### CARMA Base, Tie Down Assembly

#### Item Number | Part Number | Description | Comments | Qty.
---|---|---|---|---
1 | 24-09-301 | Tie down, Screw | McMaster Carr part # 98935A878 | 1
2 | 24-09-302 | Tie down, Screw end | 1
3 | 24-09-303 | Tie down, Shackle | McMaster Carr part # 3560746 | 1
4 | 24-09-304 | Tie down, Shackle key | Comes with 24-09-303 Shackle | 1
5 | 24-09-305 | Tie down, 6m Large washer | 6m Base configuration only | 1
6 | 24-09-306 | Tie down, 10m Large washer | 10m Base configuration only | 1
7 | 24-09-307 | Tie down, Spherical washer set | McMaster Carr part # 91944A035 | 1
8 | 24-09-308 | Tie down, Nut | McMaster Carr part # 94815A116 | 1

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**6m BASE CONFIGURATION**

**DIMENSIONS ARE INCHES & DEGREES**

**TOLERANCES:**
- Whole & Fraction
  - Decimal X.X
  - Decimal X.XX
  - Decimal X.XXX
- Linear: ±
  - 0.001
  - 0.005
  - 0.01
  - 0.1
  - 1/32
- Angular:
  - 0.01°
  - 0.1°
  - 1°

**BREAK SHARP EDGES**
- 0.001 RADIUS
- 0.003 MACHINED SURF FINISH - 125 MICROINCH

**MATERIAL**
- Finishes
  - Machined Surf Finish - 125 Microinch

**CHECKED**
M. C. Fleming 2005-06-14

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**REV. DESCRIPTION ZONE NAME DATE**
A RELEASED M.C.F. 2005-06-14

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**UNLESS OTHERWISE SPECIFIED:**

**REVISIONS**

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>COMMENTS</th>
<th>QTY.</th>
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<tr>
<td>1</td>
<td>24-09-301</td>
<td>Tie down, Screw</td>
<td>McMaster Carr part # 98935A878</td>
<td>1</td>
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<tr>
<td>2</td>
<td>24-09-302</td>
<td>Tie down, Screw end</td>
<td>1</td>
<td></td>
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<tr>
<td>3</td>
<td>24-09-303</td>
<td>Tie down, Shackle</td>
<td>McMaster Carr part # 3560746</td>
<td>1</td>
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<tr>
<td>4</td>
<td>24-09-304</td>
<td>Tie down, Shackle key</td>
<td>Comes with 24-09-303 Shackle</td>
<td>1</td>
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<td>5</td>
<td>24-09-305</td>
<td>Tie down, 6m Large washer</td>
<td>6m Base configuration only</td>
<td>1</td>
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<td>6</td>
<td>24-09-306</td>
<td>Tie down, 10m Large washer</td>
<td>10m Base configuration only</td>
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<td>7</td>
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<td>Tie down, Spherical washer set</td>
<td>McMaster Carr part # 91944A035</td>
<td>1</td>
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<tr>
<td>8</td>
<td>24-09-308</td>
<td>Tie down, Nut</td>
<td>McMaster Carr part # 94815A116</td>
<td>1</td>
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</table>

**SCALE:**
- SIZE: 24-09-300
- SHEET: 1 of 3
- REV. A
10m BASE CONFIGURATION

MODIFICATIONS NEEDED, SEE DRAWING 24-09-307

DIMENSIONS ARE INCHES & DEGREES

TOLERANCES:

<table>
<thead>
<tr>
<th>WHOLE &amp; FRACTION</th>
<th>LINEAR</th>
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<tbody>
<tr>
<td>X.XX</td>
<td>0.01</td>
</tr>
<tr>
<td>X.X</td>
<td>0.01</td>
</tr>
<tr>
<td>X.XX</td>
<td>0.005</td>
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</table>

MACHINED SURF FINISH < 125 MICROINCH

BREAK SHARP EDGES 0.010 RAD 0.003
MACHINED SURF FINISH = 125 MICROINCH

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INFORMATION PROPRIETARY TO THE UNIVERSITY OF CALIFORNIA AND
SHALL BE USED ONLY FOR THE PURPOSE FOR WHICH IT WAS PROVIDED
AND SHALL NOT BE REPRODUCED OR DISCLOSED TO OTHERS.
ZINC PLATE THE FOLLOWING;
24-09-308 NUT
24-09-301 SCREW & 24-09-302 SCREW END-AFTER WELDING
ASTM B633 Type II Fe/zNi12 SC3 yellow chromate

6m & 10m BASE CONFIGURATIONS

CARMA Base,
Tie Down Assembly

RADIO ASTRONOMY LAB
University of California - Berkeley
Tel: 510-642-5275  Fax: 510-642-3411

6m & 10m BASE CONFIGURATIONS
Prototype uses McMaster Carr Part # 98935A878
ALL AROUND BOTTOM FACE .38 X 45° CHAMFER

38 X 45° CHAMFER

.09 RAD

.04 X 45° CHAMFER, BOTH SIDES

1.75

1.375

.88

\( \phi 1.75 \)

\( \phi 1.00 \)

\( \phi 15/16" \) DRILL THRU ON

0.010 RAD

MACHINED SURF FINISH < 125 MICROINCH

0.001

0.01

0.01

0.005

0.001

DIMENSIONS ARE INCHES & DEGREES

TOLERANCES:

TOLERANCES:

1/32

0.1

0.01

0.005

UNLESS OTHERWISE SPECIFIED

WHOLE & FRACTION

DECIMAL X XX

DECIMAL X XXX

BREAK SHARP EDGES 0.010 RAD ± 0.003

MACHINED SURF Finish = 125 MICROINCH

MATERIAL STEEL BAR, 1018, 1.250 DIA

WEIGHT:

SCALE:

REVISIONS

REV DESCRIPTION ZONE NAME DATE

A RELEASED M.C.F 2005-06-01
CLEAR ANODIZE FINISH

Φ1500 THRU

Φ2.494±.001

PRESS FIT FOR CONCAVE PORTION
OF 24-09-307 SPHERICAL WASHER

Φ4 1/2" OR
CLEAN UP

SCALE 1 : 1

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M. C. FLEMING

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE INCHES & DEGREES

TOLERANCES:

WHOLE & FRACTION: ± 1/32
DECIMAL: ± 0.1" ± 0.1°± 0.005

MACHINED SURF FINISH < 125 MICROINCH

BREAK SHARP EDGES: 0.003 RAD

MACHINED SURF FINISH: 125 MICROINCH

RADIO ASTRONOMY LAB
University of California - Berkeley
Tel: 510-642-5275  Fax: 510-642-3411

CARMA 6m Base,
Tie Down, Large Washer

24-09-305  1 of 1

CARMA 6m Base, CARMA 6m Base, CARMA 6m Base, CARMA 6m Base, CARMA 6m Base

D
C
B
A
CLEAR ANNODIZE FINISH

\( \phi 1500 \text{ THRU} \)

\( \phi 2.494 \pm 0.01 \) PRESS FIT FOR CONCAVE PORTION OF 24-09-307 SPHERICAL WASHER

\( \phi 5 1/2" \) OR CLEAN UP

\( 0.020 \times 45\degree \) CHAMFER

\( 45\degree \)  CHAMFER .19 X 45°

19 X 45° CHAMFER

0.330

6.0 X 45° CHAMFER

3.75

1.375

SECTION A-A

SCALE 1:1.25

RADIO ASTRONOMY LAB

University of California - Berkeley
Tel: 510-642-5275  Fax: 510-642-3411

CARMA 10m Base, Tie Down, Large Washer

24-09-306  1 of 1

M.C. FLEMING 2005-06-01

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE INCHES & DEGREES

TOLERANCES:

WHOLE & FRACTION:  ± 1/32  ± 0.1"  ± 0.01"

DECIMAL:  ± 0.01  ± 0.005  ± 0.001"

BREAK SHARP EDGES 0.005 RAD 0.003

MACHINED SURF FINISH = 125 MICROINCH

MATERIAL:  ALUMINUM BAR, 6061, 5.50" DIA

FINISH:  CLEAR ANNODIZE FINISH

WEIGHT:

SCALE: