

RGD/RGS Series Service Manual

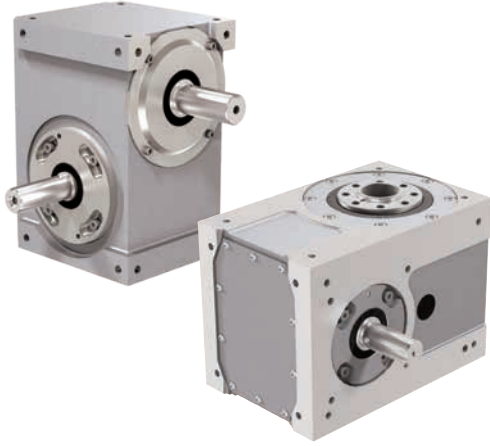


WARNING: This is a controlled document. It is your responsibility to deliver this information to the end user of the DESTACO CAMCO product. Failure to deliver this could result in your liability for injury to the user or damage to the machine. For copies of this manual, call your Customer Service Representative at 1-800-645-5207.

RGD/RGS SERIES

Product Sections

RGD/RGS 40-50-70-80 SERIES



RGD/RGS 350-500-600 SERIES

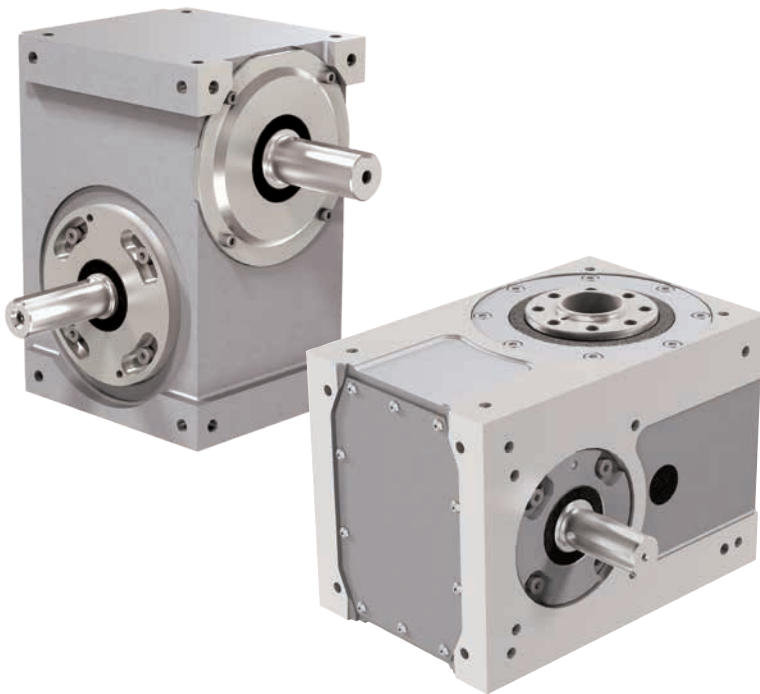


TABLE OF CONTENTS

INTRODUCTION	2
WARNINGS AND CAUTIONS	2
OIL SEAL REMOVAL	2
SPARE PARTS KIT	2
DISASSEMBLY	3
REMOVAL OF OUTPUT SHAFT	3
INSPECTION OF CAM FOLLOWERS	3
FOLLOWER REMOVAL	3
REMOVAL OF BEARINGS	3
INPUT SHAFT/ CAM REMOVAL	4
ASSEMBLY	4
PRIOR TO REASSEMBLY	4
ASSEMBLING INPUT SHAFT	4
ASSEMBLING OUTPUT SHAFT	5
SETTING CAM	5
HOW TO ORDER PARTS	7
BALLOONED PARTS DRAWINGS	8
PARTS LIST	9

RGD/RGS 40-50-70-80 SERIES

Service Manual

INTRODUCTION

This service manual pertains to the disassembly and assembly of CAMCO's Miniature RGD Series Index Drives MODELS 40, 50, 70 & 80RGD/RGS.

The manual is to be used in conjunction with the General Service Manual which describes the lubrication and general maintenance of CAMCO Index Drives.

For your convenience in identifying and ordering spare or replacement parts, a complete Bill of Materials is included in this manual.

Some users of Index Drives have the facilities and trained personnel to accomplish service repair. You must determine the extent to which intricate servicing should be done in your facility. When in doubt, CAMCO recommends that CAMCO trained servicemen make the repairs.

WARNINGS AND CAUTIONS

Statements in this manual preceded by the words WARNING or CAUTION and printed in italics are very important. We recommend you take special notice of these during service or repair.

WARNING

Means there is the possibility of personal injury to yourself or others.

CAUTION

Means there is the possibility of damage to the CAMCO unit.

OIL SEAL REMOVAL

The only repair possible without disassembly of the indexer is replacement of oil seals. To remove oil seals, drill a number of holes into the case of the seal. The seal may then be removed with a pointed tool. Be sure to remove all metallic chips created during the drilling of removal holes. A new seal may be installed as outlined in the "Oil Seal Installation Recommendations" section of the "General Service Manual".

SPARE PARTS KIT

CAMCO offers a Spare Parts Kit for all CAMCO index drive models CAMCO builds. These kits include oil seals, bearings, shims and cam followers. These are components that will most likely require replacement during repair of your index drive. CAMCO recommends a Spare Parts Kit be purchased and kept on hand prior to any disassembly of your CAMCO drive.

A complete list of components supplied in the Spare Parts Kit can be found in the parts list located in the rear of this manual. The asterisk behind the item number indicates those parts supplied with the Spare Parts Kit.

BEFORE STARTING

Before starting disassembly of your CAMCO unit you should read and review the following instructions. These provide important information on parts and procedures necessary to successfully complete your repair.

Comply with all Warnings and Cautions.

Read the "Trouble Shooting Guide" section of your "General Service Manual" before disassembling CAMCO units. CAMCO recommends returning defective equipment for inspection and repair whenever possible.

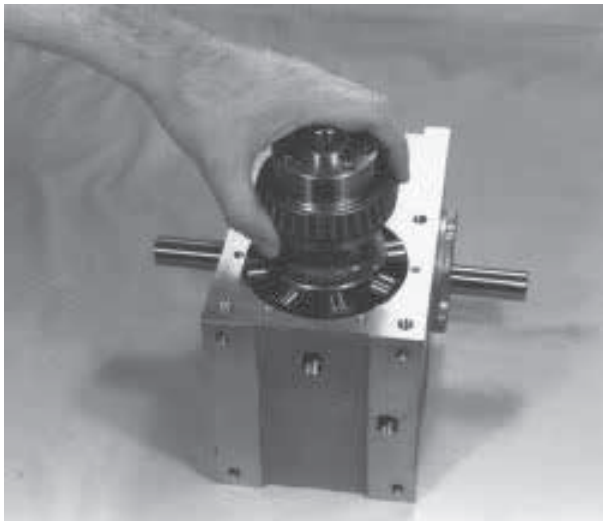
CAMCO uses Loctite to secure all screws and setscrews. If you encounter a fastener that is difficult to remove, apply heat to the screw and remove while still warm.

DISASSEMBLY

1. Remove all accessory equipment such as clutches, reducers, sprockets, etc.
2. Drain oil and flush with flushing solvent. Retain any chips or broken pieces that you may find. These may aid in diagnosis.
3. Remove round access cover. This may be done by drilling a hole in the cover, threading in a sheet metal screw, and pulling with pliers.

4. REMOVAL OF OUTPUT SHAFT.

- A. Rotate the input shaft until the output is in dwell.
- B. Remove all upper and lower output bearing cartridge capscrews.



- C. Remove the upper and lower output cartridge capscrews.

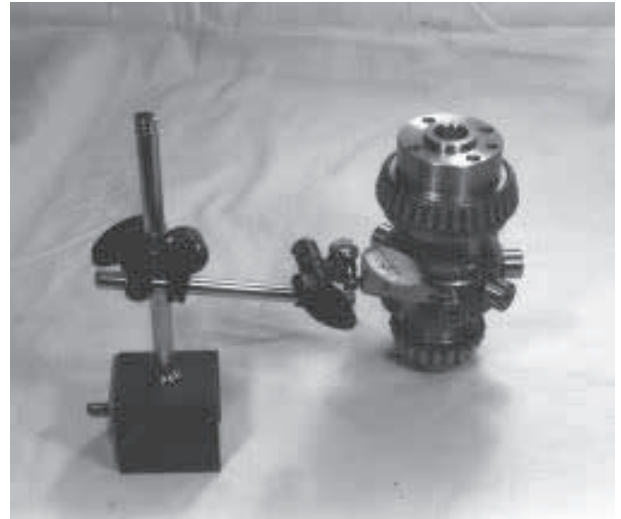
NOTE: Keep the shims with the cartridge. You will be asked to reinstall or replace with same shim thickness during assembly.

- D. Pull the output bearing thru the cartridge opening. It may be necessary to tap on the lower end of the output shaft with a soft faced hammer to drive the output shaft and bearing cup out.

5. INSPECTION OF CAM FOLLOWERS.

Inspect followers for damage or radial

looseness. It should not exceed .001 inch. Do not confuse radial looseness with axial endplay. Endplay will be from .03 to .06 as a normal condition. If it exceeds .06 it may require follower replacement.



NOTE: Generally, followers are replaced as added insurance against eventual failure.

6. REPLACEMENT OF CAM FOLLOWERS.

Follower replacement in the field is not recommended by CAMCO. All follower removal and replacement must be done at CAMCO. Simply follow "RETURN FOR REPAIR" instructions in the "General Service Manual". CAMCO will provide quick turnaround on standard follower replacement or standard follower wheel/shaft assembly replacement.

This is due to the size of the followers and the tools required to properly remove and install without damage to the follower stud or follower wheel.

7. REMOVAL OF BEARINGS.

- A. Remove the output bearing cones from the output shaft using a small diameter aluminum bar and hammer. Place the bar against the protruding edge of the cone and tap with hammer, working around the perimeter to prevent binding. Continue this until the cone is free of shaft.

RGD/RGS SERIES

Service Manual

- B. Remove any remaining output bearing from the housing by the same method as described in step "A".



8. INPUT SHAFT/CAM REMOVAL.

NOTE: The output shaft must be removed prior to input shaft removal.

- A. Rotate the input shaft and inspect all parts for wear or damage. Endplay in the input shaft is not permissible.
- B. Match mark both input cartridges relative to the housing. These must be reinstalled in the same side and position since they are eccentric.
- C. Remove all input bearing cartridge capscrews.
- D. Tap on end of input shaft to drive the opposite cartridge from the housing. Then drive the shaft in the opposite direction for removal of the remaining cartridge.

NOTE: Keep the shims with their respective cartridges. You will be asked to reinstall or replace the same shim thickness during reassembly.

- E. Use a wheel puller to remove one bearing cone from the input shaft.

- F. Support the side of the cam where the bearing was removed and press or drive the shaft through from the remaining bearing side. This will remove the remaining bearing and cam simultaneously.

9. Remove input bearing cups from the cartridges with a wheel puller, by prying or by drilling and tapping for jack screws.

10. Press out all oil seals from both input and output cartridges.

ASSEMBLY

PRIOR TO REASSEMBLY

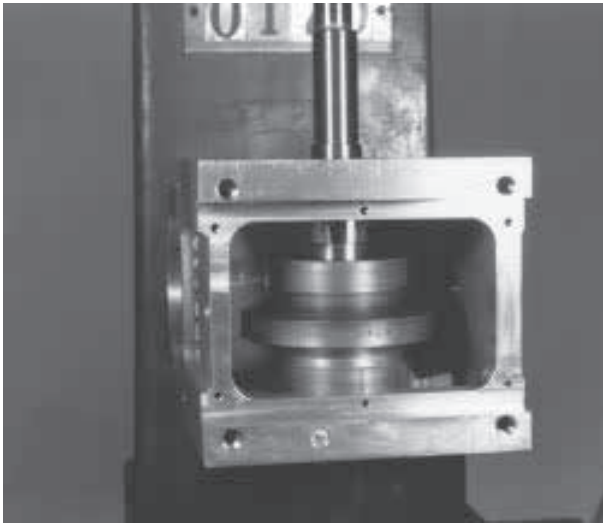
Clean and deburr all parts before reassembly.

Follow tightening torque and Loc-tite™ recommendations as outlined in the General Service Manual.

1. Use an arbor press to press bearing cups into input cartridges. Coat outside of cup and the cartridge bore with anti-sieze lubricant prior to pressing. Fill cavity of cartridges with bearing grease recommended in the "General Service Manual".

2. ASSEMBLING INPUT SHAFT.

- A. Use arbor to press cam onto shaft. Be sure key is installed into shaft. Apply anti-seize lubricant on shaft and cam bore prior to pressing.
- B. Center cam on shaft.
- C. Use an arbor to press bearing cones onto shaft. Coat shaft and bearing bore with anti-sieze lubricant prior to pressing.
- D. Install the input cartridges. Be sure to install the same exact shims or equivalent height as removed during disassembly.
- E. Line up match marks.
- F. Tighten cartridge mounting screws.
- G. If endplay exists remove an equal amount of shims from each side until there is a small amount of drag (1 to 2 inch ozs.) from preloading the bearings. In rare instances it may be necessary to remachine the cartridges if all shims have been removed and endplay still exists.



- H. Loosen the cartridge screws and rotate the cartridge tops to the most rearward position attainable within the slots provided in the cartridges.

3. ASSEMBLING OUTPUT SHAFT

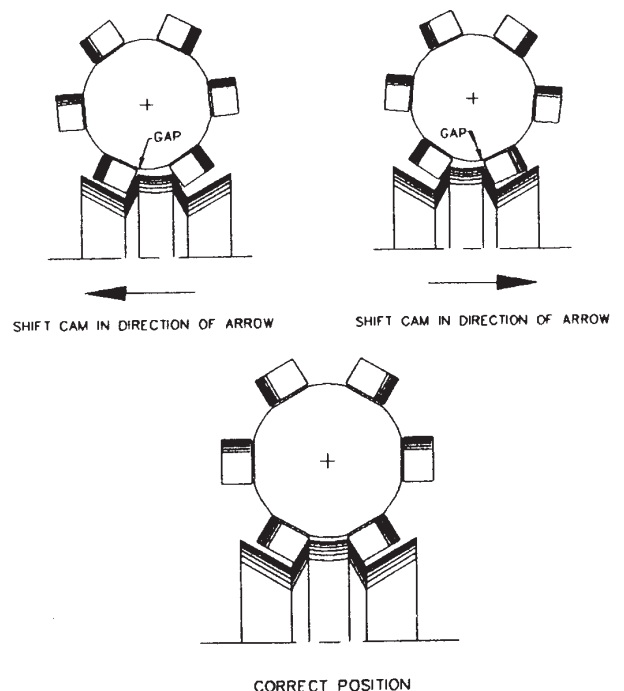
- Install bearing cones on the output shaft. Coat the shaft and bore with an anti-sieze lubricant prior to installation. The bore of the bearing should be heated prior to pressing, if a heat gun is available. Tap in place.
- Install the bearing cup in the lower output bore of the housing. Coat bore and cup with anti-sieze lubricant and tap in place.
- Position the cam so the dwell rib is facing the output end of the housing. (Keyways facing rearward.)
- Insert the output shaft/follower wheel assembly into the housing. Be sure the followers straddle the dwell rib during insertion.
- Install the upper output bearing cup in the housing and the cup with anti-sieze lubricant and tap into place.
- Install both lower and upper output cartridges with the equivalent shim thickness removed in disassembly.
- Tighten mounting screws.

- H. If endplay exists, remove shims until there is a small amount of drag from preloading the bearings. In rare instances it may be necessary to remachine the cartridges if all shims are removed and endplay still exists.

4. SETTING THE CAM

CAUTION: This mechanism is designed to operate with adjacent followers in close ontact along their entire width with the surface of the cam during the dwell period. Unless this condition is achieved by proper installation, the mechanism will not transmit its rated load, and furthermore, serious damage to the cam and output shaft will occur.

- Place the cam in dwell (Keyway facing rearward).
- Rotate the tops of both input cartridges toward the output until the cam followers touch the cam.
- Shift the cam axially (using shims between the housing and cartridge) until two adjacent followers are in full contact with the cam rib. (This will also require adjustment to the eccentric cartridges along with the axial adjustment of the cam).
 - If there is a gap at the root of the follower the cam should be shifted toward the follower.



RGD/RGS 40-50-70-80 SERIES

Service Manual

- 2.) If there is a gap at the tip of the follower the cam should be shifted away from the follower.
- D. Apply "Prussian Blue" to entire cam track.
- E. Rotate the cam shaft slowly with a small handrank to ensure that:
 - 1.) Both rollers are in contact with the cam rib in dwell. Look for uniform bluing pattern.
 - 2.) The follower is free at center of crossover track.
 - 3.) You do not encounter unusual resistance in motion. The bluing pattern should be fairly uniform from side to side during motion. If a patch of blueing is worn off the outside of the cam rib on one side of the cam and not the other, shift the cam .002 to .005 inches in the direction of the worn side. Do not overshift the cam or knocking will occur.
 - 4.) The cam bluing should never be worn off the leading or exit edges of the cam ribs. If so this is an indication that the cam is not adjusted properly.
 - 5.) There should be no looseness in any dwell. If there is, adjust the eccentric input cartridges to slightly preload the loosest dwell.
- F. Tighten the input cartridge capscrews and scribe new match marks on cartridge and housing.
- G. Double check for endplay in output shaft. Endplay is not permissible in output shaft.
- H. Remove the input cartridges (one at a time) and coat the surface between the shims and the housing with "General Electric Silicone Rubber RTV-6" (to insure against leakage) and reinstall, aligning the match marks, tighten the screws and dowel in place.
- I. Remove the output cartridges (one at a time) and coat the surface between the shims and the housing with "General Electric Silicone Rubber RTV-6" (to insure against leakage and reinstall, aligning the match marks and tighten the screws.

5. Install a new access cover. Press in flush with housing.
6. Grease pack the main output bearing with lubricant specified in the "General Service Manual".
7. Install new oil seals as described in the "General Service Manual".
8. Fill with lubricant recommended in the "General Service Manual". (See oil capacities below)

Oil Capacities

40RGD/RDS = 6 oz.

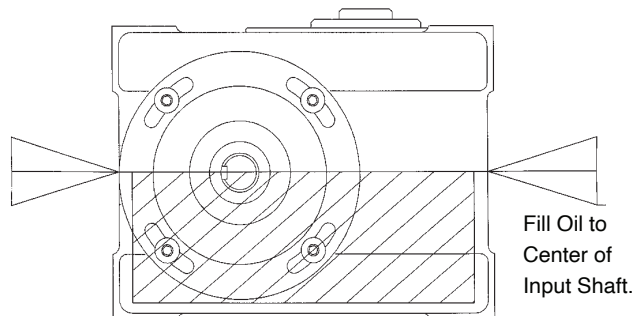
50RGD/RGS = 16 oz.

70RGD/RGS = 20—24 oz.

80RGD/RGS = 30—38 oz.

CAUTION: Be sure to add the amount shown above. Too low a level may result in unit failure.

40, 50, 70 & 80 OIL LEVEL CAPACITIES



HOW TO ORDER PARTS

Please refer to parts list shown in this manual. This parts list is for a standard Index Drive. If you feel your drive is nonstandard or you are in doubt you should contact CAMCO Customer Service at (847) 459-5200 and request a Bill of Material for your specific unit based on serial number. CAMCO maintains records on all units for a period of ten years.

You may order parts per the standard Bill of Material even if your unit is nonstandard. CAMCO's order entry people will review the closed order file based on the following information and supply you with the correct part.

REQUIRED INFORMATION

1. Original purchase order number (if available)
2. Customer name (original purchaser of drive)
3. Model number (located on name plate)
4. Serial number (located on name plate)
5. Approximate date of purchase.

TO ORDER PARTS contact CAMCO "Order Entry Department" Wheeling, Illinois

Phone (847) 459-5200 or Fax (847) 459-3064

- A. Describe the parts required and the 14 digit part number as listed in the Standard Bill of Materials or a Special Bill of Materials pertaining to your unit. State if you are using a Standard or Special bill of material.
- B. Give as much of the above required information as possible.

ON WARRANTY

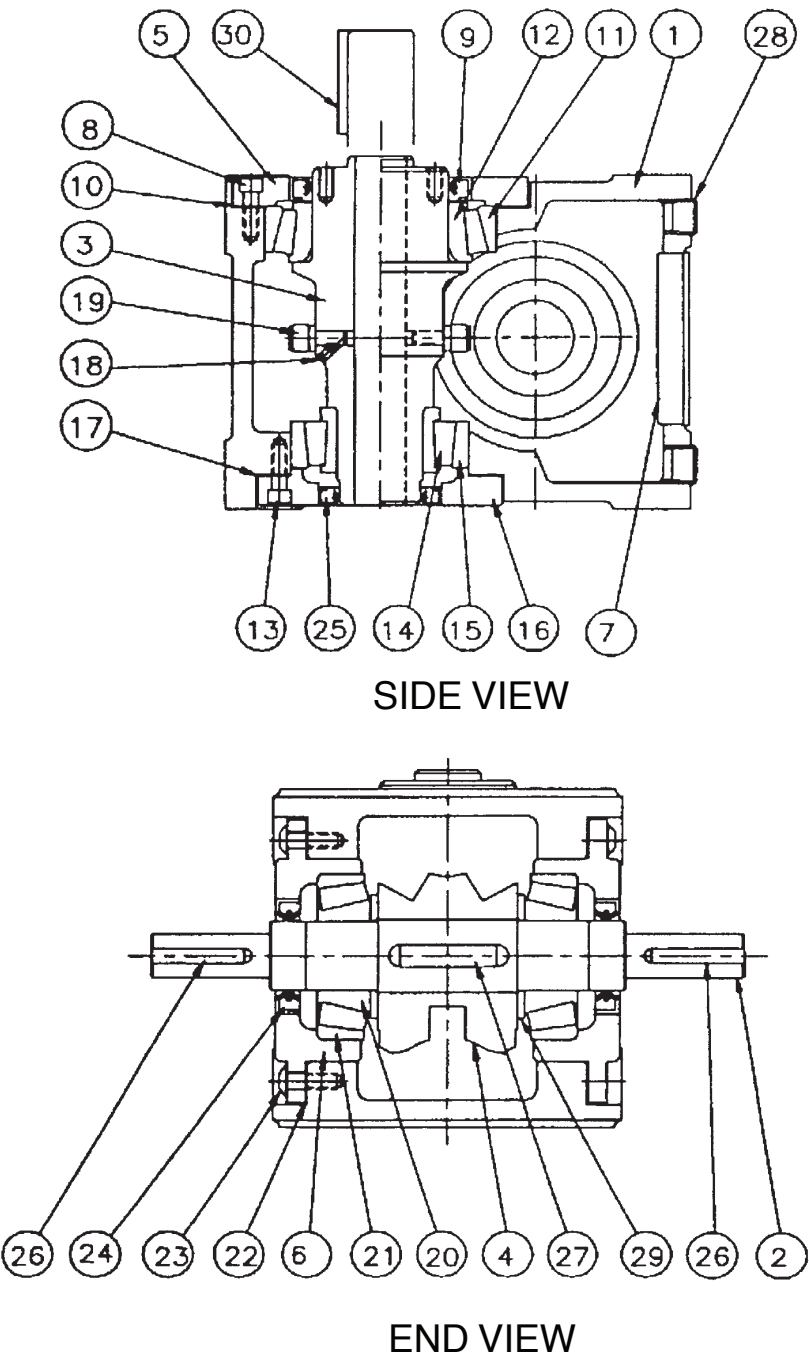
Replacement parts CAMCO will send freight prepaid via most practical means.

CAMCO will issue a "Returned Material Authorization Number" (RMA#) for the return of defective parts for inspection. CAMCO will bill customer for repair parts. When inspection of returned parts has been completed and determined to be a warranty problem, CAMCO will issue a credit to the customer for the repair parts and freight charges.

ON NON-WARRANTY

Replacement or spare parts, with approved credit, are F.O.B. our plant Wheeling, Illinois.

40, 50, 70 & 80RGD/RGS



PARTS LIST FOR 40RGD INDEX DRIVE (STANDARD CONFIGURATION)

1	4MD55426001002	Housing
2	4MB51870007002	Input Shaft Dbl
.....	4MA49071007001	Input Shaft Sgl
3	4MB51609004006	Output Shaft/Foll Whl 6 Hole 3/8 Foll
.....	4MB51610004008	Output Shaft/Foll Whl 8 Hole 3/8 Foll
.....	4MB51611004010	Output Shaft/Foll Whl 10 Hole 1/4 Foll
.....	4MB51612004012	Output Shaft/Foll Whl 12 Hole 1/4 Foll
4 .....	.....	"Cam, (Specify Number Of Stops And "
.....	.....	"Index Time, Contact Camco For "
.....	.....	"Assistance, Order In Matched Sets)"
5	4MB51655003002	"Cart, Output Large "
6	4MB51874003001	"Cart, Input"
7	4MA51903000000	Bore Plug
8	95A51910300000	Shcs M4 X 10mm Lg.
9	84D07329470000	Oil Seal C/R 13534
10	4MA51916018800	Shim Outp Lg .002
.....	4MA51916028800	Shim Outp Lg .005
.....	4MA51916038800	Shim Outp Lg .010
.....	4MA51916048800	Shim Outp Lg .003
11	86D07328270022	Bearing Cup L68111
12	86D07328270021	Bearing Cone L68149
13	95A51910300000	Shcs M4 X 10mm Lg.
14	86D07328090021	Bearing Cone Lm 12749
15	86D07328090022	Bearing Cup Lm12711
16	4MA51652003002	"Cart, Output Small "
17	4MA51915018800	Shim Outp Sm .002
.....	4MA51915028800	Shim Outp Sm .005
.....	4MA51915038800	Shim Outp Sm .010
.....	4MA51915048800	Shim Outp Sm .003
18	95A33042030000	Sss M 3 X 5 Lg (Cone Pt)
19	82A49589000000	Cam Follower 3/8 Dia.
.....	82A49590000000	Cam Follower 1/4 Dia.
20	86D07328120021	Bearing Cone Lm11949
21	86D07328120022	Bearing Cup Lm11910
22	4MA51914018800	Shim 40rgd Inp .002
.....	4MA51914028800	Shim 40rgd Inp .005
.....	4MA51914038800	Shim 40rgd Inp .010
.....	4MA51914048800	Shim 40rgd Inp .003
23	95A51911070000	Bhcs M4 X 10mm Lg.
24	84D07329480000	Oil Seal C/R 7440
25	84D07329540000	Oil Seal C/R 8017
26	M04K088	Key 4mm Xq X .88 Lg
27	M06K108	Key 6mm Sq X 1.08
28	95A33002140000	Plug .12-27 Npt Flush
29 .....	.....	Not Used On 40 Rgd/Rgs
30 .....	.....	Not Used On 40 Rgd
31 .....	.....	Not Used On 40 Rgd/Rgs
32	99A44547180000	Service Manual Miniatures
33	99A44547010000	General Service Manual

RGD/RGS 40-50-70-80 SERIES

Service Manual

PARTS LIST FOR 40RGS INDEX DRIVE (STANDARD CONFIGURATION)

1	4MD55426001002	Housing
2	4MB51870007002	Input Shaft Dbl
.....	4MA49071007001	Input Shaft Sgl
3	4MB51614004006	Output Shaft/Foll Whl 6 Hole 3/8 Dia Sgl
.....	4MB51615004008	Output Shaft/Foll Whl 8 Hole 3/8 Dia Sgl
.....	4MB51616004010	Output Shaft/Foll Whl 10 Hole 1/4 Dia Sgl
.....	4MB51617004012	Output Shaft/Foll Whl 12 Hole 1/4 Dia Sgl
.....	4MB51899004006	Output Shaft/Foll Whl 6 Hole 3/8 Dia Dbl
.....	4MB51900004008	Output Shaft/Foll Whl 8 Hole 3/8 Dia Dbl
.....	4MB51901004010	Output Shaft/Foll Whl 10 Hole 1/4 Dia Dbl
.....	4MB51902004012	Output Shaft/Foll Whl 12 Hole 1/4 Dia Dbl
4 .....	.....	"Cam, (Specify Number Of Stops And "
.....	.....	"Index Time, Contact Camco For "
.....	.....	"Assistance, Order In Matched Sets)"
5	4MB51655003002	"Cart, Output Large "
6	4MB51874003001	"Cart, Input"
7	4MA51903000000	Bore Plug
8	95A51910300000	Shcs M4 X 10mm Lg.
9	84D07329470000	Oil Seal C/R 13534
10	4MA51916018800	Shim Outp Lg .002
.....	4MA51916028800	Shim Outp Lg .005
.....	4MA51916038800	Shim Outp Lg .010
.....	4MA51916048800	Shim Outp Lg .003
11	86D07328270022	Bearing Cup L68111
12	86D07328270021	Bearing Cone L68149
13	95A51910300000	Shcs M4 X 10mm Lg.
14	86D07328090021	Bearing Cone Lm 12749
15	86D07328090022	Bearing Cup Lm12711
16	4MA51652003002	"Cart, Output Small "
17	4MA51915018800	Shim Outp Sm .002
.....	4MA51915028800	Shim Outp Sm .005
.....	4MA51915038800	Shim Outp Sm .010
.....	4MA51915048800	Shim Outp Sm .003
18	95A33042030000	Sss M 3 X 5 Lg (Cone Pt)
19	82A49589000000	Cam Follower 3/8 Dia.
.....	82A49590000000	Cam Follower 1/4 Dia.
20	86D07328120021	Bearing Cone Lm11949
21	86D07328120022	Bearing Cup Lm11910
22	4MA51914018800	Shim 40rgd Inp .002
.....	4MA51914028800	Shim 40rgd Inp .005
.....	4MA51914038800	Shim 40rgd Inp .010
.....	4MA51914048800	Shim 40rgd Inp .003
23	95A51911070000	Bhcs M4 X 10mm Lg.
24	84D07329480000	Oil Seal C/R 7440
25	84D07329540000	Oil Seal C/R 8017 (FOR DBL OUTPUT)
.....	4MA51904000000	BORE PLUG 1.250 (FOR SGL OUTPUT)
26	M04K088	Key 4mm Xq X .88 Lg
27	M06K108	Key 6mm Sq X 1.08
28	95A33002140000	Plug .12-27 Npt Flush
29 .....	.....	Not Used On 40 Rgd/Rgs
30	M05K125	Key Metric
31 .....	.....	Not Used On 40 Rgd/Rgs
32	99A44547180000	Service Manual Miniatures
33	99A44547010000	General Service Manual

PARTS LIST FOR 50RGD INDEX DRIVE (STANDARD CONFIGURATION)

1	5MD55427001002	Housing
2	5MC52018007002	"Shaft, Input"
3	5MC52026004006	Output Shaft/Foll Whl 6 Hole 7/16 Dia.
.....	5MC52027004006	Output Shaft/Foll Whl 6 Hole 9/16 Dia.
.....	5MC52025004008	Output Shaft/Foll Whl 8 Hole 7/16 Dia.
.....	5MC52023004010	Output Shaft/Foll Whl 10 Hole 1/4 Dia.
.....	5MC52024004010	Output Shaft/Foll Whl 10 Hole 7/16 Dia.
.....	5MC51673004012	Output Shaft/Foll Whl 12 Hole 1/4 Dia.
4 .....	.....	"Cam, (Specify Number Of Stops And "
.....	.....	"Index Time, Contact Camco For "
.....	.....	"Assistance, Order In Matched Sets)"
5	5MB52029003002	"Cart, Output Lg"
6	5MB52019003002	"Cart, Input Ecc "
7	5MA52057000000	Bore Plug 2.756
8	95A33040030000	Shcs M5 X 10
9	84D07329560000	Oil Seal C/R 17754
10	5MA52009018800	Shim Outp .002 Tk
.....	5MA52009028800	Shim Outp .005 Tk
.....	5MA52009038800	Shim Outp .010 Tk
.....	5MA52009048800	Shim Outp .003 Tk
11	86D07328390022	Brg Cup Lm102910
12	86D07328390021	Brg Cone Lm 102949
13	95A33040030000	Shcs M5 X 10
14	86D07328200021	Brg Cone L45449
15	86D07328200022	Brg Cup L45410
*	5MB52020003002	"Cart, Output Sm "
17	5MA52010018800	Shim Outp .002 Tk
.....	5MA52010028800	Shim Outp .005tk
.....	5MA52010038800	Shim Outp .010 Tk
.....	5MA52010048800	Shim Outp .003 Tk
18	95A33042120000	Sss M4 X 8 Lg Cone Point
.....	95A33042050000	Sss M3 X 8 Lg Cone Point
19	82A49590000000	Cam Follower 1/4 Dia
.....	82A49591000000	Cam Follower 7/16 Dia
.....	82A49592000000	Cam Follower 9/16 Dia
20	86D07328120021	Bearing Cone Lm11949
21	86D07328120022	Bearing Cup Lm11910
22	5MA52011018800	Shim Inp .002 Tk
.....	5MA52011028800	Shim Inp .005 Tk
.....	5MA52011038800	Shim Inp .010 Tk
.....	5MA52011048800	Shim Inp .003 Tk
23	95A51911110000	Bhcs M5 X 12
24	84D07329480000	Oil Seal C/R 7440
25	84D07329550000	Oil Seal C/R 11067
26	M05K125	Key Metric
27	M08K138	Key 8 X 7mm X 1.38 Lg
28	95A33002140000	Plug .12-27 Npt Flush
29	5MA52182000000	"Spacer, Cam "
30 .....	.....	Not Used On 50 Rgd
31 .....	.....	Not Used On 50 Rgd/rgs
32	99A44547180000	Service Manual Miniatures
33	99A44547010000	General Service Manual

RGD/RGS 40-50-70-80 SERIES

Service Manual

PARTS LIST FOR 50RGS INDEX DRIVE (STANDARD CONFIGURATION)

1	5MD55427001002	Housing
2	5MC52018007002	"Shaft, Input"
	5MC52041004006	Output Shaft/Foll Whl 6 Hole 9/16 Dia. Sgl
	5MC52040004006	Output Shaft/Foll Whl 6 Hole 7/16 Dia. Sgl
	5MC52039004008	Output Shaft/Foll Whl 8 Hole 7/16 Dia. Sgl
	5MC52038004010	Output Shaft/Foll Whl 10 Hole 7/16 Dia. Sgl
	5MC52037004010	Output Shaft/Foll Whl 10 Hole 1/4 Dia. Sgl
	5MC52042004012	Output Shaft/Foll Whl 12 Hole 1/4 Dia. Sgl
	5MC52050004006	Output Shaft/Foll Whl 6 Hole 9/16 Dia. Dbl
	5MC52049004006	Output Shaft/Foll Whl 6 Hole 7/16 Dia. Dbl
	5MC52048004008	Output Shaft/Foll Whl 8 Hole 7/16 Dia. Dbl
	5MC52047004010	Output Shaft/Foll Whl 10 Hole 7/16 Dia. Dbl
	5MC52046004010	Output Shaft/Foll Whl 10 Hole 1/4 Dia. Dbl
	5MC52051004012	Output Shaft/Foll Whl 12 Hole 1/4 Dia. Dbl
4		"Cam, (Specify Number Of Stops And "
		"Index Time, Contact Camco For "
		"Assistance, Order In Matched Sets)"
5	5MB52029003002	"Cart, Output Lg"
6	5MB52019003002	"Cart, Input Ecc "
7	5MA52057000000	Bore Plug 2.756
8	95A33040030000	Shcs M5 X 10
9	84D07329560000	Oil Seal C/R 17754
10	5MA52009018800	Shim Outp .002 Tk
	5MA52009028800	Shim Outp .005 Tk
	5MA52009038800	Shim Outp .010 Tk
	5MA52009048800	Shim Outp .003 Tk
11	86D07328390022	Brg Cup Lm102910
12	86D07328390021	Brg Cone Lm 102949
13	95A33040030000	Shcs M5 X 10
14	86D07328200021	Brg Cone L45449
15	86D07328200022	Brg Cup L45410
*	5MB52020003002	"Cart, Output Sm "
17	5MA52010018800	Shim Outp .002 Tk
	5MA52010028800	Shim Outp .005tk
	5MA52010038800	Shim Outp .010 Tk
	5MA52010048800	Shim Outp .003 Tk
18	95A33042120000	Sss M4 X 8 Lg Cone Point
	95A33042050000	Sss M3 X 8 Lg Cone Point
19	82A49590000000	Cam Follower 1/4 Dia
	82A49591000000	Cam Follower 7/16 Dia
	82A49592000000	Cam Follower 9/16 Dia
20	86D07328120021	Bearing Cone Lm11949
21	86D07328120022	Bearing Cup Lm11910
22	5MA52011018800	Shim Inp .002 Tk
	5MA52011028800	Shim Inp .005 Tk
	5MA52011038800	Shim Inp .010 Tk
	5MA52011048800	Shim Inp .003 Tk
23	95A51911110000	Bhcs M5 X 12
24	84D07329480000	Oil Seal C/R 7440
25	84D07329550000	Oil Seal C/R 11067 (FOR DBL)
	5MA52057000000	BORE PLUG 2.756 (FOR SGL)
26	M05K125	Key Metric
27	M08K138	Key 8 X 7mm X 1.38 Lg
28	95A33002140000	Plug .12-27 Npt Flush
29	5MA52182000000	"Spacer, Cam "
30	M06K162	KEY 6MM SQ X 1.62 LG
31		Not Used On 50 Rgd/rgs
32	99A44547180000	Service Manual Miniatures
33	99A44547010000	General Service Manual

PARTS LIST FOR 70RGD INDEX DRIVE (STANDARD CONFIGURATION)

1	7MG60152001002	Housing
2	7MB60190007002	"Shaft, Input"
3	7MB60253004006	Output Shaft/Foll Whl 6 Hole 3/4 Dia.
.....	7MB60254004006	Output Shaft/Foll Whl 6 Hole 5/8 Dia.
.....	7MB60255004008	Output Shaft/Foll Whl 8 Hole 5/8 Dia.
.....	7MB60256004010	Output Shaft/Foll Whl 10 Hole 5/8 Dia.
.....	7MB60268004012	Output Shaft/Foll Whl 12 Hole 7/16 Dia.
4 .....	.....	"Cam, (Specify Number Of Stops And "
.....	.....	"Index Time, Contact Camco For "
.....	.....	"Assistance, Order In Matched Sets)"
5	7MB60176003002	Cap Output Lg
6	7MB60164003002	Cart Input Ecc
7	7MB60194002002	Cover
8	95A33040040000	S.H.C.S. M5 X 12
9	84C60165030000	Oil Seal C/R 25420
10	7MA60180018800	Shim Outp .002 Tk
.....	7MA60180028800	Shim Outp .005 Tk
.....	7MA60180038800	Shim Outp .010 Tk
11-12	86D07328560013	BRG ASSY TIMKEN 32013X 90KA1
13	95A33040040000	S.H.C.S. M5 X 12
14	86D07328170021	Brg Cone 07100
15	86D07328170022	Brg Cup 07196
16	7MB60177003002	Cap Output Sm
17	7MA60181018800	Shim Outp Sm .002
.....	7MA60181028800	Shim Outp Sm .005
.....	7MA60181038800	Shim Outp Sm .010
18	95A33042140000	Sss Cone Pt M4x12
.....	95A33042220000	Sss Cone Pt M5 X 12 Lg
19	82A49591000000	Follower 7/32 Dia.
.....	82C33150010003	Follower 5/8 Dia.
.....	82C33150020003	Follower 3/4 Dia.
20	86D07328230021	Brg Cone Timken Lm 67048
21	86D07328230022	Brg Cup Timken Lm 67010
22	26B01052018800	Shim Inp .002 Thk
.....	26B01052028800	Shim Inp .005 Thk
.....	26B01052038800	Shim Inp .010 Thk
23	95A51911100000	Bhcs M5 X 10 Lg
24	84C60165010000	Oil Seal C/R 9715
25	84C60165020000	Oil Seal C/R 11610
26	M06K150	Key 6mm Sq X 1.50 Lg F.S.
27	025K187	Key .250 Sq. X 1.87 F.S.
28	95A33002130000	Plug .25-18 Npt Flush
29	7MA60192009000	Spacer Cam
30 .....	.....	Not Used On 70rgd
31 .....	.....	Not Used On 70rgd/rgs
32	99A44547180000	Service Manual Miniatures
33	99A44547010000	General Service Manual

RGD/RGS 40-50-70-80 SERIES

Service Manual

PARTS LIST FOR 70RGS INDEX DRIVE (STANDARD CONFIGURATION)

1	7MG60152001002	Housing
2	7MB60190007002	"Shaft, Input"
3	7MB60257004006	Output Shaft/Foll Whl 6 Hole 3/4 Dia. Sgl
.....	7MB60258004006	Output Shaft/Foll Whl 6 Hole 5/8 Dia. Sgl
.....	7MB60259004008	Output Shaft/Foll Whl 8 Hole 5/8 Dia. Sgl
.....	7MB60260004010	Output Shaft/Foll Whl 10 Hole 5/8 Dia. Sgl
.....	7MB60262004006	Output Shaft/Foll Whl 6 Hole 3/4 Dia. Dbl
.....	7MB60263004006	Output Shaft/Foll Whl 6 Hole 5/8 Dia. Dbl
.....	7MB60264004008	Output Shaft/Foll Whl 8 Hole 5/8 Dia. Dbl
.....	7MB60265004010	Output Shaft/Foll Whl 10 Hole 5/8 Dia. Dbl
4 .....	.....	"Cam, (Specify Number Of Stops And "
.....	.....	"Index Time, Contact Camco For "
.....	.....	"Assistance, Order In Matched Sets)"
5	7MB60176003002	Cap Output Lg
6	7MB60164003002	Cart Input Ecc
7	7MB60194002002	Cover
8	95A33040040000	S.H.C.S. M5 X 12
9	84C60165030000	Oil Seal C/R 25420
10	7MA60180018800	Shim Outp .002 Tk
.....	7MA60180028800	Shim Outp .005 Tk
.....	7MA60180038800	Shim Outp .010 Tk
11-12	86D07328560013	BRG ASSY TIMKEN 32013X 90KA1
13	95A33040040000	S.H.C.S. M5 X 12
14	86D07328170021	Brg Cone 07100
15	86D07328170022	Brg Cup 07196
16	7MB60177003002	Cap Output Sm
17	7MA60181018800	Shim Outp Sm .002
.....	7MA60181028800	Shim Outp Sm .005
.....	7MA60181038800	Shim Outp Sm .010
18	95A33042140000	Sss Cone Pt M4x12
.....	95A33042220000	Sss Cone Pt M5 X 12 Lg
19	82A49591000000	Follower 7/32 Dia.
.....	82C33150010003	Follower 5/8 Dia.
.....	82C33150020003	Follower 3/4 Dia.
20	86D07328230021	Brg Cone Timken Lm 67048
21	86D07328230022	Brg Cup Timken Lm 67010
22	26B01052018800	Shim Inp .002 Thk
.....	26B01052028800	Shim Inp .005 Thk
.....	26B01052038800	Shim Inp .010 Thk
23	95A51911100000	Bhcs M5 X 10 Lg
24	84C60165010000	Oil Seal C/R 9715
25	84C60165020000	Oil Seal C/R 11610 (FOR DBL OUTPUT ONLY)
26	M06K150	Key 6mm Sq X 1.50 Lg F.S.
27	025K187	Key .250 Sq. X 1.87 F.S.
28	95A33002130000	Plug .25-18 Npt Flush
29	7MA60192009000	Spacer Cam
30	M08K200	KEY 8X7MM X2LG
31 .....	.....	Not Used On 70rgd/rgs
32	99A44547180000	Service Manual Miniatures
33	99A44547010000	General Service Manual

PARTS LIST FOR 80RGD INDEX DRIVE (STANDARD CONFIGURATION)

1	8MG60210001002	Housing
2	8MB60757007002	Shaft Input (W/O Reducer)
.....	8MC60917007002	Shaft Input (For 180sm)
3	8MC60827004006	Output Shaft/Foll Whl 6 Holes 7/8 Dia.
.....	8MC60828004008	Output Shaft/Foll Whl 8 Holes 3/4 Dia.
.....	8MC60829004010	Output Shaft/Foll Whl 10 Holes 5/8 Dia.
.....	8MC60830004012	Output Shaft/Foll Whl 12 Holes 9/36 Dia.
4 .....	.....	"Cam, (Specify Number Of Stops And "
.....	.....	"Index Time, Contact Camco For "
.....	.....	"Assistance, Order In Matched Sets)"
5	8MB60772003002	Cap Output Lg
6	7MB60164003002	Cart Input Ecc
7	8MA63280002002	Cover
8	95A33040040000	S.H.C.S. M5 X 12
9	84C60165040000	Oil Seal C/R 31510
10	8MB60776018800	Shim Outp .002 Tk
.....	8MB60776028800	Shim Outp .005 Tk
.....	8MB60776038800	Shim Outp .010 Tk
11-12	86D07328650013	Brg Assy 32016x 92ka1
13	95A33004180000	Shcs M6 X 16 Lg
14	86D07328350021	Brg Cone Lm 501349
15	86D07328350022	Brg Cup Lm501310
16	8MB60764003002	Cap Lo Output
17	8MA60768018800	Shim Outp .002 Tk
.....	8MA60768028800	Shim Outp .005 Tk
.....	8MA60768038800	Shim Outp .010 Tk
18	95A33042230000	Sss Cone Pt M5 X16
.....	95A33042140000	Sss Cone Pt M4 X 12
19	82C33150020003	Cam Follower 3/4 Dia.
.....	82C33150030003	Cam Follower 7/8 Dia.
.....	82C33150010003	Cam Follower 5/8 Dia.
20	86D07328170021	Brg Cone 07100
21	86D07328170022	Brg Cup 07196
22	26B01052018800	Shim Inp .002 Thk
.....	26B01052028800	Shim Inp .003 Thk
.....	26B01052038800	Shim Inp .010 Thk
23	95A51911080000	Bhcs M4 X12
24	84C60165010000	Oil Seal C/R 9715
25	84C60165050000	Oil Seal C/R 14725
26	M08K200	Key 8x7mm X2lg
27	025K212	Key .250sq X 2.12 Lg
28	95A33002130000	Plug .25-18 Npt Flush
29	8MA60758009000	Spacer Cam
30 .....	.....	Not Used On 80rgd
31	8MC60918009100	Mounting Plate (For 180sm)
32	99A44547180000	Service Manual Miniatures
33	99A44547010000	General Service Manual

RGD/RGS 40-50-70-80 SERIES

Service Manual

PARTS LIST FOR 80RGS INDEX DRIVE (STANDARD CONFIGURATION)

1	8MG60210001002	Housing
2	8MB60757007002	Shaft Input (W/O Reducer)
.....	8MC60917007002	Shaft Input (For 180sm)
3	8MC60831004006	"Output Shaft/Foll Whl (For 6h24, 6h28) Sgl"
.....	8MC60832004006	Output Shaft/Foll Whl 8h24 Sgl
.....	8MC60833004010	Output Shaft/Foll Whl 10h20 Sgl
.....	8MC60834004012	Output Shaft/Foll Whl 12h18 Sgl
.....	8MC60835004006	"Output Shaft/Foll Whl (For 6h24, 6h28) Dbl"
.....	8MC60836004008	Output Shaft/Foll Whl 8h24 Dbl
.....	8MC60837004008	Output Shaft/Foll Whl 10h20 Dbl
.....	8MC60838004012	Output Shaft/Foll Whl 12h18 Dbl
4 .....	.....	"Cam, (Specify Number Of Stops And "
.....	.....	"Index Time, Contact Camco For "
.....	.....	"Assistance, Order In Matched Sets)"
5	8MB60772003002	Cap Output Lg
6	7MB60164003002	Cart Input Ecc
7	8MA63280002002	Cover
8	95A33040040000	S.H.C.S. M5 X 12
9	84C60165040000	Oil Seal C/R 31510
10	8MB60776018800	Shim Outp .002 Tk
.....	8MB60776028800	Shim Outp .005 Tk
.....	8MB60776038800	Shim Outp .010 Tk
11-12	86D07328650013	Brg Assy 32016x 92ka1
13	95A33004180000	Shcs M6 X 16 Lg
14	86D07328350021	Brg Cone Lm 501349
15	86D07328350022	Brg Cup Lm501310
16	8MB60764003002	Cap Lo Output
17	8MA60768018800	Shim Outp .002 Tk
.....	8MA60768028800	Shim Outp .005 Tk
.....	8MA60768038800	Shim Outp .010 Tk
18	95A33042230000	Sss Cone Pt M5 X16
.....	95A33042140000	Sss Cone Pt M4 X 12
19	82C33150020003	Cam Follower 3/4 Dia.
.....	82C33150030003	Cam Follower 7/8 Dia.
.....	82C33150010003	Cam Follower 5/8 Dia.
20	86D07328170021	Brg Cone 07100
21	86D07328170022	Brg Cup 07196
22	26B01052018800	Shim Inp .002 Thk
.....	26B01052028800	Shim Inp .003 Thk
.....	26B01052038800	Shim Inp .010 Thk
23	95A51911080000	Bhcs M4 X12
24	84C60165010000	Oil Seal C/R 9715
25	84C60165050000	Oil Seal C/R 14725 (For Dbl Output Only)
26	M08K200	Key 8x7mm X2lg
27	025K212	Key .250sq X 2.12 Lg
28	95A33002130000	Plug .25-18 Npt Flush
29	8MA60758009000	Spacer Cam
30	M08K200	Key 8x7mm X2lg
31	8MC60918009100	Mounting Plate (For 180sm)
32	99A44547180000	Service Manual Miniatures
33	99A44547010000	General Service Manual

TABLE OF CONTENTS

INTRODUCTION	2
WARNING AND CAUTIONS	2
OIL SEAL REMOVAL	2
SPARE PARTS KIT	2
DISASSEMBLY	3
REMOVAL OF OUTPUT SHAFT	3
INSPECTION OF CAM FOLLOWERS	3
FOLLOWER REMOVAL	3
REMOVAL OF BEARINGS	4
INPUT SHAFT / CAM REMOVAL	4
ASSEMBLY	4
PRIOR TO REASSEMBLY	4
ASSEMBLING INPUT SHAFT	4
ASSEMBLING OUTPUT SHAFT	5
SETTING CAM	6
HOW TO ORDER PARTS	7
EXPLODED PARTS DRAWING	8
PARTS LIST	9-14

RGD/RGS 350-500-600 SERIES

Service Manual

INTRODUCTION

This service manual pertains to the disassembly and assembly of CAMCO's RGD/RGS Series Index Drive MODELS 350RGD/RGS, 500RGD/RGS & 600RGD/RGS.

The manual is to be used in conjunction with the General Service Manual which describes the lubrication and general maintenance of CAMCO Index Drives.

An exploded view of your specific Index Drive is included in this manual. Also included is a complete Bill of Materials (for all standard index drives, for special index drives, please supply serial#) for your convenience in identifying and ordering spare or replacement parts.

Some users of Index Drives have the facilities and trained personnel to accomplish service repair. You must determine the extent to which intricate servicing should be done in your own facility. When in doubt, CAMCO recommends that CAMCO trained servicemen make the repairs.

WARNINGS AND CAUTIONS

Statements in this manual preceded by the words **WARNING** or **CAUTION** and printed in italics are very important. We recommend you take special notice of these during service or repair.

WARNING

Means there is the possibility of personal injury to yourself or others.

CAUTION

Means there is the possibility of damage to the CAMCO unit.

OIL SEAL REMOVAL

The only repair possible without disassembly of the indexer is replacement of oil seals. To remove oil seals, drill a number of holes into the case of the seal. The seal may then be removed with a pointed tool. Be sure to remove all metallic chips created during the drilling of removal holes. A new seal may be installed as outlined in the "Oil Seal Installation Recommendations" section of the "General Service Manual".

SPARE PARTS KIT

CAMCO offers a Spare Parts Kit for all CAMCO index drive models CAMCO builds. These kits include oil seals, bearings, shims and cam followers. These are components that will most likely require replacement during repair of your index drive. CAMCO recommends a Spare Parts Kit be purchased and kept on hand prior to any disassembly of your CAMCO drive.

A complete list of components supplied in the Spare Parts Kit can be found in the parts list located in the rear of this manual. The asterisk behind the item number indicates those parts supplied with the Spare Parts Kit.

BEFORE STARTING

Before starting disassembly of your CAMCO unit you should read and review the following instructions. These provide important information on parts and procedures necessary to successfully complete your repair.

Comply with all Warnings and Cautions.

Read the "Trouble Shooting Guide" section of your "General Service Manual" before disassembling CAMCO units. CAMCO recommends returning defective equipment for inspection and repair whenever possible.

CAMCO uses Loctite™ to secure all screws and setscrews. If you encounter a fastener that is difficult to remove, apply heat to the screw and remove while still warm.

DISASSEMBLY

1. Remove all accessory equipment such as clutches, reducers, sprockets, etc. If equipped with a CAMCO R250 Reducer see disassembly instruction pertaining to this reducer prior to removal from unit.
2. Drain oil and flush unit with flushing solvent. Retain any chips or broken pieces you may find. These may aid in diagnosis.
3. Remove the access cover.
4. REMOVAL OF OUTPUT SHAFT.
 - A. Rotate the input shaft until the output is in dwell (Where the rotation of the input shaft does not effect the rotation of the output).
 - B. Remove all output bearing cartridge capscrews.
 - C. Remove the output cartridge.

NOTE: Keep shims with the cartridge. You will be asked to reinstall or replace with same shim thickness during assembly.

- D. Pull the shaft out through the cartridge opening.

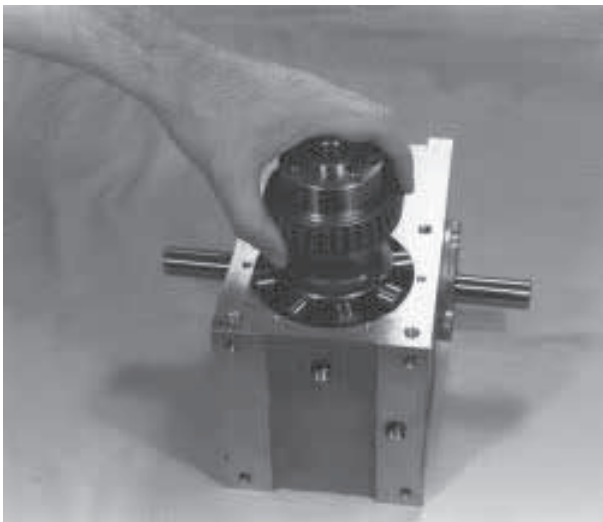


Fig.1 Removing output shaft.

5. INSPECTION OF CAM FOLLOWERS.

Inspect followers for damage or radial looseness. It should not exceed .001 inch. Do not confuse radial looseness with axial endplay. Endplay will be from .03 to .06 as a normal condition. If it exceeds .06 it may require replacement.

NOTE: Generally, followers are replaced as added insurance against eventual failure.

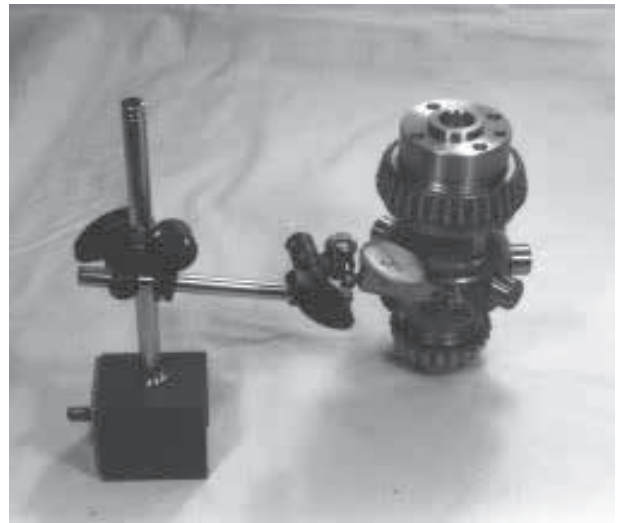


Fig.2 Inspecting Follower.

6. FOLLOWER REMOVAL.

- A. Remove the setscrews. Apply heat to the setscrews holding the follower studs and remove while still warm.
- B. Threaded holes have been provided in the ends of the follower for ease of removal. Use a slide hammer or a simple self made pull tool. The slide made pull tool consists of a short piece of round tubing large enough to clear the follower diameter and a small flat bar with a clearance hole large enough to insert a capscrew of equal thread size as the follower pull hole. Slip the tube over the follower, place the bar over the tube and thread a capscrew into the follower tightening the capscrew will remove the follower.



Fig.3 Removing follower

RGD/RGS 350-500-600 SERIES

Service Manual

7. Check the follower holes for roundness. These holes may be worn out due to overloads. The holes should be round within .0005 to permit reuse of the follower wheel.

8. REMOVAL OF BEARINGS.

- A. Remove the large output bearing cone from the output shaft with a small diameter aluminum bar and a hammer. Place the bar against the protruding edge of the cone and tap with the hammer, working around the perimeter to prevent binding. Continue this until the cone is free of the shaft.

Fig.4 Removing bearing cone.

- B. Remove the output bearing cups from the cartridges and housing with puller, by prying or by drilling and tapping for jack screws.

9. INPUT SHAFT / CAM REMOVAL.

NOTE: The output shaft must be removed prior to input shaft removal.

- A. Rotate the input shaft and inspect all parts for wear or damage. Endplay in the input shaft is not permissible.
- B. Match mark all input cartridges relative to the housing. These must be reinstalled in the same side and position since they are eccentric.
- C. Remove all input bearing cartridge capscrews.
- D. Tap on the end of the input shaft to drive the opposite cartridge from the housing. Then drive the shaft in the opposite direction for removal of other cartridge.

NOTE: Keep shims with their respective cartridges. You will be asked to reinstall or replace with same shim thickness during assembly.

- E. Use a wheel puller to remove the bearing cones from the input shaft.
- F. Remove the cam locknuts with a spanner wrench, if applicable. Be sure to bend the washer locking tang away from the nut prior to removal.
- G. Press the shaft through the hole previously occupied by the input cartridge (removed in Step D). This will automatically remove the cam from the input shaft. The use of an arbor press is recommended but this procedure can be accomplished by driving the shaft through with a soft faced hammer.

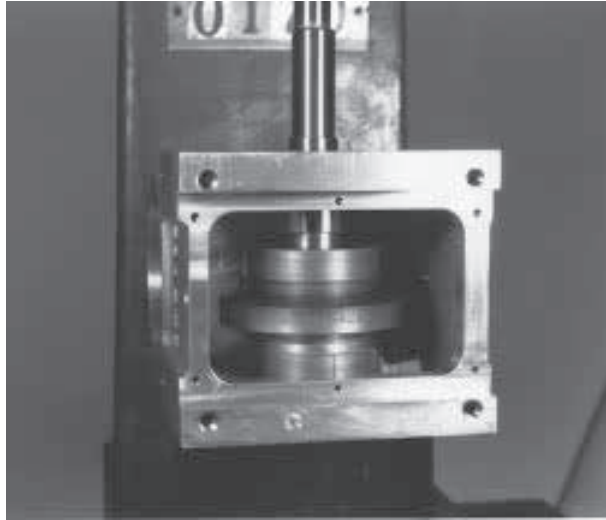


Fig. 5 Pressing out shaft.

- H. Remove cam through the access opening.

- 10. Remove the input bearing cups from the cartridges with a pulley puller, by prying or by drilling and tapping for jack screws.

ASSEMBLY

PRIOR TO REASSEMBLY

Clean and deburr all parts before reassembling

Follow tightening torque and Loctite™ recommendations as outlined in the "General Service Manual".

- 1. Use an arbor to press the bearing cups into the cartridges. Coat the outside of the cup and the bore of the cartridge with an anti-seize lubricant prior to pressing. Fill cavity of cartridges with bearing grease recommended in the "General Service Manual".

2. ASSEMBLING INPUT SHAFT.

NOTE: Assembly of the cam and bearings to the input shaft must be done inside the housing.

- A. Use arbor to press the cam onto shaft. Be sure key is installed into shaft first. Apply anti-seize lubricant to shaft and bore prior to pressing. The bore of the cam should be heated prior to pressing, if a heat gun is available.
- B. Use a spanner wrench to install the cam locknuts. Adjust nuts to center cam on shaft (if applicable).

- C. Use an arbor to press bearing cones onto shaft. Coat shaft and bearing bore with anti-sieze lubricant prior to pressing. The bore of the bearing should be heated prior to pressing, if a heat gun is available.
 - D. Install the input cartridges. Be sure to install the same exact shims or equivalent height as was removed in disassembly Step 11D.
 - E. Line up match marks.
 - F. Tighten cartridge mounting screws.
 - G. If endplay exists remove an equal amount of shims from each side until there is a small amount of drag from preloading the bearings. In rare instances it may be necessary to remachine the cartridges if all shims have been removed and endplay still exists.
 - H. Loosen input cartridge screws and rotate the cartridge top to the most rearward position attainable within the slots provided in the cartridge.
3. ASSEMBLING OUTPUT SHAFT.
- A. Install the bearings cones on the output shaft. Coat the bore of the cone with an anti-sieze lubricant prior to installation. Tap in place.
 - B. Install new followers with an arbor press.
- CAUTION: Be sure to press the followers in straight as damage to the follower and wheel could occur if improperly aligned during installation. Be sure that the notches are aligned with the setscrew holes.

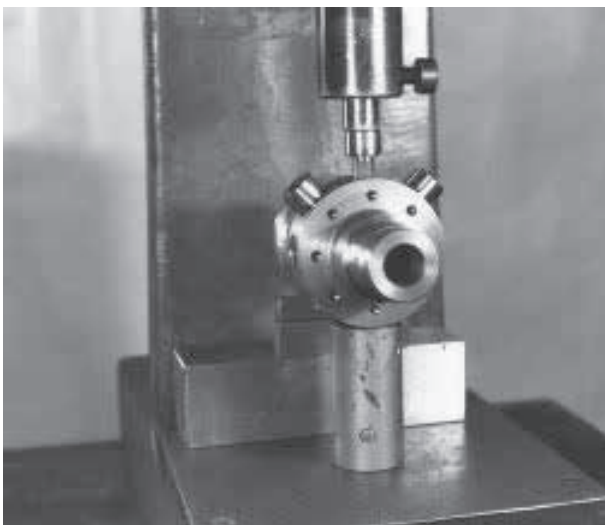


Fig.6 Installing new followers.

RGD/RGS 350-500-600 SERIES

Service Manual

4. SETTING CAM.

CAUTION: This mechanism is designed to operate with adjacent followers in close contact along their entire width with the surface of the cam during the dwell period. Unless this condition is achieved by proper installation, the mechanism will not transmit its rated load, and furthermore, serious damage to the cam and output shaft will occur.

- A. Place the cam in dwell (keyway facing rearward).
- B. Rotate the tops of both input cartridges toward the output until the cam followers touch the cam.
- C. Shift the cam axially until two adjacent followers are in full contact with the cam rib. (This will also require adjustment of the eccentric input cartridges along with axial adjustment of the cam.)
 - 1) If there is a gap at the root of the follower the cam should be shifted toward the follower.
 - 2) If there is a gap at the tip of the follower the cam should be shifted away from the follower.

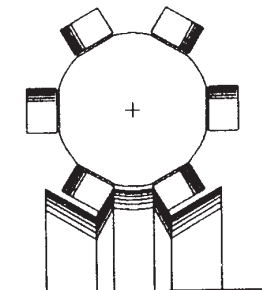
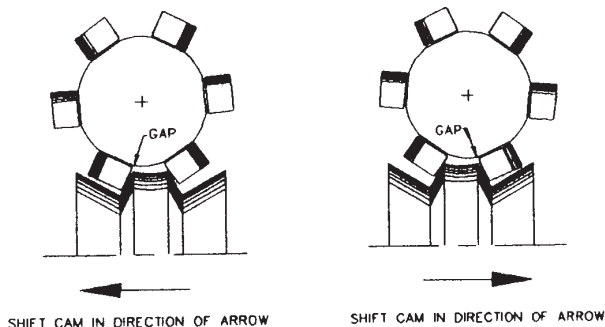


Fig.8 Centering cam

- D. Apply "Prussian Blue" to entire cam track.
- E. Rotate the camshaft slowly with a small handcrank to ensure that:

- 1) Both rollers are in contact with the cam rib in dwell. Look for uniform bluing pattern.
- 2) The follower is free at the center of the crossover track.
- 3) You do not encounter unusual resistance in motion. The bluing pattern should be fairly uniform from side to side during motion. If a patch of bluing is worn off the side of the cam rib on one side of the cam and not the other, shift the cam a .002 to .005 inches in the direction of the worn side. Do not overshift the cam or knocking will occur.
- 4) The cam bluing should never be worn off the leading or exit edges of the cam ribs. If so this is an indication that the cam is not adjusted properly.
- 5) There should be no looseness in any dwell. If there is adjust the eccentric input cartridges to slightly preload the loosest dwell.

F. Tighten the locknuts and secure with Loctite #242 as specified in the "General Service Manual". If lockwashers are used on your model, bend the tangs over the nut to insure locking.

G. Tighten the input cartridge capscrews and dowel the cartridges to the housing.

H. Double check for endplay in output shaft.

Endplay is not permissible in the output shaft.

5. Reinstall the access cover with a new gasket. To insure leakage it is recommended you also apply "General Electric Silicone Rubber RTV-6" to the housing and cover. CAUTION: If your access cover is plexiglass be sure not to over tighten or cracking will result.
6. Grease pack the main output bearing with lubricant specified in the "General Service Manual".
7. Install new oil seals as described in the "General Service Manual".
8. Fill the index with the recommended oil to level indicator. See "General Service Manual". Too high an oil level will cause no damage. Too low a level may result in unit failure.

HOW TO ORDER PARTS

Please refer to parts list shown in this manual. This parts list is for a standard Index Drive. If you feel your drive is nonstandard or you are in doubt you should contact CAMCO Customer Service at (847) 459-5200 and request a Bill of Materials for your specific unit based on serial number. CAMCO maintains records on all units for a period of ten years.

You may order parts per the standard Bill of Material even if your unit is nonstandard. CAMCO's order entry people will review the closed order file based on the following information and supply you with the correct part.

REQUIRED INFORMATION

1. Original purchase order number (if available)
2. Customer name (original purchaser of drive)
3. Model number (location on name plate)
4. Serial number (location on name plate)
5. Approximate date of purchase.

TO ORDER PARTS contact CAMCO "Order Entry Department" Wheeling, Illinois

Phone (847) 459-5200 or Fax (847) 459-3064

- A. Describe the parts required and the 14 digit part number as listed in the Standard Bill of Materials or a Special Bill of Materials pertaining to your unit. State in you are using a Standard or Specific bill of material.
- B. Give as much of the above required information as possible.

ON WARRANTY

Replacement parts CAMCO will send freight prepaid via most practical means.

CAMCO will issue a "Returned Material Authorization Number" (RMA#) for the return of defective parts for inspection. CAMCO will bill customer for repair parts. When inspection of returned parts has been completed and determined to be a warranty problem, CAMCO will issue a credit to the customer for the repair parts and freight charges.

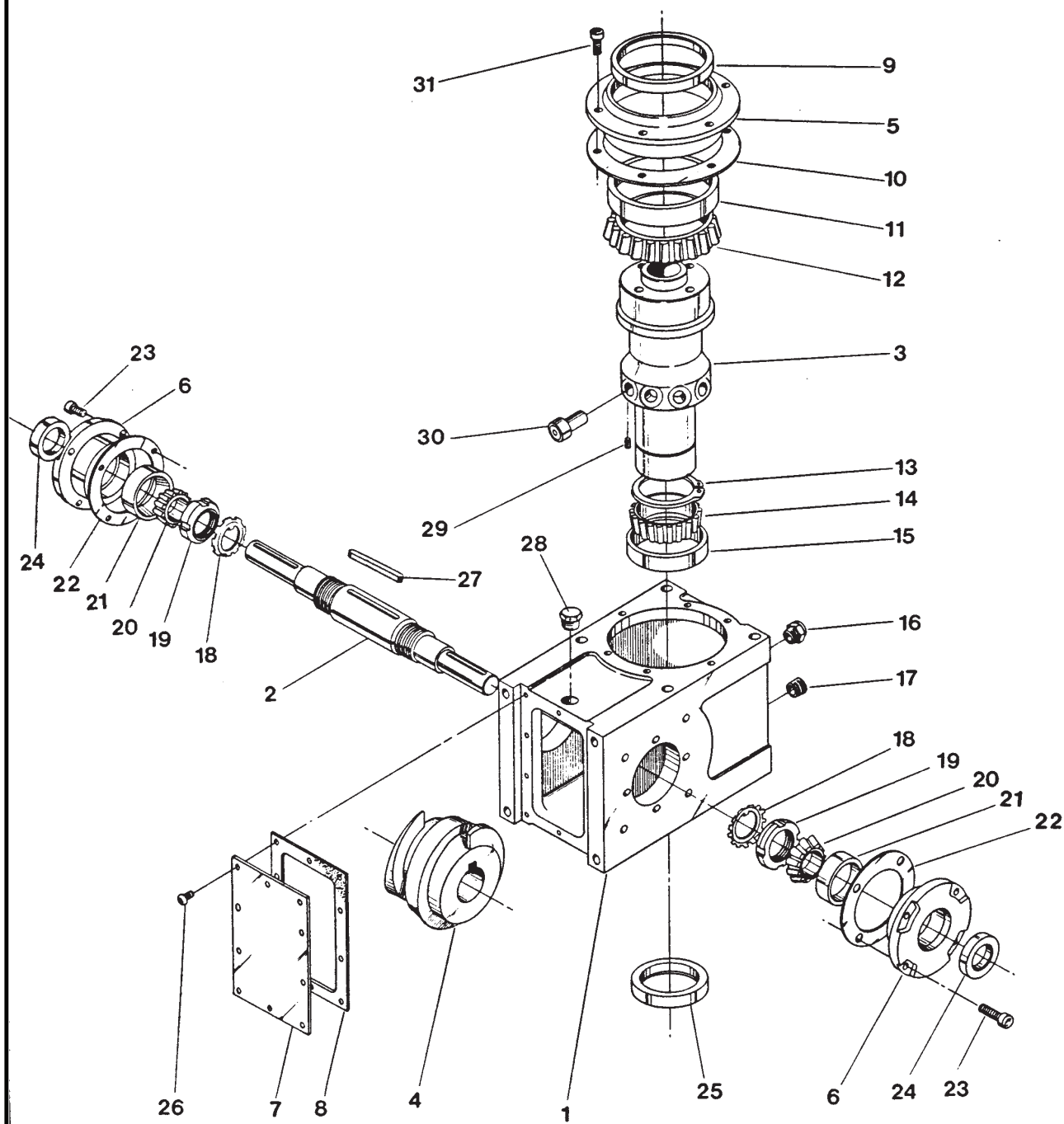
ON NON-WARRANTY

Replacement or spare parts, with approved credit, are F.O.B. our plant Wheeling, Illinois.

RGD/RGS 350-500-600 SERIES

Service Manual

350RGD/RGS, 500RGD/RGS & 600RGD/RGS



PARTS LIST FOR 350RGD INDEX DRIVE (STANDARD CONFIGURE)

ITEM NO.	PART NUMBER	DESCRIPTION
1	48D43074001002	HOUSING
2	48B43059007002	INPUT SHAFT DBL EXT (W/O REDUCER)
.....	48B43059007002	INPUT SHAFT DBL EXT (W/R180 RED)
.....	48C63670007002	INPUT SHAFT DBL EXT (W/R225 RED)
3	48C42987014006	OUTPUT SHAFT FOLL WHL 6 HOLE 3/4 FOLL
.....	48C42987024008	OUTPUT SHAFT FOLL WHL 8 HOLE 3/4 FOLL
.....	48C42987034010	OUTPUT SHAFT FOLL WHL 10 HOLE 5/8 FOLL
.....	48C42987044012	OUTPUT SHAFT FOLL WHL 12 HOLE 5/8 FOLL
4		CAM. SPECIFY NUMBER OF STOPS AND INDEX TIME (CONTACT CAMCO FOR ASSISTANCE IN CAM SELECTION)
5	48B43056003021	CARTRIDGE, UPPER OUTPUT
6	26B01048003122	CARTRIDGE, ECCENTRIC INPUT (387P)
7	48B30138009600	ACCESS COVER
8*	48B30139008700	GASKET, ACCESS COVER
9*	84D07329420000	OIL SEAL C/R 24954
10*	48B06081018800	SHIM .002 THK
*	48B06081028800	SHIM .005 THK
*	48B06081038800	SHIM .010 THK
11*	86D07328530022	BEARING CUP L610510
12*	86D07328530021	BEARING CONE L610549
13		NOT USED ON 350RGD OR 350RGS
14*	86D07328300021	BEARING CONE 13687
15*	86D07328300022	BEARING CUP 13621
16	95A33001010000	SIGHT GLASS
17	95A33002060000	DRAIN PLUG
18		NOT USED ON 350RGD OR 350RGS
19	48A43078009000	SPACER, CAM
20*	86D07328170021	BEARING CONE 07100
21*	86D07328170022	BEARING CUP 07196
22*	26B01052008800	SHIM SET, INPUT (387P)
23	95A08089000000	SPECIAL LARGE HEAD CAPSCREW
24*	84D07329130000	OIL SEAL C/R 9838
25*	84D07329330000	OIL SEAL 13739
26	95A26003090000	BHCS 8-32 X 3/8
27	031K194	KEY 5/16 SQ. X 1 15/16 LARGE
28	95A33000010000	AIR VENT (BREATHING)
29	95A26012070000	SSS OVL PT 10-24 X 3/8
30	82C33150020003	FOLLOWER 3/4 DIA
.....	82C33150010003	FOLLOWER 5/8 DIA
31	95A26000380000	SHCS 1/4-20 X 1/2
32*	48A06080018800	SHIM .002 THK, LOWER OUTPUT
*	48A06080028800	SHIM .005 THK, LOWER OUTPUT
*	48A06080038800	SHIM .010 THK, LOWER OUTPUT
33	48B44707003002	CARTRIDGE, LOWER OUTPUT

* Indicates parts supplies with Spare Parts Kit #350RGD SPK

RGD/RGS 350-500-600 SERIES

Service Manual

PARTS LIST FOR 350RGS INDEX DRIVE (STANDARD CONFIGURATION)

ITEM NO.	PART NUMBER	DESCRIPTION
1	48D43074001002	HOUSING
2	48B43059007002	INPUT SHAFT DBL EXT (W/O REDUCER)
.....	48B43059007002	INPUT SHAFT DBL EXT (W/R180 RED)
.....	48C63670007002	INPUT SHAFT DBL EXT (W/R225 RED)
3	48C42996014006	OUTPUT SHAFT SGL EXT 6 HOLE 3/4 FOLL
.....	48C42996024008	OUTPUT SHAFT SGL EXT 8 HOLE 3/4 FOLL
.....	48C42996034010	OUTPUT SHAFT SGL EXT 10 HOLE 5/8 FOLL
.....	48C42996044012	OUTPUT SHAFT SGL EXT 12 HOLE 5/8 FOLL
.....	48C42998014006	OUTPUT SHAFT DBL EXT 6 HOLE 3/4 FOLL
.....	48C42998024008	OUTPUT SHAFT DBL EXT 8 HOLE 3/4 FOLL
.....	48C42998034010	OUTPUT SHAFT DBL EXT 10 HOLE 5/8 FOLL
.....	48C42998044012	OUTPUT SHAFT DBL EXT 12 HOLE 5/8 FOLL
4		CAM, SPECIFY NUMBER OF STOPS AND INDEX TIME. (CONTACT CAMCO FOR ASSISTANCE IN CAM SELECTION)
5	48B43056003021	CARTRIDGE, UPPER OUTPUT
6	26B01048003122	CARTRIDGE, ECCENTRIC INPUT (387P)
7	48B30138009600	ACCESS COVER
8*	48B30139008700	GASKET, ACCESS COVER
9*	84D07329420000	OIL SEAL C/R 24954
10*	48B06081018800	SHIM .002 THK
*	48B06081028800	SHIM .005 THK
*	48B06081038800	SHIM .010 THK
11*	86D07328530022	BEARING CUP L610510
12*	86D07328530021	BEARING CONE L610549
13	-----	NOT USED ON 350RGD OR 350RGS
14*	86D07328300021	BEARING CONE 13687
15*	86D07328300022	BEARING CUP 13621
16	95A33001010000	SIGHT GLASS
17	95A33002060000	DRAIN PLUG
18	-----	NOT USED ON 350RGD OR 350RGS
19	48A43078009000	SPACER, CAM
20*	86D07328170021	BEARING CONE 07100
21*	86D07328170022	BEARING CUP 07196
22*	26B01052008800	SHIM SET, INPUT (387P)
23	95A08089000000	SPECIAL LARGE HEAD CAPSCREW
24*	84D07329130000	OIL SEAL C/R 9838
25*	84D07329330000	OIL SEAL 13739
26	95A26003090000	BHCS 8-32 X 3/8
27	031K194	KEY 5/16 SQ. X 1 15/16 LARGE
28	95A33000010000	AIR VENT (BREATHING)
29	95A26012070000	SSS OVL PT 10-24 X 3/8
30	82C33150020003	FOLLOWER 3/4 DIA
.....	82C33150010003	FOLLOWER 5/8 DIA
31	95A26000380000	SHCS1/4-20 X 1/2
32*	48A06080018800	SHIM .002 THK
*	48A06080028800	SHIM .005 THK
*	48A06080038800	SHIM .010 THK
33	48B44707003002	CARTRIDGE, LOWER OUTPUT

* Indicates parts supplied with Spare Parts Kit #350RGS SPK

PARTS LIST FOR 500RGD INDEX DRIVE (STANDARD CONFIGURATION)

ITEM NO.	PART NUMBER	DESCRIPTION
1	50D42543001002	HOUSING
2	50C42559007002	INPUT SHAFT DBL EXT (W/O REDUCER)
	50C64220007002	INPUT SHAFT DBL EXT (W/225/R260 RED)
	50C42559007002	INPUT SHAFT DBL EXT (W/3" CONE RED)
3	50D42933014006	OUTPUT SHAFT FOLL 6 HOLE 1 1/4" FOLL
	50D42933014008	OUTPUT SHAFT FOLL 8 HOLE 1 1/4" FOLL
	50D42933014010	OUTPUT SHAFT FOLL 10 HOLE 1" FOLL
	50D42933014012	OUTPUT SHAFT FOLL 12 HOLE 7/8" FOLL
4		CAM, SPECIFY NUMBER OF STOPS AND INDEX TIME. (CONTACT CAMCO FOR ASSISTANCE IN CAM SELECTION)
5	50C42554003002	CARTRIDGE, OUTPUT
6	28K26335003022	CARTRIDGE, ECCENTRIC INPUT
7	50B42578000000	ACCESS COVER
8*	50B42579000000	GASKET, ACCESS COVER
9*	84D07329660000	OIL SEAL C/R 42426
10*	57B40958018800	SHIM .002 THK, UPPER OUTPUT
*	57B40958028800	SHIM .005 THK, UPPER OUTPUT
*	57B40958038800	SHIM .010 THK, UPPER OUTPUT
11*	86D07328750022	BEARING CUP L521910
12*	86D07328750021	BEARING CONE L521949
13	95A33031540000	RETAINING RING 5100-225
14	86D07328500021	BEARING CONE 3979
15	86D07328500022	BEARING CUP 3920
16	96A33001010000	SIGHT GLASS
17	95A33002010000	DRAIN PLUG
18	95A26010100000	LOCKWASHER W-10
19	95A26009100000	LOCKNUT PN-10
20*	86D07328360021	BEARING CONE 26885
21*	86D07328280022	BEARING CUP 26822
22*	28A02522018800	SHIM .002 THK, INPUT
*	28A02522028800	SHIM .005 THK, INPUT
*	28A02522038800	SHIM .010 THK, INPUT
23	95A08089000000	SPECIAL LARGE HEAD CAPSCREW
24*	84D07329290000	OIL SEAL C/R 16368
25*	84D07329400000	OIL SEAL 22424
26	95A26003150000	BHCS 10-24 X 1/2
27	050K275	KEY 1/2 SQ. X 2 3/4 LARGE
28	95A33000010000	AIR VENT (BREATHER)
29	95A26012140000	SSS OVL PT 1/4-20 X 1/2
30	82C33150030003	FOLLOWER 7/8 DIA
	82C33150040003	FOLLOWER 1" DIA
	82A43724000000	FOLLOWER 1 1/4 DIA
31	95A26000700000	SHCS 3/8-16 X 7/8
32*	50B45872018800	SHIM .002 THK, LOWER OUTPUT
*	50B45872028800	SHIM .005 THK, LOWER OUTPUT
*	50B45872038800	SHIM .010 THK, LOWER OUTPUT
33	50B44805003002	CARTRIDGE, LOWER OUTPUT

* Indicates parts supplied with Spare Parts Kit #500RGD SPK

RGD/RGS 350-500-600 SERIES

Service Manual

PARTS LIST FOR 500RGS INDEX DRIVE (STANDARD CONFIGURATION)

ITEM NO.	PART NUMBER	DESCRIPTION
1	50D42543001002	HOUSING
2	50C42559007002	INPUT SHAFT DBL EXT (W/O REDUCER)
	50C64220007002	INPUT SHAFT DBL EXT (W/225/R260 RED)
	50C42559007002	INPUT SHAFT DBL EXT (W/3" CONE RED)
3	50D42935014006	OUTPUT SHAFT SGL EXT 6 HOLE 1 1/4" FOLL
	50D42935014008	OUTPUT SHAFT SGL EXT 8 HOLE 1 1/4" FOLL
	50D42935034010	OUTPUT SHAFT SGL EXT 10 HOLE 1" FOLL
	50D42935044012	OUTPUT SHAFT SGL EXT 12 HOLE 7/8" FOLL
	50D42936014006	OUTPUT SHAFT DBL EXT 6 HOLE 1 1/4" FOLL
	50D42936024008	OUTPUT SHAFT DBL EXT 8 HOLE 1 1/4" FOLL
	50D42936034010	OUTPUT SHAFT DBL EXT 10 HOLE 1" FOLL
	50D42936044012	OUTPUT SHAFT DBL EXT 12 HOLE 7/8" FOLL
4		CAM, SPECIFY NUMBER OF STOPS AND INDEX TIME. (CONTACT CAMCO FOR ASSISTANCE IN CAM SELECTION)
5	50C42557003002	CARTRIDGE, OUTPUT
6	28K26335003022	CARTRIDGE, ECCENTRIC INPUT
7	50B42578000000	ACCESS COVER
8*	50B42579000000	GASKET, ACCESS COVER
9*	84D07329940000	OIL SEAL C/R 22424
10*	57B40958018800	SHIM .002 THK, UPPER OUTPUT
*	57B40958028800	SHIM .005 THK, UPPER OUTPUT
*	57B40958038800	SHIM .010 THK
11*	86D07328500022	BEARING CUP 3920
12*	86D07328750021	BEARING CONE 3979
13	95A33031540000	RETAINING RING 5100-225
14	86D07328500021	BEARING CONE 3979
15	86D07328500022	BEARING CUP 3920
16	96A33001010000	SIGHT GLASS
17	95A33002060000	DRAIN PLUG
18	95A26010100000	LOCKWASHER W-10
19	95A26009100000	LOCKNUT PN-10
20*	86D07328360021	BEARING CONE 26885
21*	86D07328280022	BEARING CUP 26822
22*	28A02522018800	SHIM .002 THK
*	28A02522028800	SHIM .005 THK
*	28A02522038800	SHIM .010 THK
23	95A08089000000	SPECIAL LARGE HEAD CAPSCREW
24*	84D07329290000	OIL SEAL C/R 16368
25*	84D07329400000	OIL SEAL 22424
26	95A26003150000	BHCS 10-24 X 1/2
27	050K275	KEY 1/2 SQ. X 2 3/4 LARGE
28	95A33000010000	AIR VENT (BREATHING)
29	95A26012140000	SSS OVL PT 1/4-20 X 1/2
30	82C33150030003	FOLLOWER 7/8 DIA
	82C33150040003	FOLLOWER 1" DIA
	82A43724000000	FOLLOWER 1 1/4 DIA
31	95A26000700000	SHCS 3/8-16 X 7/8
32*	50B45872018800	SHIM .002 THK, LOWER OUTPUT
*	50B45872028800	SHIM .005 THK, LOWER OUTPUT
*	50B45872038800	SHIM .010 THK, LOWER OUTPUT
33	50B44805003002	CARTRIDGE, LOWER OUTPUT

* Indicates parts supplied with Spare Parts Kit #500RGS SPK

PARTS LIST FOR 600RGD INDEX DRIVE (STANDARD CONFIGURATION)

ITEM NO.	PART NUMBER	DESCRIPTION
1	53D45466001002	HOUSING
2	53C45547007002	INPUT SHAFT DBL EXT (W/O REDUCER)
.....	53C45548007002	INPUT SHAFT DBL EXT (W/3" CONE RED)
.....	53C45549007002	INPUT SHAFT DBL EXT (W/3 1/2 RED)
3	53D45531014006	OUTPUT SHAFT FOLL WHL 6 HOLE 1 1/2 FOLL
.....	53D45531024008	OUTPUT SHAFT FOLL WHL 8 HOLE 1 1/4 FOLL
.....	53D45531034010	OUTPUT SHAFT FOLL WHL 12 HOLE 1" FOLL
4		CAM, SPECIFY NUMBER OF STOPS AND
.....		INDEX TIME. (CONTACT CAMCO FOR
.....		ASSISTANCE IN CAM SPACER SELECTION)
5	53C2430703121	CARTRIDGE, OUTPUT
6	53B45462003002	CARTRIDGE, ECCENTRIC INPUT
7	53C24365009999	ACCESS COVER (OUTPUT END)
.....	53C45469000000	ACCESS COVER (INPUT END)
8*	53C24369009999	GASKET, ACCESS COVER (OUTPUT END)
*	53C24370009999	GASKET, ACCESS COVER (OUTPUT END)
9*	84D07329760000	OIL SEAL C/R 57521
10*	53A24372018800	SHIM .002 THK
*	53A24372028800	SHIM .005 THK
*	53A24372038800	SHIM .010 THK
11*	86D07328830022	BEARING CUP 36620
12*	86D07328830021	BEARING CONE 36690
13	95A26000520000	SHCS 5/16-16 X 1/2
14	86D07328700021	BEARING CONE JM716649
15	86D07328700022	BEARING CUP JM716610
16	95A33001010000	SIGHT GLASS
17	95A33002060000	DRAIN PLUG
18	95A26010100000	LOCKWASHER W-10
19	95A26009100000	LOCKNUT PN-10
20*	86D07328370021	BEARING CONE HM803145
21*	86D07328370022	BEARING CUP HM803110
22*	30B02669018800	SHIM .002 THK
*	30B02669028800	SHIM .005 THK
*	30B02669038800	SHIM .010 THK
23	95A08116000000	SPECIAL LARGE HEAD CAPSCREW
24*	84D07329270000	OIL SEAL C/R 15215
25*	84D07329590000	OIL SEAL 32540
26	95A26000280000	SHCS 10-24 X 1/2
27	050K350	KEY 1/2 SQ. X 3 1/2 LONG
28	95A33000010000	AIR VENT (BREATHER)
29	95A26012170000	SSS OVL PT 1/4-20 X 3/4
.....	95A26006290000	SSS CONE PT 5/16-18 X 3/4
30	82C33150040003	FOLLOWER 1" DIA
.....	82C33150050003	FOLLOWER 1 1/4" DIA
.....	82J24564000000	FOLLOWER 1 1/2" DIA (USE SSS 95A26006290000)
31	95A26000700000	SHCS 3/8-16 X 7/8
32*	53A45495018800	SHIM .002 THK.
.....	53A45495028800	SHIM .005 THK.
.....	53A45495038800	SHIM .010 THK.
33	53C45479003002	CART, LOWER OUTPUT

* Indicates parts supplies with Spare Parts Kit #600RGD SPK

RGD/RGS 350-500-600 SERIES

Service Manual

PARTS LIST FOR 600RGS INDEX DRIVE (STANDARD CONFIGURATION)

ITEM NO.	PART NUMBER	DESCRIPTION
1	53D45466001002	HOUSING
2	53C45547007002	INPUT SHAFT DBL EXT (W/O REDUCER)
	53C45548007002	INPUT SHAFT DBL EXT (W/3" CONE RED)
	53C45549007002	INPUT SHAFT DBL EXT (W/3 1/2 RED)
3	53D45531014006	OUTPUT SHAFT FOLL WHL 6 HOLE 1 1/2 FOLL SE
	53D45531024008	OUTPUT SHAFT FOLL WHL 8 HOLE 1 1/4 FOLL SE
	53D45531034012	OUTPUT SHAFT FOLL WHL 12 HOLE 1" FOLL SE
	53D45532014006	OUTPUT SHAFT FOLL WHL 6 HOLE 1 1/2 FOLL DE
	53D45532024008	OUTPUT SHAFT FOLL WHL 8 HOLE 1 1/4 FOLL DE
	53D45532034012	OUTPUT SHAFT FOLL WHL 12 HOLE 1" FOLL DE
4		CAM, SPECIFY NUMBER OF STOPS AND INDEX TIME. (CONTACT CAMCO FOR ASSISTANCE IN CAM SPACER SELECTION)
5	53C45534003002	CARTRIDGE, OUTPUT
6	53B45462003002	CARTRIDGE, ECCENTRIC INPUT
7	53C24365009999	ACCESS COVER (OUTPUT END)
	53C45469000000	ACCESS COVER (INPUT END)
8*	53C24369009999	GASKET, ACCESS COVER (OUTPUT END)
*	53C24370009999	GASKET, ACCESS COVER (OUTPUT END)
9*	84D07329590000	OIL SEAL C/R 32540
10*	53A24372018800	SHIM .002 THK
*	53A24372028800	SHIM .005 THK
*	53A24372028800	SHIM .010 THK
11*	86D07328700022	BEARING CUP JM716610
12*	86D07328700021	BEARING CONE JM716649
13	95A26000520000	SSS53/16-16 X 1/2
14	86D07328700021	BEARING CONE JM716649
15	86D07328700022	BEARING CUP JM716610
16	95A33001010000	SIGHT GLASS
17	95A33002060000	DRAIN PLUG
18	95A26010100000	LOCKWASHER W-10
19	95A26009100000	LOCKNUT PN-10
20*	86D07328370021	BEARING CONE HM803145
21*	86D07328370022	BEARING CUP HM803110
22*	30B02669018800	SHIM .002 THK
*	30B02669028800	SHIM .005 THK
*	30B02669038800	SHIM .010 THK
23	95A08116000000	SPECIAL LARGE HEAD CAPSCREW
24*	84D07329270000	OIL SEAL C/R 15215
25*	84D07329590000	OIL SEAL 32540
26	95A26000280000	SHCS 10-24 X 1/2
27	050K350	KEY 1/2 SQ. X 3 1/2 LONG
28	95A33000010000	AIR VENT (BREATHING)
29	95A26012170000	SSS OVL PT 1/4-20 X 3/4
	95A26006290000	SSS CONE PT 5/16-18 X 3/4
30	82C33150040003	FOLLOWER 1" DIA
	82C33150050003	FOLLOWER 1 1/4" DIA
	82J24564000000	FOLLOWER 1 1/2" DIA (USE SSS 95A26006290000)
31	95A26000700000	SHCS 3/8-16 X 7/8
32*	53A45495018800	SHIM .002 THK.
	53A45495028800	SHIM .005 THK.
	53A45495038800	SHIM .010 THK.
33	53C45479003002	CART, LOWER OUTPUT

* Indicates parts supplies with Spare Parts Kit #600RGS SPK

RGD/RGS SERIES

Notes

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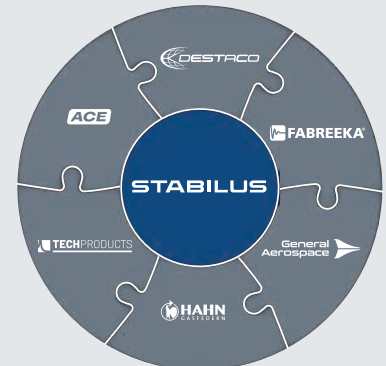
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