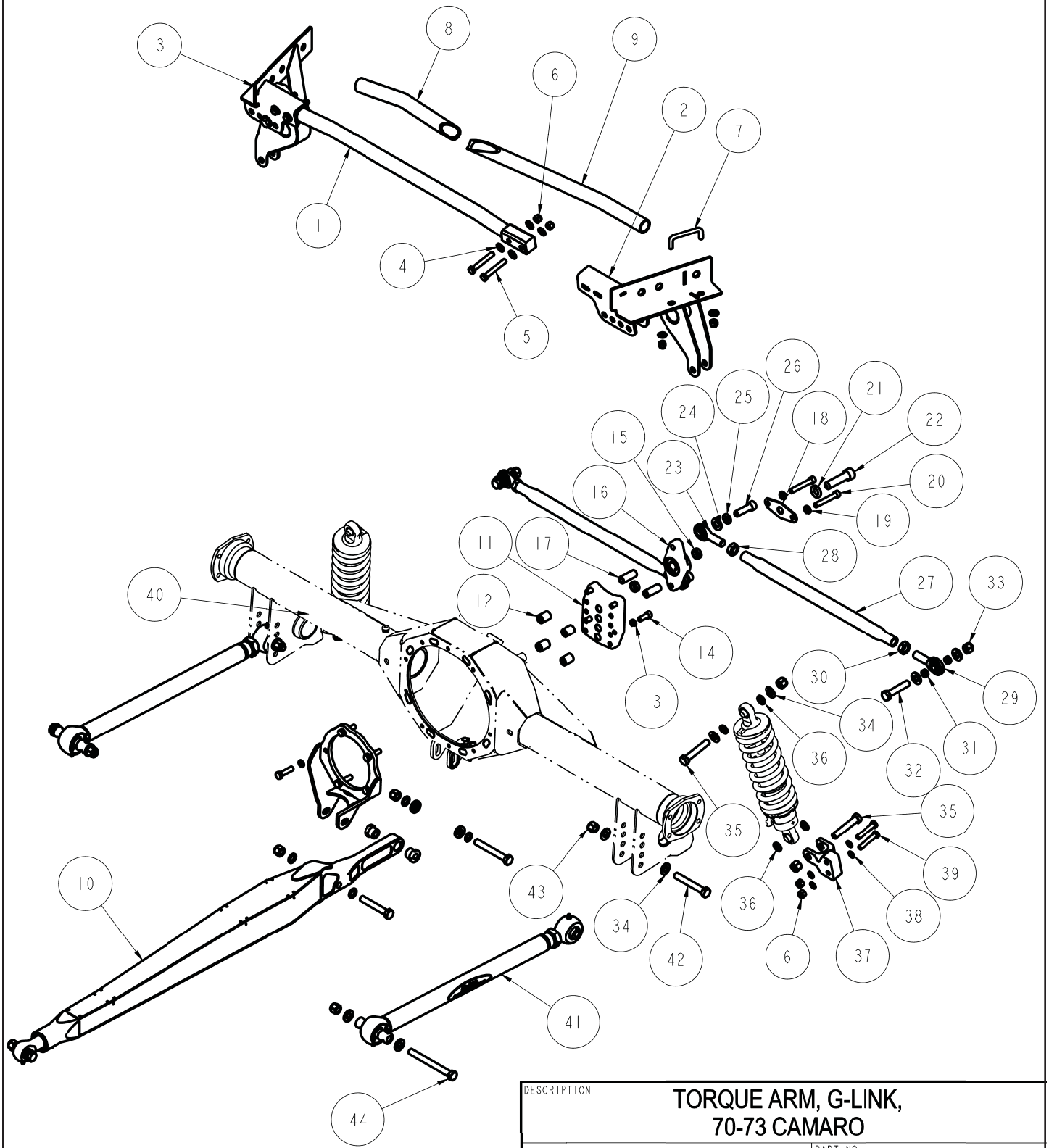
Chris Alston's **CHASSISWORKS INC.**
8661 YOUNGER CREEK DRIVE
SACRAMENTO, CA 95828
(916) 388-0288 FAX 388-0295

PART NO. 5857-F21-02

3/10/17 | DWG: 915857-F21-02

ITEM	QTY	PART NO.	DESCRIPTION
1	1	7959-0046	CROSS TUBE WELDMENT, SHOCK MOUNT, G-BAR, 70-81 CAMARO
2	1	7959-0289	FRAME BRACKET, WATTS LINK, DRIVER, 70-81 CAMARO
3	1	7959-0295	FRAME BRACKET, WATTS LINK, PSGR, 70-81 CAMARO
4	12	3120-038S-Y	FLAT WASHER, 3/8 SAE, HARDENED, YELLOW ZINC
5	4	3100-038F2.50Y	HEX BOLT, 3/8-24 x 2 1/2, GRADE 8, YELLOW ZINC
6	12	3101-038-24C	LOCKNUT, 3/8-24, GRADE 5, NYLON INSERT, CLEAR ZINC
7	2	3148-263.38-094	SQUARE BEND U-BOLT, 3/8-24 x 2.625 x .938
8	1	7959-0305	CROSS TUBE, WATTS LINK / PANHARD BAR, 70-81 CAMARO
9	1	7959-0327	CROSS TUBE, WATTS LINK, DRV, 70-81 CAMARO
10	1	7959-0279	TORQUE ARM ASSEMBLY, 70-73 CAMARO
11	1	7959-2012	MOUNTING PLATE, WATTS LINK, 4 POSITION ADJUSTABLE, FAB-9
12	4	7959-2017	STANDOFF, G-STREET WATTS LINK
13	4	3108-038H-S	HIGH COLLAR LOCKWASHER, 3/8 STAINLESS
14	4	3103-038C1.00C	SOCKET HEAD CAP SCREW, GRADE 8, 3/8-16 x 1, CLEAR ZINC,
15	2	7959-2014	SPACER, □n□7/8 OD x .120 WALL x .313 LONG
16	1	7959-2026	BELL CRANK ASSEMBLY, WATTS LINK, G-STREET
17	2	7959-2015	SPACER, □n□5/8 OD x .120 WALL x 1.625 LONG
18	1	7959-2016	TOP PLATE, G-STREET WATTS LINK
19	2	3108-038L-C	LOCK WASHER, HELICAL SPRING □n□3/8, STEEL, ZINC
20	2	3103-038C2.50C	SOCKET HEAD CAP SCREW, GRADE 8, 3/8-16 x 2 1/2, CLEAR ZINC
21	1	3108-063L-C	LOCK WASHER □n□5/8, SPRING
22	1	3103-063C2.50B	SOCKET HEAD CAP SCREW, 5/8-11 x 2 1/2, BLACK OXIDE
23	2	3136-063X050-RT	ROD END, 5/8- 8 RIGHT x 1/2 BORE CMX10-8T-F1
24	6	3157-050S-C	WASHER, 1/2 SAE, ZINC PLATED, 1/2 ID x 1 1/16 OD x 3/32 THICK
25	2	3108-050L-C	LOCKWASHER, 1/2 MEDIUM, PLATED
26	2	3103-050C1.75B	SOCKET HEAD CAP SCREW, 1/2-13 x 1 3/4, BLACK OXIDE
27	2	7907-63-18.50-S	RADIUS ROD, 5/8-18 THREAD x 18.50 LONG, SATIN
28	2	3102-063-18RC	JAM NUT, 5/8-18 RIGHT, CLEAR ZINC
29	2	3136-063X050-LT	ROD END, 5/8-18 LEFT x 1/2 BORE CMX10-8T-F1
30	2	3102-063-18LY	JAM NUT, 5/8-18 LEFT, YELLOW ZINC
31	4	1000	MISALIGNMENT BUSHING □n□1/2 BORE x .250
32	2	3100-050F2.50Y	HEX BOLT, 1/2-20 x 2 1/2, GRADE 8, YELLOW ZINC
33	6	3101-050-20C	LOCKNUT, 1/2-20, GRADE 5, NYLON INSERT, CLEAR ZINC
34	20	3120-050S-Y	FLAT WASHER, 1/2 SAE, HARDENED, YELLOW ZINC
35	4	3100-050F2.75Y	HEX BOLT, 1/2-20 x 2 3/4, GRADE 8, YELLOW ZINC
36	8	7955-093-125	SPACER, □n□1/2 BORE x .125 LONG, □n□.85 OD x .175 OAL
37	1	7959-0040	LCA BRACKET WELDMENT, BOLT-ON, DRIVER, AXLE ARB, G-BAR, 70-81 CAMARO
38	4	3147-300.50-650	U-BOLT, AXLE TUBE, 1/2-20 x 3.00 x 6.50
39	8	3131-050-20Y	LOCKNUT 1/2-20, GRADE 8, NYLON INSERT, YELLOW ZINC
40	2	3813-24.00-AE	LOWER LINK ASSEMBLY, G-LINK, 3.710 PIVOT BALL, 24 CENTER
41	2	3100-050C3.50Y	HFX BOLT, 1/2-13 x 3 1/2, GRADE 8, YELLOW ZINC
42	4	3101-050-13C	LOCKNUT 1/2-13, GRADE 5, NYLON INSERT, CLEAR ZINC
43	2	3100-050C5.00Y	HEX BOLT, 1/2-13 x 5, GRADE 8, YELLOW ZINC
44	1	7959-0041	LCA BRACKET WELDMENT, BOLT-ON, PSGR, AXLE ARB, G-BAR, 70-81 CAMARO
45	1	1477-D	G-BAR STRAIGHT SHOCK MOUNT, DRIVER, ADJUSTABLE, OFFSET
46	8	3109-038-S-2-Y	AIRCRAFT WASHER 3/8 x .062 THICK
47	4	3100-038F2.00Y	HEX BOLT, 3/8-24 x 2, GRADE 8, YELLOW ZINC
48	1	1477-P	G-BAR STRAIGHT SHOCK MOUNT, PSGR, ADJUSTABLE, OFFSET

WELD-ON AXLE BRACKETS WITH WATTS LINK



WELD-ON LCA BRACKETS, WATTS LINK

DESCRIPTION

TORQUE ARM, G-LINK,
70-73 CAMARO

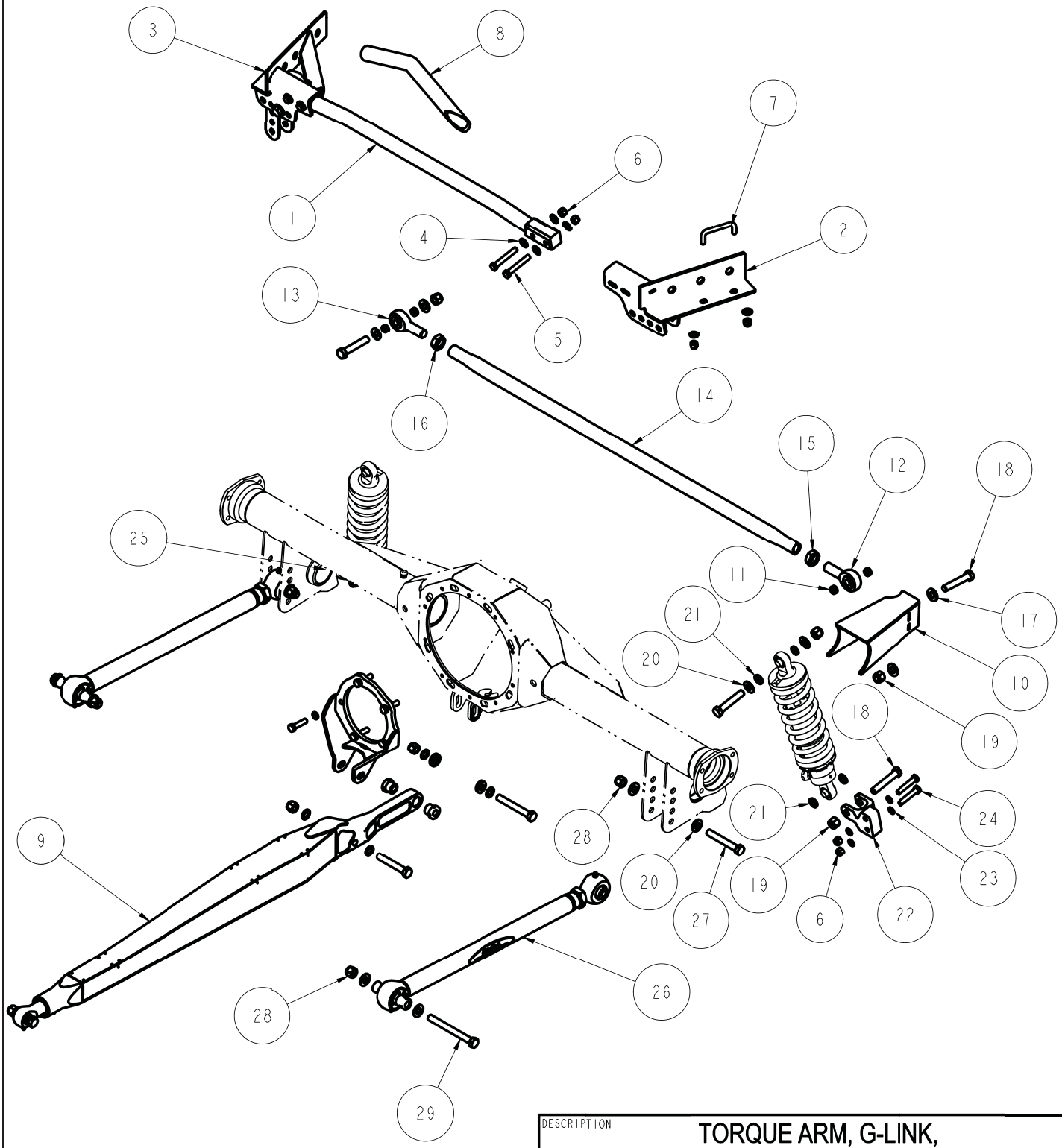
Chris Alston's CHASSISWORKS INC.
8661 YOUNGER CREEK DRIVE
SACRAMENTO, CA 95828
(916) 388-0288 FAX 388-0295

PART NO. 5857-F21-02

3/10/17 | DWG: 915857-F21-02

ITEM	QTY	PART NO.	DESCRIPTION
1	1	7959-0046	CROSS TUBE WELDMENT, SHOCK MOUNT, G-BAR, 70-81 CAMARO
2	1	7959-0289	FRAME BRACKET, WATTS LINK, DRIVER, 70-81 CAMARO
3	1	7959-0295	FRAME BRACKET, WATTS LINK, PSGR, 70-81 CAMARO
4	12	3120-038S-Y	FLAT WASHER, 3/8 SAE, HARDENED, YELLOW ZINC
5	4	3100-038F2.50Y	HEX BOLT, 3/8-24 x 2 1/2, GRADE 8, YELLOW ZINC
6	12	3101-038-24C	LOCKNUT, 3/8-24, GRADE 5, NYLON INSERT, CLEAR ZINC
7	2	3148-263.38-094	SQUARE BEND U-BOLT, 3/8-24 x 2.625 x .938
8	1	7959-0305	CROSS TUBE, WATTS LINK / PANHARD BAR, 70-81 CAMARO
9	1	7959-0327	CROSS TUBE, WATTS LINK, DRV, 70-81 CAMARO
10	1	7959-0279	TORQUE ARM ASSEMBLY, 70-73 CAMARO
11	1	7959-2012	MOUNTING PLATE, WATTS LINK, 4 POSITION ADJUSTABLE, FAB-9
12	4	7959-2017	STANDOFF, G-STREET WATTS LINK
13	4	3108-038H-S	HIGH COLLAR LOCKWASHER, 3/8 STAINLESS
14	4	3103-038C1.00C	SOCKET HEAD CAP SCREW, GRADE 8, 3/8-16 x 1, CLEAR ZINC,
15	2	7959-2014	SPACER, □n□7/8 OD x .120 WALL x .313 LONG
16	1	7959-2026	BELL CRANK ASSEMBLY, WATTS LINK, G-STREET
17	2	7959-2015	SPACER, □n□5/8 OD x .120 WALL x 1.625 LONG
18	1	7959-2016	TOP PLATE, G-STREET WATTS LINK
19	2	3108-038L-C	LOCK WASHER, HELICAL SPRING □n□3/8, STEEL, ZINC
20	2	3103-038C2.50C	SOCKET HEAD CAP SCREW, GRADE 8, 3/8-16 x 2 1/2, CLEAR ZINC
21	1	3108-063L-C	LOCK WASHER □n□5/8, SPRING
22	1	3103-063C2.50B	SOCKET HEAD CAP SCREW, 5/8-11 x 2 1/2, BLACK OXIDE
23	2	3136-063X050-RT	ROD END, 5/8-18 RIGHT x 1/2 BORE CMX10-8T-FI
24	6	3157-050S-C	WASHER, 1/2 SAE, ZINC PLATED, 1/2 ID x 1 1/16 OD x 3/32 THICK
25	2	3108-050L-C	LOCKWASHER, 1/2 MEDIUM, PLATED
26	2	3103-050C1.75B	SOCKET HEAD CAP SCREW, 1/2-13 x 1 3/4, BLACK OXIDE
27	2	7907-63-18.50-S	RADIUS ROD, 5/8-18 THREAD x 18.50 LONG, SATIN
28	2	3102-063-18RC	JAM NUT, 5/8-18 RIGHT, CLEAR ZINC
29	2	3136-063X050-LT	ROD END, 5/8-18 LEFT x 1/2 BORE CMX10-8T-FI
30	2	3102-063-18LY	JAM NUT, 5/8-18 LEFT, YELLOW ZINC
31	4	1000	MISALIGNMENT BUSHING □n□1/2 BORE x .250
32	2	3100-050F2.50Y	HEX BOLT, 1/2-20 x 2 1/2, GRADE 8, YELLOW ZINC
33	6	3101-050-20C	LOCKNUT, 1/2-20, GRADE 5, NYLON INSERT, CLEAR ZINC
34	12	3120-050S-Y	FLAT WASHER, 1/2 SAE, HARDENED, YELLOW ZINC
35	4	3100-050F2.75Y	HEX BOLT, 1/2-20 x 2 3/4, GRADE 8, YELLOW ZINC
36	12	7955-093-125	SPACER, □n□1/2 BORE x .125 LONG, □n□.85 OD x .175 OAL
37	1	1477-D	G-BAR STRAIGHT SHOCK MOUNT, DRIVER, ADJUSTABLE, OFFSET
38	8	3109-038-S-2-Y	AIRCRAFT WASHER 3/8 x .062 THICK
39	4	3100-038F2.00Y	HEX BOLT, 3/8-24 x 2, GRADE 8, YELLOW ZINC
40	2	1477-P	G-BAR STRAIGHT SHOCK MOUNT, PSGR, ADJUSTABLE, OFFSET
41	2	3813-24.00-AE	LOWER LINK ASSEMBLY, G-LINK, 3.71C PIVOT BALL, 24 CENTER
42	2	3100-050C3.50Y	HEX BOLT, 1/2-13 x 3 1/2, GRADE 8, YELLOW ZINC
43	4	3101-050-13C	LOCKNUT 1/2-13, GRADE 5, NYLON INSERT, CLEAR ZINC
44	2	3100-050C5.00Y	HEX BOLT, 1/2-13 x 5, GRADE 8, YELLOW ZINC

WELD-ON AXLE BRACKETS WITH PANHARD BAR



WELD-ON LCA BRACKETS, PANHARD BAR

DESCRIPTION	TORQUE ARM, G-LINK, 70-73 CAMARO	
Chris Alston's CHASSISWORKS INC. 8661 YOUNGER CREEK DRIVE SACRAMENTO, CA 95828 (916) 388-0288 FAX 388-0295		PART NO. 5857-F21-02
	3/10/17	DWG: 915857-F21-02

ITEM	QTY	PART NO.	DESCRIPTION
1	1	7959-0046	CROSS TUBE WELDMENT, SHOCK MOUNT, G-BAR, 70-81 CAMARO
2	1	7959-0299	FRAME BRACKET, PANHARD BAR, DRIVER, 70-81 CAMARO
3	1	7959-0301	FRAME BRACKET, PANHARD BAR, PSGR, 70-81 CAMARO
4	12	3120-038S-Y	FLAT WASHER, 3/8 SAE, HARDENED, YELLOW ZINC
5	4	3100-038F2.50Y	HEX BOLT, 3/8-24 x 2 1/2, GRADE 8, YELLOW ZINC
6	13	3101-038-24C	LOCKNUT, 3/8-24, GRADE 5, NYLON INSERT, CLEAR ZINC
7	2	3148-263.38-094	SQUARE BEND U-BOLT, 3/8-24 x 2.625 x .938
8	1	7959-0305	CROSS TUBE, WATTS LINK / PANHARD BAR, 70-81 CAMARO
9	1	7959-0279	TORQUE ARM ASSEMBLY, 70-73 CAMARO
10	1	7959-0306	AXLE BRACKET, PANHARD BAR, 70-81 CAMARO
11	4	1000	MISALIGNMENT BUSHING □n□ 1/2 BORE x .250
12	1	3126-075X050-LT	ROD END, 3/4-16 LEFT x 1/2 BORE, 4130, TEFLON, JMXL8T-FI
13	1	3126-075X050-RT	ROD END, 3/4-16 RIGHT x 1/2 BORE, 4130, TEFLON, JMX8T-FI
14	1	7907-75-40.50-S	RADIUS ROD, 3/4-16 THREAD x 40.50 LONG, SATIN
15	1	3102-075-16LY	JAM NUT, 3/4-16 LEFT, YELLOW ZINC
16	1	3102-075-16RC	JAM NUT, 3/4-16 RIGHT, CLEAR ZINC
17	4	3157-050S-C	WASHER, 1/2 SAE, ZINC PLATED, 1/2 ID x 1 1/16 OD x 3/32 THICK
18	6	3100-050F2.75Y	HEX BOLT, 1/2-20 x 2 3/4, GRADE 8, YELLOW ZINC
19	6	3101-050-20C	LOCKNUT, 1/2-20, GRADE 5, NYLON INSERT, CLEAR ZINC
20	12	3120-050S-Y	FLAT WASHER, 1/2 SAE, HARDENED, YELLOW ZINC
21	10	7955-093-125	SPACER, □n□ 1/2 BORE x .125 LONG, □n□ .85 OD x .175 OAL
22	1	1477-D	G-BAR STRAIGHT SHOCK MOUNT, DRIVER, ADJUSTABLE, OFFSET
23	10	3109-038-S-2-Y	AIRCRAFT WASHER 3/8 x .062 THICK
24	5	3100-038F2.00Y	HEX BOLT, 3/8-24 x 2, GRADE 8, YELLOW ZINC
25	1	1477-P	G-BAR STRAIGHT SHOCK MOUNT, PSGR, ADJUSTABLE, OFFSET
26	2	3813-24.00-AE	LOWER LINK ASSEMBLY, G-LINK, 3.710 PIVOT BALL, 24 CENTER
27	2	3100-050C3.50Y	HEX BOLT, 1/2-13 x 3 1/2, GRADE 8, YELLOW ZINC
28	4	3101-050-13C	LOCKNUT 1/2-13, GRADE 5, NYLON INSERT, CLEAR ZINC
29	2	3100-050C5.00Y	HEX BOLT, 1/2-13 x 5, GRADE 8, YELLOW ZINC

PARTS LIST

Prior to installation use the following parts lists to verify that you have received all components.

Torque Arm - 300-0188

1	3100-050F2.50Y	Bolt, 1/2-20 x 2-1/2” hex head Grade 8
1	3100-050F3.25Y	Bolt, 1/2-20 x 3-1/4” hex head Grade 8
1	3100-050F3.75Y	Bolt, 1/2-20 x 3-3/4” hex head Grade 8
3	3101-050-20C	Locknut, 1/2-20 nylon insert
6	3109-050-S-2-Y	Aircraft washer, 1/2” small OD
1	3144-25-28-0	Grease zerk, 1/4-28 straight
1	7959-0280	Torque arm weldment, 1970-73 Camaro
2	7959-0287	Torque arm adjuster, 7/8” thread
2	7959-0288	Serrated washer, 1/2” ID
1	899-016-1.125W	Wiper seal, 1-1/8” ID

Torque Arm Pinion Support Mount (Includes one of listed items)

NOTE: You will receive only one of the options listed below.

1	300-0190	Ford 9” and Strange ST Iron 9”
1	300-0191	Strange Pro-Aluminum 9”

Torque Arm Pivot Eye (Includes one of listed items)

NOTE: You will receive only one of the options listed below.

1	7959-0157	Poly-bushing torque arm pivot
1	7959-0175	Pivot-ball torque arm pivot

WITHOUT FAB9 - If your suspension system was ordered without a factory-welded FAB9 housing, one of the two lower control arm axle bracket boxes will be included.

Lower Control Arm Axle Brackets (weld-on by installer) - 300-0183

1	7959-0044	Lower axle bracket with anti-roll-bar bosses, driver side, weld-on
1	7959-0045	Lower axle bracket with anti-roll-bar bosses, passenger side, weld-on

Lower Control Arm Axle Brackets (bolt-on lower) - 300-0182

1	7959-0040	Lower axle bracket with anti-roll-bar bosses, driver side, bolt-on
1	7959-0041	Lower axle bracket with anti-roll-bar bosses, passenger side, bolt-on
8	3120-050S-Y	Washer, 1/2” hardened flat SAE
8	3131-050-20Y	Locknut, 1/2-20 nylon insert, Grade 8
4	3147-300.50-650	U-bolt, round 1/2-20 x 6-1/2” long x 3” ID

Additional Components Required (weld-on by installer)

1	7959-0285	Torque arm serrated housing mount tab, driver side
1	7959-0286	Torque arm serrated housing mount tab, passenger side
4	7959-2017	Housing standoffs for Watts link mounting base, weld-on
1	6731	Weld fixture for torque arm housing mounting tabs

Shock Absorber Components

NOTE: You will receive only one of the options listed below.

1 (pair)	VAS 11111-515	Coil-over shocks, 5.15 travel, bearing eyes, single-adjustable
1 (pair)	VAS 11211-515	Coil-over shocks, 5.15 travel, bearing eyes, double-adjustable
1 (pair)	VAS 11411-50	Coil-over shocks, 5.15 travel, bearing eyes, 4-way remote reservoir
1	VAS 508-105	Spacer set for bearing mount shocks
1	VAS 517-RS-F	Single silo mount for shock reservoir (pair)

Lower Shock Mounts - 300-0106

1	1477-D	Shock mount, billet aluminum, driver side
1	1477-P	Shock mount, billet aluminum, passenger side
4	3100-038F2.00Y	Bolt, 3/8-24 x 2” hex head Grade 8
2	3100-050F2.75Y	Bolt, 1/2-20 x 2-3/4” hex head Grade 8
4	3101-038-24C	Locknut, 3/8-24 nylon insert
2	3101-050-20C	Locknut, 1/2-20 nylon insert
8	3109-038-S-2-Y	Aircraft washer, 3/8” small OD

Upper Shock Crossmember - 300-0147

1	7959-0046	Shock crossmember weldment

NOTE: You will receive only one of the lower suspension link parts groups listed below.

Lower Suspension Links (stock width) - 300-0122

2	3813-24.00-AE	g-Link dual pivot-ball tubular lower link assembly, 24” long
2	3100-050C3.50Y	Bolt, 1/2-13 x 3-1/2” hex head Grade 8
2	3100-050C5.00Y	Bolt, 1/2-13 x 5” hex head Grade 8
4	3101-050-13C	Locknut, 1/2-13 nylon insert
8	3120-050S-Y	Washer, 1/2” hardened flat SAE

Lower Suspension Links (mini-tub) - 300-0140

1	3816-24.00-AED	g-Link dual pivot-ball tubular lower link, 24” long, offset driver side
1	3816-24.00-AEP	g-Link dual pivot-ball tubular lower link, 24” long, offset passenger side
2	3100-050C3.50Y	Bolt, 1/2-13 x 3-1/2” hex head Grade 8
2	3100-050C5.00Y	Bolt, 1/2-13 x 5” hex head Grade 8
4	3101-050-13C	Locknut, 1/2-13 nylon insert
8	3120-050S-Y	Washer, 1/2” hardened flat SAE

NOTE: You will receive only one of the optional anti-roll bar parts groups listed below.

Splined-End Anti-Roll Bar (stock width) - OPTION

Qty	Part Number	Description
1	300-0161	Mounts and hardware
1	300-0149	Anti-roll bar 3/4” diameter, 1-1/4” 48 spline with 1” ball pivot ends

Splined-End Anti-Roll Bar (mini-tub) - OPTION

Qty	Part Number	Description
1	300-0161	Mounts and hardware
1	300-0150	Anti-roll bar 3/4” diameter, 1-1/4” 48 spline with 1” ball pivot ends

Panhard Bar System (stock width)

Panhard Bar System

1	300-0186	Frame brackets for panhard bar
1	300-0187	Panhard bar hardware
1	7959-0306	Axle bracket assembly for panhard bar, weld-on

Panhard Bar Frame Brackets - 300-0186

4	3100-038F2.50Y	Bolt, 3/8-24 x 2-1/2” hex head Grade 8
8	3101-038-24C	Locknut, 3/8-24 nylon insert
12	3120-038S-Y	Washer, 3/8” hardened flat SAE
2	3148-263.38-094	Square U-bolts 3/8-24, 2-5/8” wide x 15/16” long
1	7959-0299	Frame bracket driver side
1	7959-0301	Frame bracket passenger side
1	7959-0305	Cross tube passenger side
2	7959-0326	Doubler plate

Panhard Bar Hardware - 300-0187

4	1000	Misalignment bushing, 1/2” bore x 1/4”
2	3100-050F2.75Y	Bolt, 1/2-20 x 2-3/4” hex head Grade 8
2	3101-050-20C	Locknut, 1/2-20 nylon insert
1	3102-075-16LY	Jam nut, 3/4-16 LH Grade 5, yellow zinc
1	3102-075-16RC	Jam nut, 3/4-16 RH Grade 5, clear zinc
1	3126-075X050-LT	Rod end, 1/2” bore x 3/4-16 LH shank 4130 Teflon®-lined
1	3126-075X050-RT	Rod end, 1/2” bore x 3/4-16 RH shank 4130 Teflon®-lined
4	3157-050S-C	Washer, 1/2” flat SAE
1	7907-75-40.50-S	Radius rod, 3/4” thread x 40.50” aluminum

Watts Link System (stock width)

Watts Link System (stock width)

1	300-0184	Frame brackets for Watts link (stock width)
1	300-0185	Watts link hardware (ALL)
1	300-0193-185S	Watts link radius rods (stock width)
4	7959-2017	Housing standoffs for Watts link mounting base, weld-on

Watts Link Frame Brackets (stock width) - 300-0184

4	3100-038F2.50Y	Bolt, 3/8-24 x 2-1/2” hex head Grade 8
2	3100-050F2.75Y	Bolt, 1/2-20 x 2-3/4” hex head Grade 8
8	3101-038-24C	Locknut, 3/8-24 nylon insert
4	3101-050-20C	Locknut, 1/2-20 nylon insert
12	3120-038S-Y	Washer, 3/8” hardened flat SAE
2	3148-263.38-094	Square U-bolts 3/8-24, 2-5/8” wide x 15/16” long
1	7959-0289	Frame bracket (stock width) driver side
1	7959-0295	Frame bracket (stock width) passenger side
1	7959-0305	Cross tube passenger side
2	7959-0326	Doubler plate
1	7959-0327	Cross tube driver side

Watts Link Radius Rods (stock width)

2	7907-63-18.50-S	Radius rod, 5/8” thread x 18.50” aluminum (stock width)

Watts Link Hardware - 300-0185 (ALL)

4	1000	Misalignment bushing, 1/2” bore x 1/4”
2	3100-050F2.75Y	Bolt, 1/2-20 x 2-3/4” hex head Grade 8
2	3101-050-20C	Locknut, 1/2-20 nylon insert
2	3102-063-18LY	Jam nut, 5/8-18 LH Grade 5, yellow zinc
2	3102-063-18RC	Jam nut, 5/8-18 RH Grade 5, clear zinc
4	3103-038C1.00C	Socket head, 3/8-16 x 1” cap screw
2	3103-038C2.50C	Socket head, 3/8-16 x 2-1/2” cap screw
2	3103-050C1.75C	Socket head, 1/2-13 x 1-3/4” cap screw
1	3103-063C2.50C	Socket head, 5/8-11 x 2-1/2” cap screw
4	3108-038H-C	Lockwasher, 3/8” high collar, clear zinc
2	3108-038L-C	Lockwasher, 3/8” regular, clear zinc
2	3108-050L-C	Lockwasher, 1/2” regular, clear zinc
1	3108-063L-C	Lockwasher, 5/8” regular, clear zinc
2	3136-063X050-LT	Rod end, 1/2” bore x 5/8” LH shank alloy steel Teflon®-lined
2	3136-063X050-RT	Rod end, 1/2” bore x 5/8” RH shank alloy steel Teflon®-lined
6	3157-050S-C	Washer, 1/2” flat SAE
1	7959-2012	Watts link pivot mounting base, billet aluminum
2	7959-2014	Spacer, 7/8” OD x 5/8” ID
2	7959-2015	Spacer, 5/8” OD x 3/8” ID
1	7959-2016	Watts link pivot cover plate, steel
1	7959-2026	Watts link pivot assembly

Watts Link System (mini-tub)

Watts Link System (mini-tub)

1	300-0185	Watts link hardware (ALL)
1	300-0192	Frame brackets for Watts link (mini-tub)
1	300-0193-160S	Watts link radius rods (mini-tub)
4	7959-2017	Housing standoffs for Watts link mounting base, weld-on

Watts Link Frame Brackets (mini-tub) - 300-0192

4	3100-038F2.50Y	Bolt, 3/8-24 x 2-1/2” hex head Grade 8
2	3100-050F2.75Y	Bolt, 1/2-20 x 2-3/4” hex head Grade 8
8	3101-038-24C	Locknut, 3/8-24 nylon insert
4	3101-050-20C	Locknut, 1/2-20 nylon insert
12	3120-038S-Y	Washer, 3/8” hardened flat SAE
2	3148-263.38-094	Square U-bolts 3/8-24, 2-5/8” wide x 15/16” long
1	7959-0305	Cross tube passenger side
1	7959-0318	Frame bracket (mini-tub) driver side
1	7959-0322	Frame bracket (mini-tub) passenger side
2	7959-0326	Doubler plate
1	7959-0327	Cross tube driver side

Watts Link Radius Rods (mini-tub)

2	7907-63-16.00-S	Radius rod, 5/8” thread x 16.00” aluminum (mini-tub)

Watts Link Hardware - 300-0185 (ALL)

4	1000	Misalignment bushing, 1/2” bore x 1/4”
2	3100-050F2.75Y	Bolt, 1/2-20 x 2-3/4” hex head Grade 8
2	3101-050-20C	Locknut, 1/2-20 nylon insert
2	3102-063-18LY	Jam nut, 5/8-18 LH Grade 5, yellow zinc
2	3102-063-18RC	Jam nut, 5/8-18 RH Grade 5, clear zinc
4	3103-038C1.00C	Socket head, 3/8-16 x 1” cap screw
2	3103-038C2.50C	Socket head, 3/8-16 x 2-1/2” cap screw
2	3103-050C1.75C	Socket head, 1/2-13 x 1-3/4” cap screw
1	3103-063C2.50C	Socket head, 5/8-11 x 2-1/2” cap screw
4	3108-038H-C	Lockwasher, 3/8” high collar, clear zinc
2	3108-038L-C	Lockwasher, 3/8” regular, clear zinc
2	3108-050L-C	Lockwasher, 1/2” regular, clear zinc
1	3108-063L-C	Lockwasher, 5/8” regular, clear zinc
2	3136-063X050-LT	Rod end, 1/2” bore x 5/8” LH shank alloy steel Teflon®-lined
2	3136-063X050-RT	Rod end, 1/2” bore x 5/8” RH shank alloy steel Teflon®-lined
6	3157-050S-C	Washer, 1/2” flat SAE
1	7959-2012	Watts link pivot mounting base, billet aluminum
2	7959-2014	Spacer, 7/8” OD x 5/8” ID
2	7959-2015	Spacer, 5/8” OD x 3/8” ID
1	7959-2016	Watts link pivot cover plate, steel
1	7959-2026	Watts link pivot assembly

INSTRUCTIONS

NOTE: Photos were shot using a similar product and vehicle. However, the specific steps shown and described in this instruction guide apply directly to your installation.

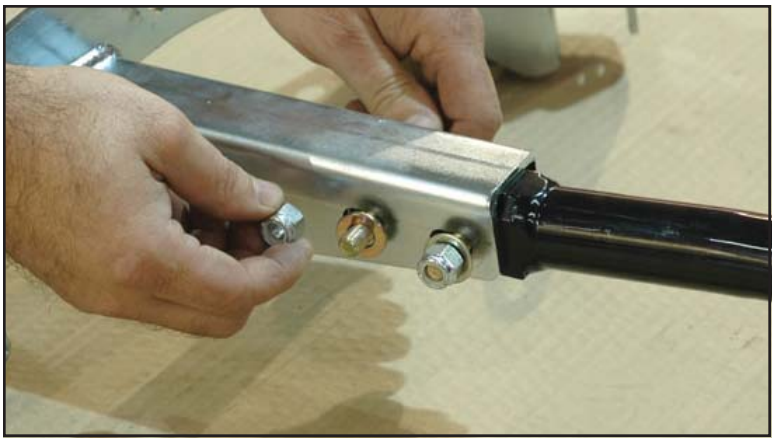
The torque arm suspension system replaces the majority of components in your existing rear suspension. It is necessary to remove all of the existing components to prepare for installation.

The g-Connector Subframe System must be installed before proceeding with torque arm installation.

1. Raise vehicle to a safe and comfortable working height. Use jack stands to support vehicle with suspension hanging freely. Make sure it is level front to rear and right to left.
2. Remove driveshaft, then all rear suspension components including the rubber snubbers mounted directly to the under-body and frame rails. Rubber snubbers must be replaced once welding and all clearance verification is complete. For additional clearance, the pinion snubber mount or additional brackets can be removed using a grinding disc.
3. Remove any portions of exhaust system that may interfere with installation. Mufflers in the stock location can remain in place. Unbolt or cut any exhaust tubing that is routed over the rear end housing.
4. Brake and fuel lines can remain on vehicle but will need to be secured along the body to prevent damage during installation.

Chassis Inspection

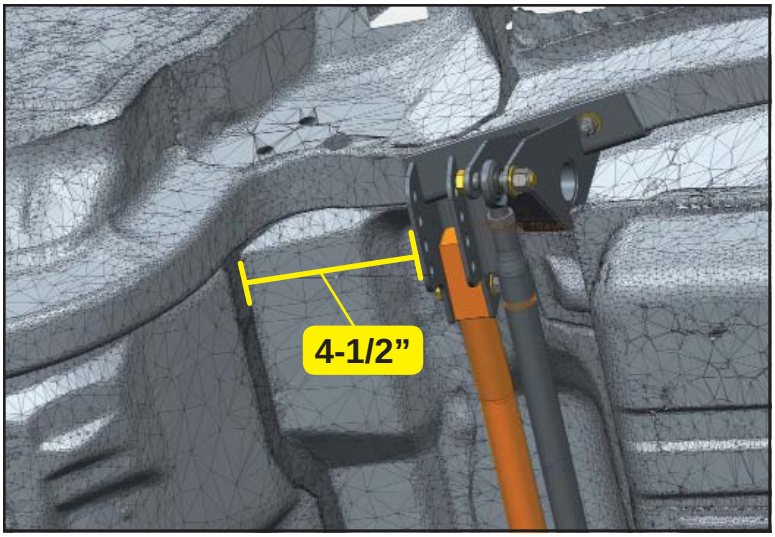
5. With the leaf springs out of the way, this is a good time to inspect the sheet metal for signs of fatigue. Clean the area to remove any grease or dirt so the metal and welds are clearly visible. Look for will have to be made before proceeding.



Cradle Installation

6. Loosely bolt the driver and passenger frame brackets to the shock crossmember mounting blocks with the 3/8” bolts, flat washers and locknuts center in the slots.
7. Use C-clamps on the frame brackets to hold them firmly in place.

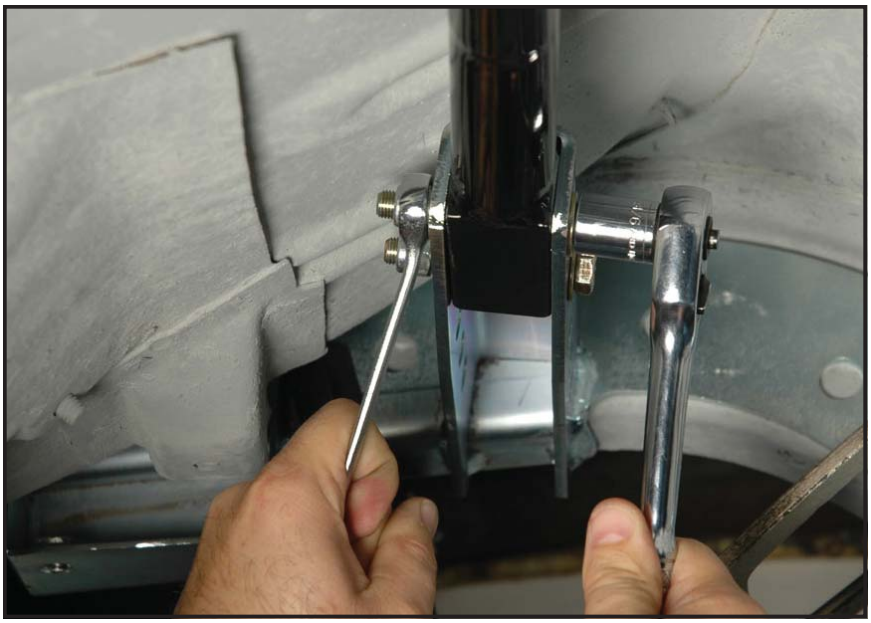
   NOTE: It is most important that the brackets are completely seated against the frame rails. If the frame rails are in good condition, the brackets will rest flat along both contact surfaces.
8. The front edge of the each shock mount bracket should be approximately 4-1/2” rearward from the sheetmetal overlap seam. The bracket will fit along the section of frame rail that angles outward.



9. Verify the cradle frame brackets are clamped tightly against the inside and bottom surfaces of the frame rails.

   NOTE: The outer doubler plate (not shown) will be welded to the outside of the frame rail.

10. Tighten the 3/8” upper crossmember mounting hardware to 35 lb-ft.



11. Clearly mark the weld-prep areas onto the undercarriage by scribing guidelines onto the surface of the frame rail. Scribe the overall outline of the bracket, the 3 holes along the inside of the frame rail, and finally the 2 oval holes along the bottom of each frame bracket.

12. Use a 3/8”-diameter bit to drill a starting hole through the factory frame rail <u>at each of the oval holes along the bottom of the frame rail ONLY</u>. These holes are for the square U-bolts and will be opened up in a later step. The clamped cradle brackets will help to correctly guide the drill.

13. Unclamp the frame brackets but DO NOT loosen or remove the 3/8” upper-crossmember hardware at the frame brackets. Try not to bump the brackets from their correctly fit position. Lower the cradle assembly and set aside.

14. Use a die grinder, grinding-cone drill attachment, or file to enlarge the oval holes up to the scribe marks on the frame rails.

15. Use a scotch-brite disc pad or wire-brush drill attachment to expose bare metal along the weld areas marked on the frame rail earlier.

16. Install cradle into the car and align frame brackets with slotted holes in frame rail. Make sure it seats tightly against the frame rail.

17. Verify the cradle assembly is square within the chassis before clamping the cradle in place.

18. On one end of each square-corner u-bolt, install a 3/8” flat washer and locknut. DO NOT SKIP THIS STEP. It is possible to lose the u-bolt inside of the frame rail.

19. Slide the other end of the u-bolt into the hole in the frame brackets closest to the rear of the car, out through the second hole as shown, and secure with a flat washer and locknut.

20. Once all the locknuts are in place, begin tightening each nut until it contacts the bracket. The u-bolt must “snugged-up” into a level, settled position before final tightening.

21. Torque each locknut to 35 lb-ft.

22. Tack weld each bracket to the frame rail, and then stitch weld along the longer seam lengths. The seams at the forward end of the brackets should be completely welded with the bead extending 1” past the corner. Rosette weld around the holes on the inside of the frame rail, being careful not to burn through the frame rail.

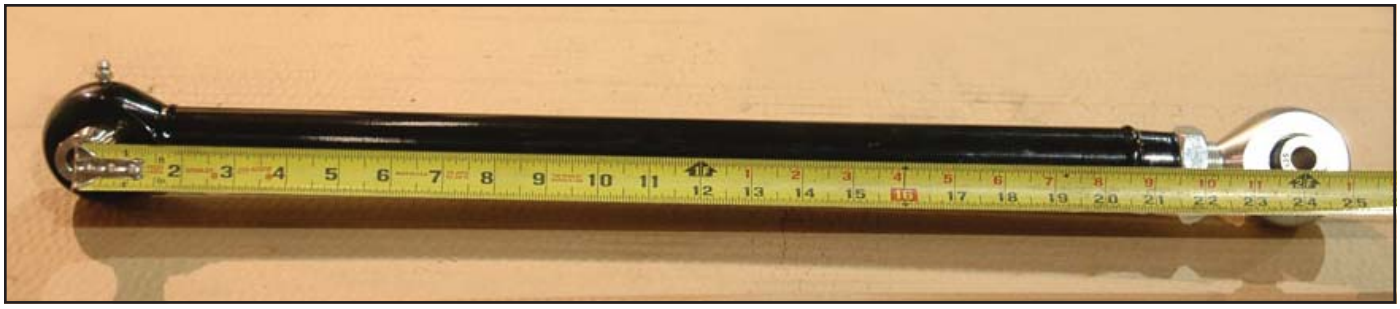
23. Once the main body of the frame bracket has been welded, the outside doubler plate must be positioned and welded. Mark and clean the weld area prior to stitch-welding the plate.

24. Allow the welds to cool, then paint to protect the metal from rust.

25. Apply a bead of body caulk or silicone to prevent water seepage.

Lower Links Installation

26. Correct adjusted length is 24.00”, measured at the center of the bolt holes. Due to chassis variances it may be necessary to adjust the lower suspension link lengths to position the rear end housing square to the chassis.



27. Install the lower suspension links at the front chassis mount using 1/2” diameter bolts, flat washers, and locknuts. Grease zerk fittings must point downward. Torque to 65 lb-ft.

28. Position the rearend housing under the car on jack stands. Attach the lower suspension links to the axle brackets with 1/2” bolts, flat washers, and locknuts. Use the second hole from the bottom on the axle brackets for initial installation. Torque to 65 lb-ft.

Mounting Position: The lower link has multiple mounting positions at the axle bracket. Ideally, to minimize suspension steering effects (roll steer), the link should be set as close to horizontal as possible with the suspension at ride height. Lowering the rear position from horizontal will also increase available traction, but also increases roll oversteer.

Lower Shock Mount Installation

29. Install the billet lower-shock mounts at the lower axle bracket using 3/8” hardware. Leave two blank holes below the mount for initial setup.

30. Position rearend housing so that the distance from the billet-shock-mount hole to the center upper-shock-mount hole measures 13-1/2”. This is the baseline ride-height position.

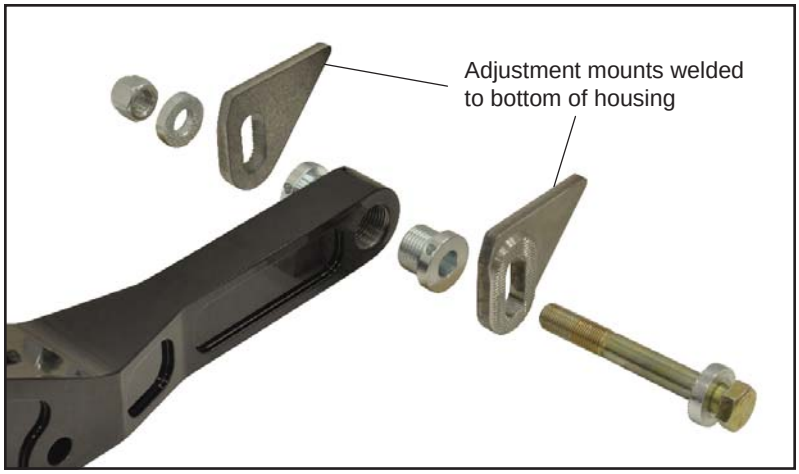
Torque Arm Installation

Third-member must be installed into rearend housing and the housing centered in relation to the chassis before proceeding.

31. Install the pinion support mount onto the third-member. Longer replacement bolts with washers are included.

32. Thread the two flanged adjusters into the torque arm. These are used for left to right alignment of the front pivot eye with the chassis bracket located on the g-Connector center support.

33. Hang the torque arm from the adjustment mounts below the housing with the 1/2” x 3-3/4” bolt, locknut, and serrated washers. The serrations on the washers must face the adjustment mounts. Leave hardware loose enough to allow the arm to be shifted up and down freely.



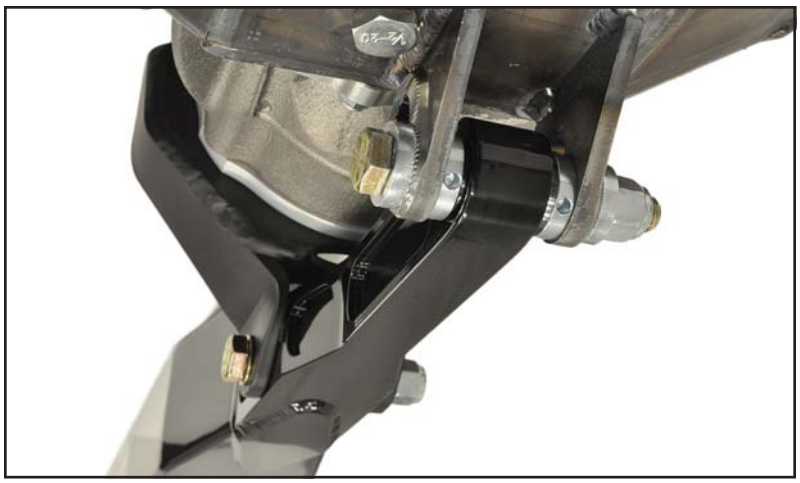
34. Swing the torque arm forward to attach to the pinion support mount using the 1/2” x 3-1/4” bolt, locknut, and flat washers.

35. With the torque arm now closer to a level position, seat the wiper seal into its groove, then lightly grease the inside bore before inserting the pivot slider.

36. Install grease zerks at this time.

37. Verify that the housing is centered in relation to the chassis.

38. The arm pivot eye must by aligned with g-Connector center support bracket by rotating the two adjusters under the rearend housing. An allen wrench or punch can be used to rotate the adjusters. Turning both in the same direction, either up or down, moves the arm side to side.



39. Once the pivot eye aligns with the bracket bolt it in place with the 1/2” x 2-1/2” bolt, flat washers, and locknut.

40. Verify that the housing is still at approximate ride height by remeasuring the 13-1/2” distance between the shock mounts. This measurement will change slightly with the pinion angle.

41. The 1/2” pinion support bolt must be loose enough to allow the bracket to pivot.

42. Pinion angle is adjusted by raising or lowering the rearmost mounting bolt within the slotted tabs. With the housing supported by the axle tubes, pushing up on the rear section of the arm will tilt the pinion upward.

    NOTE: Carefully read the Pinion Angle section at the end of this installation guide before determining the correct pinion angle.

43. Make sure the serrated washers are interlocked with the housing tabs when tightening.

Panhard Bar Installation
The axle mount for the panhard bar come pre-installed on your FAB9™ housing. Refer to the assembly drawings for installation.

NOTE: The housing should already be centered in relation to the chassis from a prior step. During assembly, thread engagement of each rod end into the aluminum radius rod must be equal.

The panhard bar provides positive lateral location beyond what the leaf springs and bushings can provide. Expect a noticeable improvement in cornering stability and more linear motion when transitioning into and out of turns. The panhard bar's location, specifically the center point of the bar, determines the rear suspension roll center. THE BAR MUST BE POSITIONED CLOSEST TO LEVEL WHEN AT RIDE HEIGHT.

Once installed, adjusting center position of the rearend housing is done by turning the radius rod.

Tighten panhard bar mounting hardware and jam nuts after adjusting.

Watts Link Installation and Tuning
The mounting bosses for the Watts link pivot come pre-installed on your FAB9™ housing. Refer to the assembly drawings for installation.

NOTE: The housing should already be centered in relation to the chassis from a prior step. During assembly, thread engagement of each rod end into the aluminum radius rod must be equal.

The Watts link provides positive lateral location with the least amount of side-to-side variance while within its intended travel range. Expect a noticeable improvement in cornering stability and more linear motion when transitioning into and out of turns. Cornering characteristics will also be identical in left or right turns, providing the vehicles other components and settings are symmetrical.

SQUARING THE PIVOT - With the rearend housing at ride height, the Watts pivot must be perpendicular to the ground or straight up and down to ensure the maximum amount of perfectly centered suspension travel. Lengthening or shortening both links will rotate the pivot without offsetting the rearend.

CENTERING REAREND - Lengthening one link while shortening the other will adjust the left to right position of the rearend housing. The center pivot may need to be resquared.

Tighten panhard bar mounting hardware and jam nuts after adjusting.

ROLL CENTER HEIGHT - The Watts pivot can be moved to one of four positions to affect the handling of the vehicle. Raising the pivot adjusts to vehicle oversteer. Lowering the pivot adjusts toward understeer.

Shock Installation
Install the shocks without springs initially to allow easier movement of the suspension to check for potential clearance issues.

44. Install shocks with 1/2" bolts, flat washers and locknuts. The top shock eye should be mounted in the center hole. Adjustments can be made later to soften ride quality by moving to the inner hole, or stiffen ride quality by moving to the outer hole.

45. Adjust both shocks to their softest setting, then temporarily install into cradle using 1/2 x 2-3/4" bolts with locknuts.

46. Nuts can be threaded on by hand so that bolts do not slip out during next step. Shocks will be used to limit travel during next step.

47. Using a jack, cycle the rear suspension through its full range of vertical travel and body roll in both directions to check for binding and potential clearance issues at all suspension joints and along the lengths of any moving parts including the rearend housing.

Making Adjustments

IMPORTANT - All adjustments must be made with the suspension positioned at ride height and in the following order to prevent binding.

1. Lower Control Arm - Adjust length for wheelbase.
2. Watts Link - Center housing. Torque arm front mount must be disconnected.
3. Torque Arm - Adjust left to right to align with chassis mount.
4. Torque Arm - Adjust for pinion angle.

Shock Absorber Mounting Options

Upper Mounting Position
The upper shock eye can be mounted in multiple positions to alter the effectiveness of the spring and shock against suspension movement. Ride height is altered in approximately 1/4” increments at each position with approximately a 5% change in shock/ spring stiffness and ride quality.

- Outermost Hole = highest/stiffest
- Innermost Hole = lowest/softest

If the shock angle is changed you must verify that the shock is still within the allowable ride height range of 13-1/2 to 14-1/2 inches, eye to eye.

Mini-Tub Note: Only the two inner holes should be used with the mini-tub configuration.

Lower Mounting Position:
The lower shock mount can be moved to one of four positions to alter ride height in 5/8” increments.

Spring Preload: Refer to VariShock coil-over installation guide (899-031-200 or 899-031-220) for detailed information regarding spring preload and correct balance of travel at ride height.

Under no circumstance should the lower spring seat be used to adjust the shock length at ride-height to less than 13-1/2” or more than 14-1/2”. Damage to the shock absorbers will occur, and you will be charged to repair them.

Pinion Angle

Understanding Pinion Angle

The often misunderstood pinion angle is simply the angle formed by the centerlines of the driveshaft and rear differential pinion gear where they meet at the rear u-joint. When the pinion angle is set correctly, it is the same angle, but in the opposite direction as the angle formed by the engine-transmission centerline and the driveshaft at the front u-joint (see illustration below). The pinion angle is usually adjusted to match the engine angle as it is easier to change. Contrary to popular opinion, pinion angle is not a tuning aid. Correctly set, it will balance the driveshaft u-joints minimizing vibration and power loss.

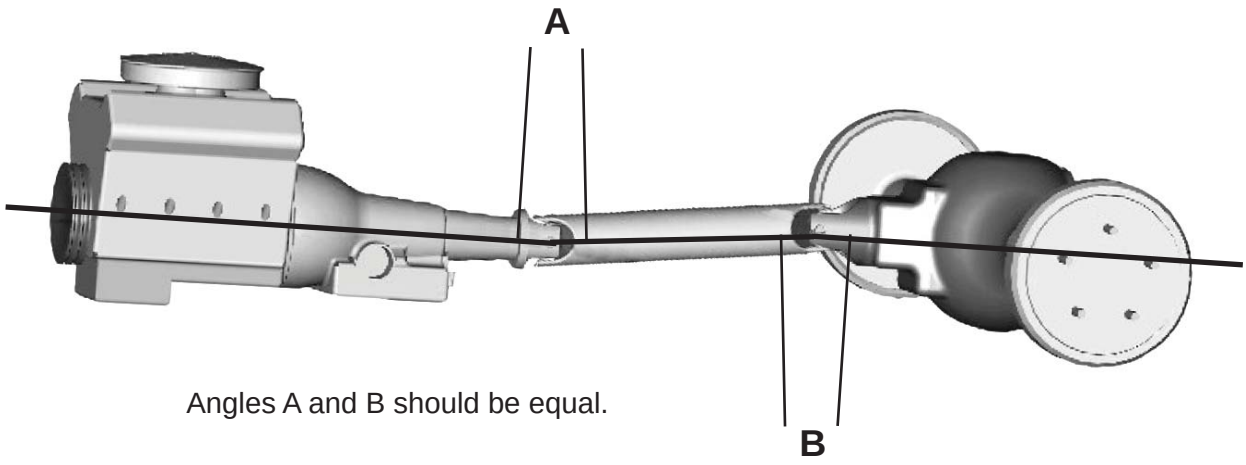
Measuring the Drivetrain Angles

A digital protractor or smart level is the best tool to measure the required angles. Engine centerline measurement can be taken from the vertical surface of the transmission tailshaft, the oil pan rail, or the front face of the harmonic balancer. Most production vehicle drive-train angles will run slightly downhill towards the rear bumper. A typical measurement may be 2 to 3 degrees. Driveshaft centerline angles can be measured directly on the shaft tube. Pinion gear centerline angles can be measured on the universal joint yoke or axle housing flange. It is important to be careful how you position the measuring tool so all the angles have the same reference plane. Remember the measurements must be taken with the rear suspension collapsed to the correct ride height.

Adjusting the Third Member Pinion Angle

As an example, a two-degree downhill drivetrain angle would require the third member to be set at two degrees with the snout slightly raised. Be sure to tighten the mounting hardware to the torque value specified after making adjustments..

Note: High traction vehicles operated for extended periods at full throttle, such as drag or road racing, may need to compensate for flex in the suspension system by setting the pinion angle an additional 1 to 2 degrees down to avoid drivetrain vibration.



Angles A and B should be equal.

Maintenance

Suspension Link Lubrication

Each suspension pivot assembly can be lubricated using a standard grease gun. Pivot-ball links without a grease zerk fitting can be lubricated by removing the locking set screw and temporarily installing a zerk fitting.

Pivot-Ball Preload

The retaining ring can be tightened to remove any free-play that develops in the pivot-ball mechanism. Remove the locking set screw and turn the retaining ring clockwise, using a common spanner wrench, to the next set screw position.

WARRANTY NOTICE:
There are NO WARRANTIES, either expressed or implied. Neither the seller nor manufacturer will be liable for any loss, damage or injury, direct or indirect, arising from the use or inability to determine the appropriate use of any products. Before any attempt at installation, all drawings and/or instruction sheets should be completely reviewed to determine the suitability of the product for its intended use. In this connection, the user assumes all responsibility and risk. We reserve the right to change specification without notice. Further, Chris Alston's Chassisworks, Inc., makes **NO GUARANTEE** in reference to any specific class legality of any component. **ALL PRODUCTS ARE INTENDED FOR RACING AND OFF-ROAD USE AND MAY NOT BE LEGALLY USED ON THE HIGHWAY**. The products offered for sale are true race-car components and, in all cases, require some fabrication skill. **NO PRODUCT OR SERVICE IS DESIGNED OR INTENDED TO PREVENT INJURY OR DEATH**.

Chris Alston's Chassisworks
8661 Younger Creek Drive
Sacramento, CA 95828
Phone: 916-388-0288
Technical Support: sales@cachassisworks.com

CHRIS ALSTON'S Chassisworks
THE HOME OF HIGHER TECHNOLOGY