# STREET ROD REARS TECHNICAL MANUAL


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## Save This Booklet For Reference

Thank you for purchasing one of our fine products. You have chosen the best rear end available. This manual is intended to be used as a guide in the maintenance and setup of your *Winters Performance* rear end. Our instructions, along with your common sense, will give you the satisfaction and performance that you expect and deserve when you use *Winters Performance*.

Model # _____

Type _____

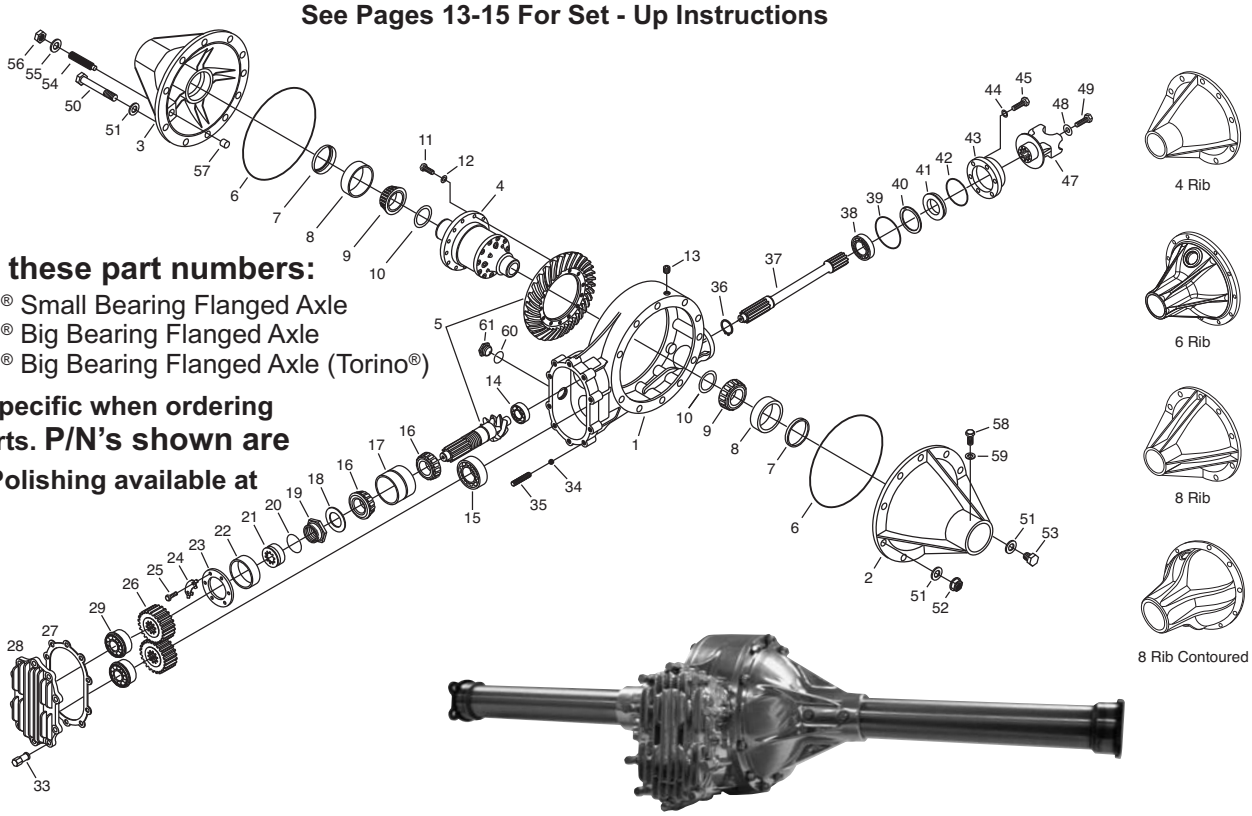
Serial # _____

Purchase Date _____


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# CHAMPIONSHIP QUICK CHANGE

**See Pages 13-15 For Set - Up Instructions**



4 Rib

6 Rib

8 Rib

8 Rib Contoured

## Choose from these part numbers:

**SR2510** Ford® Small Bearing Flanged Axle
**SR2520** Ford® Big Bearing Flanged Axle
**SR2525** Ford® Big Bearing Flanged Axle (Torino®)

**Note: Must be specific when ordering replacement parts. P/N's shown are unpolished. Polishing available at extra charge.**

| Description | | P\N | Qty | # | Description | P\N | Qty |
|---|---|---|---|---|---|---|---|
| 1 | Aluminum "Sprint" Center Section | 5840 | 1 | 28* | Gear Cover | 6508 | 1 |
| 2* | Aluminum 4 Rib Right Side Bell | 6697-01 | 1 | 29* | Ball Bearing, Gear Cover | 7332 | 2 |
| 2* | Aluminum Heavy Duty 6 Rib Right Side Bell | 1663-01 | 1 | 33 | 3/8-16 Steel High Nut | 7794 | 10 |
| 2* | Aluminum Heavy Duty 8 Rib Right Side Bell | 5016-01 | 1 | 34 | 5/16" Diameter Ball, Gear Cover | 7398 | 10 |
| 3* | Aluminum 4 Rib Left Side Bell | 6697-02 | 1 | 35 | 3/8-16 x 1 3/4" Stud, Gear Cover | 7802 | 10 |
| 3* | Aluminum Heavy Duty 6 Rib Left Side Bell | 1663-02 | 1 | 36 | Retaining Ring, Lower Shaft | 7610 | 1 |
| 3* | Aluminum Heavy Duty 8 Rib Left Side Bell | 5016-02 | 1 | 37 | Lower Shaft, Heat Treated | 5003 | 1 |
| 3* | Aluminum Lightweight 8 Rib Right Side Bell | 5016-05 | 1 | 38 | Front Ball Bearing, Lower Shaft | 7390 | 1 |
| 3* | Aluminum Lightweight 8 Rib Left Side Bell | 5016-02M | 1 | 39 | O'Ring, Seal Plate | 7413 | 1 |
| 4 | Winters Track, 31 Spline | 6513-31 | 1 | 40 | Retaining Ring, Seal Plate (.750" Seal) | 7652 | 1 |
| 5 | Ring and Pinion (Standard w/4.12 Ratio) | 5714 | 1 | 41 | Seal, Seal Plate (Thick Seal .750") | 7204T | 1 |
| 6* | O'Ring (8 Rib Bell) | 7403 | 2 | 42 | O'Ring, Seal | 7474 | 1 |
| 6* | O'Ring (4 & 6 Rib Bell) | 7403T | 2 | 43 | Seal Plate, .750 Seal (.375 Seal Use P/N 5018M) | 5018-01M | 1 |
| 7 | Seal, Side Bell | 7205 | 2 | 44 | 3/8 SAE Flatwasher | 7114 | 6 |
| 8 | Bearing Cup,Side Bell | 7310 | 2 | 45 | 3/8-16 x 1 1/4" HHCS, Seal Plate | 7107 | 6 |
| 9* | Bearing Cone (Differentials) | 7340 | 2 | 47* | Drive Yoke, 1310, Steel | 3533 | 1 |
| 10* | Shim Kit (Differentials) | 5295 | 1 | 47* | Drive Yoke, 1310, Billet Aluminum | 5038AS | 1 |
| 11 | Ring Gear Bolt (Threaded Ring Gear) | 7852 | 12 | 47* | Drive Yoke, 1350, Steel | 3588 | 1 |
| 12 | 3/8 Belleville Washer (Threaded Ring Gear) | 7815 | 12 | 48 | Retaining Washer, Drive Yoke | 5037 | 1 |
| 13 | 3/8 Recessed Socket Head Pipe Plug | 7111B | 2 | 49 | 3/8-24 x1" HHCS, Drive Yoke | 7109Y | 1 |
| 14 | Roller Bearing, Pinion Nose | 7331 | 1 | 50 | 7/16-20 x 5 1/2" Thrubolt | 7176 | 10 |
| 15 | Shielded Ball Bearing, Lower Shaft | 7339 | 1 | 51 | 7/16 SAE Flatwasher, Thrubolt | 7178 | 22 |
| 16 | Bearing Cone,Pinion Shaft | 7308 | 2 | 52 | 7/16-20 Flanged Locknut,Thrubolt | 7177 | 10 |
| 17 | Double Bearing Cup, Pinion Shaft | 7307 | 1 | 53 | 7/16-14 x 1 1/4" HHCS | 7117 | 2 |
| 18 | Bearing Washer | 5055 | 1 | 54* | 1/2-13 Adjusting Screw (8 Rib Bell) | 7155 | 1 |
| 19 | Posi-Lock Nut, Pinion Shaft | 6485R | 1 | 54* | 1/2-13 Adjusting Screw (4 & 6 Rib Bell) | 6149 | 1 |
| 20 | O'Ring, Posi-Lock | 7445 | 1 | 55 | 1/2 SAE Flatwasher, Adjusting Screw | 7167 | 1 |
| 21 | Posi-Lock Retainer, Pinion Shaft | 6484 | 1 | 56 | 1/2-13 Jam Nut, Adjusting Screw | 7137 | 1 |
| 22 | Retaining Ring, Pinion | 5020 | 1 | 57 | Thrustblock | 5010 | 1 |
| 23 | Retaining Plate, Pinion | 6296A | 1 | 58* | 3/8-24 x 1" HHCS, 8 Rib Side Bell | 7109 | 16 |
| 24 | Lock Tab | 2374 | 3 | 58* | 3/8-24 x 3/4 HHCS, 4 & 6 Rib Side Bell | 7109S | 16 |
| 25 | 3/8-16 x 1" HHCS, Retaining Plate | 7110 | 6 | 59 | 3/8 SAE Flatwasher | 7114 | 16 |
| 26 | Quick Change Gear Set | 8500 | 1 | 60 | O'Ring, Plug | 7454 | 1 |
| 27 | Gasket, Gear Cover, Heavy Duty | 6729HD | 1 | 61 | Inspection Plug | 6857 | 1 |

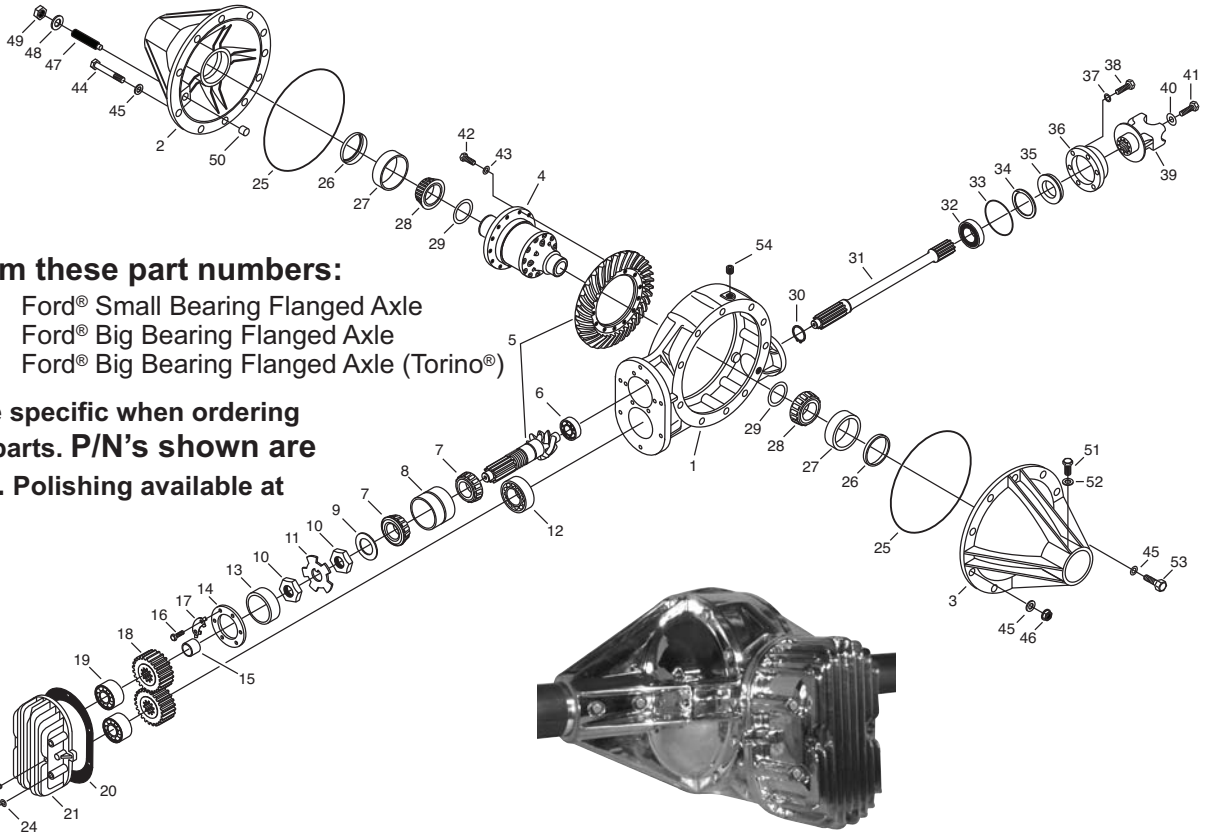
* Part Numbers in this list may vary depending on options ordered at time of purchase. Please check the assembly tag included with your rear.



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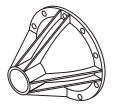
# CHAMPIONSHIP HEAVY DUTY QUICK CHANGE

**See Pages 13-15 For Set - Up Instructions**




4 Rib


6 Rib


8 Rib


8 Rib Contoured

## Choose from these part numbers:

**SR2510HD** Ford® Small Bearing Flanged Axle
**SR2520HD** Ford® Big Bearing Flanged Axle
**SR2525HD** Ford® Big Bearing Flanged Axle (Torino®)

**Note: Must be specific when ordering replacement parts. P/N's shown are unpolished. Polishing available at extra charge.**



| # | Description | P/N | Qty | # | Description | P/N | Qty |
|---|---|---|---|---|---|---|---|
| 1 | Aluminum Center Section | 5012 | 1 | 26 | Seal, Side Bell | 7205 | 2 |
| 2* | Aluminum 4 Rib Left Side Bell | 6697-02 | 1 | 27 | Bearing Cup, Side Bell | 7310 | 2 |
| 2* | Aluminum Heavy Duty 6 Rib Left Side Bell | 1663-02 | 1 | 28* | Bearing Cone (Differentials) | 7340 | 2 |
| 2* | Aluminum Heavy Duty 8 Rib Left Side Bell | 5016-02 | 1 | 29 | Shim Kit (Differentials) | 5295 | 2 |
| 3* | Aluminum 4 Rib Right Side Bell | 6697-01 | 1 | 30 | Retaining Ring, Lower Shaft | 7610 | 1 |
| 3* | Aluminum Heavy Duty 6 Rib Right Side Bell | 1663-01 | 1 | 31 | Lower Shaft, Heat Treated | 5003 | 1 |
| 3* | Aluminum Heavy Duty 8 Rib Right Side Bell | 5016-01 | 1 | 32 | Double Row Ball Bearing, Lower Shaft | 7311 | 1 |
| 3* | Aluminum Lightweight 8 Rib Right Side Bell | 5016-05 | 1 | 33 | O'Ring, Seal Plate | 7413 | 1 |
| 3* | Aluminum Lightweight 8 Rib Left Side Bell | 5016-02M | 1 | 34 | Retaining Ring, Seal Plate (.750" Seal) | 7652 | 1 |
| 4 | Winters Track, 31 Spline | 6513-31 | 1 | 35 | Seal, Seal Plate (Thick Seal .750") | 7204T | 1 |
| 5 | Ring and Pinion (Standard w/4.12 Ratio) | 5714 | 1 | 36 | Seal Plate, .750 Seal | 5018-01M | 1 |
| 6 | Roller Bearing, Pinion Nose | 7331 | 1 | 37 | 3/8 SAE Flatwasher | 7114 | 6 |
| 7 | Bearing Cone, Pinion Shaft | 7308 | 2 | 38 | 3/8-16 x 1 1/4" HHCS, Seal Plate | 7107 | 6 |
| 8 | Double Bearing Cup, Pinion Shaft | 7307 | 1 | 39* | Drive Yoke, 1310, Steel | 5038 | 1 |
| 9 | Bearing Washer | 5055 | 1 | 39* | Drive Yoke, 1310, Aluminum | 5038AS | 1 |
| 10 | Jam Nut, Pinion Shaft | 5032R | 2 | 39* | Drive Yoke, 1350, Steel | 3588M | 1 |
| 11 | Bearing Lockwasher | 5056 | 1 | 40 | Retaining Washer, Drive Yoke | 5037 | 1 |
| 12 | Shielded Ball Bearing, Lower Shaft | 7339 | 1 | 41 | 3/8-24 x 1" HHCS, Drive Yoke | 7109Y | 1 |
| 13 | Retaining Ring, Pinion | 5020 | 1 | 42 | Ring Gear Bolt (Threaded Ring Gear) | 7852 | 12 |
| 14 | Retaining Plate, Pinion | 6296A | 1 | 43 | 3/8 Belleville Washer | 7815 | 12 |
| 15 | Quick Change Gear Spacer | 5021 | 1 | 44 | 7/16-20 x 5 1/2" Thrubolt | 7176 | 10 |
| 16 | 3/8-16 x 1" HHCS,Retainer Plate | 7110 | 6 | 45 | 7/16 SAE Flatwasher | 7178 | 22 |
| 17 | Lock Tab | 2374 | 3 | 46 | 7/16-20 Flanged Locknut | 7177 | 10 |
| 18 | Quick Change Gear Set | 8500 | 1 | 47 | 1/2-13 Adjusting Screw | 7155 | 1 |
| 19 | Ball Bearing, Gear Cover | 7313 | 2 | 48 | 1/2 SAE Flatwasher | 7167 | 1 |
| 20 | Gasket, Gear Cover, Heavy Duty | 1764HD | 1 | 49 | 1/2-13 Jam Nut, Adjusting Screw | 7137 | 1 |
| 21 | Aluminum Gear Cover (Less Bearings) | 5017 | 1 | 50 | Thrustblock, Adjusting Screw | 5010 | 1 |
| 22 | 3/8 SH Pipe Plug | 7111B | 4 | 51 | 3/8-24 x 1" HHCS, Side Bell | 7109 | 16 |
| 23 | 3/8-16 x 4" HHCS, Gear Cover | 7108 | 6 | 52 | 3/8 SAE Flatwasher | 7114 | 16 |
| 24 | 3/8 Heavy Duty Flatwasher | 7114HD | 6 | 53 | 7/16-14 x 1 1/4" HHCS | 7117 | 2 |
| 25* | O'Ring, Side Bell (8 Rib Bell) | 7403 | 2 | 54 | 3/8 SH Pipe Plug | 7111B | 2 |
| 25* | O'Ring (4 & 6 Rib Bell) | 7403T | 2 | | | | |

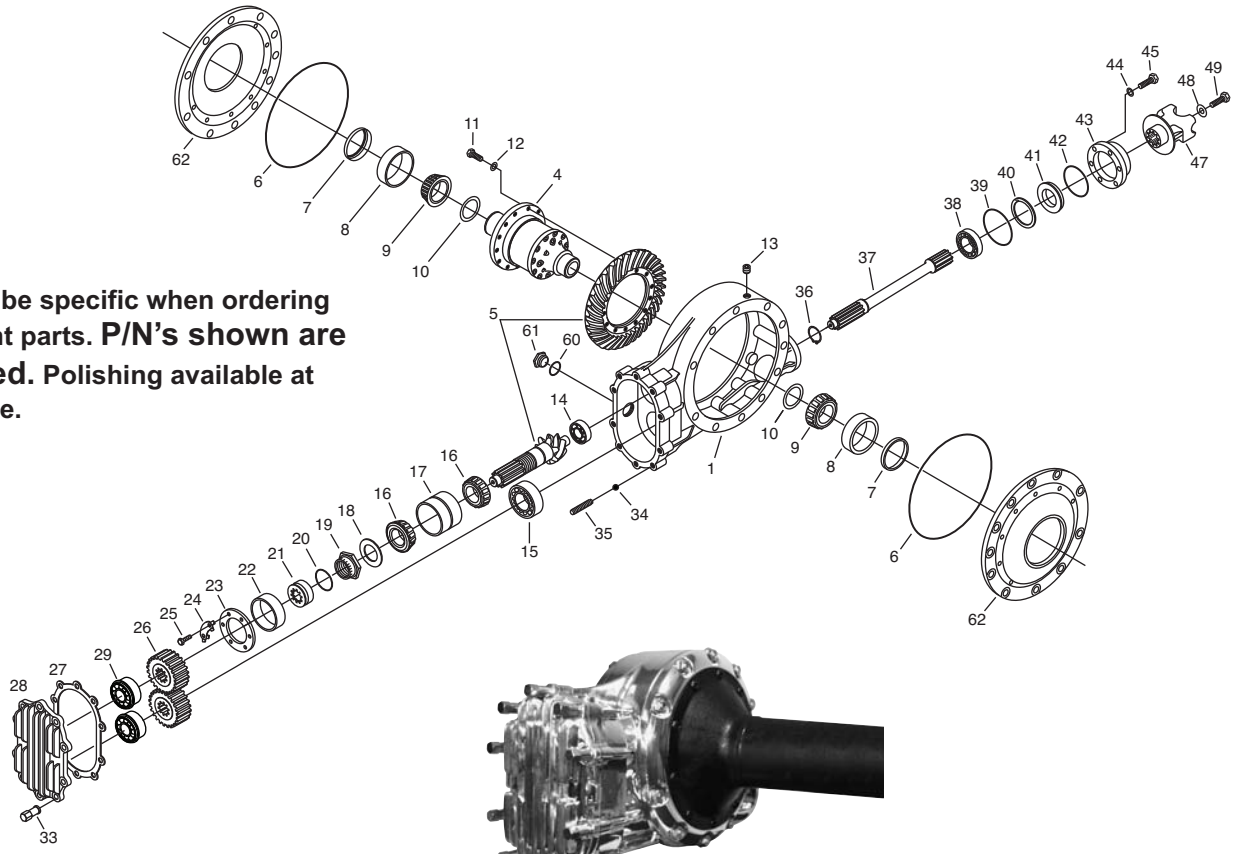
* Part Numbers in this list may vary depending on options ordered at time of purchase. Please check the assembly tag included with your rear.

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# CHAMP ADAPTER QUICK CHANGE

**See Pages 13-15 For Set - Up Instructions**

**Note: Must be specific when ordering replacement parts. P/N's shown are unpolished. Polishing available at extra charge.**





| Description | | P\N | Qty | # | Description | P\N | Qty |
|---|---|---|---|---|---|---|---|
| 1 | Aluminum "Sprint" Center Section | 5840 | 1 | 27 | Gasket, Gear Cover, Heavy Duty | 6729HD | 1 |
| 4 | Winters Track, 31 Spline | 2419 | 1 | 28 | Gear Cover | 6508 | 1 |
| 5 | Ring and Pinion (Standard w/4.12 Ratio) | 5714 | 1 | 29 | Ball Bearing, Gear Cover | 7332 | 2 |
| 6 | O'Ring (4 & 6 Rib Bell) | 7403T | 2 | 33 | 3/8-16 Steel High Nut | 7794 | 10 |
| 7 | Seal, Side Bell | 7205 | 2 | 34 | 5/16" Diameter Ball, Gear Cover | 7398 | 10 |
| 8 | Bearing Cup,Side Bell | 7357 | 2 | 35 | 3/8-16 x 1 3/4" Stud, Gear Cover | 7802 | 10 |
| 9 | Bearing Cone | 7358 | 2 | 36 | Retaining Ring, Lower Shaft | 7610 | 1 |
| 10 | Shim Kit | 6115 | 1 | 37 | Lower Shaft, Heat Treated | 5003 | 1 |
| 11 | Ring Gear Bolt (Threaded Ring Gear) | 7852 | 12 | 38 | Front Ball Bearing, Lower Shaft | 7390 | 1 |
| 12 | 3/8 Belleville Washer (Threaded Ring Gear) | 7815 | 12 | 39 | O'Ring, Seal Plate | 7413 | 1 |
| 13 | 3/8 Recessed Socket Head Pipe Plug | 7111B | 2 | 40 | Retaining Ring, Seal Plate (.750" Seal) | 7652 | 1 |
| 14 | Roller Bearing, Pinion Nose | 7331 | 1 | 41 | Seal, Seal Plate (Thick Seal .750") | 7204T | 1 |
| 15 | Shielded Ball Bearing, Lower Shaft | 7339 | 1 | 42 | O'Ring, Seal | 7474 | 1 |
| 16 | Bearing Cone,Pinion Shaft | 7308 | 2 | 43 | Seal Plate, .750 Seal | 5018-01M | 1 |
| 17 | Double Bearing Cup, Pinion Shaft | 7307 | 1 | 44 | 3/8 SAE Flatwasher | 7114 | 6 |
| 18 | Bearing Washer | 5055 | 1 | 45 | 3/8-16 x 1 1/4" HHCS, Seal Plate | 7107 | 6 |
| 19 | Posi-Lock Nut, Pinion Shaft | 6485R | 1 | 47* | Drive Yoke, 1310, Steel | 3533 | 1 |
| 20 | O'Ring, Posi-Lock | 7445 | 1 | 47* | Drive Yoke, 1310, Billet Aluminum | 5038AS | 1 |
| 21 | Posi-Lock Retainer, Pinion Shaft | 6484 | 1 | 47* | Drive Yoke, 1350, Steel | 3588 | 1 |
| 22 | Retaining Ring, Pinion | 5020 | 1 | 48 | Retaining Washer, Drive Yoke | 5037 | 1 |
| 23 | Retaining Plate, Pinion | 6296A | 1 | 49 | 3/8-24 x1" HHCS, Drive Yoke | 7109Y | 1 |
| 24 | Lock Tab | 2374 | 3 | 60 | O'Ring, Plug | 7454 | 1 |
| 25 | 3/8-16 x 1" HHCS, Retaining Plate | 7110 | 6 | 61 | Inspection Plug | 6857 | 1 |
| 26 | Quick Change Gear Set | 8500 | 1 | 62 | Champ Adapter Bell | 2493 | 2 |

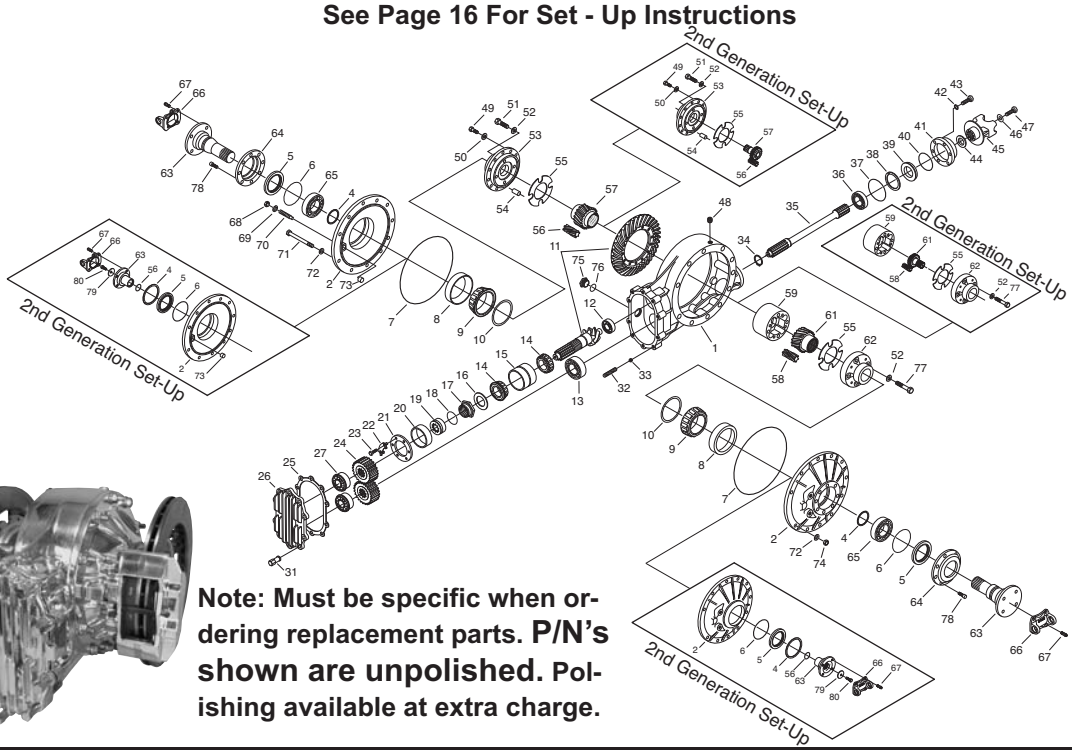
* Part Numbers in this list may vary depending on options ordered at time of purchase. Please check the assembly tag included with your rear.



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# CHAMPIONSHIP INDEPENDENT & 3RD GENERATION QUICK CHANGE

**See Page 16 For Set - Up Instructions**






**Note: Must be specific when ordering replacement parts. P/N's shown are unpolished. Polishing available at extra charge.**

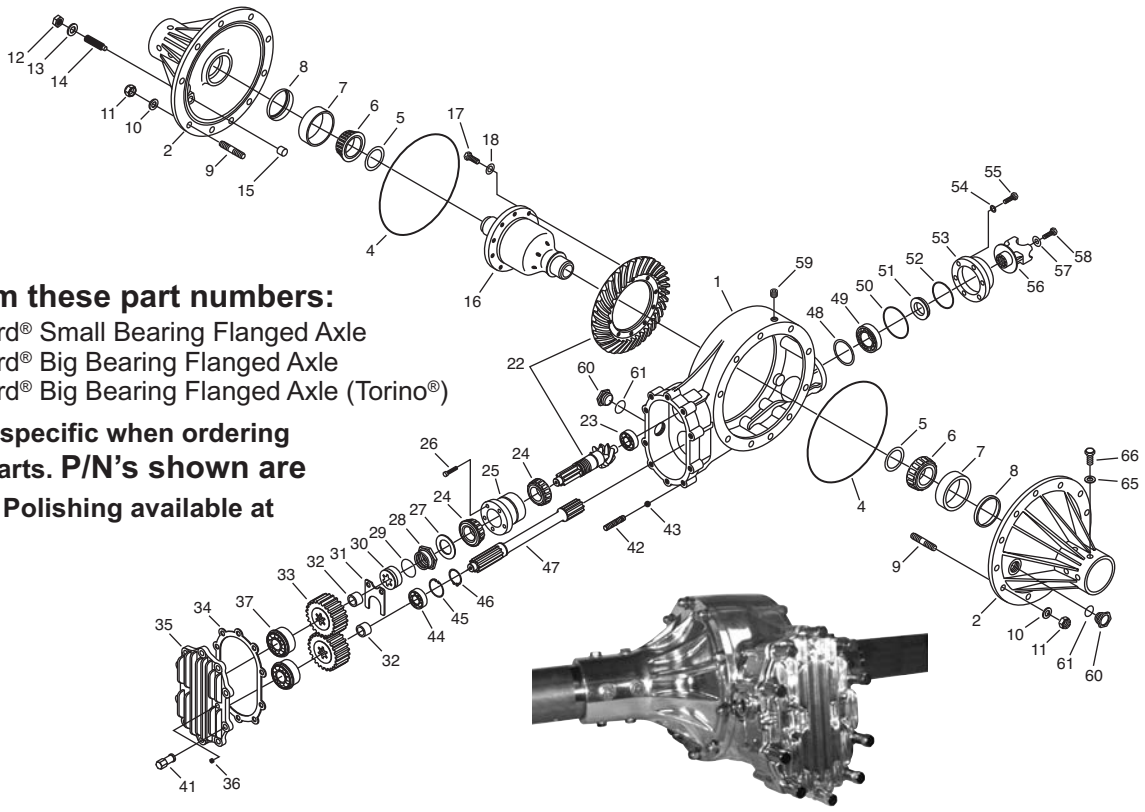
| # | Description | P/N | Qty | # | Description | P/N | Qty |
|---|---|---|---|---|---|---|---|
| 1 | Aluminum 'Sprint' Center Section | 5840 | 1 | 45* | Drive Yoke, Aluminum | 5038AS | 1 |
| 2 | Left Side Bell | 2928 | 1 | 46 | Retaining Washer, Drive Yoke | 5037 | 1 |
| 2† | Left Side Bell | 6964-02 | 1 | 47 | 3/8-24 x 1 HHCS | 7109Y | 1 |
| 4 | Retaining Ring | 7619 | 2 | 48 | Plug | 7111A | 1 |
| 4† | Retaining Ring, Side Bell Seal | 7626 | 2 | 49 | Ring Gear Bolt (Threaded Ring Gear) | 7852 | 12 |
| 5 | Seal, Side Bell | 7236 | 2 | 50 | 3/8 Belleville Washer (Threaded Ring Gear) | 7815 | 12 |
| 5† | Seal, Side Bell | 7224 | 2 | 51 | 1/2-20 x 2 HHCS | 8069 | 4 |
| 6 | O'Ring, Side Bell Seal | 7413 | 2 | 52 | 1/2 Belleville Washer | 8005 | 8 |
| 6† | O'Ring, Side Bell Seal | 7433 | 2 | 52† | 1/2 Belleville Washer | 7773 | 8 |
| 7 | O' Ring, Side Bell | 7403T | 2 | 53 | Housing End, Ring Gear Side | 2940 | 1 |
| 8 | Bearing Cup, Side Bell | 7357 | 2 | 53† | Housing End, Ring Gear Side | 2499 | 1 |
| 9 | Bearing Cone, Differential | 7358 | 2 | 54 | Sleeve | 1459-01 | 4 |
| 10 | Shim Kit | 6115 | 1 | 54† | Sleeve | 1459 | 4 |
| 11 | Ring & Pinion (Standard 4.12 Ratio) | 5714 | 1 | 55 | Wear Plate | 6315-01 | 2 |
| 12 | Roller Bearing, Pinion Nose | 7331 | 1 | 55† | Wear Plate | 6444 | 2 |
| 13 | Shielded Ball Bearing, Lower Set | 7339 | 1 | 56 | Pinion Gear (LH) | 6329-02 | 4 |
| 14 | Bearing Cone, Pinion Shaft | 7308 | 2 | 57 | Side Gear (LH) | 6330-01 | 1 |
| 15 | Double Bearing Cup, Pinion Shaft | 7307 | 1 | 57† | Side Gear (LH) | 2497-02 | 1 |
| 16 | Bearing Washer, Pinion | 5055 | 1 | 58 | Pinion Gear (RH) | 6329-01 | 4 |
| 17 | Posi-Lock Nut | 6485R | 1 | 59 | Central Housing | 6361 | 1 |
| 18 | O' Ring, Posi-Lock Retainer | 7445 | 1 | 61 | Side Gear (RH) | 6330-02 | 1 |
| 19 | Posi-Lock Retainer | 6484 | 1 | 61† | Side Gear (RH) | 2497-01 | 1 |
| 20 | Retaining Ring | 5020 | 1 | 62 | Housing Cover | 2941 | 1 |
| 21 | Retainer Plate | 6296A | 1 | 62† | Housing Cover | 2500 | 1 |
| 22 | Lock Tab | 2374 | 3 | 63 | Output Flange, Corvette® Style | 2943 | 2 |
| 23 | 3/8 -16 x 1 HHCS | 7110 | 6 | 63 | Output Flange, Porsche® CV Joint | 2944 | 2 |
| 24 | Quick Change Gear Set | 8500 | 1 | 63† | Output Flange | 2498 | 2 |
| 25 | Gasket, Gear Cover, Heavy Duty | 6729HD | 1 | 64 | Seal Plate, Output Flange | 2945 | 2 |
| 26 | Gear Cover | 6508 | 1 | 65 | Bearing (Remove Shields) | 7531 | 2 |
| 27 | Double Row Ball Bearing w/Snap Ring | 7332 | 2 | 66 | Yoke | 6320 | 2 |
| 31 | 3/8 - 16 Steel High Nut | 7794 | 10 | 67 | 7/16-20 x 3/4 12pt | 7740 | 8 |
| 32 | 3/8-16 x 1 3/4" Stud, Gear Cover | 7802 | 10 | 68 | 1/2-13 Jam Nut, Adjusting Screw | 7137 | 1 |
| 33 | 5/16 Diameter Steel Ball, Gear Cover Stud | 7398 | 10 | 69 | 1/2 Flat Washer | 7167 | 1 |
| 34 | Retaining Ring, Lower Shaft | 7610 | 1 | 70 | 1/2-13 Adjusting Screw | 6149 | 1 |
| 35 | Lower Shaft, Heat Treated | 5003 | 1 | 71 | 7/16-20 x 5-1/2 HHCS | 7176 | 10 |
| 36 | Ball Bearing, Lower Shaft | 7390 | 1 | 72 | 7/16 SAE Flat Washer | 7177 | 22 |
| 37 | O' Ring, Seal Plate | 7413 | 1 | 73 | Thrust Block | 5010 | 1 |
| 38 | Retaining Ring, Seal Plate | 7653 | 1 | 74 | 7/16-20 Flanged Locknut | 7177N | 10 |
| 39 | Seal, Seal Plate | 7204T | 1 | 75 | Small Inspection Plug | 6857 | 1 |
| 40 | O' Ring, Seal | 7474 | 1 | 76 | O'Ring, Inspection Plug | 7454 | 1 |
| 41 | Seal Plate, .750 Seal (.375 Seal Use P/N 5018M) | 5018-01M | 1 | 77 | 1/2-20 x 1 1/2 HHCS | 8058 | 4 |
| 42 | 3/8 SAE Flatwasher | 7114 | 6 | 78 | Bolt | 7195 | 16 |
| 43 | 3/8 - 16 x 1-1/4 HHCS | 7107 | 6 | 79† | Retaining Washer | 5037 | 2 |
| 44** | Spacer, Drive Yoke | 6532 | 1 | 80† | 3/8-24 x 1" HHCS | 7109 | 2 |
| 45* | Drive Yoke, Steel | 3533 | 1 | | | | |

* Part Numbers in this list may vary depending on options ordered at time of purchase. Please check the assembly tag included with your rear.
† 2nd Generation Set-Up
**Used only with P/N 5038AS

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# V8 QUICK CHANGE

**See Page 17 For Set - Up Instructions**



## Choose from these part numbers:

**SR2210** Ford® Small Bearing Flanged Axle
**SR2220** Ford® Big Bearing Flanged Axle
**SR2550** Ford® Big Bearing Flanged Axle (Torino®)

**Note: Must be specific when ordering replacement parts. P/N's shown are unpolished. Polishing available at extra charge.**

| # | Description | P/N | Qty | # | Description | P/N | Qty |
|---|---|---|---|---|---|---|---|
| 1 | Aluminum Center Section | 2524HD-01 | 1 | 34 | Gasket, Gear Cover, Heavy Duty | 6703 | 1 |
| 2 | Aluminum Right Side Bell | 3180 | 1 | 35 | Gear Cover | 3056 | 1 |
| 3 | Aluminum Left Side Bell | 3180 | 1 | 36 | #6 An Port Plug | 7874 | 3 |
| 4 | O'Ring, Side Bell | 8411 | 2 | 37 | Bearing, Gear Cover | 7532-01 | 2 |
| 5 | Shim Kit | 5295 | 1 | 41 | 3/8-16 Steel High Nut | 7794 | 10 |
| 6 | Bearing Cone | 7340 | 2 | 42 | 3/8-16 x 1 3/4" Stud | 7802 | 10 |
| 7 | Bearing Cup, Side Bell | 7310 | 2 | 43 | 5/16" Diameter Steel Ball | 7398 | 10 |
| 8 | Seal, Side Bell | 7205 | 2 | 44 | Bearing, Lower Shaft (rear) | 7534 | 1 |
| 9 | 3/8-16 x 2" Stud | 7905 | 20 | 45 | Retaining Ring, Rear Bearing | 7655 | 1 |
| 10 | 3/8 Belleville Washer | 7916 | 20 | 46 | Retaining Ring, Lower Shaft | 7658 | 1 |
| 11 | 3/8-16 Nylon Lock Nut | 7885 | 20 | 47* | Lower Shaft, Heat Treated | 6881-03 | 1 |
| 16 | Wedgelock | 1792-31 | 1 | 48 | Spacer | 6680 | 1 |
| 17* | 3/8-24 Ring Gear Bolt | 7852 | 10 | 49 | Bearing,Lower Shaft | 7390 | 1 |
| 18* | 3/8 Belleville Washer | 7815 | 10 | 50 | O'Ring, Seal Plate | 7413 | 1 |
| 22 | Ring and Pinion (Standard w/ 3.78) | 6811 | 1 | 51 | Seal, Seal Plate (Thick Seal .750") | 7204T | 1 |
| 23 | Ball Bearing, Pinion Nose | 7392 | 1 | 52 | Internal O'Ring, Seal Plate | 7474 | 1 |
| 24 | Bearing Cone, Pinion Shaft | 7527 | 2 | 53 | Seal Plate | 5018M | 1 |
| 25 | Flanged Double Cup, Pinion Shaft | 7525 | 1 | 54 | 3/8 Flatwasher | 7114 | 6 |
| 26 | 3/8-16 x 1" BHCS | 7878 | 5 | 55 | 3/8-16 x 1" HHCS | 7110 | 6 |
| 27 | Bearing Washer, Pinion | 6824 | 1 | 56* | Drive Yoke, 1310, Steel | 5038 | 1 |
| 28 | Pinion Nut | 6821 | 1 | 56* | Drive Yoke, 1310, Aluminum | 5038AS | 1 |
| 29 | O'Ring, Pinion Nut | 7455 | 1 | 56* | Drive Yoke, 1350, Steel | 3588M | 1 |
| 30 | Pinion Nut Retainer | 6822 | 1 | 57 | Retaining Washer, Drive Yoke | 5037 | 1 |
| 31 | Bearing Retainer | 6751 | 1 | 58 | 3/8-24 x 1" HHCS | 7109Y | 1 |
| 32 | Gear Spacer (use with 1" Gears only) | 1372 | 2 | 59 | 3/8 Socket Pipe Plug | 7111B | 3 |
| 33 | Quick Change Gear Set, 1 3/8" wide | 4500 | 1 | 60 | Small Inspection Plug w/O'Ring | 6857 | 2 |
| | | | | 61 | O'Ring, Small Inspection Plug | 7454 | 2 |

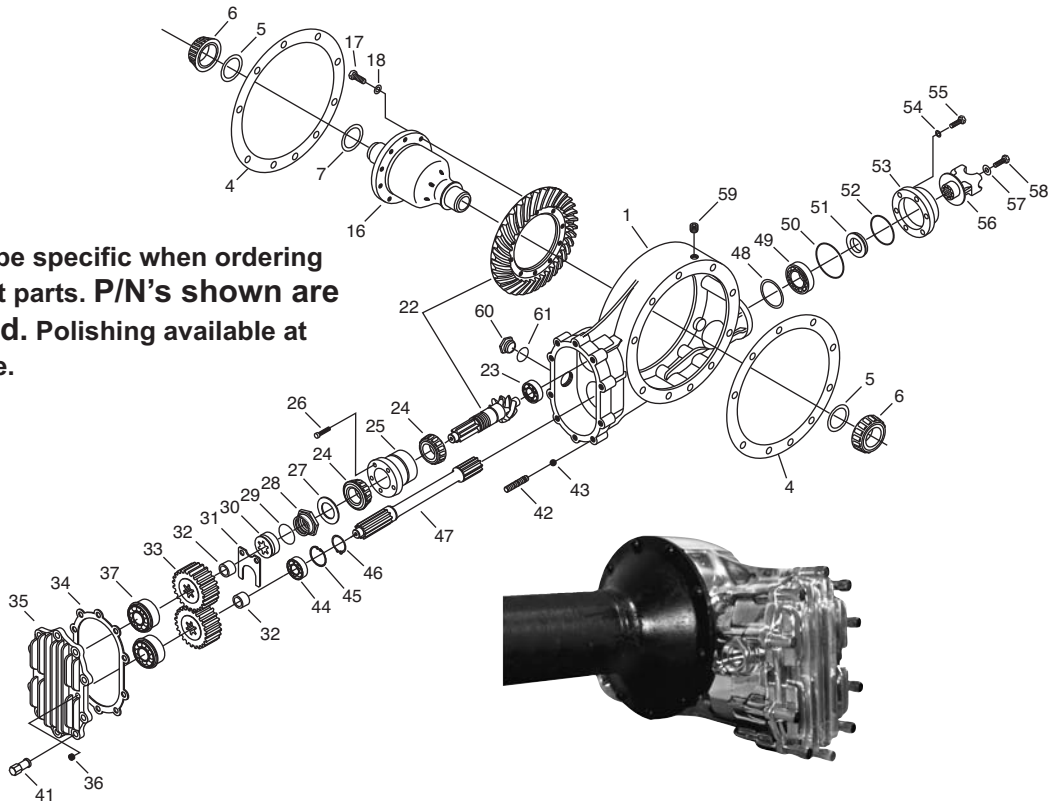
* Part Numbers in this list may vary depending on options ordered at time of purchase. Please check the assembly tag included with your rear.



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# V8 CENTER KIT QUICK CHANGE

**See Pages 18-19 For Set - Up Instructions**




**Note: Must be specific when ordering replacement parts. P/N's shown are unpolished. Polishing available at extra charge.**



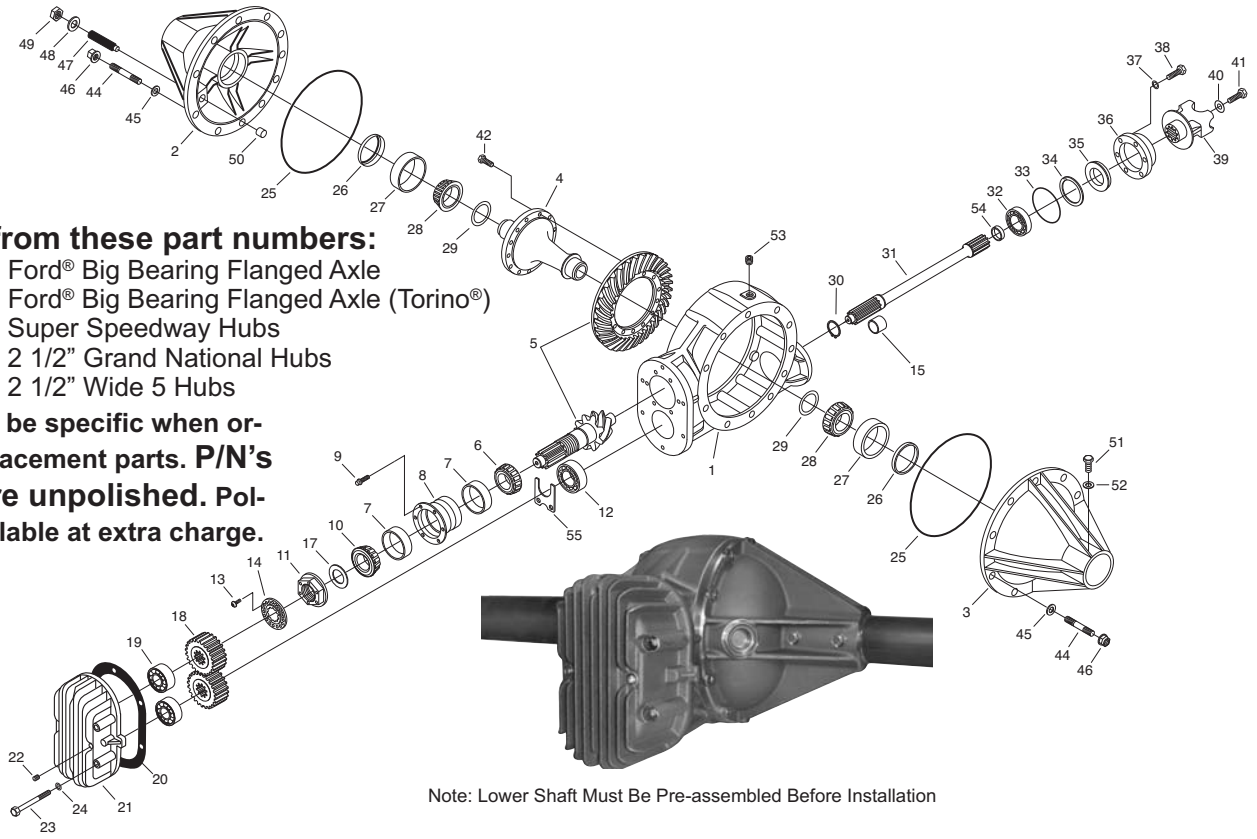
| # | Description | P/N | Qty | # | Description | P/N | Qty |
|---|---|---|---|---|---|---|---|
| 1 | Center Section | 2524HD-01 | 1 | 37 | Bearing, Gear Cover | 7532 | 2 |
| 4 | Gasket, Side Bell | 4606 | 2 | 41 | 3/8-16 Steel High Nut | 7794 | 10 |
| 5 | Shim Kit | 3171 | 1 | 42 | 3/8-16 x 1 3/4" Stud | 7802 | 10 |
| 6 | Bearing Cone | 8606 | 2 | 43 | 5/16" Diameter Steel Ball | 7398 | 10 |
| 7 | Spacer | 3097 | 1 | 44 | Bearing, Lower Shaft (rear) | 7534 | 1 |
| 16 | Wedgelock | 1792V | 1 | 45 | Retaining Ring, Rear Bearing | 7655 | 1 |
| 17 | 3/8-24 Ring Gear Bolt | 7852 | 10 | 46 | Retaining Ring, Lower Shaft | 7658 | 1 |
| 18 | 3/8 Belleville Washer | 7815 | 10 | 47 | Lower Shaft, Heat Treated | 6881-03 | 1 |
| 22 | Ring and Pinion (Standard w/ 3.78) | 6811 | 1 | 48 | Spacer | 6680 | 1 |
| 23 | Ball Bearing, Pinion Nose | 7392 | 1 | 49 | Bearing,Lower Shaft | 7390 | 1 |
| 24 | Bearing Cone, Pinion Shaft | 7527 | 2 | 50 | O'Ring, Seal Plate | 7413 | 1 |
| 25 | Flanged Double Cup, Pinion Shaft | 7525 | 1 | 51 | Seal, Seal Plate (Thick Seal .750") | 7204T | 1 |
| 26 | 3/8-16 x 1" BHCS | 7878 | 5 | 52 | Internal O'Ring, Seal Plate | 7474 | 1 |
| 27 | Bearing Washer, Pinion | 6824 | 1 | 53 | Seal Plate | 6854 | 1 |
| 28 | Pinion Nut | 6821 | 1 | 54 | 3/8 Flatwasher | 7114 | 6 |
| 29 | O'Ring, Pinion Nut | 7455 | 1 | 55 | 3/8-16 x 1" HHCS | 7110 | 6 |
| 30 | Pinion Nut Retainer | 6822 | 1 | 56* | Drive Yoke, 1310, Steel | 5038 | 1 |
| 31 | Bearing Retainer | 6751 | 1 | 56* | Drive Yoke, 1310, Aluminum | 5038AS | 1 |
| 32 | Gear Spacer (use with 1" Gears only) | 1372 | 2 | 56* | Drive Yoke, 1350, Steel | 3588M | 1 |
| 33** | Quick Change Gear Set, 1" wide | 4400 | 1 | 57 | Retaining Washer, Drive Yoke | 5037 | 1 |
| 33** | Quick Change Gear Set, 1 3/8" wide | 4500 | 1 | 58 | 3/8-24 x 1" HHCS | 7109Y | 1 |
| 34 | Gasket, Gear Cover, Heavy Duty | 6703HD | 1 | 59 | 3/8 Socket Pipe Plug | 7111B | 3 |
| 35 | Gear Cover | 3056 | 1 | 60 | Small Inspection Plug | 6857 | 1 |
| 36 | #6 An Port Plug | 7874 | 3 | 61 | O'Ring, Small Inspection Plug | 7454 | 1 |

* Part Numbers in this list may vary depending on options ordered at time of purchase. Please check the assembly tag included with your rear.
** *Not included with assembly*

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# XTREMELINER 3.08/2.00 QUICK CHANGE

**See Pages 13-15 For Set - Up Instructions**




## Choose from these part numbers:

**SR3920** Ford® Big Bearing Flanged Axle
**SR3925** Ford® Big Bearing Flanged Axle (Torino®)
**SR3910** Super Speedway Hubs
**SR3963** 2 1/2" Grand National Hubs
**SR3975** 2 1/2" Wide 5 Hubs

**Note: Must be specific when ordering replacement parts. P/N's shown are unpolished. Polishing available at extra charge.**



Note: Lower Shaft Must Be Pre-assembled Before Installation

| # | Description | P/N | Qty | # | Description | P/N | Qty |
|---|---|---|---|---|---|---|---|
| 1 | Aluminum Center Section | 5012-308 | 1 | 27 | Bearing Cup, Side Bell | 7310 | 2 |
| 2 | Aluminum Heavy Duty 8 Rib Left Side Bell | 5016-02 | 1 | 28* | Bearing Cone (Differentials) | 7309 | 2 |
| 3 | Aluminum Heavy Duty 8 Rib Right Side Bell | 5016-308 | 1 | 29* | Shim Kit (Differentials) | 5097 | 1 |
| 4 | 31 Spline Steel Spool, 3.08 | 5034-11L | 1 | 30 | Retaining Ring, Lower Shaft | 8332 | 2 |
| 4 | Winters Track, 2.00 | 6513-31-022 | 1 | 31 | Lower Shaft | 5003-308 | 1 |
| 5* | Ring and Pinion, 3.08 | 25308 | 1 | 32 | Ball Bearing, Lower Shaft | 7390 | 1 |
| 5* | Ring And Pinion, 2.00 | 25200 | 1 | 33 | O'Ring, Seal Plate | 7413 | 1 |
| 6 | Front Cone | 8634 | 1 | 34 | Retaining Ring, Seal Plate (.750" Seal) | 7652 | 1 |
| 7 | Cup | 8633 | 2 | 35* | Seal, Seal Plate (Thick Seal .750") | 7204T | 1 |
| 8 | Pinion Bearing Carrier | 3440 | 1 | 36 | Seal Plate, .750 Seal | 5018-01M | 1 |
| 9 | 3/8-16 x 1 1/4" HHCS | 7713 | 6 | 37 | 3/8 SAE Flatwasher | 7114 | 6 |
| 10 | Rear Cone | 7308 | 1 | 38 | 3/8-16 x 1 1/4" HHCS, Seal Plate | 7107 | 6 |
| 11 | Pinion Nut | 3179 | 1 | 39 | Drive Yoke, 1350, Steel | 3436 | 1 |
| 12 | Shielded Ball Bearing, Lower Shaft | 7339 | 1 | 40 | Retaining Washer, Drive Yoke | 5037 | 1 |
| 13 | 10-24 x 1/2" BHCS | 7869 | 1 | 41 | 3/8-24 x 1" HHCS, Drive Yoke | 7109Y | 1 |
| 14 | Pinion Nut Retainer | 3178 | 1 | 42 | Ring Gear Bolt (Threaded Ring Gear) | 8077 | 12 |
| 15 | Quick Change Gear Spacer | 3194 | 1 | 44 | Stud | 7863 | 22 |
| 17 | Washer | 3308 | 1 | 45 | 7/16 SAE Flatwasher | 7178 | 22 |
| 18 | Quick Change Gear Set (not included) | 308__ | 1 | 46 | 7/16-20 Flanged Locknut | 7177N | 22 |
| 19 | Ball Bearing, Gear Cover | 7332 | 2 | 47 | 1/2-13 Adjusting Screw | 7155 | 1 |
| 20 | Gasket, Gear Cover | 1764-308 | 1 | 48 | 1/2 SAE Flatwasher | 7167 | 1 |
| 21* | Aluminum Gear Cover (Less Bearings) | 5017 | 1 | 49 | 1/2-13 Jam Nut, Adjusting Screw | 7137 | 1 |
| 22 | 3/8 SHCS Pipe Plug | 7111B | 4 | 50 | Thrustblock, Adjusting Screw | 5010 | 1 |
| 23* | 3/8-16 x 4" HHCS, Gear Cover | 7108 | 6 | 51 | 3/8-24 x 1" HHCS, Side Bell | 7109 | 16 |
| 24 | 3/8 Flatwasher | 7114 | 6 | 52 | 3/8 SAE Flatwasher | 7114 | 16 |
| 25 | O'Ring, Side Bell | 7403 | 2 | 53 | 3/8 Hex Head Pipe Plug | 7111 | 2 |
| 26 | Seal, Side Bell | 7205 | 2 | 54 | Retaining Ring Retainer | 3193 | 1 |
| | | | | 55 | Bearing Retainer | 3441 | 1 |

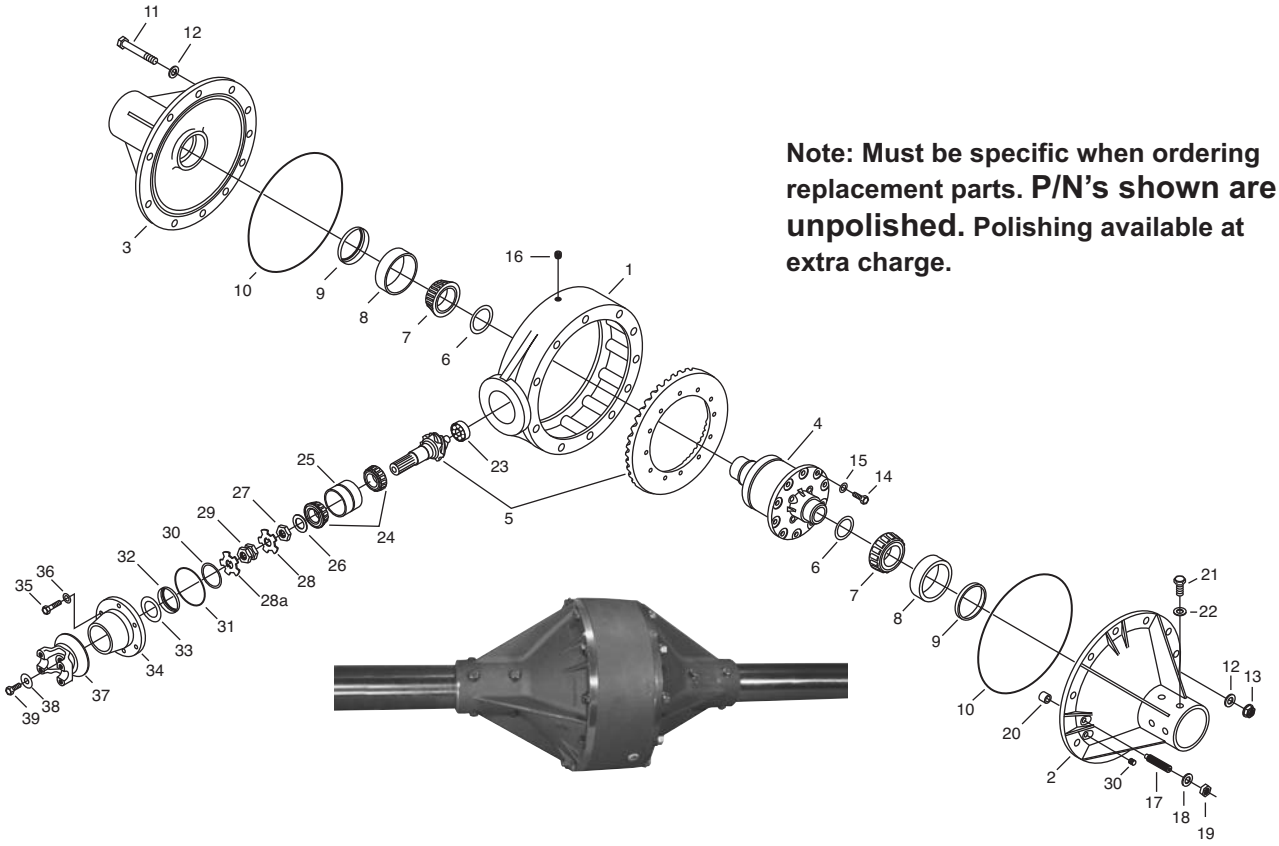
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# BANJO STYLE REAR - FULL SIZE

**See Page 22 For Set - Up Instructions**




**Note: Must be specific when ordering replacement parts. P/N's shown are unpolished. Polishing available at extra charge.**

## Choose from these part numbers:

**SR4210** Banjo Style Rear for Ford® Small Bearing Flanged Axle
**SR4220** Banjo Style Rear for Ford® Big Bearing Flanged Axle
**SR4225** Banjo Style Rear for Ford® Big Bearing Flanged Axle (Torino®)

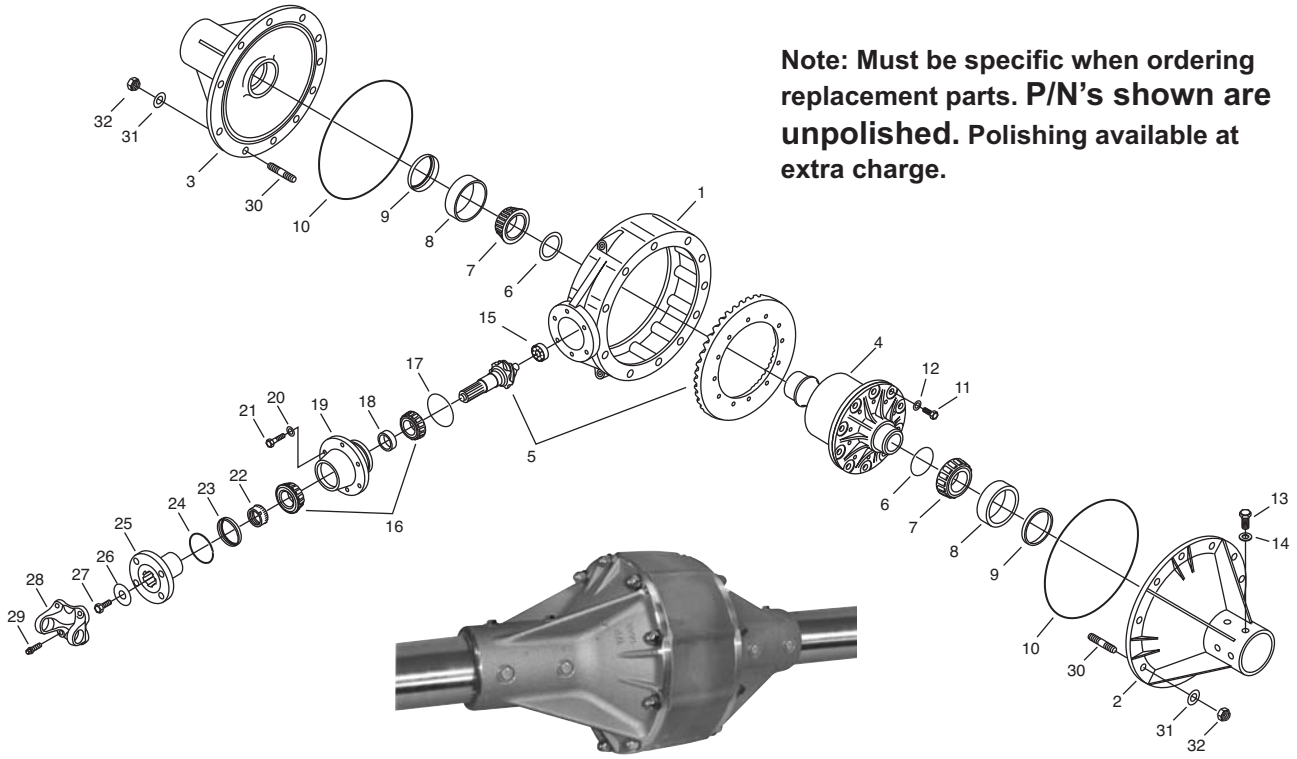
| # | Description | P/N | Qty | # | Description | P/N | Qty |
|---|---|---|---|---|---|---|---|
| 1 | Alum. Non-Quick Change Center Section | 6559 | 1 | 19 | 1/2-13 Jam Nut | 7137 | 1 |
| 2* | Aluminum 4 Rib, Left Side Bell | 6697-02 | 1 | 20 | Thrust Block | 5010 | 1 |
| 2* | Aluminum Heavy Duty 6 Rib Left Side Bell | 1663-02 | 1 | 21 | 3/8-24 x 3/4" HHCS (4 & 6 Rib Side Bell) | 7109S | 16 |
| 2* | Aluminum Heavy Duty 8 Rib Left Side Bell | 5016-02 | 1 | 21 | 3/8-24 x 1" HHCS (8 Rib Side Bell) | 7109 | 16 |
| 3* | Aluminum 4 Rib, Right Side Bell | 6697-01 | 1 | 22 | 3/8 SAE Flatwasher | 7114 | 16 |
| 3* | Aluminum Heavy Duty 6 Rib Right Side Bell | 1663-01 | 1 | 23* | Ball Bearing, Pinion Nose | 7312 | 1 |
| 3* | Aluminum Heavy Duty 8 Rib Right Side Bell | 5016-01 | 1 | 23* | Roller Bearing, Pinion Nose | 7331 | 1 |
| 4 | Winters Track, 31 Spline | 6513-31 | 1 | 24 | Bearing Cone, Pinion Shaft | 7308 | 2 |
| 5 | Ring & Pinion (Standard w/4.12 Ratio) | 5714M | 1 | 25 | Bearing Double Cup, Pinion Shaft | 7307 | 1 |
| 6 | Shim Kit | 5295 | 1 | 26 | Bearing Washer, Pinion Shaft | 5055 | 1 |
| 7 | Carrier Bearing Cone | 7340 | 2 | 27 | Jam Nut, Pinion Shaft | 5032R | 2 |
| 8 | Bearing Cup (Side Bell) | 7310 | 2 | 28 | Bearing Lockwasher, Pinion Shaft | 5056 | 1 |
| 9 | Carrier Seal | 7205 | 2 | 28a | Bearing Lockwasher, Double Tab | 1136 | 1 |
| 10* | O'Ring (4 & 6 Rib Side Bell) | 7403T | 2 | 29 | Top Nut | 1137 | 1 |
| 10* | O'Ring (8 Rib Side Bell) | 7403 | 2 | 30 | Internal Snap Ring, Seal Plate | 7653 | 1 |
| 11 | Thrubolt (7/16-20 x 5 1/2" HHCS) | 7176 | 11 | 31 | O'Ring, Seal Plate | 7448 | 1 |
| 12 | 7/16 SAE Flatwasher | 7178 | 22 | 32* | Seal, Seal Plate | 7204 | 1 |
| 13 | 7/16-20 Flanged Locknut | 7177 | 11 | 33 | Shim (.065" Thick) | 6115-065 | 1 |
| 14 | Ring Gear Bolt (Threaded Ring Gear) | 7852 | 12 | 34 | Seal Plate | 6554 | 1 |
| 15 | 3/8 Belleville Washer (Threaded Ring Gear) | 7815 | 12 | 35 | 3/8-16 x 1 1/4" HHCS | 7107 | 6 |
| 16 | 3/8 Pipe Plug (Socket Head) | 7111B | 3 | 36 | 3/8 SAE Flatwasher | 7114 | 6 |
| 17* | 1/2-13 Adjusting Screw (4 & 6 Rib Side Bell) | 6149 | 1 | 37* | Drive Yoke, 1310, 10 Spline | 5038 | 1 |
| 17* | 1/2-13 Adjusting Screw (8 Rib Side Bell) | 7155 | 1 | 37* | Drive Yoke, 1350 | 3588M | 1 |
| 18 | 1/2 SAE Flatwasher | 7167A | 1 | 38 | Retaining Washer, Drive Yoke | 5037 | 1 |
| | | | | 39 | 3/8-24 x 1" HHCS | 7109Y | 1 |

* Part Numbers in this list may vary depending on options ordered at time of purchase. Please check the assembly tag included with your rear.

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# BANJO STYLE REAR - MINI

**See Page 22 For Set - Up Instructions**




**Note: Must be specific when ordering replacement parts. P/N's shown are unpolished. Polishing available at extra charge.**

## Choose from these part numbers:

**SR4210M** Banjo Style Rear for Ford® Small Bearing Flanged Axle
**SR4220M** Banjo Style Rear for Ford® Big Bearing Flanged Axle
**SR4225M** Banjo Style Rear for Ford® Big Bearing Flanged Axle (Torino®)

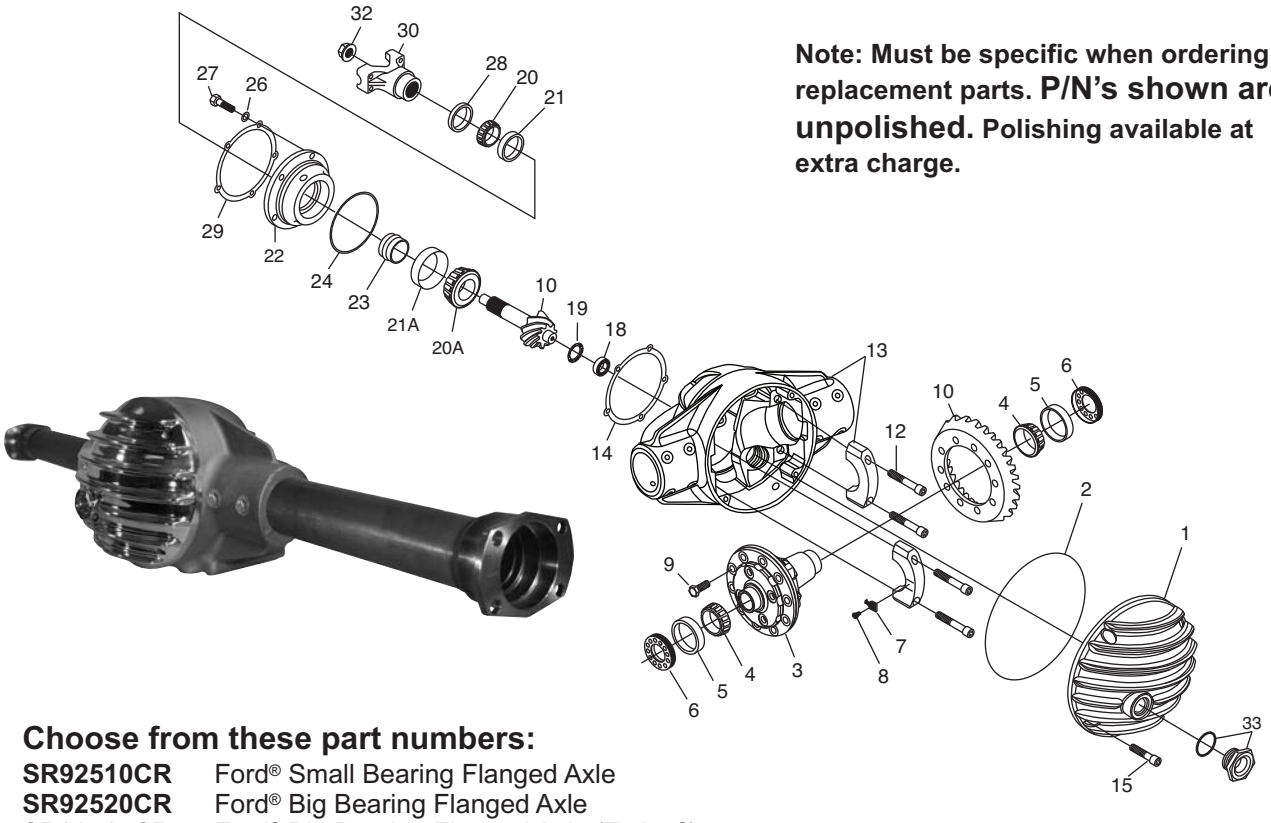
| # | Description | P/N | Qty | # | Description | P/N | Qty |
|---|---|---|---|---|---|---|---|
| 1* | Alum. Non-Quick Change Center Section | 2518 | 1 | 17 | O'Ring | 8404 | 1 |
| 2* | Alum. 4 Rib, Left Side Bell | 1449-02 | 1 | 18 | Spacer | 2951 | 1 |
| 3* | Alum. 4 Rib, Right Side Bell | 6840-01 | 1 | 19 | Bearing Cup | 2519 | 1 |
| 4* | Wedgelock | 1792 | 1 | 20 | Washer | 7114 | 6 |
| 5* | Ring & Pinion (Standard w/3.78 Ratio) | 6811 | 1 | 21 | Bolt | 7110 | 6 |
| 6* | Shim Kit | 5295 | 1 | 22 | Pinion Nut | 2892 | 1 |
| 7 | Carrier Bearing Cone | 7340 | 2 | 23 | Seal | 7204 | 1 |
| 8 | Bearing Cup (Side Bell) | 7310 | 2 | 24 | Retaining Ring | 7652 | 1 |
| 9 | Carrier Seal | 7205 | 2 | 25 | Output Flange | 2521 | 1 |
| 10 | O'Ring (4 Rib Side Bell) | 7451 | 2 | 26 | Retaining Washer, Drive Yoke | 5037 | 1 |
| 11 | Ring Gear Bolt (Threaded Ring Gear) | 7852 | 12 | 27 | 3/8-24 x 1" HHCS | 7109Y | 1 |
| 12 | 3/8 Belleville Washer (Threaded Ring Gear) | 7815 | 12 | 28 | Yoke, 1310 | 5856 | 1 |
| 13 | 3/8-24 x 3/4" HHCS (4 Rib Side Bell) | 7109S | 16 | 29 | Bolt | 7735 | 4 |
| 14 | 3/8 SAE Flatwasher | 7114 | 16 | 30 | Stud | 7905 | 20 |
| 15 | Ball Bearing, Pinion Nose | 7392 | 1 | 31 | 3/8 Belleville Washer | 7916 | 20 |
| 16 | Bearing Cone, Pinion Shaft | 7527 | 1 | 32 | Nylon Locknut, 3/8-16 | 7885 | 20 |

* Part Numbers in this list may vary depending on options ordered at time of purchase. Please check the assembly tag included with your rear.



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# CHAMPIONSHIP 9”




**Note: Must be specific when ordering replacement parts. P/N’s shown are unpolished. Polishing available at extra charge.**

## Choose from these part numbers:

**SR92510CR** Ford® Small Bearing Flanged Axle
**SR92520CR** Ford® Big Bearing Flanged Axle
**SR92525CR** Ford® Big Bearing Flanged Axle (Torino®)

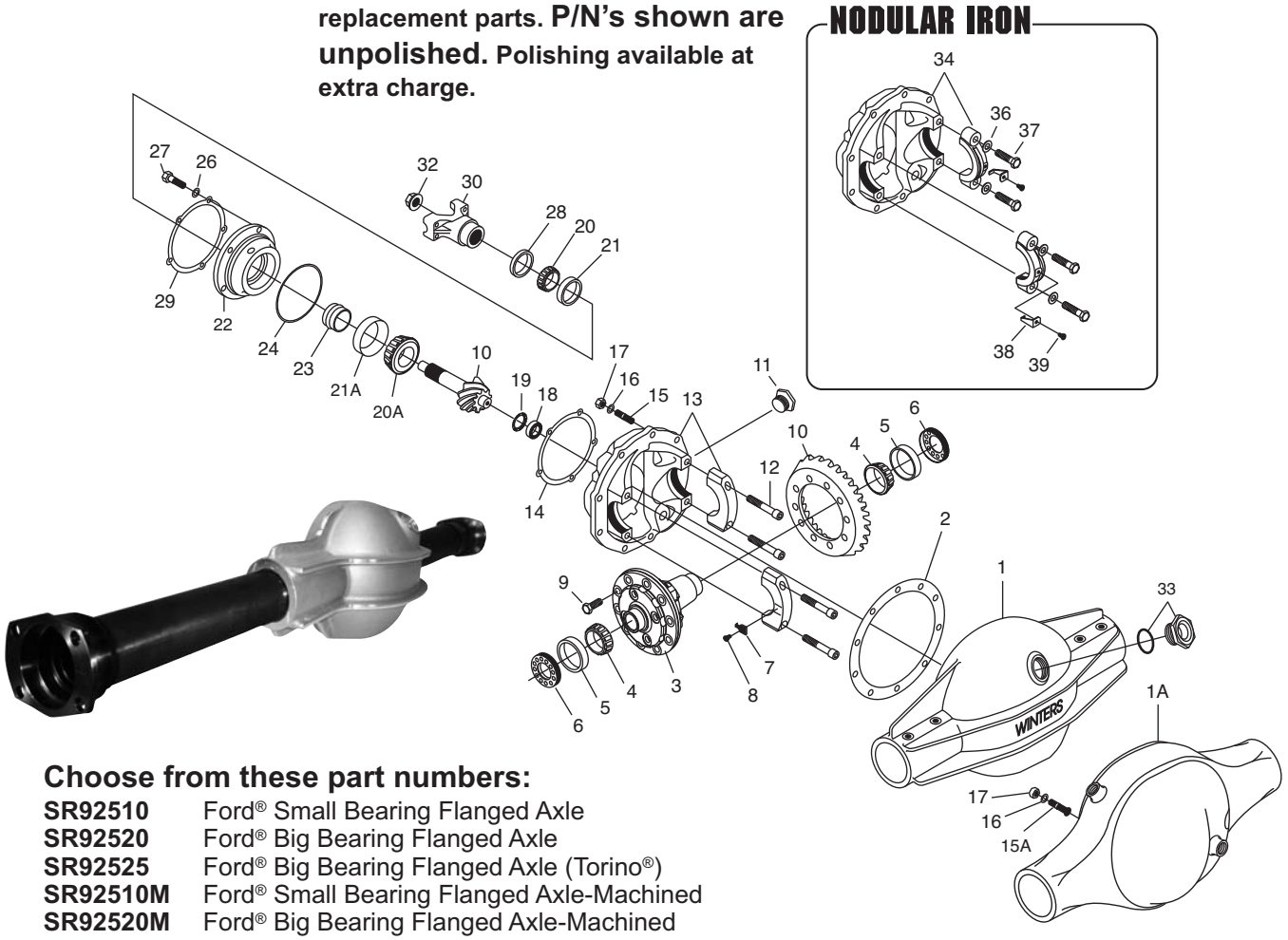
| # | Description | P/N | Qty | # | Description | P/N | Qty |
|---|---|---|---|---|---|---|---|
| 1 | Aluminum Rear Cover | 94305 | 1 | 19 | Retainer, Pilot Bearing | 92588 | 1 |
| 2 | O’Ring | 98417 | 1 | 20 | Bearing Cone, Pinion Retainer | 97527 | 2 |
| 3 | Gear Trac | 94620-31A | 1 | 20A | Large Bearing Cone, Pinion Retainer | 97553 | 2 |
| 4 | Bearing Cone | 97541 | 2 | 21 | Bearing Cup, Pinion Retainer, | 98622 | 2 |
| 5 | Bearing Cup | 97542 | 2 | 21A | Large Bearing Cup, Pinion Retainer | 98623 | 2 |
| 6 | Adj. Nut, Carrier Brgs, 3.250” OD | 93613 | 2 | 22* | Pinion Retainer, Aluminum, Daytona Style | 96897 | 1 |
| 7* | Locking Tab, Adjusting Nut | 93614 | 2 | 22* | Pinion Retainer, Steel, Daytona Style | 92507 | 1 |
| 7* | Locking Tab, Adjusting Nut | 93615 | 2 | 23* | Crush Sleeve | 92392 | 1 |
| 7* | Locking Tab, Adjusting Nut | 93616 | 2 | 23* | Solid Sleeve (machine to length) | 92969 | 1 |
| 8 | 5/16-18 x 3/8 BHCS, Locking Tab | 97933 | 2 | 24 | O’Ring | 98407 | 1 |
| 9 | 7/16-20 Ring Gear Bolt (Special) | 97934 | 10 | 26 | 3/8 Flatwasher | 97114 | 5 |
| 10* | Ring & Pinion | 945XXX | 1 | 27 | 3/8-16 x 1 1/4 HHCS | 97107 | 5 |
| 12 | 1/2-13 x 3 1/4 SHCS, Bearing Cap | 97932 | 4 | 28 | Seal, Pinion Retainer | 97247 | 1 |
| 13 | Aluminum Housing | 94305 | 1 | 29* | Lock Ring | 93617 | 1 |
| 14 | Shim Kit, Pinion Retainer | 91275 | 1 | 30 | Yoke, 1310 Series, Short-Narrow | 92417 | 1 |
| 15 | 3/8-16 x 1” SHCS | 97778 | 4 | 32 | Pinion Lock Nut | 92222 | 1 |
| 18 | Roller Bearing, Pinion Pilot | 97576 | 1 | 33 | Large Inspection Plug w/O’Ring | 96857 | 1 |

* Part numbers in this list may vary depending on options ordered at time of purchase.

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# 9" FORD® STYLE

**Note: Must be specific when ordering replacement parts. P/N's shown are unpolished. Polishing available at extra charge.**




## Choose from these part numbers:

| | |
|---|---|
| **SR92510** | Ford® Small Bearing Flanged Axle |
| **SR92520** | Ford® Big Bearing Flanged Axle |
| **SR92525** | Ford® Big Bearing Flanged Axle (Torino®) |
| **SR92510M** | Ford® Small Bearing Flanged Axle-Machined |
| **SR92520M** | Ford® Big Bearing Flanged Axle-Machined |
| **SR92525M** | Ford® Big Bearing Flanged Axle-Machined (Torino®) |

| # | Description | P/N | Qty | # | Description | P/N | Qty |
|---|---|---|---|---|---|---|---|
| 1* | Aluminum Rear Housing | 95243 | 1 | 20A | Large Bearing Cone, Pinion Retainer | 97553 | 2 |
| 1A | Steel Rear Housing | 92465 | 1 | 21 | Bearing Cup, Pinion Retainer, | 98622 | 2 |
| 2 | Gasket, Rear Housing | 91273 | 1 | 21A | Large Bearing Cup, Pinion Retainer | 98623 | 2 |
| 3 | Gear Trac | 94620-31A | 1 | 22* | Pinion Retainer, Aluminum, Daytona Style | 96897 | 1 |
| 4 | Bearing Cone | 97541 | 2 | 22* | Pinion Retainer, Steel, Daytona Style | 92507 | 1 |
| 5 | Bearing Cup | 97542 | 2 | 23* | Crush Sleeve | 92392 | 1 |
| 6 | Adj. Nut, Carrier Brgs, 3.250" OD | 92680 | 2 | 23* | Solid Sleeve (machine to length) | 92969 | 1 |
| 7 | Locking Tab, Adjusting Nut, Aluminum | 96793 | 2 | 24 | O'Ring | 98407 | 1 |
| 8 | 5/16-18 x 3/8 BHCS, Locking Tab (for 6793) | 97933 | 2 | 25 | 3/8 Stud, 3rd Member | 97191 | 5 |
| 9 | 7/16-20 Ring Gear Bolt | 97934 | 10 | 26 | 3/8 Flatwasher | 97114 | 5 |
| 10* | Ring & Pinion | 945XXX | 1 | 27 | 3/8-24 Nylon Locknut | 97882 | 5 |
| 11 | Level Plug | 98082 | 1 | 28 | Seal, Pinion Retainer | 97247 | 1 |
| 12 | 1/2" Dia. Bearing Cap Bolt | 97932 | 4 | 29* | Lock Ring | 93617 | 1 |
| 13* | Aluminum Carrier Housing | 96791-03 | 1 | 30 | Yoke, 1310 Series, Short-Narrow | 92417 | 1 |
| 14 | Shim Kit, Pinion Retainer | 91275 | 1 | 32 | Pinion Lock Nut | 92222 | 1 |
| 15 | 3/8 Studs, Threaded, Aluminum Housing | 97191 | 10 | 33 | Large Inspection Plug w/O'Ring | 96858 | 1 |
| 15A | 3/8 Studs, Flanged, Steel Housing | 92565 | 10 | 34* | Nodular Iron Carrier Housing | 91842-03 | 1 |
| 16 | 3/8 Flatwasher | 97114 | 10 | 36 | 1/2" Washer | 98023 | 4 |
| 17 | 3/8-24 Nylon Locknut | 97882 | 10 | 37 | 1/2-13x2 1/2" HHCS, Bearing Cap | 98056 | 4 |
| 18 | Roller Bearing, Pinion Pilot | 97576 | 1 | 38 | Locking Tab, Adjusting Nut | 92413 | 2 |
| 19 | Retainer, Pilot Bearing | 92588 | 1 | 39 | 5/16-18 x 3/8" BHCS, Locking Tab (for 2413) | 97933 | 2 |
| 20 | Bearing Cone, Pinion Retainer | 97527 | 2 | | | | |

* Part numbers in this list may vary depending on options ordered at time of purchase.



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# CHAMPIONSHIP QUICK CHANGE SET - UP

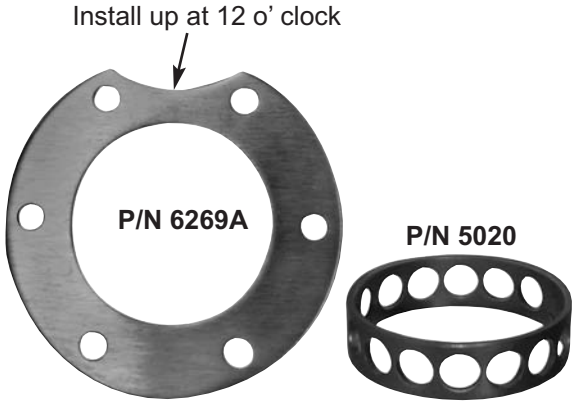
**Do Not Torch**
350˚F plus and heat treat is permanently lost.
Localized hot spots cause permanent distortion and loss of critical alignments.
Castings will “crack” if subjected to torching.

**Preparatory to installing Pinion into Case (Center Section)**

1-Retain pinion nose bearing on to the pinion gear with fast dry thread lock to insure the bearing does not fall off during installation into the center section.
2-Check and remove any nicks or burrs in the center section pinion bore. Make sure center is clean and free of chemicals or flammable materials.
3-Heat the “clean” center to 270˚- 300°F in an oven.
(DO NOT over heat as loss of heat treatment or distortion will occur.)

**Installing pinion into case**
Remove heated center section from the oven and lubricate the pinion bearing bores and bearings. Install “chilled” pinion, then use a urethane (soft) hammer to insure the pinion is seated.

Install the lower shaft and bearings
while the center is still hot
(don’t burn yourself).




1-Lubricate all bearing bores
2-Start front ball bearing into case bore approximately 1/8.”
3-Install lower shaft through center section from rear to front into ball bearing.
4-Slide rear ball bearing over installed shaft and carefully tap rear bearing evenly into place. Pinion Spacer **P/N 5020** and Pinion Retainer **P/N 6269A** should now be installed using (6) **P/N 7110** HHCS 3/8-16 x 1” torqued to 20-25 Ft- Lbs.

**Note:** All bolts threaded into aluminum should be treated with an anti-seize product.

5-Front ball bearing can now be evenly tapped into place. Note: The above assembly procedure is to insure that bearings do not “cock” in center section.
6-Front seal plate may now be installed and retaining bolts torqued to 20-25 Ft- Lbs.

**Allow assembled unit to cool to room temperature 68-72˚F before attempting to adjust pinion bearing preload.**

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# CHAMPIONSHIP QUICK CHANGE SET - UP

**Tapered Roller Bearing Pinion Preload**

1-When adjusting pinion bearing posi-lock with new bearings, torque the posi nut to obtain 15-20 In- Lbs, pinion bearing rotational preload. 8-10 In- Lbs for used bearings. Lubricate O'Ring in posi-lock retaining cap. Install retaining cap (use finger pressure only). If it resists engagement, remove cap from pinion and rotate to next spline on 10 spline shaft and re-install. 10 splines =10 combinations...Try each spline for the best "no resistance" fit.

**Above preloads are set at 68°-72°F**



Posi-Lock assy.
**P/N 6498R**

**Carrier Assembly and Ring Gear**

1- Adjusting Carrier preload is next. Remove seals and O'Rings from bells. Do not install ring gear onto carrier or spool as of yet.

2- Stand left side bell and tube vertically with bell up. Install **checking bearing** (P/N 5294) on ring gear end of carrier.

3- Set carrier and bearing into left vertical bell.

4- Set center section assembly on bell, making sure center section is setting flat against bell flange without bell seals and O'Rings.

5- Install second checking bearing on carrier.

6- Right bell should now be put into position on top of center section. If bell flange has full contact with center section, shims should be added until right bell flange is held above center section approximately .012 for Winters Track.

7- Now that proper shim pack thickness has been determined, the shim pack should be removed and set aside for step number 9.

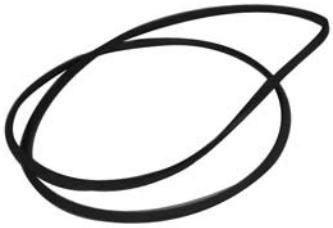
8- Ring gear should now be installed on carrier making sure contact surfaces are perfectly clean. Install all 12 bolts and torque nuts alternating in a crisscross pattern in steps to 35 Ft- Lbs on non-threaded ring gears (Use 60 Ft- Lbs for threaded W/P type ring gear bolts using belleville washers). Red Loctite® adhesive should be used on these bolts.

9- Place one shim at a time under checking bearing on ring gear side of carrier. Placing carrier and ring gear assembly in left bell, set center section on left bell and check for ring gear/pinion backlash. Make sure adjustable ring gear pad in left bell is backed out far enough so that it does not make contact with the ring gear. (If you remove the wear pad completely, DO NOT forget to replace it before tightening the thrubolts or complete rear will have to be disassembled to re-install the pad.) Carefully add shims until backlash has been removed.
The remaining shims from the original shim pack should be installed on the opposite side of carrier. Put the right bell in place and bolt together. Check backlash. It should be between .004 and .006. If backlash is too much, shims from the right side must be moved to the left side. Once proper backlash is reached, the checking bearings can be removed and regular bearings installed, with shims in place.



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**Carrier Assembly and Ring Gear Continued**



P/N 7403



P/N 7205

10-Install new side bell seals (**P/N 7205**) and O'Rings (4&6 rib bells **P/N 7403T**, 8 rib bells **P/N 7403**). Lubricate seals generously. Reassemble, install thrubolts, washers and nuts. Be sure to torque thrubolts in steps until a final torque of 35 ft lbs is reached using an alternating crisscross sequence. Spin the pinion over several times checking the backlash at several intervals. Backlash should be between .004 and .006. If backlash is not correct, the rear must be torn apart and the shims swapped from side to side until proper backlash is obtained. Tight spots are not acceptable.

P/N 5378

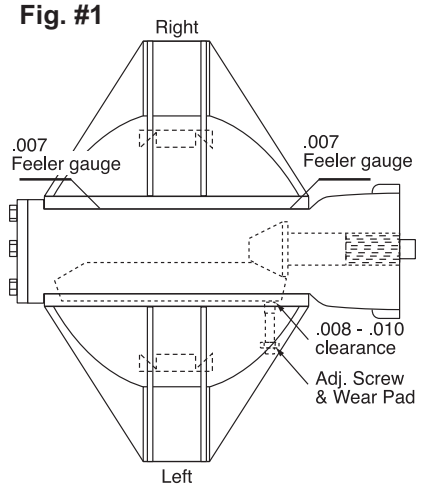


For side bells. Installs side bell seals **P/N 7205**

11-Adjust ring gear wear pad by running wear pad in against the ring gear with force of 5 in lbs, then back off approximately 1/4 turn to obtain .008 to .010 clearance between ring gear and wear pad. Tighten jam nut on adjusting screw being careful not to turn adjusting screw any further.

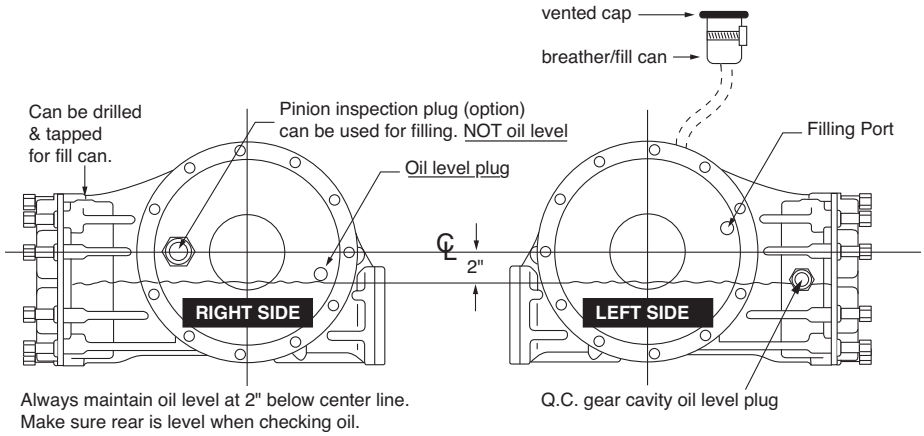
Note: assembly temperature: 68˚- 72˚F

**Fig. #1**




## Commonly Used Replacement Parts

| Description | | Size | P/N |
|---|---|---|---|
| Carrier Bearing (Steel Carrier) | | 2.000 | 7309 |
| Carrier Bearing (Aluminum Carrier) | | 2.031 | 7340 |
| Checking Bearing (Steel Carrier) | | 2.000 | 5138 |
| Checking Bearing (Aluminum Carrier) | | 2.031 | 5294 |
| Carrier Shim Kit - Steel | Journal Size | 2.000 | 5097 |
| Carrier Shim Kit - Alum. | Journal Size | 2.031 | 5295 |
| Side Bell Seals | | | 7205 |
| Front Yoke Seal (.750) | | | 7204T |
| Front Yoke Seal (.750 Viton) | | | 7204V |
| Gear Cover Gasket (10 Bolt) | | | 6729 |
| Heavy Duty Gear Cover Gasket (10 Bolt) | | | 6729HD |
| Bell O'Ring (4 & 6 Rib Bell) | | | 7403T |
| Bell O'Ring (8 Rib Bell) | | | 7403 |
| Winters Ring Gear Bolts (threaded)/Washers (12 each) | | | 7868 |
| Winters 80-90-140 Semi Synthetic w/Moly (Gal) | | | SR1730 |




**Important!**
Over-filling can cause problems as well as under-filling.

Torque:
Threaded Ring Gear Bolts-60 Ft- Lbs using Red Loctite®.

Non-Threaded Ring Gear Bolt and Locknut-35 Ft- Lbs

Thrubolts-35 Ft- Lbs

Pinion Retaining Plate Bolts-25 Ft- Lbs

Seal Plate Bolts-20 Ft- Lbs

Left Bell Adjuster Screw-Snug up, back off 1/4 turn, use red thread lock on jam nut.


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# CHAMPIONSHIP INDEPENDENT SET - UP

**Do Not Torch**
350˚F plus and heat treat is permanently lost. Localized hot spots cause permanent distortion and loss of critical alignments. Castings will "crack" if subjected to torching.

**Pinion Installation** Make sure center is clean and free of chemicals or flammable materials. Heat center to 270°-300°F in an oven. (DO NOT over heat as loss of heat treatment or distortion will occur.) Remove heated center from oven, lubricate pinion bearing bore and bearings. Install "chilled" pinion, using a soft hammer to ensure the pinion is seated.

**Tapered Roller Bearing Pinion Preload**
After pinion is installed and case has cooled down to room temperature **(68°-72°F)**, torque the pinion nut to 50-60 Ft- Lbs (approximate).
Preload New pinion bearings, 25 In- Lbs max.
Preload Used pinion bearings to 8-10 In- Lbs.

**Shim Starting Point** .125 on right, .100 on left.

**Side Bell Preload** .008 - .010 without Seals or O' Rings.

**Back Lash (Ring/Pinion)** .004 - .006 (NO tight spots when rotated)

**Torque Specifications** Pinion Retainer Plate Bolts - 25 Ft- Lbs.
Seal Plate Bolts - 20 Ft- Lbs. (when applicable)
★ Threaded WP Ring Gear Bolts with Belleville Washers
- Final Torque (steel) 60 Ft- Lbs. (use thread lock)
★ Thru Bolts - 35 Ft- Lbs.
★ **Torque alternating in a crisscross pattern in steps to specify final torque.**

After Ring Gear is installed and back lash is of absolute minimum and the bolts/nuts torqued, the total preload of the assembly should be: Preload New pinion bearings and seals, 37-39 In- Lbs.
Preload Used pinion bearings and seals, 15-20 In- Lbs.

To adjust the left bell adjustment screw, turn screw in until it bottoms out (with approx. force of 5 In- Lbs), then back it off a 1/4 turn. Use threadlock and tighten aluminum nut.


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# V8 QUICK CHANGE SET - UP

**Do Not Torch**
350˚F plus and heat treat is permanently lost.
Localized hot spots cause permanent distortion and loss of critical alignments. Castings will "crack" if subjected to torching.

***"Place the pinion in the freezer before attempting installation into the center. Using a cold pinion with a warm center makes installation effortless!"***

**Pinion Installation**
Make sure center is clean and free of chemicals or flammable materials. Heat center to 270°-300°F in an oven. (DO NOT over heat as loss of heat treatment or distortion will occur.) Remove heated center from oven, lubricate pinion bearing bore and bearings. Install "chilled" pinion, using a soft hammer to ensure the pinion is seated.

**Pinion Preload** After pinion is installed and case has cooled down to room temperature (68-72°F), torque the pinion retainer bolts to 25 Ft- Lbs.
Preload New pinion bearings, 20 In- Lbs max
Preload Used bearings to 8-10 In- Lbs

**Shim Starting Point** .085

**Side Bell Preload** without Seals or O' Rings.
.007 Wedgelock®

**Back Lash (Ring/Pinion)** .004 - .006 (NO tight spots when rotated)

**Torque Specifications** Pinion Retainer Bolts - 25 Ft- Lbs
Gear Cover Bearing Retaining Caps - 60 In- Lbs (5 Ft- Lb)

★ Threaded WP Ring Gear Bolts with Belleville Washers
- Final Torque (steel) 60 Ft- Lbs (use Red Loctite®)
★ Side Bell Nuts - 30 Ft- Lbs

★ **Torque alternating in a crisscross pattern in steps to specified final torque.**

After Ring Gear is installed and back lash is of absolute minimum and the bolts/nuts torqued, the total preload of the assembly should be: Preload New pinion bearings and seals, 27-29 In- Lbs
Preload Used pinion bearings and seals, 15-20 In- Lbs

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# V8 CENTER KIT SET - UP

As purchased, this housing unit will fit 1935 to 1948 Ford® rear axle housings. Rear axle assemblies prior to 1937 will require the use of different carrier bearings matching the year bells used.

**Inspection & Preparing Donor Bells**

1-Clean both axle housings and inspect carrier races. New race replacement is suggested at this time.

2-This kit uses modern day flanged 9" Ford® style axles, so updating the housing ends is needed before assembly can be accomplished.

**Assembly**

Upon successful check of donor parts, please follow these next steps for assembly. It is suggested that you make an assembly stand to help hold the unit in a vertical position for assembly. With receiving this kit, the center section is complete. The pinion preload is set to factory specs. If your unit is not together, please refer to tech manual page 17 for the pinion installation procedure.

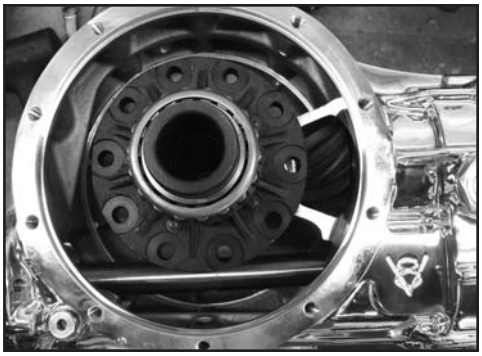
**Carrier Preload**

1-Stand right bell vertically in assembly stand with bell end up.

2-Place one gasket on the bell, lining up the holes. While making sure the mating surfaces are clean and smooth, stack the center section on top of the bell, aligning the bolt holes or studs, then torque the two together to 30 Ft- Lbs, using a criss-cross pattern.

3-Install Torrington® spacer and .060 of shims on right hand side of the differential, and .060 of shims on the left hand side using a press. Press on the inner race of the bearing to avoid damage to the bearing. Press until bearings are firmly seated.

4-Place the Wedgelock® Differential in the center section with the ring gear mounting flange toward the top (ring gear not installed). (See photo at right)



5-Put the other side gasket in place, and stack the left side bell on the center section. Note that it will rock side to side. The bell will not seat against the center section.

6-Measure the amount of gap between bell and center with feeler gauges. Make measurement the same on both sides of the left bell (top and bottom) of rear.

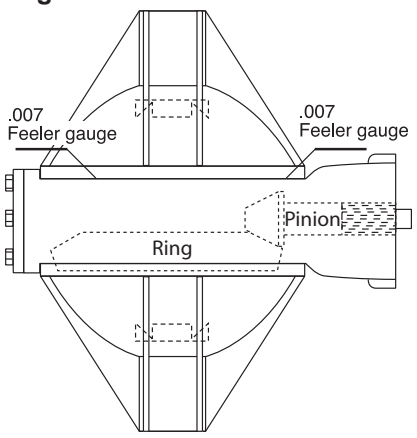
7-After taking that measurement, subtract .007. That is the thickness of shims that need to be removed from the differential to obtain the proper side bell crush (carrier preload). Example: .015-.007= the shim thickness to be removed .008
(See Figure #1 on page 19)



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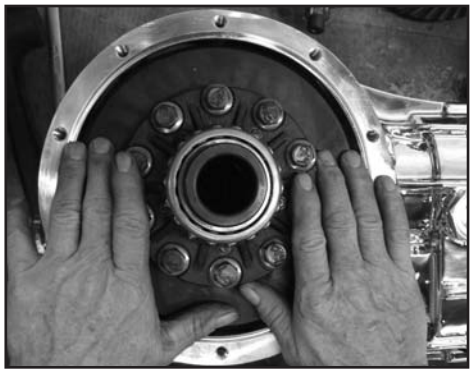
**Carrier Preload Continued**

Fig. #1




8-Disassemble the rear. Mount the ring gear to the differential by following the instructions supplied in the ring gear bolt pack.

9-With the right bell and center still standing vertically, place the differential back in the center. When rotating the differential from side to side (see photo below), you should feel play between the ring and pinion (the two gears). If there is no play, remove .005 shims off of the left side of the differential and add .005 to the right side of the differential. Repeat as necessary.



10-After establishing play between the two gears, place the left gasket on the center section and follow with the left bell aligning the bolts or studs, nut combination. Torque to 30 Ft- Lbs using a criss-cross pattern.

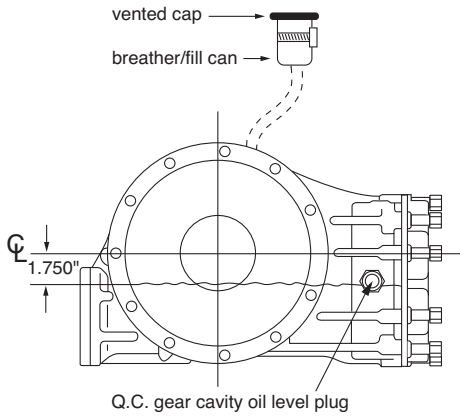
11-Check carrier preload. Rotating the pinion shaft a few times will seat the bearings. If available, a torque meter reading should be taken at this time. Looking for a reading of 22-27 In- Lbs. of rotational drag. If the reading is high, remove an equal amount of shims from both sides. If too low, add an equal amount of shims to both sides.

12-Check the backlash between the ring and pinion (the two gears). Placing a dial indicator on the pinion spline that the quick change gear rides on, you are looking for .004-.006 between them. If backlash is too high, remove a .005 shim from the right and add it to the left. If backlash is too low, add shims to the right and remove the left equally.

13-These last few steps may need to be repeated to obtain the proper rear end set-up specs.

14-When the rear end set-up specs are met within tolerance, disassemble the rear and lightly coat the gaskets with a layer of silicon and reassemble the rear. When the silicon dries, peel the excess silicon off the outer edges of the bells.

15-A vent should be installed on this rear.




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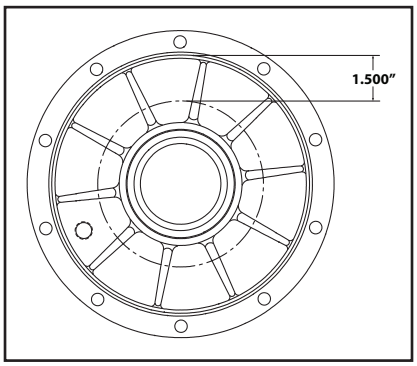
# EARLY FORD® V8 CENTER KIT SET - UP

As purchased, this housing unit will fit 1935 to 1948 Ford® rear axle housings. Rear axle assemblies prior to 1937 will require the use of different carrier bearings matching the year housing used. The quick change unit features a 4:11 ring and pinion.

**Inspection & Preparing Donor Bells**

1-Remove from original Ford® the differential carrier, spider gears and axles. Clean and prepare for re-use. Inspect axle housings and carrier races. New race replacement is suggested at this time.

2-Additional carrier bolt clearance is necessary on the inside of the left axle tube. Using a hand grinder, remove approximately 1 1/2" from the outer edges of the reinforcement webs (see diagram at right). Place ring gear carrier on housing and check for proper clearance.




**Assembly**

Upon successful check of donor parts, please follow these next steps for assembly.

1-The pinion unit has been pre-assembled in the quick change case and has the correct bearing crush. **DO NOT REMOVE!**

2-Remove quick change cover and gear set and set aside.

3-Install left side differential carrier case (*4205) to ring gear carrier.

4-Install left axle shaft into carrier ring gear assembly (*4235L), and coat axle bearing with light oil.

5-Install spider (*4211) and spider gear (*4215) to left differential carrier case.

6-Coat right axle bearing with light oil and install right axle (*4235R) into right side carrier.

7-Install right side carrier case (*4206) and axle to left side carrier case and spider, making sure the spiders mesh in the axle gears and coating with light oil.

8-Make sure differential carrier is seated on ring gear carrier.

9-Install differential carrier bolts (*4217), place hardened washers on ring gear, install castle nuts and tighten, making sure all wire holes align in a circular fashion.

10-Safety wire bolts.

*Original Ford® Part Number, used for reference purpose only



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# EARLY FORD® V8 CENTER KIT SET - UP

**Carrier Preload**

1-With the right axle housing in the upright position, install .010” paper gasket on housing (4010) bell.

2-Position quick change on right axle housing with the index bolt hole. Install four bolts 90° apart.

3-Install the ring gear axle assembly to the quick change case and right housing assembly. Put a light coat of oil on the bearing. Take care not to damage the axle grease seal in the axle housing when inserting axle.

4-Check mesh on ring to pinion gear, and put a light coat of oil on the left carrier bearing.

5-Place .010 paper gasket on the left bell and install the left housing over the left axle and position on quick change. Tighten four bolts 90° apart at 25 Ft-Lbs.

6-Install and tighten remaining side bell bolts. Remove from stand and place on the floor.

7-Checking correct carrier bearing adjustment will require two people. With a helper, each grab one side of the axle shaft and rotate them forward at the same speed and time. There should be a heavy drag upon the forward rotation.

8-If the gear turns easily, remove the right axle housing and replace the .010 gasket with a .005 thick gasket (this means it has too much clearance).

9-If the gear does not turn or turns very hard add .005 gasket to the right axle housing (this means there is not enough clearance).

10-Reassemble and re-check drag.

11-Repeat steps 7-9 as necessary. This might take several attempts.

12-Pinion backlash should be between .004-.008 using a dial indicator.

13-If the pinion backlash is too tight, it is necessary to add gasket to the left side.

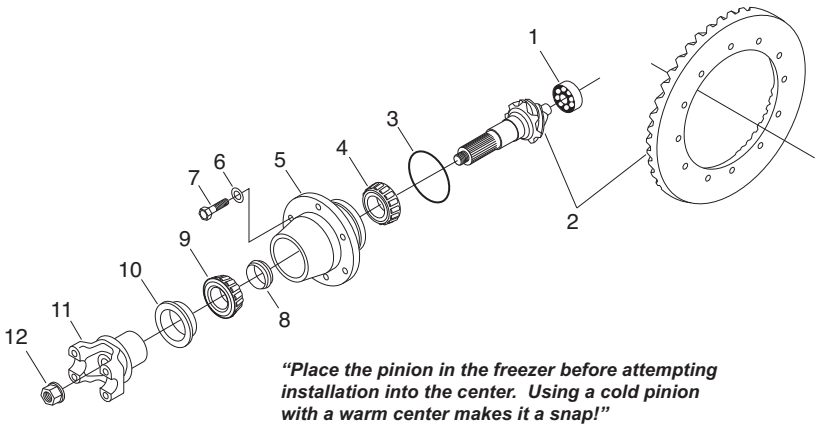
14-If the pinion backlash is too loose, it is necessary to put in a thinner left side housing gasket.

15-To maintain a proper differential bearing adjustment after adjusting pinion backlash, it will be necessary to balance carrier bearing adjustments. For example, if .005 was added to the left side, the right bell gasket must be decreased by .005 and the reverse holds. If the left side bell gasket had .005 removed, then the right bell must have .005 added. This operation may also take several attempts.

16-Re-torque side bell bolts to 30 Ft-Lbs. Check pinion bolt and pinion seal cover bolts.

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# BANJO STYLE SET - UP




*"Place the pinion in the freezer before attempting installation into the center. Using a cold pinion with a warm center makes it a snap!"*

| # | Description | P/N | Qty |
|---|---|---|---|
| 1 | Pinion Nose Roller Brg. | 7331 | 1 |
| 2 | Ring and Pinion | 35xxx* | 1 |
| 3 | O'Ring | 7490 | 1 |
| 4 | Inner Bearing Cone | 7554 | 1 |
| 5 | Pinion Bearing | 7569 | 1 |
| 6 | 3/8 Washer | 7114 | 6 |
| 7 | 3/8-16 x 1 1/4" HHCS | 7107 | 6 |
| 8 | Crush Sleeve | 2276 | 1 |
| 9 | Outer Bearing Cone | 7553 | 1 |
| 10 | Seal | 7260 | 1 |
| 11 | Drive Yoke, 1310 | 2216 | 1 |
| 12 | Pinion Nut | 2222 | 1 |

* when ordering R&P add prefix 35 to gear ratio desired.
(example P/N 35457 for 4.57 ratio)

1 Install 2 each 3/8-16 x 3" guide pins into the center section pinion flange to assure holes line up when pinion is installed.

2 Check and remove any nicks or burrs in the center section pinion bore. Make sure center is clean and free of chemicals or flammable materials.

3 Heat the "clean" center to 270˚- 300°F in an oven. (Do not over heat! Loss of heat treat and distortion will occur).

4 Lubricate pinion bearing bore and bearings.

5 Install "chilled" pinion using a urethane (soft) hammer to insure pinion is seated.

6 Allow assembly to cool to room temperature (68°-72°F) before attempting to adjust the pinion bearing preload.

7 Back off pinion nut two turns.

8 With a soft punch (brass or aluminum) and a steel hammer, tap (not strike) on the yoke end of pinion to position pinion nose bearing into the bore properly.

9 Using a yoke spanner and 3/4 drive, 1 1/16" - 6 point socket, tighten pinion nut gradually while rotating pinion to allow bearings to align. Adjust pinion bearing preload to 20-25 In- Lbs

10 Remove guide studs and install bearing retaining bolts (using anti-seize). Torque to 20-25 Ft- Lbs

Pinion installation is now complete.



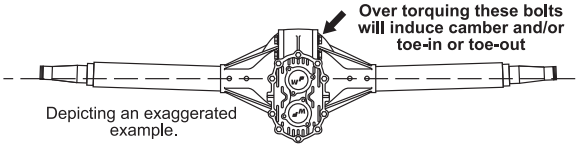
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# IMPORTANT INFORMATION

## Bell Torqing Procedure

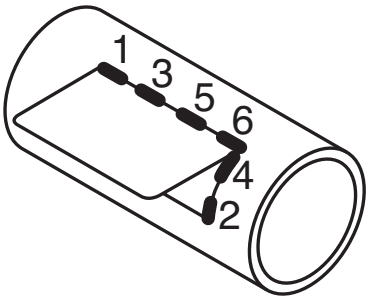
When attaching suspension brackets, exercise care when torquing thru bolts.

Use a torque wrench to tighten bolts in steps. Tighten in a criss cross pattern to 35 Ft- Lbs.




**Caution:**
Over torquing can induce permanent and unwanted angularities as shown above.

## Welding Brackets To Tubes




Weld a series of 1/2" long "tracks" along the bracket starting at the ends then alternate back and forth towards the center. Long continuous welds will heat and "draw" the tubing, causing distortion.

## Break - In Procedure

As with any new or rebuilt product, be it an engine, transmission or rear end, it is important to avoid premature wear on the gears and bearings by avoiding full throttle loads and high RPM conditions for at least 20 miles. Start break in at 30% power and gradually increase not to exceed 80% power.

Drain and refill the gear lube in both the rear end and the quick change gear cavity to the proper oil levels with the car sitting level (over filling will cause excessive heat).

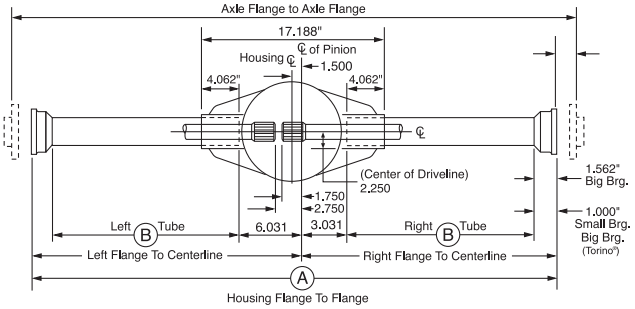
**Winters** recommends the continued use of **Winters P/N 1730** with Moly, semi synthetic lubricant or Mobil 1® for the life of your rear end.

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# DIMENSIONAL DATA

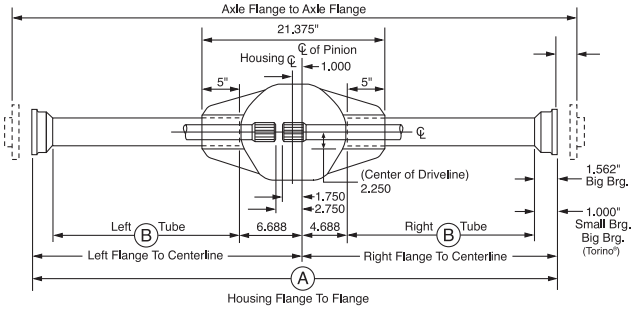
## Championship 9”

(Viewed From Rear Looking Forward)
SR92510CR, SR92520CR, SR92525CR




## Ford® 9”

(Viewed From Rear Looking Forward)
SR92510, SR92520, SR92525

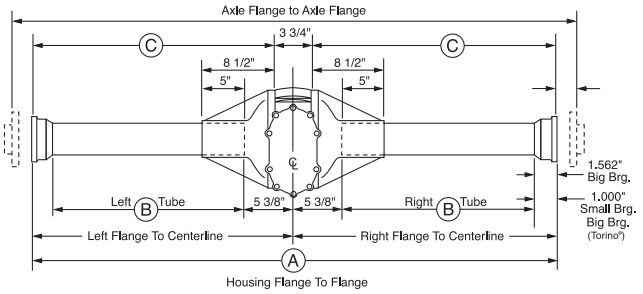



## 10” Championship Quick Change

(Viewed From Rear Looking Forward)
SR2510, SR2520, SR2525

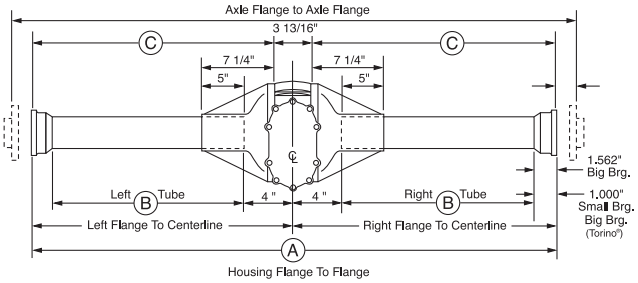
## 10” Banjo Style - Full Size

(Viewed From Rear Looking Forward)
SR4210, SR4220, SR4225



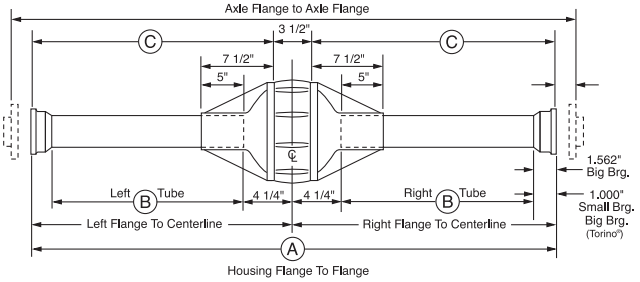

## 8 3/8” V8 Quick Change

(Viewed From Rear Looking Forward)
SR2210, SR2220, SR2550

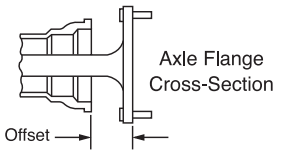


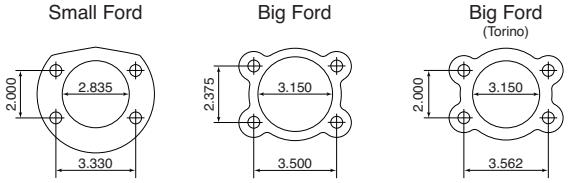

## 8 3/8” Banjo Style - Mini

(Viewed From Rear Looking Forward)
SR4210M, SR4220M, SR4225M




| Description | Offset |
|---|---|
| Small Bearing Ford® | 2.66” |
| Big Bearing Ford® | 2.36” |
| Big Bearing Ford® | 2.50” |
| Big Bearing Ford® (Torino®) | 2.50” |




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STREET ROD REARS
TECHNICAL MANUAL
WINTERS PERFORMANCE PRODUCTS

# FREQUENTLY ASKED QUESTIONS

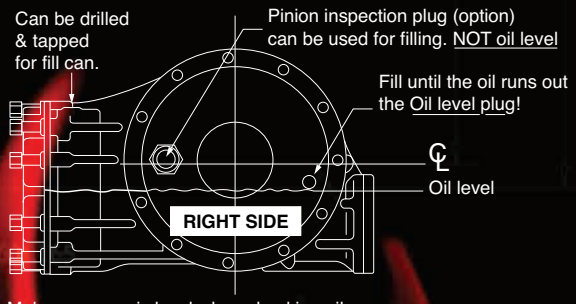
**What type of oil should I use in my Winters Rear End?**
Use a good quality lube, such as Winters 80-90-140 semi synthetic with moly or Mobil 1 Hypoid 70-90 (GL5) synthetic.

**What oil level should I maintain in my Winters Rear End?**
*Do Not over-fill!! Too much lube causes excessive heat! (see illustration below)*

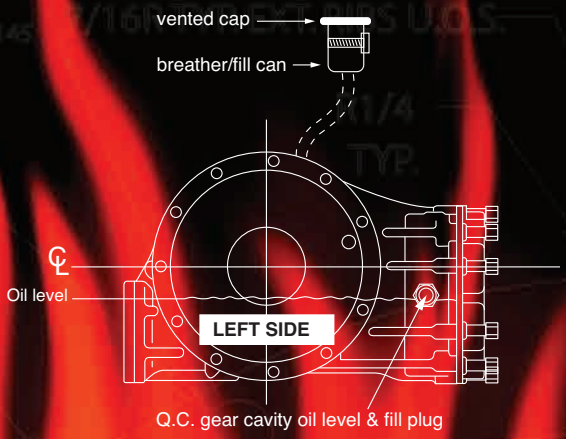
Championship 10”
Always maintain oil level at 2” below axle center line. Make sure the rear is level when checking oil.

Mini, V8 8 3/8”
Always maintain oil level at 1 3/4” below axle center line. Make sure the rear is level when checking oil.

**How do I fill my Winters Rear End with oil?**
The fill plug is located on the **left side bell**. Optional pinion inspection plug, right bell, may be used to fill, however, **DO NOT USE** to determine fluid level. To determine fluid level, fill until the oil runs out the oil level plug in the front of the right side bell. The QC Gear cavity level & fill plug is located on the **left side**. *(see illustrations at right )*



Make sure rear is level when checking oil.




**Ring gear bolt torque specifications.**
Threaded Ring Gear Bolts-60 Ft. Lbs. using red thread lock.

**Side bell stud torque specifications.**
Full size rears, 10” (7/16” studs) 35 Ft Lbs.
Mini, V8 8 3/8” (3/8” studs) 30 Ft Lbs.

**What is the correct way to install quick change gears?**
The machined lip faces out

**Can I use Helical Gears in my Winters Rear End?**
Helical gears have their advantages. Under normal driving conditions, helical gears can be used. They do make less noise than straight cut gears. However, in extreme applications, helical gears create excessive and destructive thrust loads on all shafts and bearings.

**How do I remove my pinion?**
Make sure that the center is clean and free of chemicals or flammable materials. Use an oven to heat your center to 270°- 300°F. Magnesium can be ignited - Exercise **CAUTION!** Torching your center will damage the casting and ring & pinion life will be adversely affected.

**Can I use Quick Change side bells on my Non-Quick Change?**
Yes. However, the side bells are rotated 180° forward.
This will affect mounting brackets, etc., that are welded to the tubes.

**Can I determine R&P ratio without opening up the rear?**
Yes. Elevate the car (engine off). Remove quick change gears. Chalk mark the tire at the 12 o’clock position. Chalk mark the pinion at the 12 o’clock position. Rotate the tire by hand 1 complete revolution. Count pinion rotation as tire is rotated. Just past 4 revolutions = 4.11/4.12, 3 7/8 revolutions = 3.78.

**See Machinery Handbook for strengths of metals, published by Industrial Press Inc., New York**

# QUICK CHANGE GEAR CHARTS

## HELICAL GEARS 4500 SERIES (6 SPLINE)

**3.78 R&P Ratio (9-34 Teeth)**

| P/N | Low Spur Ratio | High Spur Ratio | No. of Teeth | Low | High |
|---|---|---|---|---|---|
| SR4501HR | 1.000 | 1.000 | 24/24 | 3.78 | 3.78 |
| SR4502HR | 0.958 | 1.043 | 23/24 | 3.62 | 3.94 |
| SR4503HR | 0.920 | 1.087 | 23/25 | 3.48 | 4.11 |
| SR4503AHR | 0.880 | 1.136 | 22/25 | 3.33 | 4.30 |
| SR4504HR | 0.846 | 1.182 | 22/26 | 3.19 | 4.46 |

## HELICAL GEARS 8500 SERIES (10 SPLINE)

**4.12 R&P Ratio (8-33 Teeth)**

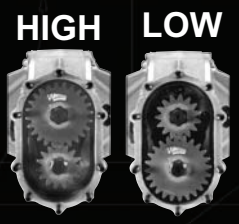
| P/N | Low Spur Ratio | High Spur Ratio | No. of Teeth | Low | High |
|---|---|---|---|---|---|
| SR8503HR | 0.806 | 1.240 | 25/31 | 3.32 | 5.11 |
| SR8504HR | 0.774 | 1.292 | 24/31 | 3.19 | 5.32 |
| SR8509AHR | 0.833 | 1.200 | 25/30 | 3.43 | 4.94 |
| SR8517HR | 0.867 | 1.154 | 26/30 | 3.57 | 4.75 |
| SR8526HR | 0.931 | 1.074 | 27/29 | 3.84 | 4.43 |

All Winters helical quick change gears have REM® process enhanced surface finish.

**To Determine Gear RPM Change:**

**(RPM) ÷ (Gear Ratio) x (New Ratio) = (New RPM)**

Example 3000 ÷ 3.93 x 3.43 = 2618




## Helical Gear Spacer Kit

**P/N SR3552** (10 spline)
Kit includes one Spacer, **P/N 3417,** and the following shims:

| 10 SPLINE SHIMS | | |
|---|---|---|
| P/N | THICKNESS | QTY. |
| SR3430-030 | .030 " | 2 |
| SR3430-045 | .045 " | 2 |
| SR3430-060 | .060 " | 2 |

**P/N SR3551** (6 spline)
Kit includes one Spacer, **P/N 3416,** and the following shims:

| 6 SPLINE SHIMS | | |
|---|---|---|
| P/N | THICKNESS | QTY. |
| SR3442-030 | .030 " | 2 |
| SR3442-045 | .045 " | 2 |
| SR3442-060 | .060 " | 2 |

**P/N SR30800 Series**
Standard quick change gears. When ordering add prefix 308 to set number, **Example SR30801.**

## XTREMELINER (30800 Series)

| Gear Set # | Low Spur Ratio | High Spur Ratio | No. of Teeth | 2.00 R&P Ratio (17-34 Teeth) Low | 2.00 R&P Ratio (17-34 Teeth) High | 3.08 R&P Ratio (12-37 Teeth) Low | 3.08 R&P Ratio (12-37 Teeth) High |
|---|---|---|---|---|---|---|---|
| 1 | 1.00 | 1.00 | 21/21 | 2.00 | 2.00 | 3.08 | 3.08 |
| 15 | 0.95 | 1.05 | 19/20 | 1.90 | 2.10 | 2.93 | 3.23 |
| 25 | 0.90 | 1.10 | 20/22 | 1.82 | 2.20 | 2.77 | 3.39 |
| 17A | 0.85 | 1.16 | 24/28 | 1.71 | 2.33 | 2.62 | 3.57 |
| 03 | 0.80 | 1.24 | 25/31 | 1.61 | 2.48 | 2.46 | 3.82 |
| 16 | 0.75 | 1.33 | 18/24 | 1.50 | 2.67 | 2.31 | 4.11 |
| 14 | 0.71 | 1.39 | 23/32 | 1.44 | 2.78 | 2.19 | 4.28 |
| 36 | 0.68 | 1.47 | 17/25 | 1.36 | 2.94 | 2.09 | 4.53 |
| 21 | 0.65 | 1.52 | 19/29 | 1.31 | 3.05 | 2.00 | 4.68 |
| 28 | 0.63 | 1.57 | 19/30 | 1.27 | 3.16 | 1.94 | 4.83 |
| 31 | 0.60 | 1.66 | 21/35 | 1.20 | 3.33 | 1.84 | 5.11 |

Remember to refill gear cavity with good quality gear lube after quick change gear changes and install quick change gears with shoulder facing toward gear cover bearings.



**•IMPORTANT•** Install quick change gears with shoulder facing toward gear cover bearings

**To Determine Final Drive:**

**(# Teeth Top Gear) ÷ (# Teeth Bottom Gear) x R&P Ratio = Final Drive**

**P/N SR8500 Series**
Standard quick change gears. When ordering add prefix 85 to set number, **Example SR8501.**

*More SR8500 series gear sets available. Call for info.*

## 10 SPLINE (8500 Series)

| Gear Set # | Low Spur Ratio | High Spur Ratio | No. of Teeth | 4.12 R&P Ratio (8-33 Teeth) Low | 4.12 R&P Ratio (8-33 Teeth) High |
|---|---|---|---|---|---|
| 1 | 1.000 | 1.000 | 21/21 | 4.12 | 4.12 |
| 2 | 0.964 | 1.037 | 27/28 | 3.97 | 4.27 |
| 5 | 0.960 | 1.042 | 24/25 | 3.96 | 4.29 |
| 15A | 0.955 | 1.048 | 21/22 | 3.93 | 4.32 |
| 15 | 0.950 | 1.053 | 19/20 | 3.91 | 4.34 |
| 26 | 0.931 | 1.074 | 27/29 | 3.84 | 4.43 |
| 6 | 0.920 | 1.087 | 23/25 | 3.79 | 4.48 |
| 25 | 0.909 | 1.100 | 20/22 | 3.75 | 4.53 |
| 12 | 0.897 | 1.115 | 26/29 | 3.69 | 4.60 |
| 7 | 0.885 | 1.130 | 23/26 | 3.65 | 4.66 |
| 7A | 0.875 | 1.143 | 21/24 | 3.61 | 4.71 |
| 17 | 0.867 | 1.154 | 26/30 | 3.57 | 4.75 |
| 17A | 0.857 | 1.167 | 24/28 | 3.53 | 4.81 |
| 8A | 0.852 | 1.174 | 23/27 | 3.51 | 4.84 |
| 8 | 0.846 | 1.182 | 22/26 | 3.49 | 4.87 |
| 19 | 0.840 | 1.190 | 21/25 | 3.46 | 4.91 |
| 9A | 0.833 | 1.200 | 25/30 | 3.43 | 4.94 |
| 9 | 0.826 | 1.211 | 19/23 | 3.40 | 4.99 |
| 11 | 0.815 | 1.227 | 22/27 | 3.36 | 5.06 |
| 3 | 0.806 | 1.240 | 25/31 | 3.32 | 5.11 |
| 13 | 0.800 | 1.250 | 20/25 | 3.30 | 5.15 |
| 18 | 0.793 | 1.261 | 23/29 | 3.27 | 5.20 |
| 18A | 0.786 | 1.273 | 22/28 | 3.24 | 5.24 |
| 4A | 0.783 | 1.278 | 18/23 | 3.22 | 5.26 |
| 20A | 0.778 | 1.286 | 21/27 | 3.20 | 5.30 |
| 4 | 0.774 | 1.292 | 24/31 | 3.19 | 5.32 |
| 20 | 0.769 | 1.300 | 20/26 | 3.17 | 5.36 |
| 22 | 0.760 | 1.316 | 19/25 | 3.13 | 5.42 |
| 16 | 0.750 | 1.333 | 18/24 | 3.09 | 5.49 |
| 10 | 0.739 | 1.353 | 17/23 | 3.05 | 5.57 |
| 10A | 0.733 | 1.364 | 22/30 | 3.02 | 5.62 |
| 34 | 0.724 | 1.381 | 21/29 | 2.97 | 5.69 |
| 34A | 0.727 | 1.375 | 16/22 | 3.00 | 5.67 |
| 14 | 0.719 | 1.391 | 23/32 | 2.96 | 5.73 |

**P/N SR4500 Series (1 3/8" wide)**
Standard quick change gears. When ordering add prefix 45 to set number, **Example SR4501.**

## 6 SPLINE (4500 Series)

| Gear Set # | Low Spur Ratio | High Spur Ratio | No. of Teeth | 3.78 R&P Ratio (9-34 Teeth) Low | 3.78 R&P Ratio (9-34 Teeth) High |
|---|---|---|---|---|---|
| 1 | 1.000 | 1.000 | 24/24 | 3.78 | 3.78 |
| 2 | 0.958 | 1.043 | 23/24 | 3.62 | 3.94 |
| 3 | 0.920 | 1.087 | 23/25 | 3.48 | 4.11 |
| 3B | 0.895 | 1.118 | 17/19 | 3.38 | 4.22 |
| 3A | 0.880 | 1.136 | 22/25 | 3.33 | 4.30 |
| 4 | 0.846 | 1.182 | 22/26 | 3.20 | 4.47 |
| 5 | 0.808 | 1.238 | 21/26 | 3.05 | 4.68 |
| 5A | 0.792 | 1.263 | 19/24 | 2.99 | 4.77 |
| 6 | 0.778 | 1.286 | 21/27 | 2.94 | 4.86 |
| 24 | 0.767 | 1.304 | 23/30 | 2.90 | 4.93 |
| 25 | 0.750 | 1.333 | 18/24 | 2.84 | 5.04 |
| 7 | 0.741 | 1.350 | 20/27 | 2.80 | 5.10 |
| 23 | 0.727 | 1.375 | 16/22 | 2.75 | 5.20 |
| 8 | 0.714 | 1.400 | 20/28 | 2.70 | 5.29 |
| 22 | 0.704 | 1.421 | 19/27 | 2.66 | 5.37 |
| 9 | 0.696 | 1.438 | 16/23 | 2.63 | 5.43 |
| 10 | 0.682 | 1.467 | 15/22 | 2.58 | 5.54 |
| 11 | 0.667 | 1.500 | 18/27 | 2.52 | 5.67 |
| 12 | 0.655 | 1.526 | 19/29 | 2.48 | 5.77 |
| 13 | 0.652 | 1.533 | 15/23 | 2.47 | 5.80 |
| 14 | 0.636 | 1.571 | 14/22 | 2.41 | 5.94 |
| 15 | 0.625 | 1.600 | 15/24 | 2.36 | 6.05 |
| 16 | 0.615 | 1.625 | 16/26 | 2.33 | 6.14 |
| 17 | 0.600 | 1.667 | 18/30 | 2.27 | 6.30 |
| 18 | 0.591 | 1.692 | 13/22 | 2.23 | 6.40 |
| 18A | 0.571 | 1.750 | 16/28 | 2.16 | 6.62 |
| 19 | 0.560 | 1.786 | 14/25 | 2.12 | 6.75 |
| 20 | 0.556 | 1.800 | 15/27 | 2.10 | 6.80 |
| 27 | 0.542 | 1.846 | 13/24 | 2.05 | 6.98 |
| 21 | 0.531 | 1.882 | 17/32 | 2.01 | 7.12 |
| 28 | 0.528 | 1.895 | 19/36 | 2.00 | 7.16 |
| 29 | 0.522 | 1.917 | 12/23 | 1.97 | 7.25 |
| 26 | 0.517 | 1.933 | 15/29 | 1.96 | 7.31 |
| 30 | 0.500 | 2.000 | 20/40 | 1.89 | 7.56 |
| 31 | 0.488 | 2.050 | 20/41 | 1.84 | 7.75 |
| 32 | 0.475 | 2.105 | 19/40 | 1.80 | 7.95 |

# LIMITED WARRANTY

## Background

A user of any part or service from Winters Performance Products, Inc. (“User”) referred to herein as a “Purchaser.” Understands Winters’ manufactures automotive parts, equipment, inventory and services (“parts”) which are purchased by persons in various industries, and install and use Winters products in applications which may not be suitable. Purchaser understands, recognizes and acknowledges that all parts, inventory, and services manufactured or sold by Winters are exposed to many, varied and unforeseeable uses and conditions when installed and used in high stress applications and that as a consequence, Winters can make no promise, warranty, affirmation or representation as to the future performance of its parts under those conditions. Purchaser expressly acknowledges and understands that Winters does not make any affirmation of fact or promise to Purchaser which relates to Winters’ parts, inventory, or services, that becomes part of the basis of bargain between Winters and Purchaser, nor does Winters make or cause to be made to Purchaser any description of the goods sold to Purchaser, nor does Winters make or cause to be made, as part of the basis of the bargain with Purchaser, any description or affirmation of fact concerning any sample or model of parts, equipment, inventory, or services (except as specifically set forth in this Limited Warranty). As further consideration for Purchaser using Winters’ parts, equipment, inventory and services, Purchaser acknowledges that, due to differing conditions and circumstances under which all parts and equipment are installed and used, Purchaser is not relying on Winters’ skill and judgment to select or furnish the proper part or equipment. Purchaser expressly affirms, after evaluating competitors’ products, that Purchaser is relying on Purchaser’s own expertise, skill, and judgment to select, purchase, and install suitable goods relative to safety and durability and Purchaser assumes all risks associated with the performance of Winters’ parts.

## Limited Warranty

Winters warrants to Purchaser that a part manufactured by Winters (a “Part” or “Parts”) will conform to the description of such Part contained in any catalog provided by Winters which is current at the time of sale of such Part to Purchaser (the “Description”).**WINTERS MAKES NO OTHER WARRANTY, EITHER EXPRESS OR IMPLIED. WINTERS EXPRESSLY DISCLAIMS ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR USE OR PURPOSE AND EXPRESSLY DISCLAIMS ANY WARRANTY AS TO PERFORMANCE OF ANY PART.** The liability of Winters for breach of the foregoing warranty is limited to repair or replacement of any Part determined to fail to conform to its Description prior to installation and use. The burden of establishing that a Part fails to conform to its Description shall be upon Purchaser. In order to be entitled to repair or replacement of a Part, Purchaser must (i) inspect the Part upon receipt; and (ii) notify Winters in writing of the defect PRIOR TO INSTALLATION OF THE PART. In no event shall Winters be liable hereunder for any Part which has been installed. Purchaser assumes all risk relating to a Part once such Part is installed. **WINTERS SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL, SPECIAL OR INDIRECT DAMAGES OR FOR LOSS OR DAMAGE DIRECTLY OR INDIRECTLY ARISING FROM THE USE OF A PART.** Every claim under this Limited Warranty shall be deemed waived unless made in writing within ninety (90) days of delivery of the Part by Winters to Purchaser. Purchaser acknowledges that, due to the multiple uses of the Parts, it is impossible for Winters to predict the performance of the Parts once installed or the suitability of the Parts for any particular use. Purchaser expressly acknowledges Purchaser’s obligation to factually inform all users (customers) of the above disclaimer.

## Indemnity Against Third Party Claims

**PURCHASER HEREBY AGREES TO INDEMNIFY WINTERS AND HOLD HARMLESS WINTERS FROM AND AGAINST ANY AND ALL CLAIMS, LIABILITY, LOSS AND DAMAGES, INCLUDING ATTORNEYS FEES, MADE BY ANY THIRD PARTY AGAINST WINTERS RELATING TO A PART OR THE USE OF ANY PART.** Purchaser understands and agrees that no officer, director, employee or salesman of Winters or any vendor, dealer, or distributor has any authority to make any statements contrary to the terms of this Limited Warranty. On the contrary, Winters disavows any statements contrary to what is above written.

## Miscellaneous

This writing constitutes the full, complete and final statement of Winters’ limited warranty for Parts. All prior oral and written correspondence, test data, negotiations, representations, understandings and the like regarding Parts are merged in this writing and extinguished by it. This Limited Warranty may not be altered, amended, extended or modified except by a writing signed by the President or Vice President of Winters. Winters’ failure at any time to enforce any of the terms and conditions stated herein shall not constitute a waiver of any of the provisions herein. This Limited Warranty shall be governed by and construed in accordance with the laws of the Commonwealth of Pennsylvania. Any legal actions which may arise as a result of disputes, controversies, or claims arising out of or related to this Limited Warranty shall be litigated in the Court of Common Pleas of York County, Pennsylvania, or in such other forum as Winters and Purchaser shall agree. This Limited Warranty shall not be assigned by Purchaser. Our responsibility for merchandise shipped via common carrier ceases upon delivering the order to the carrier. We are not responsible for merchandise lost or damaged in transit. You must file a claim with the delivery carrier. We would however assist you in supplying any information necessary for submission of your claim. It is the responsibility of the buyer to comply with all laws and regulations, Federal, State and Local, governing resale of products sold by Winters Performance. NSF Charge: $35.00 per returned check/payment. Repayments must be by cashier check or money order.

**On request, all parts in Winters Performance Products, Inc. inventory and/or catalog are available in super strength heat treated steel (300,000/350,000 P.S.I. tensile strength) @ extra cost and special order.**