TACO BELL DUAL LINE
LOAD CENTER

PANEL A				200 Amp 30 Pole								
120/240V - 1PH - 4W			60Amp	MINIMUM PANEL AMPERAGE								
POSITION NUMBER	CIRCUIT NUMBER	BRKR. SIZE	ITEM # / EQUIPMENT SERVED	EQUIPMENT VOLTAGE	LOAD (VA)	PHASE WIRE	LOAD (VA)	EQUIPMENT VOLTAGE	ITEM # / EQUIPMENT SERVED	BRKR. SIZE	CIRCUIT NUMBER	POSITION NUMBER
1						A	2898	240	HDC6	30	10	2
3						B	2898					4
5	2	20	APW GRIDDLE	240	1781	A	1650	240	MELTER	20	11	6
7					1782	B	1650					8
9	3	15	GRAIL 45T W/LIGHTS	240	1027	A	1650	240	MELTER	20	12	10
11					1028	B	1650					12
13	4	15	SCALE	120	1440	A	1650	240	MELTER	20	13	14
15	5	15	LOWER MONITOR	120	1440	B	1650					16
17	6	15	COLD PAN	120	948	A	1650	240	MELTER	20	14	18
19	7	20	TOASTER	120	2300	B	1650					20
21	8	15	STAGER	120	820	A	2300	120	TOASTER	20	15	22
23	9	15	FUTURE USE	120	1440	B	1440	120	UPPER MONITOR	15	17	24
25						A	720	120	REFRIGERATOR	15	16	26
27						B						28
29						A						30
SINGLE PHASE PANEL BOX				18534	VA	A						
				18928	VA	B						
				37462	VA	TOTAL						

In order to use more than 8 poles tandem breakers must be used.

218888	**Drawing Number**
TBDL 240V	**Project Name**
6/25/2009	**Date**
AAS	**Filled Out By**

TACO BELL DUAL LINE
FRY STATION
LOADCENTER

PANEL #1			TACO BELL DUAL LINE COUNTER									200A 30P
120/208-240V - 3PH - 4W												
POSITION NUMBER	CIRCUIT NUMBER	BRKR. SIZE	ITEM # / EQUIPMENT SERVED	EQUIPMENT VOLTAGE	LOAD (VA)	PHASE WIRE	LOAD (VA)	EQUIPMENT VOLTAGE	ITEM # / EQUIPMENT SERVED	BRKR. SIZE	CIRCUIT NUMBER	POSITION NUMBER
1						A	2898	240	HDC6	30	10	2
3						B	2898					4
5	7	20	TOASTER	120	2300	C	2300	120	TOASTER	20	15	6
7	11	20	MELTER	240	1650	A	1650	240	MELTER	20	13	8
9					1650	B	1650					10
11	17	15	UPPER MONITOR	120	1440	C	1440	120	LOWER MONITOR	15	5	12
13	12	20	MELTER	240	1650	A	1650	240	MELTER	20	14	14
15					1650	B	1650					16
17	3	15	GRAIL 45T w/LIGHTS	240	1245	C	948	120	COLD PAN	15	6	18
19					1245	A	720	120	REFRIGERATOR	15	16	20
21	2	20	APW GRIDDLE	240	1782	B			HIGH LEG - NO CONNECTION			22
23					1782	C	1440	120	SCALE	15	4	24
25	8	15	STAGER	120	820	A	1920	120	FRY STATION	20	9	26
27						B						28
29						C						30

3 PHASE PANEL BOX				
	14203	VA	A	
	11280	VA	B	38378 KVA :TOTAL LOAD
	12895	VA	C	

######

218992	Drawing Number
TACO BELL DUAL LINE FRY STATION	Project Name
6/25/2009	Date
AAS	Filled Out By

NOTE: ON 240V SYSTEMS, HIGH LEG MUST BE CONNECTED TO CENTER (B) LUG AT TOP OF PANELBOARD (NEC 408.3E) DO NOT CONNECT 120V EQUIPMENT TO THE "B" PHASE IN THIS PANEL

TACO BELL DUAL LINE
LOADCENTER

PANEL #1			TACO BELL DUAL LINE COUNTER									200A 30P
120/208-240V - 3PH - 4W												
POSITION NUMBER	CIRCUIT NUMBER	BRKR. SIZE	ITEM # / EQUIPMENT SERVED	EQUIPMENT VOLTAGE	LOAD (VA)	PHASE WIRE	LOAD (VA)	EQUIPMENT VOLTAGE	ITEM # / EQUIPMENT SERVED	BRKR. SIZE	CIRCUIT NUMBER	POSITION NUMBER
1						A	2898	240	HDC6	30	10	2
3						B	2898					4
5	7	20	TOASTER	120	2300	C	2300	120	TOASTER	20	15	6
7	11	20	MELTER	240	1650	A	1650	240	MELTER	20	13	8
9					1650	B	1650					10
11	17	15	UPPER MONITOR	120	1440	C	1440	120	LOWER MONITOR	15	5	12
13	12	20	MELTER	240	1650	A	1650	240	MELTER	20	14	14
15					1650	B	1650					16
17	3	15	GRAIL 45T w/LIGHTS	240	1245	C	948	120	COLD PAN	15	6	18
19					1245	A	720	120	REFRIGERATOR	15	16	20
21	2	20	APW GRIDDLE	240	1782	B			HIGH LEG - NO CONNECTION			22
23					1782	C	1440	120	SCALE	15	4	24
25	8	15	STAGER	120	820	A	1440	120	FUTURE USE	15	9	26
27						B						28
29						C						30

3 PHASE PANEL BOX				
	13723	VA	A	
	11280	VA	B	37898 KVA :TOTAL LOAD
	12895	VA	C	

######

219388	Drawing Number
TACO BELL DUAL LINE	Project Name
6/25/2009	Date
AAS	Filled Out By

NOTE: ON 240V SYSTEMS, HIGH LEG MUST BE CONNECTED TO CENTER (B) LUG AT TOP OF PANELBOARD (NEC 408.3E) DO NOT CONNECT 120V EQUIPMENT TO THE "B" PHASE IN THIS PANEL

DUAL LINE ASSEMBLY GUIDE

STEP A: BASE SETUP

1) PLACE UNITS IN POSITION IN STORE.
2) PLACE CONNECTORS FROM LOAD CENTER ON TOP OF BOTTOM SHELF OF TABLE.
3) SLIDE UNITS TOGETHER, LEVEL, & SECURE.

STEP B: OVERHEAD SHELVING SETUP

1) SET SHELF ASSEMBLY IN PLACE.
2) SECURE TO SUPPORT BLOCKS, PYLON.

STEP C: VERTICAL ELECTRICAL CHASE SETUP

1) PLACE UPPER CHASE IN POSITION & SECURE.
2) FEED WIRES FROM CEILING DOWN TO PANEL BOX.

STEP D: EVO CABINET ASSEMBLY

1) PLACE CABINET IN POSITION & SECURE TO DRY HEAT UNIT PYLON & Z-CHANNEL.

(REPEAT STEP ONE FOR SECOND CABINET.)

2) ATTACH WATER LINE CHASE TO OVERSHELF.
3) FEED WATER LINE THROUGH CHASE.

STEP E: TORTILLA GRIDDLE ASSEMBLY

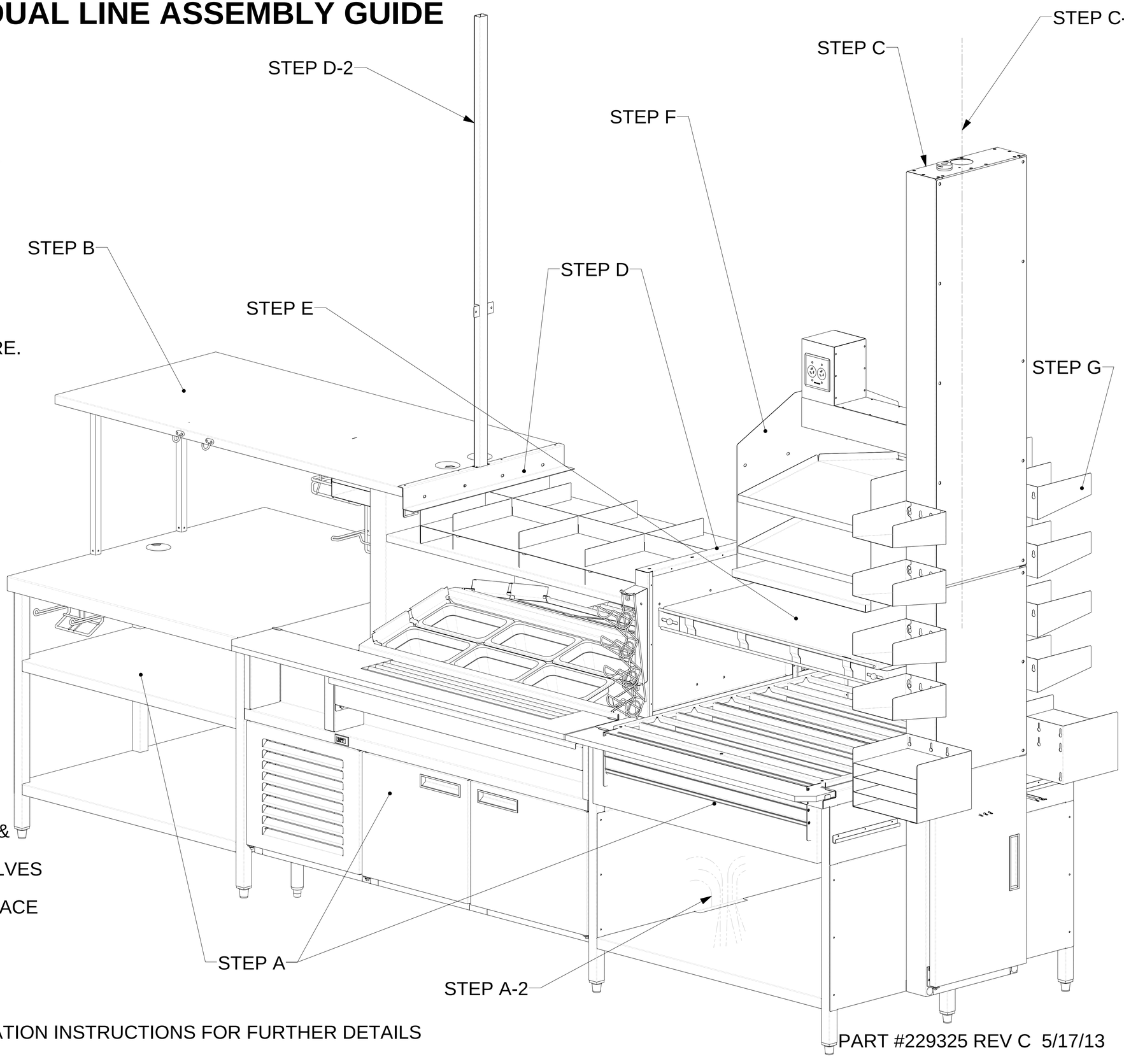
1) PLACE GRIDDLE IN POSITION.
2) FEED WIRES INTO VERTICAL CHASE.
3) ENSURE GRIDDLE IS CENTERED, LEVEL, & SECURE.

STEP F: TORTILLA SHELF ASSEMBLY

1) PLACE SHELF IN POSITION & SECURE TO ELECTRICAL CHASE & EVO CABINET.

STEP G: MISC PARTS SETUP

1) ASSEMBLE CHEESE MELTER WATER LINES & CONNECT TO MELTERS.
2) PLACE WRAPPER BINS AND WRAPPER SHELVES IN POSITION.
3) ASSEMBLE WRAP SHELF AND FASTEN IN PLACE



PLEASE REFER TO OPERATION AND INSTALLATION INSTRUCTIONS FOR FURTHER DETAILS

PART #229325 REV C 5/17/13

I-LINE EVO ASSEMBLY GUIDE

STEP A: BASE UNIT SETUP

1) PLACE UNITS IN POSITION IN STORE WITH BACK OF UNIT AWAY FROM WALL.
2) REMOVE BACK PANEL.
3) SLIDE UNITS TOGETHER, LEVEL, & SECURE.

STEP B: SHELVING SETUP

1) SET SHELF ASSEMBLY IN PLACE.
2) SECURE TO SUPPORT BLOCKS & WALL SHELVING.

STEP C: EVO CABINET SETUP

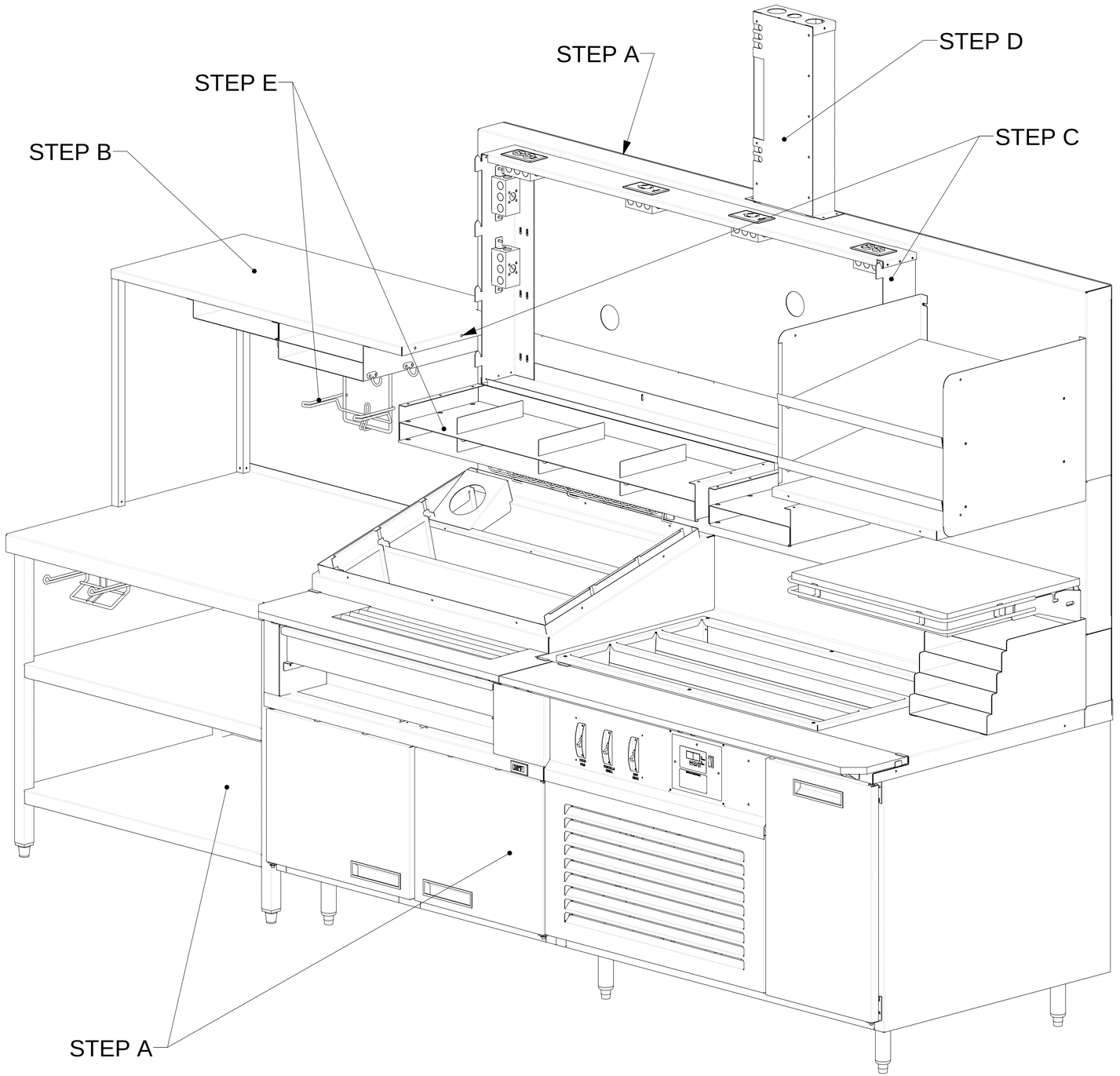
1) SET EVO CABINET ONTO EVO BRACKET.
2) SECURE TO TORTILLA SHELF & WALL SHELVING.

STEP D: ELECTRICAL CONNECTIONS

1) PLACE WIRE CHASE IN POSITION ON WALL PANEL & SECURE.
2) REMOVE CHASE COVER AND ROUTE WATER LINES INTO WALL PANEL AND THROUGH HOLES IN WALL.
3) REPLACE BACK PANEL ON WALL SECTION.
4) PLACE UNIT IN POSITION AGAINST WALL AND RE-LEVEL IF NECESSARY.

STEP E: MISC. PARTS SETUP

1) ASSEMBLE CHEESE MELTER WATER LINE KIT & CONNECT TO CHEESE MELTERS.
2) PLACE WRAPPER BINS AND WRAPPER SHELVES IN POSITION.



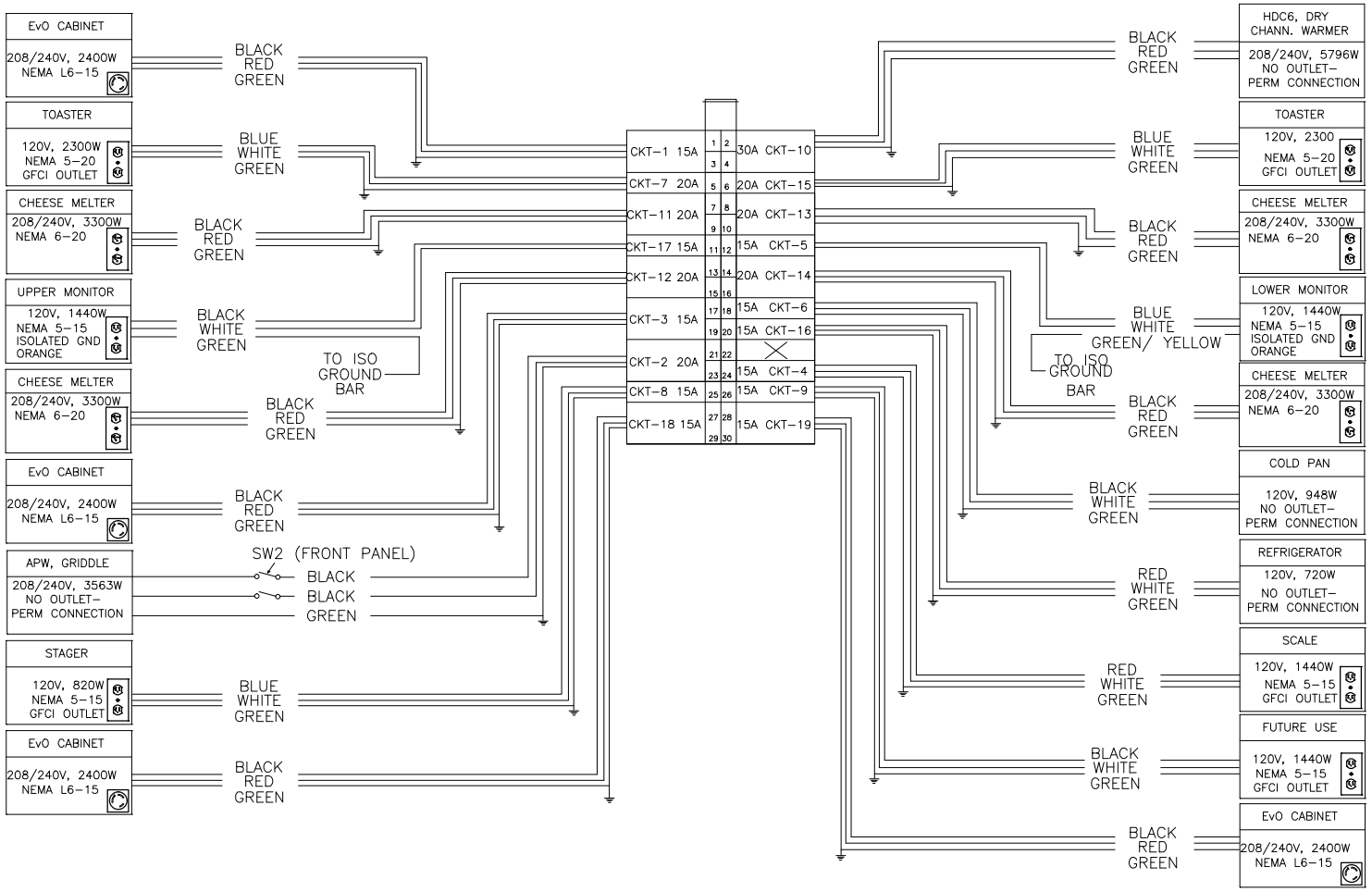
PLEASE REFER TO OPERATION AND INSTALLATION INSTRUCTIONS FOR FURTHER DETAILS

PART #229326 REV. A 4/02/13

REV	ECO NO.	DATE	BY	DESCRIPTION
A	–	04/02/13	BWE	NEW EvO COUNTER
B	–	04/22/13	BWE	CHANGED EvO BRKR TO 15A

TACO BELL EvO DUAL LINE

3–PHASE, 120/208/240V, 200A LOAD CENTER



Note:
ALL DIMENSIONS TO OUTSIDE UNLESS OTHERWISE NOTED
TOLERANCE UNLESS NOTED:
± .031 INCHES
± 1 DEGREE

DUKE MANUFACTURING CO.
601 DUKE DRIVE SEDALIA MO. 65301
"YOUR SOLUTIONS PARTNER"

DRAWN BY:	DATE:	DESCRIPTION:
BWE	04/02/13	DUAL EvO LINE 120/208/240V 3PH 200A
MAT'L P/N: –	PROGRAM NUMBER: –	
MAT'L: –	FINISH: –	DRAWING #: 552175

DUAL LINE ASSEMBLY GUIDE

STEP A: BASE SETUP

1) PLACE UNITS IN POSITION IN STORE.
2) PLACE CONNECTORS FROM LOAD CENTER ON TOP OF BOTTOM SHELF OF TABLE.
3) SLIDE UNITS TOGETHER, LEVEL, & SECURE.

STEP B: OVERHEAD SHELVING SETUP

1) SET SHELF ASSEMBLY IN PLACE.
2) SECURE TO SUPPORT BLOCKS, PYLON.

STEP C: VERTICAL ELECTRICAL CHASE SETUP

1) PLACE UPPER CHASE IN POSITION & SECURE.
2) FEED WIRES FROM CEILING DOWN TO PANEL BOX.

STEP D: EVO CABINET ASSEMBLY

1) PLACE CABINET IN POSITION & SECURE TO DRY HEAT UNIT PYLON & Z-CHANNEL.

(REPEAT STEP ONE FOR SECOND CABINET.)

2) ATTACH WATER LINE CHASE TO OVERSHELF.
3) FEED WATER LINE THROUGH CHASE.
4) FEED MONITOR OUTLET WIRES THRU CHASE INTO PYLON AND CONNECT AT TERMINAL BLOCK.

STEP E: TORTILLA GRIDDLE ASSEMBLY

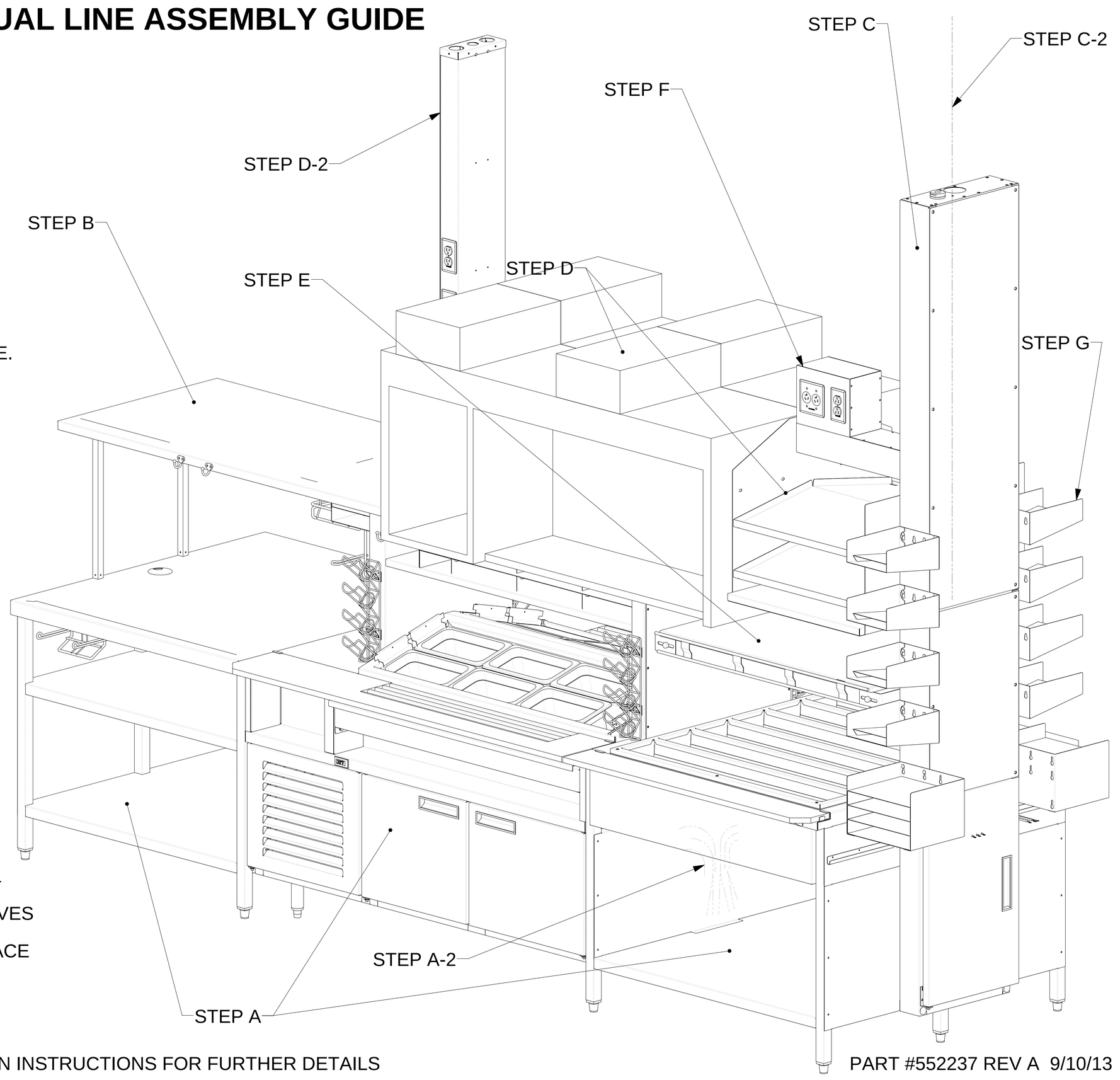
1) PLACE GRIDDLE IN POSITION.
2) FEED WIRES INTO VERTICAL CHASE.
3) ENSURE GRIDDLE IS CENTERED, LEVEL, & SECURE.

STEP F: TORTILLA SHELF ASSEMBLY

1) PLACE SHELF IN POSITION & SECURE TO ELECTRICAL CHASE & EVO CABINET.

STEP G: MISC PARTS SETUP

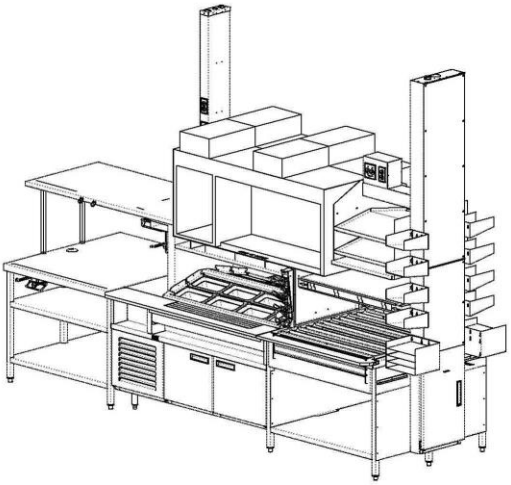
1) ASSEMBLE CHEESE MELTER WATER LINES & CONNECT TO MELTERS.
2) PLACE WRAPPER BINS AND WRAPPER SHELVES IN POSITION.
3) ASSEMBLE WRAP SHELF AND FASTEN IN PLACE

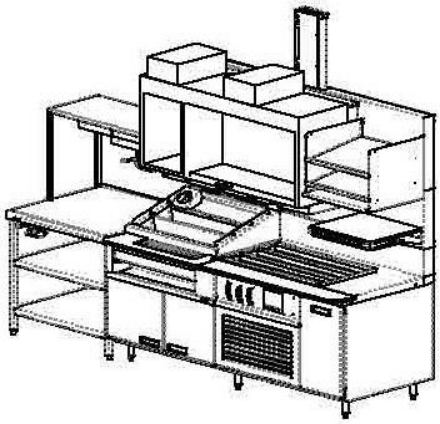


PLEASE REFER TO OPERATION AND INSTALLATION INSTRUCTIONS FOR FURTHER DETAILS

PART #552237 REV A 9/10/13

DUAL LINE & I-LINE OPERATION AND INSTALLATION INSTRUCTIONS





For information or technical assistance, call:
TOLL FREE
(800) 735-DUKE (3853)
or
(314) 231-1130

Notice: Read this entire Installation Manual prior to installing or operating this equipment.
Inspect all components immediately after unpacking.
Notify the Carrier of any damage to this equipment

IMPORTANT WARNING AND SAFETY INFORMATION

WARNING - READ THIS MANUAL THOROUGHLY BEFORE OPERATING, INSTALLING, OR PERFORMING MAINTENANCE ON THE EQUIPMENT.

WARNING - FAILURE TO FOLLOW INSTRUCTIONS IN THIS MANUAL CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH.

WARNING - DO NOT STORE OR USE GASOLINE OR OTHER FLAMMABLE VAPORS OR LIQUIDS IN THE VICINITY OF THIS OR ANY OTHER APPLIANCE.

WARNING - DO NOT OPERATE THIS EQUIPMENT UNLESS ALL COVER AND ACCESS PANELS ARE IN PLACE AND PROPERLY SECURED.

CAUTION

- Minimum clearances must be maintained from all walls and combustible materials.
- Keep the equipment area free and clear of combustible material.
- Adequate clearance for air openings.
- Operate equipment only on the type of electricity indicated on the specification plate.
- Retain this manual for future reference.

RECEIVING AND INSPECTING THE EQUIPMENT

Care should be taken during unloading so the equipment is not damaged while being moved into the building.

1. Visually inspect the exterior of the package and skid or container. Any damage should be noted and reported to the delivering carrier immediately.
2. If damaged, open and inspect the contents with the carrier.
3. In the event that the exterior is not damaged, yet upon opening, there is concealed damage to the equipment notify the carrier. Notification should be made verbally as well as in written form within 48 hours of receipt of goods.
4. Request an inspection by the shipping company of the damaged equipment. This should be done within 10 days from receipt of the equipment.
5. Check the lower portion of the unit to be sure legs are not bent.
6. Also view compressor compartment housing and visually inspect the refrigeration package. Be sure lines are secure and base is still intact.
7. Freight carriers can supply the necessary damage forms upon request.
8. Retain all shipping material until an inspection has been made or waived.

Installation Verification List

The following is a list of items that need to be verified and checked after installation is complete.

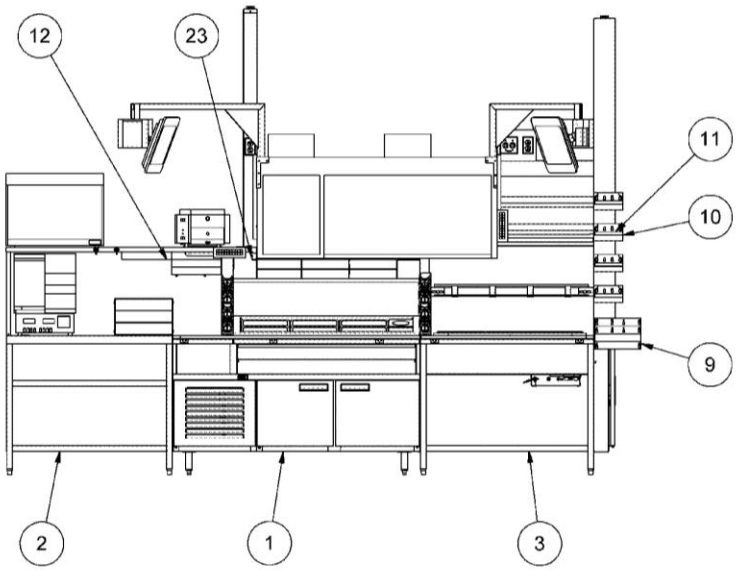
- Verify the unit is level.
- Verify that tables (sections) are fastened together.
- Verify all the Duke supplied components are located according to the installation diagrams.
- No water leaks at the supply bulkhead fitting at top of chase.
- No water leaks at the termination of the cheese melter.
- Dual Line: verify electrical channel wire support is installed between the HF table and the RB unit.
- No pinched/cut wires in the wiring harness.
- Verify all wiring connections are secure and correct per the wiring diagram.
- Verify all vinyl has been removed from the stainless steel.

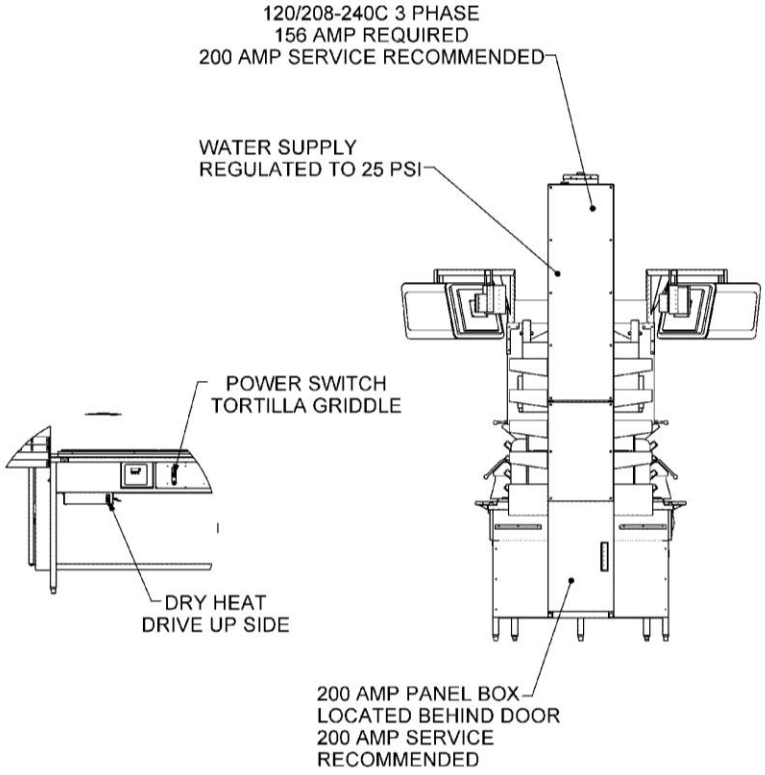
Table of Contents

IMPORTANT WARNING AND SAFETY INFORMATION	Page 2
INSTALLATION VERIFICATION LIST	Page 3
TACO BELL DRY MODULAR DUAL LINE DRAWINGS	Page 5-6
DUAL LINE APPLIANCE SETUP	Page 7
FIELD ASSEMBLY DUAL LINE WATER KIT	Page 8
LOWER ELECTRICAL CHASE REMOVAL	Page 9
DUAL LINE ASSEMBLY INSTRUCTIONS	Page 10-17
TACO BELL DRY MODULAR I-LINE DRAWINGS	Page 18
I-LINE APPLIANCE SETUP	Page 19
FIELD ASSEMBLY I-LINE WATER KIT	Page 20
I-LINE ASSEMBLY INSTRUCTIONS	Page 21-24
INTRODUCTION	Page 25
SERIAL NUMBERS	Page 25
OPERATION	Page 26
MAINTENANCE	Page 27-28
WIRING DIAGRAMS REFRIGERATION	Page 29
TROUBLE SHOOTING	Page 29
SERVICE PARTS LIST	Page 30-33

TACO BELL DRY MODULAR DUAL LINE
STANDARD 157" EVO MODEL

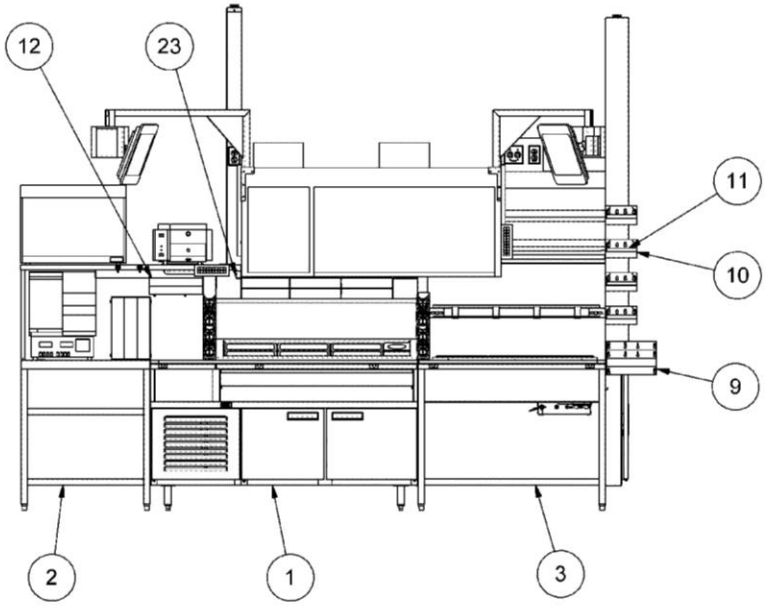
ITEM NO.	DESCRIPTION
1	ASSY, DUAL LINE RB W/ PYLON
2	TABLE EXTENSION 43" DUAL
3	TABLE HF 45" DUAL 208V3PH
9	ASSY WRAP HOLDER ASSY
10	HANGING BIN SHORT
11	HANGING BIN LID
12	ASSY, WRAP HOLDER SHELF
23	J-HOOK SMALL

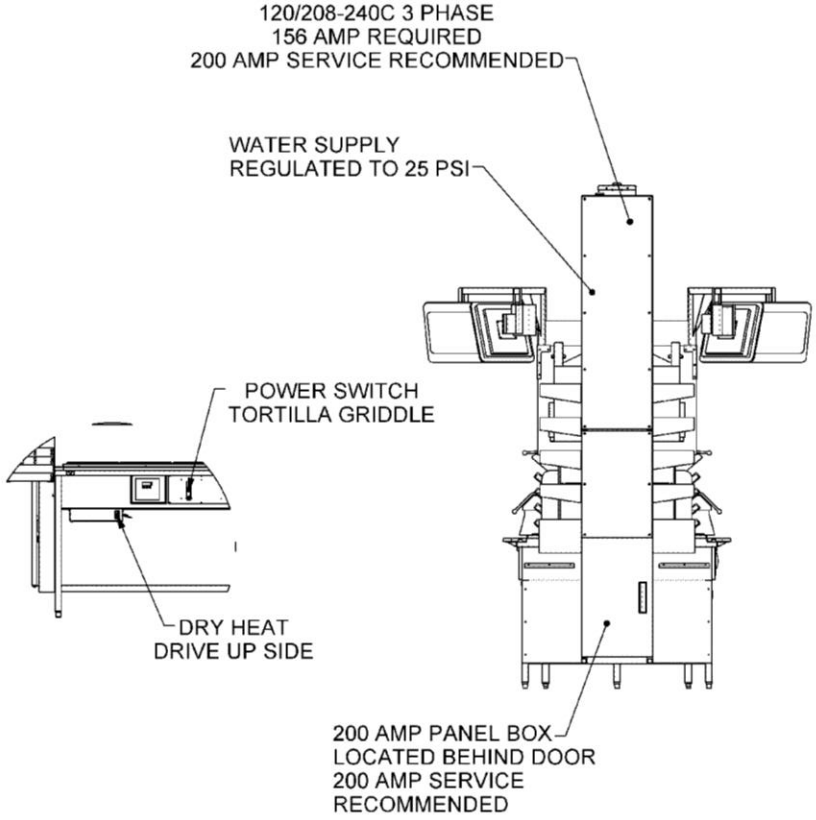




TACO BELL DRY MODULAR DUAL LINE
STANDARD 145" EVO MODEL

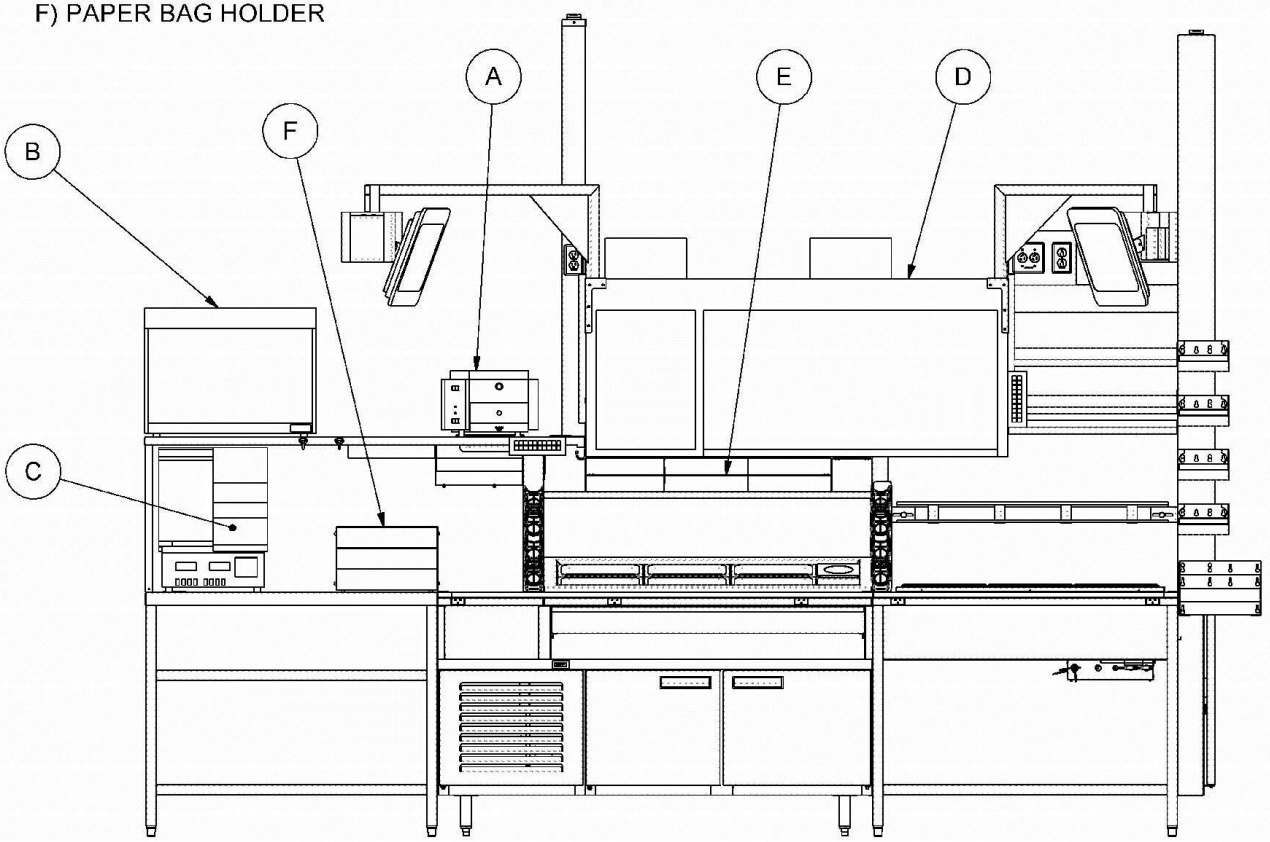
ITEM NO.	DESCRIPTION
1	ASSY, DUAL LINE RB W/ PYLON
2	TABLE EXTENSION 31" DUAL
3	TABLE HF 45" DUAL 208V3PH
9	ASSY WRAP HOLDER ASSY
10	HANGING BIN SHORT
11	HANGING BIN LID
12	ASSY, WRAP HOLDER SHELF
23	J-HOOK SMALL





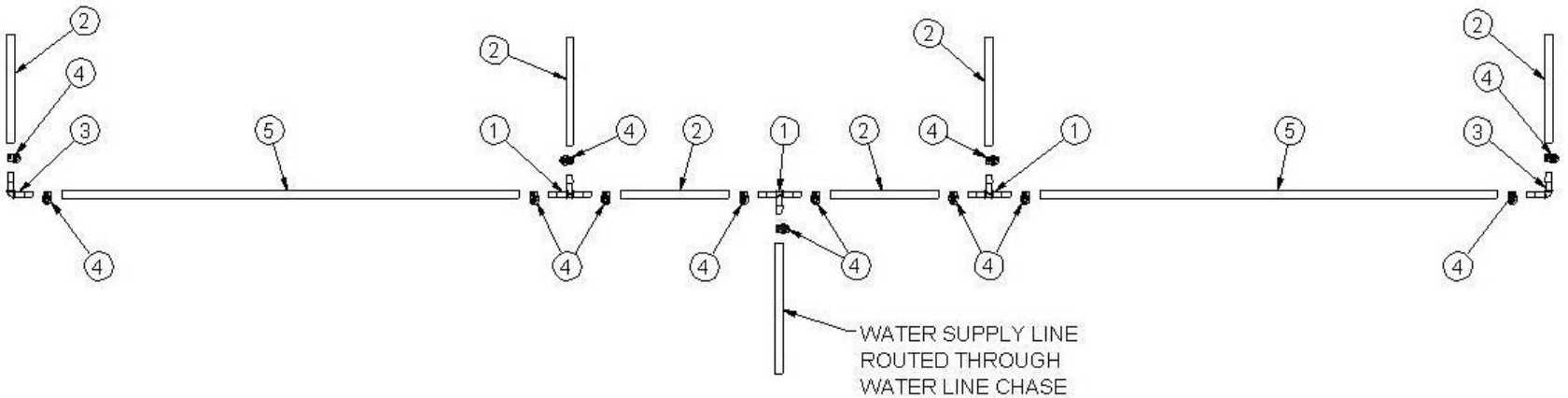
DUAL LINE EVO APPLIANCE SET UP

A) CHEESE MELTER
B) DESSERT TOWER
C) CLAMSHELL GRILLS (TOASTERS)
D) EVO CABINETS
E) WRAP SHELF ASSEMBLY
F) PAPER BAG HOLDER



FRONT ELEVATION WALK-UP SIDE

ITEM NO.	QTY.	PART #	DESCRIPTION	DESCRIPTION 2
1	3	212752	Ø1/4" TEE BARBED	
2	6	212754-5	Ø1/4" POLYURETHANE HOSE	5" LENGTH
3	2	212753	Ø1/4" ELBOW 90°	
4	13	212783	CLAMP, HOSE WORM GEAR	7/32" - 5/16"
5	2	212754-21	Ø1/4" POLYURETHANE HOSE	21" LENGTH



FIELD ASSEMBLY OF DUAL LINE CHEESE MELTER WATER SUPPLY
DUAL LINE WATER LINE KIT #551045

CHASE REMOVAL/ REINSTALLATION STEPS (ONLY IF NECESSARY)

1. Remove door from chase (Fig. 1).
2. Remove bottom plate by removing (4) ¼”-20 x ½” Hex Head Screws on bottom of chase with 3/8” wrench (Fig. 2).
3. Remove spring caps from holes (Fig. 3) and loosen (4) ¼”-20 x 1” Hex Head Screws 2-3 turns (Fig. 4) (requires 3/8” socket on extension or a long 3/8” nutdriver).
4. Slide lower chase up ¾” and remove from table through keyhole slots for screw heads and around load center (Fig. 5).
5. To re-install, place lower chase on side of table, slide behind load center until keyhole slots line up with screw heads.
6. After keyhole slots engage the screws, slide down ¾” and tighten the ¼”-20 x 1” Hex Head Screws.
7. Replace the spring caps in the holes they came from.
8. Replace the bottom plate on the bottom of the chase and tighten ¼”-20 x ½” Hex Head Screws. Pull the sides of the lower chase in so that the gap between the sides and the bottom rail is as small as possible before tightening (Fig. 6).
9. Replace the door on the unit.
10. Apply silicone around lower chase where it meets the table (Fig. 7).

Fig. 1

Fig. 2

Fig. 3

Fig. 4

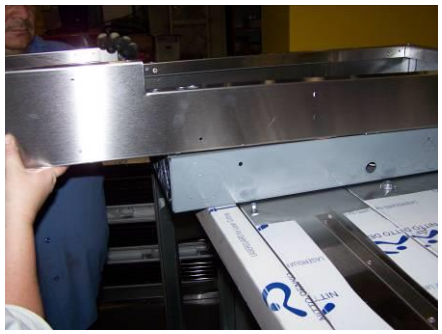


Fig. 5

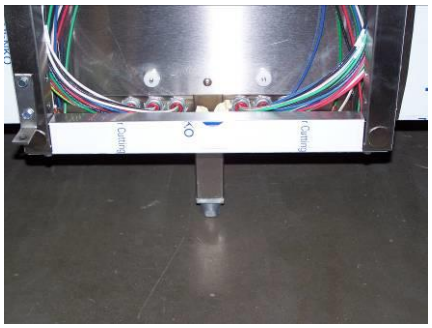


Fig. 6

Fig. 7

STEP A: BASE UNIT SET UP

1. Place Extension Table (Fig. 8), Cold Food Unit (Fig. 9), and Dry Heat Table (Fig. 10) in the store in the approximate location.
2. Set electrical connectors on bottom shelf of Dry Heat Table and slide Dry Heat Table and Cold Food Unit together, being careful not to pinch any of the electrical conduits.
3. Remove cover plate and connect conduit and wires to respective sides of junction box shown in terminal block schematic (Fig. 11). Connect the electrical connectors by matching colors of each half of the connection (Fig. 12). Connections can only be made one way, note tabs and slots (Fig. 13 & 14).
4. When all connections are made it should look like Fig. 15.
5. Secure cover to legs of Dry Heat Table with screws (Fig. 16).
6. Level all of the units. Begin with all of the feet adjusted in (Fig. 17) Level the Cold Food Unit first, then proceed to level each of the tables (Fig. 18) All of the tops should line up and be straight and level when complete.
7. Secure each of the tables to the Cold Food Unit using the hardware supplied in kit #215674. The Dry Heat Table will be secured using (2) hex screws #213029 in table top and (2) hex screws in pylon. The Extension Table will be secured using (2) hex screws #213029 and (2) hex nuts #213042 in table top and (2) hex screws in pylon. (Fig. 19)

Fig. 8

Fig. 9

Fig. 10

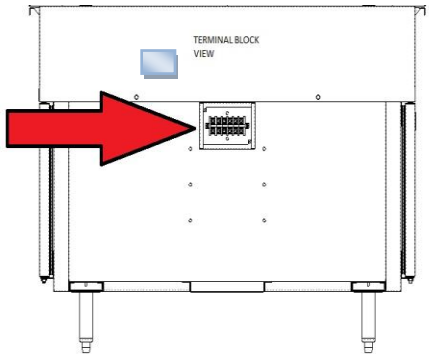


Fig. 11

Fig. 12

Fig. 13

Fig. 14

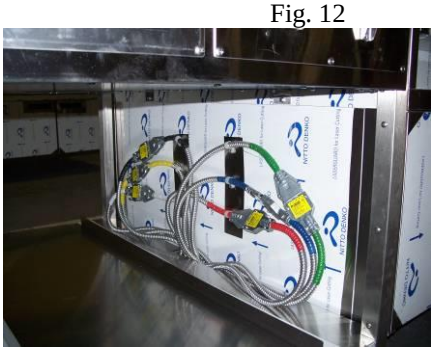


Fig. 15

Fig. 16

Fig. 17

Fig. 18

Fig. 19

STEP B: OVERHEAD SHELVING SETUP

1. Carefully unpack the Extension Table / Cold Food Overshelf assembly and set it in place. (See Fig. 20)
2. Use hardware kit #215675 to assemble the overhead shelving to the base units.
3. Place shelf legs over support blocks on table and secure with (4) screws #213028 (Fig. 21).
4. Secure wrapper shelf to Dry Heat Table pylon with (3) screws #213029.
5. Secure overshelf to Cold Food Unit pylon with (3) screws #213023 and wrapper shelf to Cold Food Unit pylon with (3) screws #213029. (Fig. 22).
6. Set wrap shelf dividers in place under z-bracket and secure to pylon.

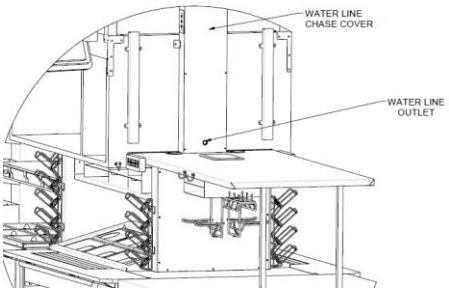


Fig. 20

Fig. 21

Fig. 22

STEP C: VERTICAL ELECTRICAL CHASE SETUP

1. Use hardware kit #215676 to assemble the Vertical Electrical Chase.
2. Place Upper Chase Extension on top of load center chase with receptacle towards top (Fig. 23) and secure with (10) screws #213029. Be sure bottom channel back plate is removed to allow access to all bolting locations (Fig. 24).
3. Secure bottom channel back plate with (4) screws #213029.
4. Route wires from receptacle box down through chase and grommet holes to load center to be wired later.

Fig. 23

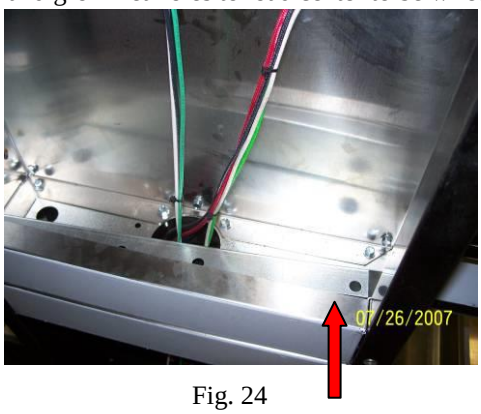


Fig. 24

STEP D: EVO CABINET ASSEMBLY

1. Assemble the EvO Cabinet Assembly.
2. One EVO cabinet installs on each side of the line. They are handed units. As you stand in front of the line, the large compartment should be on your right, the small compartment should be on your left. (Fig 36C) The other EVO cabinet is opposite.
3. Set EvO Cabinet into place, one (1) at a time, on top of the Dry Heat Table pylon, Z-channel, and support. **(USE A LIFT OR A MINIMUM OF 3 PEOPLE TO LIFT CABINETS INTO PLACE. SMALL BOX SIDE TO UNLOAD END OF LINEUP.)** Secure EvO cabinets to Dry Heat Table pylon using (4) screws #213023 and to upper shelf Z-channel using (4) screws #213029 (Fig. 33 & 34).
4. Attach braided water line to bulkhead fitting using (1) hose clamp #212783 from water line kit #551045. Route water line down into water line chase (Fig. 35). Push water line through hole in cover plate and attach cover with (22) tek screws.
5. Ensure all water line fittings are tight and without kinks.
6. Secure chase to overshelf with (4) tek screws (Fig. 36A).
7. Route wires down to terminal block for monitor plug-ins through small chase on the underside of the overhead extension table. Replace cover. (Fig. 36B).
8. Secure pylon cover on Dry Heat Table pylon using (12) screws #213051.
9. Install tie straps (supplied with EVO cabinet) on top of Evo Cabinets.
10. Mount hooks to front unload corners of Evo Cabinet (SUPPLIED WITH EVO CABINET)

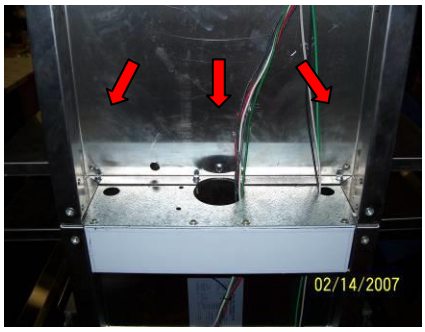


Fig. 33

Fig. 34

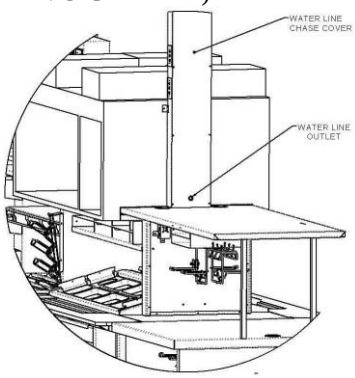


Fig. 35

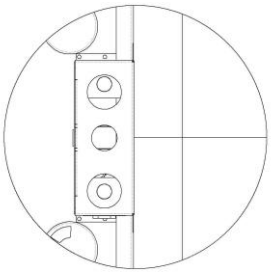


Fig. 36A

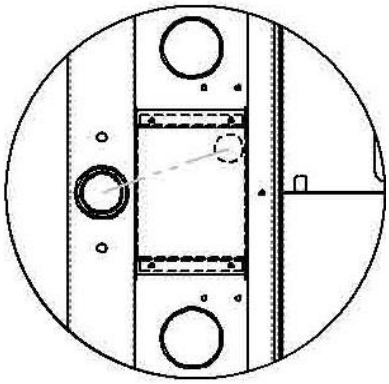


Fig. 36B

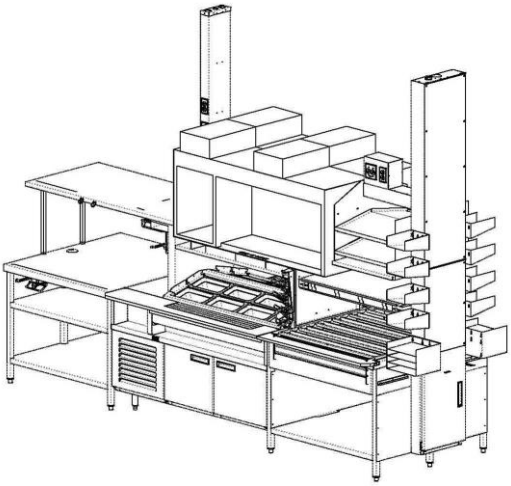


Fig 36C

STEP E: TORTILLA GRIDDLE ASSEMBLY

1. Remove (4) bolts supplied with griddle from mounting locations in each corner of griddle.
2. Set Tortilla Griddle inside mounting brackets between load center chase and Dry Heat Table pylon and support in place (Fig. 25).
3. Carefully route all wires coming out of Griddle through hole in load center chase and secure conduit fitting with nut (Fig. 26 & 27).
4. Make sure griddle is centered and level and secure to mounting brackets using the (4) bolts (Fig. 28).
5. Run wires through grommet in top of load center (Fig. 29).
6. Remove griddle relay box cover.
7. Run wires down and through conduit fitting in back of load center (Fig. 30).
8. Wires will come out of load center and run through conduit into the relay box (Fig. 31).
9. Connect wires per APW Wiring Diagram (Fig. 32). **DO NOT CUT ANY OF THE WIRES DOWN.**
10. Gather up excess wire and place in relay box.
11. Replace relay box cover.

Fig. 25

Fig. 26

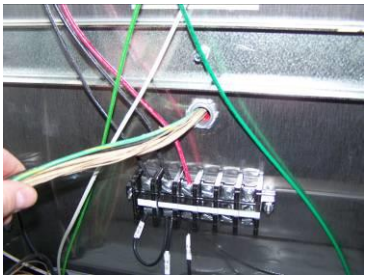


Fig. 27

Fig. 28

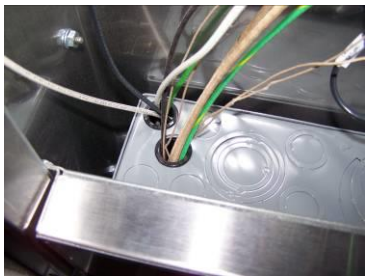


Fig. 29

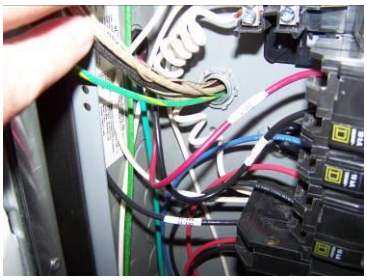


Fig. 30

Fig. 31

Fig. 32

STEP F: TORTILLA SHELF ASSEMBLY

1. Set the Tortilla Shelf in place and support.
2. Using hardware kit #215679, secure shelf to Upper Chase Extension (6) screws #10-24's (Fig. 33).
3. Secure to Evo Cabinet to Tortilla Shelf Assembly using (4) screws (Fig. 37).

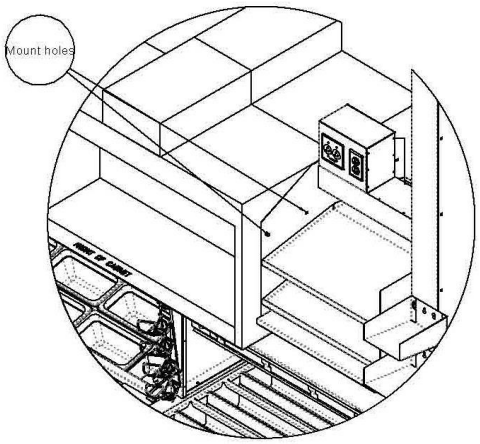


Fig. 37

STEP G: EVO POWER ASSEMBLY

1. Mount the Evo Cabinet Power Assembly in the ceiling and support. (Fig. 38).
2. Route conduit through ceiling to electrical chase and down to electrical panel (Fig. 39).

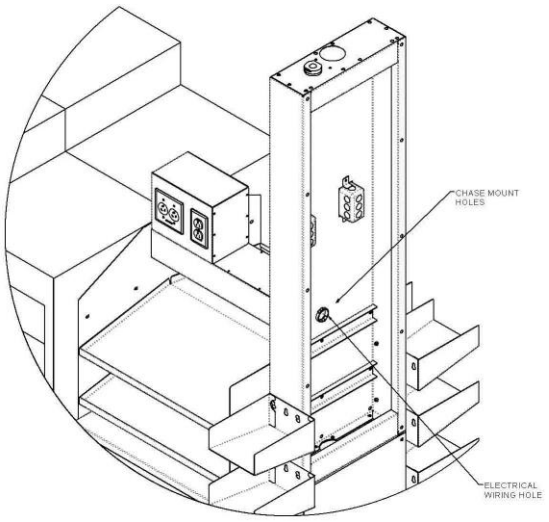


Fig. 38

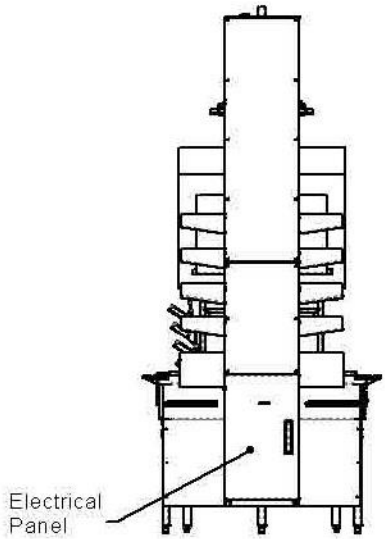


Fig. 39

STEP H: CHEESE MELTER WATER LINE SETUP

1. Using Water Line Kit #551045, assemble cheese melter water line hookups per diagram on page 7.
2. Attach water feeds to each fitting on cheese melters (Fig. 40). (2 per double cheese melter).
   NOTE: Plumbing contractor is to supply water line to bulkhead fitting in top of Upper Chase Extension and ensure all water line connections are tight. Duke MFG Co. recommends the installation of a shut off valve at, or prior to, supply connection.

Fig. 40

STEP H: MISC. PARTS SETUP

1. All misc. wrapper bins and shelving can be put in place using appliance set up diagram on page 7 as a guide.
2. Keyhole mount wrapper bins are secured to Upper Chase Extension and load center chase using button pins.

STEP I: WRAPPER SHELF INSTALLATION

1. Attach 3-tier wrapper shelf to Melter Pylon Cover loosely with (2) #10-24 x 3/8" Truss Head Screws (Fig. 41). After the rest of the shelf is attached, completely tighten.
2. Line up tabs in the 3-tier and single tier wrap shelves and attach to center channel with (4) #10-24 x ½" Phillips Head Self Tapping Screws (Fig. 42).
3. Attach Pizza Cutter Hooks with (2) #6-32 x 3/8" Phillips Head Screws (Fig. 43).

Fig. 41

Fig. 42

Fig. 43

ELECTRICAL CONNECTIONS

1. Electrical contractor can wire monitor receptacle and heaters, etc. using wiring diagram and panel schedule supplied with unit.
2. Main power supply connection can be made from ceiling through wire chase to load center (Fig. 46-47).
3. Attach vertical wire chase covers with hardware kit #215682 using (16) ¼-20 x ½" truss head screws (Fig 48).

Fig. 46

Fig. 47

Fig. 48

CARVING BOARDS, TACO RAIL, AND ADD ON BOTTLE HOLDER

1. Attach carving board brackets to front of unit with supplied #10-24 x ¾" screws (Fig. 49).
2. Set HF carving board in place in fron t of the hot food well (Fig. 50).
3. Set RB carving board in place in front of the cold rail (Fig. 51).
4. Set the Taco Rail in place inside the cutout in the carving board (Fig. 52).
5. Attach add on sauce bottle holders to hot well side of the 4-bottle holder.

Fig. 49

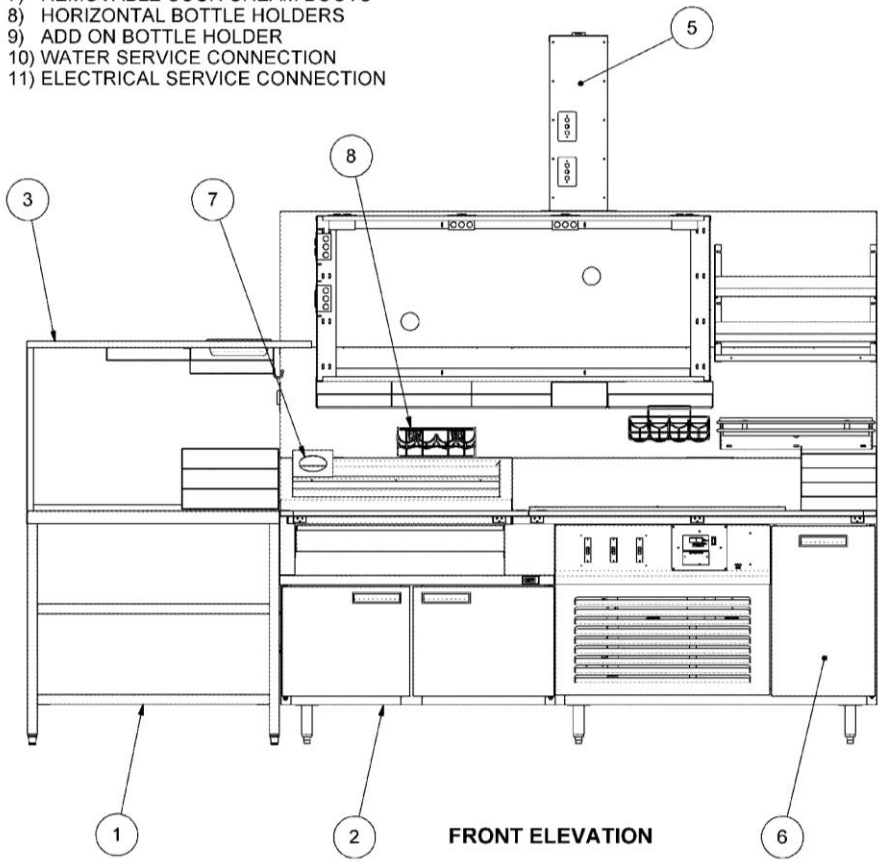
Fig. 50

Fig. 51

Fig. 52

TACO BELL DRY MODULAR I-LINE EVO

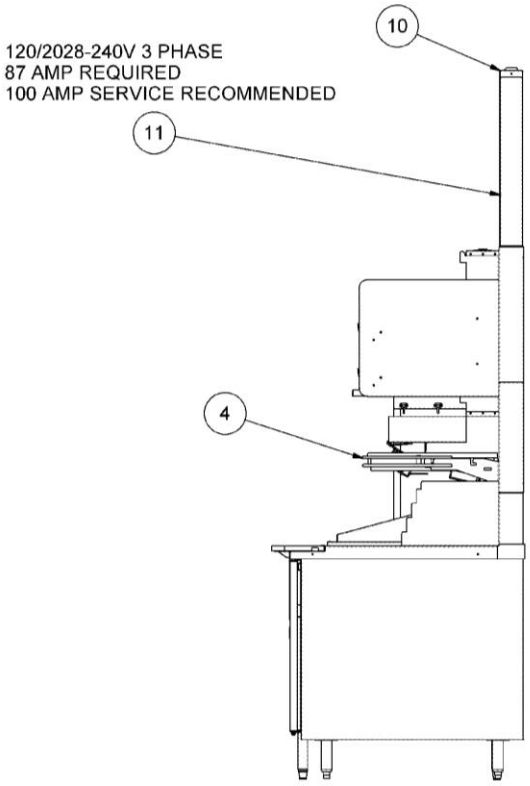
1) EXTENSION TABLE
2) REFRIGERATED BASE UNIT W/ TRI-CHANNEL COLD RAIL & DRY HEAT
3) EXTENSION TABLE OVERSHELF
4) TORTILLA GRIDDLE W/ MOUNTING BRACKET
5) MAIN SERVICE WIRE CHASE W/ ELECTRICAL & WATER
6) ELECTRICAL PANEL BOX BEHIND DOOR
7) REMOVABLE SOUR CREAM BOOTS
8) HORIZONTAL BOTTLE HOLDERS
9) ADD ON BOTTLE HOLDER
10) WATER SERVICE CONNECTION
11) ELECTRICAL SERVICE CONNECTION



FRONT ELEVATION

WATER SUPPY
REGULATED TO 25 PSI

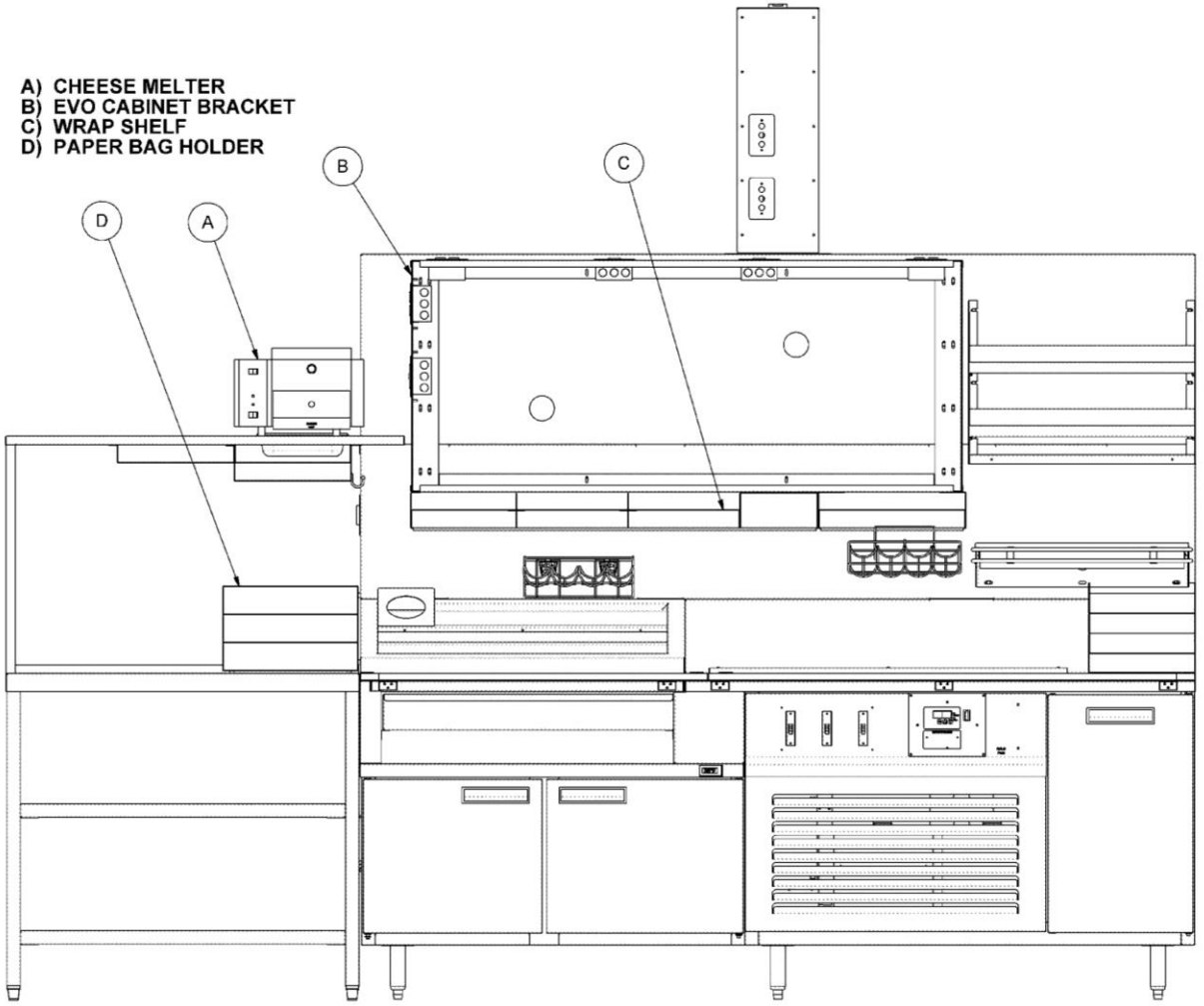
120/2028-240V 3 PHASE
87 AMP REQUIRED
100 AMP SERVICE RECOMMENDED



END ELEVATION

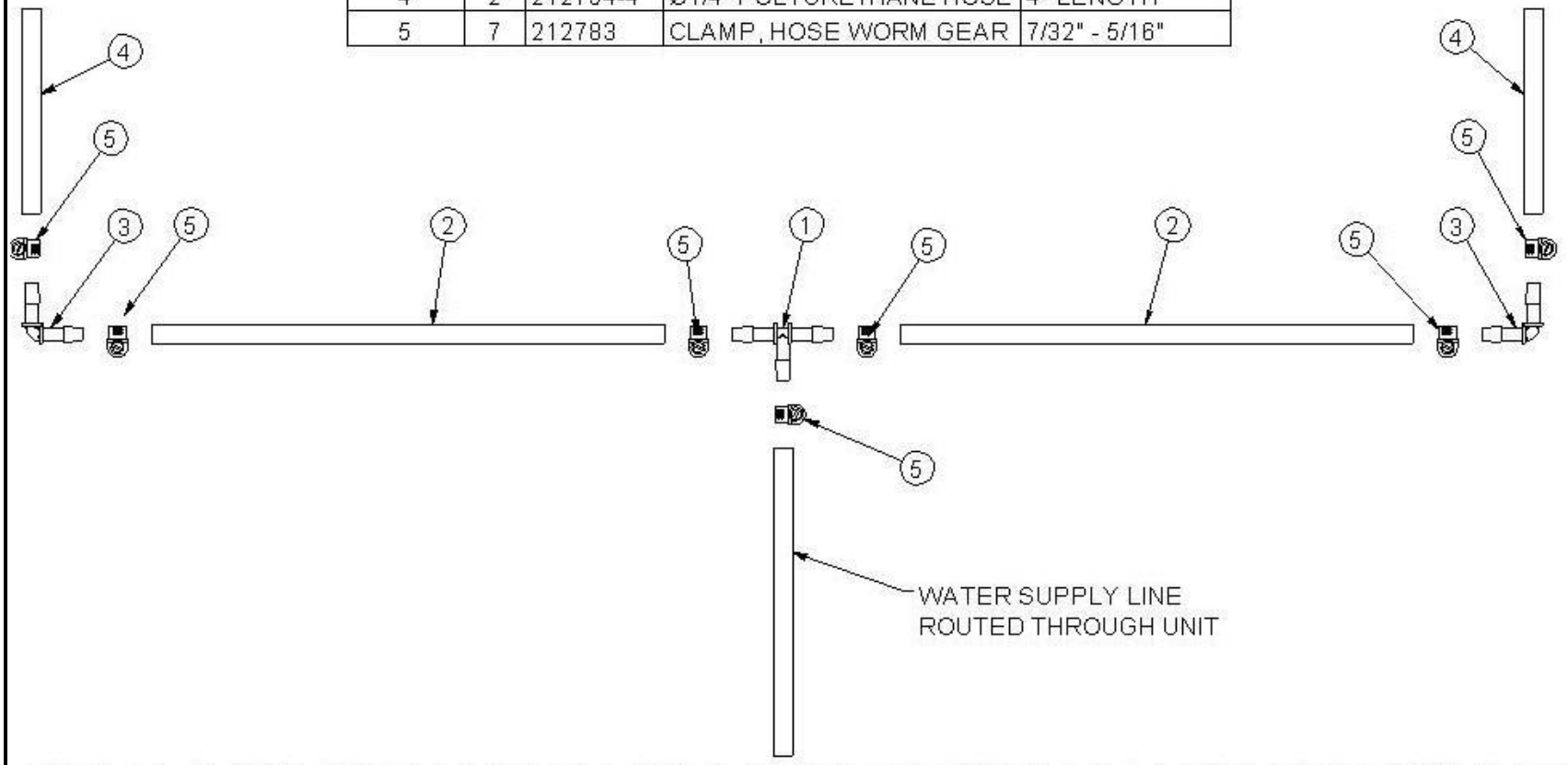
APPLIANCE SET UP

A) CHEESE MELTER
B) EVO CABINET BRACKET
C) WRAP SHELF
D) PAPER BAG HOLDER



FRONT ELEVATION I-LINE EVO R-L COUNTER

ITEM NO.	QTY.	PART #	DESCRIPTION	DESCRIPTION 2
1	1	212752	Ø1/4" TEE BARBED	
2	2	212754-10	Ø1/4" POLYURETHANE HOSE	10" LENGTH
3	2	212753	Ø1/4" ELBOW 90°	
4	2	212754-4	Ø1/4" POLYURETHANE HOSE	4" LENGTH
5	7	212783	CLAMP, HOSE WORM GEAR	7/32" - 5/16"



FIELD ASSEMBLY OF I-LINE CHEESE MELTER WATER SUPPLY
I-LINE WATER LINE KIT #551044

STEP A: BASE UNIT SET UP

1. Place Refrigerated Base Unit (Fig. 53) and Extension Table (Fig. 54) in approximate location in store. Leave Refrigerated Base Unit out away from the wall at this time.
2. Remove bolts holding back panel to wall assembly and remove panel (Fig. 55).
3. Slide Extension Table into place and level both units beginning with the Refrigerated Base Unit. Start with feet adjusted in (Fig. 56). Tops should line up and be straight and level when complete.
4. Using hardware kit #215673, secure table to Refrigerated Base Unit with (2) screws #213029 (Fig. 57).

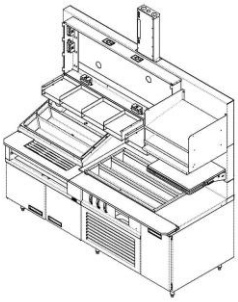


Fig. 53

Fig. 54

Fig. 55

Fig. 56

Fig. 57

STEP B: SHELVING SETUP

1. Set Extension Table shelving in place with tubing legs over blocks on table top. Support shelving in place and secure to EvO cabinet assembly using (2) screws #213023 (Fig. 58) and to back wall using (1) screw #213023.
2. Secure shelving legs to blocks using (4) screws #213028 (Fig. 59).

Fig. 58

Fig. 59

STEP C: EVO CABINET SETUP

1. Set EVO cabinet in place on EVO cabinet bracket on the wall section and secure to the Tortilla shelf with (2) screws #213028 (Fig. 60).
2. Secure EVO cabinet to the Overhead shelf with (2) screws and wall section with (1) screw #213028 (Fig. 61).

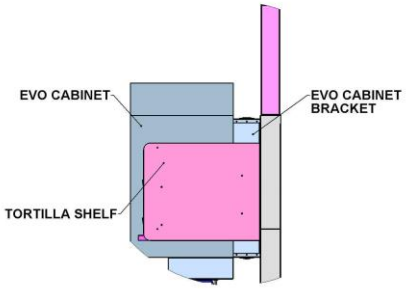


Fig. 60

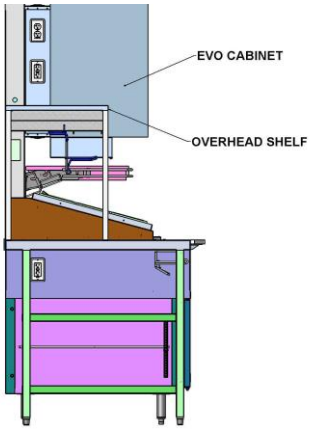


Fig. 61

STEP C: ELECTRICAL CONNECTIONS

3. Set wire chase in place on top of wall section and secure with (4) screws #213028 (Fig. 62).
4. Electrical contractor can route supply line down through wire chase on top of wall assembly, through wall assembly to load center (Fig. 63-64).
5. Remove chase cover and attach braided water supply line to fitting in top of wire chase and ensure water lines are still routed through holes in wall panel into cheese melter area (Fig. 65).
6. Re-attach back wall panel with screws.
7. Unit can now be pushed back against wall and secured. Be sure to re-level units if needed.
8. Re-secure chase cover to wire chase.
9. **NOTE:** Standard electrical service can be provided using Ø1 ½ " flex conduit. If Ø2" conduit is being used it can be routed through cutouts provided (Fig. 66).

Fig. 62

Fig. 63

Fig. 64

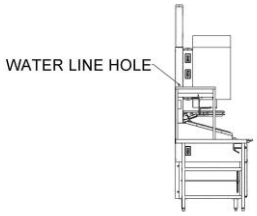


Fig. 65

Fig. 66

STEP D: MISC. PARTS SETUP

1. Using Water Line Kit #551044, assemble cheese melter water line hookups per diagram on page 20.
2. Attach water feeds to each fitting on cheese melters. (2 per double cheese melter).
3. **NOTE: Plumbing contractor is to supply water line to bulkhead fitting in top of wire chase and ensure all water line connections are tight. Duke MFG Co. recommends the installation of a shut off valve at, or prior to, supply connection.**
4. All misc. wrapper bins and shelving can be put in place using appliance set up diagram on page 19 as a guide.

CARVING BOARDS, TACO RAIL, AND ADD ON BOTTLE HOLDER

1. Attach carving board brackets to front of unit with supplied #10-24 x ¾" screws (Fig. 67).
2. Set HF carving board in place in fron t of the hot food well (Fig. 68).
3. Set RB carving board in place in front of the cold rail (Fig. 69).
4. Set the Taco Rail in place inside the cutout in the carving board (Fig. 70).
5. Attach add on sauce bottle holders to hot well side of the 5-bottle holder.

Fig. 67

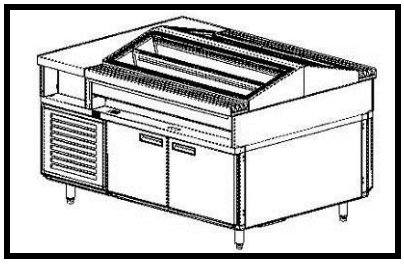
Fig. 68

Fig. 69

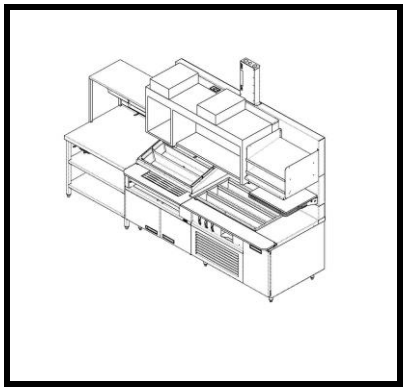
Fig. 70

Introduction

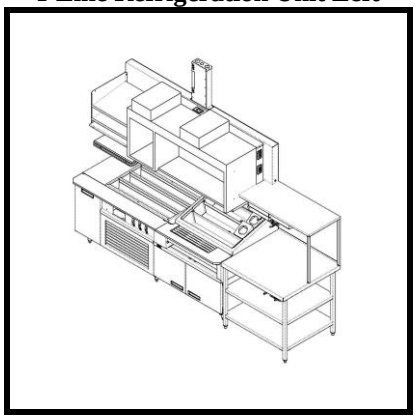
This publication contains information regarding the installation and operation of Taco Bell Dual Line Refrigeration Unit and Taco Bell I-Line Refrigeration Unit. Please read this manual completely before attempting to install and/or operate this equipment.



Dual Line Refrigeration Unit



I-Line Refrigeration Unit Left



I-Line Refrigeration Unit Right

Serial Number

Always have the serial number of your unit available when calling for parts or service. The serial number is located on the data label inside the refrigerated base of the unit

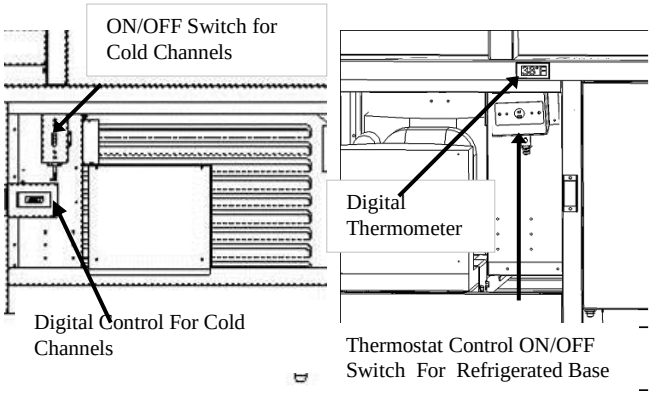
WARNING

REFER TO THE AMPERAGE DATA LIST IN THE SPECIFICATIONS OR THE SERIAL TAG DATA AND YOUR LOCAL CODE OR THE NATIONAL ELECTRICAL CODE TO BE SURE UNIT IS CONNECTED TO THE PROPER POWER SOURCE. A PROTECTED CIRCUIT OF THE CORRECT VOLTAGE AND AMPERAGE MUST BE RUN FOR CONNECTION OF THE SUPPLY CORD OR PERMANENT CONNECTION TO THE UNIT. THE POWER MUST BE TURNED OFF AND DISCONNECTED WHENEVER PERFORMING MAINTENANCE OR REPAIR FUNCTIONS.

Operation

Location of Controls – Dual Line

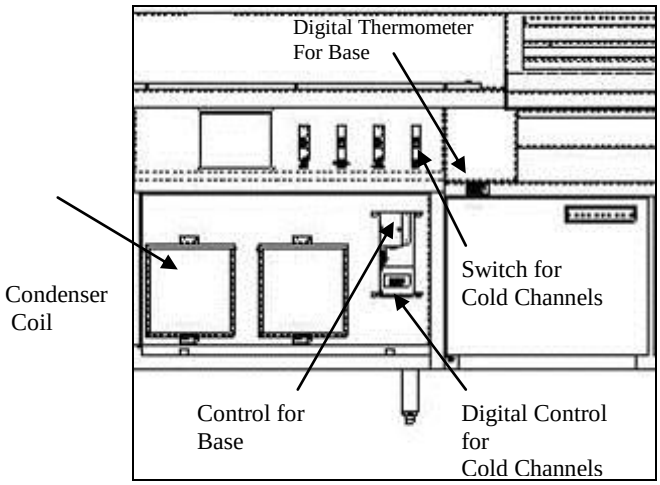
The refrigerated base ON/OFF control/temperature setting adjustment knob is located behind a louvered door on the walk up side of the line. The ON/OFF switch for the cold channel is located behind the louvered panel on the drive up side of the line.



Dual Line Location of Controls

Location of Controls – I-Line

The refrigeration control/temperature setting adjustment knob is located behind the lift-off front access panel. Remove access plate to gain access to the control box for the refrigerated base. The ON/OFF control for the cold channels is located in the control panel above the louvered access panel.



I-Line Location of Controls

Operating Procedure Refrigerated Base

The desired temperature setting for the refrigerated base is obtained by rotating the adjustment knob. A clockwise turn to the indicated setting will produce required temperatures.

Cold Channel Cold Pans

1. The cold pan needs to be pre-chilled for 30 minutes before product is loaded.
2. The cold pan is design to hold pre-chilled (33°F to 40°F) product. Do not place warm product (above 40°F) in the cold pan as it is not designed to reduce the temperature of the product.
3. Direct air flow from ventilation ducts or fans may hinder performance and increase food temperatures.
4. Turn ON/OFF switch located in control panel on.
5. The temperature control is preset at factory and should only be adjusted by trained service agency.

Maintenance

Stainless Steel Care and Cleaning

To prevent discoloration or rust on stainless steel several important steps need to be taken. Stainless steel contains 70-80% iron which will rust. It also contains 12-30% chromium which forms an invisible passive film over the steels surface which acts as a shield against corrosion. As long as the protective layer is intact, the metal will not corrode. If the film is broken or contaminated, outside elements can begin to breakdown the steel and begin to form rust or discoloration.

Proper cleaning of stainless steel requires soft cloths or plastic scouring pads.

CAUTION: Never use steel pads, wire brushes or scrapers.

Cleaning should be per Taco Bell Answer System Cleaning Procedure (Book 5).

Cold Pan Cleaning Instructions

1. Unit should be turned off and cleaned daily.
2. Remove product from cold pan.
3. Turn unit off and allow cold pan walls to defrost.
4. Wipe cold pan dry with towel.
5. Clean unit with warm soapy water or mild cleanser.
6. A plastic scouring pad and a mild detergent may be used to remove hardened food.

WARNING

NEVER USE AN ACID BASED CLEANING SOLUTION! MANY FOOD PRODUCTS HAVE AN ACIDIC CONTENT WHICH CAN DETERIORATE THE FINISH. BE SURE TO CLEAN ALL FOOD PRODUCTS FROM ANY STAINLESS STEEL SURFACE. COMMON ITEMS INCLUDE, TOMATOES, PEPPERS AND OTHER VEGETABLES.

WARNING

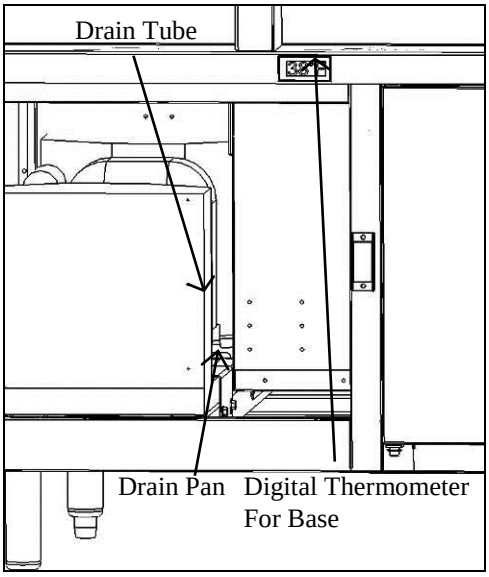
THE POWER MUST BE TURNED OFF AND DISCONNECTED AT ALL TIMES WHEN PERFORMING MAINTENANCE OR REPAIR FUNCTIONS.

Drain Maintenance - Base

Each unit has a copper drain tube located inside the unit which removes condensation from the evaporator coil and deposits it onto a drain pan where it can evaporate. If you notice excessive water accumulation on the inside of the unit be sure that the drain tube is connected from the evaporator housing to the condensate evaporator drain pan. If water is collecting underneath the unit you may want to check the condensate evaporator drain tube to be sure it is still located above the drain pan. The leveling of the unit is also important as the units are designed to drain properly when on a level surface, if your floor is not level this can also cause drain problems. Be sure the drain pan is kept free of dirt, dust and other debris as excessive amounts will cause water to back up and overflow from the drain pan.

Accessing The Drain Pan – Dual Line

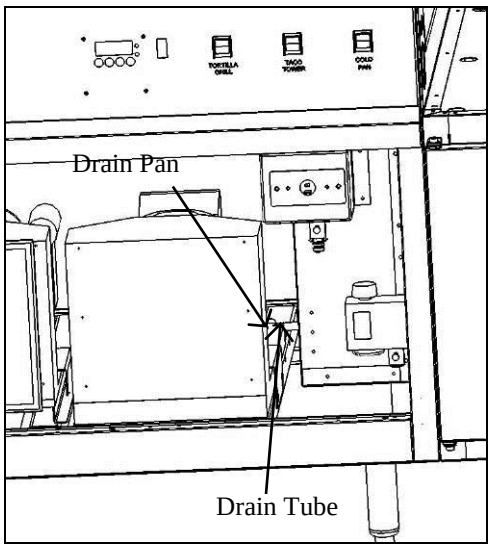
1. Disconnect and isolate the refrigerator from the power source.
2. Open the louvered door and remove the inner panel that does not have the switch (below the digital thermometer).
3. The drain pan is located beneath the condensing unit.



Dual Line Drain Pan Location

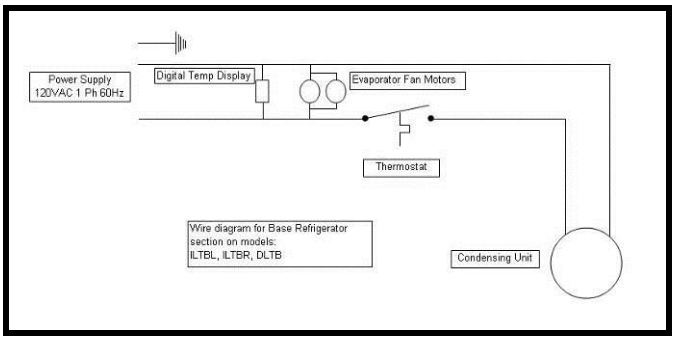
Accessing The Drain Pan – I-Line

1. Disconnect and isolate the refrigerator from the power source.
2. Remove the lift off louvered panel.
3. Remove the inner panel.
4. The drain pan is located beneath the condensing unit closest to the refrigerated base.

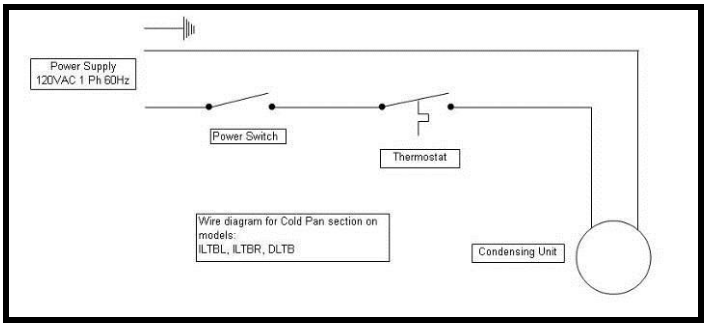


I-Line Drain Pan Location

Wiring Diagrams



Wiring Diagram for Base Refrigerator



Wiring Diagram for Tri Channel Cold Pan

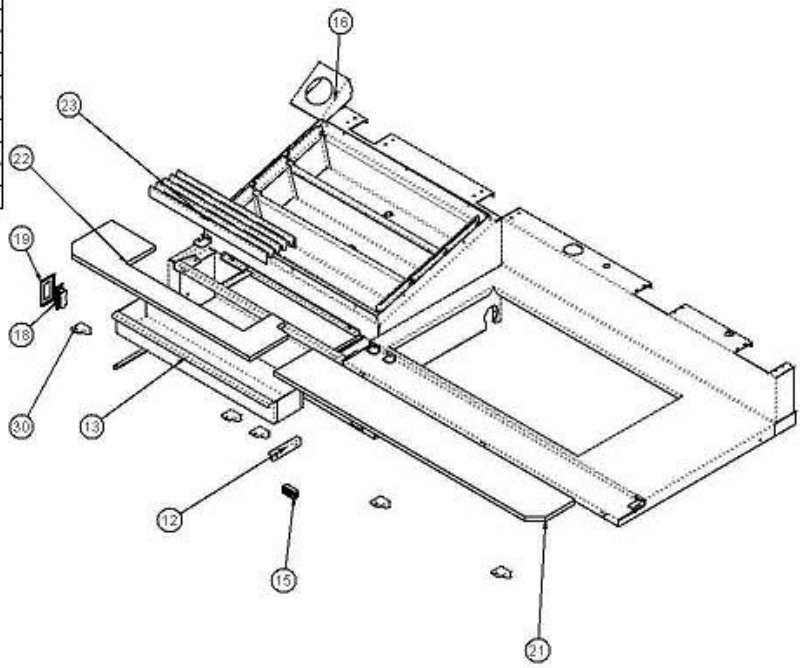
Trouble Shooting

Trouble Shooting Procedure By Authorized Service Agents

SYMPTOM	CAUSE	REMEDY
Cabinet Too Warm	No electric	Verify power to panel
	Thermostat set too warm	Adjust thermostat setting by following instructions on sticker on control mounting box.
	Faulty thermostat, in the coldest position, the switch is not closed	Replace thermostat
	Doors not sealing	Adjust doors
	Torn or damaged door gaskets	Replace gaskets
	Evaporator fan not running	Check motor, repair or replace
	Condenser fan motor not running	Check motor, repair or replace
	Condenser coil dirty/ filter dirty	Clean coil or filter
	Refrigerant leak	Leak check unit, repair, and recharge
Cabinet Too Cold	Thermostat set too cold	Adjust thermostat setting by following instructions on sticker on control mounting box.
	Faulty thermostat, in the off position, the switch does not open, stuck closed	Replace thermostat
Water in the bottom of the unit	Drain tube plugged	Clear drain tube
	Tube not directed into drain pan	Make sure all tubes are directed into drain pan and secured

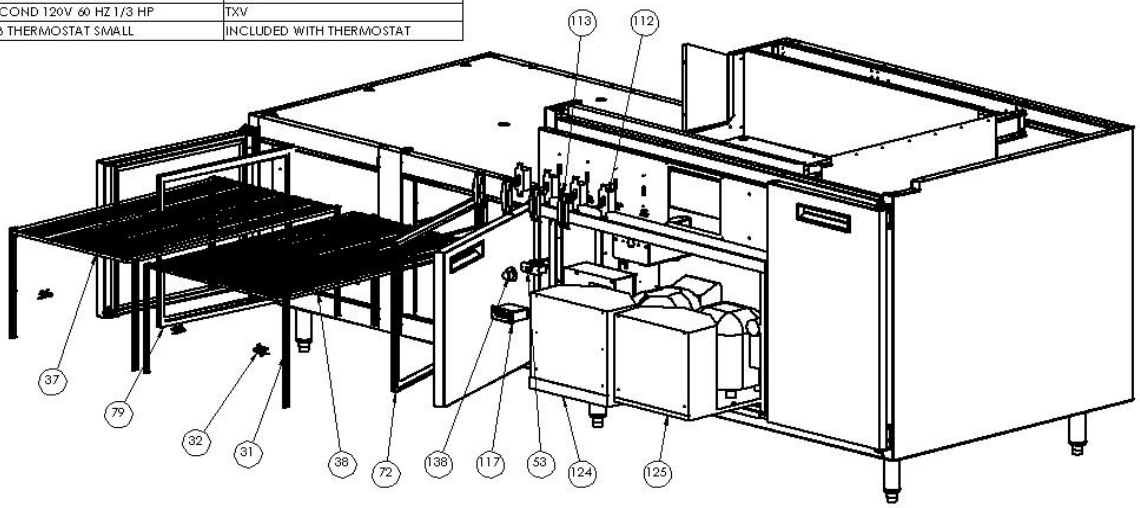
TACO BELL I-LINE EVO RB TOP ASSY

ITEM NO.	QTY.	PART #	DESCRIPTION
12	2	550783	ANGLE SUPPORT SCRAP, I-LINE
13	1	550782	PAN SCRAP I-LINE HEMMED
15	1	216675	DIGITAL THERMOMETER
16	1	550276	BOOT SOUR CREAM NESTED
18	1	212340	RECPT, ELEC 5-20 GFCI DUPLEX
19	1	218867	COVER OUTLET GFI SCALES
21	1	552028	POLY CUTTING BOARD
22	1	552029	POLY CUTTING BOARD
23	1	552007	RAIL ASSEMBLY TACO BELL I-LINE
30	5	552024	BRACKET, QSR W/ PIN I-LINE



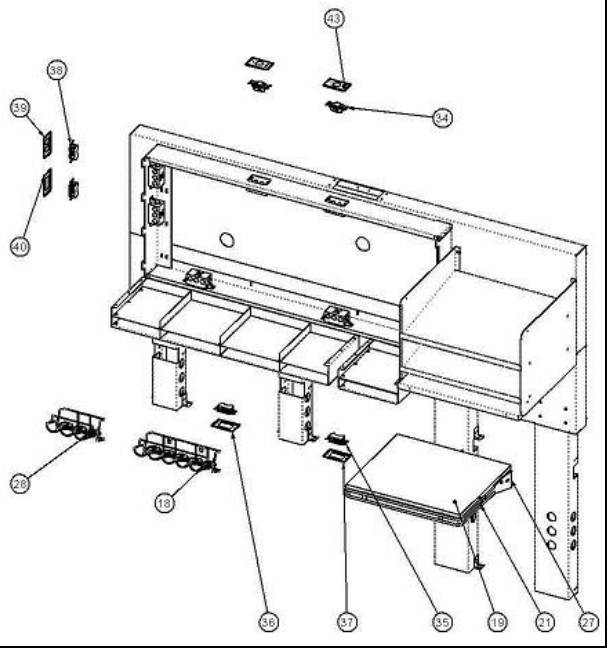
TACO BELL I-LINE R-L RB ASSY

ITEM NO.	QTY.	PART #	DESCRIPTION	DESCRIPTION 2
31	8	212770	PILASTER, SHELF 12" SS	
32	8	212610	SHELF, CLIP	
37	1	216742	WIRE RACK SINGLE 17" OPENING	-
38	1	216743	WIRE RACK SINGLE 19" OPENING	-
53	1	216643	CONTROL TEMP. #RAS-17715	TACO REF.
72	1	216636	GASKET DOOR 19"	
79	1	216645	GASKET DOOR 17"	
112	4	212792	SWITCH TOGGLE 30A RED TOGGLE	
113	4	550902	GUARD TOGGLE SWITCH	TACO BELL
117	1	216837	Thermostat	Breha Digital Display
124	1	071136	UNIT COND. 1/5HP R134A	120V 60HZ
125	1	216879	UNIT COND 120V 60 HZ 1/3 HP	TXV
138	1	216456-	KNOB THERMOSTAT SMALL	INCLUDED WITH THERMOSTAT



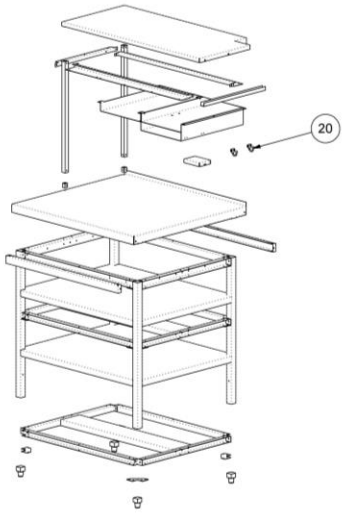
TACO BELL EVO I-LINE R-L WALL SECTION

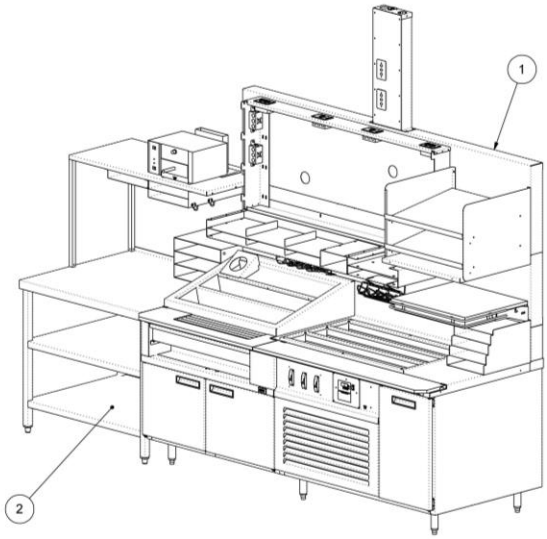
ITEM NO.	QTY.	PART #	DESCRIPTION
18	1	216983	RACK BOTTLE HORIZONTAL
19	1	226903	APW ELEC CTRL TORTILLA
27	1	551633	GRIDDLE BRACKET
28	1	216998	RACK BOTTLE HORIZONTAL
34	2	212757	RECPT L5-15 125V SINGLE OUTLET
35	3	212340	RECPT. ELEC 5-20 GFCI DUPLEX
36	1	218867	COVER OUTLET GFI SCALES
37	1	218860	COVER OUTLET OPEN
38	1	212591	RECPT 6-20 250V DUPLEX
39	1	218870	COVER OUTLET MELTER
40	1	218869	COVER OUTLET GFI STAGER
43	2	228955	COVER OUTLET "EVO CABINET"



TACO BELL EVO I-LINE R-L TABLE AND COUNTER

ITEM NO.	QTY.	PART #	DESCRIPTION
	2	222722	J-HOOK SMALL
22	5	551889	BRACKET, CARVING BOARD FRONT
23	15	213360	SCREW 10 - 24 X 3/8 TPF-M
24	1	552211	EXT SHELF CHANNEL REINF END SM
25	1	226952	PRONTO SAUCE BOTTLE HOLDER
26	1	226950	RACK BOTTLE HORIZONTAL

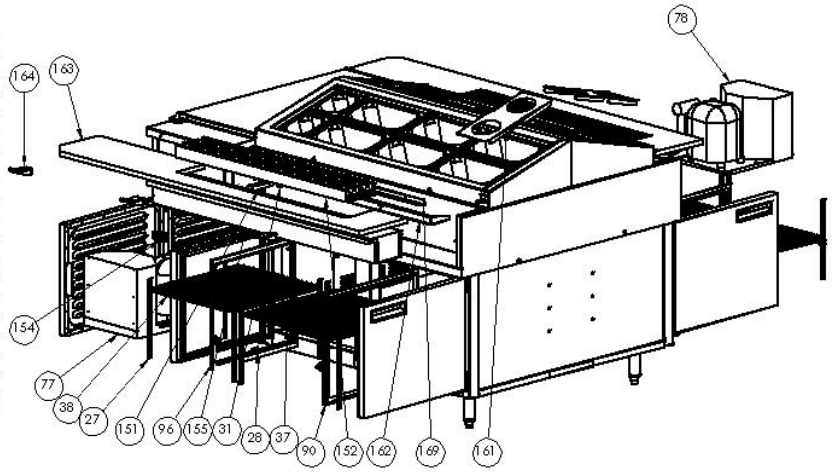




ITEM NO.	QTY.	PART #	DESCRIPTION
1	1	553711	ASSY RB W/ WALL
2	1	553713	EXT. TABLE 39" RL SINGLE LINE

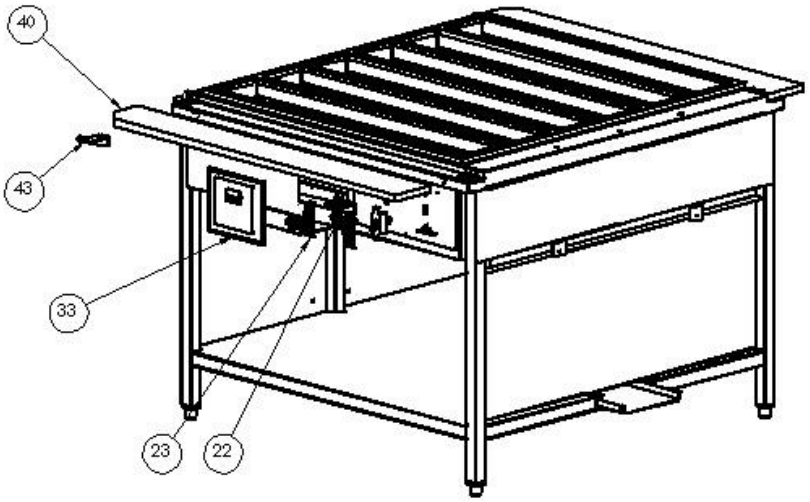
TACO BELL DUAL LINE RB

ITEM NO.	QTY.	PART #	DESCRIPTION	DESCRIPTION 2
27	16	212770	PILASTER, SHELF 12" SS	
28	16	212610	SHELF, CLIP	
31	32	213091	THUMB SCREW, 10-24 X 3/8	
37	2	216737	WIRE RACK DUAL 19" OPENING	NARROW BASE
38	2	216736	WIRE RACK DUAL 17" OPENING	NARROW BASE
77	1	71136	UNIT COND. 1/5HP R134A	120V 60HZ
78	1	216879	UNIT COND 120V 60 HZ 1/3 HP	TXV
90	2	216636	GASKET DOOR 19"	
96	2	216645	GASKET DOOR 17"	
151	4	551071	ANGLE SUPPORT SCRAP DUAL	TACO BELL
152	2	551974	RAIL TACO NARROW TACO BELL	DUAL W/ CARVING BO
154	1	216675	DIGITAL THERMOMETER	DIXELL # XT11S 110V
155	2	551075	SCRAP TRAY ANGLED	TACO BELL DUAL
161	2	550245	HOLDER SOUR CREAM	TACO BELL
162	2	551965	CHANNEL FILLER TACO RAIL	DUAL TB RETRO 09
163	2	551970	POLY CUTTING BOARD	NEW DUAL RB
164	6	551969	BRACKET, CARVING BOARD FRONT	-
169	2	551971	ANGLE, TACO RAIL SUPPORT	TB RETRO 09 PRODUCTI



TACO BELL DUAL HF TABLE

ITEM NO.	QTY.	PART #	DESCRIPTION	DESCRIPTION 2
22	2	212792	SWITCH TOGGLE 30A RED TOGGLE	
23	2	550902	GUARD TOGGLE SWITCH	TACO BELL
33	1	218880	ASSY, DISPLAY CNTL BRD	DRY CHANNEL
40	2	551981	POLY CUTTING BOARD	NEW DUAL HF
43	4	551969	BRACKET, CARVING BOARD FRONT	-



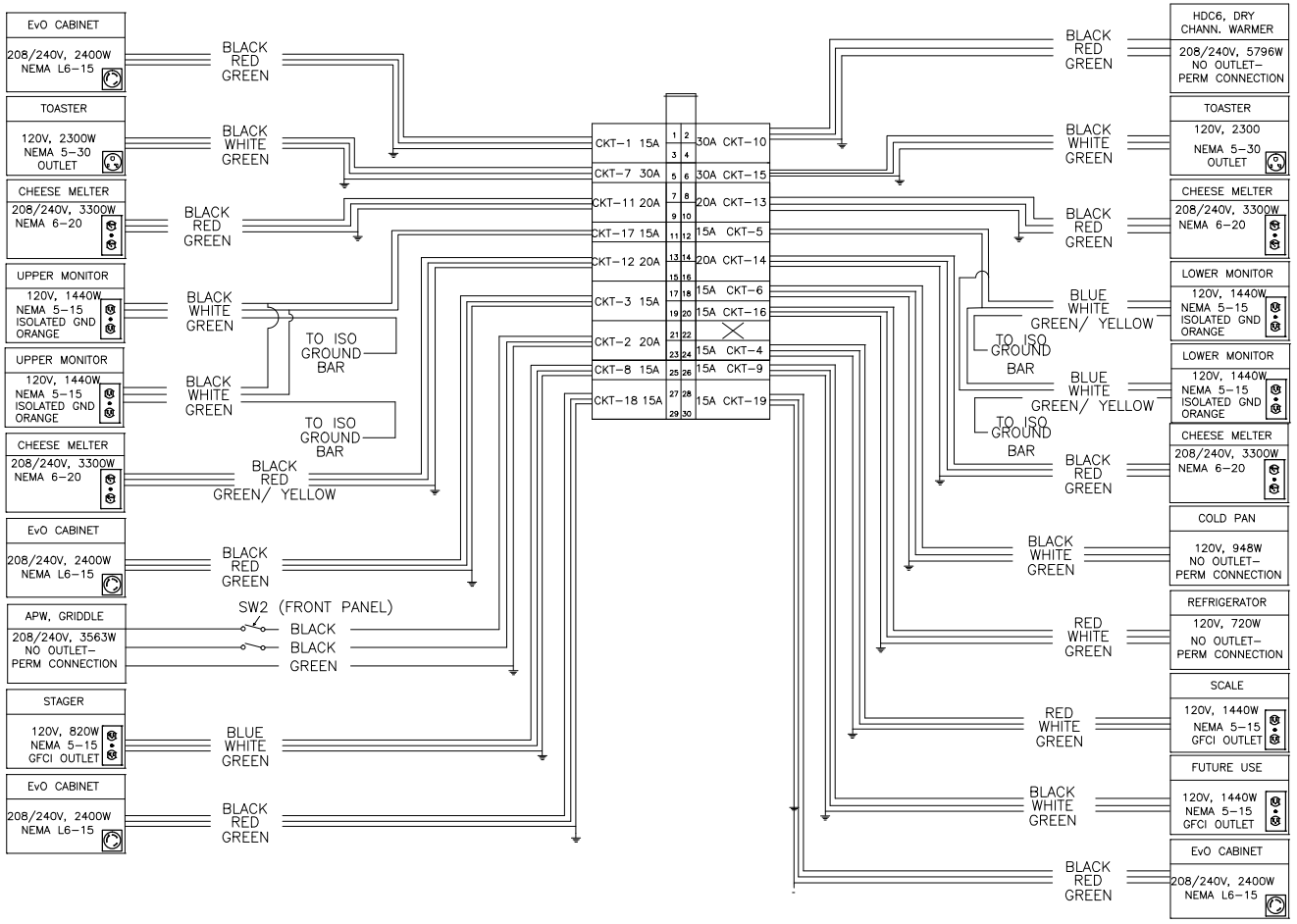
Notes

For information or technical assistance, call:
TOLL FREE
(800) 735-DUKE (3853)
or
(314) 231-1130

FLAT	FORM	REV	ECO NO.	DATE	BY	DESCRIPTION
–	–	A	–	4/16/14	JGA	NEW RELEASE

TACO BELL EvO DUAL LINE

3–PHASE, 120/208/240V, 200A LOAD CENTER



Note:
ALL DIMENSIONS TO OUTSIDE UNLESS OTHERWISE NOTED
TOLERANCE UNLESS NOTED:
± .031 INCHES
± 1 DEGREE

DUKE MANUFACTURING CO.
601 DUKE DRIVE SEDALIA MO. 65301
"YOUR SOLUTIONS PARTNER"

DRAWN BY:	DATE:	DESCRIPTION:
JGA	04/16/14	DUAL EvO LINE 120/208/240V 3PH 200A
MAT'L P/N: –	PROGRAM NUMBER: –	
MAT'L: –	FINISH: –	DRAWING #: 553860

TACO BELL EVO
DUAL LINE
LOADCENTER

PANEL #1			TACO BELL EVO DUAL LINE COUNTER									200A 30P
120/208-240V - 3PH - 4W												
POSITION NUMBER	CIRCUIT NUMBER	BRKR. SIZE	ITEM # / EQUIPMENT SERVED	EQUIPMENT VOLTAGE	LOAD (VA)	PHASE WIRE	LOAD (VA)	EQUIPMENT VOLTAGE	ITEM # / EQUIPMENT SERVED	BRKR. SIZE	CIRCUIT NUMBER	POSITION NUMBER
1	1	15	EVO Cabinet	208/240	1200	A	2898	208/240	HDC6	30	10	2
3					1200	B	2898					4
5	7	30	TOASTER	120	2300	C	2300	120	TOASTER	30	15	6
7	11	20	MELTER	208/240	1650	A	1650	208/240	MELTER	20	13	8
9					1650	B	1650					10
11	17	15	UPPER MONITORS	120	1440	C	1440	120	LOWER MONITORS	15	5	12
13	12	20	MELTER	208/240	1650	A	1650	208/240	MELTER	20	14	14
15					1650	B	1650					16
17	3	15	EVO Cabinet	208/240	1200	C	948	120	COLD PAN	15	6	18
19					1200	A	720	120	REFRIGERATOR	15	16	20
21	2	20	APW GRIDDLE	208/240	1782	B			HIGH LEG - NO CONNECTION			22
23					1782	C	1440	120	SCALE	15	4	24
25	8	15	STAGER	120	820	A	1440	120	FUTURE USE	15	9	26
27	18	15	EVO Cabinet	208/240	1200	B	1200	208/240	EVO Cabinet	15	19	28
29					1200	C	1200					30

3 PHASE PANEL BOX

14878	VA	A
14880	VA	B
15250	VA	C

45008 KVA :TOTAL LOAD

553868	**Drawing Number**
TACO BELL EVO DUAL LINE	**Project Name**
4/28/14	**Date**
GFK	**Filled Out By**

NOTE: ON 240V SYSTEMS, HIGH LEG MUST BE CONNECTED TO CENTER (B) LUG AT TOP OF PANELBOARD (NEC 408.3E) DO NOT CONNECT 120V EQUIPMENT TO THE "B" PHASE IN THIS PANEL

TACO BELL EVO
SINGLE LINE
LOADCENTER

PANEL #1			TACO BELL EVO I-LINE COUNTER									125A 24P
120-208/240V - 3PH - 4W - S/N												
POSITION NUMBER	CIRCUIT NUMBER	BRKR. SIZE	ITEM # / EQUIPMENT SERVED	EQUIPMENT VOLTAGE	LOAD (VA)	PHASE WIRE	LOAD (VA)	EQUIPMENT VOLTAGE	ITEM # / EQUIPMENT SERVED	BRKR. SIZE	CIRCUIT NUMBER	POSITION NUMBER
1	1	15	TACO GRILL	208/240	800	A	1650	208/240	MELTER	20	8	2
3					800	B	1650					4
5	3	20	STAGER	120	820	C	1440	120	RIGHT MONITORS	15	10	6
7	2	15	DC3A	208/240	1449	A	1650	208/240	MELTER	20	9	8
9					1449	B	1650					10
11	4	15	LEFT MONITORS	120	1440	C	720	120	REFRIGERATOR	15	7	12
13						A	1200	208/240	EVO Cabinet	15	13	14
15	6	15	EVO Cabinet	208/240	1200	B	1200					16
17					1200	C	948	120	COLD PAN	15	11	18
19						A	1920	120	SCALE	20	12	20
21						B						22
23						C	2300	120	Toaster	30	5	24

3 PHASE PANEL BOX				
	8669	VA	A	25486 KVA :TOTAL LOAD
	7949	VA	B	
	8868	VA	C	

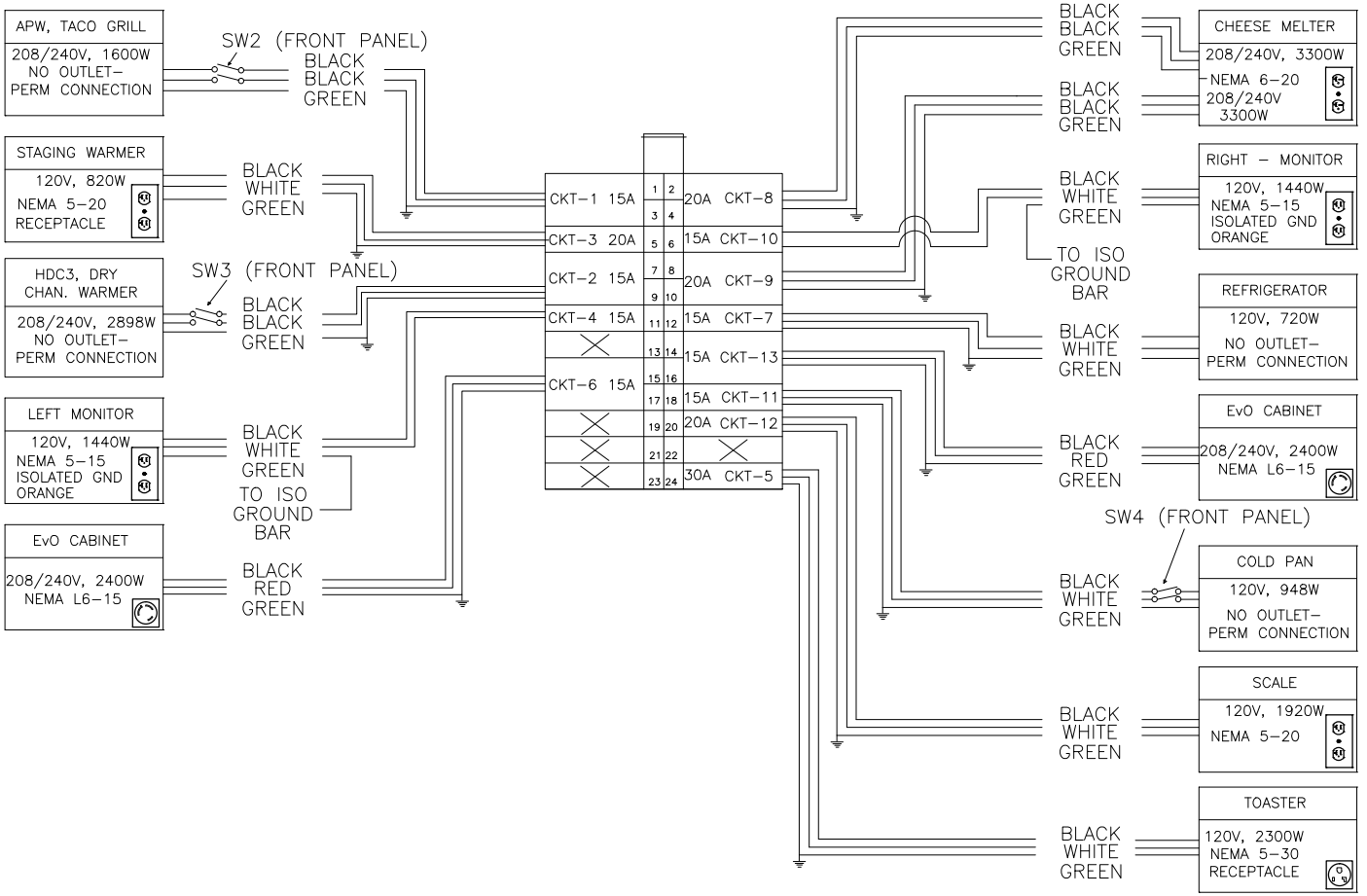
553869	Drawing Number
TACO BELL EVO I-LINE	Project Name
4/28/14	Date
GFK	Filled Out By

NOTE: ON 240V SYSTEMS, HIGH LEG MUST BE CONNECTED TO CENTER (B) LUG AT TOP OF PANELBOARD ! (NEC 408.3E)
DO NOT CONNECT 120V EQUIPMENT TO THE "B" PHASE IN THIS PANEL !

FLAT	FORM	REV	ECO NO.	DATE	BY	DESCRIPTION
–	–	A	–	4/17/14	JGA	NEW RELEASE

TACO BELL EvO I–LINE

3–PHASE, 120/208/240V, 125A LOAD CENTER

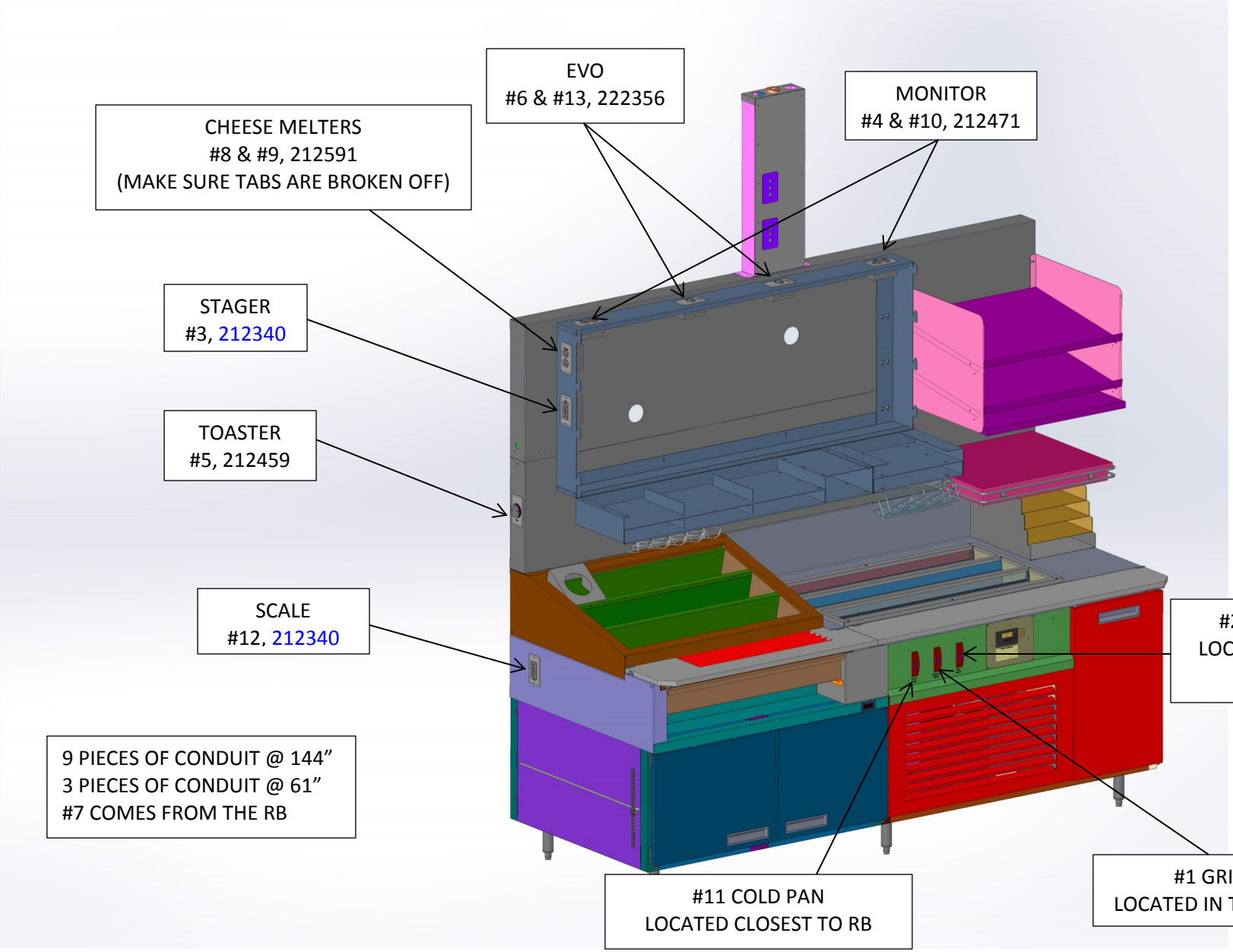


Note:
ALL DIMENSIONS TO OUTSIDE UNLESS OTHERWISE NOTED
TOLERANCE UNLESS NOTED:
± .031 INCHES
± 1 DEGREE

DUKE MANUFACTURING CO.
601 DUKE DRIVE SEDALIA MO. 65301
"YOUR SOLUTIONS PARTNER"

DRAWN BY:	DATE:	DESCRIPTION:
JGA	04/17/14	I–LINE 120/208/240V 3PH 125A
MAT'L P/N: –	PROGRAM NUMBER: –	
MAT'L: –	FINISH: –	DRAWING #: 553870

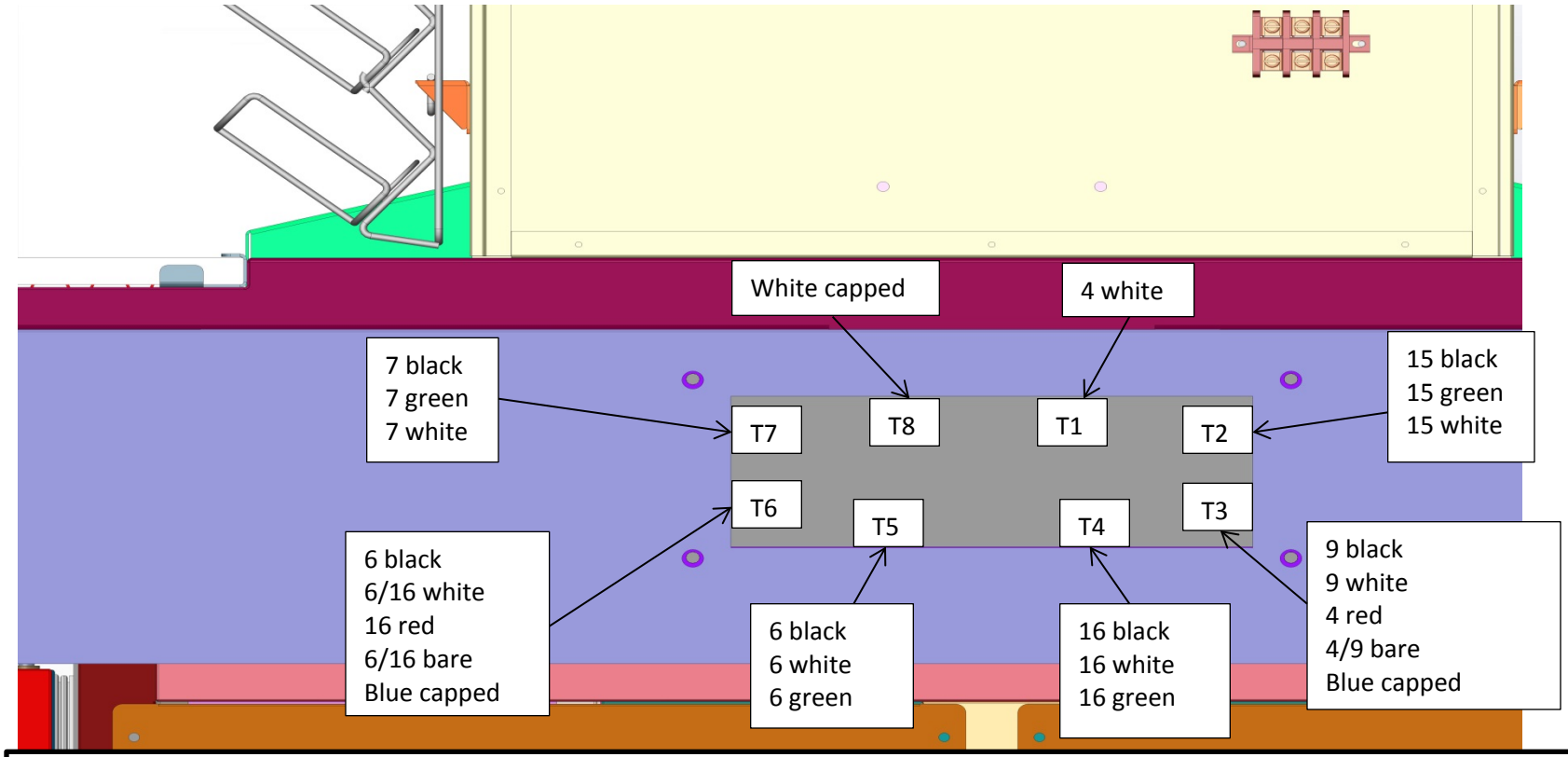
TACO BELL EVO SINGLE LINE OUTLET PLACEMENT



11/6/14

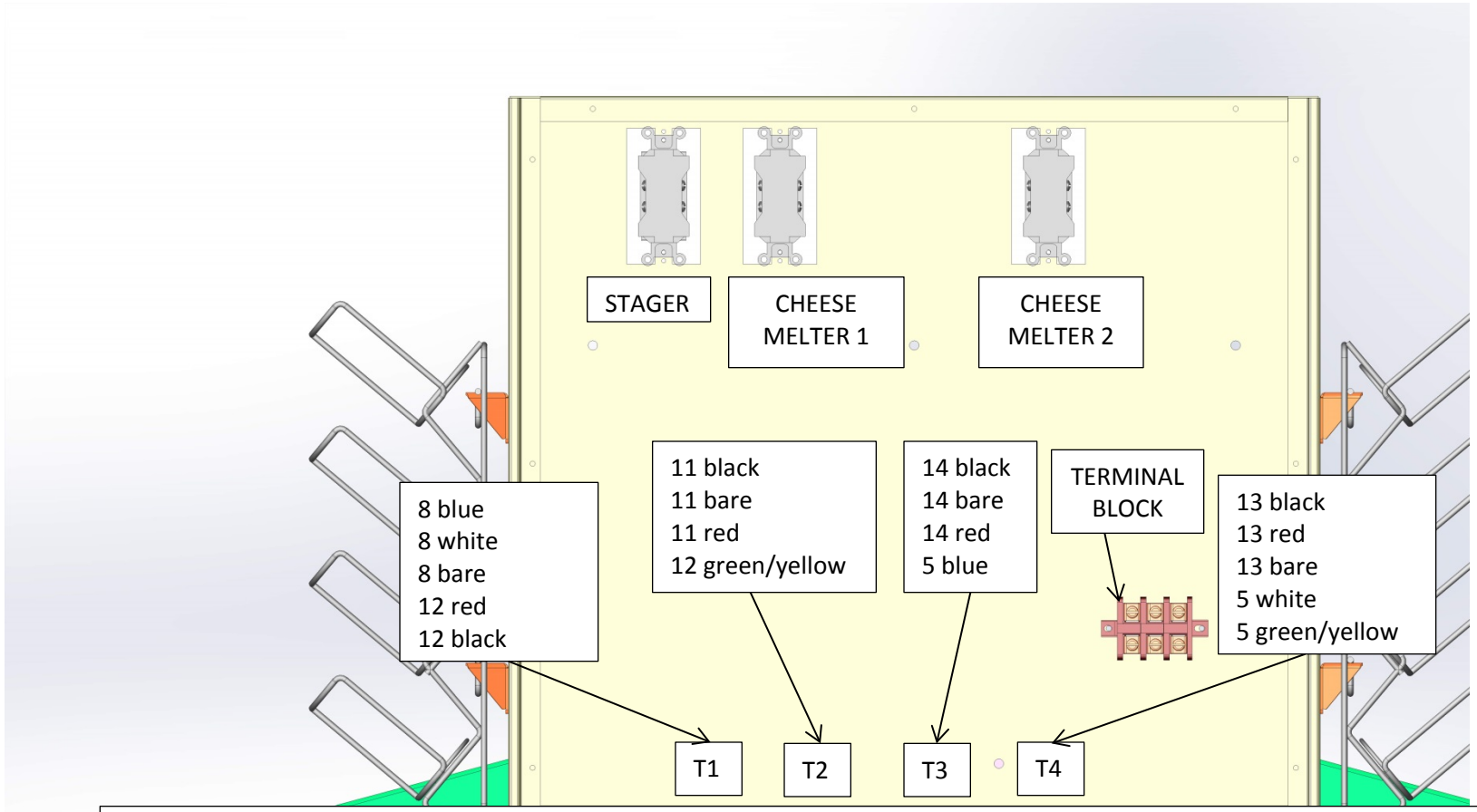
PART #553881

TACO BELL EVO DUAL LINE OUTLET INSTRUCTIONS



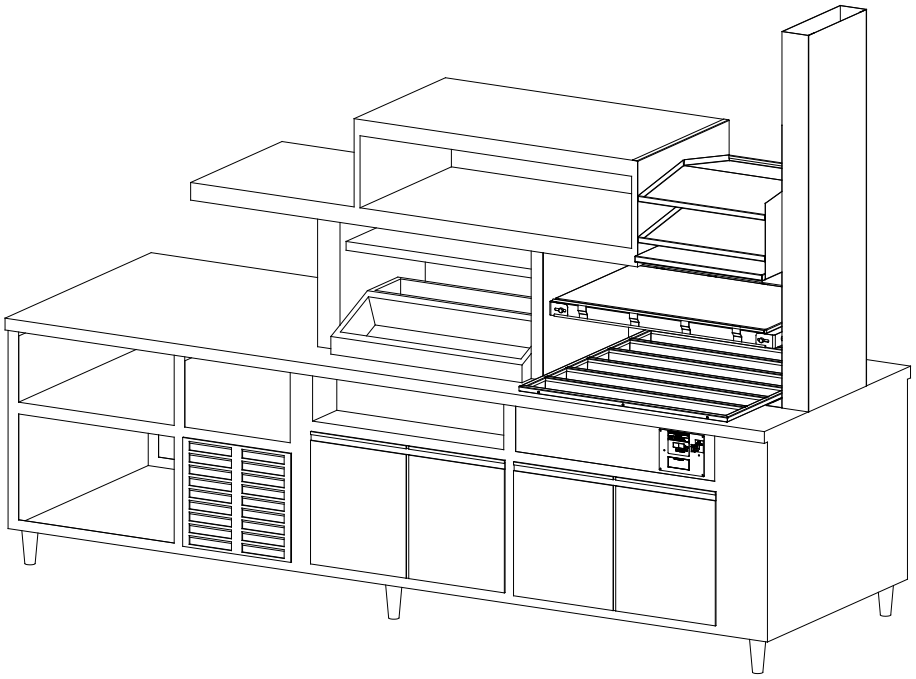
1. Cut & cap wht (T8) with wire nut. Cut & cap blue (T6) with wire nut. Cut & cap blue (T3) with wire nut.
2. Wire nut wires 6 blk (T6) & 6 blk (T5) together.
3. Wire nut wires 6/16 wht (T6), 6 wht (T5), & 16 wht (T4) together.
4. Wire nut wires 6/16 bare (T6), 6 grn (T5), & 16 grn (T4) together.
5. Wire nut wires 16 red (T6) & 16 blk (T4) together.
6. Measure est. 16” of wire 4 red (T3), strip, and install in 5-15 (SCALES).
7. Measure est. 16” of wire 4 wht (T1), strip, and install in 5-15 (SCALES).
8. Add two jumper wires (grn 8”) to 4/9 bare (T3). Add terminal forks to two jumpers, and install in 5-15 (SCALES) & 5-15 (FUTURE).
9. Install 9 blk (T3) & 9 wht (T3) in 5-15 (FUTURE).
10. Install outlets & cover (SCALES middle lt & FUTURE middle rt) to plate.
11. Pull (T7) thru lt outlet hole in plate & (T2) thru rt outlet hole in plate. Install plate to unit.
12. Add labels to wires for (T7) & (T2).
13. Install (T7) in 5-30 lt (TOASTER) & (T2) in 5-30 rt (TOASTER).

TACO BELL EVO DUAL LINE OUTLET INSTRUCTIONS



1. Install circuit 8 wires (T1) in 5-15 (STAGER).
2. Make sure tabs are broken off two 5-20 (CHEESE MELTER) receptacles to ensure two circuits each.
3. Install circuit 11 wires (T2 blk & red) in top of 5-20 (CHEESE MELTER 1).
4. Install circuit 12 wires (T1 blk & red) in bottom of 5-20 (CHEESE MELTER 1).
5. Add terminal forks to 11 bare (T2) & 12 grn/yel (T2) and install to 5-20 (CHEESE MELTER 1) ground.
6. Install circuit 14 wires (T3 blk & red) in top of 5-20 (CHEESE MELTER 2).
7. Install circuit 13 wires (T4 blk & red) in bottom of 5-20 (CHEESE MELTER 2).
8. Add terminal forks to 14 bare (T3) & 13 bare (T4) and install to 5-20 (CHEESE MELTER 2) ground.
9. Install circuit 5 (T3 & T4) to bottom of terminal block.

GTO Retrofit
Dual Line, 3-6, and 3-8
Installation Instructions



Notice: Read this entire Installation Manual prior to installing or operating this equipment. Inspect all components immediately after unpacking. Notify the Carrier of any damage to this equipment.

For information or technical assistance, call:
TOLL FREE
(800) 735-DUKE (3853)
or
(314) 231-1130

Duke Manufacturing Co.
2305 N. Broadway • St. Louis, MO 63102
800.735.3853 • 314.231.1130 • 314.231.5074 Fax
www.dukemfg.com

218854 Rev. 6/22/09

This manual applies to the standard Dual Line, the 3-6 kit, and the 3-8 kit installations. The pictures and illustrations included are for reference only and may vary from store to store.

Table Of Contents

Receiving and Inspecting the Equipment....2
Kit Parts....3
Tool Required and Supplies Required....4
Pre-Installation Inspection....4
Disconnecting the Water and Power....5
Removal of Steam Cabinet....6
Dry Well Drop In Preparation & Installation....7
Relay Control Box Installation....9
Display Box Installation....10
Grill Switch Installation....10-11
Tortilla Grill Installation....11-12
Tortilla Shelf Installation....12
Installation Completion....13
System Restart Up....14
"Punch List"....15

Serial Number Information

The serial number location is as follows:

- Side of the Relay Control Box

Always have the serial number of the equipment available for parts or service. A complete list of Duke service parts is in the unit operations manual.

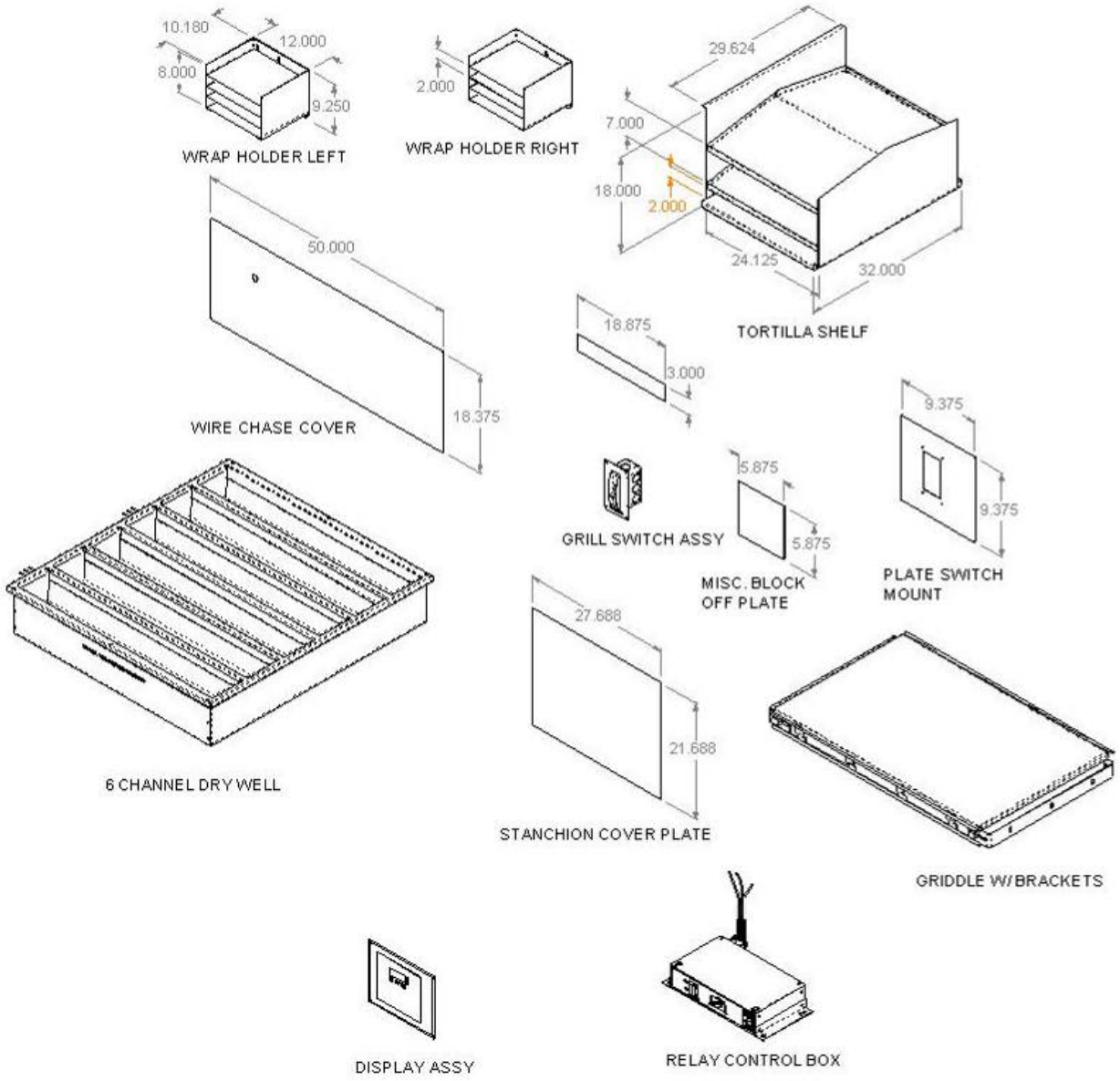
Receiving And Inspecting The Equipment

Unpacking Unit:

- Inspect the shipping carton and/or crate, carefully noting any exterior damage on the delivery receipt, which must also be signed by the driver/delivery person.
- Unpack and inspect for any damage, which was not evident on the outside of the shipping container (concealed damage). Contact the carrier immediately and file a damage claim with them. Save all packing materials when filing a claim. Freight damage claims are the responsibility of the purchaser and are not covered by the warranty.
- **Do not attempt to use the unit if damaged.**
- If unit has been stored in extremely cold area, wait a few hours before connecting power
- Retain all packaging material until an inspection has been made or waived.
- **Keep unit dry and protected from rain.**

Parts Supplied

WDL-HDC6, Dual Line Retrofit Kit



Items not shown above are:
-Pins, insulation mount
-Insulation, 550K PSA 6-1/2" wide
-Conduit assy, relay box pwr
-Bushing Heyco 2420
-Hardware kit
-Breakers & Filler plates for breaker panel
-Replacement Ceiling tiles

Verify all parts are present. If any part is missing, please contact Duke Manufacturing to receive all the parts needed for this installation.

Tools And Supplies Required

- Cut Off Wheel
- Die Grinder
- Reciprocating Saw
- Hammer
- Chisels
- Drill (Electrical and Cordless)
- Tungsten Steel Drill Bits (1/8", ¼", 3/8")
- 3" and 1-1/2" Hole Saw
- Taps (#8-32, #10-32, #10-24, ¼-20)
- Polishing Wheels
- Welder
- Plasma Cutter
- Volt Meter
- Wire Strippers
- Terminal Crimper
- Vacuum Sweeper/power vac
- Level
- "C" Clamps
- 48" Pipe Clamps
- Scissor Jack
- 2x4's
- Wood Blocks
- Ladder
- Gray or Silver and Beige Silicone Sealant
- 1" Masking tape
- Plumbing supplies, elbows / tees / etc. (in the event one gets broken on the job)
- New breakers and blanks plugs
- Ceiling supplies 2ft and 4ft support
- Scotch bright pads
- Ceiling tiles
- Electrical tape

Pre-Installation Inspection

These inspections must be completed with shift manager on duty. (Use checklist on page 17)

- Visually look over complete unit checking location against wall and floor.
- Check that all doors are closing properly and all panels are secure.
- Check electrical chase is straight and vertical to ceiling.
- Check condition of breaker panel and bus bar.
- Ensure all openings are covered with blanks.
- Check that all electrical outlets are in working condition.
- Check the refrigerator and verify the cold rail is cooling and has ice on the sides.
- Inspect cheese melters and verify units are steaming and drain lines are secure.
- Check lights on Taco Tower and flip switch on and off (note burnt out bulbs).
- Verify each heating element on Taco Tower is warming. (Use CAUTION! They are HOT!)
- Ensure all monitors are in working condition.

If anything is found wrong with above, the manager in charge must sign and date the problem. The installer should make three copies, leave one with the store, one with a Duke representative and keep one for their records.

Caution: **Do not weld on the unit with the relay box assembly or the display controller assembly installed or connected. Damage to electronic components could occur.**

Disconnecting The Water And Power

Fig 1

Fig 2

1. Get on roof, locate and disconnect Steam Cabinet vent fan (photo of finished work is required).
2. Locate the water supply (Fig 1). The water supply may be located above the ceiling or under the unit.
3. Shut OFF the water supply to the equipment.
4. Relieve the pressure from the water line (also the steam cabinet, if applicable). The table controls must be energized to complete this step.
5. Make sure all water to the equipment is turned OFF. Open all drains and water lines internal of the equipment. **Disconnect power to the Controls!**
6. **NOTE:** Cold water supply to the Cheese Melters must remain intact. (This may require modification of the supply lines)
7. Cut the hot water supply line to the steam table and the steam cabinet, if applicable.
8. Cap ALL remaining open water lines except for the Cheese Melters.
9. Locate the main power distribution panel (Fig 2) and identify the power to the proper equipment.
10. Turn the Breakers OFF and LOCK/TAG OUT.
11. Secure the electrical Panel Door.
12. Verify the equipment has no voltage present.

Removal Of The Steam Cabinet

Fig 3

Fig 4

1. Remove the Steam Cabinet doors from the unit (Fig 3).
2. The Steam cabinet must be supported prior to removal to avoid injury or damage. Ensure proper manpower is available to support the Steam Cabinet which is in excess of 200 lbs. Note: Support the cabinet using 2x4's and a scissors jack to hold the Steam Cabinet.
3. Remove the duct from the exhaust hood going to the ceiling (Fig 4).
4. Remove the steam cabinet condensate drain & wiring.
5. Cut all welds holding the Steam Cabinet to the shelves and the Electrical Chase.
6. Remove the Steam Cabinet from the counter.
7. Cut the Steam Chase from the counter (Fig 5). Note: Some applications have controls for the Steam Table mounted to the chase that must be removed.

Fig 5

Dry well drop in preparation & installation

Fig 6

Fig 7

1. Remove all the divider bars from the existing Steam Table (Fig 6).
2. Remove the immersion heaters from the Steam Table. Remove the front access panel to get to the wiring for the heaters (Fig 7).
3. Disconnect the wiring from the heaters and completely remove all wiring from the heaters back to the breaker panel.
4. Remove the 30 Amp breakers for the heaters from the panel.
5. Remove any other components (e.g. relays, switches, etc.) that are associated with the heaters for the Steam Table.
6. Remove the heaters and covers from the Steam Table (Fig 6). Cut out all obstacles from inside steam well (auto fill spark plugs, etc.).
7. Cut the top of the Steam table to accept the Dry Channel. The opening for the dry channel needs to be 38-1/2" x 42" (Fig 8). **Note: When cutting the opening the cut should be centered in the top and toward the electrical chase end to avoid refrigeration lines. Corners must be square to accept the Dry Channel.**

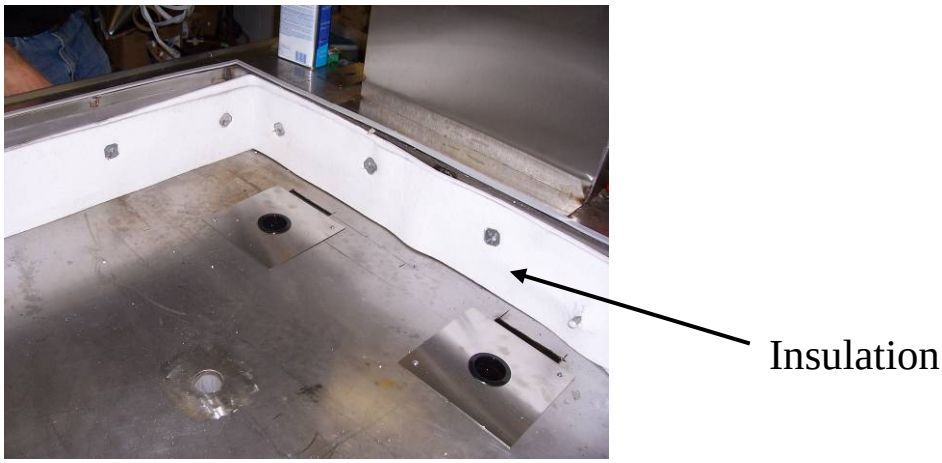


Fig 8

Dry well drop in preparation & installation (cont.)

Fig 9

8. For standard Dual Line kits, cut one hole in center of well for bushing. For the 3-6 and 3-8 kits, cut 2 holes for the bushings (Fig 9).
9. Install the supplied grommet(s) into the opening(s) to protect the wiring from being cut or worn.
10. Locate the 3" x 19" stainless steel plate provided in the GTO kit. Place it over the opening from the Steam Chase to the steam Cabinet hole. Tack weld this plate to the top and clean all the welds with polishing tools.
11. Use a vacuum to clean all debris from the steam table tank prior to proceeding.
12. Attach the insulation provided with the Dry Channel to the inside sides of the tank (Fig 8). Attach the adhesive back pins to the sides. (**Note: Clean the surface with lacquer thinner prior to attaching the pins.)**
13. Push the insulation in place with the adhesive side against the inside of the tank wall. **(Note: Make sure the insulation is outside the top opening so it will not be pushed down when installing the Dry Channel Unit.)**
14. Secure the insulation in place with the push plates provided with the pins. **(Note: The pins may need to be cut off to clear the Dry Channel when it is installed.)**
15. Set the Dry Channel Unit on the counter and route the cables from the Unit thru bushing hole(s) in the bottom of the Steam Table Tank. **(Note: Care must be taken to prevent damage to the cables.)**
16. Set the Dry Channel unit into the opening while making sure the cables are being pulled thru the hole in the bottom of the tank.

Relay control box installation

Fig 10

Caution: Do not weld on the unit with the relay box assembly or the display controller assembly installed or connected. Damage to electronic components could occur.

1. Locate the two Relay Control Boxe(s) provided with the Dry Channel Unit.
2. Mount the relay boxe(s). The standard Dual kit will have 1 relay box to be mounted on Drive Up side of the line. The 3-6 and 3-8 kits will have a relay box for each side of the unit with the angle mounting brackets provided on the boxes (Fig 10). **(Note: The angle brackets can be mounted in many locations on the box to allow mounting almost anywhere under the counter. Install the box with easy access to the connectors on the side and insure adequate clearing for the door. Mount the box away from drains and areas near the floor that may get wet from mopping and/or spraying down the floor.)**
3. Route the electrical conduit from the box to the breaker panel. Connect the conduit to the breaker panel with the correct connector.
4. Route the cable for the display to the relay box. **(Note: An access hole may need to be made to route this cable. If so, the edge of this hole must have a grommet to protect the cable from damage.)**
5. Plug in the 15-pin HD15 cable from the Dry Channel Unit into the Relay Box.
6. Pull wires in conduit through the hole in the back of the relay box.
7. Connect conduit with snap-in fitting to relay box.
8. Connect wires according to the wiring diagram in the Dry Channel Manual. **(Note: Ensure the cables are from the same side of the drywell as the display).**
9. Repeat the above steps for the other side.
10. Bundle all excess cable with cable ties and secure them to the bottom of the tank to avoid any cable from being damaged.

Duke Manufacturing Co.
2305 N. Broadway • St. Louis, MO 63102
800.735.3853 • 314.231.1130 • 314.231.5074 Fax
www.dukemfg.com

Display box installation

Fig 11

Caution: Do not weld on the unit with the relay box assembly or the display controller assembly installed or connected. Damage to electronic components could occur.

1. Locate the two display boxes provided with the Dry Channel Unit.
2. Mount the display control boxes onto the Heater Access Panels (Fig 11).
3. Replace the access panels on the unit. **(Note: Make sure the panel fasteners hold the panel in place securely. If there is any question whether or not they will hold it in place, replace them with new mounting fasteners.)**
4. Install one of the double pole 30-amp circuit breakers in the panel for the Relay Boxe. **(Note: These circuit breakers are to be provided by the installer.)**
5. Connect the black and red wires from each relay control box to the circuit breaker.
6. Connect the Green Ground Wire to the panel ground bar.

Grill Switch installation

Fig 12

1. Locate the grill switch assembly and the electrical conduit provided with the GTO kit.
2. Install the conduit to the back of the switch junction box and connect the wires to the switch.
3. Use the wire strip gauge on the back of the switch for the proper strip length (Fig. 13).

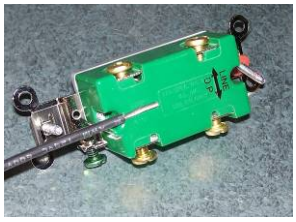


Fig 13

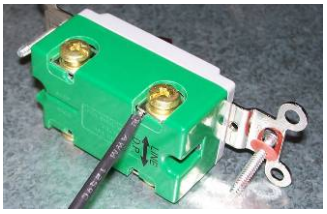


Fig 14

4. Install the wires into the holes in the back of the switch behind the internal clamping mechanism and tighten screw securely. Recommended torque value is 9-12 inch pounds if a torque wrench is available (Fig. 14).
5. Install the grill switch assembly into the flat plate provided. Note: the plate may have to be trimmed to size to properly fit the unit.
6. Fasten plate with grill switch assembly to unit with hardware provided (Fig 12).

Tortilla Grill Installation

Fig 15

Fig 16

1. Locate the two (2) stainless steel plates 18-7/8" x 50" and 21-13/16" x 27-13/16". Tack weld the larger one to the electrical chase to cover the marks left from removing the steam cabinet (Fig15).
2. Tack weld the smaller one to the stanchion where the wrapper shelf was removed. **(Note: This plate may not be needed if no shelf had to be removed.)**
3. Clean all the tack welds with polishing tools. These welds should be smooth and all burn marks should be removed.
4. Locate the Tortilla Grill. Remove the mounting brackets from both sides of the grill.
5. **Clamp the mounting bracket to the electrical chase so that the bottom of the grill is 10-1/2" from the top of the counter.**
6. Tack weld the bracket in place (Fig 16). **(Note: Be sure to tack the bracket on the top and bottom in enough places to support the weight of the grill.)**
7. Locate the other bracket on the stanchion on the other side. Check between the two brackets to verify that they are level. Tack weld the bracket in place. **(Note: Be sure to tack the bracket on the top and bottom in enough places to support the weight of the grill and be sure the grill is level).**

Tortilla Grill Installation (Cont.)

8. Mount the grill to the brackets using the hardware supplied. **(Note: This will require 3 people to put this in place. If there is not enough manpower available you can use a scissors jack and 2x4's to hold it in place while attaching it to the brackets.)**
9. Mount Wrap Holder on the existing shoulder bolts. Level it. Mark the bottom location hole on the chase. Remove the Wrap Holder. Drill a hole in the chase for the #8 sheet metal screw. Mount the Wrap Holder. Screw in the #8 sheet metal screw in the bottom of the Wrap Holder to secure it and keep it level.
10. Route wires into the cleared out water chase next to the load center.
11. Remove cover from control box.
12. Remove (2) knockouts from control box for griddle and power conduits, these should be the best positions for routing the conduit.
13. Mount Dual Line control in the electrical/ water chase as shown in Fig. 17. **(Cut conduit down as necessary to fit mounting location, <u>Do not cut connectors off of wires that come from the griddle</u>.)**
14. Connect conduit with supplied connectors.

Fig 17

15. Install one (1) double pole 20-amp circuit breaker to the panel. **(Note: This circuit breaker is to be provided by the installer.)**
16. Follow wiring diagram included with griddle to make connections in the control box and to identify the power wires to connect to the load center.
17. Put cover back on griddle control box and secure.
18. Install the breaker panel box cover.
19. Install circuit breaker blanks in any open spaces on the panel cover (Fig 17).
20. Re-label the wiring schedule on the panel cover.

Tortilla Shelf Installation

Fig 18

1. Locate the Tortilla Shelf. Position it with the flat side towards the electrical chase above the Tortilla Grill. Verify the shelf is level and the bottom is flush with the Taco Tower, and then clamp it in place.
2. Weld the shelf to the electrical chase and the stanchion on the other side.

Installation Completion

Fig 19

Fig 20

1. Mount the Wrapper Racks to each side of the electrical chase (Fig 20).
2. Seal the Dry Channel to the counter with silver or gray Food Grade silicone sealant. Allow enough time for the sealant to set up before exposing it to any kind of heat. **(Note: Clean the surface with lacquer thinner prior to applying the sealant.)**
3. Seal any other open seams or edges of all plates, panels and shelves that have been installed. **(Note: Clean the surface with lacquer thinner prior to applying the sealant.)**
4. Reinstall all covers or panels that have been removed.

Duke Manufacturing Co.
2305 N. Broadway • St. Louis, MO 63102
800.735.3853 • 314.231.1130 • 314.231.5074 Fax
www.dukemfg.com

Fig 21

5. Replace all ceiling tiles and grills in the ceiling (Fig 21). **(Note: Extra panels and T-bars may be needed. The installer will supply these.)**
6. Clean all equipment and surrounding area of debris.
7. Wipe down all equipment thoroughly.

System Start Up

(Use checklist on page 15 to document all equipment is operational.)

1. Restore power to the main circuit breaker panel. Verify all the breakers are in the "ON" position. Update the wiring schedule on the breaker panel label.
2. Turn the switch on both relay control boxes to the "ON" position. Turn the Dry Channel switch on the display panels to the "ON" position.
3. Verify that the channels are heating up. Watch the display panel to verify the temperature is going up. Allow the Dry Channel to heat until the "Ready" LED on the display is lit.
4. Turn the Tortilla Grill Switch to the "ON" position. Verify the grill is heating.
5. Check all outlets for power.
6. Check Taco Tower light bulbs. Check all heating elements to verify they are heating.
7. Ensure all monitors are operational.
8. Check steamers for heat and verify water is flowing to them. Hit the steam button at least 4 times each to verify steam is present.
9. Check the Clam Shell Heaters for heat.
10. Verify the refrigerator is cooling and the Cold Rail has started making ice on the walls or bottom.
11. Verify all panels are secure and all doors are closing properly.

Pre-Installation Inspection

These inspections must be completed with shift manager on duty. Check if OK.
___Visually look over complete unit checking location against wall and floor
___Check that all doors are closing properly and all panels are secure
___Confirm that the electrical chase is straight and vertical to ceiling
___Check the condition of the breaker panel and bus bar
___Ensure all openings are covered with blanks
___Check that all electrical outlets are in working condition
___Check the refrigerator and verify the cold rail is cooling and has ice on the sides
___Make sure all steam units are steaming without leaks and draining properly
___Toggle light switch on Taco Tower (note burnt out bulbs)
___Verify each heating element on Taco Tower is warming
___Verify all monitors are operational.

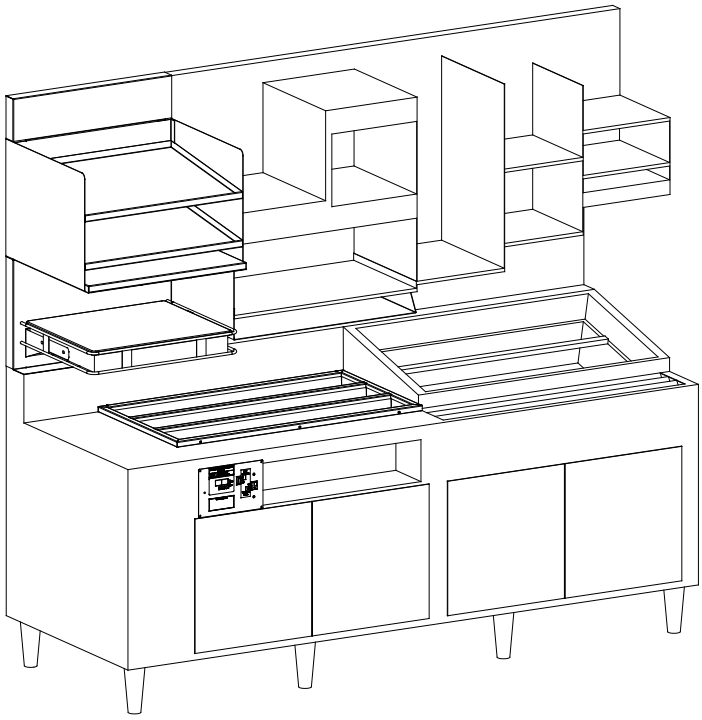
Note any issues and have the shift manager sign and date the problem. The installer should make three copies and leave one with the store, give one to the Duke representative and keep one for the installer's own records.

Post-Installation Inspection

___Restore power to the main circuit breaker panel and verify all breakers are "ON"
___Update the wiring schedule on the breaker panel label.
___Power-up the Dry Channel with both switches on the relay box and display
___Watch display to verify temperature is rising on all channels until "Ready" LED is lit
___Turn on the tortilla grill and verify it is heating.
___Check all outlets for power.
___Check Taco Tower light bulbs
___Ensure each heating element is working.
___Verify all monitors are operational.
___Check steamers for heat and ensure water is flowing to them without leaks
___Check the Clam Shell Heaters for heat
___Verify the refrigerator is cooling and the Cold Rail is making ice on the walls
___Verify all panels are secure and all doors are closing properly

Comments

GTO Retrofit
I-Line & Mini I-Line
Installation Instructions



Notice: Read this entire Installation Manual prior to installing or operating this equipment. Inspect all components immediately after unpacking. Notify the Carrier of any damage to this equipment.

For information or technical assistance, call:
TOLL FREE
(800) 735-DUKE (3853)
or
(314) 231-1130

Duke Manufacturing Co.
2305 N. Broadway • St. Louis, MO 63102
800.735.3853 • 314.231.1130 • 314.231.5074 Fax
www.dukemfg.com

Table Of Contents

Receiving And Inspecting The Equipment 2
Kit Parts 3
ToolS Required And Supplies Required 5
Pre-Installation Inspection 5
Disconnecting The Water And Power 6
Removal Of Steam Cabinet 7
Dry Well Drop In Preparation & Installation 8
Relay Control Box Installation 10
Display Box Installation 11
Tortilla Grill Installation 12
Tortilla Shelf Installation 13
Grill Switch Installation 13
Installation Completion 14
System Restart Up 15
Punch List 16

Serial Number Information

The serial number location is as follows:

- Side of the Relay Control Box

Always have the serial number of the equipment available for parts or service. A list of Duke service parts is in the unit operations manual.

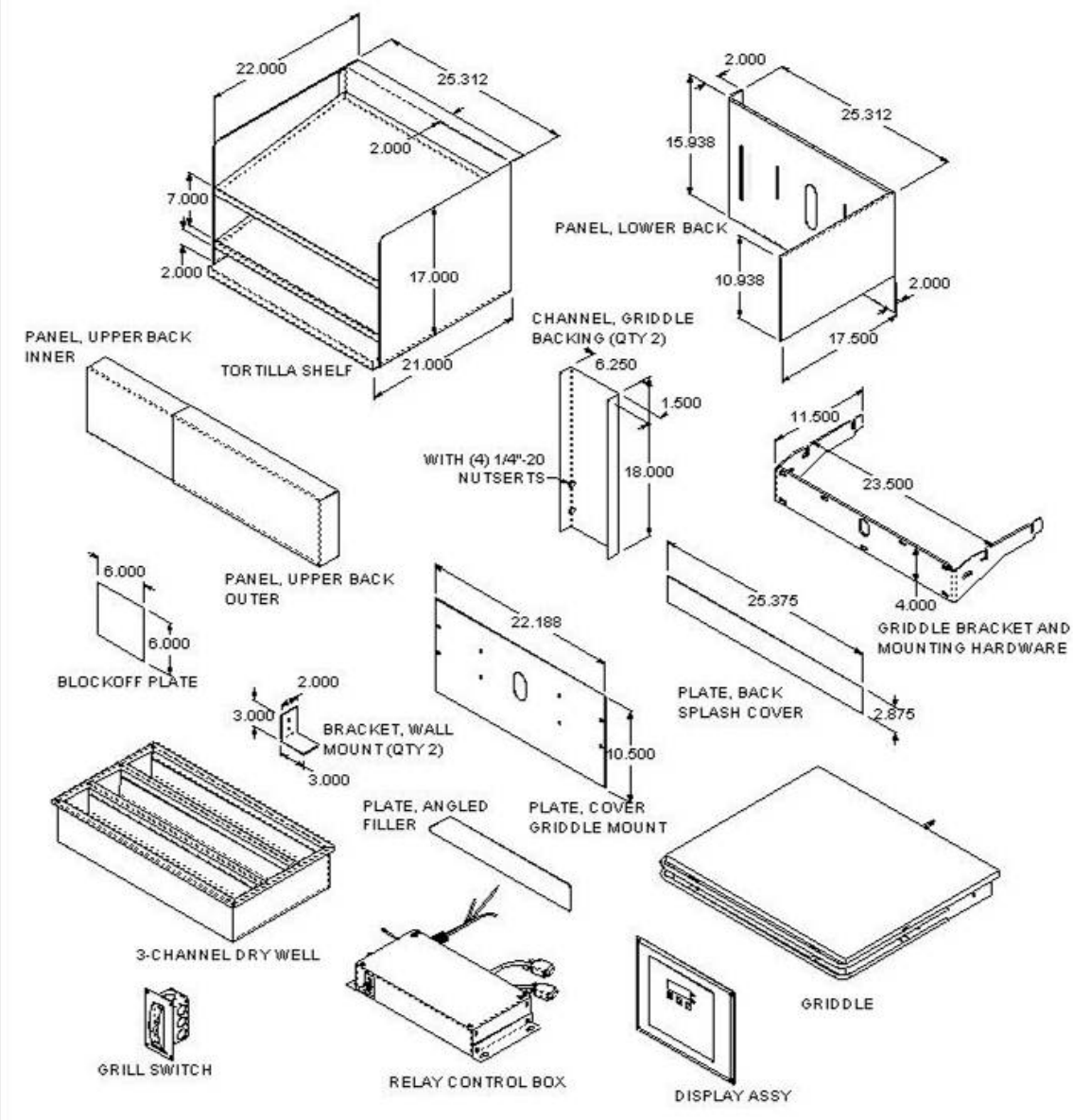
Receiving And Inspecting The Equipment

Unpacking Unit:

- Inspect the shipping carton and/or crate, carefully noting any exterior damage on the delivery receipt, which must also be signed by the driver/delivery person.
- Unpack and inspect for any damage, which was not evident on the outside of the shipping container (concealed damage). Contact the carrier immediately and file a damage claim with them. Save all packing materials when filing a claim. Freight damage claims are the responsibility of the purchaser and are not covered by the warranty.
- **Do not attempt to use the unit if damaged.**
- If unit has been stored in extremely cold area, wait a few hours before connecting power
- Retain all packaging material until an inspection has been made or waived.
- **Keep unit dry and protected from rain.**

Parts Supplied

WIL-HDC3, I-Line Retrofit Kit (Left)



Items not shown above are:

-Pins, insulation mount (24)
-Conduit assy, relay box pwr (1)
-Hardware kit (1)
-Ceiling Tiles (2 in left, 1 in right)
-Insulation, 550K PSA 9-1/2" wide
-Bushing Heyco 2420 (2)
-Breakers & filler plates for breaker panel

Note:

1. Both I-Line and Mini I-Line Kits are available for either left to right or right to left applications. Each line and each side require a different kit to be ordered.
2. The Mini I-Line kit will not require the upper rear panel.

Verify all parts are present. If any part is not here please contact Duke Manufacturing to receive all the parts needed for this installation.

Duke Manufacturing Co.
2305 N. Broadway • St. Louis, MO 63102
800.735.3853 • 314.231.1130 • 314.231.5074 Fax
www.dukemfg.com

Tools And Supplies Required

- Cut Off Wheel
- Die Grinder
- Reciprocating Saw
- Hammer
- Chisels
- Drill (Electrical and Cordless)
- Tungsten Steel Drill Bits (1/8", ¼", 3/8")
- 3" and 1-1/2" Hole Saw
- Taps (#8-32. #10-32, #10-24, ¼-20)
- Polishing Wheels
- Welder
- Plasma Cutter
- Volt Meter
- Wire Strippers
- Terminal Crimper
- Vacuum Sweeper/power vac
- Level
- "C" Clamps
- 48" Pipe Clamps
- Scissor Jack
- 2x4's
- Wood Blocks
- Ladder
- Gray or Silver and Beige Silicone Sealant
- 1" Masking tape
- Plumbing supplies, elbows / tees / etc. (n the event one gets broken on the job)
- New breakers and blanks plugs
- Ceiling supplies 2ft and 4ft support
- Scotch bright pads
- Ceiling tiles
- Electrical tape

Pre-Installation Inspection

These inspections must be completed with shift manager on duty. (Use checklist on page 17)

- Visually look over complete unit check location against wall and floor.
- Check that all doors are closing properly and all panels are secure.
- Check electrical chase is straight and vertical to ceiling.
- Check condition of breaker panel.
- Check that all electrical outlets are in working condition.
- Check the refrigerator, verify it is cooling and that the cold rail is icing on the sides.
- Steam units are steaming. Check each one. There should be 4.
- Lights on Taco Tower flip switch on and off (note burnt out bulbs).
- Verify each heating element on Taco Tower is warming. (Use CAUTION! They are HOT)
- Ensure all monitors are in working condition.

If anything is found wrong with above, the manager in charge must sign and date the problem. The installer should make three copies, leave one with the store, one with a Duke representative and keep one for their records.

Caution: **Do not weld on the unit with the relay box assembly or the display controller assembly installed or connected. Damage to electronic components could occur.**

Disconnecting The Water And Power

Fig 1

Fig 2

1. Get on roof, locate and disconnect Steam Cabinet vent fan (photo of finished work is required).
2. Locate the water supply (Fig 1). The water supply may be located above the ceiling or under the unit.
3. Shut OFF the main hot water to the equipment.
4. Relieve the pressure from the water line. (also the steam cabinet if applicable) The table controls must be energized to complete this step.
5. Make sure all water to the equipment is turned OFF. Open all drains and water lines internal of the equipment. **Disconnect power to the Controls!**
6. **NOTE:** Cold Water Supply to the Cheese Melters must remain intact. (This may require modification of the supply lines)
7. Cut the hot water supply line to the steam table and the steam cabinet, if applicable.
8. Cap ALL remaining open water lines except for the Cheese Melters.
9. Locate the main power distribution panel (Fig2) and identify the power to the proper equipment.
10. Turn the Breakers OFF and LOCK/TAG OUT.
11. Secure the electrical Panel Door.
12. Verify the equipment has no voltage present.

Removal Of The Steam Cabinet

Fig 3

Fig 4

1. Make sure the plumbing and electric is disconnected so the unit can be moved away from the wall.
2. Move the unit away from the wall to access the rear of the unit.
3. Remove the Steam Cabinet door from the unit (Fig 3).
4. The Steam cabinet must be supported prior to removal to avoid injury or damage. Ensure proper manpower is available to support the Steam Cabinet which is in excess of 200 lbs. Note: Support the cabinet using 2x4's and a scissors jack to hold the Steam Cabinet in place.
5. Remove the duct from the exhaust hood going to the ceiling (Fig 4).
6. Cut all welds holding the Steam Cabinet to the shelves and the rear of the unit.
7. Remove the Steam Cabinet from the counter.
8. Cut the steam chase off the back splash and remove it.

Dry Well Drop In Preparation & Installation

Fig 5

Fig 6

1. Remove all the divider bars from the existing Steam Table (Fig 5).
2. Remove the immersion heaters from the Steam Table. Remove the front access panel to get to the wiring for the heaters (Fig 6).
3. Disconnect the wiring from the heaters and completely remove all wiring from the heaters back to the breaker panel.
4. Remove the 30 Amp breakers for the heaters from the panel.
5. Remove any other components that are associated with the heaters for the Steam Table.
6. Remove the heater and covers from the Steam Table (Fig 6). **Note: For some Steam Tables the heaters may need to be cut away from the unit**.
7. Cut the top of the Steam table to accept the Dry Channel. The opening for the dry channel needs to be 38-1/2" x 21-1/4" (Fig 7). **Note: When cutting the opening the cut should be in the front and on the end opposite the cold rail.**

Fig 7

Dry Well Drop In Preparation & Installation (Cont.)

Fig 8

8. First cut an opening for the bushing in the bottom of the steam table to route the wiring (Fig 8).
9. Install the supplied grommet into the opening to protect the wiring from being cut or worn.
10. Use a vacuum to clean all debris from the steam table tank prior to proceeding.
11. Attach the Insulation provided with the Dry Channel to the inside sides of the tank (Fig 7). Attach the adhesive back pins to the sides. (**Note: Clean the surface with lacquer thinner prior to attaching the pins.)**
12. Push the insulation in place with the adhesive side facing the inside of the tank. **(Note: Make sure the insulation is outside the top opening so it will not be pushed down when installing the Dry Channel Unit.)**
13. Secure the insulation in place with the push plates provided with the pins. **(Note: The pins may need to be cut off to clear the Dry Channel when it is installed.)**
14. Set the Dry Channel Unit on the counter and route the cables from both sides of the Unit thru the hole in the bottom of the Steam Table Tank. **(Note: Care must be taken to prevent damage to the cables.)**
15. Set the Dry Channel unit into the opening while making sure the cables are being pulled thru the hole in the bottom of the tank.

Relay Control Box Installation

Fig 9

Caution: Do not weld on the unit with the relay box assembly or the display controller assembly installed or connected. Damage to electronic components could occur.

1. Locate the Relay Control Box provided with the Dry Channel Unit.
2. Mount the box with the angle mounting brackets provided on the boxes (Fig 9). **(Note: The angle Brackets can be mounted in many locations on the box to allow the box to be mounted almost any where under the counter. Be sure the box is mounted with enough access to the plug side of the box.)**
3. Route the Electrical Conduit from the box to the Breaker Panel. Connect the conduit to the breaker panel with the correct connector.
4. Route the cable from the box up to the area where the heaters where wired. **(Note: An access hole may need to be made to route this cable. If so, the edge of this hole must have a grommet to protect the cable from damage.)**
5. Plug in the 15-pin HD15 cable from the Dry Channel Unit into the Relay Box.
6. Pull wires in conduit through the hole in the back of the relay box.
7. Connect conduit with snap-in fitting to relay box.
8. Connect wires according the wiring diagram in the Dry Channel Manual.
9. Bundle up all excess cable with cable ties and tie them up to the bottom of the tank to avoid any cable from being damaged.
10. For Dry Channel trouble shooting or reference, refer to wiring diagram inside lid of relay box assembly, or refer to the Dry Channel Operators and Service Manual.

Display Box Installation

Fig 10

Caution: **Do not weld on the unit with the relay box assembly or the display controller assembly installed or connected. Damage to electronic components could occur.**

1. Locate the display box provided with the Dry Channel Unit.
2. Mount the display control box onto the Heater Access Panel (Fig 10).
3. Replace the access panel on the unit. **(Note: Make sure the panel fasteners hold the panel in place securely. If there is any question whether or not they will hold it in place, replace them with new mounting fasteners.)**
4. Install one (2) double pole 20 amp circuit breaker to the panel. **(Note: This Circuit Breaker is to be provided the installer.)**
5. Connect the Black and Red wires from each Relay Control Box to the Circuit Breaker.
6. Connect the Green Ground Wire to the panel ground bar.

Tortilla Grill Installation

Fig 11

Fig 12

1. Locate the Lower Back Panel and the stainless steel plate. (25-3/8" x 2-7/8" for the I-Line & 19" x 2" for The Mini I-Line). Tack weld the Lower Back Panel to the top of the back splash and to the tubes on the back. Tack weld the shelves to the over hang portion of the panel. (Fig11).
2. Tack Weld the plate over the opening from the steam chase.
3. Locate the Tortilla Grill. Remove the mounting Bracket from the grill.
4. Install the 'plate griddle cover mount' between the griddle bracket and the front of the lower back panel to hide the adjustment slots.
5. Use the 'C' channels behind the lower back panel to fasten the mounting bolts for the griddle. The 'C' channels will have ¼-20 nutserts pre-installed. Use 6 bolts and washers to secure the griddle in place.
6. Mount the Grill in place. **(Note: This will require 2 people to put this place. If there is not enough manpower available you can use a scissors jack and 2x4's to hold it in place while attaching it to the brackets.)**
7. Adjust the griddle height so that the bottom of the Grill is **11"-1/2"** from the top of the counter. Be sure to check this height once the unit is set against the wall, adjust as necessary and tighten bolts.
8. Clean all Tack welds with polishing tools. These welds should be smooth and all burn marks should be removed.
9. Route the wires thru the hole in the back panel.
10. Remove cover from control box.
11. Remove (2) knockouts from control box for griddle and power conduits, these should be the best positions for routing the conduit. **(Mount control box in best possible location for access and electrical hook-up).**
12. Cut conduit down as necessary to fit mounting location**, Do not cut connectors off of wires that come from the griddle.** Connect conduit with supplied connectors.
13. Install one (1) double pole 20amp circuit breaker to the panel. **(Note: This Circuit Breaker is to be provided the installer.)**
14. Follow wiring diagram included with griddle to make connections in the control box and to identify the power wires to connect to the load center.
15. Put cover back on griddle control box and secure.
16. Install the Circuit Panel Box Cover.
17. Install Circuit Breaker Blanks in any open spaces on the panel cover (Fig 12).

Grill Switch installation

1. Locate the grill switch assembly and the electrical conduit provided with the GTO kit.
2. Install the conduit to the back of the switch junction box and connect the wires to the switch.
3. Use the wire strip gauge on the back of the switch for the proper strip length (Fig. 13).

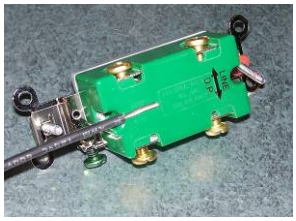


Fig 13

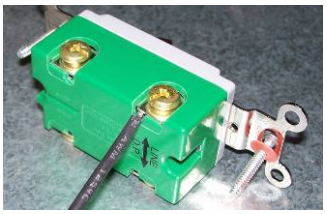


Fig 14

4. Install the wires into the holes in the back of the switch behind the internal clamping mechanism and tighten screw securely. Recommended torque value is 9-12 inch pounds if a torque wrench is available (Fig. 14).
5. Install the grill switch assembly in a suitable location. Note: the plate may have to be trimmed to size to properly fit the unit.
6. Fasten plate with grill switch assembly to unit with hardware provided.

Tortilla Shelf Installation

Fig 13

1. Locate the Tortilla Shelf. Position it on the top flange of the Lower Back Panel and clamp it in place (Fig 13).
2. Tack weld the Tortilla Shelf to the top flange of the Lower Back Panel and to the tubes on the back. Tack weld the shelves to the side of the Tortilla Shelf. **(Note. The Taco Tower on the Mini I-Line will sit on top of the flange on the tortilla Shelf. Tack weld the tower to the Shelf.)**

3. Locate the Upper Back Panel. **(Note: This part is not required for the Mini I-Line Installation)** Tack weld the panel to the tube in the back and at the top.
4. Clean all the Tack welds with polishing tools. These welds should be smooth and all burn marks should be removed.

Installation Completion

Fig 14

1. Move the Unit back to its original location against the wall.
2. Seal the Dry Channel to the counter with Silver or Gray Food Grade Silicone sealant. Allow enough time for the sealant to set up before exposing it to any kind of heat . **(Note: Clean the surface with lacquer thinner prior to applying the sealant.)**
3. Seal any other open seams or edges of all plates, panels and shelves that have been installed. **(Note: Clean the surface with lacquer thinner prior to applying the sealant.)**
4. Reinstall all Cover or panels that have been removed.

Fig 15

5. Replace all ceiling tile and grills in the ceiling (Fig 15). **(Note: Some panels and t-bars may be needed, these will need to be supplied by the installer.)**
6. Clean all equipment and surrounding area of debris.
7. Wipe down all equipment thoroughly.

System Start Up

1. Restore the power to the main Circuit Breaker Panel. Verify all the breakers are in the “ON” position.
2. Turn the switch on both Relay Control Boxes to the “ON” position. Turn the Dry Channel Switch on the Display Panels to the “ON” position.
3. Verify that the channels are heating up. Watch the Display Panel to verify the Temperature is going up on the channel temperature read out. Allow the Dry Channel to heat up to till the display “Ready” Lamp is on.
4. Turn the Tortilla Grill Switch to the “ON” position. Verify the grill is heating.
5. Check all outlets for power.
6. Check Taco Tower lights bulbs. Check heating elements touch each one to verify they are heating.
7. Check monitors that they are coming on.
8. Check Steamers for heat and water is flowing to them. Hit the steam button at least 4 times each to verify steam is present.
9. Check the Clam Shell Heaters for heat
10. Verify the Refrigerator is cooling and the Cold Rail has started to making ice on the walls or bottom.
11. Verify all panels are secure and all doors are closed.

Pre-Installation Inspection

These inspections must be completed with shift manager on duty. Check if OK.
___Visually look over complete unit checking location against wall and floor
___Check that all doors are closing properly and all panels are secure
___Confirm that the electrical chase is straight and vertical to ceiling
___Check the condition of the breaker panel and bus bar
___Ensure all openings are covered with blanks
___Check that all electrical outlets are in working condition
___Check the refrigerator and verify the cold rail is cooling and has ice on the sides
___Make sure all steam units are steaming without leaks and draining properly
___Toggle light switch on Taco Tower (note burnt out bulbs)
___Verify each heating element on Taco Tower is warming
___Verify all monitors are operational.

Note any issues and have the shift manager sign and date the problem. The installer should make three copies and leave one with the store, give one to the Duke representative and keep one for the installer's own records.

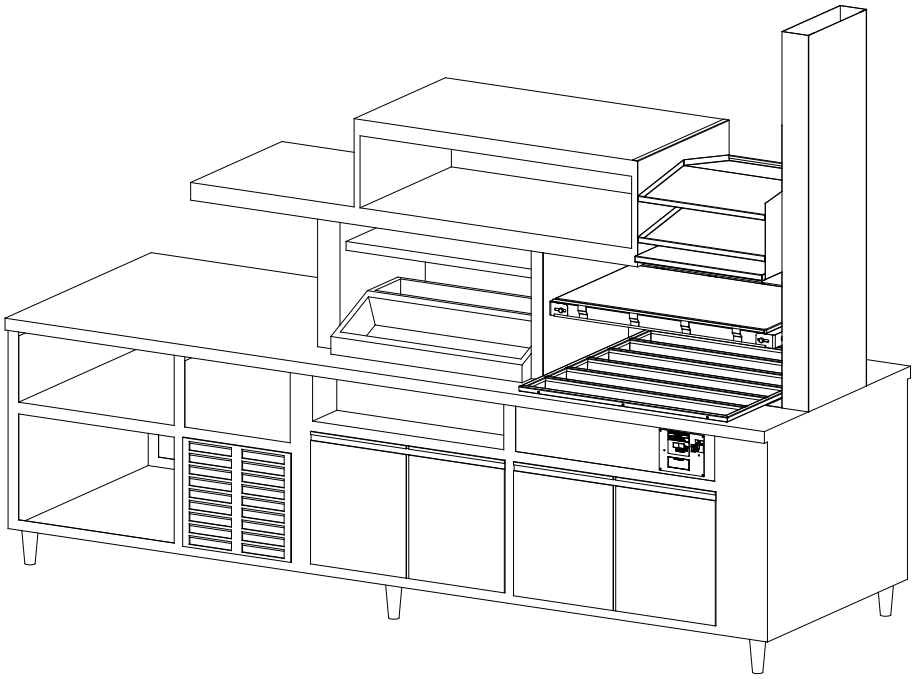
Post-Installation Inspection

___Restore power to the main circuit breaker panel and verify all breakers are "ON"
___Update the wiring schedule on the breaker panel label.
___Power-up the Dry Channel with both switches on the relay box and display
___Watch display to verify temperature is rising on all channels until "Ready" LED is lit
___Turn on the tortilla grill and verify it is heating.
___Check all outlets for power.
___Check Taco Tower light bulbs
___Ensure each heating element is working.
___Verify all monitors are operational.
___Check steamers for heat and ensure water is flowing to them without leaks
___Check the Clam Shell Heaters for heat
___Verify the refrigerator is cooling and the Cold Rail is making ice on the walls
___Verify all panels are secure and all doors are closing properly

Comments

Duke Manufacturing Co.
2305 N. Broadway • St. Louis, MO 63102
800.735.3853 • 314.231.1130 • 314.231.5074 Fax
www.dukemfg.com

GTO Retrofit
Taco Bell/ Long John Silver Dual Line
Installation Instructions



Notice: Read this entire Installation Manual prior to installing or operating this equipment. Inspect all components immediately after unpacking. Notify the Carrier of any damage to this equipment.

For information or technical assistance, call:
TOLL FREE
(800) 735-DUKE (3853)
or
(314) 231-1130

Duke Manufacturing Co.
2305 N. Broadway • St. Louis, MO 63102
800.735.3853 • 314.231.1130 • 314.231.5074 Fax
www.dukemfg.com

This manual applies to the standard Taco Bell/ Long John Silver Dual Line kit installations. The pictures and illustrations included are for reference only and may vary from store to store.

Table Of Contents

Receiving and Inspecting the Equipment....2
Kit Parts....3
Tool Required and Supplies Required....4
Pre-Installation Inspection....4
Disconnecting the Water and Power....5
Removal of Steam Cabinet....6
Dry Well Drop In Preparation & Installation....7
Relay Control Box Installation....9
Display Box Installation....10
Tortilla Grill Installation....11
Tortilla Shelf Installation....12
Installation Completion....13
System Restart Up....14
"Punch List"....15

Serial Number Information

The serial number location is as follows:

- Side of the Relay Control Box

Always have the serial number of the equipment available for parts or service. A complete list of Duke service parts is in the unit operations manual.

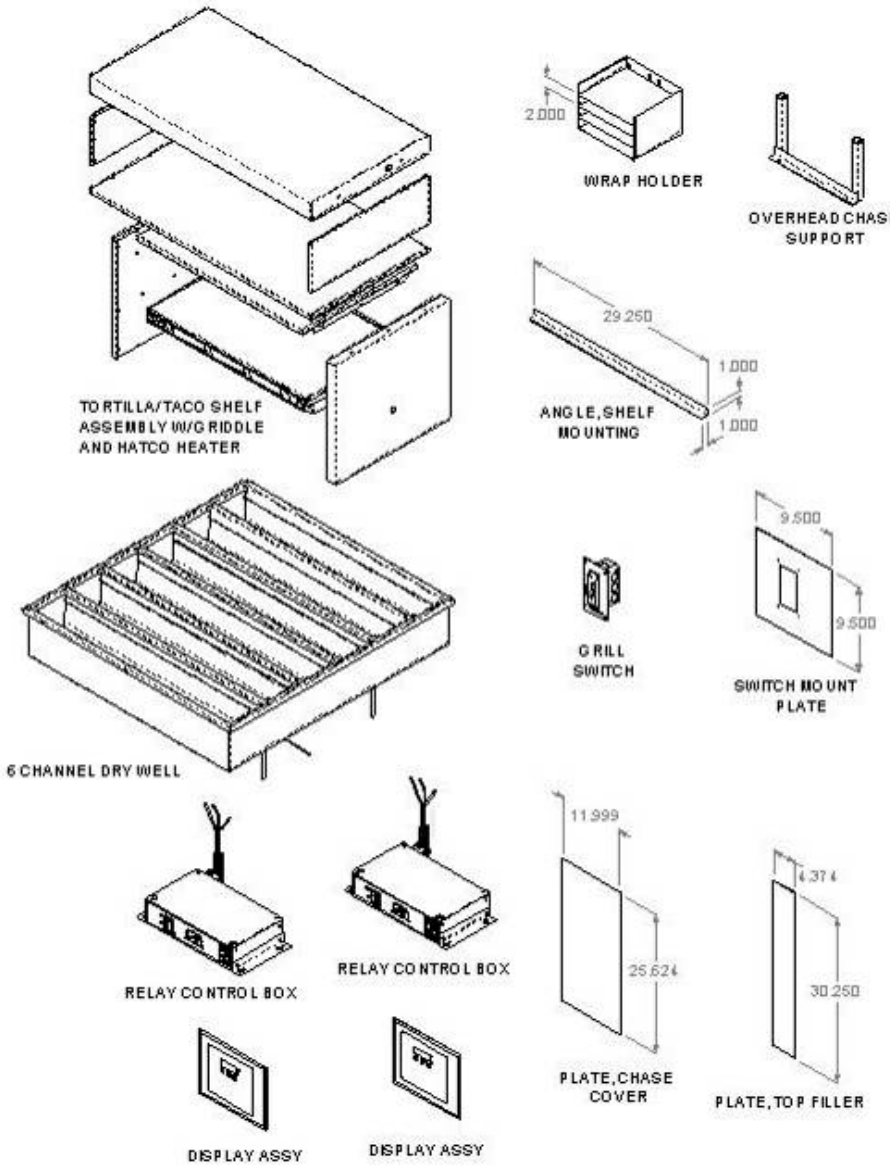
Receiving And Inspecting The Equipment

Unpacking Unit:

- Inspect the shipping carton and/or crate, carefully noting any exterior damage on the delivery receipt, which must also be signed by the driver/delivery person.
- Unpack and inspect for any damage, which was not evident on the outside of the shipping container (concealed damage). Contact the carrier immediately and file a damage claim with them. Save all packing materials when filing a claim. Freight damage claims are the responsibility of the purchaser and are not covered by the warranty.
- **Do not attempt to use the unit if damaged.**
- If unit has been stored in extremely cold area, wait a few hours before connecting power
- Retain all packaging material until an inspection has been made or waived.
- **Keep unit dry and protected from rain.**

Parts Supplied

TL Dual Line Retrofit Kit



Items not shown above are:
-Pins, insulation mount
-Insulation, 550K PSA 6-1/2" wide
-Conduit assy, relay box pwr
-Bushing Heyco 2420
-Hardware kit
-Breakers & Filler plates for breaker panel
-Replacement Ceiling tiles

Verify all parts are present. If any part is missing, please contact Duke Manufacturing to receive all the parts needed for this installation.

Tools And Supplies Required

- Cut Off Wheel
- Die Grinder
- Reciprocating Saw
- Hammer
- Chisels
- Drill (Electrical and Cordless)
- Tungsten Steel Drill Bits (1/8", ¼", 3/8")
- 3" and 1-1/2" Hole Saw
- Taps (#8-32, #10-32, #10-24, ¼-20)
- Polishing Wheels
- Welder
- Plasma Cutter
- Volt Meter
- Wire Strippers
- Terminal Crimper
- Vacuum Sweeper/power vac
- Level
- "C" Clamps
- 48" Pipe Clamps
- Scissor Jack
- 2x4's
- Wood Blocks
- Ladder
- Gray or Silver and Beige Silicone Sealant
- 1" Masking tape
- Plumbing supplies, elbows / tees / etc. (in the event one gets broken on the job)
- New breakers and blanks plugs
- Ceiling supplies 2ft and 4ft support
- Scotch bright pads
- Ceiling tiles
- Electrical tape

Pre-Installation Inspection

These inspections must be completed with shift manager on duty. (Use checklist on page 17)

- Visually look over complete unit checking location against wall and floor.
- Check that all doors are closing properly and all panels are secure.
- Check electrical chase is straight and vertical to ceiling.
- Check condition of breaker panel and bus bar.
- Ensure all openings are covered with blanks.
- Check that all electrical outlets are in working condition.
- Check the refrigerator and verify the cold rail is cooling and has ice on the sides.
- Inspect cheese melters and verify units are steaming and drain lines are secure.
- Check lights on Taco Tower and flip switch on and off (note burnt out bulbs).
- Verify each heating element on Taco Tower is warming. (Use CAUTION! They are HOT!)
- Ensure all monitors are in working condition.

If anything is found wrong with above, the manager in charge must sign and date the problem. The installer should make three copies, leave one with the store, one with a Duke representative and keep one for their records.

Caution: Do not weld on the unit with the relay box assembly or the display controller assembly installed or connected. Damage to electronic components could occur.

Disconnecting The Water And Power

Fig 1

Fig 2

1. Locate the water supply (Fig 1). The water supply may be located above the ceiling or under the unit.
2. Shut OFF the water supply to the equipment.
3. Relieve the pressure from the water line (also the steam cabinet, if applicable). The table controls must be energized to complete this step.
4. Make sure all water to the equipment is turned OFF. Open all drains and water lines internal of the equipment. **Disconnect power to the Controls!**
5. **NOTE:** Cold water supply to the Cheese Melters must remain intact. (This may require modification of the supply lines)
6. Cut the hot water supply line to the steam table and the steam cabinet, if applicable.
7. Cap ALL remaining open water lines except for the Cheese Melters.
8. Locate the main power distribution panel (Fig 2) and identify the power to the proper equipment.
9. Turn the Breakers OFF and LOCK/TAG OUT.
10. Secure the electrical Panel Door.
11. Verify the equipment has no voltage present.

Removal Of The Steam Cabinet

Fig 3

Fig 4

1. Remove the Steam Cabinet doors from the unit (Fig 3).
2. The Steam cabinet must be supported prior to removal to avoid injury or damage. Ensure proper manpower is available to support the Steam Cabinet which is in excess of 200 lbs. Note: Support the cabinet using 2x4's and a scissors jack to hold the Steam Cabinet.
3. Remove the duct from the exhaust hood going to the ceiling (Fig 4).
4. Remove the steam cabinet condensate drain & wiring.
5. Cut all welds holding the Steam Cabinet to the shelves and the Electrical Chase.
6. Remove the Steam Cabinet from the counter.
7. Cut the Steam Chase from the counter (Fig 5). Note: Some applications have controls for the Steam Table mounted to the chase that must be removed.

Fig 5

Dry well drop in preparation & installation

Fig 6

Fig 7

1. Remove all the divider bars from the existing Steam Table (Fig 6).
2. Remove the immersion heaters from the Steam Table. Remove the front access panel to get to the wiring for the heaters (Fig 7).
3. Disconnect the wiring from the heaters and completely remove all wiring from the heaters back to the breaker panel.
4. Remove the 30 Amp breakers for the heaters from the panel.
5. Remove any other components (e.g. relays, switches, etc.) that are associated with the heaters for the Steam Table.
6. Remove the heaters and covers from the Steam Table (Fig 6). Cut out all obstacles from inside steam well (auto fill spark plugs, etc.).
7. Cut the top of the Steam table to accept the Dry Channel. The opening for the dry channel needs to be 38-1/2" x 42" (Fig 8). **Note: When cutting the opening the cut should be centered in the top and toward the electrical chase end to avoid refrigeration lines. Corners must be square to accept the Dry Channel.**

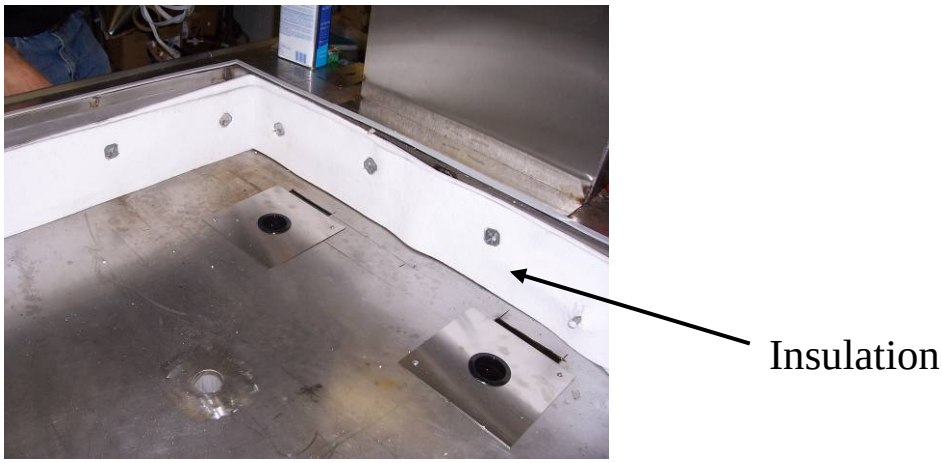


Fig 8

Dry well drop in preparation & installation (cont.)

Fig 9

8. In (2) places, first cut an opening for the bushing (Fig 9).
9. Install the supplied grommet into the opening to protect the wiring from being cut or worn.
10. Locate the 3" x 19" stainless steel plate provided in the GTO kit. Place it over the opening from the Steam Chase to the steam Cabinet hole. Tack weld this plate to the top and clean all the welds with polishing tools.
11. Use a vacuum to clean all debris from the steam table tank prior to proceeding.
12. Attach the insulation provided with the Dry Channel to the inside sides of the tank (Fig 8). Attach the adhesive back pins to the sides. (**Note: Clean the surface with lacquer thinner prior to attaching the pins.)**
13. Push the insulation in place with the adhesive side against the inside of the tank wall. **(Note: Make sure the insulation is outside the top opening so it will not be pushed down when installing the Dry Channel Unit.)**
14. Secure the insulation in place with the push plates provided with the pins. **(Note: The pins may need to be cut off to clear the Dry Channel when it is installed.)**
15. Set the Dry Channel Unit on the counter and route the cables from both sides of the Unit thru each bushing hole in the bottom of the Steam Table Tank. **(Note: Care must be taken to prevent damage to the cables.)**
16. Set the Dry Channel unit into the opening while making sure the cables are being pulled thru the hole in the bottom of the tank.

Relay control box installation

Fig 10

Caution: Do not weld on the unit with the relay box assembly or the display controller assembly installed or connected. Damage to electronic components could occur.

1. Locate the two Relay Control Boxes provided with the Dry Channel Unit.
2. Mount the boxes, one on each side of the unit with the angle mounting brackets provided on the boxes (Fig 10). **(Note: The angle brackets can be mounted in many locations on the box to allow mounting almost anywhere under the counter. Install the box with easy access to the connectors on the side and insure adequate clearing for the door. Mount the box away from drains and areas near the floor that may get wet from mopping and/or spraying down the floor.)**
3. Route the electrical conduit from the box to the breaker panel. Connect the conduit to the breaker panel with the correct connector.
4. Route the cable from the Relay Box to the Display. **(Note: An access hole may need to be made to route this cable. If so, the edge of this hole must have a grommet to protect the cable from damage.)**
5. Plug in the two cables from the Relay Box into the Display.
6. Pull wires in conduit through the holes in the back of the relay box. **(Note: Use wiring diagram in Dry Channel Manual to be sure the wires are placed in the correct hole.)**
7. Connect conduit with snap-in fitting to relay box.
8. Connect wires according to the wiring diagram in the Dry Channel Manual. **(Note: Ensure the cables are from the same side of the drywell as the display).**
9. Repeat the above steps for the other side.
10. Bundle all excess cable with cable ties and secure them to the bottom of the tank to avoid any cable from being damaged.

Display box installation

Fig 11

Caution: Do not weld on the unit with the relay box assembly or the display controller assembly installed or connected. Damage to electronic components could occur.

1. Locate the two display boxes provided with the Dry Channel Unit.
2. Mount the display control boxes onto the Heater Access Panels (Fig 11).
3. Replace the access panels on the unit. **(Note: Make sure the panel fasteners hold the panel in place securely. If there is any question whether or not they will hold it in place, replace them with new mounting fasteners.)**
4. Install two (2) double pole 20-amp circuit breakers in the panel for the Relay Boxes. **(Note: These circuit breakers are to be provided by the installer.)**
5. Connect the black and red wires from each relay control box to the circuit breaker.
6. Connect the Green Ground Wire to the panel ground bar.

Tortilla/ Taco Shelf Installation

Fig 12

Fig 13

Fig 14

Fig 15

Fig 16

Fig 17

Fig 18

Fig 19

Fig 20

1. Cut existing lower shelf on the production counter so that there is 45 13/16" from the electrical chase to the cut to allow the Tortilla/ Taco Shelf Assembly to be installed.
2. Measure from the counter top to bottom side of the existing shelf and attach angle piece (553408) to pylon (553397) with the angle facing down at the same height as the shelf (see Fig 22 below). **(Note: This will support the cutoff shelf.)**
3. Attach the (2) large pylons (553397 & 553399) to the bottom of the Taco Shelf Assembly (553396 & 553395) with ¼"-20 x ½" Hex Head Screws (Fig 12 & Fig 13). **(Note: The wider pylon (553399) goes on the end of the shelf and the narrower pylon (553397) is set in from the end.)**
4. Once all screws are tightened down, flip the assembly over and place large pylon against the electrical chase, centered (Fig 14).
5. Secure the pylon to the electrical chase by welding.
6. Attach pylon covers, (553398 to 553397 and 553394 to 553399), oriented with the nutserts at the top using #10-24 x ½" Self-Threading Screws (Fig 15).
7. Attach the short pylons (553402) to the Hatco Heater Assembly (553387, 553388, & 216984) with ¼"-20 x ½" Hex Head Screws (Fig 16).
8. Flip the assembly over and place on top of the lower assembly with conduit to the electrical chase side. **(Note: If necessary, cut hole in electrical chase for the Hatco Heater conduit.)**
9. Attach to Taco Shelf Assembly with ¼"-20 x ½" Hex Head Screws (Fig 17).
10. Secure the Hatco Heater Assembly to the electrical chase by welding.
11. Attach pylon covers (553403) to short pylons with #10-24 x ½" Self-Threading Screws (Fig 18).
12. Attach griddle brackets in lower nutsert holes with ¼"-20 x 1" Hex Head Screws (Fig 19). **(Note: Leave screws slightly loose so you can level and finish positioning the griddle.)**
13. Attach the Tortilla Shelf Assembly (553400 & 553401) to the upper nutsert holes in the pylon covers with ¼"-20 x ½" Hex Head Screws (Fig 20).

14. Mount the grill to the brackets using the hardware supplied, level and tighten down brackets (Fig 21). **(Note: This will require 3 people to put this in place. If there is not enough manpower available you can use a scissors jack and 2x4's to hold it in place while attaching it to the brackets.)**
15. Route the wires to the circuit breaker panel. Connect the black wire from the grill to the black wire from the display box conduit.
16. Install one (1) double pole 20-amp circuit breaker to the panel for the Griddle.
17. Install one (1) double pole 15-amp circuit breaker to the panel for the Hatco heater.
18. Connect the red wires from the grill and the display box conduit to the 20-amp circuit breaker from step 11.
19. Connect the green ground wire to the panel ground bar.
20. Install the breaker panel box cover.
21. Install circuit breaker blanks in any open spaces on the panel cover (Fig 23).
22. Re-label the wiring schedule on the panel cover.
23. Use Hatco supplied switches for the heater and lights and mount where accessible before connecting to load center.

Fig 21

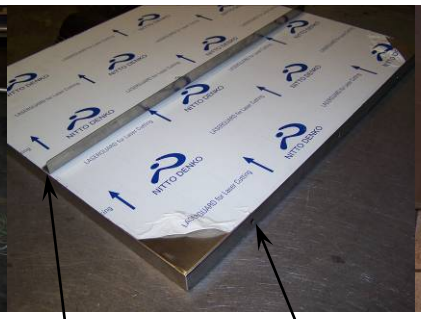


Fig 22

Fig 23

Grill Switch installation

Fig 24

1. Locate the grill switch assembly and the electrical conduit provided with the GTO kit.
2. Install the conduit to the back of the switch junction box and connect the wires to the switch.
3. Install the grill switch assembly into the flat plate provided. Note: the plate may have to be trimmed to size to properly fit the unit.
4. Fasten plate with grill switch assembly to unit with hardware provided (Fig 24).

Installation Completion

Fig 25

Fig 26

1. Mount the Wrapper Racks to each side of the electrical chase (Fig 26).
2. Seal the Dry Channel to the counter with silver or gray Food Grade silicone sealant. Allow enough time for the sealant to set up before exposing it to any kind of heat. **(Note: Clean the surface with lacquer thinner prior to applying the sealant.)**
3. Seal any other open seams or edges of all plates, panels and shelves that have been installed. **(Note: Clean the surface with lacquer thinner prior to applying the sealant.)**
4. Reinstall all covers or panels that have been removed.

Fig 27

5. Replace all ceiling tiles and grills in the ceiling (Fig 27). **(Note: Extra panels and T-bars may be needed. The installer will supply these.)**
6. Clean all equipment and surrounding area of debris.
7. Wipe down all equipment thoroughly.

System Start Up

(Use checklist on page 16 to document all equipment is operational.)

1. Restore power to the main circuit breaker panel. Verify all the breakers are in the “ON” position. Update the wiring schedule on the breaker panel label.
2. Turn the switch on both relay control boxes to the “ON” position. Turn the Dry Channel switch on the display panels to the “ON” position.
3. Verify that the channels are heating up. Watch the display panel to verify the temperature is going up. Allow the Dry Channel to heat until the “Ready” LED on the display is lit.
4. Turn the Tortilla Grill Switch to the “ON” position. Verify the grill is heating.
5. Check all outlets for power.
6. Check Taco Tower light bulbs. Check all heating elements to verify they are heating.
7. Ensure all monitors are operational.
8. Check steamers for heat and verify water is flowing to them. Hit the steam button at least 4 times each to verify steam is present.
9. Check the Clam Shell Heaters for heat.
10. Verify the refrigerator is cooling and the Cold Rail has started making ice on the walls or bottom.
11. Verify all panels are secure and all doors are closing properly.

Duke Manufacturing Co.
2305 N. Broadway • St. Louis, MO 63102
800.735.3853 • 314.231.1130 • 314.231.5074 Fax
www.dukemfg.com

Pre-Installation Inspection

These inspections must be completed with shift manager on duty. Check if OK.
___Visually look over complete unit checking location against wall and floor
___Check that all doors are closing properly and all panels are secure
___Confirm that the electrical chase is straight and vertical to ceiling
___Check the condition of the breaker panel and bus bar
___Ensure all openings are covered with blanks
___Check that all electrical outlets are in working condition
___Check the refrigerator and verify the cold rail is cooling and has ice on the sides
___Make sure all steam units are steaming without leaks and draining properly
___Toggle light switch on Taco Tower (note burnt out bulbs)
___Verify each heating element on Taco Tower is warming
___Verify all monitors are operational.

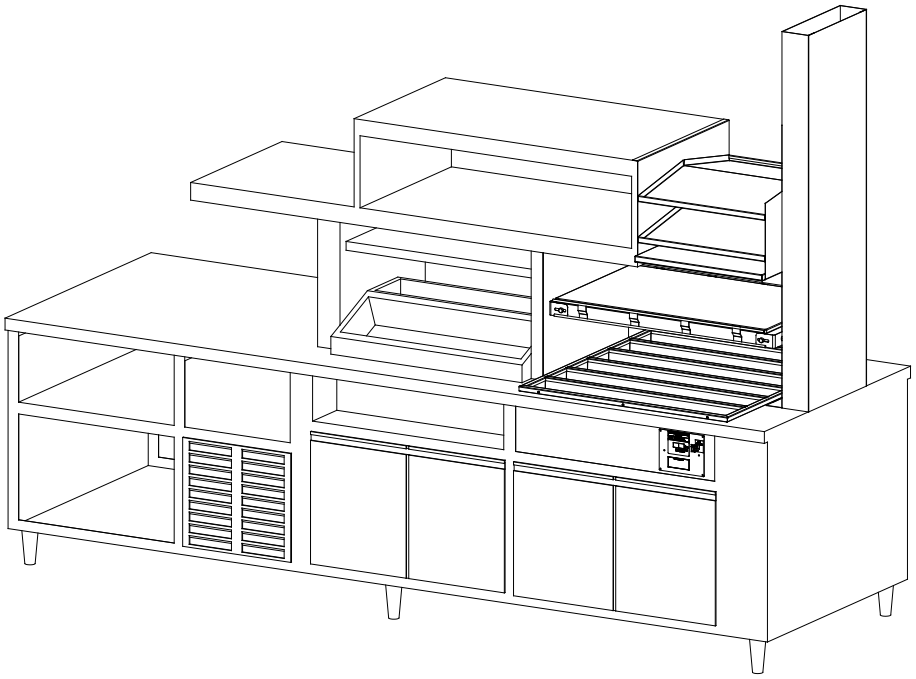
Note any issues and have the shift manager sign and date the problem. The installer should make three copies and leave one with the store, give one to the Duke representative and keep one for the installer's own records.

Post-Installation Inspection

___Restore power to the main circuit breaker panel and verify all breakers are "ON"
___Update the wiring schedule on the breaker panel label.
___Power-up the Dry Channel with both switches on the relay box and display
___Watch display to verify temperature is rising on all channels until "Ready" LED is lit
___Turn on the tortilla grill and verify it is heating.
___Check all outlets for power.
___Check Taco Tower light bulbs
___Ensure each heating element is working.
___Verify all monitors are operational.
___Check steamers for heat and ensure water is flowing to them without leaks
___Check the Clam Shell Heaters for heat
___Verify the refrigerator is cooling and the Cold Rail is making ice on the walls
___Verify all panels are secure and all doors are closing properly

Comments

GTO Retrofit
Taco Bell/ KFC Dual Line
Installation Instructions



Notice: Read this entire Installation Manual prior to installing or operating this equipment. Inspect all components immediately after unpacking. Notify the Carrier of any damage to this equipment.

For information or technical assistance, call:
TOLL FREE
(800) 735-DUKE (3853)
or
(314) 231-1130

Duke Manufacturing Co.
2305 N. Broadway • St. Louis, MO 63102
800.735.3853 • 314.231.1130 • 314.231.5074 Fax
www.dukemfg.com

This manual applies to the standard Taco Bell/ KFC Dual Line kit installations. The pictures and illustrations included are for reference only and may vary from store to store.

Table Of Contents

Receiving and Inspecting the Equipment....2
Kit Parts....3
Tool Required and Supplies Required....4
Pre-Installation Inspection....4
Disconnecting the Water and Power....5
Removal of Steam Cabinet....6
Dry Well Drop In Preparation & Installation....7
Relay Control Box Installation....9
Display Box Installation....10
Tortilla Grill Installation....11
Tortilla Shelf Installation....12
Installation Completion....13
System Restart Up....14
"Punch List"....15

Serial Number Information

The serial number location is as follows:

- Cover of the Relay Control Box

Always have the serial number of the equipment available for parts or service. A complete list of Duke service parts is in the unit operations manual.

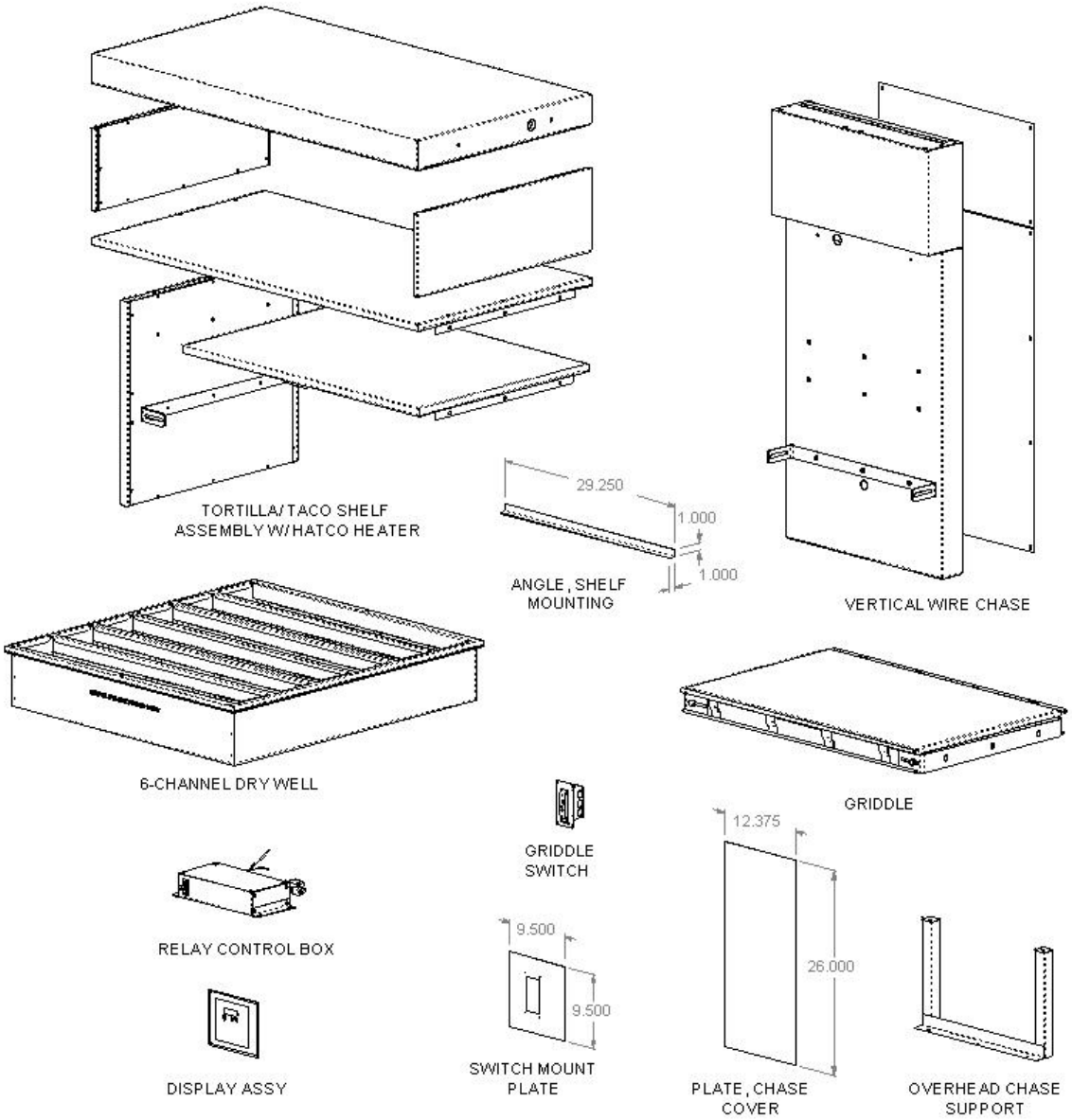
Receiving And Inspecting The Equipment

Unpacking Unit:

- Inspect the shipping carton and/or crate, carefully noting any exterior damage on the delivery receipt, which must also be signed by the driver/delivery person.
- Unpack and inspect for any damage, which was not evident on the outside of the shipping container (concealed damage). Contact the carrier immediately and file a damage claim with them. Save all packing materials when filing a claim. Freight damage claims are the responsibility of the purchaser and are not covered by the warranty.
- **Do not attempt to use the unit if damaged.**
- If unit has been stored in extremely cold area, wait a few hours before connecting power
- Retain all packaging material until an inspection has been made or waived.
- **Keep unit dry and protected from rain.**

Parts Supplied

KT Dual Line Retrofit Kit



Items not shown above are:
-Pins, insulation mount
-Insulation, 550K PSA 6-1/2" wide
-Conduit assy, relay box pwr
-Bushing Heyco 2420
-Breakers & Filler plates for breaker panel
-Replacement Ceiling tiles

Verify all parts are present. If any part is missing, please contact Duke Manufacturing to receive all the parts needed for this installation.

Tools And Supplies Required

- Cut Off Wheel
- Die Grinder
- Reciprocating Saw
- Hammer
- Chisels
- Drill (Electrical and Cordless)
- Tungsten Steel Drill Bits (1/8", ¼", 3/8")
- 3" and 1-1/2" Hole Saw
- Taps (#8-32, #10-32, #10-24, ¼-20)
- Polishing Wheels
- Welder
- Plasma Cutter
- Volt Meter
- Wire Strippers
- Terminal Crimper
- Vacuum Sweeper/power vac
- Level
- "C" Clamps
- 48" Pipe Clamps
- Scissor Jack
- 2x4's
- Wood Blocks
- Ladder
- Gray or Silver and Beige Silicone Sealant
- 1" Masking tape
- Plumbing supplies, elbows / tees / etc. (in the event one gets broken on the job)
- New breakers and blanks plugs
- Ceiling supplies 2ft and 4ft support
- Scotch bright pads
- Ceiling tiles
- Electrical tape

Pre-Installation Inspection

These inspections must be completed with shift manager on duty. (Use checklist on page 17)

- Visually look over complete unit checking location against wall and floor.
- Check that all doors are closing properly and all panels are secure.
- Check electrical chase is straight and vertical to ceiling.
- Check condition of breaker panel and bus bar.
- Ensure all openings are covered with blanks.
- Check that all electrical outlets are in working condition.
- Check the refrigerator and verify the cold rail is cooling and has ice on the sides.
- Inspect cheese melters and verify units are steaming and drain lines are secure.
- Check lights on Taco Tower and flip switch on and off (note burnt out bulbs).
- Verify each heating element on Taco Tower is warming. (Use CAUTION! They are HOT!)
- Ensure all monitors are in working condition.

If anything is found wrong with above, the manager in charge must sign and date the problem. The installer should make three copies, leave one with the store, one with a Duke representative and keep one for their records.

Caution: Do not weld on the unit with the relay box assembly or the display controller assembly installed or connected. Damage to electronic components could occur.

Disconnecting The Water And Power

Fig 1

Fig 2

1. Locate the water supply (Fig 1). The water supply may be located above the ceiling or under the unit.
2. Shut OFF the water supply to the equipment.
3. Relieve the pressure from the water line (also the steam cabinet, if applicable). The table controls must be energized to complete this step.
4. Make sure all water to the equipment is turned OFF. Open all drains and water lines internal of the equipment. **Disconnect power to the Controls!**
5. **NOTE:** Cold water supply to the Cheese Melters must remain intact. (This may require modification of the supply lines)
6. Cut the hot water supply line to the steam table and the steam cabinet, if applicable.
7. Cap ALL remaining open water lines except for the Cheese Melters.
8. Locate the main power distribution panel (Fig 2) and identify the power to the proper equipment.
9. Turn the Breakers OFF and LOCK/TAG OUT.
10. Secure the electrical Panel Door.
11. Verify the equipment has no voltage present.

Duke Manufacturing Co.
2305 N. Broadway • St. Louis, MO 63102
800.735.3853 • 314.231.1130 • 314.231.5074 Fax
www.dukemfg.com

Removal Of The Steam Cabinet

Fig 3

Fig 4

1. Remove the Steam Cabinet doors from the unit (Fig 3).
2. The Steam cabinet must be supported prior to removal to avoid injury or damage. Ensure proper manpower is available to support the Steam Cabinet which is in excess of 200 lbs. Note: Support the cabinet using 2x4's and a scissors jack to hold the Steam Cabinet.
3. Remove the duct from the exhaust hood going to the ceiling (Fig 4).
4. Remove the steam cabinet condensate drain & wiring.
5. Cut all welds holding the Steam Cabinet to the shelves and the Electrical Chase.
6. Remove the Steam Cabinet from the counter.
7. Cut the Steam Chase from the counter (Fig 5). Note: Some applications have controls for the Steam Table mounted to the chase that must be removed.

Fig 5

Dry well drop in preparation & installation

Fig 6

Fig 7

1. Remove all the divider bars from the existing Steam Table (Fig 6).
2. Remove the immersion heaters from the Steam Table. Remove the front access panel to get to the wiring for the heaters (Fig 7).
3. Disconnect the wiring from the heaters and completely remove all wiring from the heaters back to the breaker panel.
4. Remove the 30 Amp breakers for the heaters from the panel.
5. Remove any other components (e.g. relays, switches, etc.) that are associated with the heaters for the Steam Table.
6. Remove the heaters and covers from the Steam Table (Fig 6). Cut out all obstacles from inside steam well (auto fill spark plugs, etc.).
7. Cut the top of the Steam table to accept the Dry Channel. The opening for the dry channel needs to be 38-1/2" x 42" (Fig 8). **Note: When cutting the opening the cut should be centered in the top and toward the electrical chase end to avoid refrigeration lines. Corners must be square to accept the Dry Channel.**

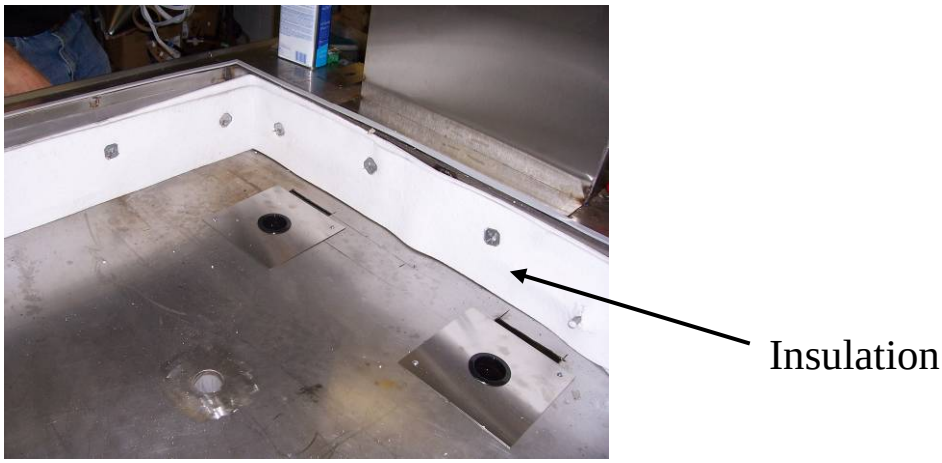


Fig 8

Dry well drop in preparation & installation (cont.)

Fig 9

8. Cut an opening for the bushing (Fig 9).
9. Install the supplied grommet into the opening to protect the wiring from being cut or worn.
10. Locate the stainless steel plate provided in the GTO kit. Place it over the opening from the Steam Chase to the steam Cabinet hole. Tack weld this plate to the top and clean all the welds with polishing tools.
11. Use a vacuum to clean all debris from the steam table tank prior to proceeding.
12. Attach the insulation provided with the Dry Channel to the inside sides of the tank (Fig 8). Attach the adhesive back pins to the sides. (**Note: Clean the surface with lacquer thinner prior to attaching the pins.)**
13. Push the insulation in place with the adhesive side against the inside of the tank wall. **(Note: Make sure the insulation is outside the top opening so it will not be pushed down when installing the Dry Channel Unit.)**
14. Secure the insulation in place with the push plates provided with the pins. **(Note: The pins may need to be cut off to clear the Dry Channel when it is installed.)**
15. Set the Dry Channel Unit on the counter and route the cables from the Unit thru the bushing hole in the bottom of the Steam Table Tank. **(Note: Care must be taken to prevent damage to the cables.)**
16. Set the Dry Channel unit into the opening while making sure the cables are being pulled thru the hole in the bottom of the tank.

Relay control box installation

Fig 10

Caution: Do not weld on the unit with the relay box assembly or the display controller assembly installed or connected. Damage to electronic components could occur.

1. Locate the Relay Control Box provided with the Dry Channel Unit.
2. Mount the box with the angle mounting brackets provided on the box (Fig 10). **(Note: The angle brackets can be mounted in many locations on the box to allow mounting almost anywhere under the counter. Install the box with easy access to the connectors on the side and insure adequate clearing for the door. Mount the box away from drains and areas near the floor that may get wet from mopping and/or spraying down the floor.)**
3. Route the electrical conduit from the box to the breaker panel. Connect the conduit to the breaker panel with the correct connector.
4. Route the cable from the Relay Box to the Display. **(Note: An access hole may need to be made to route this cable. If so, the edge of this hole must have a grommet to protect the cable from damage.)**
5. Plug in the two cables from the Relay Box into the Display.
6. Pull wires in conduit through the holes in the back of the relay box. **(Note: Use wiring diagram in Dry Channel Manual to be sure the wires are placed in the correct hole.)**
7. Connect conduit with snap-in fitting to relay box.
8. Connect wires according to the wiring diagram in the Dry Channel Manual.
9. Bundle all excess cable with cable ties and secure them to the bottom of the tank to avoid any cable from being damaged.

Display box installation

Fig 11

Caution: Do not weld on the unit with the relay box assembly or the display controller assembly installed or connected. Damage to electronic components could occur.

1. Locate the display box provided with the Dry Channel Unit.
2. Mount the display control box onto the Heater Access Panel (Fig 11).
3. Replace the access panel on the unit. **(Note: Make sure the panel fasteners hold the panel in place securely. If there is any question whether or not they will hold it in place, replace them with new mounting fasteners.)**
4. Install the double pole 30-amp circuit breaker in the panel for the Relay Box. **(Note: This circuit breaker is to be provided by the installer.)**
5. Connect the black and red wires from relay control box to the circuit breaker.
6. Connect the Green Ground Wire to the panel ground bar.

Tortilla/ Taco Shelf Installation

Fig 12

Fig 13

Fig 14

Fig 15

Fig 16

Fig 17

Fig 18

Fig 19

Fig 20

1. Cut existing lower shelf on the production counter so that there is 45 13/16" from the electrical chase to the cut to allow the Tortilla/ Taco Shelf Assembly to be installed.
2. Measure from the counter top to bottom side of the existing shelf and attach angle piece (553408) to pylon (553397) with the angle facing down at the same height as the shelf (see Fig 22 below). **(Note: This will support the cutoff shelf.)**
3. Attach the large pylon (553397) to the bottom of the Taco Shelf Assembly (553396 & 553395) with ¼"-20 x ½" Hex Head Screws (Fig 12) and fully tighten screws. **(Note: Pylon (553397) is set in from the end of the shelf.)**
4. Attach vertical wire chase assembly (553435) to other end of shelf with ¼"-20 x ½" Hex Head Screws (Fig. 13) and leave screws slightly loose.
5. Attach pylon cover (553398) to pylon with #10-24 x ¼" truss head screws (Fig 14). **(Note: Nutserts should line up with nutserts in the vertical chase on the other end.)**
6. Once all screws are tightened down, attach tortilla shelf assembly (553439 & 553440) to pylon and wire chase with ¼"-20 x ½" Hex Head Screws (Fig 15).
7. Flip assembly upright and place on counter (Fig 16).
8. Attach the short pylons (553402) to the Hatco Heater Assembly (553387, 553388, & 216984) with ¼"-20 x ½" Hex Head Screws (Fig 17).
9. Flip the assembly over and place on top of the lower assembly with wires to the electrical chase side (Fig. 18).
10. Attach to Taco Shelf Assembly with ¼"-20 x ½" Hex Head Screws and then attach pylon covers (553403) with #10-24 x ¼" Truss head screws (Fig 19).
11. Adjust assembly for square and tighten the screws that hold the shelves.

12. Attach griddle brackets in lower nutsert holes with ¼"-20 x 1" Hex Head Screws (Fig 20). **(Note: Leave screws slightly loose so you can level and finish positioning the griddle.)**
13. Mount the grill to the brackets using the hardware supplied, level and tighten down brackets (Fig 20). **(Note: This will require 3 people to put this in place. If there is not enough manpower available you can use a scissors jack and 2x4's to hold it in place while attaching it to the brackets.)**
14. Route the wires to the circuit breaker panel. Connect the black wire from the grill to the black wire from the display box conduit.
15. Install one (1) double pole 20-amp circuit breaker to the panel for the Griddle.
16. Install one (1) double pole 15-amp circuit breaker to the panel for the Hatco heater.
17. Connect the red wires from the grill conduit to the 20-amp circuit breaker.
18. Connect the green ground wire to the panel ground bar.
19. Install the breaker panel box cover.
20. Install circuit breaker blanks in any open spaces on the panel cover (Fig 22).
21. Re-label the wiring schedule on the panel cover.
22. Use Hatco supplied switches for the heater and lights and mount where accessible before connecting to load center.

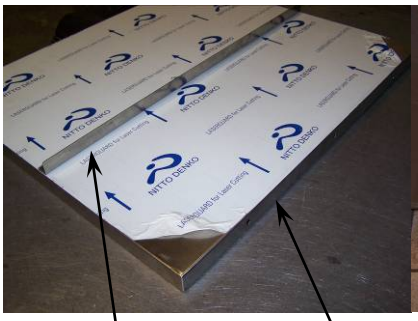


Fig 21

Fig 22

Grill Switch installation

Fig 23

1. Locate the grill switch assembly and the electrical conduit provided with the GTO kit.
2. Install the conduit to the back of the switch junction box and connect the wires to the switch.
3. Install the grill switch assembly into the flat plate provided. Note: the plate may have to be trimmed to size to properly fit the unit.
4. Fasten plate with grill switch assembly to unit with hardware provided (Fig 23).

Installation Completion

1. Seal any open seams or edges of all plates, panels and shelves that have been installed with silicone. **(Note: Clean the surface with lacquer thinner prior to applying the sealant.)**
2. Reinstall all covers or panels that have been removed.

Fig 24

3. Replace all ceiling tiles and grills in the ceiling (Fig 24). **(Note: Extra panels and T-bars may be needed. The installer will supply these.)**
4. Clean all equipment and surrounding area of debris.
5. Wipe down all equipment thoroughly.

System Start Up

(Use checklist on page 16 to document all equipment is operational.)

1. Restore power to the main circuit breaker panel. Verify all the breakers are in the “ON” position. Update the wiring schedule on the breaker panel label.
2. Turn the switch on both relay control boxes to the “ON” position. Turn the Dry Channel switch on the display panels to the “ON” position.
3. Verify that the channels are heating up. Watch the display panel to verify the temperature is going up. Allow the Dry Channel to heat until the “Ready” LED on the display is lit.
4. Turn the Tortilla Grill Switch to the “ON” position. Verify the grill is heating.
5. Check all outlets for power.
6. Check Taco Tower light bulbs. Check all heating elements to verify they are heating.
7. Ensure all monitors are operational.
8. Check steamers for heat and verify water is flowing to them. Hit the steam button at least 4 times each to verify steam is present.
9. Check the Clam Shell Heaters for heat.
10. Verify the refrigerator is cooling and the Cold Rail has started making ice on the walls or bottom.
11. Verify all panels are secure and all doors are closing properly.

Duke Manufacturing Co.
2305 N. Broadway • St. Louis, MO 63102
800.735.3853 • 314.231.1130 • 314.231.5074 Fax
www.dukemfg.com

Pre-Installation Inspection

These inspections must be completed with shift manager on duty. Check if OK.
___Visually look over complete unit checking location against wall and floor
___Check that all doors are closing properly and all panels are secure
___Confirm that the electrical chase is straight and vertical to ceiling
___Check the condition of the breaker panel and bus bar
___Ensure all openings are covered with blanks
___Check that all electrical outlets are in working condition
___Check the refrigerator and verify the cold rail is cooling and has ice on the sides
___Make sure all steam units are steaming without leaks and draining properly
___Toggle light switch on Taco Tower (note burnt out bulbs)
___Verify each heating element on Taco Tower is warming
___Verify all monitors are operational.

Note any issues and have the shift manager sign and date the problem. The installer should make three copies and leave one with the store, give one to the Duke representative and keep one for the installer's own records.

Post-Installation Inspection

___Restore power to the main circuit breaker panel and verify all breakers are "ON"
___Update the wiring schedule on the breaker panel label.
___Power-up the Dry Channel with both switches on the relay box and display
___Watch display to verify temperature is rising on all channels until "Ready" LED is lit
___Turn on the tortilla grill and verify it is heating.
___Check all outlets for power.
___Check Taco Tower light bulbs
___Ensure each heating element is working.
___Verify all monitors are operational.
___Check steamers for heat and ensure water is flowing to them without leaks
___Check the Clam Shell Heaters for heat
___Verify the refrigerator is cooling and the Cold Rail is making ice on the walls
___Verify all panels are secure and all doors are closing properly

Comments

Duke Manufacturing Co.
2305 N. Broadway • St. Louis, MO 63102
800.735.3853 • 314.231.1130 • 314.231.5074 Fax
www.dukemfg.com

TACO BELL
I - LINE
LOADCENTER

PANEL #1			TACO BELL I-LINE COUNTER									125A 24P
120-208/240V - 3PH - 4W - S/N												
POSITION NUMBER	CIRCUIT NUMBER	BRKR. SIZE	ITEM # / EQUIPMENT SERVED	EQUIPMENT VOLTAGE	LOAD (VA)	PHASE WIRE	LOAD (VA)	EQUIPMENT VOLTAGE	ITEM # / EQUIPMENT SERVED	BRKR. SIZE	CIRCUIT NUMBER	POSITION NUMBER
1	1	15	TACO GRILL	208/240	800	A	720	120	REFRIGERATOR	15	7	2
3					800	B	1650	208/240	MELTER	20	8	4
5	3	20	STAGER	120	820	C	1650					6
7	2	15	DC3A	208/240	1449	A	1650	208/240	MELTER	20	9	8
9					1449	B	1650					10
11	4	15	LEFT MONITOR	120	1440	C	1440	120	RIGHT MONITOR	15	10	12
13	5	20	TOP RECEPTACLE	120	1920	A	948	120	COLD PAN	15	11	14
15			HIGH LEG - NO CONNECTION			B			HIGH LEG - NO CONNECTION			16
17	6	20	HATCO H24T	120	1840	C	1920	120	SCALE	20	12	18
19						A						20
21						B						22
23						C						24

3 PHASE PANEL BOX	7487 VA	A	22146 KVA :TOTAL LOAD
	5549 VA	B	
	9110 VA	C	

######

219387	Drawing Number
TACO BELL I - LINE	Project Name
6/4/2007	Date
	Filled Out By

NOTE: ON 240V SYSTEMS, HIGH LEG MUST BE CONNECTED TO CENTER (B) LUG AT TOP OF PANELBOARD ! (NEC 408.3E)
DO NOT CONNECT 120V EQUIPMENT TO THE "B" PHASE IN THIS PANEL !