



## K18190, K18191, K18192 MECHANICAL GREASE WORKER DOUBLE-UNIT MODEL

### *OPERATION AND INSTRUCTION MANUAL*

REV D

**Koehler Instrument Company, Inc.**

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Petroleum Testing & Analysis Instrumentation • Custom Design & Manufacturing



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## CERTIFICATE OF CONFORMANCE

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### Mechanical Grease Worker, Double Model K1819X


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This certificate verifies that part number K1819X, Mechanical Grease Worker, Double Model, was manufactured in conformance with the applicable standards set forth in this certification.

**Specifications:**

ASTM D217  
ASTM D4950  
IP 50  
ISO 2137

This unit is tested before it leaves the factory, to ensure total functionality and compliance to the above specifications and ASTM standards. Test and inspection records are on file for verification.



**Jesse Kelly**  
Application Engineer  
Koehler Instrument Company





### EC Declaration of conformity

Koehler Instrument Company, Inc.  
of 1595 Sycamore Av., Bohemia, New York USA

We declare that the product listed below meets all basic requirements in accordance with the following Directive(s) by design, type, and version placed upon the market by us.

2004/108/EC The Electromagnetic Compatibility Directive

2006/42/EC The Machinery Directive by way of the Low-Voltage directive 2006/95/EC

And hereby declare that:

Equipment : Grease Worker

Model Numbers: K18110, Single-Unit Model, 220-240 50Hz; and K18191, Double-Unit Model, 220-240 50Hz

Date: 22/04/2012

### Qualifications:

This product may only to be used in a professional laboratory setting by authorized personnel following the instruction handbook.

and

This product declaration is valid for unmodified equipment when installed and operated by authorized personnel following the instruction handbook.

Conforms to the following standards:

Safety	Low-Voltage directive 2006/95/EC
EN 61010-1:2010	Safety Requirements for electrical equipment for measurement, control and laboratory use; by engineering design and risk review and by meeting the requirements of Hi-Pot Test (1900 VAC, 60 sec.) as detailed in the product's technical documentation.
EMC	Meets the essential requirements of EMC Directive 2004/108/EC by engineering design review and by meeting the requirements of Conducted Emissions Test for Group 1 Class A as detailed in the product's technical documentation.
EN 55011:2007	



James R. Ball  
Chief Technology Officer

1595 Sycamore Av.  
Bohemia, NY 11716  
United States of America  
April 22, 2013

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## WEEE Directive Compliance Statement

### Background

The goal of the WEEE Directive is to encourage design of environment-friendly products that increase reuse, recycling and other forms of recovery to reduce waste streams and applies to listed Electronic and Electrical Equipment (EEE) and Koehler's equipment falls broadly into Appendix 1A; Section 9 Monitoring and Control Equipment: Measuring, weighing or adjusting appliances for household or as laboratory equipment.

Any associated non-embedded equipment such as Lighting (Saybolt Color) and PCs/Printers also fall under WEEE. If provided with an order these ancillary items must be WEEE compliant. For these and other reasons (printer cartridges are regionalized) the equipment must be supplied through a third party supplier in Europe.

The WEEE Directive applies to electrical and electronic equipment falling under the categories set out in Annex IA provided that the equipment concerned is not part of another type of equipment that does not fall within the scope of this Directive. Annex IB contains a list of products which fall under the categories set out in Annex IA.

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2003:037:0024:0038:en:PDF>

We do not qualify for any of the 10 exemption categories.

<http://www.dpa-system.dk/en/WEEE/Products/Exemptions>

### Professional use

For equipment defined for 'professional use' local authorities have no role to play. Producers and importers are basically responsible for collection of WEEE recyclables from the professional user and for subsequent management. A separate statement is given cataloging the items that require separation from the equipment along with basic information on subsequent processing or recycling prior to disposal of the equipment.

<http://www.dpa-system.dk/en/WEEE/Products/Private-or-professional-use>

### Responsibility for Registration and Annual Reporting:

Koehler will not sell directly to end users in the EU and so has no responsibility to register within each EU state and to make annual reports. Koehler declares that this responsibility is born by the importer who is the first level of the distribution chain and is subject to producer responsibility. We will communicate this in writing to our distributor/importers in the EU stating they are responsible to satisfy WEEE registration and reporting requirements in the EU states where they conduct sales activities.

It is illegal to market electrical and electronic equipment covered by producer responsibility without being registered.

<http://www.dpa-system.dk/en/WEEE/Producers/Whoissubjecttoproducerresponsibility>

### Product Design

Koehler's designs allow for complete disassembly to a modular level which usually allows for standard recycling. A qualified refrigeration system technician must be consulted when disassembling and de-commissioning any equipment with refrigeration systems.

Koehler's scientific testing equipment is robustly designed to function over a long service life and are typically repaired many times over the course of years rather than being replaced. We believe that re-use and refurbishment is the very best form of re-cycling.

All batteries must be readily removable not soldered in place.

### Recycling instructions

In the event that replacement becomes necessary, we will include instructions, particularized to each instrument that informs the customer of their recycling responsibilities and giving them guidance in doing

this. All Koehler equipment has been placed on the market since 13th August 2005 and so Koehler is defined as a "new WEEE producer". As such we must provide information on refurbishment, treatment, and re-use.

Our instrument manual will include this compliance statement and indicate that any collection of materials will be handled by their authorized distributor. In the event that the distributor is unreachable or is no longer a distributor for Koehler Instrument, Co., other arrangements may be made including accepting the materials directly.

Recycling is free of charge. Shipping is the responsibility of the end users. Whether shipping to a distributor or to Koehler directly, safe, properly declared, and labeled packaging and shipping expenses are the sole responsibility of the end user.

### WEEE Marking



Since Koehler products are subject to the WEEE Directive we must display the WEEE symbol shown above in accordance with European Standard EN 50419 on the equipment. It must be indelible, at least 5mm in height, and clearly legible. If the equipment is too small the mark must be in the product literature, guarantee certificate, or on the packaging. Rules on marking are established in section 49 of the WEEE Order.

Koehler Instrument Company, Inc.  
c/o RECYCLING  
1595 Sycamore, Ave.  
Bohemia, NY 11716

As a minimum the following substances, preparations and components have to be removed from any separately collected WEEE:

- Mercury containing components, such as switches or backlighting lamps (compact fluorescent lamps, CFL),
- Batteries
- Printed circuit boards if the surface of the printed circuit board is greater than 10 square centimeters (about 4 sq in.),
- Toner cartridges, liquid and pasty, as well as color toner,
- Chlorofluorocarbons (CFC), hydrochlorofluorocarbons (HCFC) or hydrofluorocarbons (HFC), hydrocarbons (HC)
- Liquid crystal displays (together with their casing where appropriate) of a surface greater than 100 square centimeters and all those back-lighted with gas discharge lamps,
- External electric cables
- Components containing refractory ceramic fibers as described in Commission Directive 97/69/EC of 5 December 1997 adapting to technical progress Council Directive 67/548/EEC relating to the classification, packaging and labeling of dangerous substances (2),
- Electrolyte capacitors containing substances of concern (height > 25 mm, diameter > 25 mm or proportionately similar volume)

2. The following components of WEEE that is separately collected have to be treated as indicated:

- Equipment containing gases that are ozone depleting or have a global warming potential (GWP) above 15, such as those contained in foams and refrigeration circuits: the gases must be properly extracted and properly treated. Ozone-depleting gases must be treated in accordance with Regulation (EC) No 2037/2000 of the European Parliament and of the Council of 29 June 2000 on substances that deplete the ozone layer (4).



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## 1 Introduction

The Koehler K1819X Mechanical Grease Worker is for "worked penetration" and "prolonged worked penetration" tests to determine consistency of lubricating greases according to the ASTM D217 test method and related test specifications.

This manual provides important information regarding safety, technical reference, installation requirements, operating condition specifications, user facility resource requirements, and operating instructions for the Double Unit Mechanical Grease Worker. This manual should also be used in conjunction with applicable published laboratory procedures. Information on these procedures is given in section 1.2.

### 1.1 Koehler's Commitment to Our Customers

Providing quality testing instrumentation and technical support services for research and testing laboratories has been our specialty for more than 50 years. At Koehler, the primary focus of our business is providing you with the full support of your laboratory testing needs. Our products are backed by our staff of technically knowledgeable, trained specialists who are experienced in both petroleum products testing and instrument service to better understand your requirements and provide you with the best solutions. You can depend on Koehler for a full range of accurate and reliable instrumentation as well as support for your laboratory testing programs. Please do not hesitate to contact us at any time with your inquiries about equipment, tests, or technical support.

**Toll Free: 1-800-878-9070 (US only)**  
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**Email: [info@koehlerinstrument.com](mailto:info@koehlerinstrument.com) •**  
**<http://www.koehlerinstrument.com>**

### 1.2 Recommended Resources and Publications

1. American Society for Testing and Materials (ASTM)  
100 Barr Harbor Drive  
West Conshohocken, Pennsylvania  
19428-2959, USA  
Tel: +1 610 832 9500  
Fax: +1 610 832 9555  
<http://www.astm.org>  
email: [service@astm.org](mailto:service@astm.org)

#### ASTM Publication:

- ASTM D217: Cone Penetration of Lubricating Grease

2. International Organization for Standardization (ISO)  
1, rue de Varembe  
Case postale 56  
CH-1211 Geneva 20, Switzerland  
Tel: 41 22 749 01 11  
Fax: 41 22 733 34 30  
<http://www.iso.org>

#### ISO Publication:

- ISO 2137: Petroleum Products - Lubricating Grease and Petrolatum - Determination of Cone Penetration

3. Energy Institute (IP)  
61 New Cavendish Street  
London, W1M 8AR, United Kingdom  
Tel: 44 (0)20 7467 7100  
Fax: 44 (0)20 7255 1472  
<http://www.energyinstpubs.org.uk/>

#### IP Publication:

- IP 50: Determination of Cone Penetration of Lubricating Grease

4. Deutsche International Norm (DIN)  
<http://www.din.de>

#### DIN Publication:

- DIN 51804

5. Federal Test Method (FTM)

#### FTM Publication:

- FTM 791-311
- FTM 791-313

### 1.3 Instrument Specifications

<b>Model:</b>	K18190 K18191 K18192
<b>Electrical Requirements:</b>	115V 60Hz 9A 230V 50Hz, 4A 230V 60Hz 3.9A
<b>Drive Motor:</b>	Fan cooled gear reduction type, 1/2 hp
<b>Dimensions: Lxwxh,in.(cm)</b>	14x13½x14¾ (36x34x37)
<b>Net Weight:</b>	139½ lbs (63.3kg)
<b>Shipping Weight:</b>	171 lbs (77.6kg)
<b>Shipping Dimensions:</b>	4.2 Cu.ft
<b>Altitude:</b>	Rated for use below 2000m
<b>Environmental Conditions:</b>	As per section 1.4.1 of IEC 61010

## 2 Safety Information and Warnings

**Safety Considerations.** The use of this equipment may involve *hazardous* materials and operations. This manual does not purport to address all of the safety problems associated with the use of this equipment. It is the responsibility of any user of this equipment to investigate, research, and establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

**Equipment Modifications and Replacement Parts.** Any modification or alteration of this equipment from that of factory specifications is **NOT** recommended and will void the manufacturer warranty, product safety, performance specifications, and/or certifications whether specified or implied, and may result in personal injury and/or property loss. Replacement parts must be O.E.M. exact replacement equipment.

**Unit Design.** This equipment is specifically designed for use in accordance with the applicable standard test methods listed in section 1.2 of this manual. The use of this equipment in accordance with any other test procedures, or for any other purpose, is not

recommended and may be extremely hazardous.

**Chemical Reagents Information.** Chemicals and reagents used in performing the test may exhibit potential hazards. Any user must be familiarized with the possible dangers before use. We also recommend consulting the Material Data and Safety Sheet (MSDS) on each chemical reagent for additional information. MSDS information can be easily located on the internet at <http://siri.uvm.edu> or <http://www.sigma-aldrich.com>.

## 3 Getting Started

The instructions for preparing the equipment assume that the user is aware of the contents of this document, which lists the warranty conditions and important precautions.

### 3.1 Packing List

- K1819X Mechanical Grease Worker, Double-Unit Model
- K18020 Steel Grease Worker (2)  
*Consists of:*
  - Grease Cup, Cover, Plunger and Ventcock
- 020-108-18B Transport Plug, 1/8"
- Breather Plug (with hole)
- 310-104-000 Hex Key, 1/4"

### Additional Accessories Available

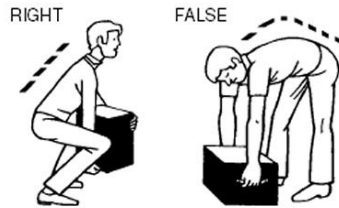
- K18022 Dial Thermometer  
*Inserts in petcock of steel grease worker  
Supplied with Adapter*
- K18021 Overflow Ring  
*Collects displaced grease during penetration measurements*
- K18030 Steel Grease Worker  
*Similar to K18020 above but with 270-hole plunger plate as per FTM 791-313 (AN-G-15) specifications*
- K18023 Blank Lid with Seal  
*For ASTM Steel Grease Worker (K18020)  
Use when heating samples prior to test*

### 3.2 Unpacking

1. This unit comes packed in a wooden crate with cleats holding the unit in place.
2. Remove the top, extract the instrument and place on suitable cart for transportation to work area / lab bench.



**WARNING:** Be sure two or more individuals are available for extracting and lifting instrument from box to cart and from cart to bench. Individuals must lift in accordance to proper technique. See Figure below.



3. Lift instrument from cart and place on bench.
4. Remove all packing from around the unit and clean up unit prior to operating.
5. Ensure that all parts listed on the packing list are present. Inspect the unit and all accessories for damage. If any damage is found, keep all packing materials and immediately report the damage to the carrier. We will assist you with your claim, if requested. When submitting a claim for shipping damage, request that the carrier inspect the shipping container and equipment. Do not return goods to Koehler without written authorization.

### 3.3 Setup

**Equipment Placement:** Make sure the instrument is placed on a firm, level, surface. Please note that Koehler does not supply a level with this equipment.

**Environmental Conditions:** The instrument environment must comply with the following conditions for proper setup:

- No / Low Dust
- No direct sunlight
- Not near heating or AC ventilation ducts
- No Vibrations
- Clearance from other instruments
- Temperature Range: 5 to 40°C
- Elevation to 2000 meters
- Relative Humidity: < 80%

**Power:** Connect the line cords to properly fused and grounded receptacles with the correct voltage as indicated in section 1.3 or on the back of the unit.



**WARNING:** For safety, disconnect the power when performing any maintenance and/or cleaning.

**Oil Reservoir:** Using a wrench, be sure to remove the brass oil reservoir plug used during transportation, and replace with the Breather Plug (with ventilation hole) supplied with the instrument. See **Figure1** below:



Figure 1: Oil Reservoir Plug

## 4 Instrument Descriptions

### 4.1 Instrument Controls



Figure 2: Grease Worker Instrument Descriptions

1. **Power Switch.** This switch controls the power to the entire unit. When the power switch is in the **ON** position, the grease workers are activated and put in motion.
2. **Digital Counter.** Counter can be pre-set for a number of strokes up to 999,999. Each stroke of the grease worker will result in a deduction in number from the counter. The counter is comprised of individual set point buttons (**Figure 3, Item 8**) and a reset/preset button (**Figure 3, Item 9**). Refer to Section 5.2 for full operational details. Please see **Figure 3** below.

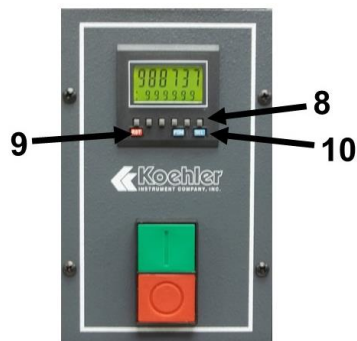


Figure 3: Digital Counter Descriptions

3. **Oil Reservoir Plug.** For shipping purposes, the oil reservoir is stoppered with a solid brass plug. Before operation

of the grease worker this plug must be removed and replaced with a vented plug that comes equipped with the instrument in an accessories package.



**WARNING:** Pressure build up will cause severe damage to the mechanical grease worker will occur if the transportation (solid) plug is not removed and replaced with the breathable (vented) plug.

4. **Ventcock.** For ventilation of pressure that can build within the a grease worker. The ventcock can also be utilized as a port for taking temperature measurements of the grease in the test cup using the accessory dial thermometer, K18022.
5. **Cover Assembly.** Attached to mechanical drive motor hub via handle and shaft. Complete assembly consists of handle, shaft, plunger plate and ventcock. Cover assembly can be easily removed for replacement with either standard ASTM grease worker or FTM-313 (270-hole plunger) grease worker.
6. **Grease Cup:** For holding test sample. Grease cup can be removed or inserted by loosening or tightening holding clamps with supplied Hex key
7. **Holding Clamp Blocks:** To securely hold the grease cup in place during testing. Can be loosened and tightening using the supplied Hex key.
8. **Counter Set Buttons.** Individual set buttons change the digits on the counter from 0 to 9. The maximum number of strokes the counter can be set to is 999,999.
9. **Counter Reset / Lock Button:** The counter number can be adjusted using the counter set buttons. Upon pushing the lock/set button (**Figure 3, Item 10**), the counter number is locked in place ready to turn on the power and start the grease worker. After a test is complete, the counter can be reset to the starting count number by pressing the reset button (**Figure 3, Item 9**).

## 5 Operation

### 5.1 Grease Worker Preparation

1. Pack a sample to be tested into grease cup so that sample is mound up approximately 1/2" above the rim of the cup, as prescribed in ASTM D217. Assemble grease worker, including cup, cover and plunger assembly and condition the entire grease worker assembly to a temperature of  $25^{\circ}\text{C} \pm 0.5^{\circ}\text{C}$  ( $77^{\circ}\text{F} \pm 1^{\circ}\text{F}$ ).
2. Place the assembled worker on the machine, making sure that the eccentric driver (hub) engages in the slot of the grease worker handle. If necessary, move or rotate the eccentric driver to engage the slot in the handle by turning the inching wheel at the rear of the motor.
3. Clamp grease worker firmly to the base by tightening socket cap screws which force clamping blocks firmly against lip on the bottom of the grease worker. When the grease worker is firmly clamped to the base there should be approximately a 1/32" space between the face of the slotted handle and the flange on which the eccentric driver is mounted.



**WARNING:** Clamps must be tightened firmly before operation. If clamps are loose during operation, damage may occur to base of the grease worker



**WARNING:** Grease cup casting may crack if entrapped air is not immediately vented upon start of test

### 5.2 Counter Operation

1. To set desired number of strokes, press the reset button (**Figure 3, item 9**) and hold. Set in the number of times using the individual counter set buttons (**Figure 3, Item 8**) until the correct number is set. When complete, press the set button (**Figure 3, Item 10**).
2. After the counter is set the unit is ready to operate. Press the start/stop switch (**Figure 2, Item 1**). The counter will subtract one count for each full cycle of the motor. When the counter reaches 00000, the motor will shut off.



**NOTE:** This unit is protected with a thermal circuit breaker in the motor circuit. To reset the breaker, depress the button located on the rear panel of the circuit breaker.

3. Remove the grease worker by loosening the socket cap screws on the clamp blocks. Open by using pins located in the rear of the grease worker base as a vise to hold base while turning top cover to open.



## 6 Safety Features

The Koehler K1819X Mechanical Grease worker is equipped with the following safety mechanisms.

### 6.1 Over-Power Protection

The Koehler K1819X Mechanical Grease Worker is equipped with Over-power Protection circuitry, which prevents the unit from unsafe electrical conditions. If power to the unit is lost, then turn off the main power and turn it back on again. The main power switch also functions as a circuit breaker.

## 7 Maintenance



**WARNING:** Disconnect power to the unit before servicing and accessing any internal portion of the instrument to avoid exposure to high voltages which may result in personal injury or death. If you have any questions about maintaining your equipment, then please do not hesitate to contact the Koehler technical service department.

### 7.1 Routine Maintenance

The K1819X Mechanical Grease worker requires little routine maintenance to provide many years of continuous service. However, over the course of time, some instrument parts may need to be replaced. When ordering replacement part(s), please provide the model number, serial number, and product shipment date of your equipment so that we can ensure you will receive the proper replacement part(s).

### 7.2 Instrument Cleaning

- To clean the instrument's exterior, which includes all surfaces on the base assembly, grease worker and inside the grease cup, use an industrial stainless steel cleaner.
- Apply cleaner to clean wipe or cloth, not to the instrument directly. Wipe surface clean.
- **Do Not** clean exterior with organic chemicals such as Acetone, Toluene, Hexane, etc.

### 7.3 Speed Reducer Oil Reservoir

- The speed reducer has been factory filled with the proper lubricant.

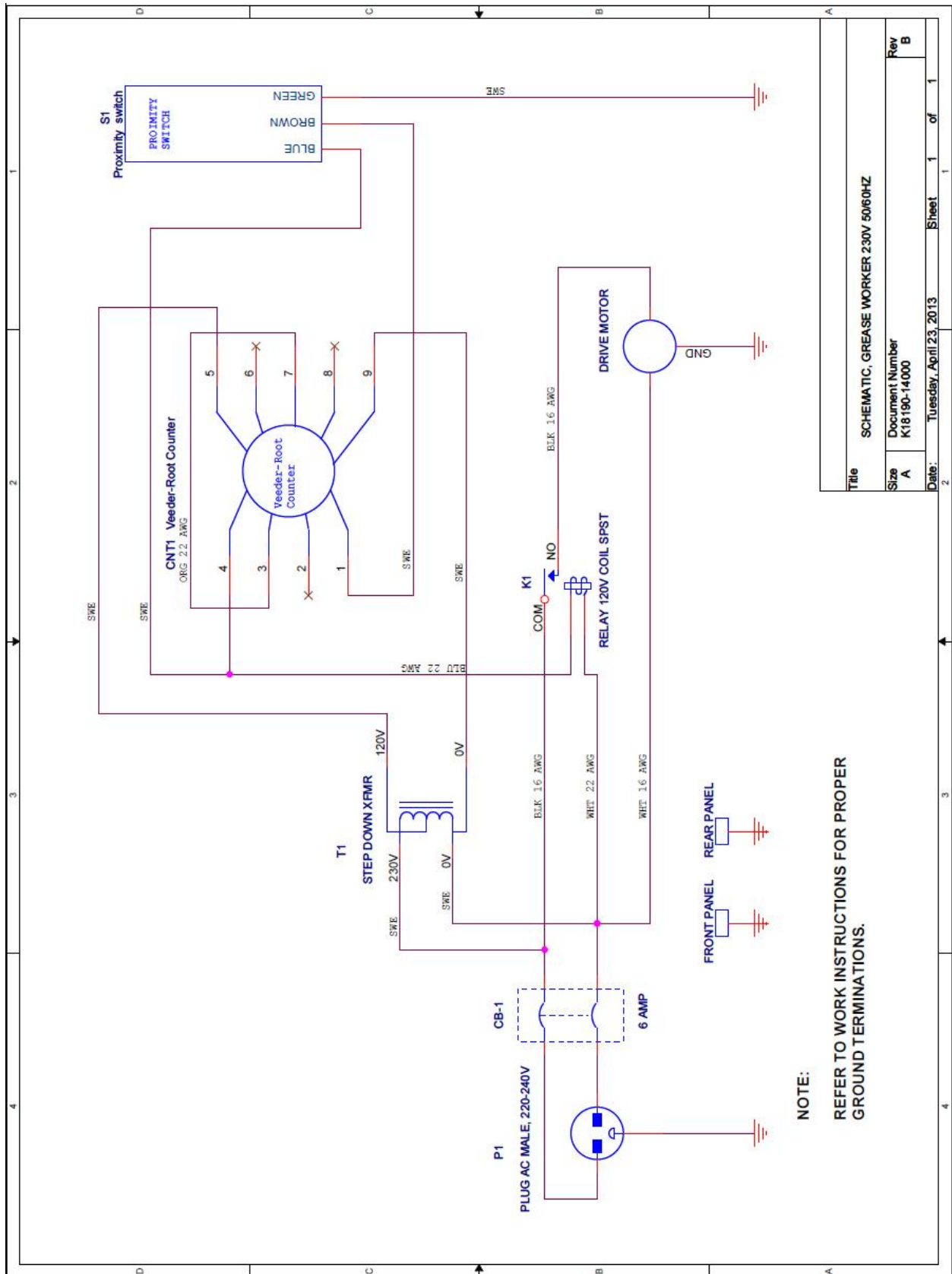
- Occasionally, check the oil level of the reservoir and replenish when necessary.

### 7.4 Replacement Parts

Part Number	Description
K18020	Grease Worker Assembly
K18029	Grease Cup
K18028	Grease Worker Cover Assembly
AS568-103-V14	Viton O-ring seal
K180-1-0-14	Clamp Block
381-115-008	Counter
050-001-065	Start/Stop Switch
289-001-002	Bearing
K18191-01000	Motor Assembly
K181-0-8	Driving Hub Assembly
K181-0-12	Hand Wheel
050-002-020	Switch
271-006-004	Switch
091-120-031	Relay
321-050-001	Gear Speed Reducer, 25:1 For 50Hz Model
321-060-001	Gear Speed Reducer, 30:1 For 60Hz Models
240-230-004	Transformer For 220V Models

## 8 Wiring Diagrams

### 8.1 220-240V 50/60Hz Unit Wiring





## 9 Troubleshooting



**WARNING:** Troubleshooting procedures involve working with high voltages and/or temperatures which may result in personal injury or death, and should only be performed by trained personnel. Please do not hesitate to contact Koehler for assistance.

### 9.1 Unit does not power up

- Establish that the socket outlet is providing proper and adequate voltage.
- Check if Overpower Protection circuitry located directly behind the temperature controller inside the front tray has been activated.
- Check if line switch is in the **ON** position.
- If problem persists, please call the Koehler technical service department for assistance.

## 10 Service

Under normal operating conditions and with routine maintenance, the K1819X Mechanical Grease Worker should not require service. Any service problem can be quickly resolved by contacting Koehler's technical service department either by letter, phone, fax, or email. In order to assure the fastest possible service, please provide us with the following information.

Model Number: \_\_\_\_\_

Serial Number: \_\_\_\_\_

Date of Shipment: \_\_\_\_\_

## 11 Storage

This laboratory test instrument is equipped with electrical components. Storage facilities should be consistent with an indoor laboratory environment. This testing equipment should not be subjected to extremes of temperature and/or moisture.

This equipment was shipped from the factory in a corrugated cardboard container. If long term storage is anticipated, re-packing the instrument in a water-resistant container is recommended to ensure equipment safety and longevity.

## 12 Disposal

### 12.1 General Recycling Information

- No refrigerants or pressurized materials.
- No charged capacitors or components that could electrically discharge.
- No components such as springs or spring powered gears that could store mechanical energy.
- No chemical hazards from any components.
- No radiation is emitted from any components.

### 12.2 Disposal Information

The K1819X is Rohs compliant and is subject to the WEEE directive. Once the instrument has reached the end of its useful life, the instrument and or its components must be recycled or disposed of in accordance to Country, State, or local laws that may impose regulatory requirements regarding disposal. Dispose instrument and/or components in accordance to all applicable regulations.

The K1819X is composed of the following major components and materials:

Major Component	Material
Base Plate	Cast Iron
Cover and Handle	Cast Iron
Plunger Shaft and Plate	Stainless Steel
Motor	Steel and Copper Windings
Grease Cup	Cast Iron
Ventcock	Nickel Plated Brass
Speed Reducer	Steel
Counter Assembly	Cast Iron

**NOTE:** There are No Refrigerants or Hazardous Materials contained in any component.

### **13 Warranty**

We, at Koehler, would like to thank you for your equipment purchase, which is protected by the following warranty. If within one (1) year from the date of receipt, but no longer than fifteen (15) months from the date of shipment, Koehler equipment fails to perform properly because of defects in materials or workmanship, Koehler Instrument Company, Inc. will repair or, at its sole discretion, replace the equipment without charge F.O.B. its plant, provided the equipment has been properly installed, operated, and maintained. Koehler Instrument Company must be advised in writing of the malfunction and authorize the return of the product to the factory. The sole responsibility of Koehler Instrument Company and the purchaser's exclusive remedy for any claim arising out of the purchase of any product is the repair or replacement of the product. In no event shall the cost of the purchaser's remedy exceed the purchase price, nor shall Koehler Instrument Company be liable for any special, indirect, incidental, consequential, or exemplary damages. KOEHLER INSTRUMENT COMPANY, INC. DISCLAIMS ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE. Please save the shipping carton in the event the equipment needs to be returned to the factory for warranty repair. If the carton is discarded, it will be the purchaser's responsibility to provide an appropriate shipping carton.

### **14 Returned Goods Policy**

To return products for credit or replacement, please contact Koehler Customer Service with your purchase order number, our packing list/invoice number, the item(s) to be returned and the reason for the return. You will be issued a Returned Authorization (RA) number, which must be prominently displayed on the shipping container when you return the material to our plant. Shipping containers without an RA number prominently displayed will be returned to the sender. Goods must be returned freight prepaid. Returns will be subject to a restocking charge, the application of which will depend upon the circumstances necessitating the return. Some returns cannot be authorized, including certain products purchased from outside vendors for the convenience of the customer, products manufactured on special order, products shipped from the factory past ninety (90) days, and products which have been used or modified in such a way that they cannot be returned to stock for future sale.



## Notes

[illegible]



## Notes

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