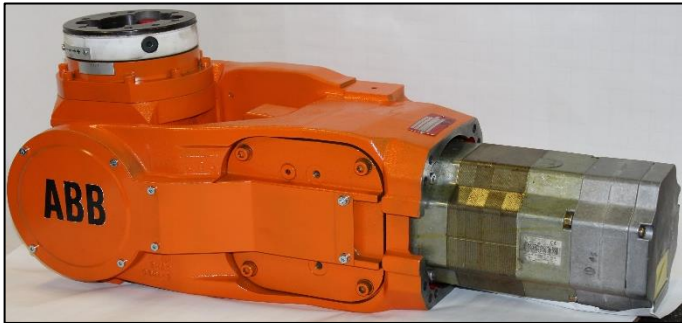


### FANUC AND ABB WRIST REBUILDING

At our Hydraulic / Mechanical Division, our trained technicians will rebuild your worn ABB or Fanuc wrist assembly to like new condition for less than the OEM. Each wrist assembly is thoroughly inspected and rebuilt to OEM specifications. If your wrist includes servo motors, those too will be evaluated and repaired during the wrist repair. Each unit is fully tested to verify proper operation when installed in your robot.



**Each wrist is completely disassembled. All components are cleaned and inspected. Each item is carefully prepped for reassembly. Each completed wrist assembly is fully tested prior to return to our customers.**

### AC / DC DRIVE CONTROL REPAIR

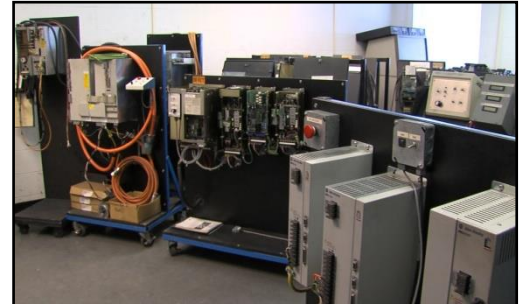
K+S has over 35 years of experience repairing all types of AC / DC frequency & servo drives. Our Engineering group has designed over 500 dedicated drive related test stands to ensure a quality repair each and every time. We have also designed a special dynamometer that allows two motors work against each other with offsetting force to provide a dynamic load test system where we can make performance and rating adjustments to exactly the right levels on the fly. Below are just some of the many Manufacturers we can offer repair support for.

ABB  
AC TECHNOLOGIES  
AEG  
ALLEN BRADLEY  
ALTIVAR  
BALDOR  
BAUMULLER  
BODINE ELECTRIC  
BOSCH  
BOSTON GEAR  
CAMCO  
CMC  
COMPUMOTOR  
CONTRAVES  
CONTROL TECHNIQUES  
CUTLER HAMMER  
DANFOSS  
DART  
DENSO



EATON/DYNAMIC  
ELECTRO-CRAFT  
EMERSON  
FANUC  
FATA AGV  
FENNER  
FINCOR  
FUJI  
GE FANUC  
GE  
GETTY'S  
GOULD  
ICC

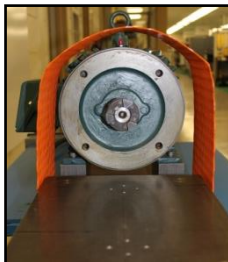
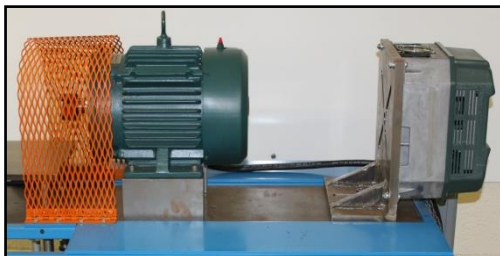
INDRAMAT  
INLAND  
KEBCO  
KOLLMORGEN  
LENZE  
LOVEJOY  
LOUIS ALLIS  
MAGNETEK  
MINARIK  
MITSUBISHI  
MODICON  
MOOG  
MOTION CONTROL  
NIKKI DENSO  
NIPPON  
OMRON  
PACIFIC SCIENTIFIC  
PANASONIC  
PARAJUST  
PARAMETRICS



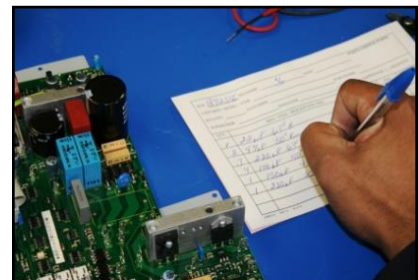
**Dedicated Test Stands**

PARKER  
RAMSEY  
RELIANCE  
SANYO DENKI  
SECO  
SEIDEL  
SERVO DYNAMICS  
SEW EURODRIVE  
SIEMENS  
SLO-SYN  
SQUARE-D  
STROKONSULT  
SUMITOMO

SUPERIOR ELECTRIC  
SWEQ  
TECHMOTIVE  
TELEMECANIQUE  
TOSHIBA  
VEE-ARC  
VICKERS  
WARNER  
WESTINGHOUSE  
WESTAMP  
WHEDCO  
WOODS  
YASKAWA



**Load Test Stands**

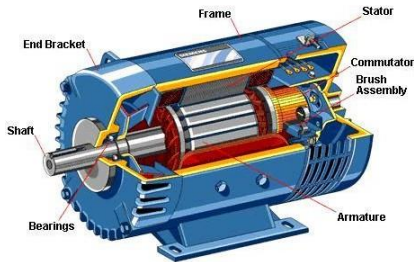


**A Thorough Evaluation is Completed on Each Unit**



### AC / DC MOTORS

With over 30 years of experience, our highly skilled Technicians can repair and test your AC and DC motors. Whether it is a Drive Motor or a Blower, K+S has the experience to provide a quality repair at a competitive price.



*DC Motor Breakdown*



*DC Drive Motor With Cooling Fan*



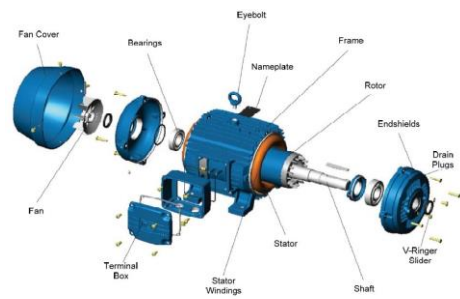
*DC Hi - Lo Motor*



*All Types of AC Induction Motors Supported*



*Motor Rewind Department*



*AC Motor Breakdown*

- **Most Major Brands Supported**
- **Full Rewind Capabilities In House**
- **Factory Trained Technicians**
- **Emergency Service Available**
- **Detailed Failure Analysis Reporting**

## BALLSCREW REPAIR & MANUFACTURING

K+S has the repair capabilities to repair & remanufacture all types of ballscrews. Whether it is an Acme, Rolled Thread or a Precision Ground assembly, K+S has the ability to provide precision repairs. We also have the ability to reverse engineer each ballscrew to provide new units while saving you time and money .

### Machine Tool Manufacturers

ACROLOC	MAKINO
AMADA	MAZAK
AMERICAN LATHE	MITSUBISHI
BRIDGEPORT	MONARCH
BROWN & SHARPE	MOOG
BRYANT	MORI-SEIKI
BULLARD	NSK
CINCINNATI MILACRON	OERLIKON
CROSS	OKUMA
DAEWOO	OLOFSSON
DOOSAN	ONSRUD
DEVLIEG	PRATT & WHITNEY
EX-CELL-O	SCIAKY
EXCELLON	STRIPPIT
F. JOSEPH LAMB	SUNDSTRAND
GIDDINGS & LEWIS	THK
GLEASON	TOSHIBA
HARDINGE	TOYODA
HEALD	TRUMPF AMERICAN
HUFFMAN	WARNER & SWASEY
INGERSOLL	Many More.....
JONES & LAMSON	
KEARNEY & TRECKER	
KINGSBURY	
LANDIS	
LEBLOND MAKINO	
LEYBOLD-HERAEUS	
LODGE & SHIPLEY	
LUCAS	
MAG	
MAKINO	
LEYBOLD – HERAEUS	
LODGE & SHIPLEY	
LUCAS	
MAG	



### Ballscrew Manufacturers

BARNES  
BEAVER PRECISION  
COSMO  
GAMFIOR  
HO-FONG  
IBL  
MODERN AMERICA  
NACHI  
NSK  
ROCKFORD  
SAGINAW  
SARGENT  
SHUTON  
SKF  
THOMPSON SAGINAW  
TSUBAKI  
20<sup>TH</sup> CENTURY  
WARNER ELECTRIC



### CNC MACHINE CONTROL REPAIR

K+S has over 35 years of experience repairing a wide selection of industrial manufacturing machine control components. Our Engineering group has designed over 500 dedicated CNC related test stands to ensure a quality repair each and every time. Our CNC lab has the dedicated test stands to repair all your CNC components including the operator interface, spindle drive, power supply, CPU modules and the system I/O cards. Below are just some of the many Manufacturers we can offer repair support for.

#### Allen Bradley

**Systems:** 7100, 7300, 8000, 8200, 8600  
9 Series

#### Fanuc

**Systems:** O, 15, 16, 18, 21, 35i  
Alpha HVI, Powermate A, D, Di, E  
**Servo Motors** - A06B-0032 through A06B-6059

#### General Electric

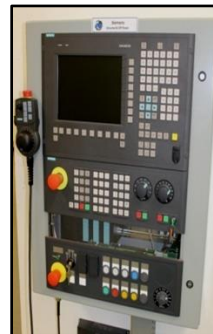
**Systems:** 1050 & 2000

#### Indramat

**Systems:** CLM, DDC, DDS, DEA, DKC, DKR, DKS  
DLC, DSC, HDD, HDS, HVR, KDA, NAM, RAC, TAM,  
Trans 01, TDA, TDM, TVD, TVM  
**Servo Motors:** MAC, MDD, MHD, MKD, MKE, 1AD

#### Mitsubishi

**Systems:** M70V, MDS-D/DH Fiber Optic Series

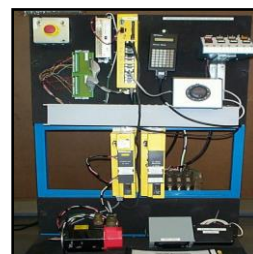


#### Siemens

**Systems:** Simodrive 611, 6RA, 6SC, 6SE  
6SN, A1, 820, and 840D  
**Servo Motors:** 1FT, 1HU, 1PH

#### Yaskawa

**Systems:** CACR, CDMR, CIMR, CMPC  
CMPF, CPRC, CPS, DR1, JANCD  
**Servo Motors:** SGMGH, SGMP, SGMPH,  
USADED, USAREM, USASEM





## GENERAL ELECTRONIC REPAIR

With over 30 years of experience, our highly skilled Technicians can repair a large variety of General Electronics. We have the ability to dynamically bench test items from Amplifiers, Heat Controllers, Light Curtains & Scanners to Power Supplies & UPS devices. K+S has the experience to provide a quality repair at a competitive price.

### AMPLIFIERS

Bogen  
Crown  
Fanuc  
Indramat  
Mitsubishi  
Rauland-Borg Corp.  
Sciaky  
Yaskawa



### LIGHT CURTAINS & SCANNERS

Allen Bradley  
Banner  
Data Instruments  
Dolan Jenner  
ISB  
Safe Scan  
Shadow  
Sick  
STI  
Triad



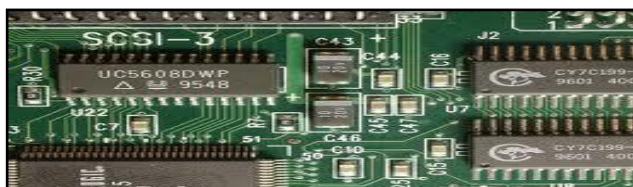
### POWER SUPPLIES

Abbott  
AC-DC  
Acopian  
B&K Precision  
Cincinnati  
DEC  
Fanuc  
General Electric  
Hewlett Packard  
Indramat  
Lambda  
LH Research  
NCR  
PMC  
Powermate  
Powertec  
Siemens  
Slo-syn  
Sola  
Sorenson  
Standard  
Unimate  
Yaskawa



### TEMPERATURE CONTROLLERS

Athena  
Barber Colman  
D.M.E.  
Eurotherm  
Fenwal  
Gammaflux  
Honeywell  
Leeds & Northrup  
L.F.E.  
Love  
Makon  
Omegas  
Omron  
Partlow  
Watlow  
West



### HYDRAULIC COMPONENT REPAIR

With over 30 years of experience, our highly trained technical specialists are dedicated to providing our Customers with quality repairs on hydraulic pumps, motors, cylinders, rotary actuators, proportional valves, servo valves and other industrial hydraulic items. K+S has developed and constructed test systems designed to properly test repair components under load. Once the repair has been completed, each item is rigorously tested on specially designed test stands to verify proper operation and that it meets or exceeds OEM specifications.

#### MOTORS / ROTARY ACTUATORS

##### *Major Manufacturers*

##### • CINCINNATI

.59 CU.IN., 1.03 CU.IN., 10 CU.IN.  
10.5 CU.IN., 1 CU.IN., 22 CU.IN.

##### • DENISON

M1C, M1C1, M1D, M1E  
M4C, M4C-1, M4D

MF Series

Gold Cup Series

World Cup Series

##### • FUJITSU

EHPM-1/5, EHPM-1/2, EHPM-1-SSS(L)  
EHPM-1-SSSSS, EHPM-2, EHPM-3

##### • REXROTH

Contact us for more info

##### • STAFFA

B-30, B-40, B-80, B-200, B270, B-S  
GB-525-S, GB-800-S, GB-1000-S, GB-1400-S

##### • SUNDSTRAND

20 – 27 Series

##### • VICKERS

MFA, MFB, MFI, MF, MHT

#### HYDRA-STATIC DRIVES

•Eaton

•Sundstrand

•Kubick

•Vickers

#### HYDRAULIC PUMPS

##### *Major Manufacturers*

##### • DENISON

46, 500, 600, 700, 800, 900

All DFC-Series

Gold Cup Series

P1F, P1V, P2F-V P3F-V, PA,  
PF PV, PXX, TDC, TED, TE, TS,  
TME TMG

World Cup Series

##### • OILGEAR

A, AN, BD, C, D, DN, F, HG, H  
Hydura PVAK, PVLK, PVK, PVT

##### • RACINE

20-L, 80-L, C-11

PSV, PVB, PVF, PVK, PVQ, PVR  
PVS, PVT

##### • REXROTH

Contact us for more info

##### • VICKERS

2520V, 3525V

4525

All PVB Series

All PVQ Series

All PVE Series

All PVV Series

PV 2003, PV 2008, PV 2012

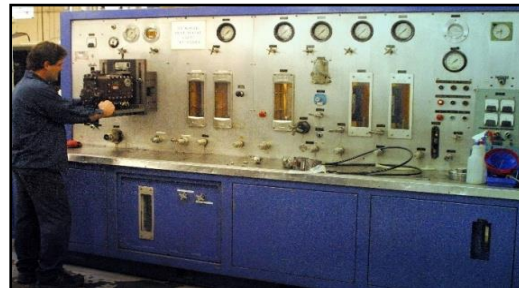
PV 2020, PV 2032, PV 2050

PV 2125, PV 2200, V-108

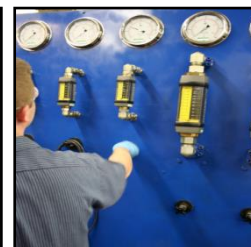
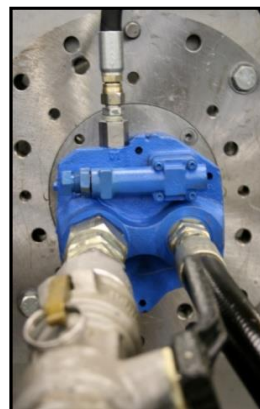
V-134, V-138, V-144, V-400

V-468, V-5230, VC-108

VC-138, VC-148



**HYDRAULIC LOAD TEST STAND**



#### CYLINDERS & SERVO ACTUATORS

• Anker-Holth

• Boxtel-Holland

• Caterpillar

• Graco

• Hanna

• Hydroline

• Instrom

• Kress

• Komatsu

• Lynair

• Miller

• Milwaukee

• Moog

• MTS

• Nopak

• OR164

• Parker

• Rexroth

• Pegasus

• Strippet

• Sheffer

• Team

• Tomkins

## Lenze Vector Drive Repair

K+S has over 35 years of experience repairing all types of AC / DC frequency & servo drives. Our Engineering group has designed over 500 dedicated drive related test stands to ensure a quality repair each and every time. We have also designed a special dynamometer that allows two motors to work against each other with offsetting force to provide a dynamic load test system where we can make performance and rating adjustments to exactly the right levels on the fly.

Lenze Vector Drives are one of the many systems we support through repair, refurbishment and full system test capabilities. Below is a listing of the major model numbers in this system.

### 9300 Series

- EVS9332-ETV907
- EVS9332-ES
- EVS9330-ES
- EVS9329-EIV907
- EVS9329-EI
- EVS9328-ESV004
- EVS9328-ES
- EVS9328-EI
- EVS9326-EP
- EVS9326-EI
- EVS9325-ES
- EV93225-EI
- EVS9324-ESV004
- EVS9323-ES
- EVS9324-ES
- EVS9323-EPV004
- EVS9323-EP
- EVS9321-EPV004
- EVS9322-EP
- EVS9321-EP
- EVS9217-E



### i700 Series

#### **Power Supplies**

- E70ACOSD0604x
- E70ACPSD0304x

#### **Axis Modules**

- E70ACMSD0484SA1ETE
- E70ACMSD0324SA2ETE
- E70ACMSD0324SA1ETR
- E70ACMSD0204SA1ETE



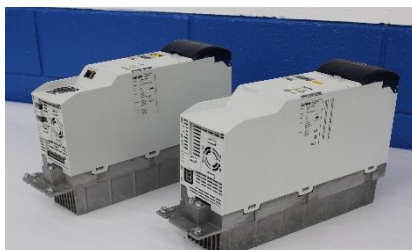
### 9300 Series

- EVF9328-EV
- EVFF9322-CVV003



### 8200 Series

- E82EV402\_4c
- E82EV903K4B201
- E82EV113-4C200
- E82EV113-4C
- E82EV751-2C
- E82EV302K4C





### MECHANICAL COMPONENT REPAIR

With over 30 years of experience, our highly trained technical specialists are dedicated to providing our Customers with quality repairs on gear boxes, gear reducers, brake assemblies, hydraulic turntables, vacuum pumps & blowers, air pumps and many other types of fluid pumps & assemblies. After the repair has been completed, each item is system tested to ensure proper operation and that it meets or exceeds OEM specifications and extended operation under load.

#### GEAR BOXES, REDUCERS, CYCLO DRIVES

- Alpha
- American
- Belt
- Boston
- Camco
- Cleveland
- Cone Drive
- Diequa
- Dodge
- Falk
- Ferguson
- K. E. Fisher
- Kawasaki
- Link-Morse
- Nachi
- Ohio
- Regal Beloit
- Remold
- Scotland
- SEW Eurodrive
- Shimpco
- Stober
- Sumitomo
- Thompson Micron



#### VACUUM PUMPS

- Alcatel
- Busch
- Dresser
- Dresser Rand
- Edwards
- Gast
- Haug
- Kinney
- Leybold
- Nash
- Roots
- Stokes
- Varian
- Welch



#### FLUID PUMPS

- Bell & Gossett
- Gorman/Rupp
- Gould
- Gusher
- Hydra-Cell
- ITT
- Kerr
- Knoll
- Kobe
- Morris
- Obara
- Peerless
- Sandpiper
- Waukesha
- Worthington

#### BRAKES

- Force Control
- Midwest
- Posidyne
- Rueland
- Sterns



#### AIR PUMPS

- Cooper
- Gardner Denver
- Hoists
- Hoist Tractors
- Ingersol
- Most Manufacturers



#### BLOWERS

- Dresser
- EG&G
- Leybold
- Siemens
- Stokes
- Roots



## QUALITY REPAIR OF MANUFACTURING EQUIPMENT

### INDUSTRIAL MONITORS / DISPLAYS / TERMINALS / HMI'S



ADVANTECH  
ALLEN BRADLEY  
AYDIN CONTROLS  
BALL  
CARDINAL  
CINCINNATI MILACRON  
CUTLER HAMMER  
DAYTRONICS  
DIGITEC  
DIEC  
DOTRONIX  
EATON IDT  
FANUC  
GENERAL ELECTRIC  
GIDDINGS & LEWIS

HITACHI  
HMW  
IDEK  
IDT  
INDUSTRIAL COMPUTERS  
KME  
LANDIS  
MATSUSHITA

MITSUBISHI  
MODICON  
MONITECH  
NEC  
NEMATRON  
OKUMA  
PANASONIC  
SIEMENS

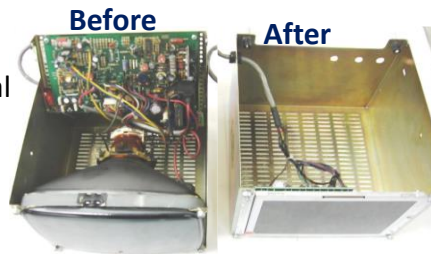
SQUARE D  
STRUTHERS DUNN  
TEXAS INSTRUMENT  
TEXTRONIX  
TOSHIBA  
TOTAL CONTROL  
PRODUCTS  
TOYODA  
UNIPO  
USON  
VIEWSONIC  
WYSE  
XYCOM  
YASKAWA  
MANY MORE...

### THOUGHT ABOUT CONVERTING YOUR OLD CRT'S TO LCD TECHNOLOGY?

K+S offers a conversion that takes your old CRT monitors or NMI / HMI displays and replaces them with energy efficient LCD displays. Isn't it time to you thought about Going Green?

#### CRT Monitor – Disadvantages

- Lower Resolution
- Heavier to carry
- Requires special handling for disposal
- More parts that can fail
- Over 50% lower life expectancy
- Hazardous to our environment
- Requires more power



#### LCD Display – Advantages

- Uses original chassis
- Safe for landfills
- Cost effective conversion
- Requires less power
- Over 200% increase in life expectancy
- Over 80% lighter than CRT's
- No special disposal needed
- Higher resolution – brighter





### PROGRAMMABLE LOGIC CONTROLLERS

K+S has over 35 years of experience repairing all types of PLC's. Our Engineering group has designed over 300 dedicated PLC related test stands to ensure a quality repair each and every time. Each PLC test system is climate adjustable, allowing us to simulate how the unit will perform within a plant manufacturing process while being able to check for elevated temperature faults at the same time. Below are just some of the many Manufacturers we can offer repair support for.

**Allen Bradley**  
PLC – 1774 Series

**PLC-2 Family**  
PLC 2 Mini, 2/05, 2/15  
2/16, 2/17, 2/20, 2/30

**PLC 3 Family**  
PLC-3 & 3/10

**PLC 4 Microtrol**

**PLC 5 Family**  
5/10, 5/11, 5/12  
5/15, 5/20, 5/25, 5/30  
5/40, 5/40L, 5/60,  
5/60L, 5/80

**PLC-5/250 Pyramid**

**SLC Family**  
100, 150 & 500

**Micrologix Series**  
1000 & 1500

**Peripheral Items**  
1791 Series I/O  
1770-SA  
1770-SB  
2700 Series  
2755 Barcode Family  
2803 Vision System  
All Starlinks  
Advisor  
Advisor 2  
Advisor 2+  
Intelligent Antenna  
Intelligent Panel System  
M-10 Mass Storage  
M-11 Mass Storage  
M-12 Mass Storage

**Automax / Reliance**  
AMX 6010, 6011, 7010  
DCS 5000

**Bailey**  
INFI 90

**Barber Coleman**  
Edac  
Maco IV  
Maco V  
Maco VI  
Maco 8000

**Cincinnati – Milarcron**  
Apc-1 & 500

**Cutler Hammer**  
D-100, 200 & 500

**General Electronic (Fanuc)**  
90/20, 30 & 70 Series  
Series One, One Jr., Three,  
Six, Six Plus  
PiC 409 / 49

**Honeywell**  
620-10, 15, 16, 20, 25, 30 &  
35 Series

621 Series I/O System  
ICP 622

**ISSC /IPC**  
90 & 300 Series

**Mitsubishi**  
F1 & F2 Series  
Series "A", "Ann" & "Q"

**Modicon**  
184, 384, 484, 584, 884 &  
984 Family  
Compact 984  
Micro 84  
Micro 984  
PC0984  
Quantum Series

**Omron**  
S6 Series

**Sysmac**  
C20, C40K, C200H & C210

**Reliance**  
**Automate**  
15, 20, 30 & 40 Series  
**Automax**  
AMX – 6010, 6011, 7010  
DCS 5000

**Sharp**  
W51  
W100

**Siemens**  
525, 535, 545, & 555  
Series  
S5-110, 115 & 150

**Square D**  
100, 300, 400, 500,  
700 & 8881 Series

**Telemachinique**  
TSX Series

**Texas Instrumetns**  
100 – 560 Series  
5TI & PM-550

**Toshiba**  
Ex-20 Plus


**Toypouc**  
PC1, PC2 & PC3 Series

**Westinghouse**  
PC 700, 900, 1100 & 1200

**Yasakawa**  
Memocon  
SC684  
SCR84  
SCU84



### REMANUFACTURED EQUIPMENT

K+S Services has over 40,000 remanufactured spare parts ready for immediate sale or exchange. Our philosophy for all Remanufactured spare parts is that each unit is fully system tested in a "closed loop" environment to ensure proper operation. We also provide a full One Year Warranty on all remanufactured spare part purchases. In addition, if you have any excess equipment that you are wondering what to do with it besides paying a company to haul it away, K+S is interested in buying those items, send us your list today and take a Green Approach! 



**ABB**  
**Allen Bradley**  
**Bailey**  
**Bosch**  
**Cutler Hammer**  
**Fanuc**  
**General Electric**



*All Units Are System Tested*

**Omron**  
**Parker**  
**Reliance**  
**Robotron**  
**Sanyo Denki**  
**Sick**  
**Siemens**  
**Square D**  
**STI**  
**Texas Instruments**  
**Westinghouse**  
**Yaskawa**  
**Many More!**



**Getty's**  
**Honeywell**  
**Indramat**  
**Kawasaki**  
**Kollmorgen**  
**Kuka**  
**Lambda**  
**Medar**  
**Mitsubishi**  
**Modicon**  
**Nachi**  
**Nematron**



**WE PURCHASE INVENTORY,  
 SEND US YOUR LIST TODAY!**

We Accept:



*Over \$5M In Inventory*





### ROBOT MANIPULATORS & CONTROLLERS

K+S has installed over 50 robotic manipulators and controller diagnostic systems in order to facilitate complete functional and closed loop testing for a wide range of robotic components. Electrical devices ranging from CPU, axis, communication boards to teach pendants, power supplies, servo drives, I/O modules and operator display panels are all included. Mechanical items such as gear boxes, balancers, wrist assemblies, and servo motors are also supported. These complete diagnostic systems ensure full load and repeatability testing for all your robotic repair needs. Manufacturers include Fanuc, Yaskawa/Motoman, ABB, Kuka, Nachi, Kawasaki and more.

#### Fanuc Control/Manipulator

RH/A200  
RJ2/S420iF  
RJ3/S430iF  
RJ3iB/R2000iA  
RJ3/Arcmate 120i  
R30iA/R2000iA  
R30iB/R2000iB

#### ABB Control/Manipulator

S4C+/IRB6600  
S4C/IRB6400  
IRC5/IRB7600  
S4/IRB6400  
IRB/IRB1400

#### Motoman Control/Manipulator

MRC/K100  
ERC/YR6  
MRC/K30  
XRC/UP6  
NX100/HP175  
DX100/HP175  
DX200/MH180  
XRCmini/S1M005

#### Comau Control/Manipulator

C3G+/Smart M1

#### Kawasaki Control/Manipulator

C32/ZX165U  
C52/ZX165U

#### Nachi Control/Manipulator

AX/SH200  
AW/SH166

#### Kuka Control/Manipulator

KRC2/KR210  
KRC4/KR210



### SERVO MOTOR REPAIR



#### Robotic Servo Motors

With over 32 years of servo motor repair experience, our highly skilled servo motor technicians can repair, align and dynamically load test your robot axis and base motors.



#### Machine Tool Servo Motors

Our expert Servo Motor technicians can provide quick turn around and efficient repair for your machine tool servo motors and spindle drive motors.



#### DC Permanent Magnet Servo Motors

At K+S Services, we specialize in problem solving. If your equipment is utilizing Permanent Magnet DC servo motors, we can help. We support most major brands and can handle all types of feedback devices installed on DC permanent magnet servos.



#### Additional Benefits

- Full rewind capabilities in house
- AC induction motor repair and service
- DC wound field motor repair
- Fork Truck motor repair
- Factory trained technicians
- Emergency service available



Dynamic load testing on all servo repairs



### SERVO VALVE DEPARTMENT

The K+S Services Valve Department is well known for Servo valve and Proportional Valve support, with the capability to provide computer controlled dynamic and static testing. Our state of the art computerized load stands ensure that each valve meets OEM specifications. We also can handle your general purpose valves as well. Whether its Hydraulic or Pneumatic and controls Pressure, Flow, or Directional, please consider K+S Services your go-to valve support source for all of your valve needs.

#### Manufactures Supported

Atchley	Honeywell	Oil Gear	RVA	Vickers
Bosch	HPM	Olsen	Schenck	And Many More!
Bullard	HR Textron	STAR	SLI	
Cincinnati	Hunker	Moog	Textron	
Denison/Abex	Kawasaki	Parker	Tokyo Keiki	
Dowty	Konring	Pegasus	Tokyo Precision	
Dyval	MTS	Rexroth	Ultra	

#### Our Process

- Valve is disassembled and evaluated for wear and damage – FREE
- Failure analysis report generated and repair quote provided – FREE
- All components are thoroughly cleaned and damage components replaced
- Assembled units are load tested and test report created
- 12 month “In-Service “warranty provided with all repairs



*Dedicated Run – In Stand*



*Torque Motor & Static Servo Testing*



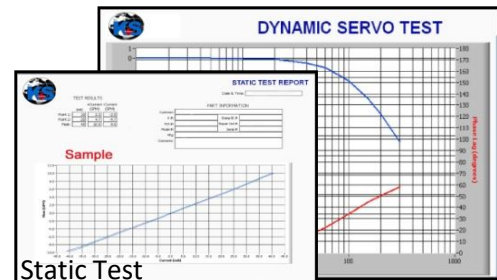
*Dynamic Servo Testing*



*Clean Air Assembly Benches*



**K+S is the ONLY USA Authorized  
Distributor of STAR Valves**



*Computerized Graphing*



a SunSource Company

# QUALITY REPAIR OF MANUFACTURING EQUIPMENT

## SERVO VALVE REPAIR

Our Servo Valve Repair Lab has the capability to provide computer controlled dynamic and static testing. Our state of the art computerized load stands ensure that each valve meets OEM specifications.



*Dedicated Run – In Stand*



*Torque Motor & Static Servo Testing*



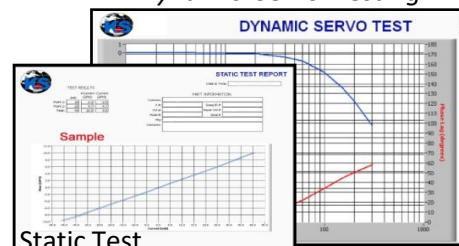
*Dynamic Servo Testing*



*Clean Air Assembly Benches*



**K+S is an Authorized Distributor of  
STAR Valves in USA, Mexico, & Canada**



*Computerized Graphing*

### Our Process:

- Valve is disassembled and evaluated for wear and damage – FREE
- Failure analysis report generated and repair quote provided – FREE
- All components are thoroughly cleaned and damage components replaced
- Assembled units are load tested and test report created
- 12 month "In-Service" warranty provided with all repairs

### MOOG

21, 22, 62, 72, 73, 76, 77, 78,  
79, 760, A076, D631, D641,  
D644, D645, D760, D761,  
D765, E760, G761

### PEGASUS

120, 121, 130, 131,  
140, 141, 160, 161,  
180, 1160, 1280, 1282

### REXROTH

3DS, 4WR, 4WS,  
WRA, WRE, WRZ

### STAR Family Series

200, 454, 455, 456, 458, 500,  
502, 507, 550, 550E, 552, 553,  
557, 558, 590, 592, 597, 60FC,  
650, 652, 750, 890, 892, 897,  
900, 1650, 1652, 1653

### ULTRA

4550, 4551, 4657,  
4658, 4661, 4683

### VICKERS

EHST, KAFDG, SA4-03,  
SA4-06, SC4-03, SD4-03,  
SF4-03, SH4, SM4

### Additional Manufacturers

#### Supported

Atchley	Konring
Bosch	Oil Gear
Bullard	Olsen
Cincinnati	Moog
Denison/Abex	Parker
Dowty	Rexroth
Dyval	RVA
Honeywell	Schenck
HPM	SLI
HR Textron	Textron
Hunker	Tokyo Keiki
Kawasaki	Tokyo Precision

**ISO 9001:2015 REGISTERED**

**(800) 542-1331**  
**www.k-and-s.com**



# SIEMENS

**K+S Services, Inc. Canada and Mexico facilities are factory authorized to provide both warranty and non-warranty repair services on your Siemens servo motors. Our technicians have been factory trained in all aspects of troubleshooting and repair for the 1FT5, 1FT6, 1FK6/7, and 1PH6/7 series servo motors.**



We use only factory components in our repair process ensuring you the same operational performance as a new motor.

All repaired motors are tested in a “closed loop” system utilizing the same test simulators and specifications as the Siemens Factory to maintain quality and consistency.



Our repair warranty is for One Year In-service for both Siemens Warranty and normal repairs. Give us a call to learn more or visit our website at [www.k-and-s.com](http://www.k-and-s.com)



## SIMULATION EQUIPMENT

With over 30 years of expertise in the Hydraulic and Mechanical Repair field, K+S provides Repair / Remanufacturing Service of Simulation equipment and systems. K+S supports the Industrial, Commercial, and Military industries. Our trained technicians understand the importance of meeting the exacting requirements and the operational demands of simulation equipment. K+S uses only OEM manufactured parts in the rebuild process. When original parts or components are no longer available, K+S will either manufacture or have manufactured, the required components to the exact specifications of the OEM drawings.



*Hydraulic Power Units*



*Hydraulic Motion Legs*



*Closed Loop Testing*

### Industry Leading Warranty

#### **10 Year Warranty:**

Leg Jacks; Actuators; Control Loaders

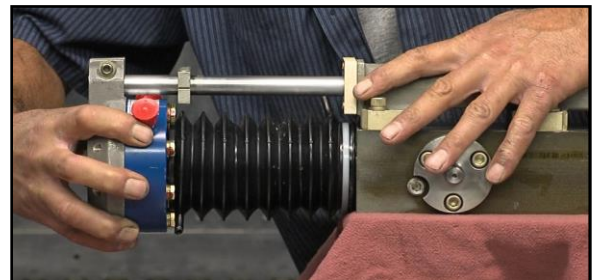
#### **5 Year Warranty:**

All Servo Valves; Pumps; Power Units



### Professional Services Include

- Knuckle repair
- Complete motion base rebuild / remanufacture
- Individual actuator repair/rebuild
- Individual leg repair/rebuild
- Power unit design and rebuild
- Servo valve repair/service
- Abort valve repair/service
- Control loading actuator rebuild
- Hydraulic pump and motor repair/rebuild
- Detailed failure analysis report for each unit
- Final test information/reporting
- Power supply and circuit card repair



*Hydraulic Position Actuator*



### PRECISION SPINDLE & PARABOLIC ROLL REPAIR

With over 35 years of experience along with our state of the art spindle repair lab allows our technicians the ability to perform all aspects of spindle remanufacturing to guarantee Quality repairs. Our in-house capabilities to perform machining, motor rewinding and feedback repair ensures the highest quality while controlling costs and delivery time. Upon receipt of your spindle, it will go under an extensive evaluation process to determine exact cause of failure. Each quote will have a detailed failure analysis report for your review and upon your approval, your spindle will be completely rebuilt & recalibrated in one of our class 10,000 HEPA climate controlled clean rooms. Every spindle will be dynamically balanced and tested to allow for proper run in.

**Top Manufacturers We Support** Bryant, Chiron, Colonial, Cincinnati, Gamfior, GMN, Heald, Hessap, Hurco, Kessler, Makino, Mazak, Mitsubishi, Mori Seiki, OKK, Okuma/Howa, Omlat, Pope, Setco, Studer, Toyoda and many more!

**Spindles are Balanced on CEMB Precision Balancers to a GO.4 Standard**



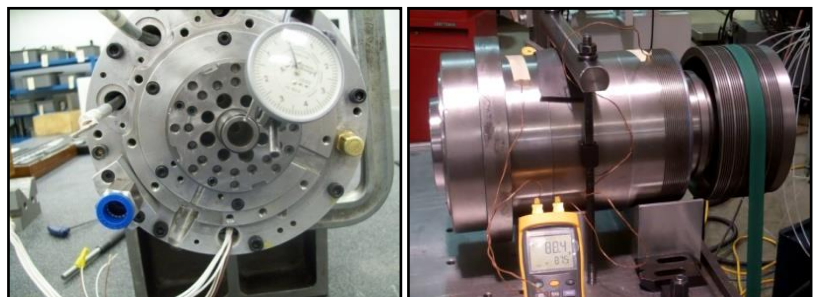
#### Micro-Finishing Parabolic Rolls



#### Teardown & Evaluation Are Fully Documented



**All aspects of the spindle are monitored for critical run out with vibration & temperature measured at maximum RPM's. Videos are taken for each spindle during final test.**



We also have the capabilities to restore and build new Parabolic Rolls used in micro-polishing machines made by Thielenhouse, Supfina/Taft, Pierce & Impco. Our unique grinding fixtures enables us to restore/build the rolls' parabolic forms to factory specifications.

# STAR SERVO TECHNOLOGY



**K+S Services is an authorized distributor and service center for Star Hydraulics, Ltd. in the USA, Canada, and Mexico**

Star designs and manufactures high quality electro-hydraulic servo valves and associated equipment, which are used in a wide variety of market sectors. The key to the success of the company is the many years of servo engineering development which enables customers to gain consistent operational life capacity. With Stars Sapphire Technology, we are undertaking upgrades of Simulator, Industrial, Aerospace and Military applications around the world. K+S and Star see this appointment as a key development for the improvement of operational life for this type of equipment utilizing Star products, features and benefits while providing many drop-in replacements in these key sectors.



**Electronics:** Servo Amplifiers, Custom Built Controllers, Hand Held Testers



**Associated Equipment:** Flushing Blocks, Manifolds, Adapter Plates, Override Modules



Many of Stars servo valves are manufactured with inlet orifices and feedback wire that include the Sapphire Technology. The benefit to the operator is that the traditional inlet and ball wear erosion problems that have been seen in the past are now just that, a thing of the past. These features enable Star servo valves to deliver and maintain higher performance for extended periods without failure. This extended operational life results in reduced costs for the end user.

*K+S became part of history when a large aerospace company launched their rocket into space with a successful return back to earth by supplying & supporting the Star servo valves that are used on the gimbal controls for the nine engines...Has your repair partner been to Space and back? At K+S, our quality and performance is out of this World!*





# TORQUE TOOL & CONTROLLER REPAIR

K+S has the ability to repair and test DC torque tools (nut runners) and their associated controllers. Each tool is completely rebuilt and tested with the matching controller. Calibration and repair reports are supplied with each unit upon successful closed-loop testing. The controllers are each dynamically tested with the nut runner tool and measured / calibrated on a torque angle stand. All documentation is traceable to NIST standards.

### Atlas Copco

EBL, ETD, DS, ETO DS, ETP SL, ETV, ST, EP, ETDS, ETO S, ETP ST, ETX, ETC DS, ETD ST, ETP DL, ETV DL, IRTT, ETC S, ETF DL, ETP DS, ETV, DS, LMD, ETD DL, ETF SL, ETP S, ETV S, LMK, LMP, LMV, LTC, LTD, LTO, LTP, LTPV, LTV, LUD, LUF, LUM, QRTT, QMX

### Controllers

#### All Power Focus controllers

Tensor S / DS / ST / SL / DL  
PF2101, PF3000, PF3100, PF4000

#### All Power Macs

TC52P, TC54P, TC52S, TC54S, PBU

### Testing Equipment

ACTA 3000 & 4000, IRTT, TT10



### GSE (CP Tech-Motive)

277, 104, 111, 116, 37, 46, 50, 52, 54, 55, 56, 57, 66, SD25, ECA, ECD, ECL, ECLA, ECP, EM, EML, ER, ERA, ERD, ERP, CVIP, MC, MCL

### Controllers

CS4746, CS4700, CS7000, CVI II, CVIP - Plug & Tighten, CVIC, CS2700, CS4000, CS400, CS40, CS50, CS2000

### Testing Equipment

Data-Stat 290



### FEC

#### Tool Series

EFT, NFT, DFT, HFT, GT, SA

### Controllers

HFC, AFC1500, AFC1200, AFC1150, AFC1100, AFC820



### Cooper Cleco

17EA, 47EA, 67EA, 17EP, 47EP, 17ES, 47ES, 67ES, B17ES, B17EA, 47EC, 47ET 17B, 47B, TCM, 2, 14, 8, 88, 35, 5, 24, 34, 45, 55, 75, 64, PH, PTH, STH, 11, 120, 135, 136DL, 14

### Controllers

TMEB, TMEM, TME, TMEC, TMEI

### Test Equipment

P2 & P-15 Torque Analyzers  
TVP-100 Series Torque Verifier  
TA4 Torque Analyzer  
DA Dial Indicating Torque Wrenches

### Ingersoll-Rand

QE, QM, DEA, DEF, 1, Q2, 20, 41, 50, 0, 000, 5, 7, QA4, QA6, QA8, 9, ETW, VersaTec,

### Controllers

IC1G, IC2G, IC1D, IC1M, PD, PFSI, TMAD

### Test Equipment

QC Qualifier  
YETC-200  
ETA2 Torque Analyzer  
ETA5 Torque Analyzer  
ETT Torque Tester



### Rotor Tool

AR, BS, EM, EMR, ES, ER, M100, M101, M52, M54, MT, N100, N101, N52, N54, NSW, S100, S22, SE, SW, TA

### Controllers

Tork-Trak  
R-Tec



### Stanley Tool

A30, A32, A33, A40, A50, F50, D30, F3, PE, A30M, A3MFCT, A32MFOCT, A40M, E20, E24, E30, E40, EF, M30, M40, W30, W40, QPM,

#### Pistol - E02PB-E34PB

**Lever** - E12LB - E55LB, EA23LB - EA34LB  
E12LA - E55LA, EA23LA - EA34LA

**Crowfoot** - E12LC - E45LC, EA23LC - EA34LC

**TubeNut** - E12LT - E44LT, EA23LT - EA34LT

**Hold & Drive** - E34LH - E55LH

**Straight Motors** - E12LP, E23MB-E55MB, E23MBF - E55MB5F

**Offset Motors** E23MDF - 55MD3F

**Angle Motors** E33MA18 - 55MA32  
E33MA18F - E55MA32F

### Controllers

Alpha, Gamma, Delta, Sigma, Kappa, Omega, T8000, Beta Tech

### Gardner-Denver

H16, H30, 41, 60, 1B, 2B, 3B, EDA, EDR 16, 42, 46, 35, 22, 20, 55, 90, 130, 50

### Controllers

M-PRO 91, 92, 93, BLS



### Estic/Cinetic/Taylo

#### Tool Series

TU, EH, ENRZ, ENRH

### Controllers

AU  
DU  
Trutight  
EH (Handy 1000, 2000)



# WELD GUN & COMPONENT REPAIR

## INNOVATION AT WORK

Now you have an alternative to your current weld gun component refurbish/repair program!

## START SAVING MONEY TODAY!

Significantly reduce your spending with our extensive and innovative rebuild and repair program for resistance weld guns, arms, tip holders, cylinders, and more!

## Components Normally Discarded CAN BE REPAIRED!

As an industry leader in repair service, K+S will support all manufacturers and brands of resistance weld guns. Take advantage of this cost saving opportunity today!

### **Weld Gun BEFORE Rebuild**



### **Weld Gun AFTER Rebuild**



## Major Manufacturers Supported

Inoue, CMW, Obara, Milco, Savair, Centerline & Denyo Kogyo...



## Design Style

Pinch  
X-Type  
J-Type  
Scissors  
C-Type  
Equalizing  
Nut Welding  
Dual Gun  
Strip Clearance  
Cylinder Gun  
Trans Gun



## We Are Authorized!!!

*We are the Authorized Repair Center for Inoue & Denyo Kogyo*

## Installation Type

Robotized  
Fixture  
Pedestal  
Portable



## **Before & After Weld Tip Rebuild**



**30 Day Warranty**





## WELDER CONTROL REPAIR

K+S has full service capabilities to repair MIG, TIG and resistance welding controls. At K+S our Weld systems lab leads the industry in repair and testing capabilities. K+S has the experience to analyze and repair a wide variety of weld system components and performs system testing under load to verify functionality and durability. The systems utilized in the repair process are designed to simulate operation conditions in a plant environment.

**K+S Services is an authorized service center for Fronius, Lincoln, Miller, Hitachi and Nippon.**



### LINCOLN

**Authorized:**  
**Southgate, MI**  
**Lawton, OK**

All Lincoln Power Sources  
NA-3S, NA4, LN-9, Power Wave  
450

### NIPPON

NGRALF 6x20

### SENSARC

All Models

### THERMAL ARC

Ultima 150 GTS & 300 GTS  
PAK SXR  
PS30A  
WC100B  
185TSW

### KOBELCO

All Models

### MILLER

**Authorized:**  
**Southgate, MI**

All Wire Feeders  
All Miller Power Sources  
Arc Pac 350

### OTC (DAIHEN)

350 & 500 Series  
DT-300

### NADEX

All Models

### PANASONIC

AAII 350/500  
AE-350/500  
KF-350/500BC300  
YC-200BC1, YC-300BC1  
YD-350AE1, YD-350HM2  
YD-500HM2

### NADESCO

All Models

### WTC / MEDAR

GEN 5 Inverters / Timers  
Cosmos  
Decade 5 Series  
Technitron  
V-50, V-60 & T95 Timers  
U60T-90A, U60T-91A  
U60T-92A, U60T-95A  
U60T-96A, TB90-P02A  
1000 & 3000 Series

### ESAB

PCM-625I, PCM-750  
PCM-875, PCM-1000  
SVI-450I

### FRONIUS

**Authorized:**  
**Southgate, MI**  
Power Units  
Controllers  
Wire Feeders  
Pendants  
Foot Pedals

### MOTOMAN

**Arc Master 501 Series:**  
All Models  
**Motoweld Series:**  
All Models

### HOBART

70L Series  
All Hobart Power  
Sources  
Megacon 110

### DENGENSHA

Decomstar 20, 30 & 70  
RWC-9000-Ty-18  
RWI-9100-Ty-13/14  
FuW-IRWC-GT2

### HYPER THERM

POWERMAX 800, 900  
& 1000

### HITACHI

All Models