PHOENIX

FALCON SHORTY

RAPTOR SHORTY

FALCON LATE MODEL

RAPTOR LATE MODEL

FALCON ROLLER SLIDE

MAVERICK PERFORMANCE INC

TRANSMISSION & DRIVE LINE COMPONENTS

CATALOG # MP3

MAVERICK PERFORMANCE
A DIVISION OF WINTERS PERFORMANCE PRODUCTS, INC.

HOURS OF OPERATION:
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At Maverick Performance, our mission is to offer unsurpassed quality control and customer service. We also realize it is all for naught if the product is not on the shelf. We want to be the company you like doing business with!

ORDER POLICY

- Know your customer number.
- Order by part number. Maverick will not be responsible for incorrect orders placed by description only.
- Specify shipping instructions - otherwise use our discretion.
- Refused orders will have a $25.00 handling charge and applicable freight charges billed to the customers account.
- Special orders cannot be cancelled after the order is in process.
- PLEASE NOTE: Part numbers are listed showing required quantity. If two or more quantities are listed, you must order two or more of that part number.

RETURN POLICY

IMPORTANT: All returns must include a Return Authorization Number (RA#). Issuing of an RA# does not constitute a guarantee of credit or replacement. Credit, refund or replacement will only be issued after an inspection and determination at our discretion. No returns are accepted on special order merchandise, obsolete products, damaged, used or altered merchandise. Returns will not be accepted after six (6) months of date of purchase.

ALL RETURNED MERCHANDISE MUST INCLUDE:

- RA# clearly written on outside of box(s) as well as:
  - *Customer Number, Name & Phone Number*
  - *Copy of Invoice*
  - *Written Explanation for Cause of Return*
  - *Whether the Return is for Credit, Refund or Replacement*
- Returned merchandise is subject to the following restocking fees (except sellers error):
  - *1-90 Days = 15%*
  - *91 Days-Six (6) Months = 25%*
- Returns must be freight pre-paid (except sellers error).
- Returned parts must be packaged properly to avoid damage in transit.
- SHIPPING DAMAGES MUST BE REPORTED IMMEDIATELY TO YOUR CARRIER.
- SHORTAGE CLAIMS MUST BE REPORTED IMMEDIATELY.
- SAVE YOUR CARTONS.

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FALCON LATE MODEL

Assembly P/N 60100
37 lbs 2 oz with Options

The Falcon Late Model Transmission has two forward speeds, neutral and reverse. An integral hydraulic applied clutch operates both low and reverse gears. High gear is a direct drive 1 to 1 ratio with a minimal amount of rotating mass. It weighs in at 43 pounds with an aluminum case and extension housing and an even lighter 38 pounds 2 ounces in magnesium.

The Falcon Late Model Transmission is dimensionally equal to a Muncie, T-10, etc, including the 1-3/16 x 27 spline output shaft, which by design contributes to the most positive high gear retention in the industry. Included is the correct crank coupler to provide you with all you need to install, even to a stock flywheel housing. Frictionless bearings support all rotating components with unmatched durability.

OPTIONS

DESCRIPTION	OPTION
Magnesium Option, Late Model	80100L
Front Seal, Viton, P/N 67256V	80109
Rear Seal, Viton, P/N 67257V	80110L
Shifter Installed	80112L
Heat Treated Yoke, P/N 62946-6	80119-6
Heat Treated Yoke, P/N 62946-7	80119-7
Heat Treated Yoke, P/N 62946-8	80119-8
Shorty Extension Housing	80120
Thermal Dispersant Coating, Late Model	88208L
Crank Coupler Options, See Page 26	8251-XX
REM Transmission Gears	88218-TG

See page 28 for drive line accessories.

Extension housing includes a sturdy roller bearing to accommodate 1-1/2" diameter slip yokes. Output shaft spline length is long enough to permit 9" of yoke travel.

Shown with shifter Option 80112L and yoke P/N 62946-7. Includes P/N 62348-18 Chevy SB & BB 18 spline crank coupler. See page 19 for optional crank couplers.

Shown with shorty extension housing Option 80120 and yoke P/N 62946-7.

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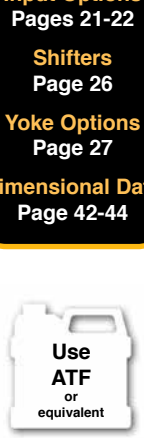
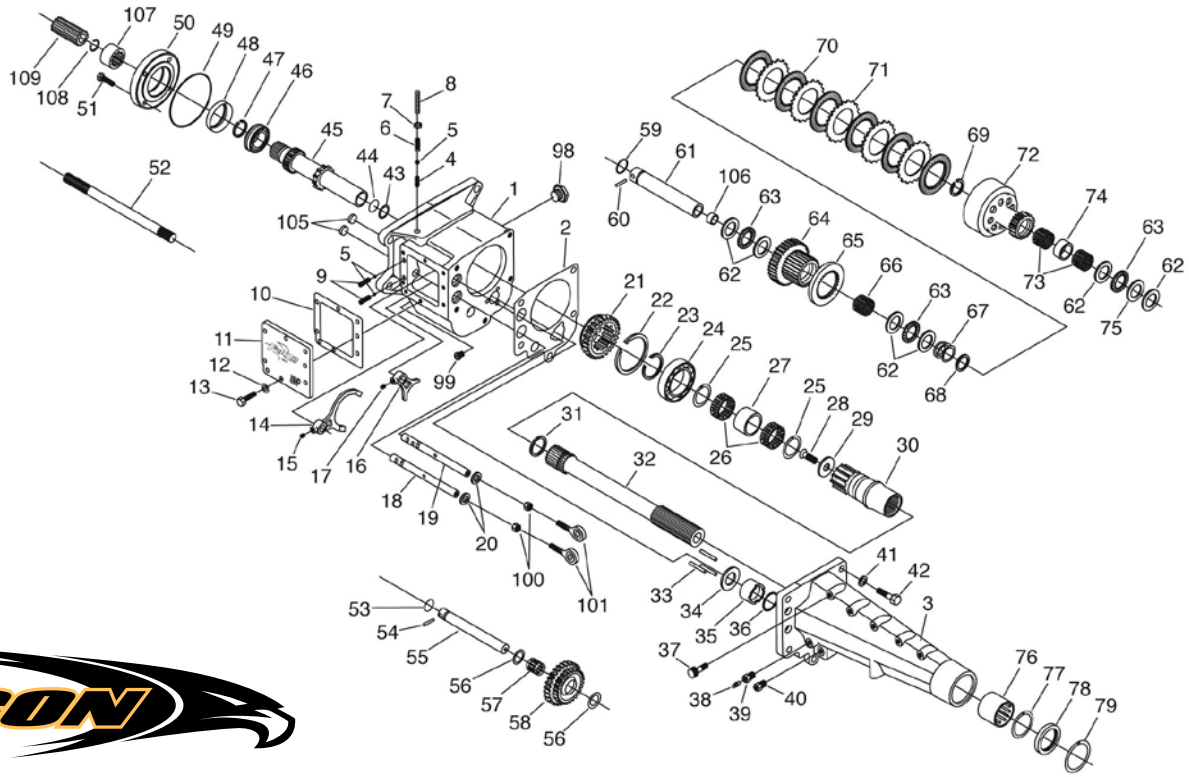




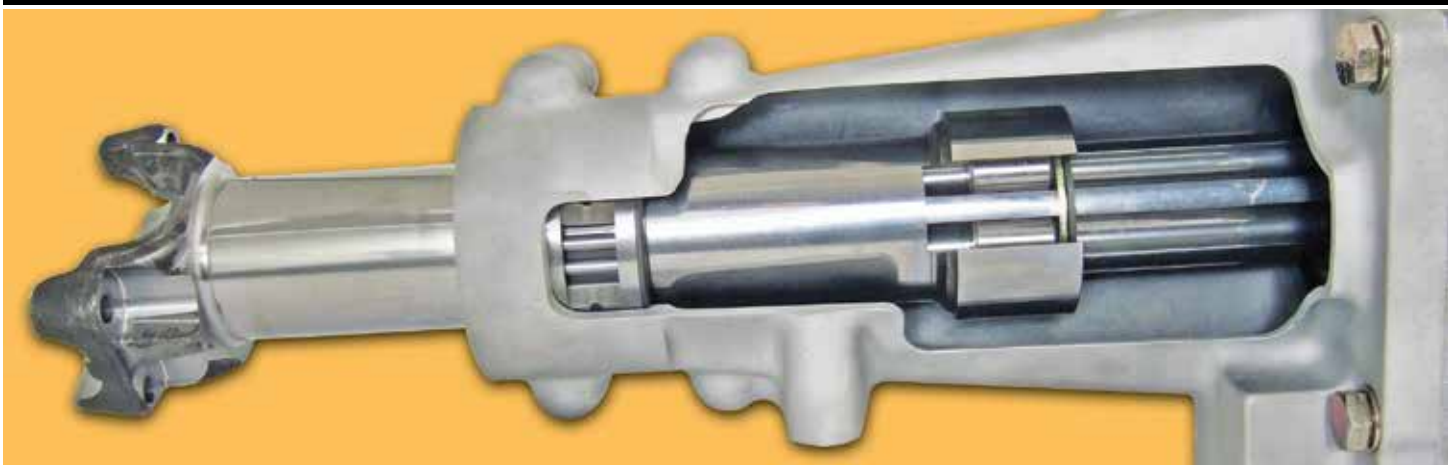
FALCON TRANSMISSION

#	P/N	DESCRIPTION	QTY REQ'D
1	61745	Transmission Case, Aluminum	1
1*	61745M	Transmission Case, Magnesium	1
2	62155	Gasket	1
3	61877	Extension Housing, Aluminum	1
3*	61877M	Extension Housing, Magnesium	1
3*	62598	Extension Housing, Shorty	1
4	62105	Shuttle Pin	1
5	67398	Detent Ball	3
6	62333	Detent Spring, Top	1
7	68031	3/8-16 Jam Nut, Detent Screw	1
8	68030	3/8-16 x 1" Detent Screw	1
9	62332	Detent Spring, Side	2
10	62156	Gasket, Side Cover	1
11	62158	Side Cover, Late Model	1
12	67127	5/16" Washer	8
13	68034	5/16-18 x 3/4" HHCS	8
14	61911	Shift Yoke, Main	1
15	67837	5/16-24 x 1/2" SHSS	1
16	61691	Shift Yoke, Reverse	1
17	68027	1/4-28 x 1/2" SHSS	1
18	62212	Shift Shaft, Reverse	1
19	62211	Shift Shaft, Low / Neutral / Direct	1
20	67259	Seal, Shift Shaft	2
21	61741	Sliding Gear	1
22	67686	Retaining Ring, Rear Bearing	1
23	67685	Retaining Ring, Rear Shaft	1
24	67556	Bearing, Rear Shaft	1
25	67695	Retaining Ring	2
26	67568	Needle Bearing	2
27	61921	Aluminum Spacer	1
28	67149	3/8-24 x 7/8" 12pt., Output Shaft	1
29	61907	Washer, Output Shaft	1
30	61897	Rear Shaft	1
31	67694	Retaining Ring, Output Shaft	1
32	61903	Output Shaft	1
32*	62597	Output Shaft, Shorty	1
33	61845	Push Rod	3
34	61906	Piston Thrust Washer	1
35	61844	Piston	1
36	67482	O'Ring, Piston	1
37	68024	Breather	1
38	65313	Bleeder	1
39	65314	Adapter, Bleeder	1
40	68042	Compression Fitting	1
41	67811	Washer	5
42	67117	7/16-14 x 1 1/4" HHCS	5

#	P/N	DESCRIPTION	QTY REQ'D
44	68026	Core Plug	1
45	61991	Main Shaft	1
46	67555	Bearing, Input Shaft	1
47	67682	Retaining Ring, Input Bearing	1
48	67256	Seal, Seal Plate	1
48*	67256V	Seal, Viton, Seal Plate	1
49	67483	O'Ring, Seal Plate	1
50	61744	Seal Plate	1
51	67195	5/16-18 x 3/4" 12pt	4
52*	61739-01	Input Shaft, 22 Spline	1
53	67481	O'Ring, Reverse Shaft	1
54	67992	Roll Pin, Reverse Shaft	1
55	61743	Reverse Counter Shaft	1
56	68303	Retaining Ring	2
57	67563	Needle Bearing	1
58	61742	Reverse Idler Gear	1
59	67480	O'Ring	1
60	67991	Roll Pin, Counter Shaft	1
61	61737	Counter Shaft	1
62	67560	Thrust Washer, .093"	6
63	67562	Thrust Bearing	3
64	61734-36	Clutch Pack Hub	1
65	61736	Clutch Pack Spacer	1
66	67591	Needle Bearing	1
67	61912	Clutch Spring	1
68	61847	Clutch Spring Spacer	1
69	67687	Retaining Ring	1
70	61853-1	Clutch Disk, Friction	6
71	61852-1	Clutch Disk, Steel	5
72	61735	Clutch Gear	1
73	67559	Needle Bearing	2
74	62354	Spacer	1
75	67585	Thrust Washer, .063"	1
76	67574	Bearing, Extension Housing	1
77	67602	Retaining Ring, Bearing	1
78	67257	Seal, Extension Housing	1
78*	67257V	Seal, Viton, Extension Housing	1
79	67691	Retaining Ring, Seal	1
98	68035	Fill Plug	1
99	67874	Drain Plug	1
100	68032	Jam Nut, Heim End	2
101	67580	Heim End	2
105	68052	Case Plug	2
106	68025	Cap Plug	1
107	62407	Collar	1
108	67639	Snap Ring, Collar	1
109	62901	Input Shaft, 18/18 Splines	1

*Denotes Option

FALCON ROLLER SLIDE



Gliding on roller bearings, the Falcon Roller Slide Transmission telescopes 5-1/2" at the rear yoke allowing your drive line and suspension the freedom to move forward and backward without inducing or limiting roll steer. The Roller Slide has all the advantages of more drive line travel and less maintenance, while being durable enough to handle the tough environment of today's racing. As with all Falcon Transmissions, the Roller Slide provides two speeds forward, neutral, reverse, and an integral hydraulic applied clutch which operates low and reverse. High gear is a direct drive 1 to 1 ratio. Well lubricated, frictionless bearings support all rotating components for superior durability. Can you say "Awesome"!

OPTIONS

DESCRIPTION	OPTION
Front Seal, Viton, P/N 67256V	80109
Input Shaft, 10 Spline, One Piece	80111
Thermal Dispersant Coating, Late Model	88208L
Crank Coupler Options, See Page 19	8251-XX
REM Transmission Gears	88218-TG

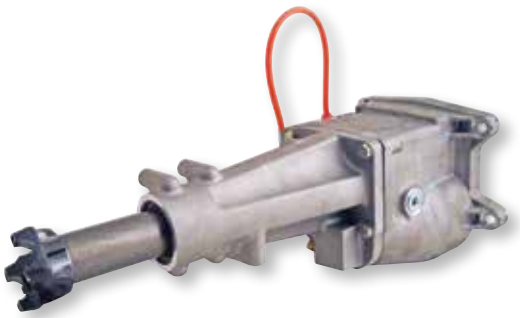
See page 28 for drive line accessories.

Assembly P/N 60120

44 lbs 6 oz with Options

Assembly comes standard with an 18 spline floating input shaft, which contributes to the most positive high gear retention in the industry and crank coupler P/N 62348-18. Use Option 8251-62348-10 for conversion to 10 spline at crank coupler.

An optional one piece input shaft is available upon request. When ordering request Option 80111 for 10 spline or Option 80111-18 for 18 spline.



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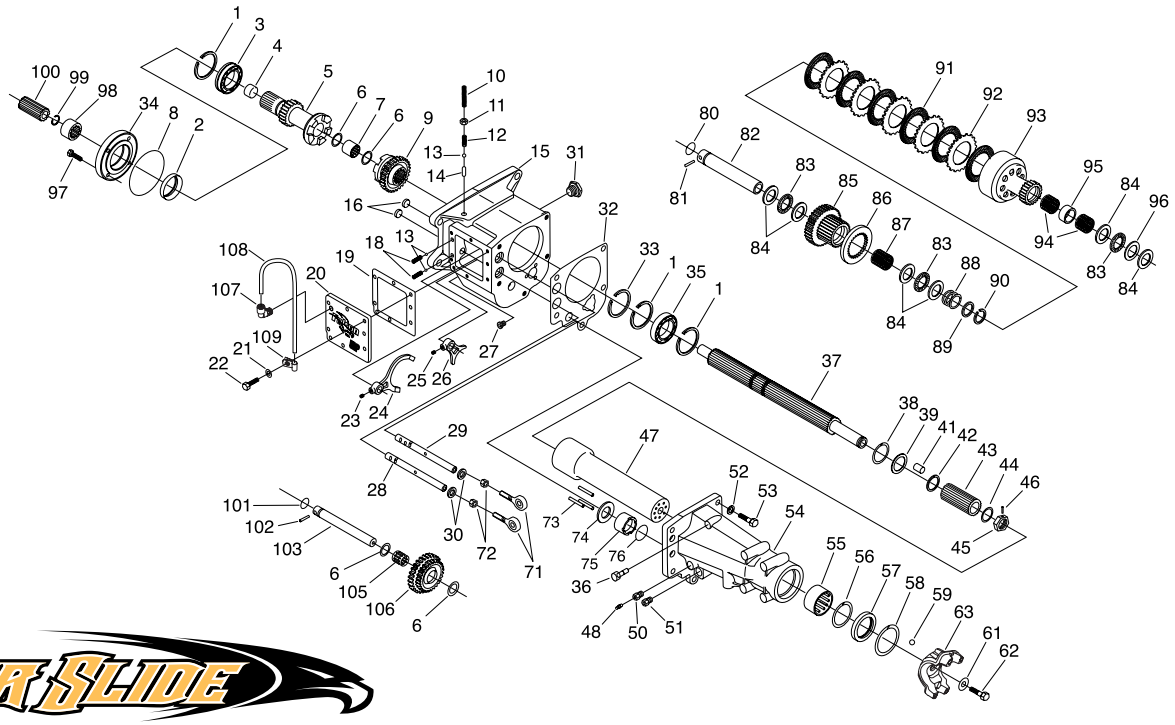
Use ATF or equivalent



ROLLER SLIDE

#	P/N	DESCRIPTION	QTY REQ'D
1	67682	Snap Ring	3
2	67256	Seal, Seal Plate	1
3	67555	Bearing, Input Shaft	1
4	68026	Core Plug	1
4*	67860	Core Plug, 1 Piece, Main Shaft	
5	62879	Main Shaft	1
5*	62879-10	Main Shaft, 1 Piece, 10 Spline	1
6	68303	Snap Ring	4
7	67563	Needle Bearing	1
8	67483	O'Ring, Seal Plate	1
9	62878	Slider Gear	1
10	68030	3/8-16 x 1" Detent Screw	1
11	68031	3/8-16 Jam Nut, Detent Screw	1
12	62333	Detent Spring, Top	1
13	67398	Detent Ball	3
14	62105	Shutter Pin	1
15	61745	Transmission Case	1
16	68052	Case Plug	2
18	62332-S	Detent Spring	2
19	62156	Gasket, Side Cover	1
20	62158	Side Cover, Late Model	1
21	67172	5/16" Washer	8
22	68034	5/16-18 x 3/4" HHCS	8
23	67837	5/16-24 x 1/2" SHSS	1
24	61911	Shift Yoke, Main	1
25	68027	1/4-28 x 1/2" SHSS	1
26	61691	Shift Yoke, Reverse	1
27	67874	Drain Plug	1
28	62212	Shift Shaft, Reverse	1
29	63491	Shift Shaft, Low / Neutral / Direct	1
30	67259	Seal, Shift Shaft	2
31	68035	Fill Plug	1
32	62155	Gasket	1
33	68331	Snap Ring	1
34	61744	Seal Plate	1
35	68662	Bearing	1
36	67772	1/8" NPT Plug	1
37	62872	Fixed Sliding Shaft	1
38	68347	Retaining Ring	1
39	62877	Retainer	1
41	68721	1" Dowel	6
42	62920	Washer	1
43	62921	Splined Spacer	1
44	62922	Washer	1
45	62923	Nut	1
46	68729	3/32 x 7/8" Spring Pin	1
47	62873	Sliding Shaft Assembly	1
48	65313	Bleeder	1

#	P/N	DESCRIPTION	QTY REQ'D
50	65314	Adapter, Bleeder	1
51	68042	Compression Fitting	1
52	67811	Washer	5
53	68020	7/16-14 x 1 1/4" HHCS	5
54	62871	Extension Housing	1
55	68660	Needle Bearing	1
56	67653	Snap Ring	1
57	67282V	Seal, Extension Housing	1
58	67678	Retaining Ring, Seal	1
59	67347	Steel Ball	15
61	68372	Belleville Washer	1
62	68373	5/8-18 x 1" HHCS	1
63	62874	Rear Yoke	1
71	67580	Heim End	2
72	68032	Jam Nut, Heim End	2
73	61845	Push Rod	3
74	61906	Piston Thrust Washer	1
75	61844	Piston	1
76	67482	O'Ring, Piston	1
80	67480	O'Ring	1
81	67991	Roll Pin, Counter Shaft	1
82	61737	Counter Shaft	1
83	67562	Thrust Bearing	3
84	67560	Thrust Washer	6
85	61734-36	Clutch Pack Hub	1
86	61736	Clutch Pack Spacer	1
87	67591	Needle Bearing	1
88	61912	Clutch Spring	1
89	61847	Clutch Spring Spacer	1
90	67687	Retaining Ring	1
91	61853-1	Clutch Disk, Friction	6
92	61852-1	Clutch Disk, Steel	5
93	61735	Clutch Gear	1
94	67559	Needle Bearing	2
95	62354	Spacer	1
96	67585	Thrust Washer	1
97	67195	5/16-18 x 3/4" 12pt.	4
98	62407	Collar	1
99	67639	Snap Ring, Collar	1
100	62901	Input Shaft, 18/18 Splines	1
101	67481	O'Ring, Reverse Shaft	1
102	67992	Roll Pin, Reverse Shaft	1
103	61743	Reverse Counter Shaft	1
105	67563	Needle Bearing	1
106	61742	Reverse Idler Gear	1
107	68961	Breather Elbow	1
108	68962	Breather Tube / Per Inch	24
109	68973	Clamp, Breather Tube	2

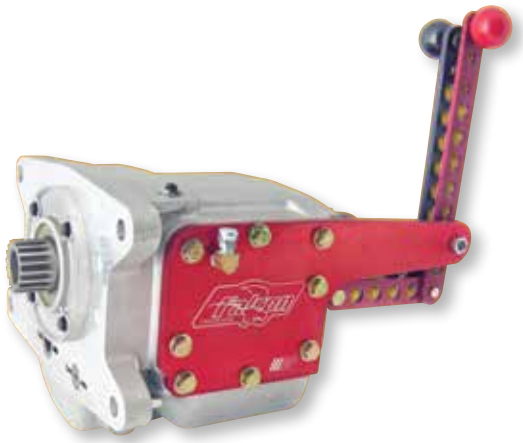
*Denotes Option

FALCON SHORTY

Assembly P/N 60150
34 lbs 10 oz with Options

The Falcon Shorty Transmission is more compact and considerably lighter than any other transmission of its kind. This transmission features two forward speeds, neutral and reverse with an integral hydraulic applied clutch which operates low & reverse gears. High gear is a 1 to 1 direct drive ratio, while low gear is a 2.4 to 1 ratio. The Falcon was designed with durability as a requirement, with internal clutches being the only degrading internal parts. Direct drive shift quality is also important, as is remaining in gear under the most gruelling racing conditions.

The Falcon Shorty measures 9-7/8" from front of case to center of rear yoke, and comes complete with a crank coupler, lightweight shifter and hand operated master cylinder. This transmission is available in open drive only.



OPTIONS

DESCRIPTION	OPTION
Magnesium Option, Shorty	80100S
Front Seal, Viton, P/N 67256V	80109
Rear Seal, Viton, P/N 67262V	80110S
Thermal Dispersant Coating, Shorty	88208S
Crank Coupler Options, See Page 19	8251-XX
REM Transmission Gears	88218-TG

See page 28 for drive line accessories.

Assembly includes Master Cylinder P/N 62482.

Includes P/N 62348-18 Chevy SB & BB 18 spline crank coupler.
See page 19 for optional crank couplers.

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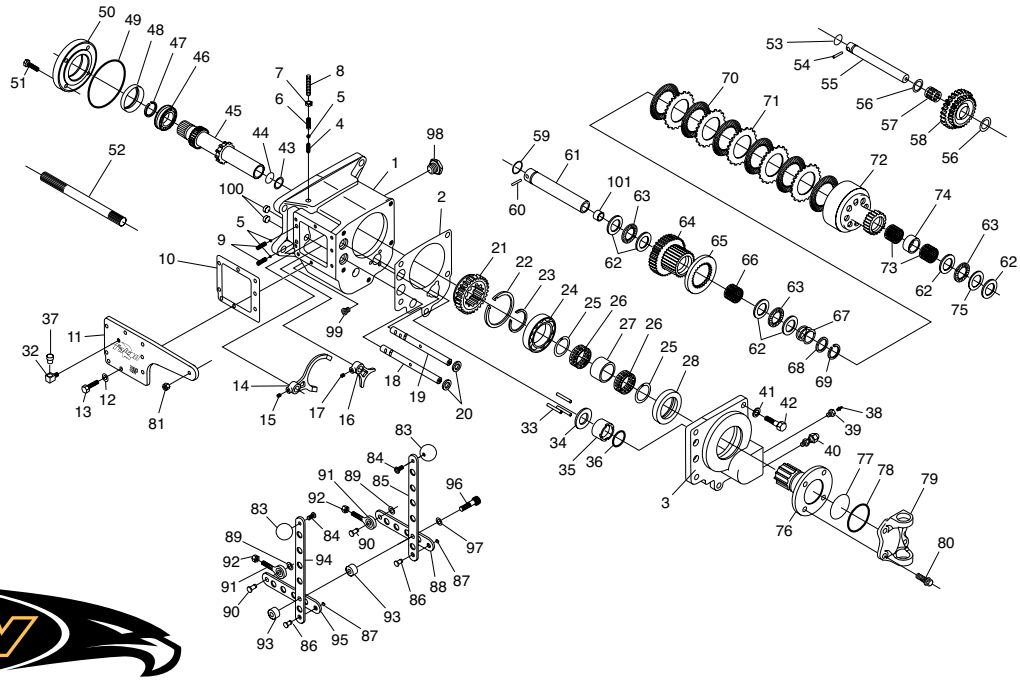


FALCON TRANSMISSION

#	P/N	DESCRIPTION	QTY REQ'D
1	61745	Transmission Case, Aluminum	1
1*	61745M	Transmission Case, Magnesium	1
2	62155	Gasket	1
3	61843	Rear Cover, Aluminum	1
3*	61843M	Rear Cover, Magnesium	1
4	62105	Shuttle Pin	1
5	67398	Detent Ball	3
6	62333	Detent Spring, Top	1
7	68031	3/8-16 Jam Nut, Detent Screw	1
8	68030	3/8-16 x 1" Detent Screw	1
9	62332	Detent Spring, Side	2
10	62156	Gasket, Side Cover	1
11	62157	Side Cover, Shorty	1
12	67127	5/16" Washer	3
13	68034	5/16-18 x 3/4" HHCS	5
13	68879	5/16-18 x 1" HHCS	3
14	61911	Shift Yoke, Low / Neutral / Direct	1
15	67837	5/16-24 x 1/2" SHSS	1
16	61691	Shift Yoke, Reverse	1
17	68027	1/4-28 x 1/2" SHSS	1
18	62212	Shift Shaft, Reverse	1
19	62211	Shift Shaft, Low / Neutral / Direct	1
20	67259	Seal, Shift Shaft	2
21	61741	Sliding Gear	1
22	67686	Retaining Ring, Rear Bearing	1
23	67685	Retaining Ring, Rear Shaft	1
24	67556	Bearing, Rear Shaft	1
25	67695	Retaining Ring	2
26	67568	Needle Bearing	2
27	62373	Aluminum Spacer	1
28	67262	Rear Seal	1
28*	67262V	Rear Seal, Viton	1
32	68036	Street Elbow, 1/8 NPT	1
33	61845	Push Rod	3
34	61906	Piston Thrust Washer	1
35	61844	Piston	1
36	67482	O'Ring, Piston	1
37	68024	Breather	1
38	65313	Bleeder	1
39	65314	Adapter, Bleeder	1
40	68042	Compression Fitting	1
41	67811	Washer	5
42	67117	7/16-14 x 1 1/4" HHCS	5
43	68304	Retaining Ring, Core Plug	1
44	68000	Core Plug	1
45	61991	Main Shaft	1
46	67555	Bearing, Input Shaft	1
47	67682	Retaining Ring, Input Bearing	1
48	67256	Seal, Seal Plate	1
48*	67256V	Seal, Viton, Seal Plate	1
49	67483	O'Ring, Seal Plate	1

#	P/N	DESCRIPTION	QTY REQ'D
50	61744	Seal Plate	1
51	67195	5/16-18 x 3/4" 12pt.	4
52*	61739-02	Input Shaft, 22 Spline	1
53	67481	O'Ring, Reverse Shaft	1
54	67992	Roll Pin, Reverse Shaft	1
55	61743	Reverse Counter Shaft	1
56	68303	Retaining Ring	2
57	67563	Needle Bearing	1
58	61742	Reverse Idler Gear	1
59	67480	O'Ring	1
60	67991	Roll Pin, Counter Shaft	1
61	61737	Counter Shaft	1
62	67560	Thrust Washer	6
63	67562	Thrust Bearing	3
64	61734-36	Clutch Pack Hub	1
65	61736	Clutch Pack Spacer	1
66	67591	Needle Bearing	1
67	61912	Clutch Spring	1
68	61847	Clutch Spring Spacer	1
69	67687	Retaining Ring	1
70	61853-1	Clutch Disk, Friction	6
71	61852-1	Clutch Disk, Steel	5
72	61735	Clutch Gear	1
73	67559	Needle Bearing	2
74	62354	Spacer	1
75	67585	Thrust Washer	1
76	61740	Rear Flange	1
77	67990	Core Plug	1
78	67676	Retaining Ring, Core Plug	1
79	65856	Flange Yoke	1
80	67152	3/8-24 x 7/8" 12pt	4
81	68031	3/8-16 Jam Nut	1
83	62637	Shift Knob (Specify Red or Black)	2
84	68040	5/16-18 x 5/8" BHCS	2
85	62168	Shift Arm, Low / Neutral / Direct	1
86	62306	Linkage Pin	2
87	68301	Clip, Linkage Pin	2
88	62401	Shift Linkage, Low / Neutral / Direct	1
89	68302	Clip, Clevis Pin	2
90	62307	Clevis Pin	2
91	67580	Heim End	2
92	68032	Jam Nut, Heim End	2
93	62336	Spacer	2
94	62169	Shift Arm, Reverse	1
95	62402	Shift Linkage, Reverse	1
96	68019	Shoulder Bolt	1
97	68013	Wave Washer	1
98	68035	Fill Plug	1
99	67874	Drain Plug	1
100	68052	Case Plug	2
101	68025	Cap Plug	1

*Denotes Option

PHOENIX

Assembly P/N 60170

24 lbs

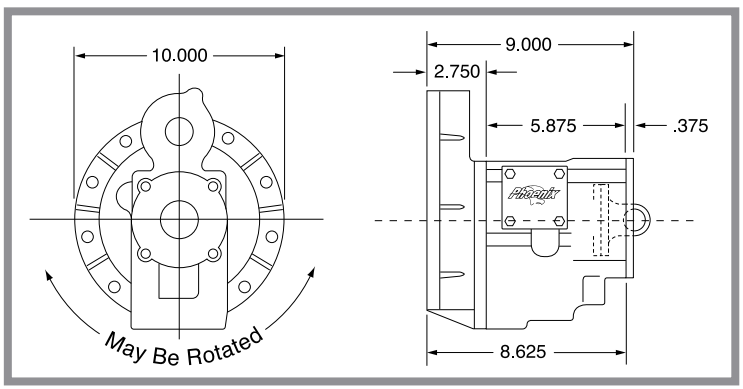
The Phoenix Transmission is without a doubt the most compact internal clutch transmission available. The Phoenix features an integral magnesium bell housing with starter mount. The rugged case is also cast in magnesium and features the provision for closed drive line. Other features include two speeds forward and a neutral position, with high gear being a direct drive 1 to 1 ratio. The integral bell housing is 10" in diameter and includes a mounting position for our optional reverse rotation P/N 63085 or P/N 63085G starters. The Phoenix is designed to be bolted to motor plate regardless of engine used.

The Phoenix Transmission is 9" from front face of integral bell housing to centerline of rear yoke. The Phoenix is available with our small 7-5/8" diameter starter gear (74 teeth) P/N 63562-X (see page 20). Is this cool or what?

OPTIONS

DESCRIPTION	OPTION
Crank Coupler Options, See Page 19	8251-XX

The Phoenix Transmission may be rotated to facilitate installation of power steering pump and fuel pumps.



Shown with Starter P/N 63107G, Drive Line Insert P/N 63274, Torque Ball Retainer P/N 62274 & 4-1/2" Torque Ball P/N 64064.

Includes P/N 63572-A Chevy SB & BB 18 spline crank coupler. See page 19 for optional crank couplers.

Built for open wheel (self start) racing. Available as open or closed drive.

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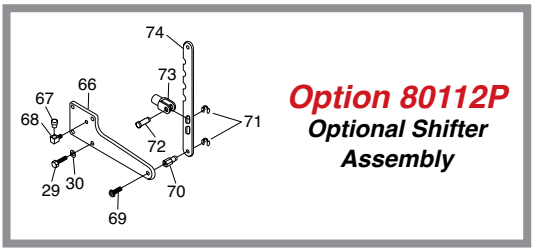
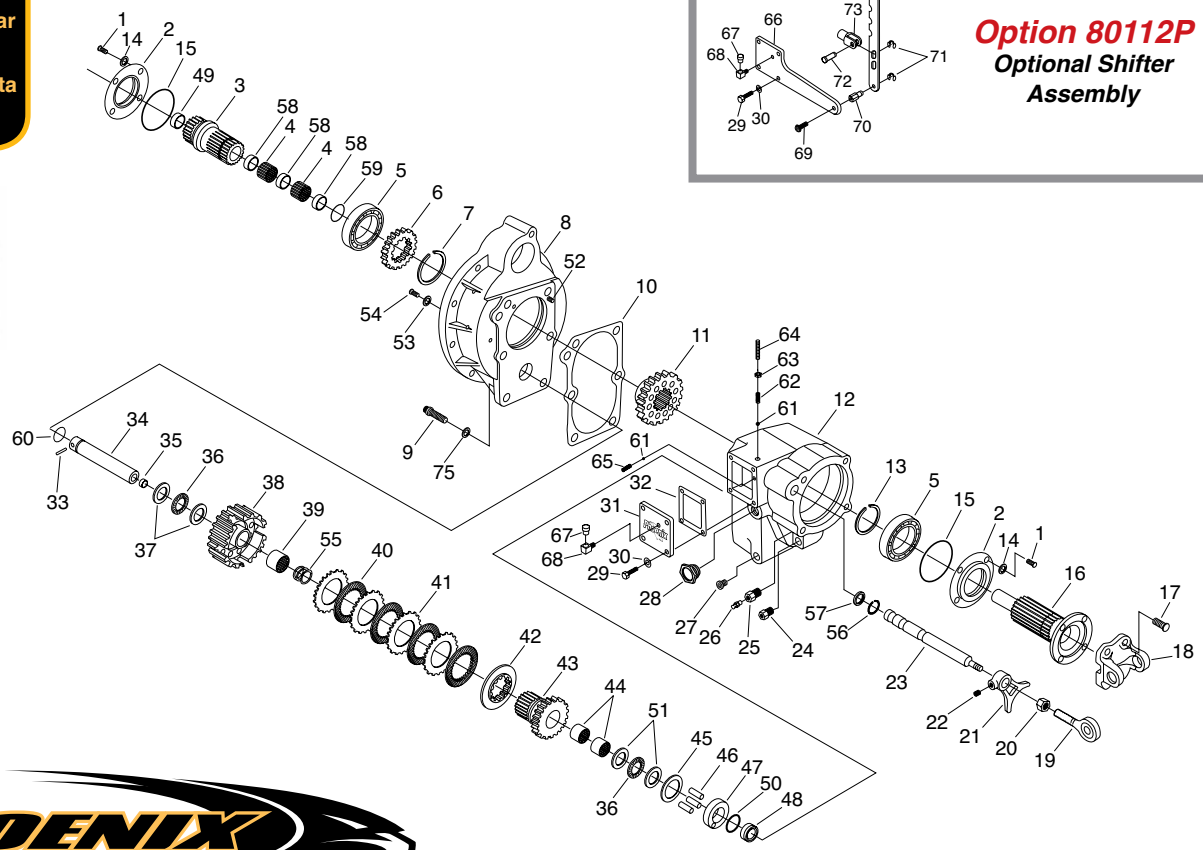


Option 80112P
Optional Shifter Assembly

Use ATF or equivalent



PHOENIX TRANSMISSION

#	P/N	DESCRIPTION	QTY REQ'D
1	68772	10-24 x 3/4" SHCS	12
2	67285V	Seal Plate	2
3	63488	Input Shaft	1
4	68671	Needle Bearing	2
5	67555	Rear Bearing	2
6	61654	Main Gear	1
7	67692	Snap Ring	1
8	63285M	Bell Housing	1
9	67713	3/8-16 x 1 1/4" 12pt	6
10	62357	Gasket	1
11	61628	Slider Gear	1
12	61783M	Case	1
13	67682	Snap Ring	1
14	68773	#10 SAE Washer	12
15	68421	O'Ring	2
16	61794	Rear Flange	1
17	67152	3/8-24 x 7/8" 12pt	4
18	65856	Flange Yoke	1
19	68774	Heim	1
20	67181	Jam Nut, Heim End	1
21	61690	Shift Yoke	1
22	67837	5/16-24 x 1/2" SHSS	1
23	63728	Shift Shaft	1
24	68042	Compression Fitting	1
25	65314	Adapter, Bleeder	1
26	65313	Bleeder	1
27	67874	Drain Plug	1
28	68082	Fill Plug	1
29	68034	5/16-18 x 3/4" HHCS	4
30	67127	5/16" Washer	4
31	63729	Side Cover	1
32	63730	Gasket, Side Cover	1
33	67992	Roll Pin	1
34	62557	Counter Shaft	1
35	68672	Core Plug	1
36	67566	Thrust Bearing	2
37	67565-30	Thrust Washer	2
38	61653	Clutch Gear	1

#	P/N	DESCRIPTION	QTY REQ'D
39	63732	Needle Bearing	1
40	62477	Clutch Disk, Friction	4
41	62478	Clutch Disk, Steel	4
42	61725	Apply Flange	1
43	61675	Lower Gear	1
44	67586	Needle Bearing	2
45	68673	Retaining Ring	1
46	63282	Push Pin	4
47	63279	Pin Guide	1
48	63574	Piston	1
49	68674	Cup Plug	1
50	68425	O'Ring	1
51	67565-60	Thrust Washer	2
52	67803	1/4" x 3/4" Dowel Pin	4
53	67130	1/4" Washer	1
54	67919	1/4-20 x 3/8" BHCS	1
55	68352	Spring	1
56	68360	Retaining Ring	1
57	67269	Seal	1
58	64311	Spacer	3
59	68361	Retaining Ring	1
60	68424	O'Ring	1
61	63543	Detent Pin	2
62	68972	Detent Spring	1
63	68031	3/8-16 Jam Nut	1
64	68859	3/8-16 x 1/2" SHSS	1
65	68971	Detent Spring	1
66*	63729-01	Optional Side Cover	1
67	68024	Breather	1
68	68036	1/8 NPT Street Elbow	1
69*	68974	3/8-24 x 3/4" BHCS	1
70*	64854	Spacer	1
71*	68302	Clip	2
72*	64715	Linkage Pin	1
73*	64714	Clevis	1
74*	64716	Shift Arm	1
75	67151	Washer	1

*Denotes Option

RAPTOR LATE MODEL

The Raptor Late Model Transmission has two forward speeds, neutral and reverse. High gear is a direct drive 1 to 1 ratio with the least amount of rotating mass of any late model style transmission in circle track racing. It weighs in at 42 pounds 10 ounces in the standard aluminum form, and an even lighter 36 pounds in magnesium! A floating input shaft contributes to the most positive high gear retention in the industry. All gears and shafts rotate on frictionless bearings. The Raptor is a non-synchro sliding gear transmission. Fully engage low before power starts, high gear (direct drive) shifts can be made at any time by matching engine RPM to speed. The front bearing retainer (clutch release bearing support) is designed to be compatible with Quarter Master hydraulic clutch release assembly, however other styles will work. The Raptor is dimensionally equal to a Muncie, T-10, etc. including the 1-1/8"-26 spline or 1-1/8"-10 spline input shaft and 1-3/16"- 27 spline output shaft. A pilot bushing is required, so make sure you compensate the pilot bushing length for any thickness motor plate you might use. The Raptor comes standard with a 1.504 low gear ratio. See chart below for available (optional) low gear ratios. For use with single or multi-disc clutches. When ordering specify input spline and low gear ratio.

Assembly P/N 60200

35 lbs with Options

Extension housing includes a sturdy roller bearing to accommodate 1-1/2" diameter slip yokes. Output shaft spline length is long enough to permit 9" of yoke travel. Shown with shifter Option 80112L and yoke P/N 62946-7.

Shown with shorty extension housing Option 80120 and yoke P/N 62946-7.

OPTIONS

DESCRIPTION	OPTION
Magnesium Option, Late Model	80100L
Front Seal, Viton, P/N 67256V	80109
Rear Seal, Viton, P/N 67257V	80110
Shifter Installed	80112L
Heat Treated Yoke P/N 62946-6	80119-6
Heat Treated Yoke P/N 62946-7	80119-7
Heat Treated Yoke P/N 62946-8	80119-8
Shorty Extension Housing	80120
Thermal Dispersant Coating, Late Model	88208L
REM Transmission Gears	88218-TG
Low Gear Ratio	82458-XX
1-1/8" - 26 Spline Input Shaft	82445
1-1/8" - 10 Spline Input Shaft	82547

See page 28 for drive line accessories.

LOW GEAR RATIOS

OPTIONAL RATIO TOP / BOTTOM	LOW GEAR RATIO
25/35	2.251
26/34	2.103
27/33	1.965
28/32	1.837
29/31	1.717
30/30	1.608
31/29	1.504
32/28	1.407
33/27	1.315
34/26	1.230
35/25	1.148

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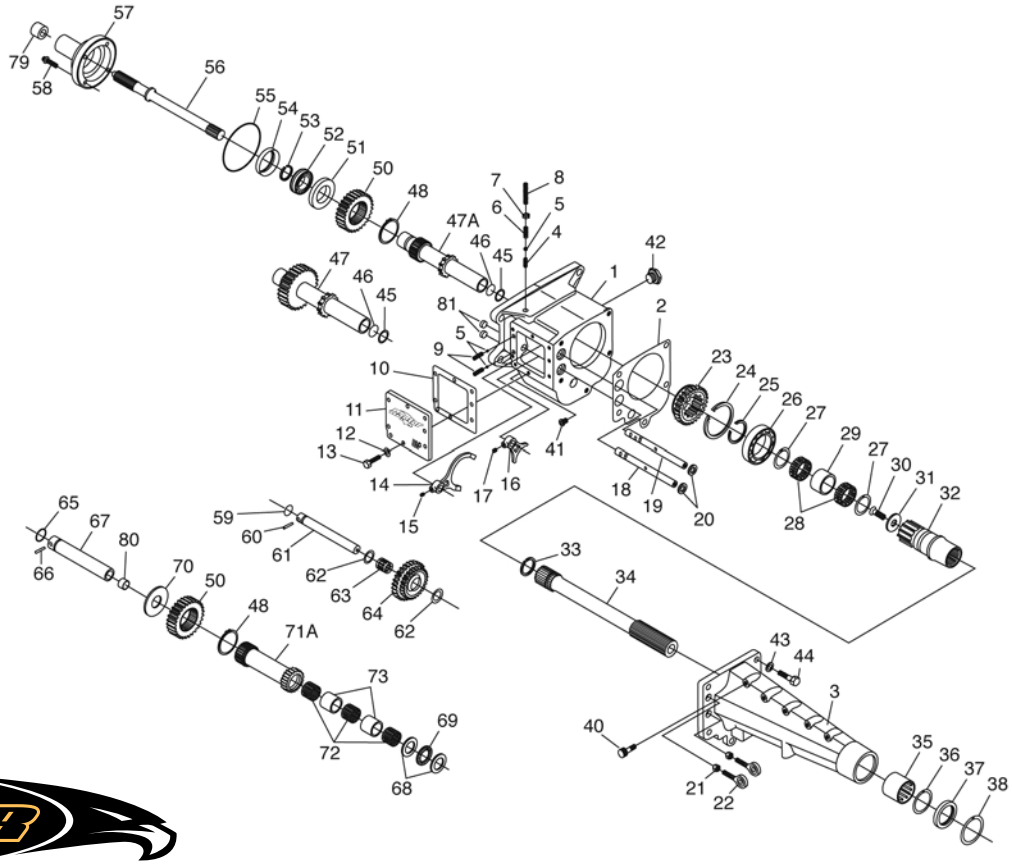

RAPTOR TRANSMISSION

#	P/N	DESCRIPTION	QTY REQ'D
1	61745	Transmission Case, Aluminum	1
1*	61745M	Transmission Case, Magnesium	1
2	62155	Gasket	1
3	61877	Extension Housing, Aluminum	1
3*	61877M	Extension Housing, Magnesium	1
3*	62598	Extension Housing, Shorty	1
4	62105	Shuttle Pin	1
5	67398	Detent Ball	3
6	62333	Detent Spring, Top	1
7	68031	3/8-16 Jam Nut, Detent Screw	1
8	68030	3/8-16 x 1" Detent Screw	1
9	62332	Detent Spring, Side	3
10	62156	Gasket, Side Cover	1
11	62158	Side Cover	1
12	67127	5/16" Washer	8
13	68034	5/16-18 x 3/4" HHCS	8
14	61911	Shift Yoke, Low / Neutral / Direct	1
15	67837	5/16-24 x 1/2" SHSS	1
16	61691	Shift Yoke, Reverse	1
17	68027	1/4-28 x 1/2" SHSS	1
18	62212	Shift Shaft, Reverse	1
19	62211	Shift Shaft, Low / Neutral / Reverse	1
20	67259	Seal, Shift Shaft	2
21	68032	Jam Nut, Heim End	2
22	67580	Heim End	2
23	61741	Sliding Gear	1
24	67686	Retaining Ring, Rear Bearing	1
25	67685	Retaining Ring, Rear Shaft	1
26	67556	Bearing, Rear Shaft	1
27	67695	Retaining Ring	2
28	67568	Needle Bearing	2
29	61921	Aluminum Spacer	1
30	67149	3/8-24 x 7/8" 12pt, Output Shaft	1
31	61907	Washer, Output Shaft	1
32	61897	Rear Shaft	1
33	67694	Retaining Ring, Output Shaft	1
34	61903	Output Shaft	1
34*	62597	Output Shaft, Shorty	1
35	67574	Bearing, Extension Housing	1
36	67602	Retaining Ring, Bearing	1
37	67257	Seal, Extension Housing	1

#	P/N	DESCRIPTION	QTY REQ'D
37*	67257V	Seal, Viton, Extension Housing	1
38	67691	Retaining Ring, Seal	1
40	68024	Breather	1
41	67874	Drain Plug	1
42	68035	Fill Plug	1
43	67811	Washer	5
44	67117	7/16-14 x 1 1/4" HHCS	5
45	68304	Retaining Ring, Core Plug	1
46	68000	Core Plug	1
47	62399	Main Shaft, 31T	1
47A*	62456	Main Shaft, For Change Gear	1
48*	68309	Retaining Ring, Gear	2
50*	62458	Gear, Specify Set	2
51*	62460	Washer	1
52	67555SP	Bearing, Input Shaft	1
53	67682	Retaining Ring, Input Bearing	1
54	67256	Seal, Seal Plate	1
54*	67256V	Seal, Viton, Seal Plate	1
55	67483	O'Ring, Seal Plate	1
56	62445	1 1/8"- 26 Spline Input Shaft	1
56*	62547	1 1/8"- 10 Spline Input Shaft	1
57	62440	Seal Plate	1
58	67195	5/16-18 x 3/4" 12pt	4
59	67481	O'Ring, Reverse Shaft	1
60	67992	Roll Pin, Reverse Shaft	1
61	61743	Reverse Counter Shaft	1
62	68303	Retaining Ring	2
63	67563	Needle Bearing	1
64	61742	Reverse Idler Gear	1
65	67480	O'Ring	1
66	67991	Roll Pin, Counter Shaft	1
67	61737	Counter Shaft	1
68*	67585	Thrust Washer	4
69*	67562	Thrust Bearing	2
70*	62461	Washer	1
71	62397	Reverse Shaft, 29T	1
71A*	62457	Reverse Shaft, For Change Gear	1
72	67559	Needle Bearing	2
73	62354-01	Spacer	1
79	GM14061685	Pilot Bearing (For Reference Only)	1
80	68025	Plug	1
81	68052	Case Plug	2

*Denotes Option

RAPTOR SHORTY

Assembly P/N 60250

33 lbs 2 oz with Options

The Raptor Shorty Transmission is without a doubt the lightest, fully functional transmission anywhere! With all options, it can weigh under 34 lbs! It is only 9-7/8" from case face to center of rear yoke, and uses conventional Chevy input shaft dimensions. As with all Raptor Transmissions, this one has two forward speeds, neutral and reverse. Change gears with a total of 11 ratios available. High gear is a direct drive 1 to 1 ratio. This is a non-synchronized sliding gear transmission so you must match engine RPM to vehicle speed for clean shifts from low to high. The Raptor Shorty has an extremely clean, durable design, with all gears and shafts rotating on frictionless bearings. A floating input shaft contributes to positive high gear shifts while remaining in gear under the most competitive racing conditions. For use with single or multi-disc clutches. When ordering specify input spline and low gear ratio.

Available in 1-1/8" - 26 Spline or 1-1/8" - 10 Spline at the input shaft.

Shown with optional shifter.

OPTIONS

DESCRIPTION	OPTION
Magnesium Option, Shorty	80100S
Front Seal, Viton, P/N 67256V	80109
Rear Seal, Viton, P/N 67257V	80110S
Shifter Installed, Shorty	80112S
Thermal Dispersant Coating, Shorty	88208S
REM Transmission Gear	88218-TG
Low Gear Ratio	82458-XX
1-1/8" - 26 Spline Input Shaft	82445
1-1/8" - 10 Spline Input Shaft	82547

See page 28 for drive line accessories.

LOW GEAR RATIOS

OPTIONAL RATIO TOP / BOTTOM	LOW GEAR RATIO
25/35	2.251
26/34	2.103
27/33	1.965
28/32	1.837
29/31	1.717
30/30	1.608
31/29	1.504
32/28	1.407
33/27	1.315
34/26	1.230
35/25	1.148

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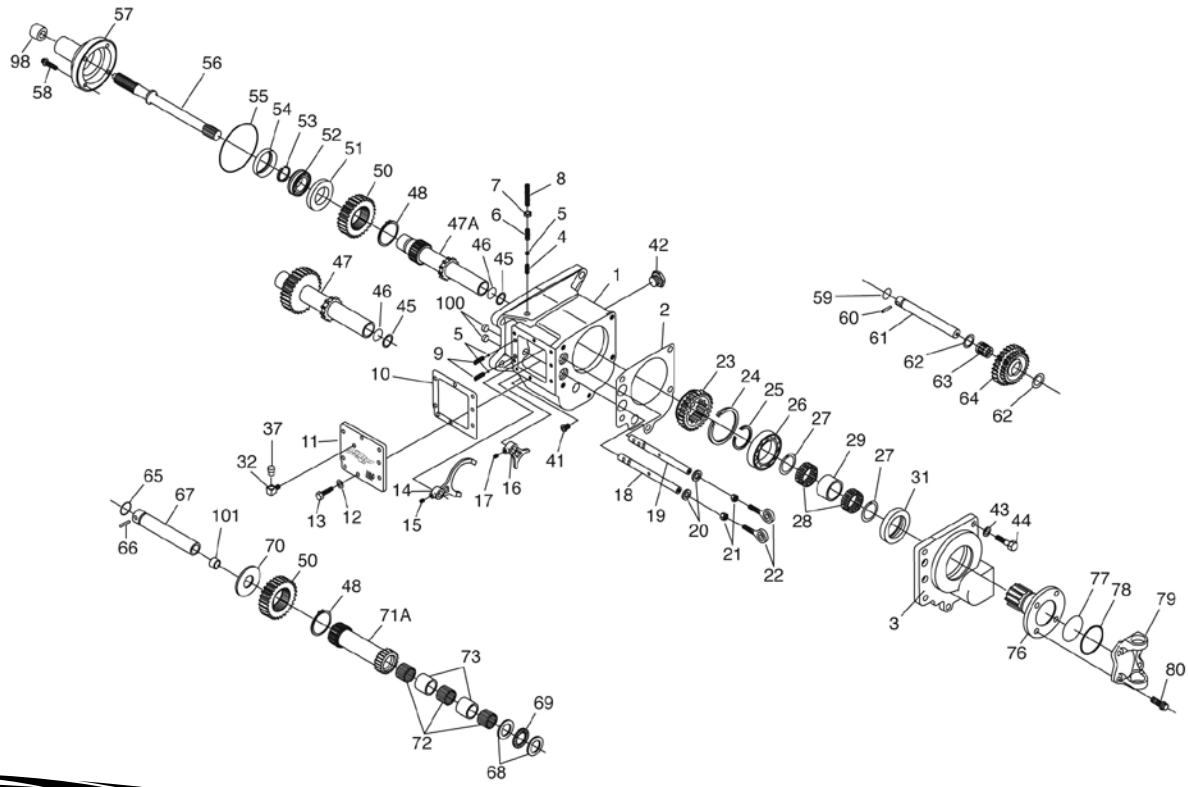


RAPTOR TRANSMISSION

#	P/N	DESCRIPTION	QTY REQ'D
1	61745	Transmission Case, Aluminum	1
1*	61745M	Transmission Case, Magnesium	1
2	62155	Gasket	1
3	61843	Rear Cover	1
4	62105	Shuttle Pin	1
5	67398	Detent Ball	3
6	62333	Detent Spring, Top	1
7	68031	3/8-16 Jam Nut, Detent Screw	1
8	68030	3/8-16 x 1" Detent Screw	1
9	62332	Detent Spring, Side	3
10	62156	Gasket, Side Cover	1
11	62158	Side Cover, Late Model	1
12	67127	5/16" Washer	8
13	68034	5/16-18 x 3/4" HHCS	8
14	61911	Shift Yoke, Low / Neutral / Direct	1
15	67837	5/16-24 x 1/2" SHSS	1
16	61691	Shift Yoke, Reverse	1
17	68027	1/4-28 x 1/2" SHSS	1
18	62212	Shift Shaft, Reverse	1
19	62211	Shift Shaft, Low / Neutral / Direct	1
20	67259	Seal, Shift Shaft	2
21	68032	Jam Nut, Heim End	2
22	67580	Heim End	2
23	61741	Sliding Gear	1
24	67686	Retaining Ring, Rear Bearing	1
25	67685	Retaining Ring, Rear Shaft	1
26	67556	Bearing, Rear Shaft	1
27	67695	Retaining Ring	2
28	67568	Needle Bearing	2
29	62373	Aluminum Spacer	1
30	67262	Seal	1
31	67262	Rear Seal	1
31*	67262V	Real Seal, Viton	1
32	68036	Street Elbow, 1/8 NPT	1
37	68024	Breather	1
41	67874	Drain Plug	1
42	68035	Fill Plug	1
43	67811	Washer	5
44	67117	7/16-14 x 1 1/4" HHCS	5
45	68304	Retaining Ring, Core Plug	1

#	P/N	DESCRIPTION	QTY REQ'D
46	68000	Core Plug	1
47	62399	Main Shaft, 31T	1
47A*	62456	Main Shaft, For Change Gear	1
48*	68309	Retaining Ring, Gear	2
50*	62458	Gear, Specify Set	2
51*	62460	Washer	1
52	67555SP	Bearing, Input Shaft	1
53	67682	Retaining Ring, Input Bearing	1
54	67256	Seal, Seal Plate	1
54*	67256V	Seal, Viton, Seal Plate	1
55	67483	O'Ring, Seal Plate	1
56	62445	1 1/8"- 26 Spline Input Shaft	1
56*	62547	1 1/8"- 10 Spline Input Shaft	1
57	62440	Seal Plate	1
58	67195	5/16-18 x 3/4" 12pt	4
59	67481	O'Ring, Reverse Shaft	1
60	67992	Roll Pin, Reverse Shaft	1
61	61743	Reverse Counter Shaft	1
62	68303	Retaining Ring	2
63	67563	Needle Bearing	1
64	61742	Reverse Idler Gear	1
65	67480	O'Ring	1
66	67991	Roll Pin, Counter Shaft	1
67	61737	Counter Shaft	1
68*	67585	Thrust Washer	4
69*	67562	Thrust Bearing	2
70*	62461	Washer	1
71	62397	Reverse Shaft, 29T	1
71A*	62457	Reverse Shaft, For Change Gear	1
72	67559	Needle Bearing	2
73	62354-01	Spacer	1
76	61740	Flange	1
77	67990	Core Plug	1
78	67676	Retaining Ring, Core Plug	1
79	65856	Flange Yoke	1
80	67152	3/8-24 x 7/8" 12pt	4
81	68052	Case Plugs	2
98	GM14061685	Pilot Bearing (For Reference Only)	1
100	68052	Case Plug	2
101	68025	Cap Plug	1

*Denotes Option

BELL HOUSINGS

2-5/8" DEEP BELL HOUSING ASSEMBLY

This assembly, with reverse starter mount, accepts popular internal clutch transmissions with short input shafts, including the Falcon Transmission. Assembly includes mounts for small block and big block camshaft driven pumps, idler gear, 63 tooth starter ring gear and spacer shims. Use Gears Unlimited starter P/N 62910 (page 17).

Assembly

***P/N 62844** Chevy*
***P/N 62904** Ford*
10 lbs 4 oz

Starter P/N 62910 (page 17)

ALUMINUM HOUSINGS

***P/N 62787** Aluminum Housing (9 lbs 14 oz)*

Heavy duty version of a GM flywheel housing. Retains OEM dimensions for use with block mounted starters and hydraulic clutch release bearings. Uses 153 tooth ring gear. Accepts popular transmissions, including the Falcon and Raptor Transmissions.

Pivot Studs

P/N 62492-2
1-3/4" Long

P/N 62492-1
1-1/2" Long

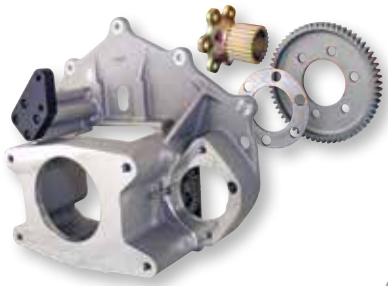
6 1/4" DEEP BELL HOUSING ASSEMBLY

This assembly, with reverse starter mount, features mounting locations for both belt driven or camshaft driven pumps from popular pump manufacturers. Accepts popular internal clutch late model transmissions, including the Falcon Transmission. Assembly includes idler gear, 63 tooth starter ring gear, crank coupler with HTD gear and spacer shims. Use Gears Unlimited starter P/N 62911 (page 17).

Assembly

***P/N 62843** Chevy*
Aluminum Housing
13 lbs 6 oz

***P/N 62843M** Chevy*
Magnesium Housing
9 lbs 14 oz

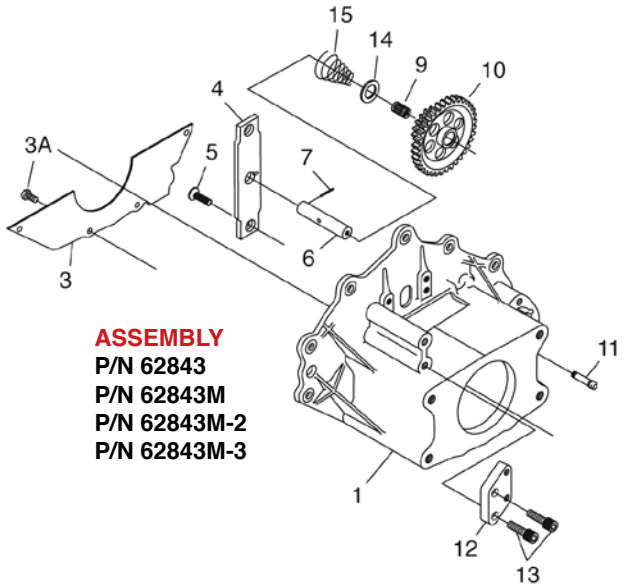


Assembly

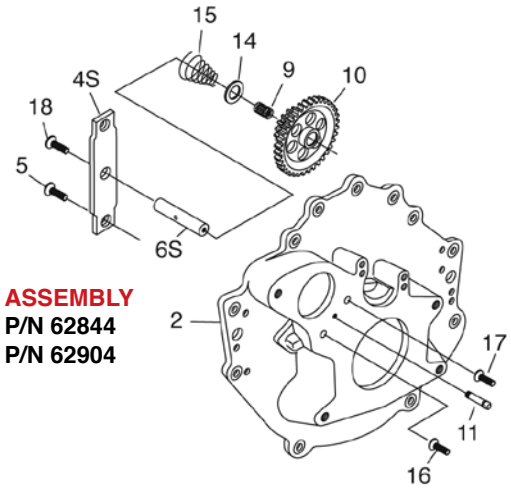
***P/N 62843M-2** Ford*
Magnesium Housing
10 lbs 8 oz

Assembly

***P/N 62843M-3** Mopar*
Magnesium Housing
10 lbs 8 oz



ASSEMBLY
P/N 62843
P/N 62843M
P/N 62843M-2
P/N 62843M-3



ASSEMBLY
P/N 62844
P/N 62904

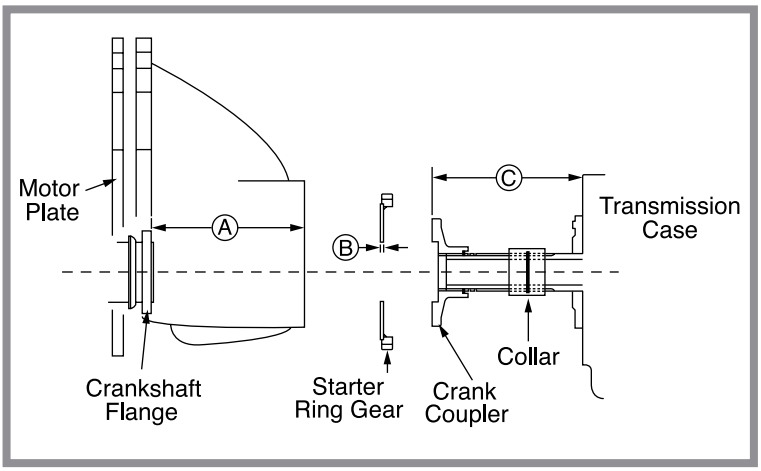
#	P/N	DESCRIPTION	QTY REQ'D
1	61967	Bell Housing, Chevy, Late Model, Aluminum	1
1	61967M	Bell Housing, Chevy, Late Model, Magnesium	1
1	61967M-2	Bell Housing, Ford, Late Model, Magnesium	1
1	61967M-3	Bell Housing, Mopar, Late Model, Magnesium	1
2	62684	Bell Housing, Chevy, Shorty, Aluminum	1
2	62684	Bell Housing, Ford, Late Model, Aluminum	1
2A*	61988M	Bell Housing, Chevy, Right Side Starter, Mag	1
3*	61997	Cover	1
3A	67179	5/16-18 x 1/2" HHCS	2
4	62277	Idler Mounting Plate, Late Model	1
4S	62686	Idler Mounting Plate, Shorty	1
5	67120	5/16-18 x 3/4" FHCS	2
6	62278	Idler Shaft, Late Model	1

#	P/N	DESCRIPTION	QTY REQ'D
6S	62685	Idler Shaft, Shorty	1
7	68015	Roll Pin, Idler Shaft	1
9	62204	Bushing	1
10	62344	Idler Gear	1
11	62816	Grease Fitting, Long	1
12	62681	Adapter Block	1
13	67162	5/16-18 x 1 1/4" 12pt	2
14	62815	Thrust Washer	1
15	62341	Return Spring	1
16	62914	Stud, Transmission	1
17	62915	Stud, Starter	1
18	68073	1/4-28 x 5/8" FHCS	1

*Denotes Option

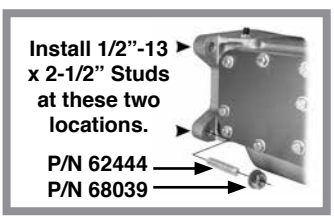
LATE MODEL BELL HOUSING INSTALLATION

Using 18 Spline Input Shaft and Coupler with Quarter Master, Tilton, Chevrolet, OEM Bell Housing.



When using a motor plate, it must be in place before making measurements. With motor plate in place, accurately measure from rear face of crankshaft flange to rear face of Bell housing (A). Subtract thickness of starter flex plate (B) and also subtract .125 for required input shaft end clearance. Use your measurements and follow the example to find your coupler measurement (C). It is also advisable to grease the drive splines in the crank coupler and collar before assembly.

Example:	**(A)**	**6.000**
Flex Plate Thickness	**(B)**	**- .125**
Clearance		**- .125**
Coupler Measurement	**(C)**	**5.750**



P/N 68727 Stud & Nut Kit (2 ea.)

Dowel pins and pilot bushings must be lengthened to compensate for motor plate thickness. Install studs and nuts to retain transmission to flywheel housing on left side (optional at four locations).

STARTERS

CHEVY HIGH TORQUE REDUCTION STARTERS

Chevy high torque 1.4 kw or 2.4 kw gear reduction starters are block mounted with provisions for 153 or 168 tooth starter ring gears. Comes pre-assembled from manufacturer.

#	P/N	DESCRIPTION	FLYWHEEL HOUSING P/N
1	62909	2.4 kw	62787, 63692
1	62909C	2.0 kw, Chrome	62787, 63692
2	62909R	2.4 kw, Reverse Rotation	62787, 63692

#	P/N	DESCRIPTION	FLYWHEEL HOUSING P/N
3	62927	Permanent Magnet	62787, 63692
4	62908	1.4 kw	62787, 63692
4	62908C	1.4 kw, Chrome	62787, 63692

REVERSE ROTATION SUPER TORQUE STARTERS

Super Torque 2.4 kw starters are assembled and tested using new Hitachi high performance parts. For use with bell housings using Maverick 9-3/8" diameter 92 tooth starter ring gears found on page 20.

We create Super Torque reverse rotation starters using two different methods. The most economical method uses reverse wound field coils. The most efficient and powerful method is accomplished with an additional gear and is designated with the suffix "G".

#	P/N	DESCRIPTION	FLYWHEEL HOUSING P/N
1	62565	2.4 kw	62376, 62376-2
2	62565G	2.4 kw, Super Torque	62376, 62376-2

#	P/N	DESCRIPTION	FLYWHEEL HOUSING P/N
3	63107G	2.4 kw, Super Torque	Phoenix
3	63085G	2.4 kw, Super Torque	64640-01, 64880

2.4 KW REVERSE MOUNT REDUCTION STARTERS

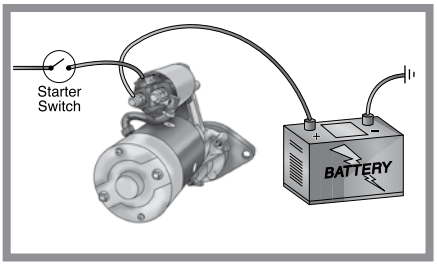
Our 2.4 kw reverse mount gear reduction starters are assembled and tested from Hitachi high performance parts. These assemblies use a 3.73 to 1 gear reduction for more torque. Uses a 6-1/2" diameter starter ring gear found on page 20.

Maverick uses no used or re-manufactured parts, only NEW!

#	P/N	DESCRIPTION	FLYWHEEL HOUSING P/N
1	62911	Late Model Starter	62843
1	62911HD	Late Model Starter, HD	62843
2	62910	Shorty Starter	62844

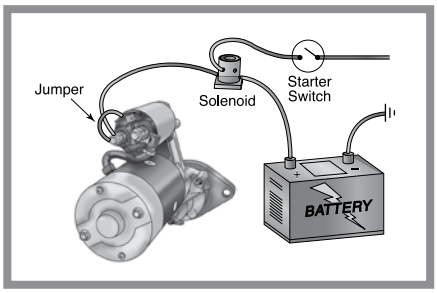
#	P/N	DESCRIPTION	FLYWHEEL HOUSING P/N
3	62916-01	.040" Thick Starter Shim	----------
3	62916-02	.060" Thick Starter Shim	----------

STARTER WIRING



Solenoid On Starter

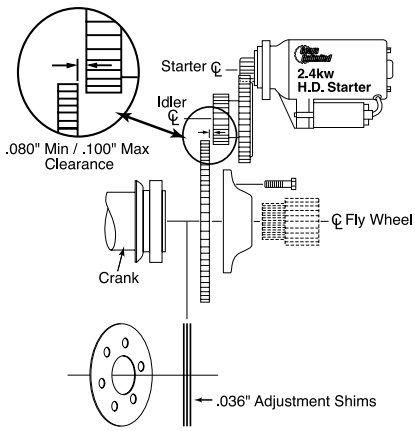
Connect the positive lead from the battery to the unused stud of the starter solenoid. Connect the lead from your starter switch to the spade terminal on the solenoid. Use proper terminal ends and wire.



Remote Solenoid

When using a remote solenoid, install a jumper wire from the spade terminal to the unused stud on the starter solenoid, then connect the positive lead from the battery to the same stud. The lead from your starter switch will connect to the proper terminal on the remote solenoid.

IDLER GEAR CLEARANCE



IMPORTANT!

Starter must be installed before measuring.

STARTER INSTALLATION

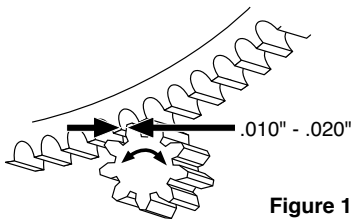


Figure 1

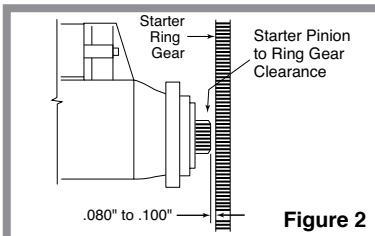
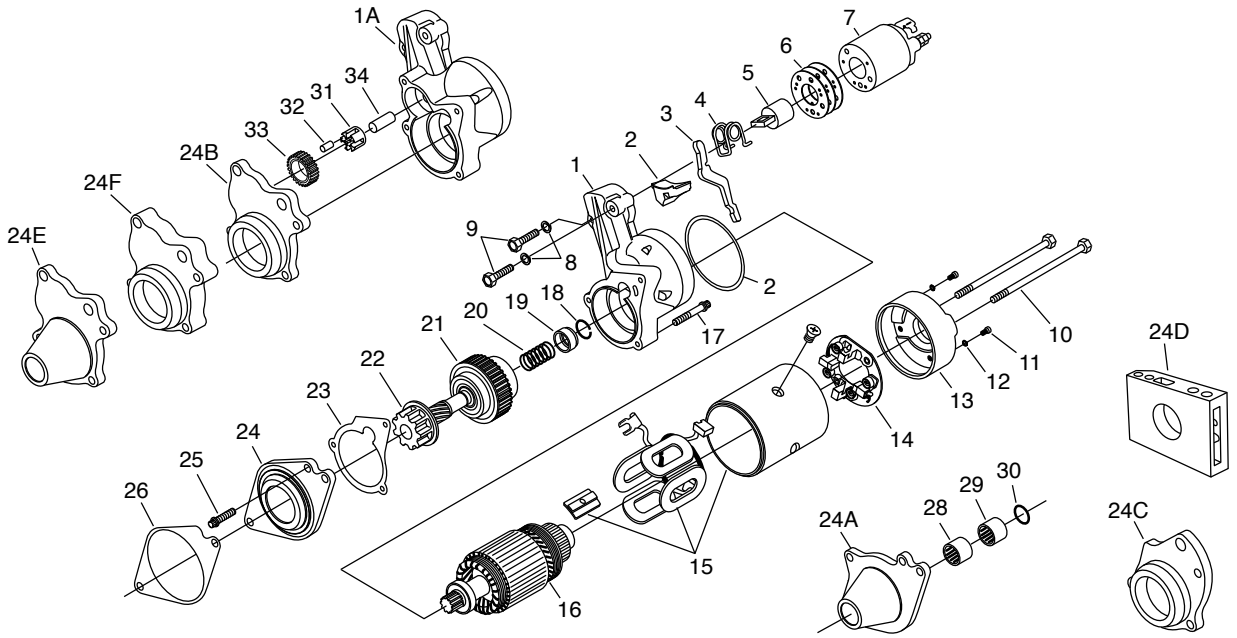


Figure 2

The distance from the nose of the starter pinion gear to the rear face of the ring gear must be .080" - .100" before trying to start the engine (see figure 1). Check this at several locations around starter ring gear to confirm that ring gear is running true. If the starter pinion gear is too close, use the shims that came with the starter or bell housing to adjust. If it is still too close or too far away, contact Maverick Performance to correct. If you can not access the area in the bell housing to check, measure from the starter mounting face of the bell housing to the rear side of the starter ring gear and compare the distance measured on starter mounting flange to face of pinion gear (see figure 1). There should also be .010" - .020" backlash between starter pinion teeth and starter ring gear teeth when starter is engaged. This must be checked when manually engaging the pinion teeth into the ring gear (see figure 2).

Maverick uses no used or re-manufactured parts, only NEW!



#	P/N	DESCRIPTION	QTY
1	62601	Housing	1
1A	62513	Housing, For P/N 63085G	1
2	62610	Dust Cover	1
3	62611	Shift Lever	1
4	62612	Torsion Spring	1
5	62608	Plunger, Solenoid	1
6	62609	Solenoid Shims	1
7	62602	Magnetic Switch Assembly	1
8	68049	Washer	2
9	68048	Magnetic Switch Bolt	2
10	68047	Through Bolt	2
11	68050	4mm x 9.5mm PHCS	2
12	68051	Lockwasher	2
13	62607	Rear Cover	2
14	62606	Brush Holder Assembly	1
15	62605	Yoke Assembly	1
15	62605R	Yoke Assembly, Reverse Rotation	1
16	62604	Armature Assembly	1
17	67160	1/4-20 x 1 1/2" 12pt	1
18	62614	Clip	1
19	62615	Stopper	1
20	62613	Shaft Return Spring	1
20	62613R	Shaft Return Spring, Reverse Rotation	1
21	62603	Clutch Assembly	1
21	62603R	Clutch Assembly, Reverse Rotation	1

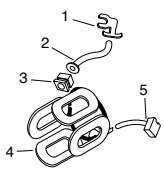
#	P/N	DESCRIPTION	QTY
22	62205	Pinion, For P/N 62910, 62911	1
22	62315	Pinion, For P/N 62565	1
22	63079R	Pinion, For P/N 62909R, 63085G	1
22	63079	Pinion, For P/N 62908, 62909	1
22	63970	Pinion, For P/N 63107G	1
23	62616	Housing Shim	1
24	62164	Mounting Plate, Late Model For P/N 62911	1
24	62164HD	Mounting Plate, Late Model, Heavy Duty For P/N 62911HD	1
24	62688	Mounting Plate, Shorty For P/N 62910	1
24A	62283	Mounting Plate, For P/N 62565	1
24B	63243	Mounting Plate, Shorty, For P/N 63085G	1
24C	63443	Mounting Plate, For P/N 63085	1
24D	63083	Mounting Plate, For P/N 62909, 62909R	1
24E	63244	Mounting Plate, For P/N 62565G	1
24F	63654	Mounting Plate, For P/N 63107G	1
25	67824	1/4-20 x 3/4" 12pt	1
26	62916-01	Spacer Shim, .040" Thick	1
26	62916-02	Spacer Shim, .060" Thick	1
28	67581	Sealed Bearing, For P/N 62565	1
29	67582	Bearing, For P/N 62565	1
30	68310	Retaining Ring, For P/N 62565	1
31	63154	Carrier	1
32	63156	Roller	1
33	63155	Gear	1
34	63157	Shaft	1

IMPORTANT!

A starter is an electric motor. Cover when washing car!

P/N 63077-02R

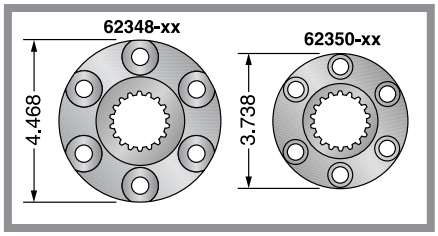
Field Coil Assembly *(Reverse Rotation)*



#	P/N	DESCRIPTION
1	63074	Terminal End
2	62968	Sleeve
3	62967	Grommet
4	63076-02R	Field Coil Windings
5	63075-02	Brush

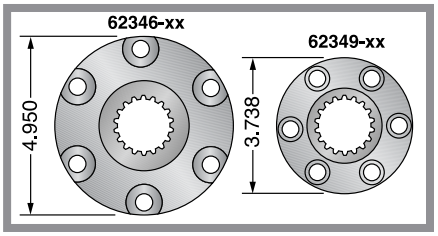
CRANK COUPLERS

Chevy



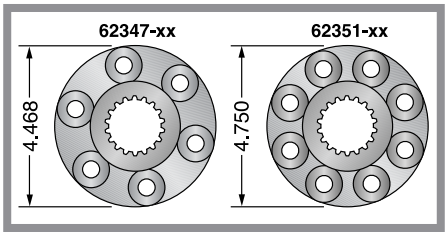
P/N 62348-XX
Big Block & Early Small Block
P/N 62350-XX
Late Small Block

Ford



P/N 62346-XX
Big Block
P/N 62349-XX
Small Block

Mopar



P/N 62347-XX
6 Bolt
P/N 62351-XX
8 Bolt, Hemi®

P/N	DESCRIPTION
62346-18	Ford BB 18 Spline
62346-18A	Ford BB 18 Spline, Aluminum
62346-S18	Ford BB 18 Spline, Short
62347-18	Mopar 6 Bolt 18 Spline
62347-18A	Mopar 6 Bolt 18 Spline, Aluminum
62347-S18	Mopar 6 Bolt 18 Spline, Short
62348-S10	Chevy SB & BB 10 Spline, Short
62348-18	Chevy SB & BB 18 Spline
62348-18A	Chevy SB & BB 18 Spline, Aluminum
62348-S18	Chevy SB & BB 18 Spline, Short
62348-S18A	Chevy SB & BB 18 Spline, Short, Aluminum
62348-L18	Chevy SB & BB 18 Spline, Long
62349-L10	Ford SB 10 Spline, Long
62349-18	Ford SB 18 Spline
62349-18A	Ford SB 18 Spline, Aluminum
62349-S18	Ford SB 18 Spline, Short
62349-L18	Ford SB 18 Spline, Long
62350-18	Chevy Late SB 18 Spline
62350-18A	Chevy Late SB 18 Spline, Aluminum

P/N	DESCRIPTION
62351-18	Mopar 8 Bolt 18 Spline
62351-18A	Mopar 8 Bolt 18 Spline, Aluminum
62714-10	AMC 10 Spline
62446	Chevy 18 Spline w/HTD Pulley
62446A	Chevy 18 Spline w/HTD Pulley, Aluminum
62447	Chevy 10 Spline w/HTD Pulley
62887	Ford 18 Spline w/HTD Pulley
62887A	Ford 18 Spline w/HTD Pulley, Aluminum
62888	Mopar 6 Bolt 18 Spline w/HTD Pulley
62888A	Mopar 6 Bolt 18 Spline w/HTD Pulley, Aluminum
62889	Mopar 8 Bolt 18 Spline w/HTD Pulley
62889A	Mopar 8 Bolt 18 Spline w/HTD Pulley, Aluminum
62890	Chevy Late 18 Spline w/HTD Pulley
62890A	Chevy Late 18 Spline w/HTD Pulley, Aluminum
62348-SB	Blank, 18 Spline, Aluminum
62348-B1	Blank, 18 Spline, Aluminum
62348-B2	Blank, 18 Spline, Aluminum
62348-B5	Blank, 18 Spline, Aluminum

Add prefix 8251- to any crank coupler part number when substituting in bell housing assemblies.
Example: 8251-62447 substitutes a 62887 Ford 18 spline w/HTD pulley crank coupler for the standard crank coupler.

PHOENIX CRANK COUPLERS

APPLICATION	CRANK COUPLER	OPTION
Chevy SB & BB	63572-A	Standard
Ford SB	63572-C	8251-C

APPLICATION	CRANK COUPLER	OPTION
Ford SB, Aluminum	63572A-C	8251A-C
Chevy Late SB, Aluminum	63572A-D	8251A-D

STARTER RING GEARS

1

6-1/2" Diameter
63 Tooth

1

6-1/2" Diameter
63 Tooth

1

6-1/2" Diameter
63 Tooth

2

9-3/8" Diameter
92 Tooth

3

7-5/8" Diameter
74 Tooth

4

.036" Thick

CHEVY LS SERIES ADAPTER

P/N 64976
Adapter

P/N 68938
11mm Bolt (6 Required)

Adapts the motors listed below to original Chevy bolt pattern and location.

LS1	LS2
LS3 (CT525)	LS6
LS7	L92

APPLICATION	#1 RING GEAR	#2 RING GEAR	#3 RING GEAR	#4 SHIM
Chevy SB & BB	62479-A	62907-A	63562-A	62320
Mopar 6 Bolt	62479-B	62907-B	63562-B	62323
Ford SB	62479-C	62907-C	63562-C	62322
Chevy Late SB	62479-D	62907-D	63562-D	62321
Ford BB	62479-E	62907-E	63562-E	62322-BB
Mopar 8 Bolt	62479-F	62907-F	63562-F	62324

5

6

7

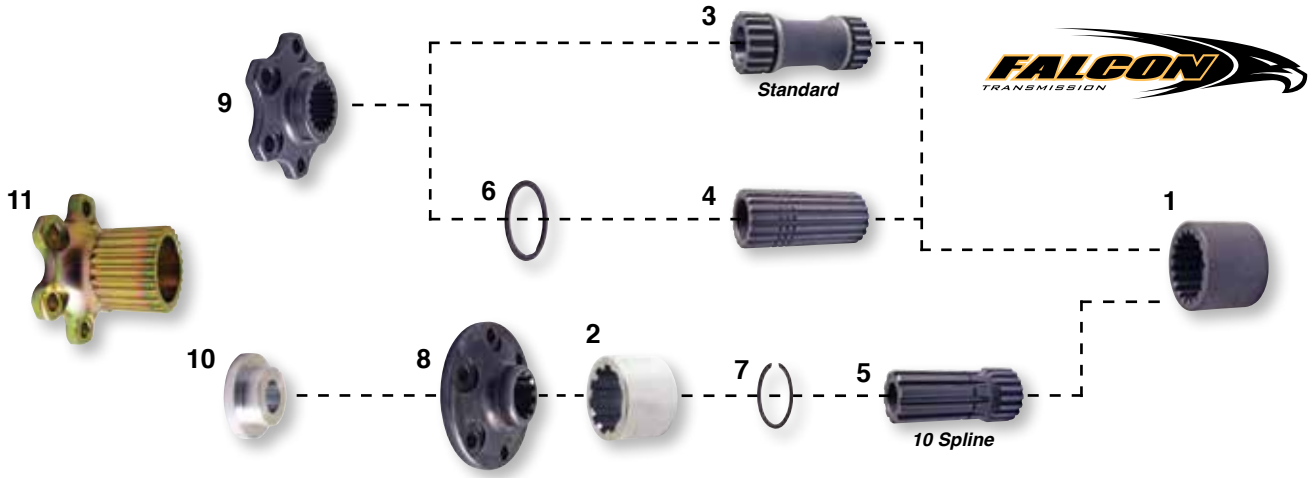
8

12-7/8" Diameter, 153 Tooth

#	P/N	DESCRIPTION
5	62864	Starter Ring Gear, Early Chevy, 153 Tooth
	62866	Starter Ring Gear, Late Chevy, External Balance, 153 Tooth
	62867	Starter Ring Gear, Ford BB, 157 Tooth
	62868	Starter Ring Gear, Ford SB, 157 Tooth
	62869	Starter Ring Gear, Mopar 6 Bolt, 130 Tooth
	62870	Starter Ring Gear, Mopar 8 Bolt Hemi®, 130 Tooth
6	63844-18	Bell, Late Chevy, External Balance, 18 Spline
7	63844-10H	Bell, Late Chevy, External Balance, 10 Spline w/ HTD
	63844-18H	Bell, Late Chevy, External Balance, 18 Spline w/ HTD
8	62479D-1	Counter Weight, Late Chevy, External Balance

INPUT SHAFT

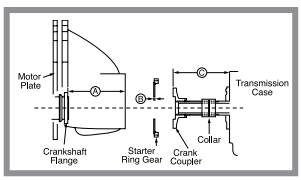
Falcon 18 Spline



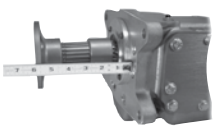
#	P/N	DESCRIPTION
1	62407	Collar
	67639	Replacement Snap Ring, Collar
2	64825	Splined Spacer
3	62901	Input Shaft, 18/18 Spline
4	62406	Input Shaft, 18/18 Spline
5	62409	Input Shaft, 18/10 Spline
6	67696	Retaining Ring, 18 Spline Input Shaft

#	P/N	DESCRIPTION
7	68317	Retaining Ring, 62409
8		Choose Any 10 Spline Coupler, Pg. 26
9		Choose Any 18 Spline Coupler, Pg. 26
10	62705	Crankshaft Counter Bore Spacer
11		Choose Any 18 Spline Coupler w/HTD, Pg. 26
11		Choose Any 10 Spline Coupler w/HTD, Pg. 26

INPUT SHAFT INSTALLATION

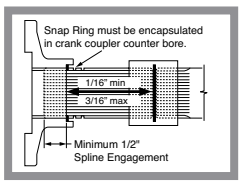


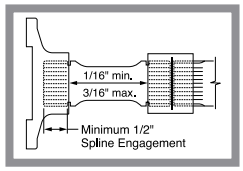
Example:
Flex Plate Thickness (A) 6.000
Clearance (B) - .125
Coupler Measurement - .125
(C) 5.750



When using a motor plate, it must be in place before making measurements. With motor plate in place, accurately measure from rear face of crankshaft flange to rear face of bell housing (A). Subtract thickness of starter flex plate (B) and also subtract .125 for required input shaft end clearance. Use your measurements and follow the example to find your coupler measurement (C). It is also advisable to grease the drive splines in the crank coupler and collar before assembly.

Designed to be used with 1/4" motor plate.



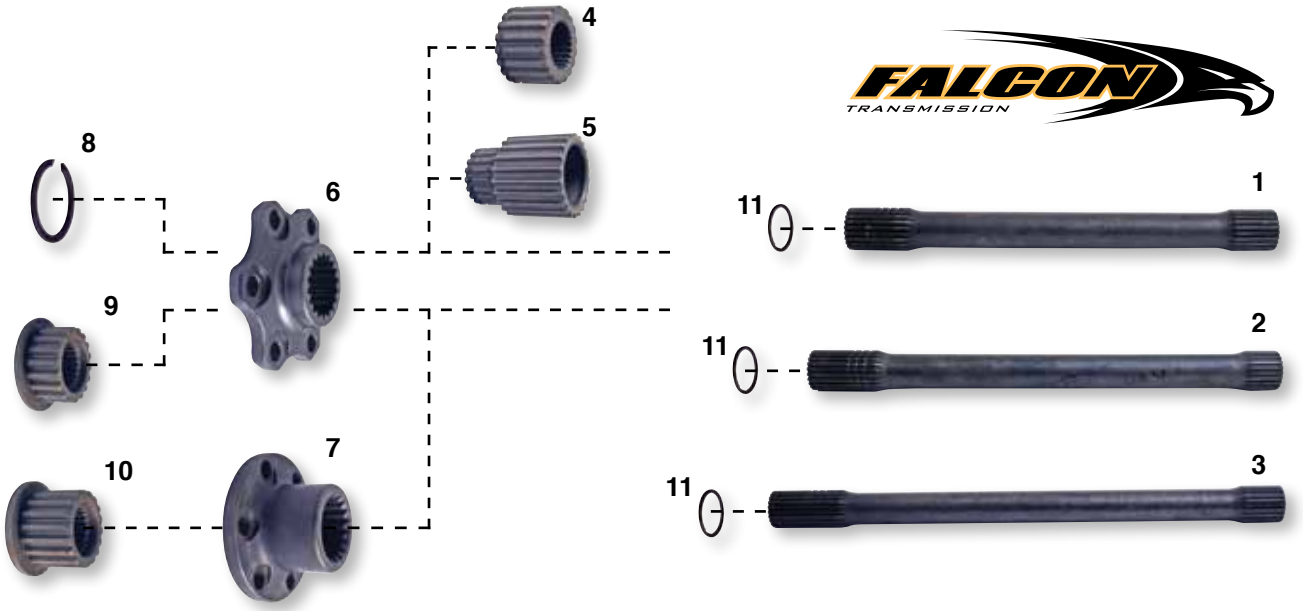


For Input Shaft P/N 62406.
By moving the snap ring from one groove to another on the input shaft, you are adjusting the end play of the input shaft. After transmission installation, re-check input shaft for end play- 1/16" min, 3/16" max.

Installed input shaft must have free play. For Input Shaft P/N 62901.

INPUT SHAFT

Falcon 22 Spline



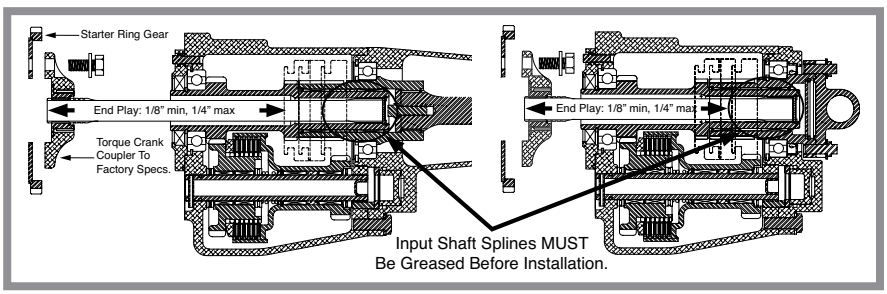
#	P/N	DESCRIPTION
1	61739-02	Input Shaft, Modified, 22 Spline, 9.75”
2	61739-03	Input Shaft, Modified, 22 Spline, 10.75”
3	61739-01	Input Shaft, Late Model, 22 Spline, 13”
4	62288	22 Spline to 18 Spline Adapter, Short
5	62351-C22	22 Spline to 18 Spline Adapter, w/HTD Gear
6		Choose Any Short 18 Spline Coupler, Pg. 26

#	P/N	DESCRIPTION
7		Choose Any Long 18 Spline Coupler, Pg. 26
8	67682	Retaining Ring, Adapter
9	62351	22 Spline to 18 Spline Adapter, Short, w/Flange
10	62287	22 Spline to 18 Spline Adapter, Long, w/Flange
11	67697	Retaining Ring, 22 Spline Input Shaft

INPUT SHAFT INSTALLATION

The three snap ring grooves that are machined into the splines of the input shaft are for end play adjustment. The input shaft snap ring MUST be encapsulated in counter bore of crank coupler with a minimum 1/8” and a maximum 1/4” end play of input shaft.

Important: Grease splines at both ends of the shaft before final assembly. Use SHP Grease P/N 61158.



PEDAL ASSEMBLIES

Assemblies available in steel or aluminum. Steel assemblies shown. For aluminum add suffix 'A' to P/N before dash. Example: 68520A-01B

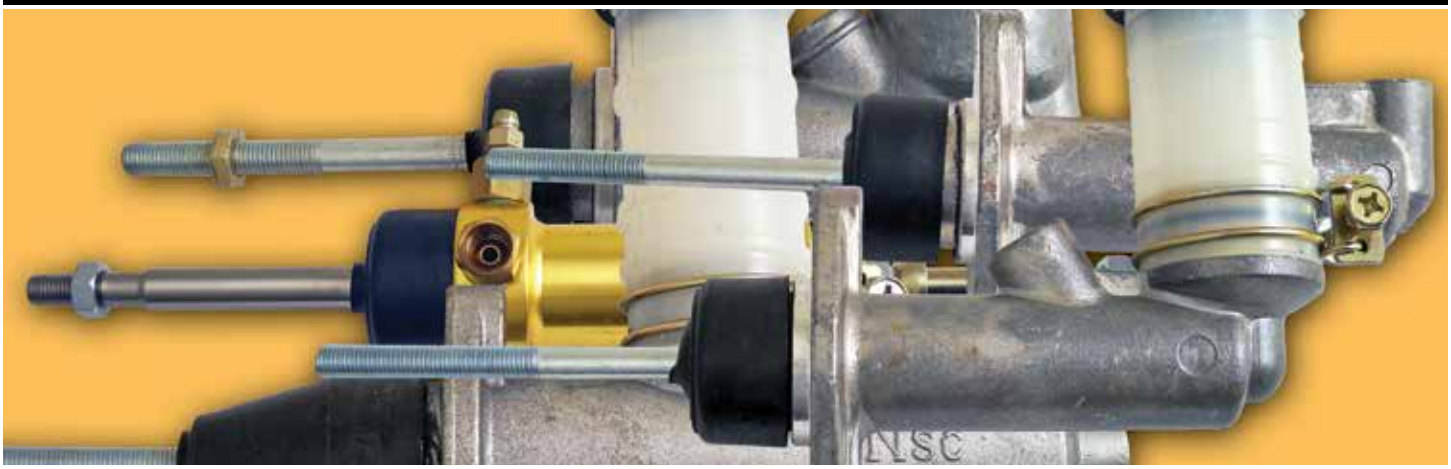
#	Piston Dia	Master Cylinder	Floor Mount Clutch	Swing Mount Clutch
7	3/4"	65834	65820-01A	65820-02A
7	5/8"	65904	65820-01B	65820-02B
8	3/4"	65891	65828-01A	65828-02A
9	3/4"	61656	65828-01B	65828-02B
10	3/4"	66610-03	66978-01A	66978-02A
	Pedals without Master Cylinder		65643-01	65643-02

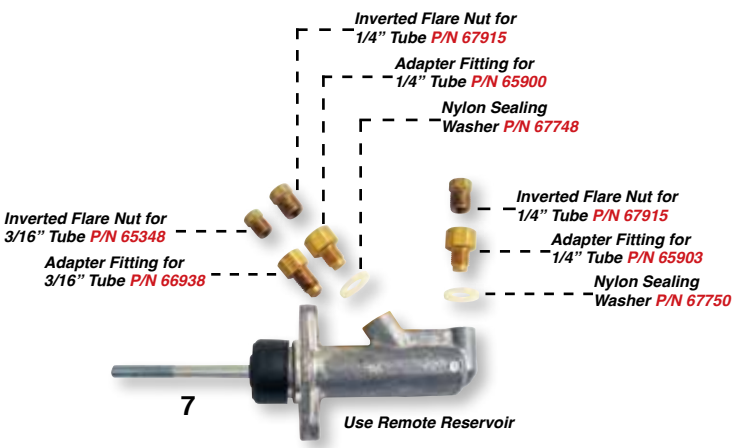
Item numbers refer to Master Cylinders on page 31

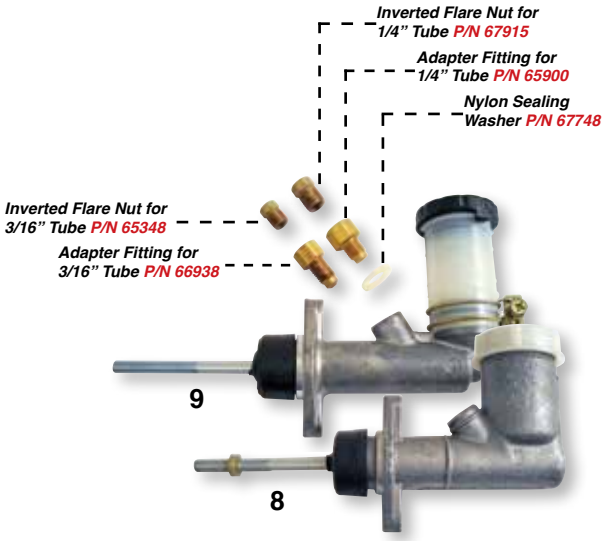
MASTER CYLINDER COMPONENTS

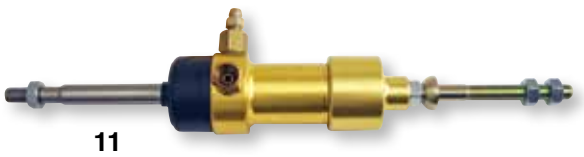
#	P/N	DESCRIPTION
1	65835	Remote Reservoir w/Flare Fitting for 1/4" Line
2	61194	Universal Mounting Bracket Assembly
3	66619P	Girling Master Cylinder Plastic Cap
4	61396	Replacement Cap, for P/N 66610-03
5	67877	45° Flare for 1/4" Line
6	68059	1/8" Pipe to #4 AN Fitting

MASTER CYLINDERS





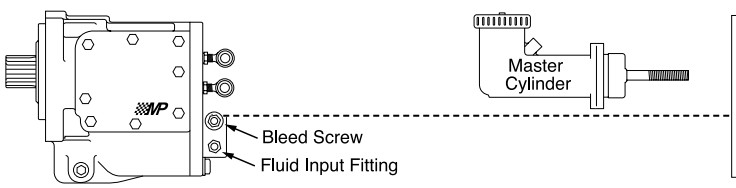




#	P/N	DESCRIPTION
7	65834	Master Cylinder with 3/4" Piston Diameter
7	65904	Master Cylinder with 5/8" Piston Diameter
8	65891	Master Cylinder with 3/4" Piston Diameter

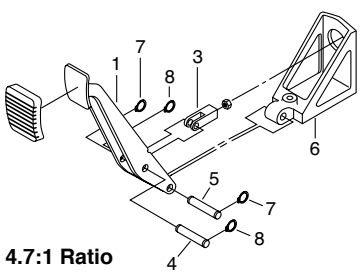
#	P/N	DESCRIPTION
9	61656	Master Cylinder with 3/4" Piston Diameter
10	66610-03	Master Cylinder with 3/4" Piston Diameter
11	66147	Slave Cylinder for Hydraulic Clutch, Pull Type

MASTER CYLINDER INSTALLATION

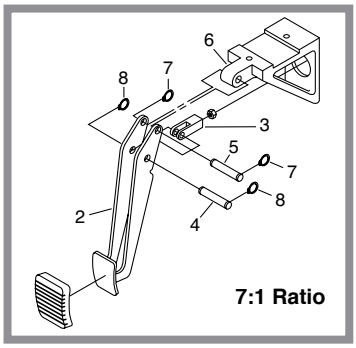


IMPORTANT:
Master cylinder must be mounted **above** transmission hydraulic slave piston and bleed screw!

SINGLE PEDALS



4.7:1 Ratio



7:1 Ratio

Assembly P/N 65643-01

Floor Mount Assembly

#	P/N	DESCRIPTION	QTY REQ'D
1	65804-01	Short Arm, Floor Mount	1
2	65817-02	Long Arm, Swing Mount	1
3	65806	Clevis	1
4	65765	Clevis Sleeve	1
5	65809	Pivot Sleeve	1
6	65799	Pedal Bracket	1
7	67622	Retaining Ring	2
8	67623	Retaining Ring	2

Assembly P/N 65643-02

Swing Mount Assembly

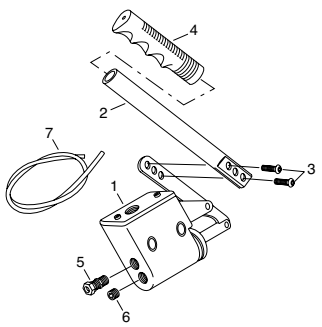
MASTER CYLINDER

Assembly P/N 62482

This assembly is included with Falcon Shorty and Phoenix Transmissions. Use DOT 3 brake fluid in this hydraulic cylinder. Master cylinder MUST be mounted above the transmission apply cylinder. Bleed system the same as any hydraulic system.

P/N 62820 ***Rebuild Kit***

#	P/N	DESCRIPTION	QTY REQ'D
1	62379	Master Cylinder Only	1
2	62382	Master Cylinder Handle	1
3	68037	1/4-20 x 3/4" BHCS	2
4	62404	Master Cylinder Handle Boot	1
5	68042	M/C Compression Fitting, Male	1
6	67772	1/8" NPT Hex Socket Plug	1
7	62813	1/4" Black Hose	/ inch



REBUILD KITS

#	P/N	DESCRIPTION
1	62822-2	Basic Rebuild Kit, Falcon Late Model
1	62824-2	Basic Rebuild Kit, Falcon Shorty
1	62826	Basic Rebuild Kit, Raptor Late Model
1	62828	Basic Rebuild Kit, Raptor Shorty
1	63476-2	Basic Rebuild Kit, Roller Slide
1	63480	Basic Rebuild Kit, Phoenix
2	62823-2	Complete Rebuild Kit, Falcon Late Model

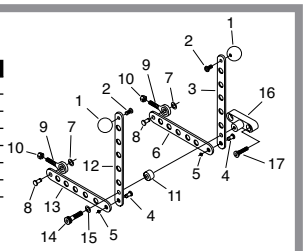
#	P/N	DESCRIPTION
2	62825-2	Complete Rebuild Kit, Falcon Shorty
2	62827	Complete Rebuild Kit, Raptor Late Model
2	62829	Complete Rebuild Kit, Raptor Shorty
2	63477-2	Complete Rebuild Kit, Roller Slide
2	63481	Complete Rebuild Kit, Phoenix
3	62820	Master Cylinder Rebuild Kit

REPLACEMENT SHIFTERS

P/N 60115L Late Model, Option 80112L

#	P/N	DESCRIPTION	QTY REQ'D
1	62637	Shift Knob, Specify Red or Black	2
2	68040	5/16-18 x 5/8" BHCS	2
3	62169	Shift Arm, Reverse	1
4	62306	Linkage Pin	2
5	68301	Clip, Linkage Pin	2
6	62292	Shift Linkage, Reverse	1
7	68302	Clip, Clevis Pin	2
8	62307	Clevis Pin	2
9	67580	Heim End	2

#	P/N	DESCRIPTION	QTY REQ'D
10	68032	Jam Nut, Heim End	2
11	62336	Spacer	1
12	62168	Shift Arm, Low / Neutral / Direct	1
13	62291	Shift Linkage, Low / Neutral / Direct	1
14	68019	Shoulder Bolt	1
15	68013	Wave Washer	1
16	62199	Pivot Bracket	1
17	68041	3/8-16 x 1" FHCS	2

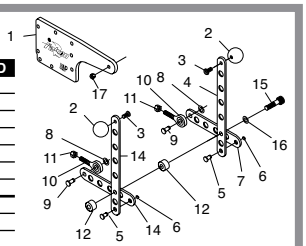


When Ordering Add Suffix -F for Falcon, -R for Raptor or -RA for Raven
Example: 60115S-F = Falcon

P/N 60115S Shorty, Option 80112S

#	P/N	DESCRIPTION	QTY REQ'D
1	62157	Side Cover, Shorty	1
2	62637	Shift Knob, Specify Red or Black	2
3	68040	5/16-18 x 5/8" BHCS	2
4	62168	Shift Arm, Low / Neutral / Direct	1
5	62306	Linkage Pin	2
6	68301	Clip, Linkage Pin	2
7	62401	Shift Linkage, Low / Neutral / Direct	1
8	68302	Clip, Clevis Pin	2
9	62307	Clevis Pin	2
10	67580	Heim End	2

#	P/N	DESCRIPTION	QTY REQ'D
11	68032	Jam Nut, Heim End	2
12	62336	Spacer	2
13	62169	Shift Arm, Reverse	1
14	62402	Shift Linkage, Reverse	1
15	68019	Shoulder Bolt	1
16	68013	Wave Washer	1
17	68031	Jam Nut	1
	68036	Elbow Street 1/8" NPT	1
	68024	Breather	1
	68035	Plug Fill	1



P/N 12763 Shorty Shifter Pin Replacement Bolt Kit

YOKES

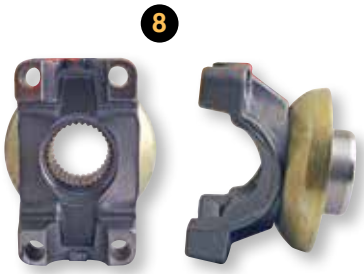
#	P/N	ANGLE	SPLINES	SERIES	BRG SIZE	LENGTH	OPTION
1	62221	20°	27 Inv.	1310	1 1/16”	4 7/8”	----------
1	62946-6	20°	27 Inv.	1310	1 1/16”	6”	80119-6
1	62946-7	20°	27 Inv.	1310	1 1/16”	7”	80119-7
1	62946-8	20°	27 Inv.	1310	1 1/16”	8”	80119-8
1	62946-9	20°	27 Inv.	1310	1 1/16”	9”	80119-9
1	63830-1350	20°	32 Inv.	1350	1 3/16”	8 1/2”	----------

#	P/N	DESCRIPTION	SERIES
2	65382	1 1/16” Journal Assembly, 3 7/32” Across Brg. Caps w/ Grease Fitting	1310
2	66847	1 1/16” Journal Assembly, 3 7/32” Across Brg. HD Caps w/o Grease Fitting	1310

#	P/N	BOLT CIRCLE	OFFSET	BRG DIA	BOLT DIA	SERIES	ANGLE
3	65856	3 1/8”	1 3/8”	1 1/16”	3/8”	1310	20°
3	66874	3 1/8”	1 5/8”	1 1/16”	3/8”	1310	30°

DRIVE LINE ACCESSORIES

10 Spline



32 Spline

Torque 15 ft lbs

#	P/N	DESCRIPTION
1	66133	Slip Yoke, 15° Joint Angle, 16 Spline, 5 3/8" Center Line to End of Yoke
2	65382	1 1/16" Journal Assembly, 3 7/32" Across Bearing Caps with Grease Fitting, 1310 Series
	66847	1 1/16" Journal Assembly, 3 7/32" Across Bearing HD Caps without Grease Fitting, 1310 Series
	66996	1 3/16" Journal Assembly, 3 5/8" Across Bearing Caps, 1350 Series
3	65847	1 3/8"-16 Spline Slip Stub Shaft, 5 11/32" Long
4	65851	1 3/8"-16 Spline Slip Stub Shaft, 6 11/32" Long, 2 1/4" of Spline
5	65849	1 1/16" Bearing Diameter Tube Yoke, 1 27/32"
6	66134	Drive Shaft Tubing, 2 1/2" O.D. x .065" Wall, Priced Per Inch
7	65038	1 1/4"-10 Spline Quick Change Yoke, 1310 Series
	65038AS	1 1/4"-10 Spline Quick Change Yoke, Aluminum Yoke with Stainless Sleeve, 1310 Series
	63588	1 1/4"-10 Spline Quick Change Yoke, 1350 Series
8	61591	Involuted Splined Yoke for Gundrilled Lower Shaft, 1310 Series
	63566	Involuted Splined Yoke for Gundrilled Lower Shaft, 1350 Series
9	65855	U-Bolt Assembly with Nuts and Lockwashers, 1310 Series
	66999	U-Bolt Assembly with Nuts and Lockwashers, 1350 Series

TRANSMISSION TIPS

Falcon & Phoenix

- The Falcon Transmission is a non-synchro sliding gear transmission. Fully engage low gear before power starts. High gear (direct drive) shifts can be made at any time by matching engine RPM with relative speed of car. Example: Low gear is 2.4 to 1 and high gear is 1 to 1, so RPM must be cut more than half while shifting.

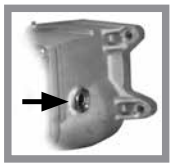
- DO NOT attempt to shift into high gear with the car at rest and the engine running!

- With new transmissions, gear grinding is not unusual when shifting to low or reverse with engine running. The clutch pack is set up tight at the factory. The clutches break in with use. Suggestion- with engine off and vehicle positioned in a safe direction, place shift lever into low or reverse, start engine, then apply clutch (hydraulic pressure). Vehicle will move without grinding.

- CAUTION - DO NOT slip clutches more than necessary. Apply clutches firmly for longevity. Maintain enough clutch pressure to keep clutches from slipping.

- Low gear is for getting your vehicle moving fast enough to be able to shift the transmission into high gear. It is not made for hard, fast starts, packing the track, loading and unloading on to trailer, etc.

- Use only as much engine power as is necessary to get your vehicle moving fast enough to shift into high gear.



- High gear is direct drive with no clutch between the engine and rear wheels.

- Maintain transmission oil level and do not over fill. Level should be to the bottom of the fill plug. Use ATF or equivalent.

- High gear (direct drive) detent ball adjustment screw. Loosen jam nut and adjust the amount of tension on detent ball.

- Make sure there are no chassis or body parts interfering with the shift linkage. Allow plenty of clearance so transmission gears can be full engaged at rest and on the track.

- Route clutch hydraulic lines so they are not affected by heat, or can be chafed or cut.

- Pre-lube yoke support bearing and seal prior to installing drive shaft in a late model transmission. It is advisable to use a heat treated yoke on your drive shaft because we use a bearing rather than a bushing in the extension housing.

- Check and torque all bolts and plugs on transmission prior to installation into your race car.

- CAUTION - DO NOT attempt to force transmission into flywheel housing with bolts. Install and torque transmission retaining bolts after transmission is solidly against flywheel housing.

- Master cylinder must be mounted above the transmission apply cylinder and away from heat. Bleed the hydraulic system with the same precautions used when bleeding brakes (use DOT 3 brake fluid). Do not use master cylinders with residual valves, check valves or line lock valves. It is important that the master cylinder apply lever retracts fully, brake fluid must be free to return into the master cylinder reservoir without maintaining hydraulic pressure.

- Input shaft must have some free play (up to 3/16”) after final installation. Minimum spline engagement should be 1/2”.

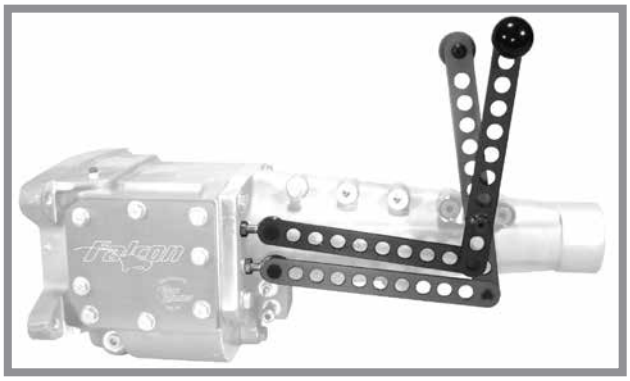
FALCON SHIFT PATTERN

NEUTRAL

- Note position of shifter heims when in neutral.
- Opposing shift shaft must be in neutral to select desired gear.

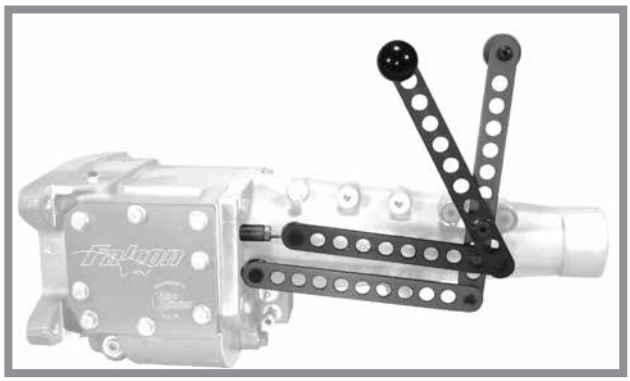
REVERSE

- Push reverse lever forward (pull bottom shift shaft out) to select reverse gear.
- As you apply the clutch pedal the car will back up.



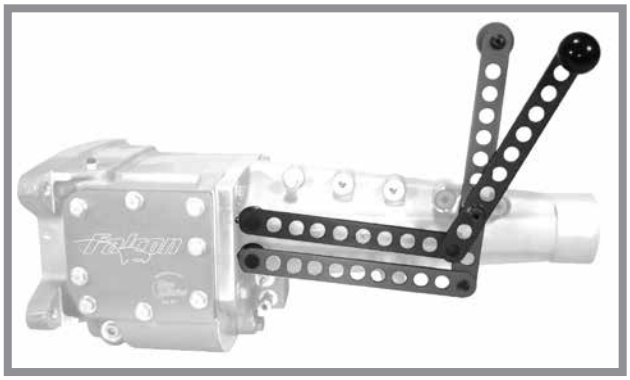
LOW GEAR

- Push low / high lever forward (pull upper shift shaft out) to select low gear.
- As you apply the clutch pedal the car will move forward.



HIGH GEAR / DIRECT DRIVE

- Reach a speed so that when you release the clutch pedal the car continues to roll along without scrubbing off speed.
- Drop engine RPM simultaneously to a little more than 1/2 of where it was.
- Pull high / low lever back (push upper shift shaft in) to select high gear / direct drive.



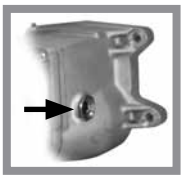
TRANSMISSION TIPS

Raptor

- **The Raptor Transmission is a non-synchro sliding gear transmission. Fully engage low gear before clutch apply. High gear shifts can be made at any time by matching engine RPM with relative speed of car. Example: Low gear is 1.504 to 1 and high gear is 1 to 1, so RPM must be cut by one quarter. Other low gear ratios will require different amounts of RPM drops when shifting into high gear.**

- **The Raptor require the use of a pilot bushing or bearing. The bushing or bearing must be in good condition and support the transmission input shaft.**

- **When using a motor plate, extended pilot bushings or bearings are required as are longer dowel pins to properly locate the flywheel housing and input shaft.**



- **Maintain transmission oil level and do not over fill. Level should be to the bottom of the fill plug.**

- **High gear (direct drive) detent ball adjustment screw. Loosen jam nut and adjust the amount of tension on detent ball.**

- **Pre-lube yoke support bearing and seal prior to installing drive shaft in a late model transmission. It is advisable to use a heat treated yoke on your drive shaft because we use a bearing rather than a bushing in the extension housing.**

- **Check and torque all bolts and plugs on transmission prior to installation into your race car.**

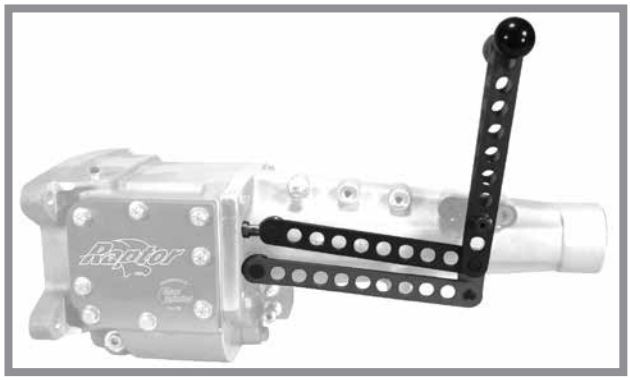
- ***CAUTION - DO NOT* attempt to force transmission into flywheel housing with bolts. Install and torque transmission retaining bolts after transmission is solidly against flywheel housing.**

- **Never allow your transmission to become a stressed member of your race car chassis.**

RAPTOR SHIFT PATTERN

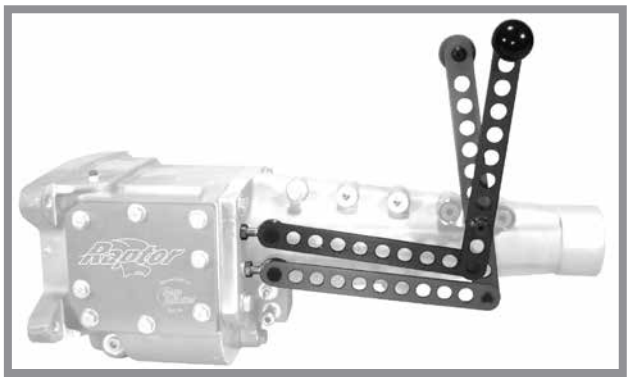
NEUTRAL

- Note position of shifter heims when in neutral.
- Opposing shift shaft must be in neutral to select desired gear.



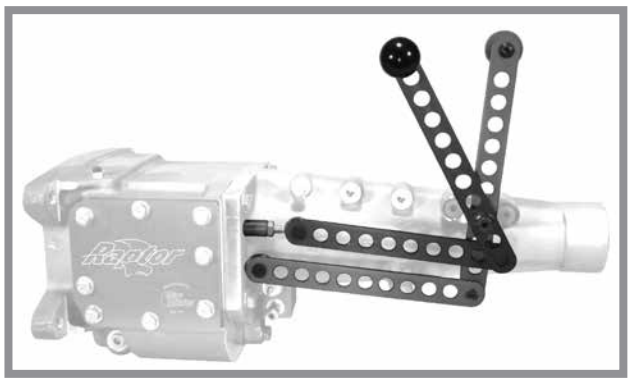
REVERSE

- Push reverse lever forward (pull bottom shift shaft out) to select reverse gear.
- As you release clutch pedal the car will back up.



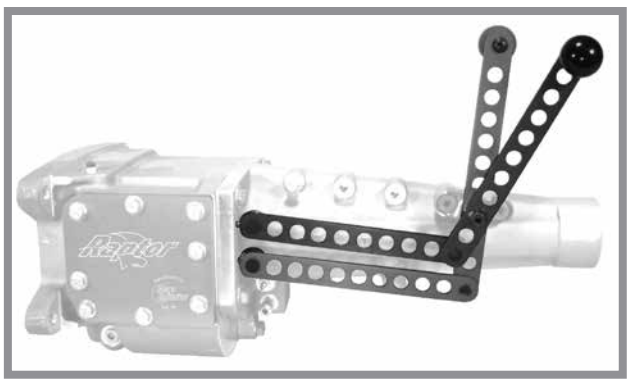
LOW GEAR

- Push low / high lever forward (pull upper shift shaft out) to select low gear.
- As you release clutch pedal the car will move forward.



HIGH GEAR

- When shifting into high gear, push in the clutch pedal and drop engine RPM's to match low gear ratio.
- Pull low / high lever back (push upper shift shaft in) to select high gear.
- Release clutch pedal.



INSTALLATION TIPS

BELL HOUSINGS

- Place transmission in high gear (direct drive) prior to installing transmission in bell housing. This allows the installer to rotate the output shaft which turns the input shaft facilitating spline engagement with clutch splines or crank shaft drive flange.
- When using a motor plate it must be flat with back of motor block and perfectly true and flat across chassis.
- Dowel pins must be long enough to pass through the motor plate and fully engage into bell housing.
- Bell housing must be aligned with motor. See bell housing alignment instructions on pages 35-36.
- Pilot bushing, if used, must be long enough to compensate for thickness of motor plate.
- Remove pilot bushing from crank shaft with Falcon Transmission.
- CAUTION - DO NOT attempt to force transmission into bell housing with bolts. Transmission will assemble into flywheel housing if splines are aligned assuming input shaft splines and your clutch splines or crank coupler splines are compatible. DO NOT install and torque transmission retaining bolts unless transmission is solidly against bell housing.
- Bell housing distortion can be greatly reduced by using a support mount under the transmission extension housing. Distortion can be caused by rough track conditions, contact with walls and other cars, chassis flex, etc.

INBOARD STARTER BELL HOUSINGS

- Center hole in motor plate must be large enough to clear all protrusions from back of bell housing, minimum 13" I.D. (see figure 1).
- Adjust bell clearance to idler gear (see page 36). Shim bell to .80/.100 clearance. Make sure starter is in place while checking clearance.
- Idler gear must slide freely on shaft.
- Check idler shaft periodically for signs of wear.
- Check alignment of idler gear to bell. By hand, push idler gear forward and engage into bell, making sure there is clearance. Follow bell housing alignment instructions very carefully. Very Important!
- Clean and regrease bushing in idler gear during routine maintenance.
- A moderate amount of grease is correct. More is not better.
- Remember, a starter is an electric motor. Cover when washing car.

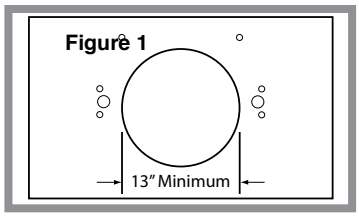
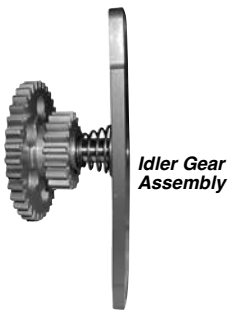
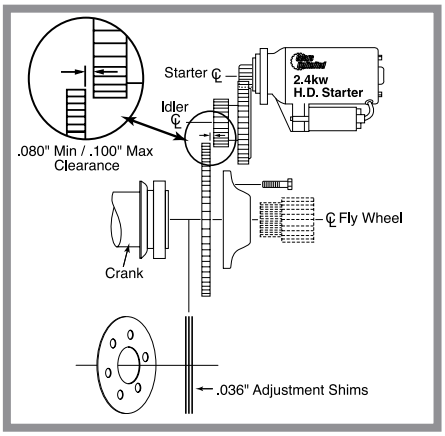


Figure 1

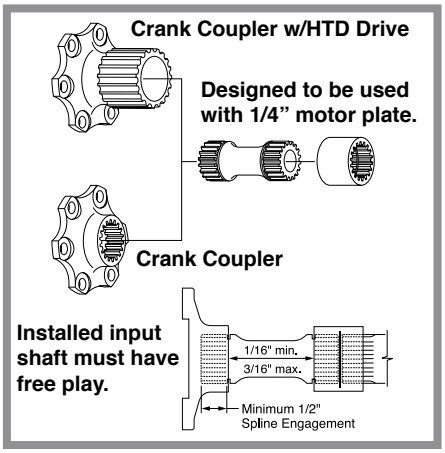

Idler Gear Assembly

SET-UP INSTRUCTIONS

IDLER GEAR CLEARANCE



INPUT SHAFT INSTALLATION



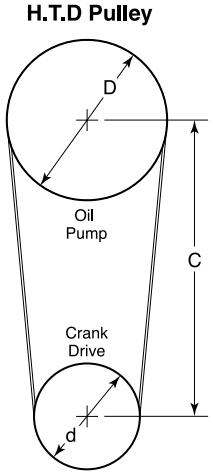
DETERMINING BELT LENGTH

L = Belt length

C = Center to center distance (to be measured on your own setup)

D = Pitch diameter of large pulley

d = Pitch diameter of small pulley Gears Unlimited (24 teeth) = 2.4



L = 2C + 1.57" (D + d)

Ex: If C = 8.00" (Example) 2C = (8.00" + 8.00" = 16.00")

D = 3.5" d = 2.4" (Example) D + d = (3.5" + 2.4" = 5.9")

2C + 1.57" (D + d)

1.57" x 5.9" = 9.263"

16.00" + 9.263" = 25.263"

Belt length = 25.263"

For HTD Belt Number
Length x 25.4 = Number

25.263" x 25.4 = 641.6802 (Use 640 belt)

HOUSING ALIGNMENT

BELL HOUSING

Crank shaft and transmission MUST be in alignment with each other (.005 T.I.R. tolerance).

Bell housing bore misalignment with the crank shaft holds the key to almost all clutch and transmission problems. DO NOT shortcut proper alignment.

Regardless of what brand bell housing you use, Gears Unlimited, Tilton®, Quarter Master® or Bert®, the procedure for zeroing the register bore in the housing is the same.

You assume new bell housings are made accurately and the bolt holes, dowel pin holes, etc. are machined in the right locations and the front and rear of the housing is parallel. If using a used bell housing, it is likely that the housing faces are not parallel within .005 T.I.R. Before using a used housing, have a machine shop reface a minimum amount off the rear to bring the housing into specifications. Before having the bell housing refaced, measure the transmission register bore diameter to determine if bell housing is compatible with transmission register diameter (see chart on page 41).

Check the bell housing on the motor after installing motor plate over dowel pins, making sure the dowel pins are long enough to exit the dowel pin holes in the bell housing (see chart on page 41).

Torque retaining bolts to 28-32 ft lbs. Install 6-8" threaded rod into the crank flange threaded hole (see figure 1). Mount and zero dial indicator in the bore in the bell housing (see figure 2). Rotate the crankshaft while observing the indicator reading (.005 T.I.R. maximum allowable run-out). If in tolerance, reposition the dial indicator to the rear face of the bell housing (see figure 3). Zero indicator, rotate crankshaft while observing indicator reading (.005 T.I.R. maximum allowable run-out).

Either bore or face exceed .005 T.I.R., correction must be made for bore run-out. There are three popular methods of correction.

Figure 1

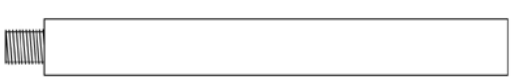


Figure 2

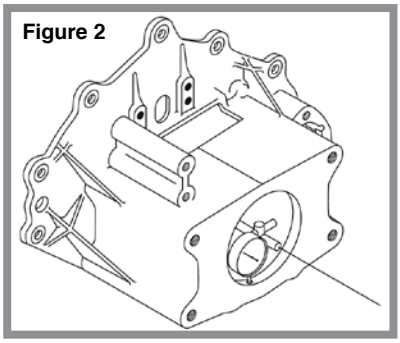
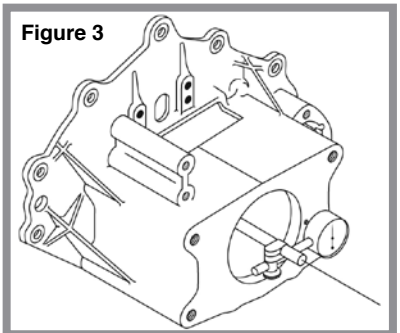


Figure 3



HOUSING ALIGNMENT

BELL HOUSING

Method 1: Off-set dowel pins are the preferred method (see figure 4). Suppose your offset is (plus) + .020 at 12 o'clock (the bore must be raised .010). Very common with blocks that have been align bored. Have a machine shop make .010 offset dowel pins with a timed slot in the end so that the pins can be installed with the slots parallel to each other. Remove original pins and correctly install the new pins.

Method 2: Remove original dowels from motor and reinstall the motor plate (if used) and the bell housing. Lightly torque the bolts and re-indicate. Bump the housing into perfect alignment and finish torquing the retaining bolts. With an oversized reamer, ream and oversize the dowel pin holes. Make new oversized, stepped pins (see figure 5) and install.

Re-check the bore alignment.

If rear face is out of tolerance and the bell housing was checked for parallelism and is in tolerance, the problem is your motor plate or the back of the motor is not square with the crank shaft.

Correct as necessary.

Method 3: Use a commercially available bell housing alignment tool (see figure 6) which bolts directly to the crankshaft flange and has an appropriate diameter flange which registers in the bore of your bell housing, positioning the bell housing in the proper location respective to the crankshaft center line. Install and evenly torque housing attachment bolts. Ream oversize dowel pin holes, insert oversize pins. Re-check bore and face with an indicator to insure housing bore remains within specifications.

Figure 4

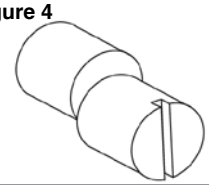


Figure 5

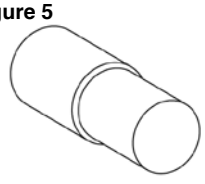
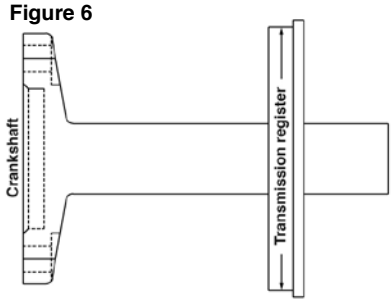


Figure 6

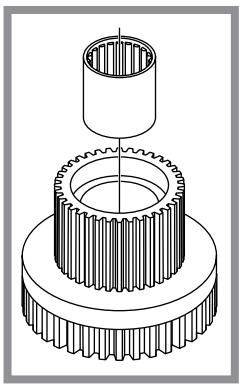


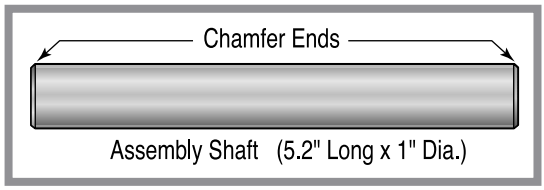
	TRANSMISSION				BELL HOUSING			
	Input Spline	Pilot Bushing Shaft O.D.	Seal Plate O.D.	Dowel Pin O.D.	Trans. Register I.D.	Dowel Pin Bore	Pilot Bushing I.D.	Pilot Bushing O.D.
Gears Unlimited® or Chevy®	1-1/8-10 or 1-1/8-26	0.590	4.685 Gears 4.683 Chevy	0.625	4.687	0.626 to 0.628	0.592	1.094
Ford®	1-1/16-10 or 1-1/8-26	0.668	4.849	0.500	4.851	0.501 to 0.503	0.670	1.379
Mopar®	1-3/16-18	0.748	4.807	0.625	4.810	0.626 to 0.628	0.750	1.815

ASSEMBLY PROCEDURE

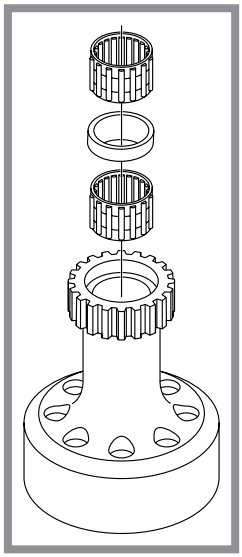
FALCON CLUTCH ASSEMBLY

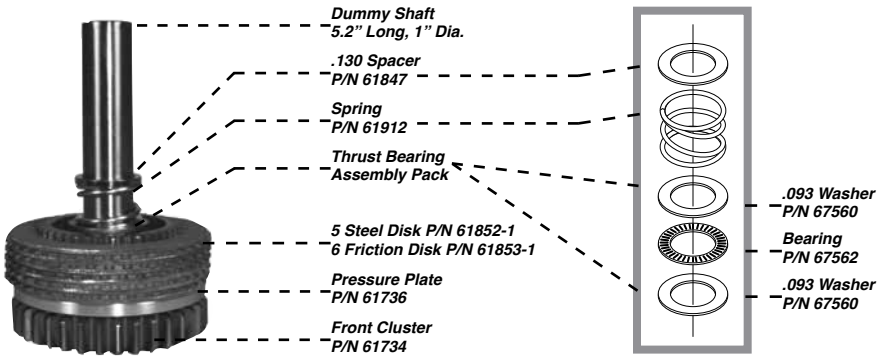
1: Before assembly, soak friction clutch disks in ATF for a minimum of 2 hours.





Use P/N 62936 or make this shaft before attempting assembly.





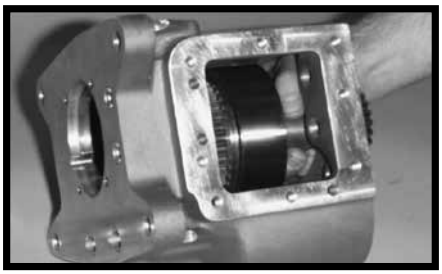
Assemble the clutch with an assembly shaft. Start stacking with a friction disk next to the pressure plate, then alternate ending up with a friction disk on top.

Complete Cluster Gear & Clutch Pack Assembly

RAPTOR ASSEMBLY

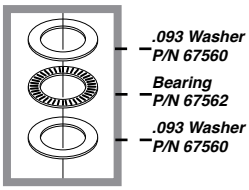
Refer to pages 10-13 for differences in Raptor components. Steps numbered 1 through 7 will change accordingly and steps 14, 15, and 16 will not apply.

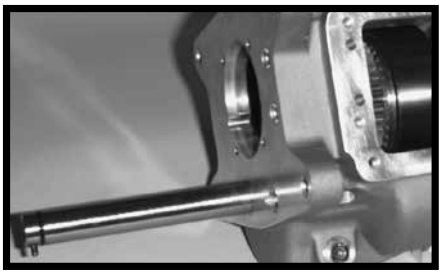
ASSEMBLY PROCEDURE



2: With assembly shaft in place, install cluster gear and clutch pack assembly through rear of case and centered with case cluster shaft bores.

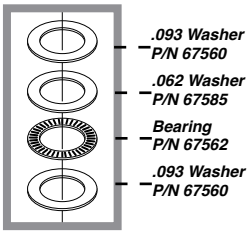
3: With rear of case sitting on bench, compress the front cluster gear and install thrust washer pack one piece at a time as illustrated.

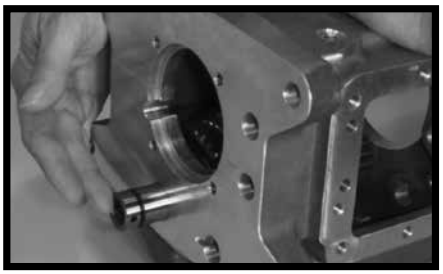




4: Install cluster shaft about three quarters of the way into the case, pushing the assembly shaft out the rear of case.

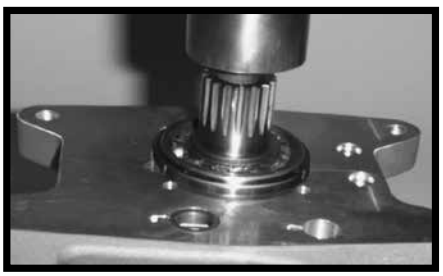
5: With case sitting on front face, compress clutch spring and install rear thrust bearing washer pack one piece at a time.



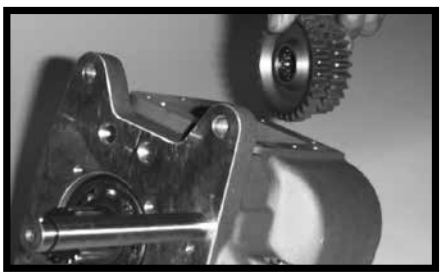


6: After washer installation, finish installing cluster gear counter shaft. Lubricate the o'ring with petroleum jelly and align locator pin with case groove. Shaft should install to below case face level.

7: Install the main drive and front bearing assembly with snap ring in place.



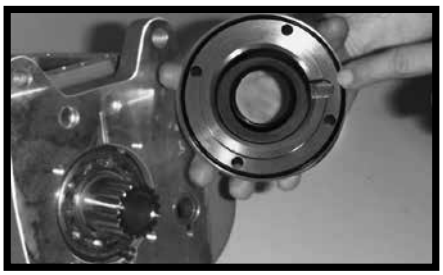
8: Tap main drive into case with soft mallet. Make sure bearing is not crooked. Bearing must enter and seat square.



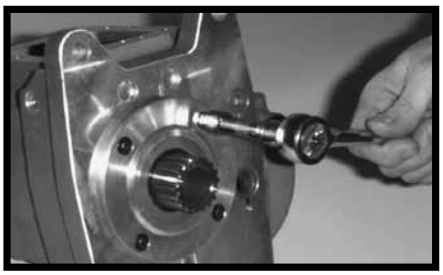
9: Install reverse idler gear as shown.

ASSEMBLY PROCEDURE

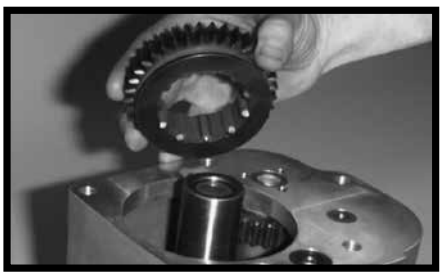
10: Lubricate the o'ring with petroleum jelly and align reverse shaft roll pin with case slot before final assembly. Shaft should install to below case face level.



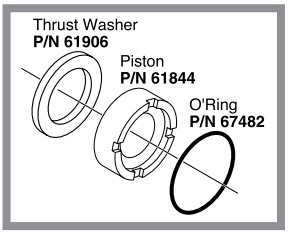
11: Lubricate seal and o'ring with petroleum jelly. Oil drain back slot in seal plate must be aligned with oil return hole in case and outer sealing o'ring must be in place prior to installing and torquing the retaining bolts.



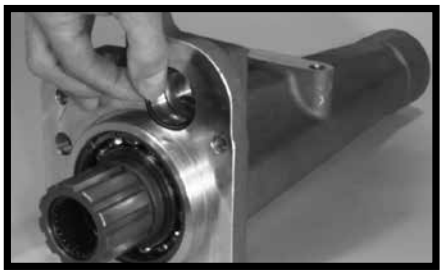
12: Torque seal plate retaining bolts to 13-15 ft lbs. Tighten bolts in a criss-cross sequence.



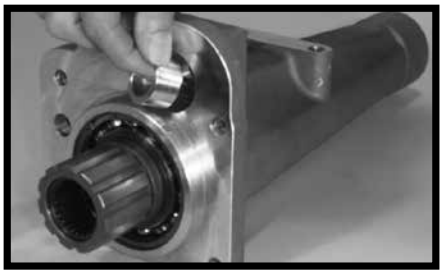
13: Install low-high slider gear with shaft fork slot down as shown. Engage direct drive internal teeth.



14: Install three clutch apply pins before installing extension housing.



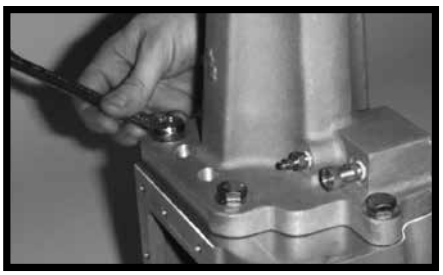
15: Install o'ring into groove in extension housing piston bore. Lubricate with DOT 3 brake fluid.



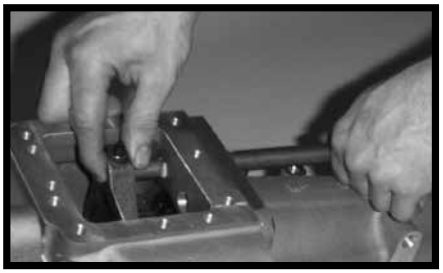
16: Lubricate piston with DOT 3 brake fluid and install into extension housing with grooved end of piston into bore. Lubricate steel thrust washer with petroleum jelly and install on top of piston.

17: Make sure the gasket is in place, then install output shaft and extension housing as an assembly. Rotate output shaft to engage high / low slider gear splines. Install all retaining bolts before torquing.

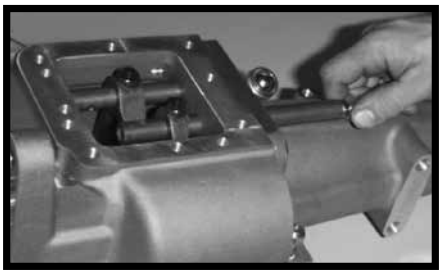
ASSEMBLY PROCEDURE



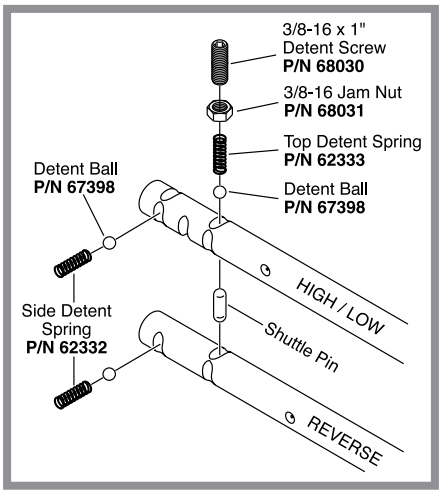
18: Torque extension housing bolts to 30-35 ft lbs using a criss-cross tightening sequence.

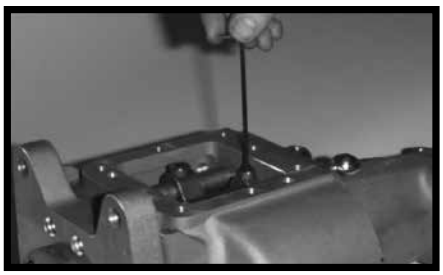


19: Insert shuttle pin into detent bore. Install low / high shift shaft through shift fork as shown prior to installing reverse shifter shaft.

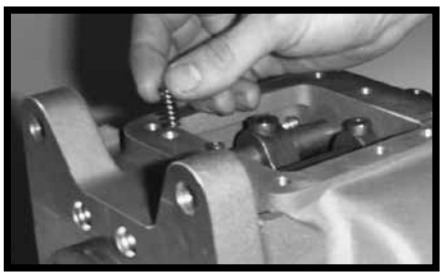


20: Reverse shifter shaft installation. Shuttle pin must be between shifter shafts.

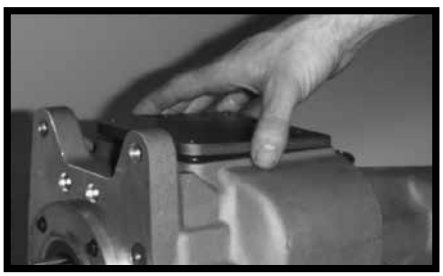




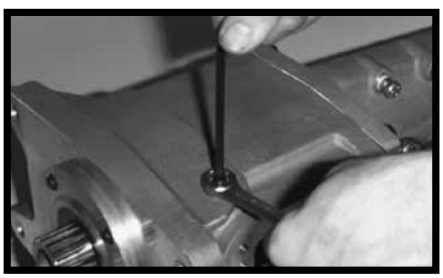
21: Install reverse shift fork retaining screw. Point of screw must engage counter bore in shift shaft. Also install high / low shift fork retaining screw in the same manner.



22: Install both detent balls and springs into case detent holes as shown before installing side cover.



23: Side cover installation. Make sure gasket is in place and detent springs and balls are in their proper places. Torque side plate bolts to 15 ft lbs.



24: After installing detent ball and detent spring, install detent screw and jam nut. This is your high gear (direct drive) detent adjustment. This adjustment allows for varying degrees of high gear retention. Factory setting is 1/2 turn off from bottom. Do not use excessive force to find bottom.

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.

Return the car to the pits, drain and refill the gear lube to the proper oil levels with the car sitting level (see figure 1). Over filling will cause excessive heat.

Car is now ready for competition.

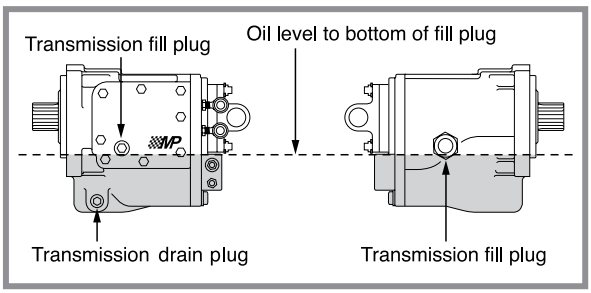
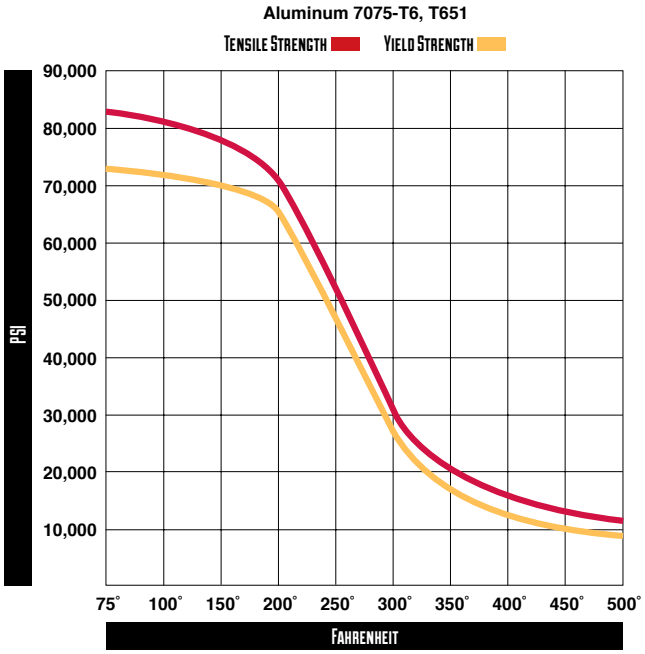
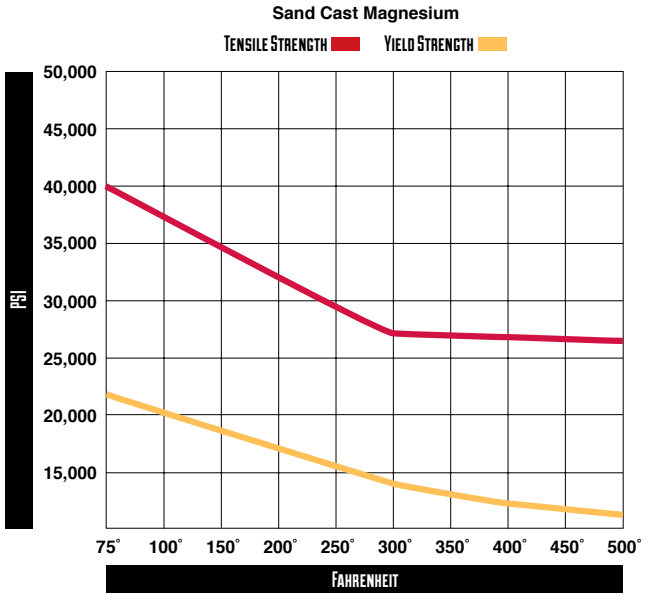


Figure 1

IMPORTANT INFORMATION

TYPICAL TENSILE PROPERTIES AT VARIOUS TEMPERATURES





The following typical properties are not guaranteed since in most cases they are averages for various sizes.

This data is intended only as a guide when determining metals that best suit your requirements.

Refer to Machinery Handbook for strengths of metals, published by Industrial Press, Inc., New York.

ALUMINUM	TENSILE STRENGTH	YIELD STRENGTH
7075-T6	83000	73000
2024-T3	70000	50000
6061-T6	45000	40000

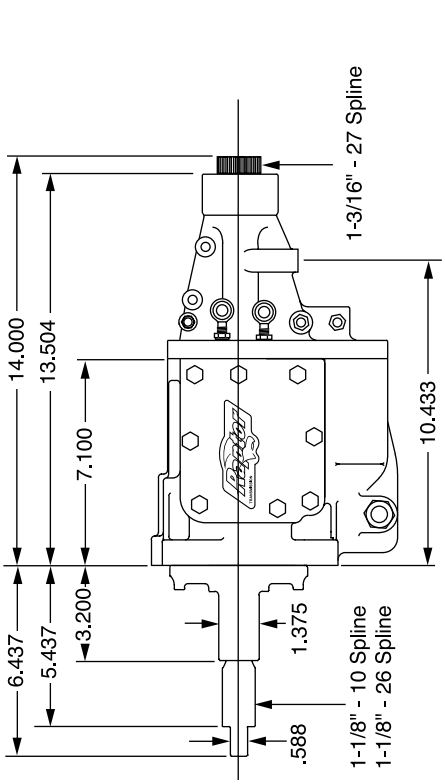
FACT
Titanium is 60% the weight of steel.

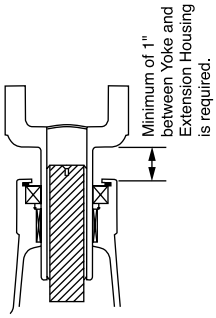
FACT
Aluminum is approx. 33% the weight of steel.

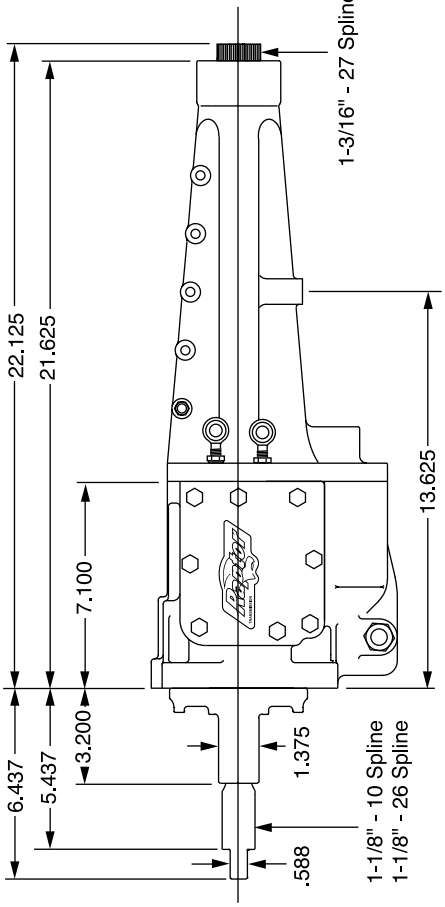
FACT
Magnesium is 66% the weight of aluminum.

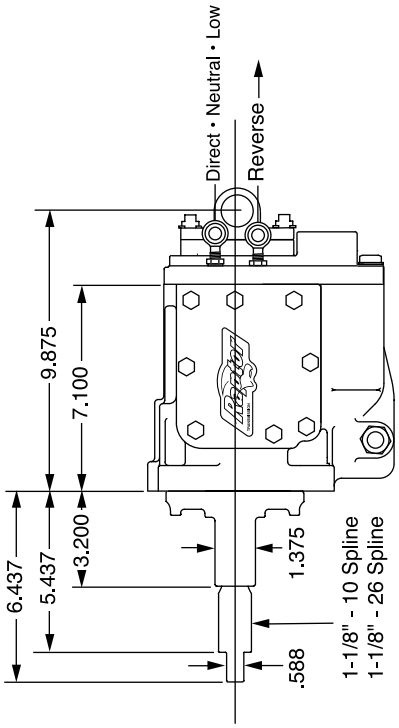
DIMENSIONS

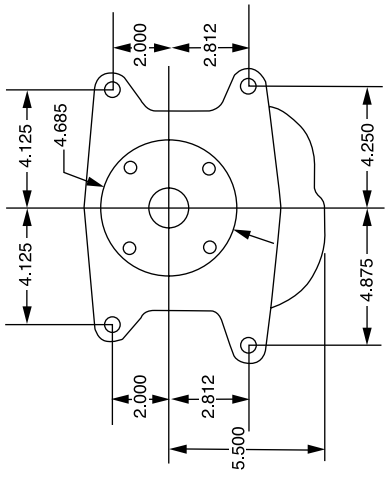
RAPTOR TRANSMISSION



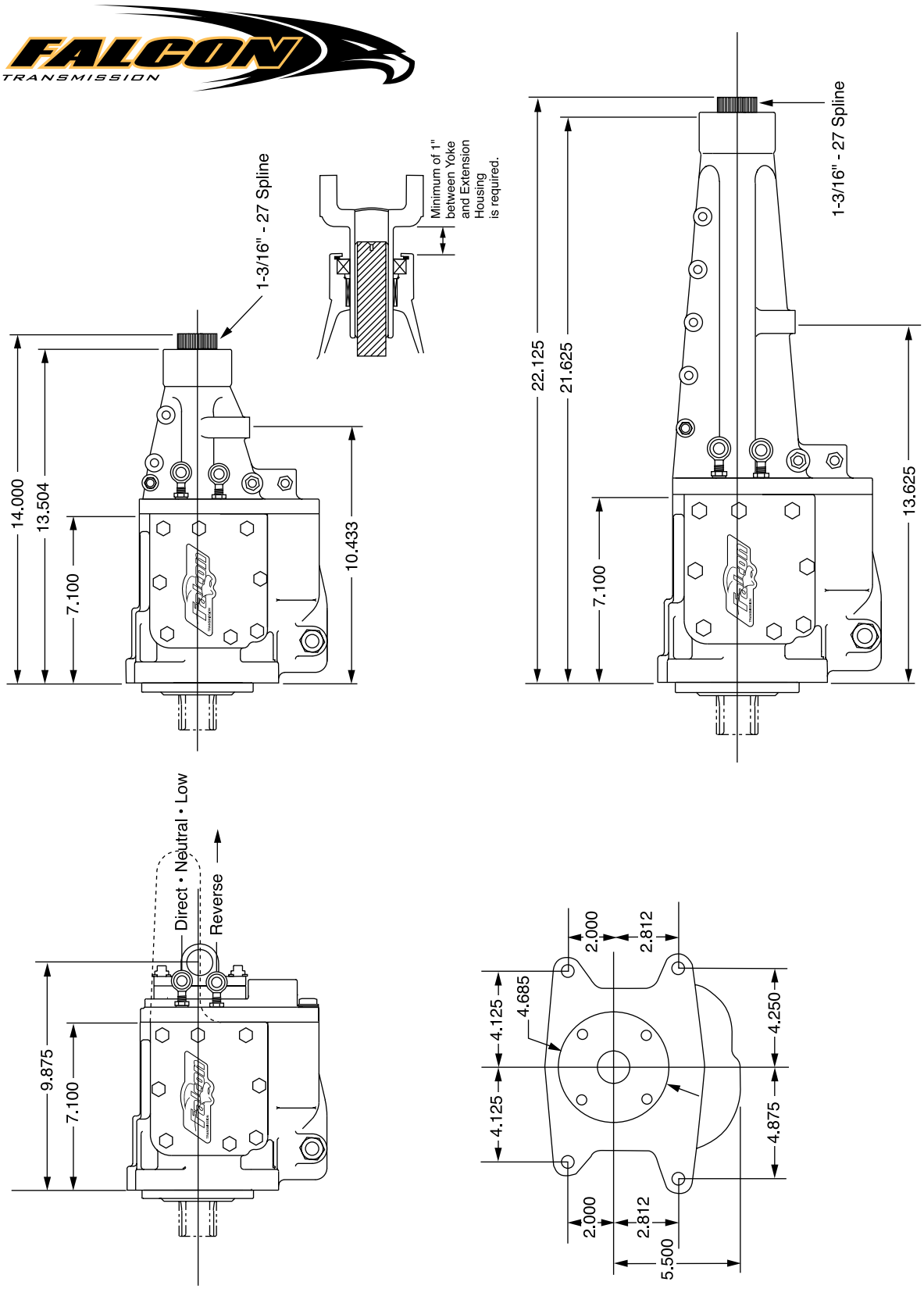






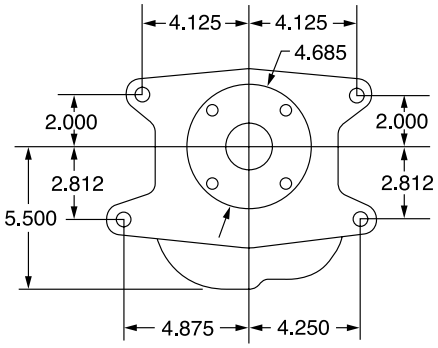


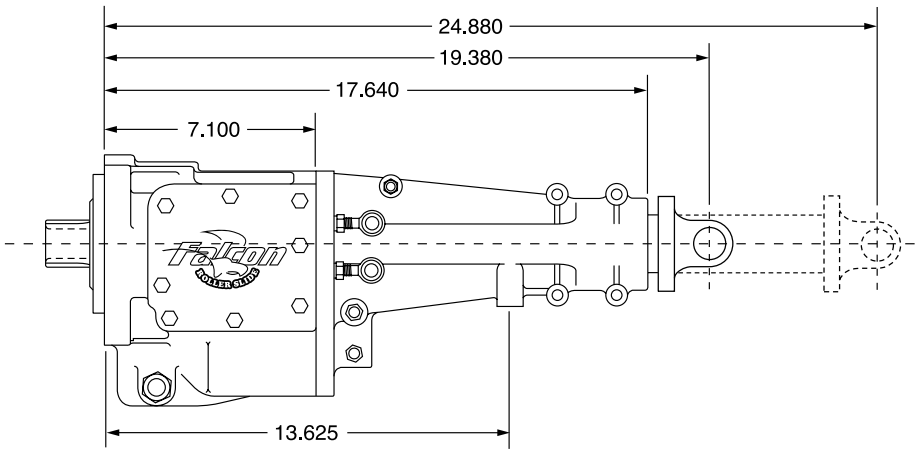
DIMENSIONS



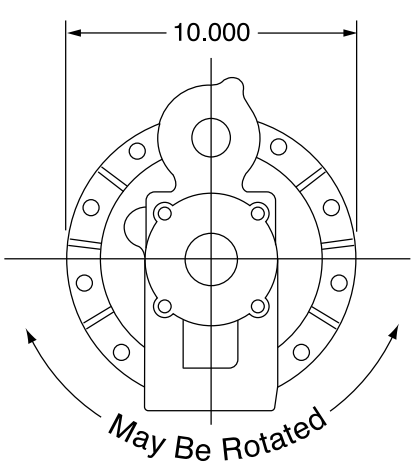
DIMENSIONS

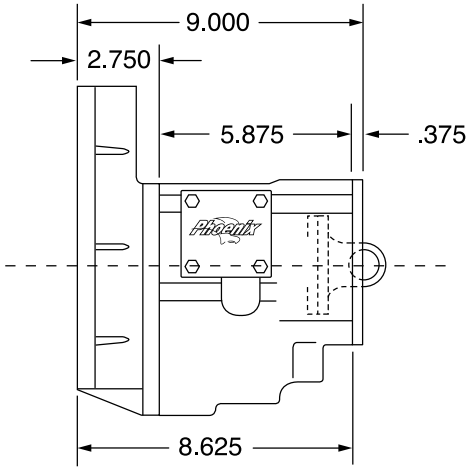
FALCON ROLLER SLIDE





PHOENIX





LIMITED WARRANTY

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PURCHASER HEREBY AGREES TO INDEMNIFY AND HOLD HARMLESS WINTERS/MAVERICK FROM AND AGAINST ANY AND ALL CLAIMS, LIABILITY, LOSS AND DAMAGES, INCLUDING ATTORNEYS FEES, MADE BY ANY THIRD PARTY AGAINST WINTERS/MAVERICK RELATING TO A PART OR THE USE OF ANY PART. Purchaser understands and agrees that no officer, director, employee or agent of Winters/Maverick (including but not limited to any vendor, dealer or distributor) has any authority to make any statements contrary to the terms of this Limited Warranty. Winters/Maverick specifically disavows any statements contrary to what is written above.

CHOICE OF LAW/VENUE

This Limited Warranty shall be governed by and construed in accordance with the laws of the Commonwealth of Pennsylvania. Any legal action which may arise as a result of disputes, controversies, or claims arising out of or related to this Limited Warranty or the purchase or use of any Part shall be litigated exclusively in the Court of Common Pleas of York County, Pennsylvania or the United States District Court for the Middle District of Pennsylvania.

MISCELLANEOUS

This writing constitutes the full, complete and final statement of Winters'/Maverick's 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/Maverick. Winters'/Maverick's 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 not be assigned by Purchaser. Winters'/Maverick's responsibility for merchandise shipped via common carrier ceases upon delivering the order to the carrier. Winters/Maverick is not responsible for merchandise lost or damaged in transit. Purchaser must file a claim with the delivery carrier for merchandise lost or damaged during transit. Winters/Maverick will assist Purchaser by supplying any information necessary for submission of a claim. It is the responsibility of the Purchaser to comply with all laws and regulations, Federal, State and Local, governing resale of products sold by Winters/Maverick. NSF Charge: $38.00 per returned check/payment. Repayments must be made by cashier check or money order.

On request, all parts in Winters Performance Products, Inc./Maverick Performance, Inc. inventory and/or catalog are available in super strength heat treated steel (300,000/350,000 P.S.I. tensile strength) at extra cost and special order. Refer to machinery handbook for strengths of other materials.

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CATALOG # MP3