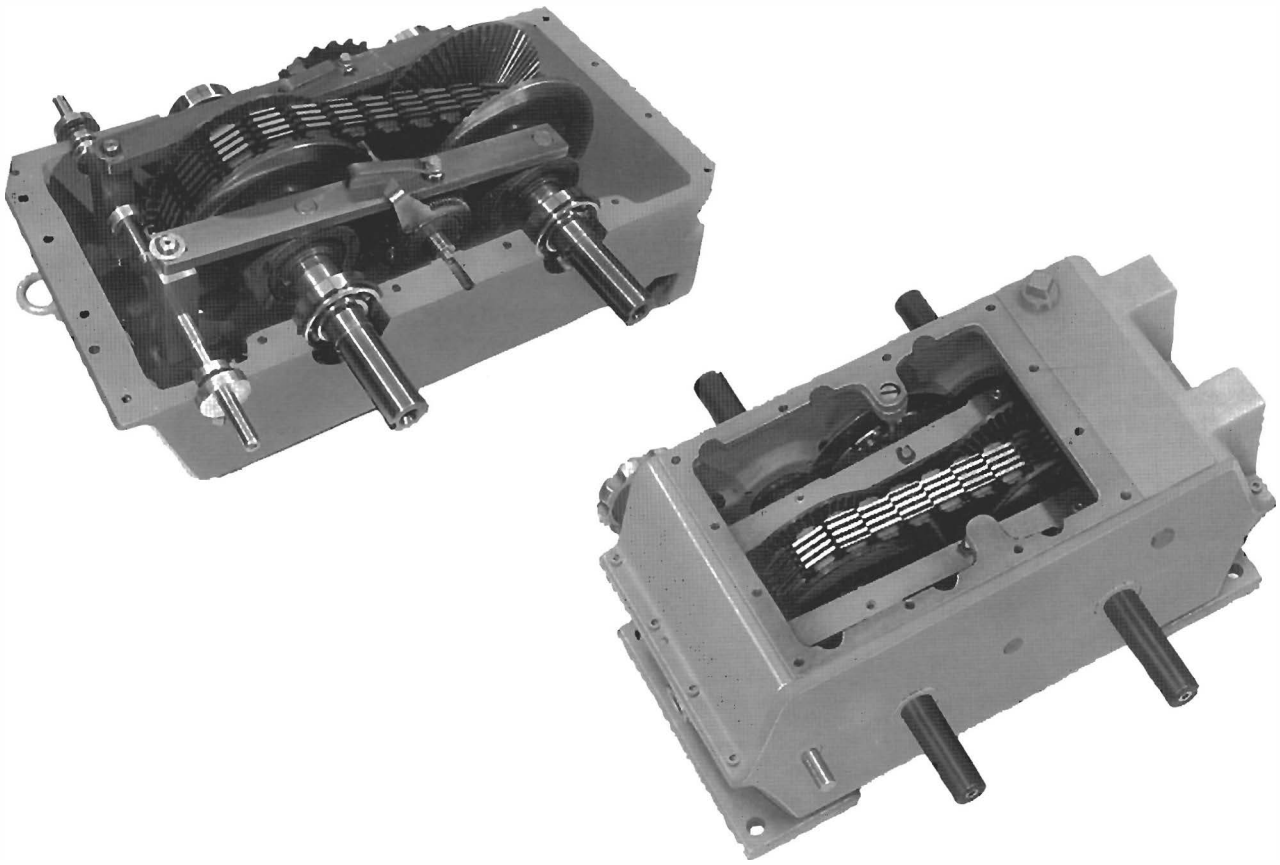
BULLETIN 207-IOM

CANDY CONTROLS®

SPECON®

VARI-CHAIN VARIABLE SPEED TRANSMISSION

Installation, Operating and Maintenance Instructions



The VARI-CHAIN variable speed transmission is infinitely adjustable to any speed setting within its rated speed range.

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Specifications

See Catalog Bulletin 207K

Principles of Operation

The Specon VARI-CHAIN Variable Speed Transmission consists of an all metal chain containing packages of slats, which engage themselves in grooved wheelfaces and thus effectively provide a variable pitch all metal chain. The variable pitch all metal chain locates itself and establishes a pitch radius in the wheelfaces depending upon the opening between the wheelfaces. If the wheelfaces are moved in close together, the chain rides out near the top of the wheelfaces and establishes itself with a relatively large pitch diameter. If the wheelfaces are further apart, the chain rides down near the center of the wheelfaces, thus establishing a relatively small pitch diameter.

The resultant speed relationship between the variable speed shaft of the unit and the constant speed shaft of the unit is a function of the ratio of the pitch diameters of the chain at the variable speed grooved wheels and the constant speed grooved wheels.

Two variations of the VARI-CHAIN are available.
They are designated Model # (size, range) -72, -79 and Model # (size, range)-84.

Installation

The VARI-CHAIN transmission should be firmly secured to a flat, rigid foundation. The transmission can be secured with bolts through the clearance holes in the feet. The feet can be removed (*) and the tapped holes in the transmission can be used for mounting. The mounting feet of the transmission base should rest firmly on the foundation before bolting down. Use shims to level. Align shafts accurately. When using a direct coupling connection, a flexible coupling is recommended. If connected by gearing, chain or belt, the pulley, gear or sprocket should be mounted on the input and/or output shaft as close to the housing as possible. Use pulley, sprocket or gear with a pitch diameter of at least three times the shaft diameter. On Style I VARI-CHAIN transmissions either shaft can be used as the constant speed shaft or input shaft. The input shaft can be operated in either clockwise or counter-clockwise direction. The input and output shaft will rotate in the same direction in Style I transmission. In Style II, Style II/II or Style IV transmissions, relative rotation will be altered by the number of gear stages in the input and/or output section of the transmission. Input and output shafts are identified and required direction of rotation is identified when critical. (*) Sizes 0, ½, and 1-72 (Figure 1) have integrally cast feet.

Lubrication

All Specon VARI-CHAIN transmissions are shipped without oil. Before starting, add the specified quantity of oil. Use an AGMA 4EP grade oil. (See Table 1 for acceptable oils). Check oil level at the sight gage. Oil should be at the specified level with the transmission stationary. After the first fifty hours of operation and every 2000 hours thereafter, change the oil. Oil can be added to the transmission either through the breather plug on the top or through the inspection cover. Before refilling with new oil, flush the transmission with a light weight machine oil. Do not use any paraffin oil or solvents.

Table 1 – Acceptable Oils

Name of Manufacturer	Name of Lubricant*
Amoco	Permagear EP 70
Atlantic Richfield Co.	Pennant NL S-700
Boron Oil Company	Gearep 85
Exxon Company, USA	Spartan EP 150
Gulf	S 70
Mobil Oil Company	Mobilgear 629
Shell Oil Company	Omala 69
Standard Oil Co. of CA.	Chevron NL Gear Compound 150
Sun Oil Co.	Sunep 1060
Texaco Inc.	Meropa 150

*All oils meet current standards for AGMA 4 EP gear lubricants.

Adjustment

Ratio Setting

The transmission (Figure 1) nameplate indicates the model number, speeds, size and chain number of the transmission. Tables 2 and 3 show chain part numbers for the various speed ranges. A speed range less than available from a particular chain can be set by adjusting the ratio limiting device on the control screw(s) of the transmission. Newer model VARI-CHAIN units are shipped with chains, part numbers as identified in Table 3. Orders for replacement chains will be filled with chains identified in Table 3.

On model sizes 1 thru 5 threaded split clamps are locked on the control screw with a socket head screw. The ratio is reduced by moving the split clamps in toward the pivot blocks. The socket head screw on the stop nuts can be loosened with a hex wrench inserted through the inspection cover of the transmission. Be sure to retighten limit nut locking screws before replacing inspection cover.

On the 0-½ VARI-CHAIN (Figure 2A and 2B) a hex-socket set screw (49) threaded into the control pivot block (52) is made to contact a pin (50) that is pressed into the control screw (Figure 2(a)). There are two such assemblies; one in each control pivot block to limit each end of the range. It is possible to reach one limiting device through the inspection cover but to properly limit both ends of the range, the upper housing (Vertical-front housing) must be removed. See sections on disassembly and reassembly. Newer model VARI-CHAIN units are equipped with a control screw stop configuration as shown in Figure 2(b). Orders for replacement control screw stops will be filled by stops identified as Figure 2(b). In no case should the ratio range be set to exceed the rated range of a chain in any VARI-CHAIN transmission.

Sizes 0-½-84 model VARI-CHAIN units (Figure 3) are equipped with a control screw stop configuration as shown in Figure 3A. Orders for replacement control screw stops will be filled by stops identified as Figure 3A. In no case should the ratio range be set to exceed the rated range of a chain in any VARI-CHAIN transmission.

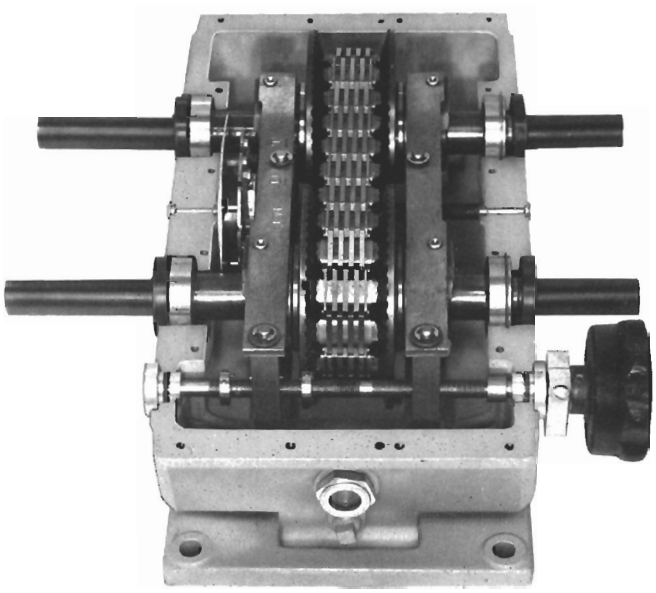


Figure 1

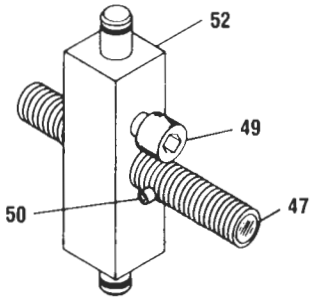


Figure 2(a)

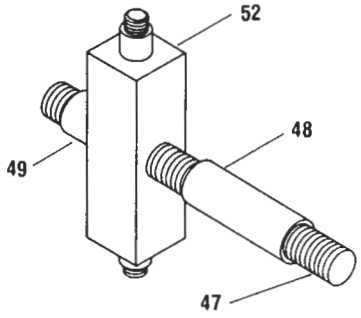


Figure 2(b)

-72, -79 Units

Table 2—Chain Data

MODEL #	CHAIN #	PITCH	CHAIN WIDTH (NEW)	MIN. CHAIN WIDTH
02	026	.748	1.25″	1.17″
03	025	.748	1.25″	1.17″
04	025	.748	1.25″	1.17″
05	024	.748	1.25″	1.17″
½-2	031	.748	1.25″	1.17″
½-3	029	.748	1.25″	1.17″
½-4	029	.748	1.25″	1.17″
12	127	1.00	1.45″	1.34″
13	126	1.00	1.45″	1.34″
14	126	1.00	1.45″	1.34″
15	125	1.00	1.45″	1.34″
16	125	1.00	1.45″	1.34″
12-72,79	224	1.126	1.52″	1.38″
13-72,79	223	1.126	1.52″	1.38″
14-72,79	223	1.126	1.52″	1.38″
15-72,79	125	1.00	1.45″	1.34″
16-72,79	125	1.00	1.45″	1.34″
22	231	1.126	1.52″	1.38″
23	230	1.126	1.52″	1.38″
24	230	1.126	1.52″	1.38″
25	229	1.126	1.52″	1.38″
26	229	1.126	1.52″	1.38″
32	337	1.126	1.74″	1.59″
33	336	1.126	1.74″	1.59″
34	336	1.126	1.74″	1.59″
35	335	1.126	1.74″	1.59″
36	335	1.126	1.74″	1.59″
42	435	1.500	2.22″	2.06″
43	434	1.500	2.22″	2.06″
44	434	1.500	2.22″	2.06″
45	433	1.500	2.22″	2.06″
46	433	1.500	2.22″	2.06″
52	544	1.500	2.78″	2.60″
53	543	1.500	2.78″	2.60″
54	543	1.500	2.78″	2.60″
55	542	1.500	2.78″	2.60″
56	542	1.500	2.78″	2.60″

Table 3—Chain Data

MODEL #	CHAIN #	PITCH	CHAIN WIDTH (NEW)	MIN. CHAIN WIDTH
02	00232	.591	1.21″	1.13″
03	00431	.591	1.21″	1.13″
04	00431	.591	1.21″	1.13″
05	00530	.591	1.21″	1.13″
½-2	05238	.591	1.21″	1.13″
½-3	05436	.591	1.21″	1.13″
½-4	05436	.591	1.21″	1.13″
12	21227	.980	1.48″	1.38″
13	21625	.980	1.48″	1.38″
14	21625	.980	1.48″	1.38″
15	21625	.980	1.48″	1.38″
16	21625	.980	1.48″	1.38″
12-72,79	21227	.980	1.48″	1.38″
13-72,79	21625	.980	1.48″	1.38″
14-72,79	21625	.980	1.48″	1.38″
15-72,79	21625	.980	1.48″	1.38″
16-72,79	21625	.980	1.48″	1.38″
22	32231	1.126	1.74″	1.60″
23	22434	.980	1.48″	1.38″
24	22434	.980	1.48″	1.38″
25	22633	.980	1.48″	1.38″
26	22633	.980	1.48″	1.38″
32	33237	1.126	1.74″	1.60″
33	33436	1.126	1.74″	1.60″
34	33436	1.126	1.74″	1.60″
35	33635	1.126	1.74″	1.60″
36	33635	1.126	1.74″	1.60″
42	44237	1.409	2.29″	2.14″
43	44435	1.409	2.29″	2.14″
44	44435	1.409	2.29″	2.14″
45	44634	1.409	2.29″	2.14″
46	44634	1.409	2.29″	2.14″
52	55247	1.409	2.75″	2.58″
53	55445	1.409	2.75″	2.58″
54	55445	1.409	2.75″	2.58″
55	55644	1.409	2.75″	2.58″
56	55644	1.409	2.75″	2.58″

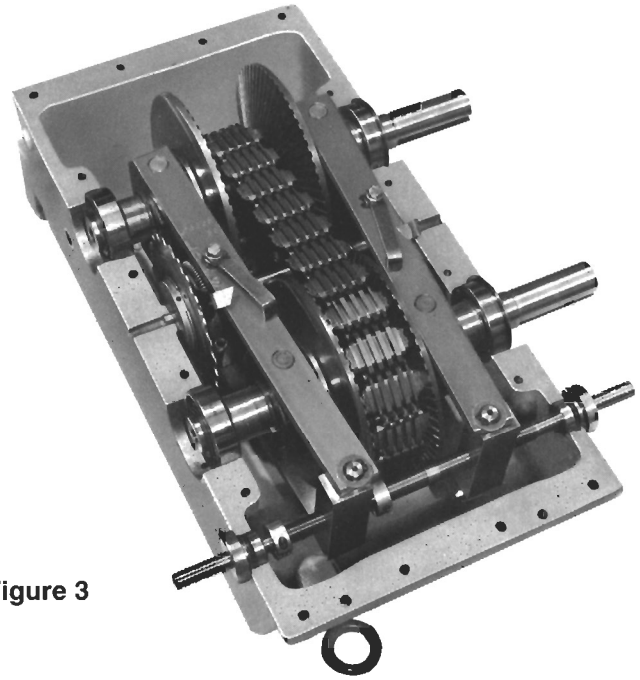


Figure 3

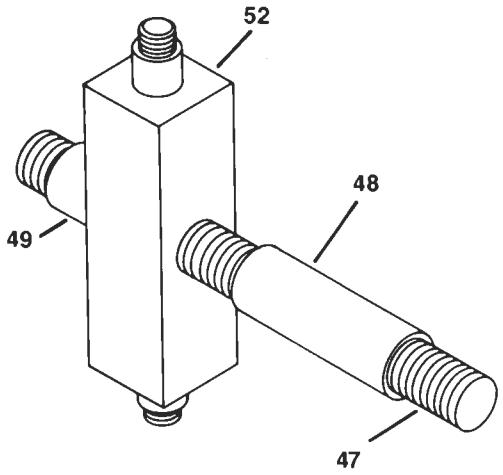


Figure 3A

-84 Units

Table 4 – Chain Data

MODEL #	CHAIN #	PITCH	CHAIN WIDTH (NEW)	MIN. CHAIN WIDTH
02-84	A032	.591	1.21″	1.13″
03-84	A031	.591	1.21″	1.13″
04-84	A031	.591	1.21″	1.13″
05-84	A030	.591	1.21″	1.13″
½-2-84	A038	.591	1.21″	1.13″
½-3-84	A036	.591	1.21″	1.13″
½-4-84	A036	.591	1.21″	1.13″
12-84	A227	.980	1.48″	1.38″
13-84	A225	.980	1.48″	1.38″
14-84	A225	.980	1.48″	1.38″
15-84	A225	.980	1.48″	1.38″
16-84	A225	.980	1.48″	1.38″
22-84	A330	1.126	1.74″	1.60″
23-84	A233	.980	1.48″	1.38″
24-84	A233	.980	1.48″	1.38″
25-84	A232	.980	1.48″	1.38″
26-84	A232	.980	1.48″	1.38″

MODEL #	CHAIN #	PITCH	CHAIN WIDTH (NEW)	MIN. CHAIN WIDTH
32-84	A337	1.126	1.74″	1.60″
33-84	A335	1.126	1.74″	1.60″
34-84	A335	1.126	1.74″	1.60″
35-84	A334	1.126	1.74″	1.60″
36-84	A334	1.126	1.74″	1.60″
42-84	A437	1.409	2.29″	2.14″
43-84	A435	1.409	2.29″	2.14″
44-84	A435	1.409	2.29″	2.14″
45-84	A434	1.409	2.29″	2.14″
46-84	A434	1.409	2.29″	2.14″
52-84	A544	1.409	2.75″	2.58″
53-84	A543	1.409	2.75″	2.58″
54-84	A543	1.409	2.75″	2.58″
55-84	A541	1.409	2.75″	2.58″
56-84	A541	1.409	2.75″	2.58″

-66, -71, -72, -79 Units

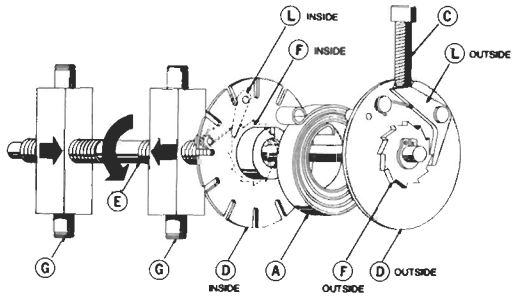


Figure 4 — Models 0 and ½

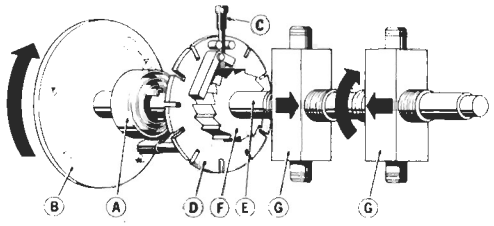


Figure 5 — Models 1 thru 5

Automatic Chain Tensioning and Chain Wear Indicator

There are two types of automatic chain tensioning devices used in the VARI-CHAIN transmission Figure 1. Figure 5 and Figure 4 illustrate the chain tensioning device found in VARI-CHAIN Models 1 thru 5 and Models 0 and ½ respectively. Although there are differences in the construction of the two tensioning devices, the principle of operation is the same.

A spiral spring (A) is used to exert torque on the pivot block screw (E). When the chain is new, the spiral spring is fully torqued. As wear occurs on the chain slats, the pivot block screw, which supports the two pivot blocks (G), turns under the effect of the spiral spring and compensates for wear on the chain. The chain remains under correct tension until it is completely worn out.

The progressive wear of the chain can easily be checked during oil change operations. An indicator wheel (B) is used on VARI-CHAIN Model sizes 1 thru 5 to give an indication of the wear that has occurred to the chain. Once the ¼ (or replace chain) mark is reached, the tensioning device is blocked by stops located on the tension flange (D) and the indicator wheel. No more tightening action takes place. The amount of wear on the chain in the 0, ½ VARI-CHAIN Models sizes must be determined by examining the chain. The chain in any VARI-CHAIN should not be allowed to wear beyond the recommended minimum chain width (see Table 2 or 3). Usually maximum wear will occur when the pivot block screw has made slightly less than one revolution.

-84 Model VARI-CHAIN Units

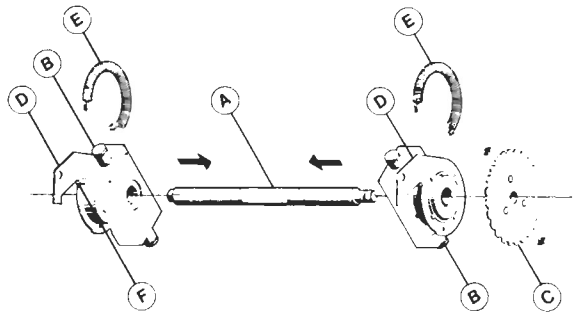


Figure 6 — Model 0 and ½

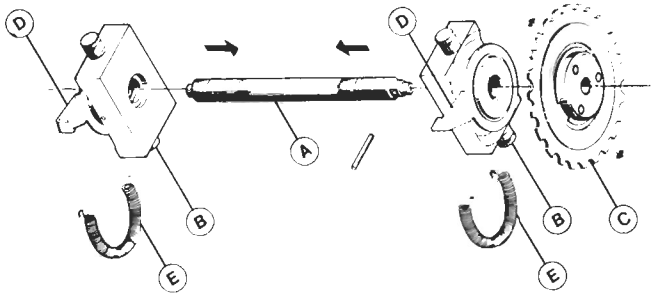


Figure 7 — Models 1 thru 5

Automatic Chain Tensioning and Wear Indicator

Automatic chain tensioning for normal operating speeds is equivalent to the "SPIRAL SPRING" type tensioning in models -72 and -79.

Better control of chain tension is achieved at extremely slow speeds by the tension assemblies integrally mounted in the pivot blocks.

The Automatic Chain Tensioning Assembly consists of:

a) Adjusting screw (A) with right and left hand threads
b) Two pivot blocks (B) mounted on the adjusting screw which contain individual tensioning mechanisms
c) Notched Tension Adjusting Flange (C)
d) Chain Wear Indicating Arms (D)
e) Springs (E) which move the Indicating Arms (D) as the chain wears and the tension mechanism in the Pivot Block (B) relaxes due to chain wear

The progressive wear of the chain can be checked concurrent with oil change operations. The Chain Wear Indicating Arms (D) on the 0-84 and ½-84 VARI-CHAIN transmissions serve the same purpose as the numbered disc on the "SPIRAL SPRING" type automatic chain tensioner. They will move down toward red pointers located on top of the Control lever (not shown) and come to rest on pins (F) supporting Spring (E) when the chain is completely worn.

For -84 Models other than size 0 and ½, the Chain Wear Indicating Arms are formed into pointers bent at right angles to the arms. When the chain is completely worn, the pointers come to rest on the control levers.

In either case the indicator arms should not be allowed to travel to the fullest extent of their range before the chain is replaced.

Chain and Chain Wear

Under normal applications and usage of the Specon VARI-CHAIN transmission, the chain will be the primary wearing part.

As the wheelfaces are at a greater hardness than the chain slats, the tips of the slats will wear first. Wear on the tips of the slats will reduce chain width. Chain wear may also occur on link connecting pins and bushings. The overall wear on the chain will produce a chain slackening which is automatically compensated for by the built-in automatic chain tensioner. During the life of the chain, no adjustments for chain slackening or chain tension are necessary.

A chain wear indicator plate is included in the automatic chain tensioner assembly for -72, -79 Model sizes 1 thru 5. This plate turns as the chain wears and the marking 0, 1/4, 1/2, 3/4 and 4/4 on the plate indicates the relative wear.

Accurate Turn Indicator

All Specon VARI-CHAIN transmissions have an indicator located in the control handwheel (Figure 8). This indicator shows control screw turns and thus relates input/output speed ratio. A higher degree of repeatability is assured since control screw turns and parts of turns are indicated. This indicator handwheel design now is used for all sizes of VARI-CHAIN transmissions.

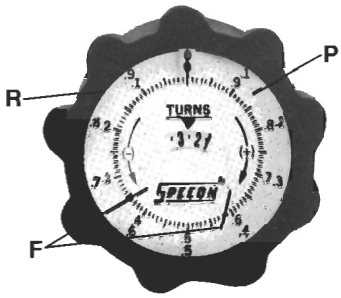


Figure 8

As shipped, control screw clamp is locked. Indicator setting is at "0". (On VARI-CHAIN units, this indicates 1:1 setting.) (On MDD units, this indicates "Zero" draw.)

Handling during shipment can tumble the indicator's gravity mechanism giving a false reading. If indicator is not on "0", loosen two set screws in hub and re-zero. When indicator is properly calibrated, speed may be changed by loosening lock clamp and turning control screw (handwheel). **CAUTION — INPUT POWER SHAFT MUST BE ROTATING.** Zero position may be relocated to suit the VARI-CHAIN's specific usage.

Typical indicator handwheel assembly shows (+) for clockwise rotation. Should (+) be desirable for counter-clockwise rotation, proceed as follows:

(1) With handwheel stationary, note exact reading.

(2) Remove ring (R).

(3) Remove crystal.

(4) Remove (2) faceplate mounting screws (F).

(5) Remove from rear of plate (P) two stick on (+) and (–) decals. Carefully place decals over the original symbols to correctly indicate the direction of rotation.

(6) Reassemble, taking care to locate line in crystal at original position.

Operation

WARNING: Do not turn the handwheel to change speed or ratio of the VARI-CHAIN transmission when unit is stopped. Speed changes must be made only while the VARI-CHAIN transmission is running.

Ratio range, maximum and minimum RPM, maximum and minimum power capacities, and input RPM are shown on the nameplate located on the transmission. For lower than rated input speeds, output speeds and power capacities are reduced proportionally.

Output speed is adjusted by turning the indicator handwheel. The Rating Table in Catalog #207 gives total number of turns required for full range adjustment on all size transmissions. When shipped, the transmission is in the 1:1 ratio when indicator setting is zero.

Maintenance

-66, -71,
-72, -79 Units

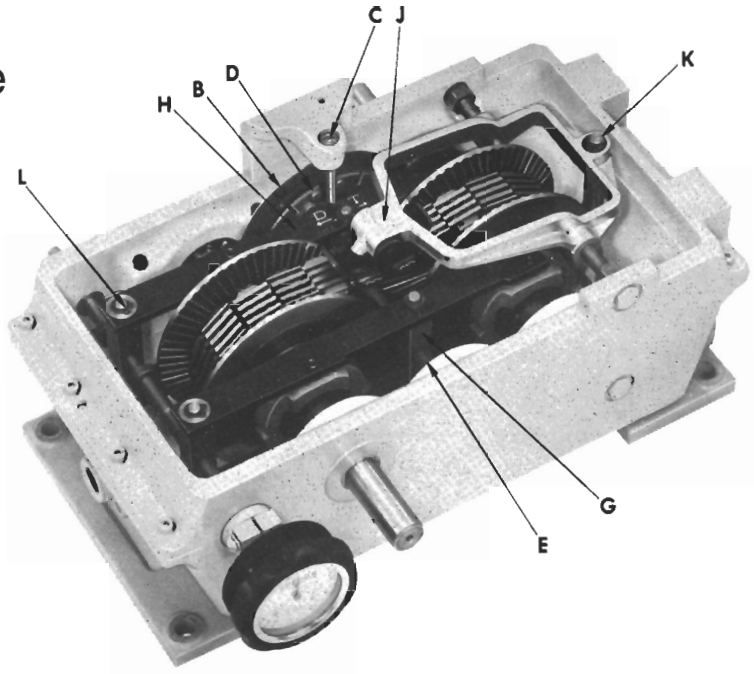


Figure 9

Note: Numbers in parentheses refer to locator numbers on page 8 and 9.

Disassembly

To remove the upper housing, take off inspection cover and remove blocking screw (C) (Figure 9). Remove the bolts at each end of the transmission and eight bolts inside the transmission. Six of these bolts can removed through the inspection cover. On size 0 and ½ units remove two 10-24 bolts in housing holes on either side of blocking screw. These screws are located in housing counter bolts. The remaining two can be reached through the oil breather plug hole on each side of the nameplate. The top shoe (J) will be removed with the upper half of the housing. Caution should be exercised in removing the spring support rod (K) to retain the spring and washer with the spring support rod. Remove two dowel pins (Locator No. 103) page 8 or roll pins (Locator No. 132) page 9.

The entire internal assembly can now be removed from the lower housing. The control screw assembly can now be removed by removing the snap rings from each end of the control pivot blocks (L). With the control assembly removed, care should be exercised so as not to destroy the position relationship of the two control pivot blocks. Do not turn one pivot block independent of the other. In order to complete the disassembly of the internals, the control levers (H) must be removed. Remove only the top set or bottom set of control levers at any given time. This retains the position relationship of the adjustable pivots (G) on the pivot block screw (E). If it is necessary to remove both top and bottom control levers, exercise care to maintain the relative position of the two adjustable pivots on the pivot block screw. During disassembly, note should be taken of the relative location of all parts so that each individual part can be reassembled correctly to the correct adjoining part.

Reassembly

Reassemble the individual internal assembly taking care to insure that individual parts are assembled into the exact location from which they were removed. The entire internal assembly including the control screw can be made up before it is inserted into the lower housing.

The wave spring washer (53) Parts List size 1-5, on the control screw bushings (56), must go on the outside of the transmission housing and care must be taken to insure that they are not pinched between the housing halves. (This applies to sizes 1-5 only.)

Locate lower end of the spring support rod (24) Parts List size 0-½ and size 1-5, in the hole of bottom shoe bracket (18). Compress spring and washer until drilled hole in rod is exposed and insert a piece of wire to hold the compression, allowing wire to lay across top of chain. Apply non-hardening permatex to the mating surfaces of both housing halves. While lowering top half of housing, locate upper end of shoe level rod in hole of upper shoe bracket.

Insert dowel pins (7). Secure bolts and remove wire from transmission. Recheck chain tensioner setting in accordance with chain tensioner instructions.

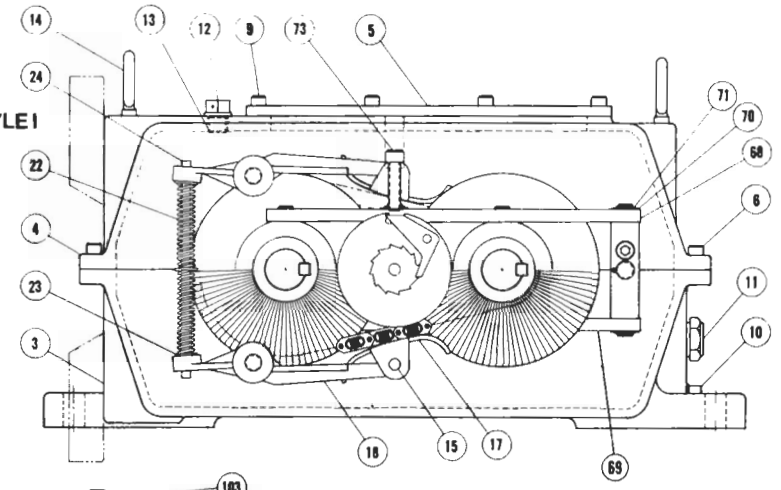
Installing New Chain

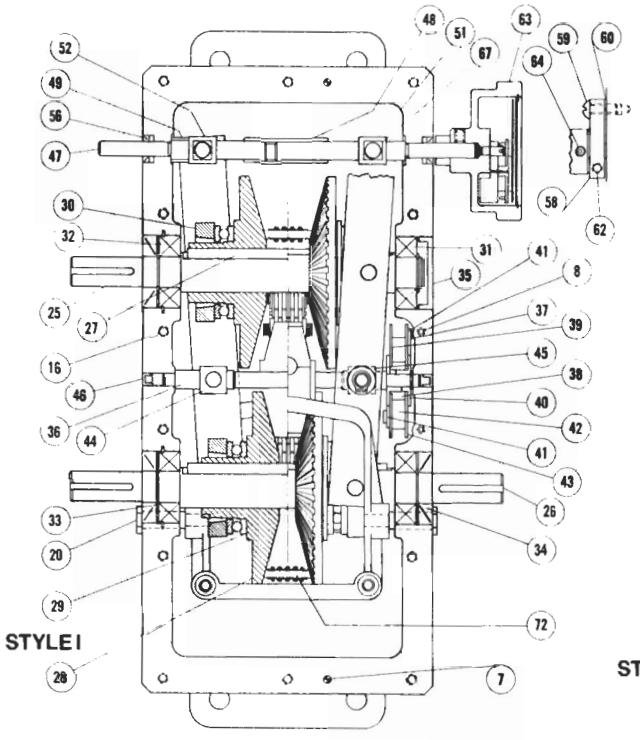
- Set transmission at 1:1 ratio, indicator setting at zero. (Remember change ratio only when transmission is running.)
- Disconnect motor or drive.
- Remove inspection plate.
- Support upper shoe (J) (Figure 9) in position away from chain. (Except size 0, which has no tensioning shoes.)
- Remove blocking screw (C).
- Turn tension flange (D) in direction marked "D" as shown on control lever (H) to slacken chain. (Use screwdriver in slots of flange.)
- Using blocking pin as reference, rotate flange through two revolutions.
- Locate connecting pin in old chain and remove.
- Using old connecting pin, attach one end of new chain to end of old chain.
- Pull old chain out of transmission and thread new chain around wheelfaces into transmission. Withdraw old connecting pin, separating old and new chain. Connect the ends of new chain with the new connecting pin using new washer and cotter pin.
- Refer to Figure 4 and 5. Turn tension flange (D) in direction marked "T" (clockwise rotation) until wheelfaces are snug against the chain. For VARI-CHAIN Models 1 thru 5 continue clockwise rotation of the tension flange (using screwdriver in slots) until ratchet sounds cease indicating the automatic tension spring is fully loaded. Back off tension flange (D) to line up stops with blocking screw (C). For VARI-CHAIN Models 0 and ½, proceed by inserting blocking screw into the outside tension flange (D), thus blocking rotation of the outside tension flange (D) and releasing outside ratchet (L). Finally load spiral spring (A) by turning the inside tension flange (D) in a counter-clockwise direction until ratchet sounds cease. Rotate the transmission by hand during this setting.
- Continue to rotate the transmission a few times by hand to free the slats. For transmissions equipped with the indicator disc, the "0" mark on the indicator should be positioned just to the left of the blocking screw. After running approximately one hour, recheck indicator plate and reset "0" slightly to the left of the blocking screw if necessary. (This will prevent premature chain wear indications.)
- Replace inspection cover, reconnect motor or drive and proceed with normal usage.

SPECON VARI-CHAIN PARTS LIST & LOCATOR NUMBERS SIZE 0 & ½ or 0 -71 & ½ -71

NOTE: Specify Model Number, and Serial Number when ordering parts.

STYLE I





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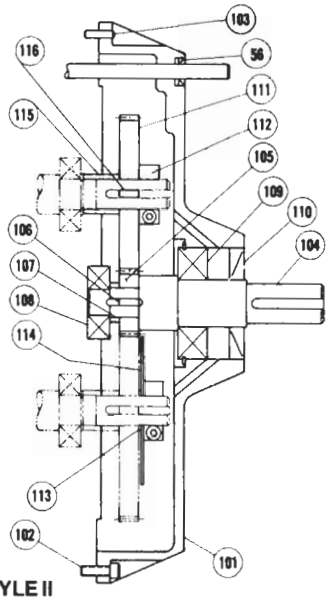
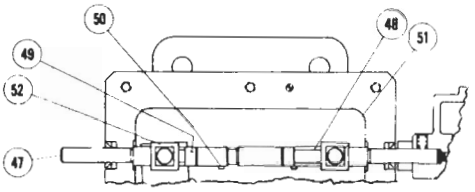


STYLE II



Detail A.
(Old Style)

See Detail A For Old Style Units.

Loc. No.	Description	Quan.
47	Control Screw Shaft	1
48	Stop Screw (Long)	1
49	Stop Screw (Short)	1
50	Roll Pin	2
51	Control Pivot Block (RH)	1
52	Control Pivot Block (LH)	1

STYLE I

Loc. No.	Description	Quan.
3	a) Lower Housing (Horiz)	1
	b) Back Housing (Vert)	1
4	a) Upper Housing (Horiz)	1
	b) Front Housing (Vert)	1
5	Inspection Cover	1
6	Soc. Hd. Cap Screw	10
7	Dowel Pins	2
8	Soc. Hd. Cap Screw	2
9	Soc. Hd. Cap Screw	10
10	Drain Plug	1
11	Sight Gage	1
12	Vent Plug	1
13	Pipe Plug	1
14	Eye Bolt	2
*15	Shoe Pin (On ½ only)	2
16	Soc. Hd. Cap Screw	2
*17	Shoe (On ½ only)	2
*18	Shoe Bracket (On ½ only)	2
20	Shoe Lever Pin (On ½ only)	4
22	Shoe Support Spring (On ½ only)	4
23	Washer (On ½ only)	4
24	Spring Support Rod (On ½ only)	2
25	Shaft – Single Extended	1-2
26	Shaft – Double Extended	1-2
27	Key	2
**28	Wheelface	4
**29	Thrust Bearings	4
30	Thrust Yoke	4
31	Bearing	2
32	Bearing	2
33	Snap Ring	4
34	Seal	2-4
35	Closure	0-2
*36	Pivot Block Screw	1
*37	Ratchet Lever Pin & Torsion Spring	2
*38	Spring Coupling Ring	1
*39	Inside Adjusting Flange	1
*40	Tension Ratchet Gear	2
*41	Ratchet Lever Set — 1 Inside, 1 Outside	1
*42	Tension Spring & Pin	1
*43	Outside Adjusting Flange	1
*44	Pivot Block, LH	1
*45	Pivot Block, RH	1
46	Closure	2
47	Control Screw Shaft	1
48	Stop Spacer (Long)	1
49	Stop Spacer (Short)	1
51	Control Pivot Block (RH)	1
52	Control Pivot Block (LH)	1
56	Seal	2
58	Clamp Lock	1
59	Screw	1
60	Lockwasher	1
62	Soc. Hd. Cap Screw	1
63	Indicator Handwheel Assembly	1
64	Hex. Soc. Set Screw	2
67	Control Pivot Block Insert	4
**68	Control Lever (Upper)	2
**69	Control Lever (Lower)	2
70	Washer	8
71	Snap Ring	8
72	Chain	1
73	Blocking Screw	1

*NOTE: Supplied as sub-assemblies only.

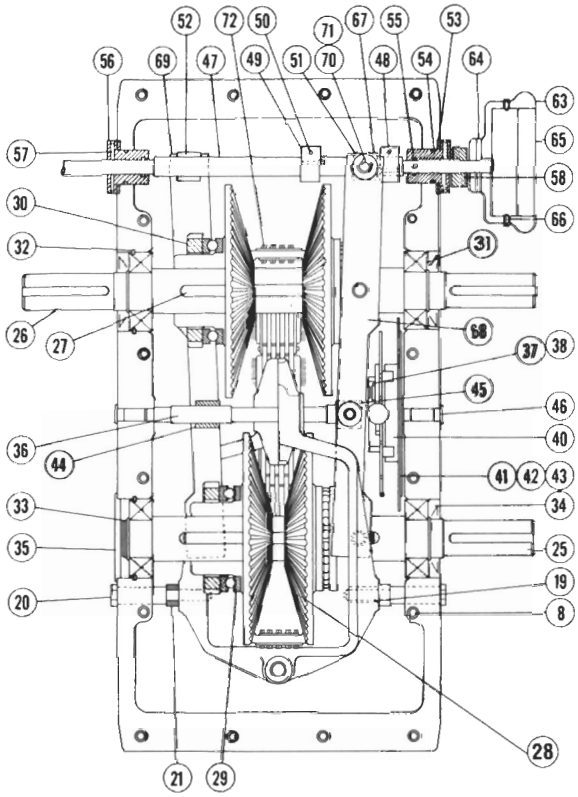
**NOTE: Sold in sets of 4 only

STYLE II

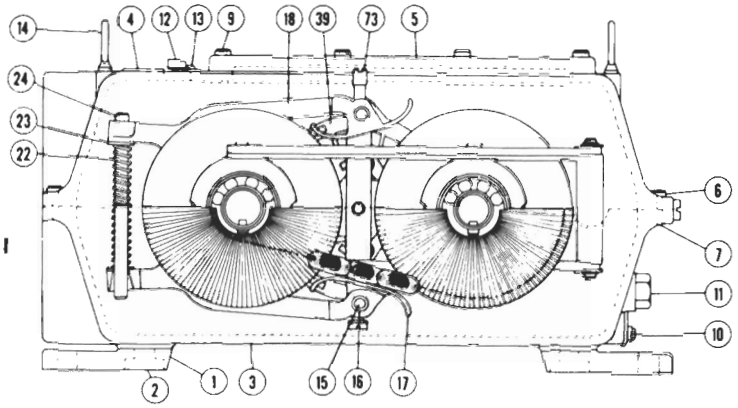
Loc. No.	Description	Quan.
101	Housing	1
102	Soc. Hd. Cap Screw	14
103	Dowel Pin	2
104	Shaft	1
105	Gear (On Input/Output Shaft)	1
106	Key/Pin	1
107	Spacer	1
108	Bearing	1
109	Bearing	1
110	Seal	1
111	Gear	1
112	Clamp	1
113	Spacer	1
114	Slinger	1
115	Spacer	1
116	Key	1

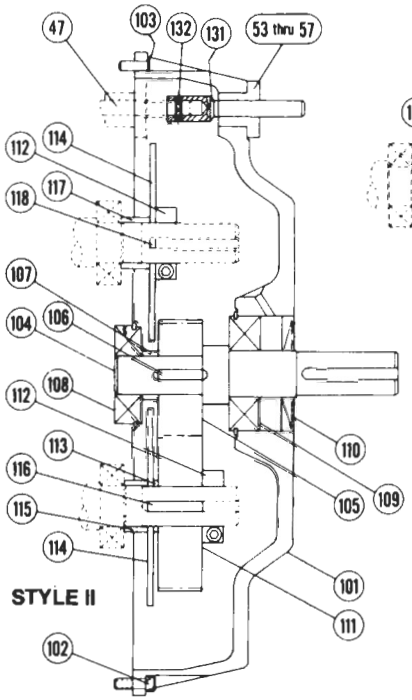
SPECON VARI-CHAIN PARTS LIST & LOCATOR NUMBERS SIZE 1, 2, 3, 4 & 5 or -66, -72 & -79

NOTE: Specify Model Number, and Serial Number when ordering parts.

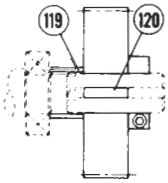


STYLE I





STYLE II



STYLE I

Loc. No.	Description	Quan.
1	Mounting Foot	2
2	Button Hd. Screw	4
3	Lower Housing	1
4	Upper Housing	1
5	Inspection Cover	1
6	Soc. Hd. Cap Screw	8
7	Dowel Pins	2
8	Soc. Hd. Cap Screw	8
9	Soc. Hd. Cap Screw	12
10	Drain Plug	1
11	Sight Gage	1
12	Vent Plug	1
13	Pipe Plug	1
14	Eye Bolt	2
*15	Shoe Pin	2
*16	Shoe Bushing	2
*17	Shoe	2
*18	Shoe Bracket	2
*19	Shoe Bracket Bushing	4
20	Shoe Lever Pin	4
***21	Bushing	4
22	Shoe Support Spring	2
23	Washer	2
24	Spring Support Rod	1
25	Shaft — Single Extended	1-2
26	Shaft — Double Extended	1-2
27	Key	2
**28	Wheelface	4
**29	Thrust Bearings	4
30	Thrust Yoke	4
31	Bearing	2
32	Bearing	2
33	Snap Ring	4
34	Seal	2
35	Closure	2
*36	Pivot Block Screw	1
*37	Ratchet Wheel Hub	1
*38	Roll Pin	1
*39	Tension Flange Assembly	1
*40	Tension Spring	1
*41	Bellville Washer	1
*42	Indicator Disc	1
*43	Snap Ring	1
*44	Pivot Block, LH	1
*45	Pivot Block, RH	1
46	Closure	2
47	Control Screw Shaft	1
48	Adjustable Stop	1
49	Adjustable Stop	1
50	Soc. Hd. Screw	2
51	Control Pivot Block, RH	1
52	Control Pivot Block, LH	1
53	Wave Spring Washer	2
54	"O" Ring	2
55	"O" Ring	2
56	Bushing	2
57	Roll Pin	2
58	Clamp Lock	1
59	Screw	1
60	Lockwasher	2
62	Soc. Hd. Screw	1
63	Indicator Handwheel	1
64	Hex. Soc. Set Screw	2
67	Control Pivot Block Insert	4
**68	Control Lever (Upper)	2
**69	Control Lever (Lower)	2
70	Washer	8
71	Snap Ring	8
72	Chain	1
73	Blocking Screw	1

*NOTE: Supplied as sub-assemblies only.

**NOTE: Sold in sets of 4 only.

***NOTE: Used on size 3 only.

STYLE II

Loc. No.	Description	Quan.
101	Housing Assembly	1
102	Soc. Hd. Cap Screw	12
103	Dowel Pin	2
104	Shaft	1
105	Gear	1
106	Key	1
107	Spacer	1
108	Bearing	1
109	Bearing	1
110	Seal	1
111	Gear	1
112	Clamp	1
113	Spacer	1
114	Slinger	1
115	Spacer	1
116	Key	1
117	Spacer	1
118	Key	1
119	Spacer	1
120	Key	1
131	Control Shaft Extension	1
132	Roll Pin	1

Maintenance

-84 Units

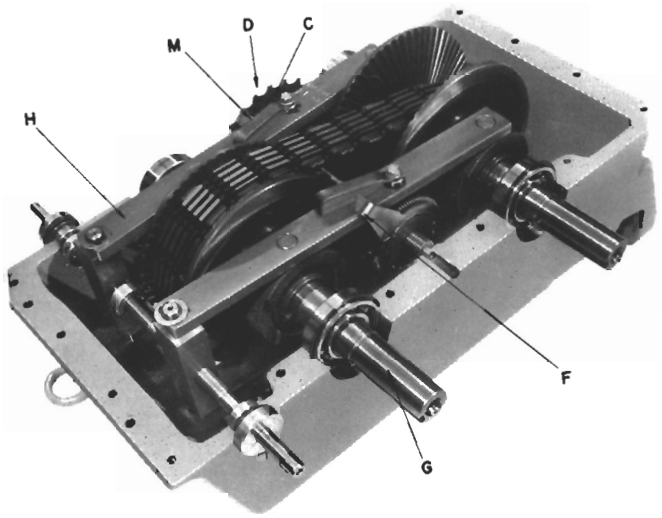


Figure 10

Note: Numbers in parentheses refer to locator numbers on page 11 and 12.

Disassembly

To remove the upper housing, take off inspection cover and remove anti-rotation pin (73) (page 11). Remove the bolts at each end of the transmission and eight bolts inside the transmission. Six of these bolts can be removed through the inspection cover. On size 0 and ½ units remove two 10-24 bolts in housing holes on either side of anti-rotation pin. These screws are located in housing counter bores. The remaining two can be reached through the oil breather plug hole on each side of the nameplate. The top shoe will be removed with the upper half of the housing. Caution should be exercised in removing the spring support rod (24) to retain the spring and washer with the spring support rod.

The entire internal assembly can now be removed from the lower housing. The control screw assembly can now be removed from the control levers' open ends. With the control assembly removed, care should be exercised so as not to destroy the position relationship of the two control pivot blocks. Do not turn one pivot block independent of the other. In order to complete the disassembly of the internals, the control levers (H) must be removed. Remove only the top set or bottom set of control levers at any given time. This retains the position relationship of the adjustable pivots (B) on the pivot block screw (A). If it is necessary to remove both top and bottom control levers, exercise care to maintain the relative position of the two adjustable pivots on the pivot block screw. During disassembly, note should be taken of the relative location of all parts so that each individual part can be reassembled correctly to the correct adjoining part.

Reassembly

Reassemble the individual internal assembly taking care to insure that individual parts are assembled into the exact location from which they were removed. The entire internal assembly including the control screw can be made up before it is inserted into the lower housing.

The wave spring washer (53) Parts List size 1-5, on the control screw bushings (56), must go on the outside of the transmission housing and care must be taken to insure that they are not pinched between the housing halves. (This applies to sizes 1-5 only.)

Locate lower end of the spring support rod (24) Parts List size 0-½ and size 1-5, in the hole of bottom shoe bracket (18). Compress spring and washer until drilled hole in rod is exposed and insert a piece of wire to hold the compression, allowing wire to lay across top of chain. Apply non-hardening permatex to the mating surfaces of both housing halves. While lowering top half of housing, locate upper end of shoe lever rod in hole of upper shoe bracket.

Insert both pins (7). Secure bolts and remove wire from transmission. Recheck chain tensioner setting in accordance with chain tensioner instructions.

Installing New Chain **(Figure 10)**

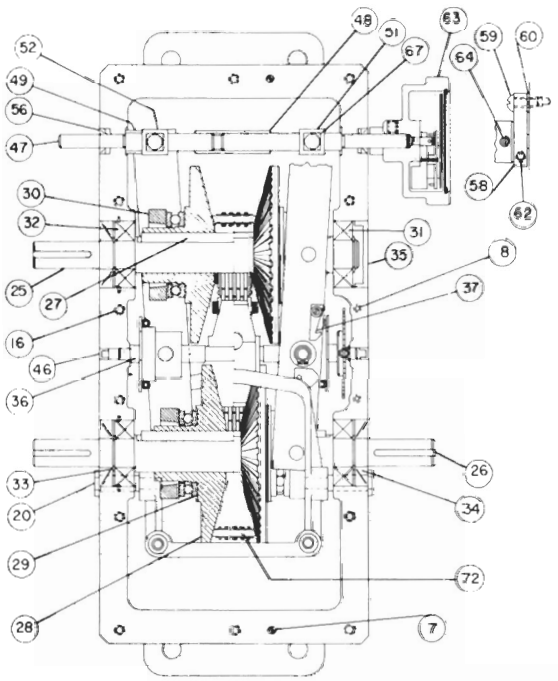
- Set transmission at 1:1 ratio, indicator setting at zero. (Remember change ratio only when the transmission is running.)
- Disconnect motor or drive.
- Remove inspection plate.
- Support upper shoe in position away from chain. (Except size 0, which has no tensioning shoes.)
- Remove anti-rotation pin (73).
- Turn notched Tension Adjusting Flange (D) in direction "L" (stamped on Control Lever (H) through two revolutions to loosen chain.
- Locate connecting pin in old chain and remove.
- Using old connecting pin, attach one end of new chain to end of old chain.
- Pull old chain out of transmission and thread new chain around wheelfaces into transmission.
- Withdraw old connecting pin, separating old and new chain.
- Connect end of new chain using a new washer and cotter pin.
- Refer to Figure 10. For Models 0 and ½, loosen restraining hook screws (M) and hang indicating arms (F) into hooks. For sizes 1 thru 5, loosen restraining strap screws (C) and place indicating arms (F) under straps (M).
- While rotating power shafts (G) turn notched tension flange (D) in direction S (stamped on control Lever (H) by hand until chain slack disappears and resistance to turning occurs at notched flange. At this time insert a screwdriver blade into notches and bump with the palm of the hand or a rubber mallet. Bump indicating arms (F) during this operation after each two or three notches of flange rotation.
- Continue this procedure until the Indicating Arms (F) maintain their position without the aid of the restraining hooks (for 0 and ½) or restraining straps (1 thru 5). This will generally occur within ¾ to 1¼ turns of the notched flange (D) rotation after the chain slack disappears.

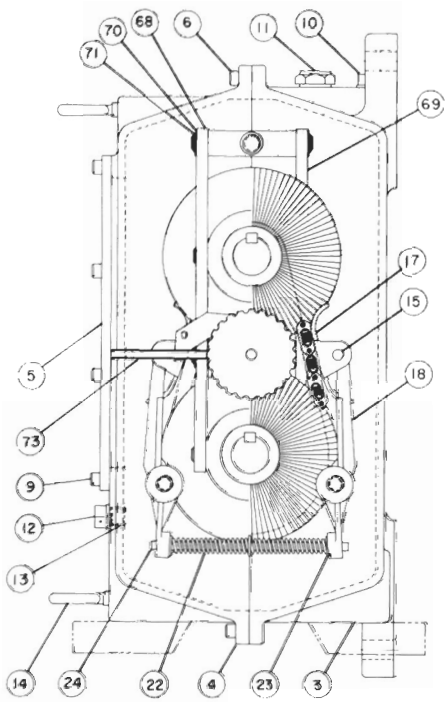
  Note: Chain slack must disappear before the Indicating Arms can maintain their position without the aid of the restraining devices.
- When the Indicating Arms (F) maintain their position without the aid of the restraining devices, the Automatic Tensioning System is fully loaded. Return the restraining hooks or straps to their original position (inside edge of Control Levers (H)) and tighten screws.
- Replace inspection cover, reconnect motor or drive and proceed with normal usage.

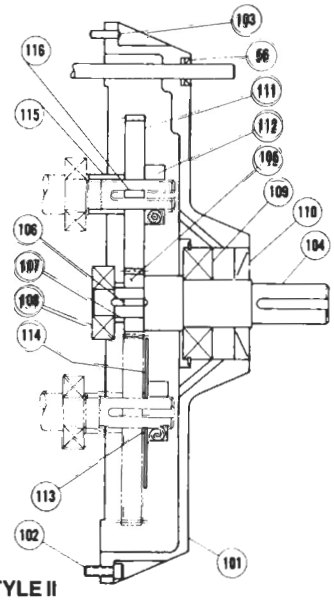
SPECON VARI-CHAIN PARTS LIST & LOCATOR NUMBERS SIZE 0 -84 & ½ -84

NOTE: Specify Model Number, and Serial Number when ordering parts.

STYLE I







STYLE II

STYLE I

Loc No.	Description	Quan.
3	a) Lower Housing (Horiz)	1
	b) Back Housing (Vert)	1
4	a) Upper Housing (Horiz)	1
	b) Front Housing (Vert)	1
5	Inspection Cover	1
6	Soc. Hd. Cap Screw	10
7	Roll Pins	2
8	Soc. Hd. Cap Screw	2
9	Soc. Hd. Cap Screw	10
10	Drain Plug	1
11	Sight Gage	1
12	Vent Plug	1
13	Pipe Plug	1
14	Eye Bolt	2
*15	Shoe Pin (On ½ only)	2
16	Soc. Hd. Cap Screw	2
*17	Shoe (On ½ only)	2
*18	Shoe Bracket (On ½ only)	2
20	Shoe Lever Pin (On ½ only)	4
22	Shoe Support Spring (On ½ only)	4

Loc. No.	Description	Quan.
23	Washer (On ½ only)	4
24	Spring Support Rod (On ½ only)	2
25	Shaft – Single Extended	1-2
26	Shaft – Double Extended	1-2
27	Key	2
**28	Wheelface	4
**29	Thrust Bearings	4
30	Thrust Yoke	4
31	Bearing	2
32	Bearing	2
33	Snap Ring	4
34	Seal	2-4
35	Closure	0-2
*36	Automatic Chain Tensioning and Wear Indicator Assembly	1
37	Retaining Hook	2

Loc. No.	Description	Quan.
46	Closure	2
47	Control Screw Shaft	1
48	Stop Spacer (Long)	1
49	Stop Spacer (Short)	1
51	Control Pivot Block (RH)	1
52	Control Pivot Block (LH)	1
56	Seal	2
58	Clamp Lock	1
59	Screw	1
60	Lockwasher	1
62	Soc. Hd. Cap Screw	1
63	Indicator Handwheel Assembly	1
64	Hex. Soc. Set Screw	2
67	Control Pivot Block Insert	4
**68	Control Lever (Upper)	2
**69	Control Lever (Lower)	2
70	Washer	8
71	Snap Ring	8
72	Chain	1
73	Anti-Rotation Pin	1

*NOTE: Supplied as sub-assemblies only.

**NOTE: Sold in sets of 4 only.

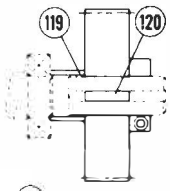
STYLE II

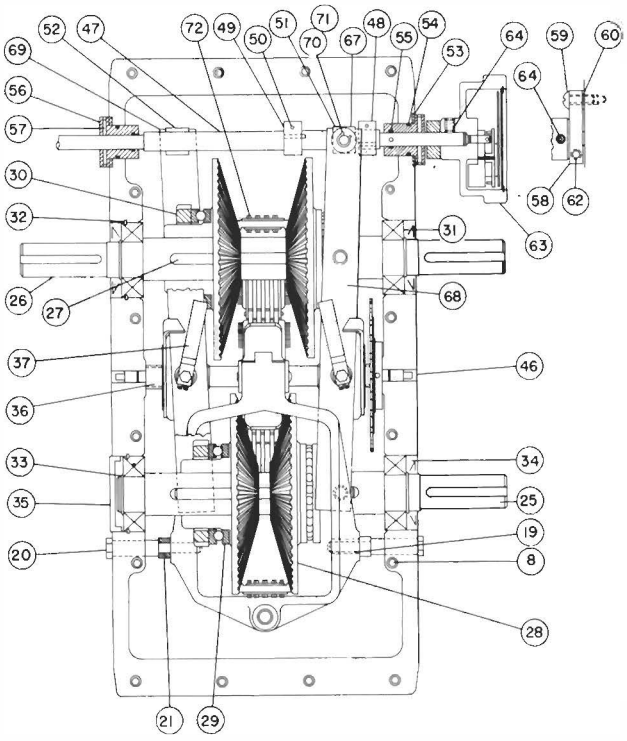
Loc. No.	Description	Quan.
101	Housing	1
102	Soc. Hd. Cap Screw	14
103	Dowel Pin	2
104	Shaft	1
105	Gear (On Input/Output Shaft)	1

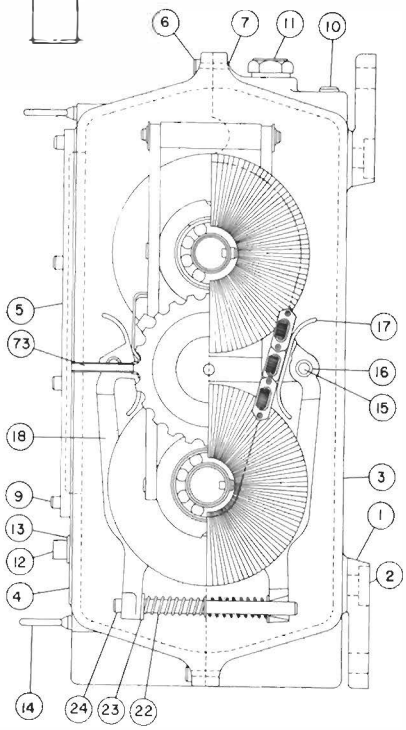
Loc. No.	Description	Quan.
106	Key/Pin	1
107	Spacer	1
108	Bearing	1
109	Bearing	1
110	Seal	1
111	Gear	1

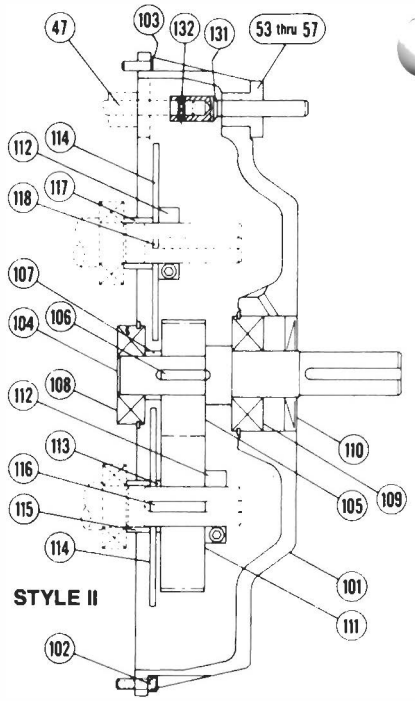
Loc. No.	Description	Quan.
112	Clamp	1
113	Spacer	1
114	Slinger	1
115	Spacer	1
116	Key	1

SPECON VARI-CHAIN PARTS LIST & LOCATOR NUMBERS SIZE 1 -84, 2-84, 3-84, 4-84 & 5-84









STYLE I Loc No.	Description	Quan.	Loc No.	Description	Quan.	Loc No.	Description	Quan.
1	Mounting Foot	2	22	Show Support Spring	2	50	Soc. Hd. Screw	2
2	Socket (Size 3) Hd. Screw	4	23	Washer	2	51	Control Pivot Block (RH)	1
3	Lower Housing	1	24	Spring Support Rod	1	52	Control Pivot Block (LH)	1
4	Upper Housing	1	25	Shaft – Single Extended	1-2	53	Wave Spring Washer	2
5	Inspection Cover	1	26	Shaft – Double Extended	1-2	54	"O" Ring	2
6	Soc. Hd. Cap Screw	8	27	Key	2	55	"O" Ring	2
7	Roll Pins	2	**28	Wheelface	4	56	Bushing	2
8	Soc. Hd. Cap Screw	8	**29	Thrust Bearings	4	57	Roll Pin	2
9	Soc. Hd. Cap Screw	12	30	Thrust Yoke	4	58	Clamp Lock	1
10	Drain Plug	1	31	Bearing	2	59	Screw	1
11	Sight Gage	1	32	Bearing	2	60	Lockwasher	2
12	Vent Plug	1	33	Snap Ring	4	62	Soc. Hd. Screw	1
13	Pipe Plug	1	34	Seal	2	63	Indicator Handwheel	1
14	Eye Bolt	2	35	Closure	2	64	Hex. Soc. Set Screw	2
*15	Shoe Pin	2	*36	Automatic Chain Tensioning Assembly	1	67	Control Pivot Block Insert	4
*16	Shoe Bushing	2	37	Retaining Strap	2	†68	Control Lever (Upper)	2
*17	Shoe	2	46	Closure	2	†69	Control Lever (Lower)	2
*18	Shoe Bracket	2	47	Control Screw Shaft	1	70	Washer	8
*19	Shoe Bracket Bushing	4	48	Adjustable Stop	1	71	Snap Ring	8
20	Shoe Lever Pin	4	49	Adjustable Stop	1	72	Chain	1
***21	Bushing	4				73	Anti-Rotation Pin	1

*NOTE: Supplied as sub-assemblies only. **NOTE: Sold in sets of 4 only. ***NOTE: Used on size 3 and 5 only †NOTE: Sold in sets of 4 only.

STYLE II Loc No.	Description	Quan.	Loc No.	Description	Quan.	Loc No.	Description	Quan.
101	Housing Assembly	1	110	Seal	1	119	Spacer	1
102	Soc. Hd. Cap Screw	12	111	Gear	1	120	Key	1
103	Dowel Pin	2	112	Clamp	1	131	Control Shaft Extension	1
104	Shaft	1	113	Spacer	1	132	Roll Pin	1
105	Gear	1	114	Slinger	1			
106	Key	1	115	Spacer	1			
107	Spacer	1	116	Key	1			
108	Bearing	1	117	Spacer	1			
109	Bearing	1	118	Key	1			