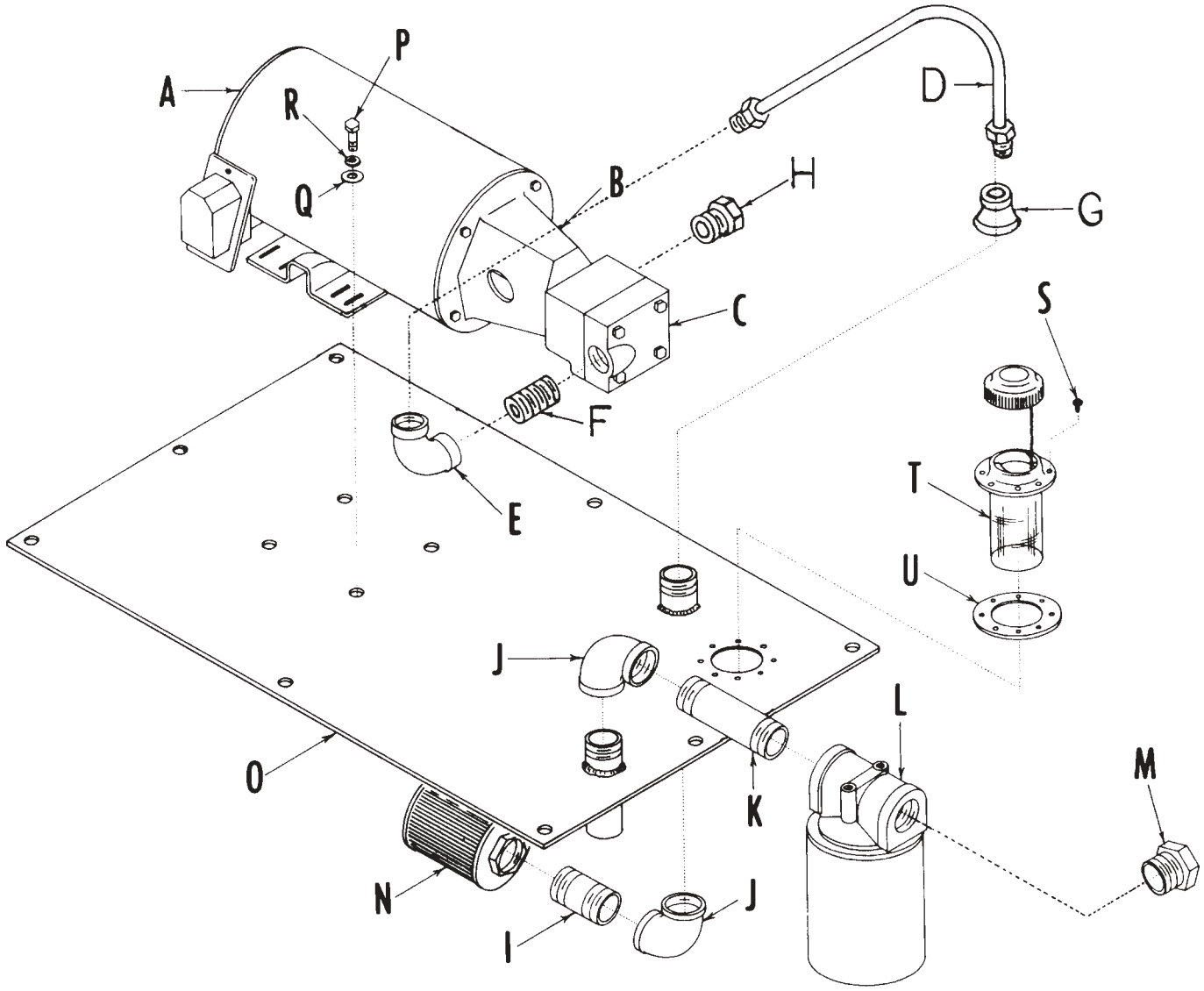
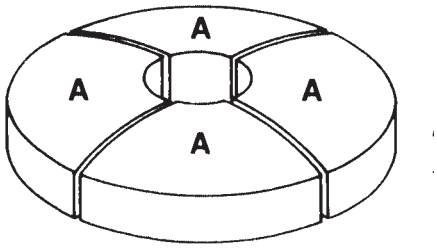
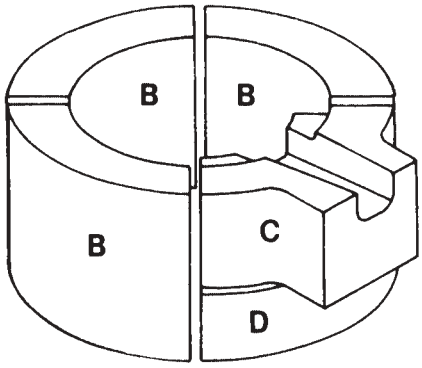
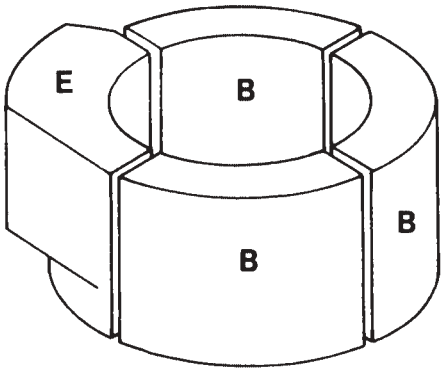
A	**004114**	Motor	1	**L**	**060075**	Return filter	1
B	**060077**	Mounting adaptor	1	**M**	**003353**	3/4" x 3/8" red. bushing	1
C	**060060**	Gear pump	1	**N**	**060078**	Fluid pick up strainer	1
D	**060035**	11 ½" hose	1	**O**	**102701**	Reservoir top	1
E	**003387**	3/8" extra heavy elbow	1	**P**	**000708**	¼" x 1" hex hd bolt	4
F	**003026**	3/8" x H close nipple	1	**Q**	**002111**	¼" flat washer	4
G	**003201**	3/8" x 3/4" x H red. coupling	1	**R**	**002112**	¼" lock washer	4
H	**003337**	½" x 3/8" red.bushing	1	**S**		10-32 self tapping screw	6
I	**003061**	3/4" close nipple	1			(included in T)	
J	**003375**	3/4" elbow	1	**T**	**060079**	Filler breather	1
K	**003068**	3/4" x 5" nipple	1	**U**		Breather gasket (incl. in T)	1

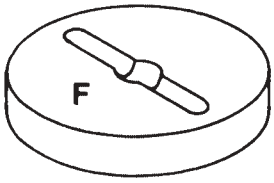


RELINING INSTRUCTIONS FOR SPEEDY MELT MODEL T-160 FURNACE









	OPN	DESCRIPTION	QTY
A	008002	Lid Section	4
B	008000	Solid Side Liner	6
C	008019	Pour Spout	1
D	008016	Liner Spacer	1
E	008003	Burner Brick	1
F	008004	Bottom Brick	1
	008184	Premixed Insulation	

The material used in the manufacture of the lining and lid for these Speedy Melt Furnaces is HighAlumnia refractory. This material is one of the best available, designed to withstand the extreme temperatures, drastic temperature changes and high velocity circulation encountered in top performing crucible melting furnaces. The fusion point of this material is near 3300∞F. DOMESTIC FIRE CLAY REFRACTORY, NORMALY USED, IS ENTIRELY UNSATISFACTORY. All shapes are compressed under extreme pressures, and kiln burned at temperatures approaching 2600∞F.

The MIFCO Furnaces have been designed so that relining is rapidly and easily done. Complete relining kits are available as a package ufiit. These kits include all replacement refractory shapes, insulation and the correct type of High-Alumina refractory mortar. Structural parts of the furnace which are subject to normal abuse, and may need replacement, are available. Relining procedure is as follows:

1.Remove blower and mixer-burner assembly from furnace.

2.Remove front bolt from lid band, spread lid band, remove the four lid brick sections, ìAî.

3. Remove lid lift assembly by lifting out of the base tube. Replace lid band if damaged or burned, being careful not to lose collar bushings in jack tube. Replace both lid support rods if bent or burned.

4. Remove the four top cast iron segments by removing hex nuts on top of furnace. Remove all insulation and refractory from the furnace shell. Remove and replace seal hold down bolts if broken.

5. Mix part of refractory sealer to consistency of heavy cream for mortaring ,joints.

6. Locate burner row, 4 bricks banded together. DO NOT REMOVE THE BANDS. Cement I.D. of burner tunnel and O.D. of guide tube to prevent flame leakage. Place ring of bricks down over the burner guide tube, center bricks in shell.

7. Cement bottom brick in place, with drain grooves up by placing thick layer of sealer in bottom of shell first. Fill any cracks around bottom brick with sealer.

8. Wet brick surfaces to be mortared, with water. This improves the mortar joints. Dry bricks absorb moisture from mortar too rapidly, resulting in weak joints. Use a brush or sponge to saturate surface with water.

9. Cement second ring of four solid liner bricks in place by placing a thick layer of sealer on top of bottom row of bricks. Sit second row in place, staggering bricks to split the joints. Level top surface of second ring with top of furnace so lid will seat properly.

10. Locate a piece of plywood or steel and place in front of pour spout brick ìCî. This will prevent insulation from escaping around brick. Leave this board in place until insulation has been dried.

11. Mix PRE-MIXED INSULATION with sufficient water to the consistency of plaster. Pour insulation between shell and refractory lining. Prod while pouring to form an even distribution of insulation. Fill to height of liners. Allow to sit approximately 30 minutes and then fill to the top again. Tap side of shell with a mallet very lightly.

12. Replace top seal segments and bolt down in place. Spread lid band and place four lid segment sections on top of furnace chamber lining. Align grooves in O.D. of the lid brick to match holding lugs in lid band. Press or tap each top segment down to seat against chamber lining. Replace the front lid band bolt and tighten snug. DO NOT OVER TIGHTEN. OVER TIGHTENING WILL CAUSE THE LID BRICKS TO CRACK WHEN THEY EXPAND FROM HEATING.

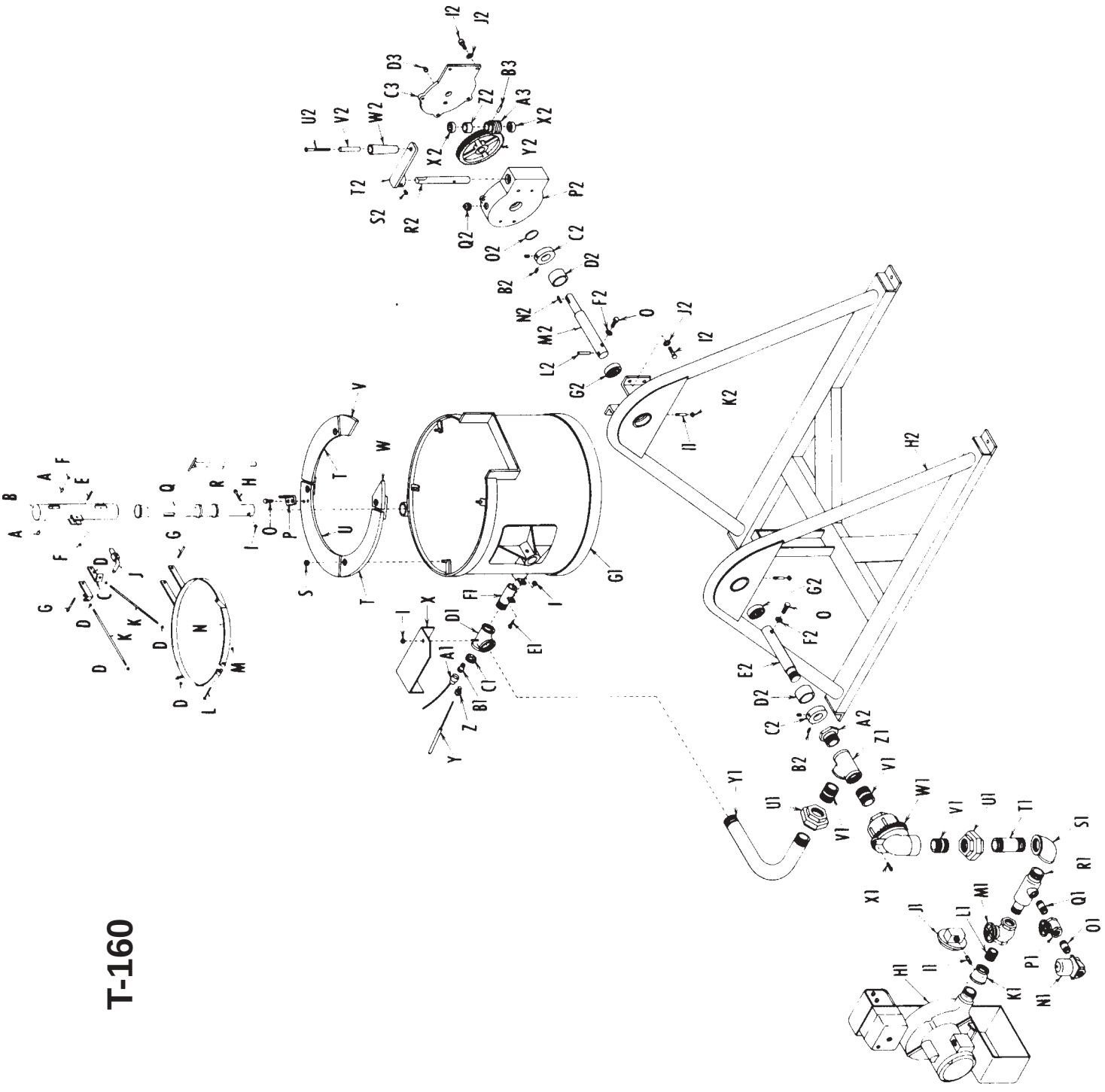
13. Remove lid assembly from furnace, place upside down on floor and paint the under side with sealer. Place back in position and paint the top the same way. At the same time paint entire furnace chamber, with a light layer of sealer. DO NOT PLUG BURNER HOLE WITH SEALER.

14. Place burner back into the guide tube, bolting in place.

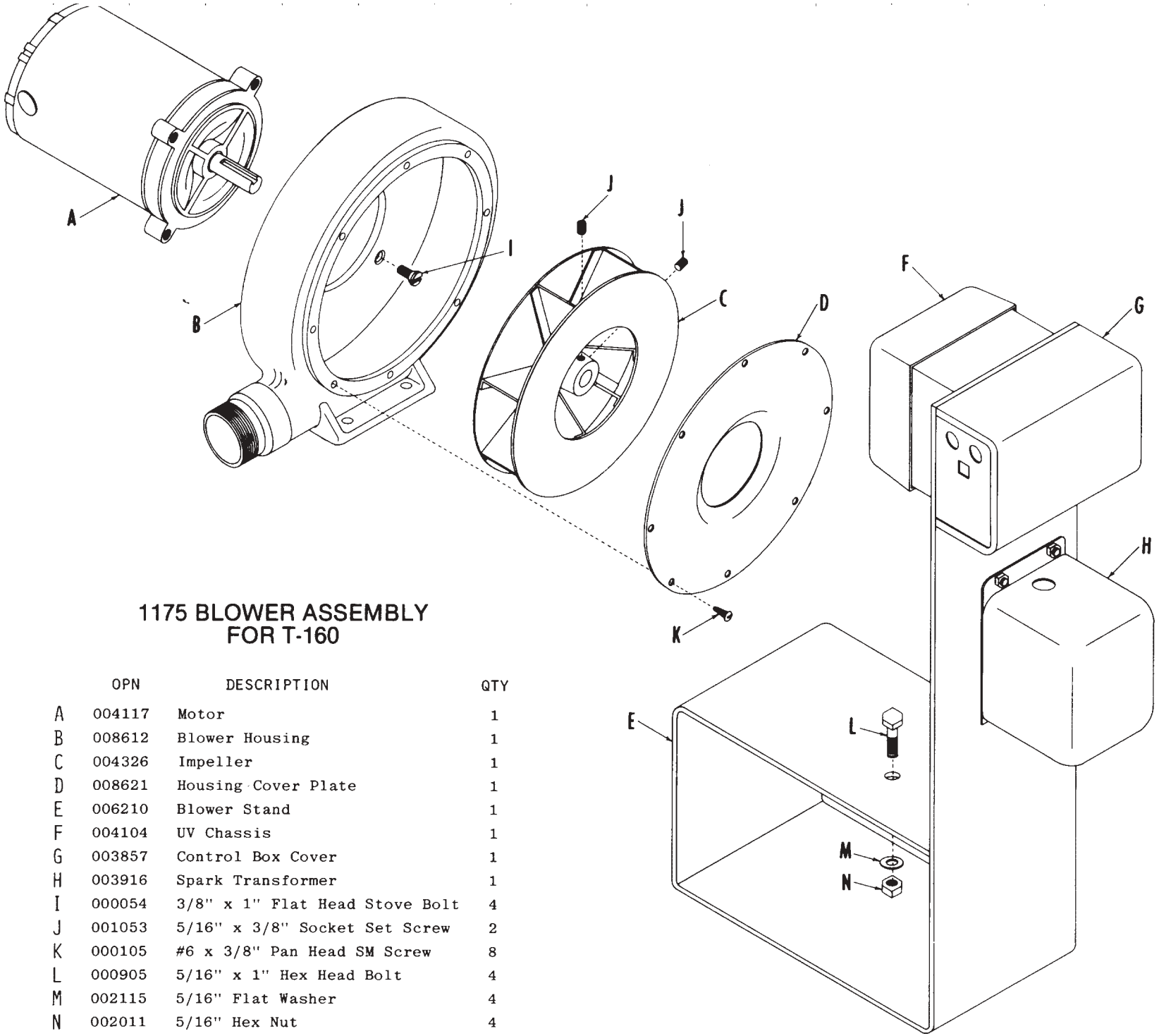
15. Furnace should set for 24 hours to cure insulation, then fire at low fire for one hour to remove moisture. The following day, fire as desired. Firing at HI-FIRE right away will cause steam to form in the bricks and blow them apart.

NOTE: REFER TO BULLETIN - CARE AND MAINTENANCE OF FURNACE LININGS.

T-160



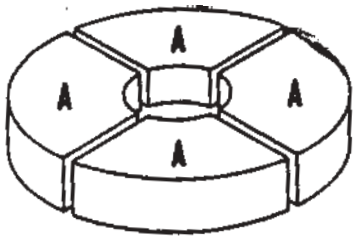
A	010009	LID LIFT BUSHING
B	010003	SWIVEL PIPE
C	010008	SUPPORT ROD BRACKET
D	002016	3/8"-16 JAM NUT
E	002403	FULCRUM SPRING PIN
F	002017	3/8" LOCK NUT
G	001213	3/8"-16 X 3 1/4" HEX BOLT
H	000614	1/4" X 2 1/4" RD HD MS
I	002008	1/4" HEX NUT
J	010006	LID LIFT FULCRUM BAR
K	100475	LID SUPPORT ROD
L	001411	3/8"-16 X 2 1/2" HEX BOLT
M	002015	3/8" HEX NUT
N	100470	LID BAND
0	001205	3/8" X 1" HEX BOLT
P	100463	LID STOP
Q	010010	27" JACK TUBE
R	010070	LID LIFT HANDLE
S	002012	5/16" JAM NUT
T	008601	SEAL SECTION
U	101750	SEAL SECTION W/ LID STOP
V	101749	SHORT SEAL SECTION-DRIVE
W	101748	SHORT SEAL SECTION-BLOW
X	006690	SCANNER COVER
Y	004068	SPARK ELECTRODE
Z	003408	COMPRESSION FITTING B2
A1	004107	UV SCANNER
B1	003024	1/2" X 3/8" REDUCING NIPPLE
F1	006600	BURNER NOZZLE
G1	101710	FURNACE SHELL ASSEMBLY
H1		BLOWER ASSEMBLY
11	003002	1/8" X2" NIPPLE
J1	004226	AIR PRESSURE SWITCH
K1	003220	1 1/4" X 2" COUPLING
L1	003106	1 1/4" CLOSE NIPPLE
M1	003430	1 1/4" GATE VALVE
N1	004214	3/4" GAS SOLENOID
O1	003064	3/4" X 3" NIPPLE
P1	003428	3/4" GATE VALVE
Q1	003061	3/4" CLOSE NIPPLE
R1	010332	GAS AIR MIXER
S1	003385	1 1/2" X 2" ELBOW
T1	003148	2" X 6" NIPPLE
U1	003370	2" UNION
V1	003140	2" CLOSE NIPPLE
W1	003504	2" FLEXO-JOINT
X1	000904	5/ 16" X 1" SQ HEAD BOLT
Y1	003390	LONG RADIUS ELBOW
Z1	003311	2" TEE
A2	003348	1 1/2" X 2" PIPE BUSHING
001380		3/8" X 1/2" SOCKET HD SS
C2	101739	LOCKING COLLAR
D2	101741	BEARING RETAINING SLEEVE
E2	101738	BLOWER SIDE PIVOT AXLE
F2	002122	3/8" LOCK WASHER
G2	101752	PIVOT BEARING
101720		BASE ASSEMBLY
12	000905	5/16" X 1" HEX BOLT
J2	002116	5/16" LOCK WASHER
K2	002454	GREASE FITTING
L2	101744	3/8" DRIVE PIN
M2	101737	DRIVE SIDE PIVOT AXLE
N2	040069	1/4" X 1" KEY
O2	101755	GEAR BOX DRIVE ìOî RING
P2	101722	GEAR BOX
Q2	003324	1/2" PIPE PLUG
R2	101733	HAND CRANK SHAFT
S2	001054	5/16" X 1/2" SOCKET HD SS
T2	101743	HAND CRANK
U2	000630	3/8" X 4" RD HD MS
V2	102099	HANDLE TUBE
W2	102098	HANDLE
X2	102101	THRUST BEARING
101735		WORM GEAR
Z2	101734	WORM SPACER
A3	101736	WORM
B3	002404	3/16" X 1" SPRING PIN
C3	101732	GEAR BOX LID
003322		1/4" SQ HEAD PLUG
B2		
D3		
Y2		

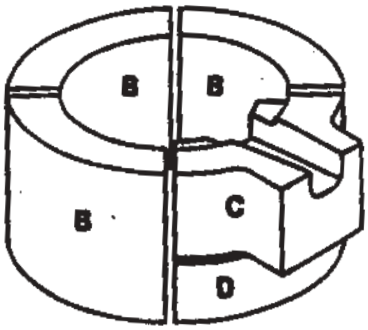


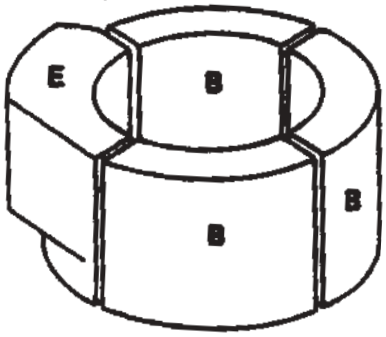
1175 BLOWER ASSEMBLY FOR T-160

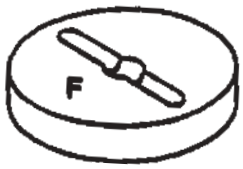
	OPN	DESCRIPTION	QTY
A	004117	Motor	1
B	008612	Blower Housing	1
C	004326	Impeller	1
D	008621	Housing Cover Plate	1
E	006210	Blower Stand	1
F	004104	UV Chassis	1
G	003857	Control Box Cover	1
H	003916	Spark Transformer	1
I	000054	3/8" x 1" Flat Head Stove Bolt	4
J	001053	5/16" x 3/8" Socket Set Screw	2
K	000105	#6 x 3/8" Pan Head SM Screw	8
L	000905	5/16" x 1" Hex Head Bolt	4
M	002115	5/16" Flat Washer	4
N	002011	5/16" Hex Nut	4

RELINING INSTRUCTIONS FOR SPEEDY MELT MODEL T-301









	OPN	Description	Qty
A	008008	Lid Section	4
B	008005	Solid Side Liner	6
C	008116	Pour Spout	1
D	008117	Liner Spacer	1
E	008009	Burner Brick	1
F	008007	Bottom Brick	1
	008141	Matrilite #28AC - (bags)	4
	008173	Refractory Sealer - (box)	1

1. Remove blower and mixer-burner assembly from furnace.

2. Remove front bolt from lid band, spread lid band, remove the four lid brick sections,îAî.

3. Remove lid lift assembly by lifting out of the base tube. Replace lid band if damaged or burned, being careful not to lose collar bushings in the jack tube. Replace both lid support rods if bent or burned.

4. Remove the four top cast iron segments by removing hex nuts on top of furnace. Remove all insulation and refractory from the furnace shell. Remove and replace seal hold down bolts if broken

5. Mix part of refractory sealer to consistency of heavy cream for mortaring joints.

6. Locate burner row (4 bricks banded together). **DO NOT REMOVE THE BANDS**. Cement I.D. of burner tunnel and O.D. of guide tube to prevent flame leakage. Place ring of bricks down over the burner guide tube. Center bricks in shell.

7. Cement bottom brick in place, with drain grooves up, by placing thick layer of sealer in bottom of shell first. Fill any cracks around bottom brick with sealer.

8. Wet brick surfaces to be mortared with water. This improves the mortar joints. Dry bricks absorb the moisture from mortar too rapidly, resulting in weak joints. Use a brush or sponge to saturate surface with water.

9. Cement second ring of four solid liner bricks in place by placing a thick layer of sealer on top of bottom row of bricks. Sit second row in place, staggering bricks to split the joints. Level top surface of second ring with top of furnace so lid will seat properly.

10. Locate a piece of plywood or steel and place in front of pour spout brick ìCî. This will prevent insulation from escaping around brick. Leave this board in place until insulation has been dried.

11. Mix PRE-MIXED INSULATION with sufficient water to form the consistency of plaster. Pour insulation between shell and refractory lining. Prod while pouring to form an even distribution of insulation. Fill to height of liners. Allow to sit approximately 30 minutes and then fill to the top again. Tap side of shell with a mallet very lightly.

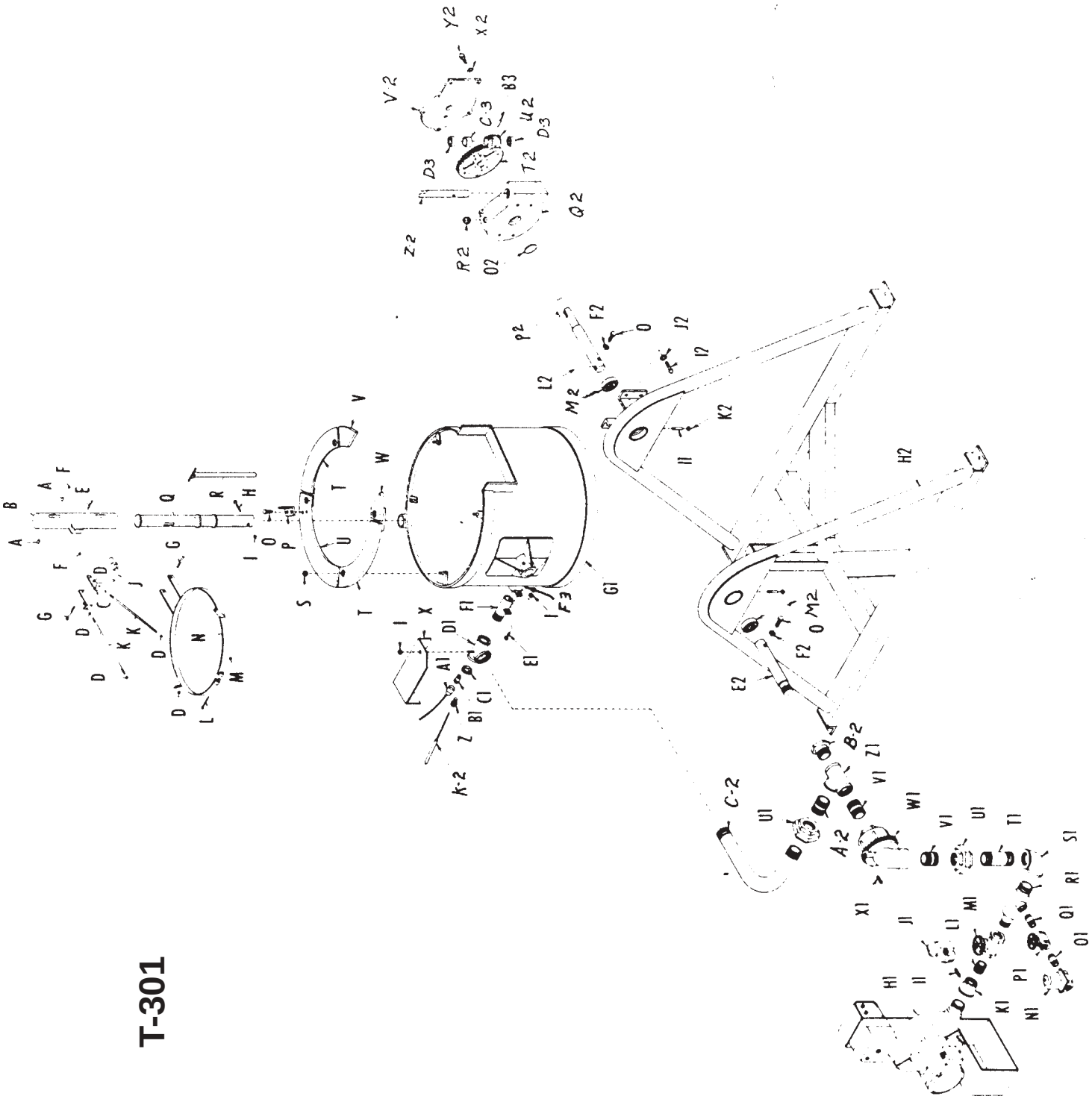
12. Replace top seal segments and bolt down in place. Spread lid band and place four lid segment sections on top of furnace chamber lining. Align grooves in O.D. of the lid brick to match holding lugs in lid band. Press or tap each top segment down to seat against chamber lining. Replace the front lid band bolt and tighten snug. DO NOT OVER-TIGHTEN. OVER-TIGHTENING WILL CAUSE THE LID BRICKS TO CRACK WHEN THEY EXPAND FROM HEATING.

13. Remove lid assembly from furnace. Place upside down on floor and paint the underside with sealer. Place back in position and paint top the same way. At the same time paint entire furnace chamber with a light layer of sealer. DO NOT PLUG BURNER HOLE WITH SEALER.

14. Place burner back into the guide tube, bolting in place.

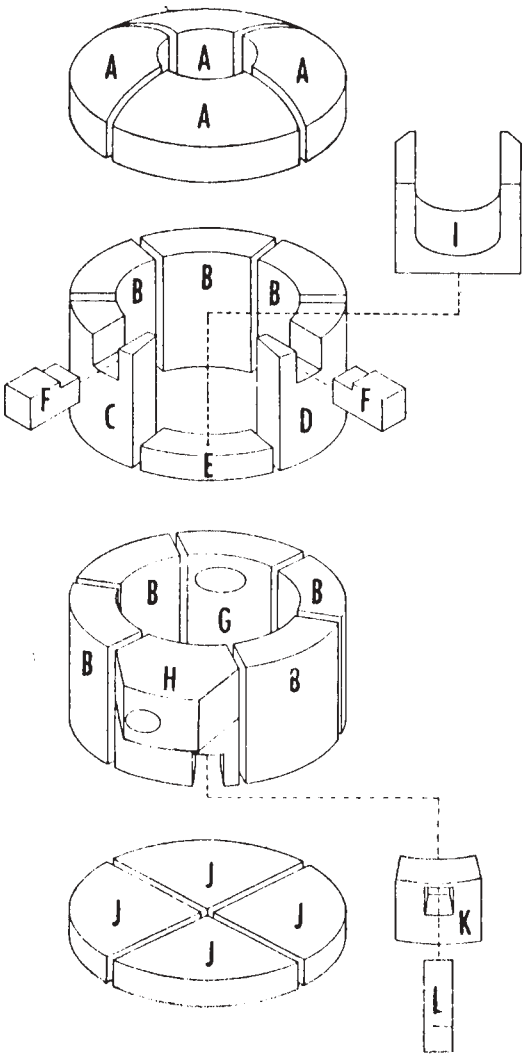
15. Furnace should set for 24 hours to cure insulation. After this 24 hour period, fire at low fire for one hour to remove moisture. The following day, fire at low fire for 4 hours and then slowiy increase heat to about 1/2 open and continue until the furnace is at 2000∞. Hold it at that temperature for 2 hours.

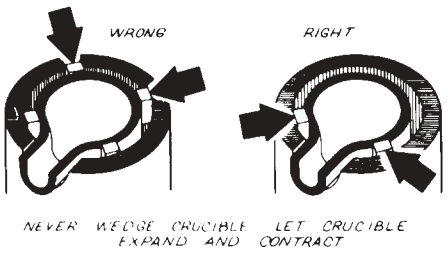
T-301



T-301 Parts List

	OPN	Description	QTY.		OPN	Description	QTY.
A	010009	Lid Lift Bushing	4	R1	006060	GM-100 Gas/Air Mixer	1
B	010003	Swivel Pipe	1	S1	003379	2" Elbow - 900	1
C	010008	Support Rod Bracket	2	T1	003148	2" x 6" Nipple	1
D	002016	3/8" Jam Nut	8	U1	003370	2" Union	2
E	002403	Fulcrum Spring Pin	1	V1	003140	2" Close Nipple	2
F	002017	3/8" Lock Nut	2	W1	003504	2" Swivel Joint	1
G	001213	3/8" x 3 1/2" Hex Bolt	2	X1			
H	000614	1/4-20 x 2 1/4" RH MS	1	Y1			
1	002008	1/4-20 Nut	2	Z1	003309	2" Tee	1
J	010006	Lid Lift Fulcrum Bar	1	A2	003146	2" x 5" Nipple	1
K	100476	Lid Support Rods	2	B2	003348	2" x 1 1/2" Red. Coupling	1
L	001411	3/8" x 2 1/2" Hex Bolt	1	C2	003390	2" Long Radius Elbow	1
M	002015	3/8" Hex Nut	11	D2			
N	100470	Lid Band	1	E2	101738	Pivot Shaft -Blower	1
O	001205	3/8" x 1" Hex Bolt	4	F2	002122	3/8" Lock Washer	2
P	100483	Lid Stop	1	G2			
Q	102262	Jack Tube 30 1/2" Long	1	H2	102230	Furnace Frame	1
R	010070	Lid Lift Handle	1	12	000909	5/16" x 3/4" Hex Bolts	4
S	002012	5/16" Jam Nut	4	J2	002116	5/16" Lock Washers	4
T	008602	Top Seal Section	2	K2	004068	T-301 Ignition Electrode	1
U	102250	Top Segment for Lid Stop	1	L2	102219	Pivot Shaft - Gear Box	1
V	102240	Short Top Seal - Blower Side	1	M2	101739	Pivot Bearing	2
W	102249	Short Top Seal - Drive Side	1	N2			
X	102312	Scanner Cover	1	O2	102096	Gear Box Shaft Seal	1
Y				P2	002500	Drive Shaft Key - 1/4" x 1"	1
Z	003408	Compression Fitting	1	Q2	102090	T-301 Gear Box	1
A1	004107	UV Scanner	1	R2	003323	3/8" Pipe Plug	1
B1	003024	1/2" x 3/8" Reducing Nipple	1	S2			
C1	006686	2" UV Plug	1	T2	101735	Worm Gear	1
D1	003309	2"Tee	1	U2	101736	Worm	1
E1	000606	1/4-20 x 1" Hex Bolt	2	V2	102091	T-301 Gear Box Cover	1
F1	006609	2" Burner Nozzle	1	W2			
G1	102210	T-301 Furnace Shell	1	X2	002116	5/16" Lock Washer	5
H1	400427	1610 Blower Assembly	1	Y2	000905	5/16" x 1" Hex Bolt	5
11	003002	1/8" x 2" Pipe Nipple	1	Z2	102095	Worm Shaft	1
J1	004226	Air Pressure Switch	1	A3			
K1	003224	1 1/2" x 2" Reducing Coupling	1	B3	002400	1/8" x 1" Spring Pin	1
L1	003121	1 1/2" Close Nipple	1	C3	102100	Worm Spacer	1
M1	003431	1 1/2" Air Control Valve	1	D3	102101	Worm Thrust Bearing	2
N1	004215	1" Gas Solenoid Valve	1	E3			
O1	003088	1" x 3" Pipe Nipple	1	F3	100673	Burner Guide Tube (B-300)	1
P1	003429	1" Gas Adjusting Valve	1				
Q1	003085	1" Close Nipple	1				





T-80

OPN		DESCRIPTION	QTY
A	008106	Lid Section	4
B	008010	Solid Side Liner	7
C	008107	Left Wedge Liner	1
D	008108	Right Wedge Liner	1
E	008109	Space Liner	1
F	008111	Crucible Wedge	2
G	008011	Burner Liner	1
H	008112	Burner Drain Opening	1
I	008110	Trough - Right Side	1
J	008013	Bottom Liner	4
K	008103	Drain Tile	1
L	008105	Drain Hole Plug	1
M	008113	Trough - Left Side	1
N	008162	Bottom Support Bricks	4
	008184	Premixed Insulation (Bags)	4

The MIFCO furnaces have been designed so that relining is rapidly and easily done. Complete relining kits are available as a package unit. These kits include all replacement refractory shapes, insulation and the correct type of refractory mortar. Structural parts of the furnace which are subject to normal abuse, and may need replacement, are available. Relining procedure is as follows:

1. Disassemble gas/air manifold and unbolt burner guide tubes from furnace shell. Remove burneríguide tubes.

2. Remove front bolt from lid band, spread lid band, remove the four lid brick sections.

3. Remove lid lift assembly by lifting out of the base tube. Replace lid band if damaged or burned. Replace both lid support rods if bent or burned.

4. Remove the top cast iron ring segments by removing hex nuts on top of furnace. Remove all insulation and refractory from furnace shell. Remove and replace seal hold down bolts if broken.

5. Mix part of the refractory cement to a consistency that will pour but not spread out too much for mortaring joints. Wet the brick surfaces to be mortared with water to improve mortar joints. Dry bricks absorb moisture from mortar too rapidly, which results in weak joints. Use a brush or sponge to saturate brick surfaces with water.

6. Locate the four N bricks 2 1/2" thick by 9" in length. Dip these bricks into the refractory sealer. Position these bricks in the bottom of the shell, as shown in the picture. The sealer will help hold the bricks in place.

7. Mix 2 - 30lb. bags of Matrilite #28. Pour in the bottom of the shell, around the 9" straight bricks. Let set for 10 minutes and strike off flush with the tops of the bricks. Push the excess material to the outside, around the edge of the shell. Proceed to step 8.

8. The bottom brick consists of four (4) sections (J) banded together. Center them in the bottom of the shell. Place brick (K) in position after putting bottom in place. Do this before putting the second row of bricks in place. Insert brick (L) in place through (K) and (H) to make sure they line up. Per step five (5), wet the top of the bottom bricks and the bottom row of side liners thoroughly. Pour a ring of stiff mortar on top of the bottom brick in about an inch from the outside perimeter so that the bottom row of side liners will sit on top of the mortar. Set the ring of solid liners, (STILL BANDED) in place, rotating them slightly so that they will form a tight mortar joint with the bottom. The burner guide tube hole in brick (G) must also align with the burner guide tube. Should they not quite line up, rather than break the mortar joint, rotate the side liners and the bottom liners together. Drain side liner (H) must be to the front.

9. The burner guide tubes should now be put in place. To do this you must put a small amount of mortar on the interior surface of the burner hole where the guide tube goes and then insert the burner guide tube and bolt in place. Clean the mortar from the inside of the burner guide tube now, before it hardens.

10. The top row of bricks is banded together. DO NOT CUT THESE BANDS! Wet the mating surfaces between the top row and the bottom row and pour a ring of mortar on top of the bottom row. Set the top row of bricks in place, being sure to line up the pour spout opening in the brick with the furnace shell opening. Rotate the bricks slightly as you set them down to get a good seal between the rows. Now, cut the top band on the top row of bricks and remove the wood block in the pour spout opening. Wet and mortar all surfaces and cement pour spout bricks M and I into place, supporting the outer edge with a wedge to hold it in place.

11. Mix insulation with sufficient water to the consistency of plaster. Pour the mixed insulation between the furnace shell and the brick lining. Prod while pouring to assure an even distribution of insulation. Fill to the height of the furnace shell and tap shell sides with a rubber mallet to settle the cement. Wait 30 minutes and then refill to top again and strike off level.

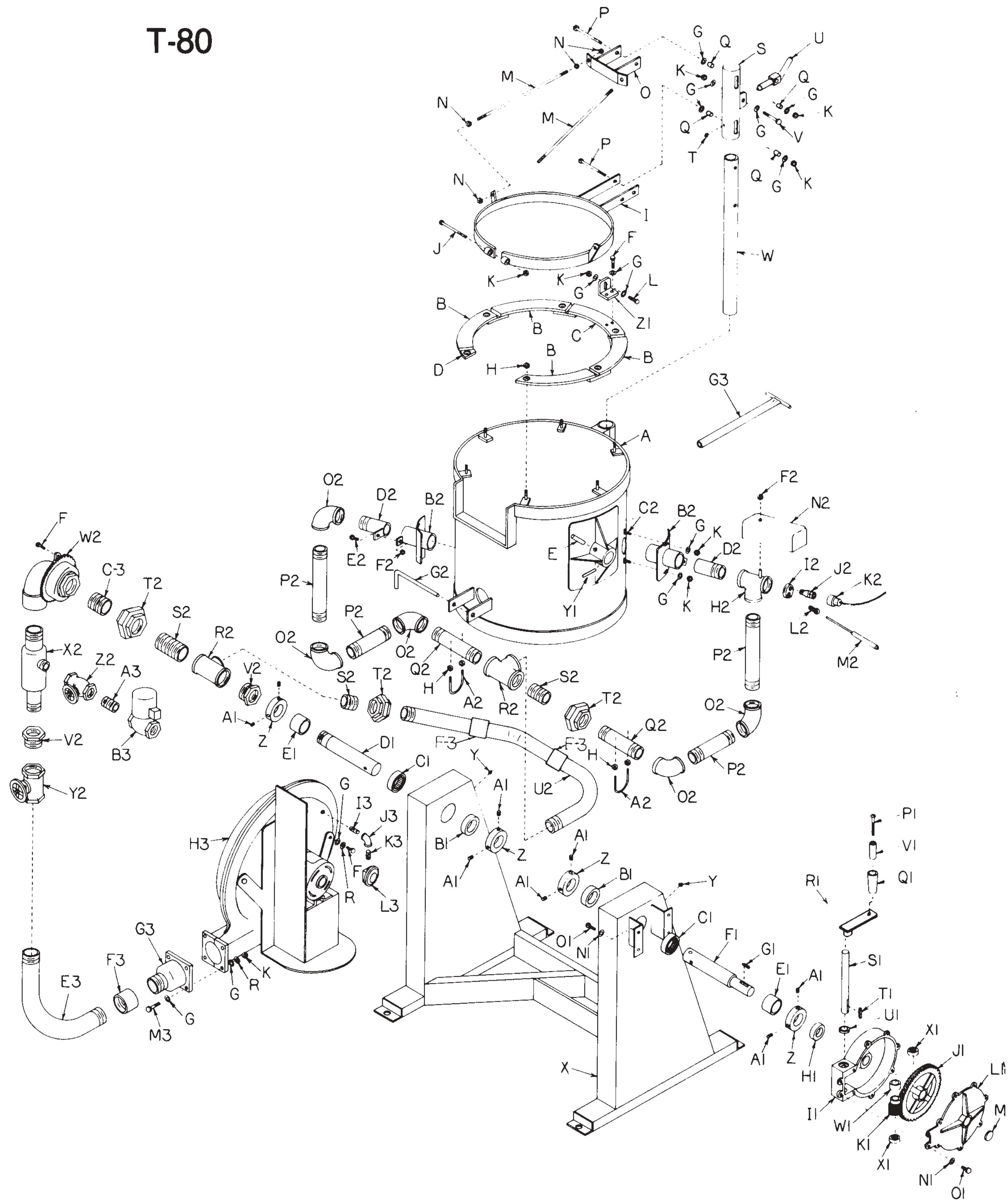
12. Replace top seal segments and bolt down in place. Replace lid lift assembly after applying thin layer of grease to tube.

13. Spread lid band and place four lid segment sections on top of furnace chamber lining. Align grooves in O.D. of the lid brick to match holding lugs in lid band. Press or tap each top segment down to seat against chamber lining. Replace the front lid bolt and tighten snug. DO NOT OVER TIGHTEN! The lid brick will expand and crack if clamped too tightly. Remove the lid assembly from the furnace and place upside down on the floor.

14. Reassemble burner manifold. Thin the mortar with water to the consistency of paint and brush all exposed liner surfaces. As explained above, wet the liner surfaces before coating. Do not block burner tunnels. Paint the underside of the lid. Grease the jack tube and replace lid onto furnace. Coat the top side of the lid.

15. Reconnect manifold and combustion safeguard leads to furnace body. Furnace should set for twenty-four (24) hours to cure insulation, then fire at low fire for one (1) hour to remove moisture. The following day, fire as desired. The furnace will emit steam and water from the lining when first fired. This is normal until the furnace is completely dry.

T-80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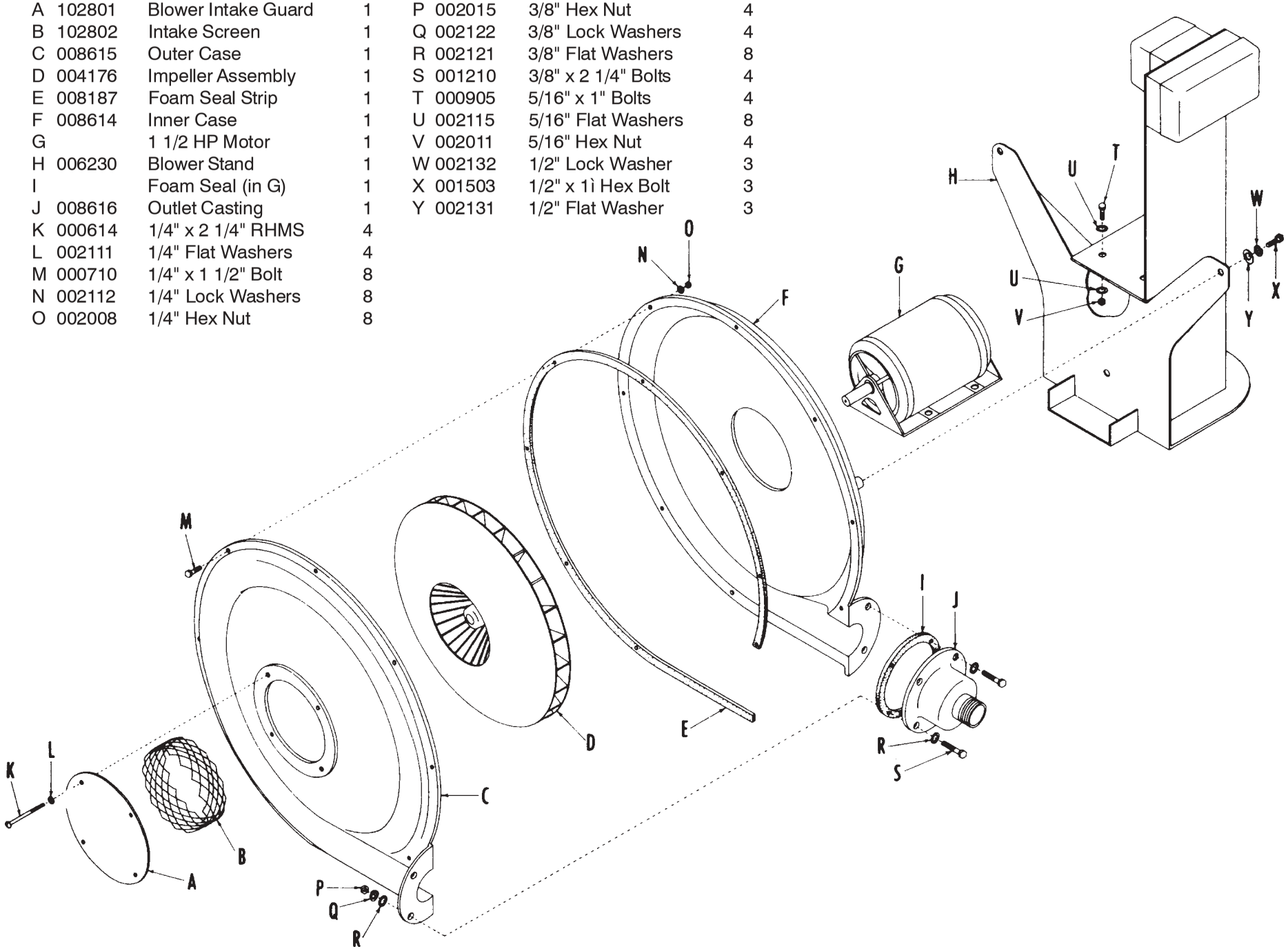
T-80 TILT FURNACE
(MAIN ASSEMBLY)

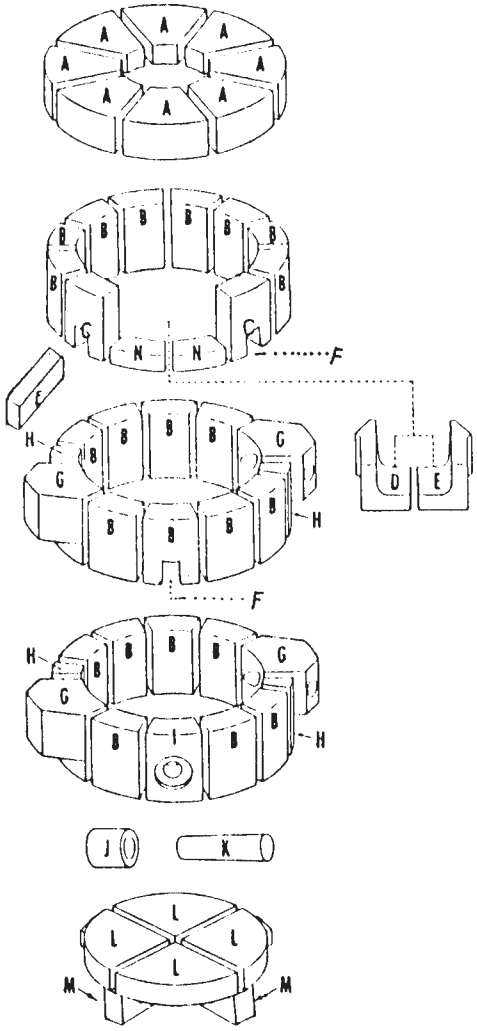
	OPN	Description	QTY.		OPN	Description	QTY.
A	102020	Steel shell assembly	1	T1	002501	Shaft key	1
B	102041	Top seal scetion	4	U 1	102097	Seal	1
C	102042	Lid stop seal section	1	V1	102099	Handle tube	1
D	102043	Top seal spacer section	1	W1	102100	Worm spacer	1
B	102035	Drive pin	1	X1	102101	Worm thrust bearing	2
F	001205	3/8" x 1" hex head bolt	6	Y1	001504	1/2" x 1 1/4" hex head bolt	2
G	002121	3/8" flat washer	25	Z1	102044	Lid swing stop	1
H	002012	5/16" hex jam nut	2	A2			
I	100870	Lid band	1	B2	102045	T-80 Burner guide tube	1
J	001411	3/8" x 2 1/2" hex head bolt	1	C2	001302	3/8" x 1" carriage bolt	4
K	002015	3/8" hex nut	13	D2	006625	2 1/2 ìBurner nozzle	1
L	001209	3/8" x 2" hex head bolt	1	E2	000708	1/4" x 1" hex head bolt	2
M	100874	Support rods	2	F2	002008	1/4" hex nut	2
N	002022	1/2" hex nut	8	G2	102026	Plug retaining bar	1
O	100950	Lid lift bracket	1	H2	003309	UV tee	1
P	001217	3/8" x 4" hex head bolt	2	I2	006686	UV plug	1
Q	010009	Spacer bushing	4	J2	003024	1/2" x 3/8" reducing nipple	1
R	002122	3/8" lock washer	7	X2	004109	UV8A scanner	1
S	010063	Swivel pipe	1	L2	003408	Compression fitting	1
T	010005	Drive in grease fitting	2	M2	004068	7" spark electrode	1
U	010065	Lid lift fulcrum	1	N2	006690	UV cover	1
V	001207	3/8" x 1 1/2" hex head bolt	1	O2	003379	2" elbow	1
W	010066	Jack tube	1	P2			
X	102071	Furnace base assm	1	Q2			
Y	002454	Grease fitting	2	R2			
Z	102084	Fulcrum bar collar	4	S2	003140	2" close nipple	3
A1	001602	1/2" x 1/2" sckt hd set screw	8	T2	003370	2" standard union	2
B1	102085	Seal	2	U2	003821	2" T80 formed conduit	1
C1	102086	Fulcrum bearing	2	V2	003348	2" x 1/2" hex bushing	2
D1	102087	Fulcrum bar, blower side	1	W2	003504	2" flexo joint	1
E1	102088	Bearing retaining sleeve	2	X2	006070	GM 125 gas air mixer	1
F1	102089	Fulcrum bar, drive side	1	Y2	003432	2" gate valve	1
G1	002500	Key	1	Z2	003430	1 1/4" gate valve	1
H1	102096	Gear box seal	1	A3	003109	1 1/4" x 3" nipple	1
I1	102090	Gearbox	1	B3	004216	1 1/4" gas solenoid	1
J1	102093	Worm gear	1	C3	003106	1 1/4" close nipple	1
K1	102092	Worm	1	D3	003454	1 1/4" gas cock	1
L1	102091	Gear box cover	1	E3	003390	2" long radius elbow	1
M1	002450	1 1/8" freeze plug	1	F3	003207	2" coupling	1
N1	002115	5/16" net washer	13	G3	008616	2" blower outlet incl.in H3	1
O1	000905	5/16" x 1" hx hd bolt	13	H3	900505	1611 blower assm	1
P1	000630	3/8" x 4" rd hd mach screw	1	I3	003002	1/8" x 2" nipple	1
Q1	102098	Hand wheel handle	1	J3	003371	1/8" elbow	1
R1	102102	Hand wheel	1	K3	003001	1/8" close nipple	1
S1	102095	Hand wheel shaft	1	L3	004226	Air pressure switch	1
				M3	001210	3/8" x 2 1 /4" hex head bolt	4

1611 Blower Assembly for T-80

	OPN	Description	Qty.		OPN	Description	Qty.
A	102801	Blower Intake Guard	1	P	002015	3/8" Hex Nut	4
B	102802	Intake Screen	1	Q	002122	3/8" Lock Washers	4
C	008615	Outer Case	1	R	002121	3/8" Flat Washers	8
D	004176	Impeller Assembly	1	S	001210	3/8" x 2 1/4" Bolts	4
E	008187	Foam Seal Strip	1	T	000905	5/16" x 1" Bolts	4
F	008614	Inner Case	1	U	002115	5/16" Flat Washers	8
G		1 1/2 HP Motor	1	V	002011	5/16" Hex Nut	4
H	006230	Blower Stand	1	W	002132	1/2" Lock Washer	3
I		Foam Seal (in G)	1	X	001503	1/2" x 1ì Hex Bolt	3
J	008616	Outlet Casting	1	Y	002131	1/2" Flat Washer	3
K	000614	1/4" x 2 1/4" RHMS	4				
L	002111	1/4" Flat Washers	4				
M	000710	1/4" x 1 1/2" Bolt	8				
N	002112	1/4" Lock Washers	8				
O	002008	1/4" Hex Nut	8				



RELINING INSTRUCTION FOR T200 FURNACE



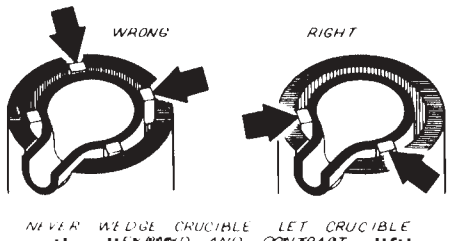
	OPN	Description	Qty.
A	008130	Lid Section	8
B	008131	Solid Side Liner	22
C	008132	Crucible Wedge Liner	3
D	008138	Pour spout Left Half	1
E	008135	Pour Spout Right Half	1
F	008160	Crucible Support Bricks	3
G	008090	Burner Bricks	4
H	008136	Vertical Half Side Liner	4
I	008139	Drain Plug Liner	1
J	008092	Drain Tile	1
K	008088	Drain Plug	1
L	008137	Bottom Brick	4
M	008152	Bottom Support Brick	4
N	008134	Pour Spout Spacer	2
	008141	Matrilite 28 Castable Insulation	33 bags

The MIFCO furnaces have been designed so that relining is rapidly and easily done. Complete relining kits are available as a package unit. These kits include all replacement refractory shapes, insulation and the correct type of refractory mortar. Structural parts of the furnace which are subject to normal abuse, and may need replacement, are available. Relining procedure is as follows:

1. Remove the burner manifold and burner nozzle from the furnace body.

2. Remove the burner guide tubes from the furnace shell.

3. Remove the front clamp bolt from the lid band. Spread the lid band and remove the eight (8) lid sections, ìAî bricks.



4. Remove the lid lift assembly by lifting it out of the base tube. Replace lid band and lid support rods if damaged by heat. Be careful when disassembling not to lose any bearings or bushings in the jack tube.

5. Remove six (6) top seal sections around the top of the furnace by removing the hex nuts on the top of the furnace. Remove all refractory and insulation from the furnace shell. Replace seal hold down bolts if broken.

6. The three rows of bricks come banded together. Do not take off the bands! If the bricks are loose, place the row on a flat surface, top sided down arid drive a wooden wedge between the bands and the bricks to tighten them up.

7. Mix part of the refractory mortar with water until it is a little thinner than plaster.

8. Place the insulating brick on the bottom of the furnace shell so that it is 4 1/2" from the furnace bottom to the top of the brick. Locate the bricks 5 1/2" from the outside shell so that they will be equally spaced so that when the bottom sections are put in, the joints will come over the brick as shown. Now dip the bottom of the brick in water then dip the bottom in the mortar and place in the bottom of the furnace. It would be a good idea to mark the location with chalk before dipping in the mortar. The brick should be worked back and forth until the cement joint is no more than 1/8" thick. Next, mix up enough insulation to cover the bottom of the furnace up to the top of the bricks, 4 1/2" deep. (See step 14 for insulation mixing instructions). Strike off the insulation, as soon as it has stiffened up some, to the top of the bricks.

9. Next, locate the bottom row in the furnace, making sure to put the drain hole in front and line up the burner holes. The best way to lower the bricks is with a hoist or lift truck. Cut a 1" pipe long enough to go from one burner hole to the other plus about 2 1/2". A stop can be welded in about 1 3/8" on both sides and a ring in the middle to hook the chain into. Put a ring of cement around underneath the row of bricks after first wetting both mating surfaces with water. After you let the bricks down on the cement, move them **back and forth to flatten out** the cement and get a good bond. Cut out of either plywood or steel, a piece large enough to cover the drain hole. Trace around the tile, cut out the hole, slip tile up through the board and band this piece to the side of the shell. This will prevent insulation from running out onto the floor. Put plug ìKî in position to make sure that they are lined up.

10. Take some of the mortar and smear it around the inside of the hole where the burner nozzles go in brick ìGî. Insert the burner nozzles and secure with bolts. Wipe all of the excess cement from the inside of the furnace guide tubes and the burner tunnel.

11. Cement brick ìJî in place to extend bottom drain out of the furnace. Put in stopper ìKî to be sure things are lined up.

12. On top of row 1, moisten down the bricks, apply a layer of thick sealer and proceed with placement of row 2, lining up the burners. When you put in the burner guide tubes on the second row, it would be a good idea if you try the burner assembly in their respective guide tubes to be sure they fit before you tighten the bolts of the burner guide tubes.

13. On the top row, wet the mating surfaces between the top and the middle row. Pour a ring of cement around on the top of the second row and set the top row down on the cement, being sure to work the bricks around to insure a good bond. The bricks ìDî must line up with the pour spout in the shell. Next, cut the top bands on the top row and cement in the pour spout. These two bricks (ìDî and ìEî) will have to be supported on the outside with a board which also will serve as a form when pouring insulation. Cut a U shaped board and place around the pour spout bricks to help hold them in position and keep the insulation in the shell when poured.

14. Now it is time to mix the insulation. Find enclosed with your kit, 33 bags of pre-mixed (Metrix) insulation. When mixing the insulation, pour the water into the mixer first. Note the amount of water required on the bottom of the bag. We find that it is best to add 1/2 pint more water, (per bag), than the bag suggests. Note that you do not mix for a long time. You want the mixture to be able to flow into the areas around the burner bricks. It would be wise to use a vibrator or to prod with a board. You want to be sure that there are no air pockets anywhere around the burner bricks. Fill the insulation to the top of the bricks, plus about two inches. Let the insulation sit for about 1/2 hour, then with the insulation about 1/2 inch above the top of the bricks, replace the top seal segments.

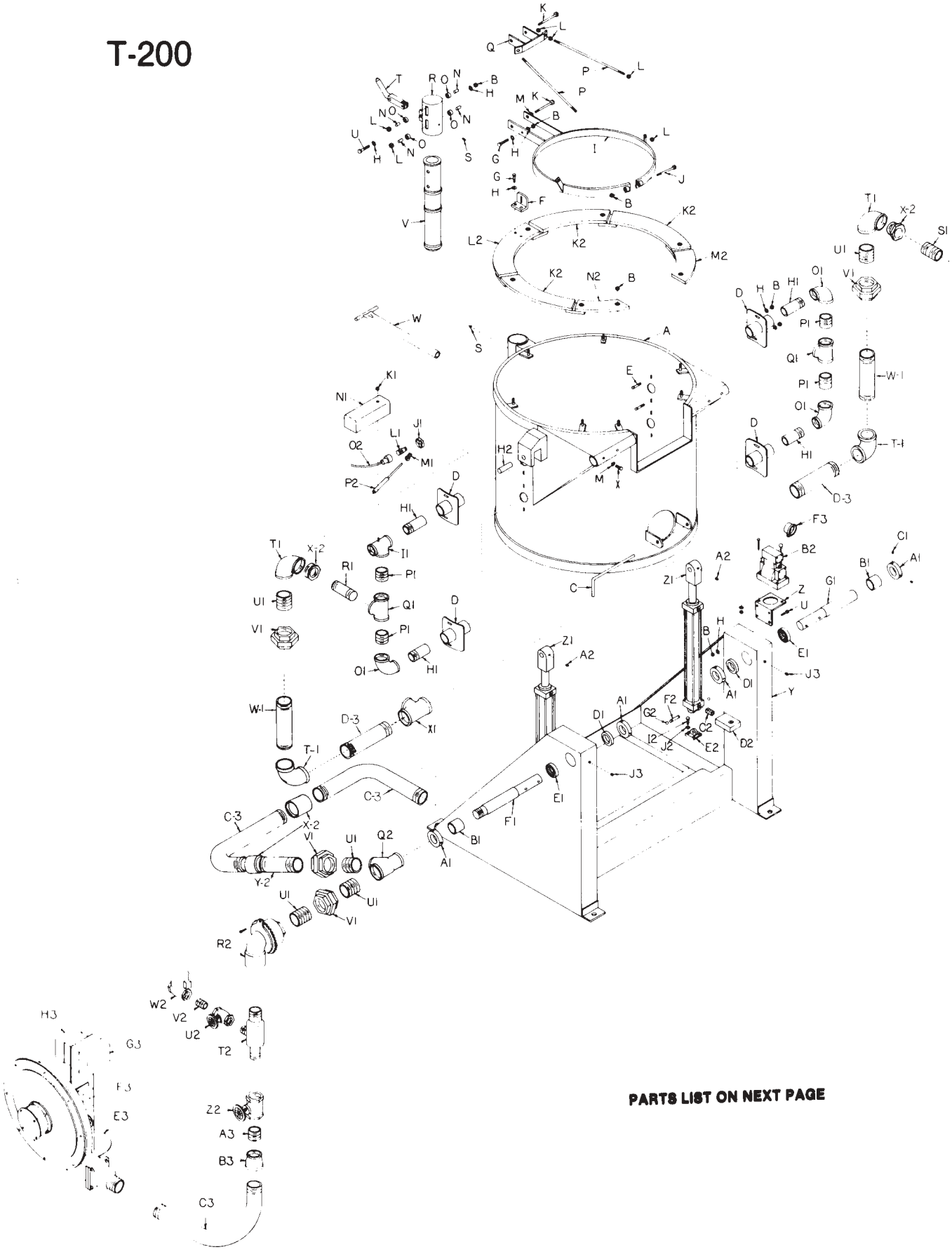
15. Replace lid brick ìAî and lid band bolt and tighten until snug. Tap band with mallet. This will shift bricks slightly to allow for additional tightening. Continue this until it will tighten no more and then back the nut off one (1) turn to allow for expansion of the bricks. Over tightening will cause the lid bricks to crack when they expand from heating.

16. Add water to remaining mortar until you can brush it on and coat all surfaces of the furnace lining including the lid. **Do not get the mortar too thin** or it will come off as a powder when dry.

17. The furnace should set at least twenty-four hours to allow cement to cure. After this, the furnace should be fired slowly to dry out all moisture from the insulation and lining. Firing at Hi-Fire right away will cause steam to form in the bricks and blow them apart.

18. Put a coating of grease on the lid lift sliding parts before reassembly. Replace bricks ìFî after crucible is in place. Do not cement these in place because they have to come out when changing crucible.

T-200



PARTS LIST ON NEXT PAGE

T-200 TILT FURNACE - (MAIN ASSEMBLY)

OPN		Description	Qty.
A	102520	Steel shell assembly	1
B	002115	3/8" hex head nuts	18
C	102527	Plug retainer bar	1
D	102550	Burner guide tube assembly	2
E	001302	3/8" x 1" carriage bolt	4
F	101052	Lid swing stop	1
G	001207	3/8" x 1 Ω" hex head bolts	3
H	002121	3/8" flat washers	12
I	102581	Lid band complete	1
J	001213	3/8" x 3" hex head bolt	1
K	001517	Ω" x 5" hex head bolt	2
L	002024	Ω" hex lock nut	10
M	002131	Ω" flat washers	4
N	101093	Bearing spacers	4
O	002467	Bearings R8-78	4
P	102586	Support rods	2
Q	102587	Lid lift bracket	1
R	101081	Swivel pipe	1
S	010005	Drive in grease fittings	3
T	102610	Fulcrum assembly	1
U	001207	3/8" x 1 Ω" hex head bolts	5
V	101095	Jack tube	1
W	102062	Lid lift lever	1
X	001557	Ω" x 1 Ω" hex head bolts	4
Y	102631	Base	1
Z	102648	Hydraulic switch mount	2
A1	102084	Fulcrum bar collar	4
B1	102088	Bearing retaining sleeve	2
C1	001602	Ω" x Ω" socket hd set screw	8
D1	102085	Seal	2
E1	102086	Bearing	2
F1	102649	Fulcrum bar, blower side	1
G1	102650	Fulcrum bar, hydraulic side	1
H1	006611	Burner nozzle	2
I1	003293	1 Ω" x 1 Ω" x 2" tee	1
J1	006665	1 Ω" UV plug	1
K1	002008	1/4" hex nut	1
L1	003024	Ω" x 3/8" reducing nipple	1
M1	003408	Ωî compression fitting	1
N1	101153	Scanner cover	1
O1	003385	1 Ω" x 2" 90 deg elbow	1
P1	003159	2" butt nipple	4
Q1	003311	2" tee	2
R1	003142	2" x 3" pipe nipple	1
S1	003150	2" x 7 Ω" pipe nipple	1
T1	003407	2 Ω" 90 degree elbow	2
U1	003158	2 Ω" x 5" nipple	5
V1	003368	2 Ω" std union	3
W1	003168	2 Ω" x 8" nipple	2
X1	003118	2 Ω" tee	1
Y1	102672	2 Ω" long formed conduit	1
Z1	060020	Hydraulic cylinders	2
A2		Socket head set screw (Included in Z1)	2
B2	060000	Valve assembly (made up of)	1
	060007	Directional valve	
	060003	Relief valve	
	060006	Subplate	
C2	003021	3/8" x 1" nipple	2
D2	060002	Check valve	2
E2	060080	Pivot bracket	2
F2		Lower clevis pin (included with Z1)	2
G2		Snap rings (Included with Z1)	4
H2	060081	Upper clevis pin 1 3/8"	2
I2	001208	3/8" x 1 3/4" hex head bolt	8
J2	002122	3/8" lock washers	8
K2	102564	Solid seal section	3
L2	102566	Lid stop seal section	1
M2	102561	Right mouth seal section	1
N2	102568	Left mouth seal section	1
O2	004109	UV8A scanner	1
P2	004068	7" spark electrode	1
Q2	003303	2 Ω" x 2 Ω" x 1 Ω" tee	1
R2	0039903	2 Ω" flexo joint	1
S2	003355	2 Ω" x 2" hex bushing	2
T2	006080	GM-150 gas air mixer	1
U2	003430	1 1/4" gas gate valve	1
V2	003106	1 1/4" close nipple	1
W2	004216	1 1 /4" gas solenoid	1
X2	003208	2 Ω" coupling	2
Y2	003180	2 Ω" x 35 Ω" nipple	1
ZZ	003434	2 Ω" gate valve	1
A3	003140	2" close nipple	1
B3	003230	2 Ω" x 2" reducing coupling	1
C3	003795	2 Ω" long radius elbow	3
D3	003178	2 Ω" x 21 Ω" nipple	1
E3	900515	1912 blower assembly	1
F3	003915	Spark transformer	1
G3	003851	Start stop enclosure	1
H3	004104	UV chassis	1
I3	060051	Pressure gauge	1
J3	002454	Grease fittings	