<table>
<thead>
<tr>
<th>Configuration</th>
<th>45 deg Brace from Horiz</th>
<th>Allowable Values</th>
<th>60 deg Brace from Horiz</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tension (lb)</td>
<td>Comp. (lb)</td>
<td>Tension (lb)</td>
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<tr>
<td>Fig 981 w/ 3/8&quot; to 7/8&quot; Rod</td>
<td>1263</td>
<td>1843</td>
<td>1320</td>
</tr>
<tr>
<td>Fig 985 w/ 3/8&quot; to 5/8&quot; Rod</td>
<td>813</td>
<td>1030</td>
<td>693</td>
</tr>
<tr>
<td>Fig 986</td>
<td>787</td>
<td>847</td>
<td>797</td>
</tr>
<tr>
<td>Fig 990 w/ 3/16&quot; Dia Cable</td>
<td>1387</td>
<td>0</td>
<td>1507</td>
</tr>
<tr>
<td>Fig 991 w/ 3/16&quot; Dia Cable</td>
<td>1023</td>
<td>0</td>
<td>1073</td>
</tr>
<tr>
<td>4&quot; Clevis Hanger/ Fig 980 w/ 5/8&quot; Rod</td>
<td>1105</td>
<td>303</td>
<td>864</td>
</tr>
<tr>
<td>6&quot; Clevis Hanger/ Fig 980 w/ 3/4&quot; Rod</td>
<td>1175</td>
<td>665</td>
<td>1181</td>
</tr>
<tr>
<td>8&quot; Clevis Hanger/ Fig 980 w/ 3/4&quot; Rod</td>
<td>1540</td>
<td>450</td>
<td>1073</td>
</tr>
</tbody>
</table>

**LARR APPROVAL**

1. A factor of Safety of 3.0 is applied to the lowest of ultimate loads.

* Deleted by the City of Los Angeles
### OVERALL LOAD TABLE (2 of 2)

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>Maximum Loads</th>
<th>Allowable Values</th>
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</thead>
<tbody>
<tr>
<td></td>
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<td>CLAMP</td>
</tr>
<tr>
<td></td>
<td>Design Load</td>
<td>Pt</td>
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<tr>
<td>9ZN-1205</td>
<td>570</td>
<td>482</td>
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<td>9ZN-1208</td>
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<td>482</td>
</tr>
<tr>
<td>9ZN-1241</td>
<td>1031</td>
<td>1240</td>
</tr>
<tr>
<td>B355</td>
<td>1196</td>
<td>503</td>
</tr>
</tbody>
</table>

**LARR APPROVAL**

1. A factor of Safety of 3.0 is applied to the lowest of ultimate loads.
TOLCO FIG. 99 OR B-LINE ATR ALL THREAD ROD.

B-LINE SOLID, PUNCHED OR SLOTTED B22 CHANNEL WITH TOLCO FIG. 98 OR 98B ROD STIFFENERS (WHEN REQUIRED)

B-LINE SOLID CHANNEL

45.00°

TOLCO FIG. 980 SWAY BRACE ATTACHMENT. TIGHTEN UNTIL BREAK-OFF

TOLCO FIG. 1CBS CROSS BOLT SPACER.

TOLCO FIG. 1 OR B-LINE B3100 CLEVIS HANGER.

**FIG. 980**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>A (in.)</th>
<th>B (in.)</th>
<th>D (in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>980-1/2</td>
<td>51/4&quot;</td>
<td>17/8&quot;</td>
<td>17/32&quot;</td>
</tr>
<tr>
<td>980-5/8</td>
<td>51/4&quot;</td>
<td>17/8&quot;</td>
<td>11/16&quot;</td>
</tr>
<tr>
<td>980-3/4</td>
<td>51/4&quot;</td>
<td>17/8&quot;</td>
<td>13/16&quot;</td>
</tr>
</tbody>
</table>

To Install: Place the Fig. 980 onto the “bracing member”. Tighten the set screw until the head breaks off. Attachment can pivot for adjustment to proper brace angle.
TRANSVERSE RIGID BRACING FOR SINGLE HUNG PIPE OR CONDUIT WITH CLEVIS HANGER

TOLCO FIG. 99 OR B-LINE ATR ALL THREAD ROD.

B-LINE SOLID, PUNCHED OR SLOTTED B22 CHANNEL WITH TOLCO FIG. 98 OR 98B ROD STIFFENERS (WHEN REQUIRED)

TOLCO FIG. 980 SWAY BRACE ATTACHMENT. TIGHTEN UNTIL BREAK-OFF

B-LINE SOLID CHANNEL

TOLCO FIG. 1 OR B-LINE B3100 CLEVIS HANGER.

FIG. 980

<table>
<thead>
<tr>
<th>Part Number</th>
<th>A (in.)</th>
<th>B (in.)</th>
<th>D (in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>980-1/2</td>
<td>51/4&quot; (133.3)</td>
<td>17/8&quot; (47.6)</td>
<td>17/32&quot; (13.5)</td>
</tr>
<tr>
<td>980-5/8</td>
<td>51/4&quot; (133.3)</td>
<td>17/8&quot; (47.6)</td>
<td>11/16&quot; (17.5)</td>
</tr>
<tr>
<td>980-3/4</td>
<td>51/4&quot; (133.3)</td>
<td>17/8&quot; (47.6)</td>
<td>13/16&quot; (20.5)</td>
</tr>
</tbody>
</table>

To Install: Place the Fig. 980 onto the "bracing member". Tighten the set screw until the head breaks off. Attachment can pivot for adjustment to proper brace angle.

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DATE: MAY 31, 2019
TRANSVERSE RIGID BRACING FOR TRAPEZE SUPPORTED PIPE OR CONDUIT

TOLCO FIG. 99 OR B-LINE ATR ALL THREAD ROD.

B-LINE SOLID, PUNCHED OR SLOTTED B22 CHANNEL WITH TOLCO FIG. 98 OR 98B ROD STIFFENERS (WHEN REQUIRED)

45.00° TOLCO FIG. 986
MECHANICAL FAST CLAMP BRACE ATTACHMENT

B-LINE SOLID CHANNEL

TOLCO FIG. 985
MECHANICAL FAST CLAMP BRACE ATTACHMENT

B-LINE SOLID OR PUNCHED CHANNEL. PUNCHED HOLE DIAMETER 1/16" LARGER THAN ROD DIAMETER.

FIG. 985

LOAD PER BRACE (lbs)
SAFETY FACTOR: 3
813

A
Rod Size

B

FIG. 986

LOAD PER BRACE (lbs)
SAFETY FACTOR: 3
787

A

B

D

Part Number
985-S

986-1/2
986-5/8
986-3/4

Rod Size
3/8" thru 5/8"
1/2"
5/8"
3/4"

Hole Dia. D
9/16" (14.3)
11/16" (17.5)
13/16" (20.6)

To install: Slip the open side of the 985 yoke onto the all thread rod above the top of the trapeze. Tighten set screw until head breaks off. Secure with hex nut. Insert channel brace into the 981 arm and adjust to desired length ensuring the channel passes minimum engagement indicator. Tighten set screw until head breaks off.

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TRANSVERSE RIGID BRACING FOR TRAPEZE SUPPORTED PIPE OR CONDUIT

TOLCO FIG. 99 OR B-LINE ATR ALL THREAD ROD.

B-LINE SOLID, PUNCHED OR SLOTTED B22 CHANNEL WITH TOLCO FIG. 98 OR 98B ROD STIFFENERS (WHEN REQUIRED)

30.00°

TOLCO FIG. 986 MECHANICAL FAST CLAMP BRACE ATTACHMENT

B-LINE SOLID CHANNEL

B-LINE SOLID OR PUNCHED CHANNEL. PUNCHED HOLE DIAMETER 1/16" LARGER THAN ROD DIAMETER.

FIG. 985

LOAD PER BRACE (lbs)
SAFETY FACTOR: 3
693

D

LOAD PER BRACE (lbs)
SAFETY FACTOR: 3
797

 INSERT CHANNEL BRACE INTO THE 981 ARM AND ADJUST TO DESIRED LENGTH ENSURING THE CHANNEL PASSES MINIMUM ENGAGEMENT INDICATOR. TIGHTEN SET SCREW UNTIL HEAD BREAKS OFF.

To Install: Slip the open side of the 985 yoke onto the all thread rod above the top of the trapeze. Tighten set screw until head breaks off. Secure with hex nut. Insert channel brace into the 981 arm and adjust to desired length ensuring the channel passes minimum engagement indicator. Tighten set screw until head breaks off.

FIG. 986

Part Number   Rod Size   Hole Dia. D
            in. (mm)       in. (mm)
986-1/2   1/2"   9/16" (14.3)
986-5/8   5/8"  11/16" (17.5)
986-3/4   3/4"  13/16" (20.6)

To Install: Slip the open side of the 985 yoke onto the all thread rod above the top of the trapeze. Tighten set screw until head breaks off. Secure with hex nut. Insert channel brace into the 981 arm and adjust to desired length ensuring the channel passes minimum engagement indicator. Tighten set screw until head breaks off.

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LONGITUDINAL RIGID BRACING FOR TRAPEZE SUPPORTED PIPE OR CONDUIT

2 LONG 45

TOLCO FIG. 99 OR B-LINE ATR ALL THREAD ROD.

B-LINE SOLID, PUNCHED OR SLOTTED B22 CHANNEL WITH TOLCO FIG. 98 OR 98B ROD STIFFENERS (WHEN REQUIRED)

TOP VIEW

FIG. 985

LOAD PER BRACE (lbs) SAFETY FACTOR: 3
813

B-LINE SOLID CHANNEL

TOLCO FIG. 986 MECHANICAL FAST CLAMP BRACE ATTACHMENT

FIG. 986

LOAD PER BRACE (lbs) SAFETY FACTOR: 3
787

B-LINE SOLID OR PUNCHED CHANNEL. PUNCHED HOLE DIAMETER 1/16" LARGER THAN ROD DIAMETER.

Insert channel brace into the 981 arm and adjust to desired length ensuring the channel passes minimum engagement indicator. Tighten set screw until head breaks off.

Part Number Rod Size Hole Dia. D
986-1/2 1/2" 9/16" (14.3)
986-5/8 5/8" 11/16" (17.5)
986-3/4 3/4" 13/16" (20.6)

To Install: Slip the open side of the 985 yoke onto the all thread rod above the top of the trapeze. Tighten set screw until head breaks off. Secure with hex nut. Insert channel brace into the 981 arm and adjust to desired length ensuring the channel passes minimum engagement indicator. Tighten set screw until head breaks off.

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DATE: MAY 31, 2019
TOLCO FIG. 99 OR B-LINE ATR ALL THREAD ROD.

B-LINE SOLID, PUNCHED OR SLOTTED B22 CHANNEL WITH TOLCO FIG. 98 OR 98B ROD STIFFENERS (WHEN REQUIRED)

To Install: Slip the open side of the 985 yoke onto the all thread rod above the top of the trapeze. Tighten set screw until head breaks off. Secure with hex nut. Insert channel brace into the 981 arm and adjust to desired length ensuring the channel passes minimum engagement indicator. Tighten set screw until head breaks off.

FIG. 985

FIG. 986

LOAD PER BRACE (lbs)
SAFETY FACTOR: 3

FIG. 986

LOAD PER BRACE (lbs)
SAFETY FACTOR: 3

Rod Size

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Rod Size</th>
<th>Hole Dia. D in. (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>985-S</td>
<td>3/8&quot; thru 5/8&quot;</td>
<td>9/16&quot; (14.3)</td>
</tr>
<tr>
<td>986-1/2</td>
<td>1/2&quot;</td>
<td>9/16&quot; (14.3)</td>
</tr>
<tr>
<td>986-5/8</td>
<td>5/8&quot;</td>
<td>11/16&quot; (17.5)</td>
</tr>
<tr>
<td>986-3/4</td>
<td>3/4&quot;</td>
<td>13/16&quot; (20.6)</td>
</tr>
</tbody>
</table>

Insert channel brace into the 981 arm and adjust to desired length ensuring the channel passes minimum engagement indicator. Tighten set screw until head breaks off.

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TRANSVERSE RIGID BRACING FOR TRAPEZE SUPPORTED PIPE OR CONDUIT

DETAIL

3 LAT 45

TOLCO FIG. 99 OR B-LINE ATR ALL THREAD ROD.
B-LINE SOLID, PUNCHED OR SLOTTED B22 CHANNEL WITH TOLCO FIG. 98 OR 98B ROD STIFFENERS (WHEN REQUIRED)

45.00°

B-LINE SOLID CHANNEL OR STEEL PIPE

TOLCO FIG. 981 SWAY BRACE ATTACHMENT

B-LINE SOLID OR PUNCHED CHANNEL. PUNCHED HOLE DIAMETER 1/16" LARGER THAN ROD DIAMETER.

FIG. 981

LOAD PER BRACE (lbs)
SAFETY FACTOR: 3
1263

Part Number | Rod Size Range | A (in) | B (mm) | C (mm)
--- | --- | --- | --- | ---
981-S | 3/8" thru 5/8" | 5/16" | 13.02 | 41/8" | 104.8 | 11/4" | 31.7
981-L | 3/4" & 7/8" | 5/16" | 13.02 | 41/8" | 104.8 | 11/4" | 31.7

To install: Slip the open side of the 981 yoke onto the all thread rod above the top of the trapeze. Tighten set screw until head breaks off. Secure with hex nut. Insert channel brace into the 981 jaw and tighten set screw until head breaks off.

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DATE: MAY 31, 2019

05/31/2019
TOLCO FIG. 99 OR B-LINE ATR ALL THREAD ROD.

B-LINE SOLID, PUNCHED OR SLOTTED B22 CHANNEL WITH TOLCO FIG. 98 OR 98B ROD STIFFENERS (WHEN REQUIRED)

30.00°

B-LINE SOLID CHANNEL OR STEEL PIPE

TOLCO FIG. 981 SWAY BRACE ATTACHMENT

B-LINE SOLID OR PUNCHED CHANNEL. PUNCHED HOLE DIAMETER 1/16" LARGER THAN ROD DIAMETER.

FIG. 981

LOAD PER BRACE (lbs)
SAFETY FACTOR: 3
1227

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Rod Size Range</th>
<th>A (in)</th>
<th>B (in)</th>
<th>C (in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>981-S</td>
<td>3/8&quot; thru 5/8&quot;</td>
<td>130.2</td>
<td>104.8</td>
<td>31.7</td>
</tr>
<tr>
<td>981-L</td>
<td>3/4&quot; &amp; 7/8&quot;</td>
<td>130.2</td>
<td>104.8</td>
<td>31.7</td>
</tr>
</tbody>
</table>

To Install: Slip the open side of the 981 yoke onto the all thread rod above the top of the trapeze. Tighten set screw until head breaks off. Secure with hex nut. Insert channel brace into the 981 jaw and tighten set screw until head breaks off.
TOLCO FIG. 99 OR B-LINE ATR ALL THREAD ROD.

B-LINE SOLID, PUNCHED OR SLOTTED B22 CHANNEL WITH TOLCO FIG. 98 OR 98B ROD STIFFENERS (WHEN REQUIRED)

45.00°

TOLCO FIG. 980 SWAY BRACE ATTACHMENT

B-LINE SOLID CHANNEL OR STEEL PIPE

TOLCO FIG. 981 SWAY BRACE ATTACHMENT

B-LINE SOLID OR PUNCHED CHANNEL. PUNCHED HOLE DIAMETER 1/16" LARGER THAN ROD DIAMETER.

FIG. 981

LOAD PER BRACE (lbs)

SAFETY FACTOR: 3

1263

Part Number | Rod Size Range | A (in) | B (in) | C (in)
--- | --- | --- | --- | ---
981-S | 3/8" thru 5/8" | 51/8" (130.2) | 41/8" (104.8) | 11/4" (31.7)
981-L | 3/4" & 7/8" | 51/8" (130.2) | 41/8" (104.8) | 11/4" (31.7)

To Install: Slip the open side of the 981 yoke onto the all thread rod above the top of the trapeze. Tighten set screw until head breaks off. Secure with hex nut. Insert channel brace into the 981 jaw and tighten set screw until head breaks off.

LONGITUDINAL RIGID BRACING FOR TRAPEZE SUPPORTED PIPE OR CONDUIT

DETAIL

3 LONG 45

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B-LINE SOLID, PUNCHED OR SLOTTED B22 CHANNEL WITH TOLCO FIG. 98 OR 98B ROD STIFFENERS (WHEN REQUIRED)

B-LINE SOLID CHANNEL OR STEEL PIPE

TOLCO FIG. 981 SWAY BRACE ATTACHMENT

B-LINE SOLID OR PUNCHED CHANNEL. PUNCHED HOLE DIAMETER 1/16" LARGER THAN ROD DIAMETER.

FIG. 981

LOAD PER BRACE (lbs)
SAFETY FACTOR: 3
1227

To Install: Slip the open side of the 981 yoke onto the all thread rod above the top of the trapeze. Tighten set screw until head breaks off. Secure with hex nut. Insert channel brace into the 981 jaw and tighten set screw until head breaks off.
TOLCO FIG. 99 OR B-LINE ATR ALL THREAD ROD.

B-LINE SOLID, PUNCTCHED OR SLOTTED B22 CHANNEL WITH TOLCO FIG. 98 OR 98B ROD STIFFENERS (WHEN REQUIRED)

45.00°

TOLCO FIG. 990 CABLE SWAY BRACE ATTACHMENT

PRESTRETCHED GALVANIZED AIR CRAFT CABLE W/ 7 X 19 STRAND CORE

TOLCO FIG. 991 SWAY BRACE ATTACHMENT

B-LINE SOLID OR PUNCTCHED CHANNEL. PUNCTCHED HOLE DIAMETER 1/16" LARGER THAN ROD DIAMETER.

FIG. 991

MIN. 3/16" CABLE: LOAD PER BRACE (lbs)

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Rod Size</th>
<th>Diameter</th>
<th>A (in)</th>
<th>A (mm)</th>
<th>B (in)</th>
<th>B (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>991</td>
<td>3/8&quot; thru 5/8&quot;</td>
<td>3/16&quot; (4.8)</td>
<td>5&quot; (127)</td>
<td>11/16&quot; (17.8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1/4&quot; (6.3)</td>
<td>5&quot; (127)</td>
<td>13/16&quot; (20.5)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

To Install: Slip the open side of the Fig 991 yoke onto the all thread rod above the top of the trapeze. Insert the cable through opening and out the back, pull tight. Tighten break-off nuts until shears. Secure in place with hex nut.

FIG. 990

MIN. 3/16" CABLE: LOAD PER BRACE (lbs)

<table>
<thead>
<tr>
<th>Part Number</th>
<th>A (in)</th>
<th>A (mm)</th>
<th>D (in)</th>
<th>D (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>990-1/2</td>
<td>5&quot; (127)</td>
<td>17/32&quot; (13.5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>990-5/8</td>
<td>5&quot; (127)</td>
<td>11/16&quot; (17.5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>990-3/4</td>
<td>5&quot; (127)</td>
<td>13/16&quot; (20.5)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

To Install: Bolt Fig 990 to structural attachment. Slide cable through Fig 990 and tighten break off nuts until shearing off. Attachment can pivot for adjustment to proper brace angle.
TRANSVERSE CABLE BRACING FOR TRAPEZE SUPPORTED PIPE OR CONDUIT

FIG. 990-1/2

MIN. 3/16" CABLE: LOAD PER BRACE (lbs)

SAFETY FACTOR: 3

1073

FIG. 990-5/8

MIN. 3/16" CABLE: LOAD PER BRACE (lbs)

SAFETY FACTOR: 3

1507

To Install: Slip the open side of the Fig 991 yoke onto the all thread rod above the top of the trapeze. Insert the cable through opening and out the back, pull tight. Tighten break-off nuts until nut shears. Secure in place with hex nut.

To Install: Bolt Fig 990 to structural attachment. Slide cable through Fig 990 and tighten break off nuts until shearing off. Attachment can pivot for adjustment to proper brace angle.

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LONGITUDINAL CABLE BRACING FOR TRAPEZE SUPPORTED PIPE OR CONDUIT

DETAIL

TOP VIEW

FIG. 990 CABLE SWAY BRACE ATTACHMENT

PRESTRETCHED GALVANIZED AIR CRAFT CABLE W/ 7 X 19 STRAND CORE

TOLCO FIG. 990 CABLE SWAY BRACE ATTACHMENT

B-LINE SOLID OR PUNCHED CHANNEL. PUNCHED HOLE DIAMETER 1/16" LARGER THAN ROD DIAMETER.

TOLCO FIG. 99 SWAY BRACE ATTACHMENT

B-LINE SOLID, PUNCHED OR SLOTTED B22 CHANNEL WITH TOLCO FIG. 98 OR 98B ROD STIFFENERS (WHEN REQUIRED)

TOLCO FIG. 99 OR B-LINE ATR ALL THREAD ROD.

45.00°

FIG. 991

MIN. 3/16" CABLE: LOAD PER BRACE (lbs)

SAFETY FACTOR: 3

1023

FIG. 990

MIN. 3/16" CABLE: LOAD PER BRACE (lbs)

SAFETY FACTOR: 3

1387

Part Number | Rod Size | Cable Diameter in. | A in. | B in. |
--- | --- | --- | --- | --- |
990-1/2 | 3/8" thru 5/8" | 3/16" (4.8) | 5" (127) | 1/4" (6.4) |
990-5/8 | 3/8" thru 5/8" | 1/4" (6.3) | 5" (127) | 5/32" (6.7) |
990-3/4 | 3/8" thru 5/8" | 5/32" (1.6) | 7/32" (5.7) | 5/32" (6.7) |

To Install: Slip the open side of the Fig 991 yoke onto the all thread rod above the top of the trapeze. Insert the cable through opening and out the back, pull tight. Tighten break-off nuts until nut shears. Secure in place with hex nut.

To Install: Bolt Fig 990 to structural attachment. Slide cable through Fig 990 and tighten break-off nuts until shearing off. Attachment can pivot for adjustment to proper brace angle.

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LONGITUDINAL CABLE BRACING FOR TRAPEZE
SUPPORTED PIPE OR CONDUIT

TOLCO FIG. 99 OR B-LINE ATR ALL THREAD ROD.

B-LINE SOLID, PUNCHED OR SLOTTED B22 CHANNEL WITH TOLCO FIG. 98 OR 98B ROD STIFFENERS (WHEN REQUIRED)

TOLCO FIG. 990 CABLE SWAY BRACE ATTACHMENT
PRESTRETCHED GALVANIZED AIR CRAFT CABLE W/ 7 X 19 STRAND CORE

TOLCO FIG. 991 SWAY BRACE ATTACHMENT
B-LINE SOLID OR PUNCHED CHANNEL. PUNCHED HOLE DIAMETER 1/16" LARGER THAN ROD DIAMETER.

TOP VIEW

FIG. 991
MIN. 3/16" CABLE: LOAD PER BRACE (lbs)
SAFETY FACTOR: 3

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Rod Size</th>
<th>Cable Diameter</th>
<th>A (in)</th>
<th>D (in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>991</td>
<td>3/8&quot; thru 5/8&quot;</td>
<td>3/16&quot; (4.8)</td>
<td>5&quot; (127)</td>
<td>11/16&quot; (17.1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1/4&quot; (6.3)</td>
<td>5&quot; (127)</td>
<td>35/64&quot; (2.2)</td>
</tr>
</tbody>
</table>

To Install: Slip the open side of the Fig 991 yoke onto the all thread rod above the top of the trapeze. Insert the cable through opening and out the back, pull tight. Tighten break-off nuts until nut shears. Secure in place with hex nut.

FIG. 990
MIN. 3/16" CABLE: LOAD PER BRACE (lbs)
SAFETY FACTOR: 3

<table>
<thead>
<tr>
<th>Part Number</th>
<th>A (in)</th>
<th>D (in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>990-1/2</td>
<td>5&quot; (127)</td>
<td>17/32&quot; (13.5)</td>
</tr>
<tr>
<td>990-5/8</td>
<td>5&quot; (127)</td>
<td>11/16&quot; (17.5)</td>
</tr>
<tr>
<td>990-3/4</td>
<td>5&quot; (127)</td>
<td>13/16&quot; (20.5)</td>
</tr>
</tbody>
</table>

To Install: Bolt Fig 990 to structural attachment. Slide cable through Fig 990 and tighten break off nuts until shearing off. Attachment can pivot for adjustment to proper brace angle.

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LARR 25949
3/8" THRU 7/8" ROD SIZE

6" MAX. DISTANCE FROM TOP OF HANGER ROD TO FIRST STIFFENER

2" (MAX.)

MAX. SPACING BETWEEN FIG. 98B (SEE CHART)

B-LINE B22 SOLID, PUNCHED OR SLOTTED CHANNEL

TIGHTEN UNTIL BREAK-OFF BOLT HEAD BREAKS OFF.

TOLCO FIG. 98B ROD STIFFENER.

B-LINE B22 SOLID, PUNCHED OR SLOTTED CHANNEL

TOLCO FIG. 99 OR B-LINE ATR ALL THREAD ROD

1" THRU 1-1/4" ROD SIZE

B-LINE B22 SOLID, PUNCHED OR SLOTTED CHANNEL

TOLCO FIG. 98U ROD STIFFENER.

TOLCO FIG. 99 OR B-LINE ATR ALL THREAD ROD

<table>
<thead>
<tr>
<th>ROD SIZE</th>
<th>MAX. ROD LENGTH WITHOUT ROD STIFFENER</th>
<th>MAX. SPACING BETWEEN TOLCO FIG. 98</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/8&quot;</td>
<td>19&quot;</td>
<td>13&quot;</td>
</tr>
<tr>
<td>1/2&quot;</td>
<td>25&quot;</td>
<td>18&quot;</td>
</tr>
<tr>
<td>5/8&quot;</td>
<td>31&quot;</td>
<td>23&quot;</td>
</tr>
<tr>
<td>3/4&quot;</td>
<td>37&quot;</td>
<td>28&quot;</td>
</tr>
<tr>
<td>7/8&quot;</td>
<td>43&quot;</td>
<td>33&quot;</td>
</tr>
<tr>
<td>1&quot;</td>
<td>50&quot;</td>
<td>38&quot;</td>
</tr>
<tr>
<td>1 1/4&quot;</td>
<td>62&quot;</td>
<td>43&quot;</td>
</tr>
</tbody>
</table>
1.) DESIGN LOADS ARE IN LBS., SAFETY FACTOR: 3
2.) LOADS ARE BASED ON CLAMPS BEING USED IN PAIRS
3.) LOADS APPLICABLE ONLY WITH B-LINE STRUT
4.) TIGHTEN BOLTS TO FOLLOW TORQUE VALUES AS FOLLOWS:
   a) FOR 9ZN-1205: TORQUE HARDWARE TO 50 FT-LBS FOR 1/2" DIA
   b) FOR 9ZN-1208: TORQUE HARDWARE TO 19 FT-LBS FOR 3/8" DIA
   c) FOR 9ZN-1241: TORQUE HARDWARE TO 19 FT-LBS FOR 3/8" DIA
   d) FOR B355: TORQUE HARDWARE TO 50 FT-LBS FOR 1/2" DIA

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>CLAMP DESIGN LOAD</th>
<th>CLAMP PT</th>
<th>CLAMP PI</th>
<th>GUIDE DESIGN LOAD</th>
<th>GUIDE PT</th>
<th>GUIDE PI</th>
</tr>
</thead>
<tbody>
<tr>
<td>9ZN-1205</td>
<td>570</td>
<td>482</td>
<td>155</td>
<td>570</td>
<td>482</td>
<td>-</td>
</tr>
<tr>
<td>9ZN-1208</td>
<td>570</td>
<td>482</td>
<td>155</td>
<td>570</td>
<td>482</td>
<td>-</td>
</tr>
<tr>
<td>9ZN-1241</td>
<td>1031</td>
<td>1240</td>
<td>702</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>B355</td>
<td>1196</td>
<td>503</td>
<td>180</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
FIG 828 LOAD PERPENDICULAR TO BEAM
(30, 45, AND 60 DEG FROM VERTICAL)

<table>
<thead>
<tr>
<th>BRACE ANGLE</th>
<th>60°</th>
<th>45°</th>
<th>30°</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAX AXIAL LOAD PER BRACE (lbs)</td>
<td>1210</td>
<td>1970</td>
<td>1320</td>
</tr>
</tbody>
</table>

NOTE: ALLOWABLE LOADS ARE MINIMUM BETWEEN FIG 980 AND FIG 828

LARR APPROVAL
TOLCO FIG. 828
UNIVERSAL SWAY BRACE ATTACHMENT

B-LINE SOLID CHANNEL
OR STEEL PIPE

TOLCO FIG. 980
SWAY BRACE ATTACHMENT

STEEL BEAM
FLANGE THICKNESS (3/8" MIN / 7/8" MAX)

NOTE: ALLOWABLE LOADS
ARE MINIMUM BETWEEN FIG
980 AND FIG 828

<table>
<thead>
<tr>
<th>BRACE ANGLE</th>
<th>60°</th>
<th>45°</th>
<th>30°</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAX AXIAL LOAD PER BRACE (lbs) PER FM TESTING</td>
<td>1210</td>
<td>970</td>
<td>690</td>
</tr>
</tbody>
</table>

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05/31/2019
To Install: Place the Fig. 980 onto the "bracing member". Tighten the set screw until the head breaks off. Attachment can pivot for adjustment to proper brace angle.
### FIG 981 BRACE LOAD (30, 45, AND 60 DEGREES FROM VERTICAL)

**Safety Factor:** 3

<table>
<thead>
<tr>
<th>Brace Angle</th>
<th>60°</th>
<th>45°</th>
<th>30°</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max Axial Load Per Brace (lbs)</td>
<td>N/A</td>
<td>1263</td>
<td>1227</td>
</tr>
</tbody>
</table>

To Install: Slip the open side of the 981 yoke onto the all thread rod above the top of the support. Tighten set screw until head breaks off. Secure with hex nut. Insert channel brace into the 981 jaw and tighten set screw until head breaks off.

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Date: May 31, 2019
### FIG 4LA TRANSVERSE LOAD

**DETAIL 5LAT60**

<table>
<thead>
<tr>
<th>Pipe Size</th>
<th>1&quot; -&gt; 1 1/2&quot;</th>
<th>2&quot;</th>
<th>2 1/2&quot; -&gt; 5&quot;</th>
<th>6&quot;</th>
<th>8&quot; -&gt; 12&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max Load Per Brace (lbs) Per FM Testing</td>
<td>1190</td>
<td>1190</td>
<td>1190</td>
<td>2820</td>
<td>2820</td>
</tr>
</tbody>
</table>

STIFFENED ROD BEYOND

60.00°

B-LINE SOLID CHANNEL OR STEEL PIPE

TOLCO LONGITUDINAL "IN-LINE" SWAY BRACE ATTACHMENT - FIG 4LA

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DATE: MAY 31, 2019

05/31/2019
STIFFENED ROD BEYOND

B-LINE SOLID CHANNEL OR STEEL PIPE

TOLCO LONGITUDINAL "IN-LINE" SWAY BRACE ATTACHMENT - FIG 4LA

<table>
<thead>
<tr>
<th>PIPE SIZE</th>
<th>1&quot; -&gt; 1 1/2&quot;</th>
<th>2&quot;</th>
<th>2 1/2&quot; -&gt; 5&quot;</th>
<th>6&quot;</th>
<th>8&quot; -&gt; 12&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAX LOAD PER BRACE (lbs)</td>
<td>970</td>
<td>970</td>
<td>970</td>
<td>2300</td>
<td>2300</td>
</tr>
</tbody>
</table>

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DATE: MAY 31, 2019

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STIFFENED ROD BEYOND 30.00°

PIPE SIZE

<table>
<thead>
<tr>
<th>PIPE SIZE</th>
<th>1&quot; -&gt; 1 1/2&quot;</th>
<th>2&quot;</th>
<th>2 1/2&quot; -&gt; 5&quot;</th>
<th>6&quot;</th>
<th>8&quot; -&gt; 12&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAX LOAD PER BRACE (lbs) PER FM TESTING</td>
<td>680</td>
<td>680</td>
<td>680</td>
<td>1620</td>
<td>1620</td>
</tr>
</tbody>
</table>

B-LINE SOLID CHANNEL OR STEEL PIPE

TOLCO LONGITUDINAL "IN-LINE" SWAY BRACE ATTACHMENT - FIG 4LA

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DATE: MAY 31, 2019

05/31/2019
B-LINE SOLID, PUNCHED OR SLOTTED B22 CHANNEL

TOLCO LONGITUDINAL "IN-LINE" SWAY BRACE ATTACHMENT - FIG 4LA

PIPE CLAMP, MUST BE CAPABLE OF TRANSMITTING UPLIFT FORCES INTO ROD

<table>
<thead>
<tr>
<th>PIPE SIZE</th>
<th>1&quot; -&gt; 1 1/2&quot;</th>
<th>2&quot;</th>
<th>2 1/2&quot; -&gt; 5&quot;</th>
<th>6&quot;</th>
<th>8&quot; -&gt; 12&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAX LOAD PER BRACE (lbs) PER FM TESTING</td>
<td>1190</td>
<td>1030</td>
<td>1190</td>
<td>2010</td>
<td>1570</td>
</tr>
</tbody>
</table>

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DATE: MAY 31, 2019
B-LINE SOLID, PUNCHED OR SLOTTED B22 CHANNEL

B-LINE SOLID CHANNEL OR STEEL PIPE

PIPE CLAMP, MUST BE CAPABLE OF TRANSMITTING UPLIFT FORCES INTO ROD

TOLCO LONGITUDINAL "IN-LINE" SWAY BRACE ATTACHMENT - FIG 4LA

<table>
<thead>
<tr>
<th>PIPE SIZE</th>
<th>1&quot; - 1 1/2&quot;</th>
<th>2&quot;</th>
<th>2 1/2&quot; - 5&quot;</th>
<th>6&quot;</th>
<th>8&quot; - 12&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAX LOAD PER BRACE (lbs) PER FM TESTING</td>
<td>970</td>
<td>860</td>
<td>970</td>
<td>2260</td>
<td>1660</td>
</tr>
</tbody>
</table>
B-LINE SOLID, PUNCHED OR SLOTTED B22 CHANNEL

PIPE CLAMP, MUST BE CAPABLE OF TRANSMITTING UPLIFT FORCES INTO ROD

TOLCO LONGITUDINAL "IN-LINE" SWAY BRACE ATTACHMENT - FIG 4LA

<table>
<thead>
<tr>
<th>PIPE SIZE</th>
<th>1&quot; -&gt; 1 1/2&quot;</th>
<th>2&quot;</th>
<th>2 1/2&quot; -&gt; 5&quot;</th>
<th>6&quot;</th>
<th>8&quot; -&gt; 12&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAX LOAD PER BRACE (lbs)</td>
<td>680</td>
<td>680</td>
<td>680</td>
<td>1620</td>
<td>1620</td>
</tr>
</tbody>
</table>

DATE: MAY 31, 2019

05/31/2019
<table>
<thead>
<tr>
<th>PIPE SIZE</th>
<th>1&quot;</th>
<th>1 1/4&quot; -&gt; 2&quot;</th>
<th>2 1/2&quot;</th>
<th>3&quot; -&gt; 4&quot;</th>
<th>5&quot; -&gt; 8&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAX LOAD PER BRACE (lbs) PER FM TESTING</td>
<td>3120</td>
<td>2140</td>
<td>1380</td>
<td>1470</td>
<td>890</td>
</tr>
</tbody>
</table>
### Table: MAX LOAD PER BRACE (lbs)

<table>
<thead>
<tr>
<th>PIPE SIZE</th>
<th>1&quot;</th>
<th>1 1/4&quot; -&gt; 2&quot;</th>
<th>2 1/2&quot;</th>
<th>3&quot; -&gt; 4&quot;</th>
<th>5&quot; -&gt; 8&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAX LOAD</td>
<td>2550</td>
<td>1740</td>
<td>1130</td>
<td>1200</td>
<td>730</td>
</tr>
<tr>
<td>PER FM TESTING</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**FIG 1001 TRANSVERSE LOAD**

**DETAIL 6LAT45**

**STIFFENED ROD BEYOND**

**TOLCO SWAY BRACE ATTACHMENT - FIG 1001**

**B-LINE SOLID CHANNEL OR STEEL PIPE**

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<table>
<thead>
<tr>
<th>PIPE SIZE</th>
<th>1&quot;</th>
<th>1 1/4&quot; -&gt; 2&quot;</th>
<th>2 1/2&quot;</th>
<th>3&quot; -&gt; 4&quot;</th>
<th>5&quot; -&gt; 8&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAX LOAD PER BRACE (lbs) PER FM TESTING</td>
<td>1800</td>
<td>1230</td>
<td>800</td>
<td>850</td>
<td>510</td>
</tr>
</tbody>
</table>
B-LINE 65XT, 68S, AND 68W BEAM CLAMPS

**TOLCO FIG. 65XT REVERSIBLE STEEL C-CLAMP**

**TOLCO FIG. 99 OR B-LINE ATR ALL THREAD ROD.**

**STEEL BEAM FLANGE THICKNESS (3/4" MAX)**

**ALTERNATE ORIENTATION**

**TOLCO FIG 68S / 68W WIDE JAW C-CLAMP, SET SCREW UP**

**TOLCO FIG. 99 OR B-LINE ATR ALL THREAD ROD.**

**STEEL BEAM FLANGE THICKNESS (3/4" MAX - FIG 68S)
(1 1/4" MAX - FIG 68W)**

**TOLCO FIG 68S / 68W WIDE JAW C-CLAMP, SET SCREW DOWN**

MAX LOAD PER CLAMP PER FM CRITERIA (5.0xDL + 250 LB)
LOADS SHOWN THUS ['XXX'] ARE ALLOWABLE DEAD LOAD ON CLAMP

<table>
<thead>
<tr>
<th>PIPE SIZE</th>
<th>3/4&quot;</th>
<th>1&quot;</th>
<th>1 1/4&quot;</th>
<th>1 1/2&quot;</th>
<th>2&quot;</th>
<th>2 1/2&quot;</th>
<th>3&quot;</th>
<th>3 1/2&quot;</th>
<th>4&quot;</th>
<th>5&quot;</th>
<th>6&quot;</th>
<th>8&quot;</th>
</tr>
</thead>
</table>

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