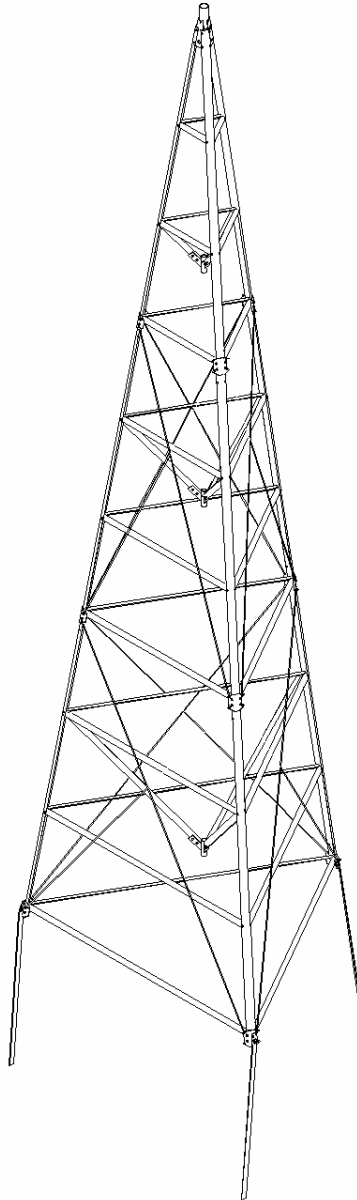


OWNER'S MANUAL FOR DUTCH LATTICE TOWER



Manufactured By:
DUTCH INDUSTRIES LIMITED

PORTICO DRIVE
P.O. BOX 368
PILOT BUTTE, SASKATCHEWAN
CANADA, S0G 3Z0
www.dutchind.com

Phone: (306) 751-4820
Fax: (306) 751-4877
Toll Free: 1-800-683-8824

DATE: MAR 11/02

Part # 874

TABLE OF CONTENTS

Introduction	Page 1
General Safety	Page 1
Safety Instructions	Page 1
Getting Started.....	Page 2
Initial Set Up	Page 2
Assembly Instructions	Page 2,3,4,5
909 - Assembly Drawing and Parts List	Page 6
Tower Piles Instruction Sheet	Page 7
Tower Erection Instruction Sheet.....	Page 8
910 – 10ft Tower Kit.....	Page 9
930 – 20ft Tower Extension Kit	Page 10
931 – 30ft Tower Extension Kit	Page 11
Warranty and Important Notice	Back Cover

INTRODUCTION

This manual is intended to assist you in the assembly, operation and maintenance of the Dutch Lattice Tower. Read and follow all instructions and safety precautions carefully.

If any further information or assistance is required, contact your local Dutch Products Dealer.

GENERAL SAFETY

Occupational safety is of prime concern to Dutch Industries Ltd. This manual was written with the safety of the operator and others who come into contact with the equipment as our prime concern. This manual entails the safety, assembly, operation and maintenance encountered by the operator and other personnel. We wrote this manual to help you understand safe operating procedures. We want you as a partner in the safe operation of our products.

It is your responsibility as an owner or operator or supervisor, to know what specific requirements, precautions and work hazards exist and to make these known to all other personnel working with the equipment or in the area, so that they may take any necessary safety precautions that may be required.

Failure to read this manual and its safety instructions is a misuse of the product.

SAFETY INSTRUCTIONS

1. Do not operate this unit unless you have read the operators manual.
2. Never allow this product to be operated by anyone who is unfamiliar to the operations of this unit.
3. Never permit anyone near unit when in operation.
4. Use caution when working with heavy or sharp objects.
5. Ensure that proper clothing, tools and equipment are used when handling this unit.
6. Ensure that all hardware is fastened properly.
7. After installation, ensure that all tools and parts are removed before operation of this unit.
8. Failure to follow safety rules may result in injury or death.
9. Ensure that you stay clear of pinch points and block up any equipment that could possibly fall

GETTING STARTED

The Tools and Material required are as follows:

- 3/8" Socket Set / 3/8" Impact Socket Set
- 7/16", 1/2", 9/16", Open Ended Wrenches
- 3/8" Impact Wrench (Optional)
- 12" Adjustable Wrench (Crescent Wrench)
- 1 Sledge Hammer
- 8' Step Ladder
- 1 Carpenter's Level
- 1 Tape Measure
- 100' of 1/2" Nylon Rope
- Spade
- Post Hole Drill w/ 6" Diameter Bit

Suggested Torque for sizes of bolts and nuts are as follows:

5/16" Bolts	17 ft. lb.
3/8" Bolts	30 ft. lb.
3/4" Bolts	75 ft. lb.

INITIAL SET UP

When you receive your quality Dutch Product, the customer should unpack all components to ensure that all parts have been shipped. Refer to respective drawing for listing. Once the quantities are confirmed, proceed to your site. Be sure to bring the tools listed above.

ASSEMBLY OF WINDMILL LATTICE TOWER

Unless otherwise noted connect all pieces together using 3/8" x 3/4" Bolt and 3/8" Cleave Nut. (Item 7, Item 17)

Note: If this installation is for a water pumping windmill, do not tighten all the bolts on the tower until the pump supports are bolted to it. This is because the pump supports use the same bolts as the tower does.

ASSEMBLY OF WINDMILL LATTICE TOWER cont^{1/4}

Top Section (10ft Tower)

Note: If you are assembling a 30ft or 20ft Tower, this 10ft section is the top section. Also leave all bolts loose until all bolts are installed, then tighten bolts.

1. First lay two Tower Legs (Item 2) on the ground.
2. Next attach the 2 Tower Legs (Item 2) together by bolting the three Cross members (Item 3, Item 4, Item 5) to them. This will create a tapered ladder type of assembly.
3. Now Attach the rest of the Cross members (Item 3, Item 4, Item 5) to the Tower Legs that you have already assembled. This will create a triangular shaped assembly
4. Bolt the Top Tower (Item 1) to the two Tower Legs (Item 2).
5. Bolt a third Tower Leg (Item 2) to the cross members (Item 3, Item 4, Item 5), and the Top Tower (Item 1) that you installed in the last step. This will tie the structure together.
6. Finally bolt the Bracket Splice (Item 6) to all ends of the Tower Leg (Item 2). See Detail A on Drawing (Part#909)
7. The Tower is now Assembled

Note: Install Bracket Foundation (Item 12) to Tower Legs (Item 2). Do this to the bottom section of the tower that is being assembled. Be sure to insert 1/2" x 1" Bolt (Item 9) into Bracket Foundation (Item 12) before installing it on the Tower Legs (Item 2). Two of these brackets need to be bolted on so that they can act as hinges. (This means that the brackets need to face the same direction) See Drawing – Part#910.

Bottom Section (20ft Tower)

Note: If you are assembling a 30ft Tower, this is for the center section. Also leave all bolts loose until all bolts are installed, then tighten bolts.

1. First lay two Tower Legs (Item 2) on the ground.
2. Next attach the 2 Tower Legs (Item 2) together by bolting the three Cross members (Item 14, Item 15, Item 16) to them. This will create a tapered ladder type of assembly.
3. Now Attach the rest of the Cross members (Item 14, Item 15, Item 16) to the Tower Legs that you have already assembled. This will create a triangular shaped assembly
4. Bolt a third Tower Leg (Item 2) to the cross members (Item 14, Item 15, Item 16) that you installed in the last step. This will tie the structure together.
5. Bolt the Bracket Splice (Item 6) to all ends of the Tower Leg (Item 2). See Detail B on Drawing (Part#909)
6. Finally install the Cross Braces (Item 18). These rods insert into the holes of the Bracket Splice (Item 6). Use 5/16" Nut (Item 19) to tighten.

ASSEMBLY OF WINDMILL LATTICE TOWER cont^{1/4}

Bottom Section (30ft Tower)

Note: Leave all bolts loose until all bolts are installed, then tighten bolts.

1. First lay two Tower Legs (Item 2) on the ground.
2. Next attach the 2 Tower Legs (Item 2) together by bolting the three Cross members (Item 20, Item 21, Item 22) to them. This will create a tapered ladder type of assembly.
3. Now Attach the rest of the Cross members (Item 20, Item 21, Item 22) to the Tower Legs that you have already assembled. This will create a triangular shaped assembly
4. Bolt a third Tower Leg (Item 2) to the cross members (Item 20, Item 21, Item 22) that you installed in the last step. This will tie the structure together.
5. Bolt the Bracket Splice (Item 6) to all ends of the Tower Leg (Item 2). See Detail C on Drawing (Part#909)
6. Finally install the Cross Braces (Item 23). These rods insert into the holes of the Bracket Splice (Item 6). Use 5/16" Nut (Item 19) to tighten.

Determining where your Tower must be installed

1. Attach Plumb bob to center of Pump Support Mount.
2. Lift your assembled tower upright using a front end loader tractor.
3. Block your tower up. (See Page 8) Use 4" or larger Blocks.
4. Line Plumb bob up to center of well. Make sure that the tower is situated so that there is a clear path to tilt the tower. Later on you will need to lift the tower using a truck or tractor. You will need enough space for the tower, which will be lying down, and your vehicle, including the amount of space you will need to drive when lifting the tower.
5. Level the tower using a 3ft – 4ft Level. This will ensure that the tower and windmill will operate properly.
6. Mark the Pile holes on the ground, where each end of the tower is.
7. Move the Tower away from the markings, so that you can drill your pile holes
8. Drill your Pile holes at the marked places on the ground. Note: The dimensions for drilling the pile holes on Page 7 are only for reference. Use tower legs as an accurate guide to drill your holes.
9. Move the tower back to its original position. Be sure that the Plum Bob still lines up with center of your well.
10. Install Anchoring Bar (Item 11) to Tower Leg (Item 2), using 1/2" Nut (Item 10) See Drawing #909.
11. Note: The 1/2" x 1" Bolt (Item 9) should have already been installed. Also you may have to bend the bar a little bit to ensure that it lines up with the pile hole that you drilled.
12. Level Tower again with a 3ft – 4ft Level. This is a very important part of this installation.

ASSEMBLY OF WINDMILL LATTICE TOWER cont^{1/4}

Determining where your Tower must be installed cont^{1/4}

13. Pour Concrete into pile holes. Make sure that Anchoring Bar Connection to Tower is a minimum of 4" away from the concrete.
14. Let Concrete Set, as per manufacturer's specifications.

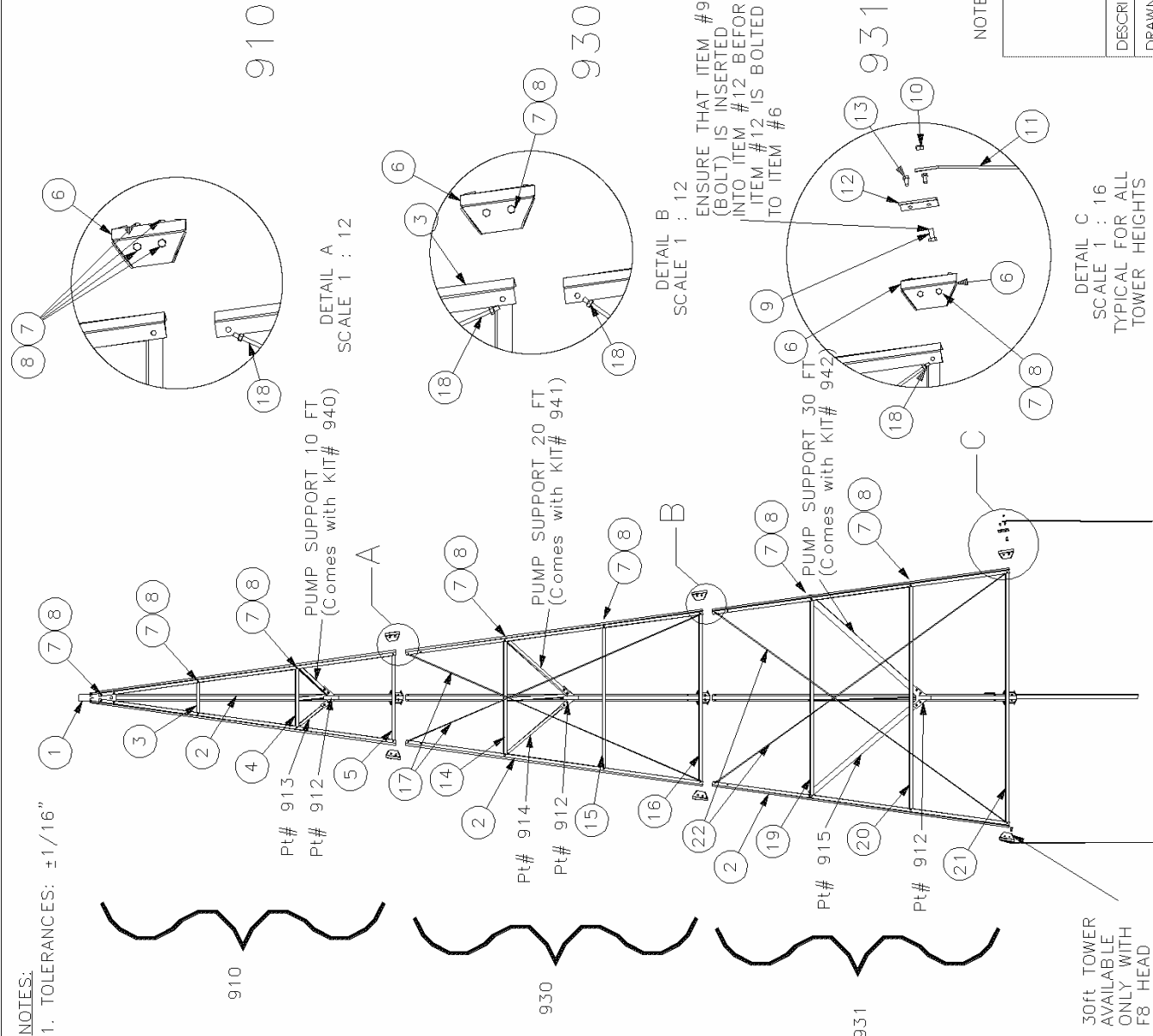
Installing Windmill Head to Tower Assembly

Refer to Page 8

1. Now that the concrete you have poured has set, Attach Rope from Point B to your Vehicle. Point B is where your tower is connected with Bracket Splices. This is very important to only attach to this point, as it is the strongest place, and will avoid damage to the Tower.
2. Place sawhorse or block under the tower. This is necessary in order to install the Windmill head on the top of your tower.
3. Detach non-pivoting Anchoring Bar (Item 11) from the Tower. Ensure that Tower is attached to your vehicle before doing this.
4. Tilt the tower down, until it rests on the sawhorse that you placed under it.
5. Install Windmill head on the top of the Tower.
6. Attach Control Rope to Top of Tower (Point A).
7. Pull Tower up using vehicle. Have someone hold the control rope and stand out of the Danger Zone. This will ensure that the tower will not rapidly tip over and cause any damage.
8. Reattach the non-pivoting Anchoring Bar (Item 11) to the tower, using a 1/2" Nut (Item 10).
9. The Tower with Windmill Head is now installed.

NOTES:

1. TOLERANCES: ±1/16"



DETAIL B
SCALE 1 : 12
ENSURE THAT ITEM #9 (BOLT) IS INSERTED INTO ITEM #12 BEFORE ITEM #12 IS BOLTED TO ITEM #6

DETAIL C
SCALE 1 : 16
TYPICAL FOR ALL TOWER HEIGHTS

THIS DRAWING DEPICTS ALL SECTION AND OPTIONS AVAILABLE. THE MATERIAL LIST DEPENDS ON WHAT SECTIONS OF THE TOWER AND OPTIONS ARE PURCHASED.

ITEM PART NO.	DESCRIPTION	QTY.
1 920	TOP, TOWER	1
2 919	LEG TOWER	3
3 921	CROSS MEMBER - 13 7/8"	3
4 922	CROSS MEMBER - 24 13/16"	3
5 923	CROSS MEMBER - 35 1/2"	3
6 911	BRACKET SPLICE	3
7 HH3834PLC5	HEX BOLT, 3/8 x 3/4	33
8 CN38PL	CLEAVE NUT, 3/8	36
9 HH121PLC5	HEX BOLT, 1/2 x 1	3
10 CN12PL	CLEAVE NUT, 1/2	3
11 938	ANCHORING BAR	3
12 916	BRACKET FOUNDATION	3
13 HH381PLC5	HEX BOLT, 3/8 x 1	3

ITEM PART NO.	DESCRIPTION	QTY.
2 919	LEG TOWER	3
6 911	BRACKET SPLICE	3
7 HH3834PLC5	HEX BOLT, 3/8 x 3/4	24
14 924	CROSS MEMBER - 46 3/4"	3
15 925	CROSS MEMBER - 57 11/16"	3
16 926	CROSS MEMBER - 68 3/8"	3
8 CN38PL	CLEAVE NUT, 3/8	24
17 917	CROSS BRACE 20'	6
18 CN516PL	CLEAVE NUT, 5/16	12

ITEM PART NO.	DESCRIPTION	QTY.
2 919	LEG TOWER	3
6 911	BRACKET SPLICE	3
7 HH3834PLC5	HEX BOLT, 3/8 x 3/4	24
8 CN38PL	CLEAVE NUT, 3/8	24
18 CN516PL	CLEAVE NUT, 5/16	12
19 927	CROSS MEMBER - 79 9/16"	3
20 928	CROSS MEMBER - 90 1/2"	3
21 929	CROSS MEMBER - 101 3/16"	3
22 918	CROSS BRACE 30'	6

NOTE: #931, 30FT TOWER IS ONLY AVAILABLE WITH F8 HEAD

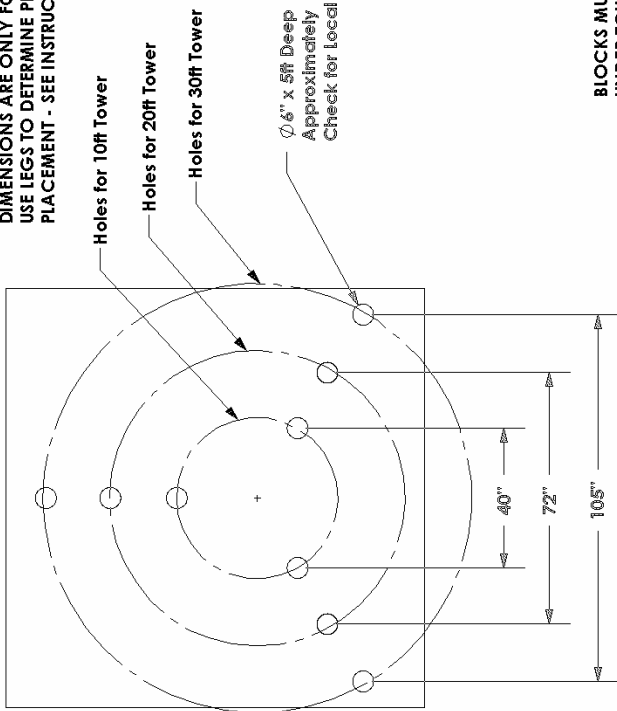
THIS DRAWING IS THE PROPERTY OF:
DUTCH INDUSTRIES LIMITED
 REGINA, SASKATCHEWAN
 CANADA
 P.H. (306) 781-4818 FAX: (306) 781-4877
 ALL RIGHTS RESERVED

DESCRIPTION: WINDMILL TOWER 30'
 DATE DRAWN: FEB 06/01
 CHECKED BY: DL
 AUTHORIZED BY: -
 SCALE: 1:60

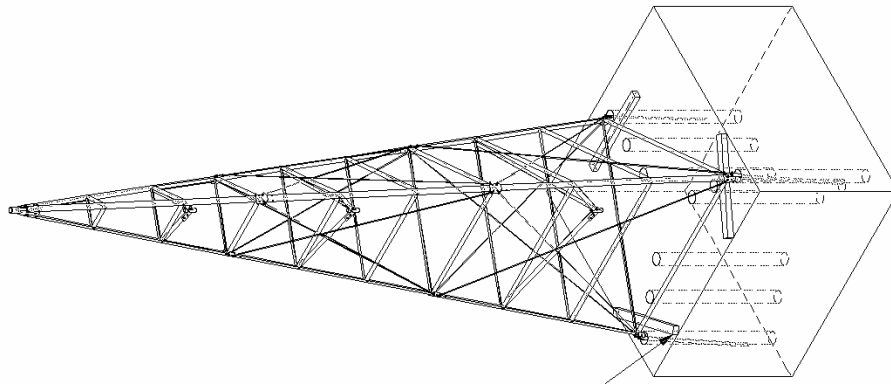
DRAWN BY: SR
 REV 0
 PART NO.: 909

30ft TOWER AVAILABLE ONLY WITH F8 HEAD

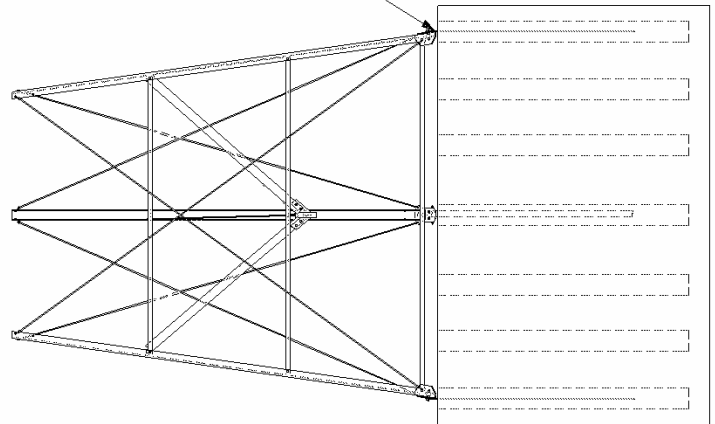
NOTES:
 DIMENSIONS ARE ONLY FOR REFERENCE
 USE LEGS TO DETERMINE PILE HOLE
 PLACEMENT - SEE INSTRUCTIONS



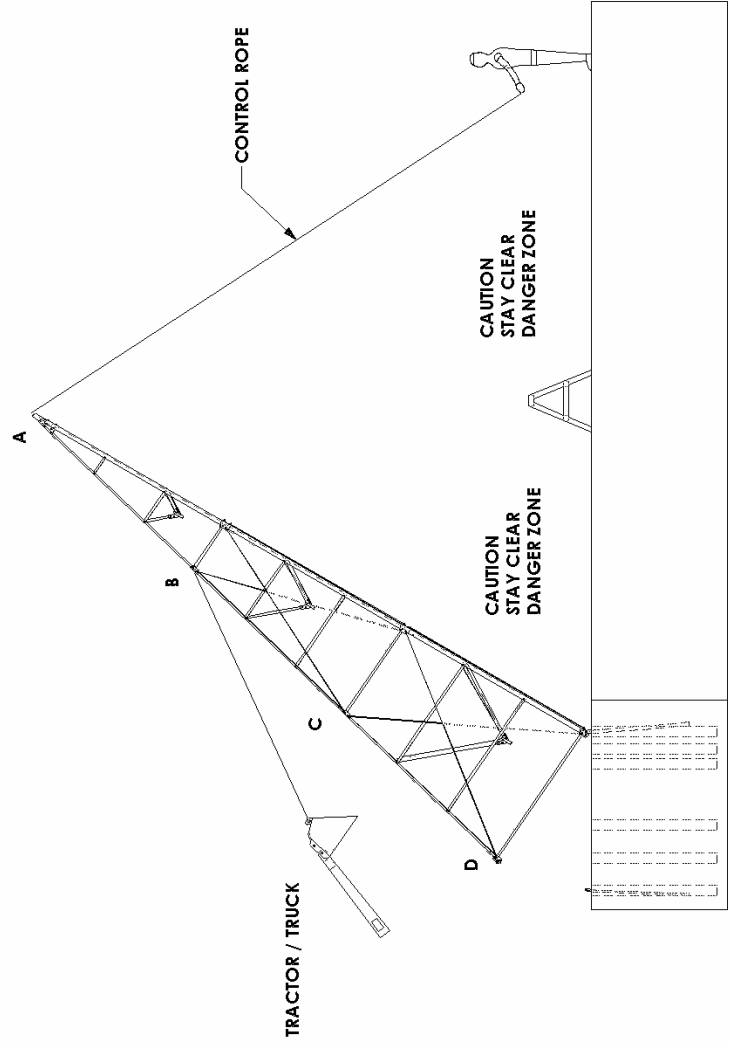
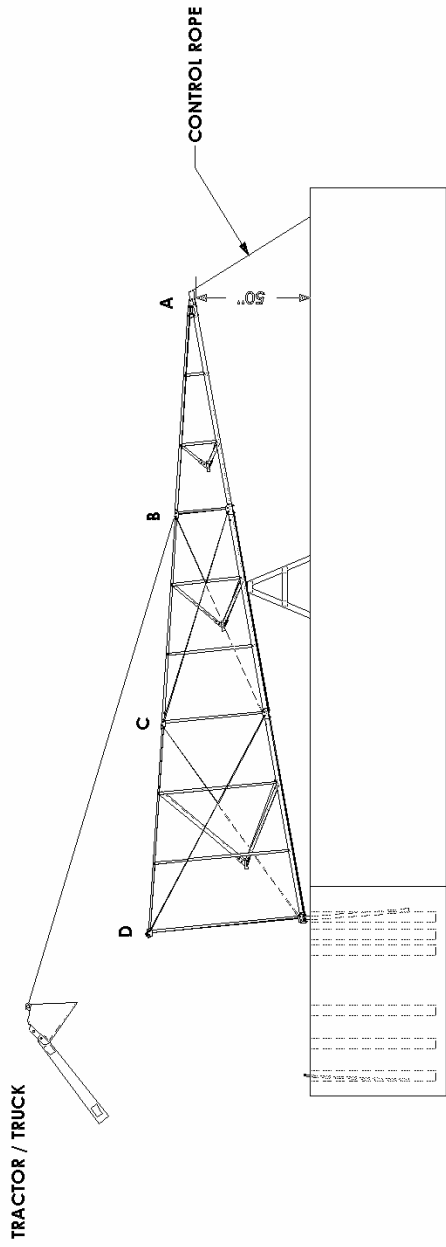
**BLOCKS MUST BE PLACED
 UNDER TOWER DURING
 TRIAL SETUP -
 FOR LEVEL AND FOUNDATION LOCATION**



**LEAVE 4" of CLEARANCE
 FROM TOP OF CONCRETE PILE
 TO TOP OF FLATBAR
 MINIMUM**



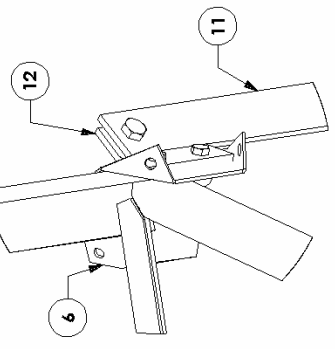
PARIS LIST	
THIS DRAWING IS THE PROPERTY OF:	
DUTCH INDUSTRIES LIMITED	
ALL RIGHTS RESERVED	
DRAWN BY: BC	DESCRIPTION: Instruction Sheet 1 - Tower
DATE CREATED: DEC 18/01	MATERIAL: N/A
TOLERANCES: ±1/16"	PROCESS: N/A
SCALE: 1:50	PART #: N/A



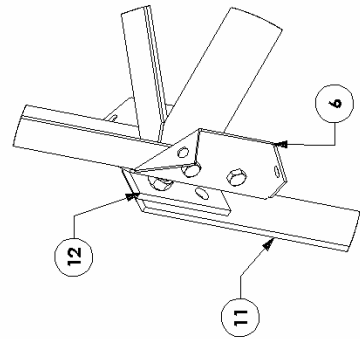
NOTES:

PARIS LIST			
THIS DRAWING IS THE PROPERTY OF:			
DUTCH INDUSTRIES LIMITED			
ALL RIGHTS RESERVED			
DRAWN BY: BC	DESCRIPTION: Instruction sheet - 2 - Tower	MATERIAL: N/A	PROCESS: N/A
DATE CREATED: DEC 18/01	TOLERANCES: ±1/16"	SCALE: 1:100	PART #: N/A

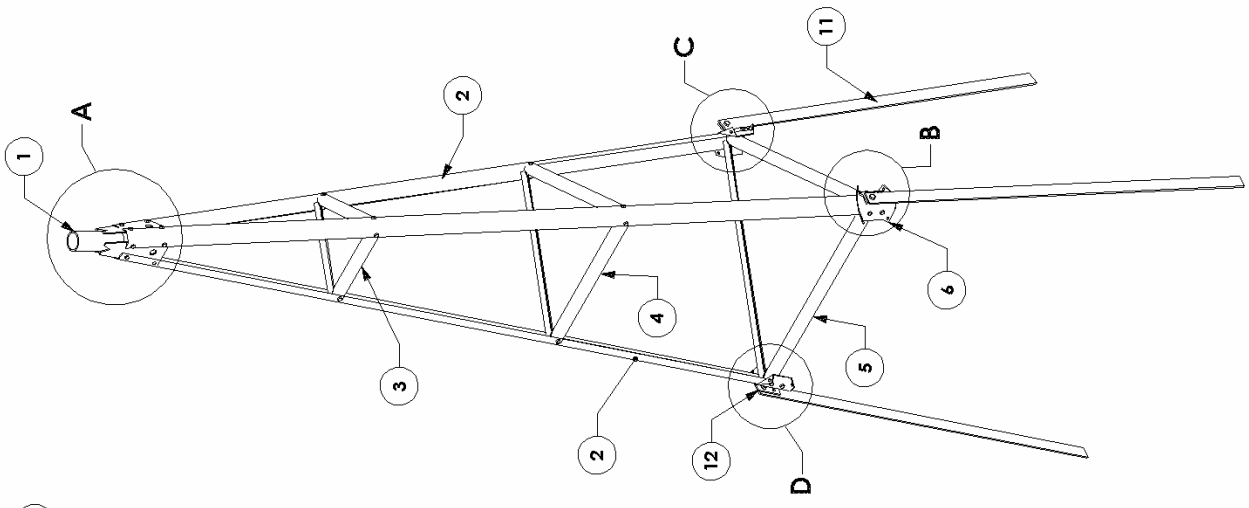
NOTICE THE DIFFERENCE IN THE WAY THAT THE ONE LEG. (DETAIL C) IS MOUNTED TO ITEM 11 AND ITEM 12. THIS IS SO THAT THE TOWER IS ABLE TO PIVOT DURING INSTALLATION



DETAIL C
SCALE 1 : 6



DETAIL B
SCALE 1 : 6



DETAIL A
SCALE 1 : 8

ITEM	QTY.	PART NO.	DESCRIPTION
14	1	876	Bolt Bag for 10ft Lattice Tower
12	3	916	BRACKET FOUNDATION
11	3	938	ANCHORING BAR
6	3	911	BRACKET SPLICE
5	3	923	CROSS MEMBER - 35 1/2"
4	3	922	CROSS MEMBER - 24 13/16"
3	3	921	CROSS MEMBER - 13 7/8"
2	3	919	LEG-TOWER
1	1	920	TOP-TOWER

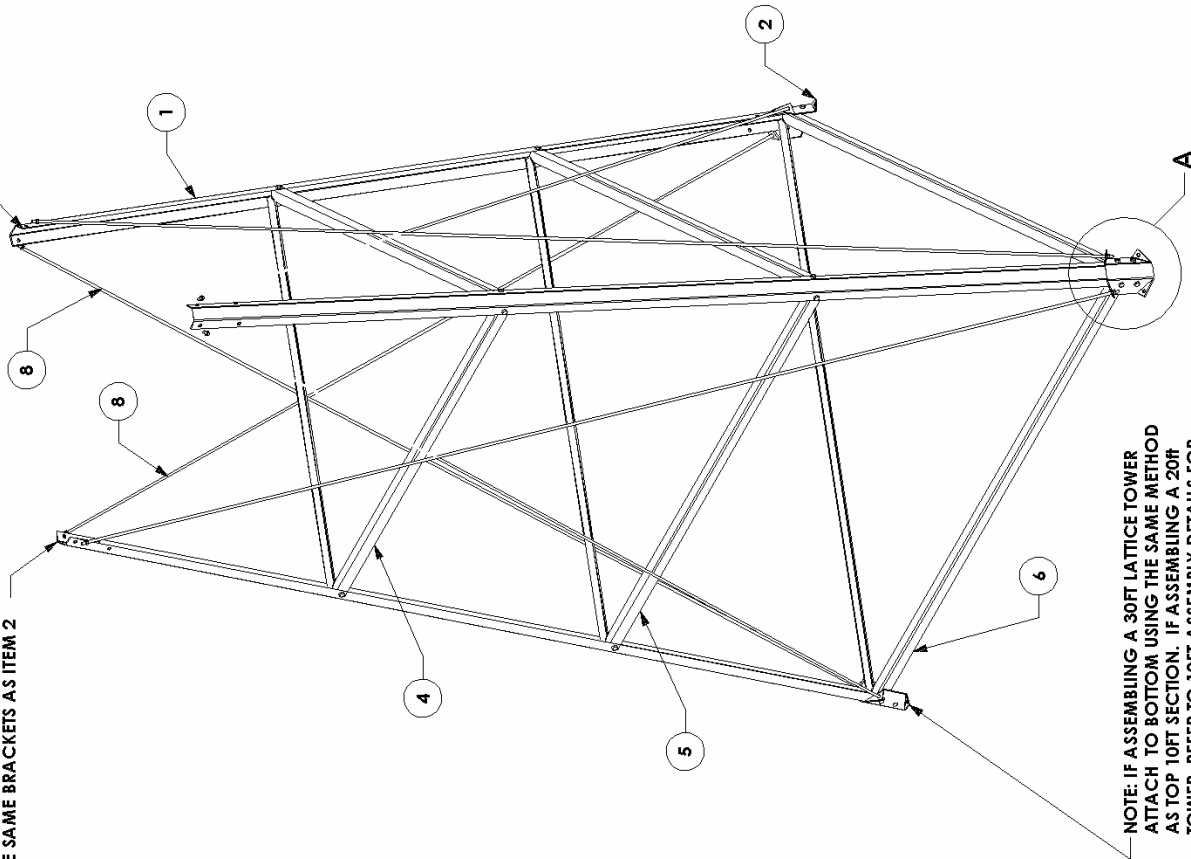
PARIS LIST
THIS DRAWING IS THE PROPERTY OF:
DUTCH INDUSTRIES LIMITED
ALL RIGHTS RESERVED

DRAWN BY: BC	DESCRIPTION: TOP SECTION, TOWER ASSY 10 FT
DATE CREATED: FEB 06/02	MATERIAL: As Per BOM
TOLERANCES: ±1/16"	PROCESS: N/A
SCALE: 1:25	PART #: 910

NOTES:

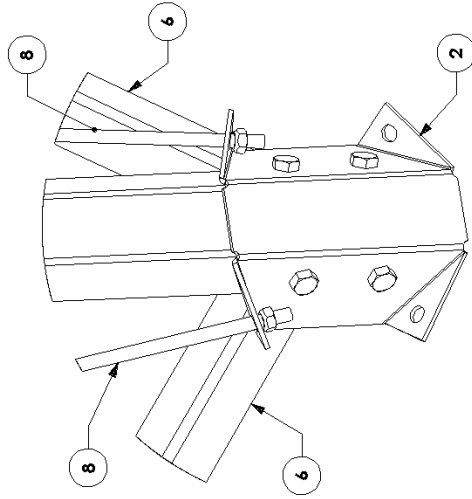
NOTE: OUTSIDE BRACES MUST HAVE THE END WITH 2 HOLES AT THE TOP

NOTE: 10FT TOWER SECTION BOLTS HERE, USING THE SAME BRACKETS AS ITEM 2



NOTE: IF ASSEMBLING A 30FT LATTICE TOWER ATTACH TO BOTTOM USING THE SAME METHOD AS TOP 10FT SECTION. IF ASSEMBLING A 20FT TOWER, REFER TO 10FT ASSEMBLY DETAILS FOR HOW TO BOLT ON ANCHORS.

DETAIL A
SCALE 1 : 4

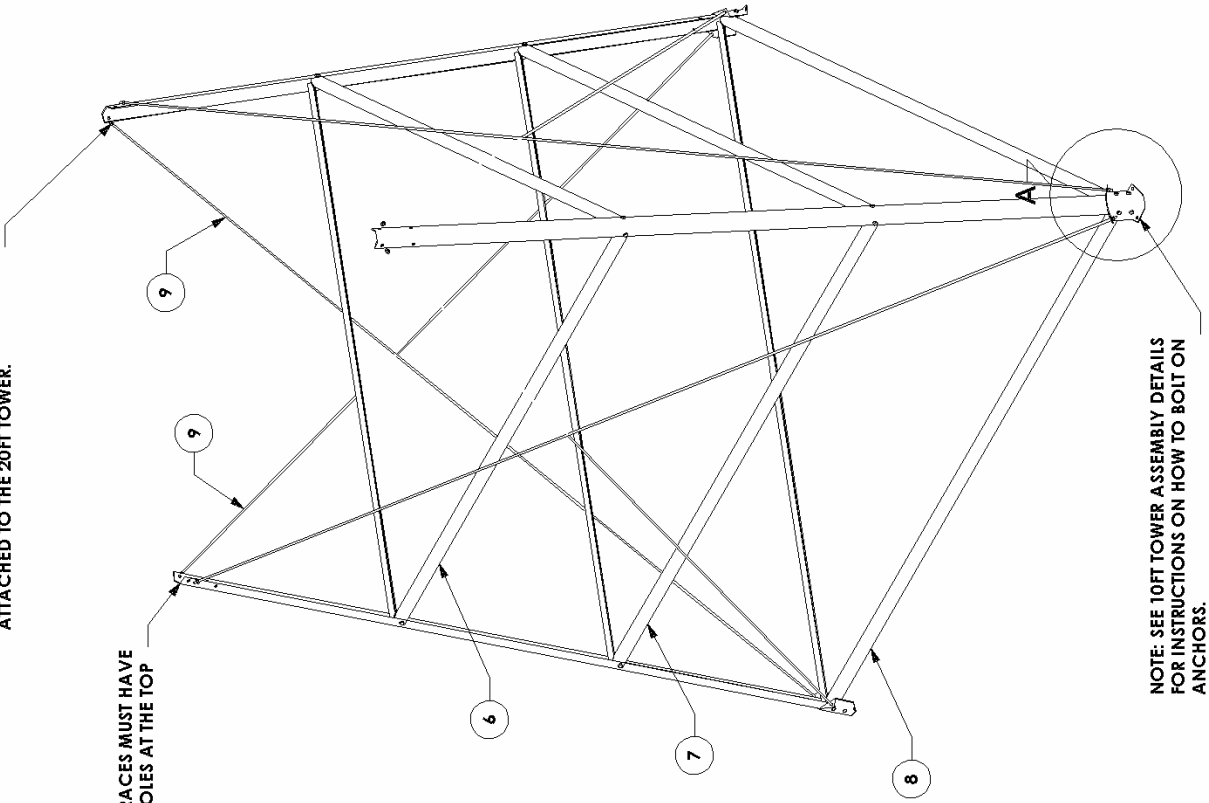


ITEM	QTY.	PART NO.	DESCRIPTION
10	1	875	Bolt Bag - 20ft/30ft Lattice Tower
8	6	917	CROSS BRACE 20'
6	3	926	CROSS MEMBER - 68.3/8"
5	3	925	CROSS MEMBER - 57.1/16"
4	3	924	CROSS MEMBER - 46.3/4"
2	3	911	BRACKET SPLICE
1	3	919	LEG TOWER

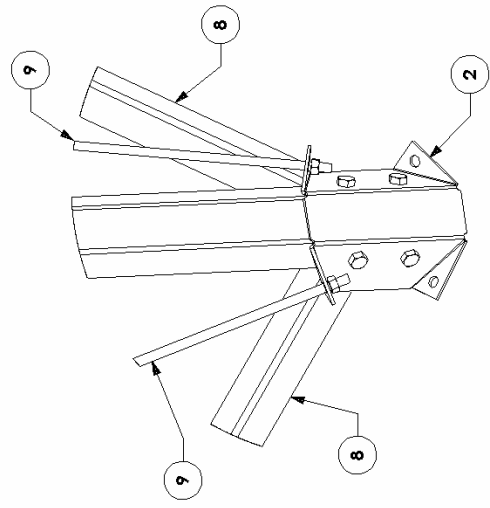
PARTS LIST	
THIS DRAWING IS THE PROPERTY OF:	
DUTCH INDUSTRIES LIMITED	
ALL RIGHTS RESERVED	
DRAWN BY: BC	DESCRIPTION: TOWER SECTION, 20 FT EXTENSION
DATE CREATED: FEB 06/02	MATERIAL: As Per BOM
TOLERANCES: ±1/16"	PROCESS: N/A
SCALE: 1:20	PART #: 930

NOTE: ATTACH TO 20FT TOWER USING ITEM 2 IN THE SAME MANNER AS THE 10FT TOWER IS ATTACHED TO THE 20FT TOWER.

NOTE: OUTSIDE BRACES MUST HAVE THE END WITH 2 HOLES AT THE TOP



NOTE: SEE 10FT TOWER ASSEMBLY DETAILS FOR INSTRUCTIONS ON HOW TO BOLT ON ANCHORS.



DETAIL A
SCALE 1 : 6

ITEM	QTY.	PART NO.	DESCRIPTION
10	1	1875	Bolt Bag - 20ft/30ft Lattice Tower
9	6	918	CROSS BRACE 30'
8	3	929	CROSS MEMBER - 101 3/16"
7	3	928	CROSS MEMBER - 90 1/2"
6	3	927	CROSS MEMBER - 79 9/16"
2	3	911	BRACKET SPLICE
1	3	919	LEG TOWER

PARTS LIST

THIS DRAWING IS THE PROPERTY OF:

DUTCH INDUSTRIES LIMITED

ALL RIGHTS RESERVED

DRAWN BY: BC	DESCRIPTION: TOWER SECTION, 30 FT EXTENSION
DATE CREATED: FEB 06/02	MATERIAL: As Per BOM
TOLERANCES: ±1/16"	PROCESS: N/A
SCALE: 1:25	PART #: 931

WARRANTY

DUTCH INDUSTRIES LIMITED WILL WARRANT EACH NEW DUTCH LATTICE TOWER TO BE FREE FROM FACTORY DEFECTS IN MATERIAL AND WORKMANSHIP FOR ONE YEAR FROM THE DELIVERY DATE BY THE DEALER TO THE ORIGINAL PURCHASER.

THIS WARRANTY PREVAILS ONLY IF THE UNIT IS SET UP AND OPERATED IN ACCORDANCE WITH FACTORY INSTRUCTIONS AND NORMAL USE AND SERVICE.

DUTCH INDUSTRIES LTD.'S OBLIGATION UNDER THIS WARRANTY IS LIMITED TO SUPPLYING REPLACEMENT PARTS IN EXCHANGE FOR ANY PARTS WHICH ARE DEFECTIVE DUE TO FACTORY WORKMANSHIP OR MATERIAL. ALL DEFECTIVE PARTS MUST BE SENT TO DUTCH INDUSTRIES LTD. FOR WARRANTY EXAMINATION.

THE WARRANTY REGARDING PARTS PURCHASED BY DUTCH INDUSTRIES LTD, FOR USE ON DUTCH IND. PRODUCTS, IS DEPENDANT ON THE VENDORS WARRANTY.

THIS WARRANTY IS VOID ON ANY UNIT WHICH HAS BEEN TAMPERED WITH OR WHICH HAS BEEN SUBJECT TO MISUSE, NEGLIGENCE, OR ACCIDENT, OR WHICH HAS HAD THE SERIAL NUMBER TAMPERED WITH OR REMOVED.

IMPORTANT NOTICE

WHILE EVERY PRECAUTION HAS BEEN TAKEN IN THE PREPARATION OF THIS MANUAL, DUTCH INDUSTRIES ASSUMES NO RESPONSIBILITY FOR INACCURACIES OR OMISSIONS. NO RESPONSIBILITY IS ASSUMED FOR DAMAGES RESULTING FOR THE USE OF THE INFORMATION CONTAINED WITHIN. DUTCH INDUSTRIES RESERVES THE RIGHT TO CHANGE AND IMPROVE ITS PRODUCTS AS IT SEES FIT. THIS MANUAL DESCRIBES THE CONDITION OF THIS PRODUCT AT THE TIME OF ITS PRINTING, AND MAY NOT REFLECT THE PRODUCT AT ALL TIMES IN THE FUTURE.

ALL RIGHTS RESERVED. NO PART OF THIS PUBLICATION MAY BE REPRODUCED, STORED IN A RETRIEVAL SYSTEM, OR TRANSMITTED, IN ANY FORM OR BY ANY MEANS, ELECTRONIC, MECHANICAL, PHOTOCOPYING, RECORDING, OR OTHERWISE WITHOUT THE PRIOR WRITTEN PERMISSION OF THE PUBLISHER.

COPYRIGHT, 2002, DUTCH INDUSTRIES LTD.