OPERATIONS MANUAL & INFORMATION

for

HURST-AIRSHORE
Rescue Systems

The Hurst-Airshore rescue strut is a lightweight, positive locking, aluminum support strut which can be activated manually or by air. There are a wide variety of removable attachments and bases that can adapt to most shapes, surfaces and rescue scenarios. The struts can be used in numerous applications such as Trench Rescue, Building Collapse, Vehicle Stabilization, Confined Space and Heavy Lift Rescue.

FEATURES

- ✓ TROUBLE FREE
  The simple design and rugged construction ensures the Airshore system will operate under the worst rescue site conditions. Mud, dirt, sand or water will not affect the tool's operation.

- ✓ MAINTENANCE FREE
  Only a periodic cleaning is necessary to keep the struts in good working order.

- ✓ MATERIALS
  We use materials that are lightweight and will sustain long life and weatherproof operation.

- ✓ OPERATION
  Struts can be operated manually or pneumatically (air). This is safe, clean and involves no contaminants.

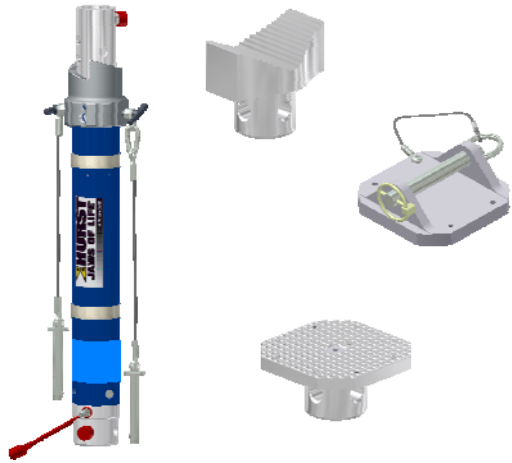
- ✓ INSTALLATION
  Fast and simple. No special tools are required.

- ✓ PORTIBILITY
  Easy to handle and transport.

- ✓ ADAPTABLE
  A large variety of attachments and bases allows the struts to be used with all types and combinations of materials and configurations.

- ✓ POSITIVE LOCK
  Mechanical lockout. No chance for creep back.

- ✓ TESTED
  Independent tests confirm crush strengths of 61,000 lbs (27,700 kg) up to 4 feet (1.2m), 49,000 lbs (22,272 kg) up to 8 feet (2.4m), and 42,000 lbs (19,000 kg) up to 12 feet (3.6m) using two locking pins.



PRODUCT SAFETY POLICY

Jaws of Life® products are designed and manufactured to provide excellent service when used for their intended purpose. Operator safety is a major consideration in the product design. Operator manuals are provided to promote their safe usage. Additionally, operator training programs are offered by all authorized Jaws of Life® Distributors and this company. Take the time to read and understand the basic instruction manual and to seek additional training from qualified instructors.

Please pay particular attention to the following:

- Proper protective clothing should be worn. (i.e. bunker gear, gloves, helmets, face shields, etc.
- Airshore rescue equipment should be operated by qualified personnel only.
- Personnel not directly involved in the operation should keep a safe distance away from the area.
- Keep hands and feet clear of the equipment when stabilizing or supporting with air pressure.
- Airshore struts can be operated manually or with compressed air or CO2 gas ONLY. **Under NO circumstances should other gases be used.**
- When using extensions with the struts use only ONE extension per strut.

PRODUCT SAFETY POLICY cont.

- Shores are only rated for 400lbs of lateral force when installed. They are not steps: do NOT stand on them. A ladder should be used.
- Inspect the equipment for obvious broken or missing parts or damaged hoses before and after each use.
- Be sure to follow ALL maintenance procedures.
- NEVER use petroleum based silicon or other petroleum based lubricants on the rubber piston cup.
- Use only factory authorized service parts.
- The Airshore strut has been designed and tested for trench rescue, structural collapse, support and stabilization of light and heavy vehicles.
- Improvising or adapting the Airshore struts for other purposes could cause serious injury.

DO NOT OPERATE EQUIPMENT WHEN TIRED
STAY ALERT !!

TRAINING

Hurst can arrange for third party trainers to teach at your location, or provide a variety of third party training from classroom instruction to hands on operation of the Airshore Rescue Equipment. There is no substitute for quality, hands-on training by qualified instructors on a regular basis.

WARRANTY INFORMATION

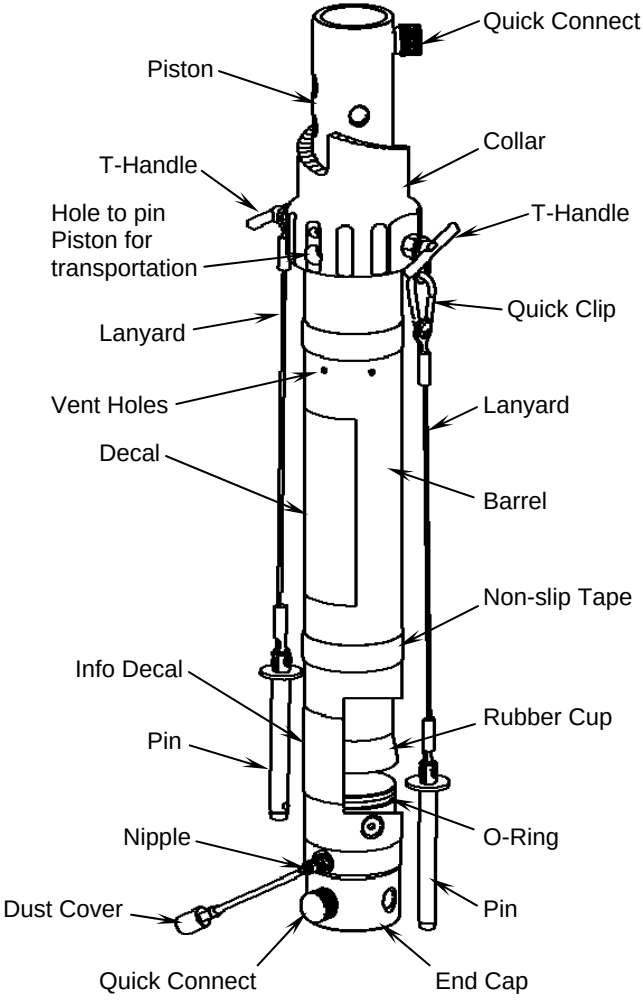
Airshore products are guaranteed against defects in material and workmanship for a period of two years after shipment by Hurst when properly installed, operated, maintained and used under normal conditions. All products covered by this warranty will be repaired or, at Hurst's sole option, replaced if defective without charge. This warranty does not cover damage resulting from abuse, unauthorized use or equipment that has been altered/modified. Refer to the product warranty card or our website www.jawsoflife.com for complete warranty information.

INTENT

The information in this manual is not all inclusive and is intended to be used for quick reference in the field and for training purposes. This manual only provides basic instructions and information on the rescue struts. All federal and local regulations must be followed. For more information on specific situations not covered in this manual please contact your local dealer. Tabulated data is also available on our website www.jawsoflife.com.

STRUT COMPONENTS

(refer to spare parts lists for component part numbers)



Basic Rescue Strut Instructions

1. Determine the proper size and support configuration that will be required. See Strut & Attachment Dimensions for a guide on overall lengths of struts with attachments.
2. Select the individual accessory heads and bases. Insert them into the rescue strut making sure the hole in the attachment lines up with the quick connect. Pull and turn the attachments to make sure they are locked in place.
3. Make sure pins are out of piston and collar.
4. Place the rescue strut in the desired position.

5a. MANUAL – Extend the rescue strut until the accessory heads and/or base plates are in contact with the surfaces to be held apart. Place a pin in the closest piston hole, turn collar up using T-handles until it is snug against the pin. Tighten T-handles and insert second pin in the next closest hole to the collar. If required, secure accessory heads and bases with nails, screws or bolts.

5b. AIR – Connect the regulator of the air supply kit to the air bottle. Slowly turn the air bottle on. Check the regulator to ensure there is adequate pressure in the bottle. Set the regulator to the desired pressure (200psi for trench rescue, 100psi for building collapse). Attach quick couplers on the end of each hose to the air nipple on each strut.

TRENCH RESCUE*:
Maximum – 300psi / 21 BAR
RECOMMENDED – 200psi/14 BAR up to 250psi/17 BAR

BUILDING COLLAPSE & CONFINED SPACE:
Minimum – 35psi / 2.45 BAR, Set regulator at 100psi

Using the dump valve or dual deadman strut controller pressurize the strut until the heads and/or base plates are in contact with the surfaces to be held apart. Place a pin in the closest piston hole, turn collar up using T-handles until it is

(continued….)

Basic Rescue Strut Instructions (cont.)

snug against the pin. Tighten T-handles and insert second pin in the next closest hole to the collar. If required, secure accessory heads and bases with nails, screws or bolts.

6. Confirm the strut is secure then continue with the rescue.

*It is not necessary to insert the second pin for TRENCH RESCUE in trenches up to 14 feet.

Take down is accomplished by removing the load pressure*

Remove nails, etc. from base plates and heads if necessary.

MANUAL – Unscrew T-handles and turn collar downward taking pressure off of the pins; pull pins out of piston, place rescue strut out of the way.

AIR: - Reconnect air coupler to the strut and re-pressurize. Unscrew T-handles and turn collar downward to take pressure off of the pins. Pull pins out and de-pressurize the system. Disconnect the air coupler and place rescue strut out of the way.

NOTE: - LARGE HOLE THROUGH COLLAR: This hole is used to secure the piston while carrying to a scene. Align the hole in the collar with the through hole in the barrel and a set of holes in the piston. Place pin through all.

DO NOT OPERATE EQUIPMENT WHEN TIRED
STAY ALERT !!

GENERAL MAINTENANCE INFORMATION

Periodic cleaning and inspection should be standard procedure.

After EVERY use do the following:

1. Remove piston from barrel to remove any dirt, sand or water that may be inside.

2. Make sure there is no debris blocking the vent holes in the barrel or the air nipple on the end cap.

3. Check for any signs of damage to the air nipple, rubber cup on the base of the piston, T-handles, pins or lanyards.

4. Clean the strut by wiping, washing or steam cleaning. DO NOT immerse the piston rubber cup in any solvents or petroleum based products.

5. Reassemble the strut and pull piston up and down to ensure free, smooth movement.

6. Clean and inspect all accessories and bases. Ensure all adjusting screws, bolts, pins and connectors are in place and in good working order.

Periodically do the following:

1. To help the rubber cup maintain its shape, “flare” it out by hand every 2-3 months. Also spray it with a non-petroleum based silicon.

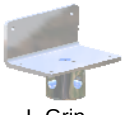
* Storage Tip *

It is recommended to store struts vertically and it is also important to pin the piston so that it is not fully resting on the rubber cup. Over time the rubber cup could deform.

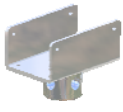
Strut and Attachment Dimensions

STRUT	INCHES	CMS
AA	13-18	33-45
A	21-28	53-71
B	26-37	66-94
C	33-49	84-124
D	45-67	114-170
E457	54-84	137-213
E	63-97	160-246
F711	84-132	213-335
F	93-144	236-366

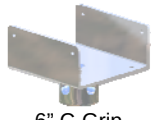
For each attachment add length indicated to the deployed length of the strut



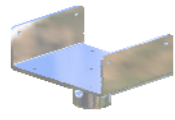
L-Grip
+ 3/16”



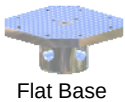
4” C-Grip
+ 3/16”



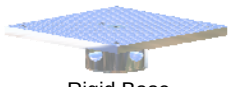
6” C-Grip
+ 3/16”



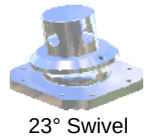
8” C-Grip
+ 3/16”



Flat Base
+ 1/2”



Rigid Base
+ 1/2”



23° Swivel
+ 2”

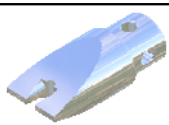
15° Swivel
+ 2”

V-Block
+ 2”

45° Pivot
+ 2 1/4”

Rhino Head
+ 2 1/2”

60° Pivot
+ 3 1/2”



Wedge + 4 3/4”

Point + 5”

ASSEMBLIES with TABULATED DATA

Airshore Rescue Strut

HURST JAWS OF LIFE®
AIRSHORE

711 North Post Rd Shelby, NC 28150
704-487-6961 800-537-2659

Airshore Rescue Strut

Tabulated Data for Use in Rescue Situations

AIRSHORE PNEUMATIC RESCUE STRUT			
LENGTH		CAPACITY (lbs) **	
SIZE (inch)	SIZE (feet)	2 PINS	1 PIN
13-18	1 to 1 1/2	30,000 lbs	19,000 lbs
21-28	2	30,000 lbs	19,000 lbs
26-37	2 to 3	30,000 lbs	19,000 lbs
33-49	3 to 4	30,000 lbs	19,000 lbs
45-67	4 to 5 1/2	25,000 lbs	19,000 lbs
54-84	4 1/2 to 7	25,000 lbs	19,000 lbs
63-97	5 to 8	25,000 lbs	19,000 lbs
84-132	7 to 11	20,000 lbs	14,000 lbs
93-144	8 to 12	20,000 lbs	14,000 lbs
** Safety Factor is 2:1			

NOTES:
1. The AirShore Rescue Strut can be used at any angle from horizontal to vertical provided the ends bear on a surface perpendicular to the shore.

INSTALLATION PROCEDURE

1. Soil must first be classified by a competent person in accordance with OSHA appendix A.
2. Tabulated Data allows for a 200 lb/ft^2 surcharge load. Move surcharge away from excavation or space shores closer together to allow for larger surcharge loads.
3. Inspect equipment to ensure it is in proper working order.
4. Struts are to be placed and pressurized from outside of the trench or from within a shored area. Under NO circumstances is a worker allowed to enter an unshored area.
5. Pressurize struts to the minimum recommended pressure.
6. There should be a minimum of three columns of shoring in excavations over 10 feet long and two columns if it is less than ten feet long. Shoring columns shall be spaced in accordance with the tabulated data found in TABLE 1.
7. Plywood or lagging is to be used to prevent sloughing and raveling. In all cases where sloughing or raveling occurs it must be used. In soil types A & B the sheeting may be spaced as needed to stop the sloughing and raveling. In C-60 soil plywood sheeting must always be used.

REMOVAL PROCEDURE

1. Shores are to be removed from the bottom of the trench up. Workers should be outside of the trench or inside of shored areas when removing shoring.
2. Previously shored trenches are more prone to collapse and should be backfilled or barricaded to prevent workers or equipment from falling into the trench if it collapses.

J.M. TURNER ENGINEERING, INC.
CONSULTING ENGINEERS
1335 N. DUTTON AVE., SANTA ROSA, CA 95401
(707) 526-4503 FAX (707) 526-4505

DATE	REVISED	JOB NO:	SHEET #
9/7/1998	6/7/2005	9853-1	1 of 1

For officially stamped tabulated data sheets please contact your local distributor or call Hurst Customer Service 1-800-537-2659

Vehicle Stabilization w/Airshore Struts

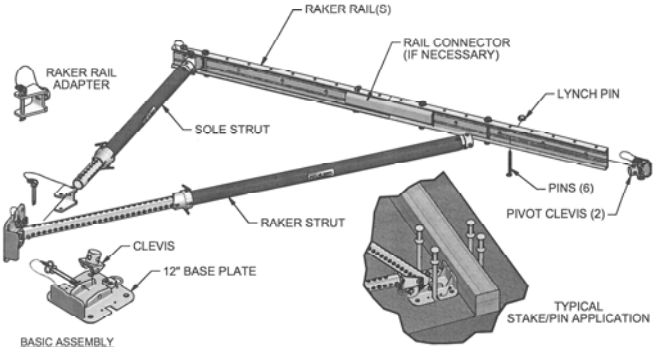
The adaptability and strength of the Airshore Rescue Strut can provide quick, secure stabilization of any size vehicle. Components necessary are struts, assorted attachments, assorted extensions and ratchet straps with hooks.

INSTALLATION:

- Select appropriate strut to span the required distance. If available struts are not long enough, one extension may be used.
- Install base plate with an attachment point (shackle or d-ring) to the barrel end of the strut. Attach attachment (V-block, wedge, etc) as dictated by the application to the piston end of the strut.
- Move assembled strut into position ensuring the clevis is facing inboard towards the vehicle.
- Attach one end of a ratchet strap to the shackle/ring on the base plate. The other end must be anchored to the vehicle being stabilized.
- Triangulate the load by tightening the ratchet strap and readjusting the strut by inserting a pin and rotating the collar.

Airshore Raker Rail Assembly

AIRSHORE RAKER RAIL ASSEMBLY



BASIC ASSEMBLY

1. THE RAKER RAIL ASSEMBLY SHOULD BE PRE-ASSEMBLED AND PLACED WHERE NEEDED.
2. ASSEMBLE ONE CLEVIS INTO A 12" BASE PLATE.
3. IF IT IS NECESSARY TO CONNECT TWO RAKER RAILS TOGETHER DO SO AND MAKE SURE ALL PINS ARE SECURE.
4. SLIDE TWO PIVOT CLEVIS' INTO THE RAKER RAIL (ONE AT EACH END) AND SECURE WITH PINS.
5. ATTACH THE 12" BASE PLATE ASSEMBLY TO THE PISTON END OF THE RAKER STRUT.
6. INSERT A RAKER RAIL ADAPTER INTO THE PISTON END OF THE SOLE STRUT. MAKE SURE IT HAS LOCKED INTO THE PISTON. ATTACH THE OPEN END OF THE RAKER RAIL ADAPTER TO THE RAKER PISTON. PIN IT THRU THE FIRST AVAILABLE HOLE IN PISTON AT THE BASE PLATE.

NOTES:

1. RAKER RAIL ASSEMBLIES SHOULD BE PLACED IN PAIRS, CONNECTED TO WHAT IS BEING SHORED AND/OR CROSS BRACED USING A MINIMUM OF 2x6 BRACING.
2. THE ANGLE BETWEEN THE RAKER STRUT AND THE GROUND SHOULD NEVER EXCEED 60°.
3. THE BASE PLATES SHOULD ALWAYS BE STAKED USING Ø1" x 36" STEEL PINS. A MINIMUM 6x6 TIMBER OR COMPARABLE MATERIAL SHOULD BE PLACED AGAINST THE BACK SIDE OF THE BASE PLATES AND ANCHORED TO PREVENT SLIPPAGE.
4. NEVER USE AIR TO EXTEND THIS ASSEMBLY.
5. REFER TO THE TABULATED DATA SHEET FOR MORE INFORMATION AND FOR MAXIMUM LATERAL FORCES OF THE RAKER RAIL ASSEMBLY.

AirShore products have precise assembly specifications. Parts lists and diagrams are for reference and part identification only. Any and all modifications and repairs should be performed only by factory trained personnel.

AirShore
Hurst Jaws of Life®
A Unit of IDEX Corporation

711 North Post Road
Shelby, NC 28150

Tel: 704-487-6961
Fax: 704-487-7771
Internet: www.jawsoflife.com

HURST JAWS OF LIFE® AIRSHORE

Form No. 159A183 Rev. 01

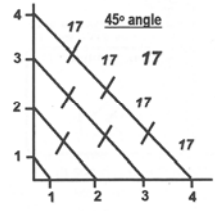
TIP: Assemble raker rails on the ground then place where needed. Always add wood cross bracing to complete the system.

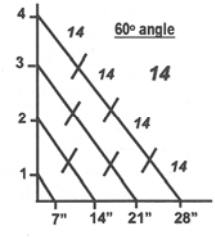
Determining Raker Shore Angle and Length

Any angle between 30° and 60° will work. The lower the angle the more efficient the raker will be.

A 60° angle is the maximum recommended angle to safely build a raker rail shore. The most common angles used are 45° and 60°. To get the length for a 45° raker shore multiply the insertion point height by 17. For the length of a 60° raker shore multiply the insertion point by 14.

Insertion Point (Feet)	45° Raker Length (Inches)	60° Raker Length (Inches)	60° Horz. Distance (Inches)
3	51"	42"	21"
4	68"	56"	28"
5	85"	70"	35"
6	102"	84"	42"
7	119"	98"	49"
8	136"	112"	56"
9	153"	126"	63"
10	170"	140"	70"
11	187"	154"	77"
12	204"	168"	84"
13	221"	182"	91"
14	238"	196"	98"
15	255"	210"	105"
16	272"	224"	112"
17	289"	238"	119"
18	306"	252"	126"
19	323"	266"	133"
20	340"	280"	140"





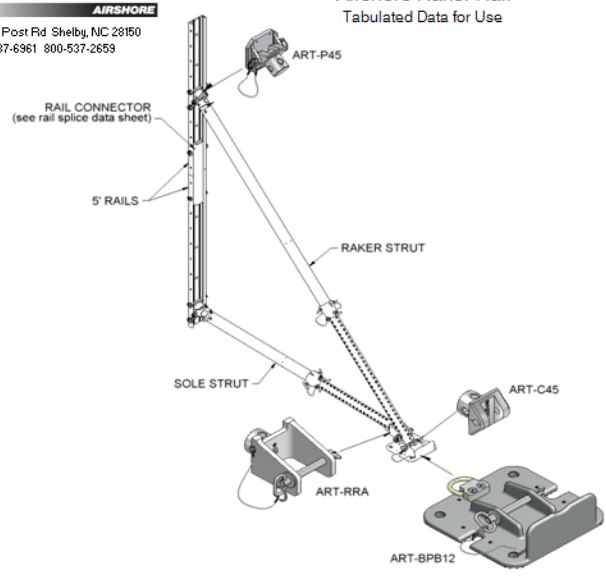
The information on this page is credited to the US Army Corp of Engineers Urban Search & Rescue Program.

Airshore Raker Rail Tabulated Data

HURST JAWS OF LIFE® AIRSHORE

711 North Post Rd Shelby, NC 28150
704-487-6961 800-537-2659

Airshore Raker Rail
Tabulated Data for Use



NOTES:

1. Rakers should be placed in pairs as shown above spaced no farther than 8 feet apart. They should be connected to the piece being shored or they should be cross braced using a minimum of 2x6 cross bracing.
2. Airshore raker rail shall be configured so that the angle between the raker strut and the ground does not exceed 60 degrees.
3. Light Duty or Heavy Duty rails may be used.
4. On concrete surfaces use a minimum of 4-5/8" wedge anchors with a minimum of 4" embedment on each base plate.
5. After struts are firmly in place they should be tightened using the standard collar and pins that are provided with the system.
6. This tabulated data is based on "*FEMA National US&R Response System- Technical Working Group report of Airshore International Raker Shore System Testing, 18 Jan 00.*"
7. The Airshore Raker System is intended for use in emergency situations. Caution should be used during installation and the installation should be checked by an engineer if they are left in place for any length of time.

J.M. TURNER ENGINEERING, INC.
CONSULTING ENGINEERS
1335 N. DUTTON AVE., SANTA ROSA, CA. 95401
(707) 526-4563 FAX (707) 526-4505

DATE	REVISED	JOB NO:	SHEET #
6/1/2000		9853-1	1 of 2

cont…

Airshore Raker Rail Tabulated Data

HURST JAWS OF LIFE® AIRSHORE

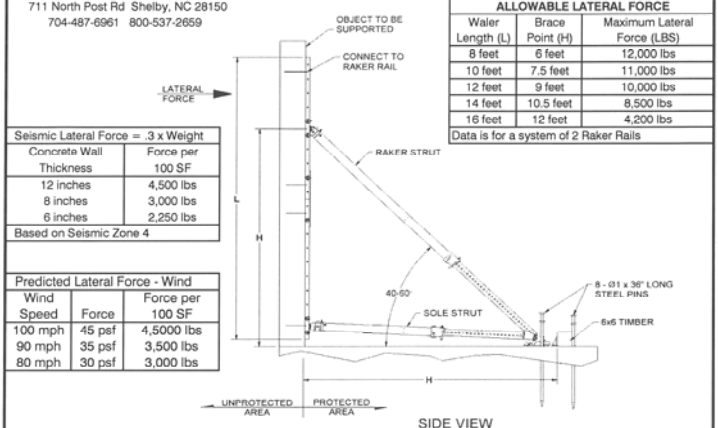
711 North Post Rd Shelby, NC 28150
704-487-6961 800-537-2659

Airshore Raker Rail
Tabulated Data for Use

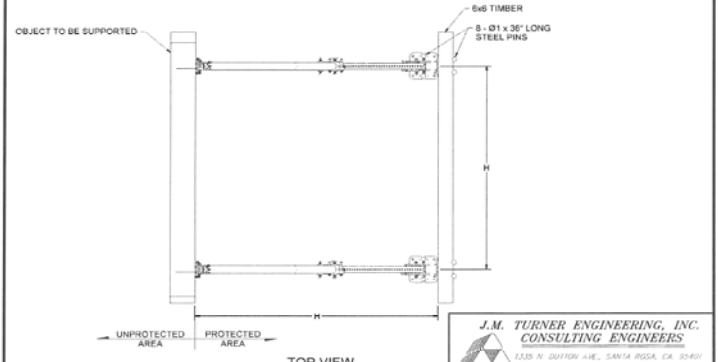
ALLOWABLE LATERAL FORCE		
Waler Length (L)	Brace Point (H)	Maximum Lateral Force (LBS)
8 feet	6 feet	12,000 lbs
10 feet	7.5 feet	11,000 lbs
12 feet	9 feet	10,000 lbs
14 feet	10.5 feet	8,500 lbs
16 feet	12 feet	4,200 lbs
Data is for a system of 2 Raker Rails		

Seismic Lateral Force = .3 x Weight	
Concrete Wall Thickness	Force per 100 SF
12 inches	4,500 lbs
8 inches	3,000 lbs
6 inches	2,250 lbs
Based on Seismic Zone 4	

Predicted Lateral Force - Wind		
Wind Speed	Force	Force per 100 SF
100 mph	45 psf	4,5000 lbs
90 mph	35 psf	3,500 lbs
80 mph	30 psf	3,000 lbs



SIDE VIEW



TOP VIEW

J.M. TURNER ENGINEERING, INC.
CONSULTING ENGINEERS
1335 N. DUTTON AVE., SANTA ROSA, CA. 95401
(707) 528-4501 FAX (707) 528-4505

DATE	REVISED	JOB NO:	SHEET #
6/1/2000		9853-1	2 of 2

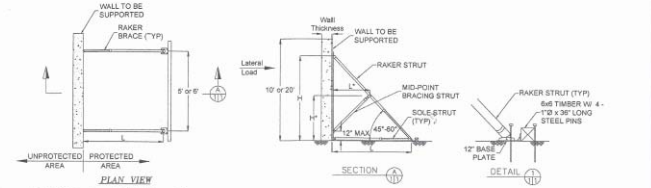
For officially stamped tabulated data sheets please contact your local distributor or call Hurst Customer Service 1-800-537-2659

Airshore Raker Rail w/Mid Point Bracing
Tabulated Data

Airshore Raker Rail Assembly With Midpoint Bracing

HURST JAWS OF LIFE AIRSHORE
711 North Post Rd Shelby, NC 28150
704-487-6961 800-537-2359

Examples For Use of This Tabulated Data:
Wall Bracing Against Wind and Seismic Forces



Braced Wall Against Wind Loading:

Example: Use rakers spaced at 6' max to support a wall that is 20' high'. The maximum anticipated wind speed is 80 mph. The raker strut shall be at a 45 degree angle.

* Allowable Values Are Bold

Predicted Lateral Force-Wind	
Wind Speed (mph)	Force PSF
50	17.2
60	24.7
70	33.6
80	**43.9**
90	55.5
100	68.6

Table 1

45 Degree Brace Strut					
Raker Strut Dimensions: (ft)				Allowable Lateral Force (lbs)	Allowable Wall Pressure (psf)
H	L	H*	L*		
6	**6**	**3.5**	**2.5**	***18151***	***107***
7	**7**	**4**	**3**	***14202***	***84***
8	**8**	**4.5**	**3.5**	***11221***	***66***
9	**9**	**5**	**4**	***9089***	***54***
10	**10**	**5.5**	**4.5**	***7512***	***44***
11	11	6	5	6312	37
12	12	6.5	5.5	5378	32

60 Degree Brace Strut					
Raker Strut Dimensions: (ft)				Maximum Lateral Force (lbs)	Allowable Wall Pressure (psf)
H	L	H*	L*		
6	**6**	**4.17**	**1.83**	***13068***	***54***
7	7	4.80	2.20	9847	41
8	8	5.44	2.56	7684	32
9	9	6.07	2.93	6164	26
10	10	6.71	3.29	5053	21
11	11	7.34	3.66	4218	18
12	12	7.97	4.03	3574	15

Braced Concrete Wall Against Seismic Loading:

Example: Use rakers spaced at 6' max to support a wall that is 20' high'. The maximum thickness of the concrete wall to be supported is 12". The raker strut shall be at a 45 degree angle.

Seismic Force = 0.3 x Weight	
Concrete Wall Thickness (in)	Force PSF
6	22.5
8	30.0
12	***45.0***

Table 2

45 Degree Brace Strut					
Raker Strut Dimensions: (ft)				Allowable Lateral Force (lbs)	Allowable Wall Pressure (psf)
H	L	H*	L*		
6	**6**	**3.5**	**2.5**	***18151***	***107***
7	**7**	**4**	**3**	***14202***	***84***
8	**8**	**4.5**	**3.5**	***11221***	***66***
9	**9**	**5**	**4**	***9089***	***54***
10	10	5.5	4.5	7512	44
11	11	6	5	6312	37
12	12	6.5	5.5	5378	32

60 Degree Brace Strut					
Raker Strut Dimensions: (ft)				Maximum Lateral Force (lbs)	Allowable Wall Pressure (psf)
H	L	H*	L*		
6	**6**	**4.17**	**1.83**	***13068***	***54***
7	7	4.80	2.20	9847	41
8	8	5.44	2.56	7684	32
9	9	6.07	2.93	6164	26
10	10	6.71	3.29	5053	21
11	11	7.34	3.66	4218	18
12	12	7.97	4.03	3574	15

* Allowable Values Are Bold

AIRSHORE RAKER RAIL ASSEMBLY WITH MIDPOINT BRACING

J.M. TURNER ENGINEERING, INC.
CONSULTING ENGINEERS
1325 COLLEGE AVE., SANTA ROSA, CA. 95404
(707) 528-4303 FAX (707) 528-4505

DATE:	REV DATE:	JOB NO:
3/10/2011		12615-1

For officially stamped tabulated data sheets please contact your local distributor or call Hurst Customer Service 1-800-537-2659

Airshore Raker Rail w/Mid Point Bracing Tabulated Data

HURST JAWS OF LIFE
AIRSHORE
711 North Post Rd Shelby, NC 28150
704-487-6961 800-537-2659

Airshore Raker Rail Assembly With Midpoint Bracing

Notes:

1) Rakers should be connected to the piece being shored or they should be cross braced using a minimum of 2x6 cross bracing.

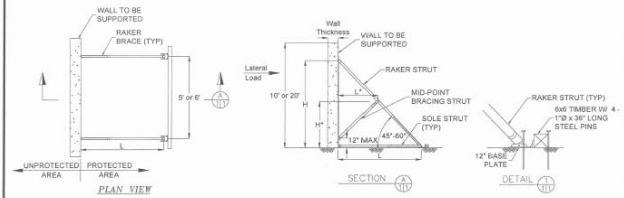
2) Raker struts and mid-point braces shall be configured so that the angle between them and the ground is at 45 degrees or 60 degrees. See diagrams below.

3) Light Duty or Heavy Duty Rails shall be used.

4) Use 1" diameter x 36" long steel pins to anchor base plates to the ground.

5) After braces are firmly in place they should be locked into place using locking mechanism.

6) The Raker Brace System is intended for use in emergency situations. Caution should be used during installation and the Installation should be checked by an engineer if they are left in place for any length of time.



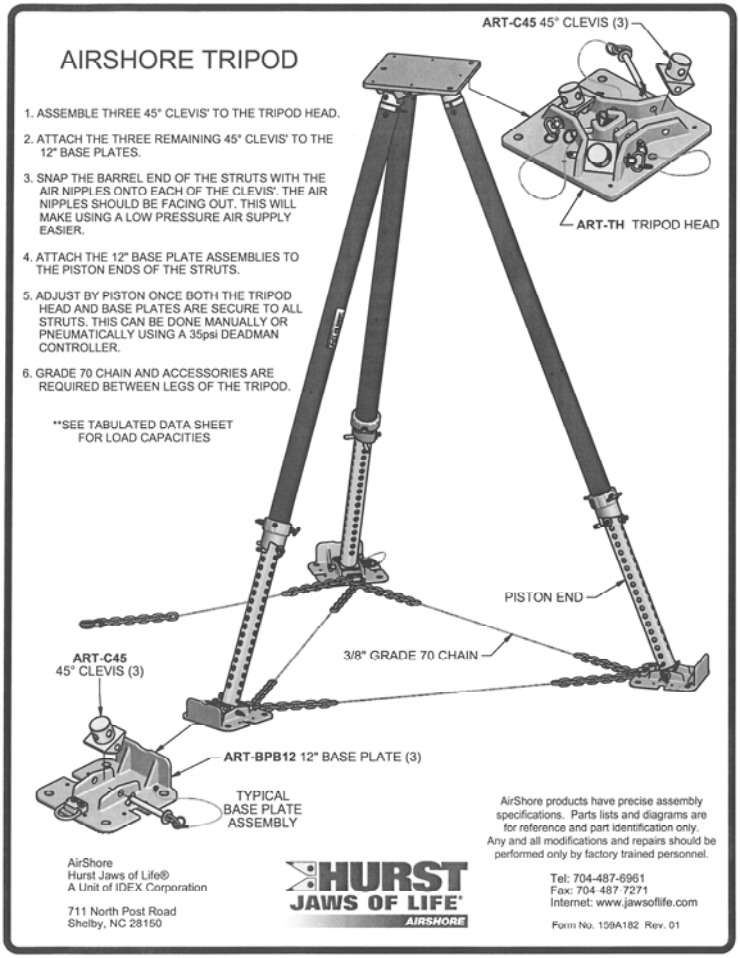
AIRSHORE RAKER RAIL ASSEMBLY WITH MIDPOINT BRACING

J.M. TURNER ENGINEERING, INC.
CONSULTING ENGINEERS
1325 COLLEGE AVE., SANTA ROSA, CA. 95404
(707) 528-4563 FAX (707) 528-4505

DATE:	REV DATE:	JOB NO:
3/10/2011		12615-1

More specific data is available for different insertion points and installation angles. Please contact your local distributor or call Hurst Customer Service 1-800-537-2659

Airshore Tripod Assembly



Airshore Tripod Tabulated Data

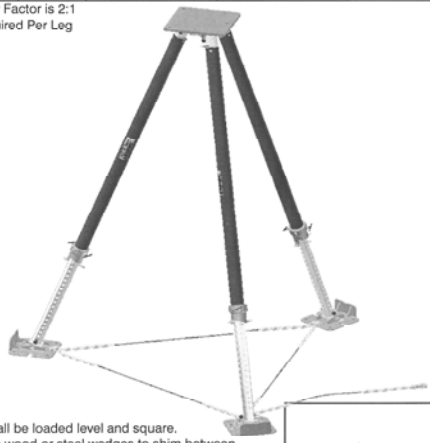
HURST JAWS OF LIFE® AIRSHORE

711 North Post Rd Shelby, NC 28150
704-487-6961 800-537-2659

Airshore Rescue Tool Tripod
Tabulated Data for Use

AIRSHORE TRIPOD				
HEIGHT (Feet) Size (in)	Size (ft)	CAPACITY (Pounds)* TRIPOD CAPACITY	EARTH BEARING AREA** (SQR FEET)	MAXIMUM LEG ANGLE Degrees from Vertical
21-28	2	80,000	9	45
26-37	2 to 3	75,000	8	45
33-49	3 to 4	65,000	7	45
45-67	4 to 5 1/2	50,000	6	45
54-84	4 1/2 to 7	40,000	4	45
63-97	5 to 8	37,500	4	45
84-132	7 to 11	26,400	3	45
93-144	8 to 12	25,000	3	45

* Safety Factor is 2:1
** Required Per Leg



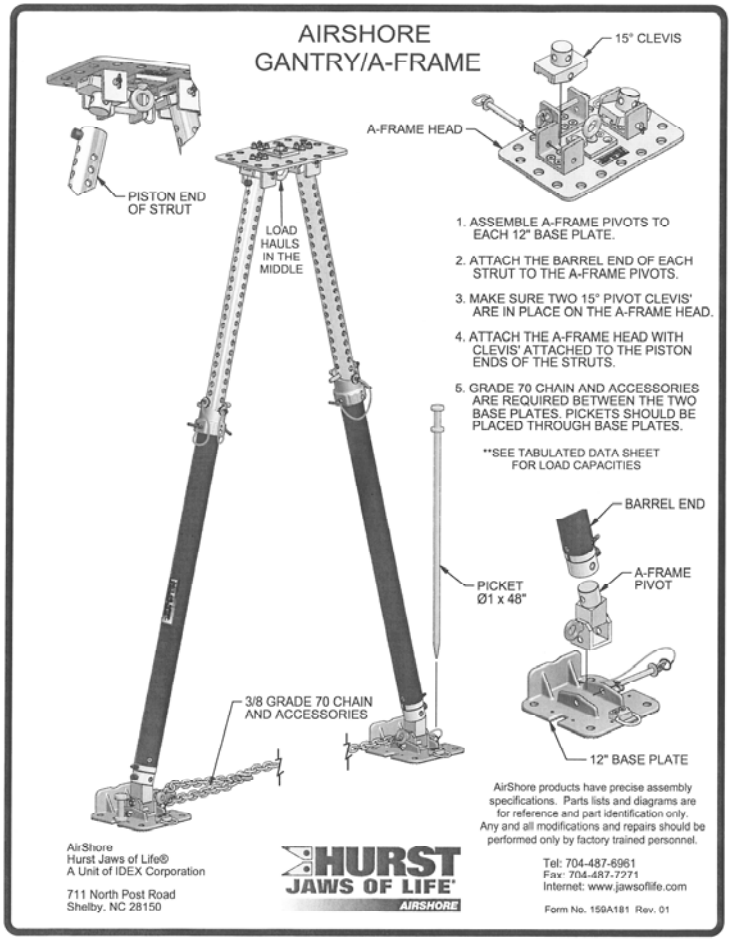
NOTES:
1. Tripod plates shall be loaded level and square. It may require wood or steel wedges to shim between plate and shoring surface.
2. Tripod base plates can be set directly on concrete surfaces. If the surface is dirt, bearing pads of steel or timber will be required. See bearing area chart
3. Tripod base chain and connectors shall be Grade 70 with a minimum safe working load equal to 6600 pounds.
4. A competent person should determine that loads being supported with the ART tripod have lateral stability.
5. Tripod legs are subject to collapse if they are impacted or loaded horizontally. Use caution when working in the vicinity of a loaded tripod.
6. Two pins are required per leg, six pins total.

J.M. TURNER ENGINEERING, INC.
CONSULTING ENGINEERS
1335 N. DUTTON AVE., SANTA ROSA, CA. 95401
(707) 526-4505 FAX (707) 526-4505

DATE	REVISED	JOB NO:	SHEET #
6/1/2004		9853-1	1 of 1

For officially stamped tabulated data sheets please contact your local distributor or call Hurst Customer Service 1-800-537-2659

Airshore A-Frame/Gantry Assembly



Airshore A-Frame/Gantry Tabulated Data

HURST JAWS OF LIFE
AIRSHORE

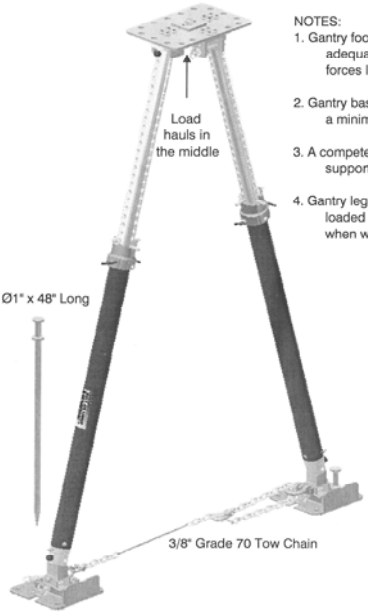
711 North Post Rd Shelby, NC 28150
704-487-6961 800-537-2659

Airshore Rescue Tool Gantry/A-Frame
Tabulated Data for Use

AIRSHORE GANTRY / A-FRAME

HEIGHT (Feet)		CAPACITY (Pounds)* GANTRY	EARTH BEARING AREA**	MAX LEG ANGLE Degrees	HORIZONTAL FORCE
Size (in)	Size (ft)	CAPACITY	(SQR FEET)	from Vertical	(Pounds)***
54-84	4 1/2 to 7	12,000	2	45	6,000
63-97	5 to 8	12,000	2	45	6,000
84-132	7 to 11	9,750	2	45	4,875
93-144	8 to 12	8,000	1	45	4,000

* Safety Factor is 2:1
** Required Per Leg
*** Force to be Resisted per Leg



NOTES:
1. Gantry foot plate to be set flat against a solid surface. Provide adequate pins or solid bearing surfaces to resist horizontal forces listed.
2. Gantry base chain and connectors shall be 3/8", Grade 70 with a minimum safe working load equal to 6,600 pounds.
3. A competent person should determine that loads being supported with the ART Gantry Frame have lateral stability.
4. Gantry legs are subject to collapse if they are impacted or loaded perpendicular to their long axis. Use caution when working in the vicinity of a loaded Gantry Frame.

J.M. TURNER ENGINEERING, INC.
CONSULTING ENGINEERS
1335 N. DUTTON AVE., SANTA ROSA, CA. 95401
(707) 528-4503 FAX (707) 528-4505

	DATE	REVISED	JOB NO:	SHEET #
Rev. 02	6/8/00	2/20/09	9853-1	1 of 1

For officially stamped tabulated data sheets please contact your local distributor or call Hurst Customer Service 1-800-537-2659

Airshore Column Assembly

AIRSHORE COLUMN

REQUIRED EQUIPMENT

(2) ART-TH TRIPOD HEAD
(6) ART-SC STATIC CLEVIS
(3) STRUTS (same length)

COLUMN CAN BE ASSEMBLED USING (3) OF ANY LENGTH STRUT. SIZE E & UP ARE TYPICALLY USED IN THIS APPLICATION.

368A045	E4.5-7	(54-84")
368A046	E	(63-97")
368A047	F7-11	(84-132")
368A048	F	(93-144")

SET UP

ATTACH THREE STATIC CLEVIS' TO EACH TRIPOD HEAD.

ATTACH BARREL END OF THE STRUTS TO ONE TRIPOD HEAD MAKING SURE THE AIR NIPPLES ARE FACING OUT. FOR LONGER STRUTS IT WILL BE EASIER TO ASSEMBLE THE COLUMN ON IT'S SIDE THEN PLACE WHERE NEEDED.

ATTACH THE SECOND TRIPOD HEAD TO THE PISTON END OF THE STRUTS.

RAISING OR LOWERING THE COLUMN ASSEMBLY CAN BE DONE MANUALLY OR WITH AIR USING THE 35psi DEADMAN CONTROLLER (AIR-DM).

SEE COLUMN TABULATED DATA SHEET FOR LOAD CAPACITIES AND EARTH BEARING AREAS REQUIRED.

AirShore products have precise assembly specifications. Parts lists and diagrams are for reference and part identification only. Any and all modifications and repairs should be performed only by factory trained personnel.

AirShore
Hurst Jaws of Life®
A Unit of IDEX Corporation

711 North Post Road
Shelby, NC 28150

Tel: 704-487-6961
Fax: 704-487-7271
Internet: www.jawsoflife.com

HURST JAWS OF LIFE® AIRSHORE

Form No. 159A180 Rev. 01

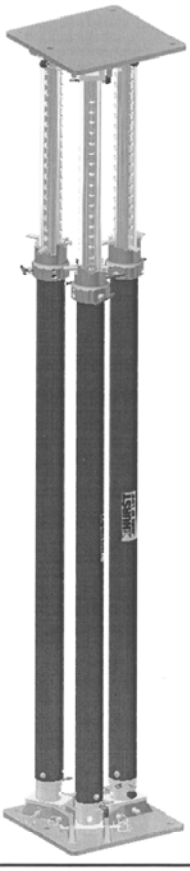
TIP: It is best to assemble the column on the ground then stand up in place with air nipples at the bottom and facing out for easier air hose assembly. TWO pins are required!

Airshore Column Tabulated Data

HURST JAWS OF LIFE® AIRSHORE

711 North Post Rd Shelby, NC 28150
704-487-6961 800-537-2659

Airshore Rescue Tool Column
Tabulated Data for Use



AIRSHORE COLUMN			
LENGTH (Feet)		CAPACITY (Pounds)*	EARTH BEARING
Size (in)	Size (ft)	COLUMN CAPACITY	AREA** (SQR FEET)
21-28	2	85,000	43
26-37	2 to 3	79,000	40
33-49	3 to 4	71,000	36
45-67	4 to 5 1/2	64,000	32
54-84	4 1/2 to 7	53,000	26
63-97	5 to 8	44,000	22
84-132	7 to 11	28,000	14
93-144	8 to 12	22,500	11

* Safety Factor is 2:1

NOTES:

1. Column plates shall be loaded level and square. It may require wood or steel wedges to shim between plate and shoring surface.
2. Column base plates can be set directly on concrete surfaces. If the surface is dirt, bearing pads of steel or timber will be required. See bearing area chart.
3. Loads being shored with the ART Column shall be laterally stable or a lateral stabilization plan shall be developed prior to using the column. In emergency situations a competent person can by observation decide if there is lateral stability, however it should be verified by a registered civil engineer before leaving in place for an extended period of time.
4. All three column struts shall be fixed with two pins, six pins total.

J.M. TURNER ENGINEERING, INC.
CONSULTING ENGINEERS
1335 N. DUTTON AVE., SANTA ROSA, CA. 95401
(707) 526-4503 FAX (707) 526-4505

DATE	REVISED	JOB NO:	SHEET #
6/1/2000		9853-1	1 of 1

For officially stamped tabulated data sheets please contact your local distributor or call Hurst Customer Service 1-800-537-2659

HURST JAWS OF LIFE® AIRSHORE

TRENCH RESCUE

WARNINGS:
Safety is the principle consideration in any rescue situation and is the responsibility of each rescuer. All rescue operations and training must be carried out with regard to occupational health and safety requirements, safe work practices as well as following codes and guidelines. Use common sense and good risk management.

* Never exceed or ignore safety limits or margins that have been built in for casualty and rescuer protection.

NEVER enter an unprotected trench for any reason! Do not allow a rescuer to get further into the trench than waist high to an installed strut until all struts are secured to a set of panels.

* Always try to eliminate active potential in the soil instead of transferring energy to it. A good rule is to shoot the strut at a pressure that will hold the panel or strongback securely against the trench wall. Another reason not to over-pressurize the strut during installation is the struts will have to be re-pressurized to an equal or greater pressure to remove them from the trench.

* Always have a spotter at the end of the trench to assist with getting the strut level before shooting it. Before releasing air on a strut, toe nail or screw each strut's base plates to the strongback.

NOTES:
The average trench rescue may take as little as two hours to many hours to complete safely. Do not rush in recklessly. Rotate rescuers at short intervals (15 to 20 minutes). Exhausted rescuers increase the potential for mistakes.

It is recommended to use one 23° swivel (piston end) and one flat base (barrel end). Shoot the swivel end to the corner block side. Never exceed more than 28° on angles.

TIPS:
All walers and kick plates should be pre-drilled to accommodate a picket or rope in multiple locations along their lengths.

Timber -vs- Strut Comparison

Length of Column	4 x 4	6 x 6	Airshore Strut
8'	8,000	20,000	25,000
10'	5,000	20,000	20,000
12'	3,500	20,000	20,000

Basic Components for Trench Rescue

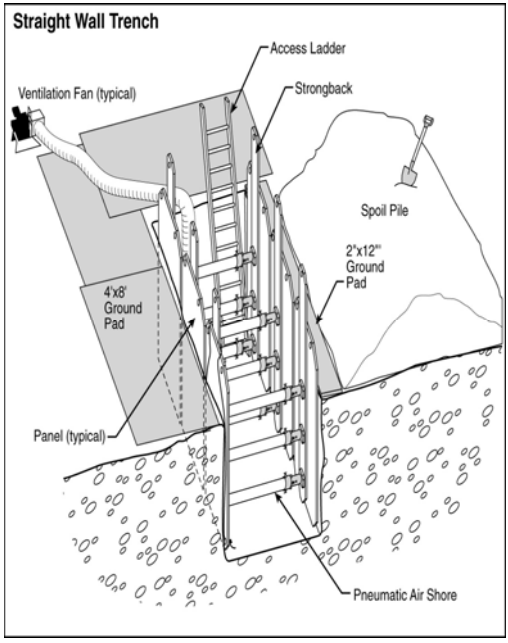
- Ground Pads
- Shoring Panels (minimum of 6)
- 2 – 18” Spot Shore Rails for each strut used on a Set of Panels, or full length 2x12” strongback for each panel.
- Airshore Rescue Struts and various attachments
- Dual Deadman Strut Controller, Regulator, Hoses and an air supply.
- Walers (as required to span any open spaces).
- Utility Rope and Pickets
- Ventilation fan
- Ladders (minimum of 2)

Basic Trench Rescue Installation

Procedures will vary for each type of trench (straight wall, L-Trench or T-Trench) encountered

STRAIGHT WALL

The straight wall trench will require a minimum of three sets of panels and the rescuer to set one set of struts directly over the victim and one set on either side to provide a safe working area for the rescuers. The number of struts that will be needed per set of panels is based on the soil classification and depth of the trench. Refer to the tabulated data on the following pages for more information.



STRAIGHT TRENCH PROCEDURES:

- Approach trench opening from ends to make an assessment
- Limit activity around trench opening
- Measure depth and width of trench where panels are to be set
- Place ground pads and ventilate the trench if necessary
- Prepare panels, struts and if needed, walers
- Position first set of panels in immediate area rescue is to be performed

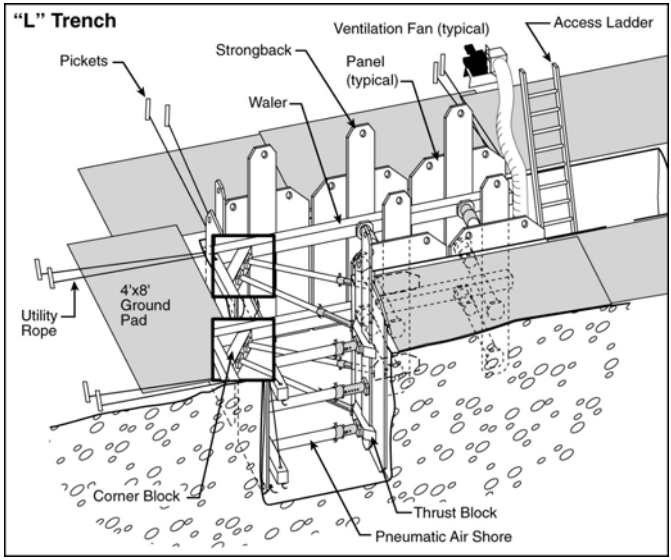
The recommended order for setting the Airshore struts are: 1) Shoot MIDDLE 2) Shoot TOP 3) Pin TOP, 4) Pin MIDDLE then 5) Shoot and Pin BOTTOM.

Recommended pressure for installing struts is 200 psi to 250 psi unless otherwise noted.*

L-TRENCH

The L-trench can be described as two trenches that intersect at their ends and form a right angle. This type of trench presents a difficult scenario for rescuers because the inside and outside corners of the 'L' are difficult to capture with standard protective equipment. Refer to the tabulated data on the following pages for more information.

‘L’ TRENCH



The recommended order for setting the Airshore struts are: 1) Shoot MIDDLE 2) Shoot TOP 3) Pin TOP, 4) Pin MIDDLE then 5) Shoot and Pin BOTTOM.

Recommended pressure for installing struts is 200 psi to 250 psi unless otherwise noted.*

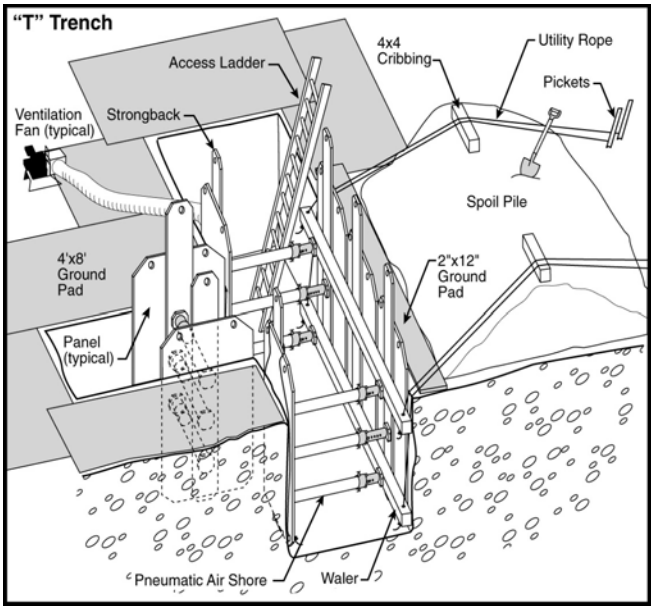
L-TRENCH PROCEDURES:

- Limit activity at corners of intersection
- Measure depth and width of trench where panels are to be set
- Place ground pads and ventilate the trench if necessary
- Prepare panels, struts and if needed, walers

- Position first set of panels in immediate area rescue is to be performed
- Set pickets for tie backs (panels and walers).
- Set opposing inside ‘L’ panels and tie back to pickets
- Place bottom walers on trench floor, both sides, tie back to pickets
- Place thrust blocks (one per shore) by toe nailing it to the strongback. Joist hangers may also be used
- Shoot middle shore at 50-75 psi to capture corners. Personnel on a tag line from a ladder may accomplish this
- Place and picket top and bottom kick plates or 4x4 or 6x6 timber at bottom edge (lip) of outside ‘L’ panels. Extend past lip far enough to picket in place without danger of a secondary collapse
- Place two outside ‘L’ panels, move them to form a clean corner at the outside intersection of the corner panels. Anchor these in place by tying back to pickets
- Place corner blocks on walers by toe nailing or using joist hangers
- Shoot (feather shores into place, then shoot) angled shores from inside ‘L’ panels to corners simultaneously. Feathering the shores and then shooting them at the same time will help to avoid kick back
- Repeat process for next set of shores
- Place and nail gusset plates on corner blocks
- Check and adjust shores
- Manage voids as necessary

T-TRENCH

The T-trench can be described as two trenches that intersect at their ends and form a right angle. This type of trench presents a difficult scenario for rescuers because the inside and outside corners of the 'L' are difficult to capture with standard protective equipment. Refer to the tabulated data on the following pages for more information.



The recommended order for setting the Airshore struts are: 1) Shoot MIDDLE 2) Shoot TOP 3) Pin TOP, 4) Pin MIDDLE then 5) Shoot and Pin BOTTOM.

Recommended pressure for installing struts is 200 psi to 250 psi unless otherwise noted.*

T-TRENCH PROCEDURES:

- Limit activity at corners of intersection
- Measure depth and width of trench where panels are to be set
- Place ground pads and ventilate the trench if necessary
- Prepare panels, struts and if needed, walers
- Position first set of panels in immediate area rescue is to be performed
- Set pickets for tie backs (panels and walers)
- Set two panels on wall of 'T' leg
- Shoot **middle, top,** and **bottom** shore of T leg to initially capture corners (low pressure)
- Place bottom waler on trench floor along long wall
- Set remaining six panels
    - Two panels on opposite T leg corners
    - Three panels on long wall
- Set middle shore on outside panels (full pressure)
- Place top waler and tie back to pickets or secure to the top of outside panels.
- Shoot top shore from outside panels to waler
- Raise bottom waler and tie back to pickets or secure to the top of outside panels
- Shoot bottom shore from outside panels to waler
- Re-shoot shores on T leg
- Check and adjust shores
- Manage voids as necessary

TABULATED DATA for VARIOUS TRENCH APPLICATIONS

For Use in Excavations (Page 1 of 2)

HURST JAWS OF LIFE® AIRSHORE

711 North Post Rd Shelby, NC 28150
704-487-6961 800-537-2659

Airshore Rescue Strut

Tabulated Data for Use in Excavations

AIRSHORE PNEUMATIC RESCUE STRUT			
LENGTH		CAPACITY (lbs) **	
SIZE (inch)	SIZE (feet)	2 PINS	1 PIN
13-18	1 to 1 1/2	30,000 lbs	19,000 lbs
21-28	2	30,000 lbs	19,000 lbs
26-37	2 to 3	30,000 lbs	19,000 lbs
33-49	3 to 4	30,000 lbs	19,000 lbs
45-67	4 to 5 1/2	25,000 lbs	19,000 lbs
54-84	4 1/2 to 7	25,000 lbs	19,000 lbs
63-97	5 to 8	25,000 lbs	19,000 lbs
84-132	7 to 11	20,000 lbs	14,000 lbs
93-144	8 to 12	20,000 lbs	14,000 lbs

** Safety Factor is 2:1

TABLE 1 MAXIMUM ALLOWABLE SPACING*					
SOIL TYPE	TRENCH DEPTH	TRENCH WIDTH	HORZ. SPACING 2 PINS	HORZ. SPACING 1 PIN	VERT. SPACING
A-25	4 to 10	to 6	8	8	4
		6 to 12	8	8	4
		12 to 16	5	5	4
	10 to 15	to 6	8	8	4
		6 to 12	8	6	4
		12 to 16	3	3	4
	15 to 20	to 6	8	6	4
		6 to 12	6	5	4
		12 to 16	2	1	4
B-45	4 to 10	to 6	8	8	4
		6 to 12	8	6	4
		12 to 16	3	2	4
	10 to 15	to 6	7	6	4
		6 to 12	6	4	4
		12 to 16	3	2	3
	15 to 20	to 6	5	4	4
		6 to 12	5	3	4
		12 to 16	2	2	3
C-60	4 to 10	to 6	8	6	4
		6 to 12	6	4	4
		12 to 16	3	2	3
	10 to 15	to 6	5	4	4
		6 to 12	4	4	4
		12 to 16	2	2	2
	15 to 20	to 6	4	4	4
		6 to 12	3	3	4

* All data is shown in FEET

NOTES:

1. Soil type to be determined by a competent person.
2. Charts are based on soil types as defined in OSHA, CFR 29, Sub Part P, March 1996.
3. Type C-60 soil is defined as C soil that will stand long enough for shores to be installed. In C-80 soil the shores cannot be installed because the soil will fall in before it is shored.
4. The Airshore Rescue Strut should be used against timber lagging, plywood or a minimum 6" wide by 18" long spot shore rail.
5. In C-60 soil 3/4" Finn-Form plywood or timber lagging shall be used in all cases to prevent sloughing and raveling
6. In all soils sheeting should be used to prevent sloughing or raveling if it occurs.
7. Spot shore rails may be set horizontal or vertical.
8. All Airshore Resue Strut attachments may be used with this shore at the capacities listed.

J.M. TURNER ENGINEERING, INC.
CONSULTING ENGINEERS
1335 N. DUTTON AVE., SANTA ROSA, CA. 95401
(707) 528-4503 FAX (707) 528-4505

DATE	REVISED	JOB NO:	SHEET #
9/7/1998	6/7/2005	9853-1	1 of 2

HURST JAWS OF LIFE' AIRSHORE
711 North Post Rd Shelby, NC 28150
704-487-6961 800-537-2659

Airshore Rescue Strut
Tabulated Data for Use in Excavations

INSTALLATION PROCEDURE

1. Soil must first be classified by a competent person in accordance with OSHA appendix A.
2. Tabulated Data allows for a 200 lb/ft^2 surcharge load. Move surcharge away from excavation or space shores closer together to allow for larger surcharge loads.
3. Inspect equipment to ensure it is in proper working order.
4. Struts are to be placed and pressurized from outside of the trench or from within a shored area. Under NO circumstances is a worker allowed to enter an unshored area.
5. Pressurize struts to the minimum recommended pressure.
6. There should be a minimum of three columns of shoring in excavations over 10 feet long and two columns if it is less than ten feet long. Shoring columns shall be spaced in accordance with the tabulated data found in TABLE 1.
7. Plywood or lagging is to be used to prevent sloughing and raveling. In all cases where sloughing or raveling occurs it must be used. In soil types A & B the sheeting may be spaced as needed to stop the sloughing and raveling. In C-60 soil plywood sheeting must always be used.

REMOVAL PROCEDURE

1. Shores are to be removed from the bottom of the trench up. Workers should be outside of the trench or inside of shored areas when removing shoring.
2. Previously shored trenches are more prone to collapse and should be backfilled or barricaded to prevent workers or equipment from falling into the trench if it collapses.

J.M. TURNER ENGINEERING, INC.
CONSULTING ENGINEERS
1335 N. DUTTON AVE., SANTA ROSA, CA. 95401
(707) 528-4503 FAX (707) 528-4505

DATE	REVISED	JOB NO:	SHEET #
9/7/1998	6/7/2005	9853-1	2 of 2

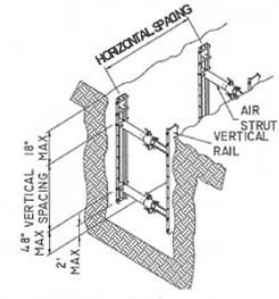
For officially stamped tabulated data sheets please contact your local distributor or call Hurst Customer Service 1-800-537-2659

For Use in Excavations with Vertical Shores (Page 1 of 2)

AirShore
Tabulated Data For Use In Excavations
Vertical Shores

Light Duty Rails		Spot Shore	
Rail Length (FT)	Airshore Struts (Total)	Rail Length (FT)	Airshore Struts (Total)
5 FT	2	1.5	1
7FT	2		

Heavy Duty Rails		Raker Rails	
Rail Length (FT)	Airshore Struts (Total)	Rail Length (FT)	Airshore Struts (Total)
2 FT	1		
4 FT	1		
6 FT	2	6 FT	2
8 FT	2	8 FT	2
10 FT	3	10 FT	3
12 FT	3	12 FT	3
16 FT	4	16 FT	4



Soil Type A-25 Vertical Shore Installation Data				(See sheet 2 for notes)
Depth of Excavation (FT)	Vertical Spacing (Ft)	Horizontal Spacing (FT)	Trench Width (FT)	Sheeting-3/4" FinForm,
0 to 10	4	8	15	For sloughing & raveling only
10 to 15	4	8	15	For sloughing & raveling only
15 to 20	4	3	12	For sloughing & raveling only
20 to 25	4	2	8	For sloughing & raveling only

Soil Type B-45 Vertical Shore Installation Data				(See sheet 2 for notes)
Depth of Excavation (FT)	Vertical Spacing (Ft)	Horizontal Spacing (FT)	Trench Width (FT)	Sheeting-3/4" FinForm,
0 to 10	4	8	12	For sloughing & raveling only
10 to 15	4	6	12	For sloughing & raveling only
15 to 20	4	3	12	For sloughing & raveling only
20 to 25	4	2	8	For sloughing & raveling only

Soil Type C-60 Vertical Shore Installation Data				(See sheet 2 for notes)
Depth of Excavation (FT)	Vertical Spacing (Ft)	Horizontal Spacing (FT)	Trench Width (FT)	Sheeting-3/4" FinForm,
0 to 10	4	6	12	For sloughing & raveling only
10 to 15	4	4	12	Always required
15 to 20	4	3	8	Always required
20 to 25				

J.M. TURNER ENGINEERING, INC.
CONSULTING ENGINEERS

DATE	REVISED	JOB NO: 9853-1
9/11/1998		Sht 1 of 2

For Use in Excavations with Vertical Shores (Page 2 of 2)

AirShore
Tabulated Data For Use In Excavations
Vertical Shores

Notes:

1) Soil Type and shoring configuration to be determined by competent person.

2) Spacing charts are based on soil types as defined in OSHA, CFR 29 Subpart P, July 1997, Appendix A.

3) Sheeting is to be 3/4" thick 14 ply Fin-Form. Sheeting is required to prevent raveling & sloughing and is required in all cases in C-60 soil below 10 ft.

4) Type C-60 soil is defined as C-soil that will stand up long enough for the shores to be installed.

5) There must be at least 3 columns of shores in a trench 8 ft and longer and at least 2 columns in trenches less than 8 ft long.

6) Spacing charts allow for surcharge loading from equipment weighing 40,000 lbs or less, and traffic allowed no closer than 2 ft from the edge of the trench. For larger surcharge loads shore spacing shall be reduced or surcharge loads shall be kept farther away from the edges.

7) No vertical loads are to be applied to the shores.

8) Trench walls should be straight and within 20 degrees of vertical. There should not be voids behind the shore struts. Wood blocking may be used to fill voids behind struts.

9) Trenches less than 5 ft deep may require shoring.

10) Shore rail sections may be stacked and used in any combinations provided that there is no more than 4 ft spacing between struts.

Installation Procedures

1) Complete the excavation and immediately install the system.

2) Connect the air supply to the airshore struts.

3) Suspend the shore at the intended location.

4) Pressurize the system and install the pins to secure the collar of the top airshore strut. repeat the procedure progressing to next lower strut.

Removal Procedures

1) Reconnect the air supply and pressurize the system.

2) Remove pins and starting at the lowest strut and moving upward.

3) Lift the system out using appropriate lifting equipment.

J.M. TURNER ENGINEERING, INC.
CONSULTING ENGINEERS

DATE	REVISED	JOB NO: 9853-1
9/11/1998		Sht 2 of 2

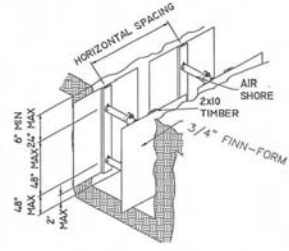
For officially stamped tabulated data sheets please contact
your local distributor or call Hurst Customer Service 1-800-537-2659

For Use with Plywood & Plank

AirShore
Tabulated Data For Use in Excavations
with Plywood & Plank

TABLE 1-MAXIMUM ALLOWABLE SPACING

Soil Type	Trench DEPTH (FT)	Trench Width (FT)	Horizontal Spacing (FT)	Vertical Spacing (FT)
A-25	4 to 10	to 6	8	4
		6 to 12	8	4
		12 to 16	5	4
	10 to 15	to 6	8	4
		6 to 12	8	4
		12 to 16	4	4
	15 to 20	to 6	8	4
		6 to 12	6	4
		12 to 16	2	4
B-45	4 to 10	to 6	8	4
		6 to 12	8	4
		12 to 16	4	4
	10 to 15	to 6	7	4
		6 to 12	6	4
		12 to 16	4	4
	15 to 20	to 6	5	4
		6 to 12	5	4
		12 to 16	4	4
C-60	4 to 10	to 6	8	4
		6 to 12	6	4
		12 to 16	4	4
	10 to 15	to 6	5	4
		6 to 12	4	4
		12 to 16	4	4
	15 to 20	to 6	4	4
		6 to 12	4	4
		12 to 16	4	4



Recommended strut pressures (min.)			
TYPE A & B		TYPE C	
4 to 20 ft	116 PSI	4 to 20ft	116 PSI

Installation Procedure

1) Soil must first be classified by a competent person in accordance with OSHA appendix A.
2) Tabulated Data allows for a 200 PSF surcharge load. Move surcharge away from excavation or space shores closer together to allow for larger surcharge loads.
3) Inspect equipment to be sure that it is in proper working order.
4) Struts are to be placed and pressurized from outside the trench or from within a shored area. Under no circumstances is a worker allowed to enter an unshored area.
5) Pressurize struts to the minimum recommended pressure.
6) There should be a minimum of three columns of shoring in excavations over 10 ft long and two columns if it is less than 10 ft long. Shoring columns shall be spaced in accordance with the tabulated data.
7) Plywood shall be 3/4" Finn Form, Planks shall be 2" thick timber DF #2 or Better

REMOVAL PROCEDURE

1) Shores are to be removed from the bottom of the trench up. Workers should be outside the trench or inside shored areas when removing shoring.
2) Previously shored trenches are more prone to collapse and should be backfilled or barricaded to prevent workers or equipment from falling into the trench if it collapses.

J.M. TURNER ENGINEERING, INC.
CONSULTING ENGINEERS

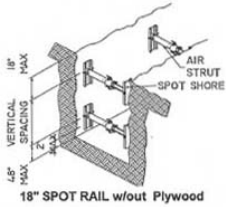
DATE	REVISED	JOB NO:9853-1
9/11/1998	11/2/2000	SHT 1 of 1

For officially stamped tabulated data sheets please contact
your local distributor or call Hurst Customer Service 1-800-537-2659

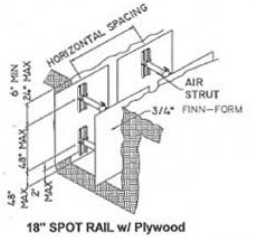
AirShore

Tabulated Data For Use in Excavations

AIRSHORE W/ Spot Shore Rail



18" SPOT RAIL w/out Plywood



18" SPOT RAIL w/ Plywood

Recommended strut pressures (min.)			
TYPE A & B		TYPE C	
4 to 20 ft	116 PSI	4 to 20ft	116 PSI

TABLE 1-MAXIMUM ALLOWABLE SPACING

Soil Type	Trench Depth (FT)	Trench Width (FT) (FT)	Horizontal Spacing (FT)	Vertical Spacing (FT) (FT)
A-25	4 to 10	to 6	8	4
		6 to 12	8	4
		12 to 16	5	4
	10 to 15	to 6	8	4
		6 to 12	6	4
		12 to 16	4	4
	15 to 20	to 6	6	4
		6 to 12	5	4
		12 to 16	4	4
B-45	4 to 10	to 6	8	4
		6 to 12	8	4
		12 to 16	4	4
	10 to 15	to 6	6	4
		6 to 12	4	4
		12 to 16	4	4
	15 to 20	to 6	4	4
		6 to 12	4	4
		12 to 16	4	4
C-60	4 to 10	to 6	6	4
		6 to 12	4	4
		12 to 16	4	4
	10 to 15	to 6	4	4
		6 to 12	4	4
		12 to 16	4	4
	15 to 20	to 6	4	4
		6 to 12	4	4
		12 to 16	4	4

NOTES:

1) Soil type to be determined by competent person.

2) Charts are based on soil types as defined in OSHA, CFR 29, Sub Part P, March 1996.

3) Type C-60 soil is defined as C soil that will stand long enough for shores to be installed. In C-80 soil the shores cannot be installed because the soil will fall in before it is shored.

4) Spot shore rails are able to bear directly against trench walls without plywood sheeting in class A-25 and B-45 soils to a depth of 20' unless sloughing or raveling occurs. In C-60 soil spot rails are able to bear directly against trench walls without plywood sheeting to a depth of 10' unless sloughing or raveling occurs.

5) Spot shore rails may be set horizontal or vertical.

6) Shores may be used with swivel heads to 30 degrees maximum.

J.M. TURNER ENGINEERING, INC.
CONSULTING ENGINEERS
1333 N. BUTTON AVE., SANTA ROSA, CA. 95401
(707) 526-4503 FAX (707) 526-4505

DATE	REVISED	JOB NO:	SHEET
9/11/1998	4/12/2003	9853-1	1 of 2

For Use with Spot Shore Rails (Page 2 of 2)

AirShore
Tabulated Data For Use in Excavations
AIRSHORE W/ Spot Shore Rail

Installation Procedure

1) Soil must first be classified by a competent person in accordance with OSHA appendix A.

2) Tabulated Data allows for a 200 PSF surcharge load. Move surcharge away from excavation or space shores closer together to allow for larger surcharge loads.

3) Inspect equipment to be sure that it is in proper working order.

4) Struts are to be placed and pressurized from outside the trench or from within a shored area. Under no circumstances is a worker allowed to enter an unshored area.

5) Pressurize struts to the minimum recommended pressure.

6) There should be a minimum of three columns of shoring in excavations over 10 ft long and two columns if it is less than 10 ft long. Shoring columns shall be spaced in accordance with the tabulated data.

7) Plywood or lagging is to be used to prevent sloughing and raveling. In all cases where sloughing or raveling occur it must be used. In soil types A & B the sheeting may be spaced as needed to stop the sloughing and raveling. In C-60 Soil Plywood sheeting must always be used.

REMOVAL PROCEDURE

1) Shores are to be removed from the bottom of the trench up. Workers should be outside the trench or inside shored areas when removing shoring.

2) Previously shored trenches are more prone to collapse and should be backfilled or barricaded to prevent workers or equipment from falling into the trench if it collapses.

J.M. TURNER ENGINEERING, INC.
CONSULTING ENGINEERS
1333 N. DUTTON AVE., SANTA ROSA, CA. 95401
(707) 526-4503 FAX (707) 526-4505

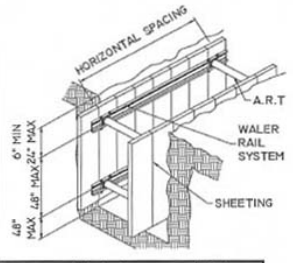
DATE	REVISED	JOB NO:	SHEET
9/11/1998	4/12/2003	9853-1	2 of 2

For officially stamped tabulated data sheets please contact your local distributor or call Hurst Customer Service 1-800-537-2659

AirShore

Tabulated Data For Use in Excavations

WALER RAIL SYSTEM-8 FT, 10 FT & 12 FT Heavy Duty



WALER RAIL SYSTEM

Recommended strut pressures (min.)			
TYPE A & B		TYPE C	
4 to 20 ft	116 PSI	4 to 20ft	116 PSI

Soil Type C-60 Installation Data

Trench Depth (Ft)	Vertical Spacing (FT)	Waler Length (FT)	Horizontal Cylinder Spacing (FT)	Allowable Trench Width (FT)
To 10	4	8' Heavy Duty	7.5	12
		10' Heavy Duty	8	12
		12' Heavy Duty	8	12
10 to 15	4	8' Heavy Duty	7.5	12
		10' Heavy Duty	8	12
		12' Heavy Duty	8	12
15 to 20	4	8' Heavy Duty	7	12
		10' Heavy Duty	8	10
		12' Heavy Duty	8	8

Soil Type C-80 Installation Data

Trench Depth (Ft)	Vertical Spacing (FT)	Waler Length (FT)	Horizontal Cylinder Spacing (FT)	Allowable Trench Width (FT)
To 10	4	8' Heavy Duty	7.5	12
		10' Heavy Duty	8	12
		12' Heavy Duty	8	12
10 to 15	4	8' Heavy Duty	7.5	12
		10' Heavy Duty	8	10
		12' Heavy Duty	8	8
15 to 20	4	8' Heavy Duty	6.5	10
		10' Heavy Duty	7	8
		12' Heavy Duty	7*	8

* NOTE: TWO PINS ARE REQUIRED

J.M. TURNER ENGINEERING, INC.
CONSULTING ENGINEERS
1333 N. DUTTON AVE., SANTA ROSA, CA. 95401
(707) 526-4363 FAX (707) 526-4365

DATE	REVISED	JOB #	SHEET
9/11/1998		9853-1	1 OF 2

AirShore
Tabulated Data For Use In Excavations
Waler Rail System

Notes:

1) Soil Type and shoring configuration to be determined by competent person.

2) Spacing charts are based on soil types as defined in OSHA, CFR 29 Subpart P, March 1996, Appendix A.

3) Sheeting is to be 2" thick timber lagging, or 1" thick steel plate. Sheeting is required in all cases.

4) Type C-60 soil is defined as C-soil that will stand up long enough for the shores to be installed.

5) Spacing charts allow for surcharge loading from equipment weighing 40,000 lbs or less, and traffic allowed no closer than 2 ft from the edge of the trench. For larger surcharge loads shore spacing shall be reduced or surcharge loads shall be kept farther away from the edges.

6) No vertical loads are to be applied to the shores.

7) Trench walls should be straight and within 20 degrees of vertical. There should not be voids behind the shore struts. Wood blocking may be used to fill voids behind struts.

8) Trenches less than 5 ft deep may require shoring.

9) Shore rail sections may be stacked and used in any combinations provided that there is no more than 4 ft spacing between struts.

Installation Procedures

1) Complete the excavation and immediately install the system.

2) Connect the air supply to the airshore struts.

3) Suspend the shore at the intended location.

4) Pressurize the system and install the pins to secure the collar of the top airshore strut. Repeat the procedure progressing to next lower strut.

Removal Procedures

1) Reconnect the air supply and pressurize the system.

2) Remove pins starting at the lowest strut and moving upward.

3) Lift the system out using appropriate lifting equipment.

J.M. TURNER ENGINEERING, INC.
CONSULTING ENGINEERS
1320 N. DUTTON AVE., SANTA ROSA, CA. 95401
(707) 528-4503 FAX (707) 528-4505

DATE	REVISED	JOB #	SHEET
9/11/1998		9853-1	2 OF 2

For officially stamped tabulated data sheets please contact
your local distributor or call Hurst Customer Service 1-800-537-2659

F.A.Q.

Frequently Asked Questions

Q: How many extensions can be attached to one strut?

A: Only one extension per strut can be used. More than one joint connection is considered dangerous and should not be done.

Q: What is the hole in the collar for?

A: The hole through the bottom portion of the collar is there to pin the piston when storing or carrying a strut to the scene. The collar has been captured but the piston can still move freely. This hole should NEVER be used to hold a load because there is no adjustment to keep the collar tight.

Q: What can be used to lubricate the rubber cup seal?

A: Only a NON-petroleum based silicone should be used. NEVER use petroleum based products, as these will cause the seal to break down prematurely.

Q: What is the lifespan of the rubber cup seal?

A: Under normal use the cup seal should last ten years or more.

Q: I have noticed some air leaking out of the rubber seal cup, what should I do?

A: If the strut has been stored for a while the cup seal can lose shape. The piston should be removed from the strut barrel and the rubber seal cup should be 'flared' out by hand. The cup seal should take on its old form. It's a good idea to this every 2-3 months as part of the regular equipment maintenance schedule.

F.A.Q.

Frequently Asked Questions (cont.)

Q: Can older ART-struts with pins for holding the attachments be retro-fitted with the quick connect component?

A: YES. Hurst offers a “do it yourself kit” so that you can update your older models struts. Contact you dealer for more information.

Q: Do I have to use two pins in every situation?

A: NO. The second pin is only needed in a building collapse Situation and in trenches over 14 feet. Two pins are not necessary in vehicle stabilization, trenches less than 14 feet or confined space. The use of the second pin provides extra strength and also acts as a “LOAD SIGN”. If the pin can be pulled back and forth the strut is under a lighter load. If it is tight, the strut is under a load of 25,000lbs or more.

Q: What is the recommended installation pressure for Trench Rescue?

A: Hurst recommends 200psi in most applications.

Q: Can I operate more than one strut at a time?

A: YES. The AIR-DMT (Dual Deadman Controller) will allow you to operate two struts at one time for trench rescue.

Contact Info

711 North Post Road
Shelby, NC 28150
Tel: 800-537-2659 Fax: 704-482-7712
e-mail: contacthurst@idexcorp.com

Document Number: 159A169 Rev 05 ~ 2011 ~ Hurst Jaws of Life®