

STELRON CAM COMPANY

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PS SERIES PARALLEL CAM DRIVE MAINTENANCE INSTRUCTIONS

Maintenance Instructions

Thank you for choosing a Stelron cam operated parallel index drive. You have indeed made a wise decision. Our engineers have gone to great lengths to include the many important features that enhance durability, serviceability and accuracy in your Stelron drive. The following are just some of those important features:

- 1) Hardened and CNC profile ground, extra large diameter cams operating in a sealed, oil filled housing.
- 2) Standard NEMA "C" frame motors.
- 3) Heavy cast aluminum universal mounting housings with machined surfaces and mounting holes on five or six sides.
- 4) Heavy Duty swing arm type micro switches with large diameter steel signal cams.

PRODUCT OVERVIEW

This is a pre-loaded type cam index drive with a hardened cam and precision needle bearing cam followers, operating in a sealed, oil filled housing. Two opposing cam followers contact the cam, eliminating backlash. The acceleration profile is modified sine, unless otherwise specified.

WARNINGS TO THE USER

This unit is sized and warranted to handle a specific dynamic load. Loads will increase with the square of the index time (or camshaft RPM). Index speed can markedly affect product life. Never run this unit faster than originally intended without checking with Stelron first.

Backlash on the input or output of the unit will introduce "jerk" into the system, decreasing life and performance. Always try to minimize backlash.

Any overload devices, whether provided by Stelron or not, cannot claim to protect humans from harm. These devices are meant to protect specific machine components only.

Cycling on demand any faster than the control manufacturer specifies (30 cycles per minute for Danfoss #C-2000 and KB Electronics #KB-PI; 60 cycles per minute for Danfoss Cycletrol 150) will void control warranty and may cause premature failure. Please consult Stelron if your cycling requirements exceed those mentioned above.

LUBRICATION INSTRUCTIONS

The index drive sump lubricates the input bearings, cam and the output bearings on "PS" series parallel shaft indexers. The reducer sump lubricates all reducer bearings via slinging action of the gears. The interference fit between the cam and followers (and the close fit in Stelron low backlash reducers) dictates the use of an extreme pressure type lubricant in the index drive and reducer sumps. We recommend only Mobil Gear 634 for Stelron indexers and reducers. This lubricant is available from your local Mobil distributor or Stelron.

The following is a recommended schedule:

- One shift operation - Inspect/Change lubricant every twelve months.
- Two shifts operation - Inspect/Change lubricant six months.
- Three shifts operation - Inspect/Change lubricant every three months.
- Higher speeds, dirty or high heat conditions may require more frequent lubricant change intervals.

INPUT AND OUTPUT (DIAL) CONNECTIONS

All input and output connections should be tight and free of backlash or windup. Always oversize due to the reversing loads imposed by most cam mechanisms. In synchronous machinery, oversized timing belts with as large diameter as possible pulleys should be used. Taperlock or Ringfedder hubs are preferred. Worm gear reducers are preferred due to their inefficiency in backdriving and low backlash.

Dial plates should be bolted and doweled to the indexer. The pilot bore (ID) of the dial should be dimensioned to the nominal size of the indexer pilot $+.001"$, $-.000$.

OVERLOAD CLUTCH ADJUSTMENT

Stelron index drives and oscillators are equipped with two types of overload protection:

- 1) External Output Clutch (PS series)
- 2) Internal Input Clutch in Gear Reducer.

A separate instruction sheet is included for the slip clutch in the gear reducer (#2) and Stelron's External Output Clutch (#1).

Adjustment should be done under the actual load of the drive at the actual production running speed.

TROUBLE SHOOTING

Unit Does Not Stop In Position or Positioning is Erratic-

Make sure unit is in dwell. This is the most common cause of problems in cam indexers. Rotate camshaft until movement has stopped on output. Rotate in same direction another 15 degrees. Unit should now be in dwell. Grab output of indexer and try and rotate. There should be no movement. If there is no movement, the signal cam may need to be adjusted or the indexer may be out of time (in a synchronous machine). The signal cam should send a stop signal so the motor stops the camshaft consistently in the dwell of the cam. Positioning problems occur when the motor stops the camshaft out of the dwell position. If there is movement detected when the unit is in dwell, there may be an internal problem in the indexer, usually bent or worn followers. First check that all input and output connections to the drive are tight and free of windup and backlash. Also check output clutch settings. See repair instructions below if all connections are tight and clutch is set properly.

Motion Is Not Smooth -

Make sure there is no backlash or windup in both the input and output couplings. Indexers and oscillators exert a reversing torque on both input and output connections. Any looseness shows up as erratic motion and can significantly shorten life.

GENERAL REPAIR INSTRUCTIONS

Part replacement on the "PS" series indexer requires complete disassembly of the unit. It is for this specific reason that we highly recommend that these units be serviced at our factory. We can generally have units repaired and returned within a few days. All of the components used in our equipment are oversized for the specific application ratings. These measures ensure that your unit will operate a long time before any major maintenance is required. This statement is conditional to the unit not being misused or abused as well your maintaining proper lubrication levels and periodic lubrication changes as per guidelines specified.

REPAIR PARTS

Each bill of materials lists all parts used in Stelron indexers. Commercially available parts are available from Stelron or the manufacturer. Special parts, on the bill of material, are available from Stelron only. Please call Stelron, or your local Stelron sales engineer, for any additional help in diagnosing possible index drive/oscillator problems.

Lubrication Instructions for Indexers

PS Series: Apply Mobil Gear 634 (or equivalent) to level hole.

MotoReducers: All Models - Apply Mobil Gear 634 (or equivalent) to level hole.

Note: On all oil filled components breather must be installed at the highest level for mounting position.

Recommended Frequency of Inspection

Typical Usage

One Shift: Inspect at least once a month.

Two shifts: Inspect once every two weeks.

Three shifts: Inspect once a week.

Severe duty: Inspect as often as necessary to maintain lubricity.

Lubrication

Mobil, U.S.A. Exxon, U.S.A. Master Lubricants, Phila. PA

or

Stelron Components, Inc. 1495 MacArthur Blvd., Mahwah, NJ 07430
tel (201) 529-5450 fax (201) 529-5493

PS-SERIES INDEXER BILL OF MATERIAL

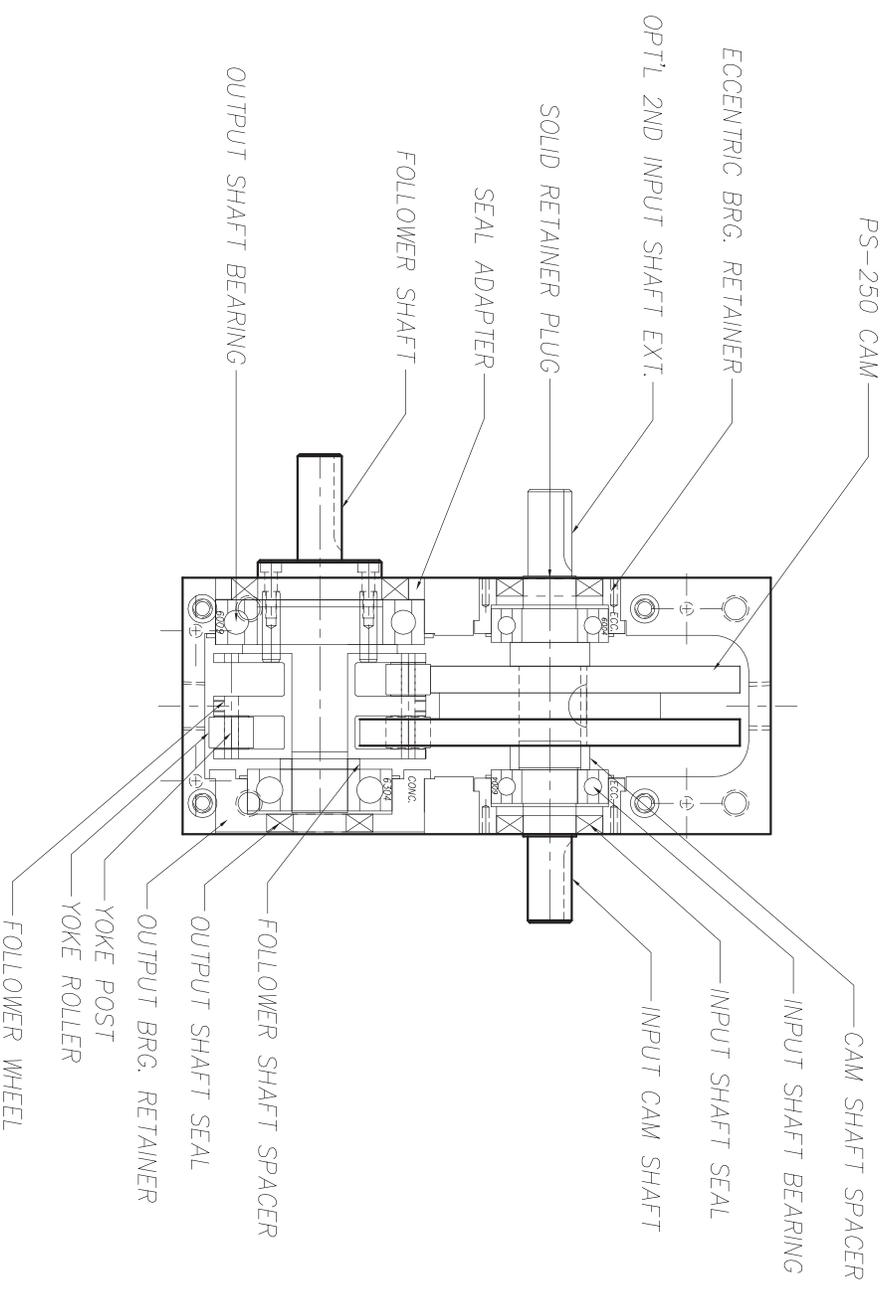
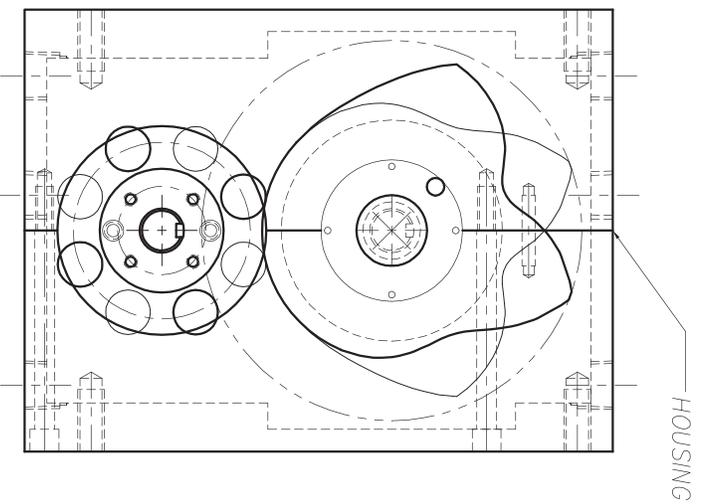
MANUFACTURED PARTS

DESCRIPTION	QTY.	PS-250	QTY.	PS-380	QTY.	PS-510
ASSEMBLY DRAWING		PS-250		PS-380		PS-510
HOUSING PATTERN DRAWING			2	PS-381	2	PS-511
HOUSING (DETAIL)	1	PS-252	1	PS-382	1	PS-512
6 POS. WHEEL	1	PS-253-A	1	PS-383-A	1	PS-513-A / PS-513HD-A
8 POS. WHEEL	1	PS-253-B		PS-383-B	1	PS-513-B / PS-513HD-B
CAM-HUB			1	M-114		
CAM SHAFT	1	PS-255	1	PS-385	1	PS-515
FOLLOWER SHAFT	1	PS-256	1	PS-386	1	PS-516
CAM SHAFT SPACER	1	PS-257	1	PS-387		
FOLLOWER SHAFT SPACER	1	PS-258	1	PS-388		
CAM BLANK	1	PS-259	2	PS-389	2	PS-519
ECCENTRIC BRG. RETAINER	2	PS-260	2	PS-390	2	PS-520
OUTPUT BEARING RETAINER	1	PS-261	1	PS-391		
SOLID RETAINER PLUG	2	PS-262	2	PS-392		
SEAL ADAPTER	1	PS-263				
INPUT RETAINER PLUG					1	PS-522
OUTPUT RETAINER PLUG					1	PS-523

COMMERCIAL PARTS

DESCRIPTION	QTY.	P/N	QTY.	P/N	QTY.	P/N
BALL BEARING	2	6004-2RS-NR	3	6306-2RS-NR	2	6308-2RS-NR
BALL BEARING	1	6304-2RS-NR	1	6013-2RS-NR	1	6016-2RS-NR
BALL BEARING	1	6009-2RS-NR			1	6307-2RS-NR
CAM SHAFT SEALS	3	NATIONAL 471567	3	NATIONAL 471689	2	NATIONAL 470625
OUTPUT BEARING SEALS	1	NATIONAL 472164	1	NATIONAL 476514	1	NATIONAL 415021
LOCK NUTS					2	SNS-22-16
LOCK NUT					1	CNB-09
YOKE POSTS					6,8	.3752 x 1.75 FL DOWEL PINS
YOKE POSTS	6,8	5mm (.1963) x 0.875 FL THOMSON ROD	6,8	.3125 x 1.500 FL DOWEL PINS	6,8	.4378 x 1.75 FL DOWEL PINS
WOODRUFF KEY	1	605	4	807	2	1010
YOKE ROLLERS			6,8	McGILL CCYR-3/4-S	6,8	McGILL CCYR-1.25-S
YOKE ROLLERS	6,8	INA NATR 5 PP A	6,8	McGILL CCYR-1-S	6,8	McGILL CCYR-1.50-S

Shown is a typical indexer, individual units may have variations.



Note:
When inquiring on parts or maintenance,
Please have your specific model number &
serial number available.

PS-250 Parallel Shaft Indexer