

FOR LIBERTY KNOCKED-DOWN MODELS  
AND BOILER/BURNER UNITS

*Slant/Fin*<sup>®</sup>

# ★ LIBERTY II<sup>®</sup> OIL-FIRED WATER AND STEAM BOILERS/NO.2 OIL

## Supplemental Installation and Operating Instructions

### ASSEMBLY AND PARTS INFORMATION\*

#### FOR KNOCKED-DOWN BOILERS AND BOILER/BURNER UNITS

\* For installation and operating instructions refer to publication No. LD-40, (included with these instructions). Burner and nozzle information in publication No. LD-40 does not apply to knocked-down and boiler/burner units. For this information refer to publication LD-42KB (included with these instructions).

#### ASSEMBLY INSTRUCTIONS

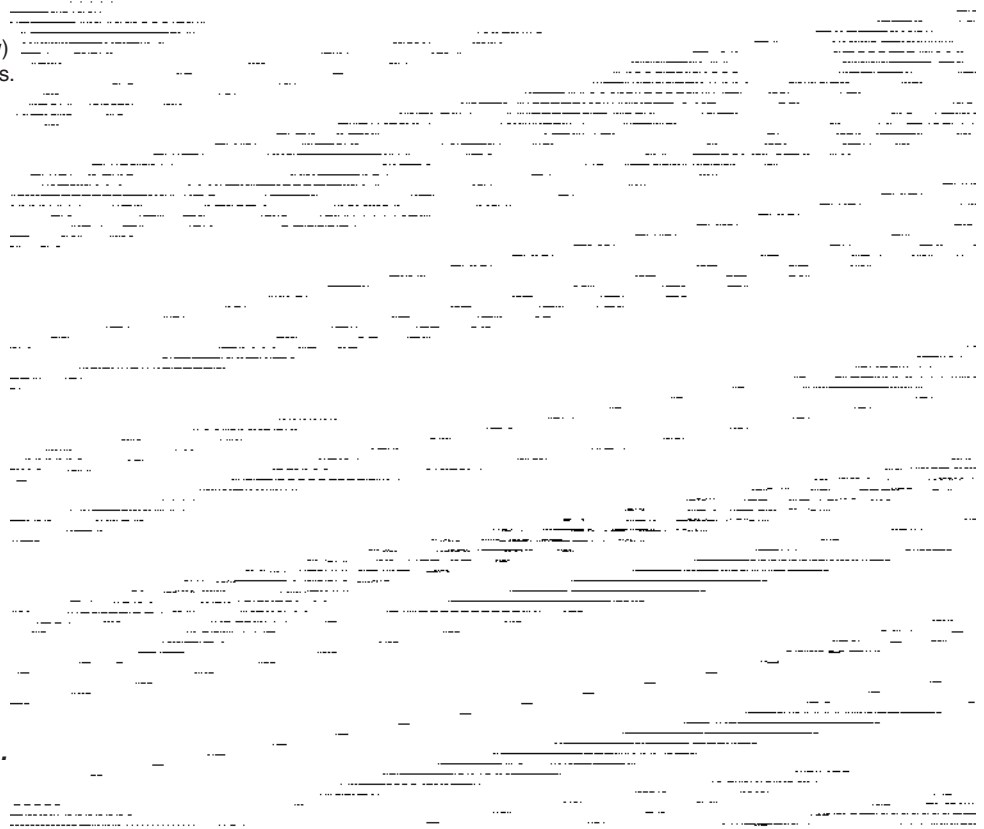
These instructions apply to both water and steam knocked-down and boiler/burner units. The bold numbers refer to the item number on the associated parts list.

1. Install 5/16 diameter sealant material **13** in groove around top of heat exchanger subassembly **1** including under lip on front section. Install 1/4 x 20 x 2-1/2 carriage bolt **37** in u-shaped slot on top center of rear casting. Install flue collector **12** by slipping front edge under lip on front casting and pushing forward and down into sealant **13**. Be sure carriage bolt **37** enters hold down bracket on rear of flue collector **12**. Install washer **38** and wing nut **39** and draw flue collector down until it is sealed on all edges.
2. To install side jackets **19**, set each jacket edge behind the burner mounting plate and align the front slotted hole over the first hole closest to the front in the jacket side bracket on the casting assembly **1**. Select a hole near the center of the rear slot and install (2) sheet metal screws **24** in each side jacket. Do not tighten these screws.
3. Install the rear jacket **20** by hanging it with its hooked top lip in the slots of each vertical side jacket edge. Align the slotted holes in the rear jacket with the holes in the side jacket edges. Install (4) sheet metal screws **24**. Do not tighten these screws.
4. Set the front jacket **21** with its top side (short leg) between the side jacket edges. Align the slotted holes in the front jacket over the holes in the side jacket edges. Install (4) sheet metal screws **24**. Do not tighten these screws.
5. Install the top jacket **18** by engaging its short side lip in the vertical slots holding the top lip of the rear jacket. Align the slotted holes in the top jacket with the holes in the side jacket edges and install (2) sheet metal screws **24**. Do not tighten these screws.
6. Center the flue collar in the opening of the top jacket and tighten the sheet metal screws. Inspect the jacket for overall appearance and alignment of the remaining jacket parts. Complete the tightening of the remaining sheet metal screws.
7. **ATTENTION – Low Water Cut-Off:** For STEAM boilers utilizing McDonnell No. 67 low water cut-offs, install low water cut-off BEFORE installing BURNER.
8. Burner mounting studs: Install a 3/8" - 16 x 1-3/8" long stud with interrupted thread **17** into each of (3) tapped holes in the front of the burner mounting plate. Each stud should be installed with the short thread end in the tapped hole.
9. For the remainder of the assembly refer to figures 1 and 2 as required.

| ITEM | DESCRIPTION  | QTY | LD-30     | LD-40     | LD-50     |
|------|--|-----|-----------|-----------|-----------|
| 1    | Cored subassembly water                                  | 1   | 432013    | 432014    | 432015    |
| 2    | Burner mounting plate (installed)                        | 1   | 430014    | 430014    | 430014    |
| 3    | Front refractory insulation (installed)                  | 1   | 430129    | 430129    | 430129    |
| 4    | Full combustion chamber (installed)                      | 1   | 430123    | 430124    | 430125    |
| 5    | Stud 3/8-16 x 1-7/8 steel interrupted thread (installed) | 4   | 430115    | 430115    | 430115    |
| 6    | Sealant material 1/4" dia. 50" long (installed)          | 1   | 430136    | 430136    | 430136    |
| 7    | Hex nut 3/8-16 (4 installed)                             | 7   | 400328    | 400328    | 400328    |
| 8    | Washer flat 3/8 nom. (10 installed)                      | 13  | 430117    | 430117    | 430117    |
| 9    | Blank plate, tankless (installed)                        | 1   | 430031    | 430031    | 430031    |
| 10   | Gasket 1/8 thick (installed)                             | 1   | 430071    | 430071    | 430071    |
| 11   | Cap screw 3/8-16 x 3/4 long hex hd. (installed)          | 6   | 400200    | 400200    | 400200    |
| 12   | Flue collector   | 1   | 430033    | 430034    | 430035    |
| 13   | Sealant material 5/16" dia. x 72" long                   | 1   | 430137    | 430137    | 430137    |
| 14   | Clean out door   | 1   | 430019    | 430019    | 430019    |
| 15   | Observation door   | 1   | 402185    | 402185    | 402185    |
| 16   | Self tapping, 1/4-20 x 1 long hex slotted hd.            | 3   | 400217    | 400217    | 400217    |
| 17   | Stud 3/8-16 x 1-3/8 steel interrupted thread             | 3   | 430107    | 430107    | 430107    |
| 18   | Jacket, insulated top                                    | 1   | 430363    | 430364    | 430365    |
| 19   | Jacket, insulated side                                   | 2   | 430373    | 430374    | 430375    |
| 20   | Jacket, insulated rear                                   | 1   | 430371    | 430371    | 430371    |
| 21   | Jacket, insulated front, water                           | 1   | 430370    | 430370    | 430370    |
| 22   | Emblem - Slant/Fin (installed)                           | 1   | 401020    | 401020    | 401020    |
| 23   | Rating plate (installed)                                 | 1   | 430301    | 430301    | 430301    |
| 24   | Sheet metal screw #8 x 3/8 AB hex slot hd.               | 14  | 908116021 | 908116021 | 908116021 |
| 25   | Relief valve - H.W. 30 PSI                               | 1   | 400103    | 400103    | 400103    |
| 26   | Nipple 3/4 x 2 long (for relief valve)                   | 1   | 400225    | 400225    | 400225    |
| 27   | Drain valve 3/4  | 1   | 400201    | 400201    | 400201    |
| 28   | Reducing bushing 1-1/2 NPT x 3/4 NPT                     | 1   | 902179321 | 902179321 | 902179321 |
| 29   | Tridicator (0-75 PSI)                                    | 1   | 910373061 | 910373061 | 910373061 |
| 30   | Control, hi limit (WU only)                              | 1   | 410699    | 410699    | 410699    |
| 31   | Well 1/2 NPT x 1-1/2 ins. (WU only)                      | 1   | 410569    | 410569    | 410569    |
| 32   | Thermostat - 24V Hon. T822D (WU only)                    | 1   | 400101    | 400101    | 400101    |
| 33   | Primary control (WU only)                                | 1   | 400119100 | 400119100 | 400119100 |
| 34a  | Burner assembly, individually packed (WU only) - Carlin  | 1   | 432213    | 432214    | 432215    |
| 34b  | Burner assembly, individually packed (WU only) - Beckett | 1   | 432223    | 432224    | 432225    |
| 35   | Tankless heater assy. (optional)                         | 1   | 432285    | 432286    | 432287    |
| 36   | Control, high/low limit (optional)                       | 1   | 410529    | 410529    | 410529    |
| 37   | Carriage bolt 1/4-20 x 2-1/2                             | 1   | 430108    | 430108    | 430108    |
| 38   | Washer   | 1   | 909783071 | 909783071 | 909783071 |
| 39   | Wing nut 1/4-20  | 1   | 400147    | 400147    | 400147    |

**Table 1-  
LIBERTY  
WATER BOILER  
PARTS LIST,  
WKD AND WU**

**LIBERTY WATER BOILER (exploded view)**  
Refer to table 1 for detailed description of parts.



**Figure 1.**

| ITEM | DESCRIPTION  | QTY | LD-30     | LD-40     | LD-50     |
|------|--|-----|-----------|-----------|-----------|
| 1    | Cored subassembly steam                                  | 1   | 432033    | 432034    | 432035    |
| 2    | Burner mounting plate (installed)                        | 1   | 430014    | 430014    | 430014    |
| 3    | Front refractory insulation (installed)                  | 1   | 430129    | 430129    | 430129    |
| 4    | Front combustion chamber (installed)                     | 1   | 430123    | 430124    | 430125    |
| 5    | Stud 3/8-16 x 1-7/8 steel interrupted thread (installed) | 4   | 430115    | 430115    | 430115    |
| 6    | Sealant material 1/4" dia. 50" long (installed)          | 1   | 430136    | 430136    | 430136    |
| 7    | Hex nut 3/8-16 (4 installed)                             | 7   | 400328    | 400328    | 400328    |
| 8    | Washer flat 3/8 nom. (16 installed)                      | 19  | 430117    | 430117    | 430117    |
| 9    | Blank plate, tankless steam (installed)                  | 1   | 430021    | 430021    | 430021    |
| 10   | Gasket 1/8 thick (installed)                             | 1   | 430070    | 430070    | 430070    |
| 11   | Cap screw 3/8-16 x 3/4 long hex hd. (installed)          | 12  | 400200    | 400200    | 400200    |
| 12   | Flue collector   | 1   | 430033    | 430034    | 430035    |
| 13   | Sealant material 5/16" dia. x 72" long                   | 1   | 430137    | 430137    | 430137    |
| 14   | Clean out door   | 1   | 430019    | 430019    | 430019    |
| 15   | Observation door   | 1   | 402185    | 402185    | 402185    |
| 16   | Self tapping, 1/4-20 x 1 long hex slotted hd.            | 3   | 400217    | 400217    | 400217    |
| 17   | Stud 3/8-16 x 1-3/8 steel interrupted thread             | 3   | 430107    | 430107    | 430107    |
| 18   | Jacket, insulated top                                    | 1   | 430363    | 430364    | 430365    |
| 19   | Jacket, insulated side                                   | 2   | 430373    | 430374    | 430375    |
| 20   | Jacket, insulated rear                                   | 1   | 430371    | 430371    | 430371    |
| 21   | Jacket, insulated front, steam                           | 1   | 430360    | 430360    | 430360    |
| 22   | Emblem - Slant/Fin, (installed)                          | 1   | 401020    | 401020    | 401020    |
| 23   | Rating plate (installed)                                 | 1   | 430301    | 430301    | 430301    |
| 24   | Sheet metal screw #8 x 3/8 AB hex slot hd.               | 14  | 908116021 | 908116021 | 908116021 |
| 25   | Safety valve   | 1   | 400107    | 400107    | 400107    |
| 26   | Water gage set   | 1   | 402036    | 402036    | 402036    |
| 27   | Glass - 5/8 dia. x 5-3/4                                 | 1   | 430132    | 430132    | 430132    |
| 28   | Rod - 3/16 dia. x 7-3/4 long                             | 2   | 430134    | 430134    | 430134    |
| 29   | Pressure gage - 30 PSI 2-1/2                             | 1   | 910374051 | 910374051 | 910374051 |
| 30   | Pressuretrol (SU ONLY)                                   | 1   | 400117    | 400117    | 400117    |
| 31   | Siphon - 1/4 NPT (SU ONLY)                               | 1   | 400222    | 400222    | 400222    |
| 32   | Tee - 1/4 x 1/4 x 1-1/4 brass (SU ONLY)                  | 1   |           |           |           |
| 33   | Nipple - 1/4 x 2-1/2 long (SU ONLY)                      | 1   |           |           |           |
| 34   | Nipple - 1/4 x close brass #115 (SU ONLY)                | 1   |           |           |           |
| 35   | Elbow - 1/4 x 90 deg. brass #R100 (SU ONLY)              | 1   |           |           |           |
| 36   | Drain valve 3/4  | 1   | 400201    | 400201    | 400201    |
| 37   | Carriage bolt 1/4-20 x 2-1/2                             | 1   | 430108    | 430108    | 430108    |
| 38   | Washer   | 1   | 909783071 | 909783071 | 909783071 |
| 39   | Wing nut 1/4-20  | 1   | 400147    | 400147    | 400147    |
| 40   | Reducing bushing - 1-1/2 NPT x 3/4 NPT                   | 1   | 902179321 | 902179321 | 902179321 |
| 41   | Plug square hd. - 1-1/2 NPT (skimmer tapping)            | 1   | 902342051 | 902342051 | 902342051 |
| 42   | Thermostat - 24V Hon. T822D (SU ONLY)                    | 1   | 400101    | 400101    | 400101    |
| 43   | Primary control (SU ONLY)                                | 1   | 400119100 | 400119100 | 400119100 |
| 44a  | Burner assembly, individually packed (SU ONLY) - Carlin  | 1   | 432213    | 432214    | 432215    |
| 44b  | Burner assembly, individually packed (SU ONLY) - Beckett | 1   | 432223    | 432224    | 432225    |
| 45   | Tankless heater assy., inc. (optional)                   | 1   | 432230    | 432230    | 432230    |
| 46   | Control, low limit Hon. L4006A2049 (optional)            | 1   | 410527    | 410527    | 410527    |
| 47   | Well 1/2 NPT x 1-1/2 ins. (optional)                     | 1   | 410569    | 410569    | 410569    |
| 48   | Plug 3/4 (for alternate L.W.C.O.)                        | 1   | 902340051 | 902340051 | 902340051 |

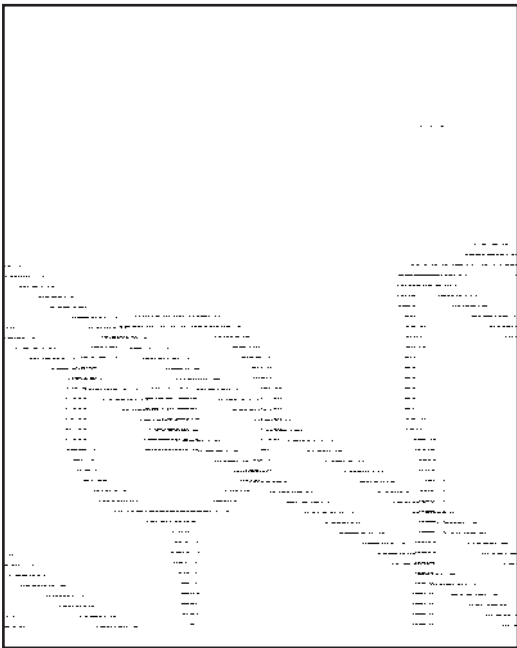
**Table 2-  
LIBERTY  
STEAM BOILER  
PARTS LIST,  
SKD AND SU**

S U P P L I E D B Y O T H -  
E R S

**LIBERTY STEAM BOILER** (exploded view)  
Refer to table 2 for detailed description of parts.

**Figure 2.**

**DETAIL OF CLEAN OUT AND  
OBSERVATION DOOR ASSEMBLY**



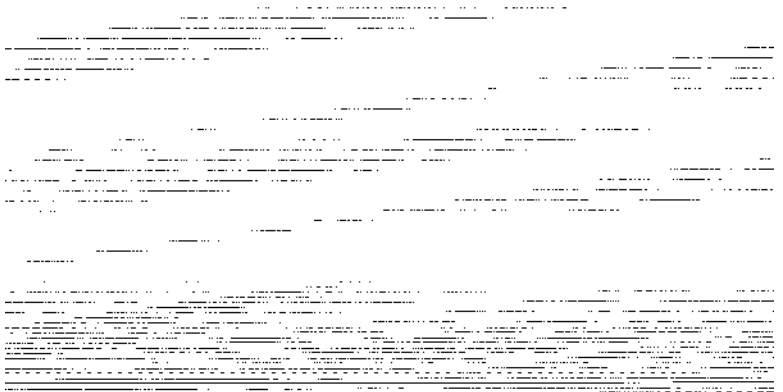
**Figure 3.**

**SPECIAL FLUSHING INSTRUCTIONS**

Installation of new boiler may break loose a heavy accumulation of sediment and scale from old piping and radiators. It is extremely important to blow down your McDonnell cut-off more frequently the first week.  
 First week - 3 times  
 Thereafter - at least once a week  
 See instructions packed with low water cut-off.

**ATTENTION:**

Install low water cut-off **before** installing burner for knocked-down boilers. All fittings between low water cut-off, gauge valves and boiler **MUST BE BRASS, BRONZE or COPPER.**



NOTE: Some no. 67 low water cut-off's have 3/8" N.P.T. tappings in the alternate position. Cut tube so that it may be connected to the 3/8" N.P.T. tapping.

**Figure 4.** Installation of McDonnell & Miller 67 low water cut-off and water level gauge

**WIRING FOR STEAM KNOCKED DOWN BOILER & BOILER/BURNER UNIT EQUIPPED WITH MCDONNELL NO. 67 L.W.C.O.**

Low limit (tankless model only)  
 Recommended setting - 160° F

**Figure 5.**



- † SOLENOID VALVE IF EQUIPPED
- SPLICE
- TERMINAL

Ø OVERLOAD PROTECTION AND DISCONNECT SWITCH MUST BE PROVIDED AS REQUIRED BY LOCAL CODES.  
 Ø NOZZLE LINE HEATER IF EQUIPPED.



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