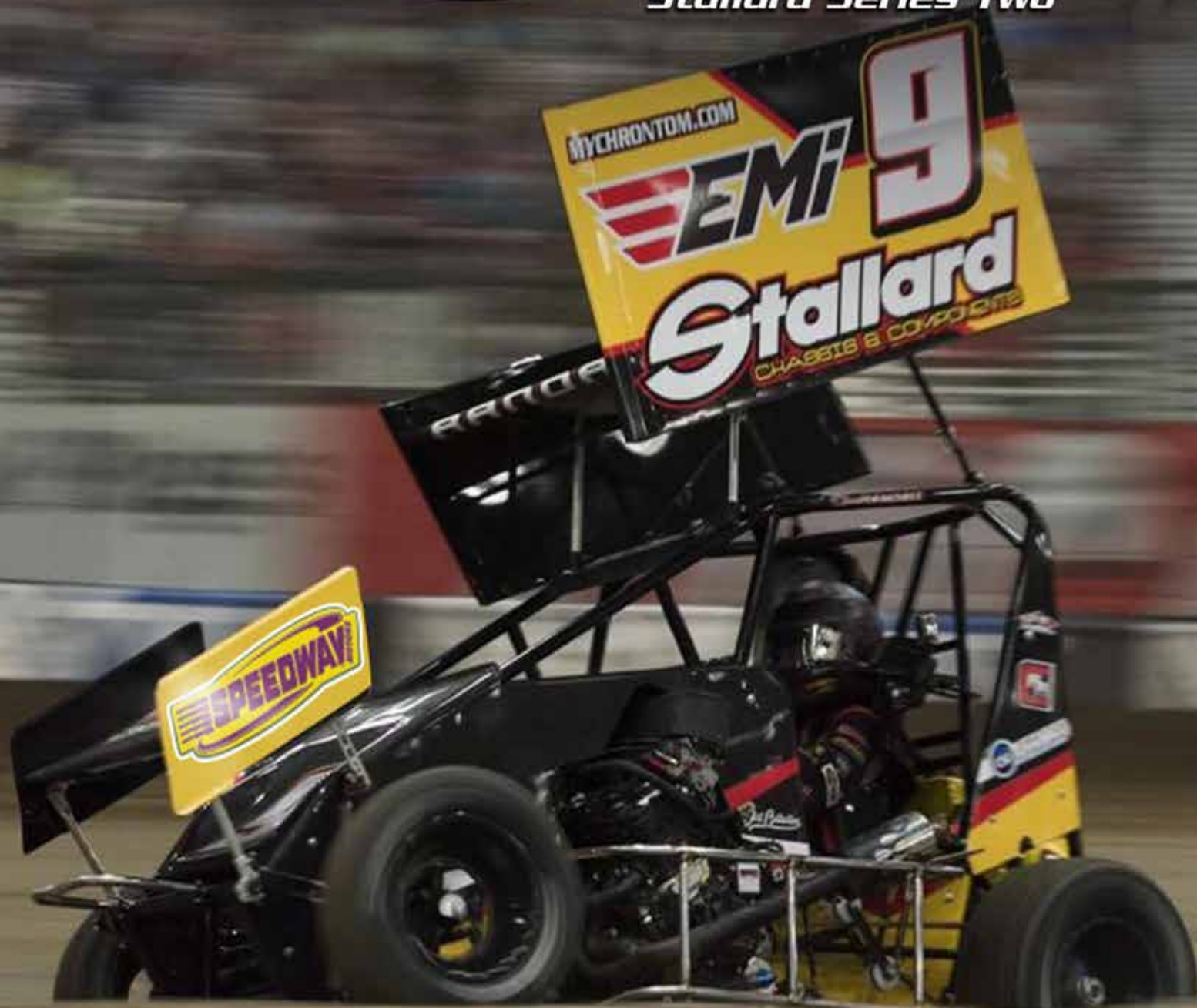


SST

Stallard Series Two



Assembly Manual



FOUR BRANDS, ONE GOAL.

Writing the future with a welding torch. EMI builds chassis and components for four segments of the open wheel industry with four unique brands. Thirty years in the making brought Eagle Motorsports, Schnee Chassis, Stallard Chassis, and Henchcraft Chassis together to collaborate and create the most responsive and safest micro sprints, midgets, lightning sprints, and sprint cars available.



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In this manual you will be given detailed instruction on assembling your new Stallard SST chassis. Questions not answered in the manual can be directed to EagleMotorsports.com or by calling our offices at 402-438-0392. Office hours are 8:00 a.m. to 5:00 p.m. central time, Monday through Friday. Our goal is to keep things easy and simple, so please feel free to give our team a call.

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Stallard
CHASSIS & COMPONENTS

SST



CHASSIS FEATURES:

- » Changed tubing size and thickness to save weight
- » New internal bracing for added strength and safety
- » Improved front-to-rear weight transfer with a new adjusted spring base
- » Modified pickup points to improve traction and forward drive
- » Adjusted rack heights for front and rear end stability and improved rear drive
- » New sprint car style, stand up radiator design with air induction for economical and efficient cooling
- » Simplified floor mount adjustable pedal assembly design
- » Right hand shift cable linkage for smoother shifting; natural location allows for safer driver exit
- » Standard engine cradle dimension that accommodates most mounts



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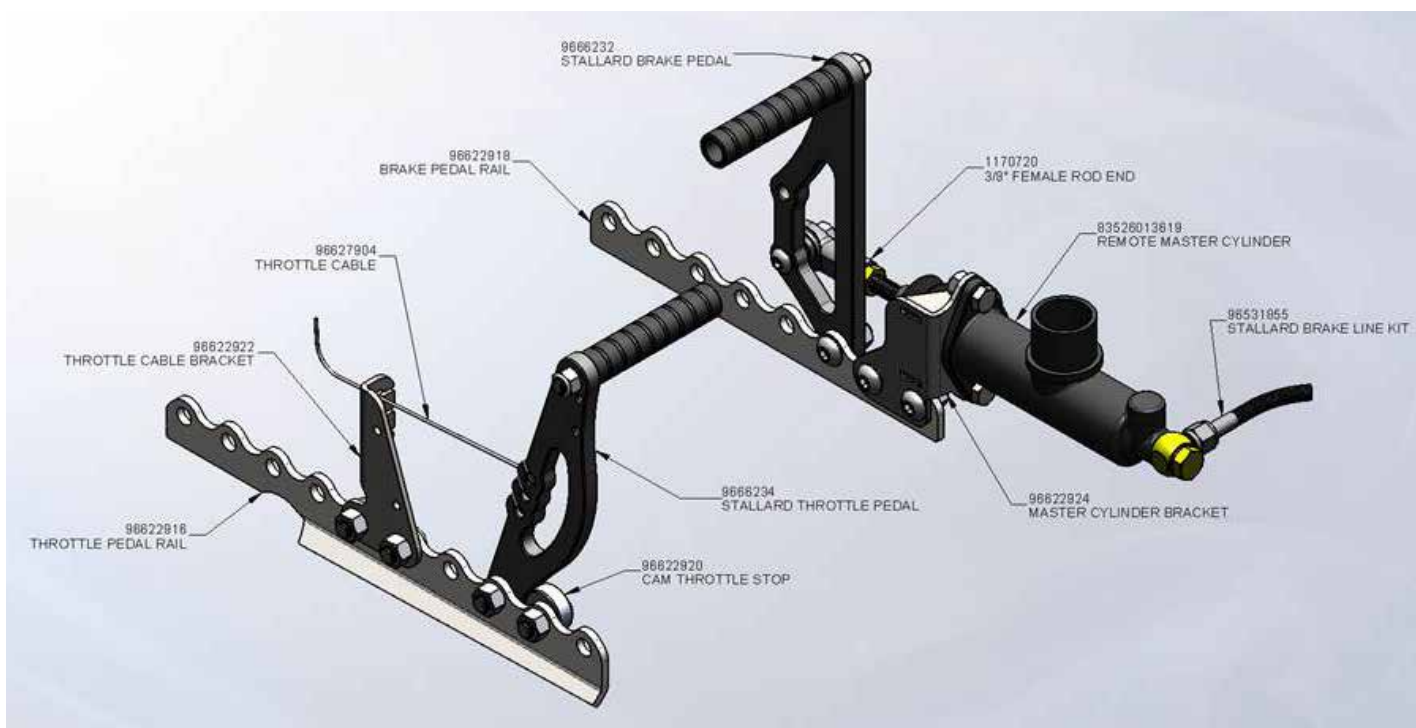
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PEDAL INSTALLATION:

1	SST BRAKE PEDAL	966-6232
2	SST THROTTLE PEDAL	966-6234
3	PEDAL HARDWARE KIT	966-28032
4	CAM THROTTLE STOP	966-22920
5	THROTTLE CABLE BRACKET	966-22922
6	THROTTLE CABLE	966-27904
7	MASTER CYLINDER BRACKET	966-22924
8	MASTER CYLINDER	835-26013619
9	5/16" FEMALE ROD END	117-0720
10	"T-KIT" BRAKE LINE	965-31855



FIGURE A



PEDAL INSTALLATION:

Use Figure A in assembly guide for visual assistance on assembly. Pedal assembly is adjustable to aid in finding comfort for any size driver big or small. The SST throttle cable was designed to work with any fuel system, but it is important to note that it will be plenty long for fuel systems that accept the throttle cable to the inside of throttle bodies such as the Engler. If this is the case with your setup, be mindful of the throttle cable when putting the body on. You do not want to get the cable pinched or kinked anywhere, as it will cause a bind and throttle will not function properly.



FIGURE B

- 1) When installing the throttle cable, the 90-degree turn side should go to the throttle cable bracket as shown in Figure A, and the cable should be routed up and over the ignition tray before turning toward the throttle bodies on your fuel system.
- 2) Note that the "T-Kit" brake line is specifically an INTERNAL brake line, meaning this line will not connect to either caliper. There is a tab at both the front and rear of the car meant for AN3 bulkheads. The internal line will connect to the master cylinder with a banjo fitting as shown in Figure A, and both remaining ends with 90-degree AN3 fittings will connect to a bulkhead at the front and rear of the car. See Figure B and D.
- 3) You should have two additional short brake lines to use as external lines running from the bulkhead to the caliper at both the front and rear. If you do not wish to run a left front brake, you can cap the external side of the front bulkhead. See Figure C.

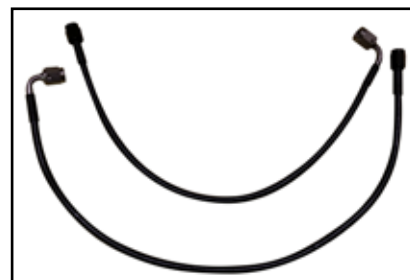


FIGURE C



FIGURE E

- 4) Route the long end of the internal line along lower frame rail toward the back of the car. Follow lower rail around engine compartment to the rear halo upright, where you will find the bulkhead tab in the rear of the car. See Figure B and E.
- 5) The short end of line should be routed straight up to front bulkhead tab, which is located just to the left of the rack and pinion above the steering cross member. See Figure D.



FIGURE D

NOTE: It is ok to shorten push rod on master cylinder if needed

STEERING INSTALLATION:

MANUAL STEERING

1	RACK AND PINION	960-003
2	UPPER STEERING SUPPORT	960-6210
3	STEERING HUB ASSEMBLY	966-22816
4	INTERMEDIATE SHAFT	966-22806
5	STEERING HARDWARE	966-28006

POWER STEERING

1	RACK AND PINION	960-003
6	(2) UPPER STEERING SUPPORT	966-27010
7	STEERING HUB ASSEMBLY	966-22814
8	INTERMEDIATE SHAFT	966-22808
9	*POWER STEERING HARDWARE	966-28028
10	POWER STEERING UNIT	960-004

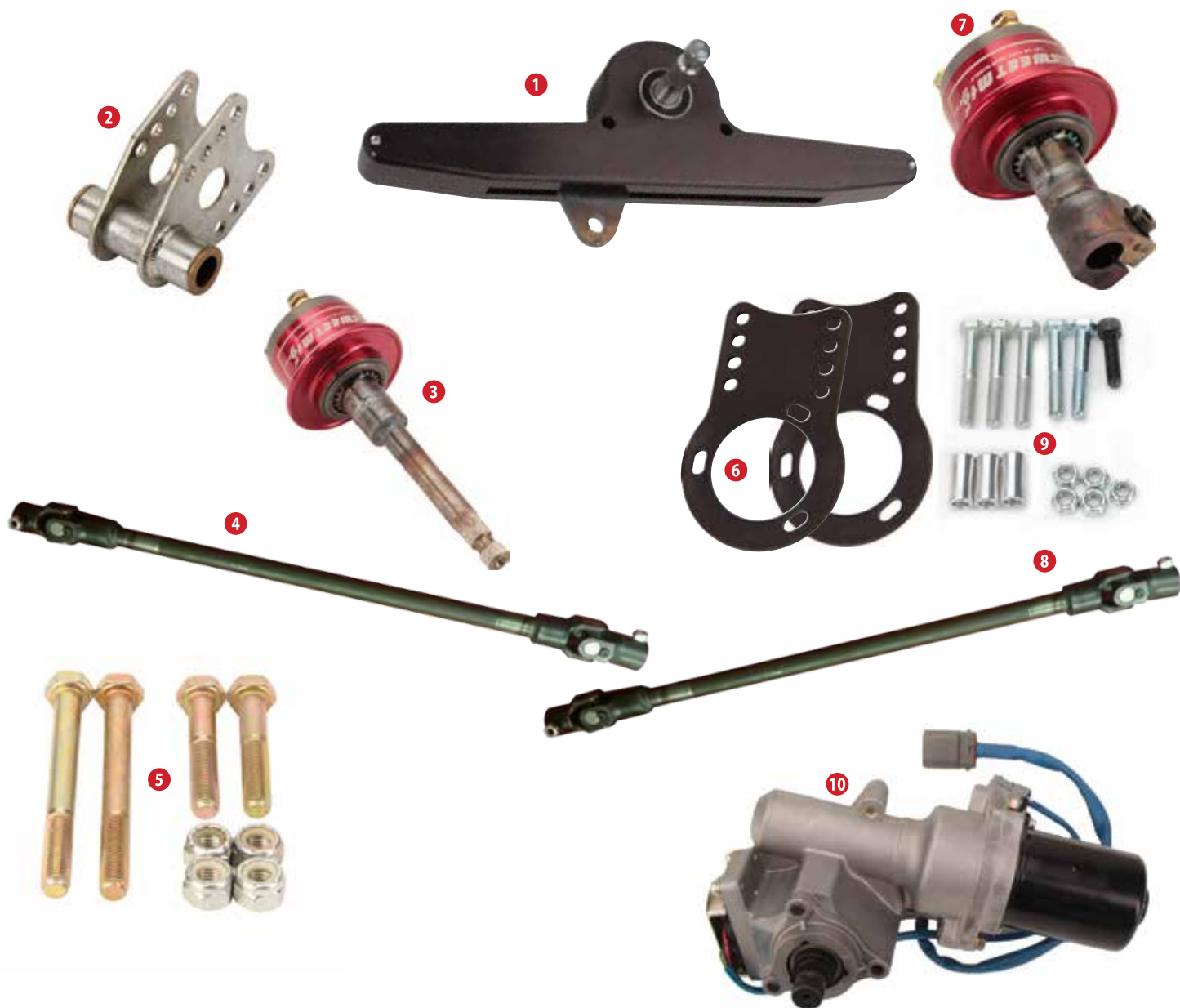




FIGURE A

STEERING INSTALLATION:

When installing your steering, it is easiest to start with the steering support side first. Also note that brand new rack and pinions are sent with the internals coated in an anticorrosive gel that has some adhesive properties. This is to prevent corrosion in storage and chatter in transit. It is important that the rack and pinion is taken apart prior to installation and cleaned thoroughly in a parts washer. Once you have cleaned everything well, manually spread a thin film of grease over rack and pinion gears before reassembling. White lithium or similar lightweight grease is recommended



FIGURE B

- 1) Fasten the upper steering support to the race car and slide the steering hub assembly into the upper steering support. See Figure A.
- 2) Attach the intermediate shaft to the steering hub assembly and jam the set screw on your intermediate shaft u-joint to prevent the two from separating. See Figure B.
- 3) Install rack and pinion. It works great to put your 5/16" – 3.00" bolts into the rack and pinion first prior to installing it, as the bolts will act as guides when affixing the rack and pinion to the chassis. As you are installing the rack and pinion, you will have to guide the lower u-joint on the intermediate shaft over the input shaft on the rack and pinion as the rack comes to mating point with the chassis. See Figure C.
- 4) Tighten rack and pinion fasteners prior to jamming the lower u-joint set screw.
- 5) Tighten and jam set screw on lower u-joint.



FIGURE C

FRONT AXLE INSTALLATION:

1	FRONT AXLE	966-22320 (15°) or 960-6102 (10°)	(6) RH 3/8" ROD ENDS	175-0113
2	(2) SPINDLES	960-1010	(6) LH 3/8" ROD ENDS	175-0313
	(2) STEERING ARMS	960-1015	(6) RH 3/8" JAM NUTS	175-6043-RH
	KING PIN SET	960-103150	(6) LH 3/8" JAM NUTS	175-6043-LH
	FRONT AXLE HARDWARE KIT	966-28002	6	EMI HUB 966-3023 or 966-3024
3	(4) 3/8" X 15" RADIUS RODS	910-351-15 (plain) or 910-3521-15 (black)	ANTI SEIZE	
4	(1) 3/8" X 16" RADIUS ROD	910-351-16 (plain) or 910-3521-16 (black)	TAPE MEASURE	
5	(1) 3/8" STEEL TIE ROD	966-22804-length	(2) 2" SETUP BLOCKS	

FIGURE A

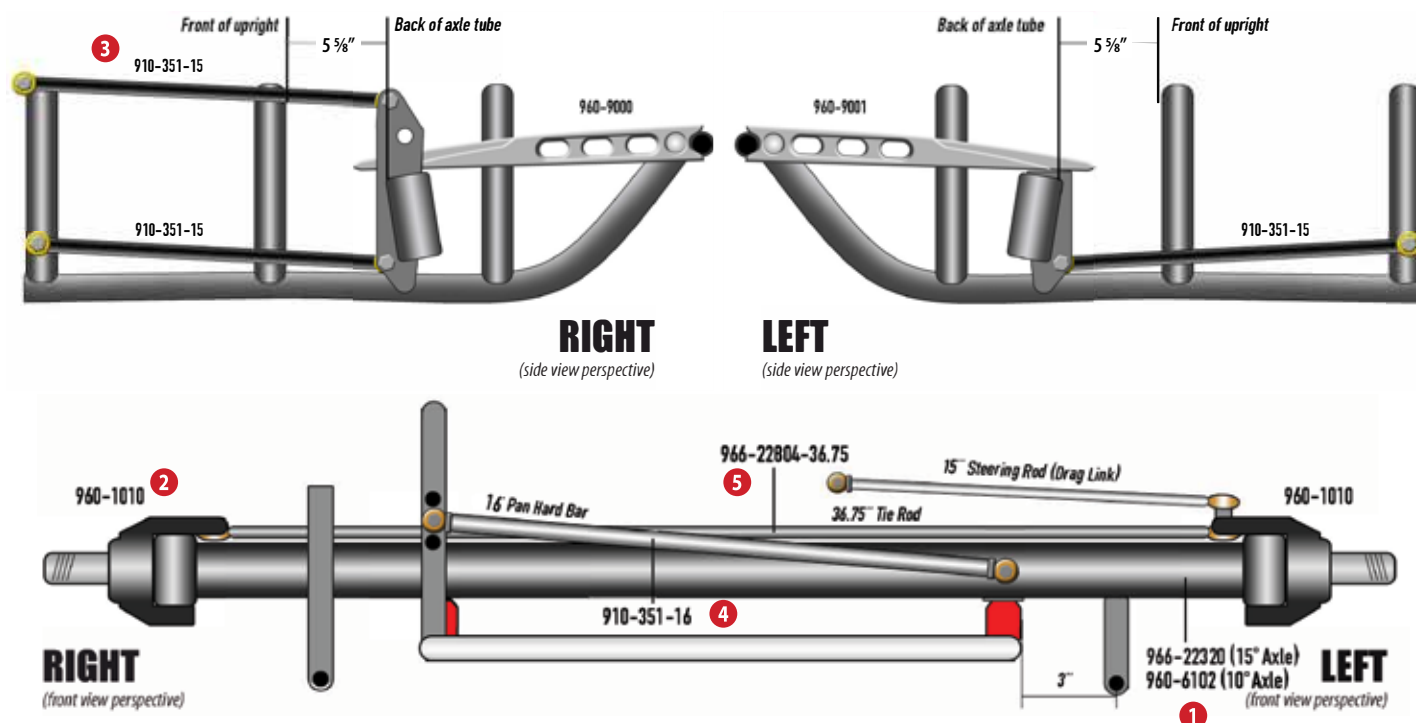
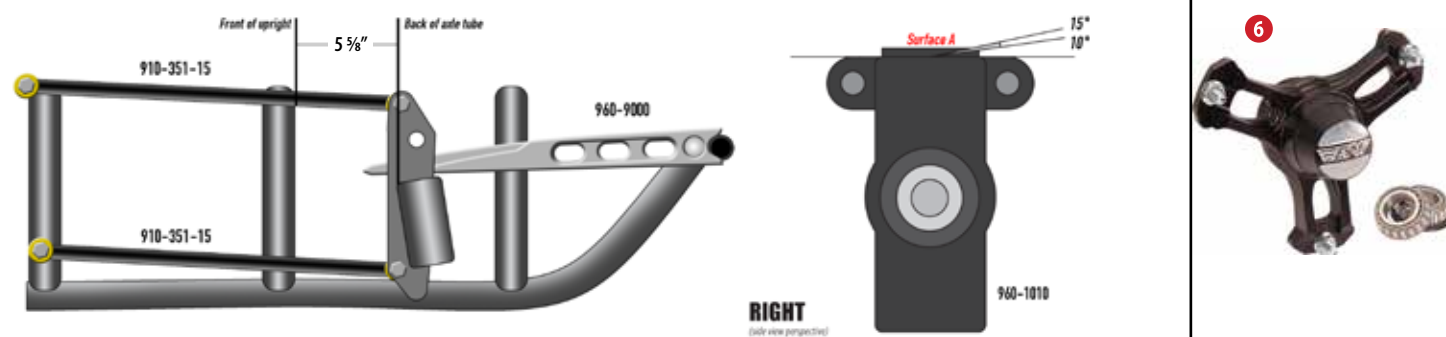


FIGURE B



FRONT AXLE INSTALLATION:

NOTE: Tap all threaded holes on chassis prior to assembly



FIGURE C



FIGURE D



FIGURE E

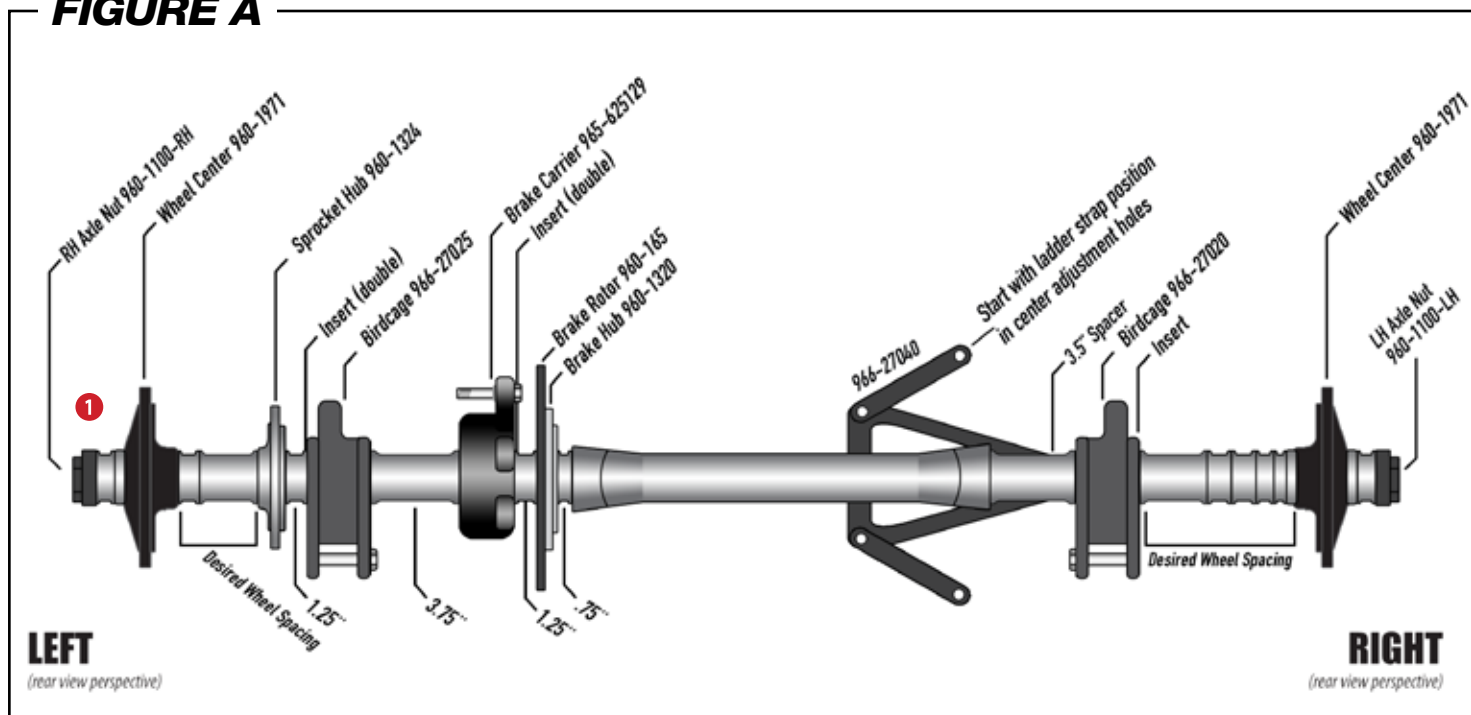
- 1) Start by assembling all radius rods. It is important to put anti seize on the threads of all rod ends before assembling radius rods. This will ensure that the rod ends will still be easy to uninstall in the event that rods need to be replaced or adjusted. If you do not use anti seize, the rod ends will lock into place over time due to corrosion and rods will be very difficult to adjust.
- 2) Assemble front axle prior to installation. When spacing the tie rod and drag link off the steering arms, use 1/2" spacers out of your front axle hardware kit to put between the arm and drag link as well as between the arm and tie rod on the LF. On the RF, space the tie rod off the steering arm with a 1/4" spacer. The reason we use a smaller spacer on the RF is to compensate for the castor split in the axle from right to left. See Figure C and D.
- 3) Once all radius rods and axle are assembled, square the front axle to ensure that you get your front axle positioned correctly in the car and square. See Figure A
 - a.) Insert assembled Stallard axle and set on 2" blocks
 - b.) Fasten all radius rods to the axle brackets and frame
 - c.) Fasten pan hard bar to axle and frame in center adjustment hole on the frame
 - Measure from outside of frame rail to center of axle bracket
 - Set LF axle bracket to 3"
- 4) Once axle is square, see Figure B and adjust spindle caster:
 - a.) Start with newly squared axle on 2" blocks
 - b.) Level car by placing angle finder on lower frame rail
 - c.) Place an angle finder on the flat of the RF spindle (surface A) where the steering arm connects. Adjust radius rod until you find desired castor setting
 - d.) Double-check axle squareness, re-adjust radius rods to achieve axle squareness with desired caster set
- 5) When you get to a point where you are ready to attach your drag link to your rack and pinion, note that it is very important to space the rod end on your drag link away from the rack and pinion tab 3/4". The front axle hardware kit you will use for installing the front axle will have extra 3/8" ID spacers for you to use when accomplishing this task. This is important to prevent the drag link from hitting the rack and pinion as the front axle travels through its range of motion. See Figure E.

REAR AXLE INSTALLATION:

1	COMPLETE REAR END ASSEMBLY	966-27304
2	(1) 7/16" X 21.25" RADIUS ROD	910-352-21.25 (Plain) or 910-3571-21.25 (Black)
2	(1) 7/16" X 20.25" RADIUS ROD	910-352-20.25 (Plain) or 910-3571-20.25 (Black)
3	BRAKE ROD	966-27902
4	(3) RH 7/16" ROD ENDS	175-0114
4	(3) LH 7/16" ROD ENDS	175-0314
5	RH 7/16 JAM NUT PACK	175-6044-RH
5	LH 7/16 JAM NUT PACK	175-6044-LH
6	LR TORSION ARM	960-504
7	RR TORSION ARM	960-502
	(2) 4" SETUP BLOCKS	
	ANTI SEIZE	
	TAPE MEASURE	
	ANGLE FINDER	
	REAR ARM FIXTURE	960-999006 (optional)



FIGURE A



REAR AXLE INSTALLATION:

NOTE: Install and ream all bushings first

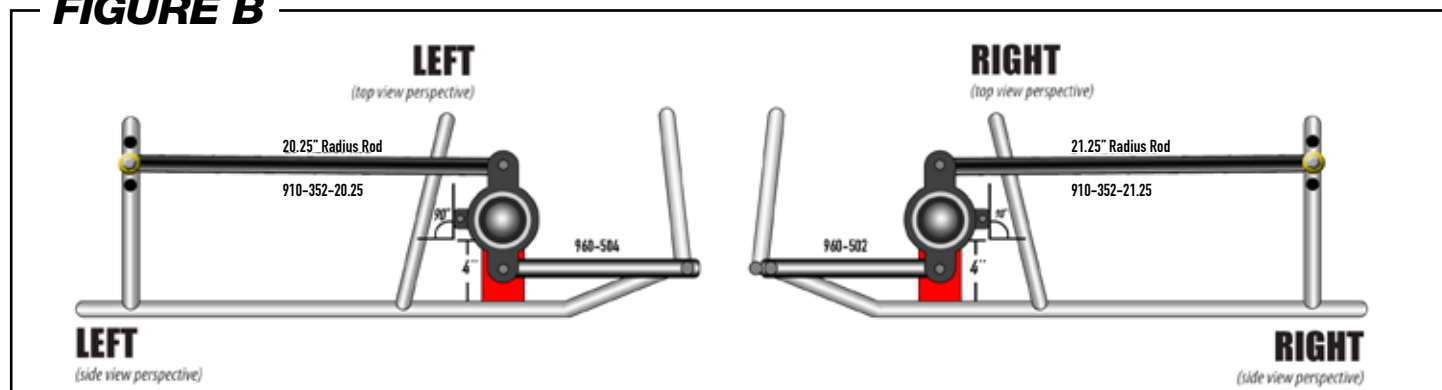
- 1) As instructed previously for front axle installation, start by assembling all radius rods. It is important to put anti seize on the threads of all rod ends before assembling radius rods. This will ensure that the rod ends will still be easy to uninstall in the event that rods need to be replaced or adjusted. If you do not use anti seize, the rod ends will lock into place over time due to corrosion and rods will be very difficult to adjust.
- 2) See Figure A to get your rear end assembly put together correctly.
- 3) Once ready to install the rear end assembly, start squaring the axle to get it positioned correctly into the car and square:
 - a.) Set your effective arm length
 - This is the distance from the center of the torsion spline to the center of the rod end
 - RR effective length is 11"
 - LR effective arm length is 12.5"

**Torsion arm fixture 960-999006 will aid in quickly and accurately setting effective arm lengths
 - b.) Install axle AFTER spacing properly using Figure A
 - Set axle on 4" blocks
 - Start with both radius rods set in the center adjustment holes on the frame
 - Fasten radius rods, brake rod, and jacob's ladder to axle
 - c.) Time your bird cages and brake carrier
 - Connect torsion arms to bird cages without using torsion stops
 - Time brake carrier so that the brake rod pickup is to the top
 - While using an angle finder, locate 90° on the flat at the front of the birdcage by adjusting the radius rods
- 4) It is very important that the rear arms are set to the proper effective lengths. This can be accomplished by using a tape measure, but for quicker and more accurate results, we recommend using our rear arm fixture for setting effective arm lengths. Figure C.



FIGURE C

FIGURE B



SHIFTER ASSEMBLY INSTALLATION:

1	SHIFTER HANDLE	966-27005
2	SHIFTER CABLE	966-22506
3	(2) 3/16" FEMALE ROD ENDS	175-0210
4	CLUTCH LEVER	970-7008
5	SHIFTER HARDWARE KIT	966-28038



SHIFTER ASSEMBLY INSTALLATION:



FIGURE A



FIGURE B



FIGURE C



FIGURE D

- 1) Start by installing both female rod ends to the ends of the shifter cable.
- 2) Once completed, use the 3/8" hardware in the shifter hardware kit to attach the handle to the shifter bracket in the race car. See Figure A
- 3) Next you will install the shift cable, but it is important to notice that both ends of the cable are different lengths. The short end will be the side you want going to your shift handle, and the long end will go to the engine linkage.
- 4) There is a bracket along the right frame rail just in front of the shift handle you will affix the cable to with the two jam nuts on the cable end. See Figure B.
- 5) When routing the cable from inside the car out, you should run the cable along the floor toward the left front lower side panel. Depending on where your pedals are mounted, you might run the cable around the pedals or between the pedals. You will want the cable to lay nicely so there is no bind. See Figure C.
- 6) The cable should exit the car just in front of the left front radiator upright between the upright and the two-piece front scoop. From there the cable will head back toward the engine and affix to the shift cable bracket on the motor mount. The shift cable bracket will be located differently per the engine make being used. If you find that you need additional cable slack, you may reroute the cable behind the radiator upright, but this will require you to notch your left front lower side panel where you would like the cable to exit. See Figure D.
- 7) Once the cable is affixed to the race car on both ends, use the 10-32 hardware in your shifter hardware kit to attach the rod ends to both the handle and shift linkage.
- 8) Finally, adjust the handle position and length of cable ends for driver comfort.



BRAKE BLEEDING PROCEDURE BY

A clear brake caliper bleeding tube inserted into the bottom of a bleed bottle should be used for the following steps. Place enough new brake fluid into the bottle to assure that air cannot be drawn into the tube while bleeding. Dual master cylinder application should be bled independently of each other.

- 1) Start the bleeding process with the caliper furthest from the master cylinder.
- 2) Loosen or remove the master cylinder cap from the reservoir.
- 3) Connect the bleed tube to the bleeder screw. If bleeding a caliper with two bleed screws, begin with the bleed screw closest to the wheel. Bleeder screws must point straight up to prevent air from being trapped in the top of the caliper.
- 4) Slowly pump and hold the brake pedal until the pedal begins to feel solid. Don't allow the fluid level to uncover the opening in the bottom of the reservoir.
- 5) Open the bleed screw. A small amount of fluid and air should be noticed. Close the bleed screw.
- 6) Repeat steps 2, 3, and 4 until a large volume of air-free fluid is noticed.
- 7) Connect the bleed tube to the inboard bleeder; if equipped with two bleeder screws, and repeat the bleeding process.
- 8) Repeat the bleeding process until all of the calipers are free of air. The last caliper bled should be the closest caliper to the cylinder.
- 9) Replace and tighten the master cylinder cap.

The system should now be completely bled. Repeat the above steps if the pedal is not firm. Refill the reservoir. Soft sinking pedals may be caused by leaks. Inspect the system, then repeat the bleeding process.

SLICK TRACK

LF	
BLOCK	2"
PRELOAD	1 turn
BAR	700
SHOCK	2
WHEEL OFFSET	3x7
TIRE	57/6x10 D12
AIR PRESSURE	9psi

RF	
BLOCK	2"
PRELOAD	0
BAR	750
SHOCK	3/2
WHEEL OFFSET	4x7
TIRE	57/6x10 D15
AIR PRESSURE	10psi

LR	
BLOCK	1.75"
PRELOAD	2 turns
BAR	725
SHOCK	2/6
WHEEL OFFSET	3x8
WHEEL SPACING	9.5"
TIRE	63/8x10 RD15
AIR PRESSURE	5psi

STAGGER
5"-6"

RR	
BLOCK	1.75"
PRELOAD	0
BAR	750
SHOCK	4/5
WHEEL OFFSET	7x12
WHEEL SPACING	10.5"
TIRE	69/10x10 D28
AIR PRESSURE	6psi

AVERAGE TRACK

LF	
BLOCK	2"
PRELOAD	.5 turn
BAR	700
SHOCK	2/4
WHEEL OFFSET	3x7
TIRE	57/6x10 D12
AIR PRESSURE	9psi

RF	
BLOCK	2"
PRELOAD	0
BAR	750
SHOCK	3
WHEEL OFFSET	4x7
TIRE	57/6x10 D15
AIR PRESSURE	10psi

LR	
BLOCK	1.75"
PRELOAD	1.5 turns
BAR	725
SHOCK	2/6
WHEEL OFFSET	3x8
WHEEL SPACING	9.5"
TIRE	62/8x10 RD12
AIR PRESSURE	6psi

STAGGER
7"

RR	
BLOCK	1.75"
PRELOAD	0
BAR	750
SHOCK	4
WHEEL OFFSET	5x12
WHEEL SPACING	11.5"
TIRE	69/10x10 D25
AIR PRESSURE	8psi

*Note: All setup notes are for average size drivers weighing 160-200lbs. For more personalized tech support call us today!

ACCESSORIES



**FUEL FUNNEL
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WRENCHES**
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728-68003 RATCHETS & SOCKETS



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**ANGLE
FINDER**
910-89409



**TAPE
MEASURE**
910-83330



BEAD BREAKER
546-53000



REAR ARM TOOL
960-999006



HEATED TIRE SIPER
910-82052



SETUP BLOCKS
910-82750



**CHAIN BREAK
TOOL**
960-158467
484-103931 CHAIN LUBE



**HONEYCOMB
RADIATOR
PROTECTOR**
917-34213
910-23108 MOUNTING KIT



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SEIZE**
425-D026ERL



**BRAKE
FLUID**
940-31091



LUG WRENCH
960-82300



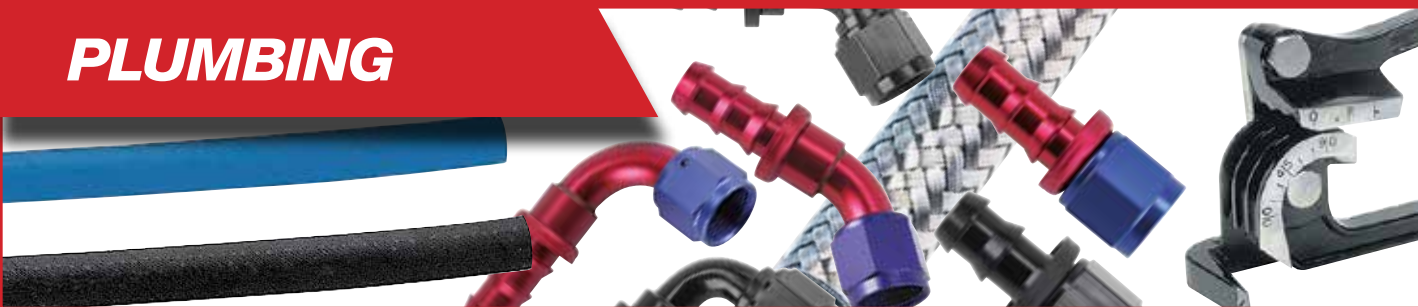


**NOW THAT
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