

RA 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.







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INTRODUCTION

This service manual pertains to the disassembly and assembly of CAMCO's RA Series Index Drive MODELS 400RA, 401RA,512RA, & 662RA.

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 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 compete 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.



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DISASSEMBLY

- 1. Remove all accessory equipment such as clutches, reducers, sprockets, etc. If equipped with a CAMCO R200 OR R250 reducer see disassembly procedures pertaining to the appropriate reducer prior to removal from the 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. Place index drive in dwell position.

4. REMOVAL OF OUTPUT SHAFT.

A. Remove all socket head capscrews in the output cover. Gently pry output cover loose.
 Lift output shaft assembly from housing.
 Save all shims for later installation.



Fig.1 Removing shaft from housing.

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

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

- 6. Inspect output bearing for endplay. Endplay is not permissible on the input or output bearings.
- 7. REMOVING FOLLOWER WHEEL.

Remove the capscrews holding the follower wheel to the output shaft. The fit between the follower wheel and the shaft is a slip condition but since the wheel is doweled to the shaft a wheel puller will be required for removing the wheel. Remove the follower wheel and spacer for later installation.



Fig.2. Removing follower wheel.

8. FOLLOWER REMOVAL .

Followers can be removed at this stage by removing the locknuts or setscrews (depending on date of manufacture) and pressing the followers out using an arbor. Install new followers per assembly Steps 4F and 4G.

9. 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.



Fig.3. Pressing out followers.





10. REMOVING SHAFT FROM OUTPUT <u>ASSEMBLY.</u>

To remove the output shaft from the cover it will be necessary to use an arbor press and push from the back side of the shaft using caution not to damage the parts.





11. REMOVAL OF BEARINGS.

- A. Use a wheel puller to remove the cone portion of bearing from the shaft.
- B. Removal of the upper bearing cup from the output cover will require light tapping on the backside of the cup with a round aluminum bar and a hammer working around the perimeter as you tap to prevent binding. Continue this procedure until the cup is free of the cover.
- C. Removal of the lower output bearing cup from the output cover requires prying from the backside or drilling and tapping of jack screw holes or the use of a pulley puller.

12. INPUT SHAFT REMOVAL.

- NOTE: The output shaft must be removed prior to input shaft removal
 - A. Rotate the input shaft and inspect all parts for damage. Endplay in the output shaft is not permissaable.
 - B. Remove all input bearing cartridge capscrews.

- C. 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 cartridges.
- NOTE: Keep shims with their respective cartridges you will be asked to reinstall or replace with the same shim thickness during assembly.
 - D. Remove the input shaft/cam assembly through the large cartridge hole (does not apply to 662RA see Step E).
 - E. The 662RA requires removal of the cam locknuts while still in the housing and pressing the shaft through the hole previously occupied by the input cartridge and removed in Step C. This will automatically remove the bearing cone from one end of 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 Removing input shaft.

- F. Remove cam through the output opening.
- 13. REMOVAL OF CAM FROM OUTPUT SHAFT (400RA, 401RA AND 512RA)
 - A. Use a wheel puller to remove the bearing cones from the input shaft.
 - B. Using a spanner wrench remove the cam locknuts.
 - C. Remove the spacers from the shaft.
 - D. Use an arbor press to remove cam from shaft, using caution not to damage parts.







Fig. 6. Pressing out camshaft.

14. 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".

 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 cartridge with bearing grease recommended in the "General Service Manual".

2. ASSEMBLING INPUT SHAFT.

- A. Use an arbor to press the cam into shaft. Be sure key is installed into shaft first. Apply anti-sieze lubricant to shaft and bore prior to pressing.
- B. Install spacers on both sides of the cam as removed in disassembly Step 13C.
- C. Use a spanner wrench to install the cam locknuts. Adjust nut to center cam on shaft.
- D. Use arbor to press bearing cones onto shaft. Coat shaft and bearing bore with antisieze lubricant prior to pressing. The bore of the bearing should be heated prior to pressing if a heat gun is available.



Fig. 7. Assembled camshaft.

- 3. INSTALLING INPUT SHAFT INTO HOUSING. (On the 662RA the prior assembly steps were done inside the housing).
 - A. Slip the input/cam shaft assembly through the large cartridge opening.
 - B. Install the input cartridges. Be sure to install the same exact shims or equivalent height as was removed in disassembly Step 12C.
 - C. Tighten cartridge mounting screws.
 - D. If endplay exists remove an equal amount of shims from each side until there is a small amount of drag from 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.
- 4. ASSEMBLY OF OUTPUT SHAFT.
 - A. Press bearing cups into cover. Coat the outside of the cup and the bore in the cover with an anti-sieze lubricant prior to pressing.
 - B. Press bearing cone on the output end of the shaft. Coat the outside of the shaft and the bore of the bearing with anti-sieze lubricant prior to pressing. Heat up the bearing prior to pressing if a heat gun is available.







- C. Insert the shaft into the cover from the output side.
- D. Press bearing cone on the other end of the shaft.Coat the outside of the shaft and the bore of the bearing with anti-sieze lubricant prior to pressing. Heat up the bearing prior to pressing if a heat gun is available.
- E. Install shims removed during disassembly, or new shims with equivalent thickness, on the bottom bearing and install the spacer over the shims.
- F. Install new followers with an arbor press.

CAUTION: Be sure to press the followers in straight as damage to the followers and wheel could occur if improperly aligned during installation.



Fig.8 Pressing in followers.

- G. Install the locknuts or setscrews using the torque values listed in the "General Service Manual".
- H. Mount the follower wheel on end of shaft.
 Tighten capscrews and check for endplay.
 Endplay is not permissible in the output shaft assembly. If endplay exists remove shims under the spacer until a slight drag can be felt due to preloading the bearings.
- I. Dowel follower wheel to shaft. Remove capscrews and apply Loctite. Reinstall using torque values shown in the "General Service Manual".

5. SETTING CAM.

- A. Position cam in approximate center position by adjusting the locknuts.
- B. Apply "Prussian Blue" to the entire track.
- C. Rotate the cam until dwell is on top (facing the output).
- D. Bolt the output shaft assembly in place.
- E. Turn the input shaft with a small handwheel. If you encounter resistance, remove the output shaft assembly and adjust the cam axially to a more suitable position.
- F. Repeat the process until the unit performs smoothly and the bluing pattern is quite uniform and there is no looseness in any dwell position.
- CAUTION: Improper cam alignment may result in cam or follower wheel damage.
- CAUTION: There should be no looseness in any dwell position of the output.
- G. Tighten the locknuts and secure with Loctite #242 as specified in the "General Service Manual".
- H. Reinstall the cover using Permatex on all sealing surfaces. If a gasket was removed reinstall along with the Permatex. Some units will not have an output gasket. It is relative to the mounting position.
- I. Tighten capscrews using torque and Loctite recommendations as stated in the "General Service Manual".
- 6. Install new oil seals as described in the "General Service Manual".
- Fill the index drive 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.
- 8. Lubricate all fittings with recommended grease specified in the "General Service Manual".





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.

In 2001 the cam followers for Right Angle index drives were redesigned. "Old Style" cam followers have a threaded end and mount with a nut. "New Style" cam followers use a set screw perpendicular to the stud. Right Angle indexers with "Old Style" cam followers should be retrofitted to accept the "New Style" cam follower. Contact IMC for instructions.

"Old Style" cam followers are available as a commercial grade follower.

Please Note: Commercial grade followers have greater internal clearance between the follower stud, rollers and shell than the original design resulting in a less preload than the either the "New Style" followers or the original "Old Style" followers.

These commercial followers offer better performance than worn cam followers but will be looser than a brand-new unit with "New Style" followers. We have found that commercial grade followers are acceptable in most applications as an aftermarket item. Contact IMC for ordering information on these followers.



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PARTS LIST FOR 400RA INDEX DRIVE (STANDARD CONFIGURATION)

ITEM NO.	PART NUMBER	DESCRIPTION
		HOUSING B
		FOLLOWER WHEEL 6 HOLE FOR 3/4 FOLLOWER
		FOLLOWER WHEEL 8 HOLE FOR 3/4 FOLLOWER
2		FOLLOWER WHEEL 12 HOLE FOR 5/8 FOLLOWER
		FOLLOWER WHEEL 8 HOLE FOR 5/8 FOLLOWER
2		FOLLOWER WHEEL 10 HOLE FOR 5/8 FOLLOWER
		FOLLOWER WHEEL 10 HOLE FOR 3/4 FOLLOWER
		FOLLOWER WHEEL 9 HOLE FOR 3/4 FOLLOWER
		"CAM, SPECIFY NUMBER OF STOPS & INDEX TIME
4		SHAFT INP SE 400RA DBL EXT. (W/O REDUCER)
4		SHAFT INP SE 400RA SGL EXT. (W/O REDUCER)
4		INPUT SHAFT DBL EXT (R225 RED SIDE1)
4		INPUT SHAFT DBL EXT (R225 RED SIDE2)
4		INPUT SHAFT SGL EXT (R225 RED SIDE1)
4	C/F CALL: 800/645-5207	INPUT SHAFT SGL EXT (R225 RED SIDE2)
4		INPUT SHAFT DBL EXT (R180)
5		CART OPEN INPUT B
6	02B01293003502	CAP OPEN INPUT B
7		COVER B
7	02K02551012012	COVER B FINISHED
8	02B02336008001	SHAFT OUTPUT B
9*		OIL SEAL C/R 28116
10	95A26009070000	LOCKNUT PN-07
11	031K187	KEY .3125 SQ. X 1.87 F.S.
12	95A33000010000	AIR VENT 3/8-18 NPT AV53 F.S.
		CAM FLWR 5/8 DIA (H20)
13		CAM FLWR 3/4 DIA (H24)
14		SET SCREW
		SET SCREW
		BEARING CONE L610549 CLASS 2
		BEARING CUP L610510 CLASS 2
		BEARING CUP 15520 CLASS 2
		BEARING CONE 15578
		SHIM .002 THK -INPUT
		SHIM .005 THK -INPUT
		SHIM .010 THK -INPUT
		OIL SEAL C/R 9838
		S.H.C.S. 1/4-20 X 1/2 *FS
		S.H.C.S. 5/16-18 X 1/2 *FS
		SHIM OUTP B F.S.
		SPACER CAM B
		MAGNETIC PLUG LISLE#5032041*FS
26		NOT USED ON THE 400RA
		SIGHT PLUG 3/8-18 N.P.T. *FS
		GREASE FITTING #B-1610 *FS
		S.H.C.S. 1/4-20 X 1 1/4 *FS
		BEARING CUP L610510 CLASS 2
		BEARING CONE L610549 CLASS 2
		BEARING CUP 15520 CLASS 2
		BEARING CONE 15578 CLASS 2
34		OIL SEAL C/R 9838





PARTS LIST FOR 400RA INDEX DRIVE (STANDARD CONFIGURATION CONT.)

35	02A02341009000	GASKET COVER B *FS	
36	02A63794010000	SPACER OUTP B	
37*	02A02378018800	SHIM .002 THK	
		SHIM .003THK	
		SHIM .005 THK	
		SHIM .010 THK	
		S.H.C.S. 5/16-24 X 3/4 *FS	
		REDUCER MTG PLATE MACH	
		MTG PLATE 400RA/R180	
39		MTG PLATE MACH R225	
.			
°	Indicates parts supplied wit	n Spare Parts Kit # 400 HA SPK	



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PARTS LIST FOR 401RA INDEX DRIVE (STANDARD CONFIGURATION)

ITEM NO.	PART NUMBER	DESCRIPTION
1	04D05408021002	HOUSING C
2	02B01651014006	FOLLOWER WHEEL 6 HOLE FOR 3/4 FOLLOWER
2	02B01651024008	FOLLOWER WHEEL 8 HOLE FOR 3/4 FOLLOWER
2	02B01651024012	FOLLOWER WHEEL 12 HOLE FOR 3/4 FOLLOWER
2	02B01651024008	FOLLOWER WHEEL 8 HOLE FOR 3/4 FOLLOWER
3	C/F CALL: 800/645-5207	"CAM, SPECIFY NUMBER OF STOPS & INDEX TIME"
4	04C01026007002	SHAFT INPUT DOUBLE EXTENDED C
4	04C34491007001	SHAFT INPUT SINGLE EXTENDED 401RA CUT OFF
4	04C63643007002	SHAFT INPUT DOUBLE EXTENDED 401RA/R225 SIDE 1
4	04C63644007002	SHAFT INPUT DOUBLE EXTENDED 401RA/R225 SIDE 2
4	04C49416007002	SHAFT INPUT DBL EXT R180 RED SIDE 1 & 2
5	04B05406003021	CART OPEN INPUT C
5	04B77938003002	CART OPEN INPUT R180 RED
6	04B01034003502	CAP OPEN INPUT C
6	04B77937003002	CAP OPEN INPUT R180 RED
7	04C02346002002	COVER 401RA
7	04L03000002012	COVER FINISHED 401RA
8	02B02336008001	SHAFT OUTPUT B
9*	84D07329520000	OIL SEAL C/R 28116
10	95A26009080000	LOCKNUT PN-08
11	025K175	KEY .250 SQ. X 1.75 F.S.
11	037K250	KEY .375 SQ X 2.50 F.S.
12		AIR VENT 3/8-18 NPT AV53 F.S.
13		CAM FLWR 5/8 DIA (H20)
13		CAM FLWR 3/4 DIA (H24)
14		SET SCREW FOR 5/8" FLWR
14		SET SCREW FOR 3/4" FLWR
15		BEARING CONE L610549 CLASS 2
16		BEARING CUP L610510 CLASS 2
17* 18*		BEARING CUP 17244 CLASS 2
19*		BEARING CONE 17119 CLASS 2 SHIM .002 THK INPUT 401RA *FS
19*		SHIM .002 THK INPUT 401RA FS SHIM .005 THK INPUT 401RA *FS
19*		SHIM .010 THK INPUT 401RA *FS
20*		OIL SEAL C/R11878
21		S.H.C.S. 1/4-20 X 3/4 *FS
22		S.H.C.S. 1/4-20 X 3/4 *FS
23*		SHIM .002 THK INPUT 401RA *FS
23*	04B01035028800	SHIM .005 THK INPUT 401RA *FS
23*	04B01035038800	SHIM .010 THK INPUT 401RA *FS
24		"SPACER CAM C 4, 8, 12 & 24 STOP MODELS"
24	04A01133009000	SPACER CAM C 6 STOP.
25		MAGNETIC PLUG LISLE#5032041*FS
26		NOT USED ON THE 401RA
26		OUTPUT RISER (REQUIRED ON 90 AND SOME 120 DEGREE MOTION UNITS)
27		SIGHT PLUG 3/8-18 N.P.T. *FS
28		GREASE FITTING #B-1610 *FS
28		S.H.C.S. 5/16-24 X 3/4 *FS
29		S.H.C.S. 5/16-18 X 1 1/4 *FS
29		MOUNTING PLATE MACH R225
30		BEARING CUP L610510 CLASS 2
31		BEARING COPE 1010510 CLASS 2 BEARING CONE L610549 CLASS 2







PARTS LIST FOR 401RA INDEX DRIVE (STANDARD CONFIGURATION CONT.)

	•	
32	86D07328210022	BEARING CUP 17244 CLASS 2
33	86D07328210021	BEARING CONE 17119 CLASS 2
34	84D07329180000	OIL SEAL C/R11878
35	04A01808008700	GASKET COVER C F.S.
36	02A02341009000	SPACER OUTP B
37	02A02378048800	SHIM .010 THK INPUT 401RA *FS
37	02A02378018800	SHIM .002 THK INPUT 401RA *FS
37	02A02378028800	SHIM .003 THK INPUT 401RA *FS
37	02A02378038800	SHIM .005 THK INPUT 401RA *FS
37	02A02378048800	SHIM .010 THK INPUT 401RA *FS
38	95A26016320000	S.H.C.S. 5/16-24 X 3/4 *FS
39	51C76664009100	MTG PLATE MACH R180
39	80C39246009100	REDUCER MOUNTING PLATE MACH 180 SM
39	56C63181009100	MOUNTING PLATE MACH R225/902RDM
*	Indicates parts supplied with Spar	e Parts Kit # 401RA SPK



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PARTS LIST FOR 512RA INDEX DRIVE (STANDARD CONFIGURATION)

ITEM NO.	PART NUMBER	DESCRIPTION
1		HOUSING CC
2		"FOLLOWER PLATE 6H CC 1"" FOLLOWER"
2		"FOLLOWER PLATE 8H CC 3/4"" FOLLOWER"
2		"FOLLOWER PLATE 8H CC 1"" FOLLOWER"
2		"FOLLOWER PLATE 9H CC 1"" FOLLOWER"
2		"FOLLOWER PLATE 12H CC 3/4"" FOLLOWER"
2		"FOLLOWER PLATE 12H CC 7/8"" FOLLOWER"
	C/F CALL: 800/645-5207	"CAM, SPECIFY NUMBER OF STOPS & INDEX TIME"
4		SHAFT INPUTUT DOUBLE EXTENDED CC
4		SHAFT INPUTUT SINGLE EXTENDED 512RA
4		SHAFT DOUBLE EXTENDED 512RA/R260
4		SHAFT SI 512RA/R260
4		SHAFT INPUT SINGLE EXTENDED 512RA/R225 SIDE 2
4		SHAFT INPUT DOUBLE EXTENDED 512RA/R225 SIDE 2
4		SHAFT INPUT DOUBLE EXTENDED 512RA/R225 SIDE1
4		SHAFT INPUT SINGLE EXTENDED 512RA/R225 SIDE 1
4		SHAFT INPUT CC RED
5		CARTRIGE OPEN CC R260
5		CARTRIGE OPEN INPUT CC
6		CAP OPEN INPUT CC
7		COVER CC (Standard)
7		COVER CC (Finished)
8		SHAFT OUTP CC
8		SHAFT OUTP CC/6.0 OLC
9*		OIL SINGLE EXTENDED AL C/R 35083
10		LOCKNUT PN-10
11		KEY .500 SQ. X 2.43 F.S.
12		AIR VENT 3/8-18 NPT AV53 F.S.
13		CAM FLWR 1 DIA (H32)
13		CAM FLWR 7/8 DIA (H28)
13		CAM FLWR 3/4 DIA (H24)
14		SET SCREW FOR 1" FLWR
14		SET SCREW FOR 7/8" FLWR
14		SET SCREW FOR 3/4" FLWR
15		BEARING CONE 34300 CLASS 2
16		BEARING CUP 34478 CLASS 2
17		BEARING CUP 13621 CLASS 2
18*		BEARING CONE 13687 CLASS 2
19*		"SHIM, .002 THK"
19*		"SHIM, .005 THK"
19*		"SHIM, .010 THK"
20*		OIL SINGLE EXTENDEDAL C/R/ 14262
21		S.H.C.S. 5/16-18 X 3/4 *FS
22		S.H.C.S. 5/16-19 X 3/4 *FS
23*		"SHIM, .002 THK"
23*		"SHIM, .005 THK"
23*		"SHIM, .010 THK"
24		SPACER CAM 512RA 12 STOP MODELS
24		SPACER CAM 512RA 3 STOP MODELS
24		"SPACER CAM 512RA 4, 6 AND 8 STOP MODELS"
25		MAGNETIC PLUG LISLE#5032041*FS





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PARTS LIST FOR 512RA INDEX DRIVE (STANDARD CONFIGURATION CONT.)

26	06C01055009300
	·-
27	95A33001010000
28	95A33004010000
29	95A26000600000
30	86D07328640021
31	86D07328640022
32*	86D07328300022
33*	86D07328300021
34	84D07329240000
35	06B01809008700
36	.06A02638009000
37	06A02663018800
37	06A02663028800
38	95A26016450000
39	80C64329009100
39	80L07456009100
39	80L07457009100

OUTPUT RISINGLE EXTENDEDR (REQUIRED ON 90 AND SOME 120 DEGREE MOTION UNITS) SIGHT PLUG 3/8-18 N.P.T. *FS GREASINGLE EXTENDED FITTING #B-1610 *FS S.H.C.S. 5/16-18 X 2 *FS BEARING CONE 34300 CLASS 2 BEARING CUP 34478 CLASS 2 BEARING CUP 13621 CLASS 2 BEARING CONE 13687 CLASS 2 **OIL SINGLE EXTENDEDAL C/R 14262** *FS GASKET COVER CC "SPACER, OUTPUT-CC" "SHIM, .002 THK" "SHIM, .003 THK" SHCS 3/8-16 X 3/4 MTG PLATE ALT R225 "MTG PLATE, SSV-7300C REDUCER" MOUNT PLATE 7300 CONE REDUCER



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1 C MALVE A V SP :	17.11.CL / CONTROL
1	.08D01167001002
1	.80A04418011002
1	.80A04418021002
2	.08B01589014006
2	.08B01589024008
2	.08B01589034012
2	.08B01589044008
3	. C/F CALL: 800/645-5207
4	.08C01169007002
4	.80D03604007002
4	.08C34527007001
5	.08B01171003502
6	.08B01171003502
7	.08L03006002012
7	.08C02575002002
8	.08C02576008001
8	.08L12793008001
9	.84D07329700000
10	.95A26009140000
11	.062K412
12	.95A33000010000
13	
13	
14	
14	
15	
16	
17*	
18* 19*	
19*	
19*	
20*	
21	
22	
23	
23	
23	.08A01325038800
24	.08A0123009000
24	.08A0123009000
24	.08A16373009000
25	.95A33003010000
26	.08C01810008700
27	
28	
29	
30	
31	
32	
33	.00007328400021

HOUSING 662RA
Housing Reducer MOUNTING TO SIDE 1
Housing Reducer MOUNTING TO SIDE 2
FOLLOWER PLATE 6H CCM
FOLLOWER PLATE 8H CCM
FOLLOWER PLATE 12H CCM
FOLLOWER PLATE 8H CCM
"CAM, SPECIFY NUMBER OF STOPS & INDEX TIME"
SHAFT INP DE CCM
SHAFT INP CCM RED
SHAFT INP SINGLE EXTENDED 662RA
CAP OPEN INP CCM
CAP OPEN INP CCM
COVER FINISH 662RA
COVER 662RA
SHAFT OUTP SINGLE EXTENDED CCM/662RA
SHAFT OUTP 662RA W/11F/FC OLC
OIL SINGLE EXTENDEDAL C/R 46324
LOCKNUT PN-14
KEY .625 SQ. X 4.12 *FS
AIR VENT 3/8-18 NPT AV53 F.S.
CAM FLWR 1 DIA (H32)
CAM FLWR 1.25 DIA (H40)
SET SCREW FOR 1.25" FLWR
SET SCREW FOR 1" FLWR
BEARING CONE 52400 CLASS 2
BEARING CUP 52618 CLASS 2
BEARING CUP 4536 CLASS 2
BEARING CONE 4580 CLASS 2
SHIM .002 THK
SHIM .005 THK
SHIM .010 THK
OIL SINGLE EXTENDEDAL C/R 19400
SHCS 3/8-16 X 7/8
SHCS 3/8-16 X 7/8
SHIM .002 THK
SHIM .005 THK
SHIM .010 THK
CAM SPACER (REQUIRED ON 4 AND 8 STOP MODELS)
CAM SPACER (REQUIRED ON 3 AND 6 STOP MODELS)
CAM SPACER (REQUIRED ON 12 STOP MODELS)
MAGNETIC PLUG LISLE#5032041*FS
OUTPUT RISINGLE EXTENDEDR (REQUIRED ON 90 AND SOME 120 DEGREE MOTION UNITS)
SIGHT GLASS
GREASINGLE EXTENDED FITTING #B-1610 *FS
S.H.C.S. 1/2-13 X 2 3/4 *FS
BEARING CUP 52618 CLASS 2
BEARING CONE 52400 CLASS 2
BEARING CUP 4536 CLASS 2
BEARING CONE 4580 CLASS 2





PARTS LIST FOR 662RA INDEX DRIVE (STANDARD CONFIGURATION CONT.)

ITEM NO.	PART NUMBER
34	
35	08C01810008700
36	08B02624009000
37*	08A01325018800
37*	08A026710298800
37*	08A01325028800
37*	08A01325038800
38	95A26016470000
39	
39	

DESCRIPTION OIL SINGLE EXTENDEDAL C/R 19400

GASKET COVER CCM *FS SPACER OUTP CCM SHIM .002 THK SHIM .003 THK SHIM .005 THK SHIM .010 THK SHCS 3/8-24 X 1 MOUNTING PLATE 7300 REDUCER MOUNTING PLATE 7350 REDUCER

..... Indicates parts supplied with Spare Parts Kit # 662RA SPK









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