

Gas Conversion Parts and Instructions for Reznor Models without Gas Conversion Kits

Applies to:

Reznor® Indirect-fired Models RPV Series 6, 7, and 8;
Models SC, SCA, SCB, SCE, Series 5 and 6;
Model EEDU Series 3, 5, and 6;
Models X, XE, PAK, RX Series 7 and 8;
all Models RG, RGB, RGBL, RP, RPB, RPBL, SSCBL, PGBL,
(including the above models with prefix "C", "H", or "HC")
and Reznor® Direct Fired Models ADF/ADFH without electronic modulation;
and Models ADF/ADFH, RDF, and DV with capacities
less than or equal to 750 MBH with electronic modulation

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WARNING:

Selection of replacement control parts from this manual and all servicing to Reznor® products must be done by a qualified service technician. Improper selection or servicing could result in severe personal injury, death, or property damage. Thomas & Betts Corporation will accept no responsibility or liability as a result of improper servicing of Reznor® products.

Intensity Levels of Hazard Notices in this Form

1. DANGER: Failure to comply will result in severe personal injury or death and/or property damage.
2. WARNING: Failure to comply could result in severe personal injury or death and/or property damage.
3. CAUTION: Failure to comply could result in minor personal injury and/or property damage.

General Requirements

All gas conversion must be done by a Reznor® Distributor or other qualified service technician in accordance with these instructions and in compliance with all codes and requirements.

In Canada, the conversion shall be carried out in accordance with the requirements of the Provincial Authorities having jurisdiction and in accordance with the requirements of the CAN/CGA-B149 (.1 and .2) Installation Code.

This form supersedes and obsoletes all prior information regarding this subject.

NOTES: This instruction sheet includes parts and instructions for several models. It applies only to the Reznor models listed on the front page and requires selection of individual parts. If the heater being serviced is not listed on the front page, check the **APPENDIX**, page 16, for a list of models that have gas conversion kits. If your model is in that list, contact your Reznor distributor to obtain a kit designed specifically for your application. If your heater model is not listed in either place, conversion parts are not available.

DANGER: Gas conversion should be made only by a qualified service technician. Improper conversion will result in severe personal injury or death. Thomas & Betts Corporation will accept no responsibility or liability as a result of improper gas conversion. Due to increased cost of material and labor, gas conversion should be discouraged as much as possible.

SECTION A - Heater Serial Number and Model Number

The identifying model and serial number can be found on the heater rating plate. When converting fuels, it is necessary that you have the complete heater model and serial number. Follow the instructions below to decode these numbers. **The rating plate identifies original equipment only so also look for any gas or ignition conversion labels.**

IMPORTANT: The complete model number (including all model suffixes) and the complete serial number are required. Components needed in gas conversion cannot be selected without this information and depending on the Series may not be available.

DECODING A SERIAL NO.

| Serial No. | AAA | 31 | A4 | N | 99999 |
|----------------|--|--------------|---------------|--------------|--------------------|
| Example | Year and Month the Heater was Manufactured - See table on page 3. | Safety Pilot | Type of Valve | Type of Gas* | Consecutive Number |

* N = Natural; L = Propane

DECODING A MODEL NO.

| Model No. | RG | 200 | 8 | M8* |
|----------------|-------|------|------------|-----------------------|
| Example | Model | Size | Series No. | Mechanical Modulation |

*Additional Codes affecting gas conversion are listed on page 4.

| First Element of the Serial Number - Year and Month of Manufacture | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|------|------|-----|------|-----|-----|-----|
| Year | Jan | Feb | Mar | Apr | May | June | July | Aug | Sept | Oct | Nov | Dec |
| 1988 | ANA | ANB | ANC | AND | ANE | ANF | ANG | ANH | ANI | ANJ | ANK | ANL |
| 1989 | AOA | AOB | AOC | AOD | AOE | AOE | AOG | AOH | AOI | AOJ | AOK | AOL |
| 1990 | APA | APB | APC | APD | APE | APF | APG | APH | API | APJ | APK | APL |
| 1991 | AQA | AQB | AQC | AQD | AQE | AQF | AQG | AQH | AQI | AQJ | AQK | AQL |
| 1992 | ARA | ARB | ARC | ARD | ARE | ARF | ARG | ARH | ARI | ARJ | ARK | ARL |
| 1993 | ASA | ASB | ASC | ASD | ASE | ASF | ASG | ASH | ASI | ASJ | ASK | ASL |
| 1994 | ATA | ATB | ATC | ATD | ATE | ATF | ATG | ATH | ATI | ATJ | ATK | ATL |
| 1995 | AUA | AUB | AUC | AUD | AUE | AUF | AUG | AUH | AUI | AUJ | AUK | AUL |
| 1996 | AVA | AVB | AVC | AVD | AVE | AVF | AVG | AVH | AVI | AVJ | AVK | AVL |
| 1997 | AWA | AWB | AWC | AWD | AWE | AWF | AWG | AWH | AWI | AWJ | AWK | AWL |
| 1998 | AXA | AXB | AXC | AXD | AXE | AXF | AXG | AXH | AXI | AXJ | AXK | AXL |
| 1999 | AYA | AYB | AYC | AYD | AYE | AYF | AYG | AYH | AYI | AYJ | AYK | AYL |
| 2000 | AZA | AZB | AZC | AZD | AZE | AZF | AZG | AZH | AZI | AZJ | AZK | AZL |
| 2001 | BAA | BAB | BAC | BAD | BAE | BAF | BAG | BAH | BAI | BAJ | BAK | BAL |
| 2002 | BBA | BBB | BBC | BBD | BBE | BBF | BBG | BBH | BBI | BBJ | BBK | BBL |
| 2003 | BCA | BCB | BCC | BCD | BCE | BCF | BCG | BCH | BCI | BCJ | BCK | BCL |
| 2004 | BDA | BDB | BDC | BDD | BDE | BDF | BDG | BDH | BDI | BDJ | BDK | BDL |
| 2005 | BEA | BEB | BEC | BED | BEE | BEF | BEG | BEH | BEI | BEJ | BEK | BEL |
| 2006 | BFA | BFB | BFC | BFD | BFE | BFF | BFG | BFH | BFI | BFJ | BFK | BFL |
| 2007 | BGA | BGB | BGC | BGD | BGE | BGF | BGG | BGH | BGI | BGJ | BGK | BGL |
| 2008 | BHA | BHB | BHC | BHD | BHE | BHF | BHG | BHH | BHI | BHJ | BHK | BHL |
| 2009 | BIA | BIB | BIC | BID | BIE | BIF | BIG | BIH | BII | BIJ | BIK | BIL |
| 2010 | BJA | BJB | BJC | BJD | BJE | BJF | BJG | BJH | BJI | BJJ | BJK | BJL |
| 2011 | BKA | BKB | BKC | BKD | BKE | BKF | BKG | BKH | BKI | BKJ | BKK | BKL |
| 2012 | BLA | BLB | BLC | BLD | BLE | BLF | BLG | BLH | BLI | BLJ | BLK | BLL |
| 2013 | BMA | BMB | BMC | BMD | BME | BMF | BMG | BMH | BMI | BMJ | BMK | BML |
| 2014 | BNA | BNB | BNC | BND | BNE | BNF | BNG | BNH | BNI | BNJ | BNK | BNL |
| 2015 | BOA | BOB | BOC | BOD | BOE | BOF | BOG | BOH | BOI | BOJ | BOK | BOL |

SECTION B - Parts Selection for Gas Conversion

NOTE: If the unit being converted has multiple furnace sections, order all parts for each furnace.

Conversion Components for Models without Conversion Kits

(NOTE: Available conversion kits are listed on page 16.)

Parts required must be selected individually. Follow **STEPS 1-7**, pages 4 - 9 to select conversion components. Installation instructions are on pages 10-14.

For units with multiple furnaces, order parts for each furnace.

When component selection is completed, the items selected to construct a "conversion kit" should include:

- Step 1** - Spring Regulator or Valve
- Step 2** - Pilot Orifice
- Step 3** - Burner Orifices
- Step 4** - Burner Air Shutters (natural gas to propane only)
- Step 5** - Conversion Tape and/or Disk
- Step 6** - Ignition Controller (natural gas to propane with spark pilot only)
- Step 7** - Carryover Components (when required)

SECTION B
(cont'd) -
Parts Selection
for Gas
Conversion

STEP 1: Select Spring Regulator Kit or Replacement Valve

To select components needed to "change" the valve, go to the **TABLE** that applies to the unit being converted:

| Type of Valve on the Heater | Model No. Suffix .. | See TABLE |
|---|---------------------|--------------------|
| Single-Stage | None | 1 , below |
| Mechanical Modulation (without a bypass valve) | M | 2A , below |
| Mechanical Modulation with a Bypass Valve | MB | 2B , page 5 |
| Two-Stage Valve with Match-Lit Pilot | 2 | 3A , page 5 |
| Two-Stage Valve with Spark Pilot | 2 or 2E | 3B , page 5 |
| Electronic Modulation with 50% turndown | MV | 4 , page 6 |

TABLE 1 - Spring Regulator for Valve to Convert Units with Single-Stage Gas Valve

| With Serial No. Pilot Code (Serial No. Codes apply to original equipment.) | With Serial No. Valve Code | To Convert Single-Stage Valve from Propane to Natural | To Convert Single-Stage Valve from Natural Gas to Propane |
|---|---|---|---|
| 31, ①62, 63 | G2, G3, G4, G5, G6, G7, H3, H4 J5, J6 | Add P/N 51572 , Spring Regulator Kit (R82445) | Add P/N 65291 , Spring Regulator Kit (R82431) |
| 31, ①62, 63, 65, ①66, 84, 94, 95 | H1, J7, J9, K7, K9, M5 | Add P/N 90204 , Spring Regulator Kit (M/H 391936) | Add P/N 51749 , Spring Regulator Kit (M/H 391937) |
| 31, ①62, 63, 65, ①66, 84, ②94, 95 | G8, G9, H2, J8, ③K1, K6, M6, ③M8, 9A, 1B | Add P/N 82525 , Spring Regulator Kit (W/R F92-0656) | Add P/N 82524 , Spring Regulator Kit (W/R F92-0659) |
| 31, ①62, 63, 65, ①66, 71, 84, ①94, 95 | K5, K8, M4, ④M7, Q2, Q3, Q4, U2, U3, U6, U7, W8, W9, 9B, 1C | Add P/N 98721 , Spring Regulator Kit (M/H 394588) | Add P/N 98720 , Spring Regulator Kit (M/H 393691) |
| 71 | T9, U1 | Add P/N 148059 , Spring Regulator Kit (Robertshaw #A54301) | Add P/N 148058 , Spring Regulator Kit (Robertshaw #A54300) |

① Serial No. pilot code is for an ignition controller without lockout. If the gas conversion requires lockout (required on indoor propane units in U.S. and all propane units in Canada), select parts in STEP 6.
 ② Valve change requires a male compression nut, **P/N 9664** (Baso #43283-2), for 1/4" pilot tubing connection (remove pilot tubing supplied with the new valve).
 ③ If used on natural gas units equipped with Maxitrol control systems, see **TABLE 4**.
 ④ Use spring regulator kit to convert to natural gas on sizes up to 165 only. For Sizes 200 and 250, change valve to **P/N 121599**. For Sizes 300, 350, and 400, change valve using Kit **P/N 222037**.

TABLE 2A - Valves Required to Gas Convert Units with Mechanical Modulation Gas Valve* (without bypass valve)

| From Propane to Natural | | | | From Natural Gas to Propane | | | |
|-------------------------|------------|--|--|-----------------------------|------------|--|--|
| Pilot Code | Valve Code | Change Mechanical Modulation Gas Valve | | Pilot Code | Valve Code | ① Change Mechanical Modulation Gas Valve | |
| 65, 66 | N3, N4 | Valves are no longer available for natural or propane. See functional replacement information in Note ③. | | 65, ①66 | N1, N2 | Valves are no longer available for natural or propane. See functional replacement information in Note ③. | |
| | R9② | Change valve to P/N 131453 , Robertshaw 3B0-341-A04 | | | R7② | Change valve to P/N 131454 , Robertshaw 3B0-342-A04 | |
| | S1② | Change valve to P/N 131455 , Robertshaw 5N7-341-A04 | | | R8② | Change valve to P/N 131456 , Robertshaw 5N7-342-A04 | |

* Mechanical modulation gas valve without bypass is identified with "M" as the Model suffix (Example: RP300-M)
 ① If Serial No. pilot code is 66 and lockout is required, change ignition controller with Kit P/N 257473. (Lockout is required for indoor propane models only in U.S. and for all propane models in Canada.) See **STEP 6**.
 ② Both natural and propane manifolds include a single-stage solenoid valve in series with the modulating valve. Do not remove the solenoid valve.
 ③ A single mechanical modulation valve for the valve codes listed is no longer available. **WARNING: Do not replace an existing mechanical modulation valve with a mechanical modulation valve Code R7, R8, R9 or S1 only;** unsafe condition will result. Dual functional replacement valves (mechanical modulation plus either a solenoid valve or a single-stage valve depending on the application) are available for most sizes. Select the mechanical modulation and single-stage or solenoid valves for converting a heater listed below by selecting the valves listed for the gas being used. Field-furnished pipe nipples will be required; install valves in series with **single-stage or solenoid valve first and mechanical modulation valve second in the gas stream**. The chart below lists dual functional replacement valves by model/size/gas type combinations. When functional replacement valves are not available from Reznor, contact valve manufacturer concerning availability of a functional replacement.

| *Model Series | Sizes | Gas | Original Valve Code (see Serial No. on Furnace Rating Plate) | P/N's (and Codes) of Valves that can be used as Functional Replacements for the Mechanical Modulation Valve (two replacement valves are always required) |
|---------------|-----------|---------|--|--|
| X/RX | 75-350** | Natural | N1 | P/N 131453 , Robertshaw 3B0-341-A04, & solenoid valve, P/N 88242 (J/C #H91LG-8) |
| X/RX | 400 | Natural | N1 | Replacement not available from Reznor |
| X/RX | 75-400 | Propane | N3 | P/N 131454 , Robertshaw 3B0-342-A04, & solenoid valve, P/N 88242 (J/C #H91LG-8) |
| RG/RP/SSC | 75-225 | Natural | N1,N7,N8,P6,Q7 | P/N 131453 , Robertshaw 3B0-341-A04, & Valve Replacement Kit P/N 221634 |
| RG/RP/SSC | 250-400 | Natural | N1 | P/N 131455 , Robertshaw 5N7-341-A04, & Valve Replacement Kit P/N 221526 |
| RG/RP/SSC | 250-350** | Natural | N8,N9,P6,Q5 | P/N 131453 , Robertshaw 3B0-341-A04, & Valve Replacement Kit P/N 221526 |
| RG/RP/SSC | 400 | Natural | N9,Q5 | Replacement not available from Reznor |
| RG/RP/SSC | 75-225 | Propane | N3,N5,N6,Q9 | P/N 131454 , Robertshaw 3B0-342-A04, & Valve Replacement Kit P/N 221634 |
| RG/RP/SSC | 250-400 | Propane | N3 | P/N 131456 , Robertshaw 5N7-342-A04, & Valve Replacement Kit P/N 221526 |
| RG/RP/SSC | 250-400 | Propane | N6 | P/N 131454 , Robertshaw 3B0-342-A04, & Valve Replacement Kit P/N 221526 |

*Only duct furnace model identification of indirect-fired units appears here and on the rating plate. If the duct furnace is part of a Model XE, RGB, RPB, PAK, PGBL, RGLB, RPBL or SSCBL packaged furnace/blower system, valve replacement requirements are the same as for the component duct furnace(s).
 **On duct furnace Sizes 300 and 350, dual functional replacement valves require a minimum natural gas supply pressure of 7" w.c.

TABLE 2B - Gas Conversion Cross-Reference for Mechanical Modulation with a Bypass Valve* (Applies to heaters with pilot codes listed in **TABLE 2A**. Change mechanical modulation valve. Install spring kit to convert bypass valve.)

| Valve Code | Includes Valves | Action Required to Convert from Propane to Natural | Valve Code | Includes Valves | Action Required to Convert from Natural Gas to Propane (ⓐin TABLE 2A) |
|------------|-----------------|--|------------|-----------------|---|
| N5 | N3 | Single M/M valve not available; see ③ TABLE 2A | N7 | N1 | Single M/M valve not available; see ③ TABLE 2A |
| | M7 | Add spring kit, P/N 98721 , M/H 394588 | | M4 | Add spring kit, P/N 98720 , M/H 393691 |
| N6 | N3 | Single M/M valve not available; see ③ TABLE 2A | N8 | N1 | Single M/M valve not available; see ③ TABLE 2A |
| | M8 | Add spring kit, P/N 82525 , W/R F92-0656 | | M5 | Add spring kit, P/N 51749 , M/H 391937 |
| O4 or P4 | N4 | Single M/M valve not available; see ③ TABLE 2A | N9 | N1 | Single M/M valve not available; see ③ TABLE 2A |
| | M7 | Add spring kit, P/N 98721 , M/H 394588 | | M6 | Add spring kit, P/N 82524 , W/R F92-0659 |
| O5 or P5 | N4 | Single M/M valve not available; see ③ TABLE 2A | O1 or P1 | N2 | Single M/M valve not available; see ③ TABLE 2A |
| | M8 | Add spring kit, P/N 82525 , W/R F92-0656 | | M4 | Add spring kit, P/N 98720 , M/H 393691 |
| Q9 | N3 | Single M/M valve not available; see ③ TABLE 2A | O2 or P2 | N2 | Single M/M valve not available; see ③ TABLE 2A |
| | Q4 | Add spring kit, P/N 98721 , M/H 394588 | | M5 | Add spring kit, P/N 51749 , M/H 391937 |
| R1 | N4 | Single M/M valve not available; see ③ TABLE 2A | O3 or P3 | N2 | Single M/M valve not available; see ③ TABLE 2A |
| | Q4 | Add spring kit, P/N 98721 , M/H 394588 | | M6 | Add spring kit, P/N 82524 , W/R F92-0659 |
| S4 | R9 | Change valve to P/N 131453 , Robertshaw 3B0-341-A04 | P6 | N1 | Single M/M valve not available; see ③ TABLE 2A |
| | M8 | Add spring kit, P/N 82525 , W/R F92-0656 | | Q3 | Add spring kit, P/N 98720 , M/H 393691 |
| S5 | S1 | Change valve to P/N 131455 , Robertshaw 5N7-341-A04 | P7 | N2 | Single M/M valve not available; see ③ TABLE 2A |
| | K1 | Add spring kit, P/N 82525 , W/R F92-0656 | | Q3 | Add spring kit, P/N 98720 , M/H 393691 |
| S8 | R9 | Change valve to P/N 131453 , Robertshaw 3B0-341-A04 | Q5 | N1 | Single M/M valve not available; see ③ TABLE 2A |
| | M8 | Add spring kit, P/N 82525 , W/R F92-0656 | | J8 | Add spring kit, P/N 82524 , W/R F92-0659 |
| | Q4 | Add spring kit, P/N 98721 , M/H 394588 | Q6 | N2 | Single M/M valve not available; see ③ TABLE 2A |
| S9 | R9 | Change valve to P/N 131453 , Robertshaw 3B0-341-A04 | | J8 | Add spring kit, P/N 82524 , W/R F92-0659 |
| | (2) K1 | Add spring kits, P/N 82525 , W/R F92-0656 | Q7 | N1 | Single M/M valve not available; see ③ TABLE 2A |
| | | | | Q2 | Add spring kit, P/N 98720 , M/H 393691 |
| | | | Q8 | N2 | Single M/M valve not available; see ③ TABLE 2A |
| | | | | Q2 | Add spring kit, P/N 98720 , M/H 393691 |
| | | | S2 | R7 | Change valve to P/N 131454 , Robertshaw 3B0-342-A05 |
| | | | | M8 | Add spring kit, P/N 82524 , W/R F92-0659 |
| | | | S3 | R8 | Change valve to P/N 131456 , Robertshaw 5N7-342-A05 |
| | | | | K1 | Add spring kit, P/N 82524 , W/R F92-0659 |
| | | | S6 | R7 | Change valve to P/N 131454 , Robertshaw 3B0-342-A05 |
| | | | | M8 | Add spring kit, P/N 82524 , W/R F92-0659 |
| | | | | Q2 | Add spring kit, P/N 98720 , M/H 393691 |
| | | | S7 | R7 | Change valve to P/N 131454 , Robertshaw 3B0-342-A05 |
| | | | | K1 | Add spring kit, P/N 82524 , W/R F92-0659 |
| | | | | J8 | Add spring kit, P/N 82524 , W/R F92-0659 |

* Mechanical modulation with a bypass valve is identified with "MB" as the Model suffix (Example: RG200-MB)

TABLE 3A - Valves to Gas Convert Units with Two-Stage Valve* and Match-Lit Pilot

| From Propane to Natural | | | From Natural Gas to Propane | | |
|-------------------------|--------------|---|-----------------------------|----------------|--|
| Pilot Code | Valve Code ① | Change Two-Stage Gas Valve | Pilot Code | Valve Code ① | Change Two-Stage Gas Valve |
| 31 | F2, M3, P9 | For all sizes, change valve to P/N 115351 , W/R 36C40, 3/4" (Note: Field-provided reducer is required for 1/2" manifold) | 31 | F1, M1, M2, P8 | All sizes, change valve to P/N 115352 , W/R 36C41, 3/4" (Note: Field-provided reducer is required for 1/2" manifold on Sizes 75-250.) |

*Two stage is identified with a suffix "2" in the Model No. (Example: XE300-2)

① For all Serial No. valve codes except M1, M2, M3, valve change requires a male compression nut, **P/N 9664** (Baso #43283-2) for 1/4" pilot tubing connection (remove pilot tubing fitting supplied with the new valve)

TABLE 3B - Valves to Gas Convert Units with Two-Stage Valve* and Spark Pilot

| From Propane to Natural | | | From Natural Gas to Propane | | |
|----------------------------|----------------|---|------------------------------|----------------|--|
| Pilot Code | Valve Code | Change Two-Stage Gas Valve | Pilot Code | Valve Code | Change Two-Stage Gas Valve |
| 62, 63, 65, 66, 84, 94, 95 | H7, M9, X1, X4 | ③ For heater sizes 75-250 , change valve to P/N 177396 , M/H VR8204Q2418, 1/2" | ① 62, 63, 65, 66, 84, 94, 95 | H5, H6, X2, X3 | ② ③ All sizes, change valve to P/N 177398 , VR8304Q4412, 1/2" x 3/4" (Note: Field-provided reducer is required for 3/4" manifold on Sizes 300-400.) |
| | | ③ ④ For heater sizes 300-400 , change valve to P/N 177397 , M/H VR8304Q4404, 3/4" (Note: Field-provided reducer fitting is required for 1/2" manifold.) | | | |

*Two-stage units are identified with a suffix "2" in the Model No. (Example: RG300-2)

① If Serial No. pilot code is 62 or 66 and lockout is required, change ignition controller with **Kit P/N 257473**. If Serial No. pilot code is 94 and lockout is required, change ignition controller to **P/N 257010**. (Lockout is required for indoor propane models only in U.S. and for all propane models in Canada.) See **STEP 6**.

② Requires field compression fitting, **P/N 9664** (Baso #43283-2), for 1/4" pilot tubing connection. Remove pilot tubing fitting supplied with valve.

③ EEDU 300, 350, and 400 - When replacing a valve with a valve code prior to X1, X2, X3, or X4, a new valve bracket is required. Order **P/N 194152**.

SECTION B (cont'd) - Parts Selection for Gas Conversion

STEP 1 (cont'd): Select Valve or Regulator Spring Kit

| TABLE 4 - Valves to Gas Convert Units with Electronic Modulation* and Spark Pilot | | | | | |
|---|------------|--|------------------------------|------------|--|
| From Propane to Natural | | | From Natural Gas to Propane | | |
| Pilot Code | Valve Code | Change Maxitrol Regulator and Convert Solenoid Valve | Pilot Code | Valve Code | Change Maxitrol Regulator and Convert Solenoid Valve |
| 62, 63, 65, 66, 84, 94, 95 | U8, U9 | For heater sizes 75-200 , change valve to Replacement Valve Kit P/N 221634 ; change Maxitrol regulator to P/N 42278 , Maxitrol MR410, 1/2" | ① 62, 63, 65, 66, 84, 94, 95 | M8, K1 | For heater sizes 75-200 , change valve with Replacement Valve Kit P/N 221634 ; change Maxitrol regulator to P/N 156462 , Maxitrol MR410H-1, 1/2"; and add time delay relay, P/N 89661 , to prevent delayed ignition (consult factory for wiring diagram). |
| | | For heater sizes 225-400 , change valve with Replacement Valve Kit P/N 221526 ; change Maxitrol regulator to P/N 42280 , Maxitrol MR510, 3/4" (Note: Field-provided reducer fitting is required for 1/2" manifold.) | | | For heater sizes 225-400 , change valve with Replacement Valve Kit P/N 221634 ; change Maxitrol regulator to P/N 156464 , Maxitrol MR510H-1, 3/4"; and add time delay relay, P/N 89661 , to prevent delayed ignition (consult factory for wiring diagram). |

*Electronic modulation control is identified with an "MV" as the Model suffix (Example: RP400-MV). Does not apply to modulation Options AG 39, 40, 41, & 42.

① If Serial No. pilot code is 62 or 66 and lockout is required, change ignition controller with **Kit P/N 257473**. If Serial No. pilot code is 94 and lockout is required, change ignition controller to **P/N 257010**. (Lockout is required for indoor propane models only in U.S. and for all propane models in Canada.) See **STEP 6**.

STEP 2: Select Natural or Propane Pilot Orifice from Table 5

NOTE: Select spark pilot orifice when heater Serial No. Safety Pilot Code is 62, 63, 65, 66, 84, 94, or 95. Select standing pilot orifice when heater Serial No. Safety Pilot Code is 31.

| TABLE 5 - Pilot Orifices | FOR STANDING PILOT | | | | FOR SPARK PILOT | | | |
|--|--------------------|-------|------------------------|-------|--------------------|--------|------------------------|--------|
| | Propane to Natural | | Natural Gas to Propane | | Propane to Natural | | Natural Gas to Propane | |
| | Type | P/N | Type | P/N | Type | P/N | Type | P/N |
| ① Models (Quantity required is always 1.) | | | | | | | | |
| EEDU 75-400 prior to Series 6 | -- | -- | -- | -- | (7221) | 63088 | (4209) | 37801 |
| EEDU 75-400 Series 6 | -- | -- | -- | -- | (9731) | 103034 | (9733) | 98695 |
| X, XE, CX, CXE, PAK, CPAK Series 7 or 8 | (6218) | 46392 | (4211) | 42089 | (7221) | 63088 | (4209) | 37801 |
| SC, SCA, SCB, SCE Series 6 | -- | -- | -- | -- | (7715) | 93973 | (9715) | 126105 |
| RX, , CRX Series 7 or 8; SC, SCA, SCB, SCE Series 5; RPV, CRPV Series 6, 7, and 8; all RG, CRG, RGB, CRGB, RP, CRP, RPB, CRPB, RGL, CRGL, RPBL, CRPBL, SSCBL, PGBL | -- | -- | -- | -- | (7223) | 63397 | (4209) | 37801 |

① Also applicable to these models with suffix letter "H".

STEP 3: Select Main Burner Orifices from Table No. 8, 9, 10, 11A, 11B, or 12

NOTE: Burner orifice tables are not applicable for high altitude operation. When installation is above an elevation of 2000 feet, the unit must be de-rated. Consult your Reznor Distributor for proper orifice size.

| TABLE 6 - Applies to (H)EEDU Series 3, 5, and 6 | | | | | |
|---|---------|--------------------|-------|--------------------|-------|
| Model | Orifice | Propane to Natural | | Natural to Propane | |
| Size | Qty | Drill Size | P/N | Drill Size | P/N |
| 75 | 4 | 45 | 38678 | 1.20mm | 63003 |
| 100 | 4 | 41 | 11792 | 1.45mm | 61652 |
| 125 | 5 | 41 | 11792 | 1.45mm | 61652 |
| 140 | 5 | 38 | 45870 | 1.55mm | 61653 |
| 170 | 6 | 38 | 45870 | 1.55mm | 61653 |
| 200 | 7 | 38 | 45870 | 1.55mm | 61653 |
| 225 | 8 | 38 | 45870 | 1.55mm | 61653 |
| 250 | 9 | 39 | 45871 | 1.55mm | 61653 |
| 300 | 11 | 39 | 45871 | 53 | 9789 |
| 350 | 13 | 39 | 45871 | 53 | 9789 |
| 400 | 15 | 39 | 45871 | 53 | 9789 |

| TABLE 7A - Applies to Models X, PAK, RX Series 7 and 8; all Models RG, RGB, RGL, PGBL | | | | | |
|---|---------|--------------------|-------|--------------------|-------|
| NOTE: Do not use on Models with prefix "C"; see TABLE 8. | | | | | |
| ① Model | Orifice | Propane to Natural | | Natural to Propane | |
| Size | Qty | Drill Size | P/N | Drill Size | P/N |
| 75 | 4 | 45 | 38678 | 1.20mm | 63003 |
| 100 | 4 | 41 | 11792 | 1.45mm | 61652 |
| 125 | 5 | 41 | 11792 | 1.45mm | 61652 |
| 150 | 7 | 43 | 11828 | 55 | 11830 |
| 175 | 7 | 41 | 11792 | 1.45mm | 61652 |
| 200 | 9 | 43 | 11828 | 55 | 11830 |
| 225 | 9 | 41 | 11792 | 1.45mm | 61652 |
| 250 | 12 | 44 | 11833 | 55 | 11830 |
| 300 | 12 | 41 | 11792 | 1.45mm | 61652 |
| 350 | 14 | 41 | 11792 | 1.45mm | 61652 |
| 400 | 16 | 41 | 11792 | 1.45mm | 61652 |
| D300 | 16 | 45 | 38678 | 1.20mm | 63003 |

① Also applies to Models listed with prefix "H".

TABLE 7B - Applies to Models RPV Series 6, 7, and 8; Models SC, SCA, SCB, SCE Series 5 and 6; and all Models RP, RPB, RPBL

NOTE: Do not use on Models with prefix "C"; see TABLE 8.

| ①Model | Orifice | Propane to Natural | | Natural to Propane | |
|--------|---------|--------------------|-------|--------------------|-------|
| Size | Qty | Drill Size | P/N | Drill Size | P/N |
| 100 | 4 | 41 | 11792 | 1.45mm | 61652 |
| 125 | 5 | 42 | 84437 | 1.45mm | 61652 |
| 150 | 7 | 44 | 11833 | 55 | 11830 |
| 175 | 7 | 42 | 84437 | 1.45mm | 61652 |
| 200 | 9 | 43 | 11828 | 55 | 11830 |
| 225 | 9 | 42 | 84437 | 1.45mm | 61652 |
| 250 | 12 | 44 | 11833 | 55 | 11830 |
| 300 | 12 | 42 | 84437 | 1.45mm | 61652 |
| 350 | 14 | 42 | 84437 | 1.50mm | 93410 |
| 400 | 16 | 42 | 84437 | 1.45mm | 61652 |
| D300 | 16 | 45 | 38678 | 1.20mm | 63003 |

①Also applies to Models listed with prefix "H".

TABLE 8 - Applies to Models CX, CXE, CRX, CPAK Series 7 and 8; Models CRPV Series 6, 7, and 8; all Models CRG, CRGB, CRP, CRPB, CRGBL, CRPBL

| ①Model | Orifice | Propane to Natural | | Natural to Propane | |
|--------|---------|--------------------|-------|--------------------|-------|
| Size | Qty | Drill Size | P/N | Drill Size | P/N |
| 75 | 4 | 45 | 38678 | 1.20mm | 63003 |
| 100 | 4 | 43 | 11828 | 55 | 11830 |
| 125 | 5 | 43 | 11828 | 55 | 11830 |
| 175 | 7 | 43 | 11828 | 55 | 11830 |
| 225 | 9 | 43 | 11828 | 55 | 11830 |
| 250 | 12 | 45 | 38678 | 1.20mm | 63003 |
| 300 | 12 | 43 | 11828 | 55 | 11830 |
| 350 | 14 | 43 | 11828 | 55 | 11830 |
| 400 | 16 | 43 | 11828 | 55 | 11830 |

①Also applies to these "C" Models listed with prefix "H".

STEP 4: When Converting From Natural Gas to Propane, Select a Burner Air Shutter Assembly from Table 9

NOTES: Do not order burner air shutters if the natural gas unit is already equipped with optional factory-installed air shutters. Burner air shutters are required when converting to propane.

TABLE 9 - Burner Air Shutter Assembly Part Numbers

| Models | 75-100 | 125 | 140 | 150 | 170 | 175 | 200 | 225 | 250 | 300 | 350 | 400 |
|--|--------|--------|-----|-------|--------|-------|--------|--------|--------|---------|--------|---------|
| EEDU, HEEDU - no assy P/N; order both air shutter assy and guide | 165684 | 165685 | | | 165686 | | 165687 | 165688 | 165689 | 165690 | 165691 | 165692 |
| | 55552 | 46109 | | -- | 46113 | -- | 46115 | 46117 | 46119 | 46121 | 46123 | 46125 |
| ①X, XE, PAK, RX, , RPV, SC, SCA, SCB, SCE, SSCBL, CX, CXE, CRX,, CRPV, RG, CRG, RGB, CRGB, RGBL, CRGBL, RP CRP, RPB, CRPB, RPBL, CRPBL, PGBL | 15681 | 26562 | -- | 26563 | -- | 26563 | 15683 | 15683 | 15685 | ② 15685 | 26693 | ② 26885 |

①Also applies to these Models with prefix letter "H".
 ② Assembly listed for Size 400 also applies to Size 300 with "D" prefix (DX, DRX, DRPV, HDX, HDRX, HDRPV)

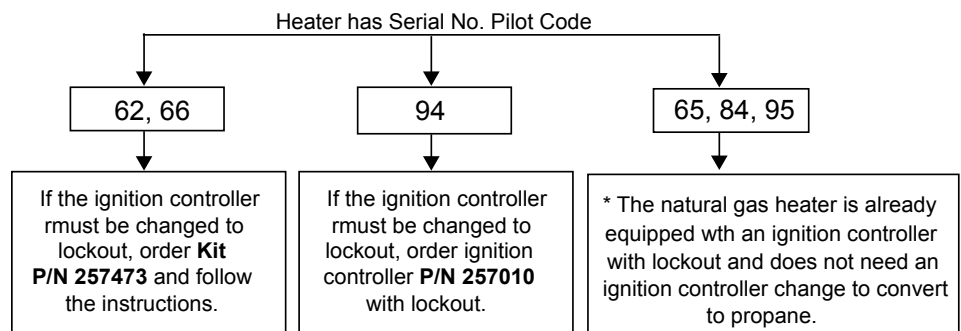
STEP 5: Select Conversion Tape or Disk

TABLE 10 - Conversion Label or Disk

| Heater with an A.G.A. Rating Plate or a CSA Rating Plate to ANSI Standards | Heater with a C.G.A. Rating Plate or a CSA Rating Plate to CGA Standards |
|--|--|
| Propane to Natural Conversion Disk | Natural to Propane Conversion Disk |
| P/N 1401 | P/N 37752 |
| Conversion Label | |
| P/N 64391 | |

STEP 6: When Converting Indoor (Indoor and Outdoor in Canada) Units with a Spark Pilot to Propane, the Ignition Controller Must Have 100% Lockout

Depending on the pilot serial number code, do the following:




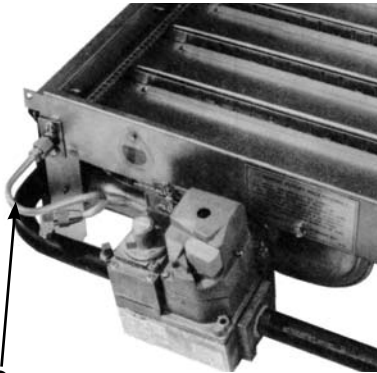
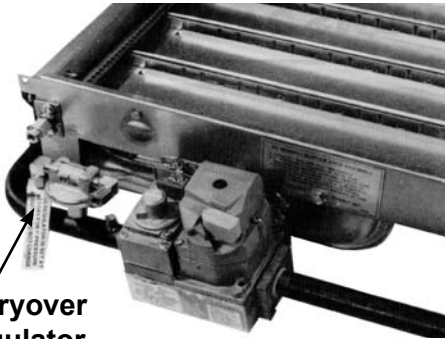
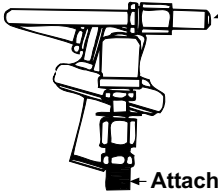
* If the unit is gravity vent and an automatic vent damper is also being added, the ignition controller may need to be replaced. Availability varies by pilot code. - Code 65, requires installation of Kit P/N 257473; and Codes 84 and 95, no change as these controllers will accommodate an automatic vent damper.

SECTION B - Parts Selection for Gas Conversion (cont'd)

STEP 7: Select Carryover Parts -- Applies to Models (H)SC, SCA, SCB, SCE Series 5 and 6; (H)X, (H)CX, (H)XE, (H)CXE, (C)PAK; (H)RX, (H)CRX Series 7 and 8; (H)RPV, (H)CRPV Series 6 and 8; and all (H)RG, (H)CRG, (H)RGB, (H)CRGB, (C)RGLB; (H)RP, (H)CRP, (H)RPB, (H)CRPB, (C)RPBL as indicated.

Visually inspect the burner rack to determine whether or not it is factory equipped with a carryover lighter tube system.

FIGURE 1A illustrates a burner rack without a carryover lighter tube; **FIGURE 1B** illustrates a burner rack with a carryover lighter tube without a regulator (used with natural gas); and **FIGURE 1C** illustrates a burner rack with a regulated carryover lighter tube (used with propane).

| | | |
|--|--|--|
| <p>FIGURE 1A - Burner Rack without a Carryover Lighter Tube</p>  <p>No Carryover</p> <p>Applies only to natural gas on (H)SC, SCA, SCB, SCE Series 6; (H)X, (H)XE, PAK Series 8; and PGBL</p> <p>NOTE: Some older models did not have a carryover tube; parts are no longer available to convert those units.</p> | <p>FIGURE 1B - Burner Rack with a Lighter Tube Carryover System without a Regulator (used with natural gas)</p>  <p>Carryover Tubing - Orifice is at the burner end.</p> | <p>FIGURE 1C - Burner Rack with a Lighter Tube Carryover System with a Regulator (used with propane)</p>  <p>Carryover Regulator and Tubing - </p> <p>Carryover Orifice (attach to carryover tube on the burner)</p> <p>Attached to Manifold</p> |
|--|--|--|

When converting from propane to natural, order

- (1) P/N 93388, Brass Elbow,
 - (1) P/N 93389, Carryover Tubing, 8-3/4"
 - (1) P/N 9664, Compression Fitting
- PLUS the Carryover Orifice listed in TABLE 11, if required.**

NOTE: For units with multiple furnaces, order parts for each furnace.

| TABLE 11 - Propane to Natural Gas, Select the Carryover Lighter Tube Orifice Listed in TABLE 11 | | | | | | | | | | | | | |
|--|-------------------------------|-------|------|------|------|------|------|-------|-------|-------|-------|------|-------|
| Models ① | Description | 75 | 100 | 125 | 150 | 175 | 200 | 225 | 250 | 300 | 350 | 400 | |
| (H)X, (H)CX, (H)RX, (H)CRX., (H)XE, (H)CXE Series 7 & 8 ③; all (H)RG, (H)CRG, (H)RGB, (H)CRGB, RGLB, CRGBL, PGBL | Natural Gas Carryover Orifice | P/N | 9870 | 9870 | 9870 | 9680 | 9680 | 10370 | 10370 | 10370 | 10370 | 9792 | 9792 |
| | | Drill | 70 | 70 | 70 | 65 | 65 | 59 | 59 | 59 | 59 | 54 | 54 |
| (H)SC, SCA, SCB, SCE Series 5; SSCBL; (For all SC Series 6, See Note ③) | Natural Gas Carryover Orifice | P/N | -- | -- | 9680 | 9680 | 9680 | 9680 | 9680 | 10370 | 10370 | 9792 | 11872 |
| | | Drill | -- | -- | 65 | 65 | 65 | 65 | 65 | 59 | 59 | 54 | 52 |

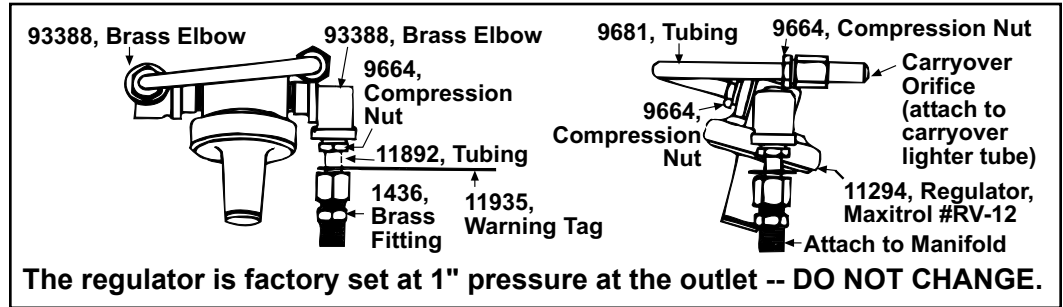
① Models (H)RP, (H)CRP, (H)RPB, (H)CRPB; Models (H)RPV, (H)CRPV Series 6, 7, and 8; Models SC, SCA, SCB, SCE Series 6; Models (H)X, (H)XE, PAK Series 8; and Model PGBL do not require a carryover orifice change when converting from either propane to natural gas or natural gas to propane. When converting to natural gas, remove the regulated carryover lighter tube (See FIGURE 5C) and install the natural gas carryover tube using the original (propane) carryover orifice.

When converting from natural to propane, order

(1) P/N 100712, Regulated Carryover Assembly (See FIGURE 2)

PLUS the Lighter Tube Carryover Orifice listed in TABLE 12, if required.

FIGURE 7 - Regulated Carryover Assembly for Propane (less carryover orifice which differs by size and model) -- P/N 100712



NOTE: For units with multiple furnaces, order parts for each furnace.

TABLE 12 - For Natural Gas to Propane, Select the Carryover Lighter Tube Components Listed in Table 12

| Models ① | Description | 75 | 100 | 125 | 150 | 175 | 200 | 225 | 250 | 300 | 350 | 400 | | |
|--|---|---------------------------|-------|---------|---------|---------|-------|---------|-------|---------|-------|---------|---------|-------|
| (H)X, (H)CX, (C)PAK, (H)RX, (H)CRX, (X)XE, (H)CXE Series 7 (Series 8 see below); all (H)RG, (H)CRG, (H)RGB, (H)CRGB; (C)RGL | Propane Carryover Orifice | P/N | 9870 | 9870 | 9870 | 9680 | 9680 | 9680 | 9680 | 10370 | 10370 | 9791 | 9791 | |
| | | Drill | 70 | 70 | 70 | 65 | 65 | 65 | 65 | 59 | 59 | 56 | 56 | |
| | (H)SC, SCA, SCB, SCE Series 5; SSCBL; (H)SC, SCA, SCB, SCE Series 6 ②; (H)X, (H)XE, PAK Series 8 ②; PGBL ② | Propane Carryover Orifice | P/N | -- | 9870 | 9870 | 9870 | 9870 | 9680 | 9680 | 10370 | 10370 | 38274 | 38274 |
| | | | Drill | -- | 70 | 70 | 70 | 70 | 65 | 65 | 59 | 59 | 57 | 57 |
| (H)X, (H)XE, PAK Series 8 ②; PGBL ② | Carryover Lighter Tube for Burner | P/N | -- | 9899 | 9859 | 9821 | 9821 | 9783 | 9783 | 9747 | 9747 | 9711 | 9520 | |
| | | Length | -- | 12-3/8" | 15-1/8" | 20-5/8" | | 26-1/8" | | 34-7/8" | | 39-7/8" | 45-3/8" | |
| | Drip Shield | P/N | -- | 15015 | 15014 | 15013 | 15013 | 15012 | 15012 | 15011 | 15011 | 15010 | 14957 | |

① (H)RP, (H)CRP, (H)RPB, (H)CRPB; (H)RPV, (H)CRPV Series 6, 7 and 8 do not require a carryover orifice change when converting from either propane to natural gas or natural gas to propane. When converting to propane, they do require the addition of the regulated carryover assembly (P/N 100712) using the original (natural) carryover orifice.

② (H)SC, SCA, SCB, SCE Series 6; (H)X, (H)XE, PAK Series 8; and PGBL do not have a lighter tube carryover system on a natural gas burner. When converting to propane, remove the burner and remove factory-installed flash carryover from the "orifice-end" of the burner rack (do not remove the flash carryover from the other end of the burner rack). Order the drip shield and carryover lighter tube listed by P/N (TABLE 12) and install (See FIGURES 3A and 3B.) .

FIGURE 3A - Carryover Lighter Tube and Drip Shield for Burner

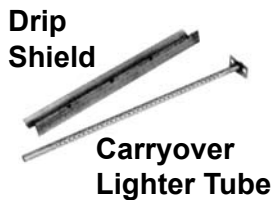
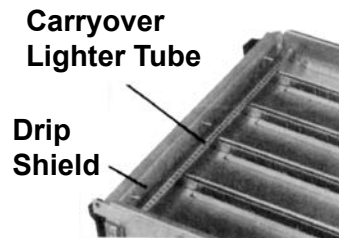


FIGURE 3B - Remove the flash carryover and install the Carryover Lighter Tube and Drip Shield



SECTION C - GAS CONVERSION INSTRUCTIONS for Components Selected in SECTION B *Only*

WARNING: All gas conversions are to be done by a qualified service technician in accordance with these instructions and in compliance with all codes and requirements of authorities having jurisdiction. Failure to follow instructions could result in death, serious injury and/or property damage. The qualified agency performing this work assumes responsibility for this conversion.

NOTE: Field-supplied hardware is required but differs by model and size. Read the instructions before beginning to determine what hardware is required.

Instructions apply to either all models or to specific models and sizes, as noted.

1. Check to be certain that the gas conversion components are appropriate for the furnace Model and Size being converted.
2. If the heater is installed, **turn off the gas supply** at the shutoff valve upstream of the combination valve. **Disconnect the electrical supply.**
3. **Remove the Burner Rack - Select and follow the instructions that apply to the heater being converted.**

Remove the side panel from the unit. Disconnect the pilot tubing and thermocouple or sensor lead from the pilot. Disconnect the electric leads.

Uncouple the union in the gas supply to permit removal of the burner rack.

FIGURE 4 - Example of a Burner Rack removed from a Model SC
(SC series burner racks include a burner rack skirt that is only on separated-combustion models.)



4. Change the Burner Orifices

Remove the two screws holding the bottom of the burner rack assembly. Slide the "drawer-type" burner rack out of the heater. If equipped with a carryover lighter tube, break the connection at the manifold fitting. Remove the manifold bracket screws and manifold. Change the burner orifices.

WARNING: Do not attempt to drill orifices. Use factory-supplied orifices only.

5. Change the Pilot Orifice

Remove the screws and lift out the pilot burner. Change the pilot orifice.

6. Install the Valve Regulator Spring Kit

To install a spring kit -- Follow the valve manufacturer's installation instructions that are included with the spring kit. After a new regulator spring kit is installed, it is necessary to adjust the spring for the correct manifold pressure. This adjustment can only be made after the heater is in operation. Follow the instructions in STEP 12, Adjust Manifold Pressure.

WARNING: The manufacturer of the spring kit and the gas valve must be the same. Spring kits of different manufacturers are not interchangeable. A spring kit must be used only in the valves for which the kit is designated.

7. Install Burner Air Shutters (if required)

All of these heaters require burner air shutters when operated on propane. If converting to propane (and the heater does not have air shutters), follow the installation instructions that

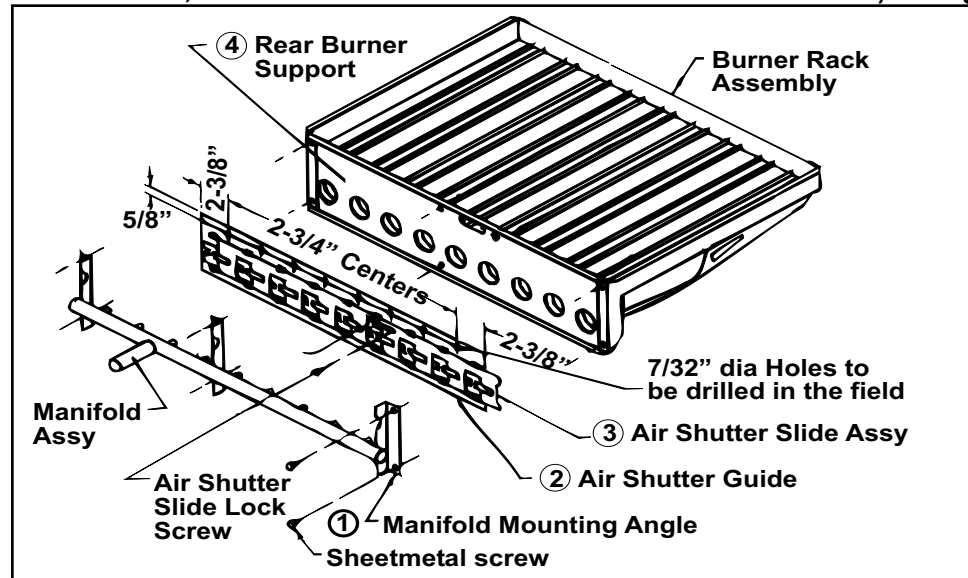
WARNING:
Failure to install and/or adjust air shutters according to directions could cause property damage, personal injury, and/or death.

FIGURE 5 - Burner Air Shutter Installation - EEDU, HEEDU

apply. (NOTE: When converting to natural gas, it is not necessary to remove the shutters; but shutter should be adjusted to full open position.)

Air Shutter Installation Instructions:

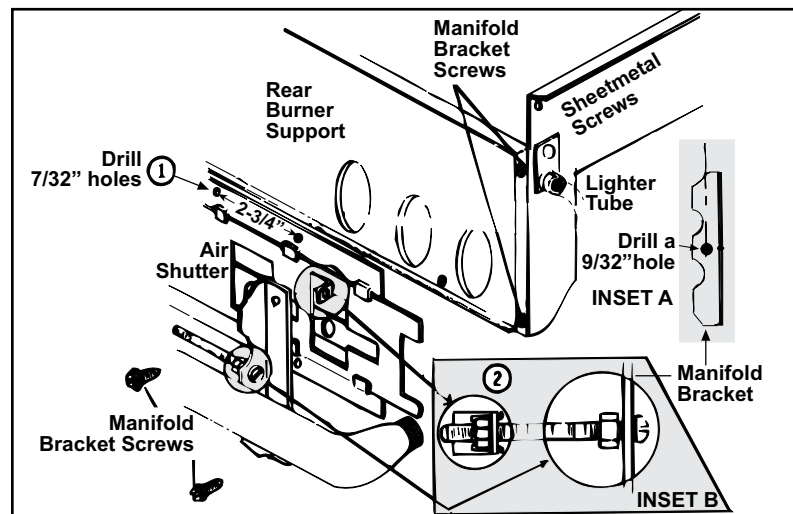
Models EEDU, HEEDU -- Refer to FIGURE 5 and follow instructions a) through f).



- Remove the manifold assembly by removing the 1/4" sheetmetal screws ① in the manifold mounting angles.
- Drill 7/32" holes in the air shutter guide ②, 5/8" from the top of the guide and in 2-3/8" on both sides. Drill additional 7/32" holes on 2-3/4" centers as required by the heater size. Guide must fit flat against rear support to prevent air leakage around the air shutter.
- Position the air shutter assembly ③ on the rear burner support ④ so that the clearance holes in the lower edge of the air shutter guide, fit over the extruded holes located on the rear burner support ④.
- Re-attach the manifold to the rear burner support ④ with the 1/4" sheetmetal screws ①, making sure that the manifold orifices are centered in the air shutter.
- Using the 7/32" holes that you drilled in the air shutter guide as guide holes, drill 1/8" holes through the rear burner support ④ and fasten the air shutter guide ② with the #10x5/8" sheetmetal screws.
- Adjust the air shutter to the wide open position.

Models RPV Series 6, 7, and 8; Models SC, SCA, SCB, SCE Series 5 and 6; Model SSCBL; Model EEDU Series 3, 5, and 6; Models X, XE, PAK, RX Series 7 and 8; all Models PGBL, RG, RGB, RGBL, RP, RPB, RPBL (including the above models with prefix "C", "H", or "HC") -- Refer to FIGURE 6 and follow the instructions.

FIGURE 6 - Install Burner Air Shutter and Adjustment Screw



**SECTION C -
GAS
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(cont'd)**

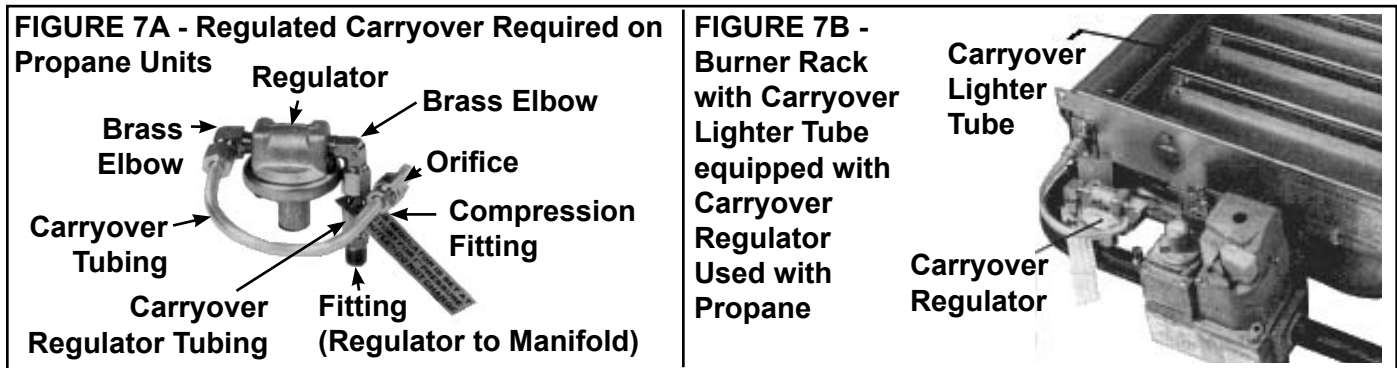
- a) Remove the manifold assembly by removing the 1/4" sheetmetal manifold bracket screws.
- b) Drill 7/32" holes in the air shutter guide ①, 5/8" from the top of the guide and in 2-3/8" on both ends. Drill additional 7/32" holes on 2-3/4" centers as required by the heater size. Guide must fit flat against rear support to prevent air leakage around the air shutter.
- c) In the corner of the **manifold bracket** next to the controls, in 3/8" from the edge of the bracket, drill a 9/32" hole. (See Inset A in **FIGURE 6**).
Insert 1/4" x 2-1/2" adjustment bolt through the 9/32" hole drilled in the manifold bracket (See Inset B in **FIGURE 6**). Feed a 1/4" lock nut onto the bolt and turn until the nut clears the bracket by 1/16".
- d) Insert the threaded end of the adjustment bolt into the adjustment bolt tab ② on the air shutter and turn into thread until the manifold bracket lines up with the mounting holes.
- e) Re-attach the manifold to the rear burner support with the 1/4" sheetmetal screws, making sure that the manifold orifices are centered in the air shutter.
- f) Using the 7/32" holes that you drilled in the air shutter as guide holes, drill 1/8" holes through the rear burner support and fasten the air shutter guide with #10x5/8" sheetmetal screws.
- g) Adjust air shutters to a fully open position.

8. Install Carryover Components on Required Models (Reference Component Selection STEP 7, pages 8-9)

If converting from natural gas to propane, install the components selected in **STEP 7**.

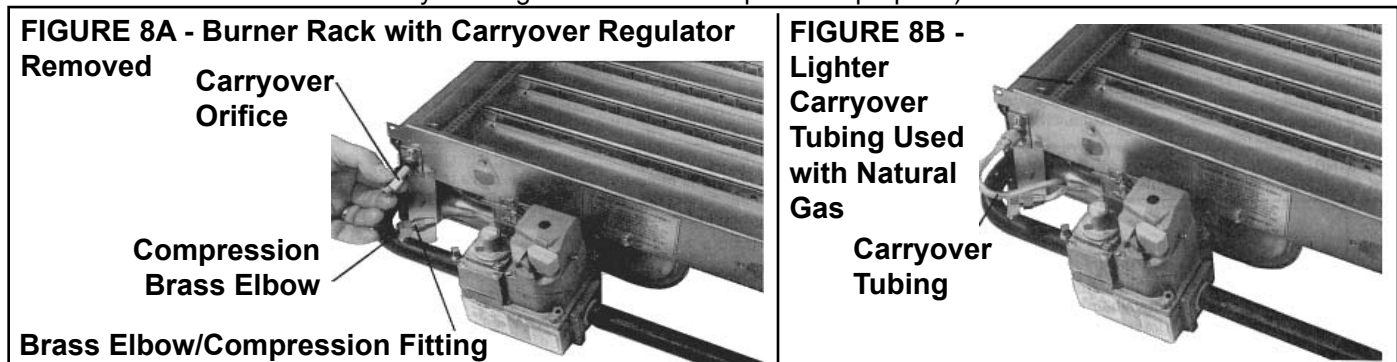
FIGURE 7A illustrates the regulated carryover required on propane units.

FIGURE 7B shows a propane burner rack with a regulated lighter tube carryover system installed.



If converting from propane to natural and require the removal of a carryover regulator, as determined in Component Selection **STEP 7**, remove the carryover regulator assembly and fittings. If an orifice change is required, remove the carryover orifice. Follow the instructions below to install the carryover components required for natural gas, as determined in Component Selection **STEP 7, TABLE 11**.

- a) Install the brass elbow with compression fitting in the manifold pipe. If an orifice change is required, insert the new orifice. See **FIGURE 8A**.
- b) Install the carryover tubing from the manifold pipe to the carryover orifice (replacing the carryover regulator that was required for propane). See **FIGURE 8B**.



9. Reverse the above procedures to re-assemble the heater. Be sure to re-assemble correctly so that unsafe conditions are not created. Be certain that the burner rack is properly positioned and tight against the heat exchanger.

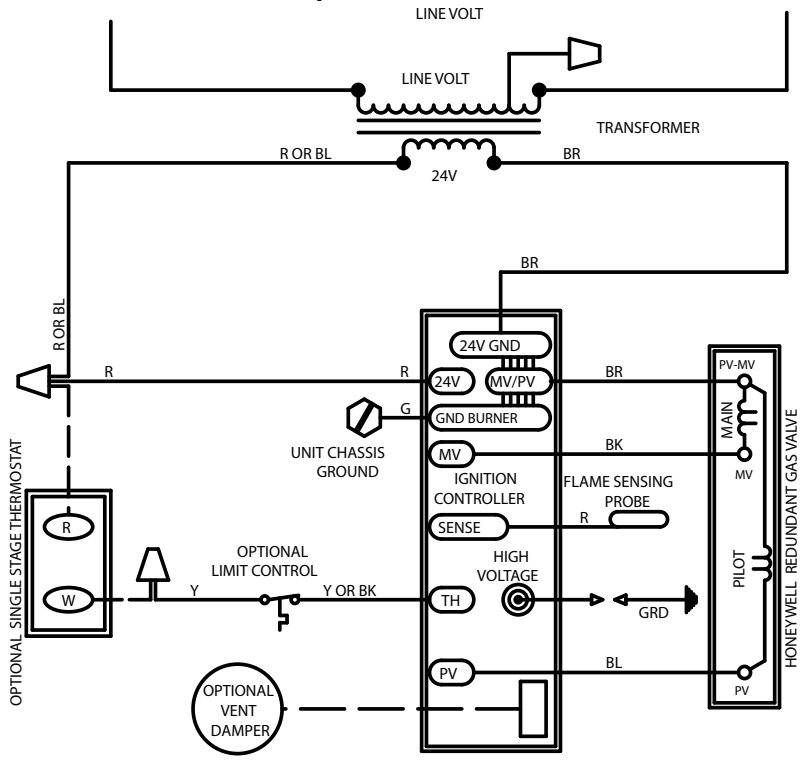
If your conversion requires changing the ignition controller, do not re-connect the flame sensing wire and the high tension lead to the present controller.

10. Change Ignition Controller (when required)

If **STEP 1** or **STEP 6** of the Component Selection Process requires installation of an ignition controller with lockout, follow the instructions in the replacement kit. Or, if changing from ignition controller P/N 257009 (UTC #1003-638-A) to P/N 257010 (UTC #1003-514A), follow the unit wiring diagram or **FIGURE 10**.

Verify connections on the diagram in **FIGURE 10**. Keep for future reference.

FIGURE 10 - Wiring of Controller P/N 257010 with Lockout and Vent Damper Terminal



USED ON: OPTION AH3 FIELD REPLACEMENT WD.# 257478

CAUTION: If any of the original wire as supplied with the appliance must be replaced, it must be replaced with wiring material having a temperature rating of at least 105°C, except energy cutoff, blocked vent switch, and sensor lead wires which must be 150°C.

When installing Kit P/N 257243 with controller P/N 257010, all of the wires are connected to the ignition controller at the factory except to the "TH" Terminal. There are two loose wire assemblies in the kit. If the existing wire from the limit control is yellow, use the yellow wire to connect the limit control to the "TH" terminal. If the existing wire from the limit is black, use the black wire to connect the limit control to the "TH" terminal. (One wire will not be used.)

Check special wiring instructions below and follow if applicable.

Special Wiring Instructions when replacing either a P/N 89488 (Pilot Code 65) or P/N 89314 (Pilot Code 62) ignition controller:

In order to connect the ignitor lead to the new controller, it will be necessary to cut off the Rajah connector (metal terminal) on the spark wire. Push back the rubber boot and cut off the terminal (cutting off no more than 1" of wire). Remove the rubber boot. Push the wire directly onto the spike connector on the ignition controller.

Special Wiring Instructions when using an automatic vent damper:

Remove the plug from the ignition controller and plug in the wiring harness from the vent damper. The wiring harness electrically interlocks the vent damper to the control. Unplugging either end results in a system shutdown.

11. Turn on the electric and the gas. Relight, following the instructions on the heater.

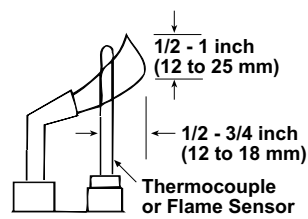
WARNING: All components of a gas supply system must be leak tested prior to placing equipment in service. NEVER TEST FOR LEAKS WITH AN OPEN FLAME. Failure to comply could result in personal injury, property damage, or death.

Check for gas leaks using a commercial leak detecting fluid or a rich soap and water solution. Leaks are indicated by the presence of bubbles. Check all connections including the pilot connections. If a leak cannot be stopped by tightening, replace the part.

Observe the pilot flame through the pilot lighting hole. The flame should extend 1/2" past the flame sensing device. (See **FIGURE 11**).

**SECTION C -
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(cont'd)**

FIGURE 11 - Pilot Flame Adjustment



To adjust the pilot flame:

- 1) Remove the pilot adjustment cover screw on the valve.
- 2) Turn the inner adjustment screw clockwise to decrease or counterclockwise to increase the pilot flame
- 3) Replace the cover screw after adjustment.

WARNING: In the event of a pilot outage or improper ignition, wait at least 5 minutes before attempting to relight the heater.

12. Adjust Manifold Pressure

WARNING: Manifold gas pressure must never exceed 3.5" w.c. for natural gas or 10" w.c. for propane.

**CAUTION:
DO NOT bottom
out the gas
valve regulator
adjusting
screw. This
can result in
unregulated
manifold
pressure
causing excess
overfire and
heat exchanger
failure.**

For Natural Gas - High fire manifold pressure is regulated by the combination valve to 3.5" w.c. Inlet pressure to the valve must be a minimum of 5" w.c. **or as noted on the rating plate** and a maximum of 14" w.c. **NOTE: Always** check the rating plate for minimum gas supply pressure. Minimum supply pressure requirements vary based on size of burner and gas control option. Most units require a minimum of 5" w.c. as stated above, but size 350 with mechanical modulation requires a minimum of 7" w.c. and sizes 350 and 400 with electronic modulation require a minimum of 6" w.c. natural gas supply.

For Propane - The regulator in the valve must be adjusted to provide a manifold pressure of 10" w.c. Inlet pressure to the valve must be a minimum of 11" w.c. and a maximum of 14" w.c.

Instructions for Measuring Manifold Gas Pressure:

Before attempting to measure or adjust the manifold pressure, be certain that the inlet (supply) pressure is within the specified range for the gas being used, both when the heater is in operation and on standby. Incorrect inlet pressure could cause excessive manifold gas pressure immediately or at some future time.

With the manual valve (on the combination valve) positioned to prevent flow to the main burner, connect a manometer to the 1/8" pipe outlet pressure tap in the valve. Open the valve and operate the heater to measure the manifold gas pressure. **NOTE:** A manometer (fluid filled gauge) is recommended rather than a spring type gauge due to the difficulty of maintaining calibration of a spring-type gauge.

If the manometer indicates that the manifold pressure needs adjustment, set the correct pressure by turning the regulator screw on the valve IN (clockwise) to increase pressure or OUT (counterclockwise) to decrease the pressure.

13. Check for safe and proper operation of the heater by operating the heater for at least one cycle. Cautiously observe the main burners for complete flame carryover. Flame must be present on the full length of each burner.

If air shutters are used, adjust them after the heater has been in operation for 15 minutes. Turn the adjustment screws to close the air shutters no more than is necessary to eliminate the problem condition. Observe the flame for yellow tipping. A limited amount of yellow-tipping is permissible for propane. Natural gas should not display any yellow-tipping. **NOTE:** A hard blue flame may cause resonance. Adjust air shutters slightly until noise disappears.

WARNING: Failure to install and/or adjust air shutters according to directions could cause property damage, personal injury and/or death.

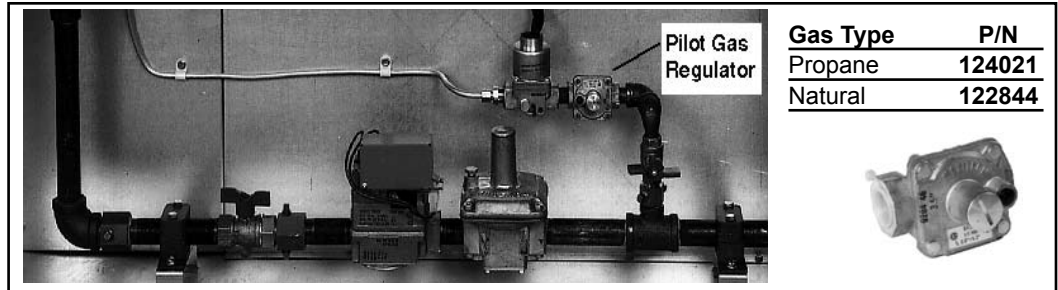
14. Conversion Label or Disk

Complete the information required on the gas conversion tape and affix the tape to the heater near the rating plate. Attach the disk to the heater near the gas valve. Gas conversion is now complete.

SECTION D - Gas Conversion of Direct-Fired Furnaces

Models ADF/ADFH only:

- If converting a Model ADF/ADFH, *always* change the **pilot** gas regulator.



- If converting a Model ADF/ADFH that does not have electronic modulation gas controls, select the spring kit or replacement valve from TABLES 3-6 on pages 5-7. Follow the valve manufacturer's instructions to install the spring regulator or install the replacement valve.

Reznor® direct-fired unit with electronic modulating gas controls - Reznor® direct-fired models with capacities of **less than or equal to 750 MBH** that are equipped with an electronic gas control system have a pressure regulator (See **FIGURE 12**) that regulates the gas pressure to the burner.

Maximum Differential Gas Pressure at the Burner

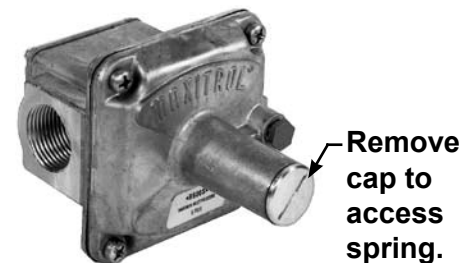
Natural Gas is 5.0" w.c.

Propane is 2.0" w.c.

When gas converting, it may be necessary to change the spring in the pressure regulator; check the table below. If a spring replacement is required, order the spring and follow the instructions below.

| Regulator Springs for Direct-Fired Models with Electronic Modulation Gas Control System | | | | |
|--|----------------|----------|----------------|--------------|
| Spring P/N | Spring Color | Gas Type | Pressure Range | Maxitrol No. |
| 97351 | Orange | Natural | 4-8" w.c. | R5310-48 |
| 91787 | Brown | Propane | 1-3.5" w.c. | R5310-13 |
| 97196 | Cadmium Plated | Natural | 3-6" w.c. | R5310-36 |

FIGURE 12 - Change the spring in the main gas regulator (applies to direct-fired units with capacities of less than or equal to 750 MBH)



NOTE: If the firing rate of the installation is less than the full capacity of the burner, it will be necessary to contact your Reznor distributor to determine the proper pressure setting.

Read all instructions following the ones that apply:

1. Turn off the gas at the main manual shutoff and turn the disconnect switch "off".
2. Open the burner section door panel.
3. ADF/ADFH Models - Change the pilot gas regulator
4. Model ADF/ADFH with single stage or two-stage gas valve only - Install the spring regulator or replacement valve.
5. Direct-fired burner with capacity equal to or less than 750 mbh with electronic modulation controls - Change the spring in the main gas regulator
 - a) Locate the pressure regulator (**FIGURE 12**). Remove the cap and the adjustment screw from the pressure regulator. The regulator spring is now visible.
 - b) Remove the spring and insert the new regulator spring.
 - c) Replace the adjustment screw.
 - d) Measure gas pressure at the burner and adjust pressure to meet application requirements.
 - e) Replace the cap on the regulator.
6. Turn on the disconnect switch and the main gas valve. Check for gas leaks using a commercial leak detecting fluid or a rich soap and water solution. Leaks are indicated by the presence of bubbles. Check all connections including the pilot connections. If a leak cannot be stopped by tightening, replace the part.
7. Replace burner section door panel. The unit is now operational from the system switch on the remote console.

APPENDIX

Gas Conversion Kits

Reznor Models with Gas Conversion Kits including parts and instructions.

| Model | Conversion Kits apply to | See Gas Conversion Form for Kit P/N's by Size |
|------------|---|---|
| B, BE | All Sizes | Form CP-F/B-GC |
| CAUA | | Form CP-CAUA--CP |
| F, FE | | Form CP-F/B-GC |
| FT | | Form 432/433-GC |
| LDAP | | Form CP-LDAP-GC |
| PDH | (For PREEVA units with 1-stage or 2-stage gas controls only). | Form CP-PREEVA-GC |
| RDH | | |
| SDH | | |
| SFT | All Sizes | Form 432/433-GC |
| TRP | All Sizes | Form 452-GC |
| UDAP, UDAS | | Form CP-UD-GC |
| UDBP, UDBS | | |
| VR | | |

Ignition Conversion Kits

(NOTE: These kits are **NOT** gas conversion kits.)

Ignition Conversion Kits to Convert from Match-Lit Pilot to Spark Pilot for Models F and B

| Model F or Model B | Gas | Kit Description | Kit P/N | Instructions |
|----------------------|---------|---|---------|-----------------------------|
| F/B 25-165 | Natural | Spark-ignited, intermittent safety pilot without lockout (UTEK Model 1003-638A, P/N 257009) | 100525 | Form CP-F/B IGN, P/N 100550 |
| F/B 200-250 | | | 100526 | |
| F 300-400, B 300 | | | 100527 | |
| B 400 | | | 102348 | |
| F/B 25-165 | Natural | Spark-ignited, intermittent safety pilot with lockout (UTEK Model 1003-514, P/N 257010) | 100528 | |
| F/B 200-250 | | | 100529 | |
| F 300-400, B 300 | | | 100530 | |
| B 400 | | | 102349 | |
| F/B 25-200 | Propane | (NOTE: Controller includes terminal for connecting vent damper.) | 100531 | |
| F 250-400, B 250-300 | | | 100532 | |
| B 400 | | | 102350 | |

Ignition Conversion Kits to Convert Pilot Systems to Updated Spark Pilot, Hot Surface, or Direct Spark Ignition System for Models listed

| Ignition System being Replaced | Gas | Conversion Kit P/N (Type of Ignition Controller in the Kit) | Instructions (included in Kit) | | Applies to Models |
|--|--------------------|--|--------------------------------|--------|---|
| | | | Form | P/N | |
| Replaces Pilot Codes 62, 63, 65, 66, 84 | Natural or Propane | 257473 (Ignition Controller 257010) 257472 (Ignition Controller 257009) | CP-IGN CNTRL | 134704 | Indirect fired models with Pilot Codes 62, 63, 65, 66, and 84 |
| Replaces Pilot Codes 71 and 75 | Natural or Propane | 257531 (Ignition Controller 195265) | CP-DSI CNTRL | 256905 | FT, SFT, TRP |
| Spark - flame rectification or ultraviolet | Natural or Propane | 146268, 146318, 146319 (HSI P/N 204376) | CP-RDF-HIS | 146321 | RDF with Pilot Code 58, 59, 60, or 61 |
| Model CAUA with Pilot Codes 76 and 77 | Natural or Propane | 258251 (Ignition Controller 195573) | CP-CAUA-IGN CNTRL | 178435 | CAUA with Pilot Code 76 or 77 |
| Model TR with Spark Pilot (Codes 65 or 66) | Natural or Propane | 216970 (DSI P/N 204955) | CP-TR-IGN CNV | 216975 | Infrared TR/TR-H with Pilot Code 65 or 66 |

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9/09 Form CP-GC Parts (Version A)