

CHAPTER 9

BRAKES / FINAL DRIVE

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BRAKES/FINAL DRIVE Specifications

1996 Brake Specifications

Model	Brake Type	Polaris Chaincase Lube Amount	Chaincase Sprocket/Chain Length	Reverse	* Jackshaft Spline	Brake Pads
Indy Lite	M3	9 fl. oz.	16/39/64	Acc	13	Std
Indy Lite Deluxe	M3	9 fl. oz.	16/39/64	Acc	13	Std
Indy Lite GT	M3	9 fl. oz.	16/39/64	Acc	13	Std
Indy Sport	H4	9 fl. oz.	16/35/62	Acc	13	Std
Indy Super Sport	H4	9 fl. oz.	17/35/62	Acc	13	Std
Indy TranSport	H4	9 fl. oz.	15/39/64	Acc	13	Std
Indy Sport Touring	H4	9 fl. oz.	16/39/64	Acc	13	Std
Indy Trail	H4	9 fl. oz.	21/39/66	Acc	15	Std
Indy Trail Touring	H4	11 fl. oz.	20/39/66	Std	15	Std
Indy 440 LC	H4	9 fl. oz.	21/39/66	Acc	15	Std
Indy 440 XCR	H5LC	9 fl. oz.	21/39/66	Acc	15	HD
Indy 440 XCR SP ***	H5LC	9 fl. oz.	21/39/66	Acc	15	Race***
Indy 600 XCR	H5LC	9 fl. oz.	21/39/66	Acc	15	HD
Indy 600 XCR SP **	H5LC	9 fl. oz.	21/35/64W	Acc	15	Std
Indy WideTrak GT **	WT	11 fl. oz.	18/41/66	Std	22	Std
Indy WideTrak LX **	WT	11 fl. oz.	18/41/66	Std	22	Std
Indy Classic	H4	11 fl. oz.	21/39/66W	Std	15	Std
Indy Classic Touring	H4	11 fl. oz.	20/39/66W	Std	15	Std
Indy 500	H4	9 fl. oz.	21/39/66	Acc	15	Std
Indy 500 RMK	H4	9 fl. oz.	18/39/66	Acc	15	HD
Indy 500 SKS	H4	9 fl. oz.	20/39/66	Acc	15	Std
Indy 500 EFI	H4	9 fl. oz.	21/39/66W	Acc	15	Std
Indy 500 EFI SKS	H4	9 fl. oz.	20/39/66	Acc	15	Std
Indy 500 EFI RMK	H4	9 fl. oz.	18/39/66	Acc	15	HD
Indy XLT	H4	9 fl. oz.	21/39/66W	Acc	15	Std
Indy XLT SKS	H4	9 fl. oz.	20/39/66W	Acc	15	Std
Indy XLT RMK	H4	9 fl. oz.	18/39/66W	Acc	15	HD
Indy XLT SP	H4	9 fl. oz.	21/39/66W	Acc	15	Std
Indy XLT Touring	H4	11 fl. oz.	20/39/66W	Std	15	Std
Indy RXL	H5LC	9 fl. oz.	20/35/64W	Acc	15	Std
Indy Ultra SP **	H5LC	9 fl. oz.	21/35/64W	Acc	15	Std
Indy Ultra SKS **	H4	9 fl. oz.	20/35/64W	Acc	15	Std
Indy Ultra RMK **	H5LC	9 fl. oz.	20/39/66W	Acc	15	Std
Indy Storm **	H5LC	9 fl. oz.	23/37/66W	Acc	15	Std
Indy Storm SKS **	H5LC	9 fl. oz.	20/35/64W	Acc	15	Std
Indy Storm RMK **	H5LC	9 fl. oz.	20/39/66W	Acc	15	HD

Brake type I.D. - M=Mechanical, H=Hydraulic, LC=Liquid Cooled, WT=WideTrak

"W" denotes a 13 link wide chain and wide sprocket; others are 11 link wide.

* Requires 2871296 Installation Tool for 15 tooth, 2870974 Installation Tool for 13 tooth

** Denotes jackshafts with pressed on left side bearings (no lock collar)

*** Race pad 440 XCR SP can only be used with special caliper assembly and Magura master cylinder assembly

BRAKES/FINAL DRIVE Specifications

1997 Brake Specifications

Model	Brake Type	Polaris Chaincase Lube Amount	Chaincase Sprocket/ Chain Length	Sprocket/ Chain Width	Reverse	* Jackshaft Spline	Brake Pads
Indy Lite, Deluxe, GT	M3	9 fl. oz.	16/39/64	11	Acc	13	Std
Indy Sport	H4	9 fl. oz.	17/35/62	11	Acc	13	Std
Indy Sport Touring	H4	9 fl. oz.	16/39/64	11	Acc	13	Std
Indy TranSport	H4	9 fl. oz.	15/39/64	11	Acc	13	Std
Indy XCF	H4	9 fl. oz.	20/39/66	11	Acc	15	Std
Indy 440 LC	H4	9 fl. oz.	21/39/66	11	Acc	15	Std
Indy 440 XC	H5LC	9 fl. oz.	21/39/66	13	Acc	15	HD
Indy 440 XCR	H5LC	9 fl. oz.	22/41/70	3/4	Acc	15	HD
Indy Super Sport	H4	9 fl. oz.	21/39/66	11	Acc	15	Std
Indy Trail	H4	9 fl. oz.	21/39/66	11	Acc	15	Std
Indy Trail Touring	H4	11 fl. oz.	20/39/66	11	Std	15	Std
Indy Trail RMK	H4	11 fl. oz.	19/40/66	11	Acc	15	Std
Indy WideTrak GT / LX	WT-2	20 fl. oz.	19/41/66	13	Std/LR	19	Std
Indy Classic	H4	11 fl. oz.	21/39/66	13	Std	15	Std
Indy Classic Touring	H4	11 fl. oz.	19/39/66	13	Std	15	Std
Indy 500	H4	9 fl. oz.	21/39/66	13	Acc	15	Std
Indy 500 SKS	H4	9 fl. oz.	20/39/66	13	Acc	15	Std
Indy 500 RMK	H4	9 fl. oz.	19/40/66	13	Acc	15	HD
Indy 500 EFI	H4	9 fl. oz.	21/39/66	13	Acc	15	Std
Indy XLT	H4	9 fl. oz.	21/39/66	13	Acc	15	Std
Indy XLT SKS	H4	9 fl. oz.	20/39/66	13	Acc	15	Std
Indy XLT RMK	H4	9 fl. oz.	18/40/66	13	Acc	15	HD
Indy XLT SP	H4	9 fl. oz.	21/39/66	13	Acc	15	Std
Indy XLT LTD / SP	H4	9 fl. oz.	21/39/66	15	Acc	15	Std
Indy XLT Touring	H4	11 fl. oz.	20/40/66	13	Std	15	Std
Indy 600 XC	H5LC	9 fl. oz.	21/39/66	13	Acc	15	HD
Indy 600 XCR	H5LC	9 fl. oz.	21/35/64	13	Acc	15	HD
Indy RXL	H5LC	9 fl. oz.	20/35/64	15	Acc	15	Std
Indy Ultra / Ultra SP	H5LC	9 fl. oz.	21/35/64	13	Acc	15	Std
Indy Ultra SPX/SE	H5LC	9 fl. oz.	21/35/64	13	Acc	15	Std
Indy Ultra Touring	H5LC	9 fl. oz.	20/35/64	13	Std	15	Std
Indy 700 SKS	H5LC	9 fl. oz.	20/35/66	13	Acc	15	Std
Indy 700 RMK	H5LC	9 fl. oz.	20/39/68	13	Acc	15	HD
Indy 700 XC	H5LC	9 fl. oz.	24/40/70	3/4	Acc	15	HD
Indy Storm / SE	H5LC	9 fl. oz.	23/37/66	15	Acc	15	Std
Indy Storm RMK	H5LC	9 fl. oz.	20/39/66	15	Acc	15	HD

Brake type I.D. - M=Mechanical, H=Hydraulic, LC=Liquid Cooled, WT=WideTrak

* Requires 2871296 Installation Tool for 15 tooth, 2870974 Installation Tool for 13 tooth

1998 Chain Case / Brake Specifications

Model	Polaris Chaincase Lube Amount**	Chaincase Sprocket/ Chain Length	Sprocket/ Chain Width	Reverse	Jackshaft Splines*	Brake Pads	Brake Type
Indy Lite	7 fl. oz.	16/39/64	13	Opt.	13	Std	M3
Indy Lite Deluxe	7 fl. oz.	16/39/64	13	Opt.	13	Std	M3
Indy Lite Touring	7 fl. oz.	16/39/64	13	Opt.	13	Std	M3
Indy Sport	7 fl. oz.	17/35/62	13	Opt.	13	Std	H4
Indy Sport Touring	7 fl. oz.	17/41/66	13	Opt.	13	Std	H4
Indy TranSport	9 fl. oz.	15/39/64	13	Std.	13	Std	H4
Indy XCF	7 fl. oz.	19/39/66	3/4"	Opt.	15	Std	H4
Indy 440 LC	7 fl. oz.	22/41/68	3/4"	Opt.	15	Std	H4
Indy 440 XCR	7 fl. oz.	21/39/68	3/4"	Opt.	15		H5LC
Indy Super Sport	7 fl. oz.	22/41/68	3/4"	Opt.	15	Std	H4
Indy Trail	7 fl. oz.	22/41/68	3/4"	Opt.	15	Std	H4
Indy Trail Touring	9 fl.oz.	20/40/66	3/4"	Std.	15	Std	H4
Indy Trail RMK	7 fl. oz.	18/41/66	3/4"	Opt.	15	HD	H4
Indy WideTrak LX	20 fl. oz.	19/41/66	3/4"	Std.w/H-L	19	Std	WT-2
Indy Classic	9 fl. oz.	22/41/68	3/4"	Std.	15	Std	H4
Indy Classic Touring	9 fl. oz.	19/40/66	3/4"	Std.	15	Std	H4
Indy 500	7 fl. oz.	22/41/68	3/4"	Opt.	15	Std	H4
Indy 500 RMK	7 fl. oz.	17/41/66	3/4"	Opt.	15	HD	H4
Indy XLT Classic	9 fl.oz.	22/41/68	3/4"	Std.	15	Std	H4
Indy XLT SP	7 fl. oz.	22/41/68	3/4"	Opt.	15	Std	H4
Indy XLT LTD	7 fl. oz.	22/41/68	3/4"	Opt.	15	Std	H4
Indy XLT Touring	9 fl. oz.	20/40/66	3/4"	Std.	15	Std	H4
Indy 600 XC	7 fl. oz.	22/40/70	3/4"	Opt.	15	Std	H5LC
Indy 600 XCR	7 fl. oz.	23/40/68	3/4"	Opt.	15	HD	H5LC
Indy 600 RMK	7 fl. oz.	19/40/68	3/4"	Opt.	15	HD	H5LC
Indy Ultra	7 fl. oz.	23/40/68	3/4"	Opt.	15	Std	H5LC
Indy Ultra Touring	9 fl. oz.	22/40/68	3/4"	Std.	15	Std	H5LC
Indy 700 XC	7 fl. oz.	24/40/70	3/4"	Opt.	15	Std	H5LC
Indy 700 XCR	7 fl. oz.	24/40/68	3/4"	Opt.	15	HD	H5LC
Indy 700 RMK	7 fl. oz.	21/41/70	3/4"	Opt.	15	HD	H5LC
Indy Storm	7 fl. oz.	25/40/70	3/4"	Opt.	15	Std	H5LC

Brake type I.D. - M=Mechanical, H=Hydraulic, LC=Liquid Cooled, WT=WideTrak

* Requires 2871296 Installation Tool for 15 tooth, 2870974 Installation Tool for 13 tooth

All 1998 Models with P85 Clutch System use HYVO™ Chain and Sprockets (3/4" wide)

** 7 fl.oz. = 210cc

** 9 fl.oz. = 265cc

** 20 fl.oz. = 590cc

BRAKES/FINAL DRIVE Jackshaft Speed vs. MPH Chart

9/97

9.2

BRAKES/FINAL DRIVE Jackshaft Speed vs. MPH Chart (Long Chain Case)

1997 700 XC, 440 XCR; 1998 440 XCR, 600 & 700 Domestic Twins (Longer Chain Case)

Top Sprocket	25	23	23	23	22	22	20	21	19	19	18	18	17
Lower Sprocket	41	39	40	41	40	41	39	41	39	40	40	41	41
Ratio	1.64	1.70	1.74	1.78	1.82	1.86	1.95	1.95	2.05	2.11	2.22	2.28	2.41
Chain Length	72	70	70	70	70	70	68	70	68	68	68	68	68
Jackshaft RPM	MILES PER HOUR												
6000	76.8	74.3	72.5	70.7	69.3	67.6	64.6	64.5	61.4	59.9	56.7	55.3	52.3
6100	78.1	75.6	73.7	71.9	70.5	68.7	65.7	65.6	62.4	60.9	57.7	56.2	53.1
6200	79.4	76.8	74.9	73.1	71.6	69.9	66.8	66.7	63.4	61.9	58.6	57.2	54.0
6300	80.7	78.0	76.1	74.2	72.8	71.0	67.9	67.8	64.5	62.9	59.5	58.1	54.9
6400	82.0	79.3	77.3	75.4	73.9	72.1	68.9	68.9	65.5	63.9	60.5	59.0	55.7
6500	83.2	80.5	78.5	76.6	75.1	73.3	70.0	69.9	66.5	64.8	61.4	59.9	56.6
6600	84.5	81.8	79.7	77.8	76.2	74.4	71.1	71.0	67.5	65.8	62.4	60.9	57.5
6700	85.8	83.0	80.9	78.9	77.4	75.5	72.2	72.1	68.6	66.8	63.3	61.8	58.3
6800	87.1	84.2	82.1	80.1	78.6	76.6	73.2	73.2	69.6	67.8	64.3	62.7	59.2
6900	88.4	85.5	83.3	81.3	79.7	77.8	74.3	74.2	70.6	68.8	65.2	63.6	60.1
7000	89.6	86.7	84.5	82.5	80.9	78.9	75.4	75.3	71.6	69.8	66.2	64.5	61.0
7100	90.9	87.9	85.7	83.7	82.0	80.0	76.5	76.4	72.7	70.8	67.1	65.5	61.8
7200	92.2	89.2	87.0	84.8	83.2	81.1	77.6	77.5	73.7	71.8	68.1	66.4	62.7
7300	93.5	90.4	88.2	86.0	84.3	82.3	78.6	78.5	74.7	72.8	69.0	67.3	63.6
7400	94.8	91.7	89.4	87.2	85.5	83.4	79.7	79.6	75.7	73.8	69.9	68.2	64.4
7500	96.1	92.9	90.6	88.4	86.6	84.5	80.8	80.7	76.7	74.8	70.9	69.2	65.3
7600	97.3	94.1	91.8	89.5	87.8	85.7	81.9	81.8	77.8	75.8	71.8	70.1	66.2
7700	98.6	95.4	93.0	90.7	88.9	86.8	82.9	82.8	78.8	76.8	72.8	71.0	67.1
7800	99.9	96.6	94.2	91.9	90.1	87.9	84.0	83.9	79.8	77.8	73.8	71.9	67.9
7900	101.2	97.9	95.4	93.1	91.3	89.0	85.1	85.0	80.8	78.8	74.7	72.8	68.8
8000	102.5	99.1	96.6	94.3	92.4	90.2	86.2	86.1	81.9	79.8	75.6	73.8	69.7
8100	103.7	100.3	97.8	95.4	93.6	91.3	87.2	87.1	82.9	80.8	76.6	74.7	70.5
8200	105.0	101.6	99.0	96.6	94.7	92.4	88.3	88.2	83.9	81.8	77.5	75.6	71.4
8300	106.3	102.8	100.2	97.8	95.9	93.5	89.4	89.3	84.9	82.8	78.4	76.5	72.3
8400	107.6	104.0	101.4	99.0	97.0	94.7	90.5	90.4	86.0	83.8	79.4	77.5	73.2
8500	108.9	105.3	102.7	100.2	98.2	95.8	91.6	91.4	87.0	84.8	80.3	78.4	74.0
8600	110.1	106.5	103.9	101.3	99.3	96.9	92.6	92.5	88.0	85.8	81.3	79.3	74.9
8700	111.4	107.8	105.1	102.5	100.5	98.1	93.7	93.6	89.0	86.8	82.2	80.2	75.8
8800	112.7	109.0	106.3	103.7	101.7	99.2	94.8	94.7	90.0	87.8	83.2	81.1	76.6
8900	114.0	110.2	107.5	104.9	102.8	100.3	95.9	95.7	91.1	88.8	84.1	82.1	77.5
9000	115.3	111.5	108.7	106.0	104.0	101.4	96.9	96.8	92.1	89.8	85.1	83.0	78.4
9100	116.5	112.7	109.9	107.2	105.1	102.6	98.0	97.9	93.1	90.8	86.0	83.9	79.2
9200	117.8	114.0	111.1	108.4	106.3	103.7	99.1	99.0	94.1	91.8	87.0	84.8	80.1
9300	119.1	115.2	112.3	109.6	107.4	104.8	100.2	100.0	95.2	92.8	87.9	85.8	81.0
9400	120.4	116.4	113.5	110.8	108.6	105.9	101.2	101.1	96.2	93.8	88.8	86.7	81.9
9500	121.7	117.7	114.7	111.9	109.7	107.1	102.3	102.2	97.2	94.8	89.8	87.6	82.7
9600	122.9	118.9	115.9	113.1	110.9	108.2	103.4	103.3	98.2	95.8	90.7	88.5	83.6
9700	124.2	120.2	117.1	114.3	112.1	109.3	104.5	104.4	99.3	96.8	91.7	89.4	84.5
9800	125.5	121.4	118.4	115.5	113.2	110.4	105.6	105.4	100.3	97.8	92.6	90.4	85.3
9900	126.8	122.6	119.6	116.6	114.4	111.6	106.6	106.5	101.3	98.8	93.6	91.3	86.2
10000	128.1	123.9	120.8	117.8	115.5	112.7	107.7	107.6	102.3	99.8	94.5	92.2	87.1

BRAKES/FINAL DRIVE

Chain Case Sprocket Part Numbers

Top Sprockets - 13 Spline (Except Large Diameter Jackshaft)

11L Drive System		13L Drive System	
13T	3222059	19T	3221059
14T	3221036	20T	3221055
15T	3221031	21T	3221054
16T	3221032	22T	3221056
17T	3221033	23T	3221057
18T	3221037		
19T	3221034		
20T	3221053		
21T	3221035		

Top Sprockets - 15 Spline (Large Diameter) Jackshaft

11L Drive System		13L Drive System		15L Drive System	
15T	3221067	17T	3221075	20T	3221080
16T	3221068	18T	3221076	21T	3222077
17T	3221069	19T	3221060	22T	3222078
18T	3221079	20T	3221061	23T	3222079
19T	3221071	21T	3221062		
20T	3221065	22T	3221063		
21T	3221066	23T	3221064		
22T	3221072				
23T	3221073				

Bottom Sprockets

11L Drive System		11L Reverse		13L Drive System		13L Reverse Gear		15L Drive System		15L Reverse	
33T	3222039	35T	1341054	35T	3222053	35T	1341110	35T	3222073	35T	1341173
35T	3222036	39T Steel 39T PM	1341053 1341163	37T	3222056	37T	1341114	37T	3222074	37T	1341172
39T	3222034	40T	1341198	39T	3222052	39T Steel 39T PM	1341111 1341163	39T	3222075	39T	1341171
41T	3222037	41T	1341112			40T	1341197			41T	1341117

Drive Chain

11L Drive System		13L Drive System		15L Drive System	
64P	3224023	64P	3224052	64P	3224057
66P	3224024	66P	3224051	66P	3224058
68P	3224025				

HYVO™ Sprocket Part Numbers

Top Sprockets For 3/4" HYVO™ Drive Systems

17T	3221084
18T	3221085
19T	3221086
20T	3221087
21T	3221088
22T	3221089
23T	3221090
24T	3221091
25T	3221092

HYVO™ Drive Chain

Chain Length (Pitch)	Part Number
66P	3224071
68P	3224070
70P	3224069

Bottom Sprockets For 3/4" HYVO™ Drive Systems

Standard Bottom Sprockets		Reverse Sprockets	
39T	3222105	40T	1341224
40T	3222094	41T	1341225
41T	3222095		

BRAKES/FINAL DRIVE**Sprocket / Chain Combinations****Sprocket / Chain Combinations – 6.625 Chain Case**

Acceptable gearing / chain combinations are listed below for the 6.625 (center distance) chaincase. Do not use this chart for 1997 - 1998 models with domestic twin cylinder engines (7.050 chaincase), refer to page 9.2e. Combinations listed as "not recommended" should not be installed.

Upper Sprocket (# of Teeth)	Lower Sprocket (# of Teeth)	Chain Length (6.625 Chain Case)	
16	35	62	
16	37	64	NOT RECOMMENDED
16	39	64	
16	40	66	NOT RECOMMENDED
16	41	66	
17	35	62	
17	37	64	
17	39	64	
17	40	66	NOT RECOMMENDED
17	41	66	
18	35	64	NOT RECOMMENDED
18	37	64	
18	39	66	NOT RECOMMENDED
18	40	66	
18	41	66	
19	35	64	NOT RECOMMENDED
19	37	64	
19	39	66	
19	40	66	
19	41	66	
20	35	64	
20	37	66	NOT RECOMMENDED
20	39	66	
20	40	66	
20	41	68	NOT RECOMMENDED
21	35	64	
21	37	66	NOT RECOMMENDED
21	39	66	
21	40	68	NOT RECOMMENDED
21	41	68	
22	35	64	
22	37	66	
22	39	68	NOT RECOMMENDED
22	40	68	
22	41	68	
23	35	66	NOT RECOMMENDED
23	37	66	
23	39	68	NOT RECOMMENDED
23	40	68	
23	41	68	
24	39	68	
24	40	68	
24	41	70	NOT RECOMMENDED
25	39	68	
25	40	70	NOT RECOMMENDED
25	41	70	NOT RECOMMENDED

BRAKES/FINAL DRIVE
Sprocket / Chain Combinations

Sprocket / Chain Combinations – 7.050 Center Distance Chain Case

Acceptable gearing / chain combinations are listed below for the 7.050 (center distance) chaincase used on all 1997 - 1998 models with domestic twin cylinder engines (440 XCR, 600 and 700 XC, SKS, and RMK). Combinations listed as "not recommended" should not be installed. Refer to page 9.2d for 6.625 (center distance) chaincase gearing/chain recommendations.

Upper Sprocket (# of Teeth)	Lower Sprocket (# of Teeth)	Chain Length	
16	35	64	
16	37	66	NOT RECOMMENDED
16	39	66	
16	40	68	NOT RECOMMENDED
16	41	68	
17	35	64	NOT RECOMMENDED
17	37	66	
17	39	68	NOT RECOMMENDED
17	40	68	
17	41	68	
18	35	66	NOT RECOMMENDED
18	37	66	
18	39	68	NOT RECOMMENDED
18	40	68	
18	41	68	
19	35	66	
19	37	66	NOT RECOMMENDED
19	39	68	
19	40	68	
19	41	70	NOT RECOMMENDED
20	35	66	
20	37	68	NOT RECOMMENDED
20	39	68	
20	40	70	NOT RECOMMENDED
20	41	70	NOT RECOMMENDED
21	35	66	
21	37	68	
21	39	70	NOT RECOMMENDED
21	40	70	NOT RECOMMENDED
21	41	70	
22	35	68	NOT RECOMMENDED
22	37	68	
22	39	70	NOT RECOMMENDED
22	40	70	
22	41	70	
23	35	68	
23	37	68	
23	39	70	
23	40	70	
23	41	70	NOT RECOMMENDED
24	39	70	
24	40	70	
24	41	72	NOT RECOMMENDED
25	39	70	
25	40	72	NOT RECOMMENDED
25	41	72	

BRAKES/FINAL DRIVE Specifications

1996 Track Drive Data

Model	No. of Drive Sprockets	Drive Type	Drive Shaft Bearing Lock	Drive Sprocket Diameter	DRIVE SPROCKET POSITION Reference Page 9.4			
					A	B	C	D
Indy Lite	2	3	Set Screw	6.94				
Indy Lite Deluxe	2	3	Set Screw	6.94	7.48	12.32	All 1996 models, sprocket positions are measured to sprocket hub and not idler center. See page 9.4.	
Indy Lite GT	2	3	Set Screw	6.94	7.48	12.32		
Indy Sport	2	3	Set Screw	6.94	7.48	12.32		
Indy Super Sport	2	3	Set Screw	6.94	7.48	12.32		
Indy TransPort	2	3	Set Screw	6.94	7.48	12.32		
Indy Sport Touring	2	3	Set Screw	6.94	7.48	12.32		
Indy Trail	2	3	Set Screw	6.94	7.48	12.32		
Indy Trail Touring	2	3	Set Screw	6.94	7.48	12.32		
Indy 440 LC	2	3	Set Screw	6.94	7.48	12.32		
Indy 440 XCR	2	3	Set Screw	6.94	7.48	12.32		
Indy 440 XCR SP	2	3	Skwez-loc™	6.94	7.48	12.32		
Indy 600 XCR	2	3	Set Screw	6.94	7.48	12.32		
Indy 600 XCR SP	2	3*	Pressed	6.94	7.48	12.32		
Indy WideTrak GT	2	4	Set Screw	6.86	4.41	15.97		
Indy WideTrak LX	4	4	Set Screw	6.86	1.26	4.41	15.97	17.47
Indy Classic	2	3	Set Screw	6.94	7.48	12.32		
Indy Classic Touring	2	3	Set Screw	6.94	7.48	12.32		
Indy 500	2	3	Set Screw	6.94	7.48	12.32		
Indy 500 RMK	2	3	Set Screw	6.94	7.48	12.32		
Indy 500 SKS	2	3	Set Screw	6.94	7.48	12.32		
Indy 500 EFI	2	3	Set Screw	6.94	7.48	12.32		
Indy 500 EFI SKS	2	3	Set Screw	6.94	7.48	12.32		
Indy 500 EFI RMK	2	3	Set Screw	6.94	7.48	12.32		
Indy XLT	4	3	Set Screw	6.94	4.35	7.48	12.32	16.32
Indy XLT SKS	2	3	Set Screw	6.94	7.48	12.32		
Indy XLT RMK	2	3	Set Screw	6.94	7.48	12.32		
Indy XLT SP	4	3	Set Screw	6.94	4.35	7.48	12.32	16.32
Indy XLT Touring	4	3	Set Screw	6.94	4.35	7.48	12.32	16.32
Indy RXL	4	3	Skwez-loc™	6.94	4.35	7.48	12.32	16.32
Indy Ultra SP	4	3*	Pressed	6.94	4.35	7.48	12.32	16.32
Indy Ultra SKS	4	3*	Pressed	6.94	4.35	7.48	12.32	16.32
Indy Ultra RMK	4	3*	Pressed	6.94	4.35	7.48	12.32	16.32
Indy Storm	4	3*	Pressed	6.94	4.35	7.48	12.32	16.32
Indy Storm SKS	4	3*	Pressed	6.94	4.35	7.48	12.32	16.32
Indy Storm RMK	4	3*	Pressed	6.94	4.35	7.48	12.32	16.32

* Denotes driveshafts with pressed on left side bearings (no lock collar) with welded flangette bolts.

BRAKES/FINAL DRIVE

Specifications

1997 Track Drive Data

Model	No. of Drive Sprockets	Drive Type	Drive Shaft Bearing Lock	Drive Sprocket Diameter	DRIVE SPROCKET POSITION Reference Page 9.4			
					A	B	C	D
Indy Lite	2	3	Set Screw	6.94			All 1996 models, sprocket positions are measured to sprocket hub and not idler center. See page 9.4.	
Indy Lite Deluxe	2	3	Set Screw	6.94	7.48	12.32		
Indy Lite GT	2	3	Set Screw	6.94	7.48	12.32		
Indy Sport	2	3	Set Screw	6.94	7.48	12.32		
Indy XCF	2	3	Set Screw	6.94	7.48	12.32		
Indy TransPort	2	3	Set Screw	6.94	7.48	12.32		
Indy Sport Touring	2	3	Set Screw	6.94	7.48	12.32		
Indy Super Sport	2	3	Set Screw	6.94	7.48	12.32		
Indy Trail	2	3	Set Screw	6.94	7.48	12.32		
Indy Trail Touring	2	3	Set Screw	6.94	7.48	12.32		
Indy Trail RMK	2	3	Set Screw	6.94	7.48	12.32		
Indy 440 LC	2	3	Set Screw	6.94	7.48	12.32		
Indy 440 XC	2	3	Set Screw	6.94	7.48	12.32		
Indy 600 XC	2	3	Set Screw	6.94	7.48	12.32		
Indy 600 XCR	2	3*	Pressed	6.94	7.48	12.32		
Indy WideTrak GT	2	4	Pressed	6.86	4.41	15.97		
Indy WideTrak LX	4	4	Pressed	6.86	1.26	4.41	15.97	17.47
Indy Classic	2	3	Set Screw	6.94	7.48	12.32		
Indy Classic Touring	2	3	Set Screw	6.94	7.48	12.32		
Indy 500	2	3	Set Screw	6.94	7.48	12.32		
Indy 500 RMK	2	3	Set Screw	6.94	7.48	12.32		
Indy 500 SKS	2	3	Set Screw	6.94	7.48	12.32		
Indy 500 EFI	2	3	Set Screw	6.94	7.48	12.32		
Indy XLT	4	3	Set Screw	6.94	4.35	7.48	12.32	16.32
Indy XLT SKS	2	3	Set Screw	6.94	7.48	12.32		
Indy XLT RMK	2	3	Set Screw	6.94	7.48	12.32		
Indy XLT SP	4	3	Set Screw	6.94	4.35	7.48	12.32	16.32
Indy XLT Touring	4	3	Set Screw	6.94	4.35	7.48	12.32	16.32
Indy RXL	4	3	Skwez-loc™	6.94	4.35	7.48	12.32	16.32
Indy Ultra	4	3*	Pressed	6.94	4.35	7.48	12.32	16.32
Indy Ultra SP	4	3*	Pressed	6.94	4.35	7.48	12.32	16.32
Indy Ultra SPX/SE	4	3*	Pressed	6.94	4.35	7.48	12.32	16.32
Indy Ultra Touring	4	3*	Pressed	6.94	4.35	7.48	12.32	16.32
Indy 700 SKS	4	3*	Set Screw	6.94	4.35	7.48	12.32	16.32
Indy 700 RMK	4	3*	Set Screw	6.94	4.35	7.48	12.32	16.32
Indy Storm	4	3*	Pressed	6.94	4.35	7.48	12.32	16.32
Indy Storm SKS	4	3*	Pressed	6.94	4.35	7.48	12.32	16.32
Indy Storm RMK	4	3*	Pressed	6.94	4.35	7.48	12.32	16.32

* Denotes driveshafts with pressed on left side bearings (no lock collar) with welded flange bolts.

1998 Track Drive Data

Model	No. of Drive Sprockets	Drive Type	Drive Shaft Bearing Lock	Drive Sprocket Diameter	DRIVE SPROCKET POSITION Reference Page 9.4			
					A	B	C	D
Indy Lite	2	3*	Pressed	6.94				
Indy Lite Deluxe	2	3*	Pressed	6.94	7.48	12.32	All 1998 models, sprocket positions are measured to sprocket hub and not idler center. See page 9.4.	
Indy Lite Touring	2	3*	Pressed	6.94	7.48	12.32		
Indy Sport	2	3*	Pressed	6.94	7.48	12.32		
Indy XCF	2	3*	Pressed	6.94	7.48	12.32		
Indy TranSport	2	3*	Pressed	6.94	7.48	12.32		
Indy Sport Touring	2	3*	Pressed	6.94	7.48	12.32		
Indy Super Sport	2	3*	Pressed	6.94	7.48	12.32		
Indy Trail	2	3*	Pressed	6.94	7.48	12.32		
Indy Trail Touring	2	3*	Pressed	6.94	7.48	12.32		
Indy Trail RMK	2	3*	Pressed	6.94	7.48	12.32		
Indy 440 LC	2	3*	Pressed	6.94	7.48	12.32		
Indy 440 XCR	2	3*	Pressed	6.94	6.95	11.79		
Indy WideTrak LX	4	4*	Pressed	6.94	1.26	4.41	15.97	17.47
Indy Classic	2	3*	Pressed	6.94	7.48	12.32		
Indy Classic Touring	2	3*	Pressed	6.94	7.48	12.32		
Indy 500	2	3*	Pressed	6.94	7.48	12.32		
Indy 500 RMK	2	3*	Pressed	6.94	7.48	12.32		
Indy XLT LTD	2 (wide)	3*	Pressed	6.94	6.95	11.79		
Indy XLT Classic	2 (wide)	3*	Pressed	6.94	6.95	11.79		
Indy XLT SP	2 (wide)	3*	Pressed	6.94	6.95	11.79		
Indy XLT Touring	4	3*	Pressed	6.94	4.35	7.48	12.32	16.32
Indy 600 XC	2 (wide)	3*	Pressed	6.94	6.95	11.79		
Indy 600 XCR	4	3*	Pressed	6.94	4.35	7.48	12.32	16.32
Indy 600 RMK	2 (wide)	3*	Pressed	6.94	6.95	11.79		
Indy Ultra	4	3*	Pressed	6.94	4.35	7.48	12.32	16.32
Indy Ultra Touring	4	3*	Pressed	6.94	4.35	7.48	12.32	16.32
Indy 700 XC	2 (wide)	3*	Pressed	6.94	6.95	11.79		
Indy 700 XCR	4	3*	Pressed	6.94	4.35	7.48	12.32	16.32
Indy 700 RMK	2 (wide)	3*	Pressed	6.94	6.95	11.79		
Indy Storm	4	3*	Pressed	6.94	4.35	7.48	12.32	16.32

* Denotes driveshafts with press-fit bearings on left side (no lock collar) and flange studs (welded).

BRAKES/FINAL DRIVE

Track Specifications

1996 Track Specifications

Model	Length x Width	Contact Length	Pattern	Lug Height	Wheels Bogie/ Idler	Wear Strips
Indy Lite/Deluxe	121 x 15"	35"	Block	.66"	6/3	N/A
Indy Lite GT	133.5 x 15"	41"	Lightning	.82"	6/3	N/A
Indy Sport	121 x 15"	35"	Block	.71"	6/3	Acc
Indy Sport Touring	133.5 x 15"	41"	Lightning	.82"	6/3	Acc
Indy TranSport	141 x 15"	45"	Wiper	1.13"	8/3	Acc
Indy Super Sport	121 x 15"	35"	Lightning	.82"	6/3	Acc
Indy 440 XCR	121 x 15"	44"	Logo	.73"	8/4	Std
Indy 440 XCR SP	121 x 15"	44"	Logo	.73"	6/4	Std
Indy 600 XCR/SP	121 x 15"	44"	Lightning	.82"	8/4	Std
Indy WideTrak GT	141 x 20"	45"	Wiper	.91"	/4	Std
Indy WideTrak LX	156 x 20"	52.5"	Block	.71"	/4	Std
Indy Trail	121 x 15"	44"	Lightning	.82"	6/3	Acc
Indy Trail Touring	133.5 x 15"	50"	Lightning	.82"	6/3	Acc
Indy 440 LC	121 x 15"	44"	Lightning	.82"	6/3	Acc
Indy 500	121 x 15"	44"	Lightning	.82"	6/3	Acc
Indy 500 SKS	133.5 x 15"	50"	Lightning	1.0"	6/3	Acc
Indy 500 RMK	133.5 x 15"	50"	Deep Lug	1.25"	4/3	N/A
Indy 500 EFI	121 x 15"	35"	Lightning	.82"	6/3	Acc
Indy 500 EFI SKS	133.5 x 15"	50"	Lightning	1.0"	6/3	Acc
Indy 500 EFI RMK	133.5 x 15"	41"	Deep Lug	1.25"	4/3	N/A
Indy Classic	121 x 15"	35"	Lightning	.82"	6/3	Acc
Indy Classic Touring	133.5 x 15"	41"	Lightning	.82"	6/3	Acc
Indy XLT/SP	121 x 15"	35"	Lightning	1.0"	6/3	Std
Indy XLT SKS	133.5 x 15"	41"	Lightning	1.0"	6/3	Acc
Indy XLT RMK	133.5 x 15"	41"	Deep Lug	1.5"	4/3	N/A
Indy XLT Touring	133.5 x 15"	44"	Lightning	.82"	6/3	Acc
Indy RXL	121 x 15"	35"	Lightning	1.0"	6/4	Std
Indy Ultra SP	121 x 15"	35"	Lightning	.82"	8/4	Std
Indy Ultra RMK	133.5 x 15"	41"	Deep Lug	1.5"	4/4	N/A
Indy Ultra SKS	133.5 x 15"	41"	Lightning	1.0"	6/4	Acc
Indy Storm	121 x 15"	44"	Wiper	.91"	8/4	Std
Indy Storm SKS	133.5 x 15"	50"	Wiper	.91"	8/4	Acc
Indy Storm RMK	133.5 x 15"	50"	Deep Lug	1.5"	6/4	N/A

BRAKES/FINAL DRIVE**Track Specifications****1997 Track Specifications**

Model	Length x Width	Part No.	Pattern	Lug Height	Wheels-Bogie/Idler	Wear Strips
Indy Lite/Deluxe	121 x 15"	5410792	Block	.66"	6/2	Acc
Indy Lite GT	133.5 x 15"	5411171	Lightning	.82"	6/3	Acc
Indy Sport	121 x 15"	5410736	Block	.71"	6/2	Acc
Indy Sport Touring	133.5 x 15"	5411171	Lightning	.82"	6/3	Acc
Indy TranSport	141 x 15"	5410801	Wiper	1.13"	8/3	Acc
Indy XCF	121 x 15"	5411183	Lightning	.725"	6/3	Std
Indy Super Sport	121 x 15"	5411168	Lightning	.82"	6/3	Acc
Indy Trail	121 x 15"	5411168	Lightning	.82"	6/3	Acc
Indy Trail Touring	133.5 x 15"	5411171	Lightning	.82"	6/3	Acc
Indy Trail RMK	133.5 x 15"	5411021	Deep Lug	1.25"	4/3	N/A
Indy WideTrak GT	141 x 20"	5410748	Wiper	.91"	6/4	Std
Indy WideTrak LX	156 x 20"	5411040	Lightning	1.0"	6+2/4	Std
Indy 440 LC	121 x 15"	5411168	Lightning	.82"	6/3	Acc
Indy 440 XC	121 x 15"	5411168	Lightning	.82"	6/4	Std
Indy 500	121 x 15"	5411168	Lightning	.82"	6/3	Acc
Indy 500 SKS	133.5 x 15"	5411166	Lightning	1.0"	6/3	Acc
Indy 500 RMK	133.5 x 15"	5411021	Deep Lug	1.25"	4/3	N/A
Indy Classic	121 x 15"	5411168	Lightning	.82"	6/3	Acc
Indy Classic Touring	133.5 x 15"	5411091	Lightning	.82"	6/3	Acc
Indy 500 EFI	121 x 15"	5411168	Lightning	.82"	6/3	Acc
Indy XLT/LTD	121 x 15"	5411167	Lightning	.82"	6/3	Acc
Indy XLT Touring	133.5 x 15"	5411091	Lightning	.82"	6/3	Acc
Indy XLT SKS	133.5 x 15"	5411166	Lightning	1.0"	6/3	Acc
Indy XLT RMK	133.5 x 15"	5410921	Deep Lug	1.5"	4/3	N/A
Indy XLT SP	121 x 15"	5411167	Lightning	.82"	6/3	Std
Indy 600 XC/XCR	121 x 15"	5411167	Lightning	.82"	6/4	Std
Indy RXL	121 x 15"	5411167	Lightning	.82"	6/4	Std
Indy Ultra/SP/SPX	121 x 15"	5411057	Lightning	.82"	6/4	Std
Indy Ultra Touring	133.5 x 15"	5411176	Lightning	.82"	6/4	Acc
Indy Ultra SPX SE	121 x 15"	5411183	Lightning	.725"	6/4	Std
Indy 700 SKS	136 x 15"	5411193	Lightning	1.0"	6/4	Acc
Indy 700 RMK	136 x 15"	5411194	Deep Lug	1.5"	4/4	N/A
Indy Storm	121 x 15"	5411057	Lightning	.82"	6/4	Std
Indy Storm SE	121 x 15"	5411183	Lightning	.725"	6/4	Std
Indy Storm RMK	133.5 x 15"	5410921	Deep Lug	1.5"	6/4	N/A

BRAKES/FINAL DRIVE

Track Specifications

1998 Track

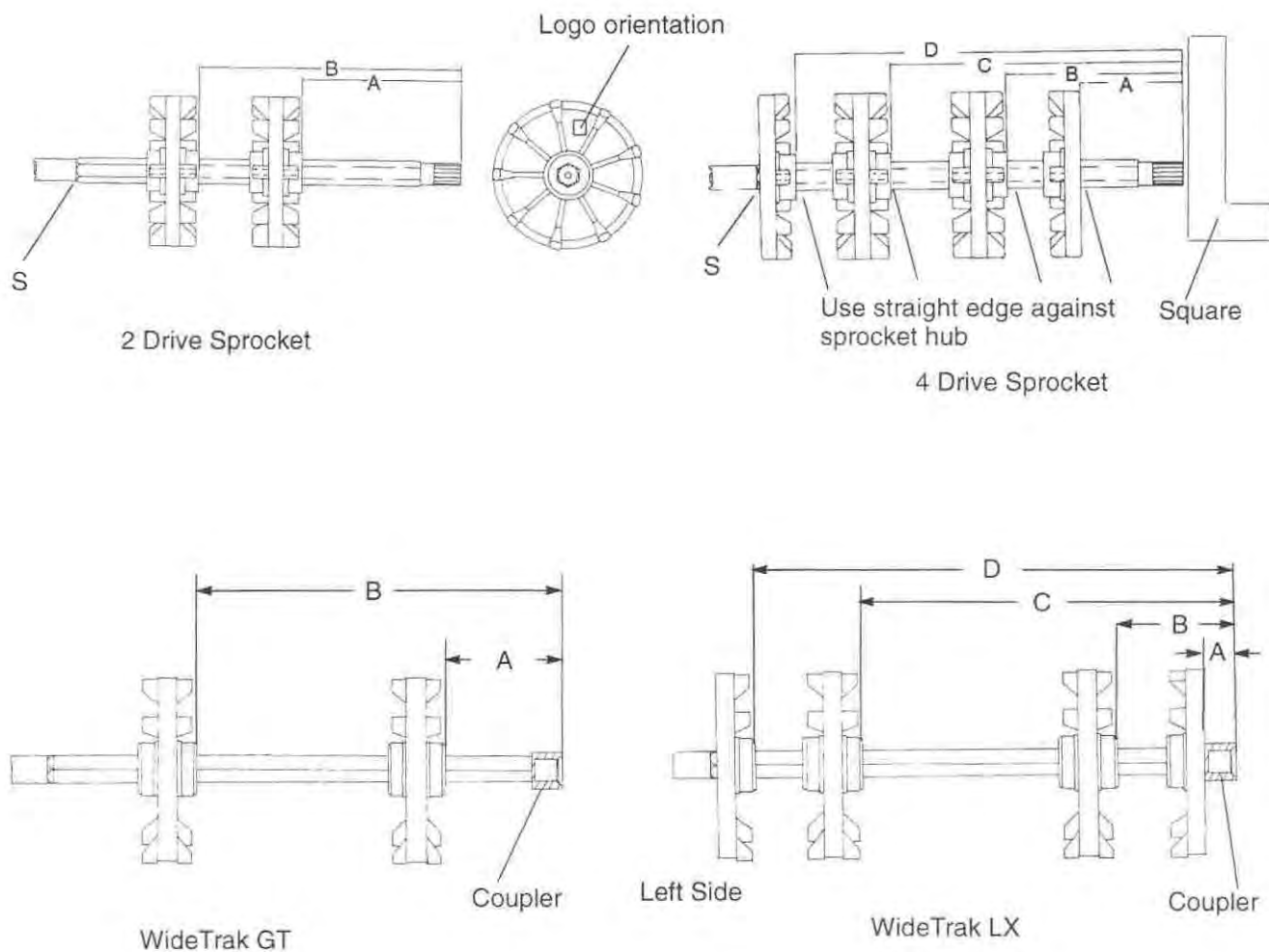
Model	Length x Width	Part No.	Pattern	Lug Height	Wheels-Bogie/Idler	Wear Strips	Window
Indy Lite	121" x 15"	5410792	Block	.66"	4/2	.75" Acc	1.25"
Indy Lite Deluxe	121" x 15"	5410792	Block	.66"	4/2	.75" Acc	1.25"
Indy Lite Touring	133.5" x 15"	5411171	Lightning	.82"	6/2	.75" Acc	1.5"
Indy Sport	121" x 15"	5410736	Block	.71"	4/2	1.05" Acc	1.5"
Indy XCF	121" x 15"	5411183	Lightning	.725"	6/4	1.05" Acc	1.25"
Indy TranSport	141" x 15"	5410801	Wiper	1.125"	8/3	N/A	1.25"
Indy Sport Touring	133.5" x 15"	5411171	Lightning	.82"	6/2	.75" Acc	1.5"
Indy Super Sport	121" x 15"	5411168	Lightning	.82"	6/3	.75" Acc	1.25"
Indy Trail	121" x 15"	5411168	Lightning	.82"	6/3	.75" Acc	1.25"
Indy Trail Touring	133.5" x 15"	5411171	Lightning	.82"	6/3	.75" Acc	1.5"
Indy Trail RMK	133.5" x 15"	5411021	Deep Lug	1.25"	4/3	N/A	1.25"
Indy 440 LC	121" x 15"	5411168	Lightning	.82"	6/3	.75" Acc	1.25"
Indy 440 XCR	121" x 15"	5411475	Lightning	.82"	6/4	Coolers	1.25"
Indy WideTrak LX	156" x 20"	5411040	Lightning	1.0"	6+2/4	N/A	1.25"
Indy 500	121" x 15"	5411168	Lightning	.82"	6/3	.75" Acc	1.25"
Indy 500 RMK	133.5" x 15"	5411021	Deep Lug	1.25"	4/3	N/A	1.25"
Indy Classic	121" x 15"	5411168	Lightning	.82"	6/3	.75" Acc	1.25"
Indy Classic Touring	133.5" x 15"	5411091	Lightning	.82"	6/3	.75" Acc	1.5"
Indy 600 XC	121" x 15"	5411369	New	.91"	6/4	Coolers	1.25"
Indy 600 XCR	121" x 15"	5411344	New	.82"	6/4	.75" Std	1.25"
Indy XLT LTD	121" x 15"	5411167	Lightning	.82"	6/3	.75" Acc	1.25"
Indy XLT Classic	121" x 15"	5411167	Lightning	.82"	6/3	.75" Acc	1.25"
Indy XLT SP	121" x 15"	5411379	New	.82"	6/4	.75" Std	1.25"
Indy XLT Touring	133.5" x 15"	5411091	Lightning	.82"	6/3	.75" Acc	1.5"
Indy 600 RMK	136" x 15"	5411237	Deep Lug	1.75"	4/3	N/A	1.25"
Indy Ultra	121" x 15"	5411344	New	.82"	6/4	.75" Std	1.25"
Indy Ultra Touring	133.5" x 15"	5411176	Lightning	.82"	6/3	.75" Acc	1.5"
Indy 700 XC	121" x 15"	5411369	New	.91"	6/4	Coolers	1.25"
Indy 700 XCR	121" x 15"	5411344	New	.82"	6/4	.75" Std	1.25"
Indy 700 RMK	136" x 15"	5411237	Deep Lug	1.75"	4/3	N/A	1.25"
Indy Storm	121" x 15"	5411344	New	.82"	6/4	.75" Std	1.25"

BRAKES/FINAL DRIVE

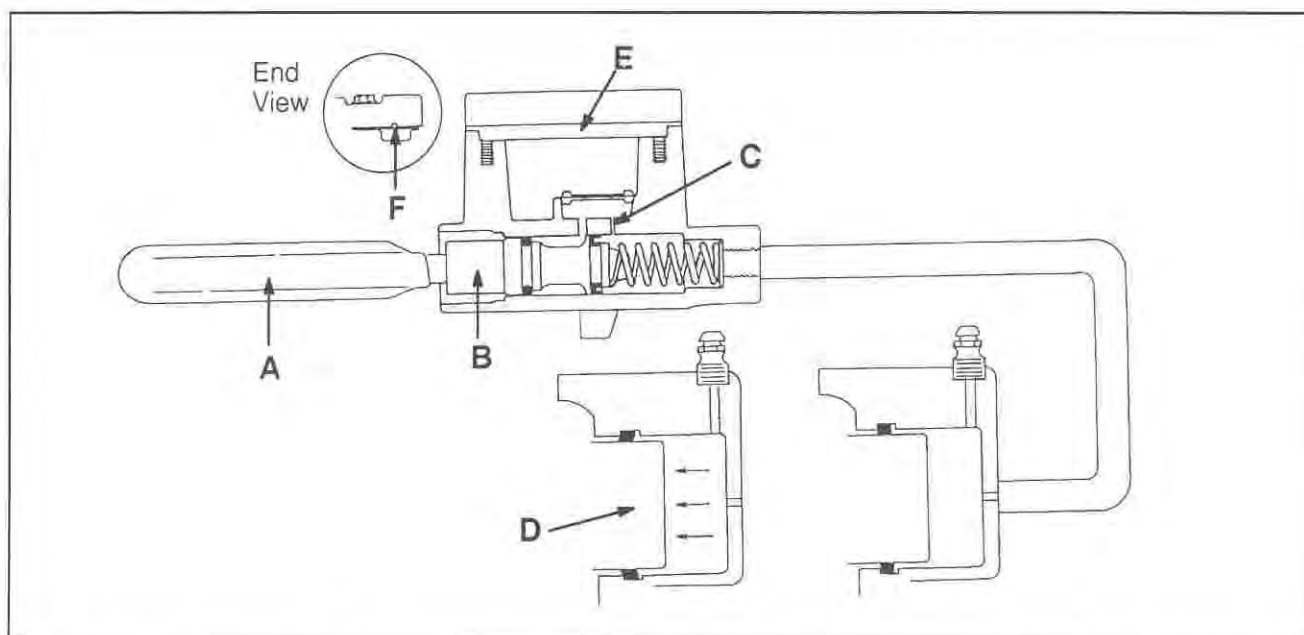
Drive Shaft Sprocket Installation Tips

Driveshaft Sprocket Installation

- All models, except WideTraks, have a longer spline on the chaincase end of the jackshaft and drive shaft.
- Sprockets must be started from the end that has a smooth entry onto the hex portion of the shaft (indicated on illustration below by "S").
- To ensure proper sprocket tooth alignment, be sure the vendor logos are oriented in the same position on all sprockets.
- Drive shaft sprocket positions are measured to sprocket hub edge. Not idler center.



NOTE: When installing drive sprockets, all dimensions are indicated as the shaft is being pressed onto the sprockets. Mark the shaft with a Dykem™ and a machinist scribe, or a fine line permanent marker for proper sprocket placement. Allow mark to thoroughly dry prior to assembly. Verify proper placement using a straight edge and square on sprocket hub and shaft as shown. On WideTraks, measure from coupler.



The Polaris snowmobile hydraulic brake system consists of the following components or assemblies: brake lever, master cylinder, hydraulic hose, brake caliper (slave cylinder), brake pads, and a brake disc which is secured to the drive line. **NOTE:** The Magura master cylinder system used on the 440 XCR SP is similar to this system. It has a see through housing, different piston, and longer lever. Refer to page 9.7 for information on the Magura system.

When the hand activated brake lever (A) is applied, it contacts a piston (B) within the master cylinder. As the master cylinder piston moves inward it closes a small opening called a compensating port (C) within the cylinder and starts to build pressure within the brake system. As the pressure within the system is increased, the piston (D) located in the brake caliper moves outward and applies pressure to the moveable brake pad. This pad contacts the brake disc, moves the caliper in its floating bracket and pulls the stationary pad into the brake disc. As the lever pressure is increased, the braking effect is increased.

The friction applied to the brake pads will cause the pads to wear. As the pads wear, the piston within the caliper self-adjusts and moves further outward.

Brake fluid level is critical to proper system operation. A low fluid level allows air to enter the system causing the brakes to feel spongy.

Compensating Port

Located within the master cylinder is a small compensating port (C) which is opened and closed by the master cylinder piston assembly. The port is open when the brake lever is released and the piston is outward. As the temperature within the hydraulic system changes, this port compensates for fluid expansion caused by heat, or contraction caused by cooling. During system service, be sure this port is open. Due to the high temperatures created within the system during heavy braking, it is very important that the master cylinder reservoir have adequate space to allow for the brake fluid to expand. Master cylinder reservoirs should be filled to the top of the fluid level mark on the inside of the reservoir, 1/4" - 5/16" (.6 - .8 cm) below lip of reservoir opening.

⚠ WARNING

Never overfill the reservoir. This could alter brake function, resulting in system component damage or severe personal injury or death.

This system also incorporates a diaphragm (E) as part of the cover gasket and a vent port (F) located between the gasket and the cover. The combination diaphragm and vent allow for the air above the fluid to equalize pressure as the fluid expands or contracts. Be sure the vent is open and allowed to function. If the reservoir is overfilled or the diaphragm vent is plugged, the expanding fluid may build pressure in the brake system and lead to brake failure.

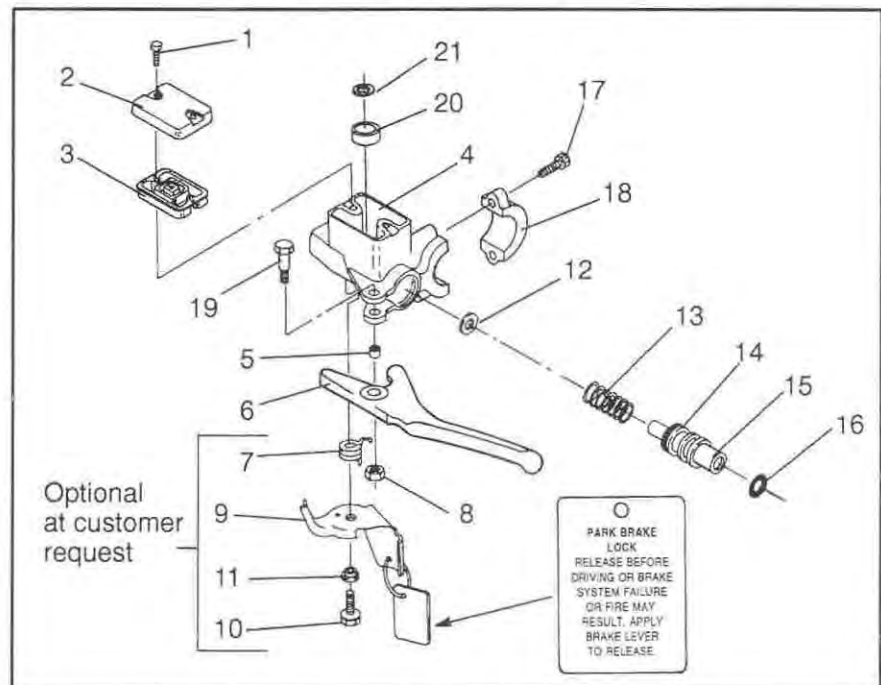
BRAKES/FINAL DRIVE

Type 3 Master Cylinder

Type 3 Master Cylinder

The Type 3 master cylinder assembly is easily recognized by the longer (centered) brake line mount.

1. Cover Screw
2. Cover
3. Cover Gasket
4. Cylinder Housing
5. Brake Lever Bushing
6. Brake Lever
7. Park Lever Return Spring
8. Pivot Bolt Nut
9. Park Lever
10. Park Lever Pivot Bolt
11. Park Lever Pivot Bushing
12. Spring Seat Washer
13. Compression Spring
14. U-Pack Seal
15. Piston
16. O-Ring Seal
17. Clamp Bolt
18. Attaching Clamp
19. Lever Pivot Bolt
20. Baffle
21. Baffle Washer



Park Brake Lever Lock

⚠ WARNING

Release park brake lock before driving or brake system failure or fire may result. Apply brake lever to release.

Type 3 Master Cylinder Removal

1. Position clean shop cloths to catch spilled fluid and remove brake hose.

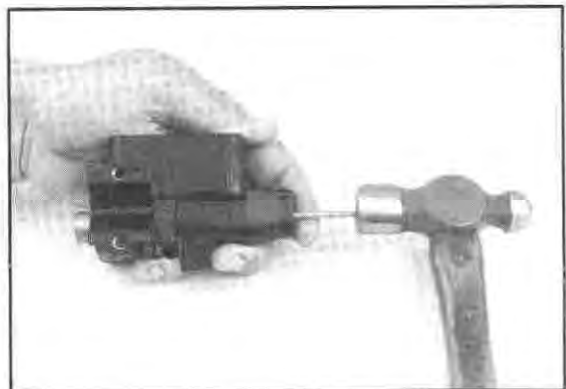
CAUTION:

Brake fluid will damage finished surfaces. Do not allow brake fluid to come in contact with finished surfaces.

2. Remove brake clamp attaching bolts (Item 17).
3. Remove park brake lever (Item 9) and brake master cylinder lever (Item 6), noting position of bushing, spring, etc., for proper reassembly.
4. Using the master cylinder service tool, position push rod through small hole in spring seat washer (Item 12) as shown. Remove piston assembly, spring and washer.

Master Cylinder Service Tool Kit

PN 2870962



BRAKES/FINAL DRIVE

Type 3 Master Cylinder Inspection and Assembly

1996 440 XCR SP Brake System Description

Component	Part Number	Difference from Standard Brake System
Magura Master Cylinder	2050074	-5/8" compared to 3/4" -Requires less hand effort for the same braking
Brake Line	1930773	-Uses a flare fitting instead of threaded fitting
Caliper Assembly	1930772	-.080" shorter castle piston for use with thicker pads and disc
Caliper/Piston Kit	2200764	-For installing shorter piston into an existing caliper
Brake Pads	2200763	-.060" thick for longer wear -Very aggressive
Disc	1910197	-.250" thick with vents compared to .179" thick without vents -Less runout (.008")

The Magura master cylinder must be used with the correct brake line. To upgrade to the Magura master cylinder, order the following:

- PN 2050074 Master Cylinder
- PN 1930773 Brake Line

The heavier race pads, vented disc, and short piston kit must be used together as a package. To upgrade to the race pads/vented disc, order the following:

- PN 2200763 Race Pads
- PN 1910197 Vented Disc
- PN 2200764 Shortened Piston

Inspection

NOTE: Due to the critical nature of these parts and procedures, be sure you have thoroughly read and understand Hydraulic Brake Operation, page 9.5.

1. Thoroughly clean all brake parts with isopropyl alcohol. Inspect piston for wear, scratches, or corrosion. Check master cylinder bore for scratches, score marks, or corrosion and replace any worn or damaged parts.

Assembly

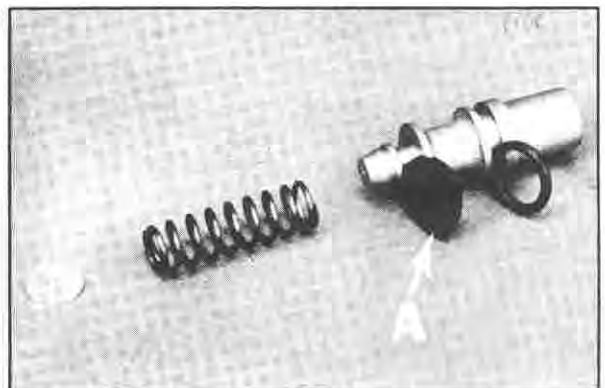
1. Always replace O-Ring seal, U-pack seal and cover gasket (diaphragm) upon reassembly. Use only genuine Polaris service parts.
2. Apply clean DOT 3 brake fluid on piston, piston seals and cylinder bore. Install seals onto piston positioning U-pack seal lip (A) towards spring. Snap spring into place on piston.

Polaris DOT 3 Brake Fluid

PN 2870990

3. Install piston assembly into master cylinder service tool until U-pack seal is covered by tool as shown.

NOTE: This tool is used to guide the seal lip into the cylinder bore without damage.



BRAKES/FINAL DRIVE

Type 3 Master Cylinder Assembly

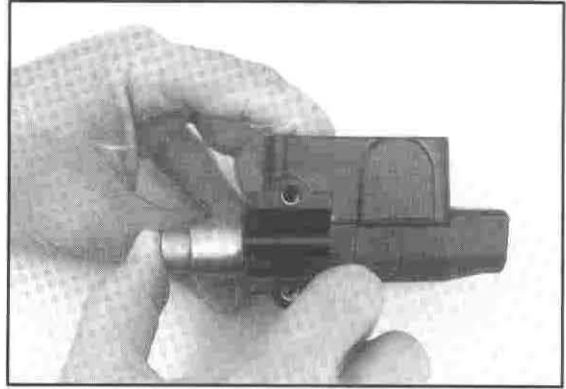
Assembly, Cont.

4. Install spring seat washer into bore. Insert piston, still installed in tool, into bore. Push piston through special tool. Remove tool.
5. Reinstall brake lever with bushing, bolt and nut.
6. Reinstall master cylinder onto handlebar and reconnect brake line. Partially insert fittings (one to two threads) and apply Loctite™ 242 to remaining threads of fittings. Torque brake line fittings to specification.

Brake Line Fitting Torque -

**Master Cylinder End - Finger tight
plus 2 turns**

**Caliper End -
12-14 ft. lbs. (1.66 - 1.93 kg-m)**



7. Adjust master cylinder to a level position on handlebar. Torque clamp screws to specification.

Master Cylinder Clamp Torque -

45-55 in. lbs. (.52 - .63 kg-m)

8. Bleed brake system. Maintain fluid level in reservoir at 1/4" - 5/16" (.6 - .8 cm) below lip of reservoir opening while bleeding brakes. Do not allow air into system while bleeding. See bleeding procedure on page 9.10.

Master Cylinder Fluid Level

**1/4" - 5/16" (.6 - .8 cm) below
top of master cylinder**

Assembly, Cont.

9. Field test machine before putting into service. Check for proper braking action and lever reserve. With lever firmly applied, lever reserve should be no less than 1/2" (1.3 cm) from handlebar.

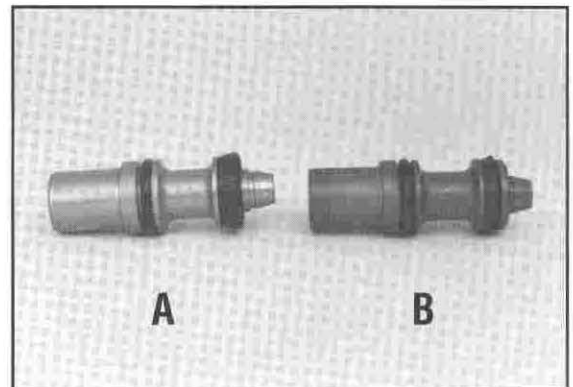
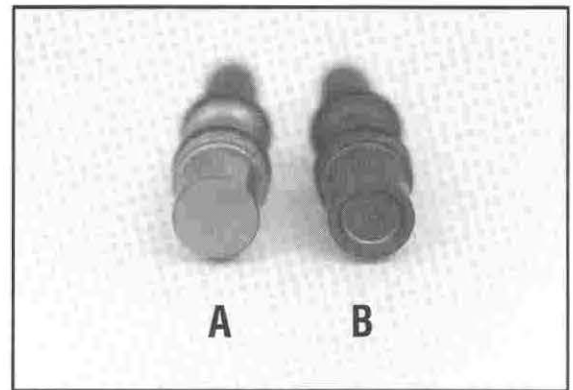
Brake Lever Reserve Limit

**Not less than 1/2" (1.3 cm)
from handlebar**

10. Check brake system for fluid leaks.

⚠ WARNING

Although snowmobile and ATV master cylinder pistons are very similar, they are not interchangeable. Piston (A) is an ATV piston. Piston (B) is a snowmobile piston. Notice the difference on the lever end of the piston. Using the wrong piston will cause a build up of pressure in the brake system and could result in a fire.



BRAKES/FINAL DRIVE

Brake Bleeding - Fluid Change

Brake Bleeding - Fluid Change

This procedure should be used to change fluid or bleed brakes during regular maintenance. If system has been disassembled for repair or parts replacement, follow Bleeding Procedure - System Rebuild, on page 9.11. Brake fluid may damage painted or plastic surfaces. Take care not to spill, and wipe up any spills immediately. Cover parts to avoid damage.

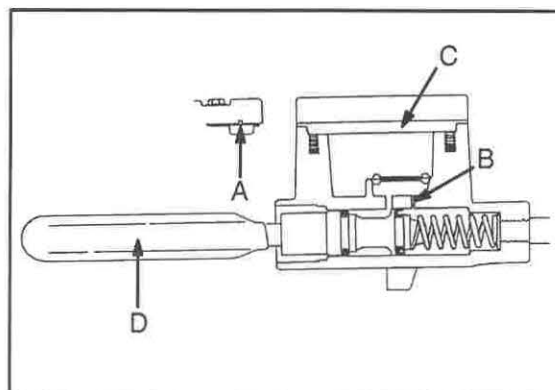
1. Clean reservoir cover thoroughly.
2. Remove screws, cover, and diaphragm from reservoir.
3. Inspect vent slots (A) in cover and remove any debris or blockage.
4. If changing fluid, remove fluid from reservoir with a Mity Vac™ pump or similar tool.

NOTE: Do not remove brake lever when reservoir fluid level is low.

Mity Vac™ PN 2870975

5. Add brake fluid to within 1/4-5/16" (.6-.8 cm) of reservoir top.

Polaris DOT 3 Brake Fluid
PN 2870990



6. Install a box end wrench on caliper bleeder screw fitting. Attach a clean, clear hose to fitting and place the other end in a clean container. Be sure the hose fits tightly on fitting.

NOTE: Fluid may be forced from compensation port (B) when brake lever is pumped. Place diaphragm (C) in reservoir to prevent spills. Do not install cover.

7. *Slowly* pump lever (D) until pressure builds and holds.
8. While maintaining lever pressure, open bleeder screw. Close bleeder screw and release brake lever. Do not release lever before bleeder screw is tight or air may be drawn into caliper.
9. Repeat procedure until clean fluid appears in bleeder hose and all air has been purged. Add fluid as necessary to maintain level in reservoir.

CAUTION:

Maintain at least 1/2" (1.27 cm) of brake fluid in the reservoir to prevent air from entering the master cylinder.

10. Tighten bleeder screw securely and remove bleeder hose.
11. Add brake fluid to the proper level.
12. Install diaphragm, cover, and screws. Tighten screws to specification.

Reservoir Cover Torque -
43 in. lbs. (.49 kg-m)

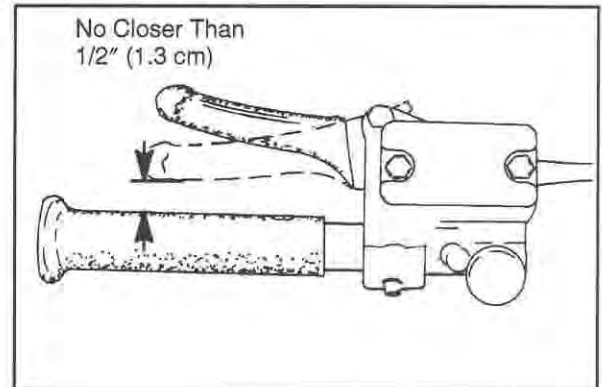
Brake Bleeding - Fluid Change, Cont.

13. Field test machine before putting into service. Check for proper braking action and lever reserve. With lever firmly applied, lever reserve should be no less than 1/2" (1.3 cm) from handlebar.

Brake Lever Reserve Limit

**Not less than 1/2" (1.3 cm)
from handlebar**

14. Check brake system for fluid leaks.



Brake Bleeding - System Rebuild

When the brake system is disassembled for rebuild or component replacement, follow this procedure to ensure all air is quickly and completely purged from system. Maintain level of brake fluid in reservoir while performing bleeding procedure or air may enter system.

1. Add Polaris DOT 3 brake fluid to proper level.
2. Wrap a clean shop towel around master cylinder brake line fitting.
3. Loosen brake line fitting and tighten lightly.
4. Pump brake lever slowly 2-3 times.
5. Loosen fitting and tighten.
6. Repeat procedure as necessary to bleed master cylinder.

NOTE: If master cylinder will not pump fluid, use the following procedure:

- A). Remove brake line.
- B). Place a finger firmly over end of master cylinder.
- C). Pump brake lever until pressure forces fluid out end of master cylinder.
- D). Reinstall brake line and torque to specification.

Brake Line Fitting Torque -

**Master Cylinder End - Finger tight
plus 2 turns**

**Caliper End -
12-14 ft. lbs. (1.66 - 1.93 kg-m)**

7. Bleed caliper as outlined in Fluid Change on page 9.10. It may be necessary to bleed lower line connection at caliper to purge air from brake lines.
8. When all air has been purged from line and caliper, tighten all connections and add brake fluid to proper level.

BRAKES/FINAL DRIVE

Brake Bleeding - System Rebuild

Brake Bleeding - Fluid Change, Cont.

9. Install diaphragm, cover, and screws and torque to specification.

Reservoir Cover Torque -

43 in. lbs. (.49 kg-m)

10. Field test machine before putting into service. Check for proper braking action and lever reserve. With lever firmly applied, lever reserve should be no less than 1/2" (1.3 cm) from handlebar.

Brake Lever Reserve Limit

**Not less than 1/2" (1.3 cm)
from handlebar**

11. Check brake system for fluid leaks.

BRAKES/FINAL DRIVE

Type H4 Brake System

The Type H4 system is a hydraulic brake type. The caliper assembly is mounted on the chaincase, which allows ease of brake pad and caliper service. Measure brake pads from the back of the backing plate to the surface of the friction material as shown in illustration.

NOTE: Replace pads when worn beyond service limit.

Brake Pad Thickness - Type H4

Service Limit .250" (6.35mm)

Minimum Pad
Thickness
.250"
(6.35mm)



Type H4 Friction Pad Replacement

1. Carrier Bracket Attaching Bolts
2. Carrier Bracket
3. Piston
4. Piston Seal
5. Spring Clip
6. Stop Light Switch
7. Brake Pads
8. Brake Line
9. Bleeder Screw
10. Caliper
11. Rope Guide

⚠ WARNING

The rider's safety depends on correct installation. Follow procedures carefully.

CAUTION:

Protect eyes from brake fluid.

1. Clean any dirt from mount bracket and bolts. Brake cleaner may be used to aid in cleaning of components.
2. With a 9/16" socket, remove two 3/8 hex bolts and washers from bracket. Remove rope guide. **NOTE:** Do not disconnect brake line.
3. Lift bracket and brake assembly off vehicle. Remove all dirt from caliper assembly using brake cleaner and clean shop cloths.
4. Use a drop cloth to protect surfaces from brake fluid spillage. Remove reservoir cover from master cylinder assembly. Using a large hardwood dowel, or a C clamp vise grip on the center of the old pads, apply pressure toward the caliper piston. Compress piston back into caliper assembly. Apply pressure slowly to prevent excessive spillage from master cylinder assembly.

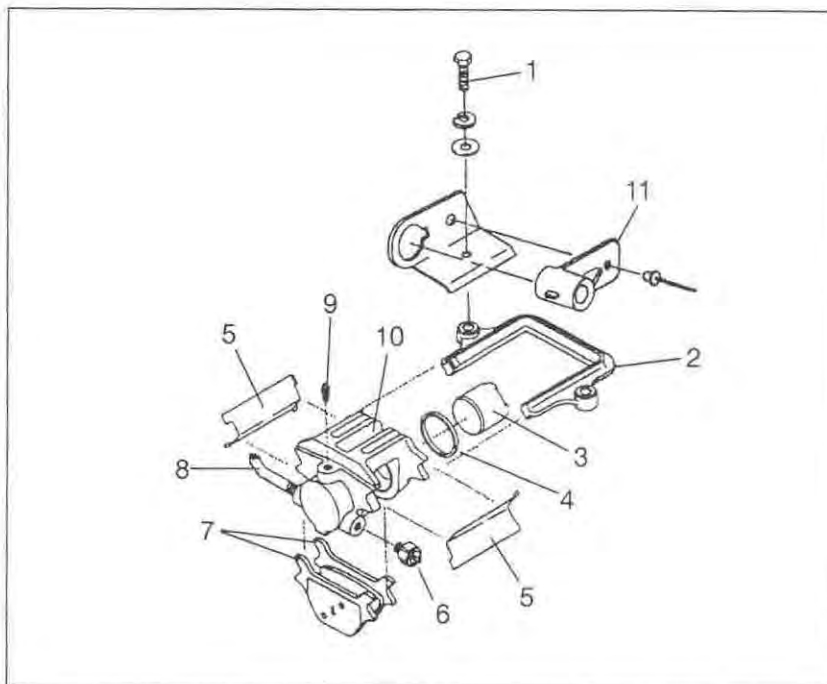
NOTE: Pushing the piston back into the bore will cause the fluid level to rise in the reservoir and possibly overflow. Remove excess fluid and discard.

CAUTION:

Piston must not be forced back into the caliper at an angle or bore damage may occur.

5. Slide caliper and brake pads out of bracket. Discard old pads and clips.

NOTE: Pad and holders must be replaced as a set.



BRAKES/FINAL DRIVE

Type H4 Brake System

Type H4 Friction Pad Replacement, Cont.

6. Place new pads with friction material facing each other into housing. Hold in place using clips. See illustration on page 9.13.
7. Slide brake assembly into bracket until both clips snap into grooves in bracket.
8. Clean brake mount on top of chaincase.
9. Separate pads for installation over disc. If brake assembly does not slide easily over the disc with loose pads, the piston is not compressed far enough into the caliper. Caliper assembly must fit freely onto disc and chaincase.
10. Replace 3/8 bolts, washers, and rope guide. Torque to specification.

Caliper Bolt Torque -

25-30 ft. lbs. (3.45-4.14 kg-m)

11. Actuate brake several times to set brake pads to proper operating position.
12. Check for proper fluid level in master cylinder and replace cover. Torque cover bolts to specification.

Reservoir Cover Torque -

43 in. lbs. (.49 kg-m)

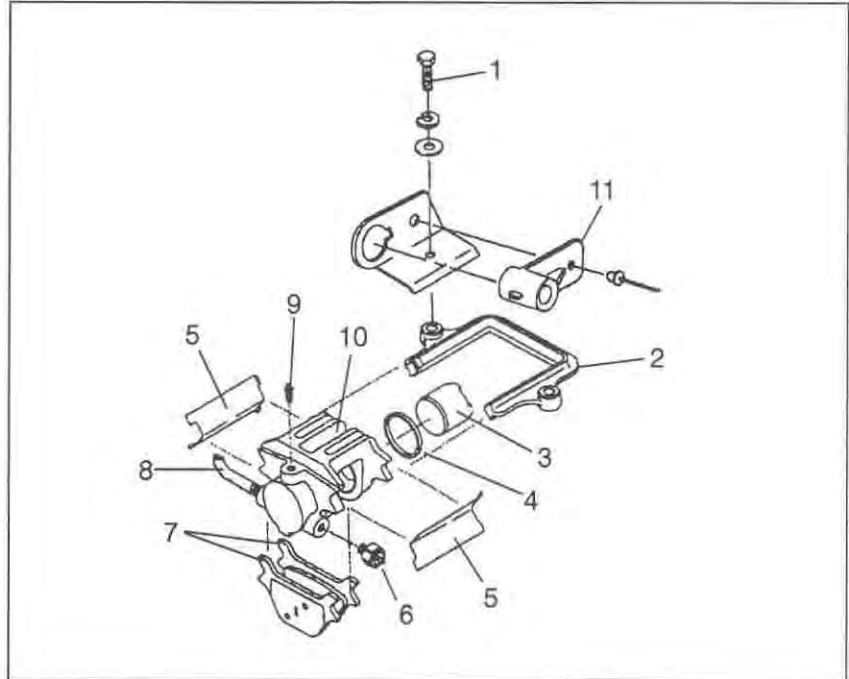
13. Field test at low speeds and verify proper brake action. If pads drag on disc, check caliper and pad assembly.

Type H4 Caliper Disassembly

1. Carrier Bracket Attaching Bolts
2. Carrier Bracket
3. Piston
4. Piston Seal
5. Spring Clip
6. Stop Light Switch
7. Brake Pads
8. Brake Line
9. Bleeder Screw
10. Caliper
11. Rope Guide

⚠ WARNING

The rider's safety depends on correct installation. Follow procedures carefully.



Refer to the exploded view above while performing the following steps.

1. Remove bracket bolts.
2. Disconnect brake line. Drain brake fluid into appropriate container and dispose of properly.
3. Disassemble on a clean bench.
4. Open bleeder screw and drain brake fluid from caliper assembly into appropriate container. Dispose of properly.

CAUTION:

Protect eyes from brake fluid at all times.

5. Slide brake assembly out of bracket and remove old pads and clips.
6. Place caliper on bench with piston down.
7. Remove piston from caliper using a caliper piston pliers (commercially available) or by covering the piston with a shop cloth and applying compressed air to the hydraulic inlet port.

CAUTION:

Use only enough air to remove piston. Too much pressure may damage piston or bore.

8. Using a small wooden or plastic stick, work piston seal out from its groove in the piston bore.

CAUTION:

To avoid scratching bore or burring edge of seal groove, do not use a metal tool such as a screwdriver.

9. Discard old seal.

BRAKES/FINAL DRIVE

Type H4 Brake System

Type H4 Cleaning and Inspection

Check all parts for wear or damage and replace as required. Always replace caliper piston seal and dust seal (where applicable).

1. Clean all parts with denatured alcohol and wipe dry with a clean, lint free cloth.
2. Using compressed air, blow out the drilled passages and piston bore. Be sure piston seal groove is thoroughly clean and free from corrosion or brake fluid build up.
3. Inspect piston bore for scoring, pitting or corrosion. A corroded or deeply scored casting should be replaced. Light scores and stains may be removed by polishing with a *crocus cloth only*. Use finger pressure and rotate the crocus cloth in the cylinder bore. Do not slide the cloth in and out of the bore under pressure. Do not use any other kind of abrasive cloth.
4. Check piston to see if it is pitted, scored or worn. If so, discard and replace the piston.

CAUTION:

Do not attempt to polish or sand piston.

5. Clean piston with denatured alcohol and wipe dry with a clean, lint free cloth. Using compressed air, blow dry.
6. Check inlet and bleeder hole threads for damage. Be sure bleeder screw is clear.
7. Inspect brake line seat for damage and replace caliper if necessary.

Type H4 Assembly

1. Reassemble by reversing disassembly process. Be sure all parts are clean and serviceable before reassembling the unit.
2. Coat a new piston seal in clean DOT 3 brake fluid and place in groove in the caliper piston bore. Seal should be positioned at one point in groove and then gently worked around the groove by hand until properly seated.

CAUTION:

Never reuse an old seal.

3. Coat piston thoroughly with brake fluid and work down into bore by hand carefully until bottomed.

CAUTION:

Apply even pressure to avoid cocking the piston in the bore.

Type H4 Assembly, Cont.

4. Examine pads for wear or damage. If pad thickness is less than 1/32" (.08 cm) install new pad holder assemblies. If pads are not worn or damaged, they may be reused. Be sure pads are reinstalled in their original positions. If pads are replaced, replace in sets and make sure the new pads have the same friction material type code number as the old set.
5. Connect hose or line to caliper.
6. Place new pads with friction material facing each other into housing. Hold in place using clips.
7. Slide brake assembly into bracket until both clips snap into grooves in bracket.
8. Separate pads for installation over disc.
9. Place brake assembly over disc and push bracket into chaincase.
10. Replace 3/8" bolts, rope guide, and washers. Torque to specification.

Caliper Bolt Torque -

25-30 ft. lbs. (3.45-4.14 kg-m)

11. Perform brake bleeding procedure as outlined after System Rebuild, page 9.11.

BRAKES/FINAL DRIVE

Type H5LC Brake System

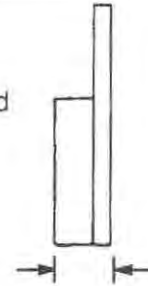
The Type H5LC system, like the Type H4, is a top mounted hydraulic brake system. The difference between the two systems is the the H5LC is equipped with a brake cooler.

NOTE: Replace pads when worn beyond service limit.

Brake Pad Thickness - Type H5LC

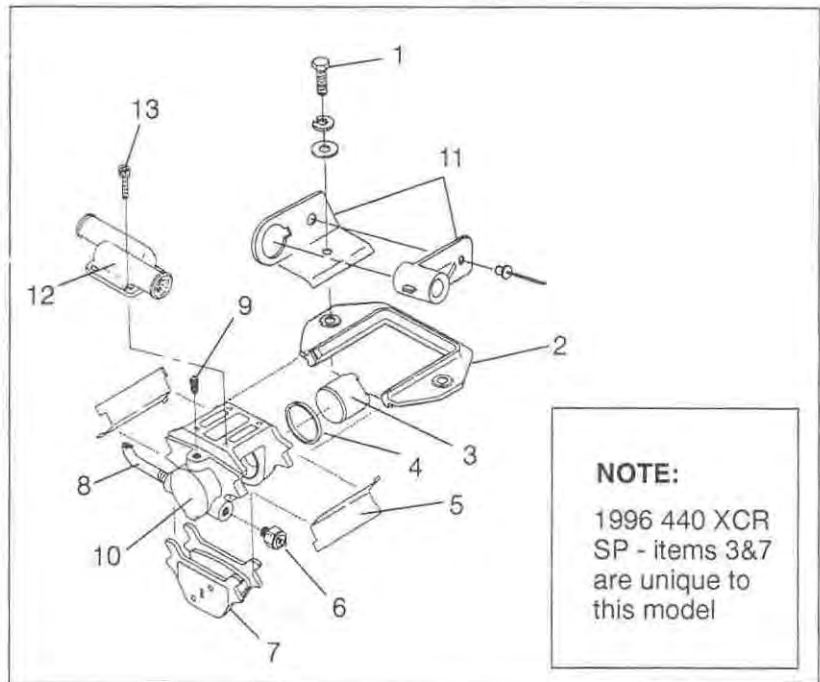
Service Limit .250" (6.35mm)

Minimum Pad
Thickness
.250"
(6.35mm)



Type H5LC Friction Pad Replacement

1. Carrier Bracket Attaching Bolts
2. Carrier Bracket
3. Piston
4. Piston Seal
5. Spring Clip
6. Stop Light Switch
7. Brake Pads
8. Brake Line
9. Bleeder Screw
10. Caliper (Liquid Cooled)
11. Rope Guide
12. Water Cooler Manifold
13. Screws (Cooler Manifold)



NOTE:

1996 440 XCR
SP - items 3&7
are unique to
this model

⚠ WARNING

The rider's safety depends on correct installation. Follow procedures carefully.

CAUTION:

Protect eyes from brake fluid.

1. Clean any dirt from mount bracket and bolts.
2. With a 9/16" socket, remove two 3/8 hex bolts and washers from bracket. Remove rope guide. **NOTE:** Do not disconnect brake line.
3. Remove hose clamp from *engine side of cooler*. Twist and remove hose from cooler, catching and disposing of antifreeze properly.
4. Use a drop cloth to protect surfaces from brake fluid spillage. Remove reservoir cover. Using a large hardwood dowel, or a C clamp vise grip on the center of the old pads, apply pressure toward the caliper piston. Compress piston back into caliper assembly. Apply pressure slowly to prevent excessive spillage from master cylinder assembly.

NOTE: Pushing the piston back into the bore will cause the fluid level to rise in the reservoir and possibly overflow. Remove excess fluid and discard.

5. Lift bracket and brake assembly off vehicle. Raise open end of cooler and pad assembly to trap antifreeze in cooler and plug the opening of both cooler and engine hose open end.

Type H5LC Friction Pad Replacement, Cont.

6. Place new pads with friction material facing each other into housing. Hold in place using clips. See illustration above.
7. Slide brake assembly into bracket until both clips snap into grooves in bracket.
8. Clean top of chaincase where brake mounts.
9. Separate pads for installation over disc. If brake assembly does not slide easily over the disc with loose pads the piston is not compressed far enough into the caliper. The caliper assembly must fit freely onto the disc and chaincase.
10. Remove plugs. Install coolant hose and clamp on cooler assembly.
11. Replace 3/8" bolts, washers, and rope guide. Torque to specification.

Caliper Bolt Torque -

25-30 ft. lbs. (3.45-4.14 kg-m)

12. Actuate brake several times to set brake pads to proper operating position.
13. Check for proper fluid level in master cylinder and replace cover. Torque to specification.

Master Cylinder Fluid Level

**1/4" - 5/16" (.6 - .8 cm) below
top of master cylinder**

Reservoir Cover Torque -

43 in. lbs. (.49 kg-m)

14. Be sure to bleed coolant system as outlined in Engine section.
15. Field test at low speeds before putting into regular service.

BRAKES/FINAL DRIVE

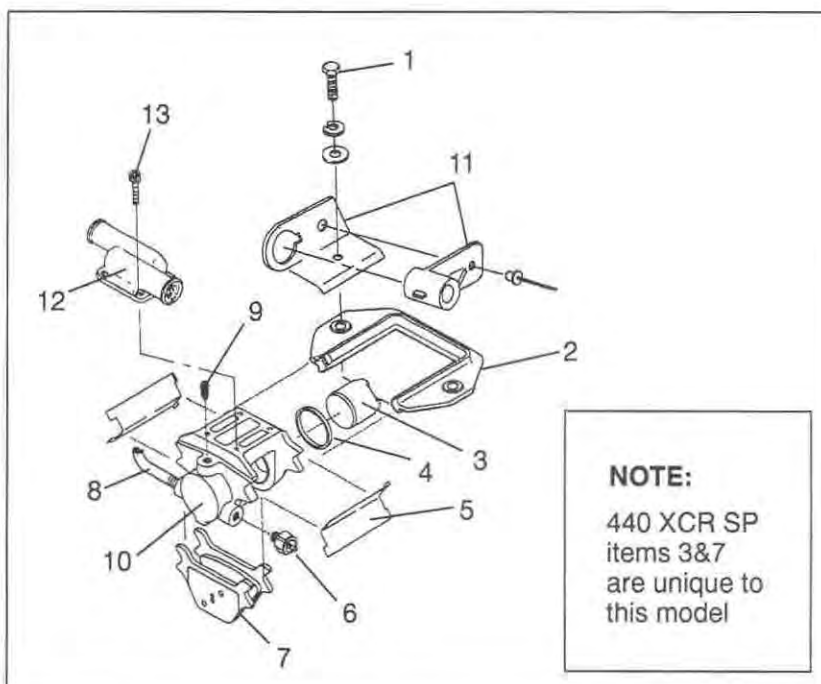
Type H5LC Brake System

Type H5LC Caliper Disassembly

1. Carrier Bracket Attaching Bolts
2. Carrier Bracket
3. Piston
4. Piston Seal
5. Spring Clip
6. Stop Light Switch
7. Brake Pads
8. Brake Line
9. Bleeder Screw
10. Caliper (Liquid Cooled)
11. Rope Guide
12. Water Cooler Manifold
13. Screws (Cooler Manifold)

WARNING

The rider's safety depends on correct installation. Follow procedures carefully.



Refer to the exploded view above while performing the following steps.

1. Remove bracket bolts.
2. Disconnect brake line. Drain brake fluid into appropriate container and dispose of properly.
3. Disconnect and plug coolant lines, catching and disposing of antifreeze properly.
4. Disassemble on a clean bench.
5. Open bleed screw. Drain brake fluid into appropriate container and dispose of properly.

CAUTION:

Protect eyes from brake fluid.

6. Slide brake assembly out of bracket and remove old pads and clips.
7. Place caliper on bench with piston down.
8. Remove piston from caliper using a caliper piston pliers (commercially available) or by covering the piston with a shop cloth and applying compressed air to the hydraulic inlet port.

CAUTION:

Use only enough air to remove piston. Too much pressure may damage piston or bore.

9. Using a small wooden or plastic stick, work piston seal out from its groove in the piston bore.

CAUTION:

To avoid scratching bore or burring edge of seal groove, do not use a metal tool such as a screwdriver.

10. Discard old seal.



Type H5LC Cleaning and Inspection

Check all parts for wear or damage and replace any found to be defective.

1. Clean all parts with denatured alcohol and wipe dry with a clean, lint free cloth.
2. Using compressed air, blow out the drilled passages and bores.
3. Inspect casting cylinder bore for scoring, pitting or corrosion. A corroded or deeply scored casting should be replaced. Light scores and stains may be removed by polishing with a *crocus cloth only*. Use finger pressure and rotate the crocus cloth in the cylinder bore. Do not slide the cloth in and out of the bore under pressure. Do not use any other kind of abrasive cloth.
4. Check piston to see if it is pitted, scored or worn. If so, discard and replace the piston.

CAUTION:

Do not attempt to polish or sand piston.

5. Clean piston with denatured alcohol and wipe dry with a clean, lint free cloth. Using compressed air, blow dry.
6. Check inlet and bleeder hole threads for damage.
7. Inspect seat insert for damage and replace if necessary.

Type H5LC Assembly

1. Reassemble by reversing disassembly process. Be sure all parts are clean and serviceable before reassembling the unit.
2. Coat a new piston seal in clean DOT 3 brake fluid and place in groove in the caliper bore. Seal should be positioned at one point in groove and then gently worked around the groove by hand until properly seated.

CAUTION:

Never reuse an old seal.

3. Coat piston thoroughly with brake fluid and work down into bore by hand carefully until bottomed.

CAUTION:

Apply even pressure to avoid cocking the piston in the bore.

4. Examine pads for wear or damage. If pad thickness is less than 1/32" (.08 cm) install new pads and spring clip assemblies. If pads are not worn or damaged, they may be reused. Be sure pads are reinstalled in their original positions. If pads are replaced, replace in sets and make sure the new pads have the same friction material type code number as the old set.
5. Connect hose or line to caliper.
6. Place new pads with friction material facing each other into housing. Hold in place using clips.
7. Slide brake assembly into bracket until both clips snap into grooves in bracket.
8. Separate pads for installation over disc.
9. Place brake assembly over disc and push bracket into chaincase.

BRAKES/FINAL DRIVE

Type H5LC Brake System

Type H5LC Assembly, Cont.

10. Install coolant lines and hose clamps and tighten securely.
11. Replace 3/8" bolts, rope guide, and washers. Torque to specification.

Caliper Bolt Torque -

25-30 ft. lbs. (3.45-4.14 kg-m)

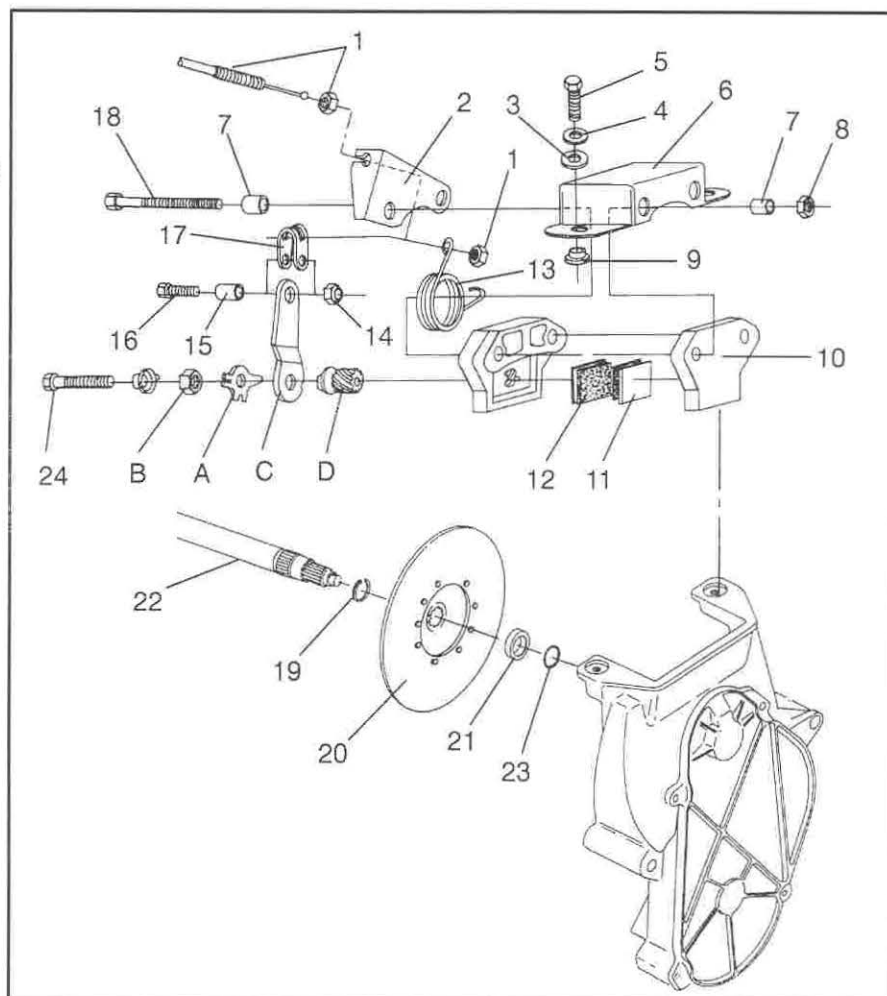
12. Perform brake bleeding procedure as outlined after System Rebuild, page 9.11.

BRAKES/FINAL DRIVE

Type M3 Mechanical Brake System

The Type M3 system is the mechanical brake system used only on Indy Lite models. See Maintenance Section for adjustment procedure.

1. Brake Cable and Jam Nuts
2. Bracket, Brake
3. Washer
4. Washer, Spring Lock
5. Bolt, Top Mount
6. Bracket, Brake Top Mounting
7. Bushing
8. Nut, Bi-Lock
9. Spacer, Alignment
10. Caliper, Stationary, Cast
11. Pad, Brake
12. Puck, Moveable Brake
13. Spring, Brake Return
14. Nut
15. Bushing, Brake Arm
16. Bolt, Cable Swivel
17. Clevis, LT
18. Bolt, Caliper
19. Retaining Ring
20. Brake Disc
21. Seal
22. Jackshaft
23. O-Ring
24. Adjuster Bolt



NOTE: Replace pads when worn beyond service limit.

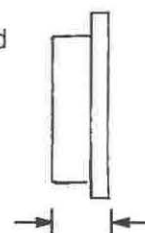
Brake Pad Thickness - Type M3

Service Limit .250" (6.35mm)

Type M3 Brake Disassembly

CAUTION:

Minimum Pad Thickness
.250"
(6.35mm)



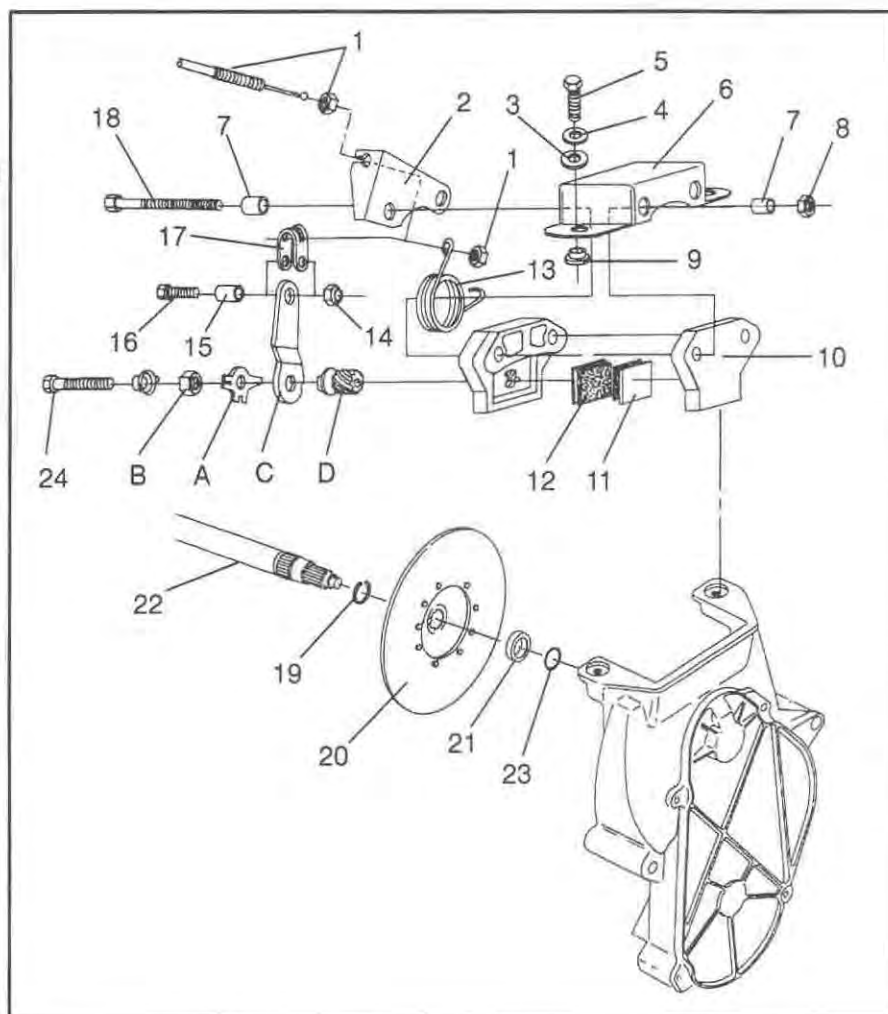
Whenever inspection reveals worn, damaged or defective parts, replacement is necessary in order to avoid serious damage to the machine or injury to the operator.

1. Open adjuster bolt jam nut locking tab (A). Loosen jam (B) nut and remove adjuster bolt (Item 24).
2. Mark location of actuating lever (C) and worm gear (D).
3. Remove actuating lever (C) and return spring (13). Do not detach cable from lever arm.
4. Remove top mount bracket and brake assembly mounting bolts (Item 5). Remove washers (Items 3 and 4) and alignment spacers (Item 9). Remove brake assembly. **NOTE:** Be prepared to catch brake pads as assembly is lifted out.
5. Remove brake pads and inspect for wear and damage. Replace if necessary.
6. Inspect rotor disc and replace if worn, galled, or warped.

BRAKES/FINAL DRIVE

Type M3 Mechanical Brake System

1. Brake Cable and Jam Nuts
2. Bracket, Brake
3. Washer
4. Washer, Spring Lock
5. Bolt, Top Mount
6. Bracket, Brake Top Mounting
7. Bushing
8. Nut, Bi-Lock
9. Spacer, Alignment
10. Caliper, Stationary, Cast
11. Pad, Brake
12. Puck, Moveable Brake
13. Spring, Brake Return
14. Nut
15. Bushing, Brake Arm
16. Bolt, Cable Swivel
17. Clevis, LT
18. Bolt, Caliper
19. Retaining Ring
20. Brake Disc
21. Seal
22. Jackshaft
23. O-Ring
24. Adjuster Bolt



Type M3 Assembly to Chaincase

1. Clip moveable brake pad into position under holder clip. Hold moveable and stationary pads in place with a rubber band while placing assembly over rotor disc and mounting to chaincase. Remove rubber bands once system is bolted into place.
2. Install alignment spacers (Item 9), washers (Items 3 and 4) and bolts (Item 5). Torque assembly to specification.

Caliper Mounting Torque -

25-30 ft. lbs. (3.45-4.14 kg-m)

3. Loosen cable sleeve jam nuts (Item 1) and adjust brake cable sleeve to its shortest position.

Type M3 Brake Adjustment

⚠ WARNING

The following step is critical for proper positioning of the actuating arm to the caliper helix shaft. Improper positioning will result in minimal resistance and ineffective brakes.

4. With brake lever bottomed on handlebar (as if brakes were applied) and helix shaft (D) bottomed in caliper, install actuating arm, jam nut locking tab, jam nut and adjuster bolt. Release brake arm slightly to index lever for installation on helix shaft.
5. Insert a .015" (.04 cm) feeler gauge between brake disc and moveable brake pad. Release brake lever. Install return spring (Item 13) and finger tighten bolt (Item 24). Set adjuster bolt jam nut, bend locking tab and remove feeler gauge.

Friction Pad Air Gap -

.015" (.38 mm)

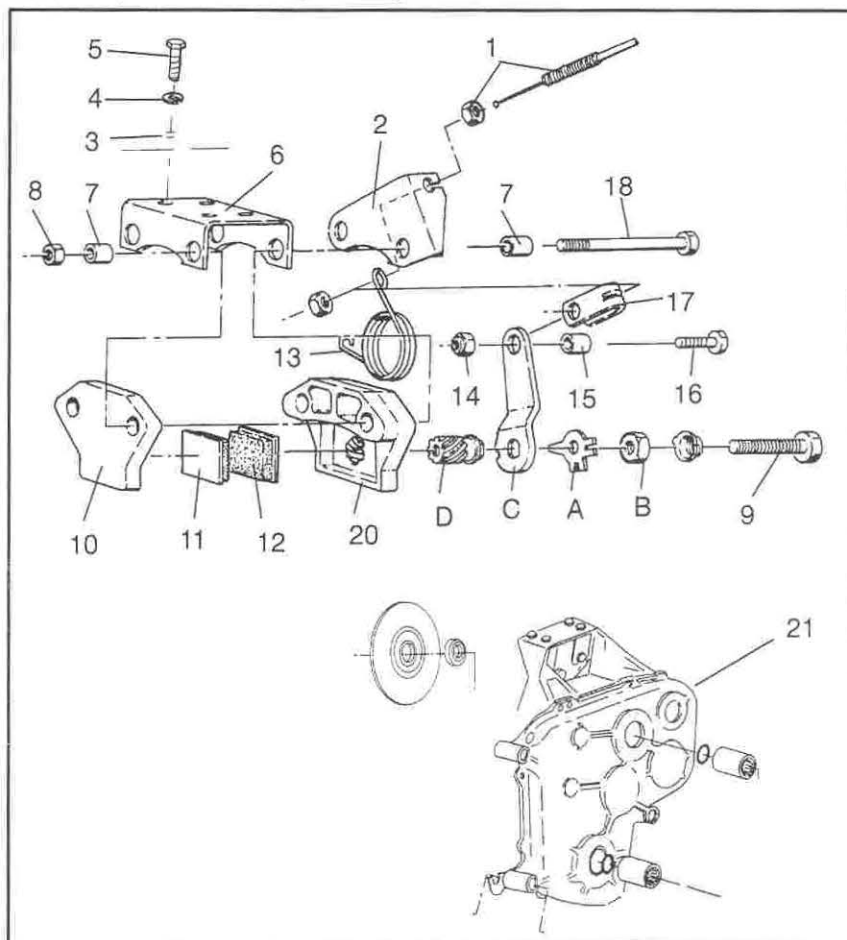
6. Field test machine for proper braking action before putting into service. If braking action is soft, re-index helix shaft and repeat steps 3. - 6.

BRAKES/FINAL DRIVE

Type WT Mechanical Brake System

The Type WT system is the mechanical brake system used only on Indy WideTrak models.

1. Brake Cable and Jam Nuts
2. Bracket, Brake Cable
3. Washer
4. Washer, Spring Lock
5. Bolt, Top Mount
6. Bracket, Brake Top Mounting
7. Bushing
8. Nut, Bi-Lock
9. Adjuster Bolt
10. Caliper, Stationary, Cast
11. Pad, Brake
12. Puck, Moveable Brake
13. Spring, Brake Return
14. Nut
15. Bushing, Brake Arm
16. Bolt, Cable Swivel
17. Clevis, LT
18. Bolt, Caliper
19. Brake Disc
20. Caliper (Moveable Puck)
21. Transmission

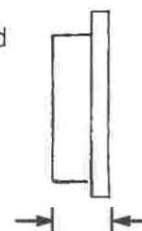


NOTE: Replace pads when worn beyond service limit.

Brake Pad Thickness - Type WT

Service Limit .250" (6.35mm)

Minimum Pad Thickness
.250"
(6.35mm)



Type WT Brake Disassembly

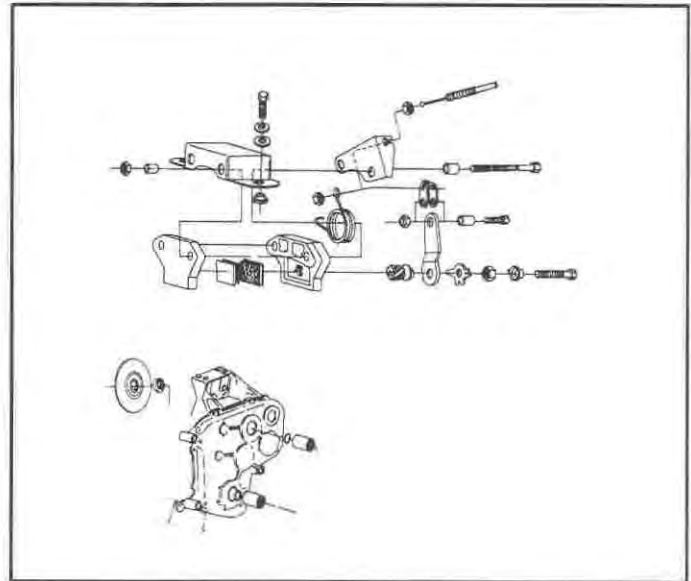
CAUTION:

Whenever inspection reveals worn, damaged or defective parts, replacement is necessary in order to avoid serious damage to the machine or injury to the operator.

1. Open adjuster bolt jam nut locking tab (A). Loosen jam nut (B) and remove adjuster bolt (9).
2. Mark location of actuating lever (C) and worm gear (D).
3. Remove actuating lever (C) and return spring. Do not disconnect lever arm from cable.
4. Remove caliper bolts, spacers, bracket nuts (Items 18, 2, 7, & 8). Remove stationary caliper casting and stationary pad (Items 10 & 11).
5. Remove top mounting bolts and washers (Items 3, 4, & 5). Pull outward on disc with the balance of the caliper assembly. Once disc is free of shaft separate components.
6. Remove brake pads and inspect for wear and damage. Replace if necessary. If stationary pad (Item 11) is stuck to stationary casting, tap on the side of the pad with a punch and hammer to break it loose.
7. Inspect rotor disc and replace if worn, galled or warped.

Type WT Assembly and Installation to Transmission

1. Clip moveable brake pad into position under holder clip. Hold moveable and stationary pads in place with a rubber band while placing assembly over rotor disc and mounting to transmission. Remove rubber bands once system is bolted into place.
2. Apply a light coating of RTV silicone to transmission shaft. Position moveable caliper pad assembly along with mounting bracket (Item 6) and brake disc onto transmission as a unit. Slide disc fully over shaft.
3. Assemble bolts, spring washer, and flat washers to transmission and top mounting bracket (Items 3, 4, 5, & 6). Finger tighten.
4. Assemble bolts, spacers, and cable bracket to top mounting bracket and moveable caliper pad assembly (Items 18, 7, 2, 6, & 20). Position stationary caliper pad assembly inside top mounting bracket pushing bolts through stationary assembly. Install spacers and lock nuts on bolts and torque to specification.



Caliper Bolt Torque

8 ft. lbs. (1.10 kg-m)

Type WT Adjustment

1. Loosen cable sleeve jam nuts (Item 1) and adjust brake cable sleeve to its shortest position.

⚠ WARNING

The following step is critical for proper positioning of the actuating arm to the caliper helix shaft. Improper positioning will result in minimal resistance and ineffective brakes.

2. With brake lever bottomed on handlebar (as if brakes were applied) and helix shaft (D) bottomed in caliper, install actuating arm, jam nut locking tab, jam nut and adjuster bolt. Release brake arm slightly to index lever for installation on helix shaft.
3. Insert a .015" (.04 cm) feeler gauge between brake disc and moveable brake pad. Release brake lever. Install return spring (Item 13) and finger tighten bolt (Item 9). Set adjuster bolt jam nut, bend locking tab and remove feeler gauge.

Friction Pad Air Gap -

.015" (.38 mm)

4. Field test machine for proper braking action before putting into service. If braking action is soft, re-index helix shaft and repeat steps 1. - 4.

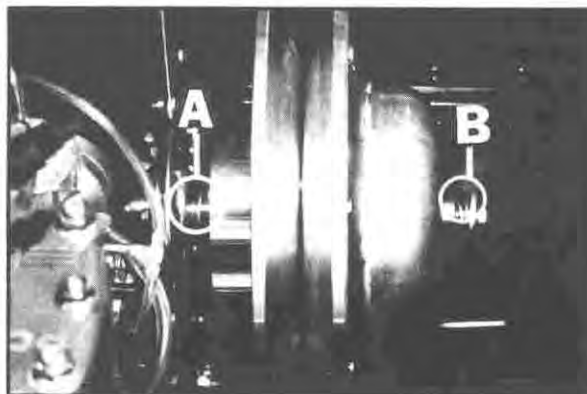
BRAKES/FINAL DRIVE

Type 3 Drive System

Type 3 Drive System Disassembly (Except WideTrak)

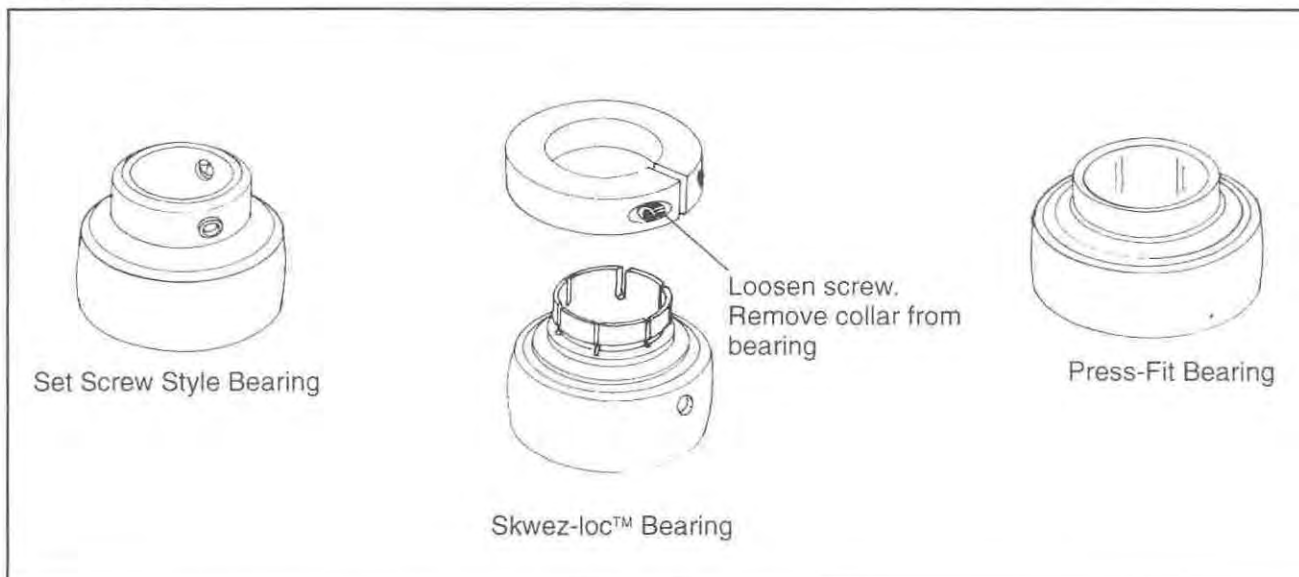
The Type 3 drive system is used on all models except the WideTrak. This system consists of a right side mounted chaincase with right side mounted brake assembly.

1. Mark hood hinges for ease of alignment when reassembling. Remove hood, air silencer, exhaust system and battery, if so equipped. Place drip pan under chaincase and remove drain plug from chaincase. Dispose of used chaincase oil properly.
2. Turn fuel valve off.
3. Remove drive belt and driven clutch. Note position of washers for controlling drive to driven offset (A) and washers to control clutch free floating (B).



4. Loosen jackshaft bearing lock set screws.

NOTE: Some models are equipped with set screw or Skwez-loc™ style jackshaft bearings; Some models are equipped with press-fit bearings which have no locking device.



5. Remove two upper flange attaching bolts.

Type 3 Drive System Disassembly, Cont.

6. Remove three bolts, nuts, and washers securing angle drive (if so equipped) and bearing flangettes. Remove and discard adaptor key if equipped with angle drive.
7. Remove four suspension mounting bolts.
8. Place a protective mat on floor and tip machine onto left side.
9. Remove rear suspension by pulling rear of track outward and sliding suspension forward. Lift out rear of suspension first.

NOTE: On some models it may be necessary to unhook the rear torsion springs to relieve pressure on the torque arm for ease of removal.

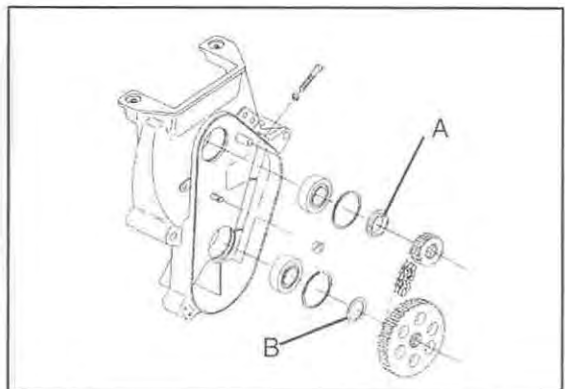
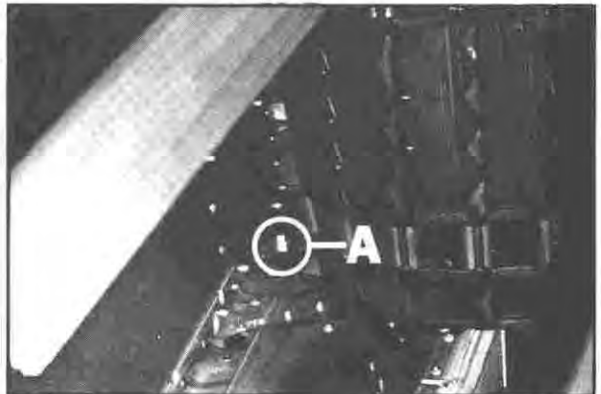
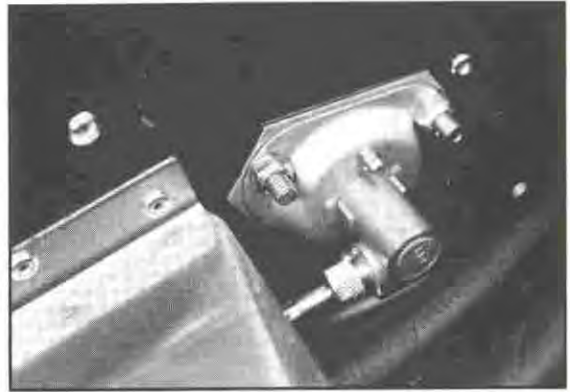
10. Position track as shown and remove third jackshaft flangette attaching bolt (A). Remove bearing.
11. Loosen drive shaft lock set screws and remove bearing. Use emery cloth if necessary to aid in removal of corrosion and/or burrs.

NOTE: Some models are equipped with set screw or Skwez-loc™ style driveshaft bearings; Some models are equipped with press-fit bearings which have no locking device. On these models the bearing must be removed after the drive shaft has been removed from the unit. If replacing the bearing only, the drive shaft must be removed from the chaincase entirely to allow bearing puller access.

12. Remove chaincase cover attaching bolts and remove cover.
13. Remove cotter pin and nut.
14. Loosen chain adjustment bolt and remove chain tensioner assembly.
15. Remove bottom sprocket attaching bolt, chain and sprockets.

16. Note position of top sprocket spacer (A) and sprocket alignment washers (B). Remove spacer and washers. These spacers are used to square the sprockets for true alignment, providing increased chain and sprocket life as well as increasing performance by eliminating drag.

NOTE: The top sprocket spacer (A) is not used with Hyvo top sprockets. Hyvo top sprockets have the spacer width built in to the sprocket width.



BRAKES/FINAL DRIVE

Type 3 Drive System

Type 3 Drive System Disassembly, Cont.

17. Remove two bolts securing caliper carrier bracket to chaincase (A).

NOTE: Inspect brake pad condition and replace if worn to less than 1/2 the original thickness. See Brake Pad Replacement in this chapter.



18. Remove three chaincase to bulkhead attaching nuts and bolts.

NOTE: On some machines it may be necessary to remove the rear exhaust bracket prior to lifting chaincase or removing drive shaft assembly. Watch for alignment shims between chaincase and bulkhead. Save for realignment of chaincase and jackshaft assembly to bulkhead during reassembly.



19. Remove chaincase.



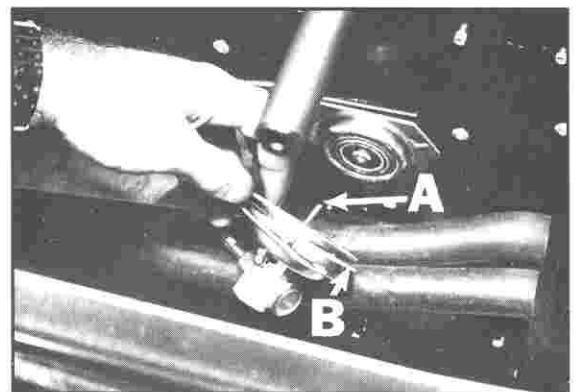
20. Remove oil tank attaching bolt (A). On liquid cooled models, remove coolant recovery tank bolt (B).

21. Raise jackshaft assembly as shown.

22. Remove O-Ring, seal sleeve and brake disc by tapping on jackshaft end with a soft face hammer as shown.

23. Remove jackshaft and drive shaft.

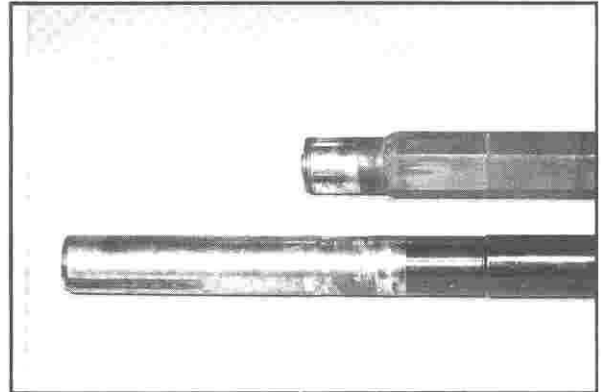
NOTE: On models with pressed bearing on jackshaft, shaft will have to be brought through bulkhead slot in order to remove from unit.



Type 3 Drive System Disassembly, Cont.

24. For set screw and Skwez-loc bearings, inspect drive shaft and jackshaft in bearing contact area. If diameter is .001" (.025 mm) less than non-contact area, shafts should be replaced.

**Jackshaft and Driveshaft Service Limit -
.001" (.025 mm)**

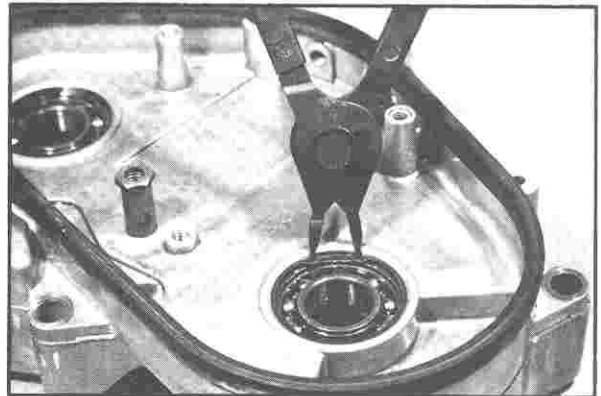


25. After drive shaft has been removed, inspect condition of drive sprockets and replace if required.

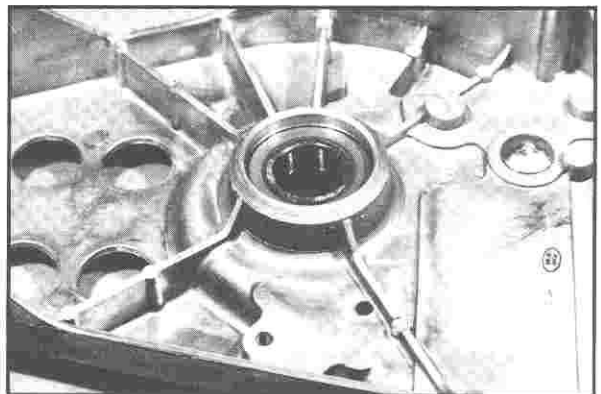
NOTE: On models with pressed bearings on jackshaft and drive shaft, if bearings are loose internally or rough they should be replaced. If bearings are loose on the shaft the shaft must be replaced.

26. Remove bearing retaining snap rings.

27. Pry out old seal from back side of chaincase.



28. Press out old bearing from side shown. If bearing appears tight, use heat to expand chaincase bore. Always press bearing toward snap ring side of chaincase when removing. Inspect chaincase for any damage and replace if required.



BRAKES/FINAL DRIVE

Type 3 Drive System

Type 3 Drive System Assembly (Except WideTrak)

1. Apply Loctite 680 to outer race of bearing and press into position.

Loctite™ 680

PN 2870584

2. Reinstall snap rings.
3. Press new seals in until outer edge is flush with chaincase shoulder. New seals must be installed from outside of case with lip side in.
4. Install drive shaft and jackshaft as shown with new seal sleeves (A) and O-Rings.

NOTE: Recessed area on seal sleeve is positioned outward and O-Ring rests in this recess.

5. Grease seal sleeves and O-Rings.

6. Install chaincase.

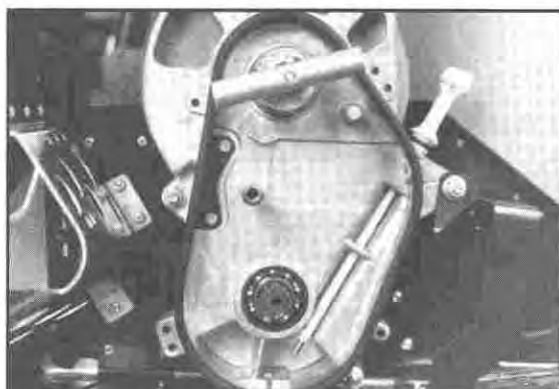
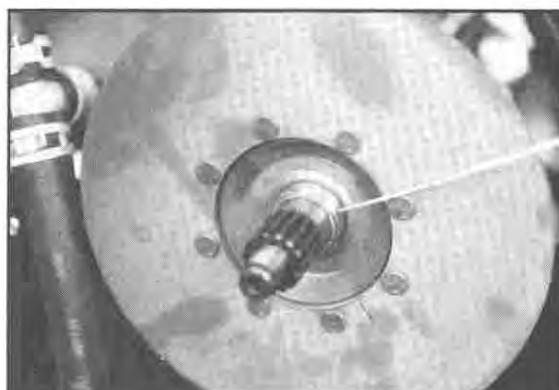
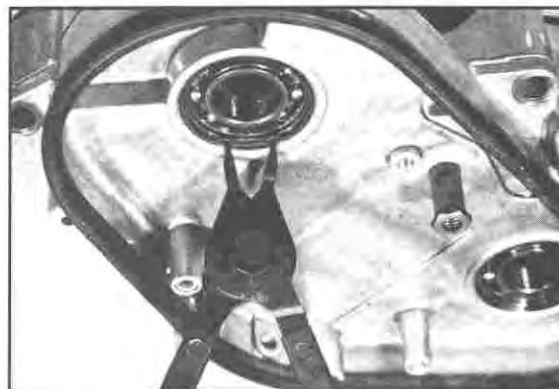
NOTE: On some models, prior to installing the drive shaft it will be necessary to install the chaincase to bulkhead attaching bolts.

7. Install jackshaft alignment tool (B) and secure with castle nut and flat washer. Tighten jackshaft nut securely to ensure positive bearing and jackshaft seating to chaincase. **NOTE:** The photo shown has a handle added to the retainer nut.

Jackshaft Alignment Tool

PN 2870399 - 13 Tooth Jackshafts

PN 2871535 - 15 Tooth Jackshafts



Type 3 Drive System Assembly, Cont.

8. Slide a bearing onto driven clutch end and check shaft alignment to bulkhead opening (A). Models with pressed jackshaft bearings will require the chaincase to be shimmed since the bearings cannot be moved for alignment. Equal spacing around the bearing is critical.

NOTE: This step is critical to the prevention of bearing preload, which can cause premature bearing and/or jackshaft failure.



9. If alignment is not correct, shims may be added between any of the chaincase to bulkhead attaching points. Tighten chaincase securely to ensure proper alignment.

NOTE: Use of a standard nut and flat washer for this alignment process will simplify the process as well as preserve the locking features of the lock nut for reassembly.

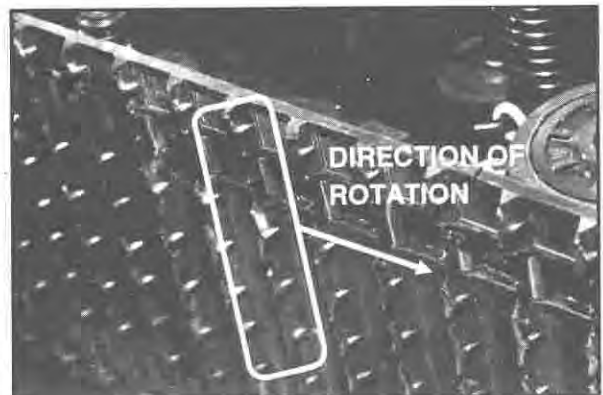


Shim Kit PN 2200126

10. Once correct jackshaft alignment has been achieved, install lock nuts on chaincase retention bolts and torque to specification. Remove alignment tool from chaincase.

**Chaincase Retention Bolt Torque -
28-30 ft. lbs. (3.86 - 4.14 kg-m)**

11. Install track and drive shaft into unit. Pull jackshaft into chaincase and seat in bearing. Install track in proper direction of travel.

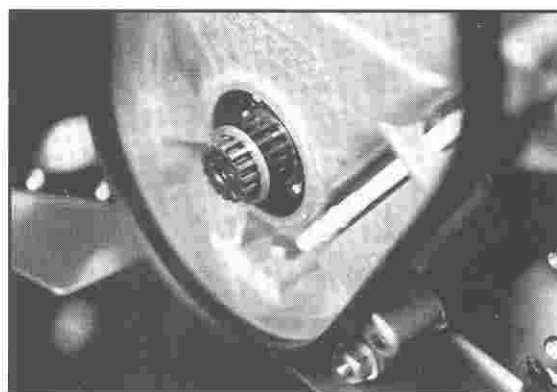
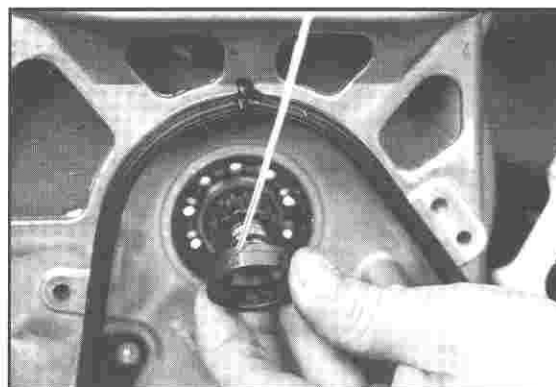


BRAKES/FINAL DRIVE

Type 3 Drive System

Type 3 Drive System Assembly, Cont.

12. Install alignment washers and sprocket spacer on drive shaft and jackshaft. Install top and bottom sprockets and secure. Using a straight, flat piece of 1/4" (6mm) bar stock 9" (22.86 cm) long check sprocket alignment. Add or subtract washers to bottom sprocket to achieve alignment.



13. Once alignment has been achieved, install sprockets with chain. Finger tighten nut and turn in bottom sprocket bolt until snug.

NOTE: The bearings on the opposite end must be in place before torquing.

14. Install chain tensioner. Finger tighten adjustment bolt.
15. Install brake caliper assembly in chaincase.



CAUTION:

On models with hydraulic brakes, make sure caliper piston is fully retracted into caliper to prevent brake binding from preload of pads. On models equipped with mechanical brakes make sure cam is fully retracted.

16. Torque caliper mounting bolts to specification.

Caliper Mounting Bolt Torque -
28 - 30 ft. lbs. (3.86 - 4.14 kg-m)

Type 3 Drive System Assembly, Cont.

12. Install jackshaft bearing, flangettes, and gasket. Align grease hole (A) in bearing with hole or fitting in flangette (B) to within .100" to ensure greasability. Torque nuts to specification. *Do not* lock set screws on retainer ring (if so equipped).

NOTE: Ultra, Storm, and 600 XCR SP models do not have set screws. RXL models have a Skwez-loc™ type retaining ring.

Flangette Nut Torque -

15 - 17 ft. lbs. (2.07 - 2.35 kg-m)

13. Install drive shaft bearing, flangettes, a new speedometer drive key, flangette gasket, and angle drive (if so equipped) to shaft and bulkhead. Torque retaining nuts to specification. *Do not* lock set screws on retaining ring (if so equipped).

Flangette Nut Torque -

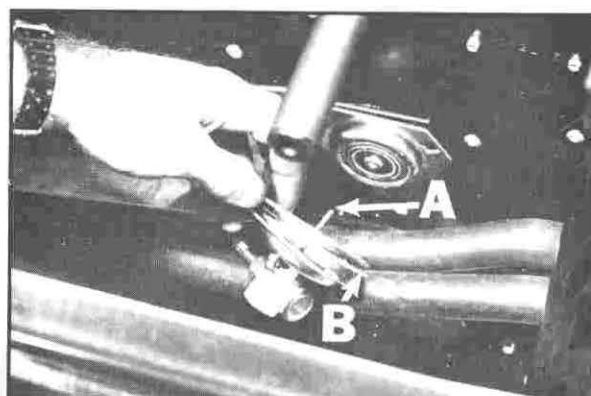
15 - 17 ft. lbs. (2.07 - 2.35 kg-m)

NOTE: On Ultra, Storm, and 600 XCR models with pressed bearings, place inner flangettes with welded bolts inside tunnel, install gasket flangette and angle drive with new adaptor key into assembly. Install Flex Loc™ nuts and torque to specification. Flangette with studs must be assembled on driveshaft prior to pressing bearing on shaft and assembly of driveshaft into unit.

Flex Loc™ Nut Torque -

15 - 17 ft. lbs. (2.07 - 2.35 kg-m)

14. When reinstalling drive shaft flangettes and speedometer angle drive, always replace drive key (A) and install a new gasket (B).



BRAKES/FINAL DRIVE

Type 3 Drive System

Type 3 Drive System Assembly, Cont.

20. Check cable routing and lubricate with Polaris cable lube.

Polaris Cable Lube

PN 2870510

21. Grease angle drive and bearing with Polaris grease.

Polaris Premium All Season Grease

PN 2871423

22. Torque bottom chaincase sprocket bolt to specification.

**Bottom Chaincase Sprocket Bolt
Torque -**

19 ft. lbs. (2.62 kg-m)

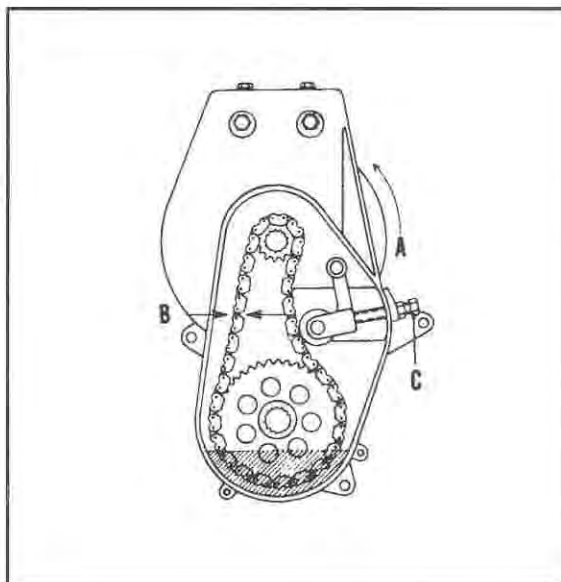
23. Torque jackshaft nut to specification. On models with castle nut, if cotter pin does not align, tighten nut until it does. It may be necessary to apply brake to hold jackshaft while torquing.

**Castle Nut Torque -
50 ft. lbs. (6.9 kg-m)**

**Flex Loc™ Nut Torque
65 ft. lbs. (8.97 kg-m)**

24. To obtain correct chain tension, place a slight reverse tension on the chain as indicated in the illustration at right (A).
25. There should be approximately 1/4-3/8" (.6-.95 cm) total deflection on the chain at point (B). Loosen adjuster bolt locknut and turn adjuster bolt (C) until correct chain deflection is obtained.

**Chain Deflection -
1/4-3/8" (.6 - .95 cm)**



Type 3 Drive System Assembly, Cont.

15. Lock adjuster bolt locknut (A) while holding a wrench on the adjuster bolt (B).
16. The illustration at right shows a cross section view of the upper chaincase. Always replace seals and O-Rings. Check seal sleeve for wear and/or nicks. Replace if any are noticed.
17. With unit on its right side, add 9 oz. (11 oz. on models equipped with reverse) of Polaris chaincase oil to the chaincase.

Polaris Synthetic Gearcase Lube
PN 2871477 (Gallon)
PN 2871478 (12 ounces)

18. Install chaincase cover gasket in chaincase with gap at the top. Install chaincase cover and torque cover bolts to specification.

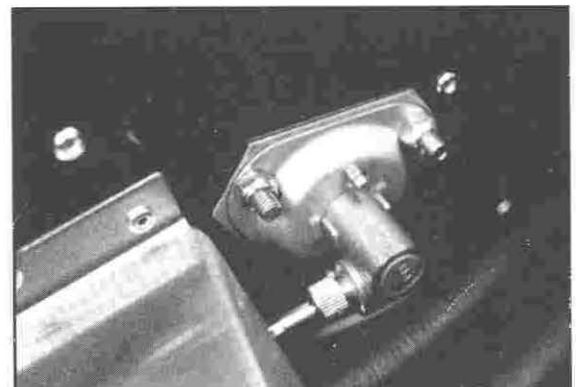
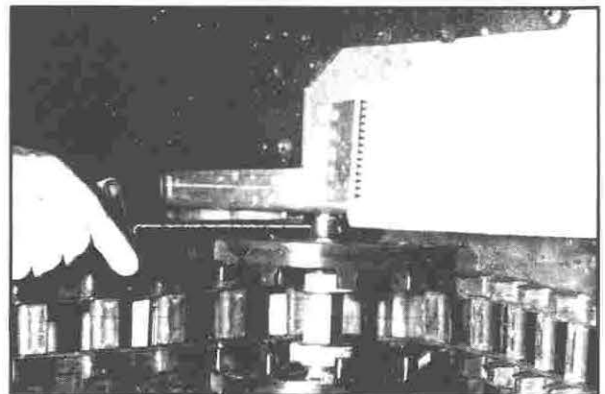
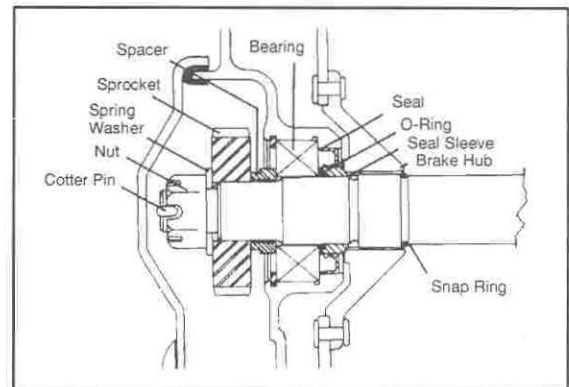
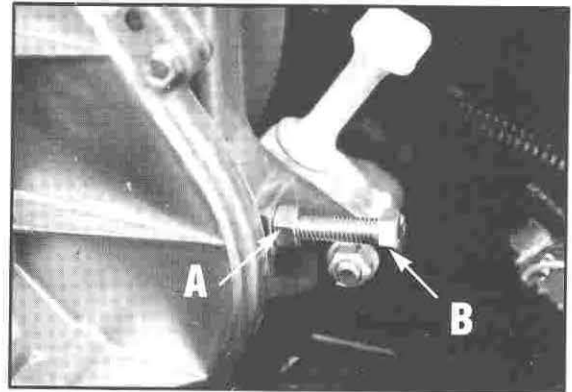
Chaincase Cover Bolt Torque -
8 - 10 ft. lbs. (1.10 - 1.38 kg-m)

19. Torque bearing driveshaft and jackshaft set screws to specification (if so equipped).

Driveshaft and Jackshaft Bearing
Set Screw Torque -
80 in. lbs. (.92 kg-m)

20. Lubricate bearing with Polaris Premium All Season grease.

Polaris Premium All Season Grease
PN 2871423



BRAKES/FINAL DRIVE

Type 3 Drive System

Type 3 Drive System Assembly, Cont.

32. Reinstall clutch offset washers on jackshaft and install driven clutch. Using the clutch alignment tool adjust driven clutch to achieve proper offset.

Clutch Alignment Tool

P90 - PN 2870914
P85 - PN 2870426

P90 Offset 21/32"

P85 Offset 5/8"

33. With proper offset achieved, the driven clutch must float on the jackshaft. This is done by adding or subtracting spacer washers (PN 7555734) to the clutch retaining bolt. When properly adjusted, the driven clutch will have .020 - .100" (.5 - 2.5 mm) float.

CAUTION:

Incorrect float can cause jackshaft bearings to be side loaded, resulting in premature bearing failure.

34. Torque driven clutch retaining bolt to specification.

Driven Clutch Retaining Bolt Torque -

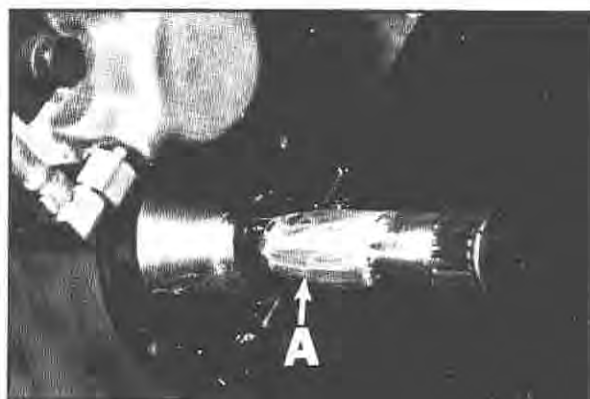
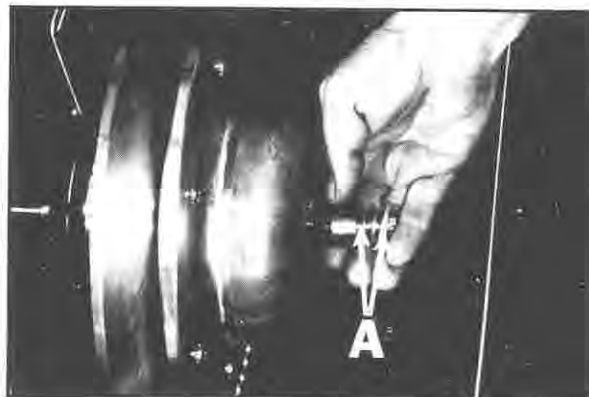
12 ft. lbs. (1.66 kg-m)

35. If only the jackshaft needs service, loosen left rear nosepin to foot rest mounting bolts and slide shaft out left side without removing chaincase.
36. For reassembly, use jackshaft installation tool (A). Grease tool and guide jackshaft through brake disc hub, seal sleeve, O-Ring and bearing.

NOTE: Jackshaft with tool installed must slide freely. If not, remove brake caliper and disc to access O-ring and reposition O-ring.

Jackshaft Installation Tool

PN 2870974 - 13 Tooth Spline
PN 2871296 - 15 Tooth Spline



37. Reinstall suspension and torque to specification.

**3/8" Suspension Bolt Torque -
35-40 ft. lbs (4.83-5.52 kg-m)**

**7/16" Suspension Bolt Torque -
45-50 ft. lbs. (6.21-6.9 kg-m)**

38. Reinstall air box, adjusting box properly. Route throttle cable through hold down clamp as shown.
39. Reinstall battery (if so equipped). Always attach ground cable last to prevent sparks.
40. Replace exhaust system sealing ball and socket with high temp RV silicone.
41. Install hood, aligning with marks made during disassembly. Ensure proper hood closure and readjust if necessary See Hood Alignment, Chapter 7. Torque bolts to specification.

Hood Bolt Torque -

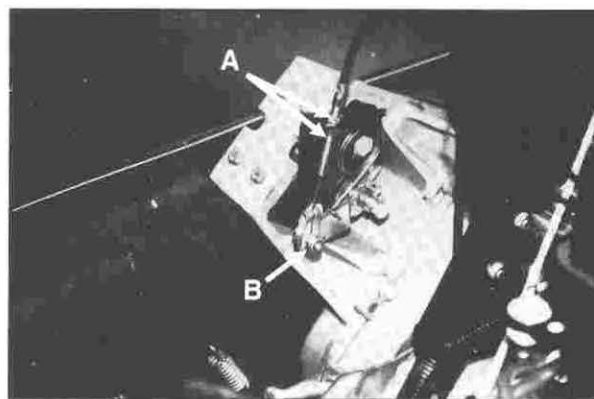
8-10 ft. lbs. (1.10-1.38 kg-m)

42. Align track. See Track Alignment Procedure, Chapter 8.
43. Test ride the unit to ensure all components are functioning properly before putting into service.

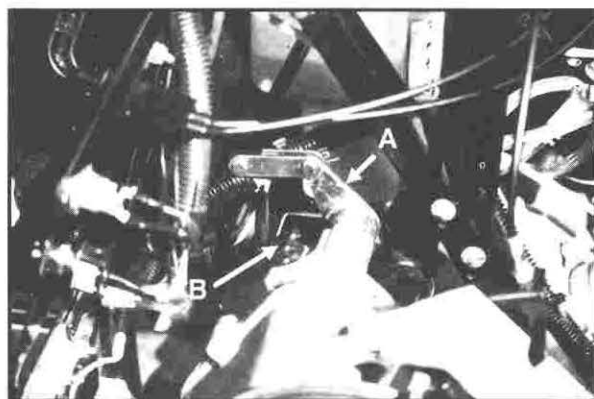
BRAKES/FINAL DRIVE

Transmission, Suspension and Track Removal - WideTrak Models

1. Mark hood hinges for ease of alignment when reassembling unit. Remove hood assembly and set aside to prevent damage.
2. Remove battery (if so equipped).
3. Turn off fuel valve. Move oil tank for access.
4. Remove air intake and coolant recovery bottle from its mounting (WideTrak LX models only - do not remove entirely).
5. Remove drive belt.
6. Remove driven clutch retaining bolt assembly and drive clutch. Note number of spacers which are behind driven clutch for installation during reassembly procedures.
7. Remove muffler springs and muffler from unit.
8. Loosen brake cable jam nut (A) and remove cable bolt, nut and spacer (B). Use care not to loose spacer.
9. Remove cable from transmission.

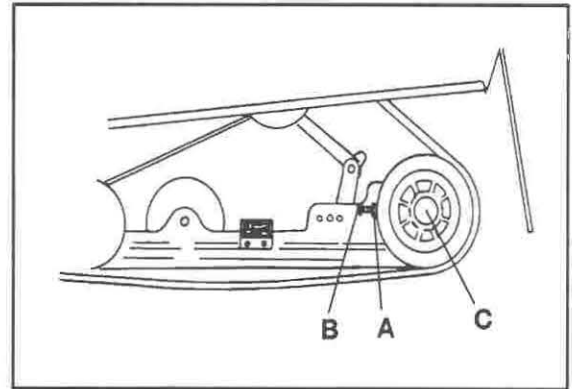


10. Note location of shift linkage on transmission (A) to assure proper location during reassembly. Remove cotter pin, washers, and pin from transmission arm.
11. Remove brake light wire connector from sensor.

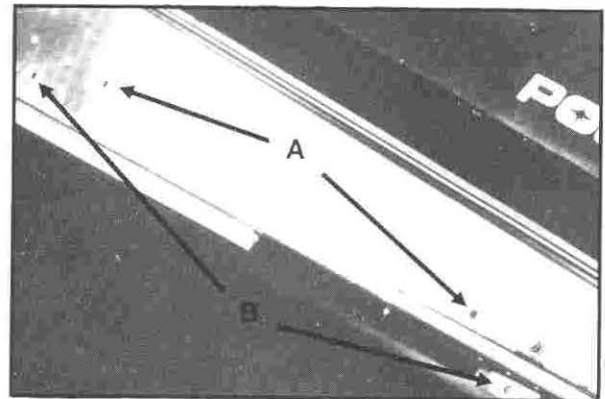


BRAKES/FINAL DRIVE Transmission, Suspension and Track Removal - WideTrak Models

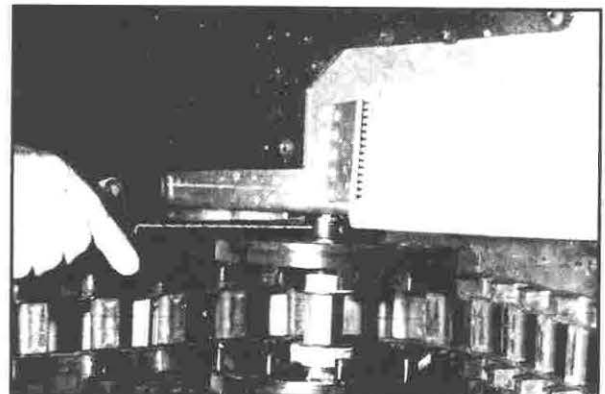
12. Loosen rear idler wheels and bolts.
13. Loosen jam nuts on adjustment bolts on both sides. Back out adjustment bolts to allow rear idler assembly to come forward, relieving track tension.
14. Tighten idler wheel bolts so that spacers on shafts do not rotate and lose alignment.



15. Remove front and rear carrier shaft bolts (A), and front and rear suspension bolts from both sides (B).
16. Place a protective mat on the floor. Tip unit onto right side and remove suspension.



17. Using "T" handle Allen wrench, loosen set screws on lock collar.
18. Remove (2) bolts, nuts, and flangettes supporting jackshaft bearing. Loosen and slide back lock ring from transmission end of jackshaft.
19. Remove jackshaft by pulling towards driven clutch side and lifting upward through bulkhead. It may be necessary to lightly tap on bearing collar to free coupler of jackshaft from transmission end.
20. Inspect bearing. If loose on the shaft the shaft must be replaced. If bearing is rough when turned, the bearing must be replaced. The bearing is pressed onto the shaft and will require a puller for removal.



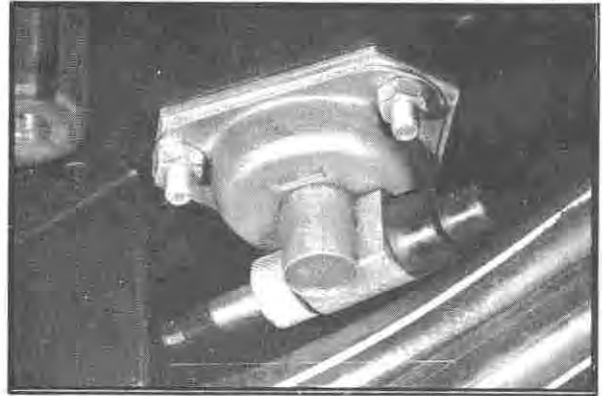
BRAKES/FINAL DRIVE

Transmission, Suspension and Track Removal - WideTrak Models - 1996

1. Loosen and remove three carriage bolts and nuts retaining angle drive housing and flanges.
2. Remove angle drive housing, adaptor key, flanges, gasket, and bearing from drive shaft and tunnel.

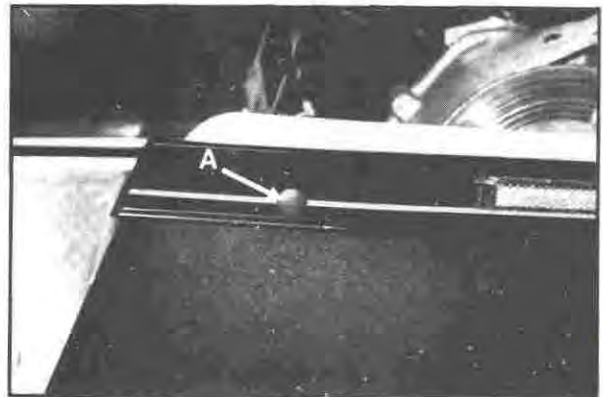
NOTE: It is not necessary to remove speedometer cable from angle drive. Replace adaptor key any time drive train assembly is serviced.

3. Tip machine back onto floor.



4. Remove right side bumper plug (A).
5. Remove bolt retaining rear of bumper to foot rest.
6. Bend muffler mount out of the way to allow transmission removal.
7. Remove three transmission retaining bolts. Note all alignment shim quantities and locations for reassembly.

NOTE: Retaining bolts have to be held in place from underside while removing nuts. The lower front bolt cannot be removed at this time. It must be lowered to the drive sprocket.

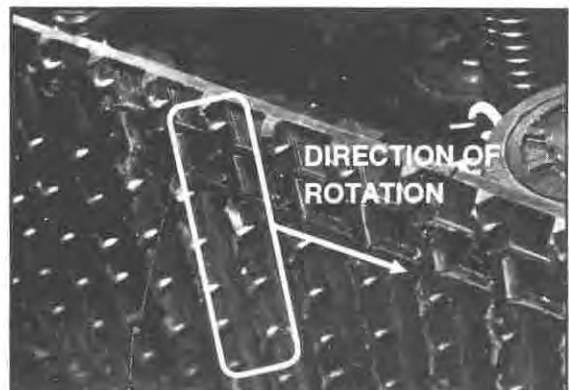


8. Lift and maneuver transmission to free drive shaft coupler.
9. Lower drive shaft and remove lower front bolt.
10. Maneuver transmission until it can be removed from the unit. Use care not to damage coolant lines on LX models.
11. With transmission removed, tip unit onto right side. Notice direction of track rotation for reassembly. The arrow in the photo at right indicates track bottom, rear of unit.

12. Remove front and rear carrier shafts..
13. Remove suspension by pulling rear of track out of tunnel. Slide suspension forward to driveshaft. Lift up and out at the rear.

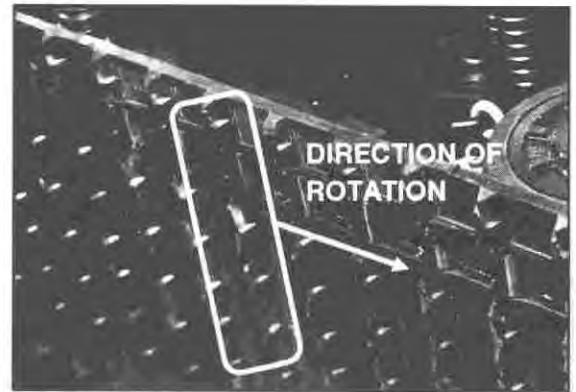
NOTE: On some models it may be necessary to unhook rear torque arm springs to allow torque arm to lower.

14. Inspect transmission, brakes, suspension and track for excessive wear. Check bearings for excessive movement or rough feeling. Replace if necessary.



Assembly

1. Tip unit onto right side.
2. Insert track in unit, making sure direction of rotation is correct.
3. Place drive shaft in unit, aligning drive sprockets and track drive lugs.
4. Install lock collar, flangette, bearing, gasket, and flangette on drive shaft, positioning bearing flush with end of drive shaft.
5. Lightly tighten set screws to hold bearing in place.
6. Align flangette holes with tunnel.
7. Replace adaptor key in drive shaft. Install angle drive housing aligning adaptor key with angle drive.
8. Install nuts and finger tighten.
9. Tip machine onto its left side.
10. Replace O-rings on input and output shafts. Apply Polaris All Purpose Grease to drive shaft coupler splines.

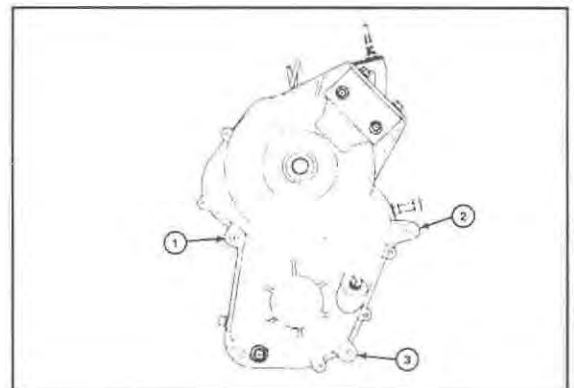


Polaris All Purpose Grease
PN 2871423

11. Reinstall transmission, using care not to damage coolant hoses on LX models. Be sure transmission shift linkage is properly located.
12. Install lower front mounting bolt (3) before coupling to shaft. Once bolt is started into transmission housing, align coupling with drive shaft and jack shaft splines. Keep transmission flat and lower gradually to prevent binding of couplers.
13. Install remaining transmission mounting bolts. Reinstall shim washers in original positions and tighten bolts securely.

NOTE: Use of a standard nut and flat washer for this alignment process will simplify the process as well as preserve the locking features of the lock nut for reassembly.

14. Tip machine onto its right side.



BRAKES/FINAL DRIVE

Transmission, Suspension and Track Assembly - WideTrak Models - 1996

Assembly, Cont.

15. Loosen set screws and seat drive shaft in transmission coupler stub shaft. For ease of assembly, make sure track has no pressure against drive shaft.
16. Tighten nuts retaining angle drive housing to tunnel. Torque to specification.

Angle Drive Housing Retaining Nut Torque -

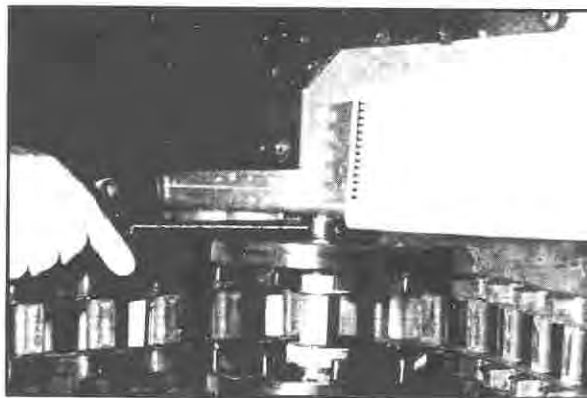
15 - 17 ft. lbs. (2.07 - 2.35 kg-m)

17. Using "T" handle Allen wrench, torque set screws to specification.

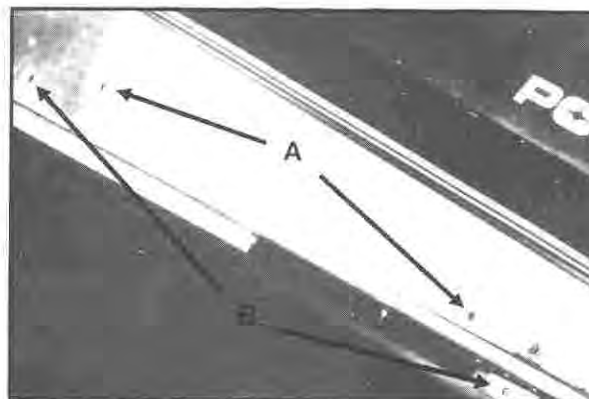
Set Screw Torque

80 in. lbs. (.92 kg-m)

18. Reinstall suspension inside track and align with tunnel mounting holes.



19. Install and hand tighten suspension bolts (B).
20. Install front carrier shaft assembly inside track and mount to tunnel with bolts. Hand tighten bolts.
21. Install rear carrier shaft assembly. Make sure bolts are not cross threaded and hand tighten (A).



22. Tip machine back onto floor and tighten all suspension bolts to specification.

Suspension Bolt Torque -

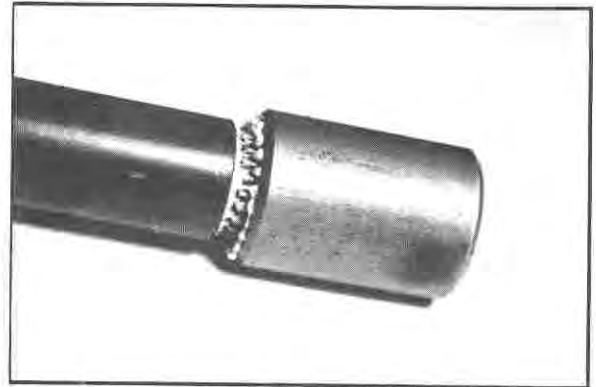
35-40 ft. lbs (4.83-5.52 kg-m)

Assembly, Cont.

23. If jackshaft was removed from unit, grease coupler spline with Polaris Premium All Season Grease and install on transmission.

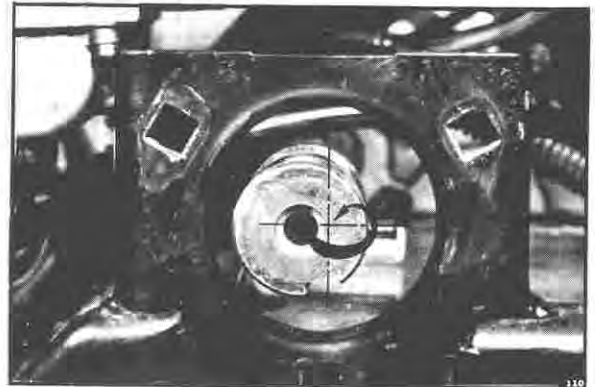
Polaris Premium All Season Grease

PN 2871423



24. Check for bearing to bulkhead alignment and shim transmission as required to center jackshaft in bulkhead mount. Shims may be required between transmission and bulkhead. Seat jackshaft firmly.

Shim Kit PN 2200126

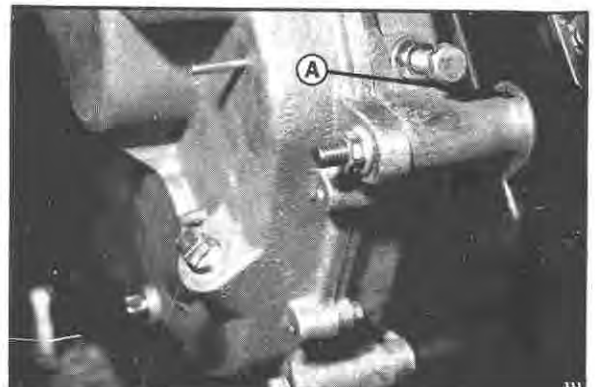


25. Once properly aligned, install flangettes. Align grease holes in bearing and flangette.

26. Replace nuts holding transmission in place with proper lock nuts and torque to specification.

Transmission Retaining Nut Torque -

28-30 ft. lbs. (3.86-4.14 kg-m)



27. Install bolts and nuts securing flangettes to bulkhead. Torque to specification.

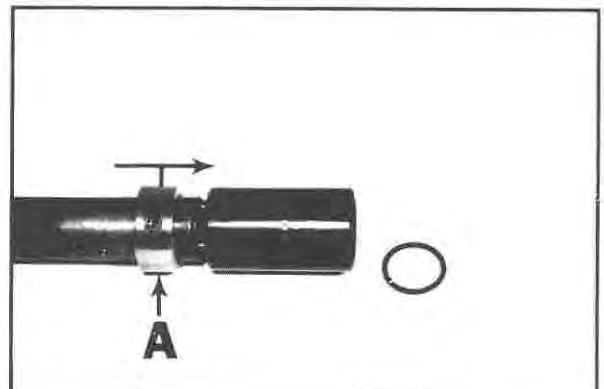
Bearing Flangette Nut Torque -

15-17 ft. lbs. (2.07-2.35 kg-m)

28. Set lock ring at transmission coupler and torque to specification.

Lock Ring Torque -

80 in. lbs. (.92 kg-m)



BRAKES/FINAL DRIVE

Transmission, Suspension and Track Assembly - WideTrak Models - 1996

Assembly, Cont.

29. Reattach transmission shift linkage and brake light connector. Check transmission fluid level and fill if necessary.

**Synthetic Oil PN 2871477 Gallons
PN 2871478 12 oz.
or Chaincase Oil PN 2870337**

30. Attach brake cable to transmission mounting with bolt, nut and spacer.
31. Install bumper onto footrest bolt and tighten.
32. Reinstall bumper plug.
33. Reinstall and secure muffler.
34. Install battery (if so equipped), air box, oil tank, and coolant recovery bottle (if so equipped).
35. Loosen rear idler bolts.
36. Reinstall driven clutch and spacers onto jackshaft and tighten.
37. Reinstall clutch offset washers on jackshaft and install driven clutch. Using the clutch alignment tool adjust driven clutch to achieve proper offset.

Clutch Alignment Tool

P85 - PN 2870426

P85 Offset 5/8"

38. WideTrak models have no float on driven clutches. Use shim washers (PN 7555734) to create gap between shaft and cover washer *only*.

Transmission, Suspension and Track Assembly - WideTrak Models - 1996

39. Torque driven clutch retaining bolt to specification.

**Driven Clutch Retaining Bolt Torque -
12 ft. lbs. (1.66 kg-m)**

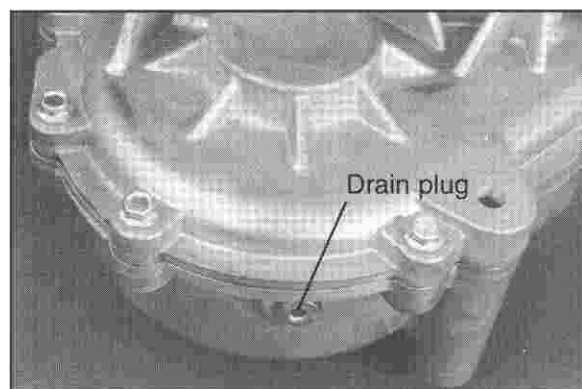
40. Lift and support rear of unit and align track to specifications found in the Maintenance section on page 2.12. Make sure rear idler wheel spacer location is correct before tightening idler wheels.
41. Reinstall hood.

BRAKES/FINAL DRIVE

Transmission Disassembly 1997 to Current WideTrak

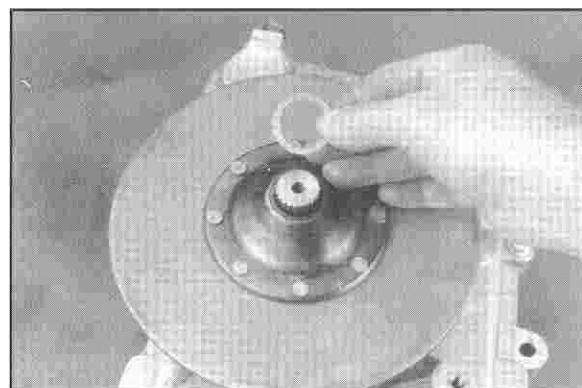
Disassembly/Inspection

1. Drain transmission oil into suitable container.

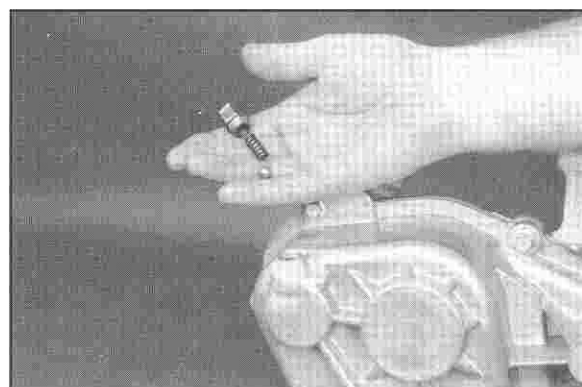


2. Remove snap ring, spacer washer, and brake disc.

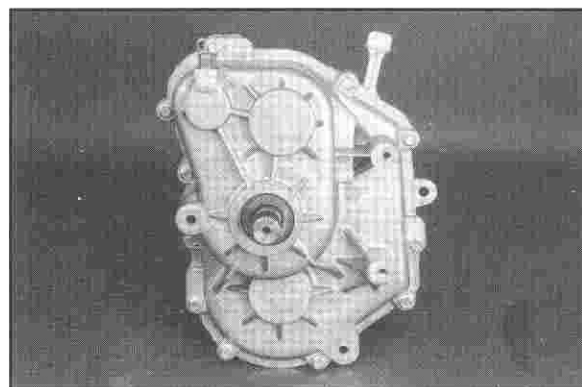
NOTE: Note position of spacer washers behind disc for proper alignment upon reassembly.



3. Remove detent spring and ball.

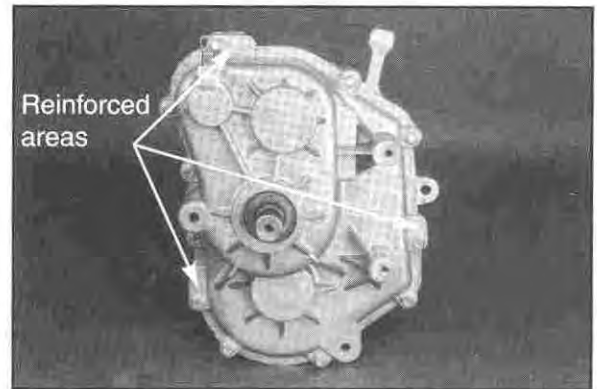


4. Remove case bolts evenly in a criss-cross pattern.

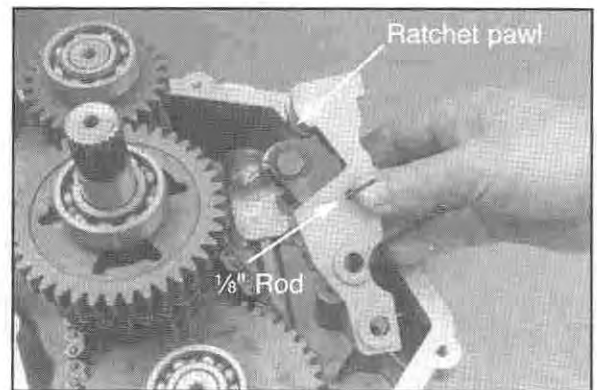


BRAKES/FINAL DRIVE Transmission Disassembly 1997 to Current WideTrak

5. Tap cases apart with soft faced hammer in the reinforced areas indicated in photo at right. Tap end of brake shaft to be sure it remains in case.

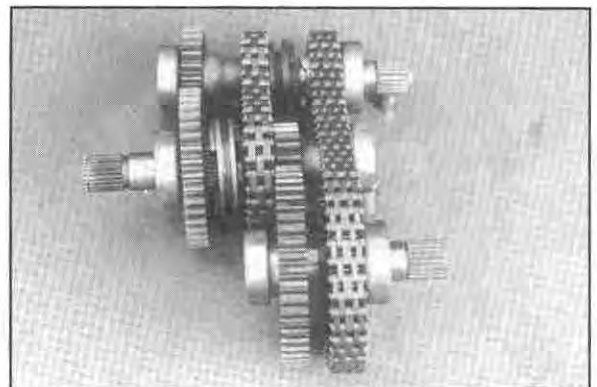


6. Hold chain tensioner ratchet pawl off ratchet teeth and push tensioner plunger all the way in. Insert a 1/8" diameter rod as shown to hold tensioner in released position. Remove tensioner assembly. Inspect for cracks, chipped, broken, or rounded teeth.

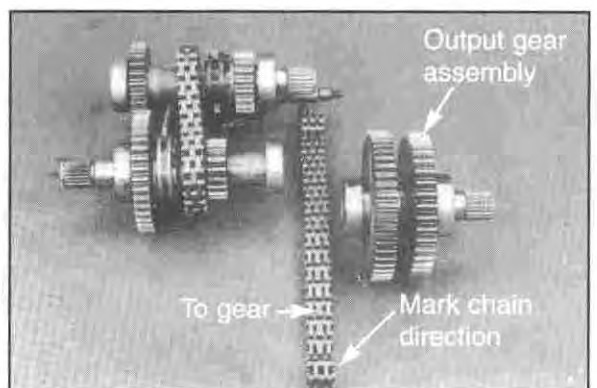


7. Remove shift arm

8. Remove shaft and gear assembly from case by tapping with a soft faced hammer evenly on end of shafts.



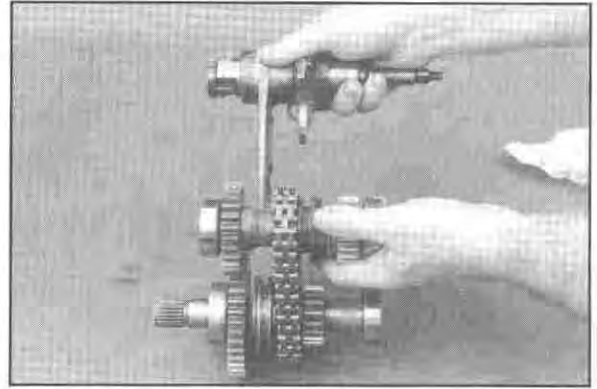
9. Remove output gear assembly and chain. Mark chain direction for reference during reassembly. Inspect gear teeth for damage. Inspect chain for worn, cracked, or broken link plates.



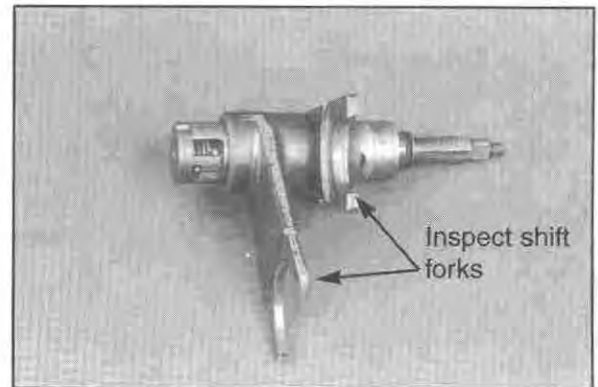
BRAKES/FINAL DRIVE

Transmission Disassembly 1997 to Current WideTrak

10. Remove shift fork shaft from gear cluster. Inspect surface of fork for wear or bending.



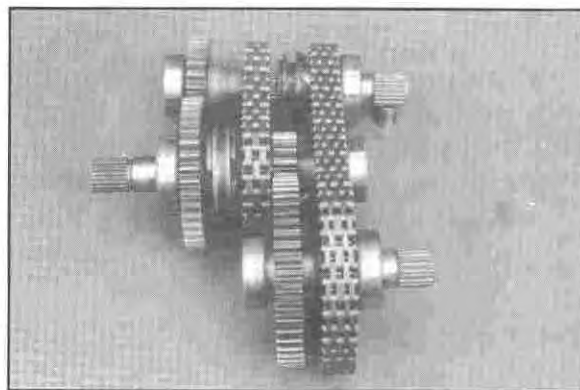
11. Remove chain from input and reverse shaft. Inspect gear teeth for damage. Inspect chain for worn, cracked, or broken link plates.



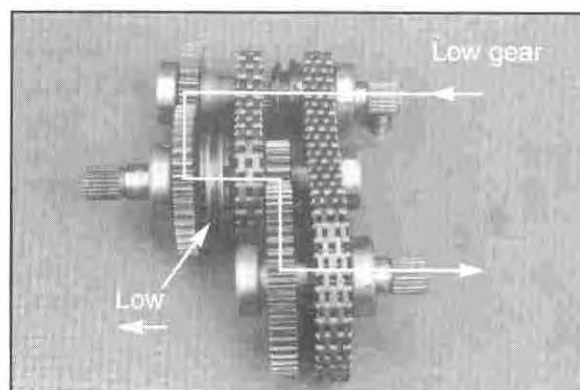
12. Inspect dog gears and slots in mating gears closely. Rounded edges will cause gears to disengage under load. Replace both dog gear and mating gear if edge of dog and/or slot is rounded. Inspect gears for chipped, cracked, or broken teeth.

BRAKES/FINAL DRIVE Transmission Disassembly 1997 to Current WideTrak

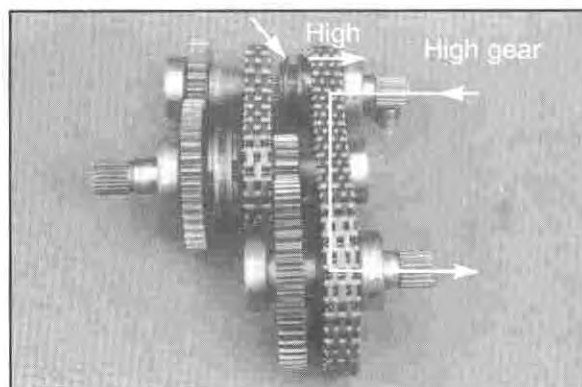
Gear, shaft, and chain cluster assembly shown.



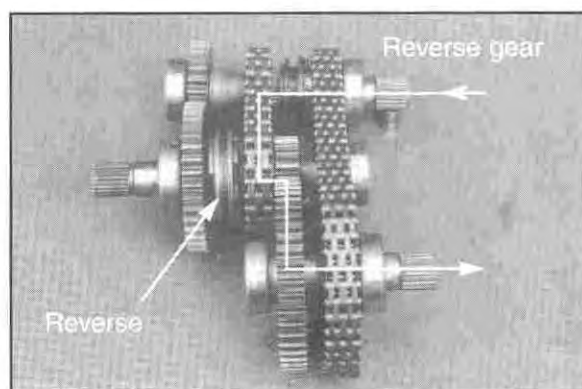
Low gear output power flow...



High gear output power flow...



Reverse output power flow...

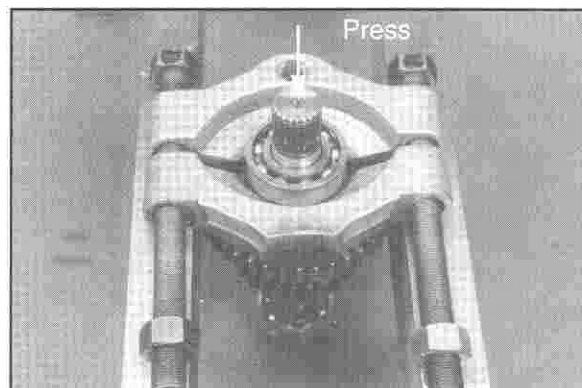


BRAKES/FINAL DRIVE

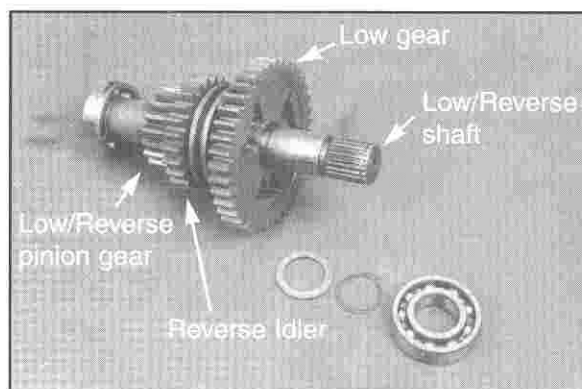
Transmission Disassembly 1997 to Current WideTrak

Low / Reverse Shaft Disassembly

13. Press bearing from end of shaft using a bearing separator.



14. Remove snap ring and spacer washer.



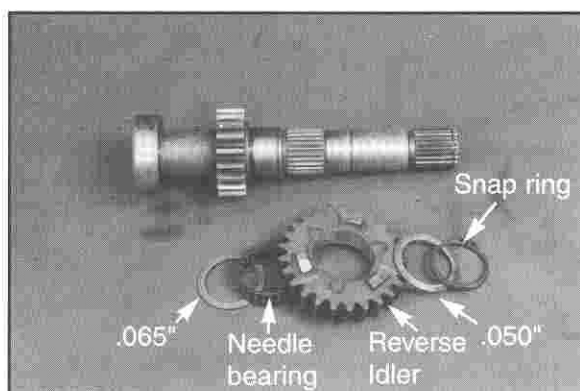
BRAKES/FINAL DRIVE Transmission Disassembly 1997 to Current WideTrak

15. Remove low reverse shaft low gear...

needle bearing, thrust washer, low/reverse dog gear...

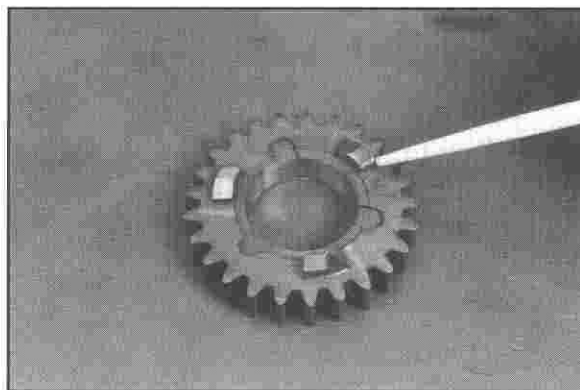


snap ring, thrust washer (.050"), reverse idler, needle bearing, and thrust washer (.065").



16. Closely inspect drive dogs. Replace gear and mating gear if rounded, chipped or broken.

17. Inspect needle bearings for wear or cracks on cage. Shiny spots on cage indicate wear and the bearing should be replaced. Inspect shaft and thrust washers for galling or wear. Always replace snap rings if removed.

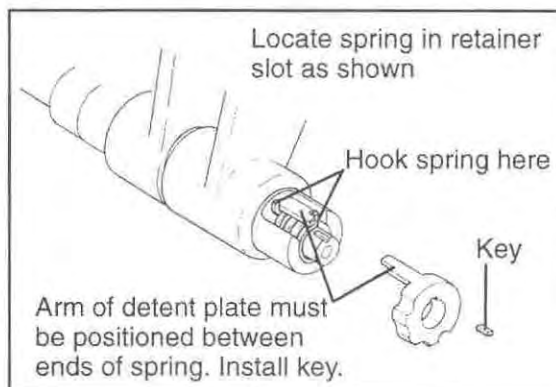
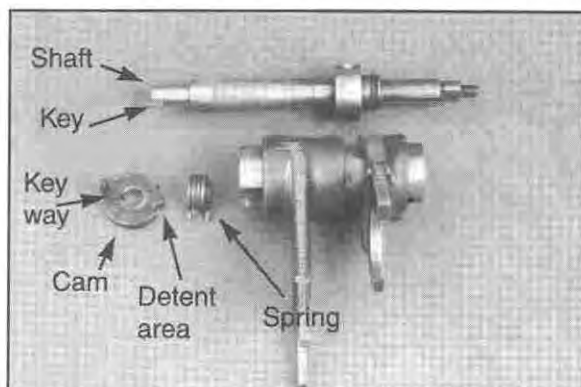


BRAKES/FINAL DRIVE

Transmission Disassembly 1997 to Current WideTrak

Shift Fork Disassembly

1. Remove the detent cam, spring and shaft.
2. Check condition of key way and key. Inspect indicator, spring legs and detent areas for wear. Replace parts as required. NOTE: The spring must be pre-loaded upon installation. Refer to photo and illustration below.



Transmission Assembly

Lubricate all parts before assembly with Premium Synthetic Chaincase Lubricant.

1. Install chain on input and reverse shaft. Photo 1.
2. Add output gear assembly with chain. Photo 2.

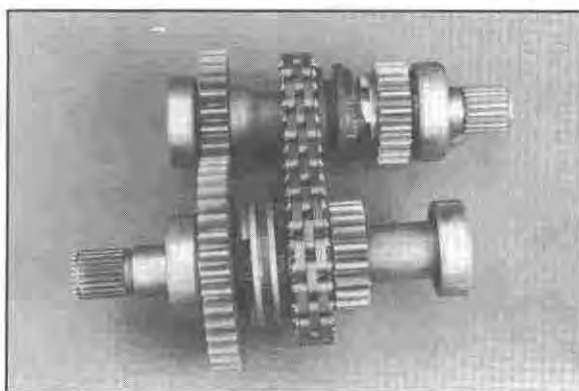


Photo 1

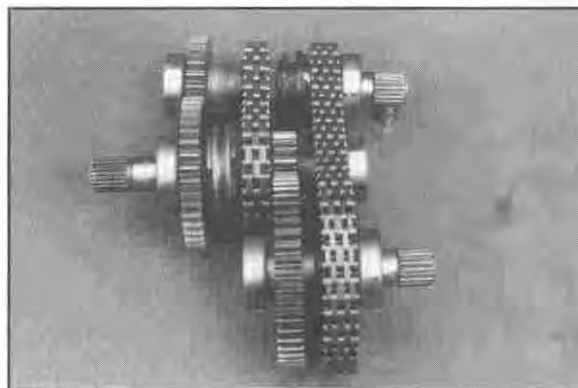


Photo 2

3. Add shift fork assembly.
4. Install entire assembly in case half.
5. Lock tensioner plunger in retracted position before installation by installing a 1/8" dowel as shown in photo at right (where applicable). If washers were removed upon disassembly, re-install them between tensioner and case. Torque bolts to 10 ft.lbs. (1.38 kg-m).
6. Apply 3 Bond™ 1215 Sealant to case halves.
7. Install outer case half and replace brake cable bracket. Torque bolts in three steps to 8-10 ft. lbs. (1.10-1.38 kg-m) using a criss-cross pattern. Remove dowel from tensioner and install access plug (where applicable).
8. Install transmission. Add 20 oz. Premium Synthetic Chaincase Lubricant.



Transmission Case Bolt Torque-
8-10 ft. lbs. (1.10-1.38 kg-m)

BRAKES/FINAL DRIVE
Transmission Assembly 1997 to Current WideTrak

8. Install seals, shift arm, brake disc and caliper. Install detent ball, spring, and spring guide. Fill with 20 ounces (600cc) Polaris Premium Synthetic Transmission Oil.

Synthetic Chaincase Lubricant -

Gallon PN2871477
12 oz. PN 2871478

Brake Caliper Removal - Type WT2

1. Remove brake cable.
2. Remove retaining bolts, making note of location of hex head bolt (with flat washer) and recessed Allen bolt.

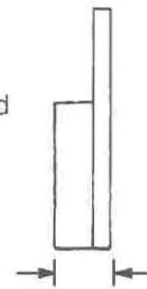
NOTE: Before performing next step, note position of two spring clips.

3. Remove upper guide bushing and pads. Remove lower guide bushing. Inspect pads and replace if worn beyond service limit.

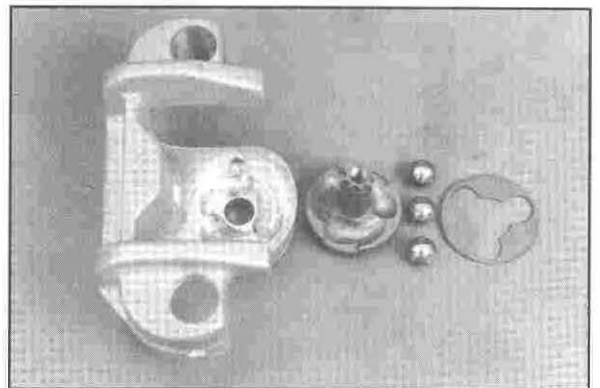
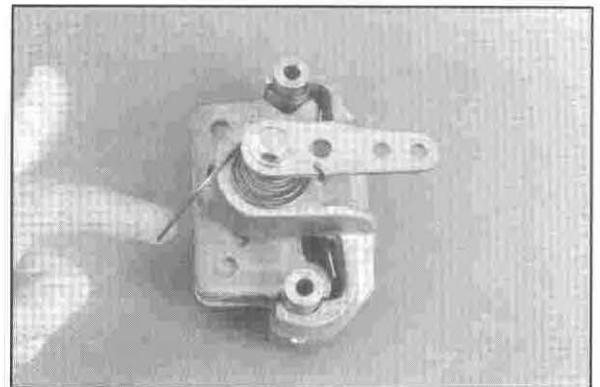
Brake Pad Thickness - Type WT2

Service Limit .250" (6.35mm)

Minimum Pad
Thickness
.250"
(6.35mm)



4. With actuating arm facing up, carefully remove tension from the return spring.
5. Remove the arm using care not to lose the balls, ball spacer, or lifter ramp.
6. Inspect balls, ball spacer, lifter ramp and caliper housing for galling or wear. Replace if necessary.

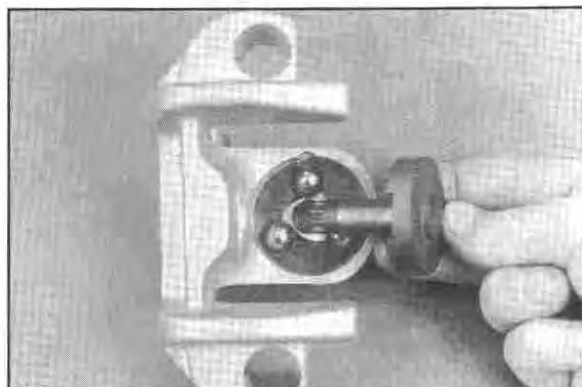


BRAKES/FINAL DRIVE

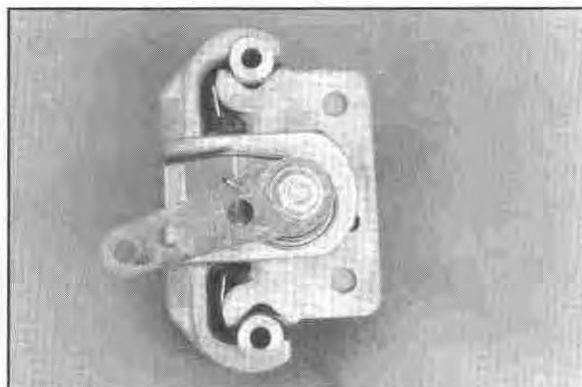
Transmission Assembly 1997 to Current WideTrak

Assembly

1. Apply a light film of grease to balls and ball spacer. Install in caliper housing.
2. Install lifter ramp. **NOTE:** Ramp may be installed in any position.

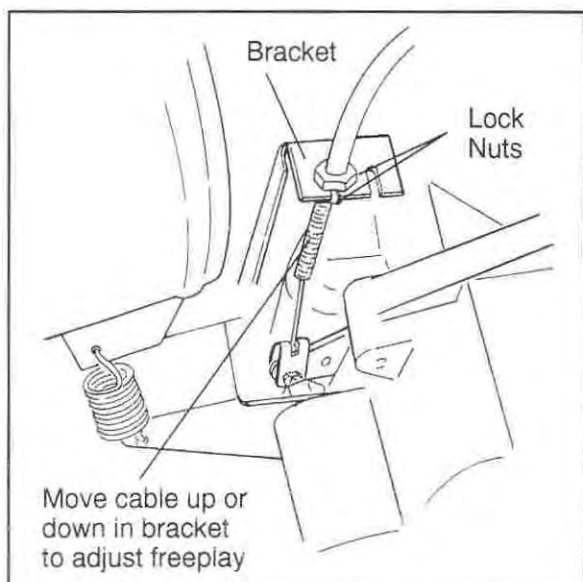


3. Install spring and arm with arm located in 8:00 position as shown in photo at right.
4. Install lower guide bushing and both spring clips. Place pads against lower bushing spring clip and tip into position.
5. Install upper guide bushing.



Installation

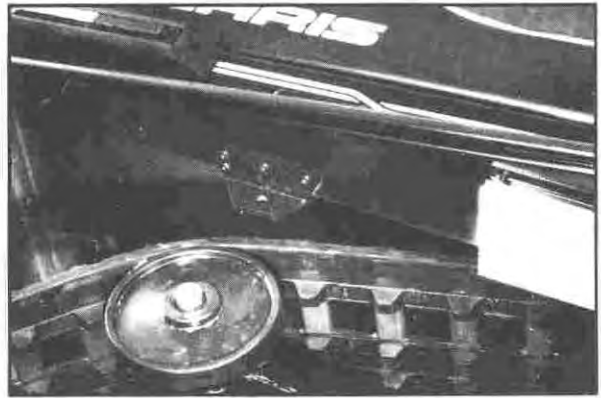
6. Install hex head bolt with washer in top guide bushing. Install Allen head bolt in recessed bushing as shown.
7. Reinstall brake actuating cable and adjust as outlined on page 2.25a of the Maintenance Section. Tighten cable lock nuts securely.



BRAKES/FINAL DRIVE

Track Removal - Two Sprocket Drive Shaft

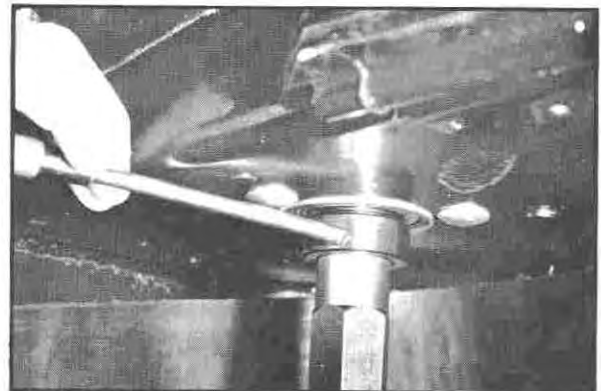
1. Remove rear suspension bolts.
2. Remove front suspension bolts.
3. Place a protective mat on the floor and tip the machine on its side.



4. Using an Allen wrench, loosen set screw on lock collar on left side drive shaft bearing.



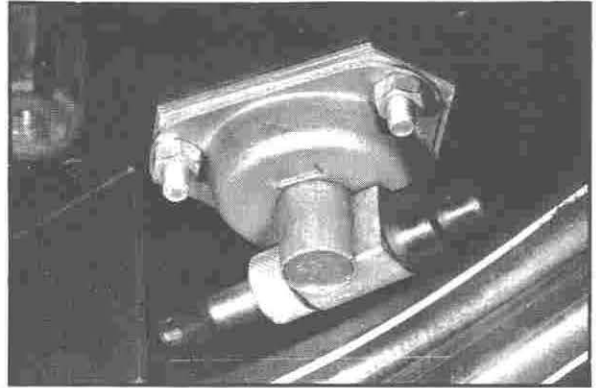
5. Tap lock collar with a hammer and punch to loosen it. Rotate lock collar against the normal direction of rotation to loosen, with normal direction of rotation to tighten.



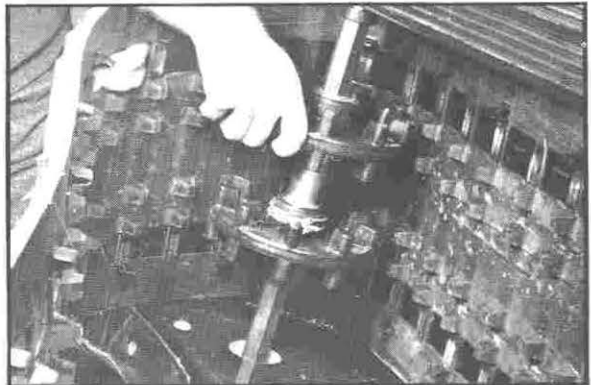
Track Removal - Two Sprocket Drive Shaft

1. Remove three cap screws holding flangette and bearing in place on left side of machine.
2. Remove bearing and lock collar from drive shaft.
3. Remove chaincase cover.
4. Loosen chain adjuster bolt lock nut and back off adjuster bolt until chain has maximum slack.
5. Remove bottom sprocket in chaincase.
6. Remove drive shaft by pulling shaft first from chaincase and then from left side of machine.
7. Reverse process for reassembly. Be sure to install and torque lower chaincase sprocket before locking lock collar.

NOTE: Cotter pin must be positioned so it will not hit the chaincase cover.



Lower Chaincase Sprocket Torque -
50 ft. lbs (6.9 kg-m)



BRAKES/FINAL DRIVE

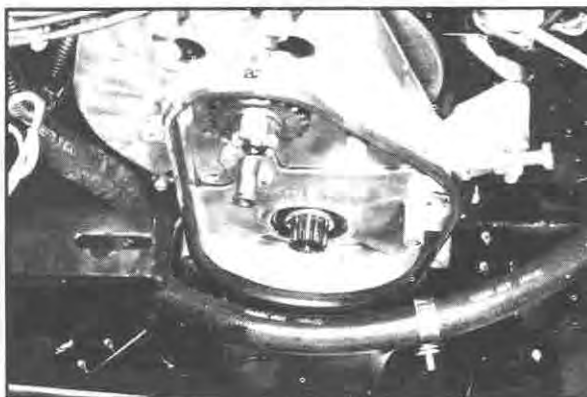
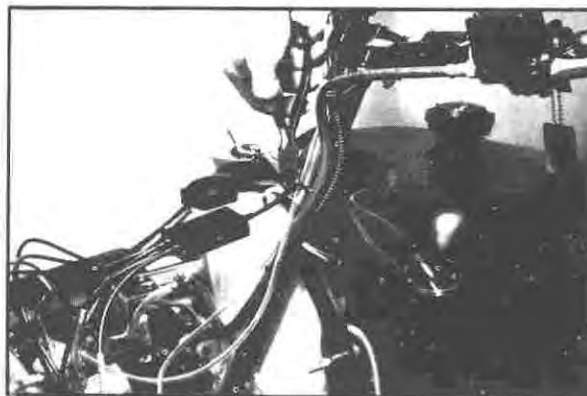
Track Removal - Four Sprocket Drive Shaft

1. Follow steps 1-7 of Two Sprocket Drive Shaft Removal pages 9.48-9.49.
2. Remove handlebar cover. Remove cable tie on steering post securing throttle cable and brake hose. Remove two phillips screws securing air intake silencer. Taking care not to damage throttle cable, lift silencer out.
3. Remove secondary clutch and loosen jackshaft lock collar set screw. Using a hammer and punch, unlock the lock collar. Remove three cap screws holding jackshaft left hand bearing and flanges in place. Remove bearing from jackshaft.
4. Remove chaincase cover, loosen chain adjuster and remove lower sprocket and drive chain. Use care not to damage gasket. Inspect for cracks or damage. Replace gasket if necessary.
5. Remove three mounting bolts (A, B, C) securing chaincase to chassis. Carefully tip machine on its left side onto a mat. Lift chaincase up until drive shaft is out of lower chaincase bearing. Lift drive shaft up until it clears tunnel on LH side (bottom) and can be pulled out of tunnel. Remove drive shaft and track.

CAUTION:

Whenever inspection reveals worn, damaged or defective parts, replacement is necessary in order to avoid serious damage to the machine or injury to the operator.

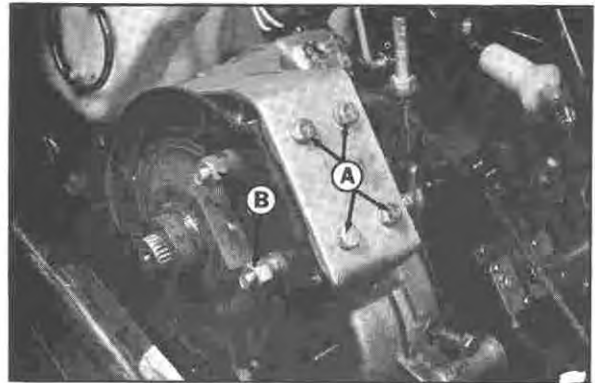
6. After inspecting all parts, reverse process for reassembly. The lower forward chaincase mount bolt (C) must be in place before installing drive shaft. Drive sprocket interference will not permit installation after drive shaft is installed. The lower chaincase sprocket must be installed and torqued before locking lock collar.



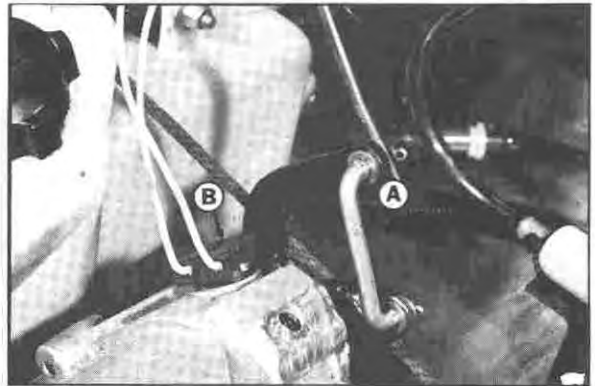
BRAKES/FINAL DRIVE Series 300 Transmission Overhaul

Transmission overhaul should also include drive system overhaul. After removing drive shaft and jackshaft, proceed as indicated below.

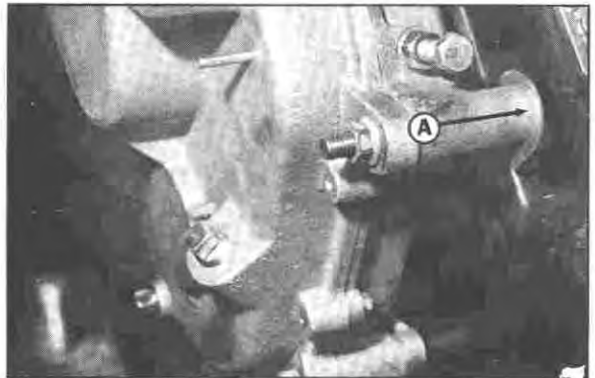
1. Remove four caliper carrier attaching bolts (A).
2. Remove two caliper bridge bolts (B).
3. Remove brake caliper and brake disc.



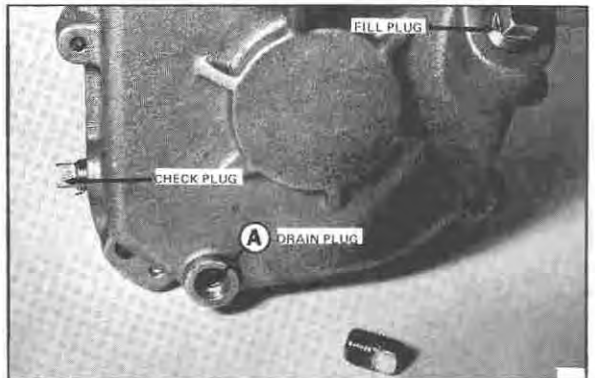
4. Remove shift linkage (A) and stop light switch wires (B).
5. Remove exhaust system.



6. Remove three nuts securing transmission to front bulkhead. Remove transmission. **NOTE:** Note position of transmission shims for reassembly (A). these shims control jackshaft alignment.



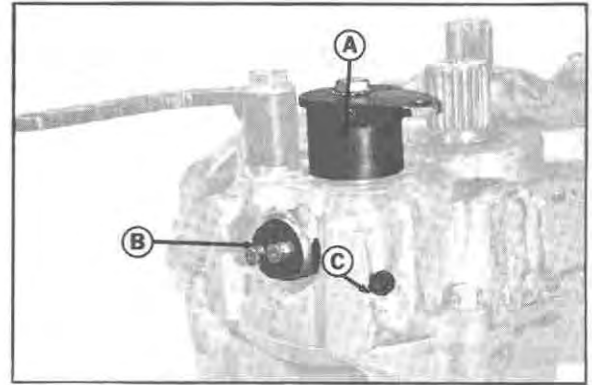
7. Remove transmission drain plug (A) and drain oil.



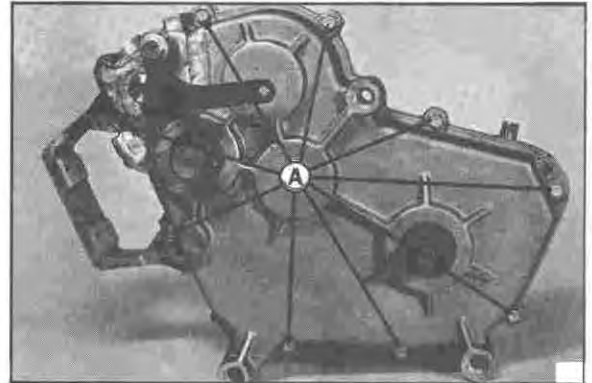
BRAKES/FINAL DRIVE

Series 300 Transmission Overhaul

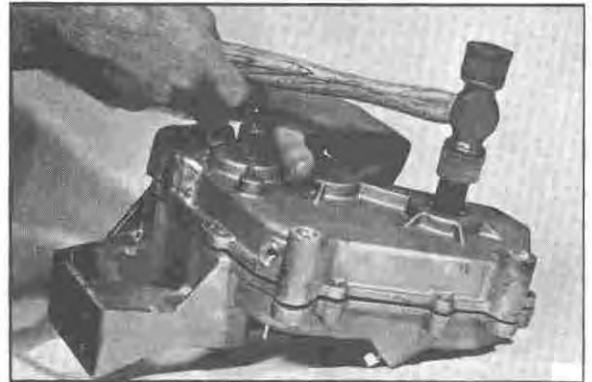
8. Place transmission as shown and remove shift lever and key (A), neutral light switch (B), detent set screw, spring, and ball (C).
9. Loosen chain tensioner jam nut and remove tensioner bolt.



10. Remove transmission housing attaching bolts (A).



11. Lift upwards on inner housing and tap with a soft face hammer on input shaft, output shaft, and shift shaft.

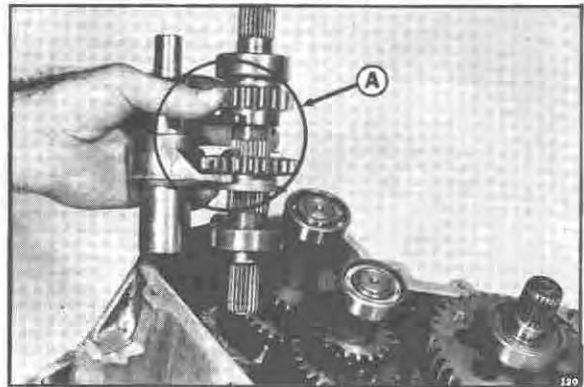


12. Remove high range long silent chain (A).

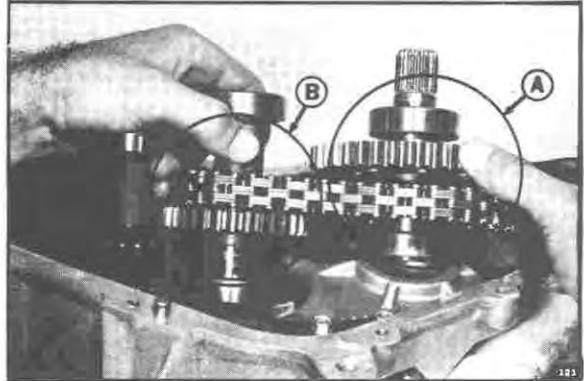


BRAKES/FINAL DRIVE Series 300 Transmission Overhaul

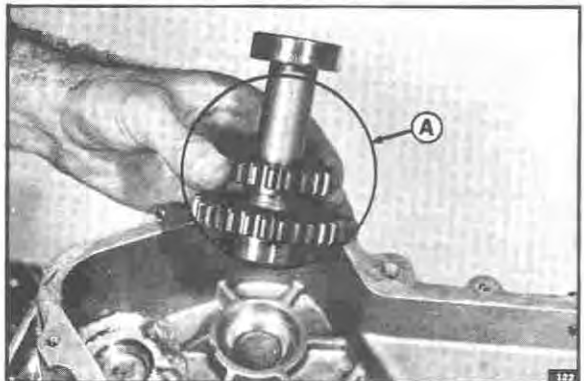
13. Remove input cluster and shift cluster as an assembly (A).



14. Remove output cluster (A), reverse cluster (B) and silent chain as an assembly.



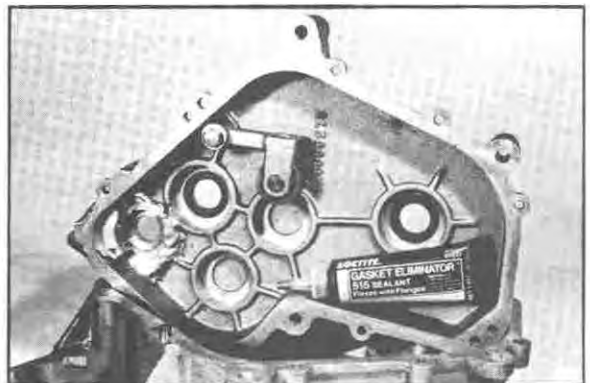
15. Remove low range cluster (A).
16. Thoroughly clean and inspect all parts. Remove old oil seals and replace during reassembly.
17. Assemble transmission in reverse order of disassembly.



18. Be sure the case half mating surfaces are clean and free of any nicks or scratches. Place a small amount of Loctite™ 515 Gasket Eliminator on one of the case halves.

Loctite™ 515 Gasket Eliminator

PN 2870587



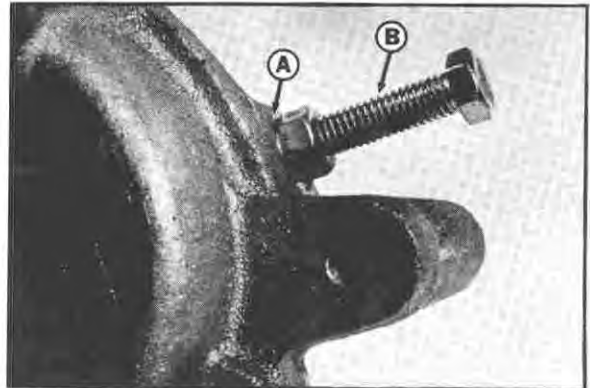
BRAKES/FINAL DRIVE

Series 300 Transmission Overhaul

6. Assemble case halves using a rubber or plastic mallet to tap halves together. Install cover bolts and torque to specification.

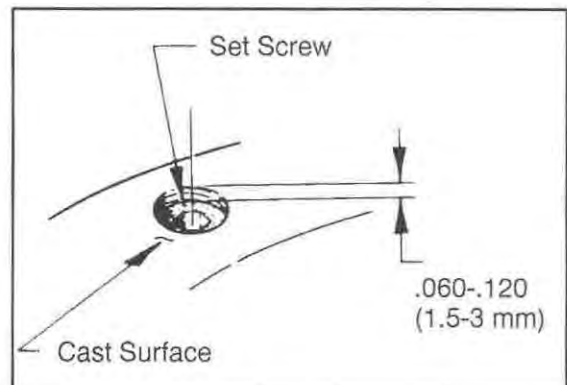
Transmission Case Attaching Bolt Torque-
8-10 ft. lbs. (1.10-1.38 kg-m)

7. Install chain adjuster bolt and jam nut in transmission.
8. Turn brake disc in the opposite direction of normal rotation (counterclockwise) to place a slight reverse tension on chain. Tighten adjuster bolt (B) to specification. Back bolt off 1 1/4 to 1 1/2 turns. Tighten jam nut while holding adjuster bolt.



9. Replace detent ball, spring, and set screw in transmission. Apply a small amount of Loctite™ Primer "T" to threads of case. Apply Loctite™ 242 Blue to threads of transmission. turn screw in to a depth of .060-.120" (1.5-3 mm) below the casting surface.

NOTE: If the detent is adjusted too tightly the unit will become hard to shift. If the detent is too loose, it will affect the operator's perception of the shift pattern.



BRAKES/FINAL DRIVE Series 300 Transmission Overhaul

23. Install oil seals. Apply tape to shafts, covering shoulder and splines of shaft to prevent seal damage.



24. Grease inner and outer surfaces of seal as well as shift shaft O-ring. Slide seals over shaft to transmission using bearing installation tool. Tap seals into place.

NOTE: Seal will bottom when properly installed.

Bearing Installation Tool

PN 2870676

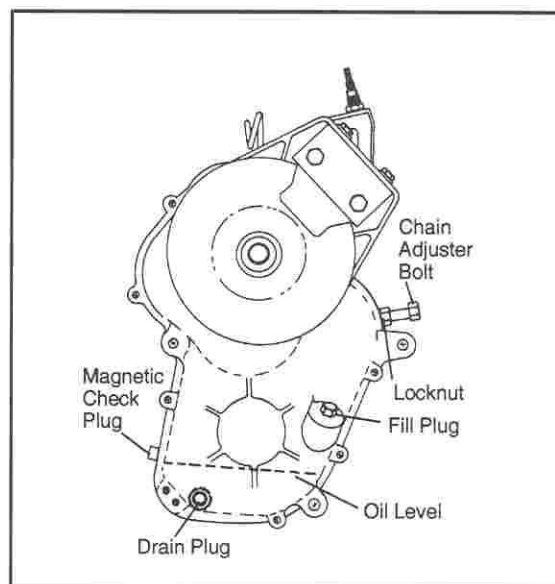


25. Install shift lever and cotter key.

26. With transmission installed on unit, fill transmission to correct level. Use only Polaris chaincase oil.

Synthetic Oil PN 2871477 Gallons
PN 2871478 12 oz.

or Chaincase Oil PN 2870337



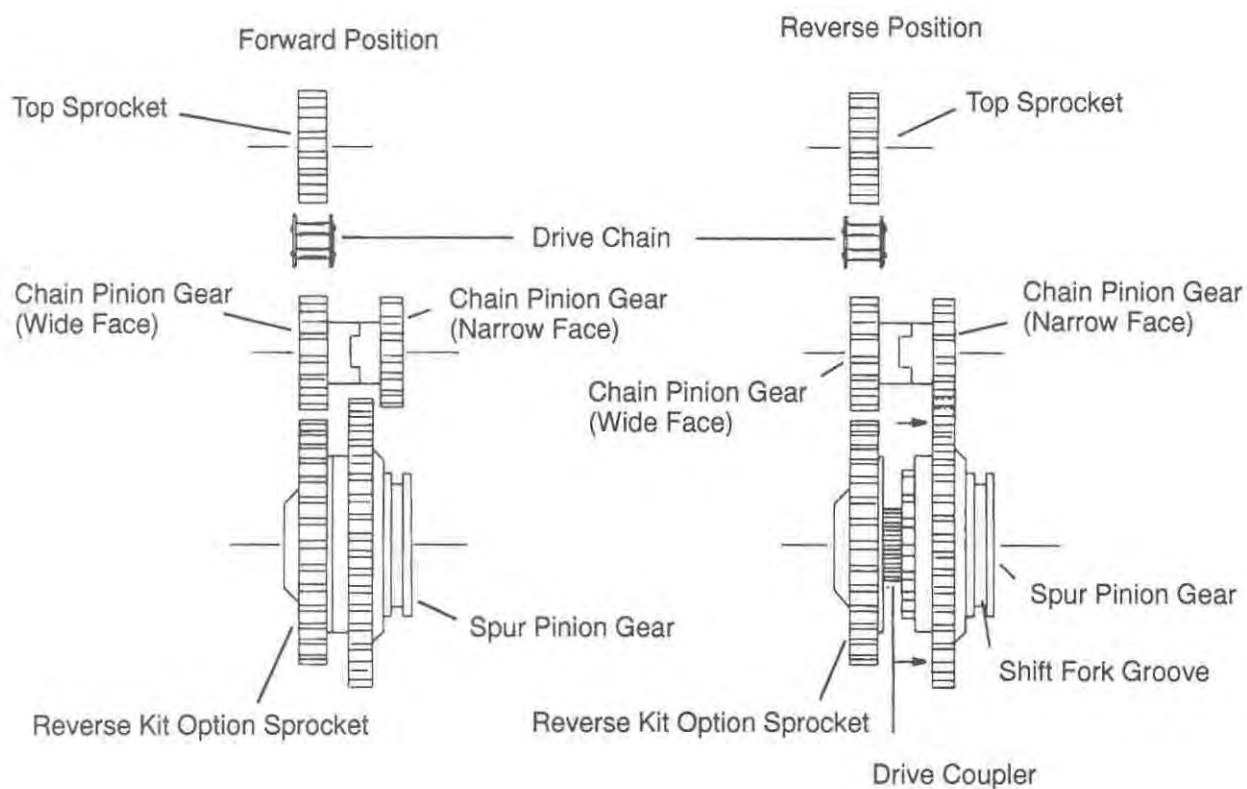
BRAKES/FINAL DRIVE

Reverse Kit Service Tips

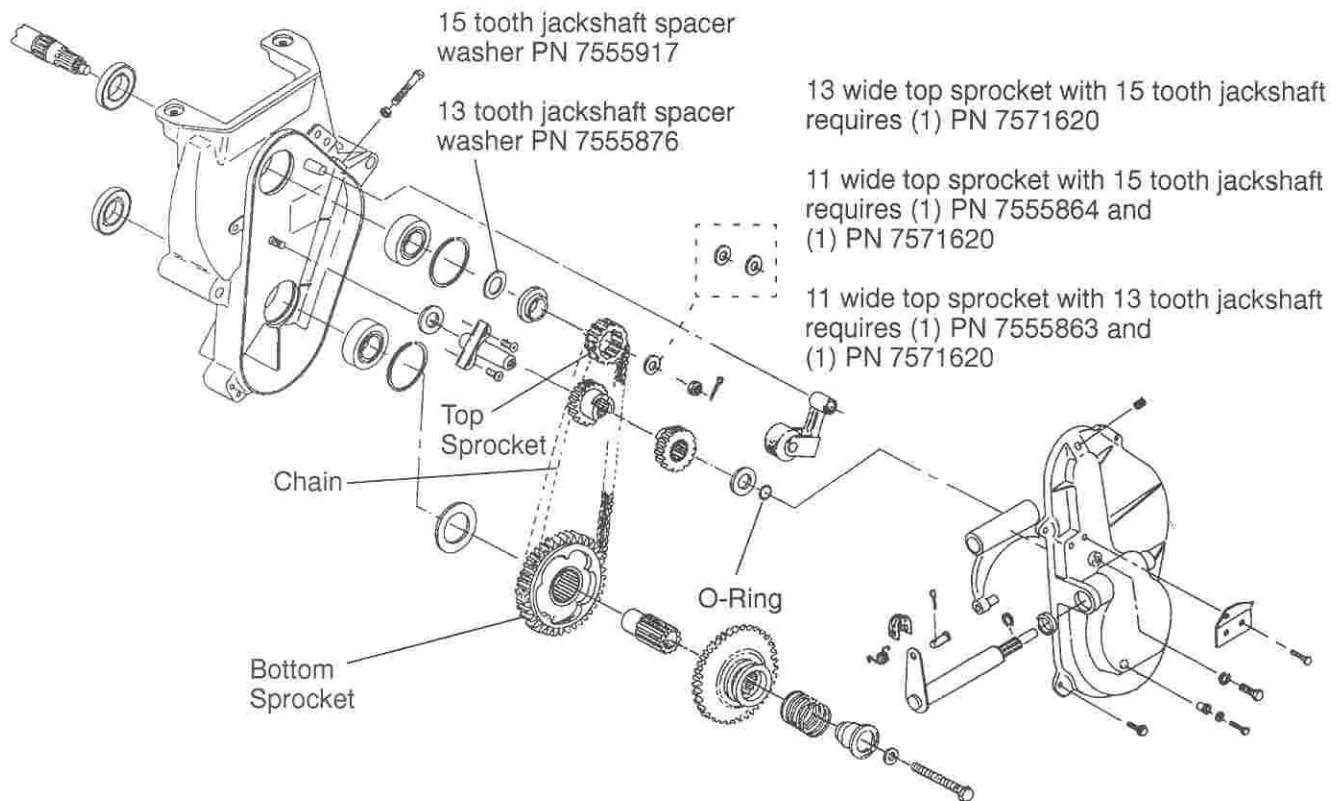
The following illustration indicates sprocket position with the Polaris Reverse Kit in the forward and reverse selection.

Installation Tips (Refer to Illustration on page 9.57)

- When installing pinion shaft, be sure the chamfered end of pinion shaft is toward case cover.
- Install chain, top sprocket, bottom option sprocket and wide face pinion gear into case at the same time.
- When installing case cover, be sure that shift fork has slipped into fork groove of reverse gear.



BRAKES/FINAL DRIVE Reverse Kit Maintenance



Supplied with Options B & C (Top Sprocket, Chain, Bottom Sprocket)

Supplied with Options A & D (Bottom Sprocket Only)

Chain Tension

1. Maintain proper chain tension by loosening lock nut and torque adjuster bolt.

Adjuster Bolt Torque -

20 in. lbs. (.23 kg-m)

2. Loosen adjuster bolt 1/2 turn.
3. Hold adjuster bolt in position and tighten locknut.

Oil Level

1. Using Polaris chaincase lubricant, maintain proper oil level. Proper level is checked by removing dipstick.

Polaris Synthetic Gearcase Lube
PN 2871477 (Gallon)
PN 2871478 (12 ounces)

BRAKES/FINAL DRIVE

Reverse Kit Maintenance

8. Wipe off any metal particles from the dipstick. Small amounts of particles will be common.
9. Add lubricant until the level is in the "safe" zone on the dipstick (11 oz.) Do not mix or use other types of lubricant.

Oil Change

1. Change annually, prior to off season storage.

Adjustment

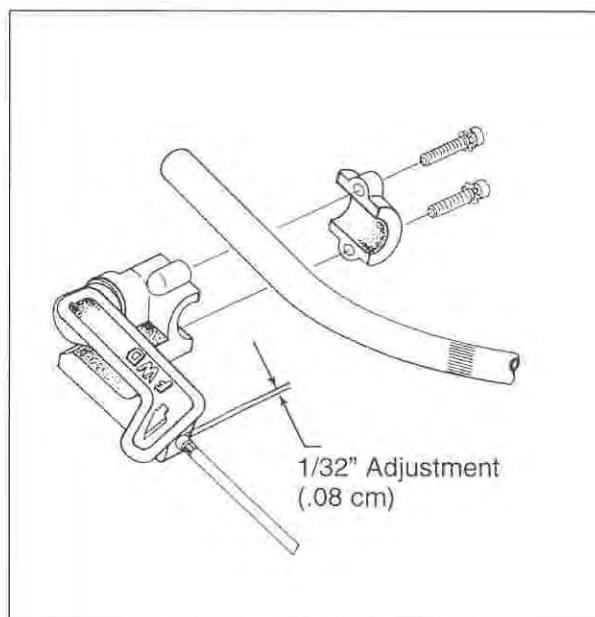
Due to break-in or replacement of components, the reverse shift mechanism may require adjustment. Adjust with the shifter in the forward position.

Standard Indy Style

1. Loosen jam nuts on lower end of cable.
2. Adjust cable until endplay movement of cable housing at the handlebar bracket is $1/32"$ (.08 cm). Do not adjust beyond this point.
3. Tighten jam nuts and re-check adjustment.

Reverse Cable End Play -

$1/32"$ (.08 cm)

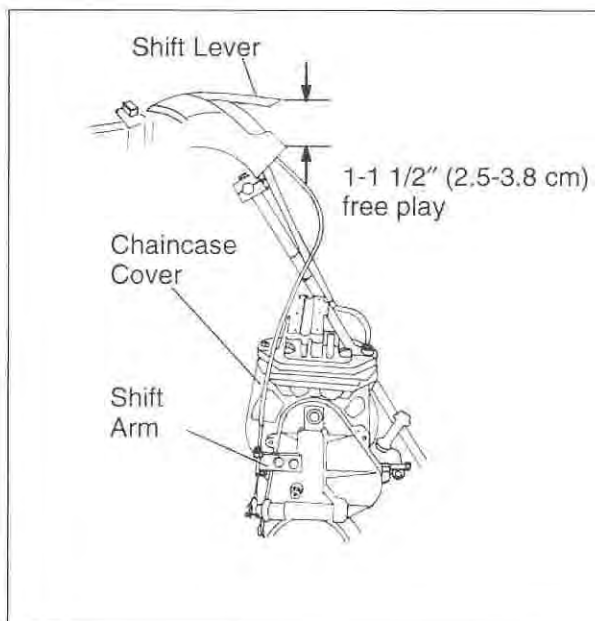


Evolved and Aggressive Style

1. Lift shift lever slowly while observing shift arm on transmission.
2. If adjustment is correct, shift will move 1 - 1 1/2" before the shift arm begins to move. If adjustment is required, proceed with step 3.
3. Loosen jam nuts on lower end of cable.
4. Adjust cable end at transmission until the end of the shift lever has 1 - 1 1/2" (2.5 - 3.8 cm) of freeplay before the cable starts to move the shift arm. Do not adjust beyond this point.

Reverse Shift Lever Freeplay -

1 - 1 1/2" (2.5 - 3.8 cm) measured at end of shift lever



The amount of traction required varies depending upon the type of riding and the snowmobile's horsepower.

Studs are designed specifically for each riding category. They're made in various lengths, shapes, and materials. Improperly applied studs can cause poor traction and premature wear. Studs which are too long can cause damage to the tunnel and heat exchangers.

Stud points fall into two categories: conical and scoopers. Conical studs (or picks) penetrate into the ground for increased traction. Scoopers use a flat surface to hold more ground for traction. Generally, a penetrating point is used for hard ground surfaces and ice. Scoopers are used on softer surfaces.

Material contributes more to stud life and cost than to functionality. Carbide is the most durable and lasts much longer than steel. Studs should be installed no closer than 1" from the edges of the track. Avoid the center of the track because there is poor support in this area. The track's center belt controls acceleration. The two smaller outside track belts contribute to acceleration, but the more studs installed in these belts, the harder it is to corner. The chart on page 9.60 is a guideline for the quantity of studs to install.

- Be sure to check allowable clearance between the track and tunnel or heat exchangers, factoring in suspension travel.
- Do not place studs under the tunnel protector strips (directly above slide rails on underside of tunnel). Tunnel protectors are vital components and must not be subjected to stud damage.
- V-shaped stud patterns with the least repetition work best. Studs should cover as many different lines in the ice as possible.
- Studs closest to the slide rails provide the most effectiveness, because the weight of the sled is concentrated in this area.

SUSPENSION

Traction

Polaris Push-Through Stud and Skag Recommendations

Model	Track Length	Lug Height	Tunnel Protector	Trail			Aggressive Trail		
				Stud Size	Stud Qty.	Skag*	Stud Size	Stud Qty.	Skag*
Lite	121 x 15"	0.66	2871689	0.750	48	B	0.750	72	D
Lite Deluxe	121 x 15"	0.66	2871689	0.750	48	C	0.750	72	N
Lite GT	133.5 x 15"	0.82	2871543	1.000	53	D	1.000	80	D
Sport	121 x 15"	0.71	2871544	0.750	48	D	0.750	72	D
Sport Touring	133.5 x 15"	0.82	2871543	1.000	53	D	1.000	80	D
TranSport	141 x 15"	1.125	N/A			D or M			
XCF	121 x 15"	0.725	Std	0.875	48	D	0.875	72	D
440 XC	121 x 15"	0.82	Std	1.000	48	R	1.000	72	R
Super Sport	121 x 15"	0.82	2871544	1.000	48	D	1.000	72	D
Trail	121 x 15"	0.82	2871544	1.000	48	N	1.000	72	N
Trail Touring	133.5 x 15"	0.82	2871543	1.000	53	N	1.000	80	N
Trail RMK	133.5 x 15"	1.25	N/A	N/A	-	N/A	N/A	-	N/A
WideTrak GT	141 x 20"	0.91	Std			J or N			
WideTrak LX	156 x 20"	0.91	Std			J or N			
440	121 x 15"	0.82	2871544	1.000	48	N	1.000	72	N
500	121 x 15"	0.82	2871544	1.000	48	D	1.000	72	D
500 SKS	133.5 x 15"	1.00	2871545	1.175	53	D	1.175	80	P
500 RMK	133.5 x 15"	1.25	N/A	N/A	-	N/A	N/A	-	N/A
Classic	121 x 15"	0.82	2871544	1.000	48	N	1.000	72	N
Classic Touring	133.5 x 15"	0.82	2871541	1.000	53	N	1.000	80	N
500 EFI	121 x 15"	0.82	2871544	1.000	48	N	1.000	72	N
XLT	121 x 15"	0.82	2871545	1.000	96	D	1.000	120	P
XLT Touring	133.5 x 15"	0.82	2871541	1.000	80	N	1.000	106	J
XLT SKS	133.5 x 15"	1.00	2871542	1.175	80	D	1.175	106	P
XLT RMK	133.5 x 15"	1.50	N/A	N/A	-	N/A	N/A	-	N/A
XLT SP	121 x 15"	0.82	Std	1.000	96	N	1.000	120	J
XLT LTD	121 x 15"	0.82	2871544	1.000	96	N	1.000	120	J
600 XC/XCR	121 x 15"	0.82	Std	1.000	96	D	1.000	120	P
600 XCR SE	121 x 15"	0.725	Std	0.875	96	R	0.875	120	S
700 SKS	136 x 15"	1.00	2871542	1.175	80	D	1.175	106	P
700 RMK	136 x 15"	1.50	N/A	N/A	-	N/A	N/A	-	N/A
RXL	121 x 15"	0.82	Std	1.000	96	N	1.000	120	J
Ultra	121 x 15"	0.82	Std	1.000	96	N	1.000	120	J
Ultra SP/SPX	121 x 15"	0.82	Std	1.000	96	D	1.000	120	P
Ultra SPX SE	121 x 15"	0.725	Std	0.875	96	R	0.875	120	S
Ultra Touring	133.5 x 15"	0.82	2871541	1.000	80	N	1.000	106	J
Storm	121 x 15"	0.82	Std	1.000	96	D	1.000	120	P
Storm SE	121 x 15"	0.725	Std	0.875	96	R	0.875	120	S
Storm RMK	133.5 x 15"	1.50	N/A	N/A	-	N/A	N/A	-	N/A

* Refer to chart on page 9.62.

1998 Push-Through Stud & Skag Recommendations

Model	Track Length	Lug Height	Tunnel Protector	Trail			Aggressive Trail			Performance		
				Stud Size	Stud Qty.	Skag	Stud Size	Stud Qty.	Skag	Stud Size	Stud Qty.	Skag
Lite	121 x 15"	0.66	2871689	0.750	48	B	0.750	72	D	0.750	96	D
Lite Deluxe	121 x 15"	0.66	2871689	0.750	48	C	0.750	72	N	0.750	96	J
Sport	121 x 15"	0.71	2871911	0.750	48	D	0.750	72	D	0.750	96	P
Super Sport	121 x 15"	0.82	2871544	1.000	48	D	1.000	72	D	1.000	96	P
Trail	121 x 15"	0.82	2871544	1.000	48	N	1.000	72	N	1.000	96	J
440	121 x 15"	0.82	2871544	1.000	48	N	1.000	72	N	1.000	96	J
500	121 x 15"	0.82	2871544	1.000	48	D	1.000	72	D	1.000	120	P
Classic	121 x 15"	0.82	2871544	1.000	48	N	1.000	72	N	1.000	120	J
XLT SP	121 x 15"	0.82	Std	1.000	96	R	1.000	120	S	1.000	144	S
XLT LTD	121 x 15"	0.82	2871544	1.000	96	N	1.000	120	J	1.000	144	J
XLT Classic	121 x 15"	0.82	2871544	1.000	96	N	1.000	120	J	1.000	144	J
Ultra	121 x 15"	0.82	Std	1.000	96	N	1.000	120	J	1.000	144	J
XCF	121 x 15"	0.725	2871911	0.875	48	R	0.875	72	R	0.875	96	R
600 XC	121 x 15"	0.91	Std	1.075	96	R	1.075	120	S	1.075	144	S
600 XCR	121 x 15"	0.82	Std	1.000	96	R	1.000	120	S	1.000	144	S
700 XC	121 x 15"	0.91	Std	1.075	96	R	1.075	120	S	1.075	144	S
700 XCR	121 x 15"	0.82	Std	1.000	96	R	1.000	120	S	1.000	144	S
Storm	121 x 15"	0.82	Std	1.000	96	R	1.000	120	S	1.000	144	S
Lite Touring	133.5 x 15"	0.82	2871543	1.000	48	C	1.000	72	N	1.000	96	J
Sport Touring	133.5 x 15"	0.82	2871543	1.000	53	D	1.000	80	D	1.000	106	P
Trail Touring	133.5 x 15"	0.82	2871543	1.000	53	N	1.000	80	N	1.000	106	J
Classic Touring	133.5 x 15"	0.82	2871541	1.000	53	R	1.000	80	R	1.000	106	S
XLT Touring	133.5 x 15"	0.82	2871541	1.000	80	R	1.000	106	S	1.000	132	S
Ultra Touring	133.5 x 15"	0.82	2871541	1.000	80	R	1.000	106	S	1.000	132	S
Trail RMK	133.5 x 15"	1.25	N/A	N/A	-	*R	N/A	-	*R	N/A	-	S
500 RMK	133.5 x 15"	1.25	N/A	N/A	-	*R	N/A	-	*R	N/A	-	S
600 RMK	136 x 15"	1.75	N/A	N/A	-	*R	N/A	-	*R	N/A	-	S
700 RMK	136 x 15"	1.75	N/A	N/A	-	*R	N/A	-	*R	N/A	-	S
TranSport	141 x 15"	1.125	N/A			D or M						
WideTrak LX	156 x 20"	1.0	N/A			J or P						

* Standard on RMK Models

⚠ WARNING

A proper balance of traction products on the skis and track must be maintained to obtain proper vehicle control on hard packed snow and ice. Loss of control can result in severe personal injury or death.

Track studding will enhance braking control on hard packed snow or ice, but extreme caution is still required on such surfaces. Use extra caution when track studding is employed as steering ability may be reduced on hard packed snow or ice. The addition of carbide skags (if not already installed) is recommended with studded tracks to aid in maintaining proper vehicle steering and control. Proper balance must be maintained between the number of studs and the length and sharpness of carbide on skags.

If you are adding studs to the track of a machine it will probably be advisable to add carbide skags or change to more aggressive skags in order to maintain proper vehicle control while turning on hard packed snow or ice. If the machine is equipped with carbide skags or if you are adding them or changing to more aggressive skags than standard equipment, it may also be necessary to add track studs in order to maintain proper vehicle control while turning on hard packed snow or ice.

As a rule of thumb, the more studs, the longer and sharper the carbide on the skags should be. The recommendations in the chart on page 9.60 should be used as guidelines in achieving a proper balance of ski and track traction products on Polaris snowmobiles.

SUSPENSION

Traction

Polaris Push-Through Stud and Skag Recommendations

B	7/16 x 3" 120°, 2870693	Stud Kits	
C	7/16 x 3" 120° EZ, 2870997	2871112 Traction Master Carbide Push Through .75 (Pkg of 24 w/backers)	
D	7/16 x 4" 60°, 2871288	*2871404 Traction Master Carbide Push Through .875 (Pkg of 24 w/backers)	
J	7/16 x 6" 60° EZ, 2871416	*2871405 Traction Master Carbide Push Through 1.0 (Pkg of 24 w/backers)	
N	7/16 x 4" 60° EZ, 2871603	*2871414 Traction Master Carbide Push Through 1.075 (Pkg of 24 w/backers)	
P	1/2 x 6" 60°, 2871601	*2871649 Traction Master Carbide Push Through 1.175 (Pkg of 24 w/backers)	
	1/2 x 8" 60°, 2871602	2871243 Traction Master Carbide Push Through .75 (Pkg of 96 no backers, use 7mm washer)	
	Polaris Composite Ski	*2871244 Traction Master Carbide Push Through .875 (Pkg of 96 no backers, use 7mm washer)	
R	7/16 x 4" 60°, 2871688	*2871245 Traction Master Carbide Push Through 1.0 (Pkg of 96 no backers, use 7mm washer)	
S	1/2 x 6" 60°, 2871687	*2871415 Traction Master Carbide Push Through 1.075 (Pkg of 96 no backers, use 5/16 washer)	
	SLP Ski	*2871650 Traction Master Carbide Push Through 1.175 (Pkg of 96 no backers, use 5/16 washer)	
	7/16 x 4" 60°, 2871717	2871598 Traction Master Push Through Carbide Wedge .875 (Pkg of 24 w/backers)	
	1/2 x 6" 60°, 2871718	2871599 Traction Master Push Through Carbide Wedge 1.0 (Pkg of 24 w/backers)	
	Wear Strip Kits**	2871241 Traction Master Backer Plates, Aluminum, 7mm (Pkg of 48)	
2871540	1 piece tunnel SKS .625	2871242 Traction Master Backer Plates, Steel, 7mm (Pkg of 48)	
2871541	1 piece tunnel SKS .75	2871430 Traction Master Backer Plates, Aluminum, 5/16" (Pkg of 48)	
2871544	121" .75	2871431 Traction Master Backer Plates, Steel, 5/16" (Pkg of 48)	
2871542	2 piece tunnel SKS .625	2871374 Drill Bits, Track Studding, 7mm and 5/16"	
2871543	2 piece tunnel SKS .75	2870768 Track Studding Kit (T Nut Puller)	
2871545	121" .625		
2871689	.75 Indy Lite		

* Patent Pending Carbide 60° Point

** Production set up of wear strips will be located over the windows of the track. An optional position is available for using hooker plates. Only the outer end holes are punched in the tunnel. The wear strip will serve as the template for drilling the remaining holes.

Stud Installation

1. Mark the stud pattern on the track.
2. Drill stud holes with a 1/4" (or 7mm) hollow-core drill bit. Make sure the drill is sharp for a clean hole.
3. Spin the non-cutting portion of the drill shank in the hole at high speed to melt the cords together, or melt them with a 1/4-9/32" heated probe. This will prolong track life.

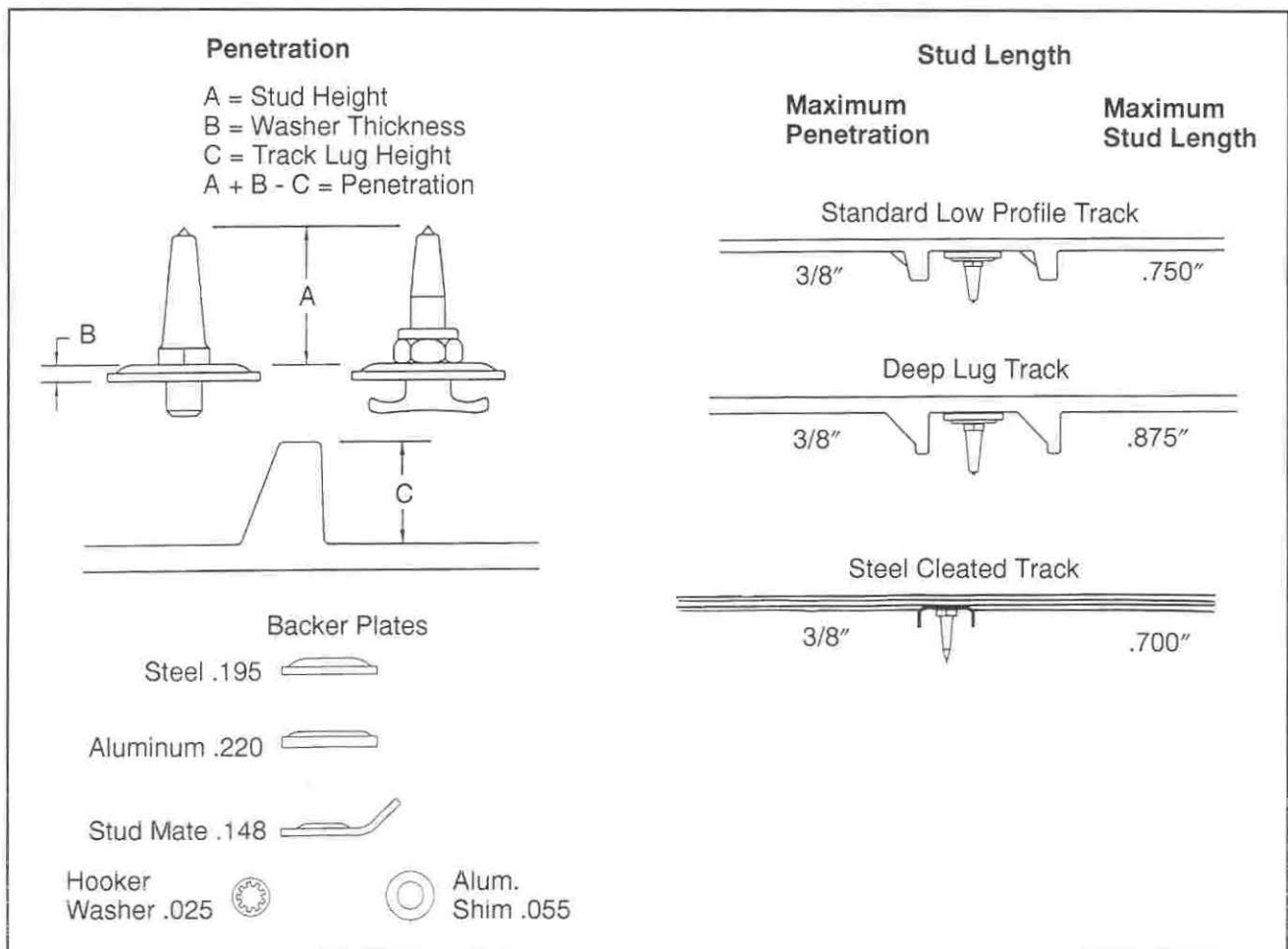
T-nut Studs

1. Push a T-nut tool through the hole from the outside of the track.
2. With the barrel end of the T-nut toward the track, spin a T-nut onto the tool. Pull the T-nut into the track until the head is flush with the track.
3. Remove the tool and put a drop of Loctite™ 262 or 271 on the nut threads and stud threads.
4. Secure the T-nut, slide a support washer onto the stud, and screw the stud into the T-nut
5. Torque to 80-100 in. lbs. and let dry for 24 hours at room temperature.
6. Check for loose studs after each event.

Push Through Studs

1. Push stud through track hole from inside track. Hand tighten domed support plate and Nyloc nut on the exposed stud.
2. Tighten with a socket on the nut and a 5.32" Allen wrench on the stud head. Tighten nut until the domed washer bottoms out on the stud shoulder. If tightened beyond this point, the threads will be stripped.
3. Inspect for loose nuts after each event.

Refer to the diagrams below for stud length recommendations.



SUSPENSION

Traction

Ideally when going through a turn, the vehicle should be kept as flat as possible without the skis or track losing contact with the surface. When entering a corner and turning the skis the rest of the snowmobile will want to continue straight ahead. If the skis do not bite into the surface they will slip, and the turn will not be as tight as desired. This is called pushing. If the skis bite well and the track starts to slide out, the vehicle is said to be loose. Both ski and track traction must be balanced to maintain a good line through the corner.

Too few studs will allow the track to spin, resulting in excessive wear or damage to the studs. A loose condition can result from too many dull studs. Front end pushing can result from too many sharp studs. After studs are installed, it's important to install carbide skags to ensure maximum steering control. See the diagrams below.

