CHAPTER 8
BRAKES / FINAL DRIVE

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INDY JACKSHAFT SPEED VS. MILES PER HOUR
SPROCKET COMBINATION/GEAR RATIO/CHAIN PITCH – STD. CHAINCASE

The following chart should be used to select optimum gearing for special applications. The chart is calculated for models with the P85 drive clutch at a 1 to 1 ratio between drive clutch and driven clutch front drive sprocket diameter is 7.06 inches. To use the chart, select the jackshaft rpms (equal to engine rpm). MPH is shown to the right of jackshaft rpm. Shown on top is optimum gearing for mph and engine rpms.

										20/41																			
Gearing	23/37	20/33	21/35	20/35	19/35	21/37	21/39	18/35	20/39	19/39	17/35	19/40	19/41	18/39	16/35	18/41	17/39	15/35	17/40	17/41	16/39	16/40	14/35	16/41	15/39	15/40	15/41	14/39	14/40	14/41
Ratio	1.61	1.65	1.67	1.75	1.84	1.76	1.86	1.94	1.95	2.05	2.06	2.11	2.16	2.17	2.19	2.28	2.29	2.33	2.35	2.41	2.44	2.50	2.50	2.56	2.60	2.67	2.73	2.79	2.86	2.93
Pitch	66	64	64	64	64	66	66	64	66	66	62	68	66	66	62	68	66	62	66	66	64	66	62	66	64	64	66	64	64	64
Jackshaft RPM	MILES PER HOUR																													
6500	85.5	83.4	82.4	78.7	74.8	78.2	74.0	70.9	70.6	67.1	66.8	65.2	63.7	63.4	62.8	60.4	60.1	59.1	58.6	57.1	56.4	55.1	55.1	53.8	52.9	51.6	50.4	49.3	48.1	47.0
6600	86.8	84.7	83.7	79.9	76.0	79.4	75.1	72.0	71.7	68.2	67.8	66.2	64.7	64.4	63.8	61.3	61.0	60.0	59.5	58.0	57.3	55.9	55.9	54.6	53.8	52.3	51.2	50.1	48.9	47.7
6700	88.1	86.0	85.0	81.1	77.1	80.6	76.3	73.1	72.8	69.2	68.9	67.2	65.7	65.4	64.8	62.2	62.0	60.9	60.4	58.9	58.1	56.7	56.7	55.4	54.6	53.1	52.0	50.9	49.6	48.4
6800	89.4	87.3	86.2	82.3	78.3	81.8	77.4	74.2	73.8	70.2	69.9	68.2	66.7	66.4	65.7	63.2	62.9	61.8	61.3	59.7	59.0	57.6	57.6	56.2	55.4	53.9	52.7	51.6	50.3	49.1
6900	90.8	88.6	87.5	83.5	79.4	83.0	78.6	75.3	74.9	71.3	70.9	69.2	67.6	67.3	66.7	64.1	63.8	62.7	62.2	60.6	59.9	58.4	58.4	57.1	56.2	54.7	53.5	52.4	51.1	49.9
7000	92.1	89.8	88.8	84.7	80.6	84.2	79.7	76.4	76.0	72.3	72.0	70.2	68.6	68.3	67.7	65.0	64.7	63.6	63.1	61.5	60.7	59.3	59.3	57.9	57.0	55.5	54.3	53.1	51.8	50.6
7100	93.4	91.1	90.0	85.9	81.7	85.4	80.8	77.5	77.1	73.3	73.0	71.3	69.6	69.3	68.7	65.9	65.7	64.5	64.0	62.4	61.6	60.1	60.1	58.7	57.8	56.3	55.1	53.9	52.6	51.3
7200	94.7	92.4	91.3	87.1	82.9	86.6	82.0	78.6	78.2	74.4	74.0	72.3	70.6	70.3	69.6	66.9	66.6	65.4	64.9	63.3	62.5	61.0	61.0	59.6	58.6	57.1	55.8	54.6	53.3	52.0
7300	96.0	93.7	92.6	88.3	84.0	87.8	83.1	79.7	79.3	75.4	75.0	73.3	71.6	71.2	70.6	67.8	67.5	66.3	65.8	64.1	63.4	61.8	61.8	60.4	59.5	57.9	56.6	55.4	54.0	52.8
7400	97.3	95.0	93.8	89.5	85.2	89.0	84.2	80.8	80.4	76.4	76.1	74.3	72.5	72.2	71.6	68.7	68.4	67.3	66.7	65.0	64.2	62.7	62.7	61.2	60.3	58.7	57.4	56.2	54.8	53.5
7500	98.6	96.3	95.1	90.8	86.3	90.2	85.4	81.9	81.4	77.5	77.1	75.3	73.5	73.2	72.5	69.7	69.4	68.2	67.6	65.9	65.1	63.5	63.5	62.0	61.1	59.5	58.2	56.9	55.5	54.2
7600	100.0	97.5	96.4	92.0	87.5	91.4	86.5	83.0	82.5	78.5	78.1	76.3	74.5	74.2	73.5	70.6	70.3	69.1	68.5	66.8	66.0	64.4	64.4	62.9	61.9	60.3	58.9	57.7	56.3	54.9
7700	101.3	98.8	97.6	93.2	88.6	92.6	87.7	84.0	83.6	79.5	79.2	77.3	75.5	75.1	74.5	71.5	71.2	70.0	69.4	67.7	66.8	65.2	65.2	63.7	62.7	61.1	59.7	58.4	57.0	55.6
7800	102.6	100.1	98.9	94.4	89.8	93.8	88.8	85.1	84.7	80.6	80.2	78.3	76.5	76.1	75.4	72.4	72.1	70.9	70.3	68.5	67.7	66.1	66.1	64.5	63.5	61.9	60.5	59.2	57.8	56.4
7900	103.9	101.4	100.2	95.6	90.9	95.0	89.9	86.2	85.8	81.6	81.2	79.3	77.4	77.1	76.4	73.4	73.0	71.8	71.2	69.4	68.6	66.9	66.9	65.3	64.3	62.7	61.3	60.0	58.5	57.1
8000	105.2	102.7	101.4	96.8	92.1	96.3	91.1	87.3	86.9	82.6	82.2	80.3	78.4	78.1	77.4	74.3	74.0	72.7	72.1	70.3	69.4	67.8	67.8	66.2	65.2	63.4	62.1	60.7	59.2	57.8
8100	106.5	104.0	102.7	98.0	93.2	97.5	92.2	88.4	88.0	83.7	83.3	81.3	79.4	79.0	78.3	75.2	74.9	73.6	73.0	71.2	70.3	68.6	68.6	67.0	66.0	64.2	62.8	61.5	60.0	58.5
8200	107.8	105.2	104.0	99.2	94.4	98.7	93.4	89.5	89.0	84.7	84.3	82.3	80.4	80.0	79.3	76.2	75.8	74.5	73.9	72.0	71.2	69.5	69.5	67.8	66.8	65.0	63.6	62.2	60.7	59.3
8300	109.2	106.5	105.2	100.4	95.5	99.9	94.5	90.6	90.1	85.7	85.3	83.3	81.4	81.0	80.3	77.1	76.7	75.4	74.8	72.9	72.0	70.3	70.3	68.7	67.6	65.8	64.4	63.0	61.5	60.0
8400	110.5	107.8	106.5	101.6	96.7	101.1	95.6	91.7	91.2	86.8	86.3	84.3	82.3	82.0	81.2	78.0	77.7	76.3	75.7	73.8	72.9	71.1	71.1	69.5	68.4	66.6	65.2	63.8	62.2	60.7
8500	111.8	109.1	107.8	102.9	97.8	102.3	96.8	92.8	92.3	87.8	87.4	85.3	83.3	82.9	82.2	78.9	78.6	77.2	76.6	74.7	73.8	72.0	72.0	70.3	69.2	67.4	65.9	64.5	62.9	61.4
8600	113.1	110.4	109.0	104.1	99.0	103.5	97.9	93.9	93.4	88.8	88.4	86.3	84.3	83.9	83.2	79.9	79.5	78.2	77.5	75.6	74.6	72.8	72.8	71.1	70.0	68.2	66.7	65.3	63.7	62.2
8700	114.4	111.7	110.3	105.3	100.1	104.7	99.0	95.0	94.5	89.9	89.4	87.3	85.3	84.9	84.1	80.8	80.4	79.1	78.4	76.4	75.5	73.7	73.7	72.0	70.9	69.0	67.5	66.0	64.4	62.9
8800	115.7	112.9	111.6	106.5	101.3	105.9	100.2	96.1	95.6	90.9	90.5	88.3	86.3	85.9	85.1	81.7	81.4	80.0	79.3	77.3	76.4	74.5	74.5	72.8	71.7	69.8	68.3	66.8	65.2	63.6
8900	117.1	114.2	112.9	107.7	102.4	107.1	101.3	97.1	96.6	91.9	91.5	89.3	87.2	86.8	86.1	82.7	82.3	80.9	80.2	78.2	77.2	75.4	75.4	73.6	72.5	70.6	69.0	67.5	65.9	64.3
9000	118.4	115.5	114.1	108.9	103.6	108.3	102.5	98.2	97.7	93.0	92.5	90.3	88.2	87.8	87.0	83.6	83.2	81.8	81.1	79.1	78.1	76.2	76.2	74.4	73.3	71.4	69.8	68.3	66.6	65.0
9100	119.7	116.8	115.4	110.1	104.7	109.5	103.6	99.3	98.8	94.0	93.5	91.3	89.2	88.8	88.0	84.5	84.1	82.7	82.0	80.0	79.0	77.1	77.1	75.3	74.1	72.2	70.6	69.1	67.4	65.8
9200	121.0	118.1	116.7	111.3	105.9	110.7	104.7	100.4	99.9	95.0	94.6	92.3	90.2	89.8	89.0	85.4	85.1	83.6	82.9	80.8	79.8	77.9	77.9	76.1	74.9	73.0	71.4	69.8	68.1	66.5
9300	122.3	119.4	117.9	112.5	107.0	111.9	105.9	101.5	101.0	96.1	95.6	93.3	91.2	90.8	89.9	86.4	86.0	84.5	83.8	81.7	80.7	78.8	78.8	76.9	75.7	73.8	72.1	70.6	68.9	67.2
9400	123.6	120.6	119.2	113.7	108.2	113.1	107.0	102.6	102.1	97.1	96.6	94.3	92.2	91.7	90.9	87.3	86.9	85.4	84.7	82.6	81.6	79.6	79.6	77.8	76.6	74.5	72.9	71.3	69.6	67.9
9500	124.9	121.9	120.5	115.0	109.3	114.3	108.2	103.7	103.2	98.1	97.7	95.3	93.1	92.7	91.9	88.2	87.8	86.3	85.6	83.5	82.4	80.5	80.5	78.6	77.4	75.3	73.7	72.1	70.3	68.7
9600	126.3	123.2	121.7	116.2	110.5	115.5	109.3	104.8	104.2	99.2	98.7	96.3	94.1	93.7	92.8	89.2	88.8	87.2	86.5	84.3	83.3	81.3	81.3	79.4	78.2	76.1	74.5	72.9	71.1	69.4
9700	127.6	124.5	123.0	117.4	111.6	116.7	110.4	105.9	105.3	100.2	99.7	97.3	95.1	94.7	93.8	90.1	89.7	88.2	87.4	85.2	84.2	82.2	82.2	80.2	79.0	76.9	75.2	73.6	71.8	70.1
9800	128.9	125.8	124.3	118.6	112.8	117.9	111.6	107.0	106.4	101.2	100.7	98.3	96.1	95.6	94.8	91.0	90.6	89.1	88.3	86.1	85.0	83.0	83.0	81.1	79.5	77.7	76.0	74.4	72.6	70.8
9900	130.2	127.1	125.5	119.8	113.9	119.1	112.7	108.1	107.5	102.3	101.8	99.4	97.1	96.6	95.7	91.9	91.5	90.0	89.2	87.0	85.9	83.9	83.9	81.9	80.6	78.5	76.8	75.1	73.3	71.5
10000	131.5	128.3	126.8	121.0	115.1	120.3	113.8	109.2	108.6	103.3	102.8	100.4	98.0	97.6	96.7	92.9	92.5	90.9	90.1	87.9	86.8	84.7	84.7	82.7	81.4	79.3	77.6	75.9	74.0	72.3

BRAKES/FINAL DRIVE
Jackshaft Speed vs. MPH Chart 7.05" Chaincase

Top Sprokect	25	23	23	23	22	22	20	21	19	19	18	18	17
Lower Sproket	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	78.5
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

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		

Sprocket / Chain Combinations – 6 5/8″ Chain Case

Acceptable gearing / chain combinations are listed below for the 6.625″ (center distance) chaincase. Do not use this chart for models with 7.05″ chaincase Refer to page 8.5 for 7.05″ chaincase. Refer to Specifications section of chapter 1 for chaincase center distance by mode. 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

Sprocket / Chain Combinations – 7.05″ Center Distance Chain Case

Acceptable gearing / chain combinations are listed below for the 7.05″ (center distance) chaincase. Refer to Specifications section of chapter 1 for chaincase center distance by model. Combinations listed as "not recommended" should not be installed. Refer to page 8.4 for 6 5/8″ (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	

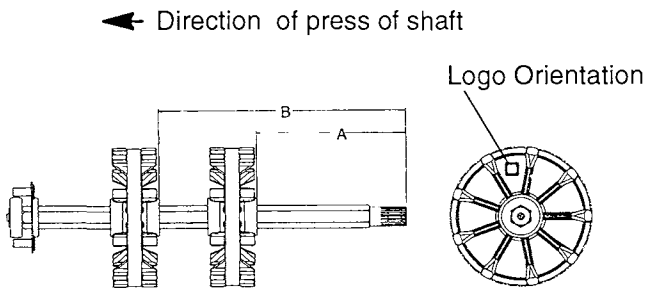
1999 Track Drive Data

Model	No. of Drive Sprockets	Drive Type	Drive Shaft Bearing Lock	Drive Sprocket Diameter	DRIVE SPROCKET POSITION Reference Page 8.7			
					A	B	C	D
Indy 340	2	3*	Pressed	6.94	7.48	12.32	All 1999 models, sprocket positions are measured to sprocket hub and not idler center. See page 8.7.	
Indy 340 Deluxe	2	3*	Pressed	6.94	7.48	12.32		
Indy 340 Touring	2	3*	Pressed	6.94	7.48	12.32		
Indy Sport	2	3*	Pressed	6.94	7.48	12.32		
Indy Sport Touring	2	3*	Pressed	6.94	7.48	12.32		
Indy TranSport	2	3*	Pressed	6.94	7.48	12.32		
Indy XCF	2	3*	Pressed	6.94	7.48	12.32		
Indy XCR 440	2-wide	3*	Pressed	6.94	6.95	11.79		
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 Supersport	2	3*	Pressed	6.94	7.48	12.32		
Indy 500	2	3*	Pressed	6.94	7.48	12.32		
Indy Classic	2	3*	Pressed	6.94	7.48	12.32		
Indy 500 RMK	2	3*	Pressed	6.94	7.48	12.32		
Indy Classic Touring	2	3*	Pressed	6.94	7.48	12.32		
Indy XLT Special	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 Touring	4	3*	Pressed	6.94	4.35	7.48	12.32	16.32
Indy 500 XC/SP	2 (wide)	3*	Pressed	6.94	6.95	11.79		
Indy 600 XC/SP	2 (wide)	3*	Pressed	6.94	6.95	11.79		
Indy 700 XC/SP	2 (wide)	3*	Pressed	6.94	6.95	11.79		
Indy 600 RMK	2 (wide)	3*	Pressed	6.94	6.95	11.79		
Indy 700 RMK	2 (wide)	3*	Pressed	6.94	6.95	11.79		
Indy 700 SKS	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 800 XCR	4	3*	Pressed	6.94	4.35	7.48	12.32	16.32
Indy Widetrak LX	4-w'trak	4*	Pressed	6.94	1.26	4.41	15.97	17.47

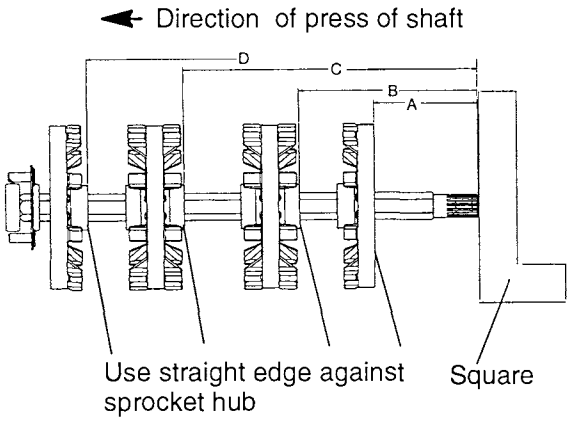
* Denotes driveshafts with press-fit bearings on left side (no lock collar) and flangette studs (welded).

Driveshaft Sprocket Installation

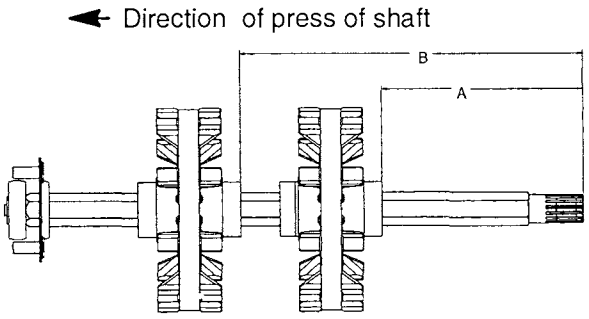
- All models, except WideTraks, have a longer spline on the chaincase end of the jackshaft and drive shaft.
- Sprockets must be started from the splined end of the shaft.
- To ensure proper sprocket tooth alignment, be sure the vendor logos are oriented in the same position on all sprockets.
- Drive shaft sprocket positions are measured to sprocket hub edge. Not idler center.
- For measurements shown below (A-D) see page 8.6.



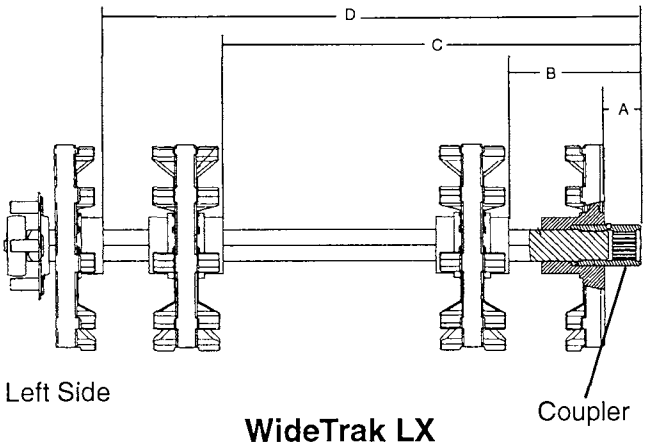
2 Drive Sprocket



4 Drive Sprocket



2 Drive Sprocket - Wide



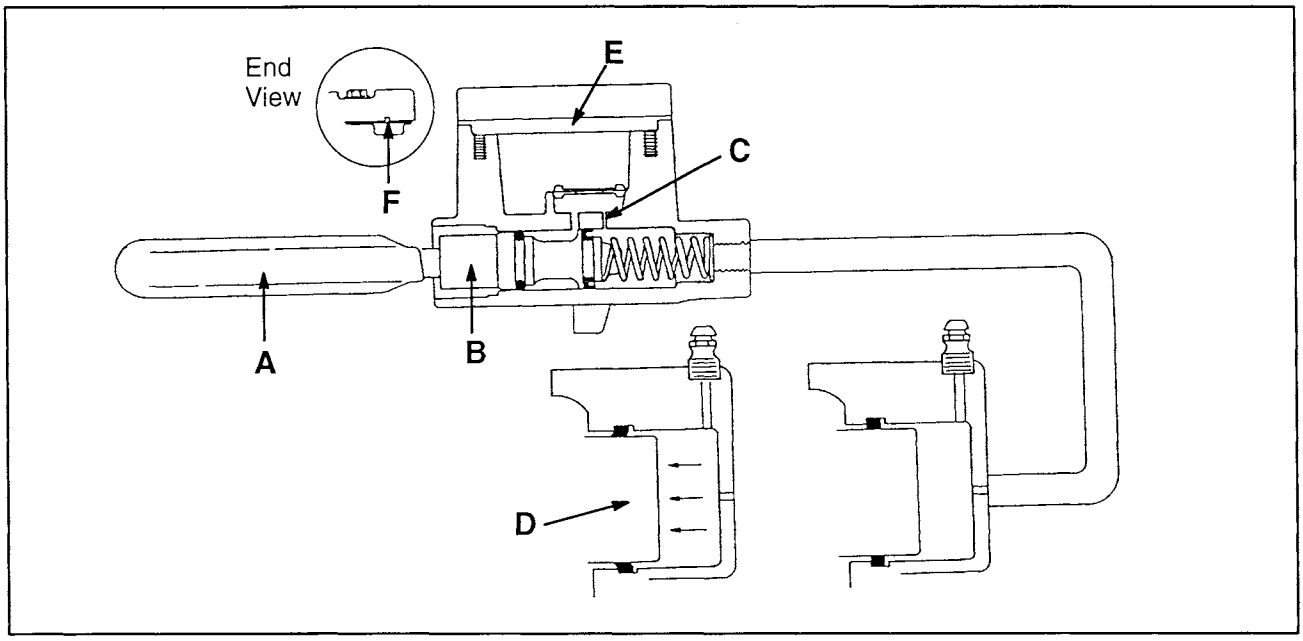
WideTrak LX

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 as shown.

Track Specifications

1999 Track

Model	Length x Width	Pattern	Lug Height	Wheels Bogie/ Idler
Indy 340/340 Deluxe	121 x 15″	Block	.66″	4/2
Indy 340 Touring	133.5 x 15″	Lightning	.82″	6/3
Indy Sport	121 x 15″	Block	.71″	4/2
Indy Sport Touring	133.5 x 15″	Lightning	.82″	6/3
Indy TranSport	141 x 15″	Wiper	1.125″	8/3
Indy XCF	121 x 15″	New Yokohama	.82″	6/4
Indy Super Sport	121 x 15″	Lightning	.82″	6/3
Indy 440 XCR	121 x 15″	Lightning	.82″	6/4
Indy WideTrak LX	156 x 20″	Shockwave	1.00″	8/4
Indy Trail	121 x 15″	Lightning	.82″	6/3
Indy Trail Touring	133.5 x 15″	Lightning	.82″	6/3
Indy Trail RMK	136 x 15″	Deep Lug	1.25″	4/3
Indy 500	121 x 15″	Lightning	.82″	6/3
Indy 500 RMK	133.5 x 15″	Deep Lug	1.25″	4/3
Indy 500 Classic	121 x 15″	Lightning	.82″	6/3
Indy Classic Touring	133.5 x 15″	Lightning	.82″	6/3
Indy 500 XC/SP	121 x 15″	Shockwave	.82″	6/4
Indy XLT Classic	121 x 15″	Shockwave	.82″	6/3
Indy XLTSpecial	121 x 15″	Shockwave	.82″	6/4
Indy XLT Touring	133.5 x 15″	Lightning	.82″	6/3
Indy 600 XC/SP	121 x 15″	Shockwave	.91″	6/4
Indy 600 RMK 1.75" Track	136 x 15″	Deep Lug	1.75″	4/3
Indy 600 RMK 2.00" Track	136 x 15″	Deep Lug	2.00″	4/3
Indy 700 XC/SP	121 x 15″	Shockwave	.91″	6/4
Indy 700 SKS	136 x 15″	Deep Lug	1.25″	6/3
Indy 700 RMK 1.75" Track	136 x 15″	Deep Lug	1.75″	4/3
Indy 700 RMK 2.00" Track	136 x 15″	Deep Lug	2.00″	4/3
Indy 700 XCR	121 x 15″	Shockwave	.91″	6/4
Indy 800 XCR	121 x 15″	Shockwave	.91″	6/4



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.

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.

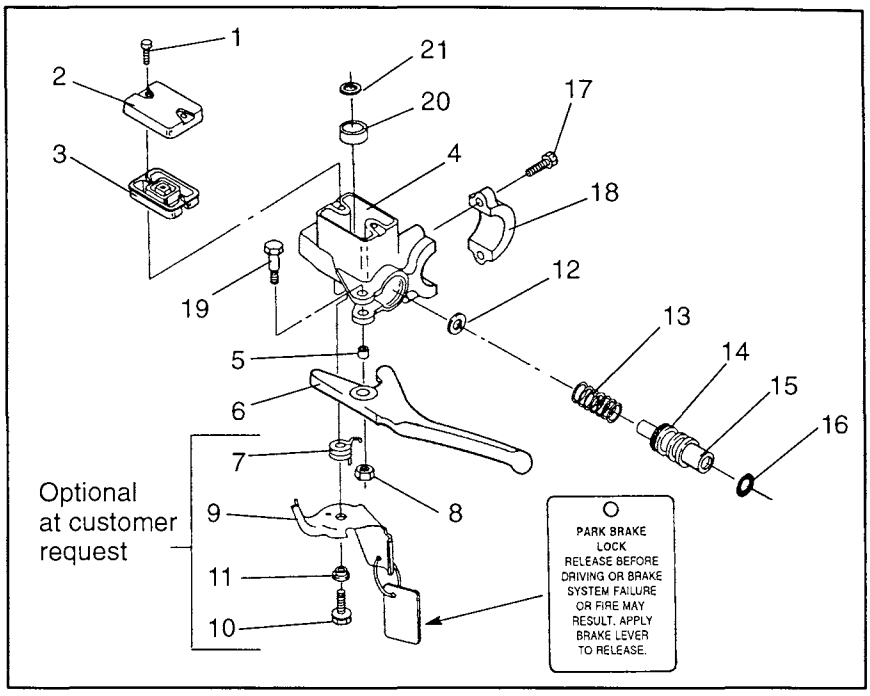
⚠ WARNING

Never overfill the reservoir. This could alter brake function, resulting in system component damage or sever 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.

Type 3 Master Cylinder

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.

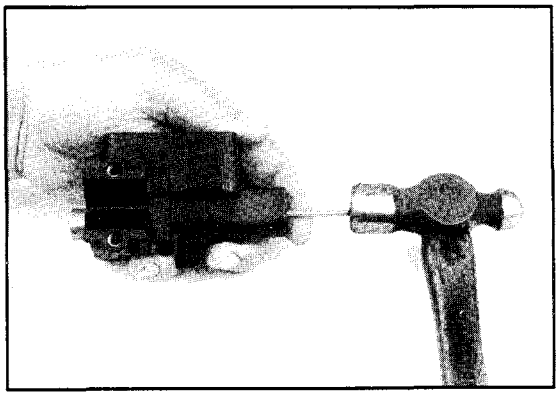
CAUTION:

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

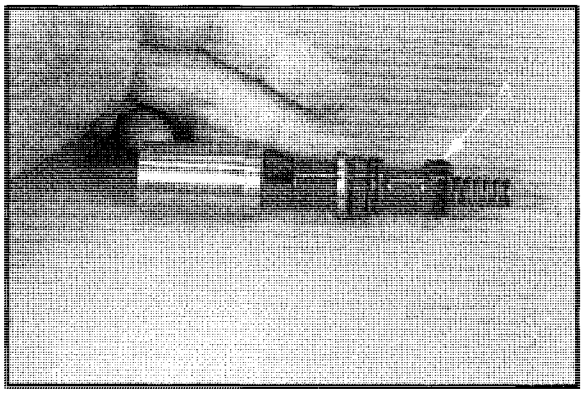
PN 2870962



Inspection

NOTE: Due to the critical nature of these parts and procedures, be sure you have thoroughly read and understand Hydraulic Brake Operation, page 8.9.

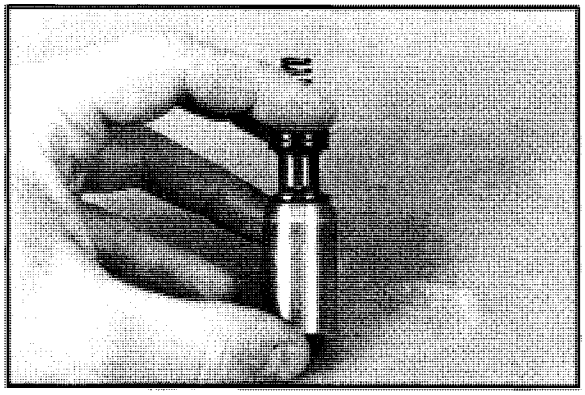
1. Thoroughly clean all brake parts with isopropyl alcohol. Inspect piston for wear, scratches, or corrosion. Check master cylinder bore for scratches, score marks, or corrosion and replace any worn or damaged parts.



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.

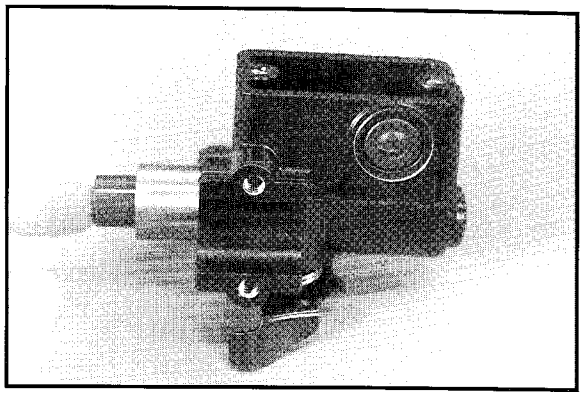
Polaris DOT 3 Brake Fluid
PN 2870990



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.

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)

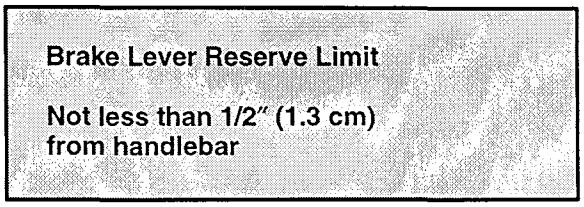
8. Bleed brake system. Maintain fluid level in reservoir at 1/4″ - 5/16″ (.6 - .8 cm) below lip of reservoir opening while bleeding brakes. Do not allow air into system while bleeding. See bleeding procedure on page 8.14.

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.

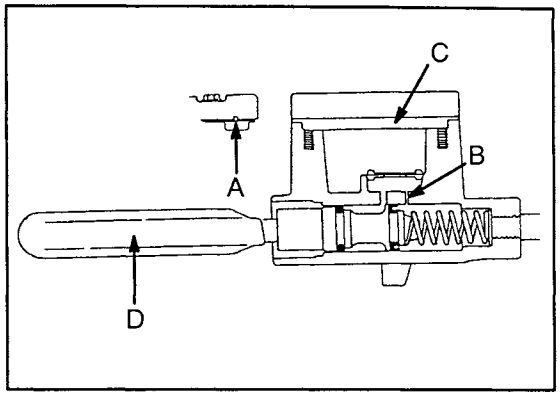


10. Check brake system for fluid leaks.

Brake Bleeding - Fluid Change

This procedure should be used to change fluid or bleed brakes during regular maintenance, or after complete brake service. 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 -

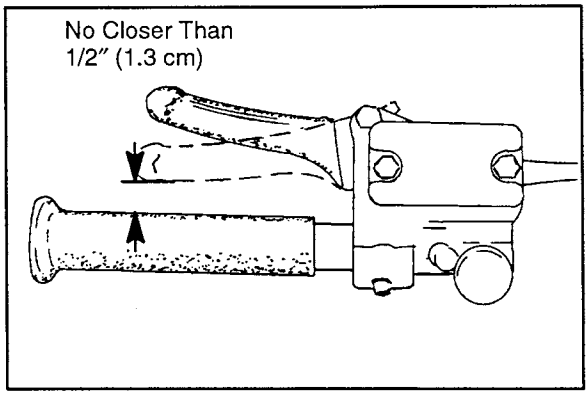
43 in. lbs. (.49 kg-m)

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

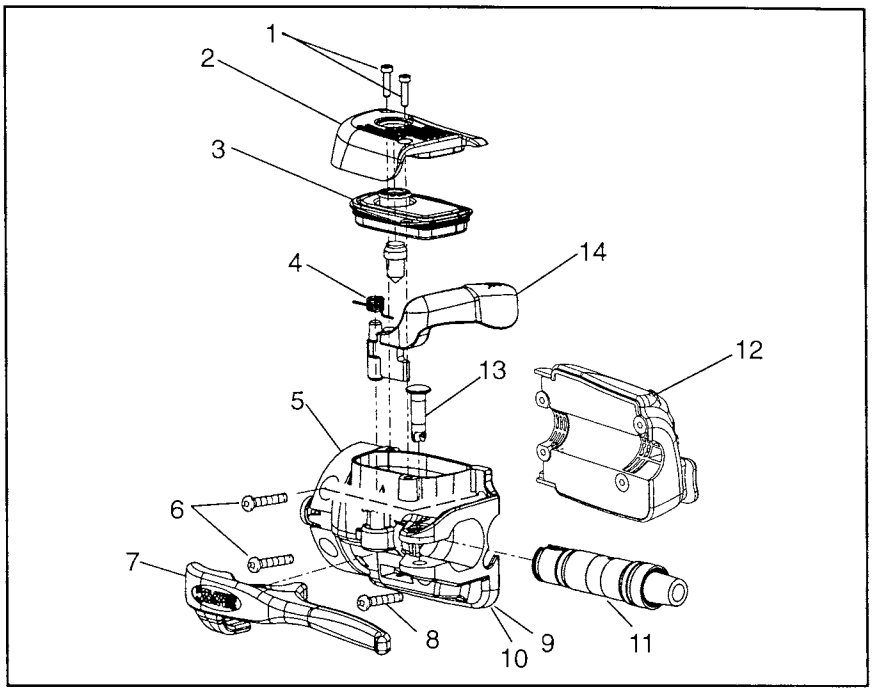


14. Check brake system for fluid leaks.

Hayes™ Master Cylinder

The Hayes™ brake is standard on all 1999 Gen II snowmobiles except for Widetrak LX and TranSport.

1. Cover Screw Kit
2. Cover Asm. Kit (Incl. 1,3)
3. Cover Gasket
4. Parking Lever Spring
5. Master Cylinder Assembly
6. Screw
7. Lever and Pivot Pin Kit
8. Screw
9. Body/Reservoir Clamp Kit
10. Brakelight Switch
11. Cartridge Kit
12. LH Control Asm
13. Pivot Pin Kit
14. Parking Lever and Spring Kit



Park Brake Lever Lock

⚠ WARNING

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

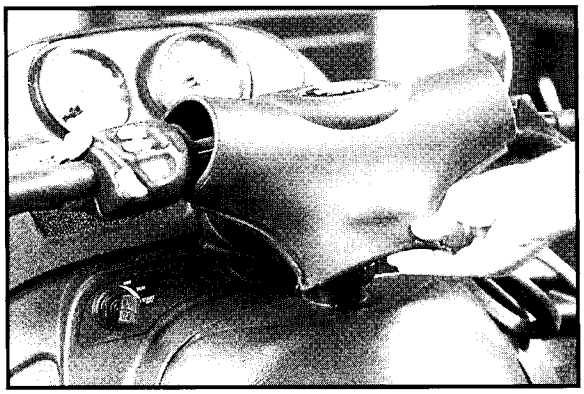
Hayes™ Master Cylinder Removal

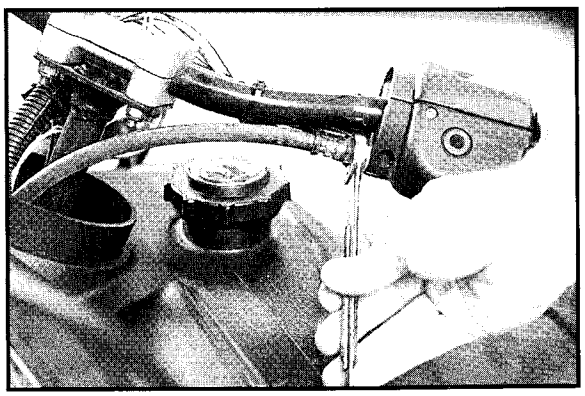
1. Position clean shop cloths to catch spilled fluid.

CAUTION:

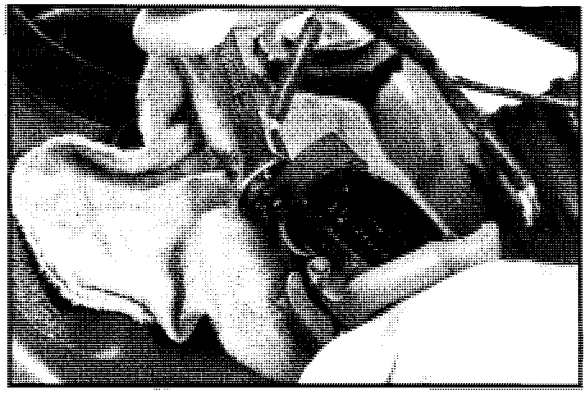
Brake fluid will damage finished surfaces. Do not allow brake fluid to come in contact with finished surfaces.

2. Remove the handlebar protector pad from the outlet end of the handlebar master cylinder to access the brake fluid line connector.
   - •Remove handlebar cover strips
   - •Remove two screws
   - •Remove holding clip in front of cover
   - •Remove handlebar pad
3. Loosen the connector approximately 1/4 to 1/2 turn.
4. Loosen and remove the four switch pack and handlebar master cylinder mounting screws. Put screws aside for later installation.





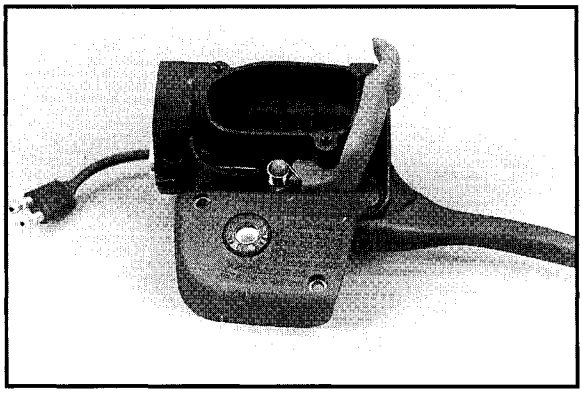
5. Remove master cylinder from switch pack and handlebar.



CAUTION:

Remove switch pack wires from the master cylinder housing with extreme care and note where they are routed for later installation.

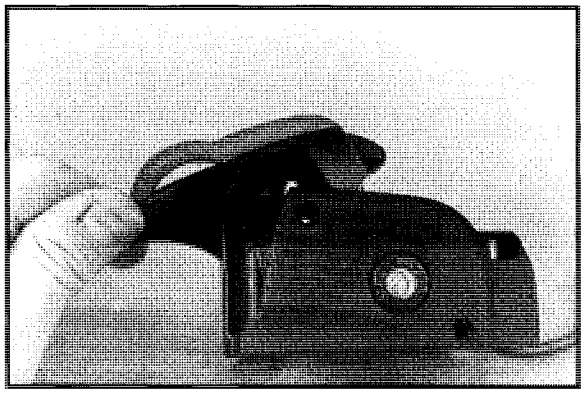
6. Remove master cylinder cover screws and cover. Pour out the fluid in the resrevoir into a container. Unscrew the brake fluid line from the master cylinder outlet using a shop cloth to catch the remaining fluid. Drain the fluid from the brake line into the aforementioned container and discard the fluid.



Inspection

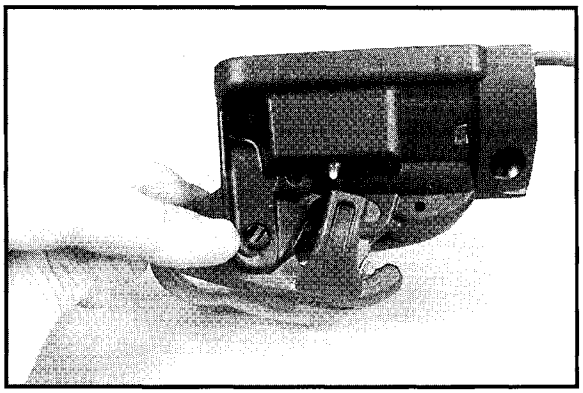
NOTE: Due to the critical nature of these parts and procedures, be sure you have thoroughly read and understand Hydraulic Brake Operation, page 8.9.

1. Thoroughly clean all brake parts with isopropyl alcohol and either wipe dry with a clean lint free cloth or lightly blow dry with an air hose. Examine all parts carefully for signs of excessive wear, damage, or corrosion. Replace any parts found to be damaged. Check park lever spring for breakage.



Replacing Cartridge Subassembly

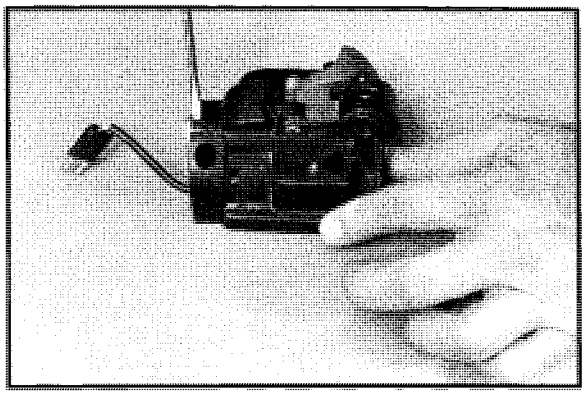
1. Remove master cylinder assembly as described previously.
2. To remove the lever from the housing, squeeze the lever handle and actuate the parking brake lever enough distance for the head of the pivot pin to clear the park brake lever.



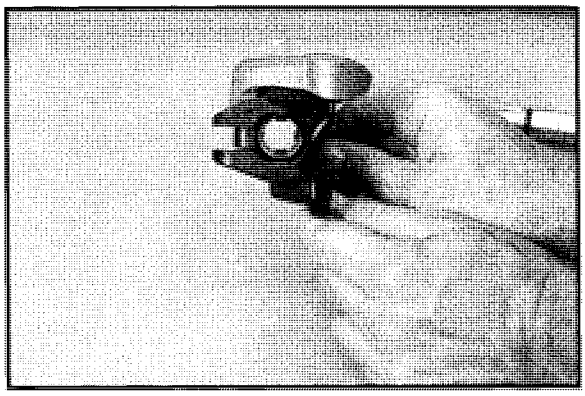
3. Squeeze the two spring tabs on the end of the pivot pin at the same time pushing the pivot pin up throught the hole. Remove the pivot pin and the lever.

Hayes™ Master Cylinder Inspection and Replacing Cartridge Subassembly

4. Lift the housing tab on the outlet end of the housing to release the cartridge assembly, allowing the cartridge to be pushed out the back of the housing.



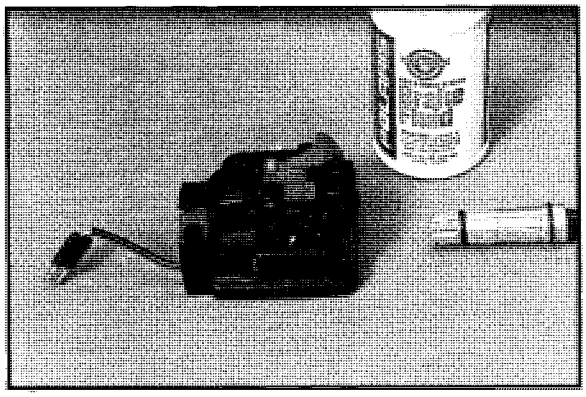
5. Clean housing bore with alcohol. Inspect bore for scratches, dents, cuts, or digs that might cause a leak. Replace housing if severe damage is found.



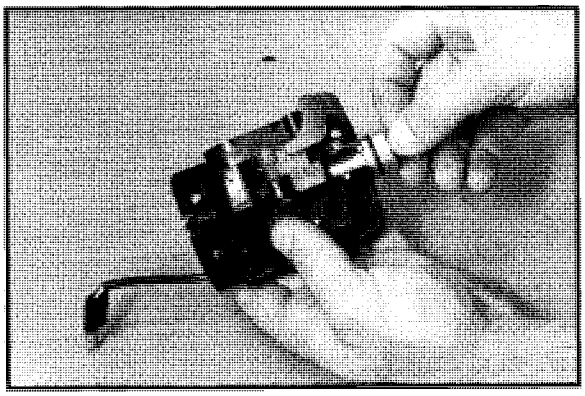
6. Paint housing bore and cartridge o-rings with D.O.T. 3 brake fluid.

Polaris DOT 3 Brake Fluid

PN 2870990

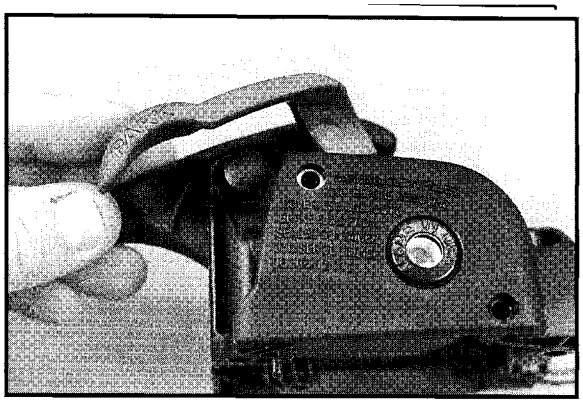


7. Align slots in cartridge with tabs in housing bore and insert cartridge. Push cartridge through until outlet end of cartridge snaps into place.

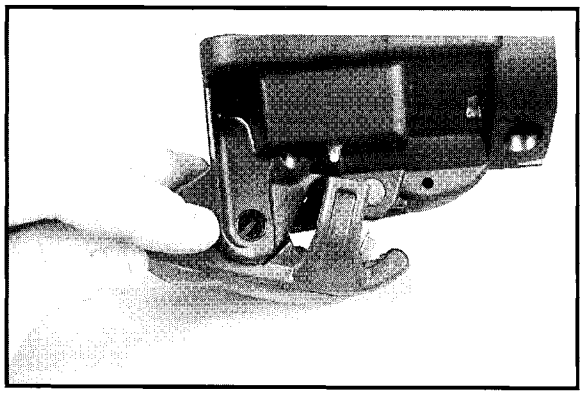


Hayes™ Master Cylinder Inspection and Replacing Cartridge Subassembly

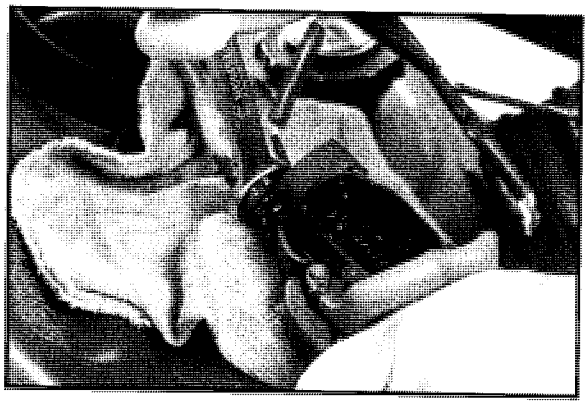
8. Install the lever and pivot pin by actuating the parking brake lever enough distance for the head of the pivot pin to clear the park brake lever.



9. Align the lever pivot hole with the housing pivot hole. Squeeze the two spring tabs on the end of the pivot pin at the same time pushing the pivot pin down through the pivot hole until the pivot pin snaps into place.

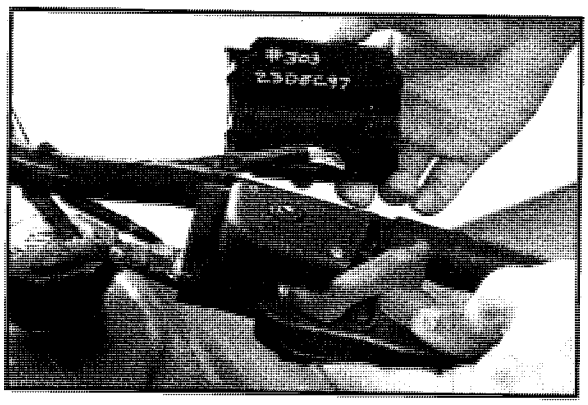


10. Apply thread sealant, install brake line and tighten snug.



11. Mount the master cylinder and switch pack to the handlebars making sure the wires are not pinched or twisted.

NOTE: Start all four screws prior to tightening. Tighten tip two screws first, followed by bottom two. Do not over tighten. This will create a gap approximately .050-.100″ between LH control and master cylinder at the bottom of the assembly. There should not be a gap at the top when correct tightening/torque sequence has been followed. Torque to 24-28 in.lbs.(.27-.32 kg-m).



Master Cylinder Control Torque -

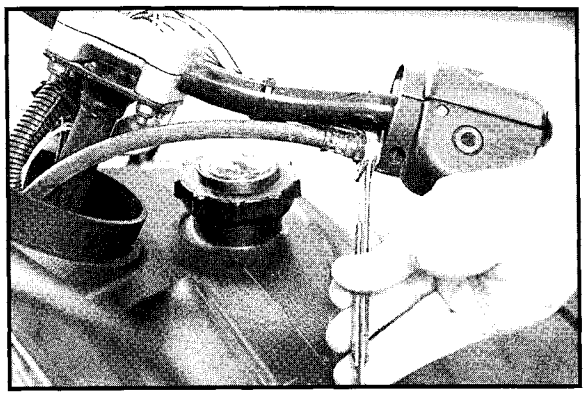
24-28 in. lb. (27-32 kg-m)

Hayes™ Master Cylinder Inspection and Replacing Cartridge Subassembly

12. Tighten brake line connector at outlet to 1 ft.lb. plus two turns.

Brake Line Torque -

1 ft. lb. (.14 kg-m) plus 2 turns



13. Fill reservoir with clean D.O.T. 3 brake fluid.

Polaris DOT 3 Brake Fluid

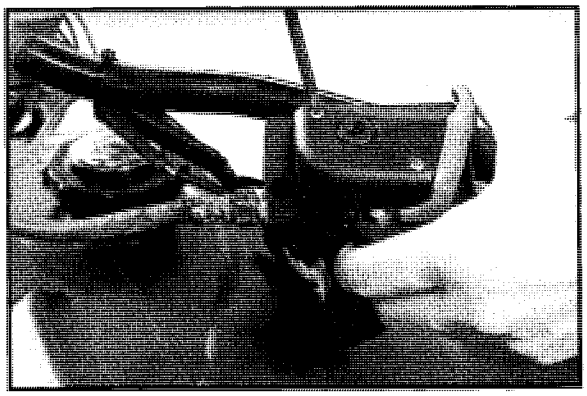
PN 2870990

14. Bleed brakes as outlined on pages 8.14 and 8.15. Check entire systemfor leaks and fill reservoir to fluid level line.

15. Install master cylinder reservoir cover and gasket. Torque screws to 15-18 in.lbs. (.17-.20 kg-m.)

Cover Screw Torque -

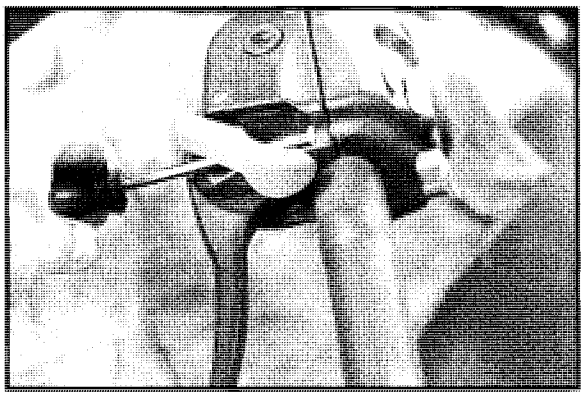
15-18 in. lb. (.17-.20 kg-m)



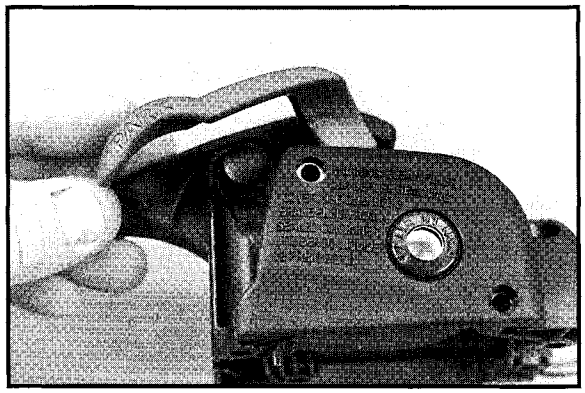
Hayes™ Master Cylinder Lever and/or Pivot Pin Replacement

Lever and/or Pivot Pin Removal

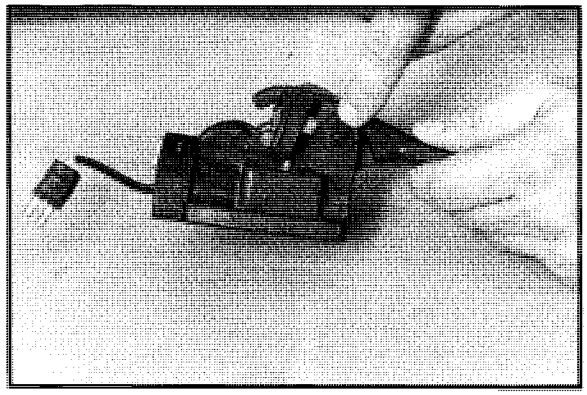
1. For ease of service, remove master cylinder assembly as outlined on pages 8.17 and 8.18.



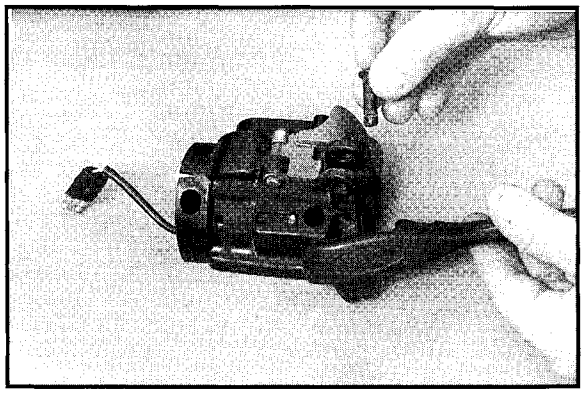
2. Squeeze the lever handle and actuate the parking brake lever enough distance for the head of the pivot pin to clear the park brake lever.



3. Squeeze the two spring tabs on the end of the pivot pin at the same time pushing the pivot pin up through the hole.



4. Remove the pivot pin and the lever.

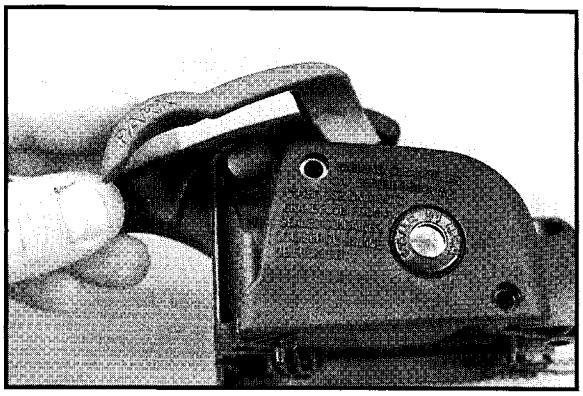


Hayes™ Master Cylinder Lever and/or Pivot Pin Replacement

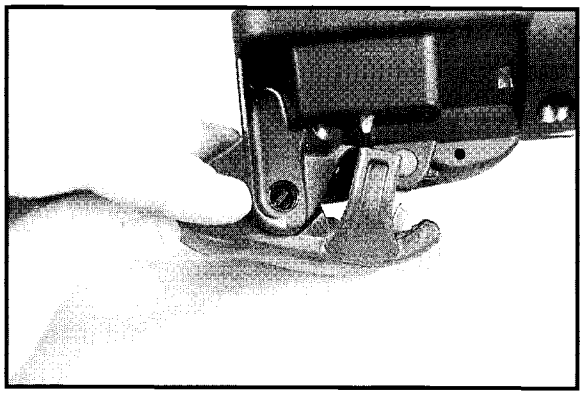
Lever and/or Pivot Pin Installation

1. Install the new lever by actuating the parking brake lever enough distance for the head of the pivot pin to clear the park brake lever.

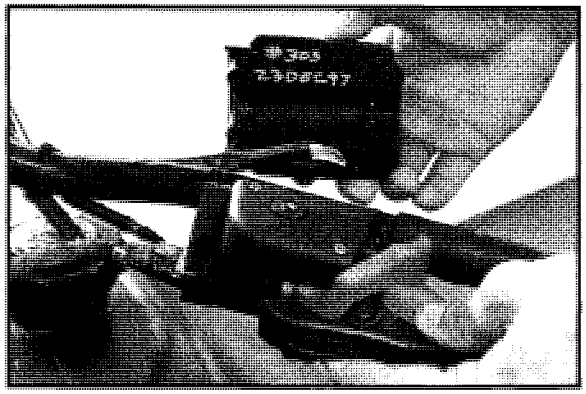
2. Align the lever pivot hole with the housing pivot hole.



3. Squeeze the two spring tabs on the end of the pivot pin at the same time pushing the pivot pin down through the hole until the pivot pin snaps into place.



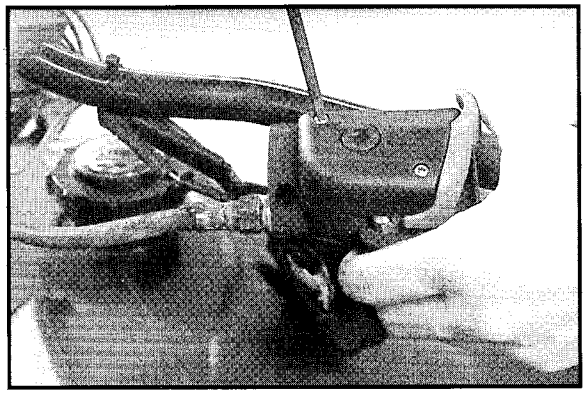
4. Reinstall master cylinder assembly.



Hayes™ Master Cylinder Park Brake Lever and/or Spring Replacement

Park Brake Lever and/or Spring Removal

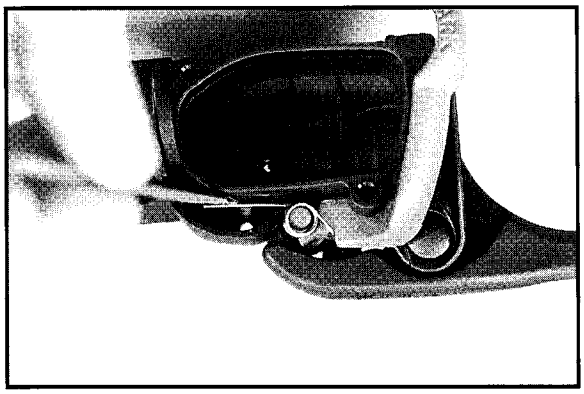
1. Remove master cylinder cover screws and cover.



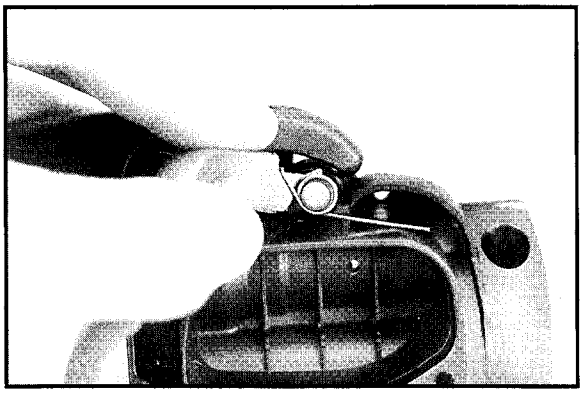
CAUTION:

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

2. Using a small screwdriver, lift long spring arm out of its notch in the housing.

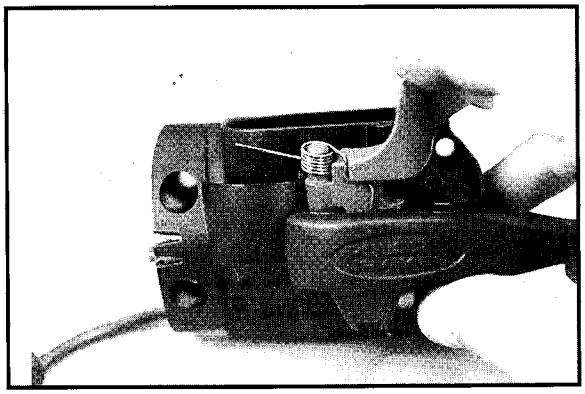


3. While pulling in an upward direction with the brake lever slightly activated, gently wiggle the park brake lever and spring from its pivot hole.



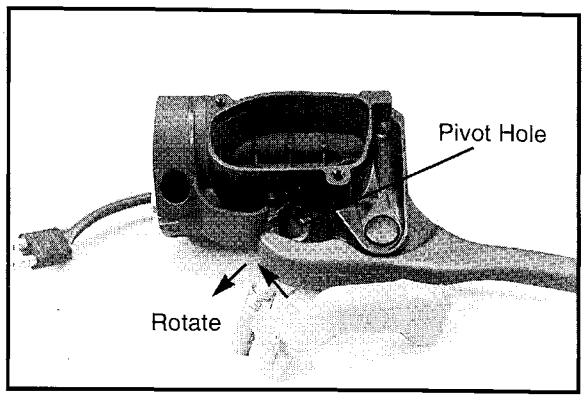
Park Brake Lever and/or Spring Installation

1. Place the spring on the upper pivot post of the park lever with the formed spring arm fit into its position on the outer part of the park lever. The straight spring arm will be pointing towards the back.

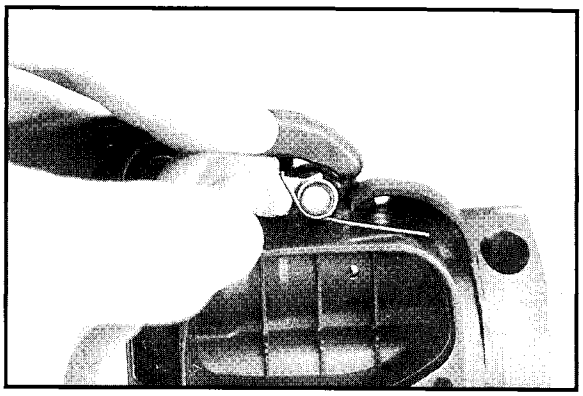


Hayes™ Master Cylinder Park Brake Lever and/or Spring Replacement

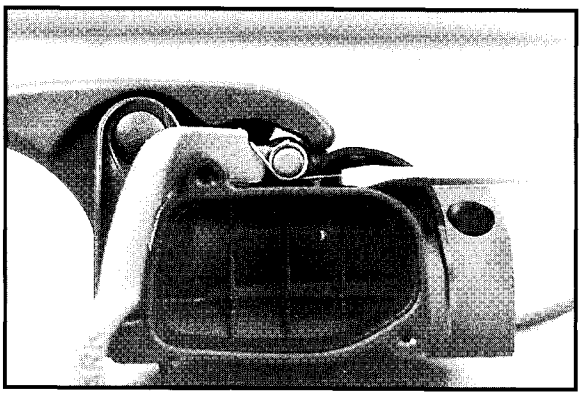
2. Rotate the straight spring arm counterclockwise while tilting the park lever down and inserting the pivot post into the pivot hole.



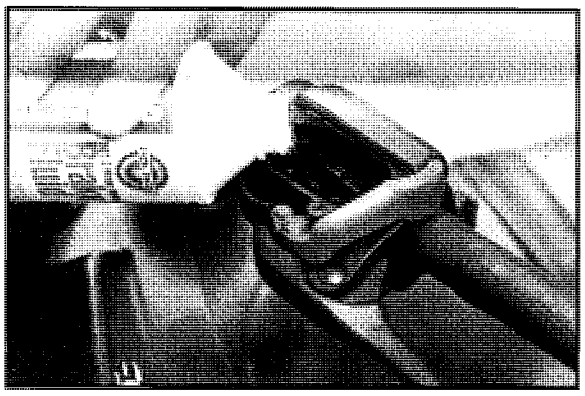
3. Release the straight arm of the spring and push the park lever pivot post down into position.



4. With a small screwdriver, push the straight spring arm down until it snaps into the notch in the housing.



5. Fill reservoir. Replace the master cylinder cover and screws. Torque screws to 15-18 in.lbs. (.17-.20 kg-m).



Cover Screw Torque -

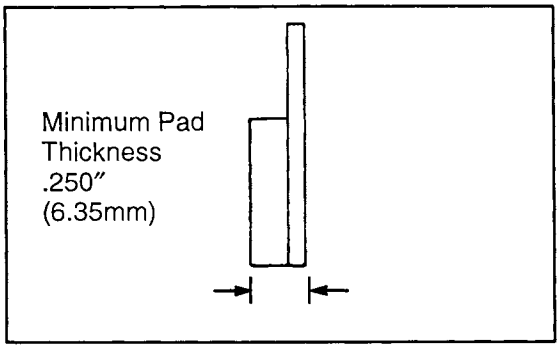
15-18 in. lb. (.17-.20 kg-m)

Type H4 Brake System

The Type H4 system is a hydraulic brake. 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.

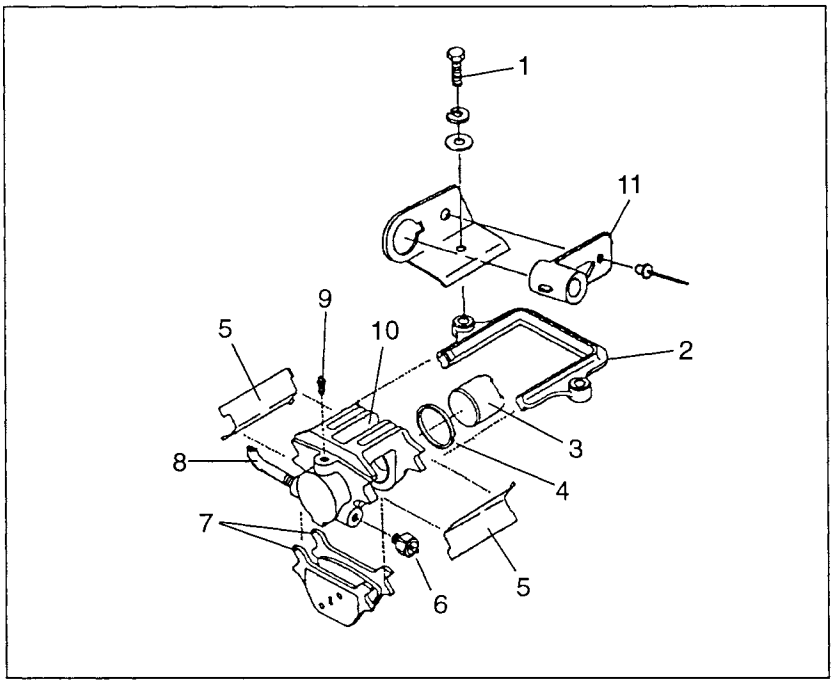
NOTE: Replace pads when worn beyond service limit.

Brake Pad Thickness - Type H4
Service Limit .250" (6.35mm)



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.

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 8.25.
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.

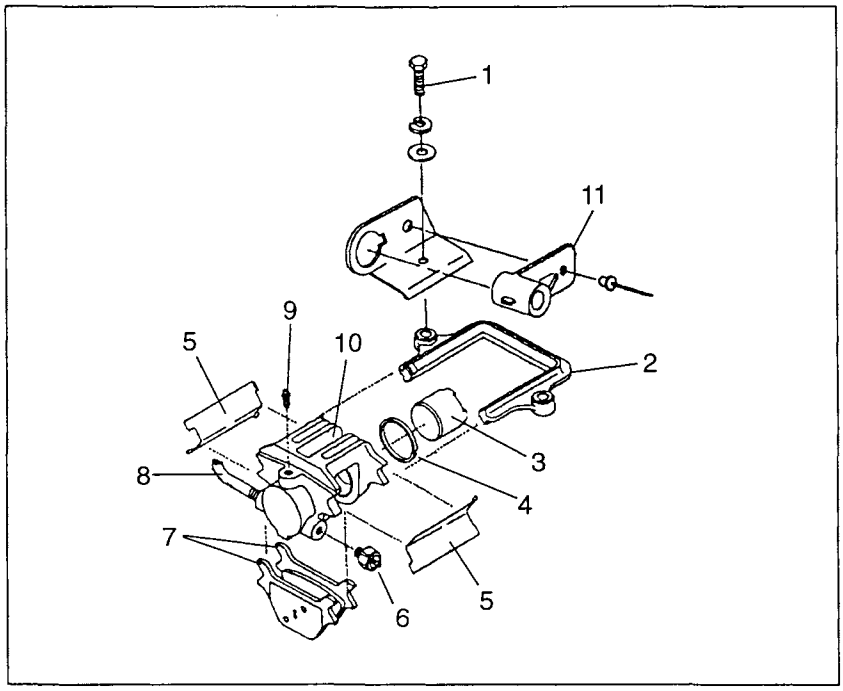
Reservoir Cover Torque -
43 in. lbs. (.49 kg-m)

13. Inspect entire system for leaks and repair if necessary.

14. 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.

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.

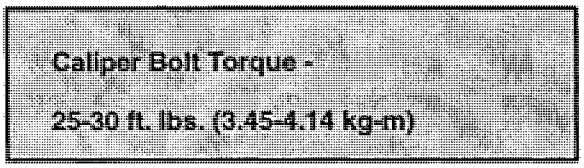
3. Coat piston thoroughly with brake fluid and work down into bore carefully with a rotating motion until bottomed.

CAUTION:

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

Type H4 Assembly, Cont.

1. 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.
2. Connect hose or line to caliper.
3. Place new pads with friction material facing each other into housing. Hold in place using clips.
4. Slide brake assembly into bracket until both clips snap into grooves in bracket.
5. Separate pads for installation over disc.
6. Place brake assembly over disc and push bracket into chaincase.
7. Replace 3/8″ bolts, rope guide, and washers. Torque to specification.



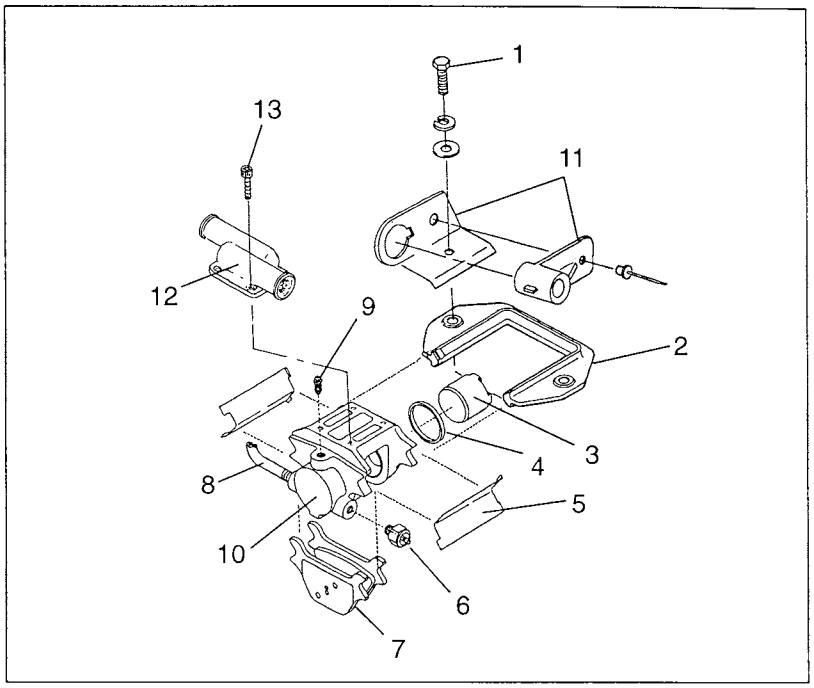
8. Perform brake bleeding procedure as outlined after System Rebuild, page 8.14-8.15.

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.

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)



⚠ 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

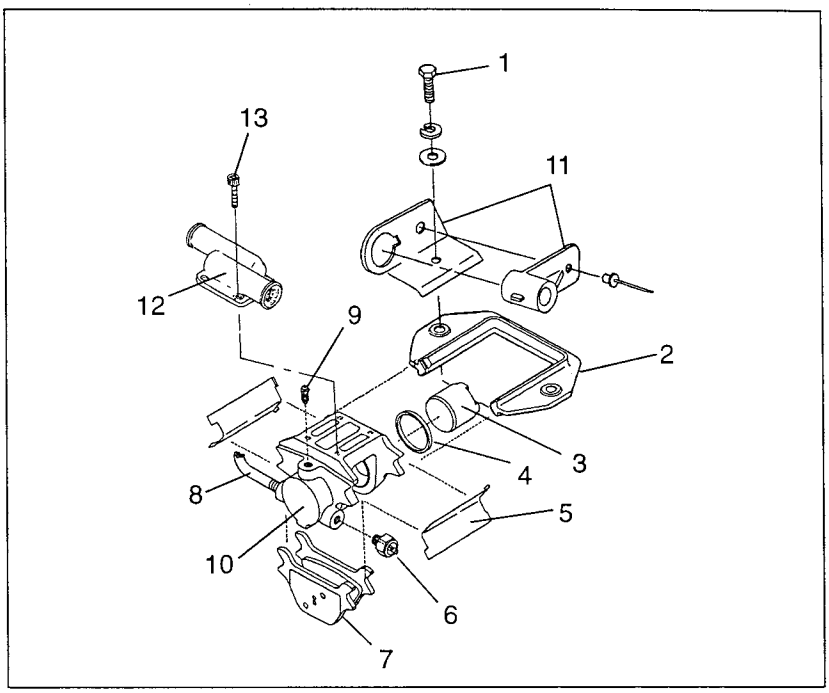
Reservoir Cover Torque -
43 in. lbs. (.49 kg-m)

14. Be sure to bleed coolant system as outlined in Engine section.
15. Bleed brake system as outlined on pages 8.14-8.15.
16. Field test at low speeds before putting into regular service.

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.

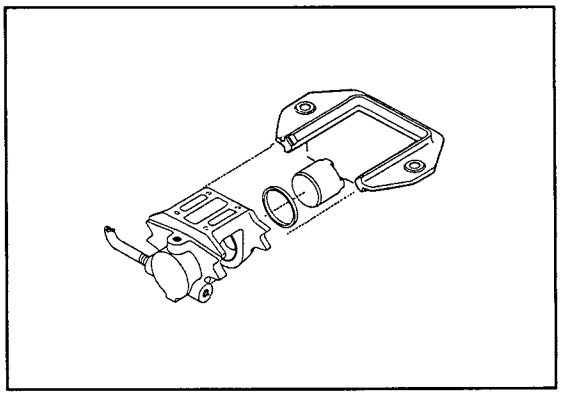
Refer to the exploded view above while performing the following steps.

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.

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 -

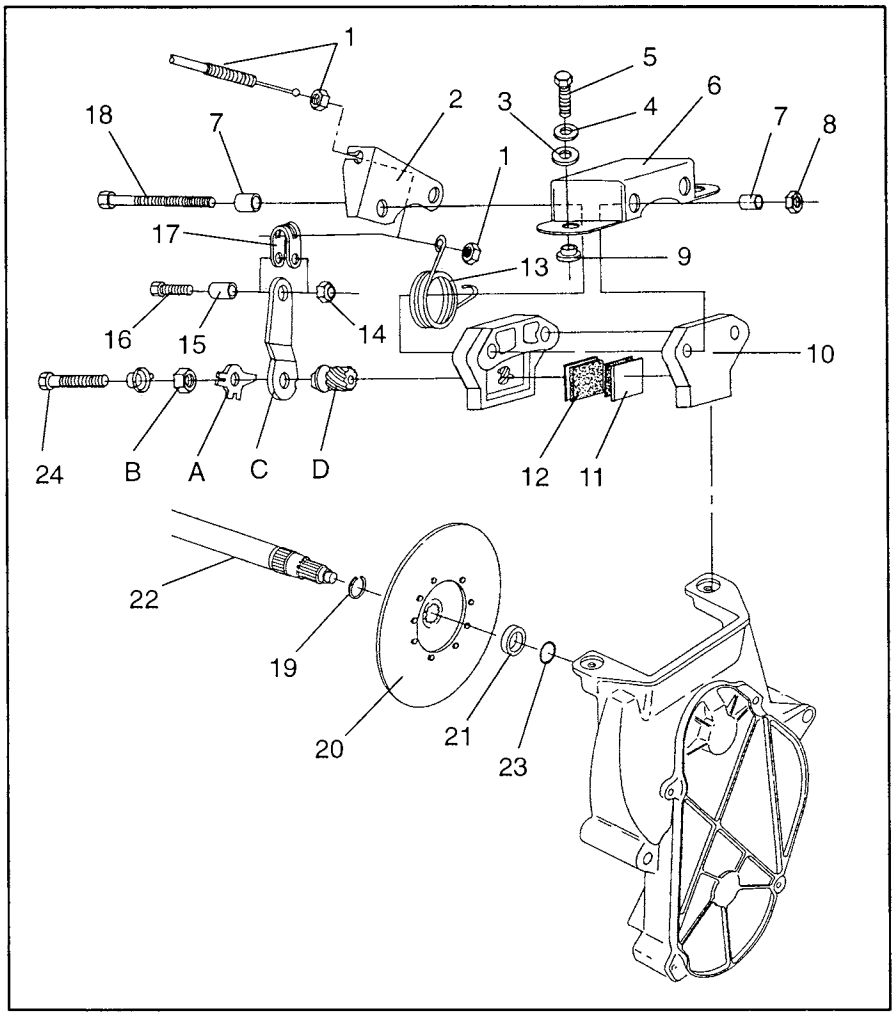
25-30 ft. lbs. (3.45-4.14 kg-m)

12. Perform brake bleeding procedure as outlined on pages 8.14-8.15.
13. Inspect entire system for leaks.
14. Field test at low speeds before putting into regular service.

Type M3 Mechanical Brake System

The Type M3 system is the mechanical brake system used only on Indy 340 models.

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 Brake Disassembly

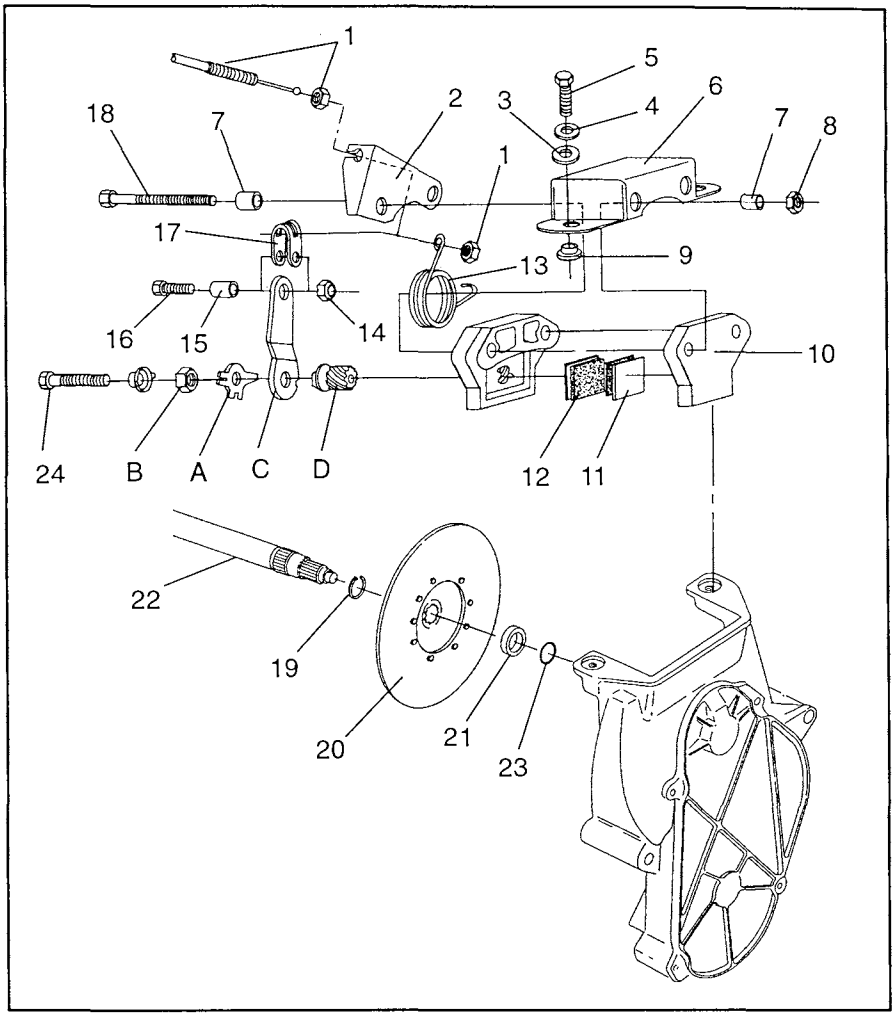
CAUTION:

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 and remove adjuster bolt (B).
2. Remove actuating lever (C) and return spring. Do not detach cable from lever arm.
3. 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.
4. Remove brake pads and inspect for wear and damage. Replace if necessary.
5. Inspect rotor disc and replace if necessary.

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 Bolt 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)

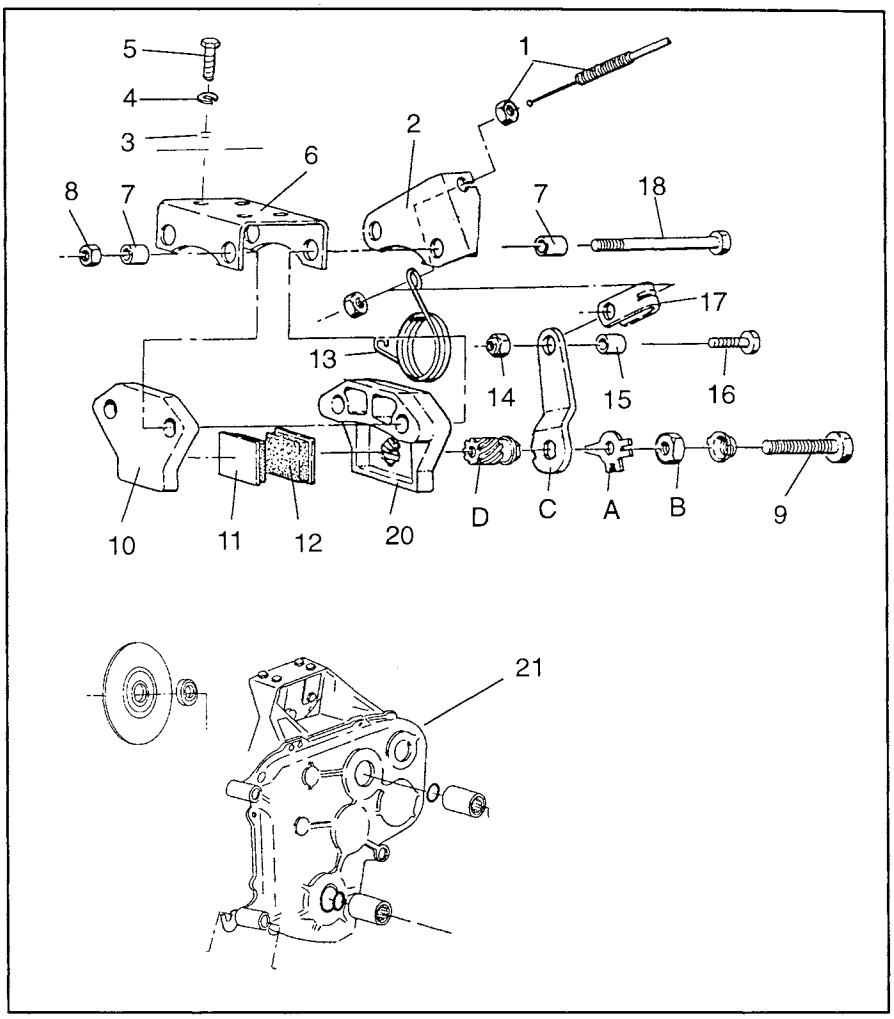
6. Field test machine for proper braking action before putting into service. If braking action is soft, re-index helix shaft and repeat steps 3. - 6.

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
21. Seal
20. Caliper (Moveable Puck)
21. Transmission



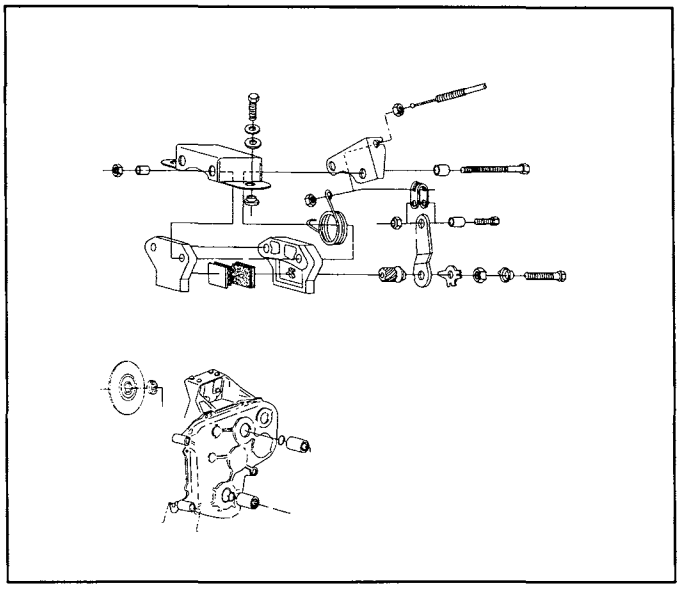
Type WT Brake Disassembly

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 and remove adjuster bolt (B).
2. Remove actuating lever (C) and return spring. Do not disconnect lever arm from cable.
3. Remove caliper bolts, spacers, bracket nuts (Items 1, 2, 7, & 8). Remove stationary caliper casting and stationary pad (Items 10 & 11).
4. 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.
5. 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.
6. Inspect rotor disc and replace if necessary.

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.

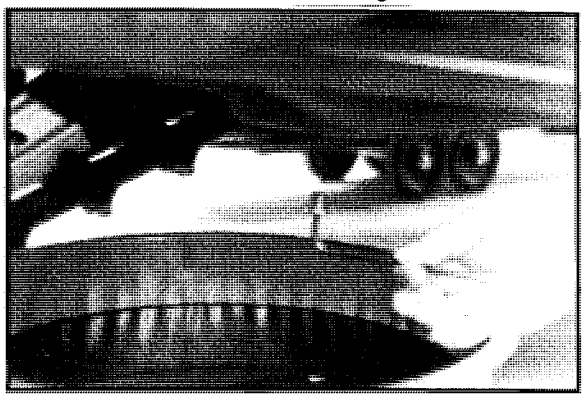
2. With brake lever bottomed on handlebar (as if brakes were applied) and helix shaft (D) bottomed in caliper, install actuating arm, jam nut locking tab, jam nut and adjuster bolt. Release brake arm slightly to index lever for installation on helix shaft.
3. Insert a .015″ (.04 cm) feeler gauge between 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.

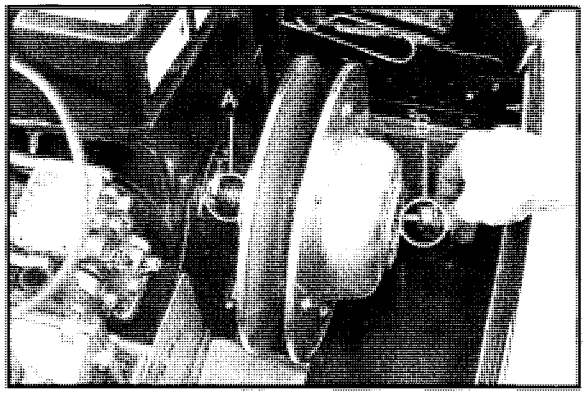
Type 3 Drive System Disassembly (Except WideTrak)

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.



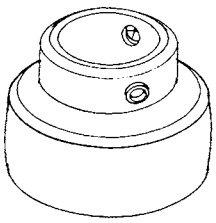
Rear Suspension Removal

1. Mark hood hinges for ease of alignment when reassembling. Remove hood (to prevent damage), air silencer, exhaust system and battery, if so equipped. Place drip pan under chaincase and remove drain plug. 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).

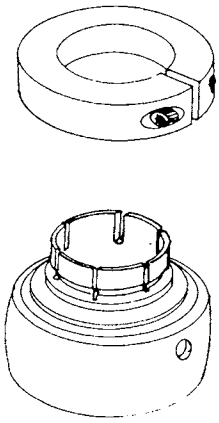


4. Loosen jackshaft bearing lock set screws (if equipped).

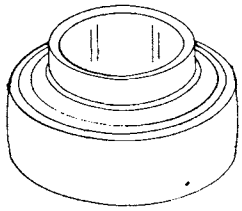
NOTE: Some models are equipped with set screw or Skwez-loc™ style jackshaft bearings. Some models are equipped with press-fit bearings which have no locking device.



Set Screw Bearing



Skwez-loc™ Bearing



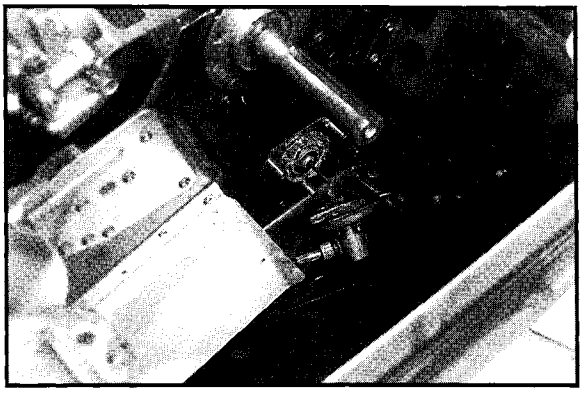
Press On Bearing

5. Remove two upper flangette attaching bolts.

Rear Suspension Removal, Cont.

6. Remove three bolts, nuts, and washers securing angle drive and bearing flangettes. Remove and discard adaptor key.
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.

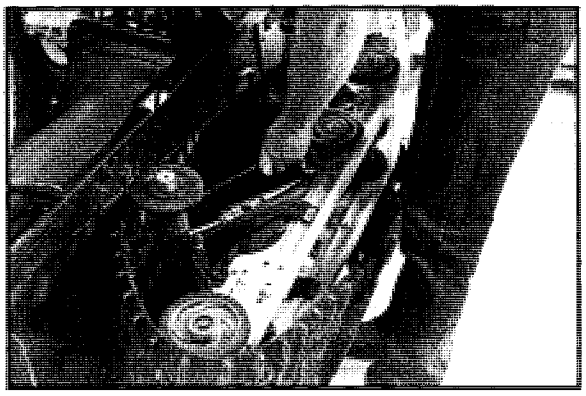
NOTE: Unhook the rear torsion springs to relieve pressure on the torque arm for ease of removal. Loosen rear shaft bolts and adjuster bolts, slide rear shaft forward for ease of removal.



Chaincase Removal

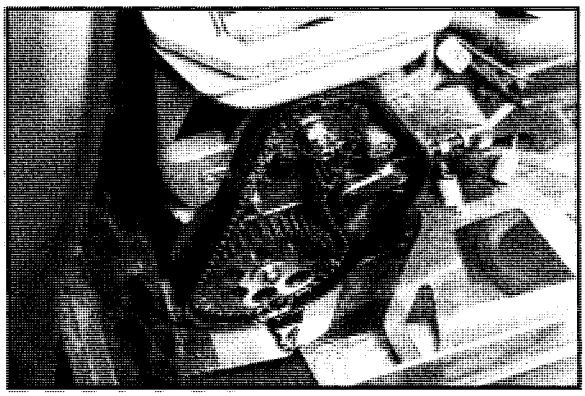
1. Remove third jackshaft flangette attaching bolt.

Tip machine back to upright and support rear with jackstand.



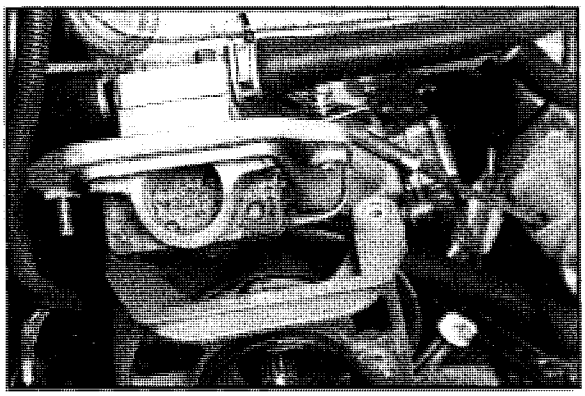
2. Remove chaincase cover attaching bolts and remove cover.
3. Remove cotter pin and nut.
4. Loosen chain adjustment bolt and remove chain tensioner assembly.
5. Remove bottom sprocket attaching bolt, chain and sprockets.
6. Remove two bolts securing caliper carrier bracket to chaincase.

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



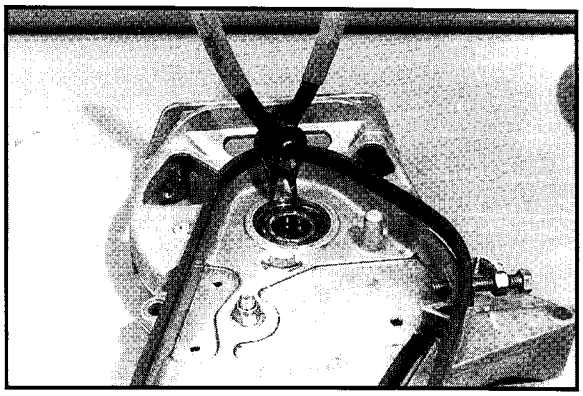
7. Remove three chaincase to bulkhead attaching nuts and bolts. The front bolt is a through bolt, rear and bottom bolts are carriage bolts.

NOTE: On some machines it may be necessary to remove the rear exhaust bracket prior to lifting chaincase or removing drive shaft assembly.



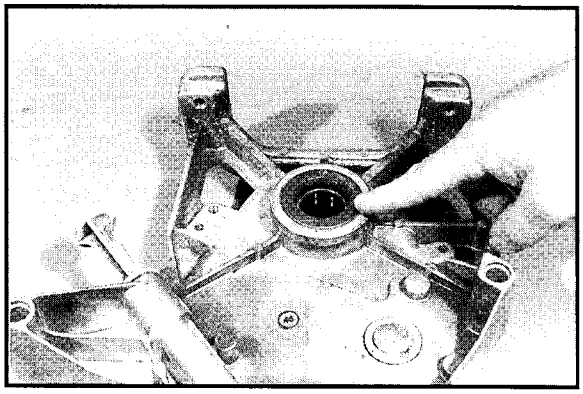
Chaincase Removal, Cont.

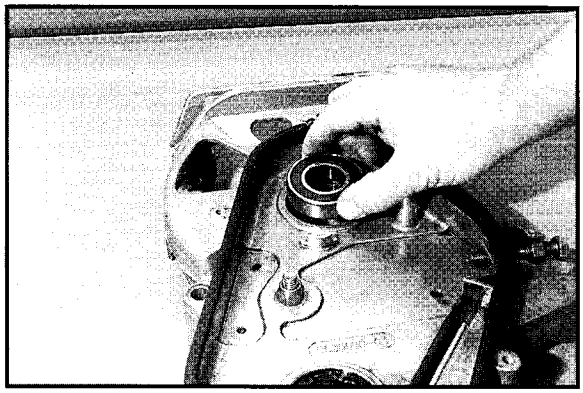
8. Tap on end of driveshaft with a soft face hammer and slide the chaincase off of the driveshaft. Remove chaincase.



Chaincase Bearing Removal

1. Remove bearing retaining snap rings.
2. Pry out old seal from back side of chaincase.
3. 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.



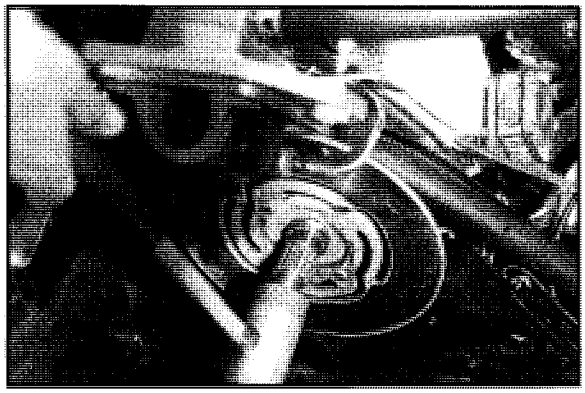


Jackshaft Removal

1. Remove O-Ring, seal sleeve and brake disc by tapping on jackshaft end with a soft face hammer as shown.
2. Remove jackshaft.
3. 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.

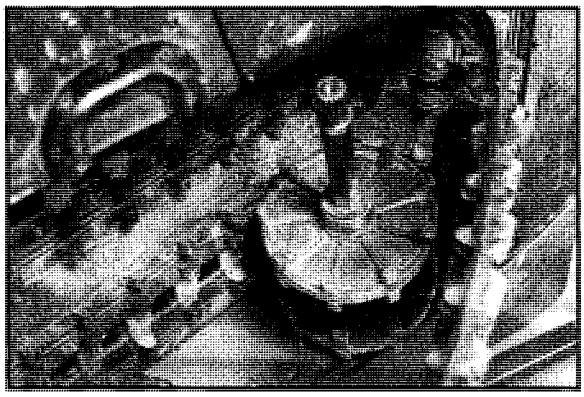
Jackshaft and Driveshaft Service Limit - .001″ (.025 mm)

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



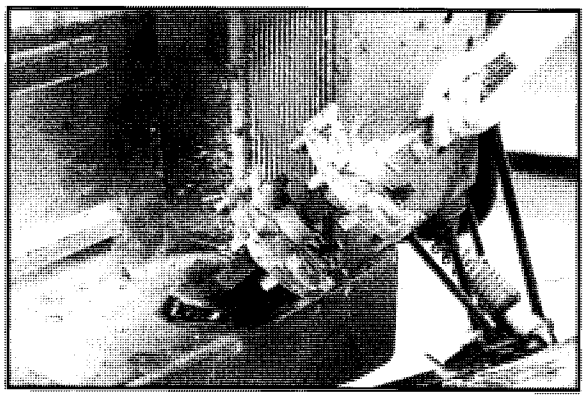
Driveshaft Removal

1. Tip machine back on left side.
2. Remove driveshaft by pushing through bearing hole on the bulkhead, then pulling driveshaft toward you.



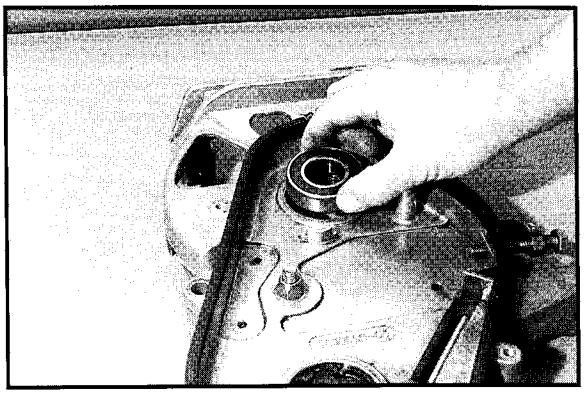
3. After drive shaft has been removed, inspect condition of drive sprockets and replace if required.

NOTE: On models with pressed bearings on 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.



Chaincase Assembly

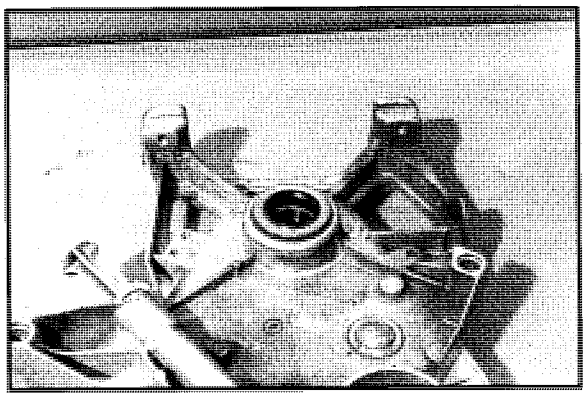
1. Apply Loctite 680 to outer race of new bearing and press into position. Press on outer race only, or bearing damage may result.



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 chaincase.

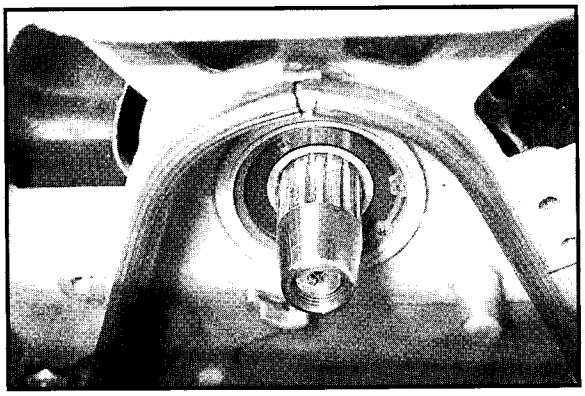
NOTE: Do not tighten chaincase bolts at this time.

Jackshaft Installation

1. Replace seal sleeves and O-Rings with new and grease.
2. Install jackshaft installation tool on the threads of the jackshaft

Jackshaft Installation Tool

PN 2870974 - 13 Tooth Jackshafts
PN 2871296 - 15 Tooth Jackshafts

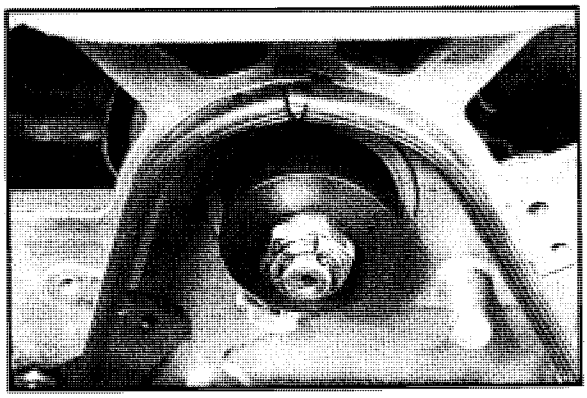


3. Insert jackshaft through bearing in chaincase
4. Install jackshaft alignment tool and secure with castle nut and flat washer. Tighten jackshaft nut securely to ensure positive bearing and jackshaft seating to chaincase.

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.

Jackshaft Alignment Tool

PN 2870399 - 13 Tooth Jackshafts
PN 2871535 - 15 Tooth Jackshafts

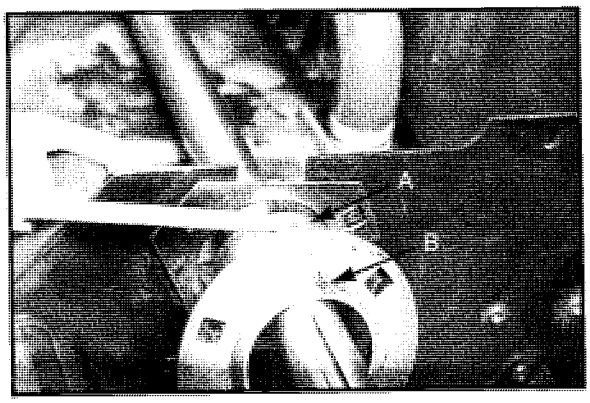


Jackshaft Installation, Cont.

5. If shaft is not centered, tap shaft with a soft faced hammer until centered. This will align the upper chaincase bearing in the chaincase bore.

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

7. Install jackshaft flangette gasket and bolts. 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).



Chaincase Mounting Bolt Torque -

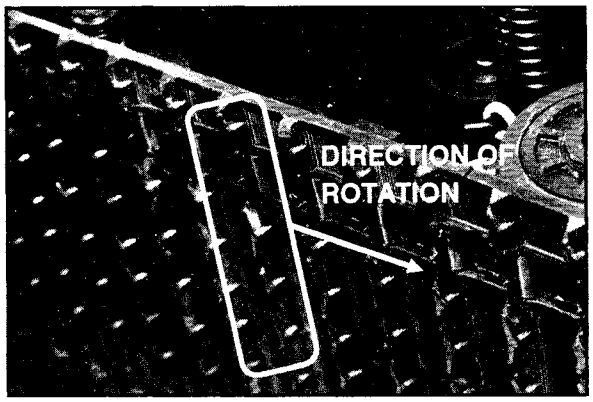
28-30 ft. lbs. (3.86 - 4.14 kg-m)

Flangette Nut Torque -

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

Driveshaft Installation

1. Tip machine back on its left side. Set track into machine making note of correct direction of travel. Most tracks have an arrow pointing which direction the track turns.



Driveshaft Installation, Cont.

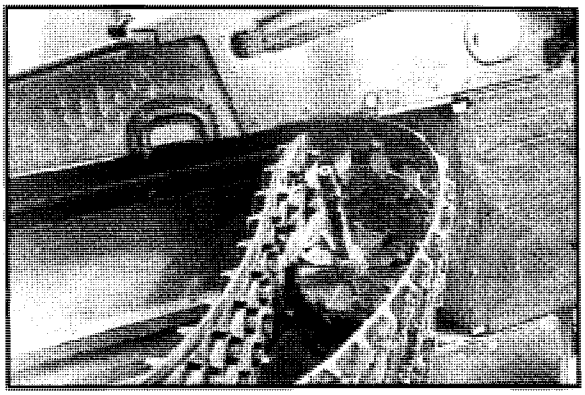
2. Insert driveshaft through bearing hole in bulkhead. Place inner driveshaft bearing flange bolts in the bulkhead.

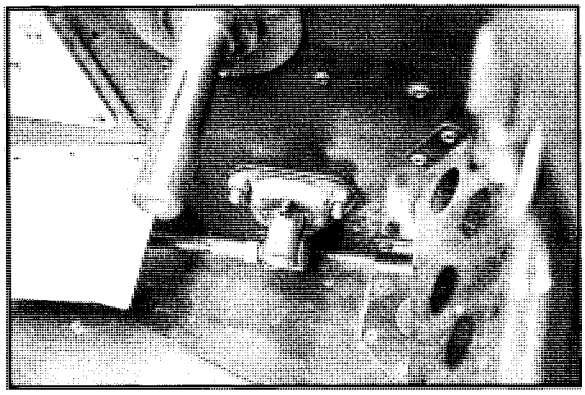
3. Insert chaincase side of driveshaft through bottom chaincase bearing.

4. Tip machine upright. Replace speedometer key with a new one and install angle drive. Torque nuts to specification.

Speedometer Angle Drive Mounting Nut Torque -

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





5. Link together the upper and lower chaincase sprockets with the chain. Install both the upper and lower sprockets and chain at the same time. Finger tighten the top sprocket nut and turn in bottom sprocket bolt until snug.

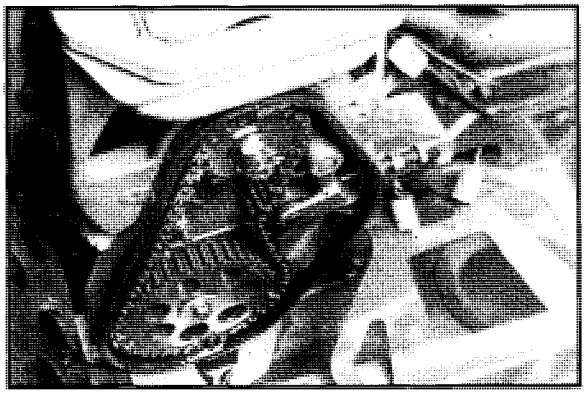
NOTE: On Hyvo™ sprockets, the beveled side goes toward the chaincase bearing.

6. Install chain tensioner. Finger tighten adjustment bolt.

7. Install brake caliper assembly in chaincase.

CAUTION:

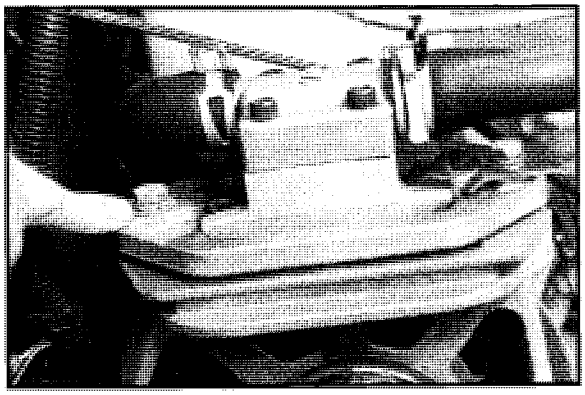
On models with hydraulic brakes, make sure caliper piston is fully retracted into caliper to prevent brake binding from preload of pads. On models equipped with mechanical brakes make sure cam is fully retracted.



8. Torque caliper mounting bolts to specification.

Caliper Mounting Bolt Torque -

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



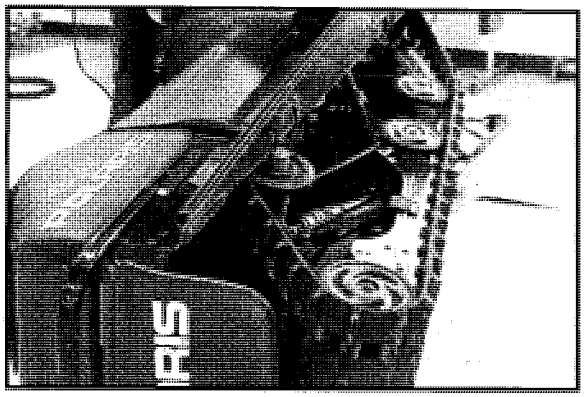
Track Installation

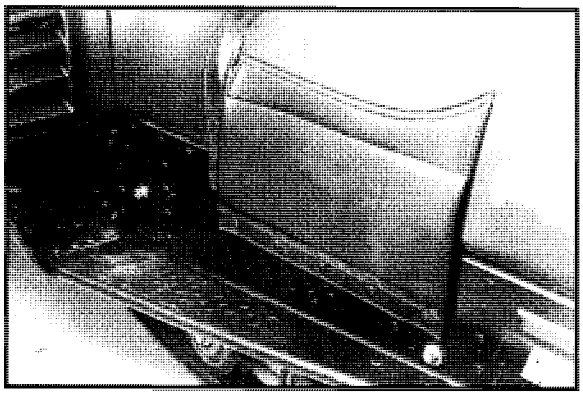
1. Tip machine back onto left side. Insert suspension, rear first, into the track.

2. Move the suspension back and forth until front torque arm mounting bolts can be started. Tighten finger tight.

3. Rotate the suspension until the rear mount bolts can be installed in the same manner as the front.

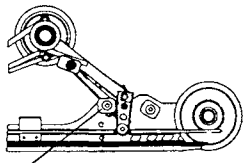
NOTE: For ease of installation, turn the front rear scissor stops (FRSS) to low position. This allows the rear torque arm to move forward more to line up holes.





4. Torque suspension mounting bolts to specification.

5. Return front rear scissor stops (FRSS) to original position.



FRSS (Front Rear Scissor Stop)
XTRA-10 Shown

6. Install suspension springs.

7. Align track (outlined in suspension section) and tighten adjuster and rear shaft bolts 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)**

Final Assembly

1. Check speedometer cable routing.

Polaris Cable Lube

PN 2870510

2. Grease angle drive and bearing with Polaris grease.

Polaris Premium All Season Grease

PN 2871423

3. Torque bottom chaincase sprocket bolt to specification.

Bottom Chaincase Sprocket Bolt Torque -

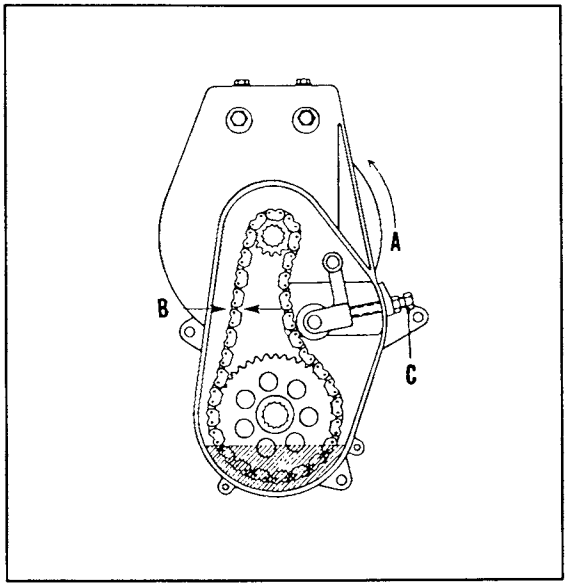
19 ft. lbs. (2.62 kg-m)

4. Torque jackshaft nut to specification. On models with castle nut, if cotter pin does not align, tighten nut until it does. Apply brake to hold jackshaft while torquing.

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

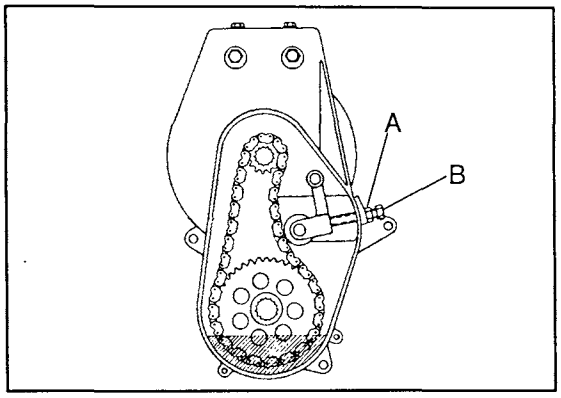
5. To obtain correct chain tension, place a slight reverse tension on the chain as indicated in the illustration at right (A).
6. There should be approximately 1/4-3/8″ (.6-.95 cm) total deflection on the chain at point (B). Loosen adjuster bolt locknut and turn adjuster bolt (C) until correct chain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

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



Final Assembly, Cont.

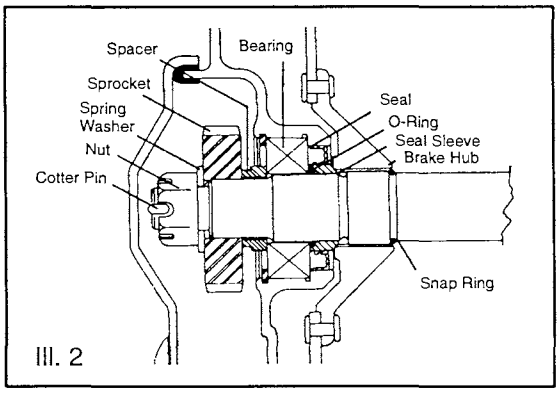
7. Tighten adjuster bolt locknut (A) securely while holding the adjuster bolt (B).



8. 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)



9. Add 9 oz. (11 oz. on models equipped with reverse) of Polaris chaincase oil to the chaincase. Verify proper level with dipstick.

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

10. Torque jackshaft bearing set screws to specification (if so equipped).

Driveshaft and Jackshaft Bearing Set Screw Torque -

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

11. Lubricate bearings with Polaris Premium All Season grease.

Polaris Premium All Season Grease

PN 2871423

Final Assembly, Cont.

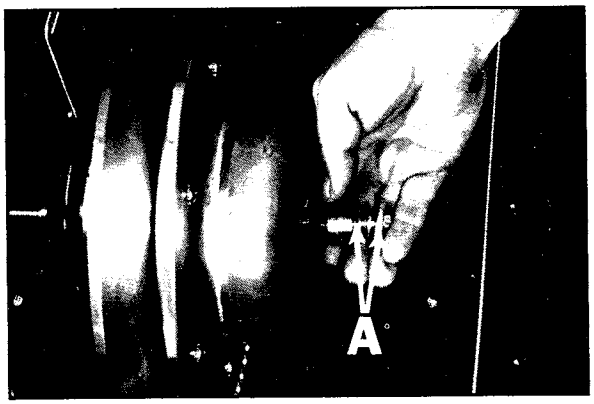
12. Reinstall clutch offset washers on jackshaft and install driven clutch. Using the clutch alignment tool adjust driven clutch to achieve proper offset.

Clutch Alignment Tool

P90 - PN 2870914
P85 - PN 2870426

P90 Offset 21/32″: P90 Electric Start Off-set: 1.28″ (straight edge)
P85 Offset 5/8″: P85 Electric Start Off-set: 1″ (straight edge)

13. 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.

14. Torque driven clutch retaining bolt to specification.

Driven Clutch Retaining Bolt Torque -

12 ft. lbs. (1.66 kg-m)

Final Assembly, Cont.

15. Reinstall air box, adjusting box properly.
16. Reinstall battery (if so equipped). Always attach ground cable last to prevent sparks.
17. Replace exhaust system.
18. Install hood, (if removed) aligning with marks made during disassembly. Ensure proper hood closure and readjust if necessary.

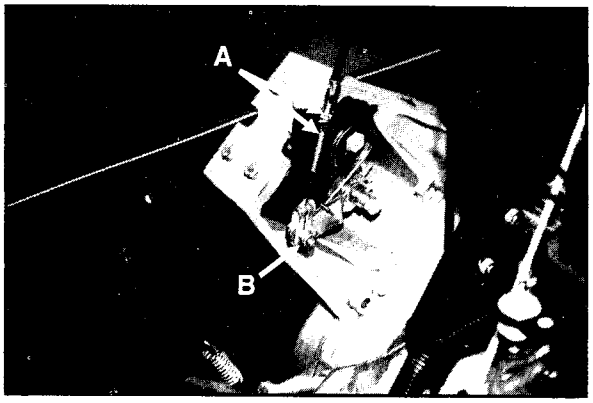
Hood Bolt Torque -

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

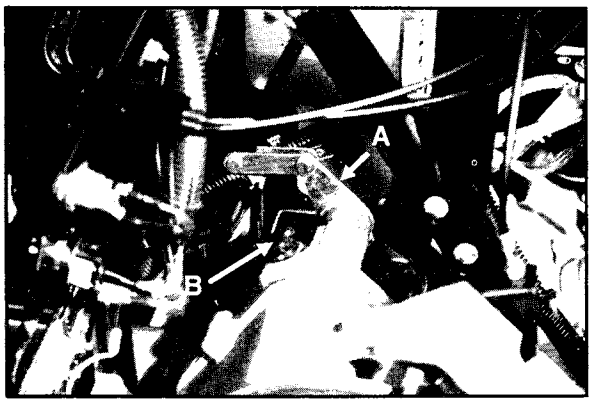
19. Test ride the unit to ensure all components are functioning properly before putting into service.

Transmission, Suspension and Track Removal - WideTrak LX

1. Hood can be removed to prevent damage. Mark hood hinges for ease of alignment when reassembling unit.
2. Remove battery.
3. Turn off fuel valve. Move oil tank for access.
4. Remove air intake and coolant recovery bottle from its mounting.(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.



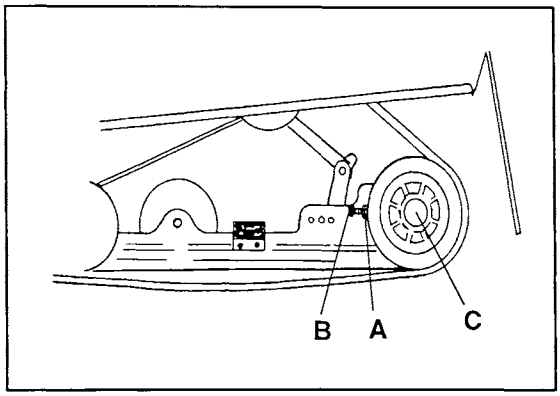
10. Note location of shift linkage on transmission (A) to assure proper location during reassembly. Remove cotter pin, washers, and pin from transmission arm.
11. Remove brake light wire connector from sensor.



12. Loosen rear idler wheels and bolts.

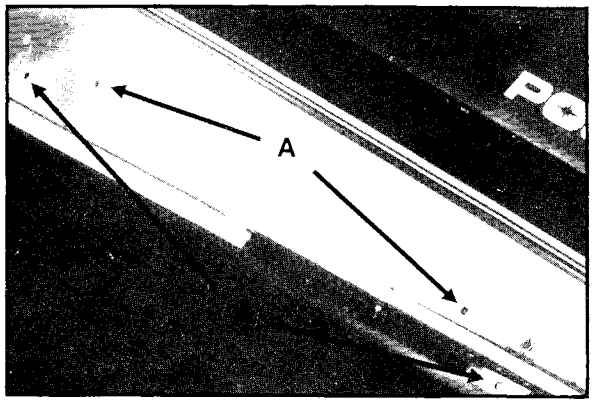
13. Loosen jam nuts on adjustment bolts on both sides. Back out adjustment bolts to allow rear idler assembly to come forward, relieving track tension.

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.

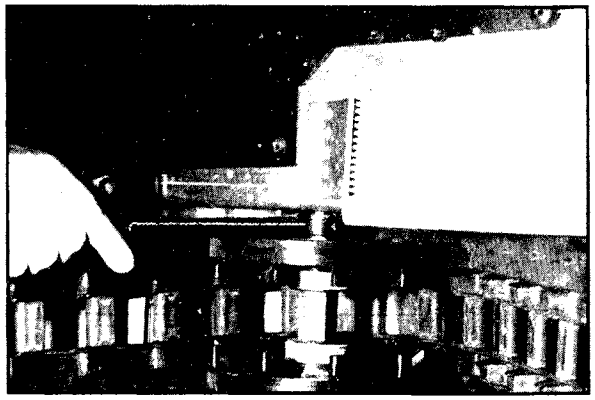


17. Using "T" handle Allen wrench, loosen set screws on lock collar.

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.

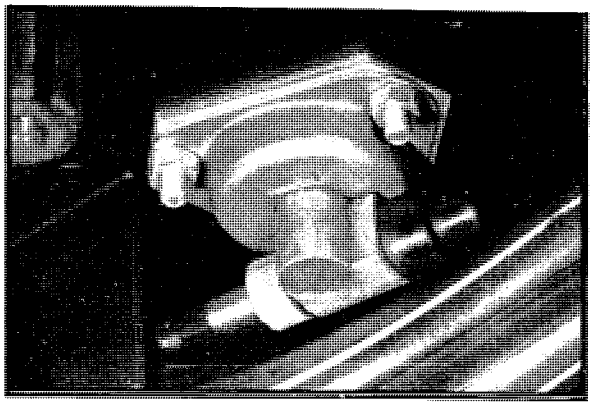


21. Loosen and remove three carriage bolts and nuts retaining angle drive housing and flangettes.

22. Remove angle drive housing, adaptor key, flangettes, 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.

23. Tip machine back onto floor.



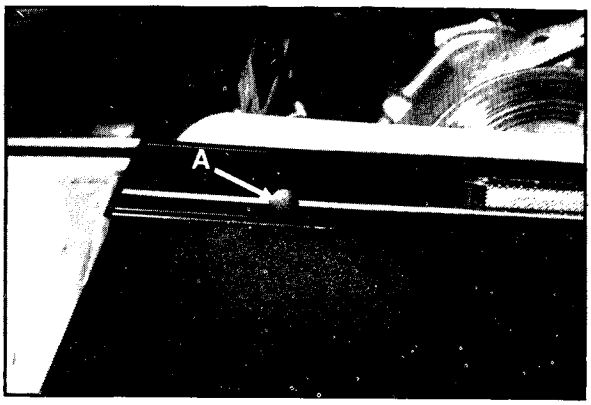
24. Remove right side bumper plug (A).

25. Remove bolt retaining rear of bumper to foot rest.

26. Bend muffler mount out of the way to allow transmission removal.

27. 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.

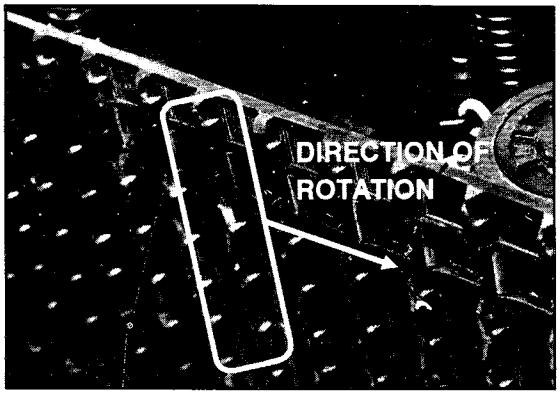


28. Lift and maneuver transmission to free drive shaft coupler.

29. Lower drive shaft and remove lower front bolt.

30. Maneuver transmission until it can be removed from the unit. Use care not to damage coolant lines. Refer to page 8.61 for transmission disassembly.

31. 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.



32. Remove front and rear carrier shafts..

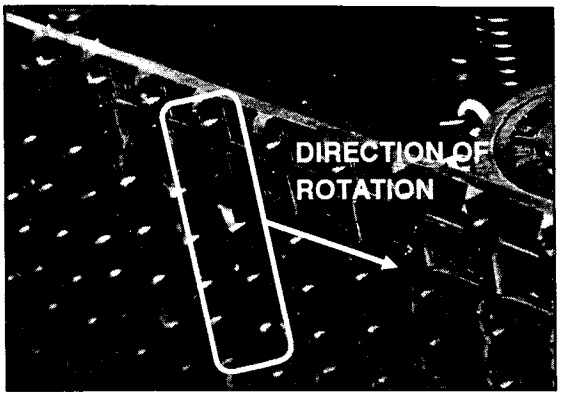
33. Remove suspension by pulling rear of track out of tunnel. Slide suspension forward to driveshaft. Lift up and out at the rear.

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

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

Installation

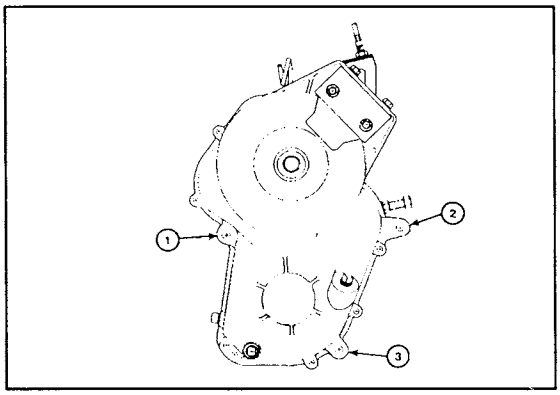
1. Tip unit onto right side.
2. Insert track in unit, making sure direction of rotation is correct.



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 Season Grease to drive shaft coupler splines.

Polaris All Season Grease
PN 2871423

11. Reinstall transmission, using care not to damage coolant hoses. 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: Proper transmission/jackshaft alignment is critical for bearing service life. Use a standard nut and flat washer for initial installation of transmission, and install new mounting hardware after jackshaft alignment is complete.

14. Tip machine onto its right side.

Assembly, Cont.

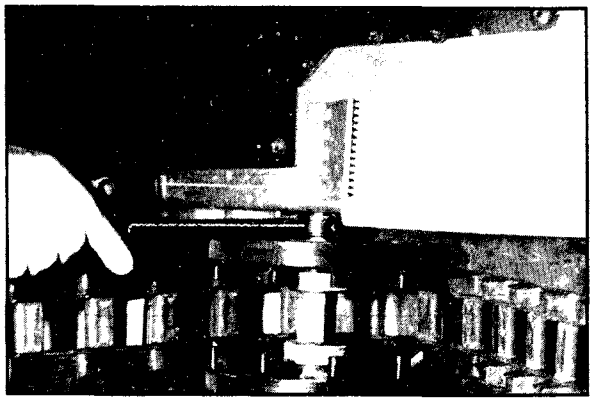
15. Loosen set screws and seat drive shaft in transmission coupler stub shaft. For ease of assembly, make sure track has no pressure against drive shaft.

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

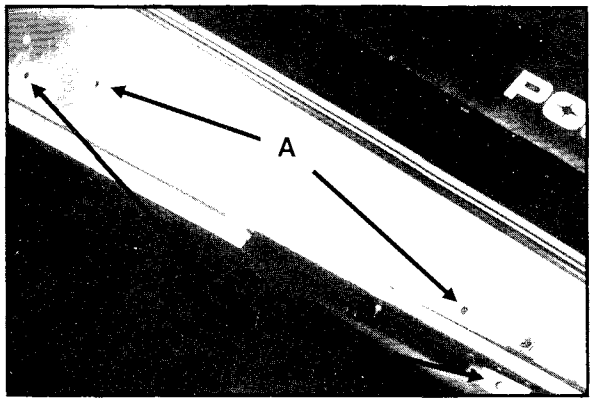
80 in. lbs. (.92 kg-m)

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).



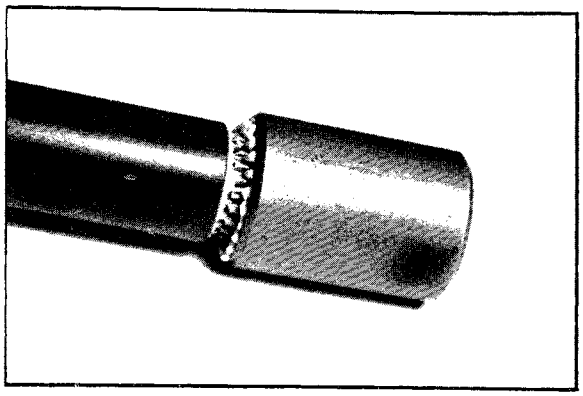
22. Tip machine back onto floor and tighten all suspension bolts to specification.

Suspension Bolt Torque -

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

Assembly, Cont.

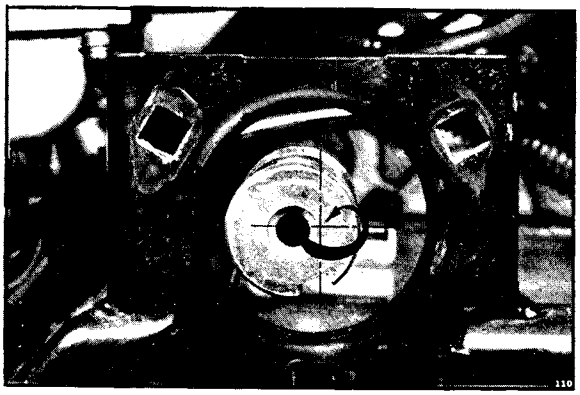
23. If jackshaft was removed from unit, grease coupler spline with Polaris Premium All Season Grease and install on transmission.



Polaris Premium All Season Grease

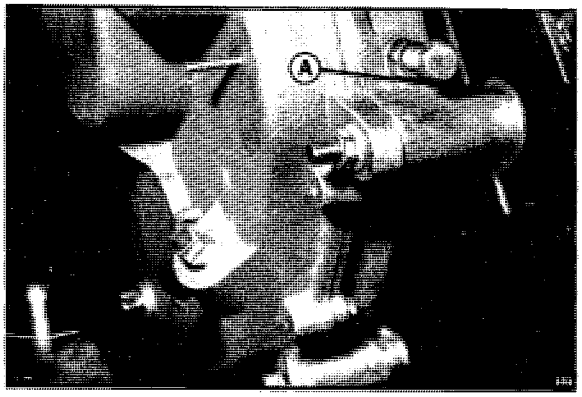
PN 2871423

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 -

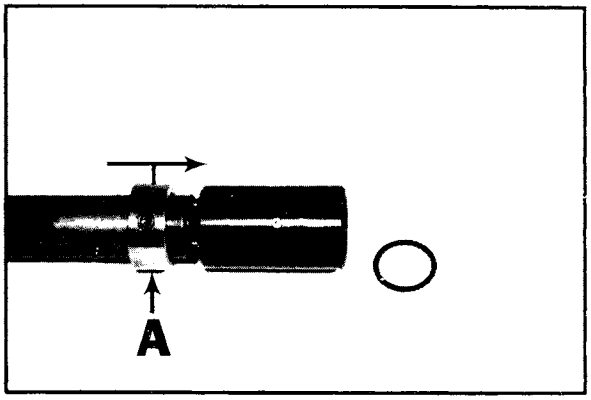
28-30 ft. lbs. (3.86-4.14 kg-m)

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)

Assembly, Cont.

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

Polaris Synthetic Gearcase Lube

PN 2871477 Gallon
PN 2871478 12 oz.

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, air box, oil tank, and coolant recovery bottle.
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.

P85 Electric Start Offset: 1" with straight edge

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

39. Torque driven clutch retaining bolt to specification.

Driven Clutch Retaining Bolt Torque -

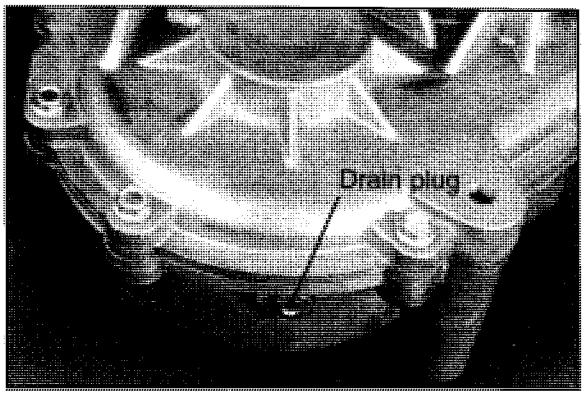
12 ft. lbs. (1.66 kg-m)

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

41. Reinstall hood.

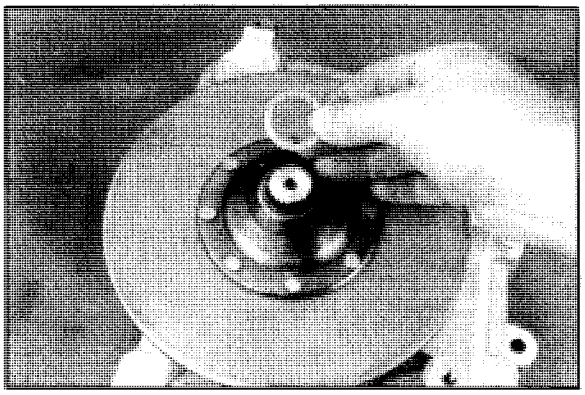
Disassembly/Inspection

1. Drain transmission oil into suitable container.

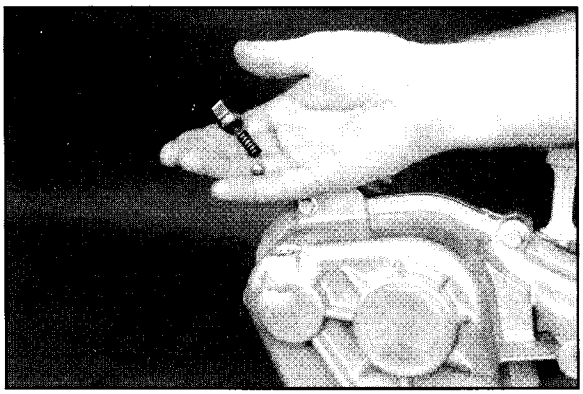


2. Remove snap ring, spacer washer, and brake disc.

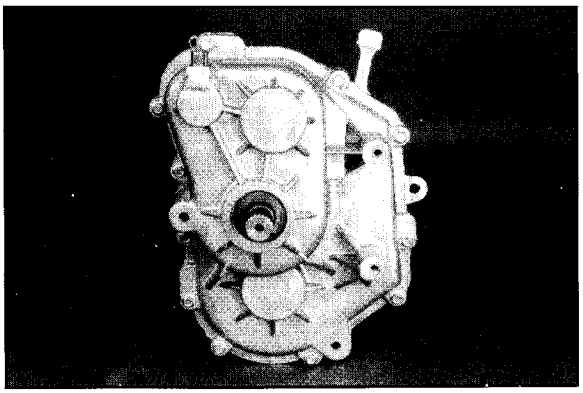
NOTE: Note position of spacer washers behind disc for proper alignment upon reassembly.



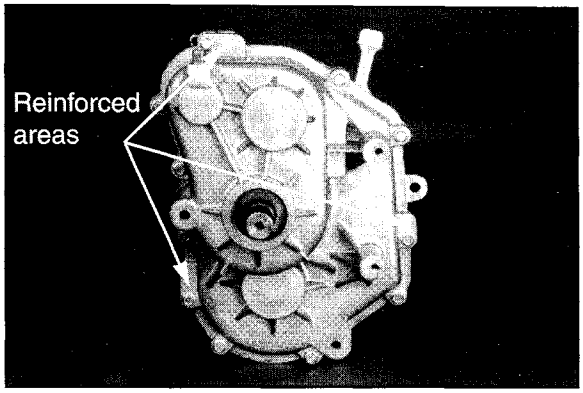
3. Remove detent spring and ball.



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

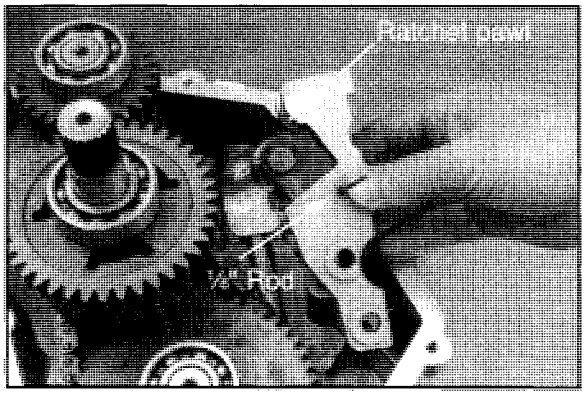


5. Tap cases apart with soft faced hammer in the reinforced areas indicated in photo at right. Tap end of brake shaft to be sure it remains in case.

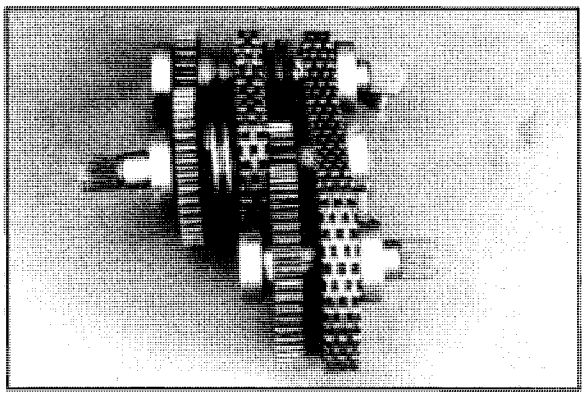


6. Hold chain tensioner ratchet pawl off ratchet teeth and push tensioner plunger all the way in. Insert a 1/8″ diameter rod as shown to hold tensioner in released position. Remove tensioner assembly. Inspect for cracks, chipped, broken, or rounded teeth.

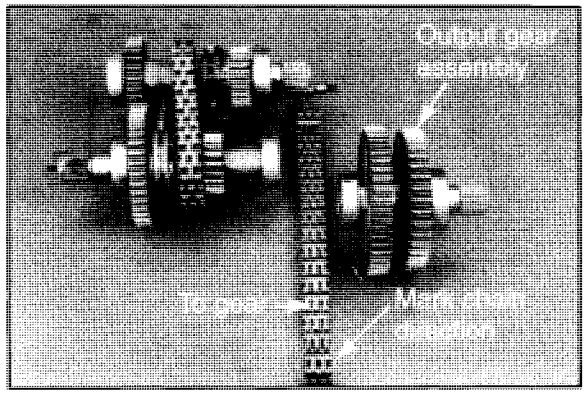
7. Remove shift arm



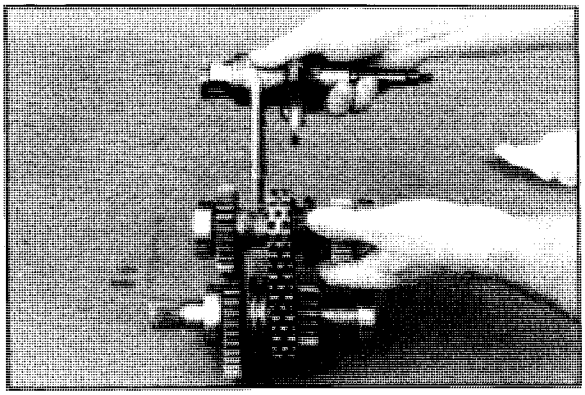
8. Remove shaft and gear assembly from case by tapping with a soft faced hammer evenly on end of shafts.



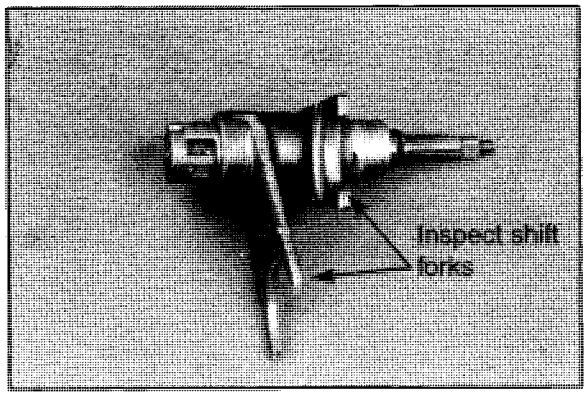
9. Remove output gear assembly and chain. Mark chain direction for reference during reassembly. Inspect gear teeth for damage. Inspect chain for worn, cracked, or broken link plates.



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

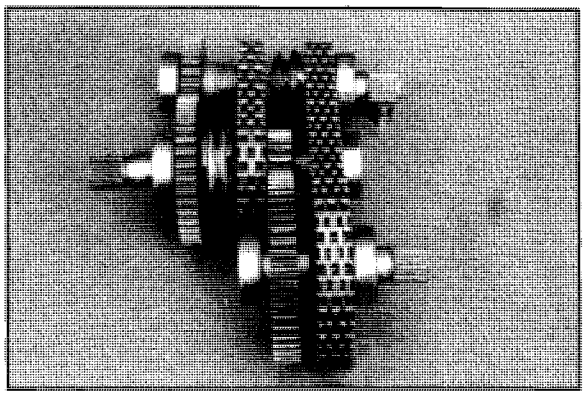


11. Remove chain from input and reverse shaft. Inspect gear teeth for damage. Inspect chain for worn, cracked, or broken link plates.

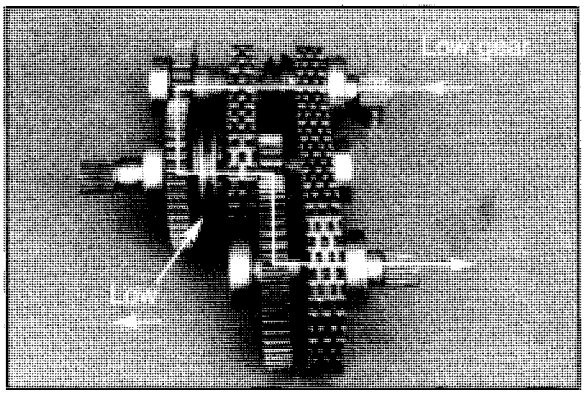


12. Inspect dog gears and slots in mating gears closely. Rounded edges will cause gears to disengage under load. Replace both dog gear and mating gear if edge of dog and/or slot is rounded. Inspect gears for chipped, cracked, or broken teeth.

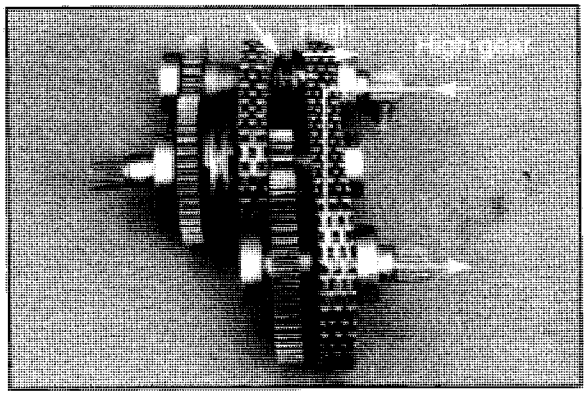
Gear, shaft, and chain cluster assembly shown.



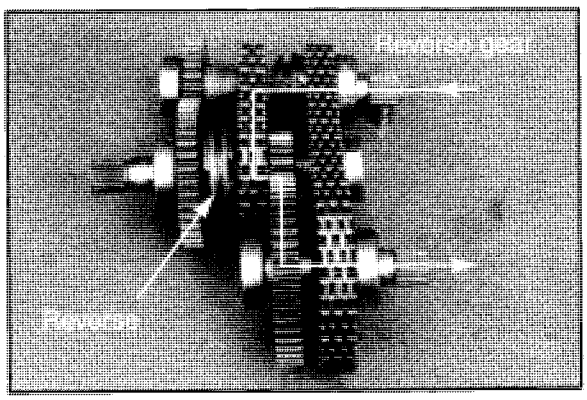
Low gear output power flow...



High gear output power flow...

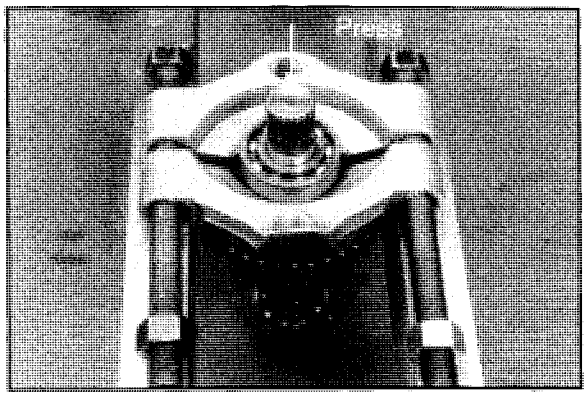


Reverse output power flow...

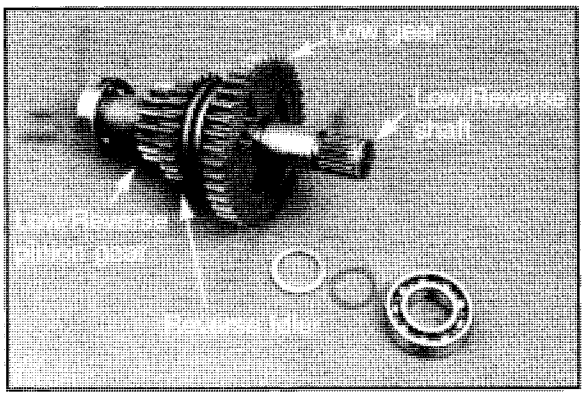


Low / Reverse Shaft Disassembly

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

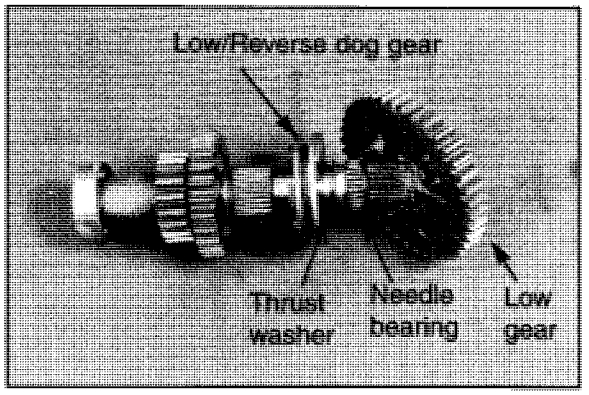


14. Remove snap ring and spacer washer.

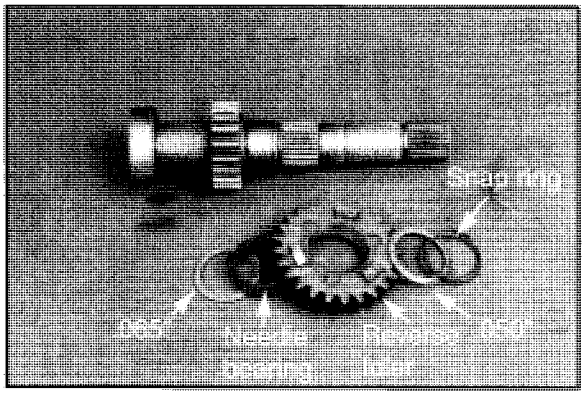


15. Remove low reverse shaft low gear...

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

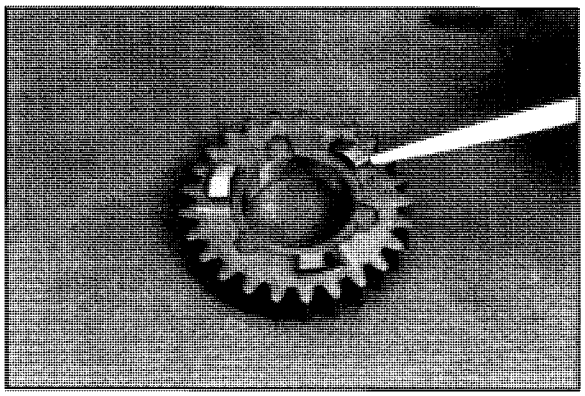


snap ring, thrust washer (.050″), reverse idler, needle bearing, and thrust washer (.065″).



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

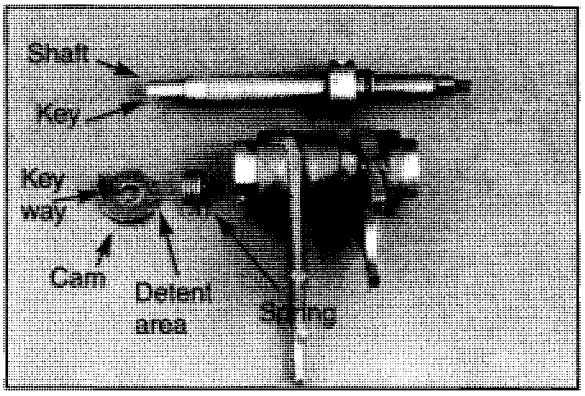
17. Inspect needle bearings for wear or cracks on cage. Shiny spots on cage indicate wear and the bearing should be replaced. Inspect shaft and thrust washers for galling or wear. Always replace snap rings if removed.

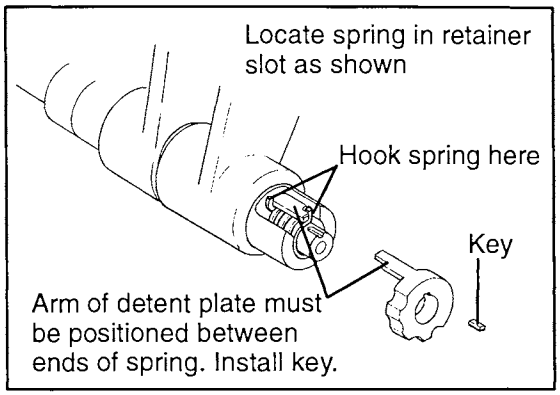


Transmission Disassembly, WideTrak

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.

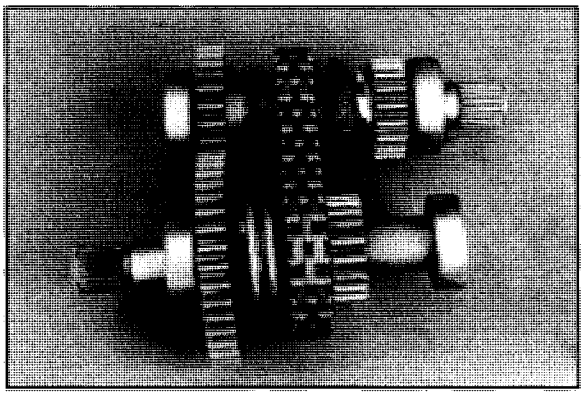


Photo 1

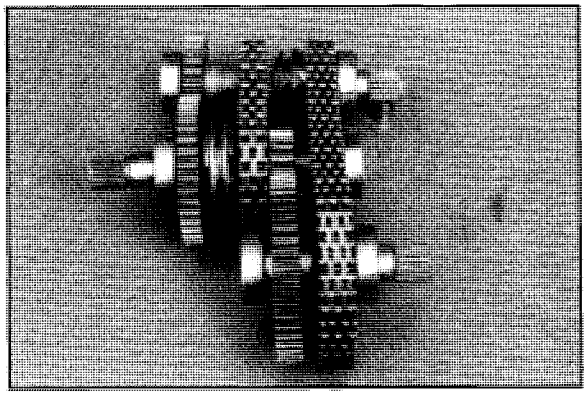
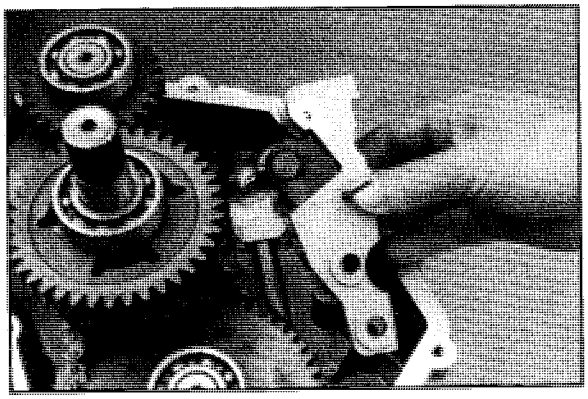


Photo 2

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)

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

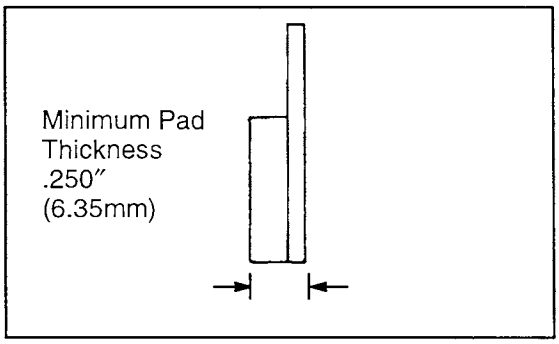
1. Remove brake cable.
2. Remove retaining bolts, making note of location of hex head bolt (with flat washer) and recessed Allen bolt.

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

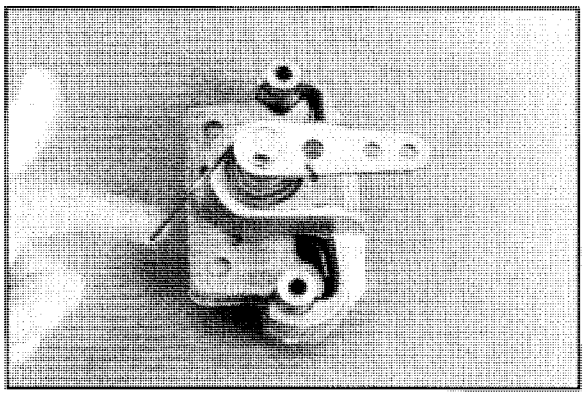
3. Remove upper guide bushing and pads. Remove lower guide bushing. Inspect pads and replace if worn beyond service limit.

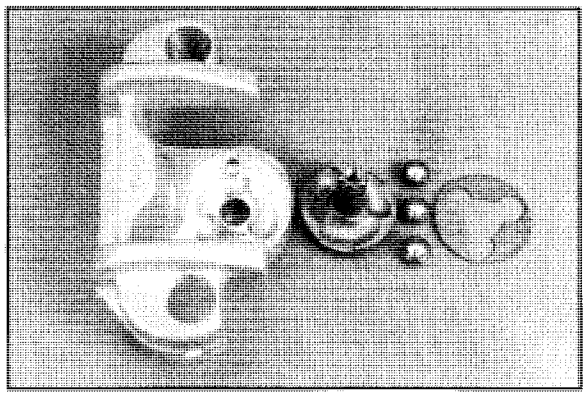
Brake Pad Thickness - Type WT2

Service Limit .250" (6.35mm)



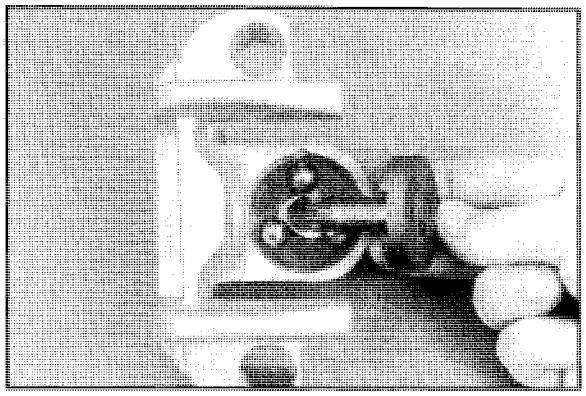
4. With actuating arm facing up, carefully remove tension from the return spring.
5. Remove the arm using care not to lose the balls, ball spacer, or lifter ramp.
6. Inspect balls, ball spacer, lifter ramp and caliper housing for galling or wear. Replace if necessary.



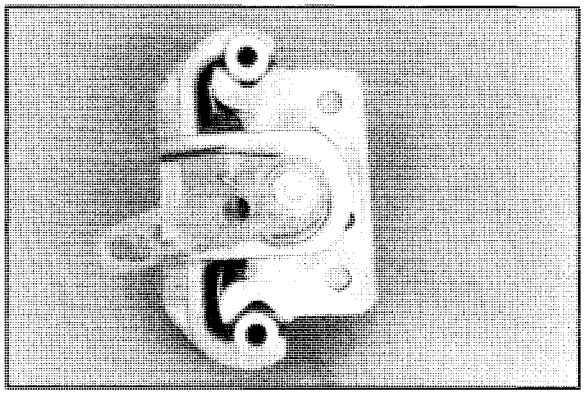


Assembly

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.

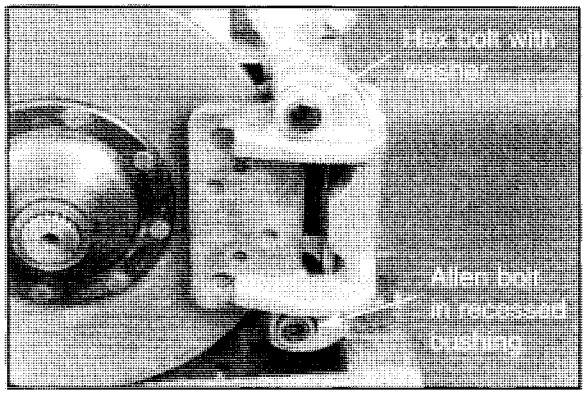


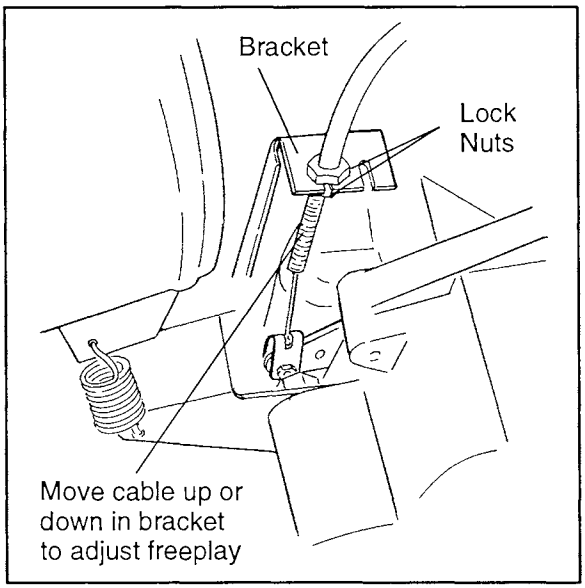
3. Install spring and arm with arm located in 8:00 position as shown in photo at right.
4. Install lower guide bushing and both spring clips. Place pads against lower bushing spring clip and tip into position.
5. Install upper guide bushing.



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.

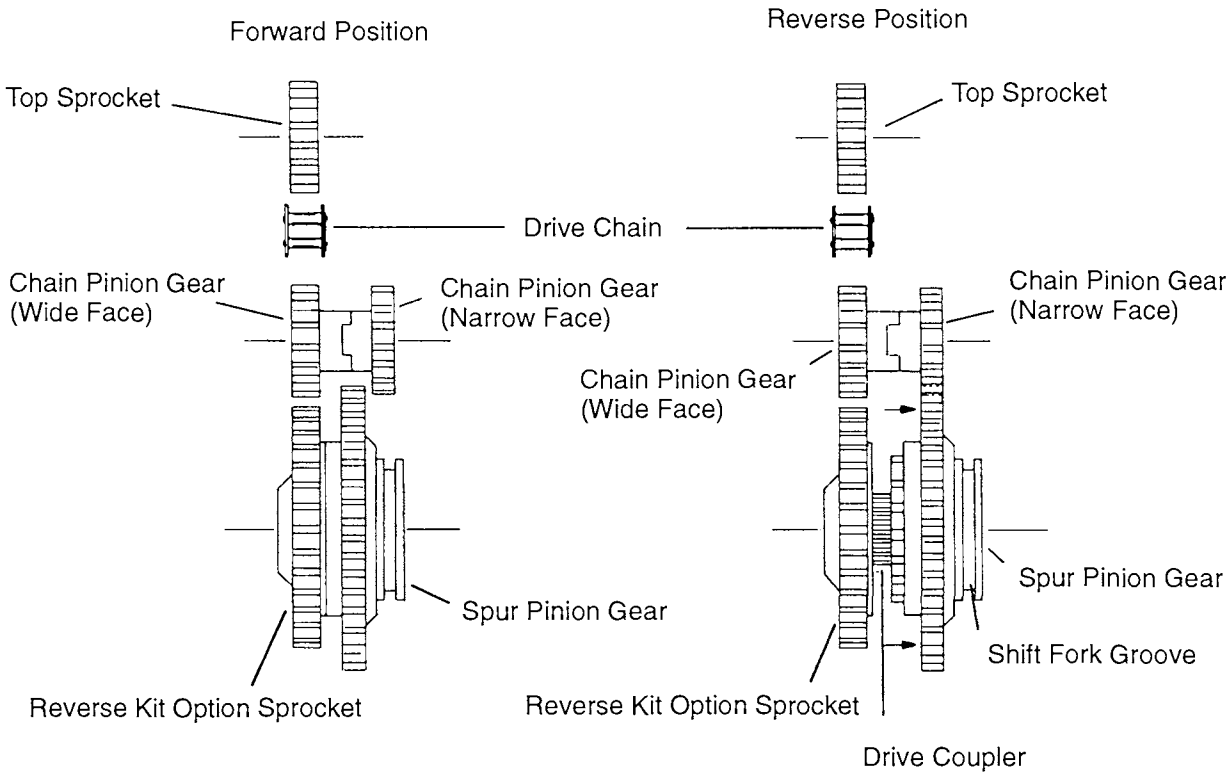




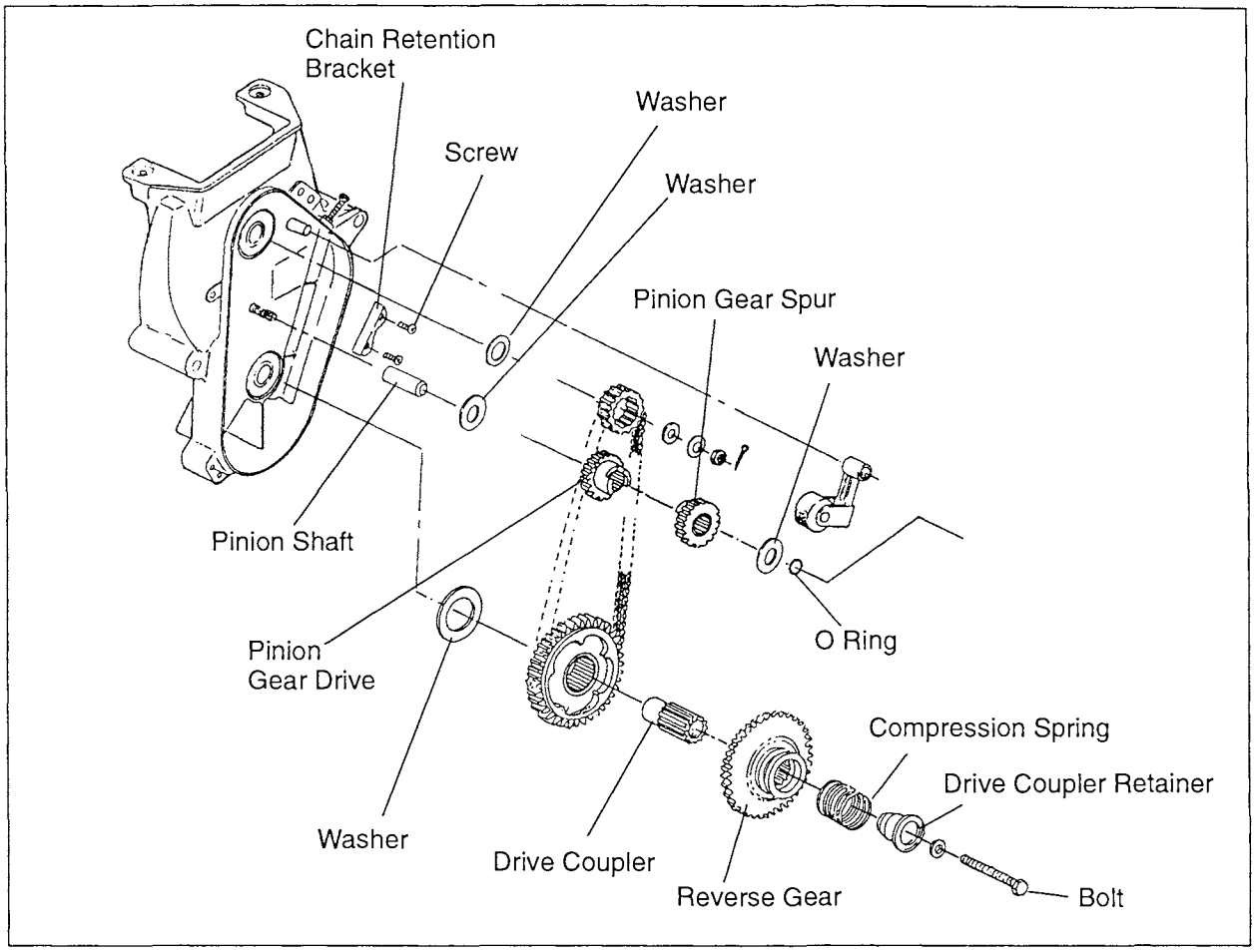
The following illustration indicates sprocket position with the Polaris Reverse Kit in the forward and reverse selection.

Installation Tips (Refer to Illustration on page 8.70)

- 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.



Reverse Kit Maintenance



Chain Tension Adjustment

1. Elevate the rear of machine and support so track is off the floor.
2. Loosen adjuster bolt lock nut.
3. Loosen adjuster bolt slightly (about one turn out).
4. Tighten adjuster to specified torque.

Adjuster Bolt Torque -

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

5. Loosen adjuster bolt 1/2 turn.
6. Hold adjuster bolt in position and tighten locknut securely.

Oil Level

1. Using Polaris chaincase lubricant, maintain proper oil level. Proper level is checked by removing dipstick.
2. Wipe off any metal particles from the dipstick. Small amounts of particles will be common.
3. Add lubricant until the level is in the "safe" zone on the dipstick (11 oz.) Do not mix or use other types of lubricant.

Polaris Synthetic Chaincase Lube

PN 2871477 - Gallon
PN 2871478 - 12 Ounces

Adjustment

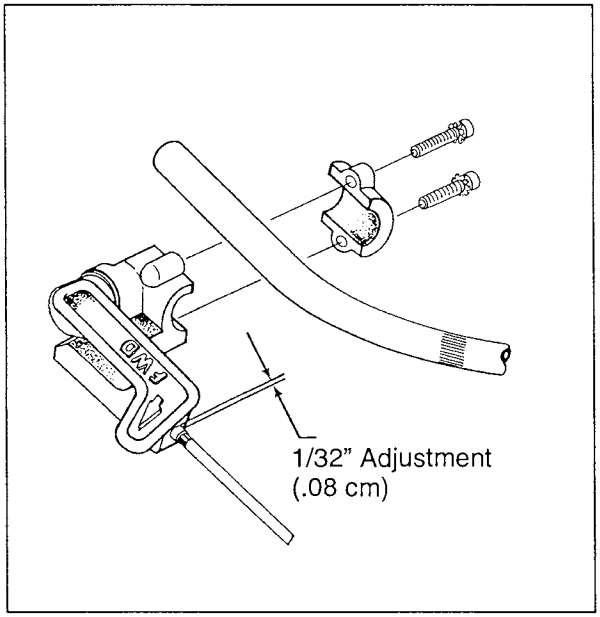
Due to break-in or replacement of components, the reverse shift mechanism may require adjustment. Adjust with the shifter in the forward position.

Indy 340 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)

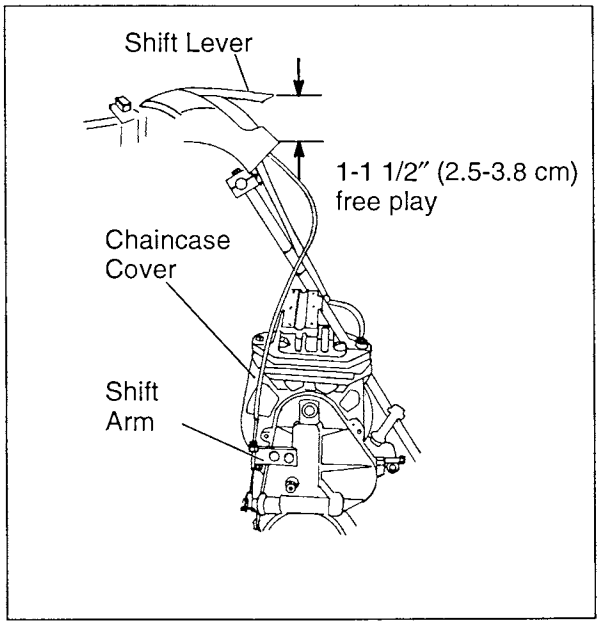


Evolved and Aggressive Style

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.
5. Tighten jam nuts and re-check adjustment.

Reverse Shift Lever Freeplay -

1 - 1 1/2″ (2.5 - 3.8 cm)



Reverse Kit Maintenance - Gen II Style

Oil Change

1. Change annually, prior to off season storage.

Adjustment

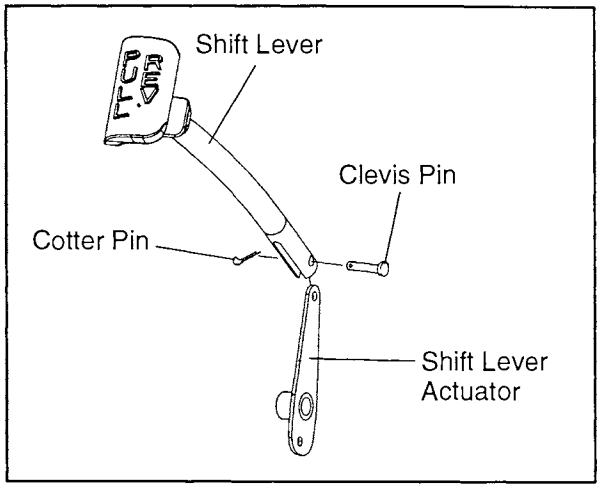
Due to break-in or replacement of components, the reverse shift mechanism may require adjustment. Adjust with the shifter in the forward position.

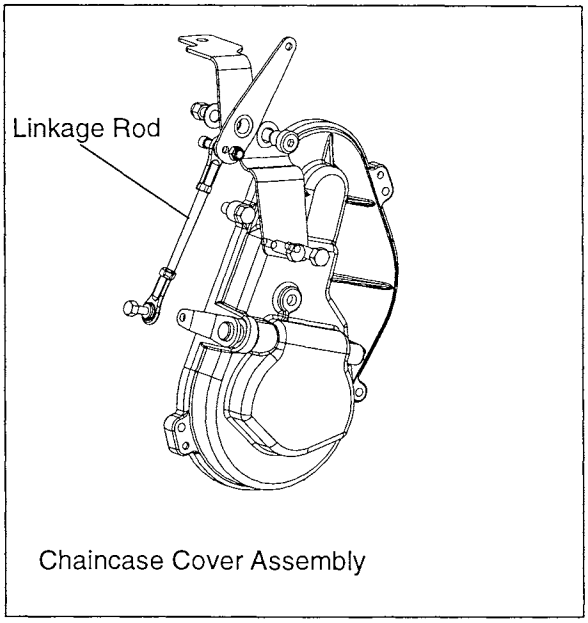
Gen II Style

1. Pull shift lever slowly while observing shift arm on transmission.
2. If adjustment is correct, the sprockets will mesh fully when the lever is pulled and no grinding will occur indicating incomplete engagement. If incomplete engagement is suspected perform the following steps.

1. Move lever to forward position.
2. Loosen jam nuts on linkage rod.
3. Adjust linkage rod until endplay movement is 1/32″ (.08 cm). Do not adjust beyond this point.
4. Tighten jam nuts and re-check adjustment.

Reverse Linkage Rod End Play - 1/32″ (.08 cm)





Chaincase Cover Assembly

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

⚠ 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 8.74 should be used as guidelines in achieving a proper balance of ski and track traction products on Polaris snowmobiles.

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 also increase the amount of ski pressure required for turning. The chart on page 8.74 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/heat exchanger 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; however do not place studs closer than 1″ to the edge of the track window.

Polaris Push-Through Stud and Skag Recommendations

Model	TRACK L&W	LUG HEIGHT	TUNNEL PROTECTOR	STUD SIZE	TRAIL STUD QTY	TRAIL SKAG	AGGR STUD QTY	AGGR SKAG	Performance STUD QTY	Performance SKAG
Indy 340	121 x 15	.66	2871689	0.75	48	B	72	D	96	D
*340 Deluxe	121 x 15	.66	2871689	0.75	48	C	72	N	96	J
Sport	121 x 15	.71	2871911	0.75	48	D	72	D	96	P
*Super Sport	121 x 15	.82	2871544	1	48	C	72	N	96	J
XCF	121 x 15	.82	2871544	1	48	R (COMP)	72	R (COMP)	96	S (COMP)
*Trail	121 x 15	.82	2871544	1	48	N	72	N	96	J
Indy 500	121 x 15	.82	2871544	1	48	D	72	D	120	P
*500 Classic	121 x 15	.82	2871544	1	48	R (COMP)	72	R (COMP)	120	R (COMP)
XLT SP	121 x 15	.82	2871544	1	96	R (COMP)	120	R (COMP)	144	S (COMP)
*XLT Classic	121 x 15	.82	2871544	1	96	R (COMP)	120	R (COMP)	144	S (COMP)
500 XC	121 x 15	.82	std(coolers)	1	96	R (COMP)	120	R (COMP)	144	S (COMP)
500 XC SP	121 x 15	.82	std(coolers)	1	96	R (COMP)	120	R (COMP)	144	S (COMP)
600 XC	121 x 15	.91	std(coolers)	1.075	96	R (COMP)	120	S (COMP)	144	S (COMP)
600 XC SP	121 x 15	.91	std(coolers)	1.075	96	R (COMP)	120	S (COMP)	144	S (COMP)
700 XC	121 x 15	.91	std(coolers)	1.075	96	R (COMP)	120	S (COMP)	144	S (COMP)
700 XC SP	121 x 15	.91	std(coolers)	1.075	96	R (COMP)	120	S (COMP)	144	S (COMP)
440 XCR	121 x 15	.82	std(coolers)	1	96	R (COMP)	120	S (COMP)	144	S (COMP)
700 XCR	121 x 15	.91	std	1.075	96	R (COMP)	120	S (COMP)	144	S (COMP)
800 XCR	121 x 15	.91	std	1.075	96	R (COMP)	120	S (COMP)	144	S (COMP)
340 Touring	133.5 x 15	.82	2871543	1	53	D	80	D	106	P
Sport Touring	133.5 x 15	.82	2871541	1	53	D	80	D	106	P
*Trail Touring	133.5 x 15	.82	2871541	1	53	N	80	N	106	J
*Classic Touring	133.5 x 15	.82	2871541	1	53	R (COMP)	80	R (COMP)	106	S (COMP)
*XLT Touring	133.5 x 15	.82	2871541	1	80	R (COMP)	106	R (COMP)	132	S (COMP)
*700 SKS	136 x 15	1.25	N/A	N/A	N/A	R (COMP)	N/A	R (COMP)	N/A	S (COMP)
Trail RMK	136 x 15	1.25	N/A	N/A	N/A	R (COMP)	N/A	R (COMP)	N/A	S (COMP)
500 RMK	133.5 x 15	1.25	N/A	N/A	N/A	R (COMP)	N/A	R (COMP)	N/A	S (COMP)
600 RMK	136 x 15	1.75	N/A	N/A	N/A	R (COMP)	N/A	R (COMP)	N/A	S (COMP)
600 RMK Opt 2	136 x 15	2.0	N/A	N/A	N/A	R (COMP)	N/A	R (COMP)	N/A	S (COMP)
700 RMK	136 x 15	1.75	N/A	N/A	N/A	R (COMP)	N/A	R (COMP)	N/A	S (COMP)
700 RMK Opt 2	136 x 15	2.0	N/A	N/A	N/A	R (COMP)	N/A	R (COMP)	N/A	S (COMP)
Transport	141 x 15	1.125	N/A	N/A	N/A	D or M	N/A	N/A	N/A	N/A
*WideTrak LX	156 x 20	1.0	STD	N/A	N/A	J or P	N/A	N/A	N/A	N/A
*EZ Steer skag										

Polaris Push-Through Stud and Skag Recommendations

B 7/16 x 3″ 120°, 2870693

C 7/16 x 3″ 120° EZ, 2870997

D 7/16 x 4″ 60°, 2871288

J 7/16 x 6″ 60° EZ, 2871416

N 7/16 x 4″ 60° EZ, 2871603

P 1/2 x 6″ 60°, 2871601

1/2 x 8″ 60°, 2871602

Stud Kits

See Accessory Order Forms for Stud Kits

Polaris Composite Ski

R 7/16 x 4″ 60°, 2871688

S 1/2 x 6″ 60°, 2871687

Wear Strip Kits**

2871911	1 piece tunnel Sport 1.05
2871540	1 piece tunnel SKS .625
2871541	1 piece tunnel SKS .75
2871544	121″ .75
2871542	2 piece tunnel SKS .625
2871543	2 piece tunnel SKS .75
2871545	121″ .625
2871689	.75 Indy 340

* 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.