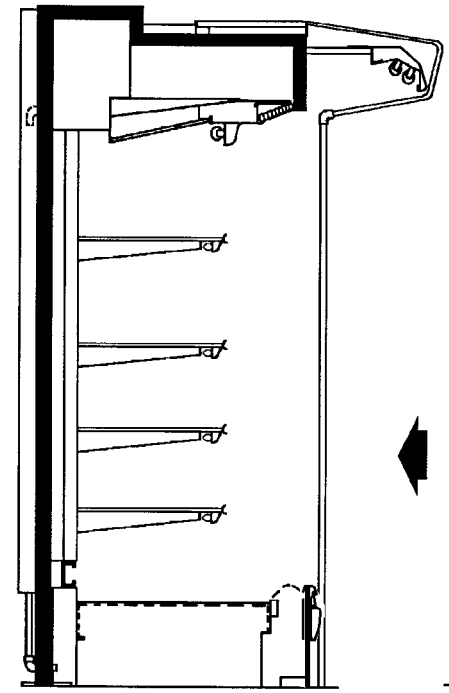
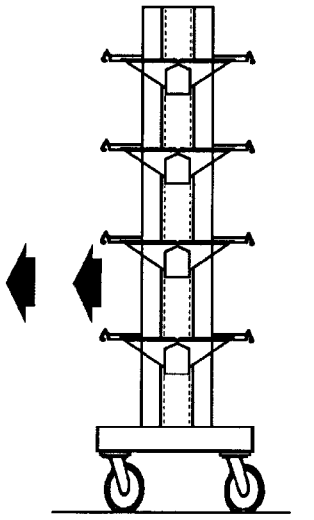
TYLER

1series Advantage

Installation & Service Manual



FRONT LOAD W/SHELVES



ROLL-IN DAIRY CART

LDFL

FRONT LOAD ROLL-IN DAIRY MERCHANDISERS
Medium Temperature Refrigerated Display Cases

This manual has been designed to be used in conjunction with the General Installation & Service Manual.
Save the Instructions in Both Manuals for Future Reference!!

This merchandiser conforms to the Commercial Refrigeration Manufacturers Association Health and Sanitation standard CRS-S1-96.

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The following Medium Temperature Front Load Roll-In Dairy Merchandiser models are covered in this manual:

MODELS	DESCRIPTION
LDFL	8’ & 12’ FRONT LOAD ROLL-IN DAIRY MERCHANDISER

SPECIFICATIONS

LDFL Front Load Roll-In Dairy Merchandiser Specification Sheets

Refrigeration Data:

MODEL	CASE LENGTH	CASE USAGE	CAPACITY (BTUH / FT)		EVAPORATOR (°F)	UNIT SIZING (°F)	DISCHARGE AIR		AVG. REF. CHARGE (LBS/FT)
			PARALLEL	CONVENTIONAL			TEMPERATURE (°F)	VELOCITY (FPM)	
LDFL	8'/12'	DAIRY	1,824*	2,084*	+10**	+8	32	500***	1.43****
LDRL	8'/12'	DAIRY	781*†	892*†	+15**	+13	28	520***	1.43****

* **Capacity data listed for cases with 2 rows of T-8 canopy lights and 1 row of T-8 top lights. Adjustments must be made to this base rating for each option installed on this case. ADD 20 BTUH/FT for each row of optional lighted shelves. For sizing all refrigeration equipment other than TYLER, use conventional BTUH values.**

** **Evaporator temperature is based on the saturated pressure leaving the case.**

*** **Air velocity measured 1 hour after defrost at the top discharge air duct using an ALNOR JR. velometer with a scoop.**

**** **This is an average refrigeration charge per foot based on R22 and R404A refrigerant usage.**

† **NOTE: ADD 800 BTUH/FT OF CASE OPENING TO THE NORMAL WALK-IN COOLER LOAD. USE LOW VELOCITY COILS TO BACK UP THE REAR LOAD ROLL-IN CASE FOR CEILING HEIGHTS UNDER 9'. FOR CEILINGS HEIGHTS OVER 9', USE HIGH VELOCITY FORCED AIR STYLE COILS.**

FOR SPECIFIC COMPRESSOR SIZING AND/OR LINE SIZING INFORMATION, REFER TO THE "GOLD" AND/OR "BUFF" SECTIONS IN THE TYLER SPECIFICATION GUIDE.

Electrical Data:

Fans and Heaters (120 Volt)

MODEL	CASE LENGTH	FANS / CASE	TOTAL STANDARD FANS				TOTAL ECM FANS				TOTAL ANTI-SWEATS	
			AMPS		WATTS		AMPS		WATTS		DISCHARGE AIR	
			UPPER	LOWER	UPPER	LOWER	UPPER	LOWER	UPPER	LOWER	AMPS	WATTS
LDFL	8'	3	1.59	N/A	144.0	N/A	0.96	N/A	51.0	N/A	0.95	114.0
LDFL	12'	4	2.12	N/A	192.0	N/A	1.28	N/A	68.0	N/A	1.27	152.0
LDRL	8'	7	1.59	1.36	144.0	120.8	0.96	N/A*	51.0	N/A*	0.95	114.0
LDRL	12'	10	2.12	2.04	192.0	181.2	1.28	N/A*	68.0	N/A*	1.27	152.0

* ECM fans are not available in the front lower fan panels. These panels will always have standard fans in them.

T-8 Lighting with Electronic Ballasts (120 Volt)

MODEL	CASE LENGTH	CANOPY LIGHTS* (2 ROWS)		TOP LIGHTS* (1 ROWS)		SHELF LIGHTS – PER ROW								MAX. LIGHTING (7 ROWS)	
						AMPS				WATTS					
		AMPS	WATTS	AMPS	WATTS	1	2	3	4	1	2	3	4	AMPS	WATTS
LD(F/R)L	8'	0.95	114.0	0.50	60.0	0.90	1.20	1.60	1.90	108.0	144.0	192.0	228.0	3.35	402.0
LD(F/R)L	12'	1.40	168.0	0.70	84.0	1.35	1.80	2.40	2.85	162.0	216.0	288.0	342.0	4.95	594.0

* Standard lighting for this case is 2 rows of T-8 canopy lights and 1 row of T-8 top lights.

Defrost Data:

DEFROST TYPE*	DEFROSTS PER DAY	DURATION TIME (MIN)	TERMINATION (°F)	EPR SETTINGS **		DEFROST WATER (LB / FT / DAY)
				R22 (PSIG)	R404A (PSIG)	
LDFL – TIME OFF	4	45	- - -	43	56	0.7
LDRL – TIME OFF	4	45	- - -	37	49	0.7

* If an Electronic Sensor is used for termination, it should be set at 70°F termination temperature. The sensor must be located in the same location as the defrost termination klixon for that defrost type.

** Set EPR to give this pressure at the case.

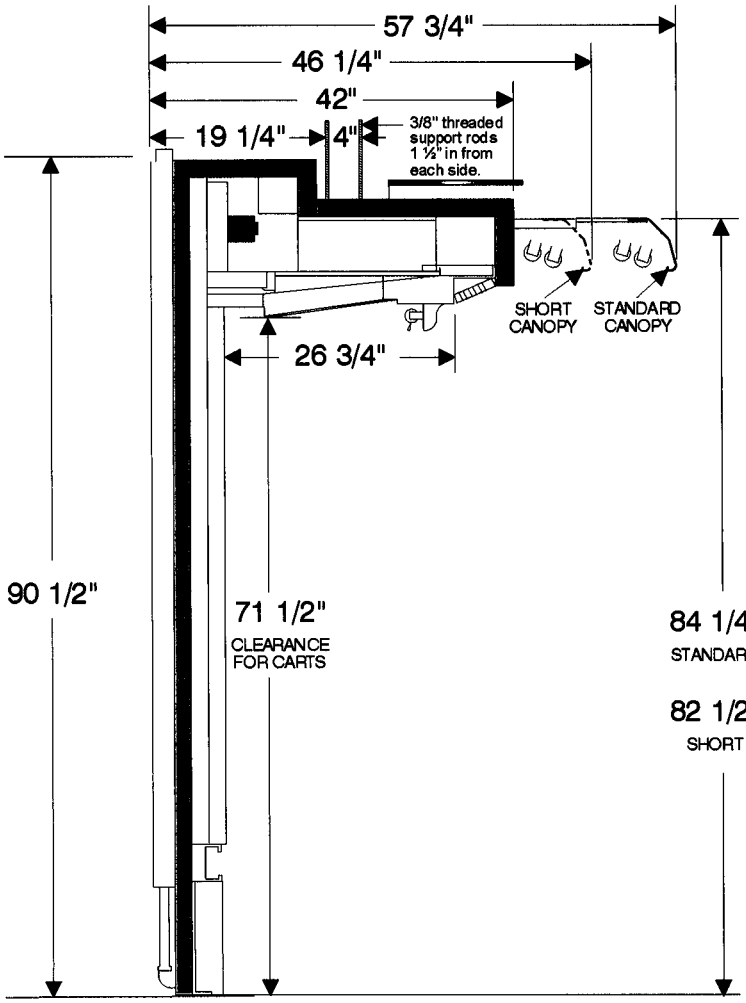
CASE CIRCUITS: LDFL case requires three separate 120V circuits: 1) a Fan Circuit, 2) an Anti-Sweat Heater Circuit, and 3) a Shelf & Canopy Light Circuit. LDRL case requires four separate 120V circuits: 1) an Upper Case Fan Circuit, 2) a Lower Case Fan Circuit, 3) an Anti-Sweat Heater Circuit, and 4) a Shelf & Canopy Light Circuit.

The minimum size coils required behind the Roll-In cases are; 8' case use a Model EFA – 130M and for a 12' case use a Model EFA – 190M. Upsize the coils as necessary based on the revised total load and size at a 9°F temperature differential. The case coils and the cooler units coils can be run on separate refrigeration circuits, but both must be defrosted at the same time.

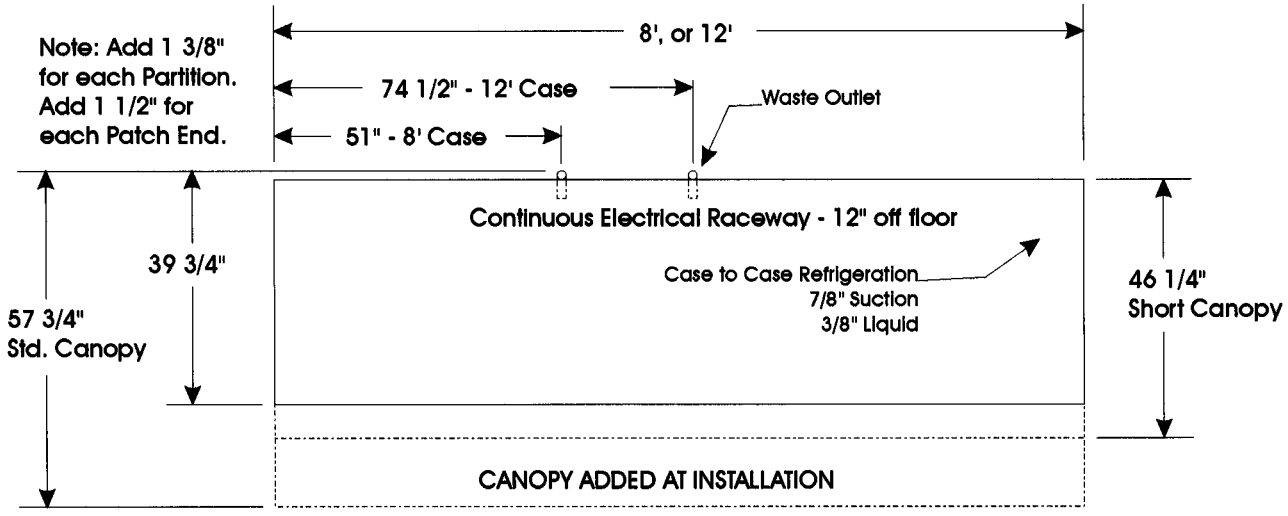
NOTE: The cooler and case should be controlled by a Thermostat & Solenoid or EPR. Defrost needs to be at the same time.

CASE BTUH REQUIREMENTS are calculated to produce approximately the indicated entering-air temperature with absolute maximum operating ambient limits of **75°F & 55RH**.

LDFL CROSS SECTION



LDFL FLOOR PLAN



INSTALLATION PROCEDURES

Carpentry Procedures

Leveling the Cases

Check the levelness of the floor area to be used. The floor surface where this case is to be located should be as smooth and level as possible. Be sure there are no large bumps or dips in the floor. Insert shims under the case where necessary. The highest area of the line-up will have to be the determining high level point. The cases can then be leveled and joined from a level case at the high point. Level cases are necessary for both case pull-ups and proper operation. Small metal shims are furnished in the pull-up parts kit.

Joining Cases

Pull-up parts are shipped with the case in a "Blister-pack". A list of parts furnished and where they are used is in the pack. Not all parts may be necessary for a particular case. Access panels must be removed to install pull-up hardware.

CAUTION

Cases must be pushed together as close as possible before pulling them together with the pull-up bolt hardware.

Pull-up angles in the cases are factory installed for ease of field installation. Adjacent foam cases in a line-up may require different amounts of shimming to bring the cases into proper alignment.

Joint and end trims are shown elsewhere in this manual. Follow these instructions to complete assembly of these cases.

Patch ends are shipped loose because of shipping height limitations. Patch end kit drawings are provided in this manual.

Sealing Joints

Tubes of caulking compound are furnished in the blister pack. The best time to make a waterproof case joint is at installation. It is recommended that two beads of caulking be used, one inside of the foam gasket for sanitation and one outside of the foam gasket for refrigeration. For an added measure of sealing, air-conditioning/heating duct tape can be used under inside joint trims.

See "General I&S Manual" for proper refrigeration line installation and sealing.

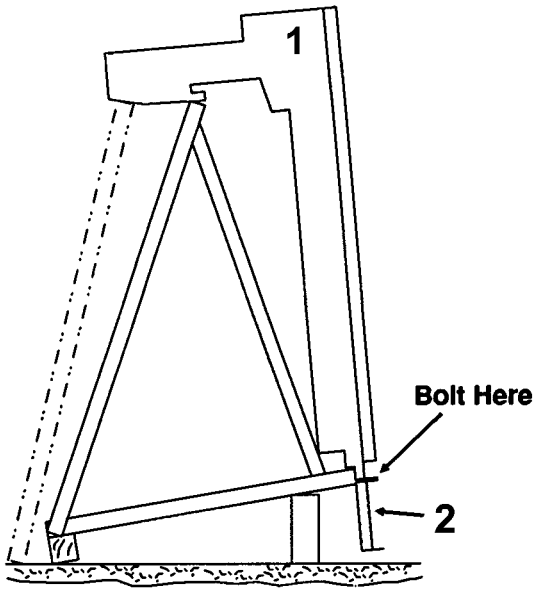
Special Instructions

Be sure to read and understand the special instructions on handling these cases in this manual. Pay particular attention to the sections dealing with the anchoring of these cases to walls and/or roof structures.

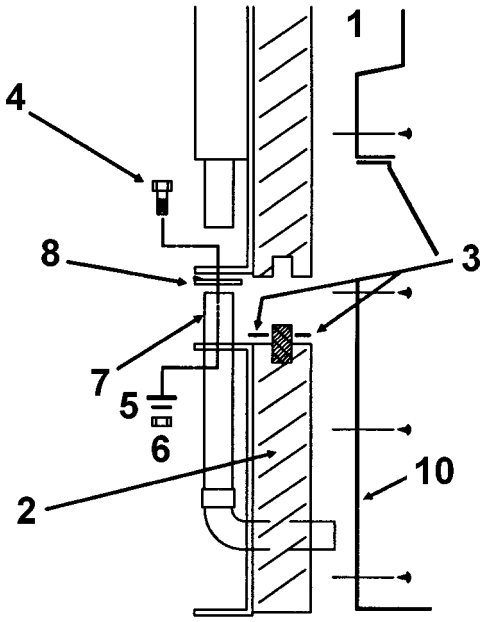
WARNING

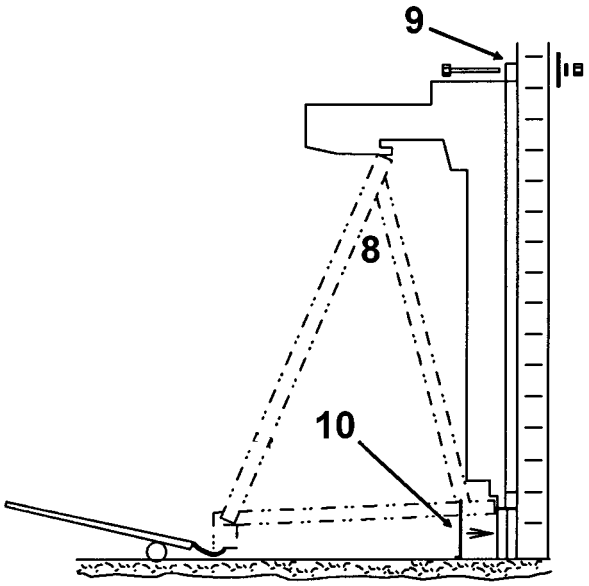
These cases are top heavy and require two or more people to move and/or position them. Improper handling of these cases could result in personal injury.

1. Remove the items packed on the skid.



2. Carefully raise the case (1) by tilting forward far enough to get enough clearance for the rear wall extension (2).

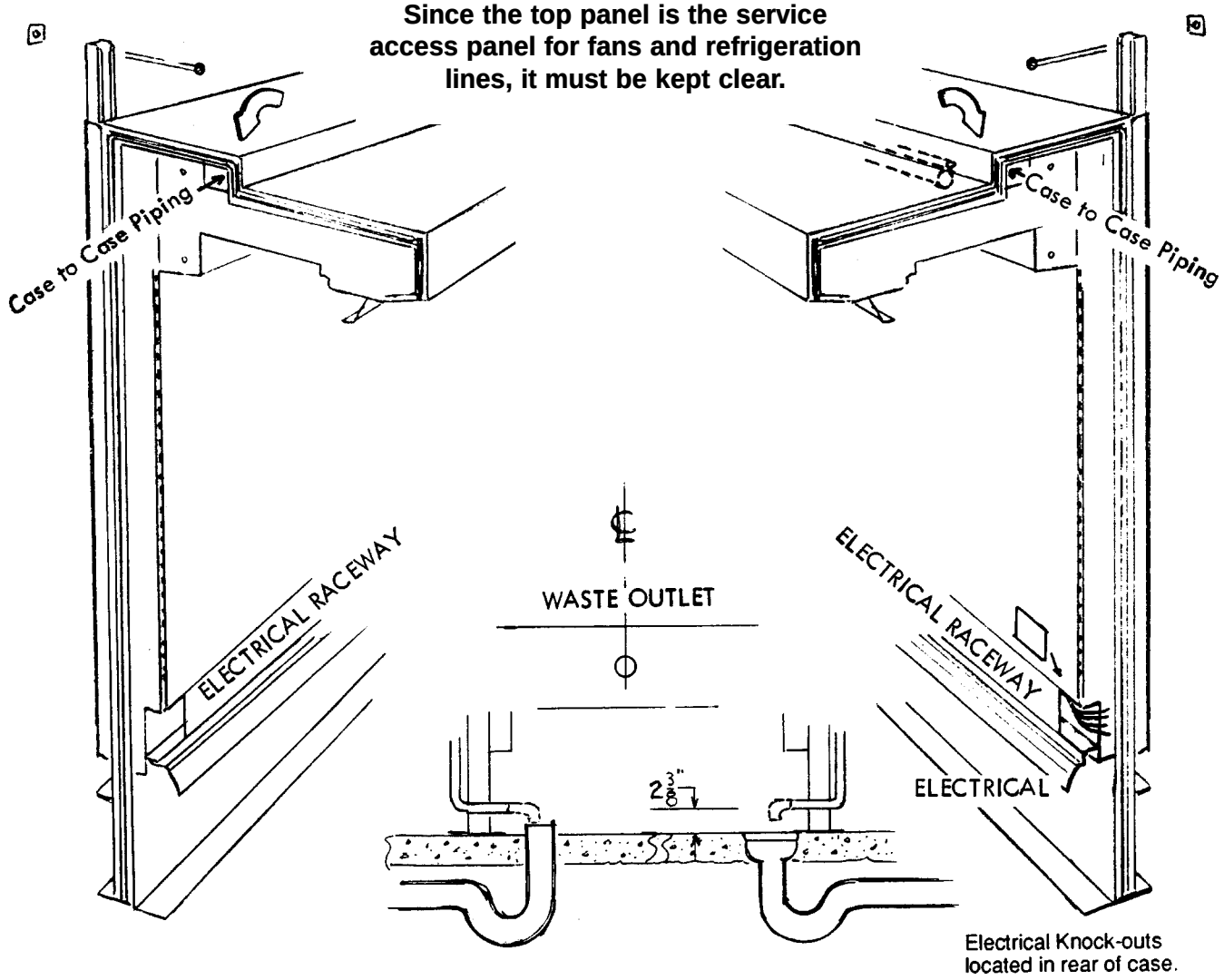




3. Apply the grey pressure sensative gasket (3) on both sides of the black foam gasket on the rear wall extension (2).
4. Install the rear wall extension (2) to the bottom of the case (1) with four bolts (4), washers (5) and nuts (6).
5. Install drain extension (7) on the bottom of the case (1) and secure with a hose clamp (8).
6. Move the case against the wall where it is to be located. Raise the telescoping extensions (9) and secure the case to the wall (or specifically designed structure).
7. Remove the rest of the skid.
8. Pilot drill 3/16” holes in rear wall extension (2) and install the base cladding (10) with self tapping screws.
9. Install joint trims and pull-ups per joint trim kit drawing.
10. Install patch ends per the patch end kit drawing.

NOTE

Since the top panel is the service access panel for fans and refrigeration lines, it must be kept clear.



Waste Outlet - Floor Drain

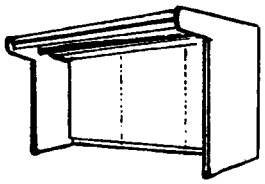
The preferred method is an in floor drain. Position drain so floor sweepings can not be swept into the drain.

The alternate method is a flush drain, where permitted. **NOTE: Do not slope floors, since trucks need a flat platform.**

IMPORTANT

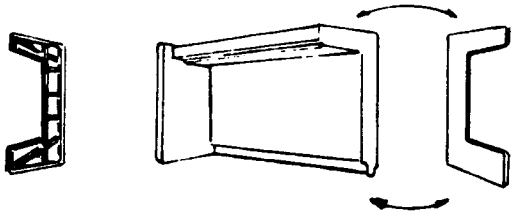
The information herein is only a general recommendation since store structures vary in strength and design. It is therefore necessary that the installing contractor and user assure themselves of the structural integrity of a chosen means of supporting these cases. TYLER can assume no liability for the consequences which may result from failure of structures or structural connections between this case and parts of a building.

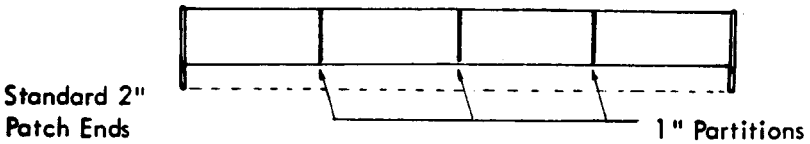
Patch Ends

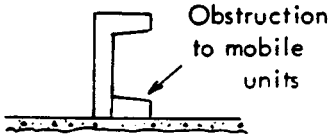


A single case is self-supporting with the ends carrying the weight. Shipping height limitations make it necessary to ship the case without ends. They must be installed on location after the rear wall extension is added to the case.

One inch structural partitions are available for use on line-ups.

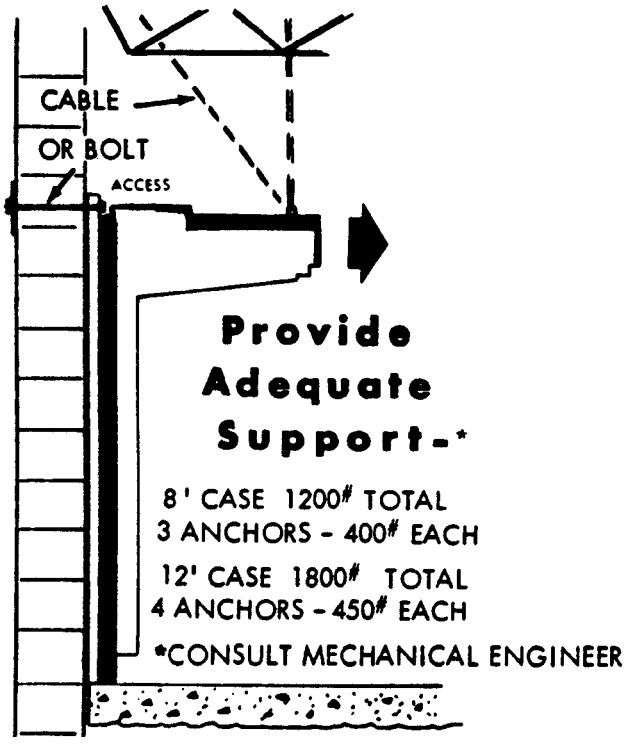






The one inch structural partition can be used between every case so that the entire line-up will be self-supporting. A drawback is that the partitions limit flexibility.

The recommended method of supporting cases calls for supporting the cases from existing or specially constructed structures.



Copy of label attached to each front load air skreen display case.

IMPORTANT NOTICE

This case was designed to provide a high degree of display flexibility in shelving and in roll-in carts. The base structure has been eliminated, making the merchandiser dependent upon support from walls and/or roof members. Single 8' or 12' cases can also be supported from patch ends.

When two or more cases are to be installed and assembled, the cases must be attached to structural walls and/or structural portions of the roof . This meets the case weight requirement of 150 lb. per lineal foot .

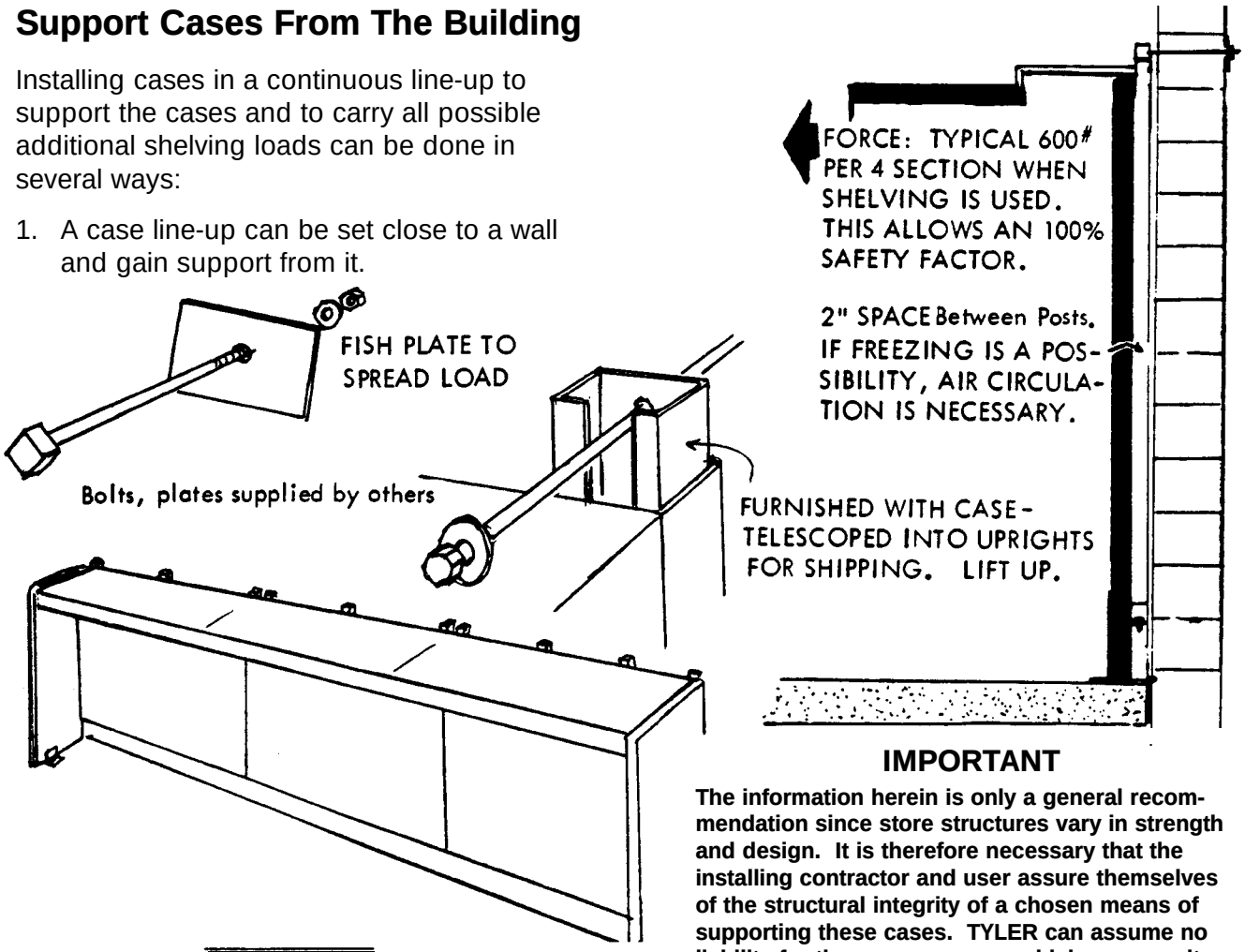
WARNING

If this case is part of a line-up that requires disassembly, use great care during disassembly. The case line-up is not self-supporting and could injure or cause death if it fell.

Support Cases From The Building

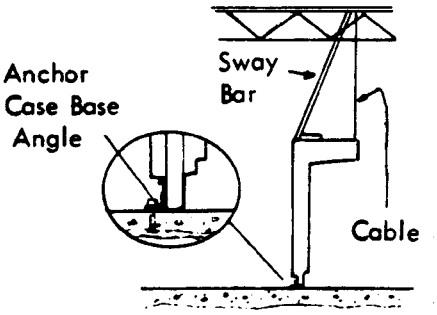
Installing cases in a continuous line-up to support the cases and to carry all possible additional shelving loads can be done in several ways:

1. A case line-up can be set close to a wall and gain support from it.

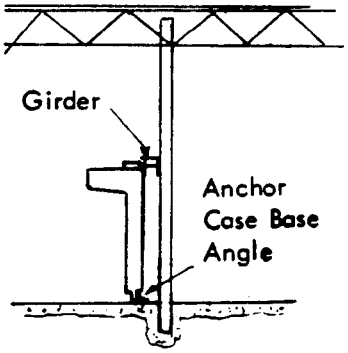


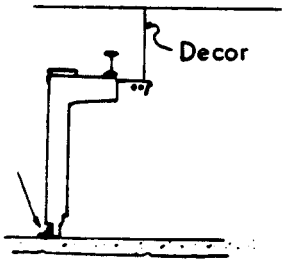
IMPORTANT

The information herein is only a general recommendation since store structures vary in strength and design. It is therefore necessary that the installing contractor and user assure themselves of the structural integrity of a chosen means of supporting these cases. TYLER can assume no liability for the consequences which may result from failure of structures or structural connections between this case and parts of a building.

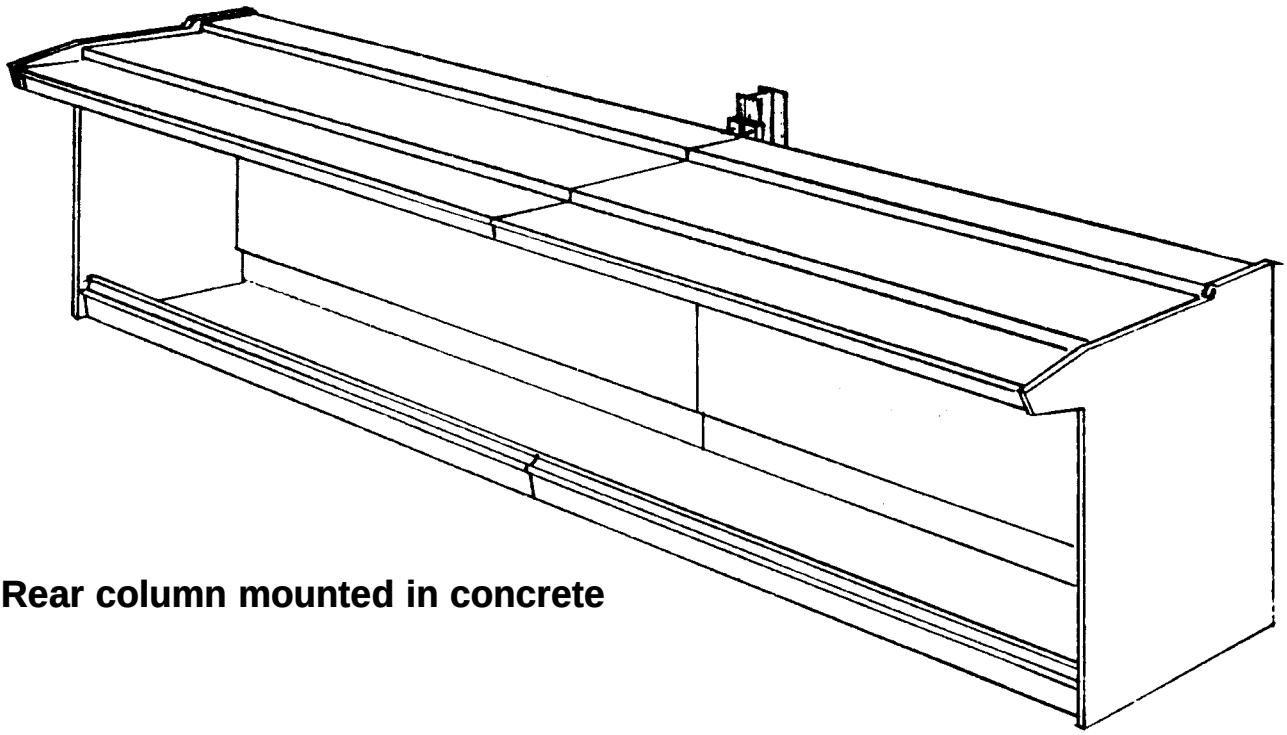


2. When no building wall is available, the case may be cable attached to the roof structure. Truss work might also be used. There are pre-drilled holes on the ends of each case so that 3/8" eyebolts or other bolts (up to 1/2") can be used. 1/4" cable with a minumum 2000 lb. tensile strength is recommended. The base must be anchored to the floor and sway bars as necessary must be used.



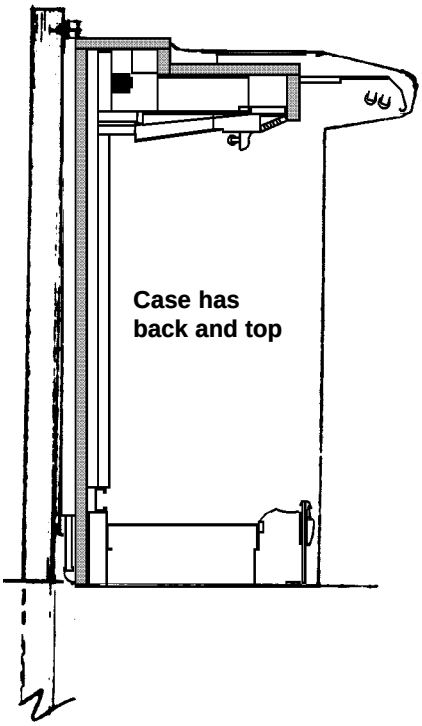


3. Columns may be run from floor to ceiling with a girder for case attachment.
4. Overhead structures can be used to support the cases and/or store decor from above.

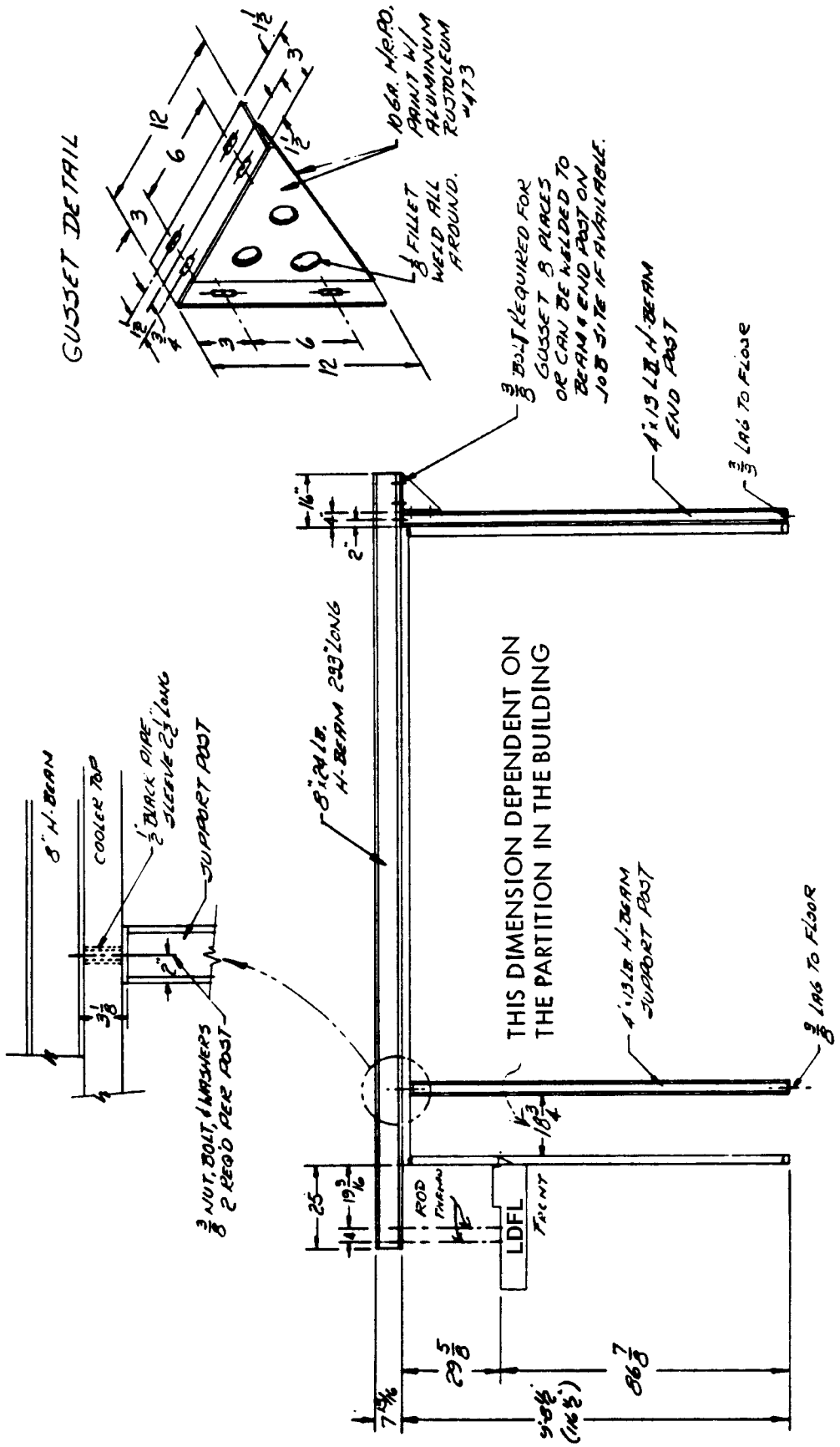


Rear column mounted in concrete

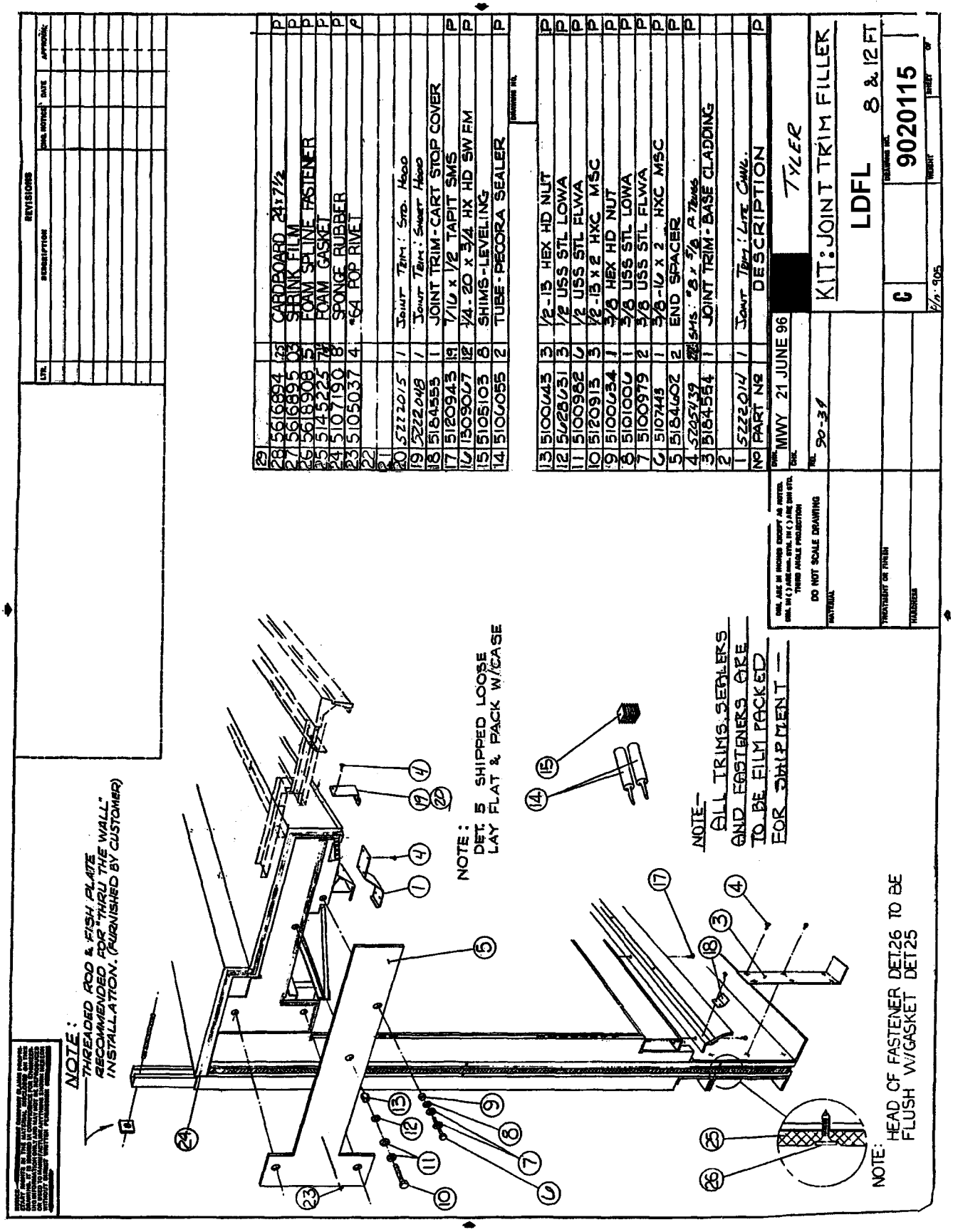
Line-up may be supported by various beam details

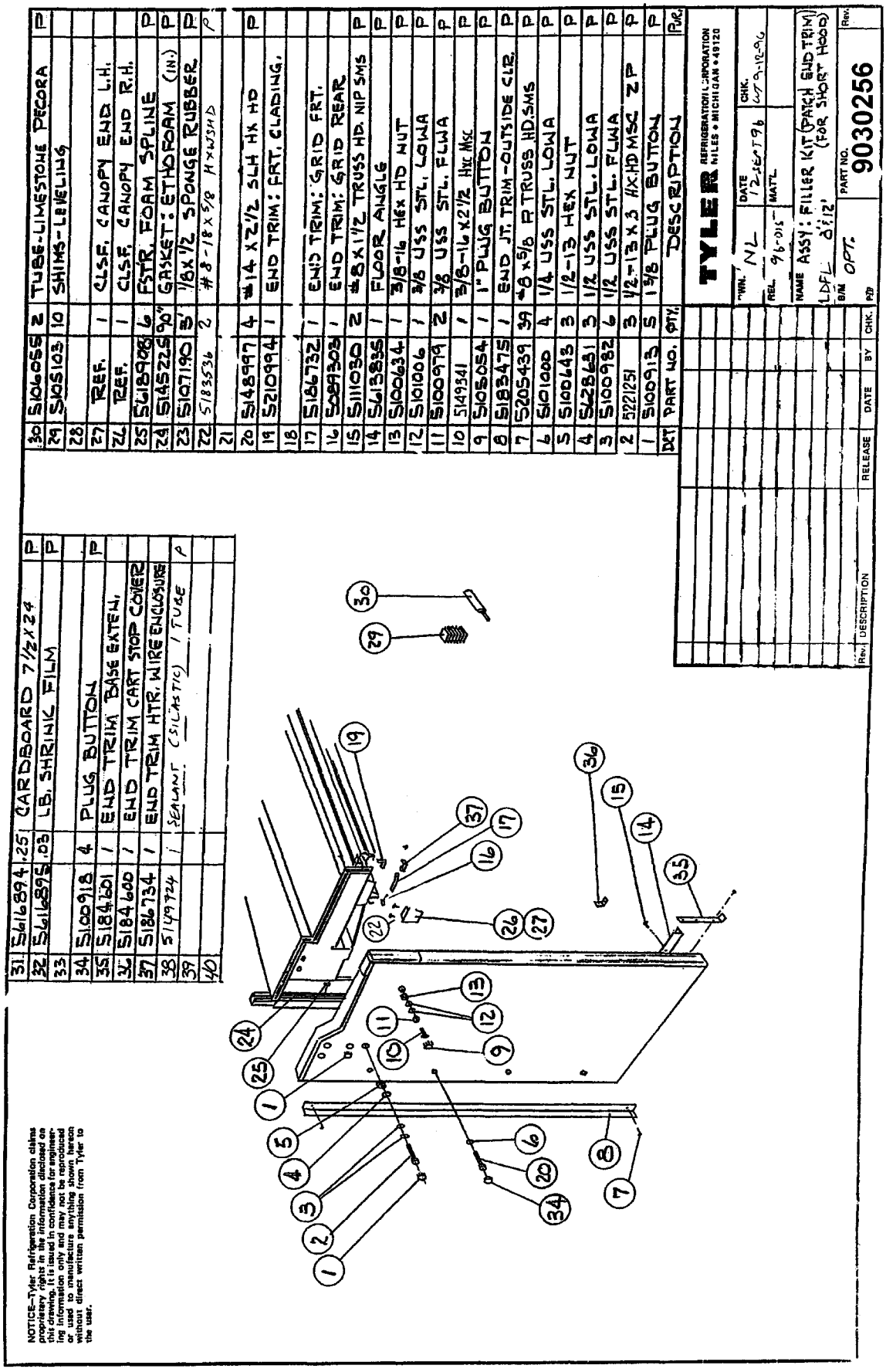


LDFL suspension system rear mounted column



Cantilever - Front Load Suspension


KIT: JOINT TRIM FILLER
LDFL 8 & 12 FT
9020115
TYLER
MWY 21 JUNE 96
DO NOT SCALE DRAWING
NOTE: THREADED ROD & FISH PLATE RECOMMENDED FOR "THRU THE WALL" INSTALLATION. (FURNISHED BY CUSTOMER)
NOTE: DET. 5 SHIPPED LOOSE LAY FLAT & PACK W/CASE
NOTE: ALL TRIMS, SEALERS AND FASTENERS ARE TO BE FILM PACKED FOR SHIPMENT
NOTE: HEAD OF FASTENER DET 26 TO BE FLUSH W/GASKET DET 25
29
28 5616894 23 CARDBOARD 24x72 P
27 5616895 03 SHRINK FILM P
26 5618908 5' FOAM SPLINE FASTENER P
25 5145225 7' FOAM GASKET P
24 5107190 8' SPONGE RUBBER P
23 5105037 4 #64 POP RIVET P
22
21
20 5222015 1 Joint Trim: Std. Hood
19 5222048 1 Joint Trim: Sweet Hood
18 5184555 1 JOINT TRIM-CART STOP COVER P
17 5120943 19 7/16 x 1/2 TAPIT SMS P
16 1309007 12 1/4-20 x 3/4 HX HD SW FM P
15 5105103 8 SHIMS-LEVELING
14 5100055 2 TUBE-PECORA SEALER P
13 5100443 3 1/2-13 HEX HD NUT P
12 5128031 3 1/2 USS STL LOWA P
11 5100982 6 1/2-13 x 2 HXC MSC P
10 5120913 3 5/8 HEX HD NUT P
9 5100434 1 5/8 USS STL LOWA P
8 5101006 1 5/8 USS STL FLWA P
7 5100979 2 5/8 USS STL FLWA P
6 5107443 1 3/8-16 x 2 HXC MSC P
5 5184602 2 END SPACER P
4 5205739 28 SMS: #8 x 5/8 A Tites
3 5184564 1 JOINT TRIM-BASE CLADDING
2
1 5222014 1 Joint Trim: Lite Cmte.
NO PART NO DESCRIPTION P
REVISIONS
LTR. DESCRIPTION ENG. NOTICE DATE APPROVAL



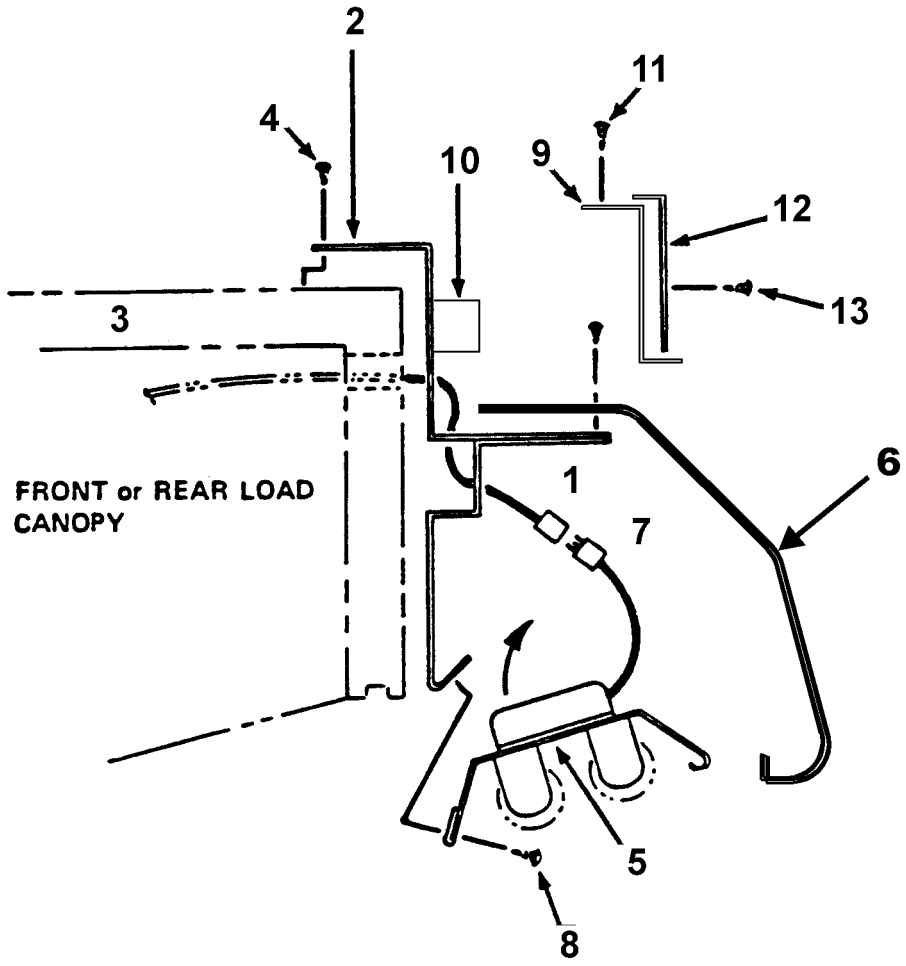
31	S116894-25	CARDBOARD 7½X24	1	P	
32	S116895-03	LB. SHRINK FILM	1	P	
33					
34	S100918	4 PLUG BUTTON		P	
35	S184201	1 END TRIM BASE EXTEN.			
36	S184600	1 END TRIM CART STOP COVER			
37	S186734	1 END TRIM HTR. WIRE ENCLOSURE			
38	S149724	1 SEALANT (SILASTIC) 1 TUBE		P	
39					
40					

30	S106055	2 TUBE-LIMESTONE PECORA		P	
29	S105103	10 SHIMS-LEVELING		P	
28					
27	REF.	1 CLSF. CANOPY END L.H.			
26	REF.	1 CLSF. CANOPY END R.H.			
25	S118908	6 FSTR. FOAM SPLINE		P	
24	S145225	90" GASKET: ETHOFOAM (IN.)		P	
23	S107190	5' 1/8X1½ SPONGE RUBBER		P	
22	S133536	2 #8-18X5/8 HXWSHD		P	
21					
20	S148997	4 #14 X2½ SLH HX HD		P	
19	S210994	1 END TRIM: FRT. CLADING.			
18					
17	S186732	1 END TRIM: GRID FRT.			
16	S089303	1 END TRIM: GRID REAR			
15	S111030	2 #8X1½ TRUSS HD. NIP SMS		P	
14	S613835	1 FLOOR ANGLE		P	
13	S100634	1 3/8-16 HEX HD NUT		P	
12	S101006	1 3/8 USS STL. LOWA		P	
11	S100979	2 3/8 USS STL. FLWA		P	
10	S149341	1 3/8-16X2½ HXC MSC		P	
9	S105054	1 1" PLUG BUTTON		P	
8	S183475	1 END JT. TRIM-OUTSIDE CLR.		P	
7	S205439	39 #8X5/8 R TRUSS HD.SMS		P	
6	S101000	4 1/4 USS STL. LOWA		P	
5	S100643	3 1/2-13 HEX NUT		P	
4	S128681	3 1/2 USS STL. LOWA		P	
3	S100982	6 1/2 USS STL. FLWA		P	
2	3221251	3 ½-13X3 HXHD MSC ZP		P	
1	S100913	5 1⅜ PLUG BUTTON		P	
DET	PART NO.	QTY. DESCRIPTION		P/C	

Hood Assembly

WARNING

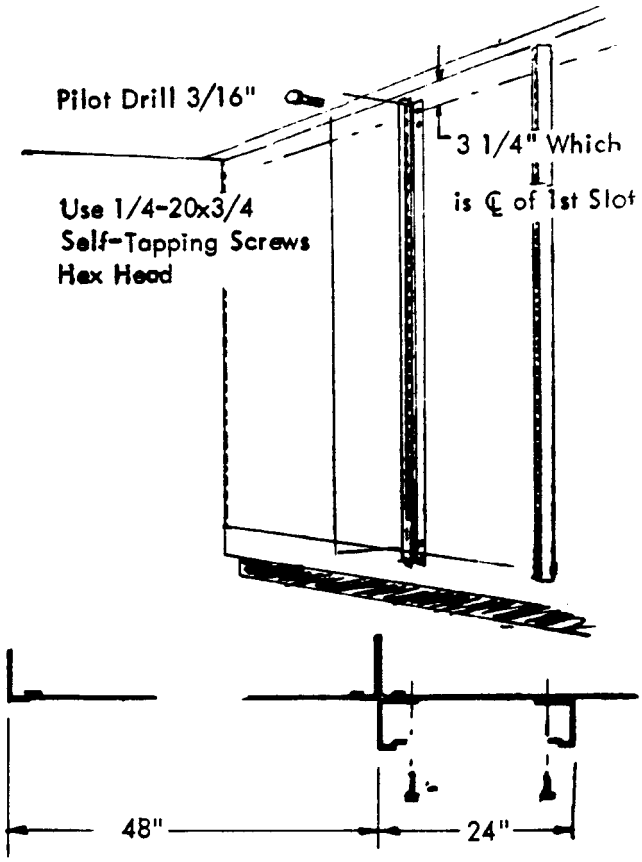
Make sure all power is off to the case. Electrical servicing should always be done by a qualified electrician. Improper servicing could result in product damage and/or personal injury.



1. Pull the 3-prong female receptacle (1) through the hood extension weld assembly (2).
2. Fasten hood extension weld assembly (2) to the canopy (3) with tappit screws (4).
3. Hook the light channel assembly (5) into the front lip of the front hood (6).
4. Plug the light channel wire (7) into the female receptacle (1).
5. Swing the light channel assembly (5) up into place and secure with truss head screws (8).
6. Install top front cladding (9) over ballast (10) with screws (11).
7. Complete the assembly by installing the hood extension joint trim (12) with truss head screws (13).

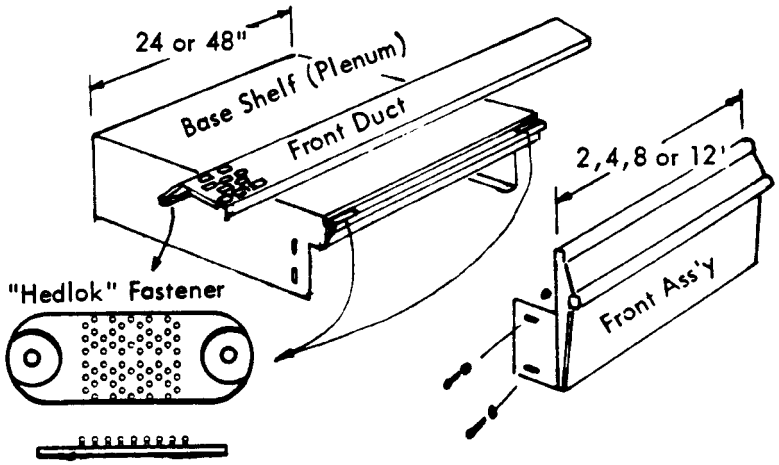
Shelving and Shelf Base Installation

When 48” shelving is to be used, installation is as in conventional cases. 24” and 48” shelf bases can be used, or shelves can be mounted above roll-in carts. If 24” shelves are used, it is necessary to attach uprights at a 24” spacing as shown to the right. The uprights are symetrical so they can be used for right or left hand applications just by reversing them. Pilot drill 3/16” on a line 3 1/4” down from the top. This also coincides with the centerline of the top slot on the built-in shelving uprights. Attach the uprights with the provided hex head screws at top and bottom using the upper hole in each pair of holes in the upright.



Shelf Bases

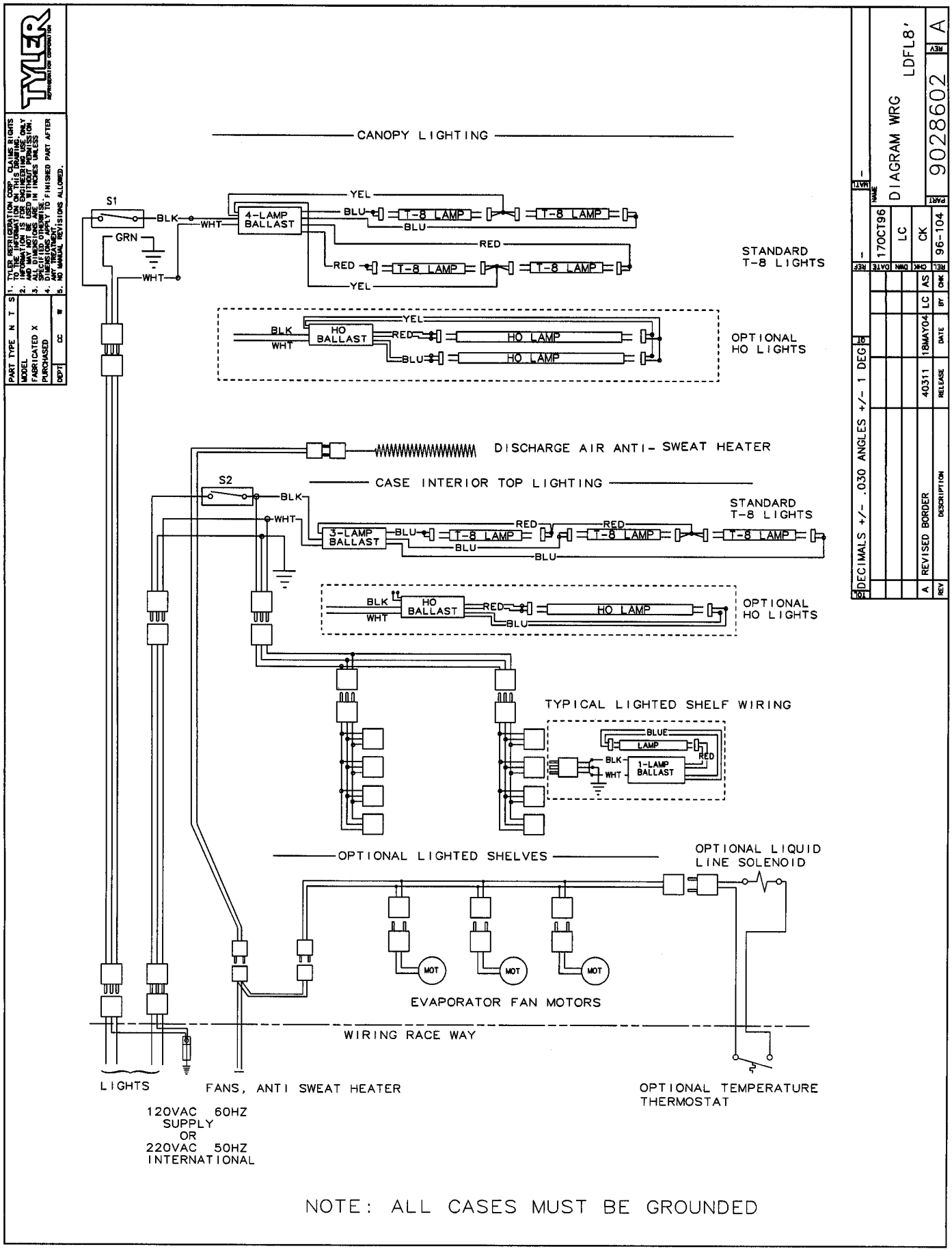
Shelf bases are 24” or 48” wide. Fronts for the shelf bases are 24, 48, 96 or 144” wide. Front ducts attach to the bases with “Hedlok” fasteners. These plastic interlocking devices provide easy removal, yet hold the front ducts securely. Just pry up to remove. Push in place to install.



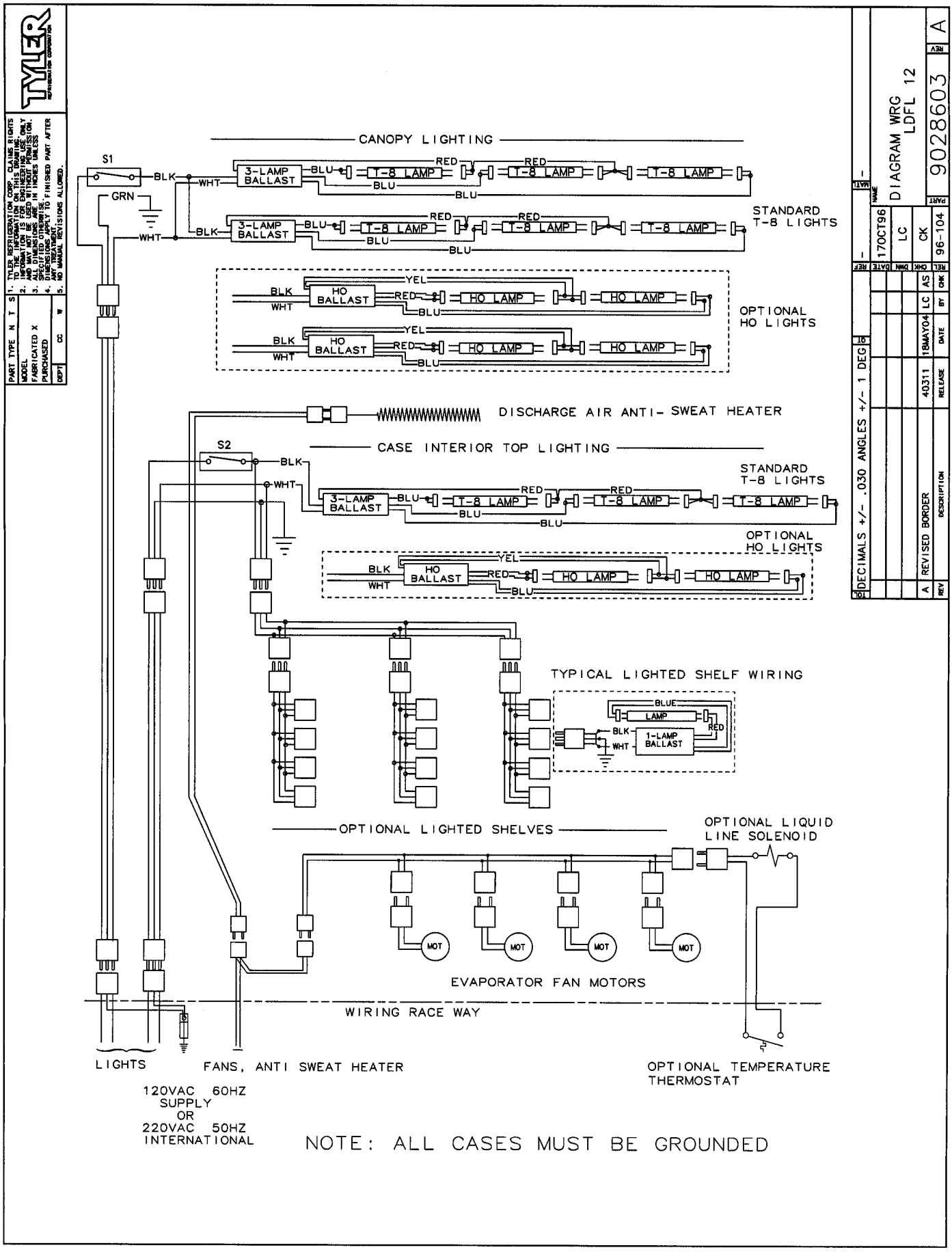
WIRING DIAGRAM

ELECTRICIAN NOTE - OVERCURRENT PROTECTION

120V circuits should be protected by 15 or 20 Amp devices per the requirements noted on the cabinet nameplate or the National Electrical Code, Canadian Electrical Code - Part 1, Section 28. 208V defrost circuits employ No. 12 AWG field wire leads for field connections. On remote cases intended for end to end line-ups, bonding for ground may rely upon the pull-up bolts.


CANOPY LIGHTING
S1
BLK
WHT
GRN
4-LAMP BALLAST
YEL
BLU
RED
T-8 LAMP
STANDARD T-8 LIGHTS
HO BALLAST
HO LAMP
OPTIONAL HO LIGHTS
DISCHARGE AIR ANTI- SWEAT HEATER
CASE INTERIOR TOP LIGHTING
S2
3-LAMP BALLAST
TYPICAL LIGHTED SHELF WIRING
BLUE
LAMP
1-LAMP BALLAST
OPTIONAL LIGHTED SHELVES
OPTIONAL LIQUID LINE SOLENOID
MOT
EVAPORATOR FAN MOTORS
WIRING RACE WAY
LIGHTS
FANS, ANTI SWEAT HEATER
OPTIONAL TEMPERATURE THERMOSTAT
120VAC 60HZ SUPPLY OR 220VAC 50HZ INTERNATIONAL
NOTE: ALL CASES MUST BE GROUNDED
DIAGRAM WRG
LDFL8'
90286602
A
17OCT96
LC
CK
96-104
18MAY04
40311
REVISED BORDER
DECIMALS +/- .030 ANGLES +/- 1 DEG

LDFL Domestic & Export (50Hz) 12' Case Circuits



PARTS INFORMATION

Operational Parts List

Case Usage	**Domestic**		**Export**	
Electrical Circuit	115 Volt 60 Hertz		220 Volt 50 Hertz	
Case Size	8’	12’	8’	12’
Fan Motor	5243498 9 Watt	5243498 9 Watt	9458942 18.3 Watt	9458942 18.3 Watt
Fan Motor Brackets	5205112	5205112	5205112	5205112
Fan Blades (8.75” 31° 3B)	5104858	5104858	----	----
(8.75” 26° 3B)	----	----	5054140	5154140
Fan Bracket Plate	9041077	9041077	9041077	9041077
Opt. ECM Fan Motor	9025000 12 Watt	9025000 12 Watt	----	----
Opt. ECM Fan Motor Brackets	5205112	5205112	----	----
Opt. ECM Fan Blades (8.75” 30° 5B)	5187551	5187551	----	----
T-8 Lamp Ballast (canopy) (1st & 2nd row)	5966635	5991030	9322288	9322287
(3rd row)	5991029	5991030	9322286	9322287
Opt. 800MA Lamp Ballast (canopy)(1st & 2nd row)	5204769	5049140	5204859	5204859
(3rd row)	5049140	5049140	5989796	5989796
T-8 Lampholder (canopy)	5232279	5232279	5232279	5232279
800MA Lampholder (canopy) (telescoping)	5614628	5614628	5614628	5614628
(stationary)	5614629	5614629	5614629	5614629
Light Switch (SPST)	5100565	5100565	5100565	5100565
Anti-Sweat Heater (air grid retainer)	5124818	5124819	5081149	5081150

For information on operational parts not listed above contact the TYLER Service Parts Department.

Cladding and Trim Parts List

Item	Description	LDFL 8’	LDFL 12’
1	Screw (per close-off panel assy)	1309067 (9)	1309067 (12)
2	Close-off Panel Assembly	9026544	9026546
3	Screw (per top cover)	5183536 (5)	5183536 (5)
4	Top Cover	5186277	5186278
5	Lower Close-off Panel	9026548	9026548
	Screw (per lower close-off)	5183536 (2)	5183536 (2)
6	Close-off Panel Assembly	9026544	9026546
	Screw (per close-off panel assy)	1309067 (9)	1309067 (12)
7	Screw (per canopy)	5183536 (4)	5183536 (6)
8	Front Canopy Hood, Painted	9025223	9025224
9	Canopy Hood Backer, Painted	9025983	9025983
10	Screw (per backer)	5205439 (2)	5205439 (2)
11	Standard Hood Joint Trim	5222015	5222015
	Short Hood Joint Trim	5222048	5222048
12	Screw (per hood joint trim)	5205439 (6)	5205439 (6)
13	Light Channel Joint Trim	5222014	5222014
14	Bumper Retainer	9025504	9025506
15	Color Band, Painted	NA	NA
16	Color Band Backer, Painted	NA	NA
17	Bumper End Trim	---- color by order ----	
18	Bumper Backer	---- color by order ----	
19	Bumper	---- color by order ----	
20	Front Lower Cladding, Painted	NA	NA
21	Rivet (per lower cladding)	5104702 (6)	5104702 (6)
22	Shoulder Screw (per lower cladding)	9025833 (16)	9025833 (24)
23	Base Extension Assembly	5055027	5055028
	Foam Base Extension	5054973	5054974
	Reinforcement Channel	5055031	5055032
24	Screw (per channel)	1309067 (6)	1309067 (8)
25	Screw (per cart stop joint trim)	5205439 (2)	5205439 (2)
26	Cart Stop Joint Trim	5184553	5184553
27	Cart Stop Assembly	5184559	5184560
28	Screw (per cart stop assembly)	5183536 (6)	5183536 (10)
29	Raceway Cover	5184498	5184499
	Screw (per raceway cover)	5111197 (7)	5111197 (9)
30	Raceway Assembly	5184500	5184501

Item	Description	8’	12’
31	Screw (per raceway assembly)	5183536 (6)	5183536 (8)
32	Screw (raceway cover plate)	5111197 (7)	5111197 (9)
33	Raceway Cover Plate	5184497 (2)	5184497 (2)
34	Nut (per end spacers)	5100634 (2)	5100634 (2)
35	Lock Washer (per end spacers)	5101006 (2)	5101006 (2)
36	Flat Washer (per end spacers)	5100979 (4)	5100979 (4)
37	Machine Screw (per end spacers)	5107443 (2)	5107443 (2)
38	Nut (per end spacers)	5100643 (6)	5100643 (6)
39	Lock Washer (per end spacers)	5628631 (6)	5628631 (6)
40	Flat Washer (per end spacers)	5100982 (12)	5100982 (12)
41	Machine Screw (per end spacers)	5120913 (6)	5120913 (6)
42	Rivet (per end spacers)	5105037 (8)	5105037 (8)
43	End Spacer	5184602 (2)	5184602 (2)