

CHAPTER 7

TORQUE-O-MATIC DRIVE

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TORQUE-O-MATIC DRIVE Drive Belt Part Numbers and Applications

- 3211042 All Indys except Indy Sports, Indy Lites, Star 1985-1990, Star Trak 1987-1990, LongTrak 1985-1989
- 3211045 Close tolerance version of 3211042
- 3211046 Sport and Sport GT 1987-1991 with P85 Clutch
- 3211051 Lite 1991-1992
- 3211052 Sport, Sport GT, and StarLite Pilot Build 1990 with P90 Clutch
- 3211054 Sport, Sport GT 1991-1992
- 3211055 StarLite 1991-1992
- 3211053 Lite GT 1992
- 3211058 Lite, Lite GT 1993-1995
- 3211060 StarLite 1993-1995
- 3211057 Storm 1993-1995

TORQUE-O-MATIC DRIVE
P-85 Drive Clutch Information

1972 - 79 Models

MODEL	SERVICE CLUTCH NO.	BASIC NO.
ALL MODELS	1321471	20

1980 Models

MODEL	SERVICE CLUTCH NO.	BASIC NO.
GEMINI 250	1321471	20
APOLLO 340	1321471	20
GALAXY 340	1321471	20
GALAXY 440	1321471	20
TX/TX-C 340	1321471	20
TX 440	1321471	20
TX-L 340	1321471	20
CENTURION 500	1321471	20
TX-L INDY 340	1321470	19

1981 Models

MODEL	SERVICE CLUTCH NO.	BASIC NO.
GEMINI 250	1321471	20
GALAXY 440	1321471	20
CUTLASS 340	1321471	20
CUTLASS SS 340	1321440	13
TX-C 440	1321470	19
TX-L 340	1321470	19
CENTURION INDY 500	1321471	20

1982 Models

MODEL	SERVICE CLUTCH NO.	BASIC NO.
GEMINI 250	1321471	20
CUTLASS SS 440	1321440	13
TX-C 440	1321470	19
TX-L 340	1321470	19
TX-L INDY	1321470	19
CENTURION	1321471	20

1983 Models

MODEL	SERVICE CLUTCH NO.	BASIC NO.
GEMINI 250	1321471	20
STAR 250	1321471	20
SPORT 440	1321440	13
SS 440	1321440	13
TRAIL 440	1321440	13
INDY CC 340	1321470	19
600	1321471	21
LONG TRACK 440	1321440	13

1984 Models

MODEL	SERVICE CLUTCH NO.	BASIC NO.
STAR 250	1321471	20
SS 440	1321463	17
TRAIL 440	1321463	17
600	1321480	21
STAR 250/LT	1321471	20
LONG TRACK 440	1321440	13
400	1321440	13

**TORQUE-O-MATIC DRIVE
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1985 Models

MODEL	SERVICE CLUTCH NO.	BASIC NO.
STAR 250	1321440	13
SS 440	1321463	17
TRAIL 440	1321463	17
400	1321481	22
600	1321480	21
LONG TRACK 440	1321440	13

1986 Models

MODEL	SERVICE CLUTCH NO.	BASIC NO.
STAR	1321440	13
SPRINT	1321493	23
SS 440	1321463	17
TRAIL 488	1321463	17
400	1321481	22
600	1321480	21
600 LE	1321480	21
LONG TRACK 440	1321440	13

1987 Models

MODEL	SERVICE CLUTCH NO.	BASIC NO.
STAR	1321440	13
STAR TRAK	1321440	13
SPRINT	1321493	23
SPRINT ES	1321493	23
SPORT	1321463	17
TRAIL	1321463	17
TRAIL (ES)	1321463	17
TRAIL 133 SKS	1321463	17
400	1321515	25
400 133 SKS	1321515	25
600	1321480	21
LONG TRAK REV 440	1321440	13

1988 Models

MODEL	SERVICE CLUTCH NO.	BASIC NO.
STAR	1321440	13
STAR TRAK	1321440	13
SPRINT ES	1321493	23
SPORT	1321463	17
TRAIL & TRAIL DELUXE (ES)	1321463	17
TRAIL (ES)	1321463	17
TRAIL SKS	1321463	17
400	1321515	25
400 SKS	1321515	25
CLASSIC	1321516	26
650	1321480	21
650 SKS	1321480	21
LONG TRACK REV 440	1321440	13

TORQUE-O-MATIC DRIVE
P-85 Drive Clutch Information

1989 Models

MODEL	SERVICE CLUTCH NO.	BASIC NO.
STAR	1321440	13
STAR TRAK	1321440	13
SPRINT ES	1321493	23
LONG TRAK REV 440	1321440	13
SPORT	1321463	17
SPORT GT	1321463	17
TRAIL & TRAIL DELUXE (ES)	1321463	17
TRAIL (ES)	1321463	17
TRAIL SKS	1321463	17
TRAIL SP	1321463	17
400	1321481	22
500	1321515	25
500 SKS	1321515	25
500 CLASSIC (ES)	1321516	26
500 SP	1321515	25
650	1321480	21
650 SKS	1321480	21

1990 Models

MODEL	SERVICE CLUTCH NO.	BASIC NO.
STAR	1321463	17
STAR TRAK	1321463	17
SPRINT ES	1321493	23
SPORT	1321463	17
SPORT (P-90 BASIC)	1321512	24
SPORT GT	1321463	17
SPORT GT (P-90)	1321512	24
TRAIL & TRAIL DELUXE (ES)	1321463	17
SUPERTRAK	1321463	17
400	1321481	22
500	1321515	25
500 SKS	1321515	25
500 CLASSIC (ES)	1321516	26
500 SP	1321515	25
WIDETRAK	1321463	17
650	1321480	21
650 SKS	1321480	21

TORQUE-O-MATIC DRIVE
P-85 Drive Clutch Information

1991 Models

MODEL	SERVICE CLUTCH NO.	BASIC NO.
STARLITE	1321538	27
LITE	1321538	27
SPORT & SPORT GT	1321512	24
TRAIL & TRAIL DELUXE (ES)	1321463	17
SUPERTRAK	1321463	17
LITE GT	1321512	24
400 XC	1321481	29
400	1321481	22
500	1321515	25
500 SKS	1321515	25
500 SP	1321515	25
500 CLASSIC (ES)	1321516	26
WIDETRAK	1321463	17
650	1321480	21
RXL	1321480	21

1992 Models

MODEL	SERVICE CLUTCH NO.	BASIC NO.
STARLITE	1321538	27
LITE & LITE DELUXE	1321538	27
LITE GT	1321512	24
SPORT & SPORT GT	1321512	24
TRAIL & TRAIL DELUXE	1321548	28
WIDETRAK & SUPERTRAK	1321548	28
440	1321549	29
440 XCR	1321549	29
500	1321549	29
500 SKS	1321549	29
500 SP	1321549	29
CLASSIC (ES)	1321550	30
650	1321551	31
RXL	1321551	31
RXL SKS	1321551	31

TORQUE-O-MATIC DRIVE
P-85 Drive Clutch Information
1993 Models

MODEL	SERVICE CLUTCH NO.	BASIC NO.
STARLITE	1321538	27
STARLITE GT	1321538	27
INDY LITE	1321538	27
INDY LITE DELUXE	1321538	27
LITE GT	1321538	27
SPORT	1321538	27
TRAIL DELUXE	1321538	27
TRAIL	1321573	34
WIDETRAK	1321573	34
440 LIQUID INDY	1321576	36
440 LIQUID SKS	1321576	36
440 XCR	1321576	36
CLASSIC TOURING	1321575	35
CLASSIC	1321576	36
500 EFI	1321576	36
500 SKS	1321576	36
XLT	1321577	37
XLT SKS	1321577	37
XLT SP	1321577	37
RXL	1321578	38
RXL SKS	1321578	38
STORM	1321590	41
STORM SKS	1321590	41
XLT (ELECTRIC START)	1321582	40

1994 Models

MODEL	SERVICE CLUTCH NO.	BASIC NO.
STARLITE	1321596	42
STARLITE GT	1321596	42
INDY LITE	1321596	42
INDY LITE DELUXE	1321596	42
LITE GT	1321596	42
SPORT	1321596	42
SUPER SPORT	1321596	42
TRAIL DELUXE	1321597	43
TRAIL	1321597	43
WIDETRAK LX	1321597	43
440 LIQUID INDY	1321576	36
440 LIQUID SKS	1321576	36
CLASSIC TOURING	1321609	44
CLASSIC	1321609	44
500 EFI	1321576	44
500 SKS	1321576	44
XLT	1321577	37
XLT SKS	1321577	37
XLT SP	1321577	37
RXL	1321578	38
STORM	1321623	48
STORM SKS	1321623	48
RXL TOURING	1321610	45
SPORT SKS	1321596	42
WIDETRAK GT	1321597	43
440 XCR	1321576	36

**TORQUE-O-MATIC DRIVE
P-85 Drive Clutch Information**

1995 Models

MODEL	SERVICE CLUTCH NO.	BASIC NO.
STARLITE	1321596	42
INDY LITE	1321596	42
INDY LITE DELUXE	1321596	42
LITE GT	1321596	42
SPORT	1321596	42
SPORT TOURING	1321596	42
SUPER SPORT	1321596	42
TRAIL DELUXE	1321597	43
TRAIL	1321611	46
440 LIQUID INDY	1321576	36
440 LIQUID SKS	1321576	36
440 XCR	1321634	50
WIDETRAK LX	1321597	43
WIDETRAK GT	1321597	43
CLASSIC	1321609	44
500 CARB	1321609	44
500 EFI	1321576	36
500 EFI SKS/PT	1321576	36
XLT TOURING	1321609	44
XLT	1321577	37
XLT SKS/PT	1321577	37
XLT SP	1321577	37
RXL LT	1321627	49
RXL TOURING	1321610	45
STORM	1321623	48
STORM SKS/PT	1321623	48

TORQUE-O-MATIC DRIVE

Service Tools

⚠ WARNING: All drive clutch maintenance, disassembly and assembly must be performed only by an authorized Polaris dealer who has attended current model Dealer Service Seminars; has received a certificate of completion and displays the Polaris Servicing Dealer decal.

Because of the critical nature and precision balance incorporated into the drive clutch, it is absolutely essential that no attempt at clutch disassembly and/or repair be made without factory authorized tools and service procedures.

Drive Clutch Essential Tools

<u>Description</u>	<u>Part Number</u>
Offset Alignment Tool - 21/32" (1.7 cm) P-90 Clutches	2870914
Offset Alignment Tool - 5/8" (1.6 cm) P-85 Clutches	2870426
"T" Handle Clutch Puller	2870506
Strap Wrench	2870336
Strap Replacement	2870389
Spider Spanner Nut Driver	2870338
Spider Torquing Tool	2870341
Holding Fixture Tab	5130518
Holding Fixture	2870547
Torque Wrench, 250 ft. lb.	Not available through Polaris
Clutch Lubricant	2870510
Torque Wrench, 0-600 in. lb.	Not available through Polaris
Tapered Reamer	2870576
Spider Button Tool	2870985
Clutch Bushing Rebuild Tool Kit	2871025
P-85 Compression Tool	2870984
Driven Clutch Puller	2871056

TORQUE-O-MATIC DRIVE Operation

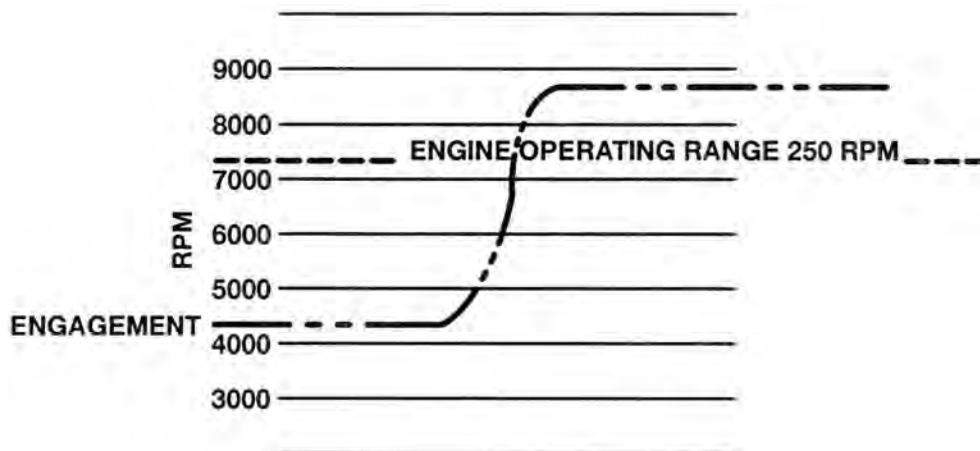
The Polaris torque-o-matic drive system is a centrifugally actuated variable speed belt drive unit. The drive clutch, driven clutch, and belt make up the torque converter system. Each clutch comes from the factory with the proper internal components installed for its specific engine model. Therefore, modifications or variations of components at random are never recommended. Proper converter setup and adjustments of existing components must be the primary objective in converter operation diagnosis.

⚠ CAUTION: All converter maintenance repairs must be performed only by an authorized Polaris service technician who has attended a Polaris sponsored service training seminar and understands the proper procedures as outlined in this manual. Because of the critical nature and precision balance incorporated into the drive clutch, it is absolutely essential that no attempt at clutch disassembly and/or repair be made without factory authorized special tools and service procedures. Any unauthorized modifications to clutches, such as adding or removing weights, will void the warranty.

Relationship Between Drive Clutch Weights And Spring In Maintaining Operating RPM

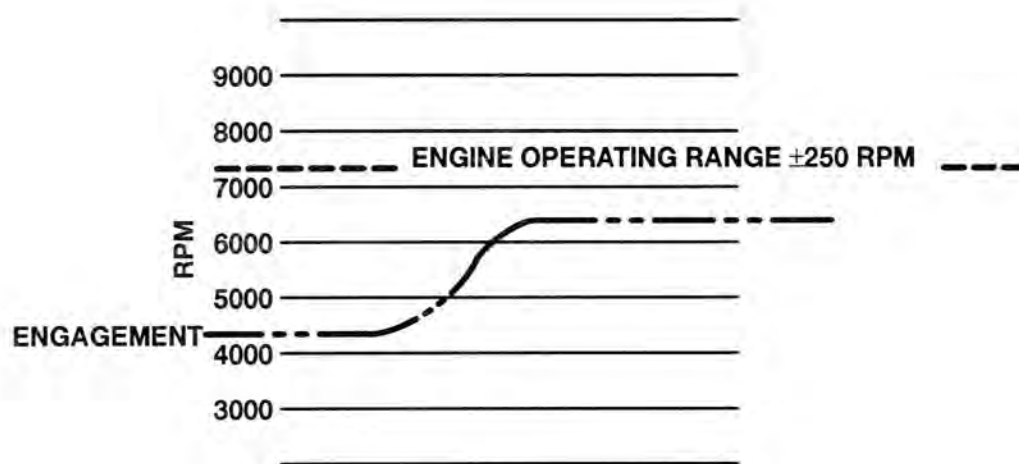
The drive clutch is an RPM and torque sensing unit designed to transfer the maximum amount of horsepower from the engine to the ground. This is accomplished by weights and a spring inside the unit which react to the centrifugal force from the engine RPM.

The spring and weights work in combination. In a properly set up clutch, the maximum desired operating RPM will be reached immediately after clutch engagement, under full throttle conditions. To gain optimum power this RPM should be maintained. As centrifugal force pushes the weights against the rollers, the moveable sheave will force the belt to climb up the drive clutch sheave and increase vehicle speed.

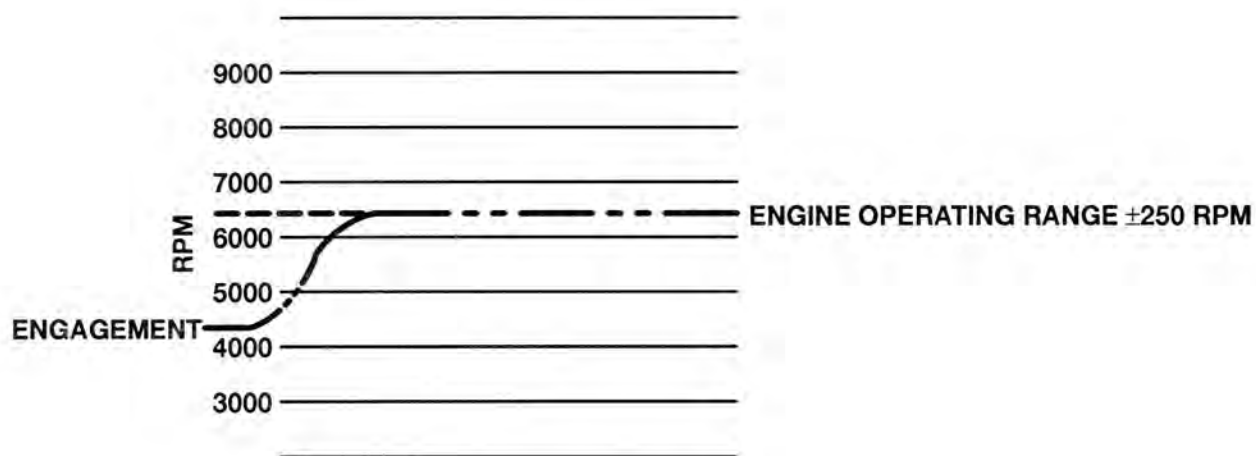


If the weights are too light, or the spring rate too high, the maximum RPM will be too great and the drive belt will not move into high gear at the top of the clutch.

TORQUE-O-MATIC DRIVE Operation



If the weights are too heavy, or spring rate too low, the engine RPM will be low and the drive clutch will upshift too fast, keeping the engine out of its power band.



If the weights and spring are matched properly, the engine RPM will go to the desired range and remain there on both upshift and backshift.

TORQUE-O-MATIC DRIVE Driven Clutch Operation

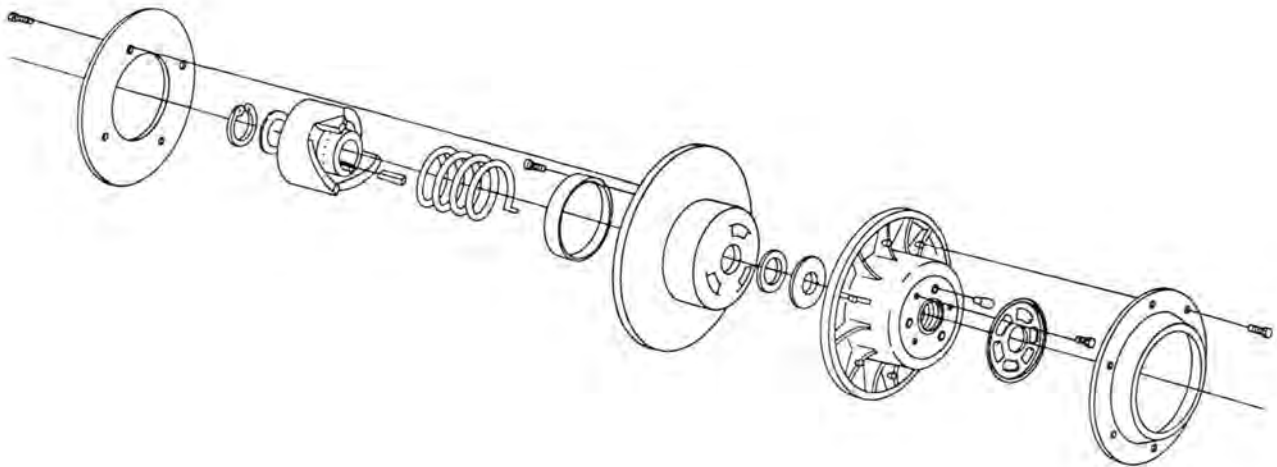
The driven clutch operates in conjunction with the drive clutch. Its function is to maintain drive belt tension, preventing slippage and to sense variations in load requirements necessary to maintain optimum engine torque output and load requirements from the track. Output torque is transmitted through the chaincase jackshaft and chaincase to the front drive shaft and track.

When the load on the driven clutch is increased and becomes greater than the torque delivered from the engine, the driven clutch becomes dominant and overrides the drive clutch. The driven clutch downshifts into a ratio which will supply the amount of torque needed for the increased load.

Because the driven clutch can sense and shift into the proper ratio, engine RPM will remain within the specified range.

Driven Clutch Adjustments

The aluminum driven clutch has a provision for varying the torque requirement to change its ratio. To do this, it relocates the spring in the helix which in turn increases or decreases the amount of load required to change the ratio.



Aluminum Driven Clutch

TORQUE-O-MATIC DRIVE

Data

1985 PRODUCTION SETUP									
Machine Model	Engine Model	Operating RPM $\pm$ 200	Production Clutch Part No.	Spring Color, Wire Dia.	Shift Wt. I.D./Gram	Bore Taper Diameter	Clutch Center Distance	Driven Helix Angle	Gearing Chain Pitch/Type
Star	EC25PS-06	6300	1321449	Brown .200"	08/47.5	1.174"	12.0"	36°	Direct Drive
SS	EC44-2PM-3100	6000	1321450	White .177"	07/52.0	1.174"	11.5"	36°	Direct Drive
Trail	EC44-2PM-2100	6800	1321455	Brown .200"	N-1 Mod. 51.5	1.174"	12.0"	34°	19/35 64P Silent
400	EC40PL-02	7800	1321459	Gold .207"	N-1 Mod. 51.5	1.174"	12.0"	34°	19/35
600	EC60PL-02	7800	1321458	Gold .207"	05/53.5	1.177"	12.0"	34°	19/35 63P Silent
LongTrak	EC44-2PM-5000	6300	1321454	Yellow .192"	04/57.5	1.174"	12.0"	36°	19/39 64P Silent

1985 HIGH ELEVATION RECOMMENDATIONS									
Machine Model	5000 Feet to 8000 Feet				8000 Feet to 12000 Feet				
	Shift Weight	Clutch Spring	Driven Helix	Chaincase Gearing	Shift Weight	Clutch Spring	Driven Helix	Chaincase Gearing	Options-Non-Warranty
Star	08	Brown	36°	*****	08	Red/White	36°	*****	*****
SS	07	Orange	36°	*****	07	Orange	36°	*****	6 Tooth Front Sprocket
Indy Trail	N-1 Mod.	Gold	34°	19/35	N-1 Mod.	Gold	34°	19/35	*****
Indy 400	P-1	Red	34°	19/35	P-1	Red	34°	19/35	*****
600	06	Blue	34°	21/35	06	Blue	34°	19/35	*****
LongTrak	04	Orange	36°	19/39	04	Silver	36°	19/39	*****

TORQUE-O-MATIC DRIVE Data

1986 PRODUCTION SETUP									
Machine Model	Engine Model	Operating RPM $\pm$ 200	Production Clutch Part No.	Spring Color, Wire Dia.	Shift Wt. I.D./Gram	Bore Taper Diameter	Clutch Center Distance	Driven Helix Angle	Gearing Chain Pitch/Type
Star	EC25PS-06	6300	1321449	Brown .200	08/47.5	1.174	12.0"	36°	Direct Drive
Sprint & Sprint ES	EC34-2PM-01/02	6500	1321451 1321456	Brown .207	05/53.5	1.174	11.5"	36°	Direct Drive
SS	EC44-2PM-3100	6000	1321450	White .177	07/52.0	1.174	11.5"	36°	Direct Drive
Trail	EC50PM-01	7000	1321461	Red/White .192	10/51.5	1.174	12.0"	36°	21/35
Indy 400	EC40PL-02	7700	1321459	Blue .207	10/Mod. 50.0	1.174	12.0"	34°	19/35
600, 600 LE	EC60PL-02	7800	1321458	Blue/Gold .207	15/55.5	1.177	12.0"	34°	21/35
LongTrak	EC44-2PM-5100	6000	1321454	Yellow .192	04/57.5	1.174	12.0"	36°	19/39

1986 HIGH ELEVATION RECOMMENDATIONS								
Machine Model	5000 Feet to 8000 Feet				8000 Feet to 12000 Feet			
	Shift Weight	Clutch Spring	Driven Helix	Chaincase Gearing	Shift Weight	Clutch Spring	Driven Helix	Chaincase Gearing
Star	08	Red/White	36°	*****	08	Red/White	36°	
Sprint & Sprint ES	05	Blue/Gold	36°	*****	06	Blue/Gold	36°	*****
SS	07	Orange	36°	*****	06	Red/White	36°	*****
Indy Trail	M-1 Mod.	Orange	36°	21/35	M-1 Mod.	Red/White	36°	21/35
Indy 400	M-1 Mod.	Gold	34°	19/35	P-1 or M-1 Mod.	Red or Blue/Gold	34°	19/35
600, 600 LE	06	Blue/Gold	34°	21/35	06	Blue/Gold	34°	21/35
LongTrak	04	Orange	36°	19/39	04	Silver	36°	19/39

TORQUE-O-MATIC DRIVE

Data

1987 PRODUCTION SETUP									
Machine Model	Engine Model	Operating RPM $\pm$ 200	Production Clutch Part No.	Spring Color, Wire Dia.	Shift Wt. I.D./Gram	Bore Taper Diameter	Clutch Center Distance	Driven Helix Angle	Gearing Chain Pitch/Type
Star StarTrak	EC25PS-06	6300	1321449	Brown .200	08/47.5	1.174	12.0"	36°	Direct Drive 15/39
Sprint & Sprint ES	EC34-2PM-01/02	6500	1321451 1321456	Gold .207	05/53.5	1.174	11.5"	36°	Direct Drive
Indy Sport	EC34-2PM-03	6500	1321461	Red/White .192	10/51.7	1.174	11.5"	34°	17/35
Trail (All)	EC50PM-01	7000	1321477	Red/White .192	10/51.7	1.174	12.0"	36°	21/35
Indy 400	EC40PL-02	7700	1321459	Blue/Gold .207	10/M 49.5	1.174	12.0"	34°	19/35
600	EC60PL-02	7800	1321458	Blue/Gold .207	10/A 55.0	1.177	12.0"	34°	21/35
LongTrak (RLR)	EC44-2PM-5100	6000	1321454	Yellow .192	04/57.5	1.174	12.0"	36°	19/39

1987 HIGH ELEVATION RECOMMENDATIONS								
Machine Model	5000 Feet to 8000 Feet				8000 Feet to 12000 Feet			
	Shift Weight	Clutch Spring	Driven Helix	Chaincase Gearing	Shift Weight	Clutch Spring	Driven Helix	Chaincase Gearing
Star Star Trak	08	Red/White	36°	*****	08	Red/White	36°	D. Drive 15/39
Sprint & Sprint ES	05	Blue/Gold	36°	*****	06	Blue/Gold	36°	*****
Indy Sport	10	Gold	34°	17/35	10	Blue/Gold	34°	17/35
Indy Trail (All)	M-1 Mod.	Orange	36°	21/35	M-1 Mod.	Red/White	36°	21/35
Indy 400	M-1 Mod.	Gold	34°	19/35	P-1 or M-1 Mod.	Red or Blue/Gold	34°	19/35
600	06	Blue/Gold	34°	21/35	06	Blue/Gold	34°	21/35
LongTrak (RLR)	04	Orange	36°	19/39	04	Silver	36°	19/39

TORQUE-O-MATIC DRIVE Data

1988 PRODUCTION SETUP									
Machine Model	Engine Model	Operating RPM $\pm$ 200	Production Clutch Part No.	Spring Color, Wire Dia.	Shift Wt. I.D./Gram	Bore Taper Diameter	Clutch Center Distance	Driven Helix Angle	Gearing Chain Pitch/Type
Star StarTrak	EC25PS-06	6300	1321449	Brown .200	08/47.5	1.174	12.0"	36°	Direct Drive 15/39
Sprint ES	EC34-2PM-02	6500	1321456	Gold .207	05/53.5	1.174	11.5"	36°	Direct Drive
Indy Sport	EC34-2PM-03	6500	1321461	Red/White .192	10/51.7	1.174	11.5"	34°	17/35
Trail (All) Trail SKS	EC50PM-01	7000	1321461	Red/White .192	10/51.7	1.174	12.0"	36°	21/35 19/35
400 Classic Indy 400 400 SKS	EC40PL-02/03	8000	1321485 1321459 1321459	Blue .207	10M Blue/47.5	1.174	12.0"	34°	19/35 19/35 18/35
650 650 SKS	EC65PL-01	7800	1321458	Gold .207	10/A 55.0	1.177	12.0"	34°	21/35 19/35
LongTrak (RLR)	EC44-2PM-4100	6300	1321478	Silver .208	10A 55.0	1.174	12.0"	36°	19/39

1988 HIGH ELEVATION RECOMMENDATIONS								
Machine Model	5000 Feet to 8000 Feet				8000 Feet to 12000 Feet			
	Shift Weight	Clutch Spring	Driven Helix	Chaincase Gearing	Shift Weight	Clutch Spring	Driven Helix	Chaincase Gearing
Star Star Trak	08	Red/White	36°	***** 15/39	08	Red/White	36°	***** 15/39
Sprint ES	05	Blue	36°	*****	06	Blue	36°	*****
Indy Sport	10	Gold	34°	17/35	10	Blue	34°	17/35
Indy Trail (All) Trail SKS	M-1 Mod or 10M	Orange Red/White	36°	21/35 19/35	10M Red	Red/White	36°	21/35 19/35
400 Classic Indy 400 400 SKS	10M Red	Blue	34°	19/35 19/35 19/35	10M Red	Blue	34°	19/35 19/35 19/35
650 650 SKS	10M Blue	Red	34°	21/35 19/35	10M White	Blue	34°	21/35 19/35
LongTrak (RLR)	10	Silver	36°	19/39	10	Silver	36°	19/39

TORQUE-O-MATIC DRIVE

Data

1989 PRODUCTION SETUP									
Machine Model	Engine Model	Operating RPM $\pm$ 200	Production Clutch Part No.	Spring Color, Wire Dia.	Shift Wt. I.D./Gram	Bore Taper Diameter	Clutch Center Distance	Driven Helix Angle	Gearing Chain Pitch/Type
Star StarTrak	EC25PS-06	6300	1321449	Brown .200	08/47.5	1.174	12.0"	36°	Direct Drive 15/39
Sprint ES	EC34-2PM-02	6500	1321493	Brown .207	05/53.5	1.174	11.5"	36°	Direct Drive
Indy Sport, GT	EC34-2PM-03	6500	1321461	Red/White .192	10/51.7	1.174	11.5"	34°	17/35
Indy Trail Super Trak	EC50PM-03	6600	1321461	Brown .200	10/51.7	1.174	12.0"	36°	21/39
Trail (All) Trail SKS	EC50PM-01/02	7000	1321461	Red/White .192	10/51.7	1.174	12.0"	36°	21/35 19/35
Indy 400	EC40PL-02	8000	1321459	Blue 47.5	10M Blue/47.5	1.174	12.0"	34°	19/35
Indy 500 SKS Classic	EC50PL-01/02	7800	1321459 1321459 1321493	Silver .208	10M	1.174	12.0"	36°	19/35 18/35 19/35
650 650 SKS	EC65PL-01	7800	1321458	Gold .207	10/A 55.0	1.177	12.0"	34°	21/35 19/35
LongTrak (RLR)	EC44-2PM-4100	6300	1321478	Silver .208	10A 55.0	1.174	12.0"	36°	19/39

1989 HIGH ELEVATION RECOMMENDATIONS								
Machine Model	5000 Feet to 8000 Feet				8000 Feet to 12000 Feet			
	Shift Weight	Clutch Spring	Driven Helix	Chaincase Gearing	Shift Weight	Clutch Spring	Driven Helix	Chaincase Gearing
Star Star Trak	08	Red/White	36°	***** 15/39	08	Red/White	36°	***** 15/39
Sprint ES	05	Blue	36°	*****	06	Blue	36°	*****
Indy Sport, GT	10	Gold	34°	17/35	10 or 10M Blue	Blue or Gold	34°	17/35
SuperTrak	10M	Red/White	36°	21/39	10M Blue	Red/White	36°	21/39
Indy Trail (All) Trail SKS	M-1 Mod or 10M	Orange Red/White	36°	21/35 19/35	10M Red	Red/White	36°	21/35 19/35
Indy 400	10M Red	Blue	34°	19/35	10M Red	Blue	34°	19/35
Indy 500 500 SKS	10M Blue	Blue	36°	19/35 18/35	10M Blue	Blue	36°	19/35 18/35
650 650 SKS	10M Blue	Red	34°	21/35 19/35	10M Blue	Blue	34°	21/35 19/35
LongTrak (RLR)	10	Silver	36°	19/39	10	Silver	36°	19/39

TORQUE-O-MATIC DRIVE Data

1990 PRODUCTION SETUP									
Machine Model	Engine Model	Operating RPM $\pm$ 200	Production Clutch Part No.	Spring Color, Wire Dia.	Shift Wt. I.D./Gram	Bore Taper Diameter	Clutch Center Distance	Driven Helix Angle	Gearing Chain Pitch/Type
Star StarTrak	EC25PS-06	6300	1321463	Brown .200	08/47.5	1.174	12.0"	36°	Direct Drive 15/39
Sprint ES	EC34-2PM-02	6500	1321493	Brown .207	05/53.5	1.174	11.5"	36°	Direct Drive
Indy Sport, GT	EC34-2PM-03	6500	1321463 1321512	Red/White .192	10/51.7	1.174 1.160 GT	11.5"	34°	17/35
Indy Trail Super Trak	EC50PM-03	6600	1321463	Brown .200	10/51.7	1.174	12.0"	36°	21/39
Indy Trail (All)	EC50PM-01/02	7000	1321463	Red/White .192	10/51.7	1.174	12.0"	36°	21/35
Indy 400	EC40PL-02	8000	1321481	Blue 47.5	10M Blue 47.5	1.174	12.0"	34°	19/35
Indy 500 SKS Classic	EC50PL-01/02	7800	1321515 1321515 1321516	Silver .208	10M	1.174	12.0"	36°	19/35 18/35 19/35
WideTrak	EC50PL-03	7800	1321516	Red/White .192	10	1.174	12.0"	36°	19/41
650 650 SKS	EC65PL-01	7800	1321480	Gold .207	10 51.7	1.177	12.0"	34°	21/35 19/35

1990 HIGH ELEVATION RECOMMENDATIONS								
Machine Model	5000 Feet to 8000 Feet				8000 Feet to 12000 Feet			
	Shift Weight	Clutch Spring	Driven Helix	Chaincase Gearing	Shift Weight	Clutch Spring	Driven Helix	Chaincase Gearing
Star Star Trak	08	Red/White	36°	***** 15/39	08	Red/White	36°	***** 15/39
Sprint ES	05	Blue	36°	*****	06	Blue	36°	*****
Indy Sport, GT	10	Gold	34°	17/35	10 or 10M Blue	Blue or Gold	34°	17/35
SuperTrak	10M	Red/White	36°	21/39	10M Blue	Red/White	36°	21/39
Indy Trail (All)	10M	Red/White	36°	21/35	10M Red	Red/White	36°	21/35
Indy 400	10M Red	Blue	34°	19/35	10M Red	Blue	34°	19/35
Indy 500 500 SKS	10M Blue	Blue	36°	19/35 18/35	10M Blue	Blue	36°	19/35 18/35
WideTrak	10M Blue	Red/White	36°	19/41	10M White	Red/White	36°	19/41
650 650 SKS	10M Blue	Blue	34°	21/35 19/35	10M White	Blue	34°	21/35 19/35

TORQUE-O-MATIC DRIVE

Data

1991 PRODUCTION SETUP									
Machine Model	Engine Model	Operating RPM $\pm$ 200	Production Clutch Part No.	Spring Color, Wire Dia.	Shift Wt. I.D./Gram	Bore Taper Diameter	Clutch Center Distance	Driven Helix Angle	Gearing Chain Pitch/Type
StarLite	EC25PS-07	6300	1321514	Brown .200	08/47.5	1.174	12.0"	36°	Direct Drive
Indy Lite	EC34-2PM-03	6500	1321513	Brown .200	10/51.7	1.174	11.5"	36°	Direct Drive
Indy Sport, GT	EC44-3PM-01	6800	1321507	Red/White .192	10/51.7	1.174 1.160 GT	11.5"	36°	16/35
Indy Trail Super Trak	EC50PM-03	6600	1321498	Brown .200	10/51.7	1.174	12.0"	36°	21/39
Indy Trail (All)	EC50PM-01/02	7000	1321461	Red/White .192	10/51.7	1.174	12.0"	36°	21/35
Indy 400	EC40PL-02/04	8000	1321459	Blue .207	10M Blue/47.5	1.174	12.0"	34°	19/35
Indy 500 SKS/SP Classic	EC50PL-01/0204/05	7800	1321502 1321502 1321501	Silver .208	10M	1.174	12.0"	36°	19/35 18/35 19/35
WideTrak	EC50PL-06	7000	1321508	Red/White .192	10	1.174	12.0"	36°	19/41
650/RXL RXL SKS	EC65PL-02/03	7800	1321517	Gold .207	10AL 53	1.177	12.0"	36°	21/35 19/35

1991 HIGH ELEVATION RECOMMENDATIONS								
Machine Model	5000 Feet to 8000 Feet				8000 Feet to 12000 Feet			
	Shift Weight	Clutch Spring	Driven Helix	Chaincase Gearing	Shift Weight	Clutch Spring	Driven Helix	Chaincase Gearing
StarLite	08	Red/White	36°	***** 15/39	08	Red/White	36°	*****
Indy Lite	05	Blue	36°	*****	06	Blue	36°	*****
Indy Sport, GT	10	Gold	36°	17/35	10 or 10M Blue	Blue or Gold	36°	17/35
SuperTrak	10M	Red/White	36°	21/39	10M Blue	Red/White	36°	21/39
Indy Trail (All)	10M	Red/White	36°	21/35	10M Red	Red/White	36°	21/35
Indy 400	10M Red	Blue	34°	19/35	10M Red	Blue	34°	19/35
Indy 500 500 SKS	10M Blue	Blue	36°	19/35 18/35	10M Blue	Blue	36°	19/35 18/35
WideTrak	10M Blue	Red/White	36°	19/41	10M White	Red/White	36°	19/41
650/RXL RXL SKS	10M Blue	Blue	36°	21/35 19/35	10M White	Blue	36°	21/35 19/35

TORQUE-O-MATIC DRIVE Data

1992 PRODUCTION SETUP									
Machine Model	Engine Model	Operating RPM ± 200	Production Clutch Part No.	Spring Color, Wire Dia.	Shift Wt. I.D./Gram	Bore Taper Dia.	Clutch Center Distance	Driven Helix Angle & Location	Chaincase Gearing
StarLite	EC25PS-07	6300	1321514	Orange .196	10M Red	1.160	11.50"	36° B-2	Direct Drive 5 Tooth
Indy Lite Lite Deluxe	EC34-2PM-0302	6500	1321513 1321552	Gold .207	10	1.160	10.625"	36° B-2	Direct Drive 6 Tooth
Indy Lite GT	EC34-2PM-04	7000	1321507	Red/White .192	10MB	1.160	11.03"	36° B-2	16:39
Sport 440 Sport 440 GT	EC44-3PM-01	6800	1321523	Brown .200	10	1.160	12.00"	36° B-2	16:35 16:39
Trail Trail Deluxe	EC50PM-01 /02	7000	1321539 1321540	Red/White .192	10	1.174	12.00"	36° #2	21:39
SuperTrak	EC50PM-03	6600	1321541	Brown .200	10	1.174	12.00"	36° #2	21:39
WideTrak	EC50PL-06	7000	1321545	Brown .200	10	1.174	12.00"	36° #2	19:41
440 Indy	EC50PL-02	7800	1321547	Blue	10 MB Bushed	1.174	12.00"	34° #2	21:39
440 XCR	EC50PL-01	8000	1321547	Blue	10 MB Bushed	1.174	12.00"	36° #2	21:39
Indy 500 Classic	EC50PL-04 /05	7800	1321543 1321544	Gold	10 M Bushed	1.174	12.00"	36° #2	21:39 20:39
500 SP EFI 500 SKS	EC50PL-07	7800	1321543	Gold	10 M Bushed	1.174	12.00"	36° #2	21:39 20:39
Indy 650	EC65PL-02	8000	1321546	Blue	10 AL Bushed	1.177	12.00"	36° #2	20:35
RXL RXL SKS	EC65PL-03	8000	1321546	Blue	10 AL Bushed	1.177	12.00"	36° #2	20:35 21:39

TORQUE-O-MATIC DRIVE Data

1992 HIGH ELEVATION RECOMMENDATIONS												
Machine Model	3000 Ft. to 6000 Ft.				6000 Ft. to 9000 Ft.				9000 Ft. to 12000 Ft.			
	Shift Weight	Clutch Spring	Driven Helix	Chain-case Gearing	Shift Weight	Clutch Spring	Driven Helix	Chain-case Gearing	Shift Weight	Clutch Spring	Driven Helix	Chain-case Gearing
StarLite	10M Red	Red/ White	36° B-2	D. Drive 5 Tooth	10M Red	Gold	36° B-2	D. Drive 5 Tooth	10M Red	Blue	36° B-2	D. Drive 5 Tooth
Indy Lite Deluxe	10	Blue	36° B-2	D. Drive 6 Tooth	10M	Gold	36° B-2	D. Drive 6 Tooth	10M	Blue	36° B-2	D. Drive 6 Tooth
Indy Lite GT	10M Blue	Gold	36° B-2	16:39	10M White	Gold	36° B-2	16:39	10M White or 10M Red	Blue or Gold	36° B-2	16:39
Sport 440 Sport 440 GT	10	Red/ White	36° B-2	16:35 16:39	10	Gold	36° B-2	16:35 16:39	10 or 10M Blue	Blue Gold	36° B-2	16:35 16:39
Trail Trail Deluxe	10	Red/ White	36° #2	21:39	10M	Red/ White	36° #2	21:39	10M Blue	Red/ White	36° #2	21:39
SuperTrak	10	Red/ White	36° #2	21:39	10M	Red/ White	36° #2	21:39	10M Blue	Red/ White	36° #2	21:39
WideTrak	10	Red/ White	36° #2	19:41	10M Blue	Red/ White	36° #2	19:41	10M White	Red/ White	36° #2	19:41
440 Indy	10M White	Blue	34° #2	21:39	10M Red	Blue	34° #2	21:39	10M Red	Blue	34° #2	21:39
440 XCR	10M White Bushed	Blue	36° #2	21:39	10M White Bushed	Blue	34° #2	21:39	10M Red Bushed	Blue	34° #2	21:39
Indy 500 Classic	10M Blue Bushed	Gold	36° #2	21:39 20:39	10M Blue Bushed	Blue	36° #2	21:39 20:39	10M White Bushed or 10M Red Bushed	Blue	36° #2	21:39 20:39
500 SP EFI 500 SKS	10M Blue Bushed	Gold	36° #2	21:39 20:39	10M Blue Bushed	Blue	36° #2	21:39 20:39	10M White Bushed or 10M Blue Bushed	Blue	36° #2	21:39 20:39
650/RXL RXL SKS	10 Bushed	Blue	36° #2	20:35 21:39	10M Blue Bushed	Blue	36° #2	20:35 21:39	10M White Bushed	Blue	36° #2	20:35 21:39

TORQUE-O-MATIC DRIVE Data

1993 PRODUCTION SETUP									
Machine Model	Engine Model	Operating RPM ± 200	Production Clutch Part No.	Spring Color, Wire Dia.	Shift Wt. I.D./Gram	Bore Taper Dia.	Clutch Center Distance	Driven Helix Angle & Location	Chaincase Gearing
StarLite StarLite GT	EC25PS-07	6300	1321514	Orange .196	10M Red	1.160	12.236"	36.5° B-2	15:41
Indy Lite/GT Lite Deluxe	EC34-2PM-04	7000	1321560 1321561	Silver/ Gold .218	10	1.160	11.030"	36.5° B-2	16:39
Sport	EC44-3PM-01	6800	1321568	Brown .200	10	1.160	12.00"	36° B-2	16:35
Trail Deluxe	EC44-3PM-01	6800	1321568	Brown .200	10	1.160	12.00"	36.5° B-2	16:39
Trail	EC50PM-01	7000	1321570	Red/ White .192	10 Bushed	1.190	12.00"	36° #2	21:39
WideTrak	EC50PM-06	7000	1321567	Brown .200	10 Bushed	1.190	12.00"	36° #2	19:41
440 Indy 440 SKS	EC45PL-02	7800	1321580	Gold .207	10 MB Bushed	1.190	12.00"	34° #2	21:39 20:39
440 XCR	EC45PL-01	8000	1321564	Blue .207	10 MB Bushed	1.190	12.00"	36° #2	21:39
Classic Classic Touring	EC50PL-04 EC50PL-05	7800	1321569 1321544	Gold .207	10 M Bushed	1.190	12.00"	36° #2	21:39 20:39
500 SP EFI 500 EFI SKS	EC50PL-07	7800	1321569	Gold .207	10 M Bushed	1.190	12.00"	36° #2	21:39 20:39
XLT/XLT SP XLT SKS	EC58PL-01	8000	1321571	Gold .207	10 M Bushed	1.177	12.00"	34°	21:39 20:39
RXL RXL SKS	EC65PL-05	8000	1321546	Blue .207	10 AL Bushed	1.177	12.00"	36° #2	21:39 20:39
Storm Storm SKS	EC75PL-01	8000	1321581	Blue/ Gold .207	10-64 Bushed	1.177	12.50"	34°	23:37

TORQUE-O-MATIC DRIVE Data

1993 HIGH ELEVATION RECOMMENDATIONS												
Machine Model	3000 Ft. to 6000 Ft.				6000 Ft. to 9000 Ft.				9000 Ft. to 12000 Ft.			
	Shift Weight	Clutch Spring	Driven Helix	Chain-case Gearing	Shift Weight	Clutch Spring	Driven Helix	Chain-case Gearing	Shift Weight	Clutch Spring	Driven Helix	Chain-case Gearing
StarLite StarLite GT	10M Red	Red/ White	36.5° B-2	15:41	10M Red	Gold	36.5° B-2	15:41	10M Red	Blue	36.5° B-2	15:41
Lite GT Lite Lite Deluxe	10M Blue	Gold	36.5° B-2	16:39	10M White	Gold	36.5° B-2	16:39	10M White or 10M Red	Blue Gold	36.5° B-2	16:39
Sport	10	Red/ White	36° B-2	16:35	10	Gold	36° B-2	16:35	10 or 10M Blue	Blue Gold	36° B-2	16:35
Trail Deluxe	10	Red/ White	36.5° B-2	16:39	10	Gold	36° B-2	16:39	10 or 10M Blue	Blue Gold	36.5° B-2	16:39
Trail	10 Bushed	Red/ White	36° #2	21:39	10M Bushed	Red/ White	36° #2	21:39	10M Blue	Red/ White	36° #2	21:39
WideTrak	10 Bushed	Red/ White	36° #2	19:41	10M Blue Bushed	Red/ White	36° #2	19:41	10M White	Red/ White	36° #2	19:41
440 Indy	10M White Bushed	Blue	34° #2	21:39	10M Red Bushed	Blue	34° #2	21:39	10M Red Bushed	Blue	34° #2	21:39
440 SKS	10M White Bushed	Blue	34° #2	20:39	10M Red Bushed	Blue	34° #2	20:39	10M Red Bushed	Blue	34° #2	20:39
440 XCR	10M White Bushed	Blue	34° #2	21:39	10M White Bushed	Blue	34° #2	21:39	10M Red Bushed	Blue	34° #2	21:39
Classic	10M Blue Bushed	Gold	36° #2	21:39	10M Blue Bushed	Blue	36° #2	21:39	10M White or 10M Red	Blue	36° #2	21:39
Classic Touring	10M Blue Bushed	Gold	36° #2	20:39	10M Blue Bushed	Blue	36° #3	20:39	10M White or 10M Red	Blue	36° #3	20:39
500 EFI	10M Blue Bushed	Gold	36° #2	21:39	10M Blue Bushed	Blue	36° #3	21:39	10M White or 10M Blue	Blue	36° #3	21:39
500 EFI SKS	10M Blue Bushed	Gold	36° #2	20:39	10M Blue Bushed	Blue	36° #3	20:39	10M White or 10M Blue	Blue	36° #3	20:39
XLT/XLT SP	10M Blue Bushed	Gold	34°	21:39	10M White Bushed	Blue	34°	21:39	10M Red Bushed	Blue	34°	21:39
XLT SKS	10M Blue Bushed	Gold	34°	20:39	10M White Bushed	Blue	34°	20:39	10M Red Bushed	Blue	34°	20:39
RXL	10 Bushed	Blue	36° #2	20:35	10M Blue Bushed	Blue	34° #2 or 36° #3	20:35	10M White Bushed	Blue	36° 2#	20:35
RXL SKS	10 Bushed	Blue	36° #2	21:39	10M Blue Bushed	Blue	34° #2 or 36° #3	21:39	10M White Bushed	Blue	36° #2	21:39
Storm Storm SKS	10-60 Bushed	Silver/ Gold	34° #2	23:37	10A Bushed	Silver/ Gold	34°	23:37	10 Bushed	Silver/ Gold	34°	21:37

TORQUE-O-MATIC DRIVE Data

1994 PRODUCTION SETUP									
Machine Model	Engine Model	Operating RPM $\pm$ 200	Production Clutch Part No.	Spring Color, Wire Dia.	Shift Wt. I.D./Gram	Bore Taper Diameter	Clutch Center Distance	Driven Helix Angle & Location	Chaincase Gearing
StarLite StarLite GT	EC25PS-07	6300	1321599	Orange .196	10M Red	1.160	12.24"	36.5° B-2	15:41
Indy Lite/GT Lite Deluxe	EC34-2PM-04 -02	7000	1321601 1321602	Silver/ Gold .218	10	1.160	11.030"	36.5° B-2	16:39
Sport Sport SKS Super Sport	EC44-3PM-01	6800	1321594 1321619	Brown .200	10	1.160	12.00"	36° B-2	16:35
Trail Deluxe	EC50PM-02	6800	1321592	Brown .200	10	1.160	12.00"	36.5° B-2	16:39
Trail	EC50PM-01	7000	1321570	Red/ White .192	10 Bushed	1.190	12.00"	36° #2	21:39
WideTrak GT WideTrak LX	EC50PM-03 EC50PL-06	7000	1321583	Brown .200	10 Bushed	1.190	12.00"	36° #2	19:41
440 Indy 440 SKS	EC45PL-02	7800	1321580	Gold .207	10 MB Bushed	1.190	12.00"	34° #2	21:39 20:39
440 XCR	EC45PL-01	8000	1321564	Blue .207	10 MB Bushed	1.190	12.00"	36° #2	21:39
Classic Classic Touring	EC50PL-05 EC50PL-08	7800	1321606	Gold .207	10 M Bushed	1.190	12.00"	36° #2	21:39 20:39
500 SP EFI 500 EFI SKS	EC50PL-07	7800	1321569	Gold .207	10 M Bushed	1.190	12.00"	36° #2	21:39 20:39
XLT/XLT SP XLT SKS	EC58PL-01	8000	1321571	Gold .207	10 M Bushed	1.174	12.00"	34°	21:39 20:39
RXL RXL Touring	EC65PL-05 EC65PL-06	8000	1321608	Blue .207	10 AL Bushed	1.177	12.00"	36° #2	21:39 20:39
Storm Storm SKS	EC80PL-01	8000	1321607 623	Blue .207	10-62 Bushed	1.177	12.50"	42-36-34° Combina- tion	23:37 21:37

TORQUE-O-MATIC DRIVE Data

1994 HIGH ELEVATION RECOMMENDATIONS												
Machine Model	3000 Ft. to 6000 Ft.				6000 Ft. to 9000 Ft.				9000 Ft. to 12000 Ft.			
	Shift Weight	Clutch Spring	Driven Helix	Chain-case Gearing	Shift Weight	Clutch Spring	Driven Helix	Chain-case Gearing	Shift Weight	Clutch Spring	Driven Helix	Chain-case Gearing
StarLite StarLite GT	10M Red	Red/ White	36.5° #B-2	15:41	10M Red	Gold	36.5° #B-2	15:41	10M Red	Blue	36.5° #B-2	15:41
Lite GT Lite Lite Deluxe	10M Blue	Gold	36.5° #B-2	16:39	10M White	Gold	36.5° #B-2	16:39	10M White or 10M Red	Blue Gold	36.5° #B-2	16:39
Sport	10	Red/ White	36° #B-2	16:35	10	Gold	36° #B-2	16:35	10 or 10M Blue	Blue Gold	36° #B-2	16:35
Sport SKS	10	Red/ White	36° #B-2	16:39	10	Gold	36° #B-2	16:39	10 or 10M Blue	Blue Gold	36° #B-2	16:39
Super Sport	10AL Bushed	Red	36° #B-2	17:35	10AL Bushed	Gold	36° #2	17:35	10 or 10M Blue Bushed	Red/ White Gold	36° #B-2	17:35
Trail Deluxe	10 Bushed	Red/ White	36° #2	22:41	10M Bushed	Red/ White	36° #2	22:41	10M Blue Bushed	Red/ White	36° #2	22:41
Trail	10 Bushed	Red/ White	36° #2	21:39	10M Bushed	Red/ White	36° #2	21:39	10M Blue Bushed	Red/ White	36° #2	21:39
WideTrak LX	10 Bushed	Red/ White	36° #2	19:41	10M Blue Bushed	Red/ White	36° #2	19:41	10M White Bushed	Red/ White	36° #2	19:41
WideTrak GT	10 Bushed	Red/ White	36° #2	19:41	10M Bushed	Red/ White	36° #2	19:41	10M Blue Bushed	Red/ White	36° #2	19:41
440 Indy	10M White Bushed	Blue	34° #2	21:39	10M Red Bushed	Blue	34° #2	21:39	10M Red Bushed	Blue	34° #2	21:39
440 SKS	10M White Bushed	Blue	34° #2	20:39	10M Red Bushed	Blue	34° #2	20:39	10M Red Bushed	Blue	34° #2	20:39
440 XCR	10M White Bushed	Blue	34° #2	21:39	10M White Bushed	Blue	34° #2	21:39	10M Red Bushed	Blue	34° #2	21:39
Classic	10M Blue Bushed	Gold	36° #2	21:39	10M Blue Bushed	Blue	36° #2	21:39	10M White Bushed or 10M Red Bushed	Blue	36° #2	21:39
Classic Touring	10M Blue Bushed	Gold	36° #2	20:39	10M Blue Bushed	Blue	36° #3	20:39	10M White Bushed or 10M Red Bushed	Blue	36° #3	20:39
500 EFI	10M Blue Bushed	Gold	36° #2	21:39	10M Blue Bushed	Blue	36° #3	21:39	10M White Bushed or 10M Blue Bushed	Blue	36° #3	21:39
500 EFI SKS	10M Blue Bushed	Gold	36° #2	20:39	10M Blue Bushed	Blue	36° #3	20:39	10M White Bushed or 10M Blue Bushed	Blue	36° #3	20:39
XLT/XLT SP	10M Blue Bushed	Gold	34°	21:39	10M White Bushed	Blue	34°	21:39	10M Red Bushed	Blue	34°	21:39
XLT SKS	10M Blue Bushed	Gold	34°	20:39	10M White Bushed	Blue	34°	20:39	10M Red Bushed	Blue	34°	20:39
RXL	10 Bushed	Blue	36° #2	20:35	10M Blue Bushed	Blue	34°#2 or 36° #3	20:35	10M White Bushed	Blue	34°#2 or 36° #3	20:35
RXL Touring	10 Bushed	Blue	36° #2	21:39	10M Blue Bushed	Blue	34°#2 or 36° #3	21:39	10M White Bushed	Blue	34°#2 or 36° #3	21:39
Storm Storm SKS	10-60 Bushed	Blue	Stock	23-37 21-37	10-58 Bushed	Blue	Stock	23-37 21-37	10 Bushed or 10AL Bushed	Blue	Stock	23-37 21-37

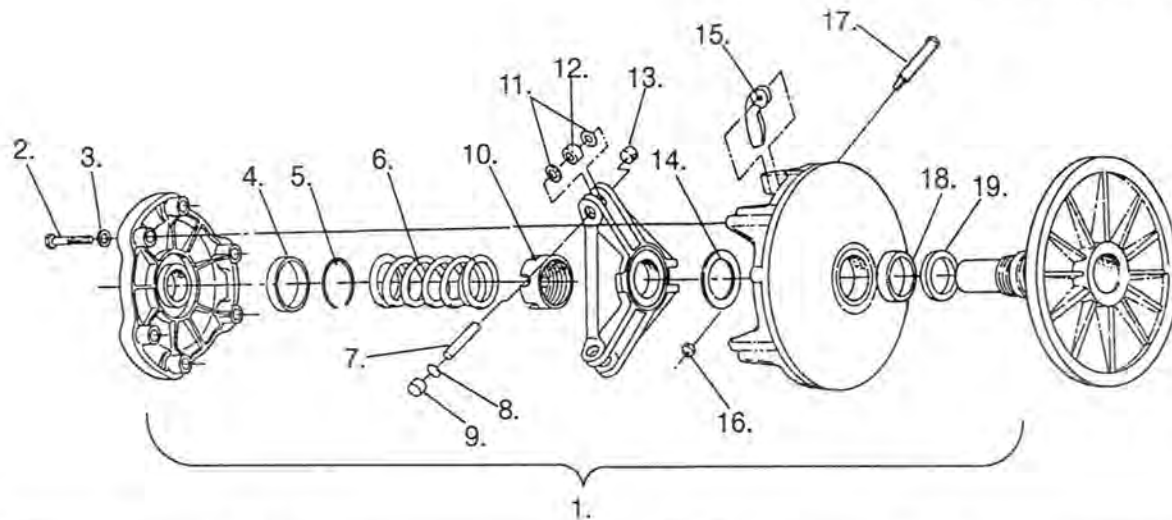
TORQUE-O-MATIC DRIVE Data

1995 PRODUCTION SETUP									
Machine Model	Engine Model	Operating RPM $\pm$ 200	Production Clutch Part No.	Spring Color, Wire Dia.	Shift Wt. I.D./Gram	Bore Taper Diameter	Clutch Center Distance	Driven Helix Angle & Location	Chaincase Gearing
StarLite	EC25PS07	6300	1321599	Orange .196	10M Red	1.160	12.24"	36.5° B-2	15:41
Indy Lite/GT Lite Deluxe	EC34-2PM02	7000	1321601 1321602	Silver/Gold .218	10	1.160	11.030"	36.5° B-2	16:39
Sport Sport Touring	EC44-3PM01	6800	1321594	Brown .200	10	1.160	12.00"	36.5° B-2	16:35 16:39
Super Sport	EC44-3PM02	7000	1321619	Red/White .192	10AL Bushed	1.160	12.00"	36.5° B-2	17:35
Trail	EC50PM04	7000	1321570	Red/White .192	10AL Bushed	1.190	12.00"	36° #2	21:39
Trail Deluxe	EC50PME04	7000	1321592	Red/White .192	10AL Bushed	1.190	12.00"	36° #2	20:39
WideTrak GT	EC50PM03	6600	1321583	Brown .200	10 Bushed	1.190	12.00"	36° #2	19:41
WideTrak LX	EC50PL06	7000	1321583	Brown .200	10 Bushed	1.190	12.00"	36° #2	19:41
440 Indy 440 SKS	EC45PL02	8000	1321580	Gold .207	10 MB Bushed	1.190	12.00"	34° #2	21:39 20:39
440 XCR	EC45PL05	8250	1321643	Blue .207	10 MB Bushed	1.190	12.00"	34° #2	21:39
Indy 500	EC50PL04	7750	1321569	Gold .207	10MB Bushed	1.190	12.00"	36° #2	21:39
Classic	EC50PLE04	7750	1321606	Gold .207	10 M Bushed	1.190	12.00"	36° #2	21:39
500 EFI 500 EFI SKS	EC50PL07	8000	1321569	Gold .207	10 M Bushed	1.190	12.00"	36° #2	21:39 20:39
XLT/XLT SP XLT SKS	EC58PL03	8000	1321571	Gold .207	10 M Bushed	1.177	12.00"	34° #2	21:39 20:39
XLT Touring	EC58PLE04	8250	1321642	Gold .207	10M Bushed	1.177	12.00"	34° #2	20:39
600 XCR	EC58PL02	8500	1321626	Blue .207	10MB Bushed	1.177	12.00"	34° #2	21:39
RXL RXL Touring	EC65PL05 EC65PLE05	8000	1321620 1321608	Blue .207	10 AL Bushed	1.177	12.00"	36° #2	20:35 21:39
Storm Storm SKS	EC80PL01	8250	1321607 623	Blue .207	10-62 Bushed	1.177	12.50"	34° #2	23:37 20:35

TORQUE-O-MATIC DRIVE Data

1995 HIGH ELEVATION RECOMMENDATIONS												
Machine Model	3000 Ft. to 6000 Ft.				6000 Ft. to 9000 Ft.				9000 Ft. to 12000 Ft.			
	Shift Weight	Clutch Spring	Driven Helix	Chain-case Gearing	Shift Weight	Clutch Spring	Driven Helix	Chain-case Gearing	Shift Weight	Clutch Spring	Driven Helix	Chain-case Gearing
StarLite	10M Red	Red/White	36.5° #B-2	15:41	10M Red	Gold	36.5° #B-2	15:41	10M Red	Blue	36.5° #B-2	15:41
Lite GT Lite Lite Deluxe	10M Blue	Gold	36.5° #B-2	16:39	10M White	Gold	36.5° #B-2	16:39	10M White or 10M Red	Blue Gold	36.5° #B-2	16:39
Sport Sport Touring	10	Red/White	36.5° #B-2	16:35 16:39	10	Gold	36.5° #B-2	16:35 16:39	10 or 10M Blue	Blue Gold	36.5° #B-2	16:35 16:39
Super Sport	10 Bushed	Red/White	36.5° #B-2	17:35	10AL Bushed	Gold	36.5° #B-2	17:35	10M Blue Bushed or 10 Bushed	Red/White Gold	36.5° #B-2	17:35
Trail Trail Deluxe	10AL Bushed	Red/White	36° #2	21:39 20:39	10 Bushed	Red/White	36° #2	21:39 20:39	10M Blue Bushed	Red/White	36° #2	21:39 20:39
WideTrak LX	10 Bushed	Red/White	36° #2	19:41	10M Blue Bushed	Red/White	36° #2	19:41	10M White Bushed	Red/White	36° #2	19:41
WideTrak GT	10 Bushed	Red/White	36° #2	19:41	10M Bushed	Red/White	36° #2	19:41	10M Blue Bushed	Red/White	36° #2	19:41
440 Indy 440 SKS	10M White Bushed	Blue	34° #2	21:39 20:39	10M Red Bushed	Blue	34° #2	21:39 20:39	10M Red Bushed	Blue	34° #2	21:39 20:39
440 XCR	10M White Bushed	Blue	34° #2	21:39	10M White Bushed	Blue	34° #2	21:39	10M Red Bushed	Blue	34° #2	21:39
600 XCR	10MW Bushed	Blue	34° #2	21:39	10MR Bushed	Blue	34° #2	21:39	10MR Bushed	Blue	34° #2	21:39
Indy 500	10M Blue Bushed	Gold	36° #2	21:39	10M Blue Bushed	Blue	36° #2	21:39	10M White Bushed or 10M Red Bushed	Blue	36° #2	21:39
Classic 500 EFI	10M Blue Bushed	Gold	36° #2	21:39	10M Blue Bushed	Blue	36° #2	21:39	10M White Bushed or 10M Red Bushed	Blue	36° #2	21:39
500 EFI SKS	10M Blue Bushed	Gold	36° #2	20:39	10M Blue Bushed	Blue	36° #3	20:39	10M White Bushed or 10M Red Bushed	Blue	36° #3	20:39
XLT/XLT SP XLT SKS	10M Blue Bushed	Gold	34° #2	21:39 20:39	10M White Bushed	Blue	34° #2	21:39 20:39	10M Red Bushed	Blue	34° #2	21:39 20:39
XLT Touring	10M Blue Bushed	Gold	34° #2	20:39	10M White Bushed	Blue	34° #2	20:39	10MR Bushed	Blue	34° #2	20:39
RXL	10 Bushed	Blue	36° #2	20:35	10M Blue Bushed	Blue	34° #2 or 36° #3	20:35	10M White Bushed	Blue	34° #2 or 36° #3	20:35
RXL Touring	10 Bushed	Blue	36° #2	21:39	10M Blue Bushed	Blue	34° #2 or 36° #3	21:39	10M White Bushed	Blue	34° #2 or 36° #3	21:39
Storm Storm SKS	10-60 Bushed	Blue	34° #2	23:37 20:35	10-58 Bushed	Blue	34° #2	23:37 20:35	10 Bushed or 10AL Bushed	Blue	34° #2	23:37 20:35

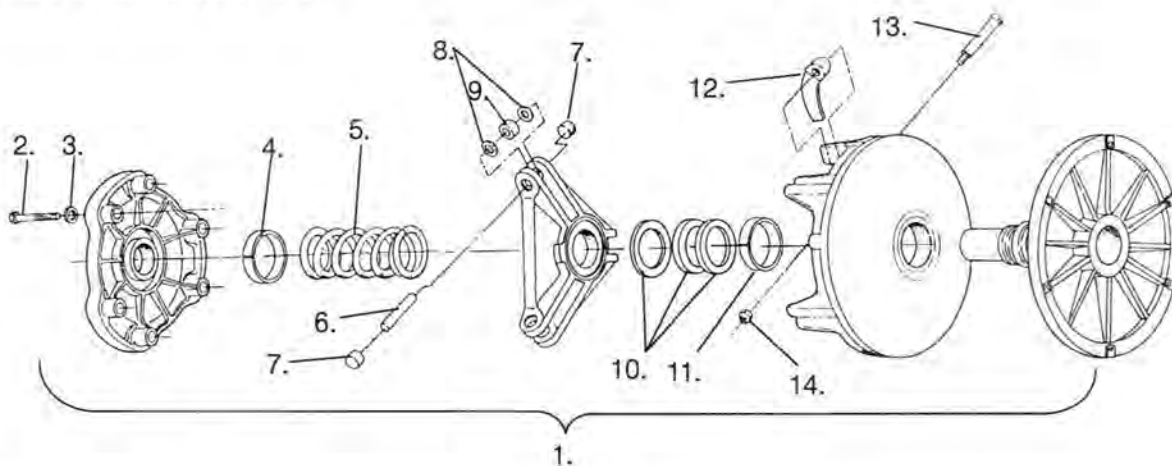
TORQUE-O-MATIC DRIVE **Drive Clutch Service Parts**



Ref.	Part No.	Qty.	Description
1.	**	1	Asm., Drive Clutch Basic
2.	7512265	6	Bolt
3.	7552801	6	Washer, Spring Lock
4.	3576510	1	Cover, Bearing
5.	7710417	1	Ring, Retaining, Cover
6.	**	1	Spring, Clutch
7.	5020436 5020422*	3 3	Pin, Roller Pin, Roller
8.	5410374	3	Seal
9.	5430728 5430728	3 6*	Button, Guide Button, Guide
10.	5020425	1	Nut, Jam
11.	5430945	6	Washer, Multilube

Ref.	Part No.	Qty.	Description
12.	1321457 1321622	3 3	Asm., Roller & Bushing Asm., Roller & Bushing (Storm Only)
13.	5430768	3	Button, Guide
14.	5210754 5210753 5210752	AR AR AR	Spacer, .050mm Spacer, .032mm Spacer, .020mm
15.	**	3	Weight/Bushing
16.	7541906	3	Nut
17.	7512266	3	Bolt
18.	3576502 3576503	1 1	Bearing, Sleeve Bearing, Sleeve (Trail w/EC50PM)
19.	5010188	1	Insert, Moveable

* All other P-85 Basic except 500 90/91



Ref.	Part No.	Qty.	Description
1.	1321523	1	Asm., Drive Clutch Basic
2.	7512265	6	Bolt
3.	7552804	6	Washer, Split Lock (6mm)
4.	3576510	1	Cover, Bearing
5.	7041061	1	Spring, Clutch (Brown)
6.	5020422	3	Pin, Roller
7.	5430728	6	Button, Guide
8.	5430945	6	Washer, Multilube
9.	1321457	3	Asm., Roller and Bushing

Ref.	Part No.	Qty.	Description
10.	5210754 5210753 5210752	AR AR AR	Spacer, .050mm Spacer, .032mm Spacer, .020mm
11.	3576504	1	Bearing, Moveable 1/2"
12.	5630272	2	Shift, Weight (10)
13.	7512266	3	Bolt, Shoulder
14.	7541906	3	Nut, Flex Loc

TORQUE-O-MATIC DRIVE
Drive Clutch Weight Identification - Actual Size



U

Gram Weight: 34 ± 1
 PN 5630107



Y

Gram Weight: 35 ± 1
 PN 5630139



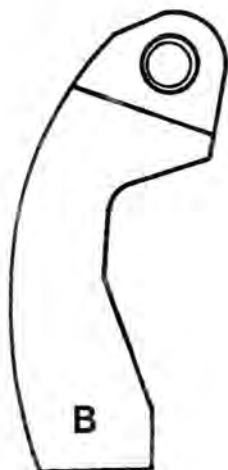
W

Gram Weight: 37.5 ± 1
 PN 5630109



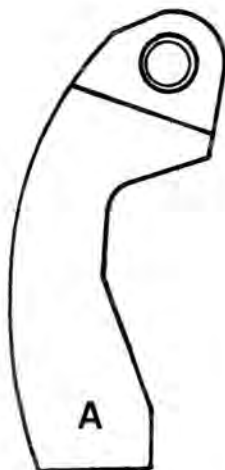
B

G - (B Modified)
 Gram Weight: 41.5 ± 1
 PN 5630063



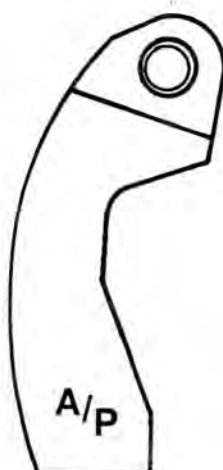
B

B
 Gram Weight: 43 ± 1
 PN 5630084



A

A
 Gram Weight: 47.5 ± 1
 PN 5630080



A/P

A/P
 Gram Weight: 47.5 ± 1
 PN 5630094



01

01
 Gram Weight: 48.5 ± 1
 PN 5630224



02

02
 Gram Weight: 49 ± 1
 PN 5630225



O

O
 Gram Weight: 51
 PN 5610088



O

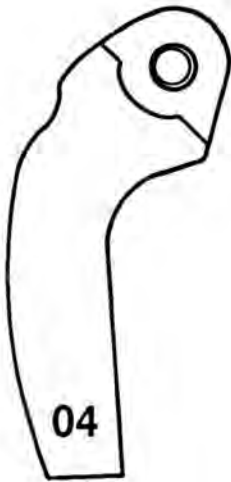
O
 Gram Weight: 53 ± 1
 PN 5630174



03

03
 Gram Weight: 32.5 ± 1
 PN 5630227

TORQUE-O-MATIC DRIVE
Drive Clutch Weight Identification - Actual Size



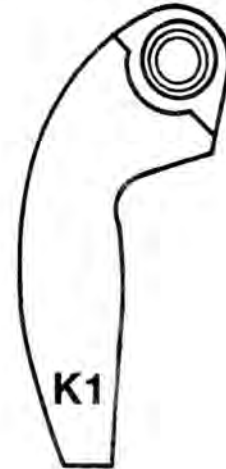
04
 Gram Weight: 57.5 ± 1
 PN 5630229



M1 (Modified)
 Gram Weight: 46.0 ± 1
 PN 5630301



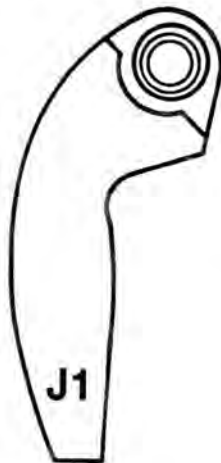
N1 (Modified)
 Gram Weight: 51.5 ± 1
 PN 5630302



K1
 Gram Weight: 39 ± 1
 PN 5630144



P1
 Gram Weight: 42 ± 1
 PN 5630089



J1
 Gram Weight: 44 ± 1
 PN 5630065



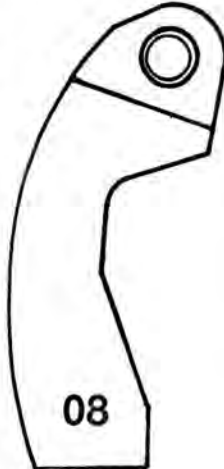
05
 Gram Weight: 53.5 ± 1
 PN 5630234



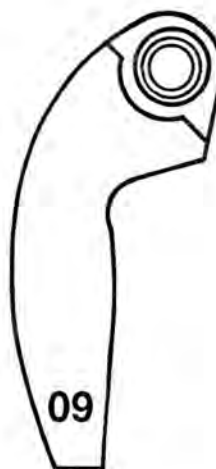
06
 Gram Weight: 50 ± 1
 PN 5630243



07
 Gram Weight: 52 ± 1
 PN 5630244



08
 Gram Weight: 47.5 ± 1
 PN 5630245



09
 Gram Weight: 51.5 ± 1
 PN 5630249



10
 Gram Weight: 51.5 ± 1
 PN 5630272

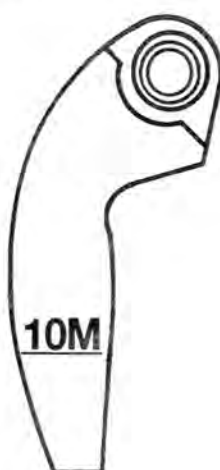
TORQUE-O-MATIC DRIVE
Drive Clutch Weight Identification - Actual Size



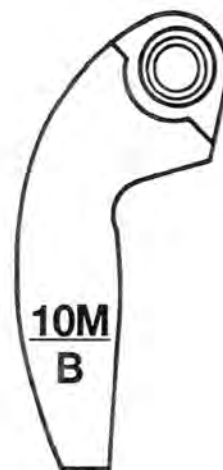
15
 Gram Weight: 55.5 ± 1
 PN 5630274



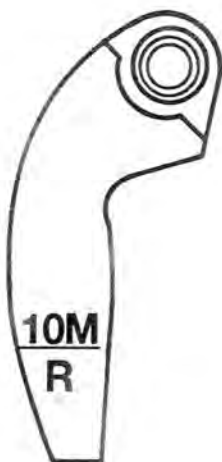
10A
 Gram Weight: 55.0 ± 1
 PN 5630286



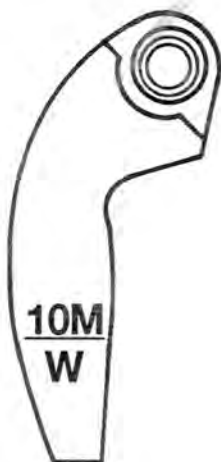
10M
 Gram Weight: 49.5 ± 1
 PN 5630273



10M B
 10M Blue
 Gram Weight: 47.5 ± 1
 PN 5630324



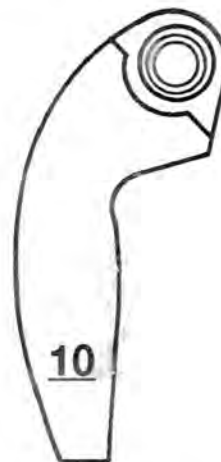
10M R
 10M Red
 Gram Weight: 44 ± 1
 PN 5630325



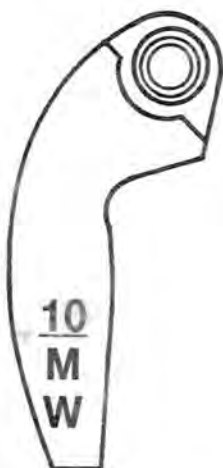
10M W
 10M/W
 Gram Weight: 46 ± 1
 PN 5630369



10A L
 10A/L
 Gram Weight: 53 ± 1
 PN 5630368



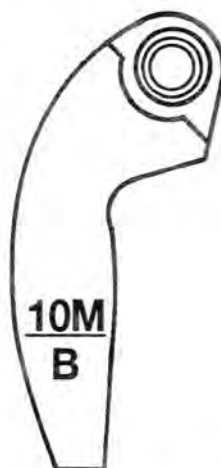
10
 10 Bushed
 Gram Weight: 51.5 ± 1
 PN 1321526



10 M W
 10M-W Bushed
 Gram Weight: 46 ± 1
 PN 1321527



10M
 10M Bushed
 Gram Weight: 49.5 ± 1
 PN 1321528

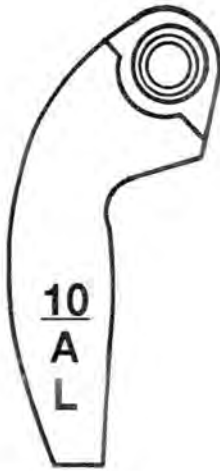


10M B
 10M Blue Bushed
 Gram Weight: 47.5 ± 1
 PN 1321529

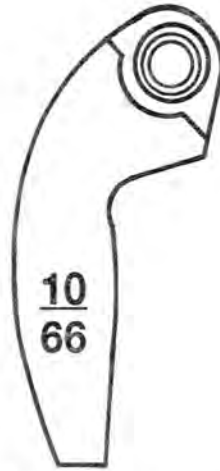


10M R
 10M Red Bushed
 Gram Weight: 44 ± 1
 PN 1321530

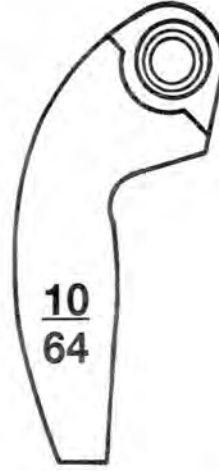
TORQUE-O-MATIC DRIVE
Drive Clutch Weight Identification - Actual Size



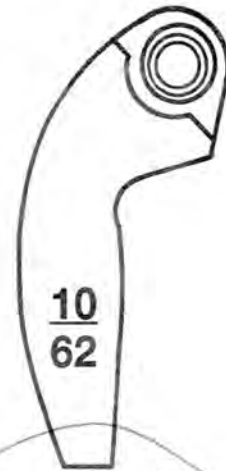
10-AL Bushed
Gram Weight: 53 ± 1
PN 1321531



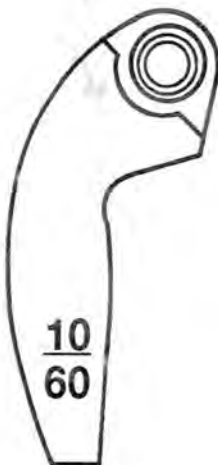
10-66 Bushed
Gram Weight: 66
PN 1321584



10-64 Bushed
Gram Weight: 64
PN 1321585



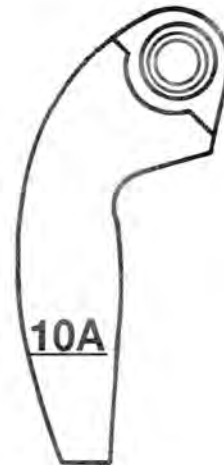
10-62 Bushed
Gram Weight: 62
PN 1321586



10-60 Bushed
Gram Weight: 60
PN 1321587



10-58 Bushed
Gram Weight: 58
PN 1321588

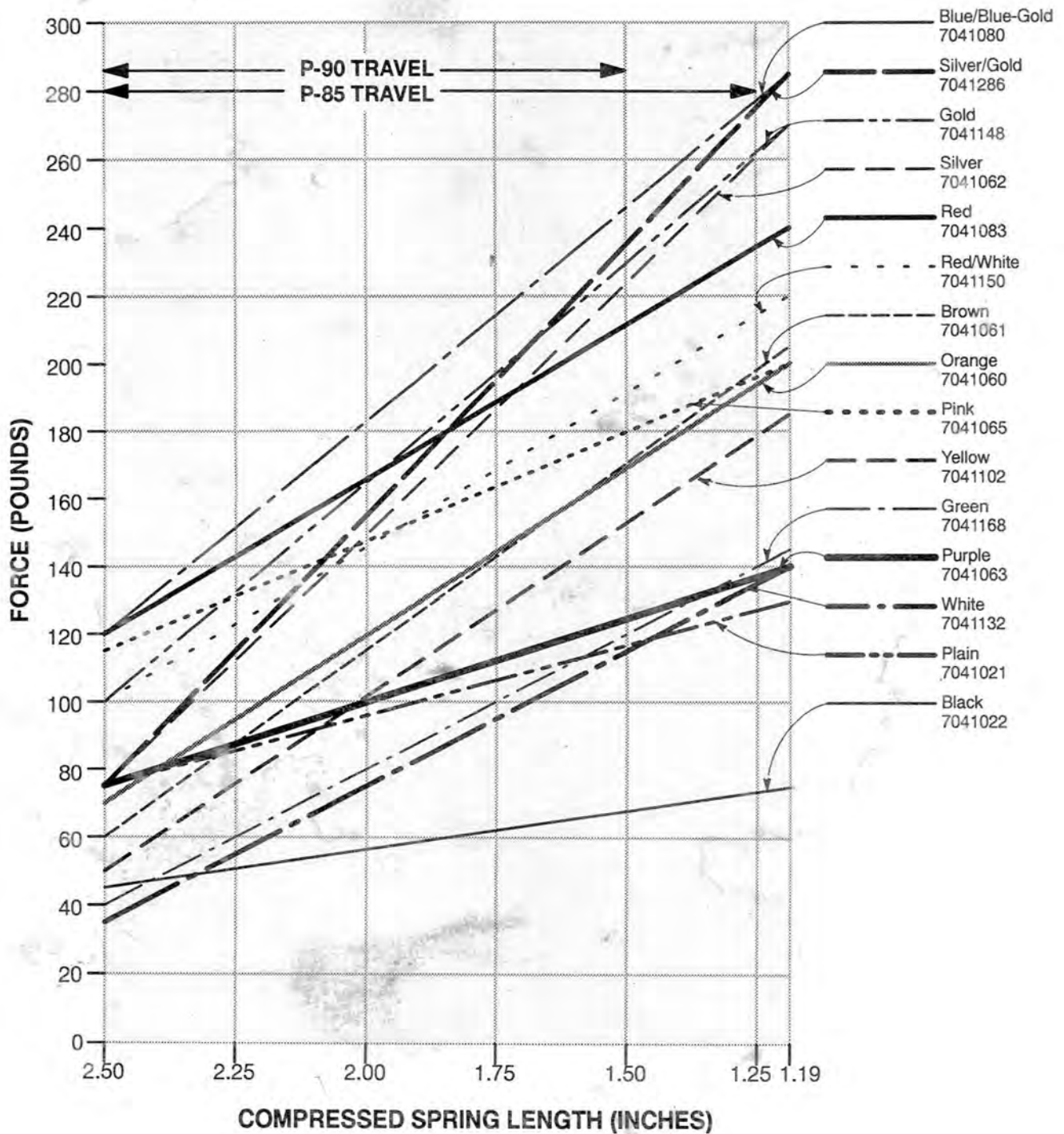


10A Bushed
Gram Weight: 55
PN 1321589

TORQUE-O-MATIC DRIVE **Drive Clutch Spring Rates**

The following chart will aid in the setup and balance of engine RPM power curves for special converter tuning requirements such as high operating altitude, heavy loads, mountainous terrain, etc.

DRIVE CLUTCH SPRING COMPRESSION RATE CHART



TORQUE-O-MATIC DRIVE **Drive Clutch Spring Data**

PART NUMBER	COLOR CODE	WIRE DIAMETER	FREE LENGTH +/- .125"
7041021	Clear	.157"	4.38"
7041022	Black	.140"	4.25"
7041063	Purple	.168"	4.37"
7041062	Silver	.208"	3.12"
7041065	Pink	.177"	4.69"
7041060	Orange	.196"	3.37"
7041080	Blue/Gold	.207"	3.50"
7041083	Red	.192"	3.77"
7041102	Yellow	.192"	2.92"
7041061	Brown	.200"	3.06"
7041132	White	.177"	2.92"
7041168	Green	.177"	3.05"
7041148	Gold	.207"	3.25"
7041150	Red/White	.192"	3.59"
7041286	Silver/Gold	.218"	3.05"

CAUTION: *Never shim a drive clutch spring to increase its compression rate.* This may result in complete stacking of the coils and subsequent clutch cover failure.

Maximum efficiency of the variable speed drive system is dependent upon many factors. Included in these are converter alignment, belt tension, and internal condition of the drive and driven clutch components. One of the most critical and easily serviced parts is the drive clutch spring. Due to the severe stress the spring is subject to during operation, it should always be inspected and checked for tolerance limits during any clutch operation diagnosis or repair.

With the spring resting on a flat surface, measure its free length from its outer coil surfaces as shown. Refer to the chart above for specific free length measurements and tolerances.

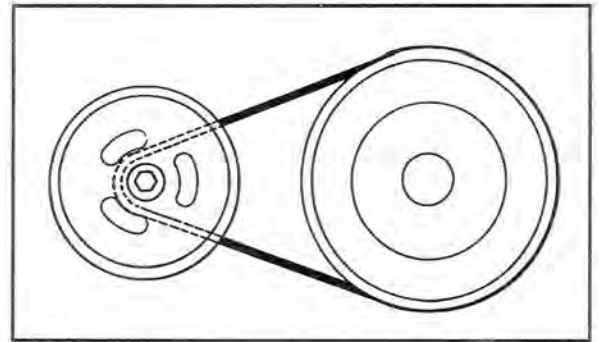
In addition to proper free length, the spring coils should be parallel to one another when placed on a flat surface. Distortion of the spring indicates stress fatigue. Replacement is required.



TORQUE-O-MATIC DRIVE

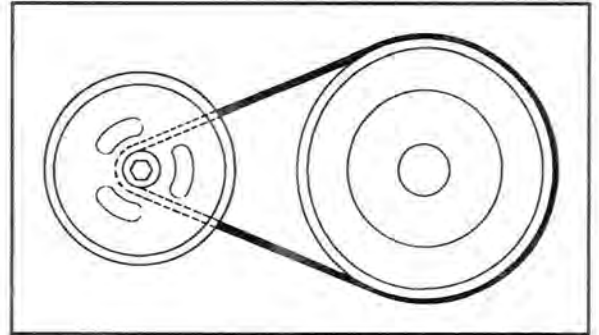
Drive Belt Adjustments

The drive belt is an important component of the converter system. Critical dimensions and construction have been provided for at the time of manufacture. In order to achieve maximum efficiency from the converter, the drive belt must be adjusted properly for tension and clutch offset.



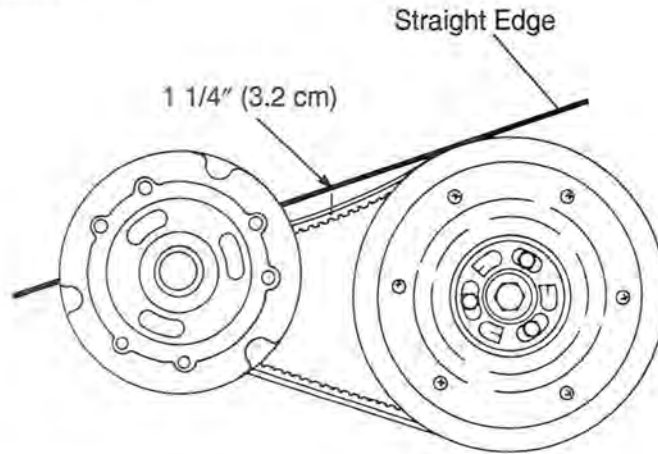
If the belt is too long or the center distance too short, the initial starting ratio will be too low, resulting in performance loss. This is due to the belt rising too high in the drive clutch sheaves upon engagement.

If the drive belt is too short or the center distance too long, the ratio will again be incorrect. In addition, the machine may creep when the engine idles, causing damage to the internal face of the drive belt.



Aluminum Driven Clutch

Ideal belt deflection is 1 1/4" (3.2 cm). Measure belt deflection with both clutches at rest and in their full neutral position. Place a straight edge on the belt and apply downward pressure while measuring at the point shown. To change belt deflection, add or delete thrust washers. **NOTE:** One thrust washer should always be left between the driven clutch sheaves.



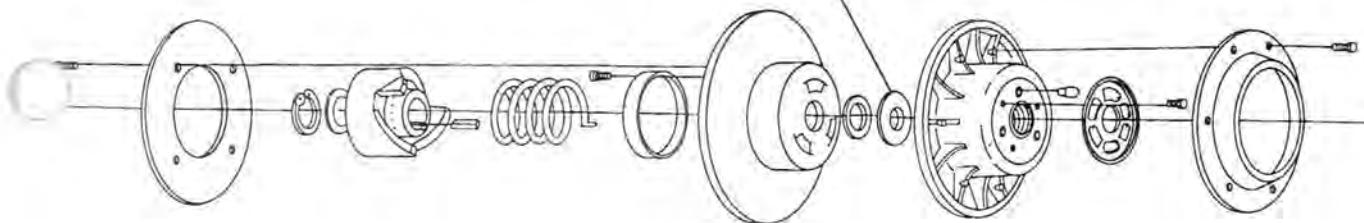
IMPORTANT NOTE: Do not apply excessive pressure to force the belt into the driven sheaves. this will result in an improper measurement.

Aluminum Driven Clutch with Outer Cam Adjuster

Belt deflection can be adjusted without removing the clutch from the jackshaft.

1. Pull belt into driven clutch to slightly open sheaves.
2. Loosen three bolts on adjustment cam.
3. Turn cam counterclockwise to reduce distance between sheaves.
4. Torque bolts to 10 ft. lbs. (1.38 kg/m).

May use optional, thinner (.048") washer PN 7555899



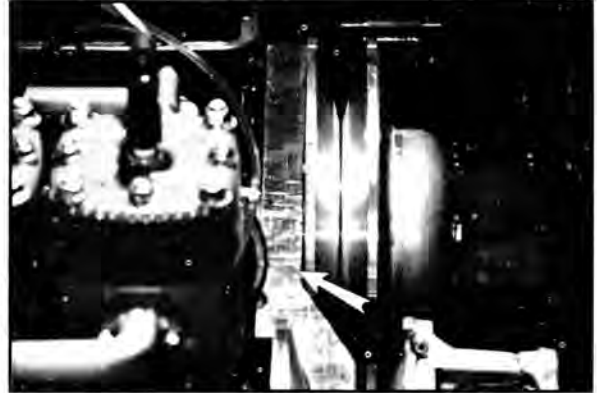
TORQUE-O-MATIC DRIVE Clutch Alignment

Clutch Alignment Tools:

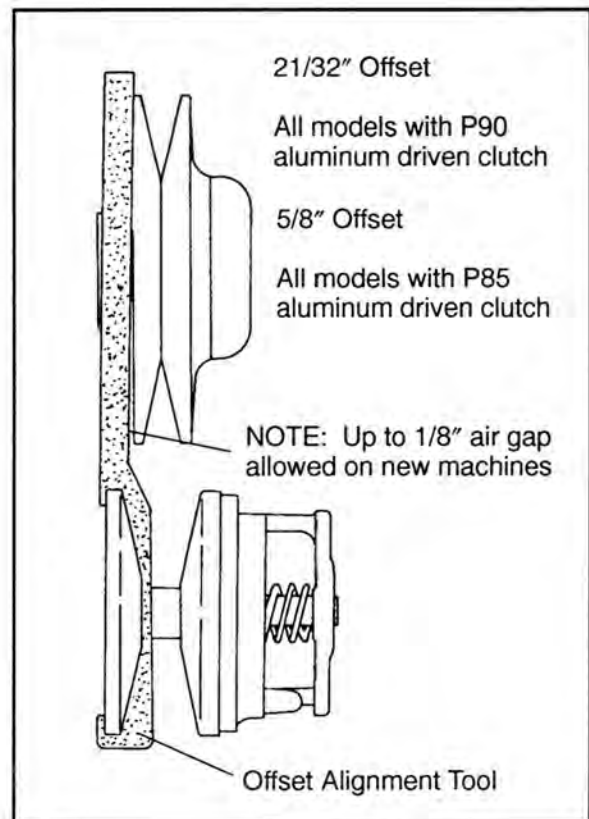
PN 2870426 P85 Clutches, 5/8" Offset

PN 2870914 P90 Clutches, 21/32" Offset

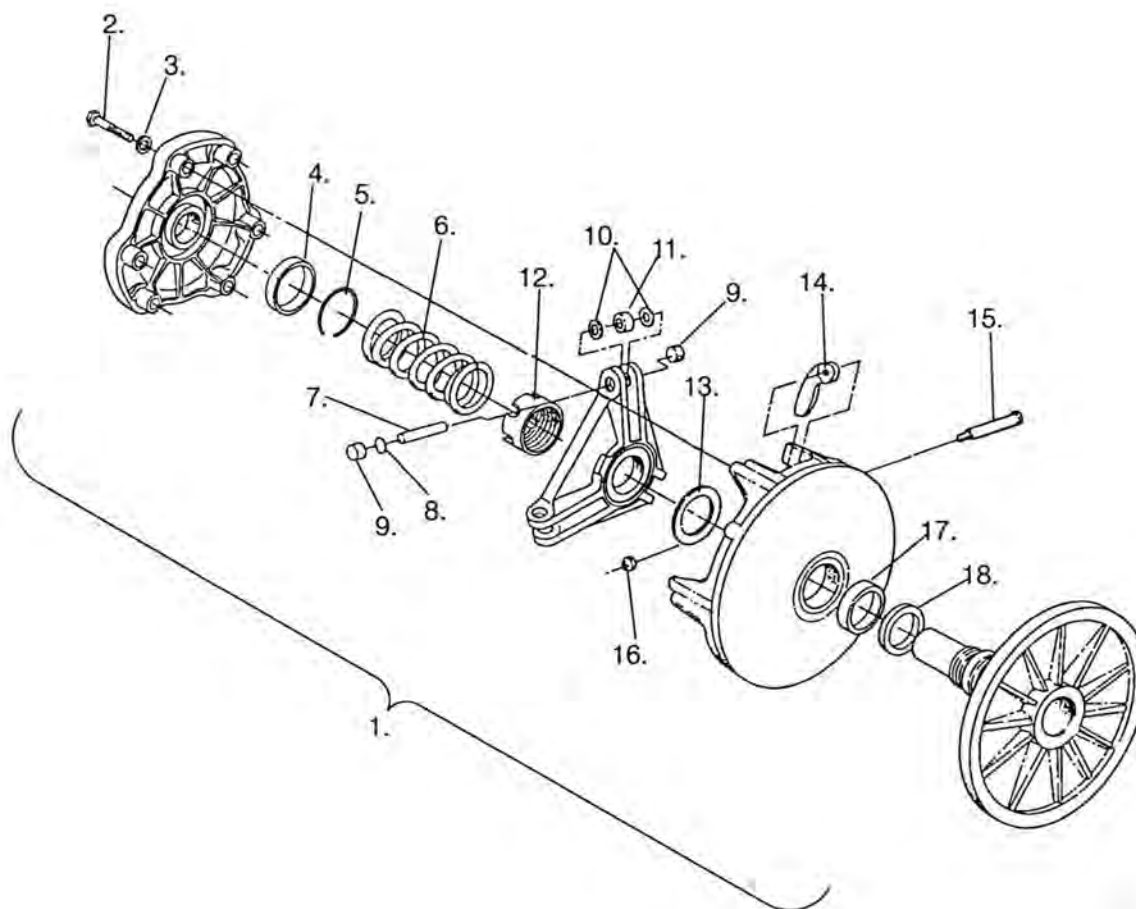
Use the proper clutch alignment tool to check clutch offset. When the clutches are properly aligned, the tool will contact all sheave surfaces equally. The motor mounts on some models are slotted to allow for installation of washers behind the driven clutch to achieve correct offset.



NOTE: The drive belt must be removed for this measurement.



TORQUE-O-MATIC DRIVE **P-85 Drive Clutch**



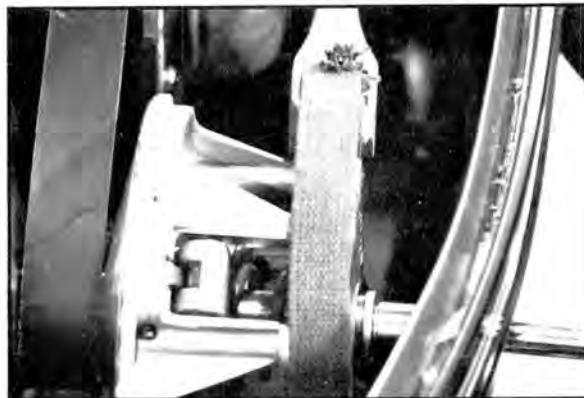
Ref.	Part No.	Qty.	Description
1.	1321551	1	Asm., Drive Clutch Basic 34 (Less 6 & 14)
2.	7512265	6	Bolt
3.	7552801	6	Washer, Spring Lock
4.	3576510	1	Cover, Bearing
5.	7710417	1	Ring, Retaining, Cover
6.	7041080	1	Spring, Clutch (Blue)
7.	5020422	3	Pin, Roller
8.	2200387	1	Kit - Shim, Drive Clutch
9.	5430445	6	Button, Guide
10.	5430945	6	Washer, Multilube
11.	1321457	3	Asm., Roller & Bushing
	1321622	3	Asm., Roller & Bushing (Storm Only)

Ref.	Part No.	Qty.	Description
12.	5020425	1	Nut, Jam
13.	5210754	AR	Spacer, .050mm
	5210753	AR	Spacer, .032mm
	5210752	AR	Spacer, .020mm
14.	1321531	3	Asm., Weight/Bushing (10A-L)
15.	7515105	3	Pin, Weight
16.	7541906	3	Nut
17.	3576502	1	Bearing, Sleeve
	3576503	1	Bearing, Sleeve (Trail w/EC50PM)
18.	5010188	1	Insert, Moveable

TORQUE-O-MATIC DRIVE

Drive Clutch Identification and Removal

1. Install strap wrench PN 2870336 to clutch cover. Remove drive clutch retaining bolt and install puller PN 2870506 into clutch. Tighten puller with a wrench, or strike t-bar with a hammer until clutch is removed.

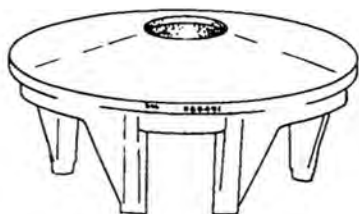


2. Prior to reinstalling drive clutch to engine, bore taper should be trued by using tapered reamer PN 2870576. Place reamer in a vise and lubricate with cutting oil. Clean taper by manually rotating clutch clockwise.



3. Position clutch on engine crankshaft. Install retaining bushing and bolt using strap wrench PN 2870336 to hold clutch. Torque retaining bolt to 40-45 ft. lbs. **CAUTION:** Never use an air impact wrench for installing or removing a drive clutch. It will loosen the spider torque value and could cause engine crankshaft damage.

While all drive clutches may look alike, each bears a different number. This number indicates internal clutch component variation for individual engines. For easy identification, refer to the three numbers behind date code on moveable sheave. These numbers are the last three digits of that clutch part number.



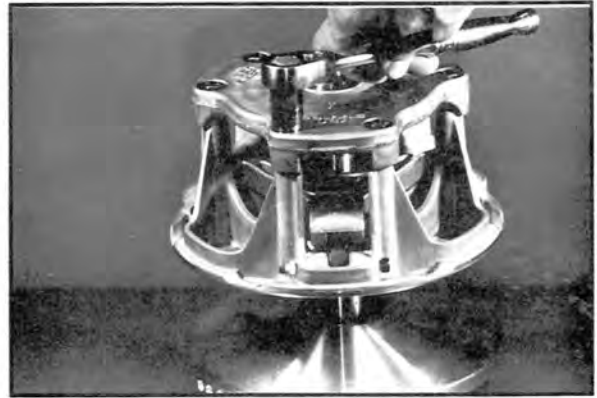
Used up to 1993



1994 & Later

TORQUE-O-MATIC DRIVE Drive Clutch Disassembly and Inspection

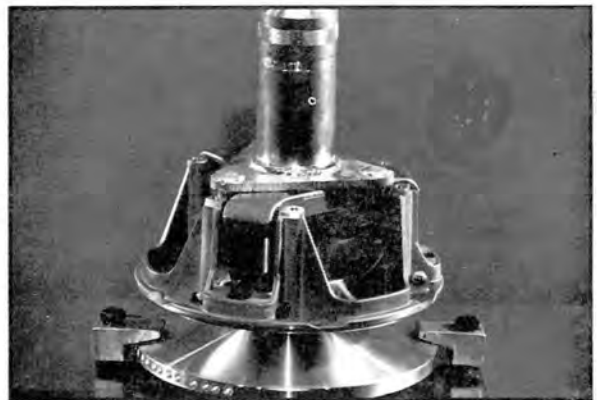
1. Carefully remove cover attaching screws. Remember that there is spring tension on the cover.



2. Install drive clutch into clutch holding fixture PN 2870461.
3. On models equipped with a spider jam nut, install jam nut tool PN 2870338 and remove jam nut.



4. Install spider removal tool PN 2870341 and remove spider.



5. Count the number of spacer washers installed beneath the spider.



TORQUE-O-MATIC DRIVE

Drive Clutch Disassembly and Inspection

10. Using a 1/8" Allen wrench and 3/8" combination wrench, remove drive clutch fly weights.



11. Remove spider buttons using button removal tool PN 2870985.

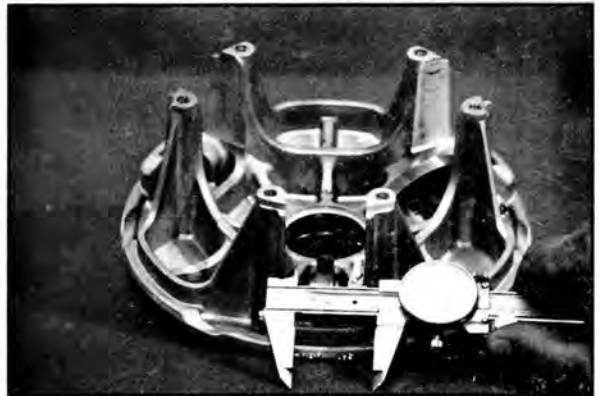
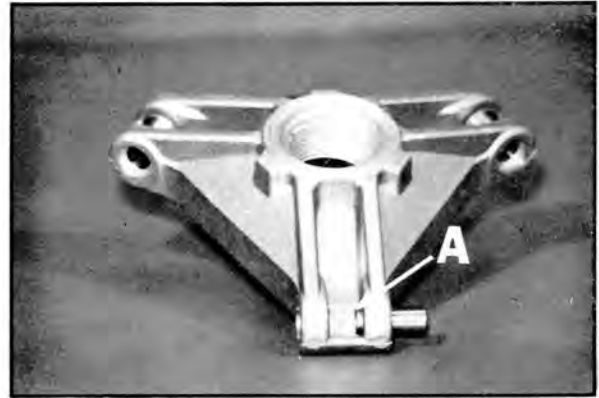


12. Place spider on a vise. Using a pin punch, drive out the roller pin.
13. Inspect all rollers, bushings, thrust washers, and roller pins.



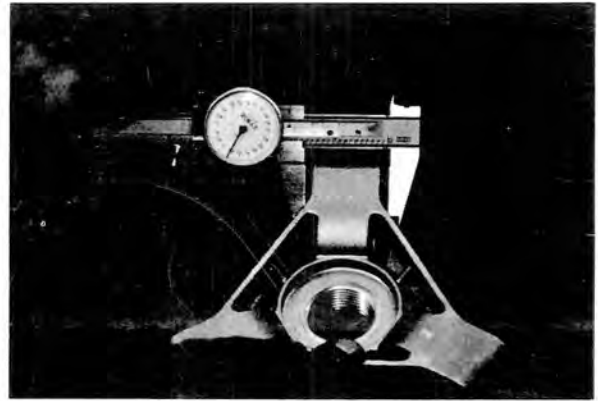
TORQUE-O-MATIC DRIVE Spider Assembly

1. Start a replacement roller on each leg, driving a pin in about .100"-.125" (.25-.32 cm) beyond the first land of the spider leg (A). **TIP:** This enables you to locate the first washer and align the roller until the pin is flush with the second land.
2. Install one washer onto the pin.
3. Place a few drops of Polaris clutch and cable lube (PN 2870510) onto the roller bushing. Place roller on pin as it protrudes from first land.
4. Place a second washer on the other side of the roller.
5. Install service tool as shown in photo 2.
6. Place spider on a vise anvil and drive the roller pin through to the second land of the spider. **CAUTION:** Use care to start the pin straight. Aluminum burrs could pass through into the roller bushing causing it to bind and stick. Also use care to make sure the roller remains aligned when the pin is driven through. The roller bushing could be damaged causing premature wear and roller failure.
7. Determine how many shims are to be used. **NOTE:** Shim Kit PN 2200387 contains an assortment of shims, including .002", .005", and .010".
8. Measure the dimension between towers at the lower half of the towers as shown.
9. Install spider buttons using a soft face hammer.

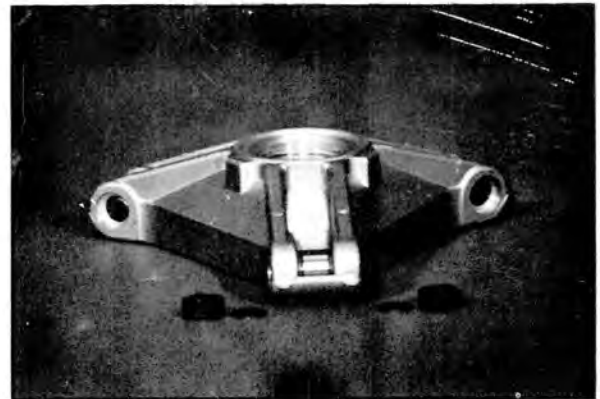


TORQUE-O-MATIC DRIVE Spider Assembly

10. Record width of spider buttons on each leg.



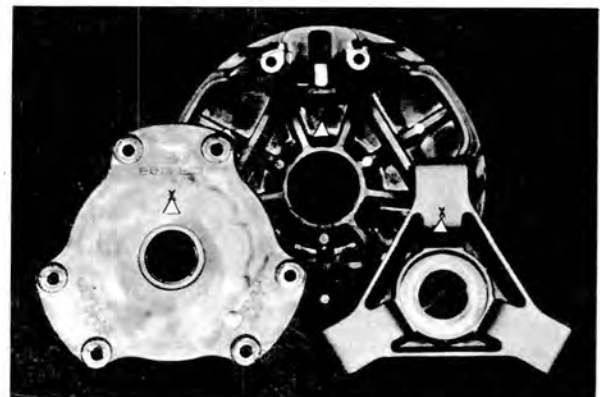
11. Add shims beneath spider button to obtain .002" (.05 mm) clearance between button and tower when assembled.



12. Place the correct number of spacer washers beneath the spider.

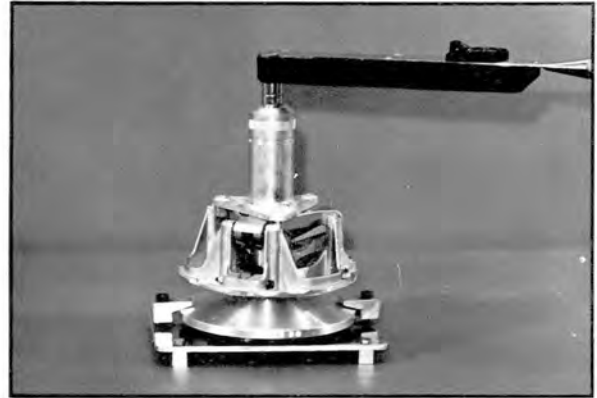


13. Assemble clutch making sure "X" marks are aligned to achieve proper balance.

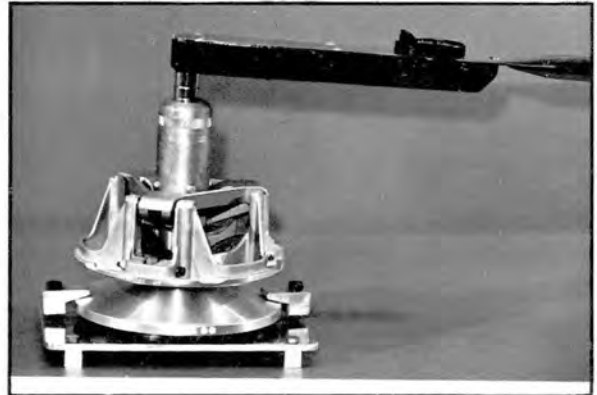


TORQUE-O-MATIC DRIVE Spider Assembly

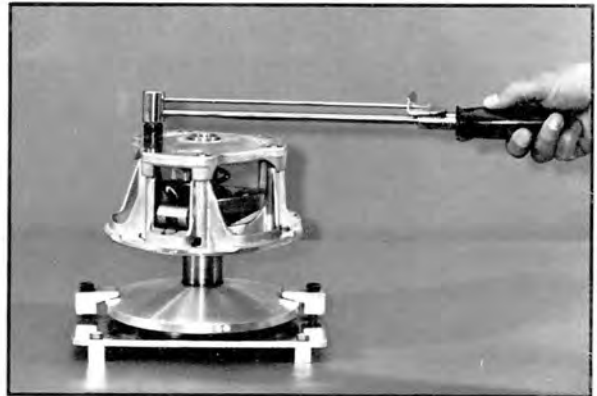
27. Torque spider to 200 ft. lbs. (27.6 kg/m). (Applies to either P85 or P90 models.)



28. Torque jam nut to 235 ft. lbs. (32.43 kg/m). (Select P85 models only.)



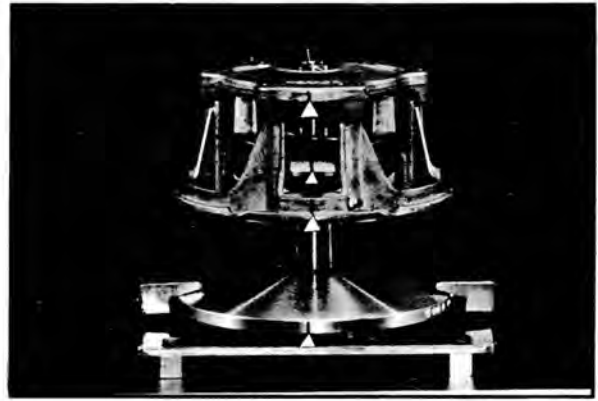
29. Install spring and cover. Torque cover screws to 90 inch lbs.



TORQUE-O-MATIC DRIVE

Spider Indexing

1. Remove drive clutch from engine and remove drive clutch cover and spring.
2. Mark spider, cover, moveable sheave, and stationary sheave in line as shown in photo 1.



Fine Tuning

The distance between the belt and the moveable sheave on the drive clutch is very important. This distance controls the starting ratio (lowest starting ratio is most preferable) and the position of the clutch weight to engine RPM. The distance between the belt and moveable sheave should be as close to .020" (.5 mm) as possible without creating a drag on the belt when positioned around the hub at the bottom of the sheaves.

New belt measurement width specification is 1.375" +/- .032.

1. Measure total belt to sheave clearance with a feeler gauge as shown in photo 2. **NOTE:** Any clearance over .020" requires disassembly and re-shimming of the spider.



Spider Shimming

1. Place drive clutch on holding fixture and unscrew spider.
2. Adjust spider washer pack to achieve desired belt to sheave clearance as described above.

The following washers are available for fine tuning:

PN 5210754	.050"
PN 5210753	.032"
PN 5210752	.020"



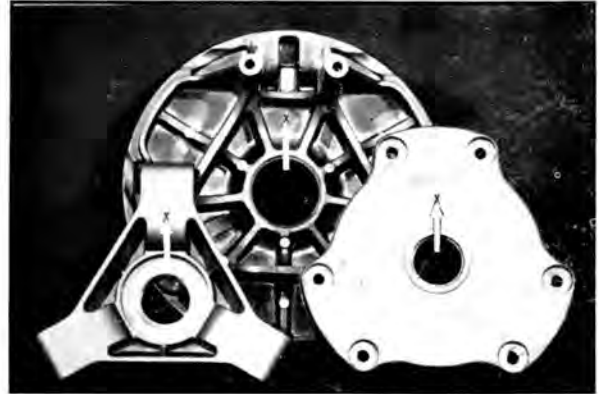
TORQUE-O-MATIC DRIVE Spider Indexing

3. Install spider washer(s) and spider. The spider must be rotated clockwise into the moveable sheave to maintain relative clutch balance after reassembly.

Re-indexing the spider 1/3 turn clockwise, or 1 leg, will allow the realignment of the moveable and stationary sheaves as previously marked. For example:

- .020" or .032" washer removed - re-index spider clockwise 1/3 turn
- .050" or .064" washer removed - re-index spider clockwise 1/3 turn
- Two .050" or .064" washers removed - re-index clockwise 2/3 turn

NOTE: Alignment marks should be within 1" (2.5 cm) after final assembly and torquing.



TORQUE-O-MATIC DRIVE

Aluminum Driven Clutch Service - P85

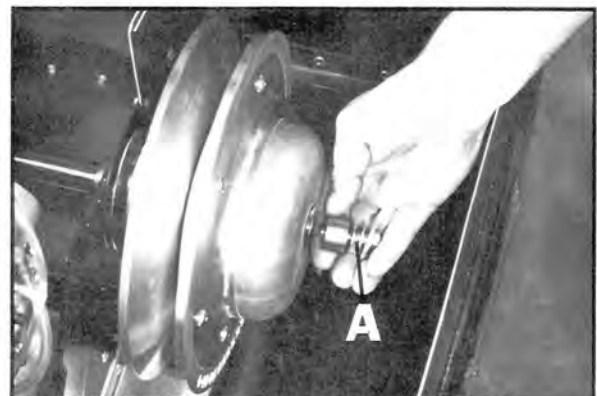
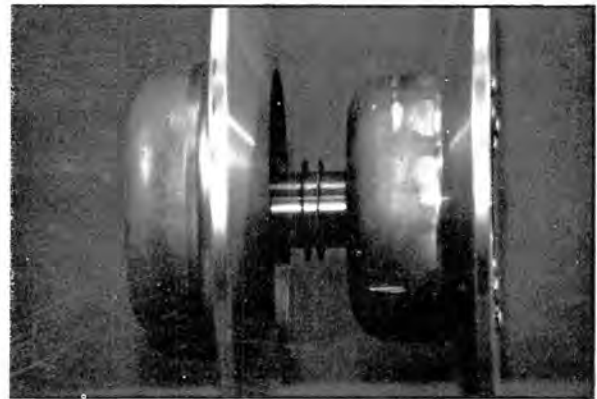
1. Remove snap ring and washer.



2. Inspect ramp buttons and bushing for wear.
3. Note condition of moveable sheave bushing. Install helix into bushing. It should slide freely without binding.
4. Polish helix with a fine emery cloth to remove any sharp edges which may cause sticking.



5. Clean all parts.
6. Reassemble stationary and moveable sheaves. Note the placement of the two thrust washers shown. These washers may be used to adjust the effective belt tension measurements as described earlier. Removal of a thrust washer increases neutral belt tension. **NOTE:** Addition or subtraction of these washers affects clutch alignment.
7. When driven offset is properly adjusted, the washers (A) (PN 7555734) are used to adjust for free float on drive. Without a slight free float, the jackshaft bearings could be side loaded, causing premature bearing failure. Torque bolt to 12 ft. lbs. (1.66 kg/m).



Helix Angles And Effects

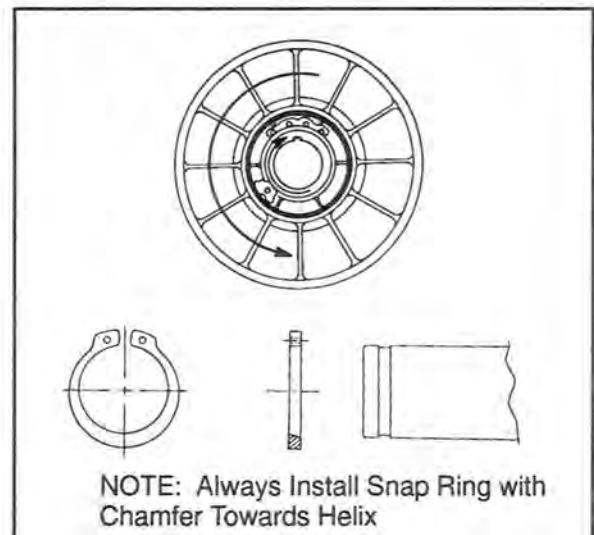
The driven clutch helix was selected for overall performance in relation to the other driven system components. In fine tuning situations requiring a slight adjustment of engine operating RPM or improved backshift, we recommend trying a helix change before changing other components.

Polaris has several helix angles available for the aluminum drive clutch. Refer to the chart below for specific angle effects and identification.

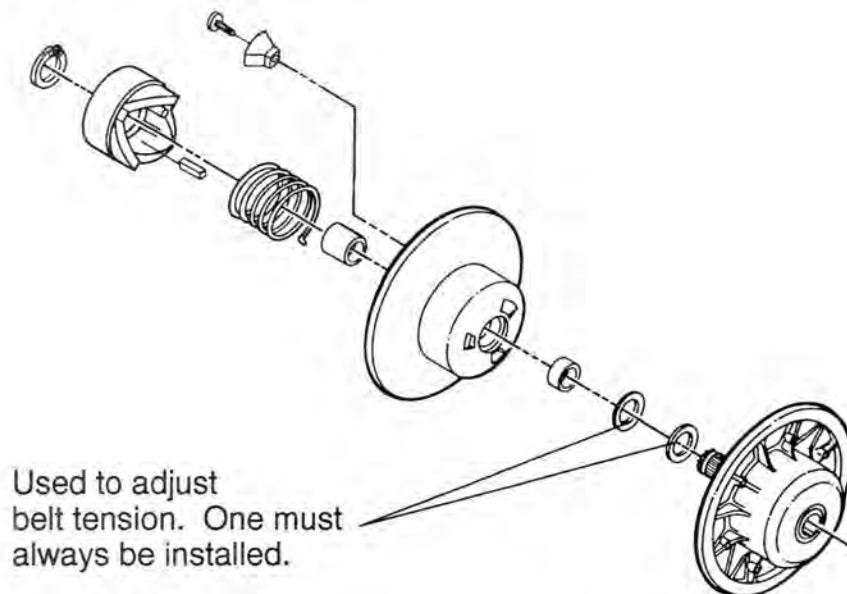
Helix	RPM Effect	Identification
34° PN 5630168	Increasing	Number 34 marked on back side of helix
36° PN 5630185	Decreasing	Number 36 marked on back side of helix
42° - 36° - 34° Combination PN 5131013	N/A	Identification T-1 marked on back side of helix

The helix spring should always be adjusted within its limits before a helix change is performed. The normal rate of change between helix angle steps is 250 RPM under full throttle. This is approximately the same result as in going from the No. 1 to No. 4 spring position. **NOTE:** Increasing spring tension increases engine RPM. RPM changes may not be evident if other drive or driven clutch components are substandard.

8. Reassemble clutch, installing spring into helix. On all models the production helix spring hole location is No. 2. Tension the spring 1/3 turn. Install helix key, thrust washer and snap ring.
9. With drive belt removed, insert a pin punch or drill bit into a balance hole on the moveable sheave. Using a good quality force gauge, record poundage at the point where the sheave just begins to break away. A desirable range for the Polaris OEM spring is from 9 to 13 lbs. To obtain this range, it may be necessary to move the spring to the No. 3 position. **NOTE:** This range may not be desirable under some riding conditions, such as slow trail riding. The higher spring tension will slow the upshift, decreasing fuel economy.



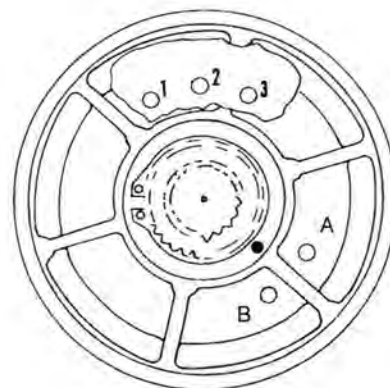
TORQUE-O-MATIC DRIVE **Aluminum Driven Clutch Service - P90**



The driven clutch helix/moveable assembly has several different spring locations which affect clutch shifting and RPMs. The tightest spring tension will raise engine RPMs during clutch upshift and allow quicker downshift when pulling or negotiating a hill. The lighter tension positions will tend to have a slower downshift and a harder upshift.

Example:	Helix	Moveable Sheave	Spring Tension
	B	1	Heavy
Spring/ Position	B	2	
	A	1	
	B	3	
	A	2	
	A	3	Soft

Production settings are usually B2



The driven clutch ramp buttons are secured by Torx screws. The ramp buttons should be replaced when worn.

After rebuilding, the driven clutch can be reassembled.

NOTE: Preload on the driven spring from any of the various spring positions is 1/3 turn preload tension (counterclockwise).



TORQUE-O-MATIC DRIVE Troubleshooting

SITUATION	PROBABLE CAUSE	REMEDY
Harsh drive clutch engagement	-Drive belt worn too narrow -Excessive belt to sheave clearance with new belt (high performance version without detent shift weight)	-Replace -Perform belt to sheave clearance adjustment with shim washers beneath spider
Drive belt turn over	-Wrong belt for application -Clutch alignment out of spec -Engine mount broken or loose -Driven clutch sheaves have excessive runout, are bent or damaged	-Replace -Adjust alignment offset -Inspect, adjust or replace -Measurement should be taken 12" (30.5 cm) in from outer circumference on sheave face. Maximum allowable tolerance is .015" (.6 mm).
Noise in drive system	-Broken drive clutch components -Excessive drive clutch button - tower clearance -Bearing failure/ chaincase, jackshaft or front drive shaft -Drive chain loose or worn, sprocket teeth broken -Driven clutch bushing worn excessively or spring broken -Drive belt surface flat spots	-Inspect/replace -Install new buttons or shim out existing buttons -Inspect/replace -Inspect/adjust or replace -Inspect/replace -Inspect/replace
DETENT SHIFT WEIGHTS Over rev during initial acceleration or during heavy pulling at low ground speeds. Engine bogs after engagement.	-Spider roller position remaining in detent -Worn belt -Excessive belt deflection	-Add spider shim washers -Add driven washers -Reduce gear ratio (chaincase models) -Replace -Subtract driven clutch washers

TORQUE-O-MATIC DRIVE

Troubleshooting

SITUATION	PROBABLE CAUSE	REMEDY
Engine RPM below specified operating range, although engine is in properly tuned	-Wrong or broken drive clutch spring -Drive clutch shift weight too heavy -Driven clutch spring broken or installed in wrong helix location (aluminum clutch) -Drive belt too long -Converter sheaves greasy; belt slippage	-Replace with recommended spring -Install correct shift weight kit to match engine application -Replace spring; refer to proper installation location -Clean clutches; install new belt -Install new belt and/or adjust belt tension
Erratic engine operating RPM during acceleration or load variations	-Drive clutch binding -Driven clutch malfunction	-Disassemble drive clutch; inspect shift weights for wear and free operation -Clean and polish stationary shaft hub; reassemble clutch without spring to determine problem area -Replace ramp buttons -Inspect moveable sheave for excessive bushing clearance/replace
Engine RPM above specified operating range	-Incorrect drive clutch spring (too high spring rate) -Drive clutch shift weights incorrect for application (too light) -Drive clutch binding -Driven clutch binding	-Install correct recommended spring -Install correct recommended shift weights -Disassemble and clean clutch, inspecting shift weights and buttons. Reassemble without the spring to further determine probable cause. -Disassemble, clean and inspect driven clutch, noting worn sheave bushing and ramp buttons and helix spring location