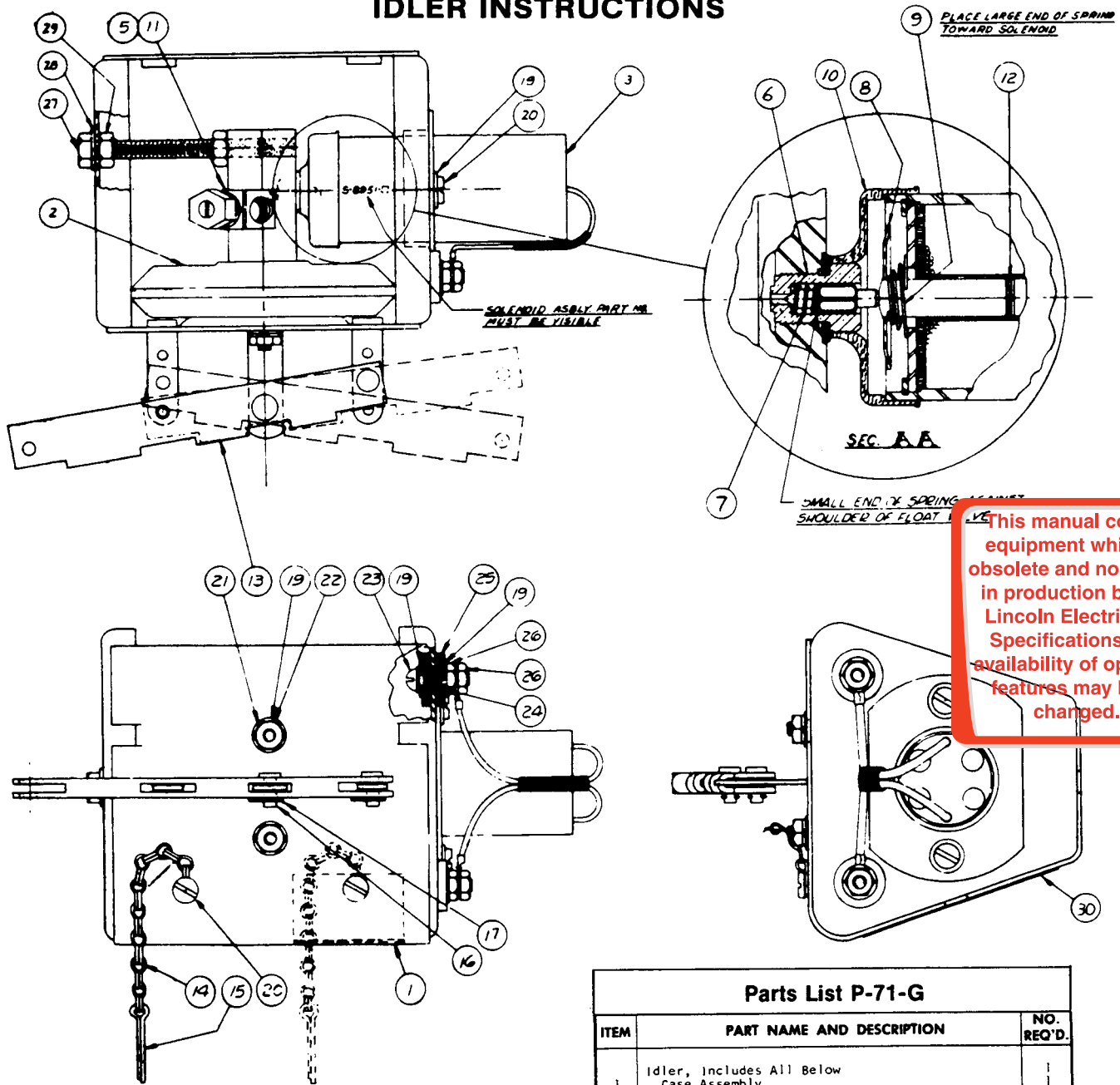


### IDLER INSTRUCTIONS



#### ENGINE STARTING

Starting at idle speed (with the latching pin — Item 15 — hanging loose) is recommended. Engines can also be started with the idler held in full speed position by the latching pin.

#### POWER TOOLS AND WIRE FEEDERS

When using auxiliary power for these operations, latch idler in full speed position with the latching pin (15).

#### IDLER OPERATION

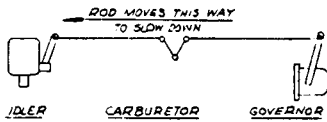
##### General Operation:

1. The throttle on the carburetor is connected to the idler diaphragm assembly (Item 2) by a rigid rod.

#### Parts List P-71-G

ITEM	PART NAME AND DESCRIPTION	NO. REQ'D.
1	Idler, Includes All Below Case Assembly	1
2	Diaphragm Assembly	1
3	Solenoid Assembly	1
5	Gasket	1
6	Float Valve Assembly	1
7	Float Spring	1
8	Core and Cap Assembly	1
9	Core Spring	1
10	Dust Seal	1
11	Petcock	1
12	Spacer	1
13	Control Lever	1
14	Chain	1
15	Latching Pin	1
16	Pivot Pin	2
17	Spring Clip	2
19	Flat Washer	8
20	Self Tapping Screw	2
21	Lockwasher	2
22	Hex Nut	2
23	Sems Screw	2
24	Insulating Bushing	2
25	Insulating Washer	4
26	Hex Nut	4
27	Hex Head Cap Screw (Full Thread)	1
28	Flat Washer	1
29	Hex Nut	2
30	Instruction Decal	1

- The diaphragm assembly is operated by the engine intake manifold vacuum. The diaphragm vacuum is controlled by a spring loaded valve (6).
- The needle valve is operated by a spring loaded solenoid (3).
- The solenoid is connected to the welding generator circuit.



- A spring on the idler to carburetor rod pulls the throttle to the full speed position set by the governor.

#### When Idling:

- The needle valve is closed so air is exhausted from the diaphragm assembly by the manifold vacuum.

#### Upon Striking the Arc:

- Voltage energizes the solenoid coil.
- The plunger (8) is pulled down into the coil.
- The needle valve spring (7) pushes the valve off its seat allowing air to enter the diaphragm chamber.

NOMINAL OPERATING VOLTAGE		
Solenoid Coil Assembly*	Min. Coil Volts	Max. Coil Volts (60% Load Factor)
S-8951-A	.65	5.75
S-8951-B	.38	4.25
S-8951-C	.75	7.65
S-8951-D	.32	2.90

\* Suffix letters stenciled on assembly.

#### After Weld is Completed:

- The solenoid coil is de-energized allowing the plunger to rise. The plunger spring (9) overcomes the needle valve spring and closes the valve.
- Air is exhausted from the diaphragm chamber by the engine manifold vacuum pulling the diaphragm, idler-to-carburetor rod, and throttle to the idle position.

## TIME ADJUSTMENTS

A time delay feature prevents the idler from slowing the engine speed when the arc is momentarily broken. The recommended time delay is 8 to 12 seconds to allow enough time to change rods without slowing the engine. To adjust:

- Time delay is controlled by a petcock adjustment. Turning the petcock (11) clockwise compresses a felt inside the petcock lengthening the time it takes to exhaust air from the diaphragm chamber and move the idler to idle position. (**NOTE:** Occasional cleaning or replacement of felt will improve idler operation.)
- Turning the petcock counter-clockwise shortens the time it takes to exhaust air from the diaphragm chamber and move the idler to idle position.
- After adjusting the petcock, tighten the sealing nut just snug enough to prevent leaking.
- Do not reduce the delay to less than 8 seconds because this may prevent the engine from coming to full speed when welding.

**WARNING: Have a qualified technician do the maintenance and trouble shooting work. Turn the engine off before working inside the welder.**

## IDLER MAINTENANCE

The idler is adjusted at the factory and should require minimum maintenance.

- Be sure the time delay is adjusted according to the instructions under "Time Adjustments."
- The engine may fail to pick up speed when the arc is struck because the low idle speed is too slow to provide the required solenoid voltage. If it is set too slow, readjust the carburetor idle speed adjusting screw. When the engines run at idle speed for a length of time in damp weather at temperatures under 40° F, ice tends to form on the carburetor throttle plate reducing the idle speed. Try connecting the carburetor de-icer hose to eliminate idle speed variations.

On welders with Continental F163 and Hercules G3400 engines and serial numbers higher than A-594908 (1968), a ball check valve is installed in the air line at the manifold. It is also included with replacement idlers for these engines. At the time of engine servicing, remove this valve for inspection and clean with any commercial solvent.

## ASSEMBLY AND DISASSEMBLY

Normally the idler should be disassembled only by Lincoln Field Service Shop personnel. If it does become necessary to disassemble the idler mechanism, the following procedure is recommended:

Remove solenoid assembly (3), which is fastened to the case (1) with two sheet metal screws. Valve (6) and valve spring (7) may then be removed. Care should be taken to avoid loss due to their small size. Remove the valve seat with a screwdriver, and the petcock (11) with a wrench.

In reassembly of the idler, be sure all connections are leak-proof. Check to see that the large tapered solenoid armature spring is positioned with the wide end next to the solenoid coil. Center the head of the solenoid armature upon the valve and tighten the solenoid mounting screws.

After reassembly adjust the solenoid plunger travel using the long screw (27) on the top of the idler. Lift the edge of the rubber dust cap and insert a feeler gage between the armature and the valve stem. Recommended clearance is .018 to .022. After adjusting screw (27), tighten the locknuts. Be sure the rubber dust cap is in place.

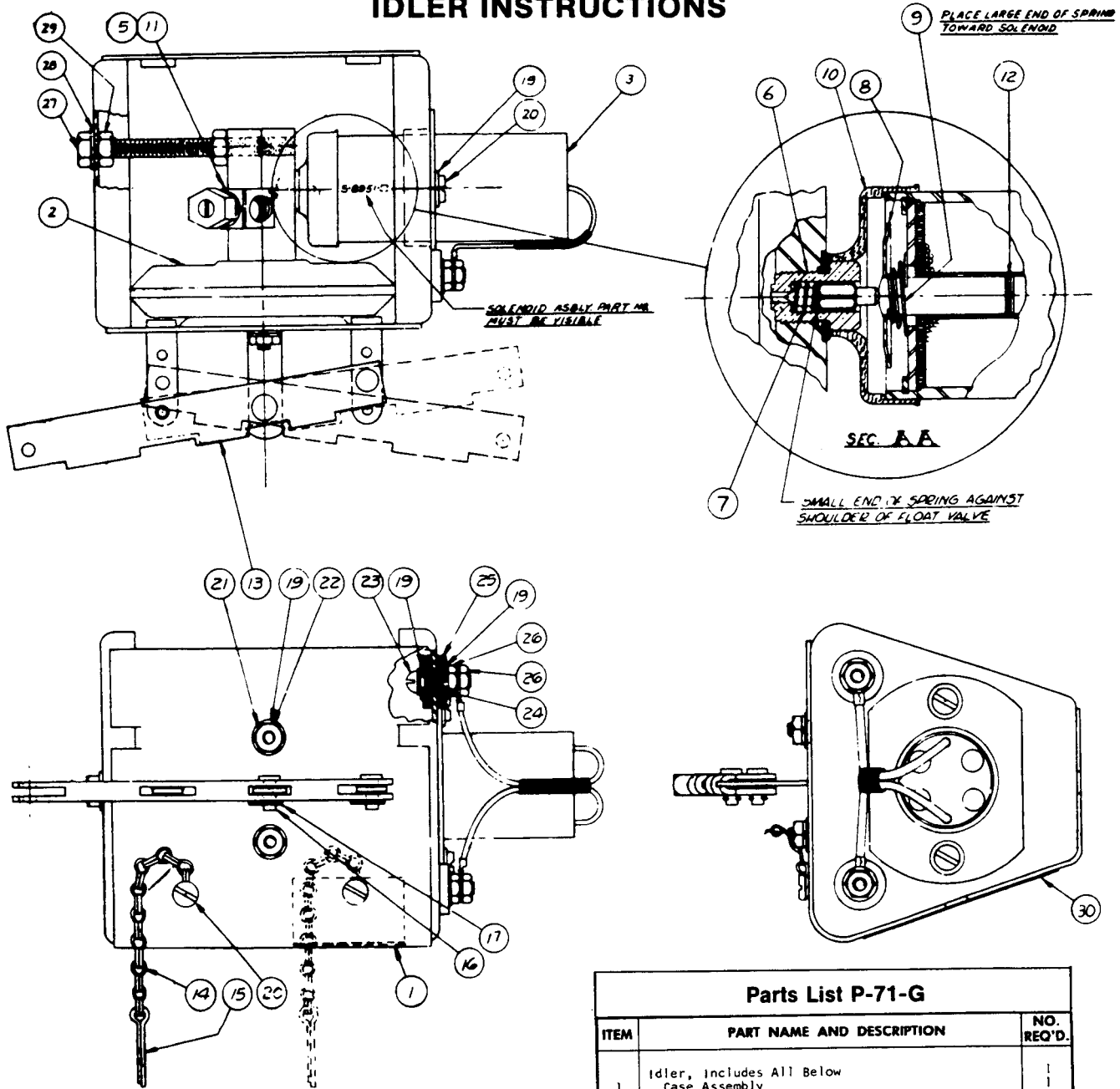
## HOW TO ORDER IDLER PARTS

Give the Item No., Part Name and No. Req'd. from P-71-G. Also give the Model Name and Code No. from the welder nameplate.

Kits are available for many models of Lincoln welders to permit replacing the old bellows type idler, L-2299, with this later type idler. When ordering give the full welder nameplate data and current rating to insure getting an idler with a coil of the proper voltage rating.

Order parts from The Lincoln Electric Co., its branch offices, or the nearest Authorized Field Service Shop. (The "Lincoln Service Directory" listing these shops geographically is available on request.) all Authorized Field Service Shops and branch offices can quote current prices for replacement parts.

## IDLER INSTRUCTIONS



### ENGINE STARTING

Starting at idle speed (with the latching pin — Item 15 — hanging loose) is recommended. Engines can also be started with the idler held in full speed position by the latching pin.

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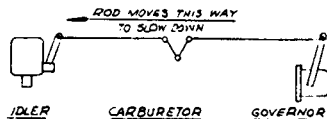
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- A spring on the idler to carburetor rod pulls the throttle to the full speed position set by the governor.

**When Idling:**

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