

# **A GUIDE TO STANDARDIZED HIGHWAY LIGHTING POLE HARDWARE**

**PREPARED BY TASK FORCE No. 13**

**APRIL, 1980**



STANDARDIZATION OF STATES FOR HIGHWAY AND ROAD (AASHTO-AGC-ARTBA)

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AASHTO-AGC-ARTBA JOINT COOPERATIVE COMMITTEE  
SPECIAL SUBCOMMITTEE ON NEW HIGHWAY MATERIALS  
TASK FORCE No. 13  
(STANDARDIZATION OF DETAILS FOR BRIDGE AND ROAD HARDWARE)

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## ACKNOWLEDGEMENTS

The Task Force desires to express its thanks to the personnel in the State Highway Agencies who have assisted in the preparation of this guide through the submission of plans and their reviews of the guide in draft form.

Cooperation and assistance from the pole manufacturers and related industries and associations of the country has been extremely gratifying and much appreciated.

Finally, a special tribute is due Louis A. Garrido, Bridge Design Engineer; James C. Lorio, Electrical Design Engineer; Charles J. Meyer; Ronald D. Carter; Barry L. Langlois; and Loring Bacot of the Bridge and Structural Design Section of the Louisiana Department of Transportation and Development who carried the burden of coordination, design, and production of six drafts of the guide.



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## INTRODUCTION

The Task Force has produced suggested standard details and specifications in this publication for those lighting pole items which are widely used and which have well defined service requirements.

The suggested details shown in Sections (SPS, SSA, APS, ASA, and PA) are intended to eliminate the small variations in pole components which prevent the interchangeability of functionally identical hardware items.

The poles listed in Section NFI are intended to provide flexibility in design and fabrication and are considered acceptable alternates where interchangeable components are of minor importance.

The Task Force believes that the designs suggested in this guide meet the requirements of the 1975 Edition of AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals; however, A DESIGNER WISHING TO USE A SUPPORT DESIGN SUGGESTED IN THIS GUIDE MUST ASSURE HIMSELF OF THE ADEQUACY OF THE DESIGN.

A potential problem of standardization is stagnation. The Task Force is aware of this problem and wishes to avoid this happening as a result of its activities. It therefore, invites comments on the contents of the guide and information on new developments in light pole design that can be used in preparing future editions of this guide.

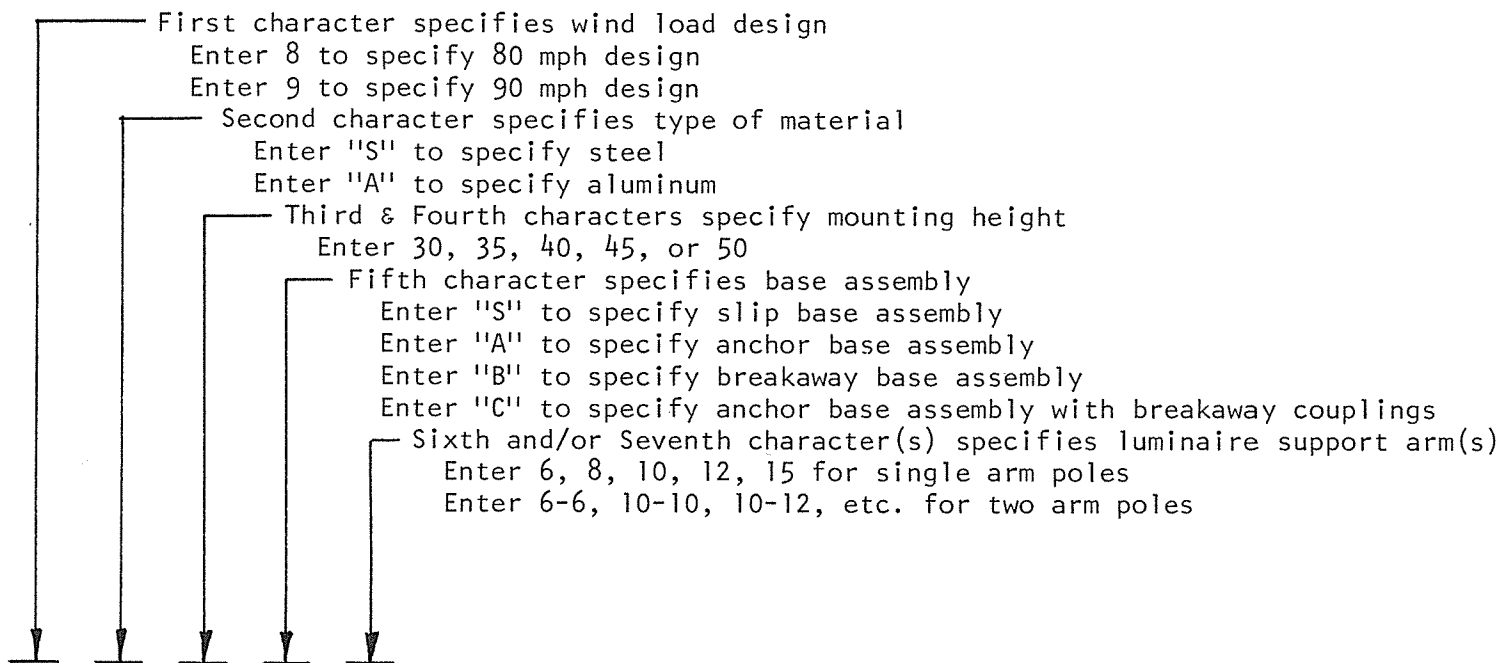
## SUGGESTED SPECIFICATION FORMAT

AASHTO lighting poles may be specified by the use of a standard system specification number and option suffixes.

The use of a standard system specification number will completely specify the following:

1. Wind Loading Design (80 mph or 90 mph)
2. Type of Material (Steel or Aluminum)
3. Mounting Height (30', 35', 40', 45', or 50')
4. Pole Shaft with Handhole, Pole Top, Arm Attachments, Anchor Base, or Breakaway Base
5. Luminaire Support Arm, Attachments, Bolts, and Washers
6. Type Anchors (Anchor Bolts, Nuts, and Washers)

The form of standard system specification numbers are as follows:



Suffixes added to the standard specification numbers will alter the specifications as follows:

Suffixes:

C	Specifies bolt covers
B	Specifies single ballast adapter
B2	Specifies twin ballast adapter
NH	Omit handhole
NAB	Omit anchor bolts
P	Followed by color specifies painted poles
X°	Specifies handhole location other than 90° (90° is standard location)
X"	Specifies anchor bolt length other than standard (36" and 42" are standard)
CA	Specifies clamp type arm attachment (for aluminum poles only)
FI	Specifies fully interchangeable poles
TB	Specifies transformer base with pole

EXAMPLE

User Requirements:

90 mph design wind loading, galvanized steel construction, 40' mounting height, slip base, 6' luminaire support arm, provide bolt covers, locate handhole opposite support arm, provide 3 - 1" x 42" anchor bolts.

Specification Number:

9S40S6,C 180°,42"

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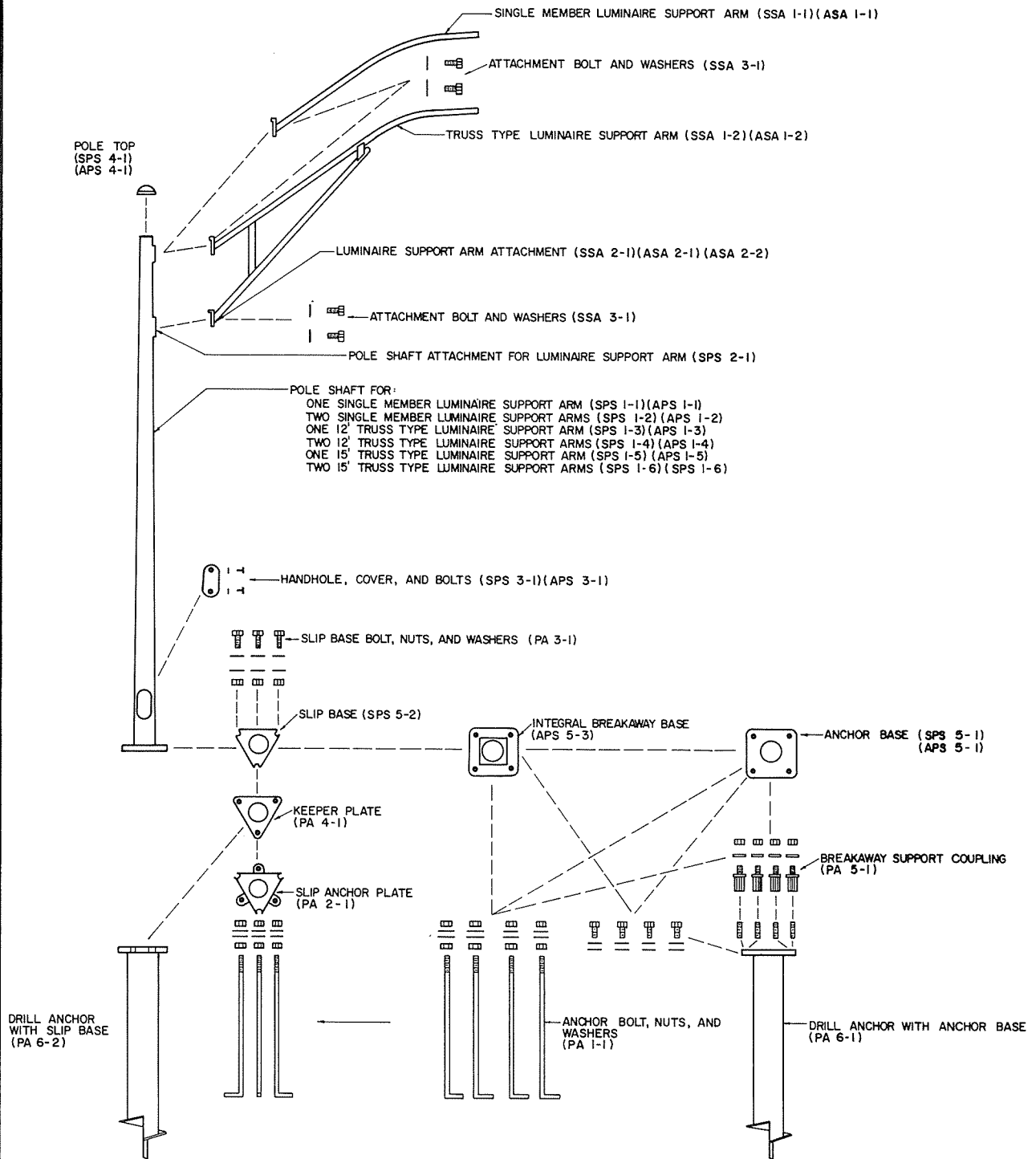
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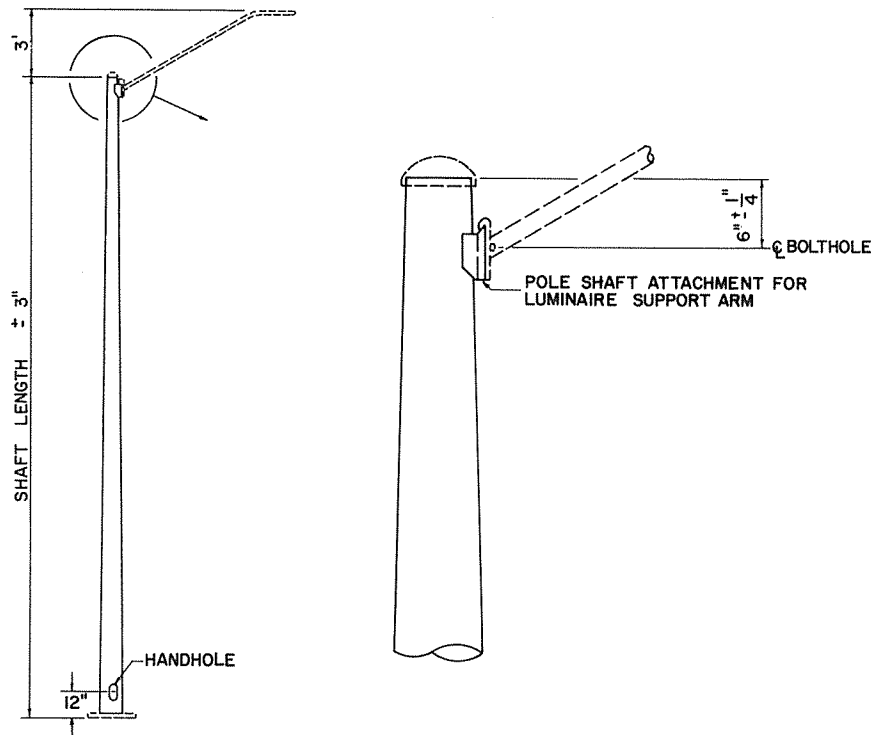
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DIMENSION TABLE				
MOUNTING HEIGHT	SHAFT LENGTH	SHAPE	90MPH	80 MPH
30'	27'	ROUND	7 x 3.5 x 0.120	← SAME
		OCTAGON $\emptyset$	7.5 x 4 x 0.120	← SAME
		DODECAGON $\emptyset$	7.5 x 3.9 x 0.120	← SAME
35'	32'	ROUND	7 x 3.5 x 0.120	← SAME
		OCTAGON $\emptyset$	8.5 x 4 x 0.120	7.5 x 4 x 0.120
		DODECAGON $\emptyset$	7.5 x 3.9 x 0.120	← SAME
40'	37'	ROUND	7.2 x 3.5 x 0.120	← SAME
		OCTAGON $\emptyset$	10 x 4 x 0.120	9 x 4 x 0.120
		DODECAGON $\emptyset$	7.5 x 3.9 x 0.120	← SAME
45'	42'	ROUND	7.7 x 3.5 x 0.120	7.5 x 3.5 x 0.120
		OCTAGON $\emptyset$	10 x 4 x 0.134	10 x 4 x 0.120
		DODECAGON $\emptyset$	8.25 x 3.9 x 0.120	7.5 x 3.9 x 0.120
50'	47'	ROUND	8.2 x 3.5 x 0.120	← SAME
		OCTAGON $\emptyset$	10 x 4 x 0.179	10.75 x 4 x 0.134
		DODECAGON $\emptyset$	9.25 x 3.9 x 0.120	8.5 x 3.9 x 0.120

$\emptyset$  Diameters Are Measured From Corner To Corner



#### SPECIFICATION

POLE SHAFT HAS STRUCTURAL CAPABILITIES EQUAL TO OR EXCEEDING THOSE INTENDED BY AASHTO 1975 EDITION, STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS.

DESIGN WIND LOADS ARE FOR 80 OR 90 MPH WIND ZONES, AS SPECIFIED ACTING ON A POLE HAVING ONE (1) 3' SINGLE MEMBER LUMINAIRE SUPPORT ARM EQUIPPED WITH A LUMINAIRE HAVING A PROJECTED AREA OF 3.3 SQUARE FEET AND WEIGHING 60 POUNDS.

POLE SHAFT IS FABRICATED FROM STEEL TUBES HAVING A MAXIMUM SILICON CONTENT OF .06%.

TABLE SHOWS MINIMUM DIMENSIONS OF SHAFTS FABRICATED FROM 50 KSI YIELD MATERIAL. SEE APPENDIX FOR MINIMUM DIMENSIONS OF SHAFTS FABRICATED FROM 55 KSI YIELD MATERIAL.

SHAFT DIMENSIONS ARE GIVEN IN INCHES UNLESS OTHERWISE INDICATED, AND ARRANGED WITH BOTTOM DIAMETER x TOP DIAMETER x WALL THICKNESS.

STEEL POLE SHAFT, INCLUDING BASES ARE GALVANIZED IN ACCORDANCE WITH SECTION 1.4.3(2) OF AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS. (ASTM A-123).

WHEN PAINTING IS SPECIFIED IN LIEU OF GALVANIZING, THE PAINTING WILL CONFORM TO SECTION 1.4.3(1) OF AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS.

DIMENSIONAL TOLERANCES FOR STEEL TUBES ARE IN ACCORDANCE WITH ASTM A-595 OR A-501.

WELDING IS IN ACCORDANCE WITH SECTION 1.4.2 OF AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS.

POLES SHOWN HAVE BEEN DESIGNED WITH A MINIMUM RADIUS OF CURVATURE OF 550' APPLIED 6" FROM POLE TOP WHEN EQUIPPED WITH A LUMINAIRE SUPPORT ARM AND 60 POUND LUMINAIRE.

MINIMUM RADIUS OF CURVATURE CRITERIA IS NOT A REQUIREMENT OF AASHTO, 1975 EDITION, STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS; HOWEVER, THE CRITERIA IS CONSISTENT WITH CURRENT INDUSTRY PRACTICE. INTENDED USE

THIS POLE SHAFT IS FOR USE WITH ONE (1) 6' OR 8' SINGLE MEMBER LUMINAIRE SUPPORT ARM.

STEEL POLE SHAFT FOR ONE SINGLE MEMBER  
LUMINAIRE SUPPORT ARM

AASHTO-AGC-ARTBA  
DRAWING

SPSI-I-80

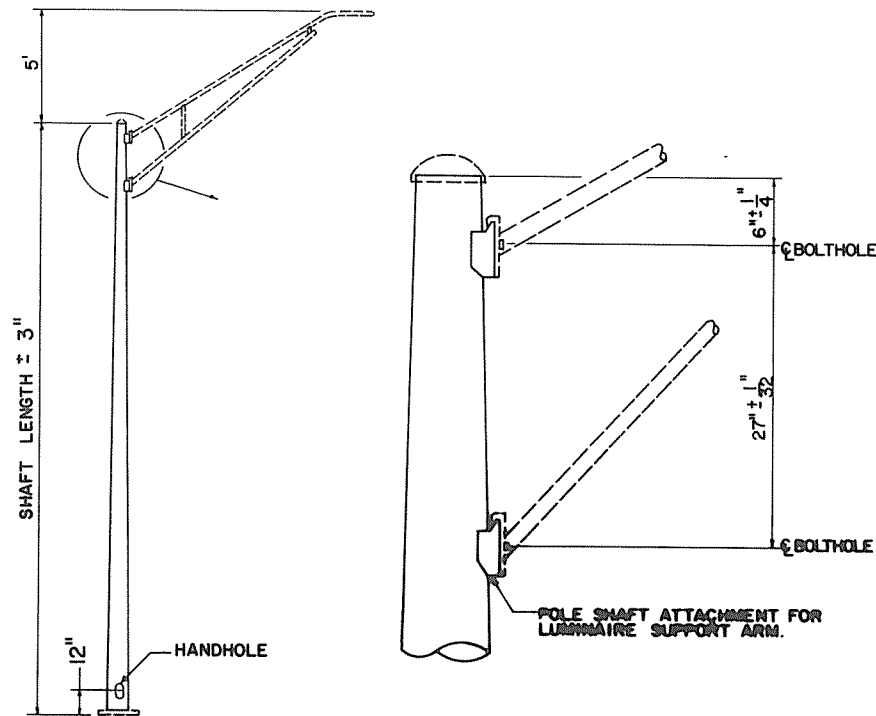


# **SECTION SPS**

**STEEL POLE SHAFT ASSEMBLY**

DIMENSION TABLE				
MOUNTING HEIGHT	SHAFT LENGTH	SHAPE	90 MPH	80 MPH
30'	25'	ROUND	7 x 3.8 x 0.120	← SAME
		OCTAGON $\emptyset$	7.5 x 4 x 0.120	← SAME
		DODECAGON $\emptyset$	7.5 x 3.9 x 0.120	← SAME
35'	30'	ROUND	7 x 3.8 x 0.120	← SAME
		OCTAGON $\emptyset$	8.5 x 4 x 0.120	7.5 x 4 x 0.120
		DODECAGON $\emptyset$	7.5 x 3.9 x 0.120	← SAME
40'	35'	ROUND	7.3 x 3.8 x 0.120	← SAME
		OCTAGON $\emptyset$	10 x 4 x 0.120	9 x 4 x 0.120
		DODECAGON $\emptyset$	8 x 3.9 x 0.120	7.5 x 3.9 x 0.120
45'	40'	ROUND	8.5 x 3.8 x 0.120	← SAME
		OCTAGON $\emptyset$	10 x 4 x 0.134	10 x 4 x 0.120
		DODECAGON $\emptyset$	9 x 3.9 x 0.120	8 x 3.9 x 0.120
50'	45'	ROUND $\emptyset \Delta$	9.5 x 3.8 x 0.120	9 x 3.8 x 0.120
		OCTAGON $\emptyset$		10.75 x 4 x 0.134
		DODECAGON $\emptyset$	10 x 4 x 0.120	9 x 3.9 x 0.120

$\emptyset$  Diameters Are Measured From Corner To Corner  
 $\Delta$  For Missing Dimensions See Section NF1



#### SPECIFICATION

POLE SHAFT HAS STRUCTURAL CAPABILITIES EQUAL TO OR EXCEEDING THOSE INTENDED BY AASHTO 1975 EDITION, STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS.

DESIGN WIND LOADS ARE FOR 80 OR 90 MPH WIND ZONES, AS SPECIFIED, ACTING ON A POLE HAVING ONE (1) 12' TRUSS TYPE LUMINAIRE SUPPORT ARM EQUIPPED WITH A LUMINAIRE HAVING A PROJECTED AREA OF 3.3 SQUARE FEET AND WEIGHING 60 POUNDS.

POLE SHAFT IS FABRICATED FROM STEEL TUBES HAVING A MAXIMUM SILICON CONTENT OF .60%.

TABLE SHOWS MINIMUM DIMENSIONS OF SHAFTS FABRICATED FROM 50 KSI YIELD MATERIAL. SEE APPENDIX FOR MINIMUM DIMENSIONS OF SHAFTS FABRICATED FROM 55 KSI YIELD MATERIAL.

SHAFT DIMENSIONS ARE GIVEN IN INCHES UNLESS OTHERWISE INDICATED, AND ARRANGED WITH BOTTOM DIAMETER x TOP DIAMETER x WALL THICKNESS.

STEEL POLE SHAFT, INCLUDING BASES ARE GALVANIZED IN ACCORDANCE WITH SECTION 1.4.3(2) OF AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS. (ASTM A-123)

WHEN PAINTING IS SPECIFIED IN LIEU OF GALVANIZING, THE PAINTING WILL CONFORM TO SECTION 1.4.3(1) OF AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS.

DIMENSIONAL TOLERANCES FOR STEEL TUBES ARE IN ACCORDANCE WITH ASTM A-595 OR A-501.

WELDING IS IN ACCORDANCE WITH SECTION 1.4.2 OF AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS.

POLES SHOWN HAVE BEEN DESIGNED WITH A MINIMUM RADIUS OF CURVATURE OF 550' APPLIED 3' FROM POLE TOP WHEN EQUIPPED WITH A LUMINAIRE SUPPORT ARM AND 60 POUND LUMINAIRE.

MINIMUM RADIUS OF CURVATURE CRITERIA IS NOT A REQUIREMENT OF AASHTO, 1975 EDITION, STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS; HOWEVER, THE CRITERIA IS CONSISTENT WITH CURRENT INDUSTRY PRACTICE

#### INTENDED USE

THIS POLE SHAFT IS FOR USE WITH ONE (1) 10' OR 12' TRUSS TYPE LUMINAIRE SUPPORT ARM.

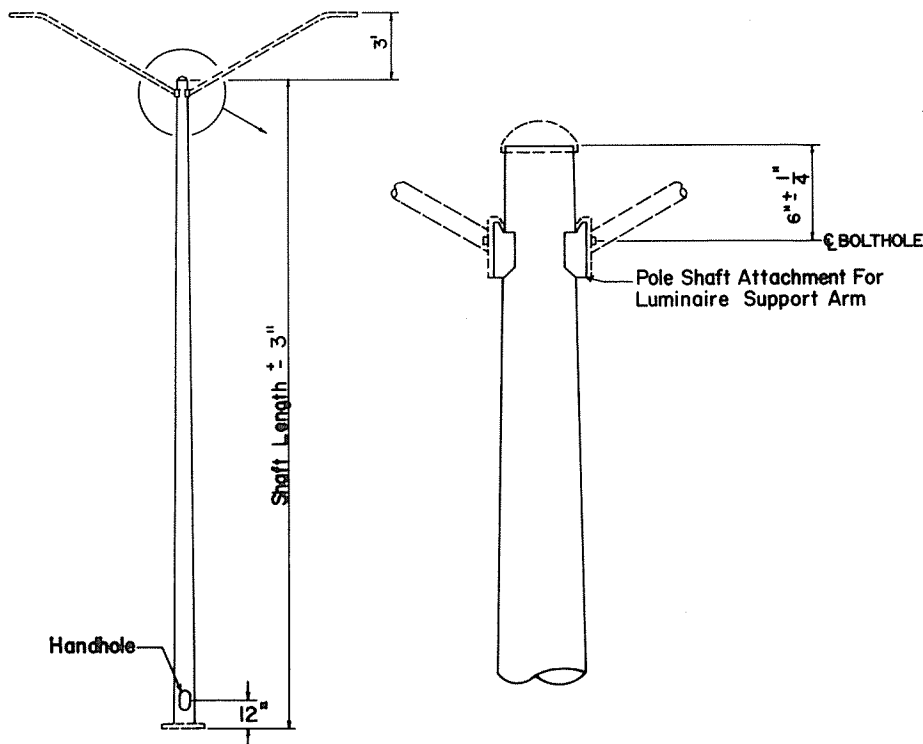
**STEEL POLE SHAFT FOR ONE 10' OR 12' TRUSS TYPE  
LUMINAIRE SUPPORT ARM**

**AASHTO-AGC-ARTBA  
DRAWING**

**SPSI-3**

DIMENSION TABLE				
MOUNTING HEIGHT	SHAFT LENGTH	SHAPE	90 MPH	80 MPH
30'	27'	ROUND	7 x 3.2 x 0.120	← SAME
		OCTAGON	7.5 x 4 x 0.120	← SAME
		DODECAGON	7.5 x 3.9 x 0.120	← SAME
35'	32'	ROUND	7.5 x 3 x 0.120	7 x 3 x 0.120
		OCTAGON	8.5 x 4 x 0.120	7.5 x 4 x 0.120
		DODECAGON	7.5 x 3.9 x 0.120	← SAME
40'	37'	ROUND	8.5 x 3.3 x 0.120	8 x 3 x 0.120
		OCTAGON	10 x 4 x 0.120	9 x 4 x 0.120
		DODECAGON	8.5 x 3.9 x 0.120	7.75 x 3.9 x 0.120
45'	42'	ROUND	9 x 3.1 x 0.120	8.5 x 3 x 0.120
		OCTAGON	10 x 4 x 0.134	10 x 4 x 0.120
		DODECAGON	9.75 x 3.9 x 0.120	8.75 x 3.9 x 0.120
50'	47'	ROUND	10 x 3.4 x 0.120	9 x 3 x 0.120
		OCTAGON	10 x 4 x 0.179	10 x 4 x 0.120
		DODECAGON	10.75 x 4 x 0.120	9.75 x 3.9 x 0.120

Ø Diameters Are Measured From Corner To Corner



#### SPECIFICATION

POLE SHAFT HAS STRUCTURAL CAPABILITIES EQUAL TO OR EXCEEDING THOSE INTENDED BY AASHTO 1975 EDITION, STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS.

DESIGN WIND LOADS ARE FOR 80 OR 90 MPH WIND ZONES, AS SPECIFIED ACTING ON A POLE HAVING TWO (2) 8' SINGLE MEMBER LUMINAIRE SUPPORT ARMS, EACH EQUIPPED WITH A LUMINAIRE HAVING A PROJECTED AREA OF 3.3 SQUARE FEET AND WEIGHING 60 POUNDS.

POLE SHAFT IS FABRICATED FROM STEEL TUBES HAVING A MAXIMUM SILICON CONTENT OF .06%.

TABLE SHOWS MINIMUM DIMENSIONS OF SHAFTS FABRICATED FROM 50 KSI YIELD MATERIAL. SEE APPENDIX FOR MINIMUM DIMENSIONS OF SHAFTS FABRICATED FROM 55 KSI YIELD MATERIAL.

SHAFT DIMENSIONS ARE GIVEN IN INCHES UNLESS OTHERWISE INDICATED, AND ARRANGED WITH BOTTOM DIAMETER x TOP DIAMETER x WALL THICKNESS.

STEEL POLE SHAFT, INCLUDING BASES ARE GALVANIZED IN ACCORDANCE WITH SECTION 1.4.3(2) OF AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS. (ASTM A-123)

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DIMENSIONAL TOLERANCES FOR STEEL TUBES ARE IN ACCORDANCE WITH ASTM A-595 OR A-501.

WELDING IS IN ACCORDANCE WITH SECTION 1.4.2 OF AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS.

#### INTENDED USE

THIS POLE SHAFT IS FOR USE WITH TWO (2) 6' OR 8' SINGLE MEMBER LUMINAIRE SUPPORT ARMS.

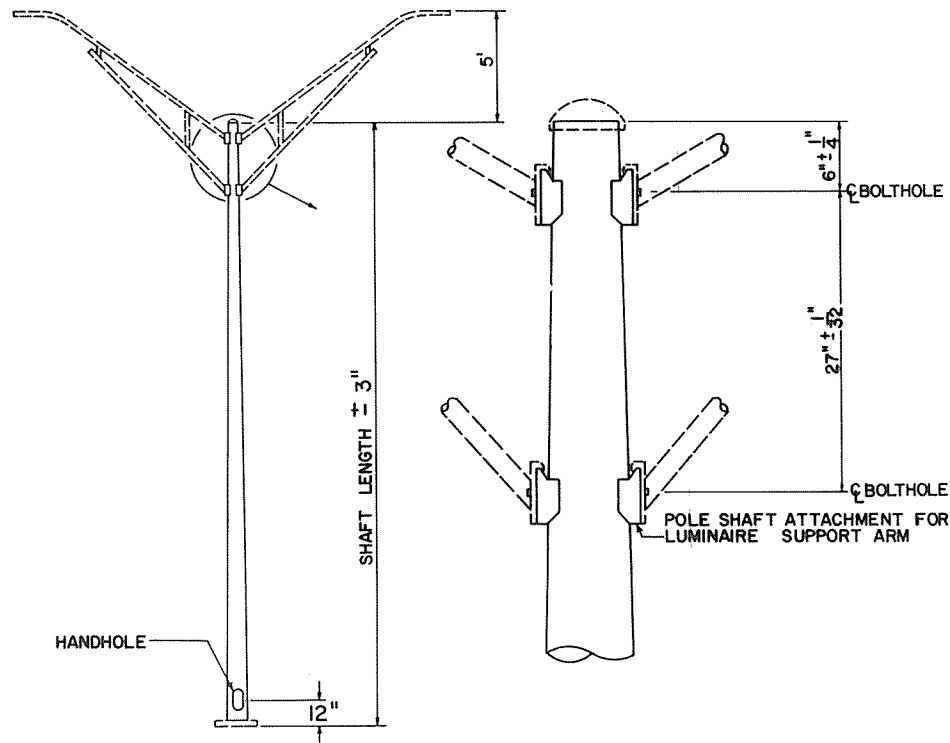
**STEEL POLE SHAFT FOR TWO SINGLE MEMBER LUMINAIRE SUPPORT ARMS**

**AASHTO-AGC-ARTBA  
DRAWING**

**SPSI-2**

DIMENSION TABLE				
MOUNTING HEIGHT	SHAFT LENGTH	SHAPE	90 MPH	80 MPH
30'	25'	ROUND	7.3 x 3.8 x 0.120	7 x 3.5 x 0.120
		OCTAGON $\emptyset$	8.5 x 4 x 0.120	8 x 4 x 0.120
		DODECAGON $\emptyset$	8 x 3.9 x 0.120	7.5 x 3.9 x 0.120
35'	30'	ROUND	8.2 x 4 x 0.120	8 x 3.8 x 0.120
		OCTAGON $\emptyset$	9.5 x 3.9 x 0.134	9.5 x 4 x 0.120
		DODECAGON $\emptyset$	9 x 3.9 x 0.120	8.5 x 3.9 x 0.120
40'	35'	ROUND	9.2 x 4 x 0.120	8.5 x 3.6 x 0.120
		OCTAGON $\emptyset$	9 x 3.5 x 0.179	9.5 x 3.9 x 0.134
		DODECAGON $\emptyset$	10 x 3.9 x 0.120	9.25 x 3.9 x 0.120
45'	40'	ROUND	10.2 x 4.6 x 0.120	9.4 x 3.8 x 0.120
		OCTAGON $\emptyset$	10.2 x 4 x 0.179	11 x 3.9 x 0.134
		DODECAGON $\emptyset$	11.5 x 4 x 0.120	10.5 x 4 x 0.120
50'	45'	ROUND	9.7 x 3.4 x 0.179	10.3 x 4 x 0.120
		OCTAGON $\emptyset$	11.5 x 4.5 x 0.179	13.8 x 4 x 0.134
		DODECAGON $\emptyset$	12.8 x 4.5 x 0.120	11.5 x 4 x 0.120

$\emptyset$  Diameters Are Measured From Corner To Corner



#### SPECIFICATION

POLE SHAFT HAS STRUCTURAL CAPABILITIES EQUAL TO OR EXCEEDING THOSE INTENDED BY AASHTO 1975 EDITION, STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS.

DESIGN WIND LOADS ARE FOR 80 OR 90 MPH WIND ZONES, AS SPECIFIED ACTING ON A POLE HAVING TWO (2) 12' TRUSS TYPE LUMINAIRE SUPPORT ARMS, EACH EQUIPPED WITH A LUMINAIRE HAVING A PROJECTED AREA OF 3.3 SQUARE FEET AND WEIGHING 60 POUNDS.

POLE SHAFT IS FABRICATED FROM STEEL TUBES HAVING A MAXIMUM SILICON CONTENT OF .06%.

TABLE SHOWS MINIMUM DIMENSIONS OF SHAFTS FABRICATED FROM 50 KSI YIELD MATERIAL. SEE APPENDIX FOR MINIMUM DIMENSIONS OF SHAFTS FABRICATED FROM 55 KSI YIELD MATERIAL.

SHAFT DIMENSIONS ARE GIVEN IN INCHES UNLESS OTHERWISE INDICATED, AND ARRANGED WITH BOTTOM DIAMETER x TOP DIAMETER x WALL THICKNESS.

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WELDING IS IN ACCORDANCE WITH SECTION 1.4.2 OF AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS.

#### INTENDED USE

THIS POLE IS FOR USE WITH TWO (2) 10' OR 12' TRUSS TYPE LUMINAIRE SUPPORT ARMS.

STEEL POLE SHAFT FOR TWO 10' OR 12' TRUSS TYPE  
LUMINAIRE SUPPORT ARMS

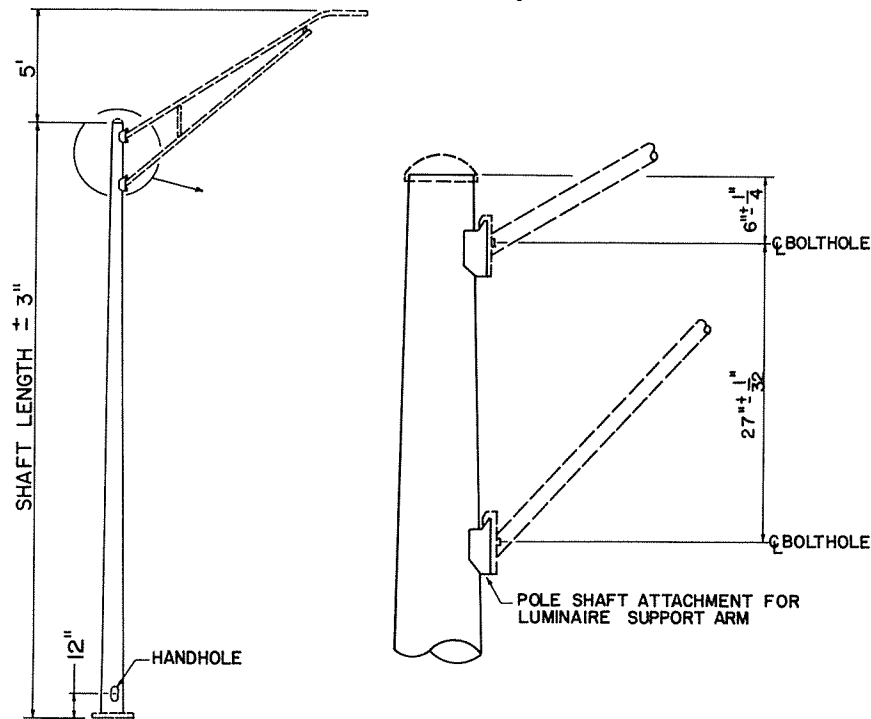
AASHTO-AGC-ARTBA  
DRAWING

SPSI-4



DIMENSION TABLE				
MOUNTING HEIGHT	SHAFT LENGTH	SHAPE	90 MPH	80 MPH
30'	25'	ROUND	7 x 4.3 x 0.120	← SAME
		OCTAGON $\emptyset$	7.5 x 4.5 x 0.120	← SAME
		DODECAGON $\emptyset$	7.5 x 4.4 x 0.120	← SAME
35'	30'	ROUND	7 x 4.3 x 0.120	← SAME
		OCTAGON $\emptyset$	8.5 x 4.5 x 0.120	7.5 x 4.5 x 0.120
		DODECAGON $\emptyset$	7.5 x 4.4 x 0.120	← SAME
40'	35'	ROUND	7.8 x 4.3 x 0.120	7.5 x 4.3 x 0.120
		OCTAGON $\emptyset$	9.5 x 4.3 x 0.134	8.5 x 4.5 x 0.120
		DODECAGON $\emptyset$	8.5 x 4.4 x 0.120	7.75 x 4.4 x 0.120
45'	40'	ROUND	9 x 4.3 x 0.120	8.3 x 4.3 x 0.120
		OCTAGON $\emptyset$	10.8 x 4.3 x 0.134	9.5 x 4.3 x 0.134
		DODECAGON $\emptyset$	9.75 x 4.4 x 0.120	8.75 x 4.4 x 0.120
50'	45'	ROUND	9.5 x 4.3 x 0.120	8.8 x 4.3 x 0.120
		OCTAGON $\emptyset$	11.5 x 4.3 x 0.134	11.5 x 4.3 x 0.134
		DODECAGON $\emptyset$	10.2 x 4.2 x 0.134	9.75 x 4.4 x 0.120

$\emptyset$  Diameters Are Measured From Corner To Corner  
 $\Delta$  For Missing Dimensions See Section NF1



**SPECIFICATION**  
 POLE SHAFT HAS STRUCTURAL CAPABILITIES EQUAL TO OR EXCEEDING THOSE INTENDED BY AASHTO 1975 EDITION, STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS.

DESIGN WIND LOADS ARE FOR 80 OR 90 MPH WIND ZONES, AS SPECIFIED ACTING ON A POLE HAVING ONE (1) 15' TRUSS TYPE LUMINAIRE SUPPORT ARM EQUIPPED WITH A LUMINAIRE HAVING A PROJECTED AREA OF 3.3 SQUARE FEET AND WEIGHING 60 POUNDS.

POLE SHAFT IS FABRICATED FROM STEEL TUBES HAVING A MAXIMUM SILICON CONTENT OF .06%.

TABLE SHOWS MINIMUM DIMENSIONS OF SHAFTS FABRICATED FROM 50 KSI YIELD MATERIAL. SEE APPENDIX FOR MINIMUM DIMENSIONS OF SHAFTS FABRICATED FROM 55 KSI YIELD MATERIAL.

SHAFT DIMENSIONS ARE GIVEN IN INCHES UNLESS OTHERWISE INDICATED, AND ARRANGED WITH BOTTOM DIAMETER x TOP DIAMETER x WALL THICKNESS.

STEEL POLE SHAFT, INCLUDING BASES ARE GALVANIZED IN ACCORDANCE WITH SECTION 1.4.3(2) OF AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS. (ASTM A-123)

WHEN PAINTING IS SPECIFIED IN LIEU OF GALVANIZING, THE PAINTING WILL CONFORM TO SECTION 1.4.3(1) OF AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS.

DIMENSIONAL TOLERANCES FOR STEEL TUBES ARE IN ACCORDANCE WITH ASTM A-595 OR A-501.

WELDING IS IN ACCORDANCE WITH SECTION 1.4.2 OF AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS.

POLES SHOWN HAVE BEEN DESIGNED WITH A MINIMUM RADIUS OF CURVATURE OF 550' APPLIED 3' FROM POLE TOP WHEN EQUIPPED WITH A LUMINAIRE SUPPORT ARM AND 60 POUND LUMINAIRE.

MINIMUM RADIUS OF CURVATURE CRITERIA IS NOT A REQUIREMENT OF AASHTO 1975 EDITION, STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS; HOWEVER, THE CRITERIA IS CONSISTENT WITH CURRENT INDUSTRY PRACTICE.

#### INTENDED USE

THIS POLE IS FOR USE WITH ONE (1) 15' TRUSS TYPE LUMINAIRE SUPPORT ARM.

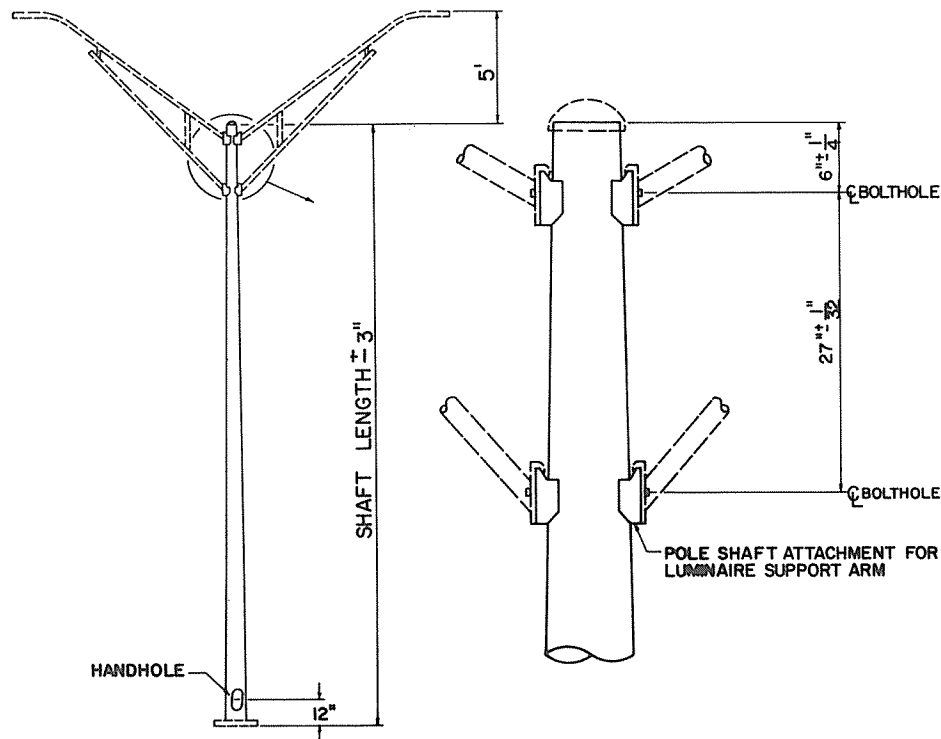
### STEEL POLE SHAFT FOR ONE 15' TRUSS TYPE LUMINAIRE SUPPORT ARM

**AASHTO-AGC-ARTBA  
DRAWING**

**SPSI-5**

DIMENSION TABLE				
MOUNTING HEIGHT	SHAFT LENGTH	SHAPE	90 MPH	80 MPH
30'	25'	ROUND	7.8 x 4.3 x 0.120	7 x 3.5 x 0.120
		OCTAGON	9.5 x 4.5 x 0.120	8.5 x 4.5 x 0.120
		DODECAGON	8.5 x 4.4 x 0.120	7.5 x 4.4 x 0.120
35'	30'	ROUND	8.8 x 4.6 x 0.120	8.5 x 4.3 x 0.120
		OCTAGON	8.75 x 3.8 x 0.179	9.5 x 4.3 x 0.134
		DODECAGON	9.75 x 4.4 x 0.120	8.5 x 4.4 x 0.120
40'	35'	ROUND	9.9 x 5 x 0.120	8.9 x 3.9 x 0.120
		OCTAGON	9.75 x 3.8 x 0.179	10.25 x 4.3 x 0.134
		DODECAGON	11 x 4.4 x 0.120	9.5 x 4.4 x 0.120
45'	40'	ROUND	9 x 3.4 x 0.179	10.1 x 4.5 x 0.120
		OCTAGON	10.75 x 3.8 x 0.179	9.75 x 3.8 x 0.179
		DODECAGON	12.5 x 4.4 x 0.120	11 x 4.4 x 0.120
50'	45'	ROUND	9.8 x 3.5 x 0.179	11 x 4.7 x 0.120
		OCTAGON	11.8 x 4 x 0.179	10.5 x 3.8 x 0.179
		DODECAGON	13.25 x 5 x 0.120	12.25 x 4.4 x 0.120

Ø Diameters Are Measured From Corner To Corner



#### SPECIFICATION

POLE SHAFT HAS STRUCTURAL CAPABILITIES EQUAL TO OR EXCEEDING THOSE INTENDED BY AASHTO 1975 EDITION, STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS.

DESIGN WIND LOADS ARE FOR 80 OR 90 MPH WIND ZONES, AS SPECIFIED ACTING ON A POLE HAVING TWO (2) 15' TRUSS TYPE LUMINAIRE SUPPORT ARMS, EACH EQUIPPED WITH A LUMINAIRE HAVING A PROJECTED AREA OF 3.3 SQUARE FEET AND WEIGHING 60 POUNDS.

POLE SHAFT IS FABRICATED FROM STEEL TUBES HAVING A MAXIMUM SILICON CONTENT OF .06%.

TABLE SHOWS MINIMUM DIMENSIONS OF SHAFTS FABRICATED FROM 50 KSI YIELD MATERIAL. SEE APPENDIX FOR MINIMUM DIMENSIONS OF SHAFTS FABRICATED FROM 55 KSI YIELD MATERIAL.

SHAFT DIMENSIONS ARE GIVEN IN INCHES UNLESS OTHERWISE INDICATED, AND ARRANGED WITH BOTTOM DIAMETER x TOP DIAMETER x WALL THICKNESS.

STEEL POLE SHAFT, INCLUDING BASES ARE GALVANIZED IN ACCORDANCE WITH SECTION 1.4.3(2) OF AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS. (ASTM A-123)

WHEN PAINTING IS SPECIFIED IN LIEU OF GALVANIZING, THE PAINTING WILL CONFORM TO SECTION 1.4.3(1) OF AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS.

DIMENSIONAL TOLERANCES FOR STEEL TUBES ARE IN ACCORDANCE WITH ASTM A-595 OR A-501.

WELDING IS IN ACCORDANCE WITH SECTION 1.4.2 OF AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS.

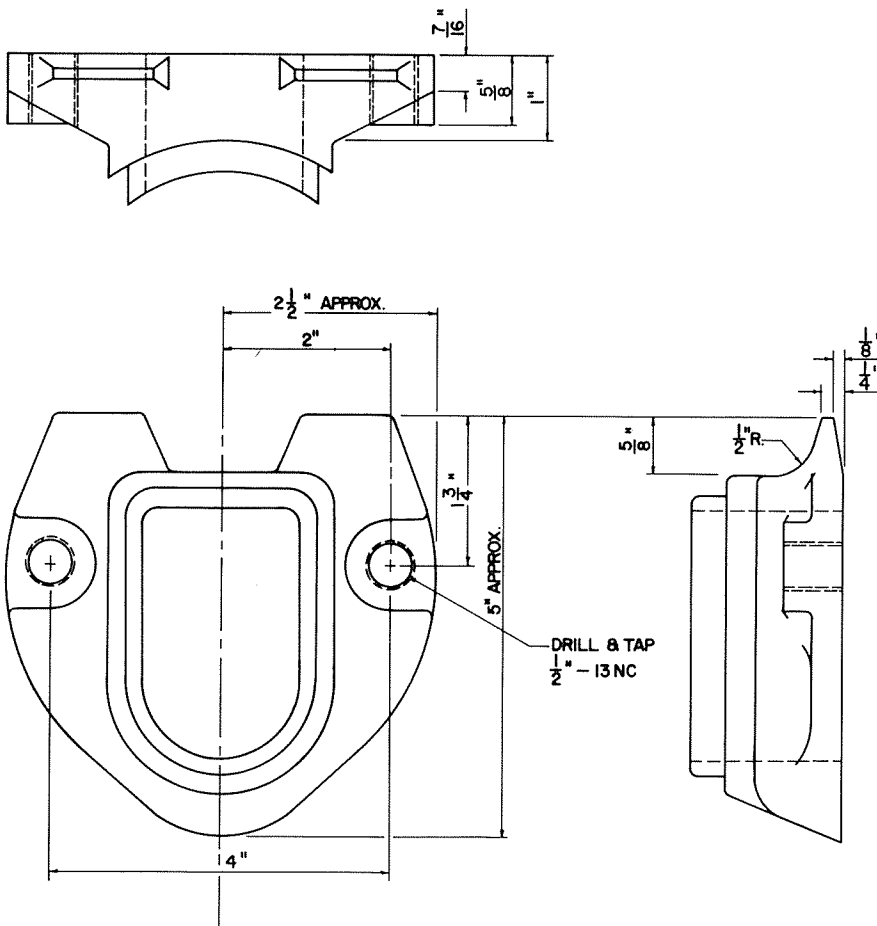
#### INTENDED USE

THIS POLE SHAFT IS FOR USE WITH TWO (2) 15' TRUSS TYPE LUMINAIRE SUPPORT ARMS.

**STEEL POLE SHAFT FOR TWO 15' TRUSS TYPE LUMINAIRE SUPPORT ARMS**

**AASHTO-AGC-ARTBA  
DRAWING**

**SPSI-6**



#### SPECIFICATIONS

ATTACHMENT IS CAST ACCORDING TO ASTM A-27, GRADE 65-35 OR FORGED ACCORDING TO A-521.

ATTACHMENT IS WELDED TO POLE SHAFT IN ACCORDANCE WITH SECTION 1.5.5 OF AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS.

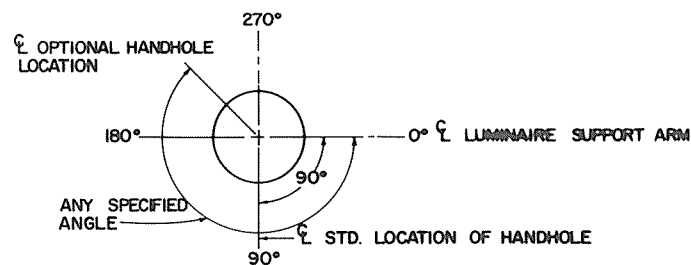
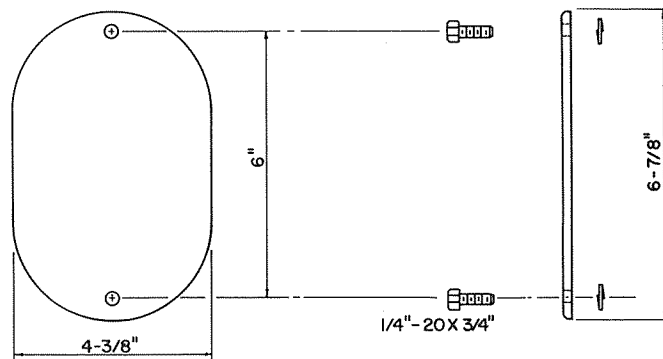
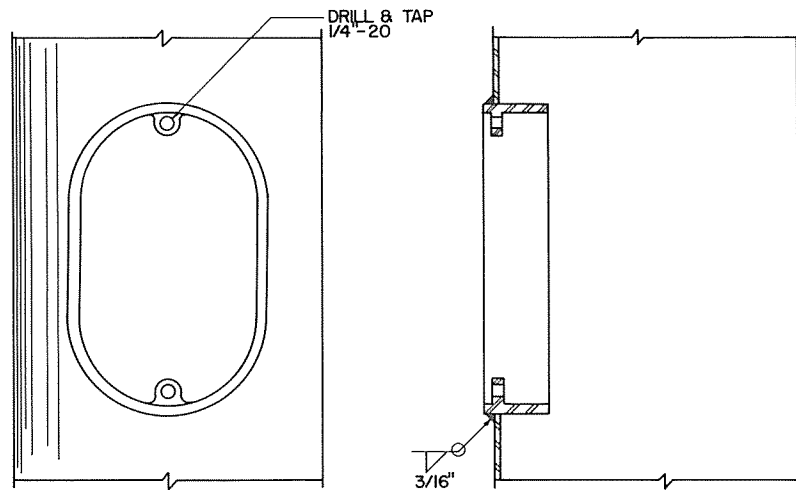
#### INTENDED USE

ATTACHMENT IS FOR CONNECTION OF LUMINAIRE SUPPORT ARM TO POLE SHAFT.

### POLE SHAFT ATTACHMENT FOR LUMINAIRE SUPPORT ARMS

AASHTO-AGC-ARTBA  
DRAWING

SPS2-1



#### SPECIFICATION

HANDHOLE REINFORCEMENT IS FORGED FROM STEEL CONFORMING TO ASTM A-576, GRADE 1021; FABRICATED FROM 3/16" WALL TUBING CONFORMING TO ASTM A-36; OR CAST FROM STEEL CONFORMING TO ASTM A-27, GRADE 65-35.

REINFORCEMENT IS WELDED TO THE POLE SHAFT IN THE 90° LOCATION OR IN ANY SPECIFIED LOCATION, PRIOR TO GALVANIZING POLE SHAFT.

WELDING IS IN ACCORDANCE WITH SECTION 1.4.2 OF AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS.

COVER IS FABRICATED FROM 3/16" SHEET STEEL OR ALUMINUM. STEEL COVER IS GALVANIZED ACCORDING TO ASTM A-153.

COVER IS EQUIPPED WITH TWO (2) AISI 302 STAINLESS STEEL 1/4" - 20 x 3/4" HEX CAP SCREWS AND TWO (2) CAPTIVE WASHERS.

PROVISION FOR INTERNAL GROUNDING IS PROVIDED BY A TAPPED HOLE.

HANDHOLE REINFORCEMENT STRENGTHENS POLE SHAFT SECTION TO THAT OF SHAFTS FABRICATED WITHOUT A HANDHOLE.

#### INTENDED USE

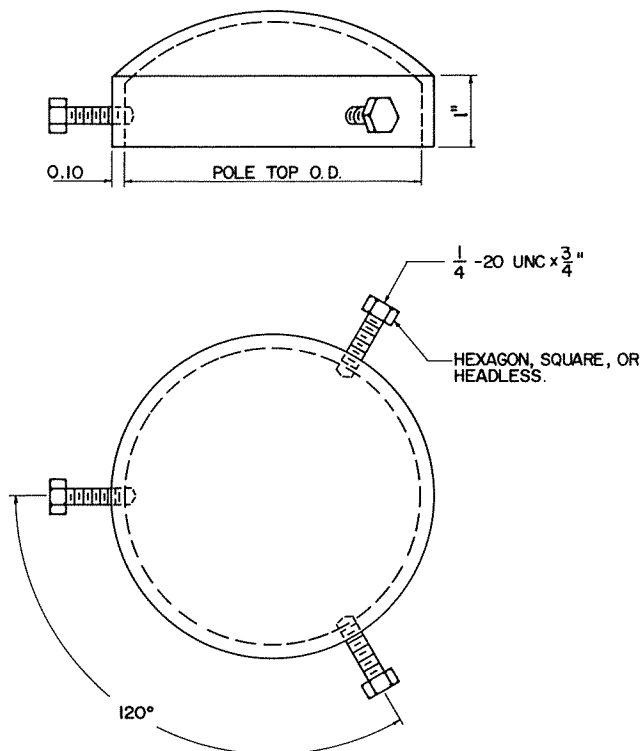
HANDHOLE REINFORCEMENT AND COVER IS USED TO PROVIDE ACCESS TO WIRING IN POLE.

### HANDHOLE, COVER AND BOLTS

AASHTO-AGC-ARTBA  
DRAWING

SPS 3-1





#### SPECIFICATIONS

POLE TOP IS FORGED ACCORDING TO ASTM A-668 OR CAST ASTM A-27, GRADE N-1 AND GALVANIZED IN ACCORDANCE WITH ASTM A-153.

MANUFACTURER MAY FURNISH ALUMINUM POLE CAP CAST FROM ALUMINUM ALLOY 356.

DIMENSIONS SHOWN ON THE DRAWING ARE NOMINAL.

POLE TOP IS FURNISHED WITH THREE (3)  $\frac{1}{4}$  - 20  $\times$   $\frac{3}{4}$ " AISI 302 STAINLESS STEEL SET SCREWS.

#### INTENDED USE

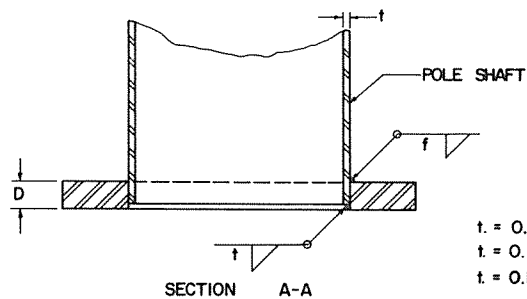
POLE TOP IS TO PROVIDE A COVER FOR THE OPEN POLE SHAFT TOP.

POLE TOP

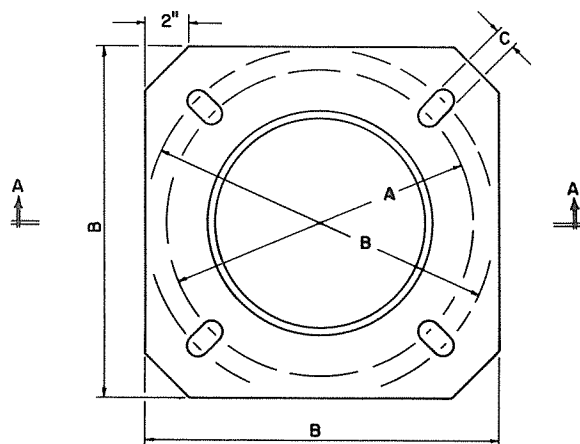
AASHTO-AGC-ARTBA  
DRAWING

SPS 4-1

DIMENSION TABLE				
MOUNTING HEIGHT	Nº OF ARMS	DIMENSIONS (Inches)		
		A (Max.)	B (Min.)	C
30'	1	11	12	1-1/8"
	2			
35'	1	11	12	1-1/8"
	2	14	15	
40'	1	14	15	1-1/8"
	2			1-3/8"
45'	1	14	15	1-1/8"
	2			1-3/8"
50'	1	14	15	1-1/8"
	2	16	17	1-3/8"



t = 0.120      f = 3/16  
t = 0.134      f = 3/16  
t = 0.179      f = 1/4



#### SPECIFICATION

ANCHOR BASE IS FABRICATED FROM PLATE STEEL CONFORMING TO ASTM A-36 AND IS WELDED TO POLE SHAFT PRIOR TO GALVANIZING SHAFT.

WELDING OF STEEL BASE IS IN ACCORDANCE WITH SECTION 1.4.2 OF AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS.

#### INTENDED USE

THIS ANCHOR BASE IS FOR STEEL POLES WHICH WILL BE INSTALLED IN LOCATIONS PROTECTED FROM VEHICULAR COLLISION, OR WHICH WILL BE INSTALLED IN LOCATIONS EXPOSED TO VEHICULAR COLLISION WHEN USED IN CONJUNCTION WITH APPROVED BREAKAWAY DEVICES.

ANCHOR BASE

AASHTO-AGC-ARTBA  
DRAWING

SPS 5-1

MINIMUM DIMENSIONS FOR D (INCHES)													
MOUNTING HEIGHT	MAX. ARM LENGTH	SINGLE ARM						TWIN ARM					
		90 MPH WIND			80 MPH WIND			90 MPH WIND			80 MPH WIND		
		RND	OCT	DOD	RND	OCT	DOD	RND	OCT	DOD	RND	OCT	DOD
30	8	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4
	12	3/4	3/4	3/4	3/4	3/4	3/4	7/8	7/8	7/8	7/8	7/8	7/8
	15	3/4	7/8	3/4	3/4	3/4	3/4	7/8	7/8	7/8	7/8	7/8	7/8
35	8	3/4	3/4	3/4	3/4	3/4	3/4	7/8	7/8	7/8	3/4	3/4	3/4
	12	7/8	7/8	7/8	3/4	3/4	3/4	1	1	1	7/8	7/8	7/8
	15	7/8	7/8	7/8	7/8	7/8	7/8	7/8	1	1	7/8	7/8	1
40	8	7/8	7/8	7/8	3/4	7/8	3/4	7/8	7/8	7/8	7/8	7/8	7/8
	12	7/8	7/8	7/8	7/8	7/8	7/8	1	1	1	1	1	1
	15	7/8	1	1	7/8	7/8	7/8	1	1-1/8	1	1	1	1
45	8	7/8	7/8	7/8	7/8	7/8	7/8	1	1	1	7/8	7/8	7/8
	12	7/8	1	1	7/8	7/8	7/8	1	1-1/8	1	1	1	1
	15	1	1	1	7/8	7/8	7/8	1-1/8	1-1/8	1	1	1-1/8	1
50	8	7/8	1	1	7/8	7/8	7/8	1	1-1/8	1	7/8	1	1
	12	1	1-1/8	1	7/8	7/8	1	1-1/8	1-1/8	1	1	1	1
	15	1	1-1/8	1	1	7/8	1	1-1/8	1-1/4	1-1/8	1	1-1/8	1

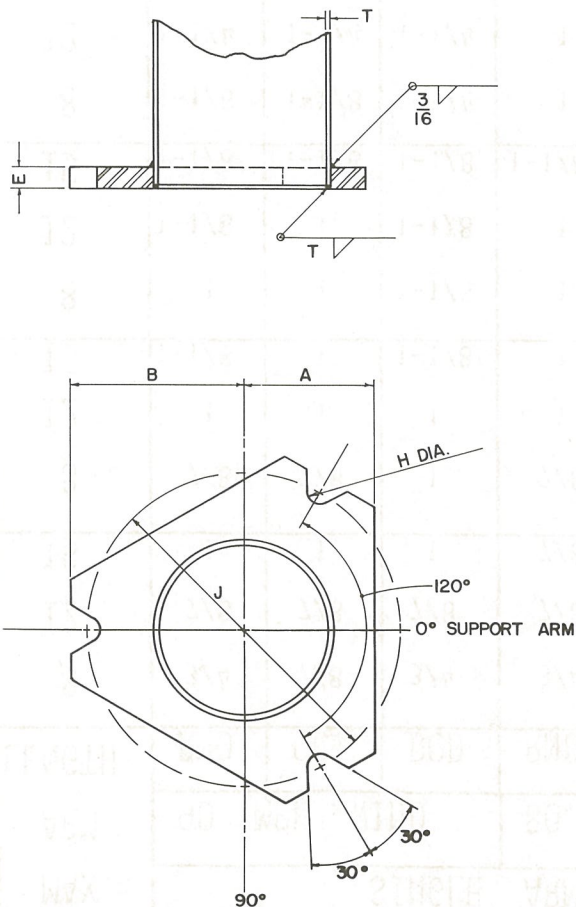
# ANCHOR BASE DIMENSION TABLE

AASHTO-AGC-ARTBA

SPS 5-1A

DIMENSION TABLE					
MOUNTING HEIGHT	NO. OF ARMS	DIMENSIONS (INCHES)			
		A	B	H	J
30	1	6	8	15/16	13
	2				
35	1	6	8	15/16	13
	2				
40	1	6-1/2	8-1/2	15/16	14
	2	7	10	15/16	17
45	1	6-7/16	9	15/16	15
	2	7	10	1-1/16	17
50	1	7	10	15/16	17
	2			1-1/16	

SEE SHEET IIA FOR "DIMENSION E"



#### SPECIFICATION

SLIP BASE IS FABRICATED FROM STEEL PLATE CONFORMING TO ASTM A-36 AND IS WELDED TO POLE SHAFT PRIOR TO GALVANIZING SHAFT.

WELDING OF STEEL BASES IS IN ACCORDANCE WITH SECTION 1.4.2 OF AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS.

#### INTENDED USE

THIS SLIP BASE IS FOR POLES WHICH WILL BE INSTALLED IN LOCATIONS EXPOSED TO VEHICULAR COLLISION.

SLIP BASE

AASHTO-AGC-ARTBA  
DRAWING

SPS 5-2

MINIMUM DIMENSIONS FOR E (INCHES)													
MOUNTING HEIGHT	MAX. ARM LENGTH	SINGLE ARM						TWIN ARM					
		90 MPH WIND			80 MPH WIND			90 MPH WIND			80 MPH WIND		
		RND	OCT	DOD	RND	OCT	DOD	RND	OCT	DOD	RND	OCT	DOD
30	8	3/4	7/8	3/4	3/4	3/4	3/4	7/8	1	1	7/8	7/8	7/8
	12	7/8	7/8	7/8	7/8	7/8	7/8	1	1	1	1	1	1
	15	1	1	1	7/8	7/8	7/8	1-1/8	1	1	1	1	1
35	8	7/8	7/8	1	7/8	7/8	7/8	1	1	1	1	1	1
	12	1	1	1	1	1	1	1-1/8	1	1-1/8	1	1	1
	15	1-1/8	1	1-1/8	1	1	1	1-1/8	1-1/4	1	1	1	1-1/8
40	8	1	1	1-1/8	1	1	1	1-1/4	1-1/4	1-1/4	1-1/8	1-1/8	1-1/4
	12	1-1/8	1	1-1/8	1	1	1-1/8	1-3/8	1-1/2	1-3/8	1-1/4	1-1/4	1-1/4
	15	1-1/8	1-1/8	1-1/8	1-1/8	1-1/8	1-1/8	1-3/8	1-5/8	1-3/8	1-3/8	1-3/8	1-3/8
45	8	1-1/8	1-1/8	1-1/4	1	1	1-1/8	1-1/4	1-3/8	1-1/4	1-1/4	1-1/4	1-1/4
	12	1-1/4	1-1/4	1-1/4	1	1	1-1/8	1-3/8	1-1/2	1-1/2	1-3/8	1-1/4	1-1/4
	15	1-1/4	1-1/8	1-1/4	1-1/8	1-1/8	1-1/8	1-5/8	1-1/2	1-1/4	1-3/8	1-1/2	1-3/8
50	8	1-1/4	1-3/8	1-3/8	1-1/8	1-1/8	1-1/4	1-1/4	1-1/2	1-3/8	1-1/4	1-1/4	1-1/4
	12	1-1/4	1-1/2	1-3/8	1-1/4	1-1/4	1-1/4	1-1/2	1-1/2	1-1/4	1-3/8	1	1-1/4
	15	1-3/8	1-1/2	1-3/8	1-1/4	1-1/4	1-3/8	1-5/8	1-1/2	1-1/4	1-3/8	1-1/2	1-1/4

### SLIP BASE DIMENSION TABLE

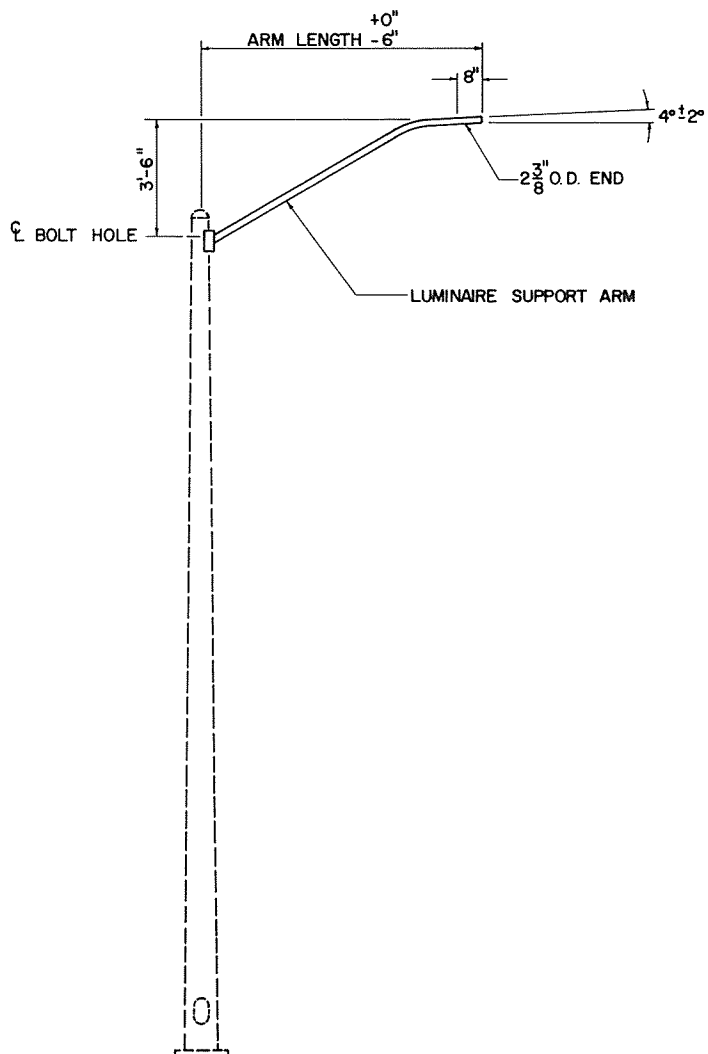
AASHTO-AGC-ARTBA

SPS 5-2A



# **SECTION SSA**

**STEEL LUMINAIRE SUPPORT ARM ASSEMBLY**



#### SPECIFICATION

LUMINAIRE SUPPORT ARMS OF 6' OR 8' LENGTHS ARE FABRICATED FROM 2" DIAMETER SCHEDULE 40 STEEL PIPE CONFORMING TO ASTM A-501 OR A-53, GRADE B.

STEEL LUMINAIRE SUPPORT ARMS ARE GALVANIZED IN ACCORDANCE WITH SECTION 1.4.3(2) AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS. (ASTM A-123).

TOLERANCES FOR STEEL TUBE DIAMETER, ETC. ARE IN ACCORDANCE WITH ASTM A-595 OR A-501 AS APPROPRIATE.

WELDING OF STEEL ARMS ARE IN ACCORDANCE WITH SECTION 1.4.2 OF AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS.

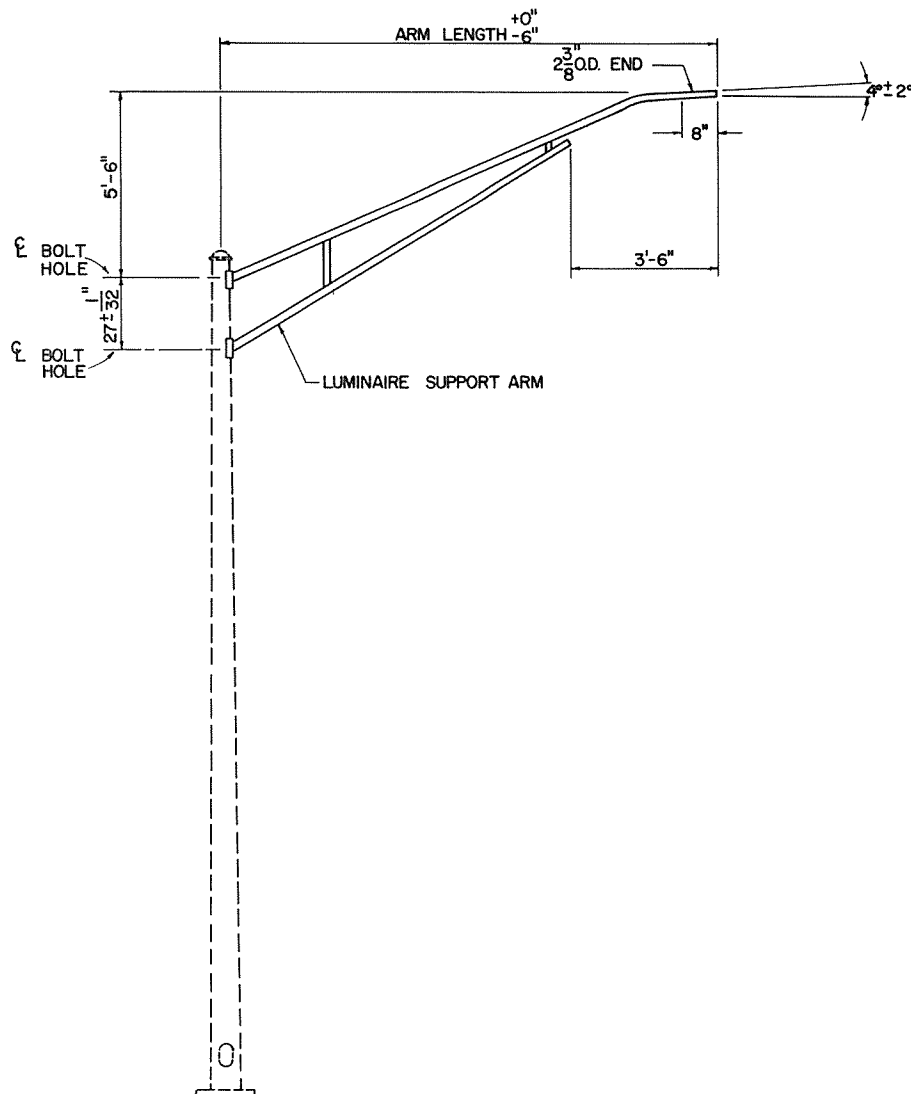
#### INTENDED USE

THIS LUMINAIRE SUPPORT ARM IS FOR POSITIONING LUMINAIRE ABOVE ROADWAY.

STEEL SINGLE MEMBER LUMINAIRE SUPPORT ARM

AASHTO-AGC-ARTBA  
DRAWING

SSAI - I



#### SPECIFICATION

LUMINAIRE SUPPORT ARMS OF 10', 12', OR 15' LENGTHS ARE TRUSS TYPE, FABRICATED FROM 2" DIAMETER SCHEDULE 40 STEEL PIPE CONFORMING TO ASTM A-501 OR A-53, GRADE B.

STEEL LUMINAIRE SUPPORT ARMS ARE GALVANIZED IN ACCORDANCE WITH SECTION 1.4.3(2) AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS. (ASTM A-123).

TOLERANCES FOR STEEL TUBE DIAMETER, ETC. ARE IN ACCORDANCE WITH ASTM A-595 OR A-501 AS APPROPRIATE.

WELDING OF STEEL ARMS ARE IN ACCORDANCE WITH SECTION 1.4.2 OF AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS.

#### INTENDED USE

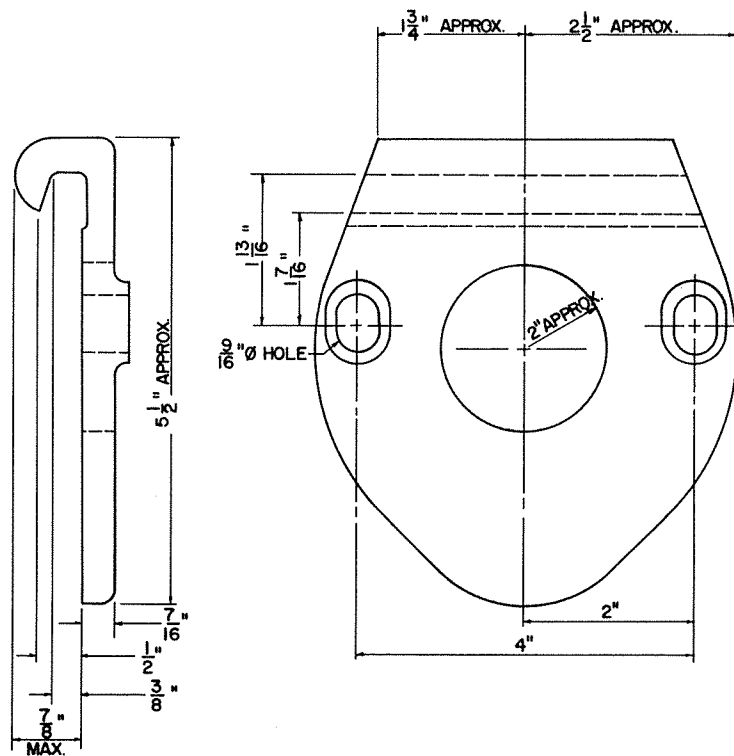
THIS LUMINAIRE SUPPORT ARM IS FOR POSITIONING LUMINAIRE ABOVE ROADWAY.

STEEL TRUSS TYPE LUMINAIRE SUPPORT ARM

AASHTO-AGC-ARTBA  
DRAWING

SSAI-2





#### SPECIFICATION

ATTACHMENT IS CAST ACCORDING TO ASTM A-27, GRADE 65-35 OR FORGED ACCORDING TO A-521.

ATTACHMENT IS WELDED TO ARM IN ACCORDANCE WITH SECTION 1.5.5 OF AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS.

#### INTENDED USE

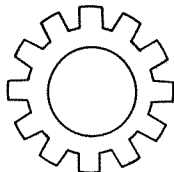
ATTACHMENT IS FOR CONNECTION OF LUMINAIRE SUPPORT ARM TO POLE SHAFT.

### LUMINAIRE SUPPORT ARM ATTACHMENT

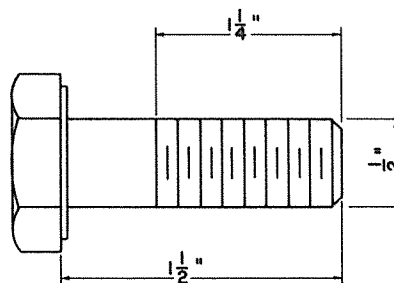
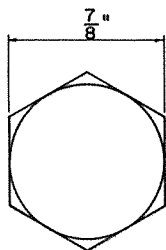
AASHTO-AGC-ARTBA  
DRAWING

SSA 2-1

1/2" I.D. NOMINAL EXTERNAL  
TOOTH LOCK WASHER



1/2" 13 UNC BOLT



#### SPECIFICATION

BOLTS CONFORM TO THE REQUIREMENTS OF ASTM A-325 OR A-449.

LOCK WASHERS CONFORM TO THE REQUIREMENTS OF ANSI B18.21.1 EXTERNAL TOOTH WASHERS.

BOLTS, NUTS, AND WASHERS ARE GALVANIZED IN ACCORDANCE WITH ASTM A-153 EXCEPT WHEN STAINLESS STEEL IS REQUESTED. STAINLESS STEEL SHALL CONFORM TO THE REQUIREMENTS OF AISI TYPE 302.

TWO (2) BOLTS AND TWO (2) LOCK WASHERS WILL BE FURNISHED WITH EACH SINGLE MEMBER LUMINAIRE SUPPORT ARM.

FOUR (4) BOLTS AND FOUR (4) LOCK WASHERS WILL BE FURNISHED WITH EACH TRUSS TYPE LUMINAIRE SUPPORT ARM.

#### INTENDED USE

BOLT ASSEMBLY IS USED TO FASTEN SUPPORT ARM TO LIGHT POLE SHAFT.

### LUMINAIRE SUPPORT ARM BOLT & WASHER

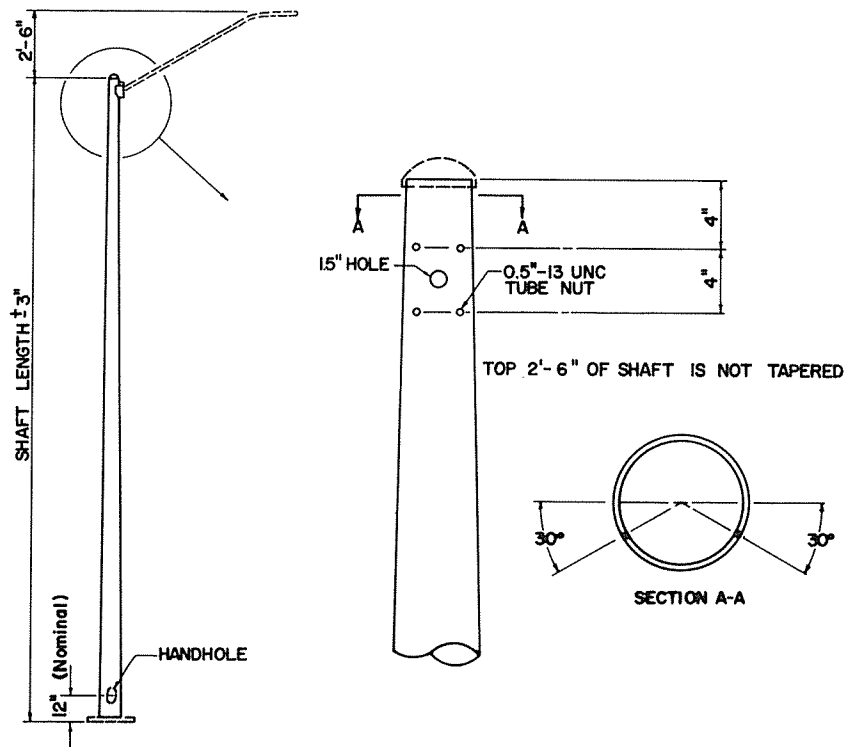
AASHTO-AGC-ARTBA  
DRAWING

SSA3-1

# **SECTION APS**

**ALUMINUM POLE SHAFT ASSEMBLY**

DIMENSION TABLE				
MOUNTING HEIGHT	SHAFT LENGTH	ALLOY	80 MPH	90 MPH
30'	27.5	6063	8 X 6 X 0.156	← SAME
		6005	8 X 6 X 0.156	← SAME
35'	32.5	6063	8 X 6 X 0.188	← SAME
		6005	8 X 6 X 0.156	← SAME
40'	37.5	6063	10 X 6 X 0.156	← SAME
		6005	10 X 6 X 0.156	← SAME
45'	42.5	6063	10 X 6 X 0.188	← SAME
		6005	10 X 6 X 0.156	← SAME
50'	47.5	6063	10 X 6 X 0.219	10 X 6 X 0.250
		6005	10 X 6 X 0.156	← SAME



#### SPECIFICATION

POLE SHAFT HAS STRUCTURAL CAPABILITIES EQUAL TO OR EXCEEDING THOSE INTENDED BY AASHTO 1975 EDITION, STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS.

DESIGN WIND LOADS ARE FOR 80 OR 90 MPH WIND ZONES, AS SPECIFIED, ACTING ON A POLE HAVING ONE (1) 8' SINGLE MEMBER LUMINAIRE SUPPORT ARM, EQUIPPED WITH A LUMINAIRE HAVING A PROJECTED AREA OF 3.3 SQUARE FEET AND WEIGHING 60 POUNDS.

POLE SHAFT IS FABRICATED FROM ALUMINUM ALLOY 6063 HAVING T-6 TEMPER AFTER FABRICATION OR ALLOY 6005 HAVING T-5 TEMPER AFTER FABRICATION.

SEE SECTION NFI FOR OTHER STRUCTURALLY ACCEPTABLE POLES.

POLE SHAFT IS ANNULAR POLISHED WITH NOT LESS THAN 36 GRIT.

TOLERANCES ARE AS SHOWN ON THE DRAWING OR IN ACCORDANCE WITH ALUMINUM ASSOCIATION REQUIREMENTS AS APPROPRIATE.

WELDING OF ALUMINUM STRUCTURES IS IN ACCORDANCE WITH SECTION 1.5.5 OF AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS.

POLES FABRICATED FROM ALLOY 6005 WITH WELDS IN STRESSED AREAS, WILL BE REINFORCED IN THE AREA OF THE WELD TO GIVE EQUIVALENT STRENGTH OF UNWELDED SHAFT SECTION.

SHAFT DIMENSIONS ARE GIVEN IN INCHES UNLESS INDICATED OTHERWISE, AND ARRANGED BOTTOM DIAMETER X TOP DIAMETER X WALL THICKNESS.

POLES SHOWN HAVE BEEN DESIGNED WITH A MINIMUM RADIUS OF CURVATURE OF 550' APPLIED 6" FROM POLE TOP WHEN EQUIPPED WITH A LUMINAIRE SUPPORT ARM AND 60 POUND LUMINAIRE

MINIMUM RADIUS OF CURVATURE CRITERIA IS NOT A REQUIREMENT OF AASHTO, 1975 EDITION, STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS; HOWEVER, THE CRITERIA IS CONSISTENT WITH CURRENT INDUSTRY PRACTICES.

#### INTENDED USE

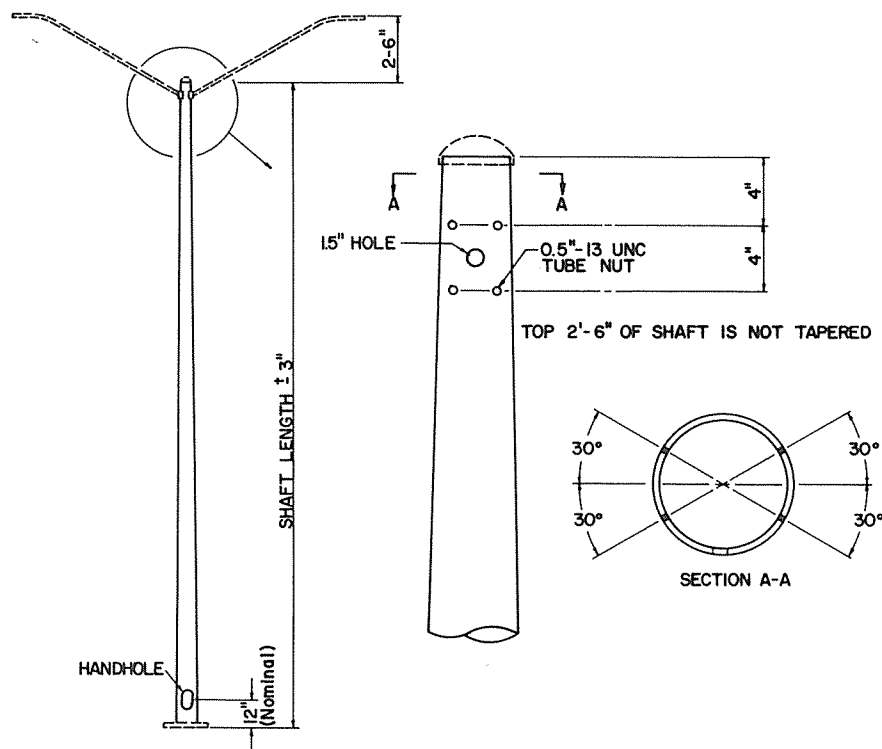
THIS POLE SHAFT IS FOR USE WITH ONE (1) 6' OR 8' SINGLE MEMBER LUMINAIRE SUPPORT ARM.

### ALUMINUM POLE SHAFT FOR ONE SINGLE MEMBER LUMINAIRE SUPPORT ARM

AASHTO-AGC-ARTBA  
DRAWING

APSI-1

DIMENSION TABLE				
MOUNTING HEIGHT	SHAFT LENGTH	ALLOY	80 MPH	90 MPH
30'	27.5	6063	8 x 6 x 0.156	8 x 6 x 0.219
		6005	8 x 6 x 0.156	← SAME
35'	32.5	6063	10 x 6 x 0.156	10 x 6 x 0.188
		6005	10 x 6 x 0.156	← SAME
40'	37.5	6063	10 x 6 x 0.188	10 x 6 x 0.219
		6005	10 x 6 x 0.156	← SAME
45'	42.5	6063	10 x 6 x 0.219	10 x 6 x 0.250
		6005	10 x 6 x 0.156	10 x 6 x 0.170
50'	47.5	6063	10 x 6 x 0.312	← SAME
		6005	10 x 6 x 0.188	10 x 6 x 0.219



#### SPECIFICATION

POLE SHAFT HAS STRUCTURAL CAPABILITIES EQUAL TO OR EXCEEDING THOSE INTENDED BY AASHTO 1975 EDITION, STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS.

DESIGN WIND LOADS ARE FOR 80 OR 90 MPH WIND ZONES, AS SPECIFIED, ACTING ON A POLE HAVING TWO (2) 8' SINGLE MEMBER LUMINAIRE SUPPORT ARMS, EACH EQUIPPED WITH A LUMINAIRE HAVING A PROJECTED AREA OF 3.3 SQUARE FEET AND WEIGHING 60 POUNDS.

POLE SHAFT IS FABRICATED FROM ALUMINUM ALLOY 6063 HAVING T-6 TEMPER AFTER FABRICATION OR ALLOY 6005 HAVING T-5 TEMPER AFTER FABRICATION.

SEE SECTION NF1 FOR OTHER STRUCTURALLY ACCEPTABLE POLES.

POLE SHAFT IS ANNULAR POLISHED WITH NOT LESS THAN 36 GRIT.

TOLERANCES ARE AS SHOWN ON THE DRAWING OR IN ACCORDANCE WITH ALUMINUM ASSOCIATION REQUIREMENTS AS APPROPRIATE.

WELDING OF ALUMINUM STRUCTURES IS IN ACCORDANCE WITH SECTION 1.5.5 OF AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS.

POLES FABRICATED FROM ALLOY 6005 WITH WELDS IN STRESSED AREAS, WILL BE REINFORCED IN THE AREA OF THE WELD TO GIVE EQUIVALENT STRENGTH OF UNWELDED SHAFT SECTION.

SHAFT DIMENSIONS ARE GIVEN IN INCHES UNLESS INDICATED OTHERWISE, AND ARRANGED BOTTOM DIAMETER x TOP DIAMETER x WALL THICKNESS.

#### INTENDED USE

THIS POLE SHAFT IS FOR USE WITH TWO (2) 6' OR 8' SINGLE MEMBER LUMINAIRE SUPPORT ARMS.

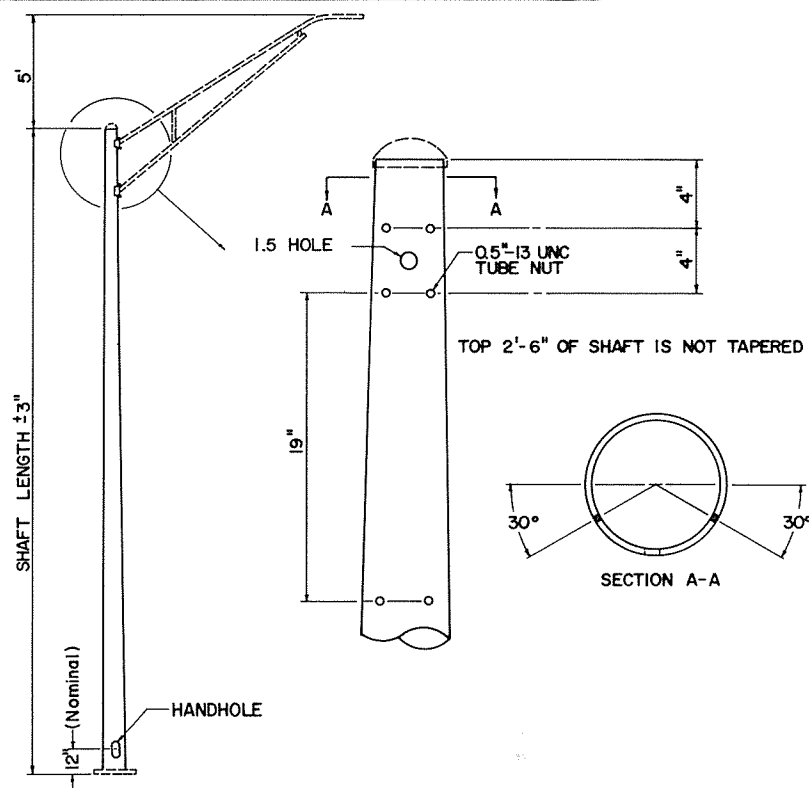
### ALUMINUM POLE SHAFT FOR TWO SINGLE MEMBER LUMINAIRE SUPPORT ARMS

AASHTO-AGC-ARTBA  
DRAWING

APSI - 2



DIMENSION TABLE				
MOUNTING HEIGHT	SHAFT LENGTH	ALLOY	80 MPH	90 MPH
30'	25	6063	8 X 6 X 0.156	8 X 6 X 0.188
		6005	8 X 6 X 0.156	← SAME
35'	30	6063	8 X 6 X 0.188	8 X 6 X 0.219
		6005	8 X 6 X 0.156	← SAME
40'	35	6063	10 X 6 X 0.156	10 X 6 X 0.188
		6005	10 X 6 X 0.156	← SAME
45'	40	6063	10 X 6 X 0.219	← SAME
		6005	10 X 6 X 0.170	← SAME
50'	45	6063	10 X 6 X 0.219	10 X 6 X 0.250
		6005	10 X 6 X 0.170	← SAME



#### SPECIFICATION

POLE SHAFT HAS STRUCTURAL CAPABILITIES EQUAL TO OR EXCEEDING THOSE INTENDED BY AASHTO 1975 EDITION, STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS.

DESIGN WIND LOADS ARE FOR 80 OR 90 MPH WIND ZONES, AS SPECIFIED, ACTING ON A POLE HAVING ONE (1) 12' TRUSS TYPE LUMINAIRE SUPPORT ARM, EQUIPPED WITH A LUMINAIRE HAVING A PROJECTED AREA OF 3.3 SQUARE FEET AND WEIGHING 60 POUNDS.

POLE SHAFT IS FABRICATED FROM ALUMINUM ALLOY 6063 HAVING T-6 TEMPER AFTER FABRICATION OR ALLOY 6005 HAVING T-5 TEMPER AFTER FABRICATION.

SEE SECTION NF1 FOR OTHER STRUCTURALLY ACCEPTABLE POLES.

POLE SHAFT IS ANNULAR POLISHED WITH NOT LESS THAN 36 GRIT.

TOLERANCES ARE AS SHOWN ON THE DRAWING OR IN ACCORDANCE WITH ALUMINUM ASSOCIATION REQUIREMENTS AS APPROPRIATE.

WELDING OF ALUMINUM STRUCTURES IS IN ACCORDANCE WITH SECTION 1.5.5 OF AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS.

POLES FABRICATED FROM ALLOY 6005 WITH WELDS IN STRESSED AREAS, WILL BE REINFORCED IN THE AREA OF THE WELD TO GIVE EQUIVALENT STRENGTH OF UNWELDED SHAFT SECTION.

SHAFT DIMENSIONS ARE GIVEN IN INCHES UNLESS INDICATED OTHERWISE, AND ARRANGED BOTTOM DIAMETER x TOP DIAMETER x WALL THICKNESS.

POLES SHOWN HAVE BEEN DESIGNED WITH A MINIMUM RADIUS OF CURVATURE OF 550' APPLIED 28" FROM POLE TOP WHEN EQUIPPED WITH A LUMINAIRE SUPPORT ARM AND 60 POUND LUMINAIRE.

MINIMUM RADIUS OF CURVATURE CRITERIA IS NOT A REQUIREMENT OF AASHTO, 1975 EDITION, STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS; HOWEVER, THE CRITERIA IS CONSISTENT WITH CURRENT INDUSTRY PRACTICES.

#### INTENDED USE

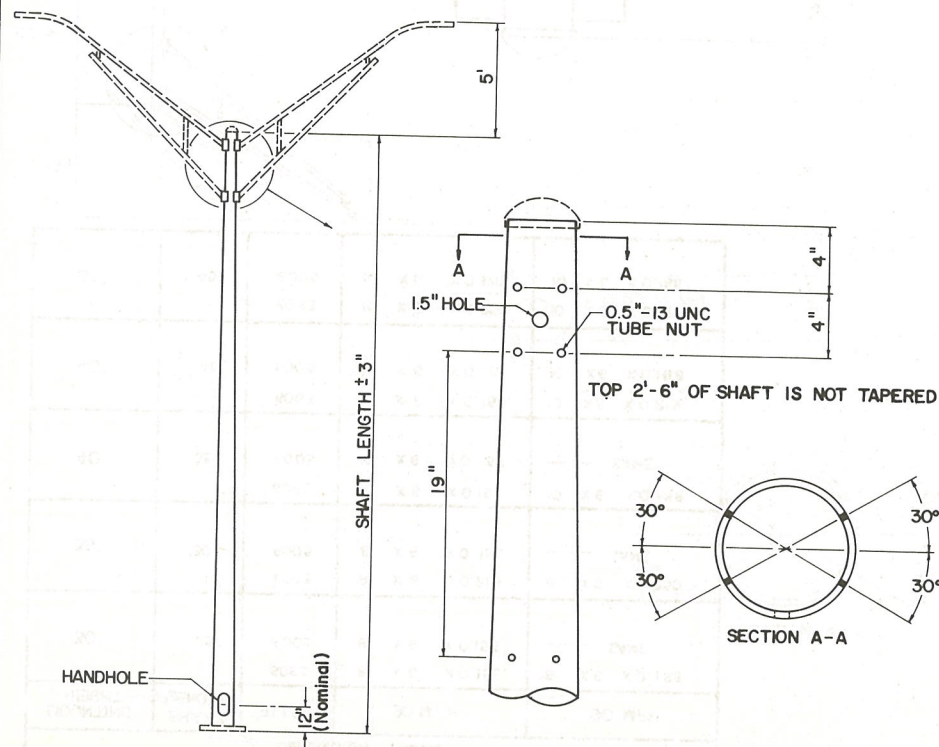
THIS POLE SHAFT IS FOR USE WITH ONE (1) 10' OR 12' TRUSS TYPE LUMINAIRE SUPPORT ARM.

**ALUMINUM POLE SHAFT FOR ONE 10' OR 12' TRUSS  
TYPE LUMINAIRE SUPPORT ARM**

**AASHTO-AGC-ARTBA  
DRAWING**

**APSI-3**

DIMENSION TABLE				
MOUNTING HEIGHT	SHAFT LENGTH	ALLOY	80 MPH	90 MPH
30'	25	6063	8 X 6 X 0.219	8 X 6 X 0.250
		6005	8 X 6 X 0.156	← SAME
35'	30	6063	10 X 6 X 0.188	10 X 6 X 0.219
		6005	10 X 6 X 0.156	← SAME
40'	35	6063	10 X 6 X 0.219	10 X 6 X 0.250
		6005	10 X 6 X 0.156	10 X 6 X 0.170
45'	40	6063	10 X 3 X 0.312	← SAME
		6005	10 X 6 X 0.188	10 X 6 X 0.219
50'	45	6063	12 X 6 X 0.250	← SAME
		6005	12 X 6 X 0.219	← SAME



#### SPECIFICATION

POLE SHAFT HAS STRUCTURAL CAPABILITIES EQUAL TO OR EXCEEDING THOSE INTENDED BY AASHTO 1975 EDITION, STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS.

DESIGN WIND LOADS ARE FOR 80 OR 90 MPH WIND ZONES, AS SPECIFIED, ACTING ON A POLE HAVING TWO (2) 12' TRUSS TYPE LUMINAIRE SUPPORT ARMS, EACH EQUIPPED WITH A LUMINAIRE HAVING A PROJECTED AREA OF 3.3 SQUARE FEET AND WEIGHING 60 POUNDS.

POLE SHAFT IS FABRICATED FROM ALUMINUM ALLOY 6063 HAVING T-6 TEMPER AFTER FABRICATION OR ALLOY 6005 HAVING T-5 TEMPER AFTER FABRICATION.

SEE SECTION NFI FOR OTHER STRUCTURALLY ACCEPTABLE POLES.

POLE SHAFT IS ANNULAR POLISHED WITH NOT LESS THAN 36 GRIT.

TOLERANCES ARE AS SHOWN ON THE DRAWING OR IN ACCORDANCE WITH ALUMINUM ASSOCIATION REQUIREMENTS AS APPROPRIATE.

WELDING OF ALUMINUM STRUCTURES IS IN ACCORDANCE WITH SECTION 1.5.5 OF AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS.

POLES FABRICATED FROM ALLOY 6005 WITH WELDS IN STRESSED AREAS, WILL BE REINFORCED IN THE AREA OF THE WELD TO GIVE EQUIVALENT STRENGTH OF UNWELDED SHAFT SECTION.

SHAFT DIMENSIONS ARE GIVEN IN INCHES UNLESS INDICATED OTHERWISE, AND ARRANGED BOTTOM DIAMETER X TOP DIAMETER X WALL THICKNESS.

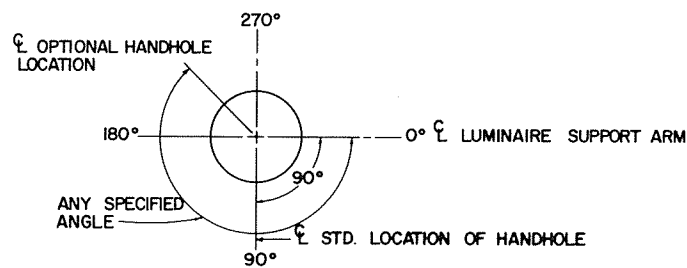
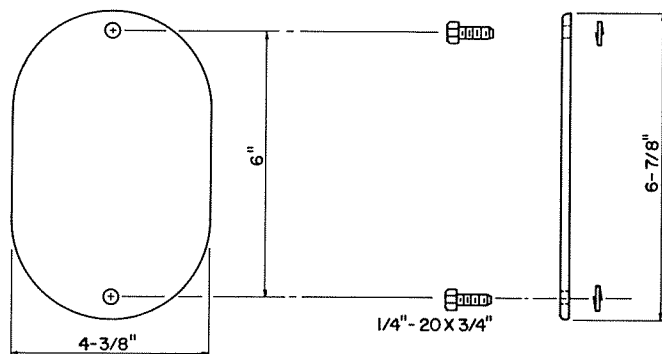
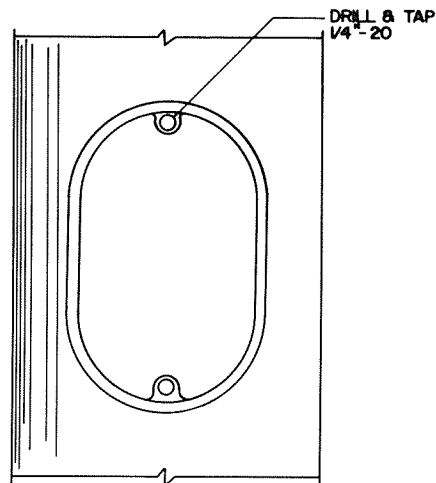
#### INTENDED USE

THIS POLE SHAFT IS FOR USE WITH TWO (2) 10' OR 12' TRUSS TYPE LUMINAIRE SUPPORT ARMS.

**ALUMINUM POLE SHAFT FOR TWO 10' OR 12' TRUSS  
TYPE LUMINAIRE SUPPORT ARMS**

**AASHTO-AGC-ARTBA  
DRAWING**

**APSI-4**



#### SPECIFICATION

HANDHOLE REINFORCEMENT IS FABRICATED FROM 3/16" EXTRUDED ALUMINUM ALLOY 6063 OR CAST FROM ALUMINUM ALLOY 356.

REINFORCEMENT IS WELDED TO THE POLE SHAFT IN THE 90° LOCATION OR IN ANY SPECIFIED LOCATION.

WELDING IS IN ACCORDANCE WITH SECTION 1.5.5 OF AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS.

COVER IS FABRICATED FROM 3/16" SHEET ALUMINUM AND IS EQUIPPED WITH TWO (2) AISI 302 STAINLESS STEEL 1/4" - 20 x 3/4" HEX CAP SCREWS AND TWO (2) CAPTIVE WASHERS.

PROVISION FOR INTERNAL GROUNDING IS PROVIDED BY A TAPPED HOLE.

HANDHOLE REINFORCEMENT STRENGTHENS POLE SHAFT SECTION TO THAT OF SHAFTS FABRICATED WITHOUT A HANDHOLE.

#### INTENDED USE

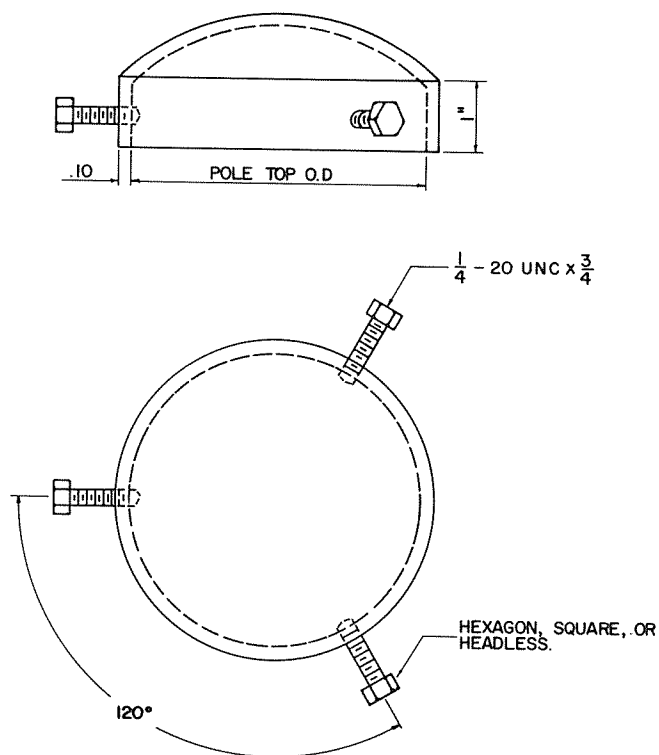
HANDHOLE REINFORCEMENT AND COVER IS USED TO PROVIDE ACCESS TO WIRING IN POLE.

### HANDHOLE, COVER AND BOLTS

AASHTO-AGC-ARTBA  
DRAWING

APS 3-1





#### SPECIFICATION

POLE TOP IS CAST FROM ALUMINUM ALLOY 356.

DIMENSIONS SHOWN ON DRAWING ARE NOMINAL.

POLE TOP IS FURNISHED WITH THREE (3)  $\frac{1}{4} - 20 \times \frac{3}{4}$ "  
AISI 302 STAINLESS STEEL SET SCREWS.

#### INTENDED USE

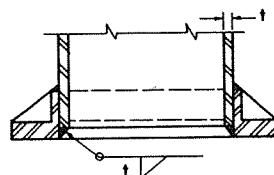
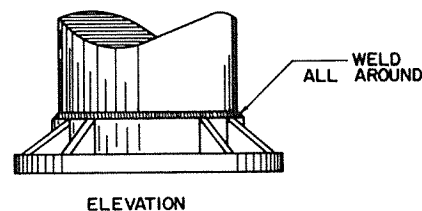
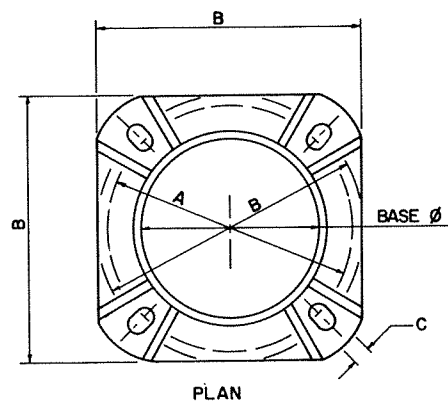
POLE TOP IS USED TO PROVIDE A COVER FOR THE OPEN POLE  
SHAFT TOP.

POLE TOP

AASHTO-AGC-ARTBA  
DRAWING

APS 4-1

DIMENSION TABLE				
MOUNTING HEIGHT	NO. OF ARMS	DIMENSIONS (Inches)		
		A (Max.)	B (Min.)	C
30'	1	11	12	1-1/8"
	2			
35'	1	11	12	1-1/8"
	2	14	15	
40'	1			1-1/8"
	2	14	15	1-3/8"
45'	1			1-1/8"
	2	14	15	1-3/8"
50'	1	14	15	1-1/8"
	2	16	17	1-3/8"



#### SPECIFICATION

ANCHOR BASE IS FABRICATED FROM CAST ALUMINUM ALLOY 356-T-6 AND WELDED TO THE POLE SHAFT.

TOLERANCES ARE AS SHOWN ON THE DRAWING.

WELDING OF ANCHOR BASE IS IN ACCORDANCE WITH SECTION 1.5.5 OF AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS.

BASE WILL WITHSTAND A MOMENT EQUAL TO OR EXCEEDING THAT OF THE POLE SHAFT.

#### INTENDED USE

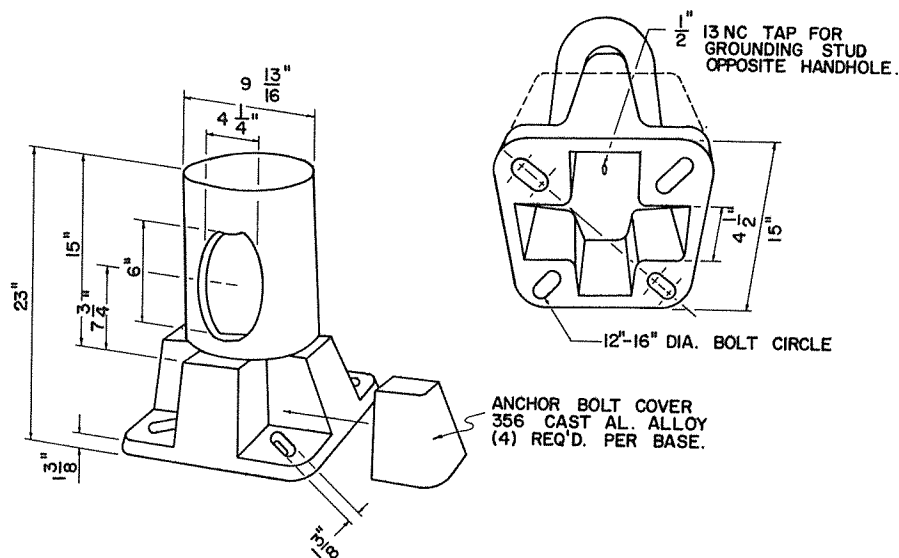
THIS ANCHOR BASE IS FOR LIGHT POLES WHICH WILL BE INSTALLED IN LOCATIONS PROTECTED FROM VEHICULAR COLLISIONS, OR WHICH WILL BE INSTALLED IN LOCATIONS EXPOSED TO VEHICULAR COLLISION WHEN USED IN CONJUNCTION WITH APPROVED BREAKAWAY DEVICES.

ANCHOR BASE

AASHTO-AGC-ARTBA  
DRAWING

APS 5-1

NOTE: DIMENSIONS ARE NOMINAL.



#### SPECIFICATION

INTEGRAL BREAKAWAY BASE IS 356-T-6 ALUMINUM ALLOY AND PRESS FITTED TO POLE SHAFT.

HANDHOLE COVER IS SHEET ALUMINUM OF THE SAME ALLOY, THICKNESS, AND CURVATURE OF POLE. COVER IS HELD IN POSITION WITH TWO (2) 1/4" - 20 AISI 300 SERIES STAINLESS STEEL SCREWS.

HANDHOLE REINFORCEMENT IS INTEGRALLY CAST INTO BASE.

BOLT COVERS ARE HELD IN PLACE WITH AISI 300 SERIES STAINLESS STEEL SCREWS.

BREAKAWAY BASE MEETS 1975 AASHTO BREAKAWAY CRITERIA.

THIS BASE IS PRESENTLY AVAILABLE ON POLES OF 10" BOTTOM DIAMETER ONLY.

#### INTENDED USE

THIS BREAKAWAY BASE IS FOR LIGHT POLES WHICH WILL BE INSTALLED IN LOCATIONS EXPOSED TO VEHICULAR COLLISIONS.

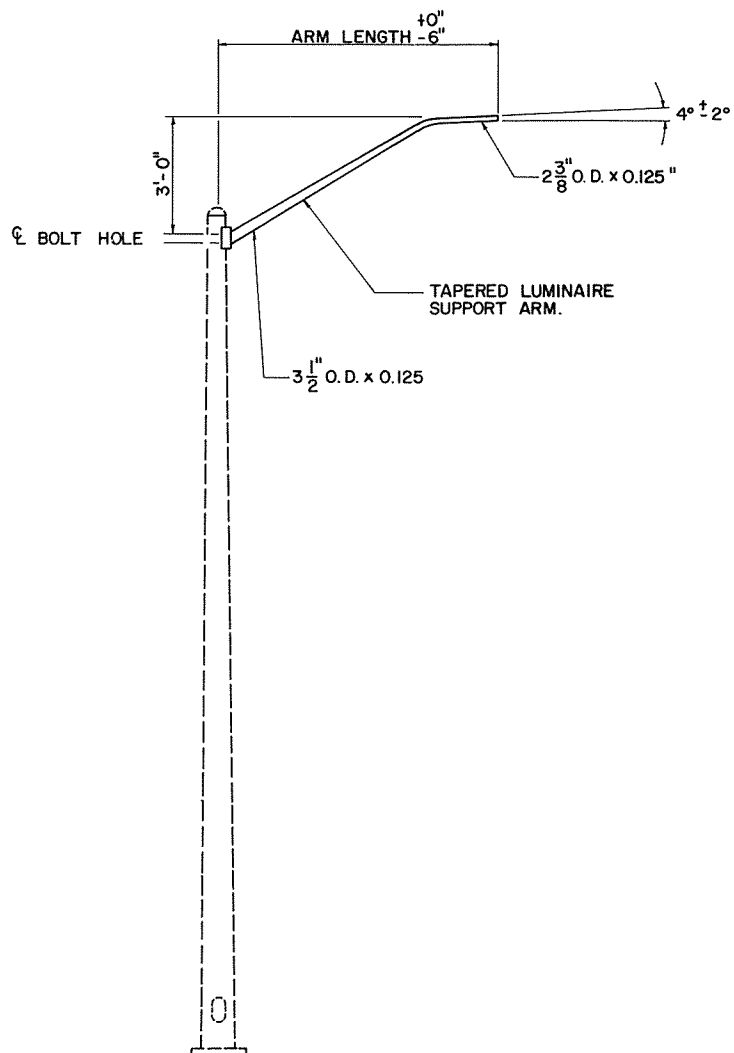
**INTEGRAL BREAKAWAY BASE - 10" POLE**

**AASHTO-AGC-ARTBA  
DRAWING**

**APS 5-3**

# **SECTION ASA**

**ALUMINUM LUMINAIRE SUPPORT ARM ASSEMBLY**



#### SPECIFICATIONS

SINGLE MEMBER LUMINAIRE SUPPORT ARMS OF 6' OR 8' ARE FABRICATED FROM 6063 ALUMINUM ALLOY TUBE AND TEMPERED TO T6 AFTER FABRICATION.

SUPPORT ARM IS CLEANED AFTER FABRICATION TO PROVIDE A UNIFORM SURFACE APPEARANCE.

TOLERANCES ARE AS SHOWN ON THE DRAWING OR IN ACCORDANCE WITH ALUMINUM ASSOCIATION REQUIREMENTS AS APPROPRIATE.

WELDING OF SUPPORT IS IN ACCORDANCE WITH SECTION 1.5.5 OF AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS.

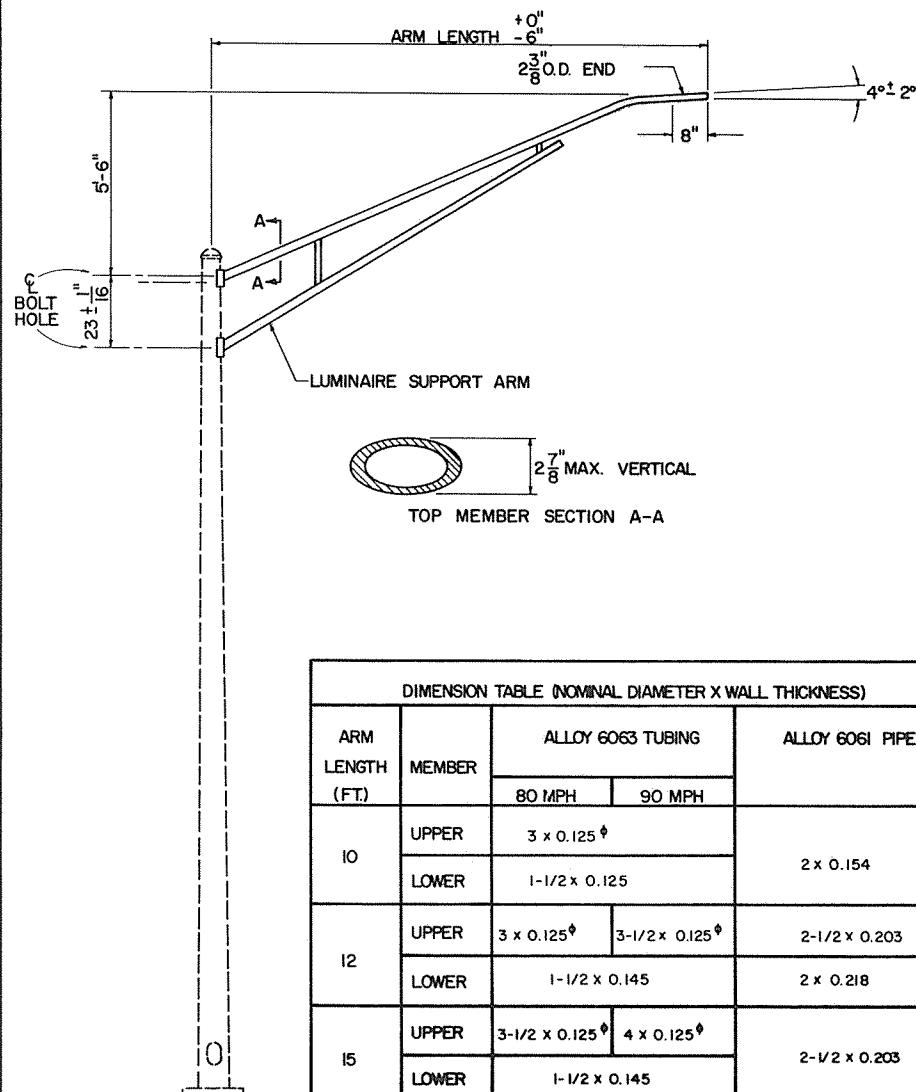
#### INTENDED USE

THIS SUPPORT IS FOR SUPPORTING LUMINAIRES WEIGHING 60 POUNDS AND HAVING A PROJECTED AREA OF 3.3 SQUARE FEET.

#### ALUMINUM SINGLE MEMBER LUMINAIRE SUPPORT ARM

AASHTO-AGC-ARTBA  
DRAWING

ASA 1-1



DIMENSION TABLE (NOMINAL DIAMETER X WALL THICKNESS)				
ARM LENGTH (FT.)	MEMBER	ALLOY 6063 TUBING		ALLOY 6061 PIPE
		80 MPH	90 MPH	
10	UPPER	3 x 0.125 <sup>φ</sup>		2 x 0.154
	LOWER	1-1/2 x 0.125		
12	UPPER	3 x 0.125 <sup>φ</sup>	3-1/2 x 0.125 <sup>φ</sup>	2-1/2 x 0.203
	LOWER	1-1/2 x 0.145		2 x 0.218
15	UPPER	3-1/2 x 0.125 <sup>φ</sup>	4 x 0.125 <sup>φ</sup>	2-1/2 x 0.203
	LOWER	1-1/2 x 0.145		

<sup>φ</sup> TAPERED TO 2-3/8" O. D. END.

#### SPECIFICATIONS

TRUSS TYPE LUMINAIRE SUPPORT ARMS OF 10', 12', OR 15' ARE FABRICATED FROM ALUMINUM ALLOY 6061 PIPE OR 6063 TUBE, TAPERED TO 2.375" O.D. SLIP FIT END, AND TEMPERED TO T6 AFTER FABRICATION.

MANUFACTURERS MAY PROVIDE LUMINAIRE SUPPORT ARMS WITH UPPER MEMBER SECTIONS OVALIZED VERTICALLY OR HORIZONTALLY.

SUPPORT ARM IS CLEANED AFTER FABRICATION TO PROVIDE A UNIFORM SURFACE APPEARANCE.

TOLERANCES ARE AS SHOWN ON THE DRAWING OR IN ACCORDANCE WITH ALUMINUM ASSOCIATION REQUIREMENTS AS APPROPRIATE.

WELDING OF SUPPORT IS IN ACCORDANCE WITH SECTION 1.5.5 OF AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS.

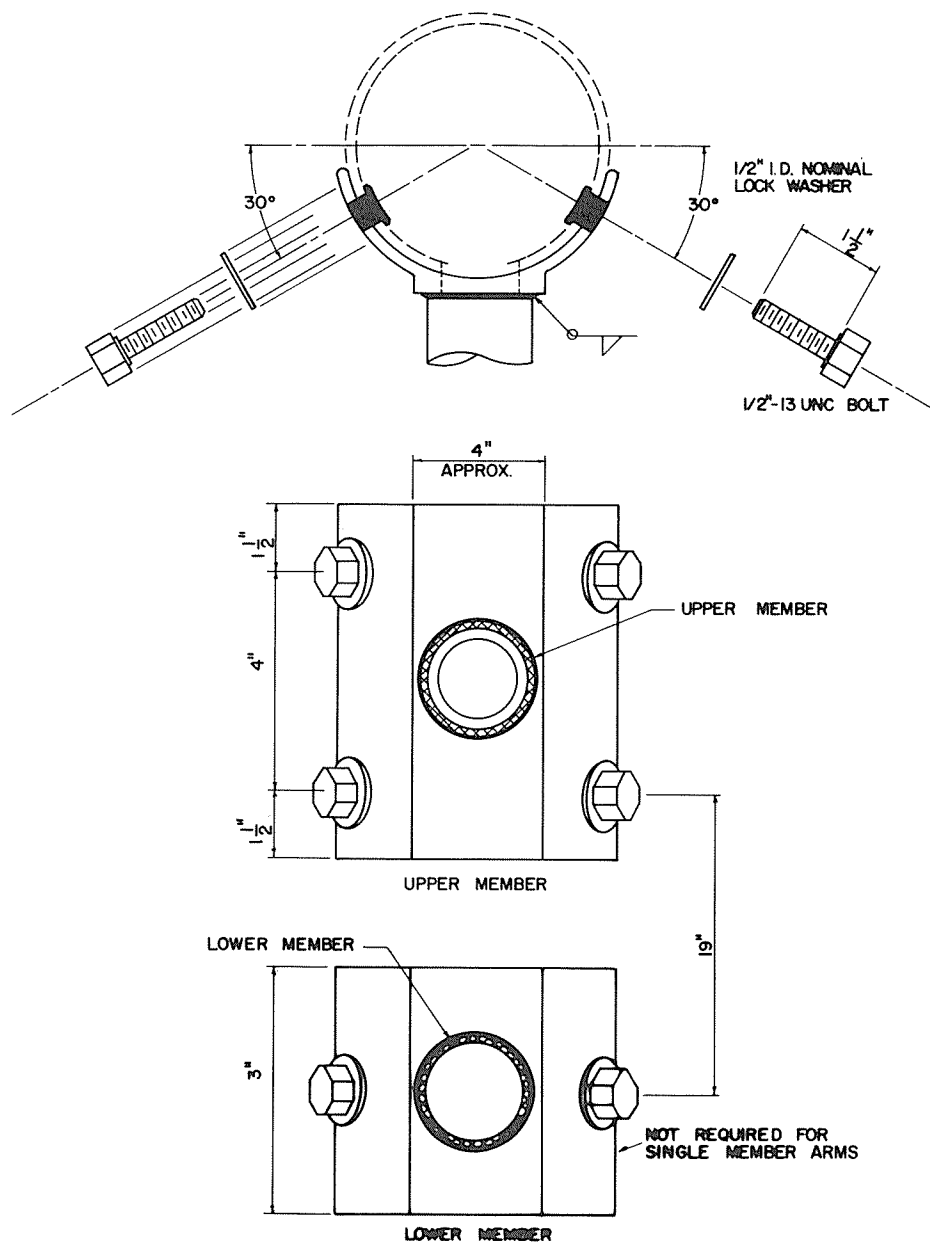
#### INTENDED USE

THIS SUPPORT ARM IS FOR SUPPORTING LUMINAIRES WEIGHING 60 POUNDS AND HAVING A PROJECTED AREA OF 3.3 SQUARE FEET.

### ALUMINUM TRUSS TYPE LUMINAIRE SUPPORT ARM

AASHTO-AGC-ARTBA  
DRAWING

ASA I-2



#### SPECIFICATION

BOLTED TYPE LUMINAIRE SUPPORT ARM ATTACHMENT IS FABRICATED FROM EXTRUDED ALUMINUM ALLOY 6063-T-6 AND WELDED TO LUMINAIRE SUPPORT ARMS.

WELDING IS IN ACCORDANCE WITH SECTION 1.5.5 OF AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS.

MANUFACTURERS MAY FURNISH ONE (1) CONTINUOUS ATTACHMENT IN PLACE OF UPPER AND LOWER MEMBERS SHOWN; HOWEVER, BOLT HOLE SPACING WILL REMAIN AS SHOWN ON THE DRAWING.

BOLTS AND NUTS ARE FABRICATED FROM AISI TYPE 302 STAINLESS STEEL ACCORDING TO ANSI B1.1.

WASHERS ARE FABRICATED FROM AISI 300 SERIES STAINLESS STEEL ACCORDING TO THE REQUIREMENTS OF ANSI B18.21.1.

SIX (6) BOLTS AND SIX (6) LOCK WASHERS WILL BE FURNISHED WITH EACH TRUSS TYPE LUMINAIRE SUPPORT ARM.

FOUR (4) BOLTS AND FOUR (4) LOCK WASHERS WILL BE FURNISHED WITH EACH SINGLE MEMBER LUMINAIRE SUPPORT ARM.

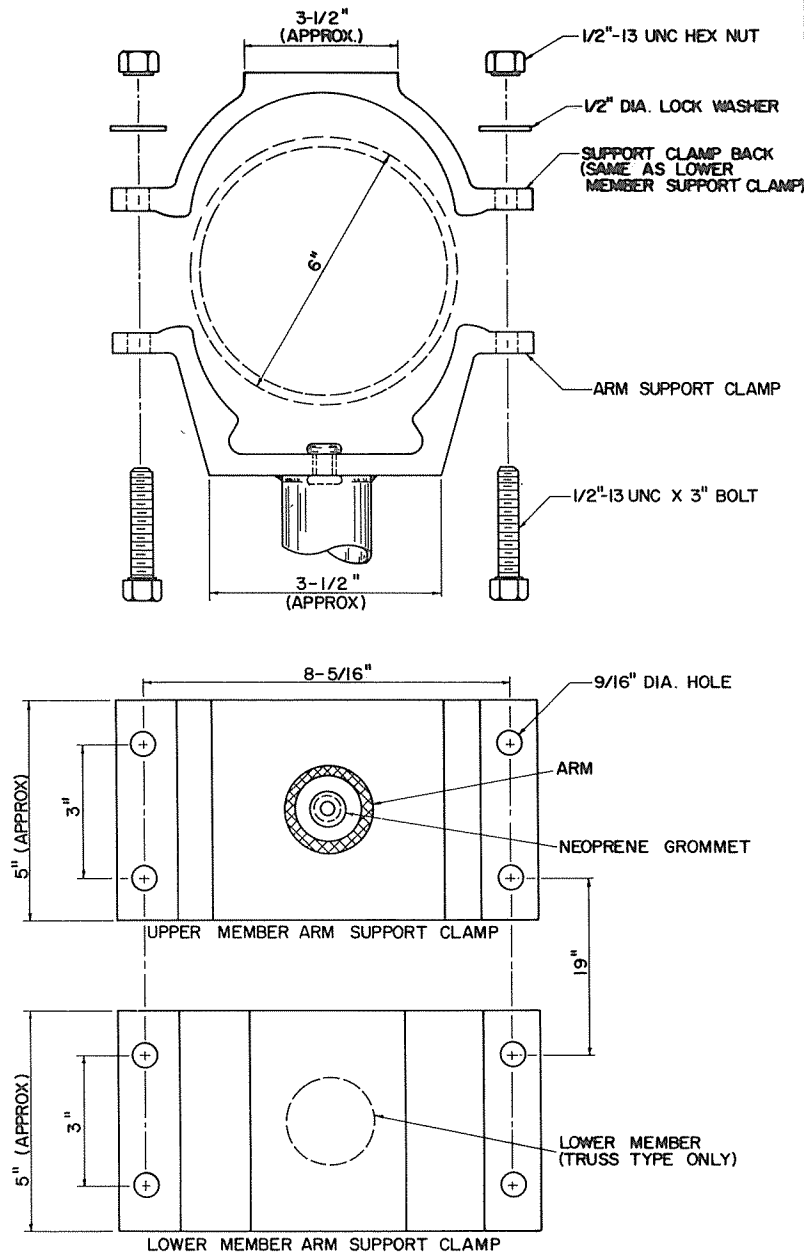
#### INTENDED USE

ATTACHMENT IS FOR CONNECTION OF LUMINAIRE SUPPORT ARM TO POLE SHAFT.

### BOLTED TYPE LUMINAIRE SUPPORT ARM ATTACHMENT

AASHTO-AGC-ARTBA  
DRAWING

ASA2-1



#### SPECIFICATIONS

CLAMP TYPE LUMINAIRE SUPPORT ARM ATTACHMENT IS FABRICATED FROM EXTRUDED ALUMINUM ALLOY 6063-T-6 AND WELDED TO LUMINAIRE SUPPORT ARMS.

WELDING IS IN ACCORDANCE WITH SECTION 1.5.5 OF AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORT FOR HIGHWAY SIGNALS, LUMINAIRES, AND TRAFFIC SIGNALS.

BOLTS AND NUTS ARE FABRICATED FROM AISI TYPE 302 STAINLESS STEEL ACCORDING TO ANSI B1.1.

WASHERS ARE FABRICATED FROM AISI 300 SERIES STAINLESS STEEL ACCORDING TO THE REQUIREMENTS OF ANSI B18.21.1.

SUPPORT CLAMP BACK IS IDENTICAL TO LOWER MEMBER SUPPORT CLAMP.

SINGLE MEMBER ARMS ARE FURNISHED WITH ONE (1) CLAMP BACK, FOUR (4) BOLTS, FOUR (4) LOCK WASHERS, AND FOUR (4) NUTS.

TRUSS TYPE ARMS ARE FURNISHED WITH TWO (2) CLAMP BACKS, EIGHT (8) BOLTS, EIGHT (8) LOCK WASHERS, AND EIGHT (8) NUTS.

CLAMP BACKS ARE NOT REQUIRED FOR TWIN ARM INSTALLATIONS.

#### INTENDED USE

ATTACHMENT USED IS TO CLAMP LUMINAIRE SUPPORT ARM TO POLE SHAFT.

### CLAMP TYPE LUMINAIRE SUPPORT ARM ATTACHMENT

AASHTO-AGC-ARTBA  
DRAWING

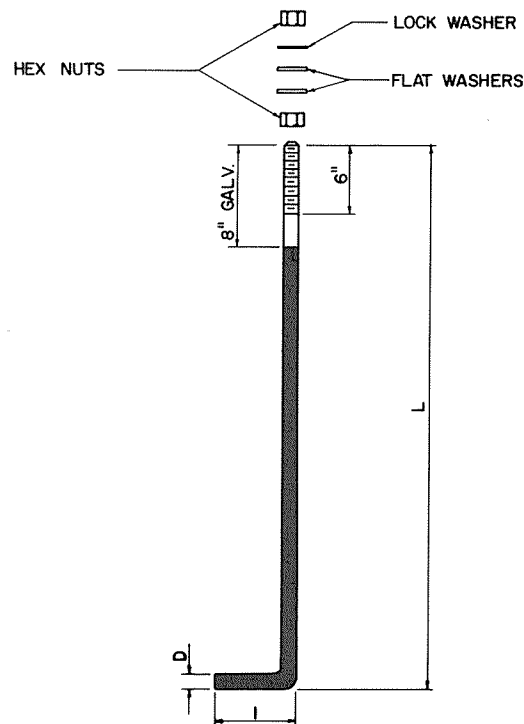
ASA 2-2



# **SECTION PA**

## **POLE ANCHORING ASSEMBLY**

DIMENSION TABLE									
MOUNTING HEIGHT	NO. OF ARMS	FOR ANCHOR BASE				FOR SLIP BASE			
		D	L	I	UNC	D	L	I	UNC
30	1	1	36	4	8	1-1/4	42	6	7
	2								
35	1	1	36	4	8	1-1/4	42	6	7
	2								
40	1	1	36	4	8	1-1/4	42	6	7
	2	1-1/4	42	6	7	1-1/4	42	6	7
45	1	1	36	4	8	1-1/4	42	6	7
	2	1-1/4	42	6	7	1-1/2	54	6	6
50	1	1	36	4	8	1-1/4	42	6	7
	2	1-1/4	42	6	7	1-1/2	54	6	6



#### SPECIFICATION

ANCHOR BOLTS ARE HOT BENT AND MEET THE REQUIREMENTS OF ASTM A-675 GRADE 90; NUTS MEET THE REQUIREMENTS OF ASTM A-563 GRADE A, AND ANSI B18.2.2 HEX TYPE.

FLAT WASHERS MEET THE REQUIREMENTS OF ANSI B27.2 HEAVY WASHERS.

LOCK WASHERS MEET THE REQUIREMENTS OF ANSI B18.21.1 HEAVY WASHERS.

BOLTS, NUTS, AND WASHERS ARE GALVANIZED IN ACCORDANCE WITH ASTM A-153.

FOUR (4) ANCHOR BOLTS, EIGHT (8) HEX NUTS, EIGHT (8) FLAT WASHERS, AND FOUR (4) LOCK WASHERS WILL BE FURNISHED WITH EACH ANCHOR BASE EQUIPPED POLE.

THREE (3) ANCHOR BOLTS, SIX (6) HEX NUTS, SIX (6) FLAT WASHERS, AND THREE (3) LOCK WASHERS WILL BE FURNISHED WITH EACH SLIP BASE EQUIPPED POLE.

NUTS, FLAT WASHERS, AND LOCK WASHERS WILL NOT BE FURNISHED WHEN BREAK-AWAY SUPPORT COUPLINGS AND/OR DRILL ANCHORS ARE SPECIFIED.

#### INTENDED USE

THIS ANCHOR BOLT ASSEMBLY IS FOR ANCHORING LIGHT POLES TO CONCRETE FOUNDATIONS.

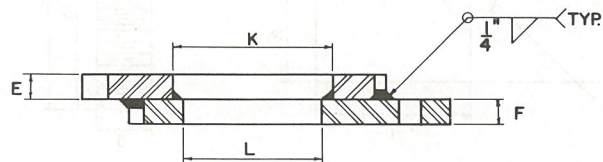
### ANCHOR BOLT, NUTS AND WASHERS

AASHTO-AGC-ARTBA  
DRAWING

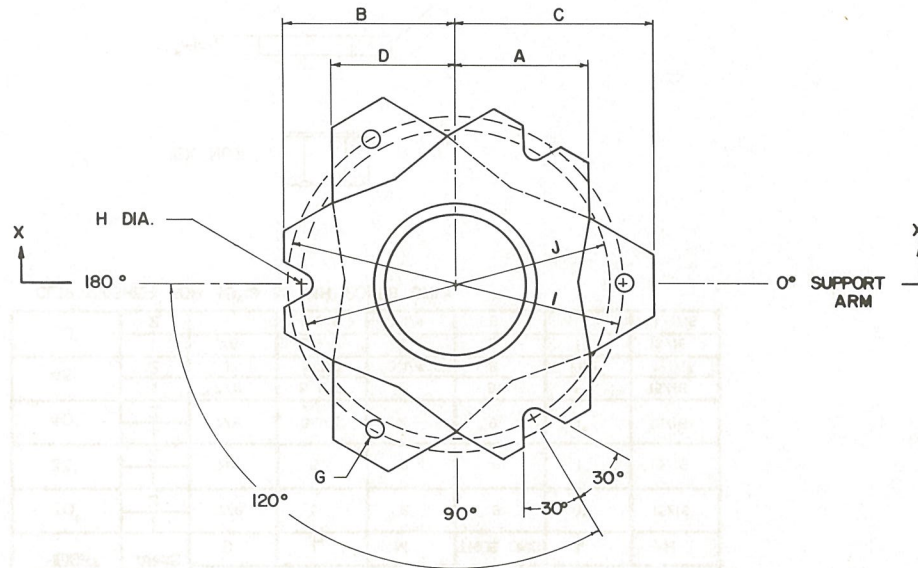
PA I-I



DIMENSION TABLE													
MOUNTING HEIGHT	NO. OF ARMS	DIMENSIONS (INCHES)											
		A	B	C	D	E	F	G	H	I	J	K	L
30'	1	6	8	8-1/2	5-1/2	1-5/8	1-1/4	1-3/8	15/16	14	13	8	7
	2	6	8	8-1/2	5-1/2	1-5/8	1-1/4	1-3/8	15/16	14	13	8	7
35'	1	6-1/4	8-1/2	9-1/8	5-3/4	1-5/8	1-1/4	1-3/8	15/16	15	14	8	6
	2	7	10	11-3/8	6-1/2	1-5/8	1-1/4	1-3/8	15/16	18	17	11	10
40'	1	6-7/16	9	9-1/2	6	1-5/8	1-1/4	1-3/8	15/16	16	15	8	7
	2	7	10	11-3/8	6-1/2	1-3/4	1-1/2	1-5/8	1-1/16	18	17	11	10
50'	1	7	10	11-3/8	6-1/2	1-5/8	1-1/4	1-3/8	15/16	18	17	11	10
	2	7	10	11-3/8	6-1/2	1-3/4	1-1/2	1-5/8	1-1/16	18	17	11	10



SECTION X-X



#### SPECIFICATION

SLIP ANCHOR PLATE IS FABRICATED FROM STEEL PLATE CONFORMING TO ASTM A-36 WITH MINIMUM YIELD STRENGTH OF 36 KSI OR IS CAST IN ONE PIECE ACCORDING TO ASTM A-27, GRADE 70-40.

SLIP ANCHOR PLATE IS GALVANIZED IN ACCORDANCE WITH SECTION 1.4.3(2) OF AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS.

WELDING OF ANCHOR PLATE IS IN ACCORDANCE WITH SECTION 1.4.2 OF AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS.

ONE (1) SLIP ANCHOR PLATE IS FURNISHED WITH EACH SLIP BASE EQUIPPED POLE.

#### INTENDED USE

THIS SLIP ANCHOR PLATE IS USED TO FASTEN SLIP BASE POLES TO ANCHOR BOLTS.

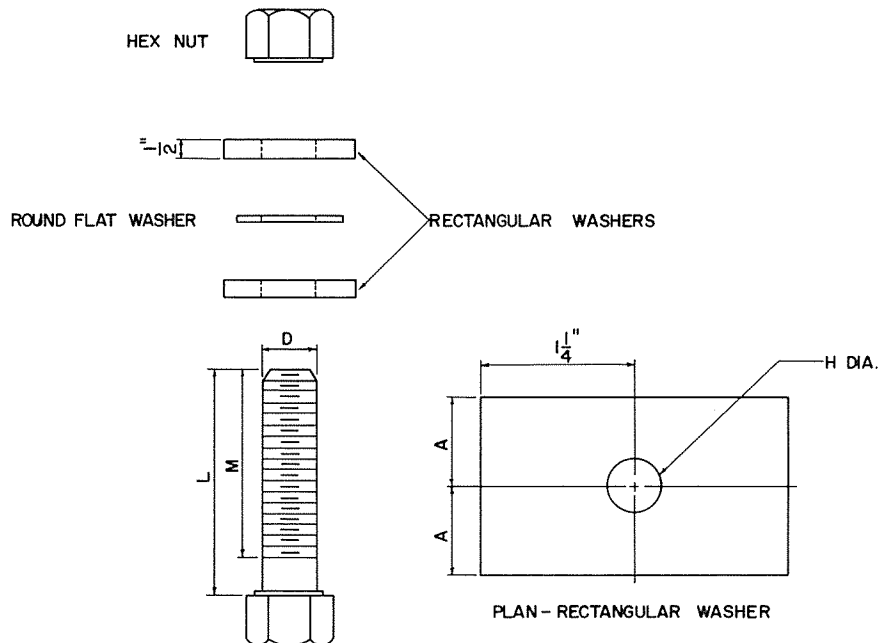
### SLIP ANCHOR PLATE

AASHTO-AGC-ARTBA  
DRAWING

PA 2-1

DIMENSION TABLE							
MOUNTING HEIGHT	NO. OF ARMS	DIMENSIONS / INCHES					
		D	L	M	THDS. UNC	A	H
30'	1	7/8	5	2	9	1"	15/16
	2						
35'	1	7/8	5	2	9	1"	15/16
	2						
40'	1	7/8	5 1/2	2	9	1"	15/16
	2						
45'	1	7/8	5 1/2	2	9	1"	15/16
	2	1	5 3/4	2 1/4	8	1 1/2"	1 1/16
50'	1	7/8	5 1/2	2	9	1"	15/16
	2	1	5 3/4	2 1/4	8	1 1/2"	1 1/16

CLIP WASHER FOR 30' & 35' MH POLES ONLY.



#### SPECIFICATION

BOLTS CONFORM TO THE REQUIREMENTS OF ASTM A-325 AND ANSI B18.2.1.

NUTS CONFORM TO THE REQUIREMENTS OF ASTM A-563, GRADE B, AND ANSI B18.2.2 HEX TYPE.

FLAT WASHER IS FABRICATED FROM AISI 300 SERIES STAINLESS STEEL.

RECTANGULAR WASHER IS FABRICATED FROM STEEL CONFORMING TO AISI 1018.

BOLTS, NUTS, AND RECTANGULAR WASHERS ARE GALVANIZED IN ACCORDANCE WITH ASTM A-153.

THREE (3) BOLTS, THREE (3) NUTS, THREE (3) FLAT WASHERS, AND SIX (6) RECTANGULAR WASHERS ARE FURNISHED WITH EACH SLIP ANCHOR PLATE.

SEE DRAWING A-1 FOR SLIP BASE ASSEMBLY AND INSTALLATION INSTRUCTIONS.

#### INTENDED USE

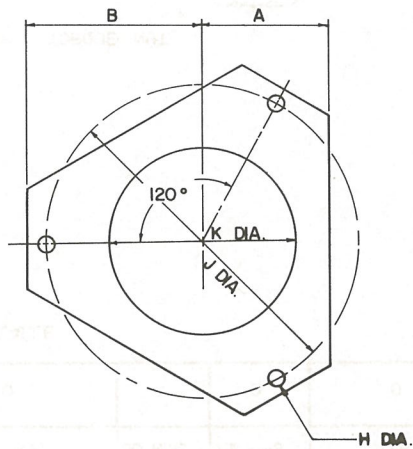
BOLT ASSEMBLY IS USED TO FASTEN LIGHT POLES EQUIPPED WITH SLIP BASES TO SLIP ANCHOR PLATE.

SLIP BASE BOLTS, NUTS, & WASHER

AASHTO-AGC-ARTBA  
DRAWING

PA 3-1

DIMENSION TABLE						
MOUNTING HEIGHT	NO. OF ARMS	DIMENSIONS (INCHES)				
		A	B	H	J	K
30'	1	6	8	15/16	13	8
	2					
35'	1	6	8	15/16	13	11
	2					
40'	1	6-1/2	8-1/2	15/16	14	8
	2	7	10		17	
45'	1	6-7/16	9	15/16	15	11
	2	7	10	1-1/16	17	
50'	1	7	10	15/16	17	11
	2			1-1/16		



#### SPECIFICATION

KEEPER PLATE IS FABRICATED FROM 28 GAUGE GALVANIZED SHEET STEEL.

ONE (1) KEEPER PLATE IS FURNISHED WITH EACH POLE EQUIPPED WITH SLIP BASE.

#### INTENDED USE

THIS KEEPER PLATE IS USED TO PREVENT MOVEMENT OF SLIP BASE CONNECTION BOLTS.

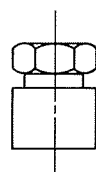
### KEEPER PLATE FOR SLIP BASE POLES

AASHTO-AGC-ARTBA  
DRAWING

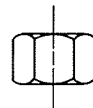
PA 4-1

DIMENSION TABLE						
D	THREAD	MIN. TENSILE STRENGTH	RESTRAINED SHEAR		NUT TORQUE ± 25 FT. LBS.	L
			MIN.	MAX.		
1"	8 UNC	25 KIPS	30 KIPS	7.5 KIPS	175	4 3/4"
1 1/4"	7 UNC	Ø	Ø	Ø	Ø	4 7/8"

Ø NOT PRESENTLY AVAILABLE.



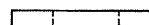
TORQUE NUT



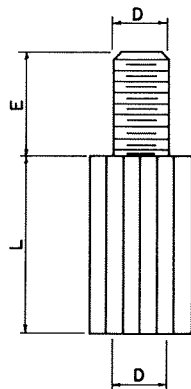
HEX NUT



TOP WASHER (2"  $\phi$  x 3/8")



BOTTOM WASHER (2 3/4"  $\phi$  x 3/8")



THD STUD

COUPLING

I.D. THREADED FOR  
ANCHOR BOLT

#### SPECIFICATION

BREAKAWAY SUPPORT COUPLING CONFORMS TO THE REQUIREMENTS OF AASHTO STANDARDS FOR BREAKAWAY SUPPORTS.

COUPLING IS FABRICATED FROM EITHER DIE CAST ALUMINUM ALLOY 380 ACCORDING TO ASTM B-85, OR EXTRUDED FROM ALLOY 2024-T8511 ACCORDING TO ASTM B-221.

WASHERS ARE FABRICATED FROM ASTM A-36 STEEL PLATE AND ARE GALVANIZED ACCORDING TO ASTM A-153.

HEX NUT MEETS THE REQUIREMENTS OF ASTM A-563 GRADE A, AND ANSI B18.2.2 HEX TYPE AND IS GALVANIZED ACCORDING TO ASTM A-153.

TORQUE NUT IS FABRICATED FROM ALUMINUM ALLOY AND GROOVED TO SEPARATE AT THE SPECIFIED TORQUE.

THREADED STUD MEETS THE REQUIREMENTS OF ASTM A-675 GRADE 90 AND IS GALVANIZED IN ACCORDANCE WITH ASTM A-153, OR IS FABRICATED FROM AISI STAINLESS STEEL.

WHEN COUPLINGS ARE SPECIFIED, EACH LIGHT POLE WILL BE FURNISHED WITH FOUR (4) COUPLINGS AND THREADED STUDS, EIGHT (8) FLAT WASHERS, AND FOUR (4) HEX OR TORQUE NUTS.

#### INTENDED USE

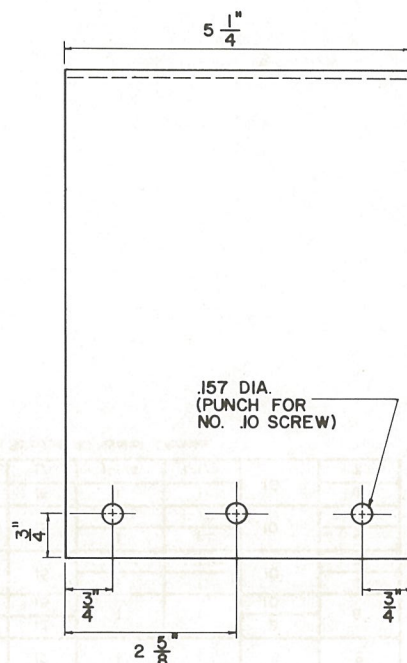
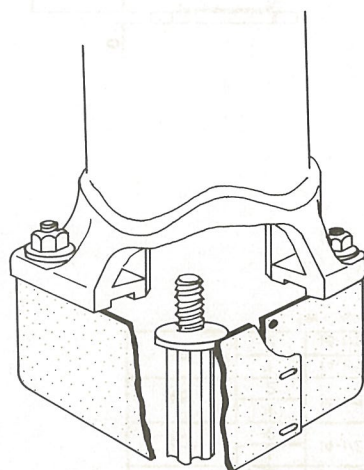
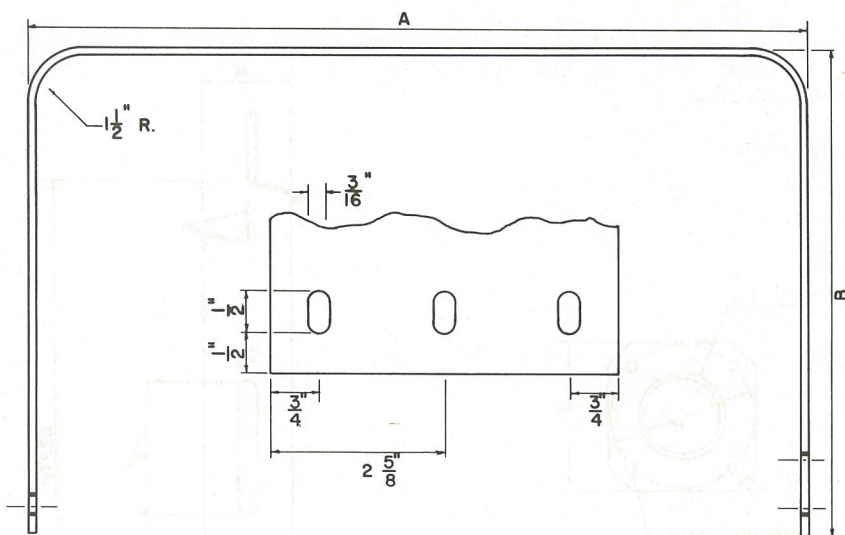
THE BREAKAWAY SUPPORT COUPLING IS USED WITH ANCHOR BASE EQUIPPED POLES WHICH WILL BE INSTALLED IN LOCATIONS EXPOSED TO VEHICULAR COLLISIONS.

## BREAKAWAY SUPPORT COUPLING

AASHTO-AGC-ARTBA  
DRAWING

PA 5-1





# SPECIFICATION

SKIRT COVER IS FABRICATED FROM 1/16" SHEET ALUMINUM ALLOY 3003H14.

SCREWS ARE SELF TAPPING No. 10 x 5/8" STAINLESS STEEL.

WHEN COUPLINGS ARE SPECIFIED, EACH LIGHT POLE WILL BE FURNISHED WITH TWO (2) SKIRT COVER SECTIONS AND SIX (6) SCREWS.

## INTENDED USE

THE SKIRT COVER IS USED TO ENCLOSE VOID UNDER POLES EQUIPPED WITH BREAKAWAY SUPPORT COUPLINGS.

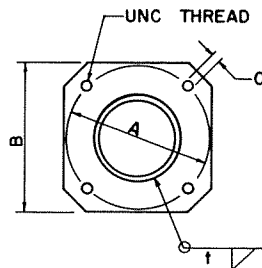
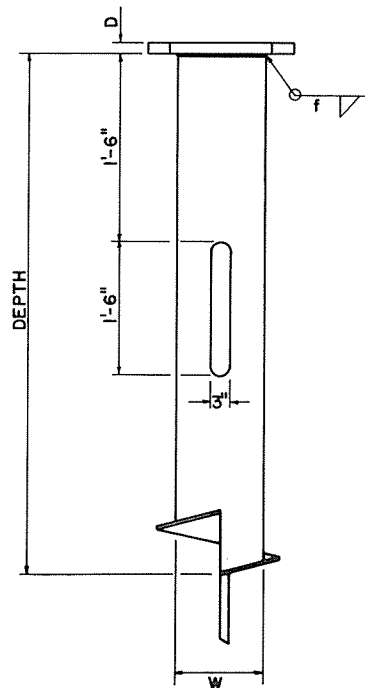
SKIRT COVER FOR 1" & 1-1/4"  
BREAKAWAY SUPPORT COUPLING

AASHTO-AGC-ARTBA  
DRAWING

PA 5-2

MOUNTING HEIGHT	No. OF ARMS	DIMENSIONS (INCHES)					UNC
		A	B	C	D	W <sup>φ</sup>	
30'	1	11-1/2	12	1	1	8	8
	2						
35'	1	11-1/2	12	1	1	8	8
	2	14-1/2	15			10	
40'	1	14-1/2	15	1	1	10	8
	2			1-1/4	1-1/4		7
45'	1	14-1/2	15	1	1	10	8
	2			1-1/4	1-1/4		7
50'	1	14-1/2	15	1	1	10	8
	2	16-1/2	17	1-1/4	1-1/2		7

<sup>φ</sup>W - Minimum Schedule 40 Nominal Diameter.



#### SPECIFICATION

DRILLED ANCHOR SHAFT IS FABRICATED FROM SCHEDULE 40 STEEL PIPE CONFORMING TO ASTM A-53, GRADE B.

THE BASE PLATE IS FABRICATED FROM ASTM A-36 STEEL PLATE.

WELDING IS IN ACCORDANCE WITH SECTION 1.4.2 OF AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS.

PIPE SIZES SHOWN IN THE TABLE ARE STRUCTURAL MINIMUMS, HOWEVER, LARGER SIZES MAY BE SPECIFIED. THE USER WILL DETERMINE THE EXACT DEPTH AND SIZE REQUIRED TO MEET LOCAL SOIL CONDITIONS. (SEE FEDERAL HIGHWAY ADMINISTRATION REPORT, FHWA-RD-76-37, "SAFER SIGNS AND LUMINAIRE SUPPORTS")

#### INTENDED USE

THIS DRILL ANCHOR IS FOR USE WITH POLES WHICH WILL BE INSTALLED IN LOCATIONS PROTECTED FROM VEHICULAR COLLISION, OR WHICH WILL BE INSTALLED IN LOCATIONS EXPOSED TO VEHICULAR COLLISION WHEN USED IN CONJUNCTION WITH APPROVED BREAKAWAY DEVICES.

ANCHOR PLATE DRILL ANCHOR

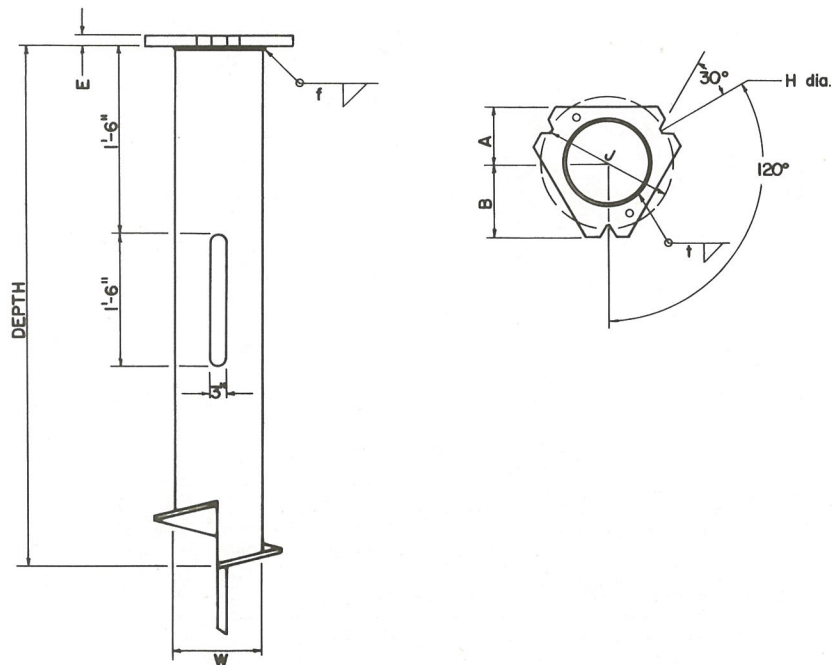
AASHTO-AGC-ARTBA  
DRAWING

PA 6-1



MOUNTING HEIGHT	No. OF ARMS	DIMENSIONS (INCHES)					
		A	B	H	J	E	W <sup>φ</sup>
30'	1	6	8	15/16	13	1-1/4	8
	2						10
35'	1	6	8	15/16	13	1-1/4	8
	2						10
40'	1	6-1/2	8-1/2	15/16	14	1-1/8	10
	2	7	10				10
45'	1	6-7/16	9	15/16	15	1-1/4	10
	2	7	10	1-1/16	17	1-5/8	
50'	1	7	10	15/16	17	1-1/2	10
	2			1-1/16		1-3/4	

<sup>φ</sup> W - Minimum Schedule 40 Nominal Diameter.



#### SPECIFICATION

DRILLED ANCHOR SHAFT IS FABRICATED FROM SCHEDULE 40 STEEL PIPE CONFORMING TO ASTM A-53, GRADE B.

THE BASE PLATE IS FABRICATED FROM ASTM A-36 STEEL PLATE.

WELDING IS IN ACCORDANCE WITH SECTION 1.4.2 OF AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS.

PIPE SIZES SHOWN IN THE TABLE ARE STRUCTURAL MINIMUMS, HOWEVER, LARGER SIZES MAY BE SPECIFIED. THE USER WILL DETERMINE THE EXACT DEPTH AND SIZE REQUIRED TO MEET LOCAL SOIL CONDITIONS. (SEE FEDERAL HIGHWAY ADMINISTRATION REPORT, FHWA-RD-76-37, "SAFER SIGNS AND LUMINAIRE SUPPORTS")

#### INTENDED USE

THIS DRILLED ANCHOR IS FOR USE WITH SLIP BASE EQUIPPED STEEL POLES WHICH WILL BE INSTALLED IN LOCATIONS EXPOSED TO VEHICULAR COLLISION.

### SLIP PLATE DRILL ANCHOR

AASHTO-AGC-ARTBA  
DRAWING

PA 6-2

# **SECTION NFI**

**NOT FULLY INTERCHANGEABLE**

DIMENSION TABLE						
MOUNTING HEIGHT	SHAFT LENGTH	ARM LENGTH	NO. OF ARMS	TYPE BASE	90 MPH	80 MPH
30'	27.5'	6' or 8'	1	A	90 X 4.52 X .135	← SAME
			2			
	25'	10' or 12'	1 †		90 X 4.94 X .135	90 X 4.94 X .135
			2		9.1 X 5.04 X .188	
		15'	1 †		9.0 X 4.94 X .135	90 X 4.94 X .135
			2		9.1 X 5.04 X .188	
35'	32.5'	6' or 8'	1 †		9.0 X 4.06 X .135	90 X 4.94 X .135
			2 ▲		9.1 X 4.17 X .188	
	30'	10' or 12'	1 †		9.0 X 4.48 X .135	90 X 4.48 X .135
			2 ▲		9.1 X 4.59 X .188	9.1 X 4.59 X .188
		15'	1 †		9.0 X 4.48 X .135	90 X 4.48 X .135
			2 ▲		N.P.A.	9.1 X 4.59 X .188
40'	37.5'	6' or 8'	1 ●	B	13.5' X 7.59 X .135	← SAME
			2			
	35'	10' or 12'	1 ●		13.5' X 8.01 X .135	← SAME
			2			
		15'	1 ●		13.5 X 8.01 X .135	← SAME
			2			
45'	42.5'	6' or 8'	1 ●		13.5 X 6.76 X .135	← SAME
			2			
	40'	10' or 12'	1 ●		13.5 X 7.17 X .135	← SAME
			2			
		15'	1 ●		13.5 X 7.17 X .135	13.5 X 7.17 X .135
			2		N.P.A.	
50'	47.5'	6' or 8'	1 ●		13.5 X 5.92 X .135	← SAME
			2			
	45'	10' or 12'	1 ●		13.5 X 6.34 X .135	13.5 X 6.34 X .135
			2		N.P.A.	
		15'	1 ●		13.5 X 6.34 X .135	13.5 X 6.34 X .135
			2		N.P.A.	

† RADIUS OF CURVATURE IS LESS THAN 550'.  
▲ BOLT CIRCLE IS DIFFERENT THAN THAT SHOWN ON DRAWING APS 5-1.  
● BOLT DIAMETER IS DIFFERENT THAN THAT SHOWN ON DRAWING APS 5-1.  
NPA NOT PRESENTLY AVAILABLE.

#### SPECIFICATION

POLES SHAFT HAS STRUCTURAL CAPABILITIES EQUAL TO OR EXCEEDING THOSE INTENDED BY AASHTO 1975 EDITION, STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS.

POLE SHAFT IS FABRICATED FROM ALUMINUM ALLOY 5086, HAVING H-34 TEMPER AFTER FABRICATION.

POLE AND HARDWARE DETAILS CONFORM TO THE APPROPRIATE SECTIONS OF THIS STANDARD EXCEPT FOR DIMENSIONAL DIFFERENCES IN THE LUMINAIRE SUPPORT ARM AND ATTACHMENTS, AND THE DIFFERENCES NOTED BELOW THE TABLE.

MINIMUM RADIUS OF CURVATURE CRITERIA IS NOT A REQUIREMENT OF AASHTO, 1975 EDITION, STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS.

BASES FOR THE POLES LISTED ARE DETAILED ON DRAWING NFI 1 - 2.

POLES LISTED IN THE TABLE ARE CONSIDERED ACCEPTABLE ALTERNATES WHERE INTER-CHANGEABLE ARMS (BETWEEN DIFFERENT MANUFACTURERS) AND THE OTHER DIFFERENCES NOTED ARE OF MINOR IMPORTANCE.

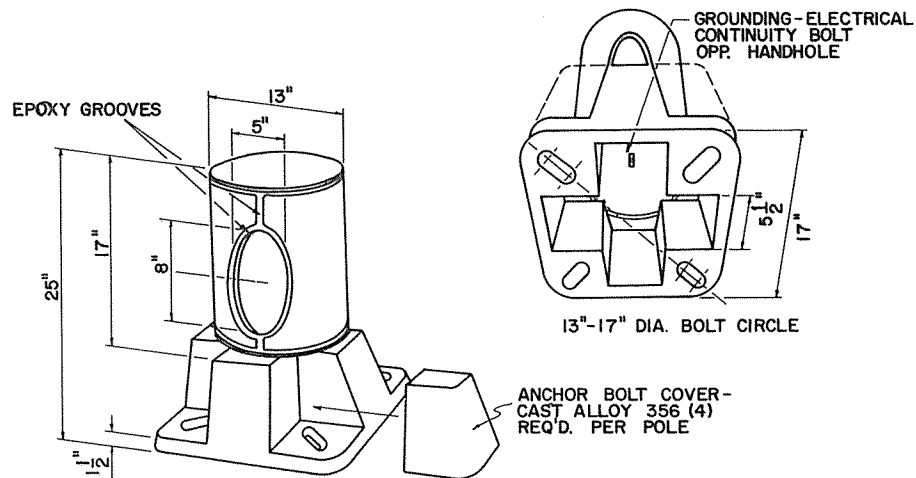
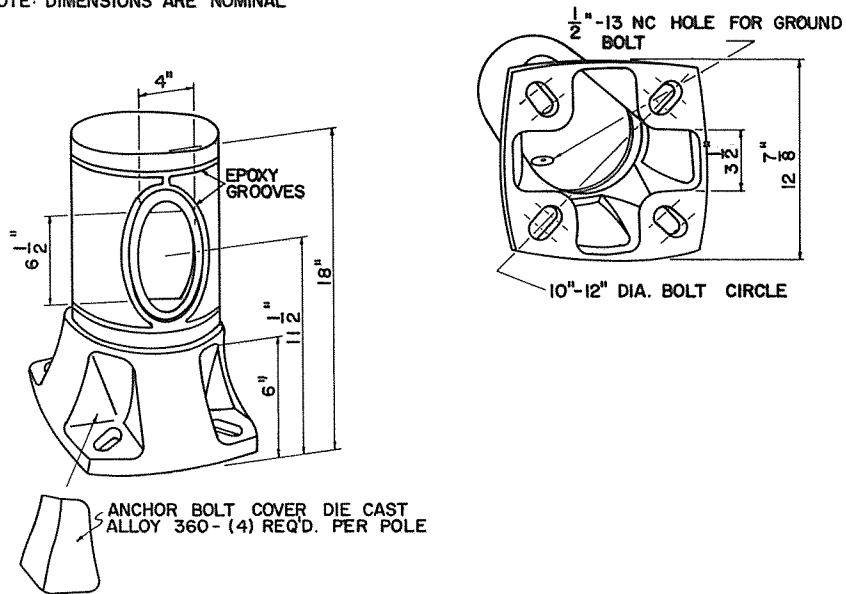
## ALUMINUM POLE (Alloy 5086)

AASHTO-AGC-ARTBA  
DRAWING

NFI 1-1



NOTE: DIMENSIONS ARE NOMINAL



#### SPECIFICATION

INTEGRAL BREAKAWAY BASE IS FABRICATED FROM 356-T-6 ALUMINUM ALLOY AND EPOXIED TO POLE SHAFT.

HANDHOLE COVER IS SHEET ALUMINUM ALLOY 5086-H-34, HELD IN POSITION WITH TWO (2) AISI 300 SERIES STAINLESS STEEL SCREWS.

HANDHOLE REINFORCEMENT IS INTEGRALLY CAST INTO BASE.

BOLT COVERS ARE HELD IN PLACE WITH AISI 300 SERIES STAINLESS STEEL SCREWS.

BREAKAWAY BASE MEETS 1975 AASHTO BREAKAWAY CRITERIA.

THIS BASE IS USED WITH POLES LISTED ON DRAWING NFI 1 - 1.

#### INTENDED USE

THIS BREAKAWAY BASE IS FOR LIGHT POLES WHICH WILL BE INSTALLED IN LOCATIONS EXPOSED TO VEHICULAR COLLISIONS.

### INTEGRAL BREAKAWAY BASE (For Alloy 5086 Poles)

AASHTO-AGC-ARTBA  
DRAWING

NFI 1-2

DIMENSION TABLE							
MOUNTING HEIGHT	SHAFT LENGTH	ARM LENGTH	NO. OF ARMS	90 MPH		80 MPH	
				ALLOY 6063	ALLOY 6005	ALLOY 6063	ALLOY 6005
30'	27.5'	6' or 8'	1	7X4.5X.156	SAME	SAME	SAME
			2				
	25'	10' or 12'	1				
			2				
		15'	1				
			2	10X6X.188			
35'	32.5'	6' or 8'	1				
			2		8X6X.188	8X6X.239	8X6X.156
	30'	10' or 12'	1				
			2				
		15'	1				
			2				8X6X.219
40'	37.5'	6' or 8'	1	8X6X.250	8X6X.219	8X6X.219	8X6X.188
			2				
	35'	10' or 12'	1		8X6X.219	8X6X.250	8X6X.188
			2		8X6X.219		8X6X.188
		15'	1				
			2				
45'	42.5'	6' or 8'	1				
			2				
	40'	10' or 12'	1				
			2				
		15'	1				
			2	12X6X.250		12X6X.250	
50'	47.5'	6' or 8'	1				
			2				
	45'	10' or 12'	1				
			2				10X6X.250
		15'	1				
			2				10X6X.250

#### SPECIFICATION

POLE SHAFT HAS STRUCTURAL CAPABILITIES EQUAL TO OR EXCEEDING THOSE INTENDED BY AASHTO 1975 EDITION, STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS.

POLES AND HARDWARE DETAILS CONFORM TO APPROPRIATE SECTIONS OF THIS STANDARD EXCEPT FOR DIFFERENCES NOTED BELOW.

POLES LISTED IN THE TABLE ARE NOT PRESENTLY AVAILABLE WITH BASES HAVING BOLT CIRCLES MATCHING THOSE SHOWN ON DRAWING APS 5 - 1.

THE NOTES BELOW APPLY TO LIKE NUMBERED POLES LISTED IN THE TABLES.

1. PRESENTLY AVAILABLE BASE IS ANCHOR TYPE HAVING 10" TO 11" BOLT CIRCLES WITH 1-1/8" BOLT SLOTS.
2. PRESENTLY AVAILABLE BASE IS ANCHOR TYPE HAVING 11" TO 12" BOLT CIRCLES WITH 1-1/8" BOLT SLOTS.
3. PRESENTLY AVAILABLE BASE IS ANCHOR TYPE HAVING 14" TO 15" BOLT CIRCLES WITH 1-1/8" OR 1-3/8" BOLT SLOTS.
4. PRESENTLY AVAILABLE BASE IS INTEGRAL BREAKAWAY TYPE HAVING 12" TO 16" BOLT CIRCLES WITH 1-3/8" BOLT SLOTS.
5. PRESENTLY AVAILABLE BASE IS ANCHOR TYPE HAVING 16" TO 17" BOLT CIRCLES WITH 1-3/8" BOLT SLOTS.

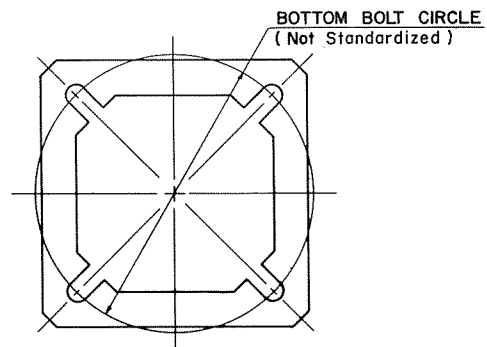
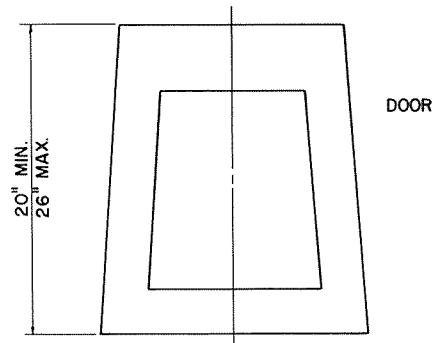
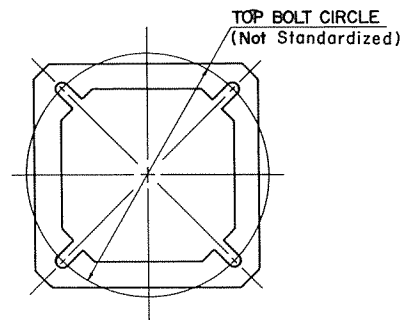
BOLTS LISTED IN THE TABLE ARE CONSIDERED ACCEPTABLE ALTERNATES WHERE INTER-CHANGEABLE BASES (BETWEEN DIFFERENT MANUFACTURERS) ARE OF MINOR IMPORTANCE.

**ALUMINUM POLE (6063 And 6005 Alloy)**

**AASHTO-AGC-ARTBA  
DRAWING**

**NFI 2-1**

DIMENSIONS ARE NOMINAL



#### SPECIFICATION

TRANSFORMER BASE IS CAST FROM ASTM B-108, OR B-26 ALLOY ACCORDING TO ASTM 356 OR A-356.

TRANSFORMER BASE IS CERTIFIED AS MEETING THE BREAKAWAY CRITERIA AND STRUCTURAL REQUIREMENTS AS SET BY THE 1975 AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS.

THE TRANSFORMER BASE WILL BE FURNISHED WITH AN ALUMINUM ACCESS DOOR AND ONE (1) DRILLED AND TAPPED HOLE FOR GROUNDING EQUIPMENT.

WHEN TRANSFORMER BASES ARE SPECIFIED ALONG WITH POLE SHAFTS, THE SHAFTS WILL NOT HAVE HANDHOLES.

TOP AND BOTTOM BOLT CIRCLES AND BOLT HOLES ARE NOT STANDARDIZED AT THIS TIME.

#### INTENDED USE

THIS BREAKAWAY BASE IS FOR USE WITH LIGHT POLES WHICH WILL BE INSTALLED IN LOCATIONS EXPOSED TO VEHICULAR COLLISION.

### BREAKAWAY TRANSFORMER BASE

AASHTO-AGC-ARTBA  
DRAWING

NFI 3-1

ALTERNATE  
BUT NOT FULLY INTERCHANGEABLE POLES

STEEL POLES:

The following octagon pole dimensions are structurally acceptable and may be used to fill the blanks in the Tables on Drawings SPS1-3 and SPS1-5; however, they are not interchangeable at the base as they require 1-1/4" bolts for the bolt circle shown on APS5-1 and SPS5-1.

DRAWING	DIMENSION
SPS1-3	10 x 4 x 0.179
SPS1-5	10 x 4 x 0.179

# APPENDIX



## ALTERNATE DIMENSIONS FOR STEEL POLE SHAFTS

Alternate dimensions for steel pole shafts (shown in Drawings SPS1-1 to 6) may be provided which make use of thicker\* gage or 55 ksi yield strength\*\*. However, base plate thicknesses shown in the Tables may have to be increased for these alternate shafts.

The alternate shaft dimensions will be obtained by applying a diameter reduction equation of the form:

$$D_A = K \times D$$

Where:  $D_A$  = Diameter of Alternate Shaft  
 $K$  = Constant  
 $D$  = Diameter of Shaft given in Drawings SPS1-1 to 6

### CASE

### CONSTANT

From Gage 11 to Gage 10

$$K_{11/10} = 0.964$$

From Gage 11 to Gage 7

$$K_{11/7} = 0.875$$

From Gage 10 to Gage 7

$$K_{10/7} = 0.908$$

From 50 ksi to 55 ksi

$$K_{50/55} = 0.910^{**}$$

Where: Gage 11 = 0.120" Wall      Gage 10 = 0.134" Wall      Gage 7 = 0.179" Wall

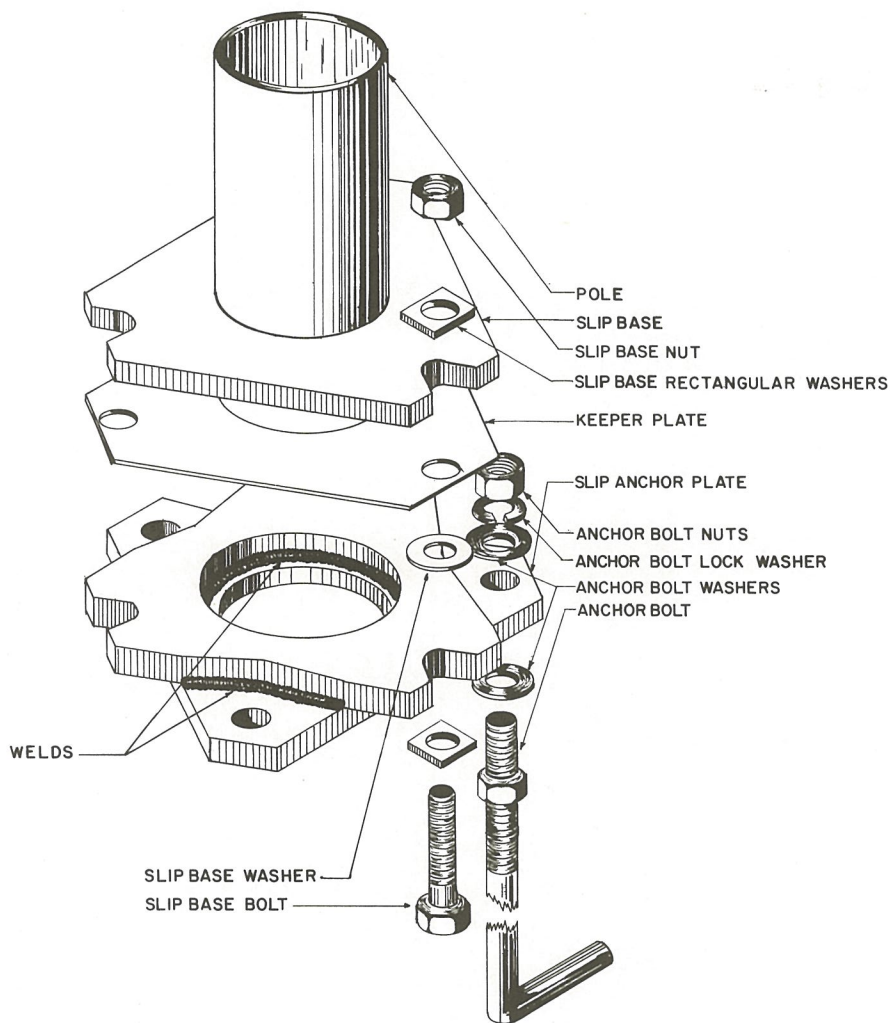
For single arm poles the diameter reduction constant applies to both top and bottom diameters. For twin arm poles the constant applies to the bottom diameter and the original taper will determine the top diameter which will not be less than three (3) inches.

### EXAMPLES

DRAWING NUMBER	MOUNTING HEIGHT	SHAPE	SHAFT FROM TABLE	CONSTANT	ALTERNATE SHAFT
SPS1-1	30	Round	7 x 3.5 x 0.120	$K_{11/10}$	6.75 x 3.37 x 0.134
				$K_{11/7}$	6.12 x 3.06 x 0.179
	45	Octagon	10 x 4 x 0.134	$K_{10/7}$	9.08 x 3.63 x 0.179
SPS1-2	30	Round	7 x 3.2 x 0.120	$K_{11/10}$	6.75 x 3 x 0.134
				$K_{11/7}$	6.12 x 3 x 0.179
				$K_{50/55}$	6.38 x 3 x 0.120

\* PLEASE NOTE THAT ALTERNATE GAGES CAN ONLY BE USED WHEN THE WALL THICKNESS IS INCREASED.

\*\* ALTERNATE SHAFTS FOR 55 ksi STEEL APPLY ONLY TO TWIN ARM POLES.



#### DISCUSSION

THREE FACTORS ARE IMPORTANT TO THE PROPER FUNCTIONING OF A SLIP BASE-- THE SLIP BASE CLAMP BOLT FORCE, THE SLIP PLANE HEIGHT, AND SITE TOPOGRAPHY.

SLIP BASE CLAMP BOLT FORCE. IN ORDER TO REDUCE BOLT SIZE, HIGH STRENGTH BOLTS AND NUTS ARE USUALLY USED AS CLAMP BOLTS IN SLIP BASE STRUCTURES. HOWEVER, BOLT INSTALLATION PRACTICES TYPICALLY FOLLOWED IN JOINTS MADE WITH HIGH STRENGTH BOLTS MUST NOT BE FOLLOWED IN INSTALLING SLIP BASE CLAMP BOLTS. WHERE TYPICAL HIGH STRENGTH BOLTING PRACTICE CALLS FOR TIGHTENING BOLTS TO THEIR PROOF LOADS, SLIP BASE CLAMP BOLTS ARE ONLY TIGHTENED TO 5 TO 30 PERCENT OF THEIR PROOF LOADS. THE LOWER END OF THIS RANGE IS INFERRED FROM THE BOLT FORCE LEVELS ORIGINALLY RECOMMENDED FOR SLIP BASE SIGN SUPPORTS. THE HIGHER END OF THE RANGE REPRESENTS PRACTICE IN AT LEAST ONE STATE WHERE THE CLAMP BOLT FORCE WAS INCREASED IN AN EFFORT TO REDUCE THE STRESS RANGE IN CLAMP BOLTS TO AVOID A POSSIBLE FATIGUE PROBLEM.

THE MAXIMUM STRESS OF 36 KSI, 42.5 PERCENT OF PROOF LOAD, USED IN THE DESIGN OF THE CLAMP BOLTS SHOWN IN THIS GUIDE DOES NOT ANTICIPATE A FATIGUE PROBLEM. THIS DESIGN ASSUMPTION APPEARS TO BE SUPPORTED BY FIELD EXPERIENCE. HOWEVER, SHOULD THE STRESSES FROM VIBRATIONS IN A POLE BECOME LARGE, FATIGUE WILL BE A REAL THREAT TO THE POLE AND VIBRATION DAMPERS SHOULD BE INSTALLED.

FEDERAL HIGHWAY ADMINISTRATION NOTICE N5040.20, DATED JULY 14, 1976, STATES THAT "THE TOTAL CLAMPING FORCE AT THE SLIP FACE MUST NOT EXCEED 45KIPS. (ONE-QUARTER OR LESS OF THIS AMOUNT WOULD BE PREFERRED AND WOULD BE CLOSER TO CURRENT PRACTICE). (THE CLAMPING FORCE MUST BE CONTROLLED BY INSTALLING BOLTS WITH A TORQUE WRENCH, USING TORQUE LIMITING NUTS, OR ANOTHER ACCEPTABLE METHOD.)"

BECAUSE OF THE VARIATIONS IN BOLT AND NUT MANUFACTURE, GALVANIZING, AND LUBRICANTS, AS WELL AS VARIATIONS IN MATING PARTS, BOLT TORQUES CAN ONLY BE CONSIDERED APPROXIMATELY RELATED TO BOLT CLAMPING FORCES. HOWEVER, WHEN TORQUING EQUIPMENT IS CALIBRATED WITH FASTENERS OF THE SAME PRODUCTION SOURCE AS THOSE USED IN THE STRUCTURE, TORQUE MEASUREMENT IS A REALISTIC MEANS OF PREDICTING A CLAMPING FORCE. THEREFORE, THE TORQUE REQUIRED TO PRODUCE THE DESIRED CLAMPING FORCE SHOULD BE ESTABLISHED DAILY USING A SUITABLE GAGE FOR EACH LOT OF BOLTS. IT IS SUGGESTED THAT THE OWNER VERIFY THAT THE PROCEDURES USED PROVIDE THE PROPER CLAMPING FORCE.

SLIP PLANE HEIGHT. THE SLIP PLANE HEIGHT MUST BE NO MORE THAN 4 1/2 INCHES ABOVE THE LOW GROUNDLINE AT THE BASE.

SITE TOPOGRAPHY. WHEN SLIP BASES ARE INSTALLED CLOSE TO HINGE POINTS ON FILLS, THE SLIP PLANE HEIGHT AND/OR THE TOPOGRAPHY MAY NEED TO BE ADJUSTED SO THAT THE SLIP PLANE WILL NOT BE MORE THAN 4 1/2 INCHES ABOVE A LINE CONNECTING WHEEL TRACKS 7 FEET APART, STRADDLING THE BASE IN ALL POSSIBLE POSITIONS.

FOR INSTALLATIONS ON SLOPES, THE GROUND SHALL BE BENCHED SO THAT THE PATH OF THE POLE WILL NOT BE IMPEDED WHEN SLIPPING AWAY.

THE TOPS OF ALL ANCHOR BOLTS AND CONDUITS SHALL BE BELOW THE SLIP PLANE.

AN EXCELLENT SLIP BASE INSTALLATION TRAINING FILM DEVELOPED BY CALTRANS IS AVAILABLE FOR LOAN FROM THE FEDERAL HIGHWAY ADMINISTRATION, NATIONAL HIGHWAY INSTITUTE (HHI-4), WASHINGTON, D.C. 20590.

## SLIP BASE ASSEMBLY

AASHTO-AGC-ARTBA  
DRAWING

SBA 1-80

PRICE \$3.00

AVAILABLE FROM:

AMERICAN ROAD & TRANSPORTATION  
BUILDERS ASSOCIATION  
525 SCHOOL STREET, S.W.  
WASHINGTON, D. C. 20024

THE ASSOCIATED GENERAL  
CONTRACTORS OF AMERICA  
1957 E STREET, N.W.  
WASHINGTON, D. C. 20006