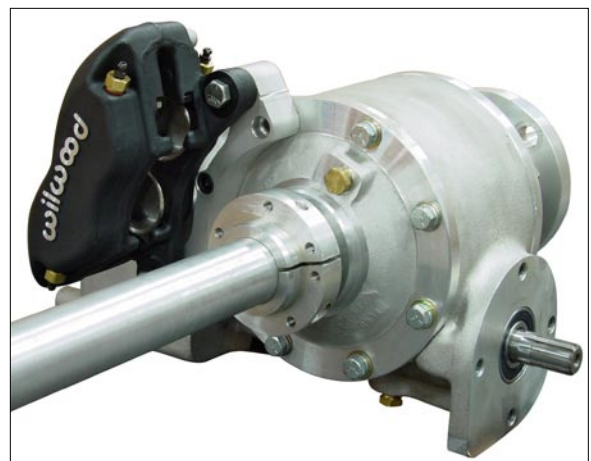
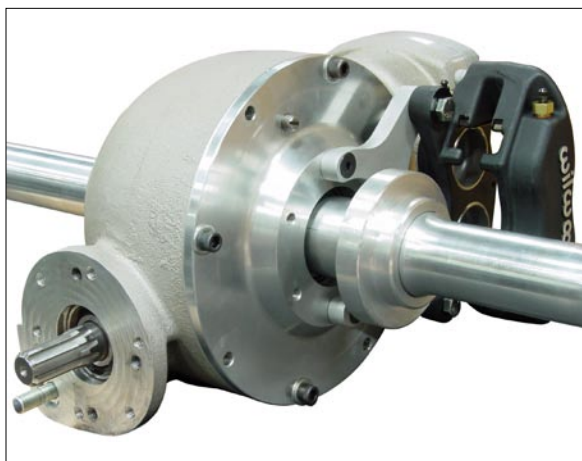


**Since 1963**

# **ACRO**

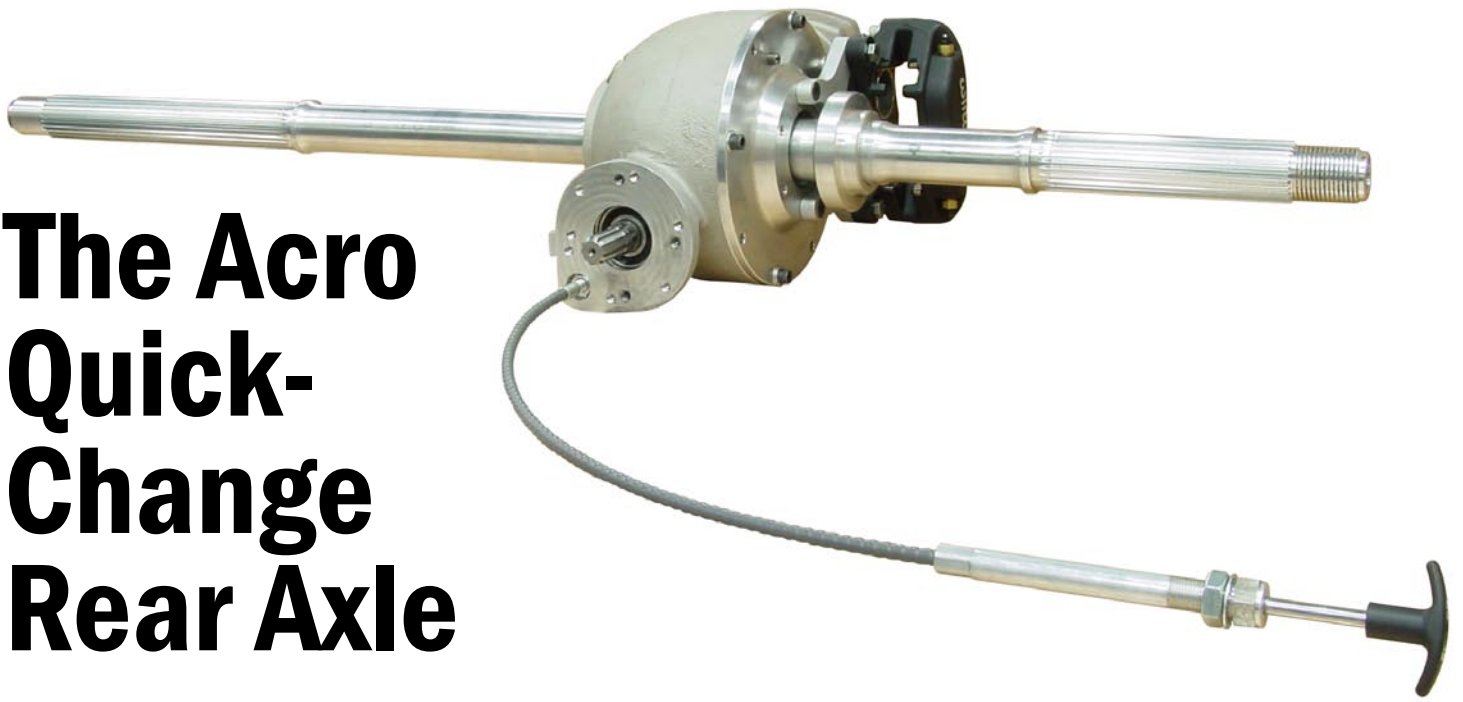
**RACING EQUIPMENT**

Acro began making TQ midget parts when Harleys and Crosleys ruled the dirt. Over these fifty years we have improved and expanded our lineup. Today we have the knowledge and equipment to help you put your car at the front of the pack.



**So give us a call . . . WE'LL TALK RACIN'!**

# The Acro Quick-Change Rear Axle



**The Acro quick-change rear end** is designed with an open axle shaft of either high-strength aluminum or heat-treated steel. This axle is driven by a ring and pinion gear set mounted in a cast aluminum housing. The back section contains the quick-change gears. The housing may be located anywhere along the axle between the chassis carrier bearings according to your installation requirements.

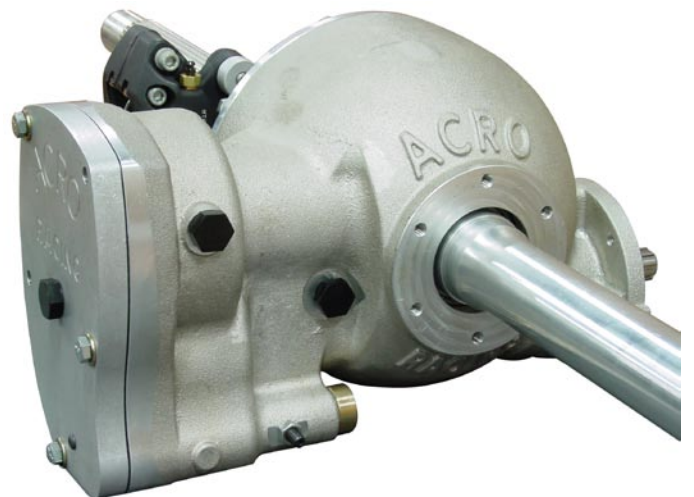
A standard setup has a 45" long axle, with the center (ring gear) housing located 2" to the left of the axle center, so that 20½" of the axle is on the left and 24½" is on the right. As stated, special locations are available upon request.

Change gears are located in the rear of the housing and are easily accessed by the removal of a cover plate. Many ratios are available using the same ring and pinion (see Gear Ratio Chart).

The lower shaft transmits power to the change gears at the rear of the housing. The cable-controlled internal shifter acts as an in-out clutch.

We can supply rear hubs with standard 4-bolt or 6-bolt patterns. Wheel centers are also available for splined axles. Several brake kits are available for easy bolt-on installation.

Rear end assemblies are available with a steel axle, keyed aluminum axle, or splined aluminum axle in sizes from 1¼" to 1¾" diameter.



### 5-Bolt Shifting 8000 Series

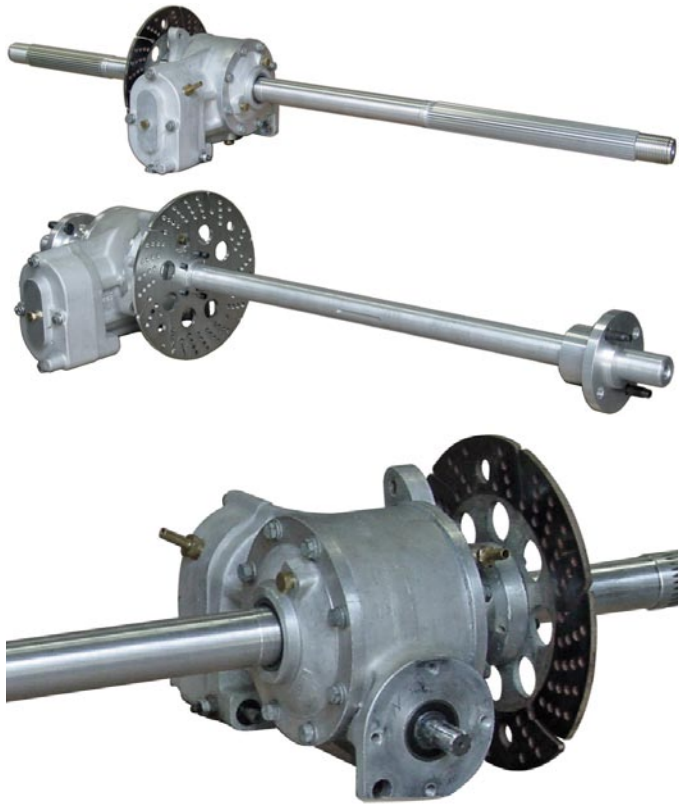
This new rear end has been designed to be light-weight and strong and is ready for the horsepower of today's TQ midgets or similar sized racecars. It has a special Acro Exclusive ring and pinion that allows it to be stronger without sacrificing weight and size. The size and weight of this new rear end isn't much more than our current 7000 Series 4-bolt design.

We have designed this as a system to be upgraded in stages if desired. This means your current driveline, axle, hubs, etc., may be able to be used with this rear, saving on upgrade costs.

This rear end is available with 1½" diameter axles (steel or aluminum), 1¾" diameter splined aluminum axles, or our all-new 1¾" diameter extra-light hollow-core splined axle.

### 4-Bolt Shifting 7000 Series

Introduced in 1996, this rear end has an internal shifter to shift it in or out of gear. This unit can be purchased with any style axle and any style hub we offer. The photos below show how the center section can be mounted on the axle to suit your installation needs. This unit is also available in a non-shifting version.



### 3-Bolt Non-Shifting 6000 Series

Introduced around 1965, this model served as the standard for more than 30 years. While this center section is now obsolete, rear caps and side plates are still available, as are bearings, lower shafts, and axles. Used center section castings are sometimes available. Usually the best option is to upgrade to the 4-bolt rear end, which can be built as a shifter or a non-shifter. Conversion kits retain as many parts from the 3-bolt as possible. Axle upgrades also retain many components.



## Acro 3-Bolt & 4-Bolt Quick-Change Gear Ratio Chart

Acro gears will replace Davis or Peck.

(Acro) Set No.	(Number of Teeth)		(5:14 Ring & Pinion) Ultimate Ratio	(Acro) Set No.	(Number of Teeth)		(5:14 Ring & Pinion) Ultimate Ratio
	Top	Bottom			Top	Bottom	
1	27	27	5.14	18	33	20s	8.481
2	27	26s	5.337	19	34	20	8.738
3	28	26	5.535	20	33s	19s	8.927
4	28	25s	5.756	21	34	19s	9.197
5	29	25	5.962	22	35	19	9.468
6	29	24s	6.210	23	34s	18s	9.708
7	30	24	6.425	24	35	18s	9.994
8	29s	23s	6.480	25	36	18	10.280
9	30	23s	6.704	26	35s	17s	10.582
10	31	23	6.927	27	36	17s	10.884
11	30s	22s	7.009	28	37	17	11.187
12	31	22s	7.242	29	36s	16s	11.565
13	32	22	7.476	30	37	16s	11.886
14	31s	21s	7.587	31	38	16	12.207
15	32	21s	7.832	32	37s	15s	12.678
16	33	21	8.077	33	38	15s	13.021
17	32s	20s	8.224	34	39	15	13.364

## Acro 4-Bolt Quick-Change Inverted Gear Ratio Chart

For use with transmission-driven setups.

Ultimate Ratio	Lower Gear #	Upper Gear #	Ultimate Ratio	Lower Gear #	Upper Gear #	Ultimate Ratio	Lower Gear #	Upper Gear #
5.140	26s	26s	3.534	32	22	2.643	35	18s
4.950	27	26s	3.482	31s	21s	2.570	36	18
4.773	28	26	3.373	32	21s	2.497	35s	17s
4.589	28	25s	3.271	33	21	2.427	36	17s
4.431	29	25	3.213	32s	20s	2.362	37	17
4.254	29	24s	3.115	33	20s	2.284	36s	16s
4.112	30	24	3.024	34	20	2.223	37	16s
4.077	29s	23s	2.959	33s	19s	2.164	38	16
3.941	30	23s	2.872	34	19s	2.084	37s	15s
3.814	31	23	2.790	35	19	2.029	38	15s
3.769	30s	22s	2.721	34s	18s	1.977	39	15
3.648	31	22s						





### Acro 5-Bolt Quick-Change Gear Ratio Chart

Ultimate Ratio	Lower Gear #	Upper Gear #	Ultimate Ratio	Lower Gear #	Upper Gear #	Ultimate Ratio	Lower Gear #	Upper Gear #
15.340	18s	47	10.728	23s	42	7.763	28s	37
15.014	18s	46s	10.473	23s	41s	7.554	28s	36s
14.533	19	47	10.281	24	42	7.496	29	37
14.224	19s	46	10.036	24s	41	7.293	29s	36
13.914	19s	45s	9.792	24s	40s	7.091	29s	35s
13.513	20	46	9.635	25	41	7.050	30	36
13.219	20s	45	9.400	25s	40	6.854	30s	35
12.925	20s	44s	9.165	25s	39s	6.658	30s	34s
12.589	21	45	9.038	26	40	6.633	31	35
12.310	21s	44	8.813	26s	39	6.444	31s	34
12.030	21s	43s	8.587	26s	38s	6.254	31s	33s
11.750	22	44	8.486	27	39	6.242	32	34
11.483	22s	43	8.269	27s	38	6.059	32s	33
11.216	22s	42s	8.051	27s	37s	5.875	32s	32s
10.984	23	43	7.973	28	38	5.875	33	33

### Acro 5-Bolt Quick-Change Inverted Gear Ratio Chart

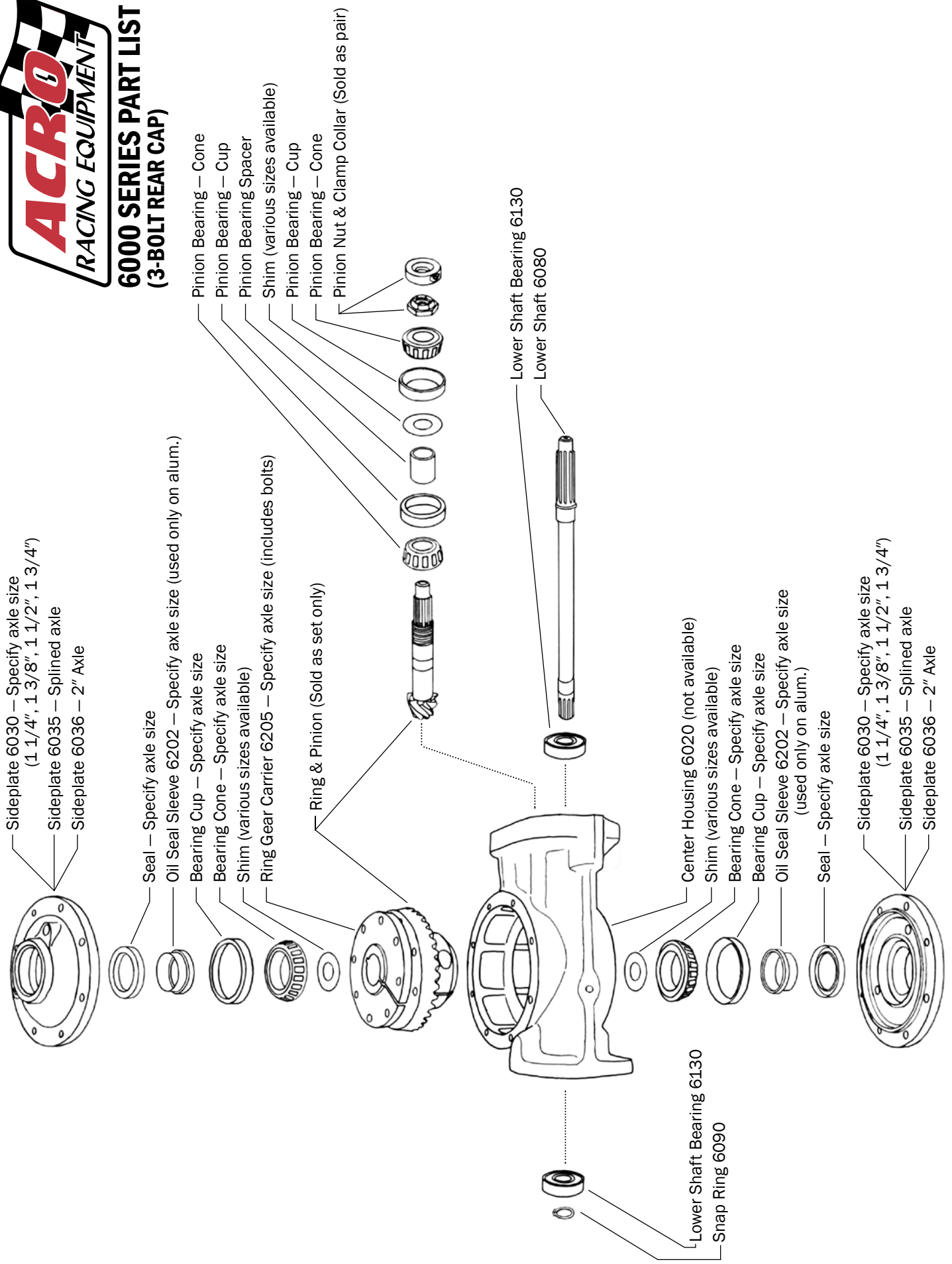
For use with transmission-driven setups.

Ultimate Ratio	Lower Gear #	Upper Gear #	Ultimate Ratio	Lower Gear #	Upper Gear #	Ultimate Ratio	Lower Gear #	Upper Gear #
5.875	33	33	4.287	37s	27s	3.077	42s	22s
5.697	33	32s	4.174	38	27s	3.006	43	22s
5.529	34	32	4.067	39	27	2.938	44	22
5.519	33s	31s	4.020	38s	26s	2.869	43s	21s
5.357	34	31s	3.917	39	26s	2.804	44	21s
5.204	35	31	3.819	40	26	2.742	45	21
5.184	34s	30s	3.766	39s	25s	2.670	44s	20s
5.036	35	30s	3.672	40	25s	2.611	45	20s
4.896	36	30	3.582	41	25	2.554	46	20
4.868	35s	29s	3.525	40s	24s	2.481	45s	19s
4.733	36	29s	3.439	41	24s	2.427	46	19s
4.605	37	29	3.357	42	24	2.375	47	19
4.569	36s	28s	3.296	41s	23s	2.299	46s	18s
4.446	37	28s	3.217	42	23s	2.250	47	18s
4.329	38	28	3.142	43	23	2.203	48	18



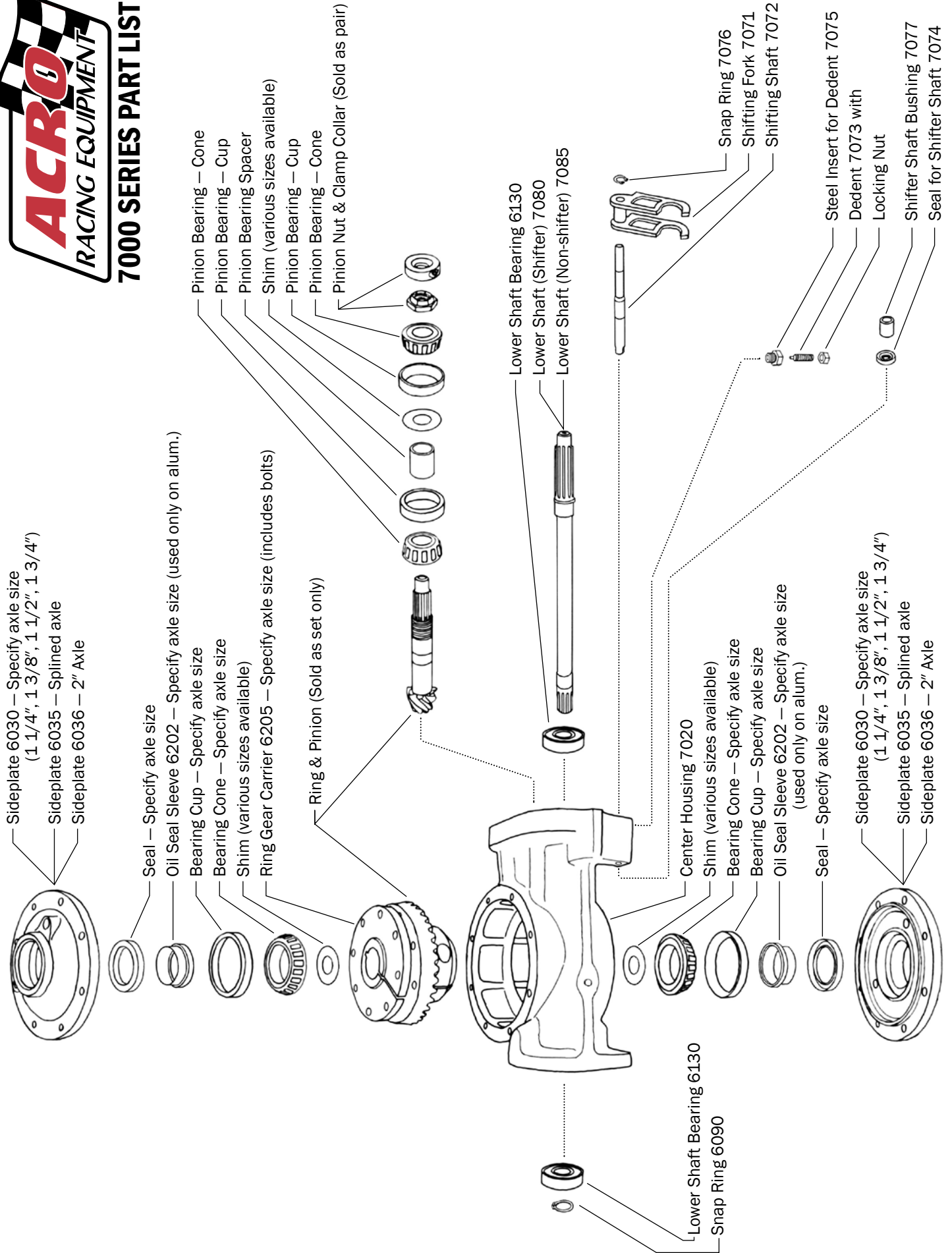


# 6000 SERIES PART LIST (3-BOLT REAR CAP)





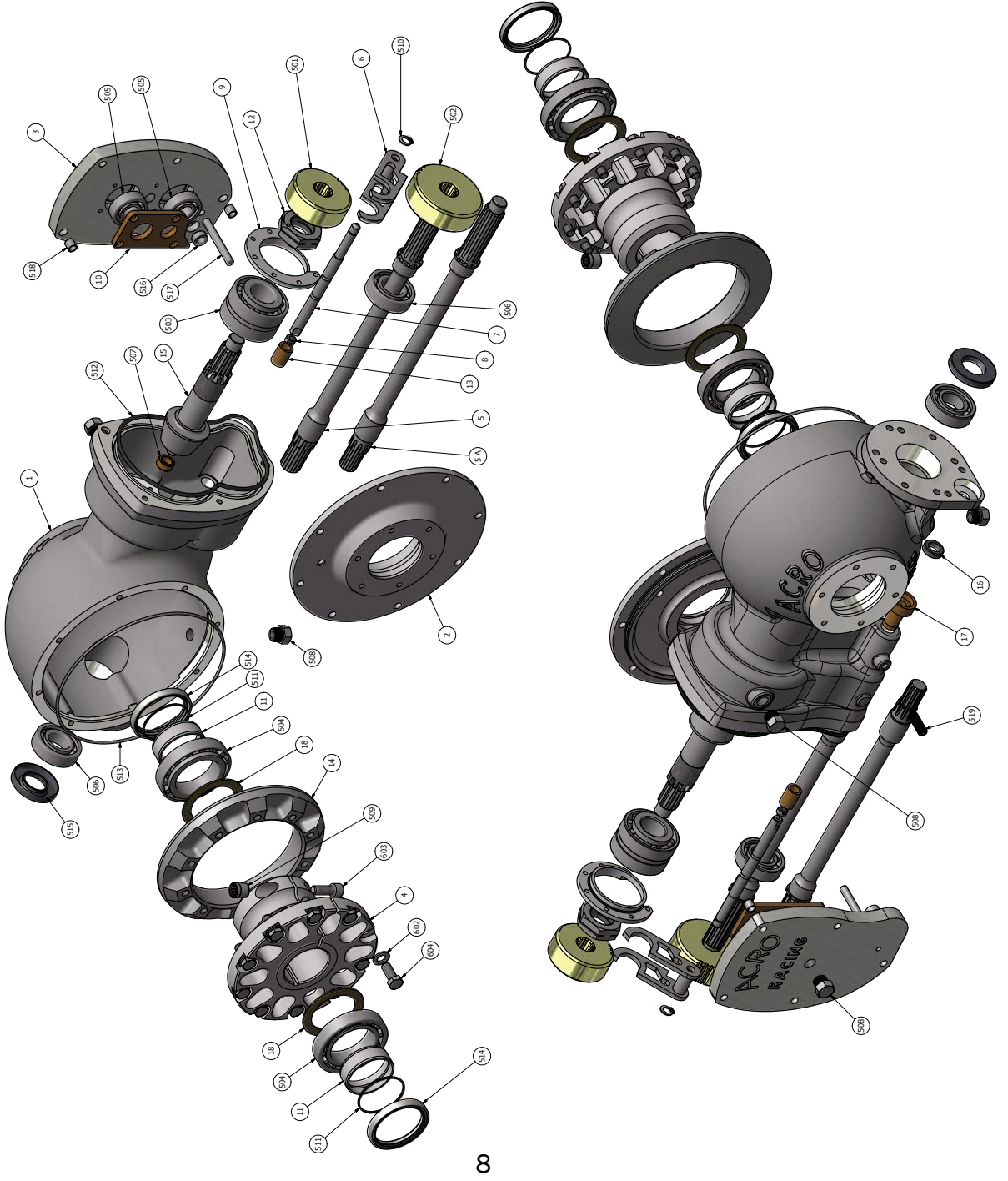
# 7000 SERIES PART LIST



# ACRO RACING EQUIPMENT

## 8000 SERIES PART LIST

ITEM	QTY	MATERIAL	PART NAME	DESCRIPTION	DWG NO.
604	10	STD		WAS BBR2.1 - 3/8x2.4 UNF - 0.875	
603	2	STD		WAS BBR3.7 - 3/8 - 10 UNC - 1.15	
602	10	STD		ANGS BBR2.2.1 - 3/8 - narrow - Type B	
519	1	PAIR		SPRING PLUNGER CARR-LANE	
518	2	PAIR		CLIP SPRING ENCLER 10-10AHC - MESH/	
517	1	PAIR		BALL JOINT PIN 5/16 x 2.12	
516	1	PAIR		DRILL BUSHING PF Carr-Lane	
515	1	PAIR		SHAFT SEAL CR 9/258	
514	2	PAIR		WAS 60306 MHSATING SKF 606033	SKF
513	1	PAIR		O-RING PARKER .69	
512	1	PAIR		O-RING PARKER .60	
511	2	PAIR		O-RING PARKER .033	
510	1	PAIR		ROTOR CLIP SHF-37	
509	2	PAIR		WAS 3.16-18 HighWater-Carr 00664031	
508	4	PAIR		O-RING PLUS 9/16x1.8	
507	1	PAIR		BRONZE BEARING 12mm x 18mm x 8mm AM1218-08	
506	2	PAIR		SKF 6005	Bearing SKF 6005
505	4	PAIR		ANGS/ARMA 19.2 TS - 2 x 3.1875 x 0.7188 - L305649 L305610	Tapered Roller Bearing
504	2	PAIR		ANGS/ARMA 19.2 TDO - 1.125 x 2.5 x 1.8125 - L512 L5251D	Tapered Roller Bearing
503	1	PAIR		8mm AM1218-08	
502	1	PAIR		WAS 3014 SHIM GRP	
501	1	PAIR		WAS 3014 SHIM GRP	
18	2	SHIM STK		GEAR RUB SHIM PACK	
17	1	BRONZE		SEAL HOLDER 1.1/8 DIA x 1.5/8	SEAL HOLDER
16	1	PAIR		SHIFTER SHAFT SEAL	
15	1	PAIR		WAS 3014 SHIM GRP	
14	1	PAIR		SPIRAL BEVAL GEAR 831112X	
13	1	BRONZE		SHIFTER BEARING	
12	1	PAIR		HEX JAM NUT - 1.1/8 - 12	ALTER
11	2	Aluminum		SEAL BUSHING 2.3/16 DIA x 5/8	6202-2
10	1	BRONZE		BEARING SPACER 1/4 x 2 x 4	8170
9	1	BRONZE		SHIFTER LOCK 1/4 x 2 x 4	8072
8	1	ETD-150		SHIFTER SHAFT 7/16 DIA x 3/8	8072
7	1	ETD-150		SHIFTER SHAFT 7/16 DIA x 6	8072
6	1	WELDMENT		SHIFTER YOKE	8081
5A	1	ETD-150		LOWER SHAFT WITH SHIFTER - .75	1.1/8 DIA x 15.3/4
5	1	ETD-150		COVER SHAFT WITH SHIFTER - .875	1.1/8 DIA x 15.3/4
4	1	ETD-150		COVER SHAFT 1.1/8 DIA x 15.3/4	8082-875
3	1	Aluminum		GEAR COVER PLATE 5/8 x 5.3/4 x 3/8	8070
2	1	Aluminum		SLIDE PLATE 8.3/4 DIA x 1.3/8	8030
1	1	Aluminum 6061		CASTING MACHINED	CASTING 8020C

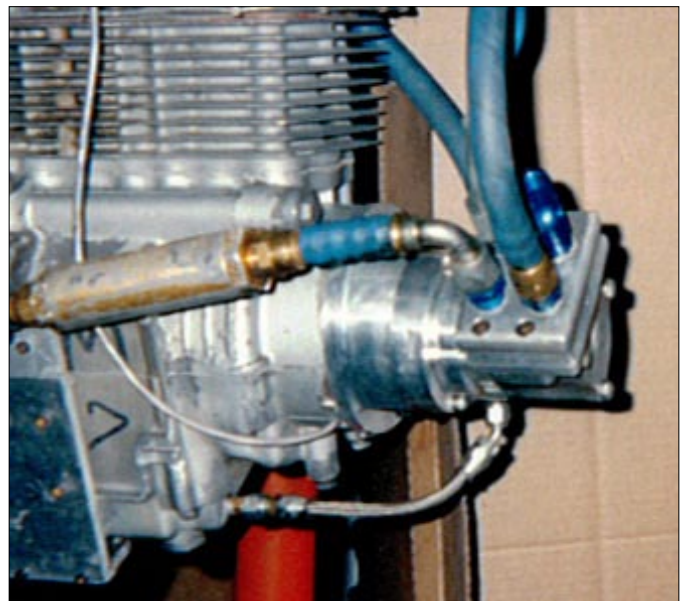
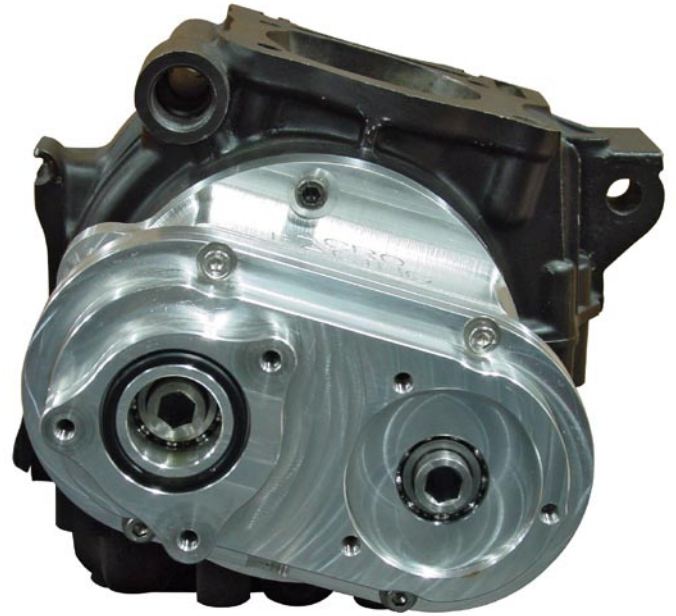


SHEETS OF DRAWING RECEIVED  
 DRAWING NO. 8000A01  
 DATE 3/24/2012  
 1120 W. WASHINGTON ST. GARDEN CITY, IN 47343  
 REAR END 8000 with 26" DRIVE SHAFT  
 REAR END 8000 with 26" DRIVE SHAFT  
 PLOT DATE: 3/27/2012  
 ACRO Engineering Inc.



# Double Pump Drive

The Double Pump Drive Assembly (Honda 750 pictured) is also available for other motors. It is a front-mounted, crankshaft-driven, enclosed gear drive for one or two pumps. This drive is set up for a Honda 750 style oil pump and a Hilborn fuel injection pump. A 4-port manifold with oil pressure regulator is included, which controls the pressure output of the oil pump. The oil pressure is pre-set at 70 psi but is adjustable. The second shaft is designed to drive a Hilborn fuel injection pump. A cover plate is provided if fuel pump is not used. Both output shafts turn at  $\frac{1}{2}$  crankshaft speed.

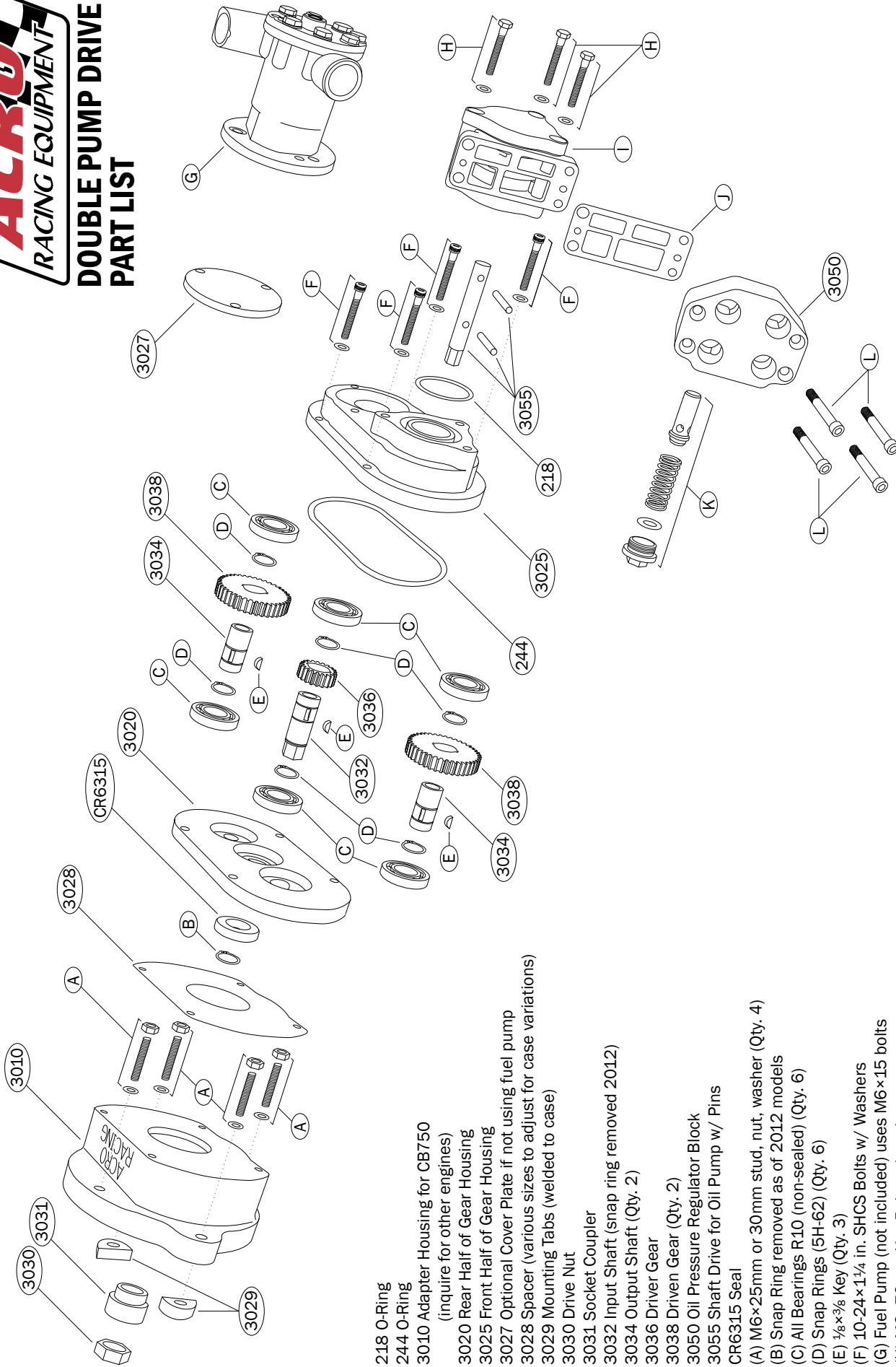


The low mounting position of the oil pump on the motor provides improved efficiency and a lower likelihood of losing prime. Another advantage of this drive over the traditional cam drive is the proper rotation of the Honda oil pumps, which improves performance at higher temperatures. The aluminum engine adapter is easily removed to allow access to ignition systems. If using both pumps, two additional mounting tabs are required, which are included and are easily welded on to the engine case. Overall assembly with the Honda oil pump is approximately  $5\frac{3}{4}$ " long; the fuel pump may add additional length.





# DOUBLE PUMP DRIVE PART LIST

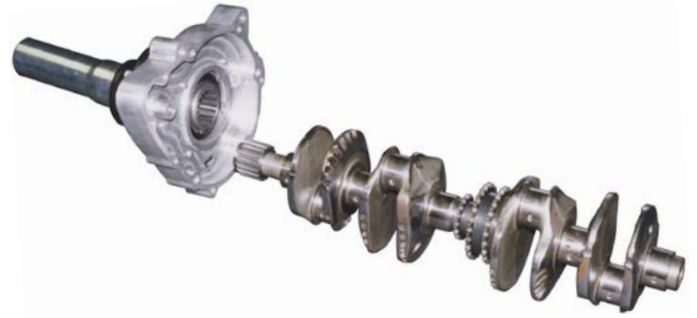


- 218 O-Ring
- 244 O-Ring
- 3010 Adapter Housing for CB750  
(inquire for other engines)
- 3020 Rear Half of Gear Housing
- 3025 Front Half of Gear Housing
- 3027 Optional Cover Plate if not using fuel pump
- 3028 Spacer (various sizes to adjust for case variations)
- 3029 Mounting Tabs (welded to case)
- 3030 Drive Nut
- 3031 Socket Coupler
- 3032 Input Shaft (snap ring removed 2012)
- 3034 Output Shaft (Qty. 2)
- 3036 Driver Gear
- 3038 Driven Gear (Qty. 2)
- 3050 Oil Pressure Regulator Block
- 3055 Shaft Drive for Oil Pump w/ Pins
- CR6315 Seal
- (A) M6x25mm or 30mm stud, nut, washer (Qty. 4)
- (B) Snap Ring removed as of 2012 models
- (C) All Bearings R10 (non-sealed) (Qty. 6)
- (D) Snap Rings (5H-62) (Qty. 6)
- (E) 1/8x3/8 Key (Qty. 3)
- (F) 10-24x1 1/4 in. SHCS Bolts w/ Washers
- (G) Fuel Pump (not included) uses M6x15 bolts
- (H) M6x70mm Hex Bolts w/ washers
- (I) Stock Honda CB750 Oil Pump available separately
- (J) Gasket for Stock Honda CB750 Oil Pump
- (K) Stock Honda Regulator Kit w/ Cap, Spring, & Plunger; shims available to adjust pressure
- (L) M6x40mm Bolts SHCS (Qty. 4)

# Driveline Assemblies

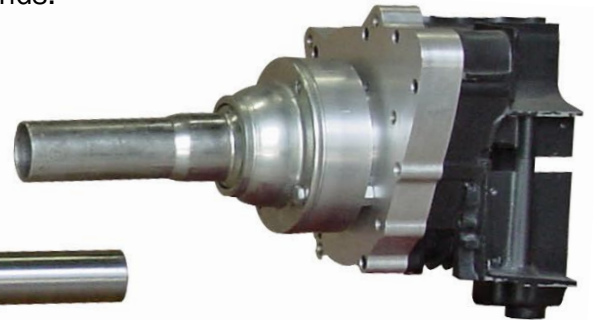
## Direct Drive Motor Adapter Assembly

Includes the aluminum motor adapter, crankshaft adapter, and U-joint housing (with U-joint and bearing). Honda 750 pictured; assembly also available for other motors. Connects to torque tube assembly shown below.



## Torque Tube Assembly

Includes the inner and outer bells, front slip tube with ball bearing drive shaft support, torsion type driveshaft, tube with aluminum mounting flange, rear shaft coupler, and O-ring seals. An additional rear shaft seal is optional for the 3-bolt and 4-bolt rear ends.



## In and Out Box Adapter Assembly

Includes the aluminum motor adapter, crankshaft adapter, in-out box assembly, and U-joint. Connects to torque tube assembly shown above. Honda 750 pictured; also available for other motors.

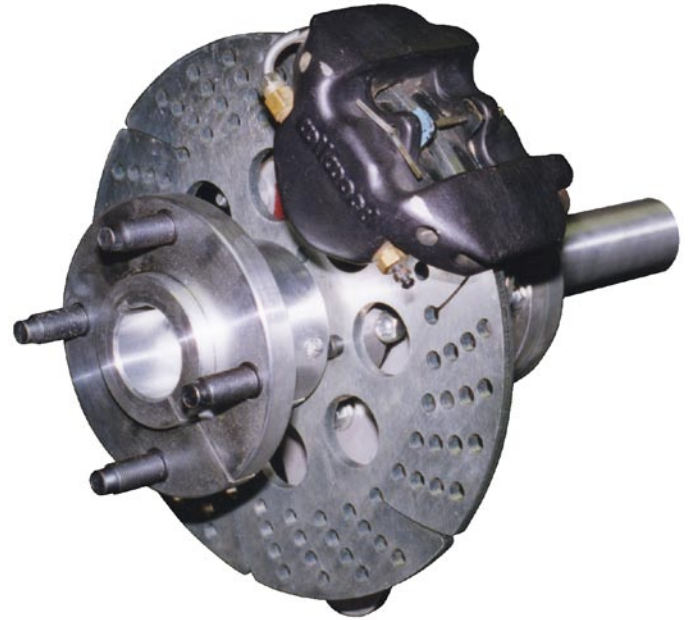
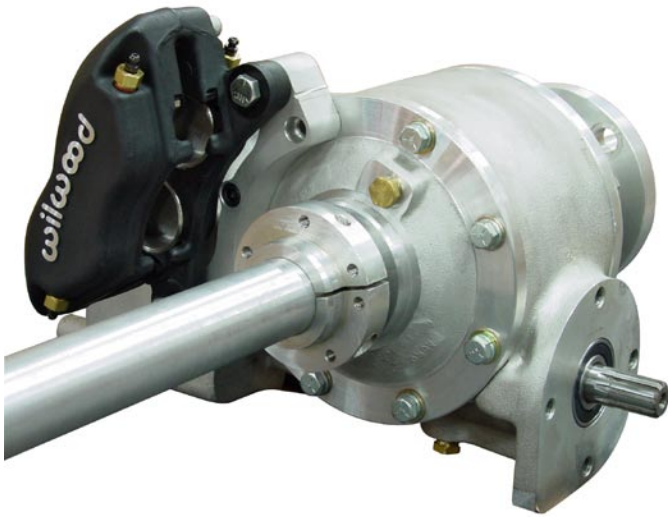




# Rear Brake Kits

Acro rear brake rotors are 10" diameter × ¼" thick steel discs with an aluminum hub. They are designed to be durable, economical, and lightweight, with vent holes for cooling and expansion slots to prevent heat distortion. They can be mounted as inboard or outboard on any axle we offer. Holes have been added to allow access to caliper mount bolts when used as an inboard mount.

Acro caliper mounting brackets are made of aluminum for light weight and durability. Brackets are available for inboard or outboard placement on the rear axle. Inboard brackets mount directly to the center section. Outboard units are made in bird-cage style as part of the carrier bearing assembly. Single and double piston styles are available.

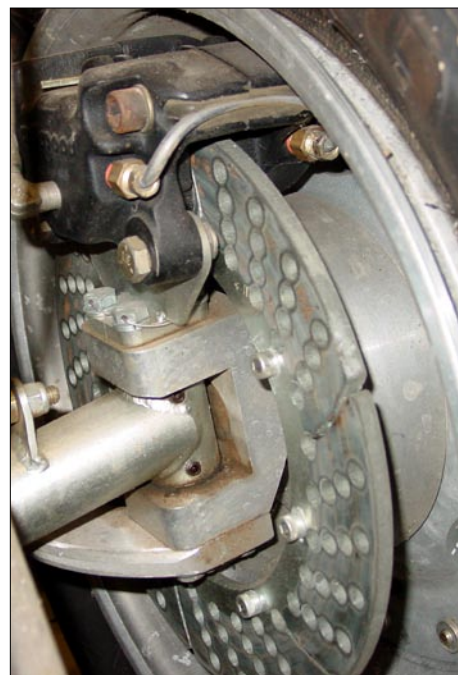
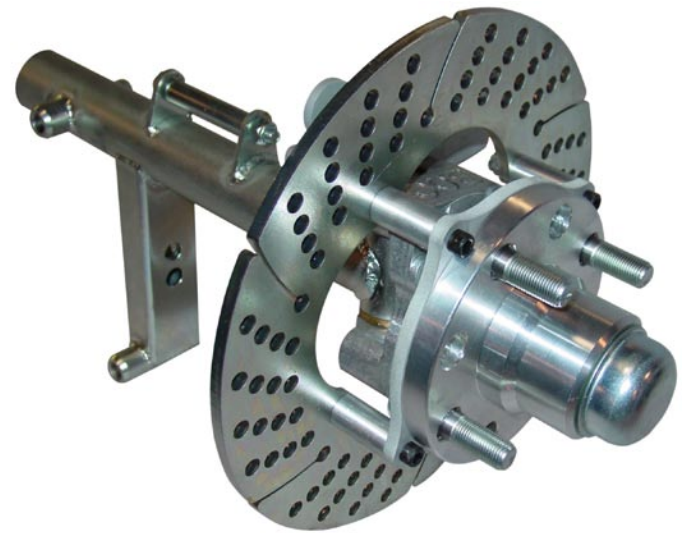
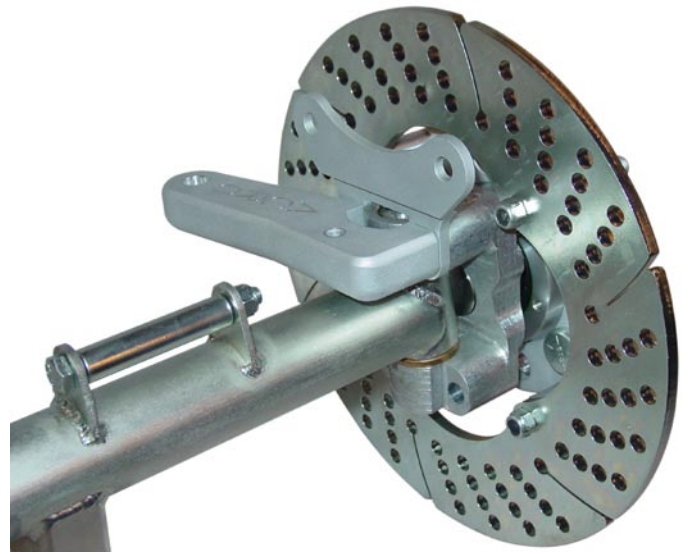




# Front Brake Kits

The Acro front brake system is designed to be lightweight and effective. The kit includes a hub, mounting plate for a  $\frac{1}{4}$ " thick rotor that is 9.8" diameter, and caliper mounting plate. It is designed to mount on the spindle we sell separately. These are available in 4-bolt and 6-bolt patterns. Single piston calipers.

A hat-style brake system is also available and includes an aluminum hat, 10" diameter rotor, and caliper mount that bolts to the top of the spindle (specify type of spindle). These are available in 4-bolt and 6-bolt patterns. Single piston calipers.



# Front Axle Kits

We sell all the parts you need for your front axle and suspension: Axles, spindles, hubs, steering arms, torsion bar arms, tie rods, and steering rods. Spindles, hubs, and steering arms are stocked items on our shelves. Axles are made to order, so give us the size and design you need and we will special-make your axle. We can also work with you if you are unsure of the best design for your race car. Torsion bars are also made to order due to the great variety of styles.





# Miscellaneous Parts

- Oil pressure regulator manifold (4 port – camshaft drive)
- Cam cover with Honda oil pump mount (Exchange)
- Exhaust Kits (call for details)
- Torsion Bars  $\frac{3}{4}$ " or  $\frac{7}{8}$ " diameter (Custom sized to order)
- Torsion Bar Arm (Custom sized to order)
- Torsion Bar Adjustable Stop (Custom sized to order)
- Pannard Bracket and Rod (Custom sized to order)

# Vintage Car Parts

- Bird cage plates with or without brake caliper mounts, with or without torsion bar arm mounts. Single radius rod style or wishbone style.
- Vintage ACRO, Davis, and Peck rear axles
- Crosley parts:
  - Exhaust header kits
  - Custom aluminum water pumps
- Crosley, Polaris, Konig, and Triumph BSA 3-cylinder motor adapters (for mounting Acro in-out boxes)
- Crank adapters for above listed engine types

