

SECTION VIII

CHAINCASE AND BRAKE

Contents of this Section

Brake System Identification	See Reverse Side
Chaincase Data (1972 through 1987)	1 — 2 <i>d</i>
Chain and Sprocket Specifications for Models Equipped with Cross-Over Jackshafts	2 <i>a</i>
Bleeding Procedures For Polaris Brake Systems	3
Hydraulic Brake Adjustment and Master Cylinder Overhaul	4
Master Cylinder Exploded View	5
Type I Slave Cylinder Removal and Repair	6
Type I Slave Cylinder Exploded View	7
Type II Brake Caliper Removal and Repair	8
Type II Brake Caliper Repair and Assembly	9
Type III Brake Caliper Removal and Repair	10 — 11
Type III Brake Caliper Assembly	12
Type IV Brake Overhaul and Pad Replacement	12 <i>a</i> — 12 <i>b</i>
Type V Brake Exploded View	12 <i>c</i>
Chaincase Exploded View — Type I Systems	13
Drive Chain Adjustment and Lubrication — Type I Systems	14
Chaincase Exploded View — Types II and III Systems	15
Drive Chain Adjustment and Lubrication — Types II and III Systems	16
Drive Chain Sprocket Alignment	17
Front Drive System Overhaul — Standard Models	18 — 22
Front Drive System Overhaul — Models with Transmissions	22 <i>a</i> — 22 <i>e</i>
Series 300 Transmission Overhaul	22 <i>f</i> — 22 <i>j</i>
Jackshaft Speed VS Miles Per Hour	23

BRAKE SYSTEMS IDENTIFICATION	
BRAKE TYPE I.D.	APPLICATION
Type I	All 1972-Current Models, EXCEPT 1973 and 1976 Starfire and 1976-Current TX, TX-C, TX-L, Centurion, TX-L Indy, Centurion Indy, Cutlass, and Cutlass SS
Type II	1973 and 1976 Starfire and 1976-1978 TX and TX-L
Type III	1979-Current TX, TX-C, TX-L, Centurion, All Indy Models
Type IV	All Direct Drive Models
Type V	1983 to Current Long Track Models

CHAINCASE AND BRAKE

Chaincase Data

1
9
7
2

Machine Model	Engine Model	Sprocket Ratio	Drive Chain	
			Type	Pitch
Colt	EC17P	12/35	35-2	84
Colt	EC25P	13/35	35-2	84
Colt	EC29P	13/35	35-2	84
Colt SS	EC29PF	13/35	35-2	84
Colt SS	EC34PF	13/35	35-2	84
Charger	EC29P	13/39	35-2	90
Charger	EC40P	15/41	35-2	90
Charger	EC54P	17/41	35-2	92
Charger SS	EC40PF	15/41	35-2	90
Charger SS	EC54PF	17/41	35-2	92
Mustang	EC40P	13/39	35-2	90
Mustang	EC54P	15/39	35-2	90
TX	EC34PS	13/39	35-2	90
TX	EC51PS	17/39	35-2	92

1
9
7
3

Machine Model	Engine Model	Sprocket Ratio	Drive Chain	
			Type	Pitch
Colt	EC17P	12/35	35-2	84
Colt	EC25PS	13/35	35-2	84
Colt	EC29PM	13/35	35-2	84
Colt SS	EC29PF	13/35	35-2	84
Colt SS	EC34PF	13/35	35-2	84
Charger	EC29PM	13/39	35-2	90
Charger	EC40PM	15/39	35-2	90
Charger	EC54PM	17/39	35-2	92
Custom	EC40PM	15/39	35-2	90
Custom	EC54PM	17/39	35-2	92
Mustang	EC40PM	13/39	35-2	90
Mustang	EC54PM	15/39	35-2	90
TX	EC29PS	13/39	35-2	90
TX	EC34PS	15/39	35-2	90
TX	EC40PS	15/39	35-2	90
TX	EC44PS	17/39	35-2	92
TX	EC51PS	19/39	35-2	92

1
9
7
4

Machine Model	Engine Model	Sprocket Ratio	Drive Chain	
			Type	Pitch
Colt	EC17PM	12/35	35-2	84
Colt	EC25PS	13/35	35-2	84
Colt	EC29PF	13/35	35-2	84
Colt SS	EC25PC	13/35	35-2	84
Colt SS	EC29PF	13/35	35-2	84
Colt SS	EC34PC	15/35	35-2	86
Electra	EC34PQ	15/39	35-2	90
Electra	EC44PQ	15/39	35-2	90
Custom II	EC25PS	13/39	35-2	90
Custom II	EC40PM	15/39	35-2	90
Custom II	EC54PM	17/39	35-2	92
TX	EC25PT	13/39	35-2	90
TX	EC34PS	15/39	35-2	90
TX	EC44PT	17/39	35-2	92
TX	EC51PT	19/39	35-2	92
TC	EC17PM	14/39	35-2	84
TC	EC25PS	14/39	35-2	84

1
9
7
5

Machine Model	Engine Model	Sprocket Ratio	Drive Chain	
			Type	Pitch
Colt	EC25PC	15/35	35-2	86
Colt	EC34PC	15/35	35-2	86
Colt SS	EC25PC	15/35	35-2	86
Colt SS	EC34PC	15/35	35-2	86
Electra	EC25PS	13/39	35-2	90
Electra	EC34PQ	15/39	35-2	90
Electra	EC44PQ	17/39	35-2	92
TX	EC25PT	13/39	35-2	90
TX	EC34PT	15/39	35-2	90
TX	EC44PT	17/39	35-2	92
TX	EC51PT	19/39	35-2	92
TC	EC17PM	14/39	35-2	84
TC	EC25PS	14/39	35-2	84

CHAINCASE AND BRAKE

Chaincase Data

1
9
7
6

Machine Model	Engine Model	Sprocket Ratio	Drive Chain	
			Type	Pitch
Colt	EC17PM	12/35	35-2	84
Colt	EC25PS	13/35	35-2	84
Colt	EC25PC	15/35	35-2	86
Colt	EC34PC	15/35	35-2	86
Colt SS	EC25PC	15/35	35-2	86
Colt SS	EC34PC	15/35	35-2	86
Electra	EC25PS	13/39	35-2	90
Electra	EC34PQ	15/39	35-2	90
Electra	EC44PQ	17/39	35-2	92
TX	EC25PT-06	14/39	Silent	64
TX	EC34PT-05	17/39	Silent	66
TX	EC44PT-05	19/39	Silent	66
Starfire	EC25PT-05	14/39	Silent	64
Starfire	EC34PT-06	15/39	Silent	64

1
9
7
7

Machine Model	Engine Model	Sprocket Ratio	Drive Chain	
			Type	Pitch
Colt	EC25PS	13/35	35-2	84
Colt	EC25PC	15/35	35-2	86
Colt SS	EC25PM-01	15/35	35-2	86
Colt SS	EC34PM-03	17/35	35-2	86
Electra	EC25PS	13/39	35-2	90
Electra	EC34PQ	15/39	35-2	90
Electra	EC44PQ	17/39	35-2	92
TX	EC25PT-07	15/39	Silent	64
TX	EC34PT-05	17/39	Silent	66
TX	EC44PT-05	19/39	Silent	66
TX	EC44PT-06	19/39	Silent	66
TX-L	EC34PL-01	19/39	Silent	66

1
9
7
8

Machine Model	Engine Model	Sprocket Ratio	Drive Chain	
			Type	Pitch
Colt	EC25PS	13/35	35-2	84
Colt	EC25PC	15/35	Silent	86
S/S 340	EC34PM-03/04N	17/35	Silent	86
Cobra	EC34PM-04	15/35	Silent	88
Cobra	EC44PM-01	17/33	Silent	88
TX	EC25PT-07	15/39	Silent	64
TX	EC34PT-05	17/39	Silent	66
TX	EC44PT-05	19/39	Silent	66
TX-L	EC34PL-02	19/39	Silent	66

1
9
7
9

Machine Model	Engine Model	Sprocket Ratio	Drive Chain	
			Type	Pitch
Gemini	EC25PS	13/35	35-2	84
Gemini	EC25PM-01	15/35	Silent	86
Apollo	EC34PM-03	18/35	Silent	88
Cobra	EC34PM-04	15/35	Silent	88
Cobra	EC44PM-01	17/33	Silent	88
TX	EC25PT-07	15/39	Silent	64
TX	EC34PT-05	17/39	Silent	66
TX	EC44PT-05	19/39	Silent	66
TX-L	EC34PL-02	19/39	Silent	66
Centurion	EC51PL-01	19/35	Silent	64

CHAINCASE AND BRAKE

Chaincase Data

1980

Machine Model	Engine Model	Sprocket Ratio	Drive Chain		
			Type	Pitch	Links Wide
Gemini	EC25PS	13/35	35-2	84	—
Gemini	EC25PM-01	15/35	Silent	86	8
Apollo	EC34PM-03	18/35	Silent	88	8
Galaxy	EC34PM-04	15/35	Silent	88	8
Galaxy	EC44PM-01/02	17/33	Silent	88	8
TX/TX-C	EC34PT-07	17/39	Silent	66	11
TX	EC44PT-05	19/39	Silent	66	11
TX-L/TX-L Indy	EC34PL-02/05	19/39	Silent	66	11
Centurion	EC51PL-02	19/35	Silent	64	11

CHAIN AND SPROCKET SPECIFICATIONS FOR MODELS EQUIPPED WITH CROSS-OVER JACKSHAFTS

Sprocket Combination	Gear Ratio	Chain Pitch
21/35	1.67	64
19/35	1.84	64
21/39	1.86	66
18/35	1.94	64
21/41	1.95	68
19/39	2.05	66
17/35	2.06	62
19/40	2.11	68
19/41	2.16	66
18/39	2.17	66
16/35	2.19	62
18/41	2.28	68
17/39	2.29	66
15/35	2.33	62
17/40	2.35	66
17/41	2.41	66
16/39	2.44	64
16/40	2.50	66
14/35	2.50	62
16/41	2.56	66
15/39	2.60	64
15/40	2.67	64
15/41	2.73	66
14/39	2.79	64
14/40	2.86	64
14/41	2.93	64

HIGHER RATIO
↑
↓
LOWER RATIO

CHAINCASE AND BRAKE

Chaincase Data

1
9
8
1

Machine Model	Engine Model	Sprocket Ratio	Drive Chain		
			Type	Pitch	Links Wide
Gemini	EC25PS	13/35	35-2	84	---
Galaxy	EC44PM-02	17/33	Silent	88	8
Cutlass	EC34PM-03	---	---	---	---
Cutlass SS	EC44-2PM-3100/3300	---	---	---	---
TX-C	EC44-2PM-1100	19/35	Silent	64	11
TX-L/TX-L Indy	EC34PL-05	19/39	Silent	66	11
Centurion Indy	EC51PL-02	19/35	Silent	64	11

1
9
8
2

Machine Model	Engine Model	Sprocket Ratio	Drive Chain		
			Type	Pitch	Links Wide
Cutlass SS	EC44-2PM-3100	---	---	---	---
TX-C	EC44-2PM-1100	19/35	Silent	64	11
TX-L/TX-L Indy	EC34PL-05	19/39	Silent	66	11
Centurion Indy	EC51PL-02	19/35	Silent	64	11

CHAINCASE AND BRAKE

Chaincase Data

Machine Model	Engine Model	Chaincase Gearing	Drive Chain		
			Type	Pitch	Links Wide
Gemini	EC25PS	13/35	35-2	84	—
Star	EC25PS	Direct Drive	—	—	—
Sport	EC44-2PM-5100	Direct Drive	—	—	—
SS	EC44-2PM-3100	Direct Drive	—	—	—
Indy Trail	EC44-2PM-2100	19/35	Silent	64	11
Indy Cross Country	EC34PL-05	19/39	Silent	66	11
Indy 600	EC60PL-01	21/35	Silent	64	11
Long Track	EC44-2PM-5000	19/39	Silent	66	11

Machine Model	Engine Model	Chaincase Gearing	Drive Chain		
			Type	Pitch	Links Wide
Star	EC25PS-05	Direct Drive	—	—	—
SS	EC44-2PM-3100	Direct Drive	—	—	—
Indy Trail	EC44-2PM-2100	19/35	Silent	64	11
Indy 600	EC60PL-02	19/35	Silent	64	11
Star LT	EC25PS-05	15/39	Silent	64	11
Long Track	EC44-2PM-5000	19/39	Silent	66	11

CHAINCASE AND BRAKE

Chaincase Data

1985

Machine Model	Engine Model	Chaincase Gearing	Drive Chain		
			Type	Pitch	Links Wide
Star	EC25PS-06	Direct Drive	---	---	---
SS	EC44-2PM-3100	Direct Drive	---	---	---
Indy Trail	EC44-2PM-2100	19/35	Silent	64	11
Indy 400	EC40PL-02	19/35	Silent	64	11
Indy 600	EC60PL-02	19/35	Silent	64	11
Long Track	EC44-2PM-5000	19/39	Silent	66	11

1986

Machine Model	Engine Model	Chaincase Gearing	Drive Chain		
			Type	Pitch	Links Wide
Star	EC25PS-06	Direct Drive	---	---	---
Sprint (ES)	EC34-2PM	Direct Drive	---	---	---
SS	EC44-2PM-3100	Direct Drive	---	---	---
Indy Trail	EC50PM-01	21/35	Silent	64	11
Indy 400	EC40PL-02	19/35	Silent	64	11
Indy 600 (LE)	EC60PL-02	21/35	Silent	64	11
Long Track	EC44-2PM-5100	19/39	Silent	66	11

1987

Machine Model	Engine Model	Chaincase Gearing	Type	Drive Chain	
				Pitch	Links Wide
Star	EC25PS-06	Direct Drive	---	---	---
Star Trak	EC25PS-06	15/39	Silent	64	11
Sprint (ES)	EC34-2PM-01/02	Direct Drive	---	---	---
Indy Sport	EC34-2PM-03	17/35	Silent	62	11
Indy Trail (All)	EC50PM-01	21/35	Silent	64	11
Indy 400	EC40PL-02	19/35	Silent	64	11
Indy 600	EC60PL-02	21/35	Silent	64	11
Long Track (RLR)	EC44-2PM-5100	19/39	Silent	66	11
Long Track RLR Ratios — High Range 2.05/1 Low Range 3.56/1 Reverse 2.85/1					

CHAINCASE AND BRAKE

Bleeding Procedures for Polaris Brake Systems

The Polaris hydraulic brake mechanism consists of a handlebar mounted master cylinder, a hydraulically operated plunger assembly (slave cylinder) integrally mounted in the chaincase rear cover, an adjustable brake pad and a self aligning brake disc mounted in the chaincase.

The master cylinder contains a fluid reservoir and a cylindrical pressure chamber in which force applied to the brake lever is transmitted to the fluid which actuates the plunger assembly in the chaincase rear cover. A coil spring, located in the master cylinder, holds the piston assembly against the actuating force of the brake lever. A piston assembly consists of a piston, "U" seal and a rubber "O" ring.

SERVICE

1. Air in the hydraulic system will cause a spring or spongy action of the brake lever. A bleeding operation is necessary to remove air in the system. Fill the master cylinder with standard automotive type brake fluid or Polaris silicone brake fluid (PN 2870251).



2. Slip a rubber tube over the ball of the bleeder valve and direct fluid away from painted areas. NOTE: Care must be taken to wipe any accidentally spilled fluid from painted surfaces.



3. Slowly squeeze brake lever a full stroke and hold. Unscrew bleeder valve 3/4 turn to release air. Close bleeder valve, then release brake lever. Repeat the above procedure until fluid flows from bleeder valve in a solid stream that is free of air. Check master cylinder periodically to make sure that it contains fluid. Fluid should be 1/8" from top of reservoir area. Fill with brake fluid and install new gasket.



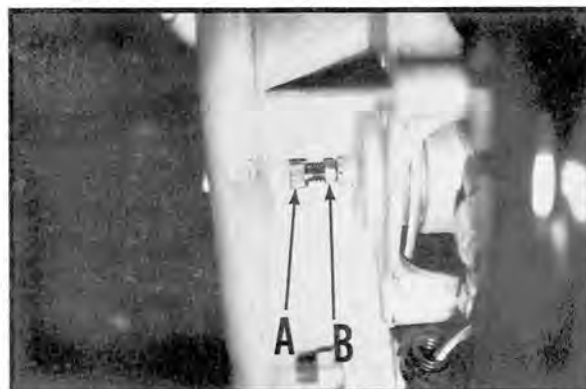
CHAINCASE AND BRAKE

Hydraulic Brake Adjustment and Master Cylinder Overhaul

BRAKE ADJUSTMENT – BRAKE SYSTEM TYPE I

⚠ If there is excessive brake pad clearance, turn set screw (A) clockwise until pads are tight against the disc, then back off the screw 1/4 turn counterclockwise. Re-tighten the lock nut (B).

NOTE: When the head of the adjustment screw contacts the locknut, new brake pads should be installed.

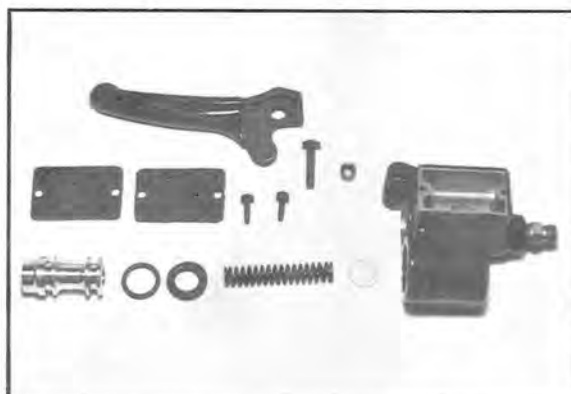
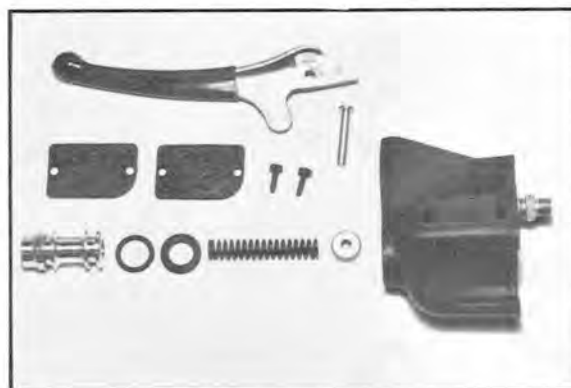


BRAKE SYSTEMS TYPE II AND III

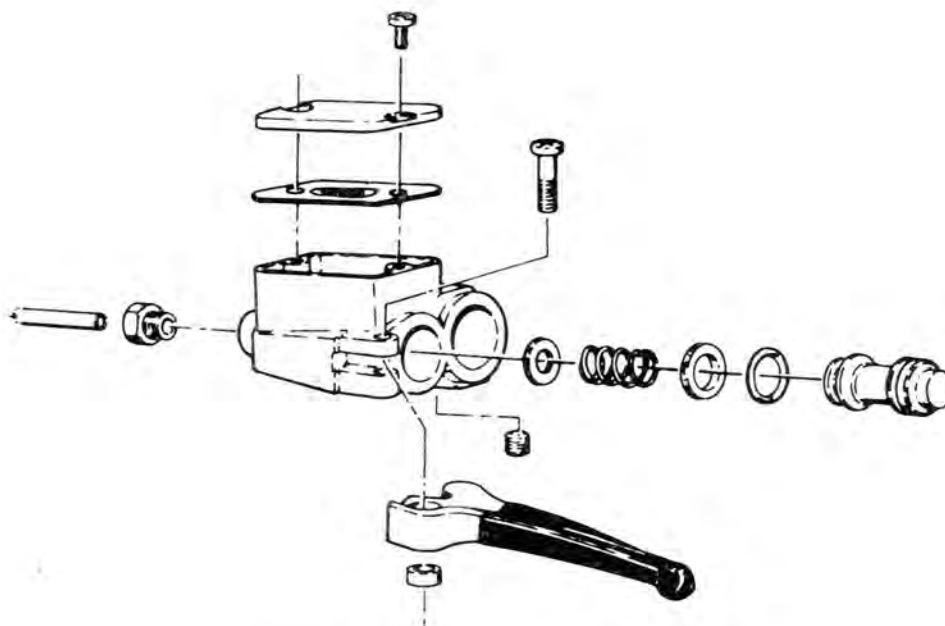
These systems are self adjusting and do not require adjustments.

MASTER CYLINDER OVERHAUL

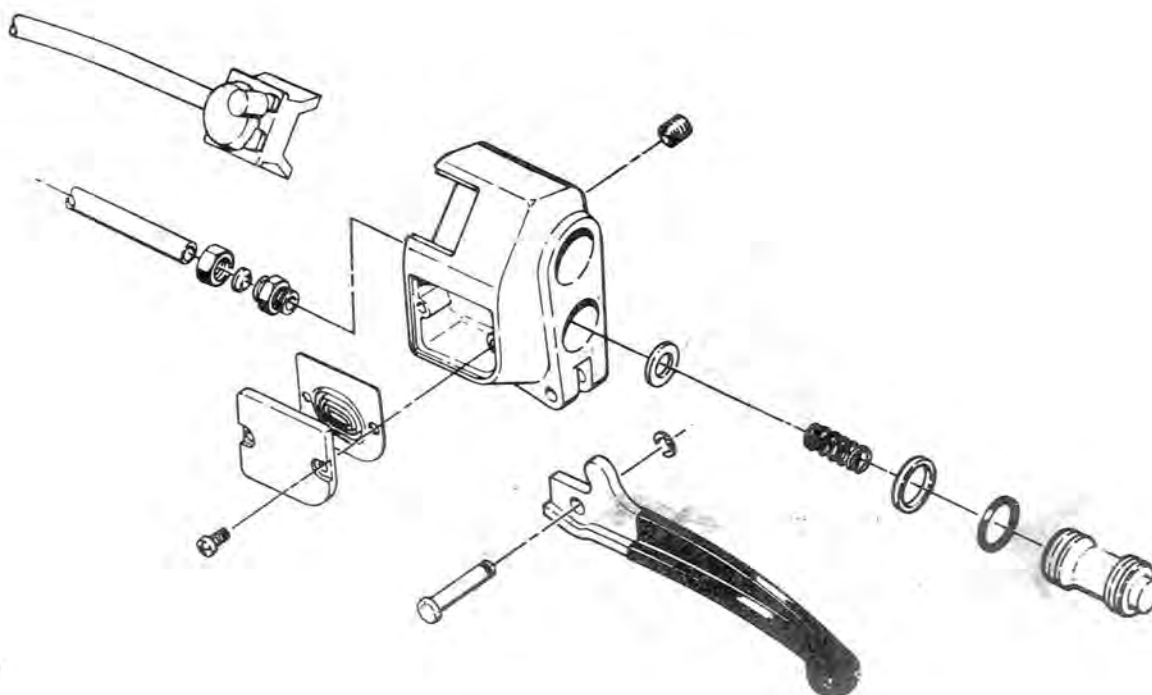
1. Remove the master cylinder assembly from the machine taking care not to spill brake fluid on painted surfaces. On models equipped with molded velox master cylinder, remove existing rivet, as shown. This will have to be replaced with a new pin (PN 7661615) and retaining ring (PN 7710401) upon reassembly.
2. Remove the piston and springs from the master cylinder discarding the rubber "U" cup, "O" ring, and cover gasket. Inspect the cylinder bore for scores, scratches or corrosion. All cylinder parts must be very clean and not be allowed to come in contact with any lubricating oil. When reassembling, dip all internal parts in brake fluid, also wet the cylinder bore. Install new "U" cup and "O" ring to the piston. Next install the springs and piston into the master cylinder bore exercising care to insure the seal is not damaged. Install lever with a new pin and retainer. Assemble the master cylinder to the handlebar, adjusting and bleeding air from system as covered in this section. Use a new cover gasket to prevent leakage.



CHAINCASE AND BRAKE
Master Cylinder Exploded View



CAST ALUMINUM MASTER CYLINDER

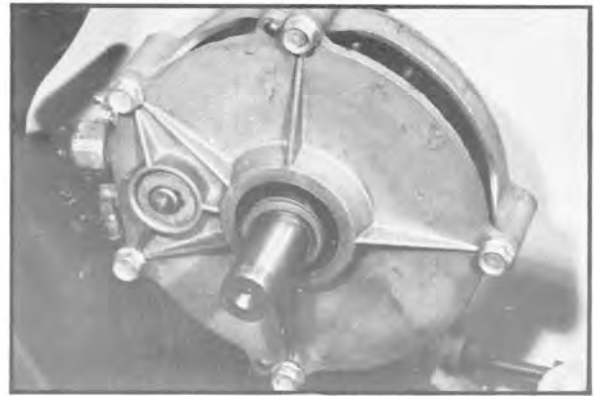


MOLDED VELOX MASTER CYLINDER

CHAINCASE AND BRAKE

Type I Slave Cylinder Removal and Repair

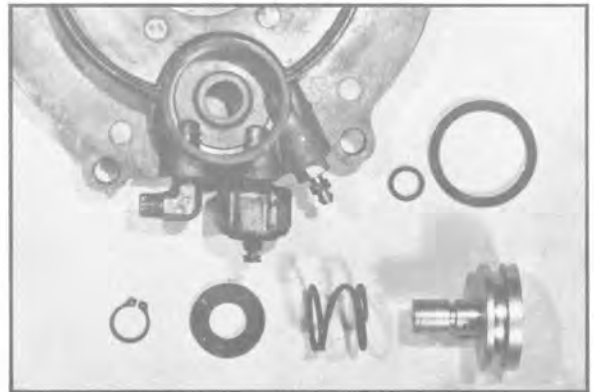
1. Remove the air box, driven clutch, brake line, brake light switch wires, and five cap screws from chaincase rear cover.



2. Apply heat to bearing area and slide rear cover and slave cylinder assembly from the shaft. **NOTE:** On some models it may be necessary to loosen chaincase to enable the rear cover to clear the chaincase mounting gussets.



3. Remove piston retaining snap ring. Remove washer, spring, and plunger from rear cover and discard. Clean rear cover thoroughly with brake fluid or denatured alcohol. **CAUTION:** Do not use methanol-base anti-freeze or any other cleaning fluid that may contain even a trace of mineral oil. Inspect bore for scores, scratches, or corrosion. Slight corrosion may be cleaned with fine crocus cloth and alcohol.

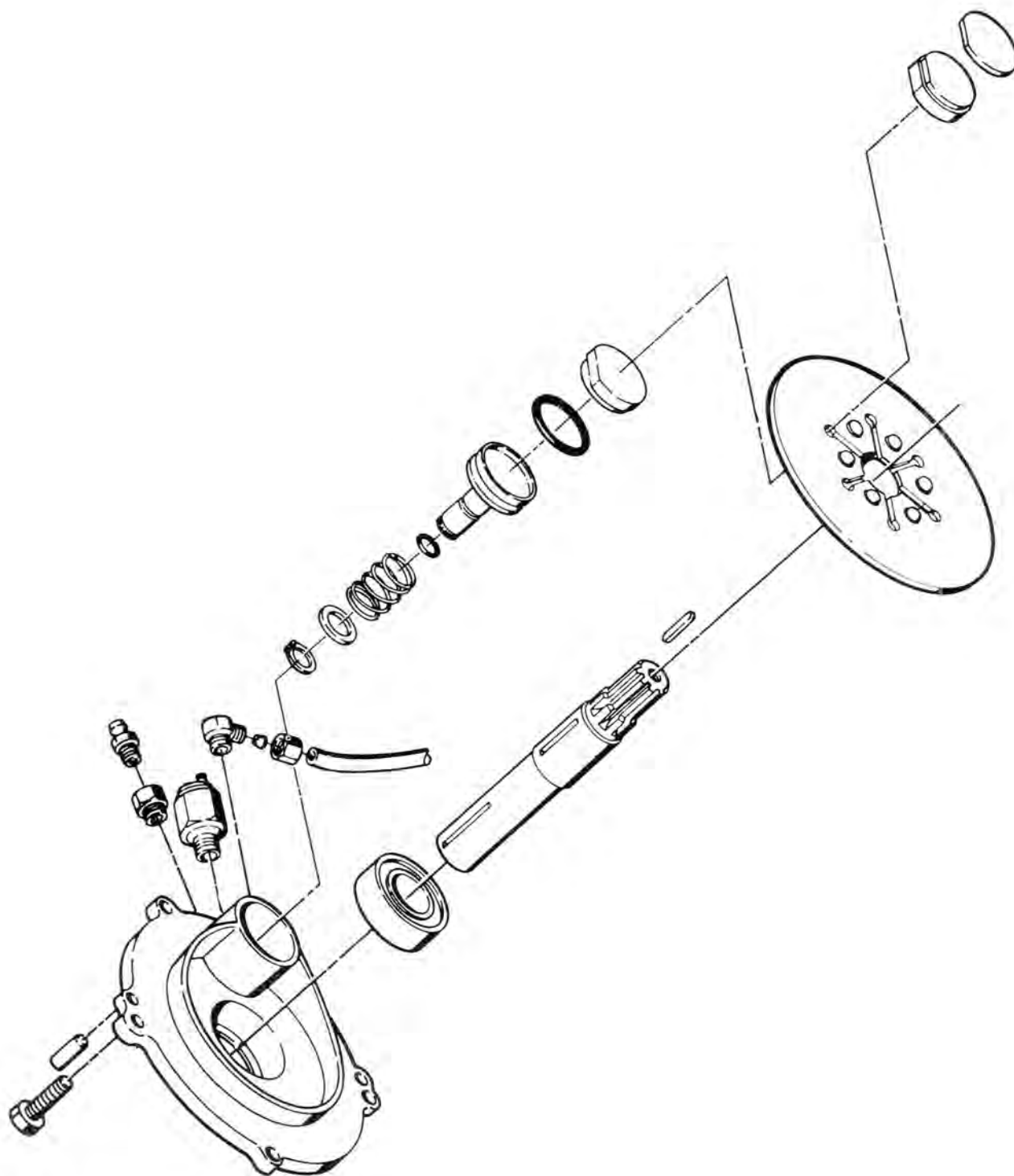


4. Dip all internal parts in clean brake fluid. Use automotive brake fluid or Polaris silicone brake fluid (PN 2870251). Wet cylinder bore and install "O" rings on plunger and insert into rear cover.

 Care must be taken not to damage "O" rings. Torque rear cover bolts evenly as numbered. Bleed system as outlined on page VIII - 3.



CHAINCASE AND BRAKE
Type I Slave Cylinder Exploded View



CHAINCASE AND BRAKE

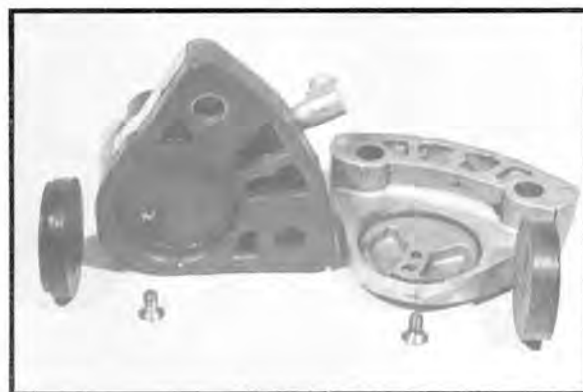
Type II Brake Caliper Removal and Repair

1. Remove the hydraulic line, exercising care to prevent fluid spillage on painted surfaces.
2. Remove the two bolts (A) which hold the caliper halves together and the four bracket mounting screws (B).



3. Remove the friction pads, noting the difference between the stationary side and piston side pads.

NOTE: When replacing friction pads only, it is important to make room for new pads. The piston must be pushed back into the slave cylinder bore. Use Loctite on the two friction pad attaching screws.



4.  Piston removal is facilitated by the use of compressed air at the inlet fitting. Extreme caution must be exercised to prevent fluid from getting in eyes. Cover the assembly with a shop rag as shown.

5. Inspect the cylinder and piston for scoring. Evidence of severe scoring in the caliper bore will mean replacing the housing and piston to obtain a proper piston seal.



CHAINCASE AND BRAKE

Type II Brake Caliper Repair and Assembly

6. Dip the piston assembly and the "O" ring seal in brake fluid; assemble the seal to the piston. Press the piston into the caliper bore keeping it square to avoid scoring the bore. Push it firmly all the way in.



7. Reassembly is basically the reverse of disassembly procedures. Be sure that all components are clean and serviceable before re-assembling the unit.

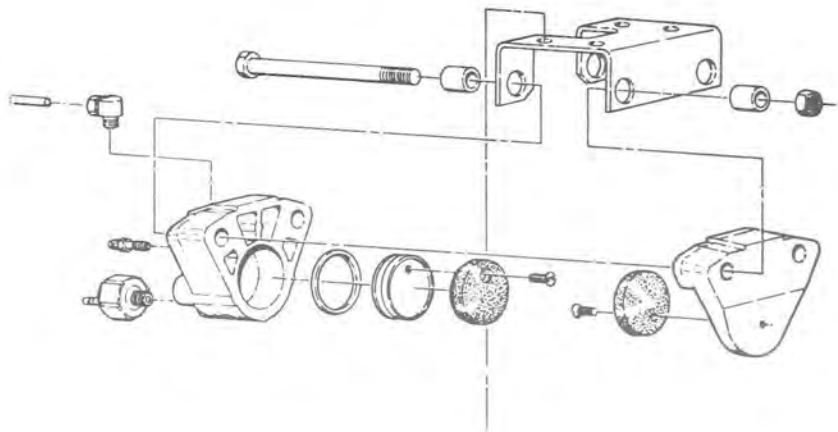
Observe the following:

- A. Apply Loctite (PN 2870326) compound on the two (2) caliper carrier bolts and four (4) bracket attaching cap screws.

Torque Values

Caliper carrier bolts - 25 - 30 ft./lbs.
Caliper attaching bracket cap screws - 8 ft./lbs.

- B. Purge the system of all trapped air by bleeding as outlined on page VIII - 3.
- C. Inspect for system leaks.
- D. Check caliper unit mount for free floating action.



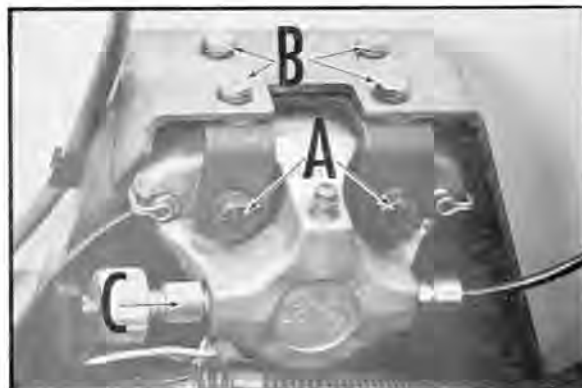
TYPE II SLAVE CYLINDER EXPLODED VIEW

CHAINCASE AND BRAKE

Type III Brake Caliper Removal and Repair

1. Remove the hydraulic line, exercising care to prevent fluid spillage on painted surfaces.
2. Remove spring clips (9), figure 1, which hold the pad retaining pins (10).
3. Remove the two bridge bolts (A) holding the caliper halves together and the four bracket mounting screws (B).

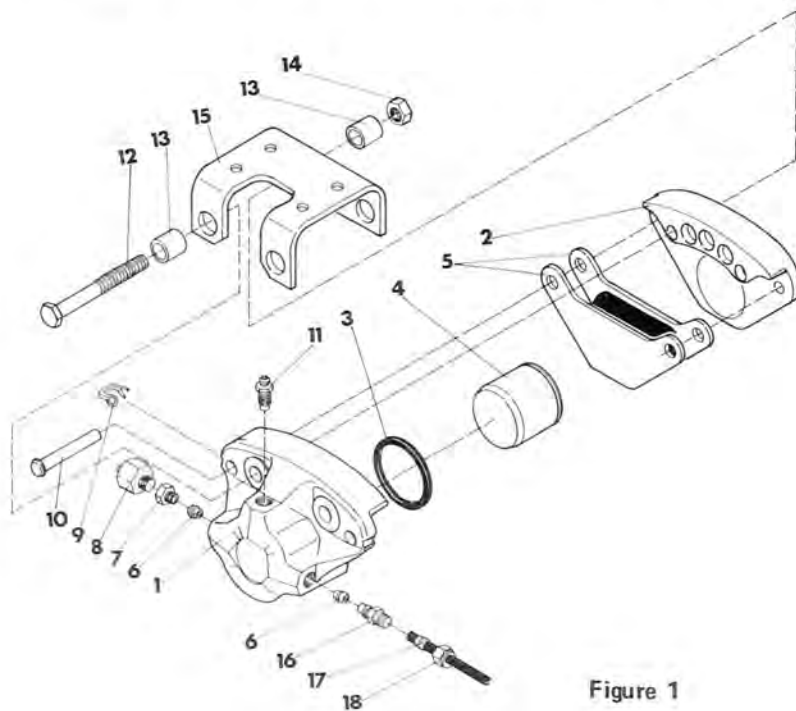
IMPORTANT: Note brake light switch adapter (C) which is used on all Type III brake systems, except Centurion. The Centurion has a special brake light switch which does not require the use of an adapter. All brake light switches, except Centurion, have 1/8" NP thread. The Centurion has a 3/8 x 24 NF thread and a flared end. Therefore, care must be taken when replacing these switches so as not to interchange them and cause possible damage to caliper assemblies.



REPLACING FRICTION PADS

The pad is attached to a pad holder and is replaced as a set.

1. To make room for new pads, the piston must be pushed back into the caliper bore. Loosen the bleeder screw and work the piston back into the bore.
2. Take out pad retaining pins and remove worn friction pads.
3. Install new pad holders. Brake pads should be replaced only as a set.
4. With unit reassembled, apply brakes lightly several times to seat the new pads against the disc.



- 1 — Piston Casting
- 2 — Carrier Casting
- 3 — Piston Seal
- 4 — Piston
- 5 — Pad Assembly (2)
- 6 — Seat Insert (2)
- 7 — Brass Adapter
- 8 — Stop Light Switch
- 9 — Spring Clip (2)
- 10 — Pad Retainer Pin (2)
- 11 — Bleeder Screw
- 12 — Bridge Bolt (2)
- 13 — Spacer Bushing (4)
- 14 — Nut (2)
- 15 — Bracket
- 16 — Male Adapter
- 17 — Ferrule Fitting
- 18 — Female Connector

Figure 1

CHAINCASE AND BRAKE

Type III Brake Caliper Removal and Repair

DISASSEMBLY

Refer to the exploded view while performing steps below. Numbers in parenthesis correspond to callouts in figure 1.

NOTE: Only take apart as far as needed to make repairs.

1. Disconnect hydraulic line.
2. Disassemble on a clean bench.
3. Open bleed screw (11) and drain brake fluid from caliper assembly.
 CAUTION: PROTECT EYES FROM FLUID.
4. Remove the spring clips (9) that hold the pad retainer pins (10) and remove the pins.
5. Remove the two bridge bolts (12).
6. Separate castings (1) and (2).
7. Place caliper with piston down and remove piston (4) from piston casting (1) by applying compressed air to the hydraulic inlet port.
 CAUTION: Use just enough air to do the job. Use extra care not to damage the piston or piston bore.
8. Using a small wood or plastic stick, work out piston seal (3) from its groove in the piston bore. Discard old seal.
 CAUTION: To avoid scratching piston or burring edge of seal groove, do not use a metal tool such as a screwdriver.

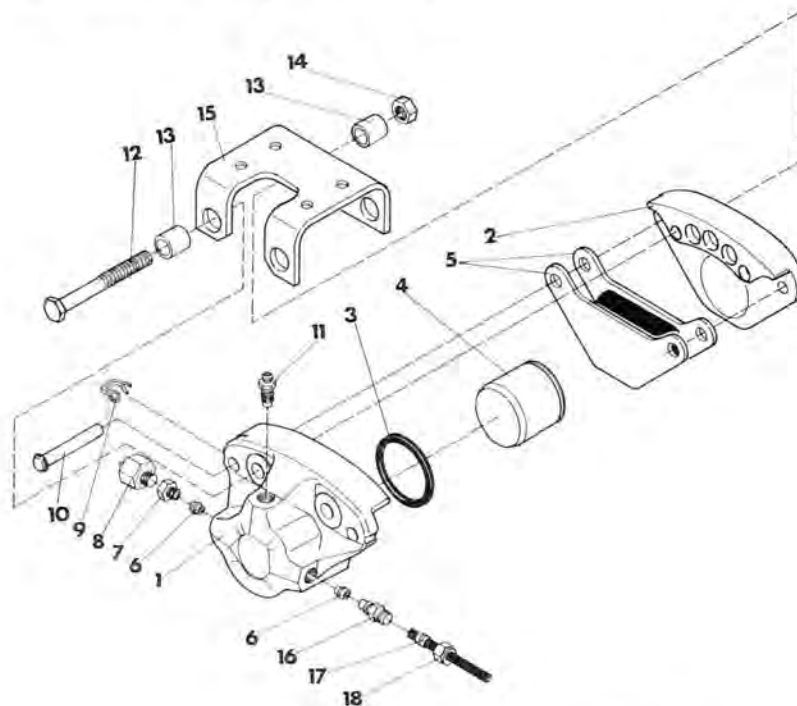
CLEANING AND INSPECTING

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

1. Clean all parts with denatured alcohol and wipe dry with a clean, lint-free cloth. Using an air hose, blow out the drilled passages and bores.
2. 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.
3. Polish any discolored or stained area with 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 or abrasive cloth. Black stains on the bore walls are caused by the piston seals and do no harm.
4. Check piston to see if it is pitted, scored, or worn. If so, discard and replace the piston. Do not attempt to polish or sand piston.
5. Clean piston with denatured alcohol and wipe dry with a clean, lint-free cloth. Using an air hose, blow dry.
6. Check inlet and bleeder hole threads for damage.
7. Inspect seat insert (6) for damage and replace if necessary.

CHAINCASE AND BRAKE

Type III Brake Caliper Assembly



- 1 – Piston Casting
- 2 – Carrier Casting
- 3 – Piston Seal
- 4 – Piston
- 5 – Pad Assembly (2)
- 6 – Seat Insert (2)
- 7 – Brass Adapter
- 8 – Stop Light Switch
- 9 – Spring Clip (2)
- 10 – Pad Retainer Pin (2)
- 11 – Bleeder Screw
- 12 – Bridge Bolt (2)
- 13 – Spacer Bushing (4)
- 14 – Nut (2)
- 15 – Bracket
- 16 – Male Adapter
- 17 – Ferrule Fitting
- 18 – Female Connector

Figure 1

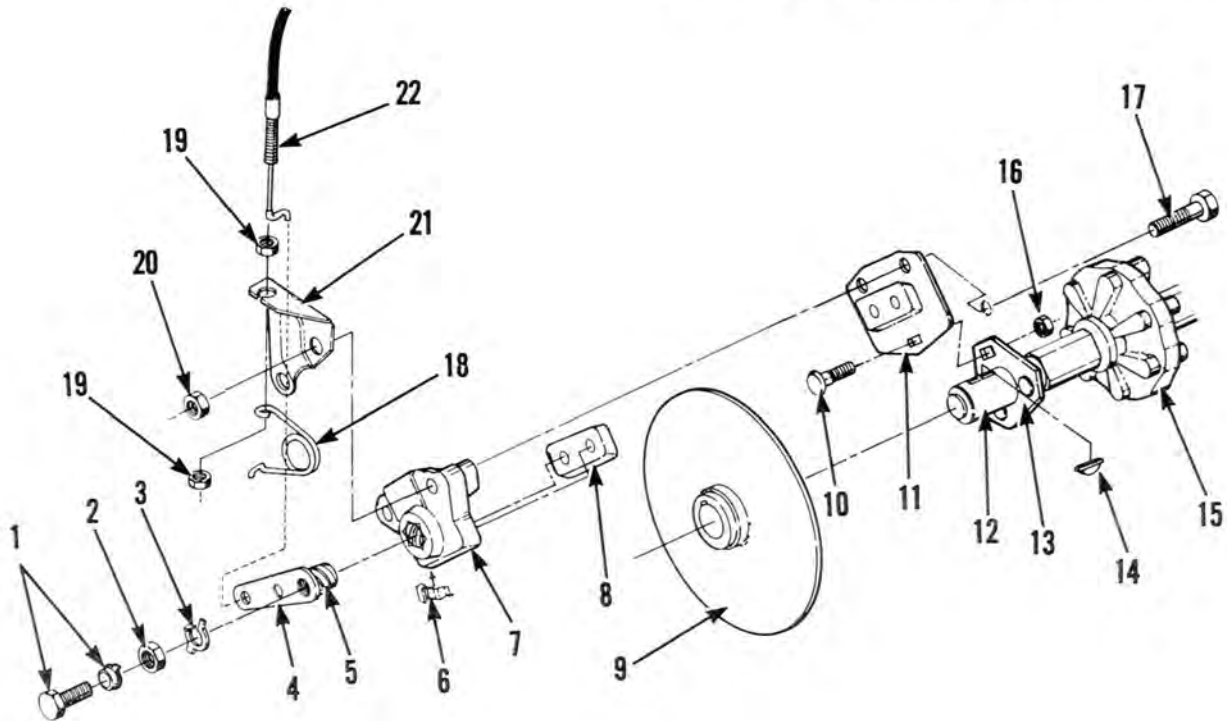
ASSEMBLY

Reassembly is basically the reverse of disassembly. Be sure that all parts are clean and serviceable before reassembling the unit.

1. Dip a new piston seal (3) in clean brake fluid and place in groove in the cylinder bore. Seal should be positioned at one point in groove and then gently worked around the groove by hand until properly seated. Never use an old seal.
2. Install piston (4) into cylinder bore as follows. Coat piston thoroughly with brake fluid and carefully work piston down the bore until bottomed.
CAUTION: Apply force uniformly to avoid cocking piston in bore.
3. Examine pads for wear or damage. If pads are worn to less than half original thickness, install new pad holder assemblies. If pads are okay, they may be reused. Be sure pads are installed in their original positions. If pads are replaced, replace in sets.
4. Replace pad retainer pins (10) and spring clips (9). Observe the following:
 - A. Be sure bolts and nuts are clean and dry. Apply Loctite (PN 2870326) compound on the two caliper carrier bolts and four bracket attaching cap screws.
Torque Values: Caliper carrier bolts – 30 ft./lbs.
Caliper attaching bracket cap screws – 8 ft./lbs.
 - B. Purge the system of all trapped air by bleeding as outlined on page VIII – 3.
 - C. Inspect for system leaks.
 - D. Check caliper unit mount for free floating action.

CHAINCASE AND BRAKE

Type IV Brake Overhaul and Pad Replacement



- 1 — Adjuster Bolt and Stop
- 2 — Jam Nut
- 3 — Jam Nut Locking Tab
- 4 — Actuating Lever
- 5 — Helix Shaft
- 6 — Brake Pad Retainer
- 7 — Caliper Casting
- 8 — Movable Brake Pad
- 9 — Brake Disc
- 10 — Carriage Bolt
- 11 — Stationary Pad Assembly

- 12 — Front Drive Shaft
- 13 — Drive Shaft Bearing Flangette
- 14 — Brake Disc Key
- 15 — Front Drive Sprocket
- 16 — Nut 5/16
- 17 — Caliper Attaching Bolt (2)
- 18 — Return Spring
- 19 — Cable Sleeve Jam Nut (2)
- 20 — Caliper Attaching Nut (2)
- 21 — Brake Cable Bracket
- 22 — Brake Cable

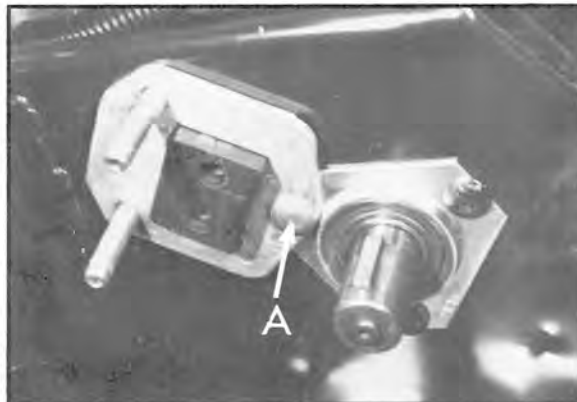
1. Open the adjuster bolt jam nut locking tab (A). Loosen the jam nut and remove the adjuster bolt (B).
2. Remove the actuating lever (C) and return spring.
3. Remove the two brake caliper attaching nuts (D).
4. Remove the cable bracket and caliper assembly. Check cable condition at both ends — frayed or binding brake cables must be replaced.



CHAINCASE AND BRAKE

Type IV Brake Overhaul and Pad Replacement

5. Slide the brake disc off the front drive shaft.
NOTE: Check brake disc condition and mounting. Replace disc as needed.
6. Clean the drive shaft in brake disc area. Lightly lubricate with anti-seize.
7. Remove the carriage bolt (A). Remove the pad assembly and replace with a new assembly.
8. Install brake disc.
 **CAUTION:** The disc must float or slide freely on the front drive shaft.
9. Replace the movable pad assembly and install the caliper onto the attaching bolts. Install brake cable bracket and torque the attaching nuts to 30 ft./lbs.
10. Loosen the cable sleeve jam nuts and adjust the brake cable sleeve to its shortest position.



-  **CAUTION:** The following step is critical for proper positioning of the actuating arm to the caliper helix shaft.

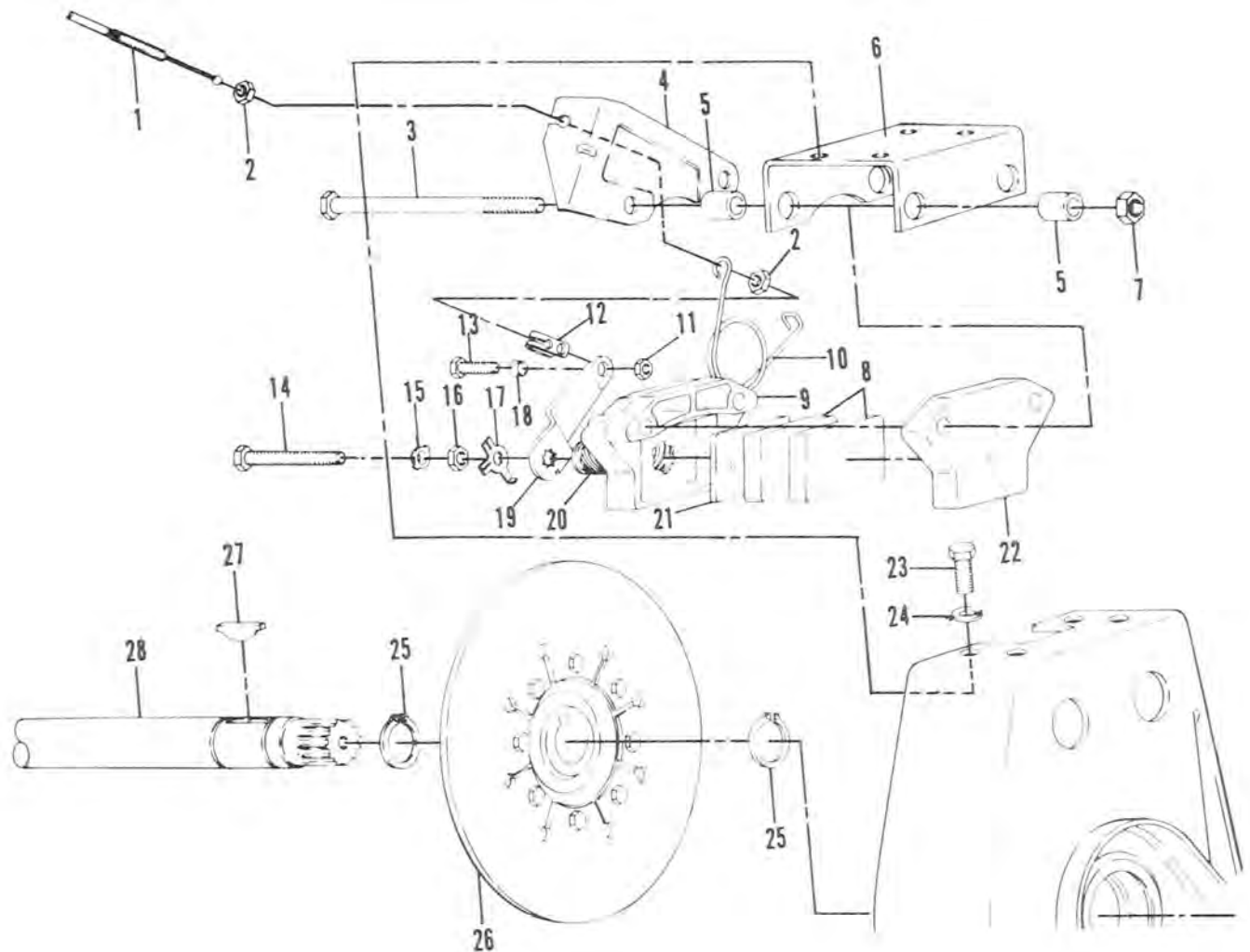
11. With the brake lever bottomed on handlebar and the helix shaft (A) bottomed in caliper, install the actuating arm, jam nut locking tab, jam nut, and adjuster bolt.



12. Insert a .015" feeler gauge between the brake disc and movable brake pad. Release the brake lever. Install the return spring and tighten the cable sleeve jam nuts. Turn the adjuster bolt in finger-tight. Set the adjuster bolt jam nut; bend the locking tab and remove the feeler gauge. Field-test unit for proper braking action.

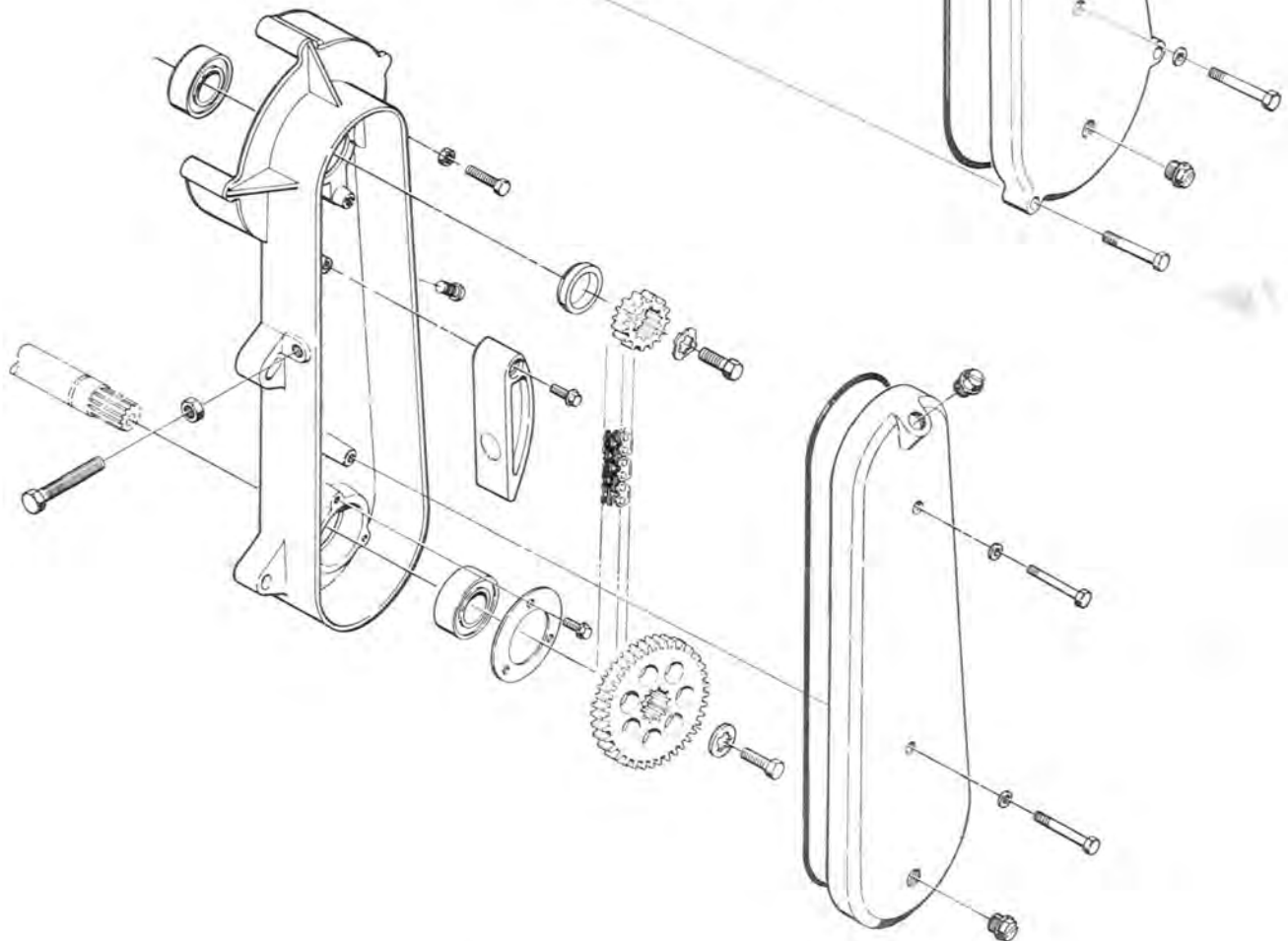


CHAINCASE AND BRAKE Type V Exploded View



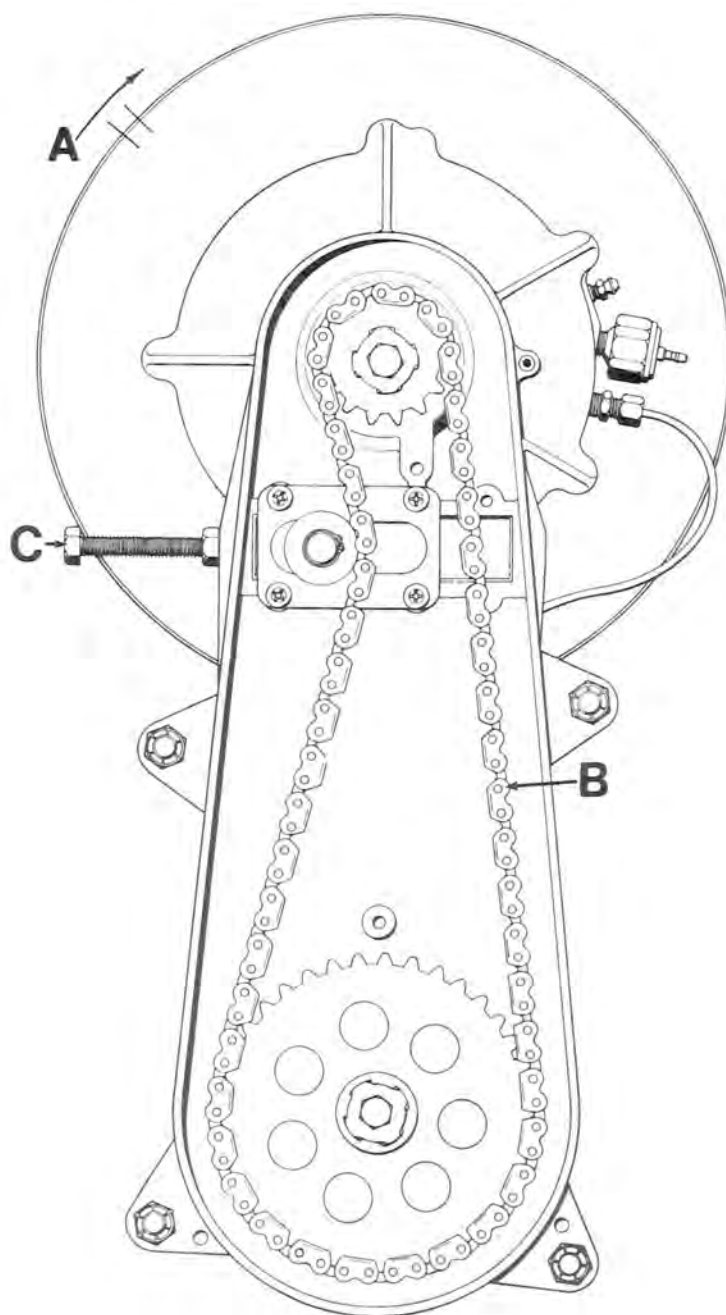
1. Brake Cable
2. Cable Sleeve Jam Nut (2)
3. Bridge Bolt (2)
4. Brake Cable Bracket
5. Spacer Bushing (4)
6. Carrier Bracket
7. Nut (2)
8. Brake Pad (2)
9. Caliper Casting
10. Return Spring
11. Nut
12. Cable Clevis
13. Clevis Bolt
14. Adjuster Bolt
15. Adjuster Bolt Stop
16. Jam Nut
17. Jam Nut Locking Tab
18. Bushing
19. Actuating Lever
20. Helix Shaft
21. Pad Backing Plate
22. Caliper Casting
23. Bracket Cap Screw (4)
24. Lock Washer (4)
25. Snap Ring (2)
26. Brake Disc
27. Key
28. Jack Shaft

This exploded view diagram illustrates the assembly of a mechanical component, possibly a pump or motor housing. The central part is a large, curved housing. Various sub-assemblies are shown being fitted into it, including a shaft with a gear, a bearing, and a smaller gear. The diagram uses leader lines to identify specific parts and their assembly points.



CHAINCASE AND BRAKE

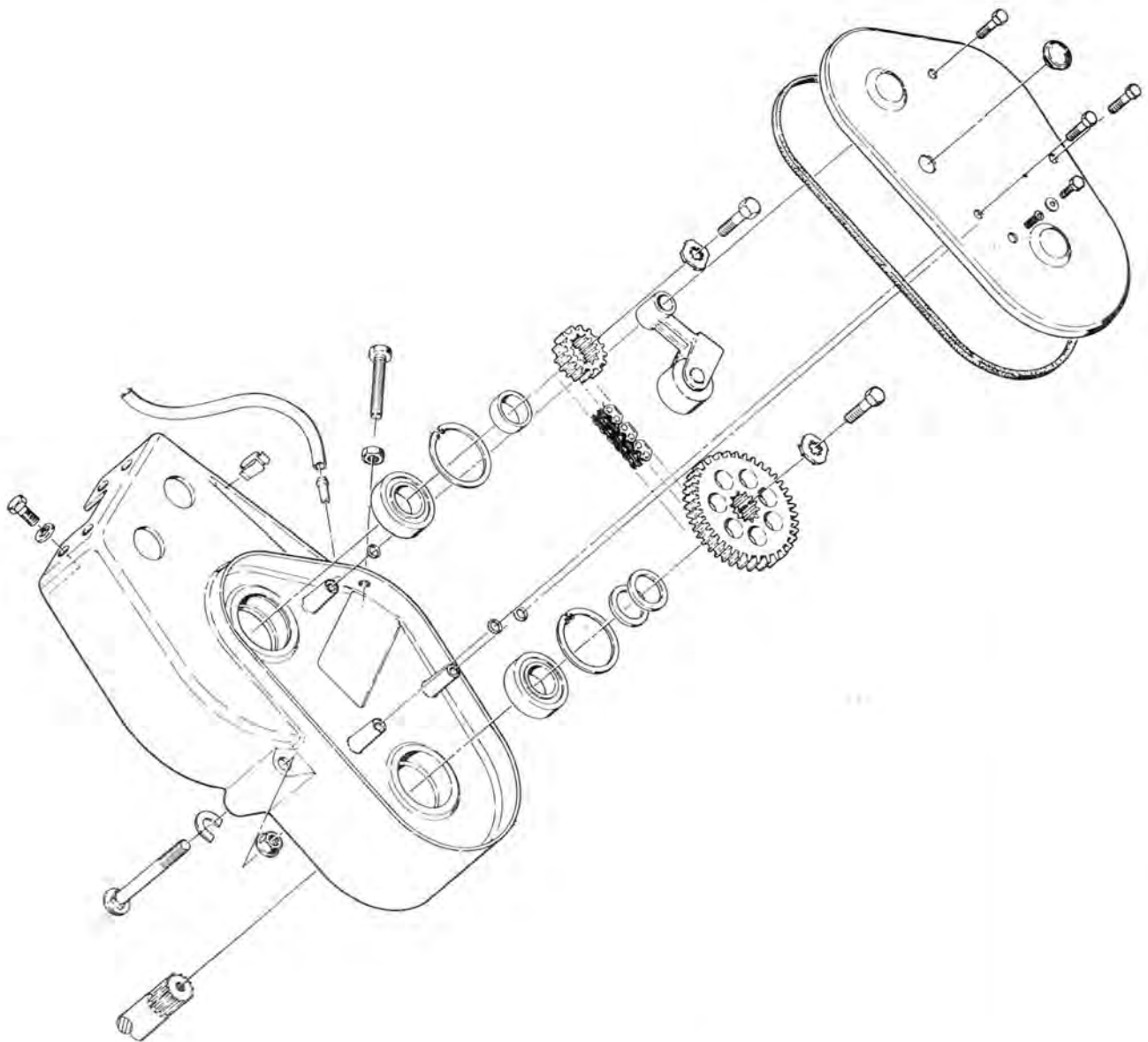
Drive Chain Adjustment and Lubrication—Type I Systems



DRIVE CHAIN TENSION

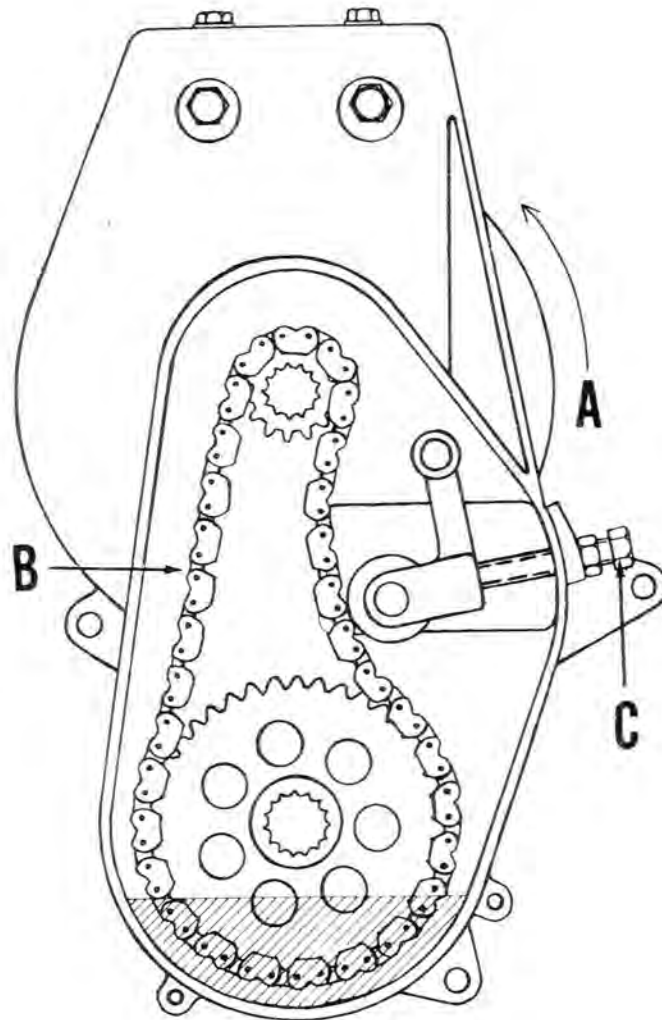
To obtain correct chain tension, remove the chaincase cover. With a slight reverse tension on the chain, turn driven clutch as indicated (A). There should be approximately $3/8$ " deflection on the chain at point (B). Chain adjustment is achieved with the adjusting bolt (C). Install the cover and add chaincase oil to lower plug level; install cover plugs (upper vented).

CHAINCASE AND BRAKE
Chaincase Exploded View—Types II and III Systems



CHAINCASE AND BRAKE

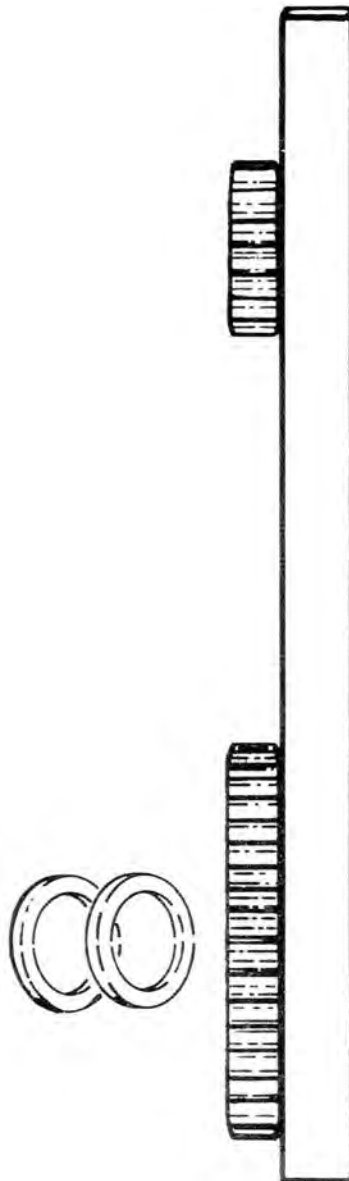
Drive Chain Adjustment and Lubrication—Types II and III Systems



DRIVE CHAIN TENSION

To obtain correct chain tension, remove the chaincase cover with a slight reverse tension on the chain by turning driven clutch as indicated (A). There should be approximately $1/4'' - 3/8''$ free play deflection on the chain at point (B). Chain adjustment is achieved by loosening the adjusting bolt locknut and turning adjusting bolt (C) until correct chain deflection is obtained. Lock the adjusting bolt locknut while holding a wrench on the adjusting bolt at the same time to prevent it from turning and changing your desired chain tension. Install the chaincase cover and add Polaris chaincase lubricant (PN 2870337) through the cover upper plug hole to the lower check plug level.

CHAINCASE AND BRAKE
Drive Chain Sprocket Alignment



Maximum sprocket and chain life are directly related to proper sprocket alignment. Before installing the drive chain, place a straight edge against the upper and lower installed sprockets. The edge should contact equally on both sprockets. If misalignment is evident, the addition or subtraction of washers (PN 7556509) is necessary behind the bottom sprocket to correct the problem.

CHAINCASE AND BRAKE

Front Drive System Overhaul

DISASSEMBLY

1. Remove the hood.
2. Remove the air silencer and the exhaust system (exhaust silencer and expansion chamber can be removed as a unit).
3. Remove the drive belt and driven clutch. (Note the position of clutch offset washers.)
4.  Prior to tipping the machine on its left side, the fuel tank must be drained or siphoned to prevent any fuel spillage.
5. Loosen the jackshaft bearing locking collar set screw. Rotate the bearing locking collar and slide it away from the bearing.



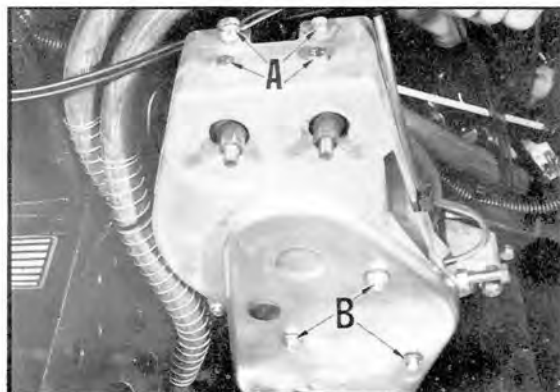
6. Remove the three flange attaching nuts and washers located on the left side of the front drive shaft.



7. Remove the four suspension mounting bolts. Tip the machine on its left side and remove the suspension. Loosen the front drive shaft locking collar set screw; rotate the bearing lock collar and slide it away from the bearing.
NOTE: Prior to tipping the machine on its side, we advise you place a piece of cardboard or carpet under the nosepan to reduce scratching of the nosepan or bumper.

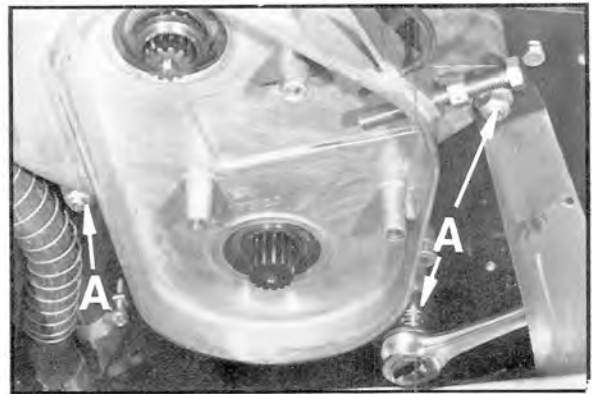


8. Remove the four caliper attaching bracket cap screws (A) and the three chaincase cover bolts (B).



CHAINCASE AND BRAKE Front Drive System Overhaul

9. Loosen the chain adjuster bolt jam nut and remove the adjuster. Remove the chain, top and bottom gears. (Note position of gear spacer and shims for proper gear alignment upon reassembly.) Remove the three chaincase attaching nuts and carriage bolts (A).



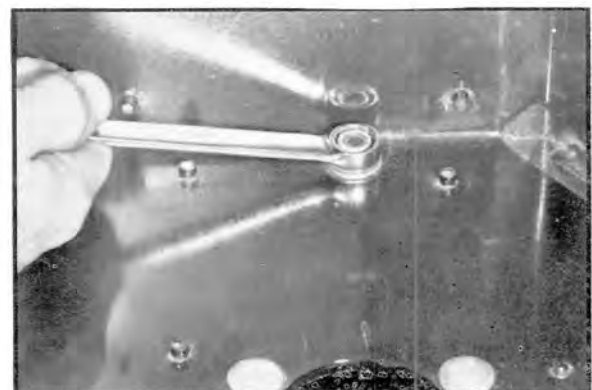
10. Install a 5/16" x 3/4" standard threaded bolt into the jackshaft and drive the shaft out through the upper case bearing. Remove the front drive shaft and track.



11. Remove the stop light switch wires and lift the brake caliper assembly from the brake disc. **CAUTION:** Do not squeeze brake lever with caliper removed.



12. Remove the three flangette attaching bolts from the left side of jackshaft. The bottom flangette bolt is accessible from the UNDER-SIDE of tunnel as shown. The jackshaft can now be removed.



CHAINCASE AND BRAKE

Front Drive System Overhaul

13. **JACKSHAFT INSPECTION:** Inspect the jackshaft bearing in support area as shown. If any wear is noted, the shaft must be replaced. Also remove the brake disc and inspect brake disc key and keyways. If the key or keyways show signs of wear, the brake disc and jackshaft should be replaced. If the brake disc is glazed, it should also be replaced. Lubricate the jackshaft between snap rings with anti-seize and reinstall brake disc.



REASSEMBLY

Be sure all parts are clean and serviceable before proceeding with reassembly.

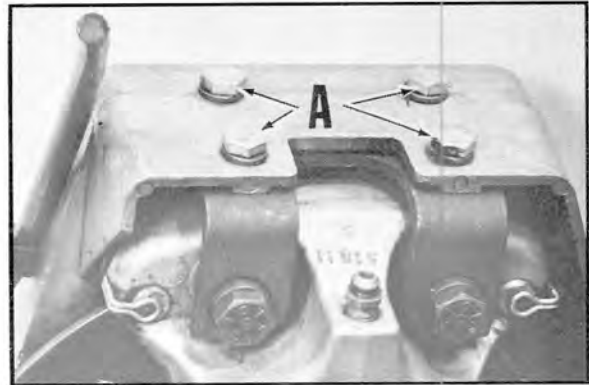
NOTE: It is important that the following reassembly steps be performed in sequence to prevent misalignment and possible component failures.

1. Remove and replace the upper and lower chaincase bearings. Replace the chaincase cover gasket. Use a small amount of silicone sealer at the ends of the cover gasket.
2. Install the jackshaft as shown and place the caliper assembly onto the brake disc.
3. Place the chaincase into position on the bulkhead and onto the jackshaft. (**NOTE:** Do not bolt chaincase to bulkhead at this time.) Install the jackshaft alignment tool with bolt and washer as shown. Tighten the alignment tool bolt until the jackshaft is seated into the upper chaincase bearing.

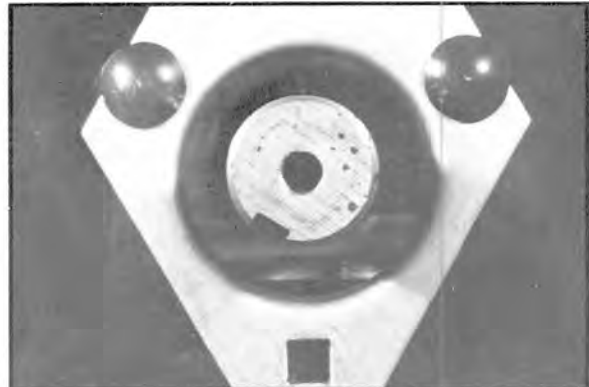


CHAINCASE AND BRAKE Front Drive System Overhaul

4. Install and tighten the three chaincase attaching carriage bolts and locking nuts. Apply Loctite to the four caliper attaching bracket capscrews and finger-tighten into carrier bracket. With the brake applied, torque capscrews (A) to 8 ft./lbs. Reinstall stop light switch wires.



5. Install a flangette into the left bearing support hole. With alignment tool torqued to 6 ft./lbs., the shaft should be centered as shown. If not, the chaincase will have to be shimmed between the bulkhead and case using shim kit 2200126 as needed to position the shaft on center.



6. Install the track and front drive shaft assembly. Remove the jackshaft alignment tool and install top and bottom gear shims, chain, and gears. Tighten gear retainer bolts; check gear alignment and chain tension as outlined in this section.



7. Install the bearing assembly onto the left side drive shaft and tighten the three carriage bolts.



8. Lightly rotate the bearing locking collars (jackshaft and drive shaft). Tighten the allen-head set screws.

CHAINCASE AND BRAKE

Front Drive System Overhaul

9. Add three ounces of Polaris chaincase oil into the chaincase and reinstall chaincase cover. **NOTE:** One full stroke on the pump = 1 ounce of oil. Polaris highly recommends the use of this oil for extended gear and chain life.



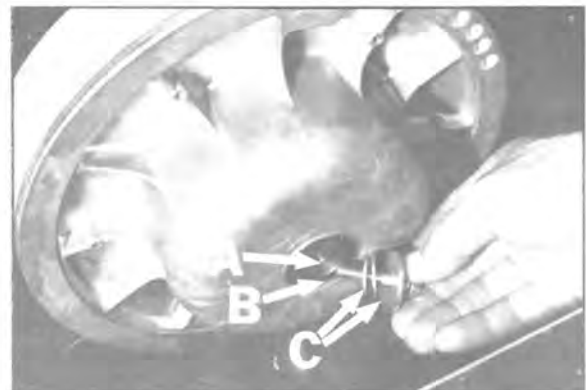
10. Reinstall the suspension. Torque suspension mounting bolts to 35–40 ft./lbs.

11. Reinstall air silencer, exhaust system, and driven clutch. Check and adjust clutch offset. Refer to page 17 for correct offset specifications and tool.



IMPORTANT STEP TO PREVENT BEARING SIDE LOADING AND CLUTCH MISALIGNMENT DURING DRIVEN CLUTCH BOLT TIGHTENING.

12. With driven clutch properly positioned, measure the distance between the alignment spacer (A) and the outer edge of the driven clutch hub (B). This distance must be taken up by using washer(s) PN 7555734 (C). Reinstall clutch retaining bolt, washer and drive belt.



13. Reinstall the hood and field-test the unit for proper front drive operation.

CHAINCASE AND BRAKE

Drive System Overhaul For Models With Transmissions

Jackshaft and Drive Shaft Disassembly

1. Remove the rear suspension. Clean, lubricate and inspect.

2. Loosen the drive shaft lock collar set screw (A) and rotate the collar.

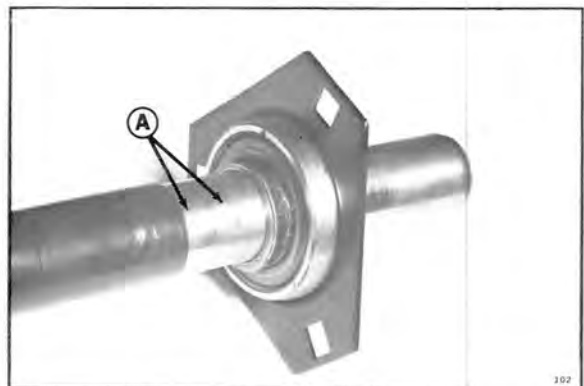


3. Remove the clutch guard, drive belt, driven clutch, driven clutch offset washers and air silencer.

4. Remove the jackshaft and drive shaft bearing flangette attaching bolts. The drive shaft and jackshaft can now be removed.



5. Remove the bearing from each shaft and inspect the bearing support areas (A). If this area shows any sign of wear, the shaft must be replaced.



CHAINCASE AND BRAKE

Drive System Overhaul For Models With Transmissions

6. Check the shafts at the splined coupling ends. If excessive wear or play is noted here and inside the coupling, the shafts and couplings should be replaced. Also, if this wear is premature it will be very important to check jack-shaft alignment.



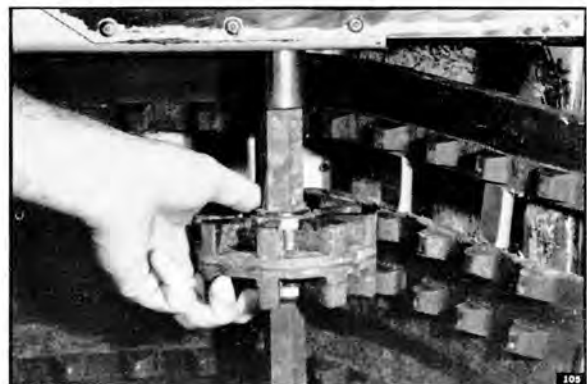
If the transmission is to be removed, proceed to that section in this manual.

Jackshaft and Drive Shaft Reassembly

7. Lubricate the drive shaft coupling and shaft splines with grease.



8. Install the drive shaft thru the bulkhead and then onto the transmission output shaft.



CHAINCASE AND BRAKE

Drive System Overhaul For Models With Transmissions

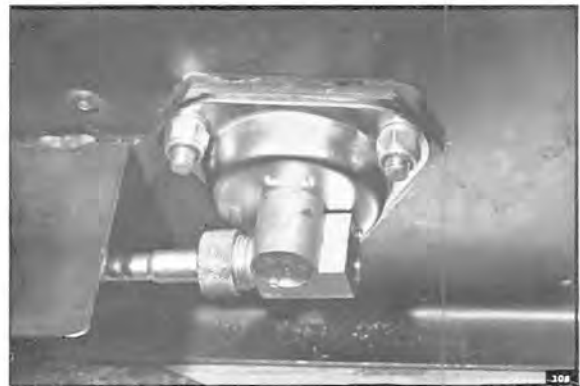
9. Lubricate the flangettes and outer race of bearing.



10. Install the bearing lock collar, inner flangette, new bearing and outer flangette onto the drive shaft.



11. Install the speedometer drive key, angle drive and attaching bolts, washers, nuts and tighten.



12. Tightly position the bearing lock collar up against the bearing inner race. Tighten the allen head set screw while pulling up on the drive shaft in direction shown.



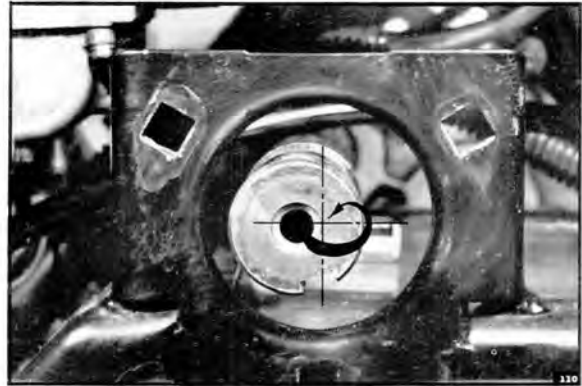
CHAINCASE AND BRAKE

Drive System Overhaul For Models With Transmissions

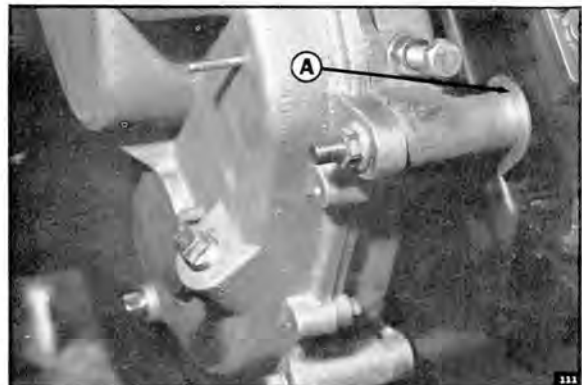
Jackshaft Alignment

13. Lubricate the jackshaft coupling and splines with grease. Install the jackshaft thru the bulkhead and onto the transmission input shaft. (Use multi-purpose automotive chassis grease.)

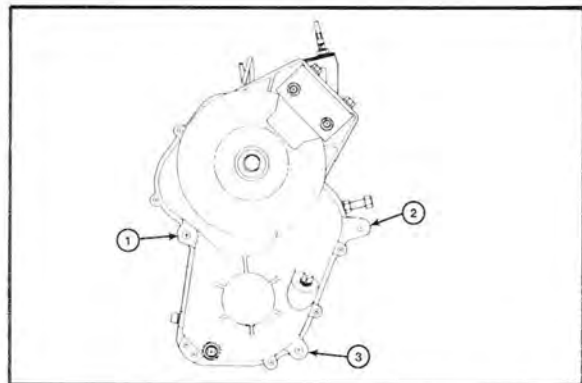
Orbit the shaft in the bulkhead bearing support opening. There should be an equal distance between the shaft and the bulkhead bearing support during this orbit.



14. To correct any jackshaft misalignment the transmission will need to be shimed between the bulkhead and transmission (A). Use Shim Kit P/N 2200126 to correct any misalignment. This kit includes 3 of each of the following shims: .020" thickness, .063" thickness, .080" thickness.



15. The above shims can be installed between the bulkhead and transmission in three locations.



16. Clean the bearing support area with Primer T and apply a stud and bearing mount to the shaft in the bearing area.



Drive System Overhaul For Models With Transmissions

17. Install a new bearing, the outer flangette and flangette attaching bolts. Install the driven clutch and check driven clutch offset. Torque driven clutch bolt to 12 ft./lbs.

Reinstall the rear suspension, drive belt, air silencer and clutch guard. Field test for proper operation.

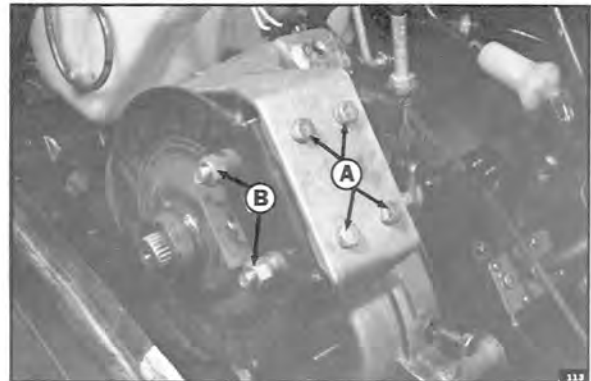
CHAINCASE AND BRAKE

Series 300 Transmission Overhaul

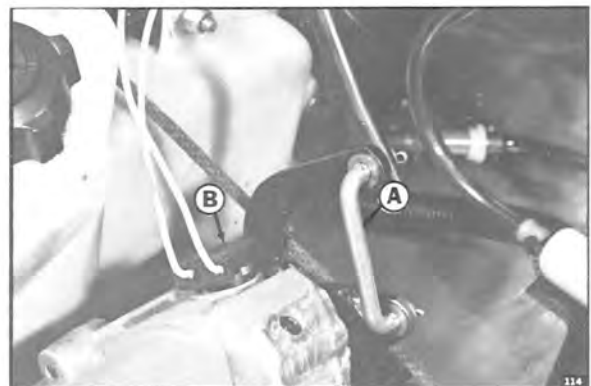
Transmission overhaul should also include drive system overhaul. This is covered earlier in drive system overhaul for models with a transmission.

After removing the drive shaft and jackshaft proceed as follows:

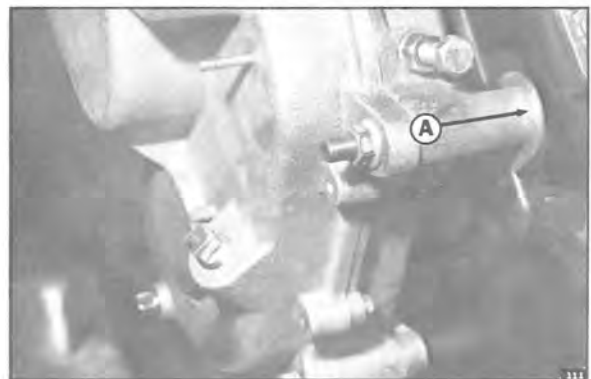
1. Remove the four caliper carrier attaching bolts (A). Remove the two caliper bridge bolts (B). Remove the brake caliper and brake disc.



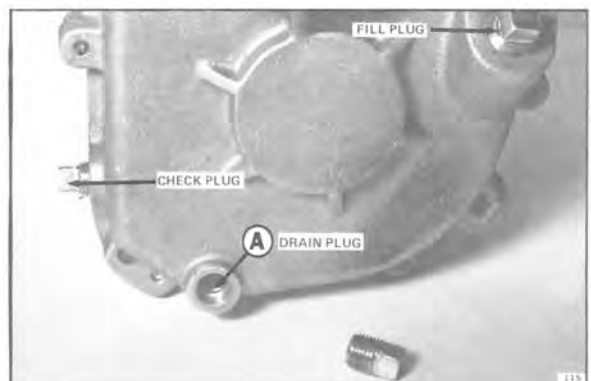
2. Remove the shift linkage (A) and the stop light switch wires (B).



3. Remove the exhaust system. Remove the three nuts that secure the transmission to the front bulkhead and remove the transmission.
IMPORTANT: Check position of transmission shims for reference in reassembly. (A) These shims control jackshaft alignment.

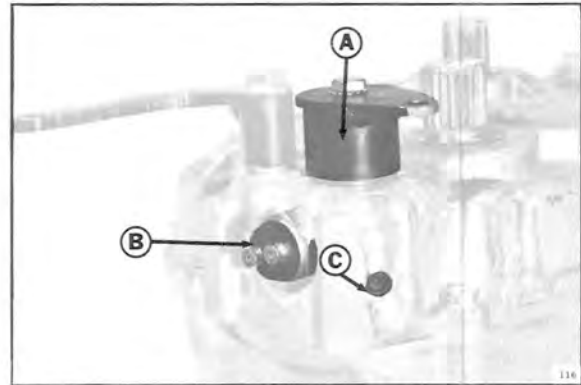


4. Remove the transmission drain plug (A) and drain the oil.

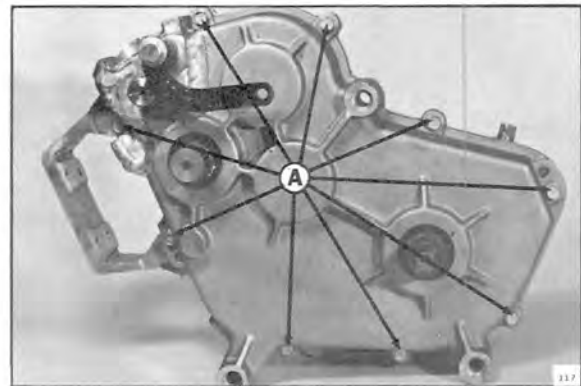


CHAINCASE AND BRAKE
Series 300 Transmission Overhaul

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



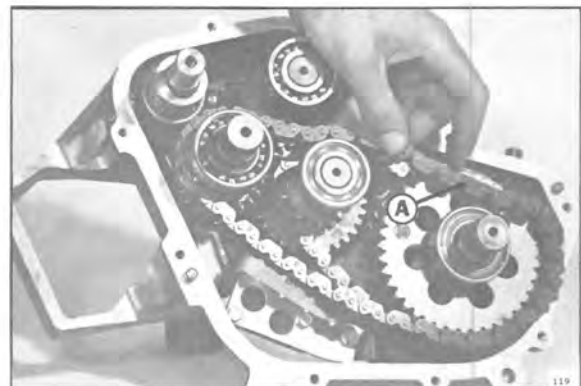
6. Remove the transmission housing attaching bolts. (A)



7. Lift upwards on the inner housing and tap (with a soft hammer) on the input shaft, output shaft, and the shift shaft.



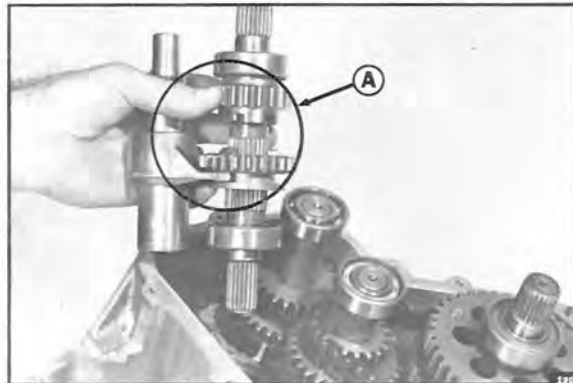
8. Remove the high range long silent chain (A).



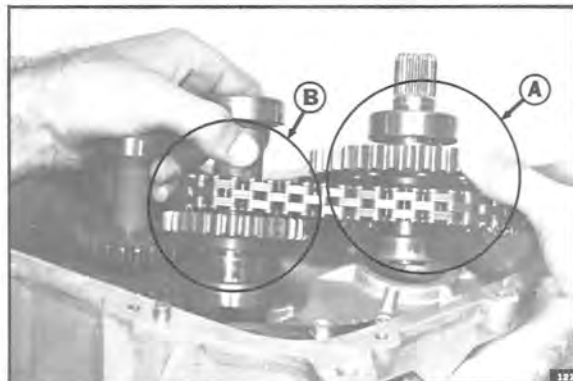
CHAINCASE AND BRAKE

Series 300 Transmission Overhaul

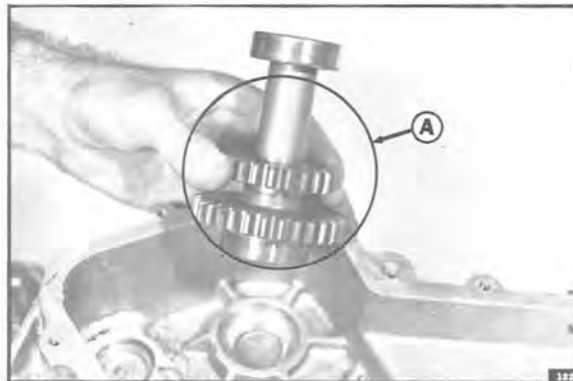
9. Remove the input cluster and shift cluster as an assembly (A).



10. As an assembly, remove the output cluster (A), the reverse cluster (B) and silent chain.



11. Remove the low range cluster (A).



12. Thoroughly clean and inspect all parts. Reference the correct parts book for replacement parts and cluster reassemble. Reverse the above procedures for reassembly.

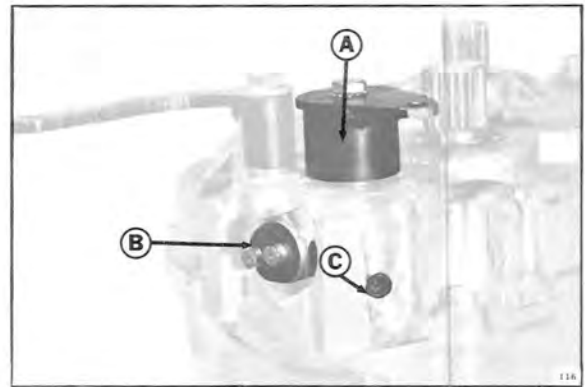
TRANSMISSION SERVICE TIPS

1. Before reassembly, remove all oil seals and after the transmission is assembled install tape around the shaft splines and shaft sealing area. Also grease the seal inner and outer diameters. Grease shift shaft O-ring. These precautions will protect the seals and O-ring from damage.

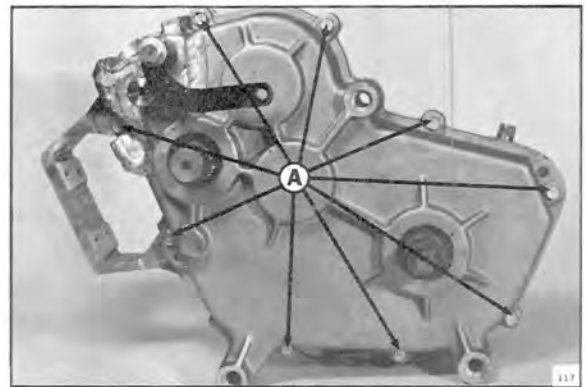


CHAINCASE AND BRAKE
Series 300 Transmission Overhaul

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



6. Remove the transmission housing attaching bolts. (A)



7. Lift upwards on the inner housing and tap (with a soft hammer) on the input shaft, output shaft, and the shift shaft.



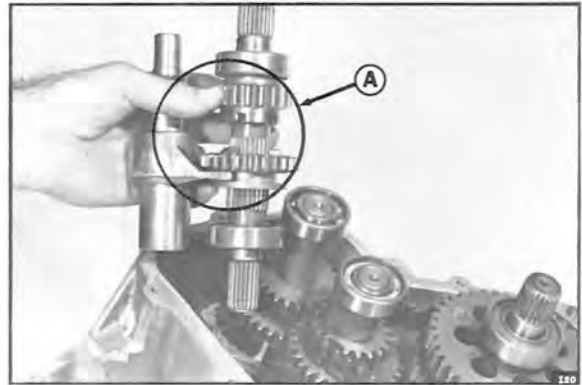
8. Remove the high range long silent chain (A).



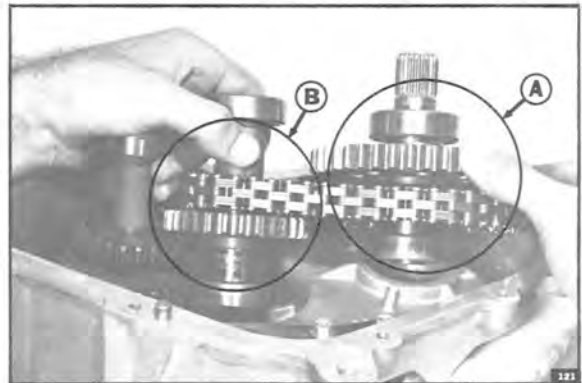
CHAINCASE AND BRAKE

Series 300 Transmission Overhaul

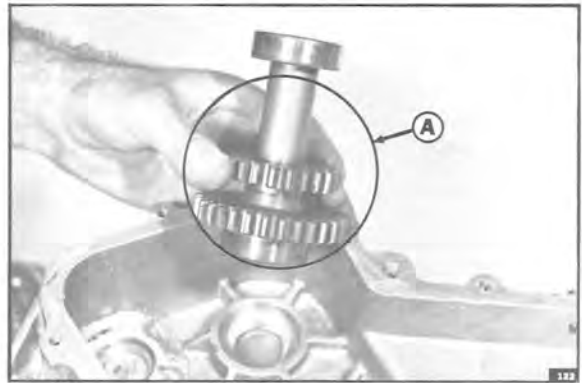
9. Remove the input cluster and shift cluster as an assembly (A).



10. As an assembly, remove the output cluster (A), the reverse cluster (B) and silent chain.



11. Remove the low range cluster (A).



12. Thoroughly clean and inspect all parts. Reference the correct parts book for replacement parts and cluster reassemble. Reverse the above procedures for reassembly.

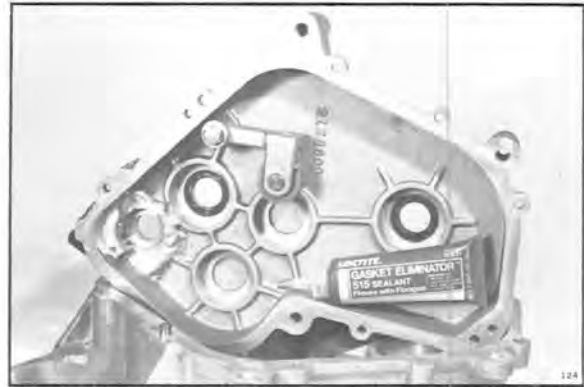
TRANSMISSION SERVICE TIPS

1. Before reassembly, remove all oil seals and after the transmission is assembled install tape around the shaft splines and shaft sealing area. Also grease the seal inner and outer diameters. Grease shift shaft O-ring. These precautions will protect the seals and O-ring from damage.



CHAINCASE AND BRAKE
Series 300 Transmission Overhaul

2. Be sure the case half mating surfaces are clean and free of any nicks or scratches. Place a small amount of Gasket Eliminator 515, (Polaris P/N 2870587) on one of the case halves.

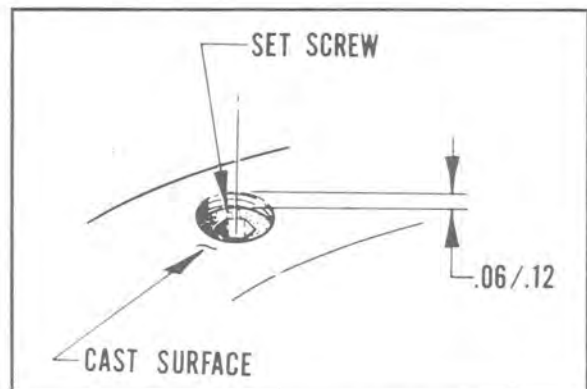


3. Install bearings and seals using service tool P/N 2870676.

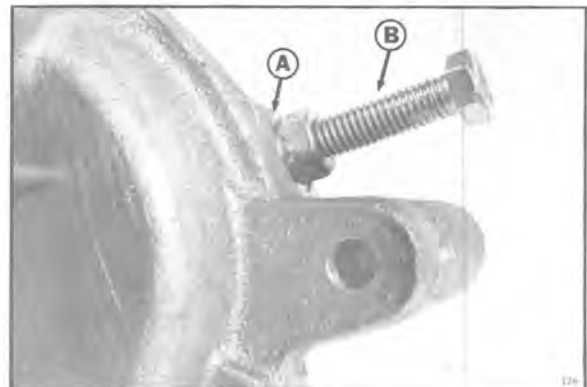
Bearings, gears, etc. are assembled until they bottom on each other or onto snap rings or shoulders.



4. Install the detent ball and spring. Apply a medium strength thread locking compound to the allen head set screw and install it to a depth of .060" to .120" below the casting surface. During field testing check the detent preload. If the detent is adjusted too tightly, the unit will become hard to shift. If the detent is too loose it will effect the operator's preception of the shift position.



5. Chain tension adjustment is accomplished by loosening the jam nut (A), torquing the bolt (B) to 20 in./lbs. Then loosen the bolt 1/2 turn and while holding the bolt, tighten the jam nut.

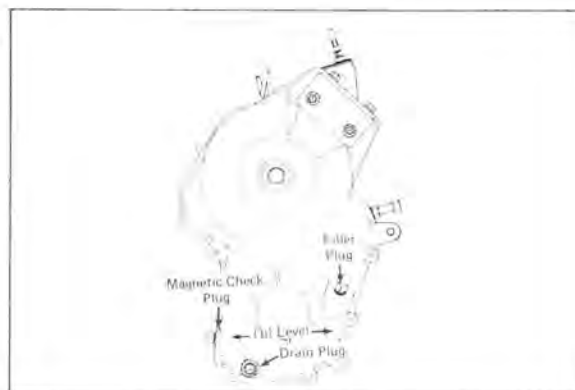


CHAINCASE AND BRAKE

Series 300 Transmission Overhaul

6. After the transmission is installed onto the bulkhead, be sure to align the jackshaft as called out on drive system overhaul for models with transmission.

7. With the transmission installed on the unit, fill the transmission to the correct level using only Polaris chaincase oil.



**INDY JACKSHAFT SPEED V/S MILES PER HOUR
SPROCKET COMBINATION/GEAR RATIO/CHAIN PITCH**

Jackshaft RPM Pitch	21/35 1.67 64	19/35 1.84 64	21/39 1.86 66	18/35 1.94 64	21/41 1.95 68	19/39 2.05 66	17/35 2.06 62	19/40 2.11 68	19/41 2.16 66	18/39 2.17 66	16/35 2.19 62	18/41 2.28 68	17/39 2.29 66	15/35 2.33 62	17/40 2.35 66	17/41 2.41 66	16/39 2.44 64	16/40 2.50 66	14/35 2.50 62	16/41 2.56 66	15/39 2.60 64	15/40 2.67 64	15/41 2.73 66	14/39 2.79 64	14/40 2.86 64	14/41 2.93 64
6500	82.7	74.8	74.2	70.9	70.6	67.1	66.9	65.4	63.8	63.6	63.0	60.5	60.1	59.0	58.6	57.1	56.5	55.1	55.1	53.8	53.0	51.7	50.4	49.5	48.2	47.0
6600	83.9	75.9	75.3	71.9	71.7	68.2	68.0	66.5	64.8	64.6	64.0	61.4	61.0	60.0	59.5	58.0	57.4	56.0	56.0	54.6	53.8	52.5	51.2	50.2	49.0	47.8
6700	85.2	77.1	76.5	73.0	72.7	69.2	69.0	67.5	65.8	65.5	64.9	62.3	61.9	60.9	60.4	58.9	58.3	56.8	56.8	55.4	54.6	53.3	52.0	51.0	49.7	48.5
6800	86.5	78.2	77.6	74.1	73.8	70.2	70.0	68.5	66.8	66.5	65.9	63.3	62.8	61.8	61.3	59.8	59.1	57.7	57.7	56.2	55.4	54.1	52.7	51.7	50.4	49.2
6900	87.8	79.4	78.8	75.2	74.9	71.3	71.0	69.5	67.8	67.5	66.9	64.2	63.8	62.7	62.2	60.6	60.0	58.5	58.5	57.1	56.3	54.8	53.5	52.5	51.2	49.9
7000	89.0	80.5	79.9	76.3	76.0	72.3	72.1	70.5	68.8	68.5	67.8	65.1	64.7	63.6	63.1	61.5	60.9	59.4	59.4	57.9	57.1	55.6	54.3	53.3	51.9	50.7
7100	90.3	81.7	81.0	77.4	77.1	73.3	73.1	71.5	69.7	69.5	68.8	66.1	65.6	64.5	64.0	62.4	61.7	60.2	60.2	58.7	57.9	56.4	55.1	54.0	52.7	51.4
7200	91.6	82.8	82.2	78.5	78.2	74.4	74.1	72.5	70.7	70.4	69.8	67.0	66.5	65.4	64.9	63.3	62.6	61.0	61.0	59.6	58.7	57.2	55.8	54.8	53.4	52.1
7300	92.8	84.0	83.3	79.6	79.3	75.4	75.2	73.5	71.7	71.4	70.7	67.9	67.4	66.3	65.8	64.2	63.5	61.9	61.9	60.4	59.5	58.0	56.6	55.5	54.2	52.8
7400	94.1	85.2	84.5	80.7	80.3	76.4	76.2	74.5	72.7	72.4	71.7	68.9	68.4	67.2	66.7	65.0	64.4	62.7	62.7	61.2	60.3	58.8	57.4	56.3	54.9	53.6
7500	95.4	86.3	85.6	81.8	81.4	77.5	77.2	75.5	73.7	73.4	72.7	69.8	69.3	68.1	67.6	65.9	65.2	63.6	63.6	62.0	61.1	59.6	58.2	57.1	55.6	54.3
7600	96.7	87.5	86.7	82.8	82.5	78.5	78.2	76.5	74.7	74.4	73.6	70.7	70.2	69.0	68.5	66.8	66.1	64.4	64.4	62.9	62.0	60.4	58.9	57.8	56.4	55.0
7700	97.9	88.6	87.9	83.9	83.6	79.5	79.3	77.5	75.6	75.3	74.6	71.7	71.1	69.9	69.4	67.7	67.0	65.3	65.3	63.7	62.8	61.2	59.7	58.6	57.1	55.7
7800	99.2	89.8	89.0	85.0	84.7	80.5	80.3	78.5	76.6	76.3	75.6	72.6	72.1	70.9	70.3	68.6	67.8	66.1	66.1	64.5	63.6	62.0	60.5	59.4	57.9	56.5
7900	100.5	90.9	90.2	86.1	85.8	81.6	81.3	79.5	77.6	77.3	76.6	73.5	73.0	71.8	71.2	69.4	68.7	67.0	67.0	65.3	64.4	62.8	61.3	60.1	58.6	57.2
8000	101.7	92.1	91.3	87.2	86.9	82.6	82.4	80.5	78.6	78.3	77.5	74.4	73.9	72.7	72.1	70.3	69.6	67.8	67.8	66.2	65.2	63.6	62.0	60.9	59.4	57.9
8100	103.0	93.2	92.5	88.3	87.9	83.6	83.4	81.6	79.6	79.2	78.5	75.4	74.8	73.6	73.0	71.2	70.4	68.7	68.7	67.0	66.0	64.4	62.8	61.6	60.1	58.6
8200	104.3	94.4	93.6	89.4	89.0	84.7	84.4	82.6	80.5	80.2	79.5	76.3	75.8	74.5	73.9	72.1	71.3	69.5	69.5	67.8	66.9	65.2	63.6	62.4	60.8	59.4
8300	105.6	95.5	94.7	90.5	90.1	85.7	85.5	83.6	81.5	81.2	80.4	77.2	76.7	75.4	74.8	72.9	72.2	70.4	70.4	68.7	67.7	66.0	64.4	63.2	61.6	60.1
8400	106.8	96.7	95.9	91.6	91.2	86.7	86.5	84.6	82.5	82.2	81.4	78.2	77.6	76.3	75.7	73.8	73.0	71.2	71.2	69.5	68.5	66.8	65.1	63.9	62.3	60.8
8500	108.1	97.8	97.0	92.7	92.3	87.8	87.5	85.6	83.5	83.2	82.4	79.1	78.5	77.2	76.6	74.7	73.9	72.1	72.1	70.3	69.3	67.6	65.9	64.7	63.1	61.5
8600	109.4	99.0	98.2	93.8	93.4	88.8	88.5	86.6	84.5	84.1	83.3	80.0	79.5	78.1	77.5	75.6	74.8	72.9	72.9	71.1	70.1	68.4	66.7	65.4	63.8	62.2
8700	110.6	100.1	99.3	94.8	94.5	89.8	89.6	87.6	85.5	85.1	84.3	81.0	80.4	79.0	78.4	76.5	75.7	73.8	73.8	72.0	70.9	69.2	67.5	66.2	64.5	63.0
8800	111.9	101.3	100.4	95.9	95.5	90.9	90.6	88.6	86.4	86.1	85.3	81.9	81.3	79.9	79.3	77.3	76.5	74.6	74.6	72.8	71.7	69.9	68.2	67.0	65.3	63.7
8900	113.2	102.4	101.6	97.0	96.6	91.9	91.6	89.6	87.4	87.1	86.2	82.8	82.2	80.9	80.2	78.2	77.4	75.5	75.5	73.6	72.6	70.7	69.0	67.7	66.0	64.4
9000	114.5	103.6	102.7	98.1	97.7	92.9	92.7	90.6	88.4	88.0	87.2	83.8	83.2	81.8	81.1	79.1	78.3	76.3	76.3	74.4	73.4	71.5	69.8	68.5	66.8	65.1
9100	115.7	104.7	103.9	99.2	98.8	94.0	93.7	91.6	89.4	89.0	88.2	84.7	84.1	82.7	82.0	80.0	79.1	77.2	77.2	75.3	74.2	72.3	70.6	69.2	67.5	65.9
9200	117.0	105.9	105.0	100.3	99.9	95.0	94.7	92.6	90.4	90.0	89.1	85.6	85.0	83.6	82.9	80.9	80.0	78.0	78.0	76.1	75.0	73.1	71.3	70.0	68.3	66.6
9300	118.3	107.0	106.1	101.4	101.0	96.0	95.7	93.6	91.4	91.0	90.1	86.5	85.9	84.5	83.8	81.7	80.9	78.9	78.9	76.9	75.8	73.9	72.1	70.8	69.0	67.3
9400	119.6	108.2	107.3	102.5	102.1	97.1	96.8	94.6	92.3	92.0	91.1	87.5	86.9	85.4	84.7	82.6	81.7	79.7	79.7	77.8	76.6	74.7	72.9	71.5	69.7	68.0
9500	120.8	109.3	108.4	103.6	103.1	98.1	97.8	95.7	93.3	92.9	92.1	88.4	87.8	86.3	85.6	83.5	82.6	80.5	80.5	78.6	77.5	75.5	73.7	72.3	70.5	68.8
9600	122.1	110.5	109.6	104.7	104.2	99.1	98.8	96.7	94.3	93.9	93.0	89.3	88.7	87.2	86.5	84.4	83.5	81.4	81.4	79.4	78.3	76.3	74.4	73.0	71.2	69.5
9700	123.4	111.6	110.7	105.7	105.3	100.2	99.9	97.7	95.3	94.9	94.0	90.3	89.6	88.1	87.4	85.3	84.4	82.2	82.2	80.2	79.1	77.1	75.2	73.8	72.0	70.2
9800	124.6	112.8	111.9	106.8	106.4	101.2	100.9	98.7	96.3	95.9	95.0	91.2	90.5	89.0	88.3	86.1	85.2	83.1	83.1	81.1	79.9	77.9	76.0	74.6	72.7	70.9
9900	125.9	113.9	113.0	107.9	107.5	102.2	101.9	99.7	97.2	96.9	95.9	92.1	91.5	89.9	89.2	87.0	86.1	83.9	83.9	81.9	80.7	78.7	76.8	75.3	73.4	71.7
10000	127.2	115.1	114.1	109.0	108.6	103.3	103.0	100.7	98.2	97.8	96.9	93.1	92.4	90.8	90.1	87.9	87.0	84.8	84.8	82.7	81.5	79.5	77.5	76.1	74.2	72.4

**CHAINCASE AND BRAKE
Indy Jackshaft Speed vs Miles Per Hour**

