All the material in Form 9161 applies to governor EG-104 except for the following:

1. In Governor EG-104, the speed indicator is equipped with a "Hi-Lo" switch.

2. A motor "ON-OFF" switch replaces the motor reversing switch.

These differences are explained in detail below.

Circuits

SPEED INDICATOR "HI-LO" SWITCH

Refer to Figure 3 in Form 9161. Notice that the speed indicator is in series with a single resistor, R-107. Now refer to Figure 1 on this page. Here the speed indicator is in series with two resistors, R-107 and R-108. A switch, SW-103, is connected in parallel across resistor R-108.

The purpose of this arrangement is to increase the usefulness of the speed indicator. As outlined in Form 9161, the speed indicator shows full scale deflection when the motor is run at top speed. But for many applications, you may never operate the motor at high speeds. A speed of less than half of "top speed" is sometimes "full speed" for an operation. With the "Hi-Lo" switch, you can "expand" the lower part of the indicator scale when you operate at low speeds. This permits more accurate speed settings.

When the switch is in the "Hi" position, full resistance is in series with the speed indicator. The indicator shows full scale deflection for top motor speed.

When the switch is in the "Lo" position, resistor R-108 is shorted out. This reduces the resistance in series with the indicator. More current can flow through the indicator - giving greater deflection - for a given motor speed. Top motor speed would now give 2 1/2 times full scale deflection if the needle could travel that far. (Since the "Lo" range should be used only at low motor speeds, there should be no reason for the needle actually going off scale.)

Hence, the "Lo" scale is for operating at low motor speeds. In effect, throwing the switch to "Lo" expands the lower 4/10ths of the scale to full scale. If the speeds for an operation are to be less than 4/10ths full motor speed, you can throw the switch to "Lo" and make speed settings with greater precision.

FIG. 1 - SCHEMATIC DIAGRAM REVISIONS

MOTOR "ON-OFF" SWITCH

Refer again to Figure 3 in Form 9161. Notice that there is a reversing switch (SW-102) controlling the current to the motor. Now refer to Figure 1 below. The reversing switch has been replaced by an "ON-OFF" switch (SW-102).

With this switch in the "ON" position, the armature is in series with tube T-101 and resistor R-102. Power is supplied to the armature.

With the switch in the "OFF" position, the armature is disconnected from the power circuit and a small resistance (R-109) is shunted across the armature terminals.

This resistor is called a "dynamic braking resistor." It may be thought of as an electrical brake for the motor. When it is shunted across the armature terminals it causes the motor to quickly come to a dead stop.
# Replacement Parts List

**FOR**  
"LINDE" ELECTRONIC GOVERNOR TYPE EG-104 PART NO. 38V24  

**HOW TO ORDER REPLACEMENT PARTS**

1. Replacement parts can be identified on the keyed illustrations which follow this parts list. Each part bears a name and a number. The majority of parts also show in parentheses the symbol number (R-101, C-103) which identifies the part on the circuit diagram. When ordering parts from LINDE, order by part number and part name as given on the illustrations. DO NOT ORDER BY PART NUMBER ALONE, OR BY SYMBOL NUMBER.

2. Be sure that your order specifies the quantity of each part needed.

3. Always state the series of serial number of the governor on which the part is to be used. When available, list the governor symbol also. (This information appears on the governor nameplate.)

4. Indicate any special shipping instructions.

5. When ordering parts from LINDE, use the LINDE district office nearest you.

**IMPORTANT:** Almost all parts used in this governor are standard commercial parts. In an emergency you can order them from LINDE. However, it will save you time and money to purchase these parts from a local electronics dealer or directly from the manufacturer. (Full descriptions of the parts are given in the list below.) When doing so, use the manufacturer's part number or designations. The LINDE part number is for use only when ordering from LINDE.

## PART NO. | SYMBOL | DESCRIPTION
--- | --- | ---
05N01 | Cabinet |  
04N33 | Chassis |  
04N34 | Terminal Strip Mounting Plate |  
04N46 | Governor Guard |  
04N44 | Name Plate | 

"Hi-Lo" Name Plate

80W65 | Grommet-3/8-in. S.A.E. Std. Rubber |  
88W70 | Connector - Steel City Electric, Pitts., Pa. Cat. 522 (2 used) |  
89W60 | R106 | Resistor - Ohmite 25 Watt, 25 Ohm Resistor No.0365 |  
90W10 | Fuse Mount (2 used) Bussman Mfg. Co. "Buss" H.K.P. |  
92W23 | Bottom Plate - Bud Radio, Inc. No. BP-667 |  
92W26 | TR101 | Transformer - Standard Transformer Co. No. P-3024 |  
92W27 | C103 | Condenser - Mallory No. FP-357 |  
92W28 | TR102 | Transformer - United Transformer Co. No. FT-2 |  
92W29 | Socket | American Phenolic Corp. No. 78RS8 (2 used) |  
92W30 | Socket | Johnson No. 123-209B |  
92W31 | Tube Clip | National Radio Products Type 12 |  
92W32 | SR101 | Rectifier - Federal Selenium Rectifier No. 439D4200 500 MA. |  
92W33 | Bias Battery | Battery-Eveready 4 1/2 V No. 781 |  
92W34 | R101 | Resistor - International Resistance Co. BTA-56,000 Ohms |  
92W35 | R104 | Resistor - International Resistance Co. BTA-510,000 Ohms |  
92W36 | R105 | Resistor - International Resistance Co. BTA-1,800 Ohms |  
92W37 | R105 | Resistor - International Resistance Co. BT2-1,000 Ohms |  
92W38 | R102 | Resistor - Ohmite "Brown Devil" - 10 Watt - 1 Ohm |  
92W39 | C102 | Condenser - Mallory No. TP-408 .005 MFD 600 WVDC |  
92W40 | C101 | Condenser - Mallory No. TP-426 .005 MFD 400 WVDC |  
92W41 | Plate | Miller Mfg. Co. No. 450 |  
92W42 | TD101 | Time Delay Relay - Amperite Co. No. 2N030 |  
92W43 | T102 | Voltage Regulator Tube - RCA No. OC3VR105 |  
92W44 | Battery Clamp, Weston Part No. 72901 |  
92W45 | F101,F102 | Fuse - 2 Amp No. 3 AG "Slo-Blo" Littlefuse Co. Cat. No. 313002 (4 used) |  
92W46 | T101 | Thyatron Tube - Electrons, Inc. No. EL C3J |  
92W47 | Terminal Strip | H.B. Jones Co. No. 12-140 |  
92W48 | Hole Plug 3/8-in. |  
92W49 | Hole Plug 1/2-in. |  
92W50 | Grommet Atlantic India Rubber Works - Cat. No. 1070 |  
92W54 | R109 | Resistor Ohmite Resistor 25 Watt 5 Ohms fixed |  
92W63 | Dial Mallory Dial Plate #369 |  
92W65 | Knob Mallory #366 |  
92W75 | P-101 | Speed Control Potentiometer Ohmite 2 Watt type ABtype UCat. No. Cu-1041 |  
92W77 | Speed Ind. | Meter - Weston 301 DCMA Bakelite case, flushmounting |  
92W78 | R-107 | Resistor IRC Resistor BTA 33,000 Ohms |  
92W79 | R-108 | Resistor IRC Resistor BTA 47,000 Ohms |  
93W30 | SW102 | Switch - Cutler Hammer S.P.D.T. Switch without off point, Cat. No. 7504-K3 complete w/dust cap 15 amp 115 Volt |  
93W31 | Condenser Socket P.R. Mallory & Co. Plug-In Socket for FP Condenser Cat. No. PS-4 |  
93W32 | Terminal Mounting Strip Insuline Corp. I.C.A. Type "A" Cat. No. 2436 |  
05206 | SW103 | Switch-Cutler Hammer, Enclosed Model Switch No. 8398 with washer No. 29-761 Hook-up wire is No. 16 AWG stranded, type SRIR except: Thyatron Tube Filament Circuit is Type TW12 stranded building code wires |  

The term "Linde" is a registered trade-mark of Union Carbide and Carbon Corporation.
FIG. 2 - FRONT VIEW

FIG. 3 - REAR VIEW WITH CABINET REMOVED
FIG. 4 - BOTTOM VIEW WITH BOTTOM PLATE REMOVED
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LINDE Oxygen, Nitrogen, Argon, Neon, Helium, Krypton, Xenon, Hydrogen
PREST-O-LITE Acetylene
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OXY-ACETYLENE EQUIPMENT
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Acetylene Generators
Manifolds, Regulators and Valves
Welding Rods and Supplies
PREST-O-WELD Welding and Cutting Apparatus
PUROX Welding and Cutting Apparatus
PREST-O-LITE Air-Acetylene Apparatus and Small Tanks
CARBIC Acetylene Flood Lights
Acetylene Generators

ELECTRIC WELDING EQUIPMENT
UNIONMELT Automatic Welding Apparatus and Supplies
HELIARC Welding Torches
LINDE Sigma Welding Equipment

SPECIAL EQUIPMENT
LINDE Jet-Piercing Equipment
Plate-Edge Preparation Equipment
Polyethylene Powder and Flame-Spraying Equipment
Steel-Conditioning Machines
Sub-Zero Cold Treatment Equipment

OXWELD Oxy-Acetylene Cutting Machines
Pressure-Welding Machines

OXYGEN THERAPY SUPPLIES
LINDE Oxygen U.S.P.
Oxygen Therapy Regulators
Oxygen Therapy Manifolds and Valves

SYNTHETIC CRYSTALS
LINDE Synthetic Sapphire, Ruby, Spinel, and Titania
Synthetic Calcium- and Cadmium Tungstates
Fine Alumina Abrasive

ORGANOSILICONES
LINDE Silane Monomers
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