KERR

TITAN
Wood[illegible]red Boiler
Model 101-T

OWNER'S MANUAL

IMPORTANT

READ OWNERS MANUAL THOROUGHLY BEFORE INSTALLING FURNACE OR LIGHTING FIRE. CONSULT LOCAL AUTHORITIES IF IN DOUBT ABOUT YOUR LOCAL FIRE SAFETY REGULATIONS. IMPROPER INSTALLATION WILL RESULT IN VOIDING OF WARRANTY.

OWNER'S INSTRUCTION MANUAL

NOTE: Keep this manual in a safe place for future reference. Follow manual carefully for installation and operating your "TITAN" Wood-Fired Boiler and heating system.

FOR: KERR "TITAN" WOOD-FIRED BOILER

Model # 101T
Fuel - Wood
Electrical Rating - Volts 120
Cycles - 60

Tested and Listed by;
Energy Testing Laboratory of Maine

Approved by A.I.R.I.

INSTALLATION INSTRUCTIONS

INTRODUCTION

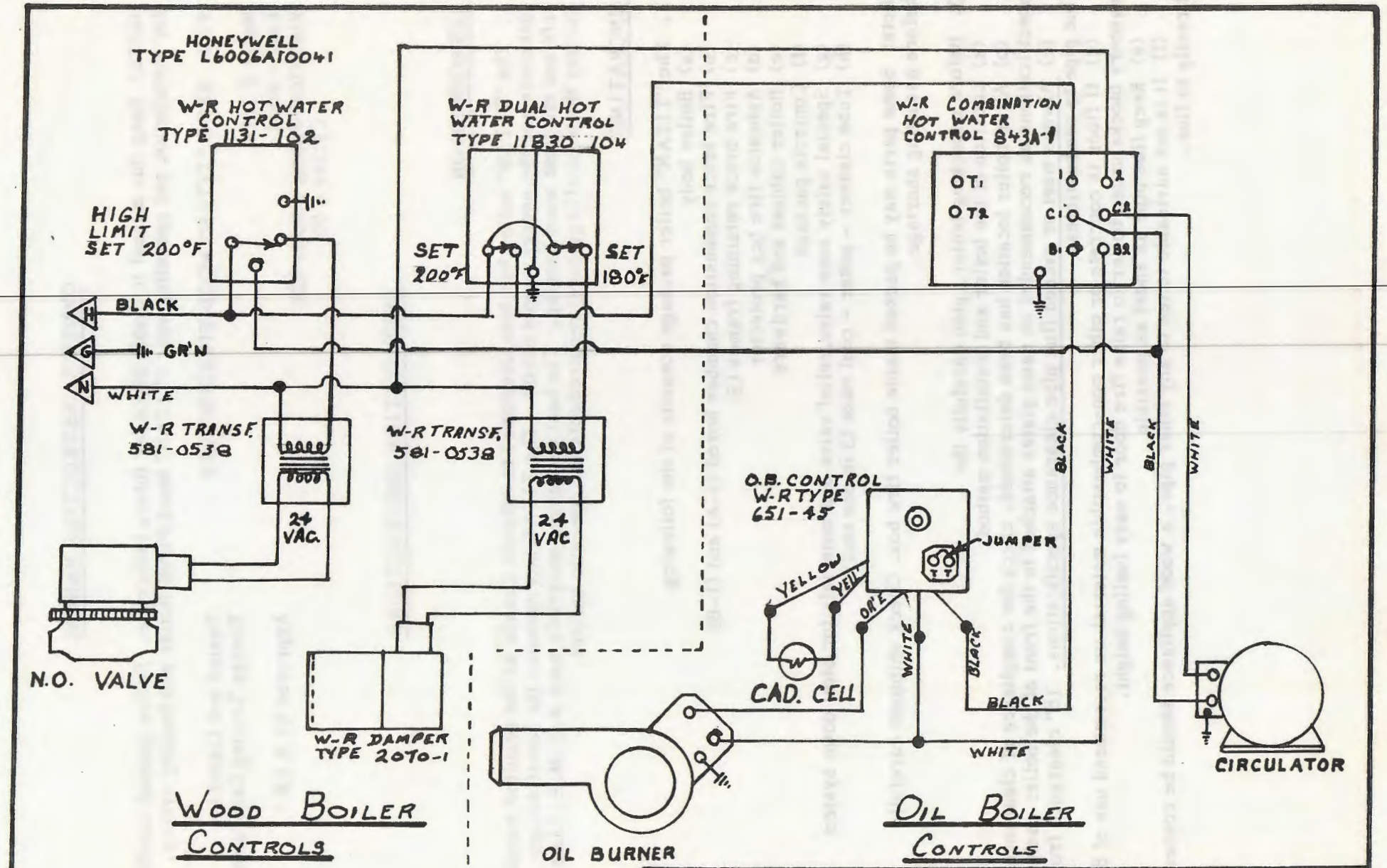
1. The "TITAN" boiler has been developed in Atlantic Canada as the result of escalating fuel costs and the energy supply crisis. The TITAN incorporates the latest designs for safe and efficient wood burning. The heat exchanger materials meet A.S.M.E. (American Society Mechanical Engineers) requirements for domestic boilers.

UNCRATING

2. The "TITAN" boiler package consists of the following
   (a) Boiler body
   (b) Fire brick combustion chamber boxed (1-A) and (1-B)
   (c) Fire brick retaining frames (3)
   (d) Asbestos fire box protector
   (e) Boiler cabinet and hardware
   (f) Controls package
   (g) Special safety zone valve, relief valve and materials for blow down system
   (h) Tube cleaner - poker - coal rake (3 in one tool)

Note: Some parts may be packed inside boiler fire box. Check shipment carefully before assuming shortage.

3. Before unpacking boiler, plan carefully the
   (a) Location of the boiler and installation method.
   (b) After boiler location has been determined, check for compliance of clearance specifications as recommended on name plates attached to the front of the boiler casing.
   (c) Always meet or exceed flue pipe clearance specifications. 18" clearance from flue pipe to combustibles.
   (d) If floor is concrete or other non-combustible material we recommend use of 8" masonry blocks under boiler to raise fire door to easy fueling height.
   (e) Keep flue pipe as short as possible
   (f) It is not advisable to tee to any other pipe, a wood appliance should be connected directly to flue.



KERR TITAN 101 T

WIRING SCHEMATIC	DRAWN A.R.B.	CHECKED D.W.L.	DATE 9/3/78
KERR CONTROLS LTD 24 COURT ST. P.O. 744 TRURO N.S.	PLAN NUMBER 101T-1		

(g) If floor is of combustible materials the requirements are shown in Figure 101T-6. Two layers of hollow masonry block (4" thick) are placed at right angles to each other so that ventilation holes of one layer are opposite the other layer. Also there must be a minimum of one layer of asbestos millboard and one layer of galvanized sheet metal beneath the masonry. (Galvanized metal & asbestos millboard is available on request from your KERR dealer) The base must extend beyond boiler sides to a minimum distance of 457 mm (18") in front and 152 mm (6") on all sides.

FLUE PIPE & CHIMNEY

4. (a) Locate the boiler so that the distance to the flue is as short as possible with the minimum number of elbows.

(b) Install the flue pipe with a gradual rise of 1/2" or more per foot from boiler to flue. NEVER ALLOW FLUE PIPE TO RUN "DOWNHILL" TO FLUE.

(c) Flue pipe must be not less than 7" in diameter.

(d) Space must be provided around the flue pipe and the top of the boiler to allow easy access to the smoke collector for the purpose of cleaning.

(e) Flue pipes must be not lighter than 24 gauge steel. All pipe joints must be securely fastened with screws.

5. (a) The "TITAN" boiler must be installed in accordance with the requirements of the Canadian Heating Ventilation and Air Conditioning Code - 1975, The National Board of Fire Underwriters, A.S.M.E. boiler code and C.S.A. Standards for solid fuel burning equipment as outlined in notice # 39, May 5, 1977 and in the USA, the N.F.P.A. Codes.

(b) Connect the "TITAN" boiler only to an approved chimney which has a flue size equal or greater than boiler outlet, area the chimney must be installed with proper clearances above roof and from adjacent structures and trees. If a masonry chimney is used it must be in good condition and be equipped with a tile liner.

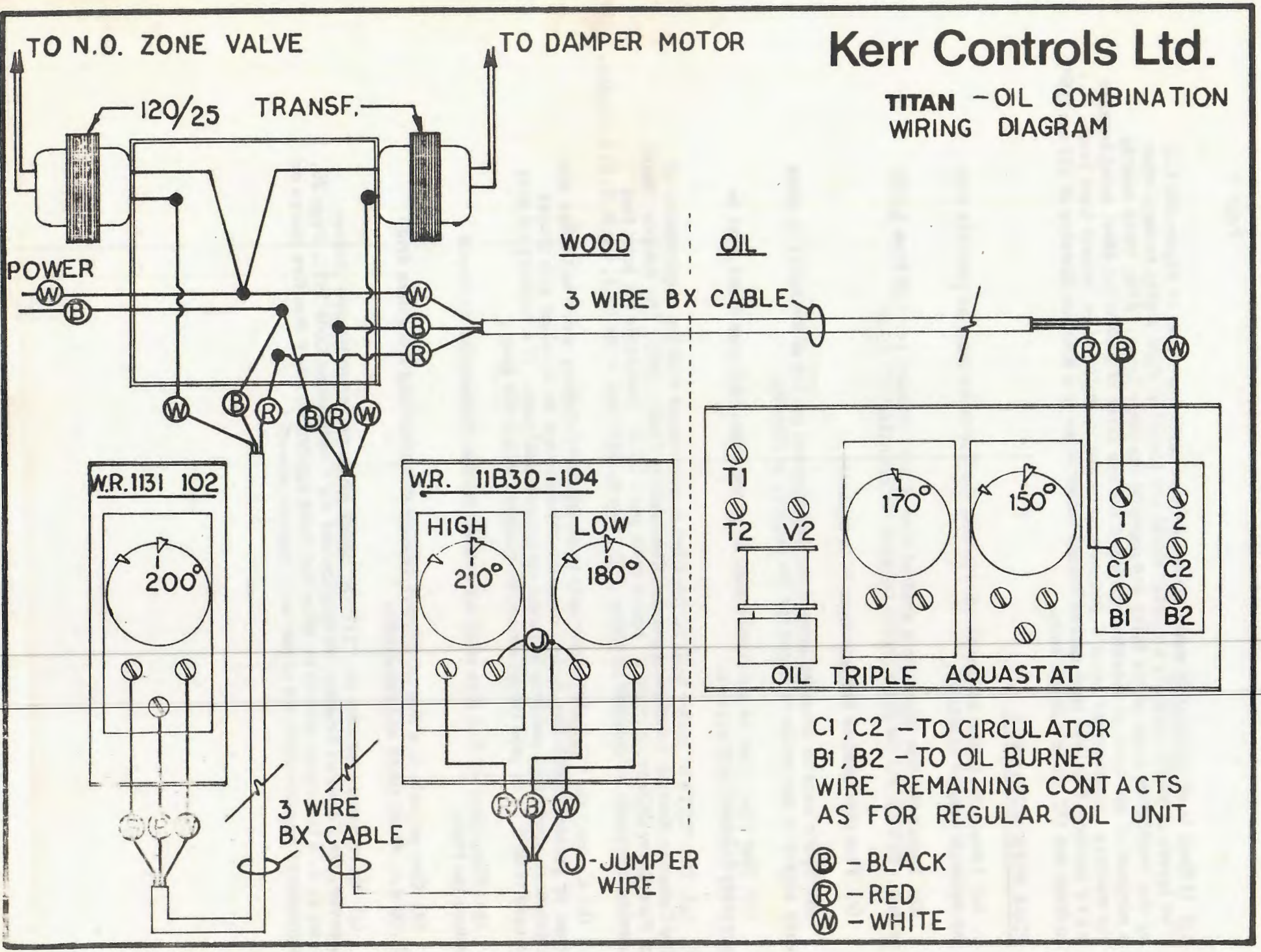
(c) Flue collar or flue pipe must not extend into the chimney flue as it will reduce the fraft.

(d) Connect only to a flue or chimney capable of maintaining a negative draft of .06 w.c. at all times and conditions.

(e) We recommended that the "TITAN" boiler be connected to its own chimney. However, the Canadian Heating, Ventilation and Air Conditioning Code 1975, Page 26, Items 2, 8, 8 (40 states the two or more fuel fired appliances other than fire places or incinerators may be connected to the same chimney provided.

Kerr Controls Ltd.

TITAN – OIL COMBINATION WIRING DIAGRAM



C1, C2 – TO CIRCULATOR
B1, B2 – TO OIL BURNER
WIRE REMAINING CONTACTS AS FOR REGULAR OIL UNIT

Ⓑ – BLACK
Ⓡ – RED
Ⓦ – WHITE

1) Adequate draft (negative flue outlet pressure) is maintained at each appliance.

2) Gas appliance enters at top, oil appliance center and wood appliance bottom.

3) A minimum of 4" masonry shall be left between each flue opening.

6. (a) When installing a wood burning appliance to an existing chimney, carefully inspect entire chimney for the presence of old inlet holes which may be improperly covered by metal caps or other means. Fill any openings with brick and mortar to ensure no hazardous openings exist.

7. The TITAN will burn most wood fuels and paper. However, it is recommended that dry hardwood be used as much as possible, since it results in cleaner more efficient burning with less creosote deposit and less residue as well as less frequent firing.

8. Do not burn gasoline , naptha, fuel oil, kerosene, engine oil or volatiles.

9. Do not store piles of wood within 8 feet of boiler loading door or any combustible material within 4 feet. Keep area in front of boiler swept clean of debris at all times.

10. Store fuel in neat well supported piles with solid end bracing.

11. Ash Removal - Remove ash after build-up reaches 4" depth. First make certain fire is completely out. Remove ash with flat shovel and place in tight metal container with lid. Store away from combustible material.

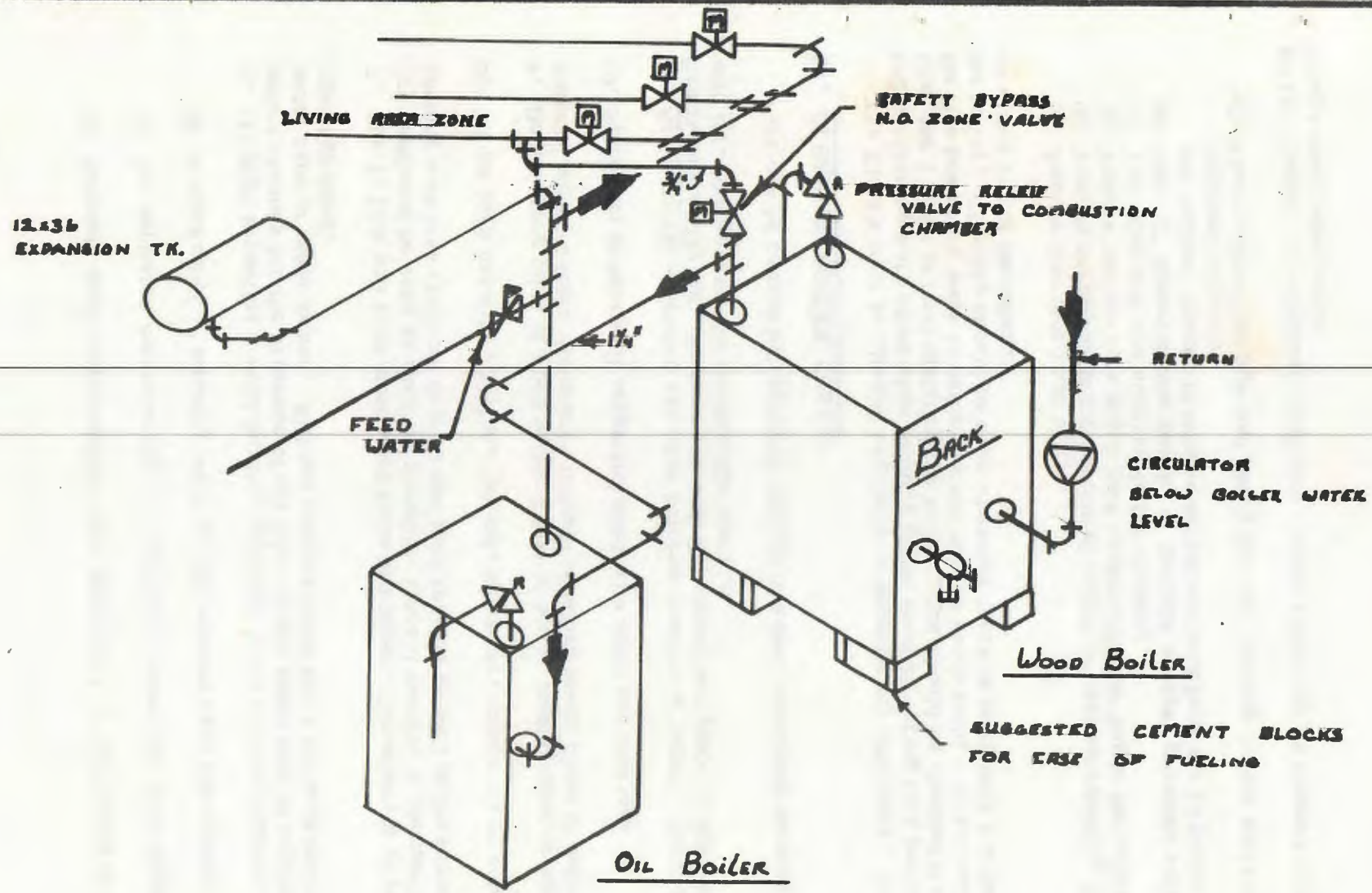
Fire can be caused by improper storage of ashes containing dormant coals.

12. CLEANING BOILER TUBES

The TITAN must be cleaned regularly to maintain top efficiency. The TITAN needs cleaning more often when burning green wood or during long periods of low fire. When the TITAN is first installed the boiler tubes should be checked visually from the fire box every week to determine the rate at which build - up accumulates within the boiler. Cleaning should be done whenever there is more than 1/4 inch of build-up within any of the tubes.

(a) Remove flue pipe from boiler.
(b) Remove screws from top section of boiler cabinet surrounding flue outlet.
(c) Remove the two nuts which hold smoke collector box to the boiler top.
(d) The tubes are now accessable for cleaning.
(e) Use 2" diameter tube brush, or the tube scraper provided with the furnace and vacuum cleaner to remove all accumulation from the 20 boiler tubes and exposed surfaces.
(f) Always clean flue pipe and check for soot build-up in flue while cleaning boiler.

NOTE: Subject to individual conditions, boiler tubes may be cleaned from the fire box using a short tube brush.



KERR

KERR TITAN 101T

TITLE	DRAWN	CHECKED	CHECKED
Series Wood & Oil Piping	AB Barkhouse	JKW.	
Kerr Controls Ltd. P.O. Box 744, Truro N.S. B2N-5B1	PLAN NUMBER 101T-3	DATE 22/3/78	

"TITAN" BOILER INSTALLATION PROCEDURE FOR CONNECTION TO BASEBOARD RADIATION

The "TITAN" boiler has been throughly tested in use with modern baseboard radiation. Over ride and over temperature may be automatically and safely controlled by this use of a special zone valve supplied with the boiler.

Operating aquastats for above zone valve are standard equipment on all "TITAN" boilers.

IMPORTANT - It is very important that the wiring procedure shows Figure 101T-1 and 101T-2 be followed when installation is made in accordance with 101T-3.

ELECTRICAL CODES - All electrical wiring must be made to Canadian Electrical Code and local standards.

PIPING: IMPORTANT - Special Safety Overide zone valves must be installed so that minimal restriction to flow of heating medium (water) is afforded. KERR CONTROLS LIMITED recommends that the valve be placed as shown in Figure 101T-3 overide zone valve in loop supplying living area on main floor level (ie. Kitchen - living room) Overide loop should have at least 40 ft. of radiation. Do not use basement loop for safety overide loop.

CHECKING & TESTING

After system is installed test over ride zone valve effectiveness by firing boiler with all thermostats turned off. At the 200° limit point the outlet pipe or about 190°on the boiler indicator, the bypass zone valve should open and activate the circulator pump simultaneously, thus causing water to circulate through the override loop and releiving the excess water temperature. If this action does not occur, re-check wiring and installation procedure until operation is correct.

Recommended over ride aquastat setting 200° F

Recommended 'damper' aquastat setting 180° F

CAUTION - Do not set squastats setting above recommended positions.

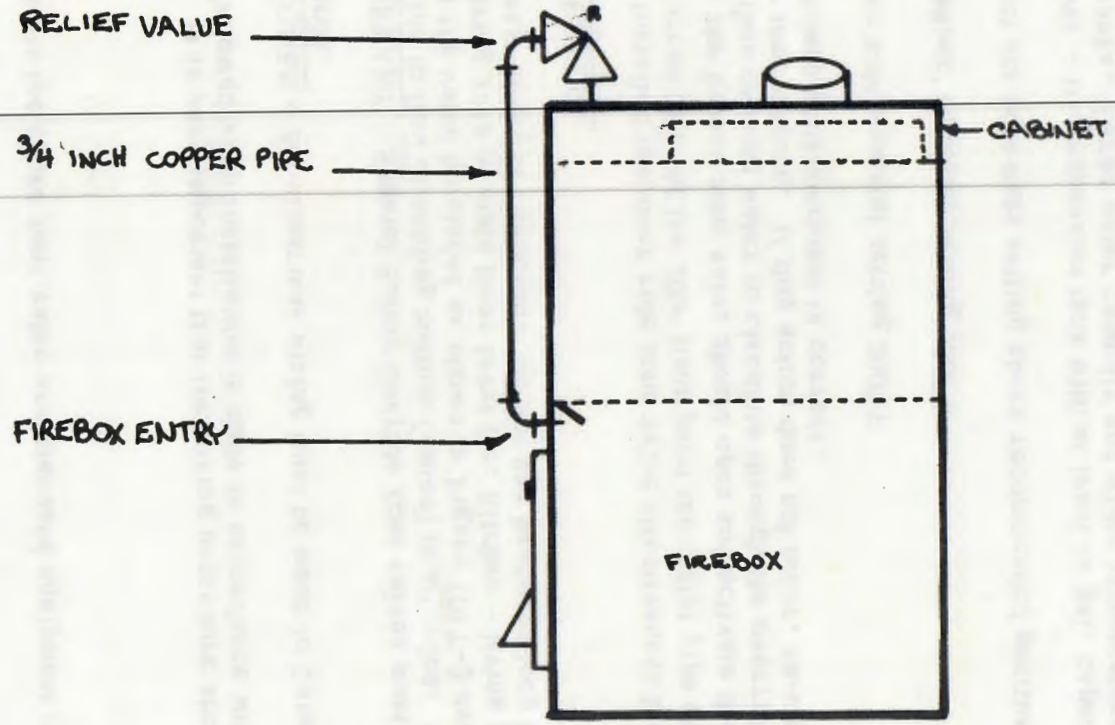
EXPANSION TANK - Use expansion tank with at least 12 gal. capacity. Do not use small x-trol tanks. Large water capacity and wider temperature variation from cold start up with wood firing require greater expansion volume.

FIRE DOOR ADJUSTMENT - The door should be adjusted for a tight seal on all sides - This can be done by tapping adjustable hinge with a hammer.

The TITAN BOILER is supplied with a tube assembly designed to connect the relief valve outlet to the fire box. This must be installed in the field. It is a precautionary measure designed to extinguish the wood fire in unexpected extreme conditions.

If the TITAN BOILER is connected to an existing oil fired boiler, observe appropriate diagram enclosed and reduce aquastat settings on the oil boiler by approximately 20 degrees each i.e. Low to 150 - 160 degrees
Hi to 170 - 180 degrees

KERR TITAN WOOD-FIRED BOILER MODEL T101 – BLOW DOWN EXTINGUISHING SYSTEM



KERR

KERR TITAN			
TITLE: SAFETY Blow-down	DRAWN: A.B.B	CHECKED	CHECKED
Kerr Controls Ltd. P.O. Box 744, Truro N.S. B2N-5G1	PLAN NUMBER: 101 T-4	DATE: MAY 19/78	

CHECK LIST - KERR WOOD FIRED BOILER INSTALLATION

PIPING

1. Circulator on return to wood boiler
2. Circulator below top of boiler
3. 12 x 36 expansion tank or equivalent installed.
4. Normally open valve on tee between boilers.
5. Does normally open zone valve bypass to main living.
6. Is normally open zone valve on most direct piping line (Fewest Elbows)

WOOD BOILER INSPECTION

1. All firebrick in place.
2. Relief valve piped back into combustion chamber.
3. Damper motor chain loose and dropping over door hinge when damper is closed (down)
4. Wiring cables protected from heat not touching hot surfaces.
5. Is system full of water and air eliminated?
6. Are zone valves and piping located to prevent drips on controls.
7. Has door been adjusted for air tight fit.

WIRING INSPECTION

1. Is disconnect switch within view?
2. Check switch on normally – open zone valve (should make circut when valve open)
3. Check settings on all aquastats.

FLUE AND SMOKE PIPE

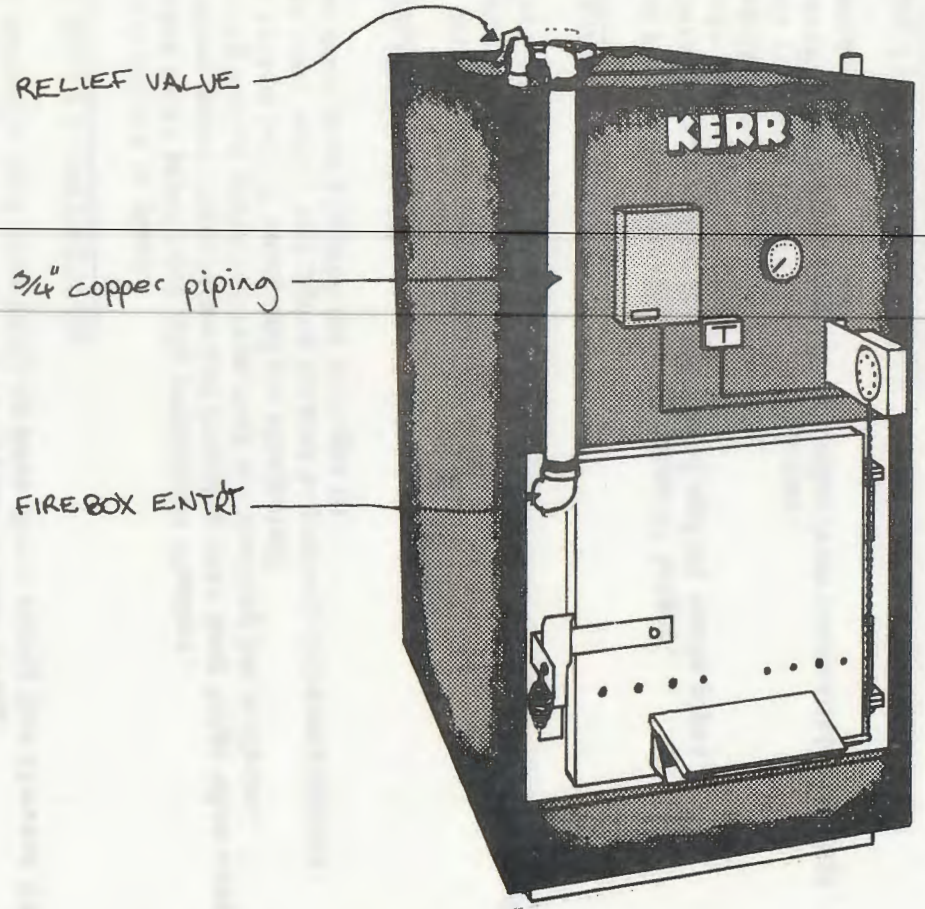
1. Flue inner size equivalent to 7" round or larger.
2. Separate entry to flue for both wood and oil smoke pipes.
3. Smoke pipe 24 g. or better.
4. Snap–lock pipe secured by screws.
5. Draft regulator (if used) set at .05 max.
6. Clearance for smoke pipe 18" or better from combustible material. Metal protection recommended.

INSTRUCTIONS TO HOMEOWNER

1. Keep area around unit clean
2. Use dry wood
3. Load Carefully
4. Load Level
5. Ash Removal
6. Watch for sooting in smoke pipe
7. Cleaning boiler tubes regularly.

SPECIAL INSTRUCTIONS TO OWNER

1. Danger of extreme wood fire due to overloading.
2. Danger of flue fire due to creosote buildup.
3. How unit will function during power failure.
4. Warranty (5 Years)does not cover firebrick.

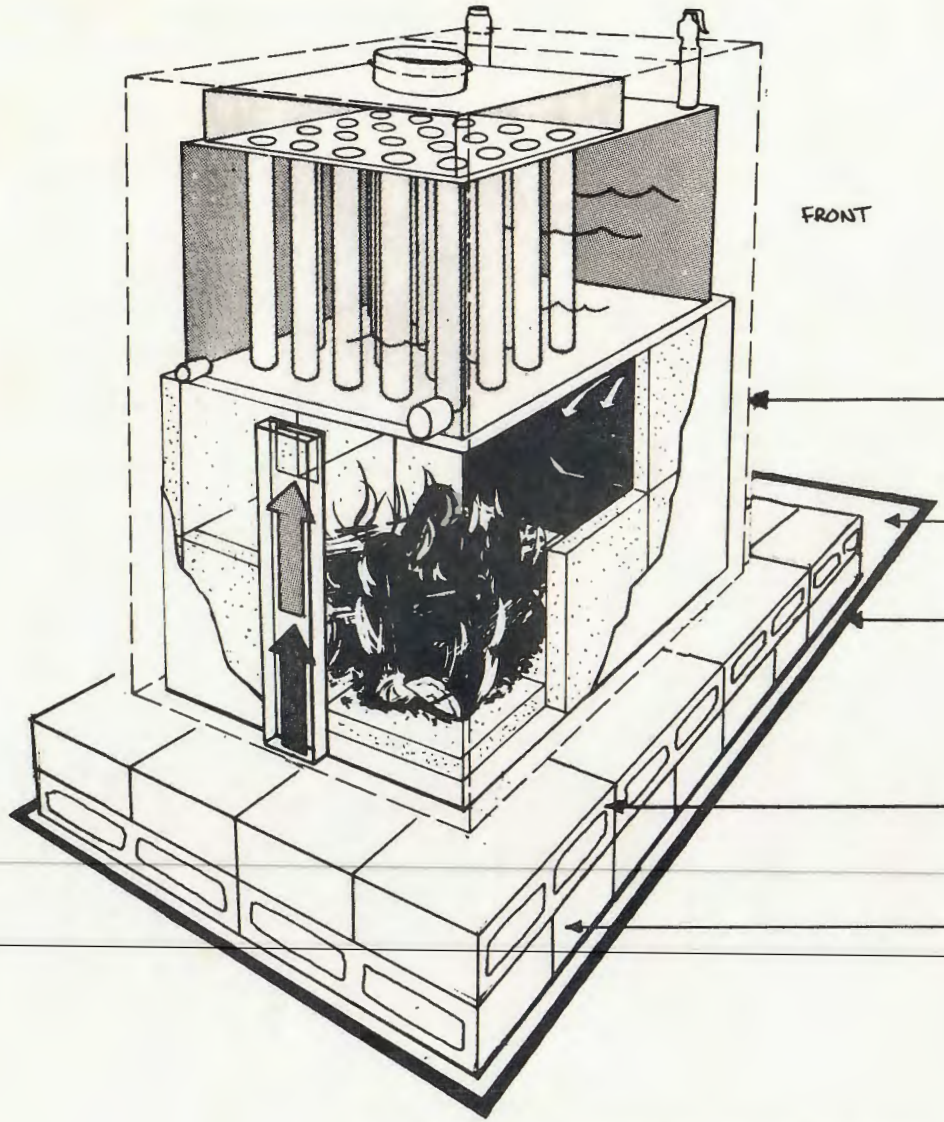


KERR TITAN 101-T

TITLE	DRAWN	CHECKED	CHECKED
OVER FIRE SAFETY RELEASE	Elwood	RBB.	
Kerr Controls Ltd. P.O. Box 1500, Truro N.S., B2N 5V2	PLAN NUMBER 101T-5		DATE 10/05/78

KERR

NORMAL OPERATION: OIL FURNACE WILL START IF SYSTEM TEMPERATURE IS BELOW SETTING ON OIL BOILER AQUASTAT. DAMPER MOTOR OPENS DRAFT FOR WOOD BOILER BELOW 180° THERMOSTATS OPERATE ZONE VALVES. CIRCULATOR RUNS WHEN ANY ZONE VAVLE OPEN. SHOULD WOOD HIGH LIMIT OPERATE, NORMALLY OPEN VALVE OPENS, CIRCULATOR IS POWERED, OIL BURNER IS UNABLE TO START



BACK VIEW

KERR

KERR TITAN 101T

TITLE	DRAWN	CHECKED	CHECKED
NON COMBUSTIBLE BASE	Eaton		
Kerr Controls Ltd. P.O. Box 1500, TRURO, N.S. B2N 5V2	PLAN NUMBER 101 T-6		DATE 24/04/78

CAUTION - Do not fire with wood until operating manual label and instructions are read and fully understood. Install and wire boiler only as prescribed in manual.

1. Burn wood only, never use gas, oil or liquids in fire.
2. Not suitable for automatic stoking.
3. Do not load wood above max loading mark on left of door or overheating and fire hazard may result
4. When draft damper is in down position, it must seat tightly with no restriction by draft chain.
5. Do not adjust barometric draft higher than .05 in W.C.
6. Remove ash when height reaches 4" or less. Remove only when fire is out by using flat shovel. Place ash in metal container.
7. Load wood carefully. Do not slam against rear or sides of fire box or brick lining may be damaged.
8. Dry wood is recommended for safety and efficiency. Green or wet wood gives less heat and more smoke
9. CAUTION: Place boiler on non-combustible floor. Observe following minimum clearances to combustible material: Front 48", one side 6" other side 24", flue pipe 18", rear 24".
10. Connect only to approved factory built chimney or title lined masonry flue.

SPECIAL PROCEDURES

SOOT FIRE

(a) Shut off power switch to boiler
(b) Shut off manual firing switch (if in use)
(c) Close barometric draft regulator
(d) Cast 1/2 lb. common salt (coarse preferred) on boiler fire and close door immediately.
(e) Call Fire Department.

EXTREME WOOD FIRE DUE TO IMPROPER OPERATION

(a) Disconnect damper chain to prevent draft from opening
(b) Increase all thermostats to maximum
(c) Do not shut off power
(d) Excessive heat caused by extreme over-firing may cause relief valve to blow off water/steam.

ELECTRICAL POWER FAILURE

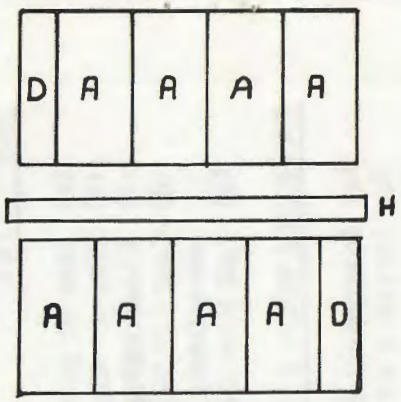
(a) Latch damper motor in manual position as required to maintain fire.
(b) Refuel frequently with small load to maintain a small fire at 1/2 normal maximum volume indicated on boiler.
(c) If necessary for a few minutes, lift draft chain by hand and hold against stop when starting or refueling during power failure.
(d) Never prop up or tie draft damper.
(e) Do not expect to maintain maximum comfort under no power conditions.
(f) To prevent injury do not allow anyone who is unfamiliar with the operation of the boiler attend it.

PROCEEDURE TO INSTALL FIREBOX

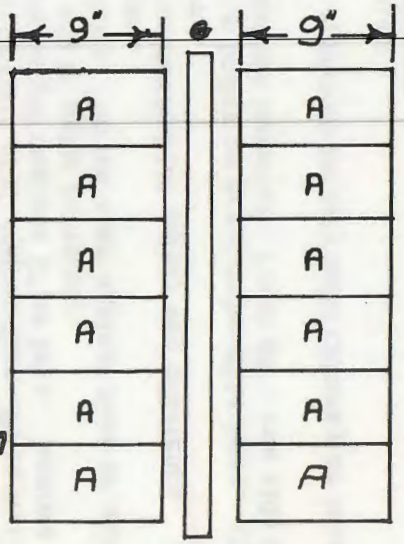
1- PLACE ASBESTOS LINER NEXT TO THE METAL SIDES OF THE FIREBOX.
2- PLACE IN LOWER TIER BRICK (SIDE AND REAR)
3- BOTTOM BRICK
4- STEEL DIVIDER RAILS.
5 INSERT FRONT "DIE" BRICKS.
6 TOP TIER SIDES & REAR.

NOTE: INSERT THE TOPS OF THE UPPER BRICKS AND THEN DROP BEHIND BOTTOM RETAINER RAIL.

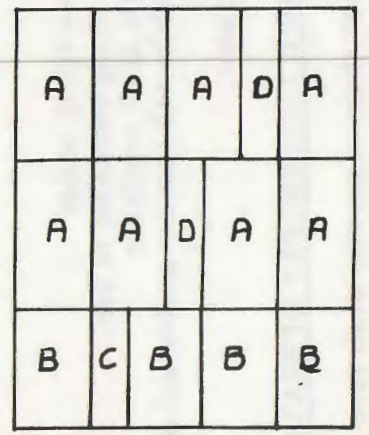
NOTE: INSTALL ASBESTOS FIRE BOX LINER BEFORE PLACING BRICK



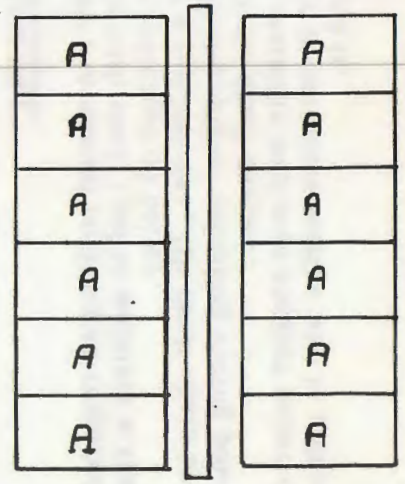
BACK



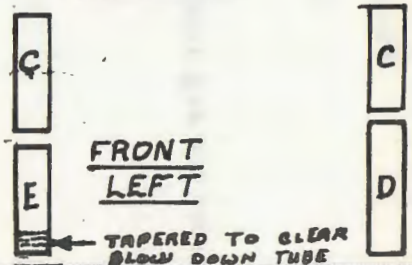
LEFT SIDE



BOTTOM

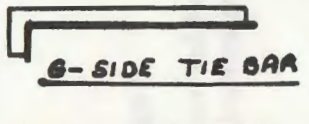


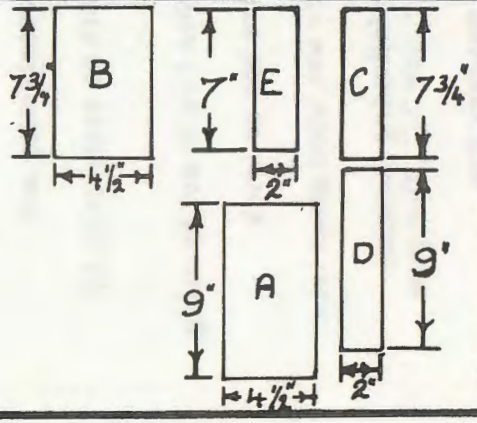
RIGHT SIDE



FRONT LEFT

FRONT RIGHT





KERR

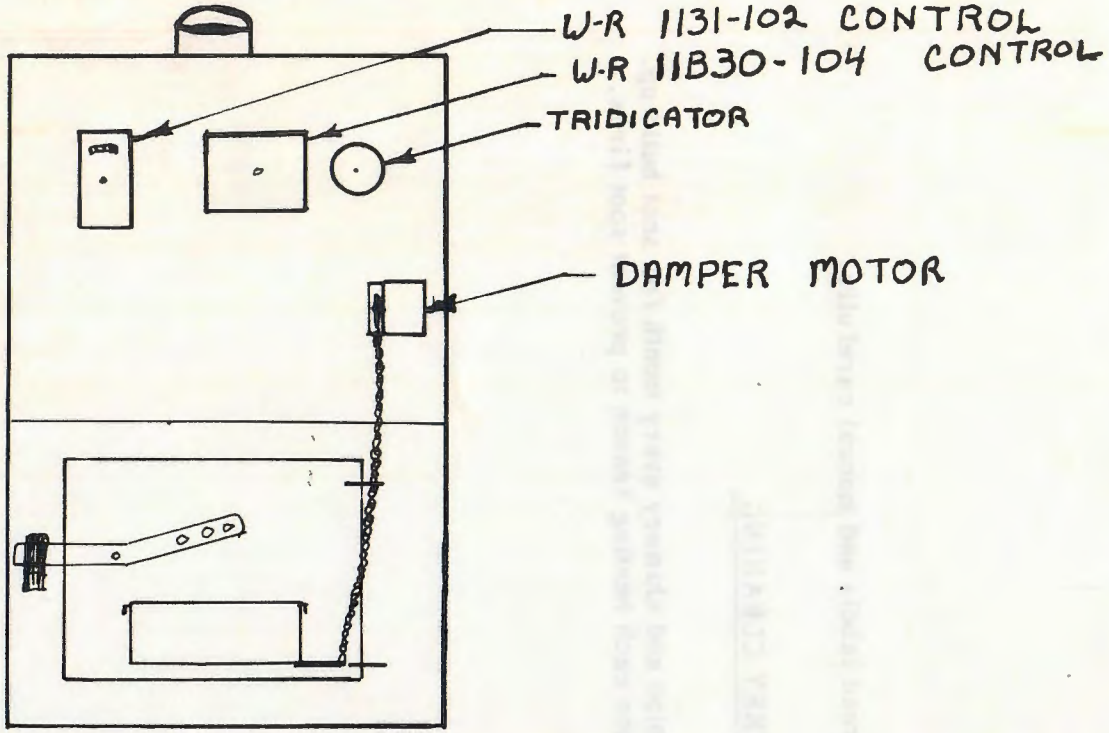
TITAN BOILER FIRE-BRICK

TITLE	DRAWN	CHECKED	CHECKED
	A.B.B.		
Kerr Controls Ltd. P.O. Box 744, Truro N.S. B2N-5B1	PLAN NUMBER 101T-7		DATE 23-5-78

(g) For more information read labels and manual carefully.

FURNACE FLUE PIPE & CHIMNEY CLEANING

Inspect boiler tubes, flue pipe and chimney every month for soot build up. Clean as required or at least once each heating season to prevent soot fires.

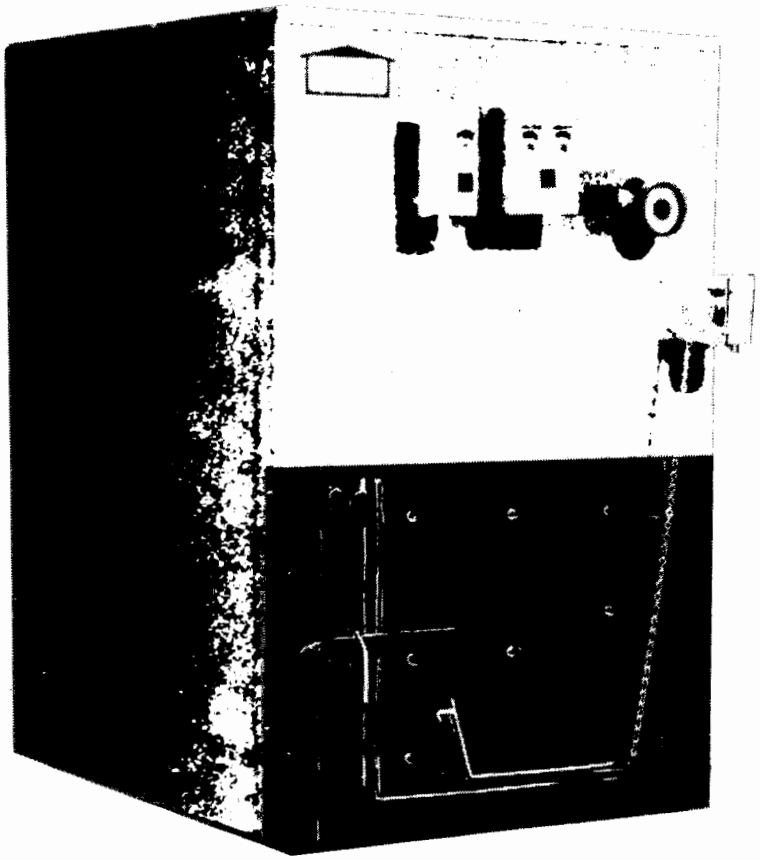


101T KERR TITAN

TITLE	DRAWN	CHECKED	CHECKED
COMPONENT LOCATIONS	ABB		
Kerr Controls Ltd. P.O. Box 744, Truro N.S. B2N-5G1	PLAN NUMBER 101T-8	DATE 26-5-78	

KERR

TITAN
WOOD-FIRED BOILER



The Kerr Titan Wood-Fired Boiler is manufactured in Canada to meet the heating demands of rugged winters. This boiler could be your solution to high energy costs.

The design of the Titan has utilized modern Scandinavian wood-burning technology to maximize safety and efficiency. The large, air-tight combustion chamber promotes clean even combustion. The wood burns long and slow leaving only a fine white ash. The Titan's high wood-burning efficiency is further increased by its fire brick lining and the introduction of pre-heated air at the top rear of the combustion chamber. This pre-heated air ignites secondary gases that usually escape unburned.

The Titan can be installed independently or in conjunction with your present domestic boiler.

The TITAN is equipped with safety devices and dependable automatic controls. Recent tests by a major industrial research institute revealed that "the instrumentation of the unit was found to be in excellent working condition and facilitated an extremely good control over the wood burning process".

Length	35½"
Width	26½"
Height	43½"
Fire Box (fire-brick lined)	25½" long x 18¼" wide x 16" high
Fire Box Door (Steel Plate)	14½" square 1" thick
Crown sheets	¼" steel plate
Secondary heat exchange (tubes)	20 tubes 1¾" d x 17¼" long
Smoke Pipe	7" diameter
Supply & Return	1¼" diameter
Shipping Weight	675 lbs.
Installed Load	Up to 140,000 BTU/h

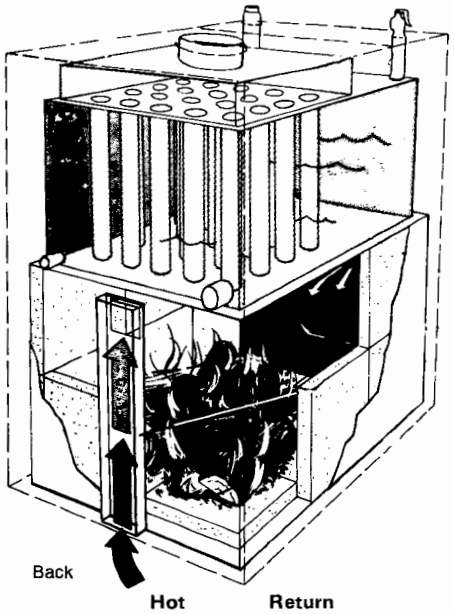
TITAN

WOOD-FIRED BOILER

Manufactured in the Atlantic Provinces

by KERR

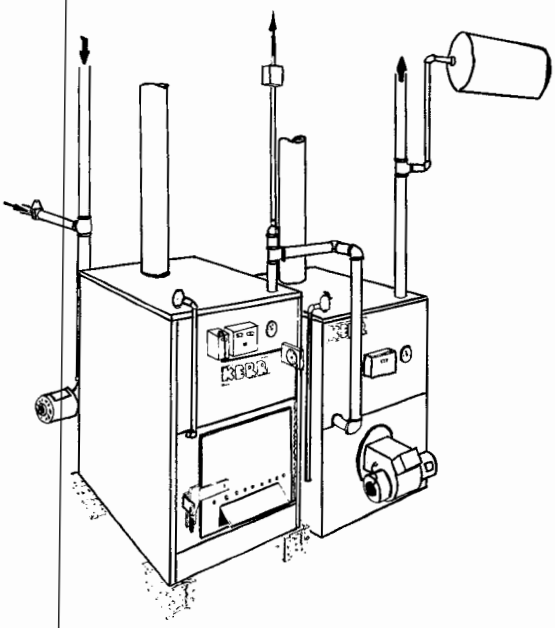
CUT-AWAY OF TITAN FIRE-BOX



* "TITAN CROWN SHEETS are made from ¼" plate. This exceeds the minimum standards set for domestic boilers.
* The TITAN's exterior is finished in a rust resistant satin coated (urethane enamel) steel.
* The dry base boiler with fire brick lining in the combustion chamber adds to the long life of the boiler and maintains the higher temperatures needed to promote efficient burning.
* Conforms to A.S.M.E. boiler codes.
* Seamless boiler tube construction.
* Channel introducing secondary (pre-heated) air retards creosoting by igniting secondary gases.
* Automatic Controls:
  (1) thermostatically controlled damper
  (2) automatic by-pass controls:
    - should boiler overheat, the thermostat is automatically over-ridden and heat is directed into the living area.
    - should there be a power out-age, the Titan will automatically perform as a gravity furnace.
  (3) unique blow-down system
    - a back-up safety system to release steam directly over the fire should the boiler overheat.

* The TITAN will hook up easily to your present oil fired hot water boiler.

TITAN IN COMBINATION WITH OIL-FIRED BOILER



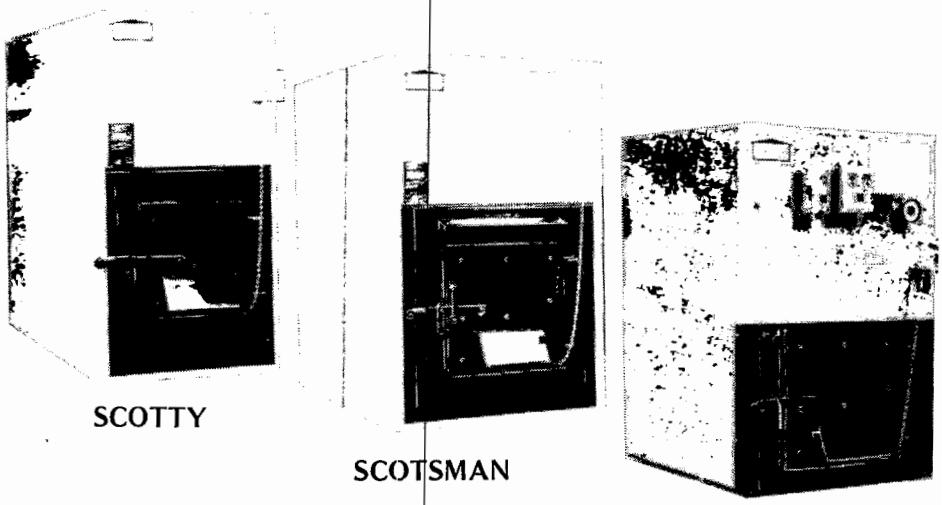
A.I.R.I. APPROVED

ATLANTIC INDUSTRIAL RESEARCH INSTITUTE

ENERGY TESTING LABORATORY of MAINE APPROVAL

KERR HAS A WOOD FURNACE FOR YOUR HOME

Join the thousands of North-American homeowners who have saved money and conserved energy the KERR way. Come and see your KERR dealer about the "SCOTTY", "SCOTSMAN" and the "TITAN" Wood furnaces.



SCOTTY

SCOTSMAN

TITAN

Dealer

WEST OIL COMPANY
490 North Eagle Street
R. F. D. # 1
North Adams, Mass. 01247
(413) 663-7606
Sales, Service and Installations

For your nearest dealer contact:

KERR CONTROLS LIMITED

9 CIRCUS TIME ROAD, SOUTH PORTLAND, MAINE 04106
207-773-8909

Branch Warehouses:

P. O. Box 1500
Truro, Nova Scotia
B2N 5V2
902-895-9281
Telex 019-34508

61 Halifax Street
P. O. Box 2155, Postal Stn. A
Moncton, New Brunswick
E1C 8J1
506-855-5741

386 Rothesay Ave.
Saint John, New Brunswick
E2J 2C3
506-693-4170
Telex 014-07564

3607 Strawberry Hill
Halifax, Nova Scotia
B3K 5A8
902-455-7248

35 Maple Valley Road
Corner Brook, Newfoundland
A2H 3C4
709-634-5323
Telex 016-44196

9½ Mullock Street
St. John's, Newfoundland
A1C 2R6
709-753-1670
Telex 016-4025

81 MacAulays Drive
Sydney, Nova Scotia
B1P 3Z8
902-539-2660