



U.S. Department of Transportation
Federal Highway Administration

NOV 8 1989

400 Seventh St., S.W.
Washington, D.C. 20590

REFER TO:
HNG-14

John F. Boozer, III, P.E.
Product Development Engineer
Shakespeare Products Group
Route 3, P.O. Box 733
Newberry, South Carolina 29108

Dear Mr. Boozer:

This is in response to your letters of May 30 and August 9 to Mr. Thomas O. Willett in which you requested Federal Highway Administration (FHWA) acceptance of your company's anchor base light poles when used with "Pole-Safe" breakaway support couplings. The pole series for which you requested acceptance were the AA, AB, AC, and AD series with luminaire mounting heights of 39 to 47 feet and with mast arms up to 15 feet in length. Your letter transmitted the Pendulum Test Report of Luminaire Support Pole with Anchor Base Test No. A-6 conducted by the Southwest Research Institute. It was accompanied by detailed information on the manufacture of the poles and catalog pages showing the subject poles. You also submitted supplemental information, received July 17 and October 17, which included design drawings of the coupler and the anchor base.

The test article was a series AD-45 pole with a single 8-foot mast arm. The base casting was 12 inches high as specified for all poles in this height range. Other details of the tested hardware are shown in Enclosure 1 which consists of a drawing of the tested pole and base, and a drawing of the tested breakaway coupler. The test used an instrumented 1,800-pound pendulum fitted with a 10 stage crushable nose which simulates a 1979 Volkswagen Rabbit. Test results including measured and extrapolated velocity changes are shown below:

Change in velocity, 20 m.p.h. test	7.8 feet-per-second
Change in velocity, 60 m.p.h. calculated	9.4 feet-per-second
Stub height	4.0 inches
Weight of test article	444 pounds
Bolt circle diameter	15.5 inches

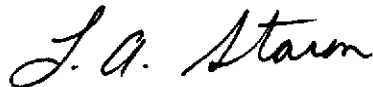
Through discussions with you, and from reviewing the test data, including the test films, we have determined that the base casting design is critical for proper breakaway performance of poles in the 39 to 47-foot range. Your part number 37-60-0213-10 (shown in a drawing dated 3-14-88) is the base specified for the poles for which you have requested acceptance. This base is 12 inches high, with a bottom flange thickness of 1 3/4 inches and a minimum socket wall thickness of 0.445 inches, (57/128 inches).

Your letter requested acceptance for poles to be used with arms up to 15 feet in length. Calculations you submitted earlier indicate that such mast arms have a minimal effect on the velocity change during an impact. Therefore, our acceptance includes poles with up to two 15-foot mast arms. This would permit a total weight of pole, arms, and luminaires of 510 pounds.

The information discussed above shows that the actual tests and calculated changes in velocity of the pole-base combinations for which you have requested acceptance meet the change in velocity and stub-height requirements adopted by the FHWA. Therefore, they are acceptable for use on Federal-aid projects when requested by a State. Enclosure 2 consists of catalog pages showing the acceptable poles.

This acceptance is limited to breakaway characteristics of the pole-base-coupling combination and does not cover the structural capacity of the combination. Presumably, you will supply potential users with sufficient information on structural design and installation requirements to ensure proper performance. We anticipate that the States will require certification from Shakespeare that the poles (including bases and mast arms) and couplings furnished have essentially the same chemistry and mechanical properties as those used in the tests and geometries consistent with those herein accepted, and that they will meet the FHWA change in velocity requirements.

Sincerely yours,

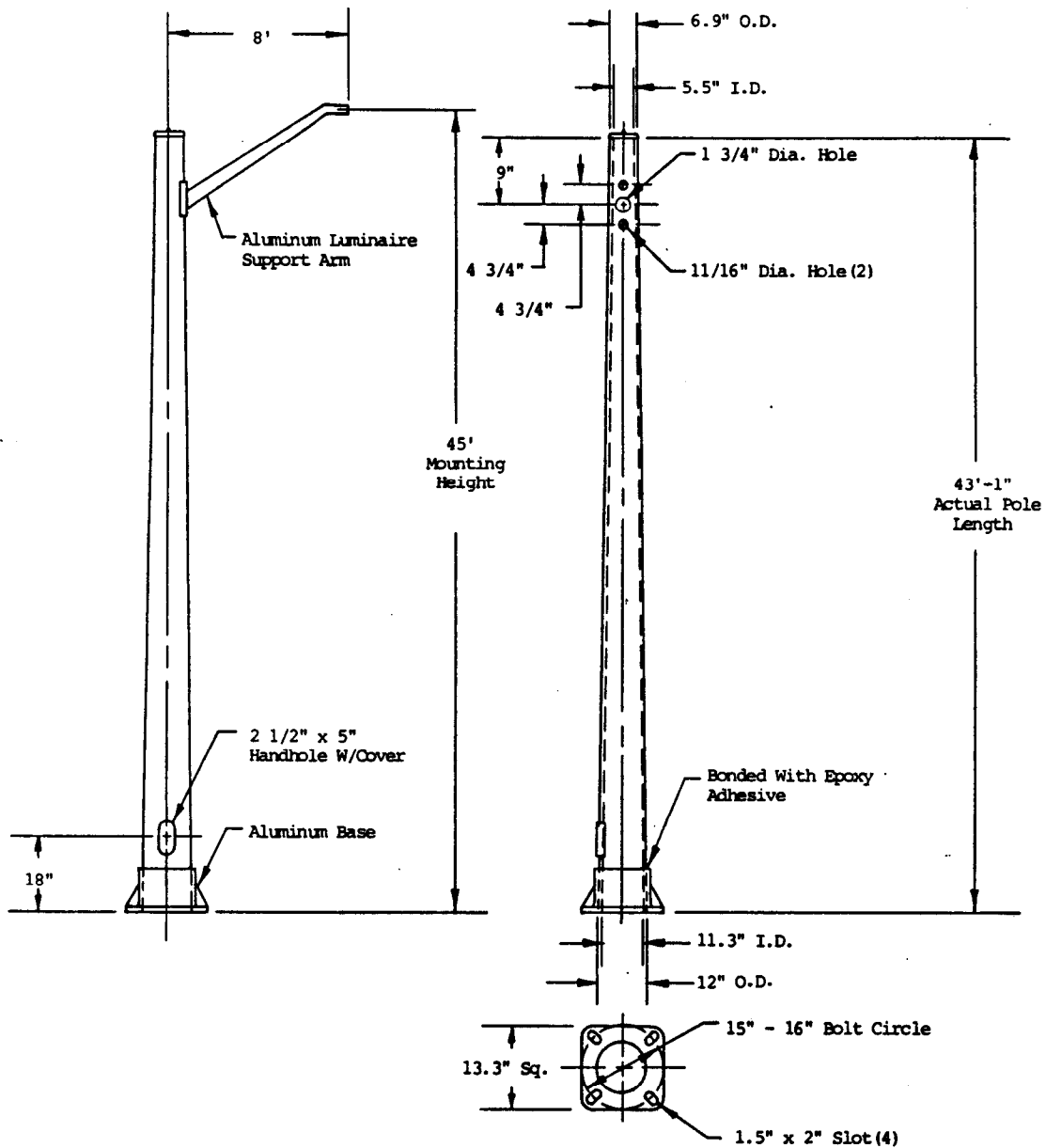


L. A. Staron
Chief, Federal-Aid and Design Division

Notes:

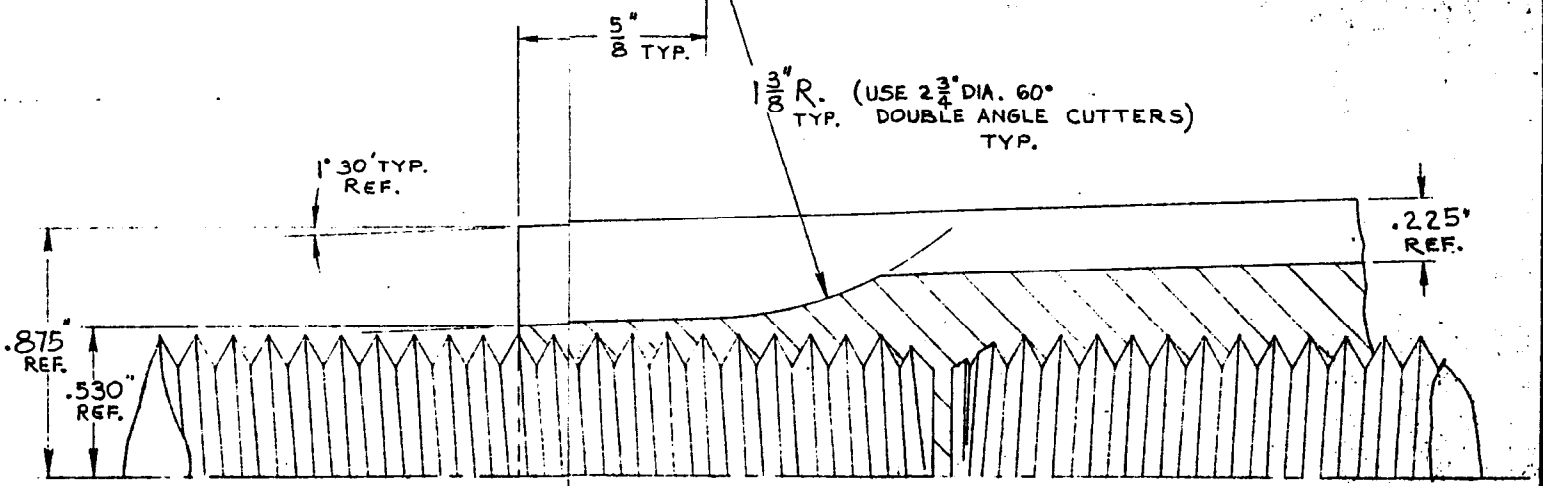
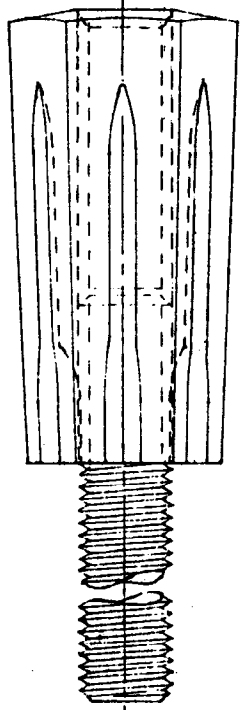
1- Weight: 397 lbs. Including Arm

2- Catalog Number: AD45-18N5BB01

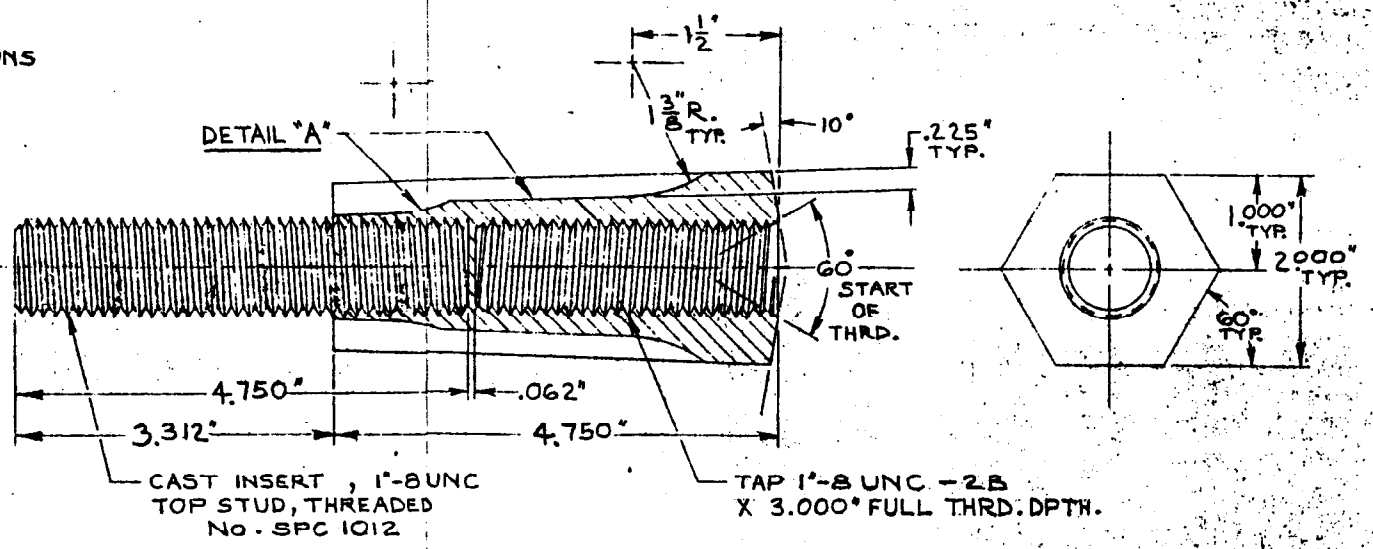
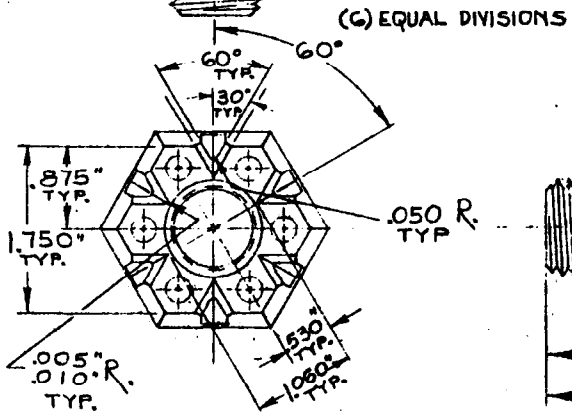


ITEM	PART NUMBER	DESCRIPTION	MATERIAL
LET	WAS	BY DATE	Shakespeare Electronics and Fiberglass Division Newberry, S. C. 29108
		SAMPLE MUST BE APPROVED AS INDICATED BELOW BEFORE PROCEEDING WITH FABRICATION. QUAL. APPROVAL YES <input type="checkbox"/> NO <input type="checkbox"/> ENG. APPROVAL YES <input type="checkbox"/> NO <input type="checkbox"/>	AD45 Anchor Base, Capped Light Poles, Pre-drilled For Arms
		ALL DIMENSIONS AND SPECIFIED FITS ARE FOR FINISHED PARTS AND MUST BE MET AFTER FINISH IS APPLIED.	
		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES: DECIMALS ± .008 FRACTIONS ± 1/64	DRAWN <i>D.D.</i> CHK'D <i>[Signature]</i> SCALE <i>N</i> DATE <i>9-21-85</i>
			USED ON _____ PC. NO. _____

Revised
 JUN 17 1987
 M. H. ...



DETAIL 'A'
 SCALE = 3/1



TRANSPO INDUSTRIES INC. NEW ROCHELLE, N.Y.			
SCALE: FULL	TOLERANCES: FRACTIONS ± 1/64	DECIMALS ± .0008	UNLESS OTHERWISE SPECIFIED
DATE: 5-18-87	DRAWN BY: JTC		
TITLE: POLE-SAFE BREAKAWAY SUPPORT COUPLING			
MATERIAL: ALUMINUM No. 360 (SC24B)		DRAWING NUMBER: 3-1000	

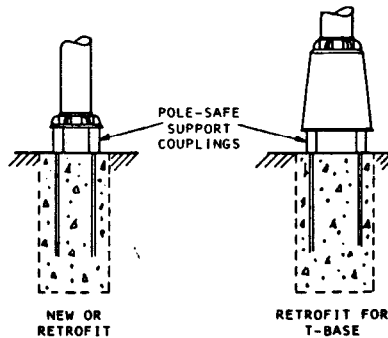
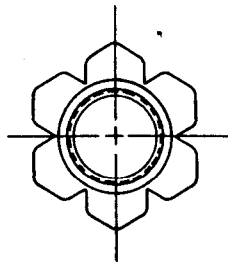
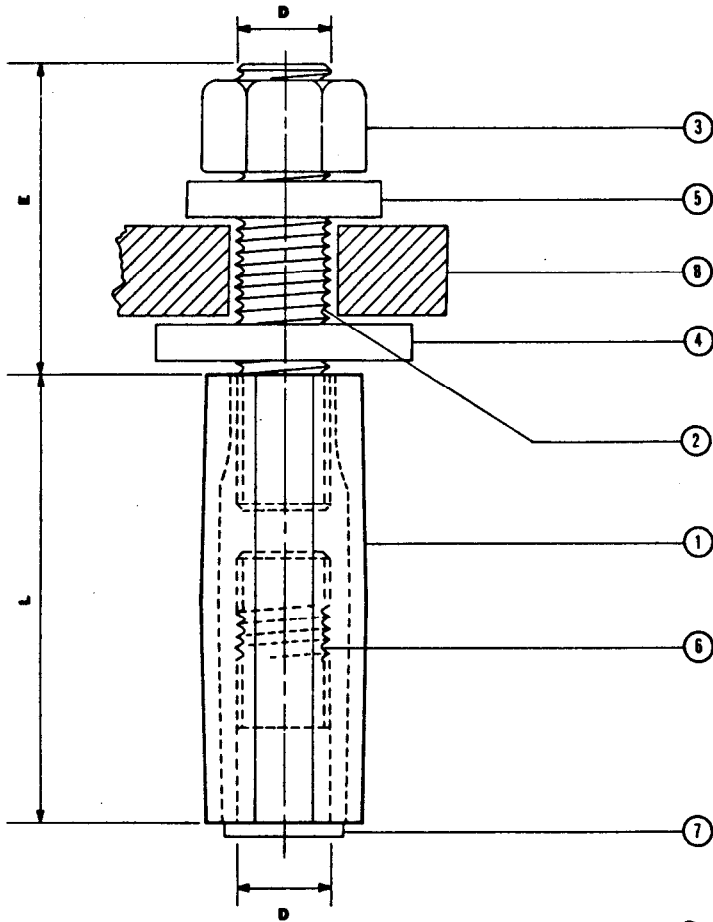
(SEE DRAWING NO. 3-1000 FOR
COUPLING DIMENSIONS)

KEY

- ① "POLE-SAFE" ALUMINUM DIE CAST COUPLING
- ② THREADED STUD - STAINLESS STEEL
- ③ HEX NUT OR ALUMINUM TORQUE LIMITING NUT
- ④ FLAT WASHER 2 3/4"O.D. (WILL ACCOMMODATE 1 5/16" MAX. BASE SLOT WIDTH)
- ⑤ FLAT WASHER 2"O.D. (WILL ACCOMMODATE 1 5/16" MAX. BASE SLOT WIDTH)
- ⑥ INSIDE THREAD FOR ANCHOR BOLT - ANCHOR BOLT LENGTH REQUIRED ABOVE FOUNDATION: 2 1/2" TO 3"
- ⑦ COUPLING SPACER SKIRT
- ⑧ POLE BASE PLATE - ASSEMBLY WILL ACCOMMODATE 1 1/2" MAX. BASE PLATE THICKNESS

NOTE: MATERIALS SHALL BE AS PER MANUFACTURER'S SPECIFICATIONS

SPECIAL INSTALLATION NOTE: SUPPORT COUPLING IS TO BE INSTALLED 1/8" TO 3/8" OFF THE FOUNDATION. COUPLING CAN BE ADJUSTED FOR LEVELING WITHIN THIS RANGE.



NO.	DESCRIPTION OF REVISION

Shakes

CATALOG SHEET PT-2

ROUND TAPERED POST TOP DIRECT BURIAL FIBERGLASS LIGHT POLES

Series
AA, AB,
AC, AD, AH,
AL and AS

Shakespeare

POST TOP Fiberglass ANCHOR BASE LIGHT POLES

Series
AA, AB,
AC, AD, AH,
AL and AS

NOMINAL MOUNTING HEIGHT (FT)	SHAFT LENGTH (FT)	WEIGHT (LBS)	POLE DIAMETER		STANDARD HANDHOLE LOCATION FROM BASE (IN)	RECOMMENDED TOTAL LOADING				BOLT HOLE CIRCLE	CATALOG NUMBER
			SHAFT TOP (IN)	SHAFT BASE (IN)		WEIGHT (LBS)	88 MPH EPA* (SO FT)	90 MPH EPA* (SO FT)	100 MPH EPA* (SO FT)		

25	25	129	6.2	9.6	10	300	14.5	11.5	9.0	5.4	14"	AA25
25	25	175	6.4	9.7	10	300	23.2	18.2	14.3	9.0	14"	AB25

30	30	206	6.4	10.4	10	300	19.7	15.2	11.7	7.1	14 1/2"	AB30
30	30	237	6.6	10.5	10	300	26.7	20.4	17.4	11.0	14 1/2"	AC30
30	30	285	6.9	10.6	10	300	37.4	29.1	22.9	14.0	14 1/2"	AD30

35	35	259	6.4	11.1	10	300	14.5	10.8	7.8	4.0	19"	AB35
35	35	276	6.6	11.2	10	300	21.8	16.6	12.5	7.2	19"	AC35
35	35	352	6.9	11.3	10	300	29.6	22.1	17.0	10.3	19"	AD35

40	40	204	6.2	11.7	18	300	6.4	4.3	2.4	—	15 1/2"	AA40
40	40	277	6.4	11.8	18	300	12.2	8.8	6.0	2.5	15 1/2"	AB40
40	40	319	6.6	11.9	18	300	19.2	14.1	10.4	5.4	15 1/2"	AC40
40	40	383	6.9	12.0	18	300	25.8	19.3	14.3	8.3	15 1/2"	AD40
45	45	226	6.2	11.7	18	300	3.9	2.2	.6	—	15 1/2"	AA45
45	45	308	6.4	11.8	18	300	9.1	6.2	3.8	.8	15 1/2"	AB45
45	45	365	6.6	11.9	18	300	15.2	10.9	7.6	3.2	15 1/2"	AC45
45	45	427	6.9	12.0	18	300	21.2	15.4	11.2	5.7	15 1/2"	AD45

**Do Not Use For Side Mount Applications — Use BO Series

**DO NOT USE WITH TENON MOUNTED ARMS OR FOR MULTIPLE FIXTURE APPLICATIONS — USE BO SERIES

HANDHOLE: Standard 2 1/2" x 5"

Optional 2 1/2" Round, or 4" x 6" or 4" x 12" on Some Models

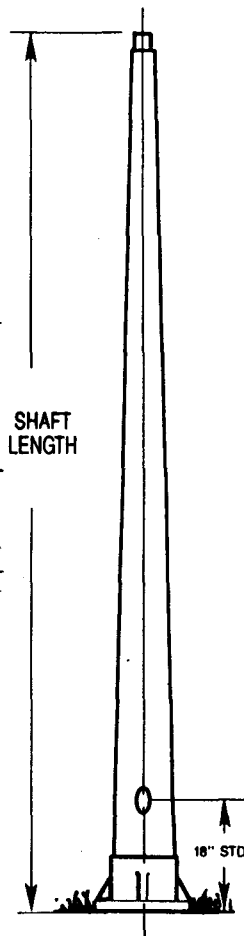
TENONS: 2 1/2", 3", or 4" on Some Models

All poles are polyurethane coated and individually wrapped. Anchor bolts standard.

Bolt covers and base shrouds optional... see accessories.

*EPA ratings for capped pole are same as for tenon pole.

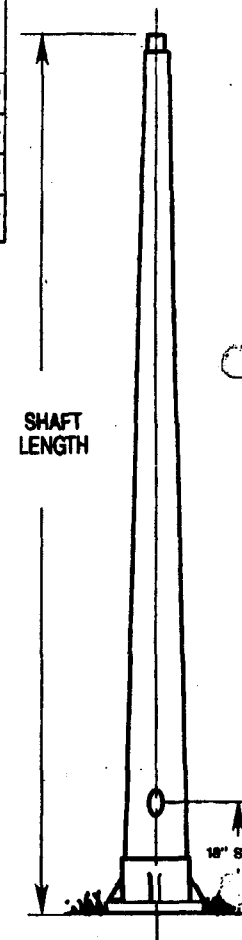
*EPA recommendations are calculated per AASHTO Standards and include a 30% gust factor.



See Catalog Sheet GI-4 for base dimensions.

NOMINAL MOUNTING HEIGHT (FT)	SHAFT LENGTH (FT)	WEIGHT (LBS)	POLE DIAMETER		STANDARD HANDHOLE LOCATION FROM BASE (IN)	RECOMMENDED TOTAL LOADING				BOLT HOLE CIRCLE	CATALOG NUMBER
			SHAFT TOP (IN)	SHAFT BASE (IN)		WEIGHT (LBS)	88 MPH EPA* (SO FT)	90 MPH EPA* (SO FT)	100 MPH EPA* (SO FT)		

47	47	235	6.2	11.7	18	300					15 1/2"	AA47
47	47	320	6.4	11.8	18	300					15 1/2"	AB47
47	47	370	6.6	11.9	18	300					15 1/2"	AC47
47	47	445	6.9	12.0	18	300					15 1/2"	AD47



**Do Not Use For Side Mount Applications — See AO Series

**Do Not Use With Tenon Mounted Arms — See AO Series

HANDHOLE: Standard 2 1/2" x 5"

Optional 2 1/2" Round, or 4" x 6" on Some Models

TENONS: 2 1/2", 3", or 4" on Some Models

All poles are individually wrapped. Anchor bolts standard.

Bolt covers and base shrouds optional... see accessories.

*EPA ratings for capped pole are same as for tenon pole.

*EPA recommendations are calculated per AASHTO Standards and include a 30% gust factor.

Shakespeare

4 ft. MAST ARM ANCHOR BASE FIBERGLASS LIGHT POLES

CATALOG SHEET MA-2

Series
AO, AA,
AB, AC,
AH and
BS

Shakespeare

4 ft. MAST ARM ANCHOR BASE FIBERGLASS LIGHT POLES

CATALOG SHEET MA-2

Series
AA,
AB, AC,
AH and
BS

NOMINAL MOUNTING HEIGHT (FT.)	SHAFT LENGTH (FT.)	WEIGHT (LBS) INCLUDES ARM(S)	POLE DIAMETER		STANDARD HANDHOLE LOCATION FROM BASE (IN.)	RECOMMENDED MAX SIZE OF EACH LUMINAIRE				BOLT HOLE CIRCLE	CATALOG NUMBER
			SHAFT TOP (IN.)	SHAFT BASE (IN.)		WEIGHT (LBS) PER LUM.	80 MPH EPA* (SQ. FT.)	90 MPH EPA* (SQ. FT.)	100 MPH EPA* (SQ. FT.)		

LIGHT POLE WITH ONE MAST ARM

40	39'6"	200	6.2	11.7	18	75	3.2"	3.2"	2.4	15W"	AA40-14
40	39'6"	272	6.4	11.8	18	75	3.2"	3.2"	3.2"	15W"	AB40-14
45	44'6"	230	6.2	11.7	18	75	3.2"	2.9	0.6	15W"	AA45-14
45	44'6"	309	6.4	11.8	18	75	3.2"	3.2"	3.2"	15W"	AB45-14

LIGHT POLE WITH TWO MAST ARMS

25	24'0"	136	6.2	9.8	18	75	3.2"	3.2"	3.2"	14"	AA25-24
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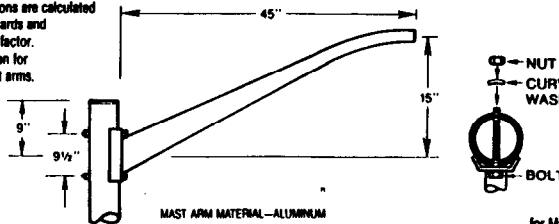
35	34'0"	245	6.4	11.1	18	75	3.2"	3.2"	3.2"	15"	AB35-24
40	39'6"	207	6.2	11.7	18	75	2.7	1.6	0.6	15W"	AA40-24
40	39'6"	278	6.4	11.8	18	75	3.2"	3.2"	2.4	15W"	AB40-24
40	39'6"	322	6.6	11.9	18	75	3.2"	3.2"	3.2"	15W"	AC40-24
45	44'6"	314	6.4	11.8	18	75	3.2"	2.5	1.3	15W"	AB45-24
45	44'6"	381	6.6	11.9	18	75	3.2"	3.2"	3.2"	15W"	AC45-24

All poles are individually wrapped. Aluminum cap, 2 1/2" x 5" handhole, and anchor bolts standard. Bolt covers (on some models) and base shrouds (for all models) are optional . . . see accessories.

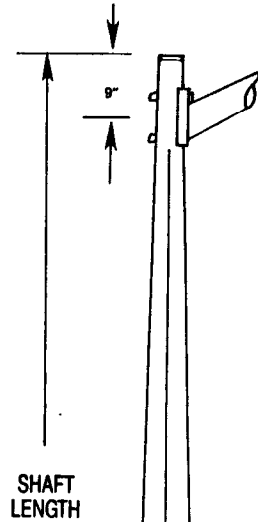
Optional: 4" x 6" handholes available on all but AO Models.

*Poles are not rated above 3.2 EPA as the mast arms are not rated for luminaires greater than 3.2 EPA.

EPA recommendations are calculated per AASHTO Standards and include a 30% gust factor. See Post Top section for EPA ratings without arms.

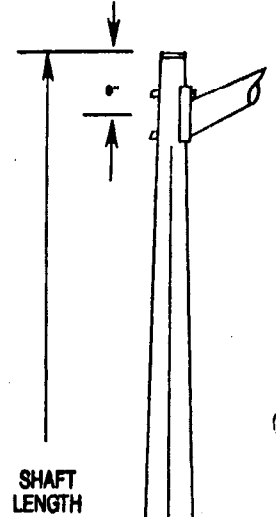


MA-2-08



See TEST DATA & ACCESSORIES Section for Mast Arm and attachment hardware part numbers.

NOMINAL MOUNTING HEIGHT (FT.)	SHAFT LENGTH (FT.)	WEIGHT (LBS) INCLUDES ARM(S)	POLE DIAMETER		STANDARD HANDHOLE LOCATION FROM BASE (IN.)	RECOMMENDED MAX SIZE OF EACH LUMINAIRE				BOLT HOLE CIRCLE	CATALOG NUMBER
			SHAFT TOP (IN.)	SHAFT BASE (IN.)		WEIGHT (LBS) PER LUM.	80 MPH EPA* (SQ. FT.)	90 MPH EPA* (SQ. FT.)	100 MPH EPA* (SQ. FT.)		

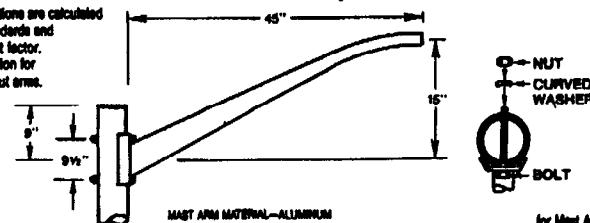


All poles are individually wrapped. Aluminum cap, 2 1/2" x 5" handhole, and anchor bolts standard. Bolt covers (on some models) and base shrouds (for all models) are optional . . . see accessories.

Optional: 4" x 6" handholes available on all but AO Models.

*Poles are not rated above 3.2 EPA as the mast arms are not rated for luminaires greater than 3.2 EPA.

EPA recommendations are calculated per AASHTO Standards and include a 30% gust factor. See Post Top section for EPA ratings without arms.



MA-2-08

See TEST DATA & ACCESSORIES Section for Mast Arm and attachment hardware part numbers.

ENCLOSURE 2

Shakespeare

6 ft. MAST ARM ANCHOR BASE FIBERGLASS LIGHT POLES

Series
AO, AA,
AB, AC,
AD, AH
and AS

CATALOG SHEET MA-4

NOMINAL MOUNTING HEIGHT (FT)	SHAFT LENGTH (FT)	WEIGHT (LBS) INCLUDES ARMS	POLE DIAMETER		STANDARD HANDHOLE LOCATION FROM BASE (IN)	RECOMMENDED MAX. SIZE OF EACH LUMINAIRE				BOLT HOLE CIRCLE	CATALOG NUMBER
			SHAFT TOP (IN)	SHAFT BASE (IN)		WEIGHT (LBS) PER LUM.	80 MPH EPA * (SQ. FT)	90 MPH EPA * (SQ. FT)	100 MPH EPA * (SQ. FT)		

LIGHT POLE WITH ONE MAST ARM

40	38'9"	202	6.2	11.8	18	75	3.2"	3.2"	1.8	15 1/2"	AA40-16
40	38'9"	272	6.4	11.7	18	75	3.2"	3.2"	3.2"	15 1/2"	AB40-16
45	43'9"	230	6.2	11.7	18	75	3.2"	1.9	0.1	15 1/2"	AA45-16
45	43'9"	309	6.4	11.8	18	75	3.2"	3.2"	2.3	15 1/2"	AB45-16
45	43'9"	356	6.6	11.9	18	75	3.2"	3.2"	3.2"	15 1/2"	AC45-16

LIGHT POLE WITH TWO MAST ARMS

25	23'9"	140	0.2	0.4	18	75	0.2"	0.2"	0.2"	14"	AA25-16
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35	33'9"	250	0.4	11.0	18	75	3.2"	3.2"	2.0	15"	AB35-26
35	33'9"	287	6.6	11.1	18	75	0.2"	0.2"	0.2"	15"	AC35-26
40	38'9"	283	6.4	11.7	18	75	3.2"	3.1	1.7	15 1/2"	AB40-26
40	38'9"	324	6.8	11.8	18	75	3.2"	3.2"	3.2"	15 1/2"	AC40-26
45	43'9"	320	6.4	11.8	18	75	3.2"	1.9	0.7	15 1/2"	AB45-26
45	43'9"	368	6.6	11.9	18	75	3.2"	3.2"	2.8	15 1/2"	AC45-26
45	43'9"	436	6.9	12.0	18	75	3.2"	3.2"	3.2"	15 1/2"	AD45-26

LIGHT POLE WITH FOUR MAST ARMS

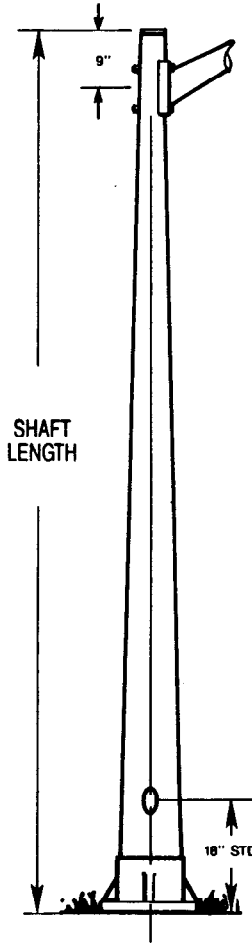
25	23'9"	103	0.2	0.4	18	75	3.2"	3.0	2.1	14"	AA25-16
25	23'9"	206	0.4	0.5	18	75	3.2"	3.2"	3.2"	14"	AB25-16

30	28'9"	230	0.4	10.3	18	75	0.2"	0.2"	0.1	14 1/2"	AB30-16
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35	33'9"	307	0.6	11.1	18	75	3.2"	3.2"	3.2"	15"	AC35-16
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MA-4-88

(See other side for additional product information)



SHAFT LENGTH

For Anchor Base Dimensions
See Catalog Sheet GI-4

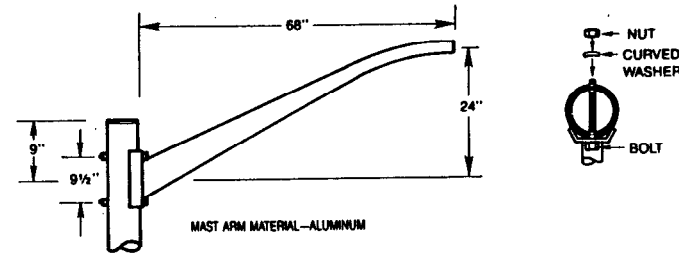
See TEST DATA & ACCESSORIES Section
for Mast Arm and attachment hardware part numbers.

NOMINAL MOUNTING HEIGHT (FT)	SHAFT LENGTH (FT)	WEIGHT (LBS) INCLUDES ARMS	POLE DIAMETER		STANDARD HANDHOLE LOCATION FROM BASE (IN)	RECOMMENDED MAX. SIZE OF EACH LUMINAIRE				BOLT HOLE CIRCLE	CATALOG NUMBER
			SHAFT TOP (IN)	SHAFT BASE (IN)		WEIGHT (LBS) PER LUM.	80 MPH EPA * (SQ. FT)	90 MPH EPA * (SQ. FT)	100 MPH EPA * (SQ. FT)		
40	38'9"	303	6.4	11.7	18	75	3.2"	2.1	1.1	15 1/2"	AB40-46
40	38'9"	344	6.6	11.8	18	75	3.2"	3.2"	2.6	15 1/2"	AC40-46
40	38'9"	412	6.9	11.9	18	75	3.2"	3.2"	3.2"	15 1/2"	AD40-46
45	43'9"	340	6.4	11.8	18	75	2.3	1.3	0.5	15 1/2"	AB45-46
45	43'9"	386	6.6	11.9	18	75	3.2"	2.9	1.7	15 1/2"	AC45-46
45	43'9"	456	6.9	12.0	18	75	3.2"	3.2"	3.0	15 1/2"	AD45-46

All poles are individually wrapped. Aluminum cap, 2 1/2" x 5" handhole, and anchor bolts standard. Bolt covers (on some models) and base shrouds (for all models) are optional... see accessories.
Optional: 4" x 6" handholes available on all but AO Models.

*Poles are not rated above 3.2 EPA as the mast arms are not rated for luminaires greater than 3.2 EPA.

EPA recommendations are calculated per AASHTO Standards and include a 30% gust factor. See Post Top section for EPA ratings without arms.



See TEST DATA & ACCESSORIES Section
for Mast Arm and attachment hardware part numbers.

NOMINAL MOUNTING HEIGHT (FT)	SHAFT LENGTH (FT)	WEIGHT (LBS) INCLUDES ARMS	POLE DIAMETER		STANDARD HANDHOLE LOCATION FROM BASE (IN)	RECOMMENDED MAX. SIZE OF EACH LUMINAIRE				BOLT HOLE CIRCLE	CATALOG NUMBER
			SHAFT TOP (IN)	SHAFT BASE (IN)		WEIGHT (LBS) PER LUM.	80 MPH EPA * (SQ. FT)	90 MPH EPA * (SQ. FT)	100 MPH EPA * (SQ. FT)		
47	45'9"	240	6.2	11.7	18	75				15 1/2"	AA47
47	45'9"	322	6.4	11.8	18	75				15 1/2"	AB47
47	45'9"	371	6.6	11.9	18	75				15 1/2"	AC47
47	45'9"	446	6.9	12.0	18	75				15 1/2"	AD47

MA-4-88

See TEST DATA & ACCESSORIES Section
for Mast Arm and attachment hardware part numbers.

Shakespeare

8 ft. MAST ARM ANCHOR BASE FIBERGLASS LIGHT POLES

Series
AO, AA,
AB, AC,
AD, AH
and AS

CATALOG SHEET MA-6

NOMINAL MOUNTING HEIGHT (FT)	SHAFT LENGTH (FT)	WEIGHT (LBS) INCLUDES ARMS	POLE DIAMETER		STANDARD HANDHOLE LOCATION FROM BASE (IN)	RECOMMENDED MAX. SIZE OF EACH LUMINAIRE				BOLT HOLE CIRCLE	CATALOG NUMBER
			SHAFT TOP (IN)	SHAFT BASE (IN)		WEIGHT (LBS) PER LUM	80 MPH EPA * (SQ. FT)	90 MPH EPA * (SQ. FT)	100 MPH EPA * (SQ. FT)		

LIGHT POLE WITH ONE MAST ARM

40	36'	203	6.2	11.5	18	75	3.2"	3.1	1.2	15 1/2"	AA40-18
40	36'	271	6.4	11.6	18	75	3.2"	3.2"	3.2"	15 1/2"	AB40-18
45	43'	308	6.4	11.8	18	75	3.2"	3.2"	2.7	15 1/2"	AB45-18
45	43'	354	6.6	11.9	18	75	3.2"	3.2"	3.2"	15 1/2"	AC45-18

LIGHT POLE WITH TWO MAST ARMS

25	25'	146	6.0	9.4	16	75	3.2"	3.2"	2.6	14"	AA25-26
25	29'	198	6.4	9.5	16	75	3.2"	3.2"	3.2"	14"	AB25-26

30	28'	217	6.4	10.2	16	75	3.2"	3.2"	3.2"	14 1/2"	AB30-26
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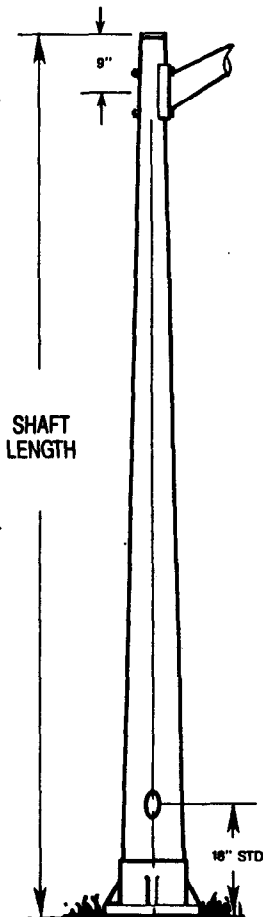
35	33'	250	6.4	10.9	16	75	3.2"	3.2"	1.9	16"	AB35-26
35	33'	287	6.6	11.0	16	75	3.2"	3.2"	3.2"	16"	AB35-26

40	36'	284	6.4	11.6	18	75	3.2"	2.4	1.0	15 1/2"	AB40-26
40	36'	325	6.6	11.7	18	75	3.2"	3.2"	3.2"	15 1/2"	AC40-26
45	43'	321	6.4	11.8	18	75	2.8	1.3	—	15 1/2"	AB45-26
45	43'	367	6.6	11.9	18	75	3.2"	3.2"	2.0	15 1/2"	AC45-26
45	43'	435	6.9	12.0	18	75	3.2"	3.2"	3.2"	15 1/2"	AD45-26

LIGHT POLE WITH FOUR MAST ARMS

25	25'	172	6.2	9.4	16	75	3.2"	2.9	1.7	14"	AA25-46
25	29'	210	6.4	9.5	16	75	3.2"	3.2"	3.2"	14"	AB25-46

*Poles are not rated above 3.2 EPA as the mast arms are not rated for luminaires greater than 3.2 EPA. EPA recommendations are calculated per AASHTO Standards and include a 30% gust factor. See Post Top section for EPA ratings without arms.



For Anchor Base Dimensions See Catalog Sheet GI-1

NOMINAL MOUNTING HEIGHT (FT)	SHAFT LENGTH (FT)	WEIGHT (LBS) INCLUDES ARMS	POLE DIAMETER		STANDARD HANDHOLE LOCATION FROM BASE (IN)	RECOMMENDED MAX. SIZE OF EACH LUMINAIRE				BOLT HOLE CIRCLE	CATALOG NUMBER
			SHAFT TOP (IN)	SHAFT BASE (IN)		WEIGHT (LBS) PER LUM	80 MPH EPA * (SQ. FT)	90 MPH EPA * (SQ. FT)	100 MPH EPA * (SQ. FT)		

30	28'	274	6.6	10.9	16	75	3.2"	3.2"	3.2"	14 1/2"	AC30-46
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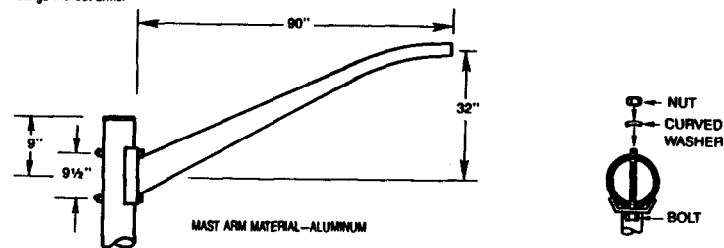
35	33'	279	6.4	10.9	16	75	3.2"	2.3	1.3	15"	AB35-46
35	33'	313	6.6	11.0	16	75	3.2"	3.2"	2.9	15"	AC35-46
35	33'	386	6.9	11.1	16	75	3.2"	3.2"	3.2"	15"	AD35-46

40	36'	310	6.4	11.6	18	75	2.8	1.8	0.7	15 1/2"	AB40-46
40	36'	351	6.6	11.7	18	75	3.2"	3.2"	2.1	15 1/2"	AC40-46
40	36'	410	6.9	11.8	18	75	3.2"	3.2"	3.2"	15 1/2"	AD40-46
45	43'	347	6.4	11.8	18	75	1.9	0.9	—	15 1/2"	AB45-46
45	43'	393	6.6	11.9	18	75	3.2"	2.5	1.3	15 1/2"	AC45-46
45	43'	461	6.9	12.0	18	75	3.2"	3.2"	2.5	15 1/2"	AD45-46

All poles are individually wrapped. Aluminum cap, 2 1/2" x 5" handhole, and anchor bolts standard. Bolt covers (on some models) and base shrouds (for all models) are optional... see accessories. Optional: 4" x 6" handholes available on all but AO Models.

*Poles are not rated above 3.2 EPA as the mast arms are not rated for luminaires greater than 3.2 EPA.

EPA recommendations are calculated per AASHTO Standards and include a 30% gust factor. See Post Top section for EPA ratings without arms.



See TEST DATA & ACCESSORIES Section for Mast Arm and attachment hardware part numbers.

NOMINAL MOUNTING HEIGHT (FT)	SHAFT LENGTH (FT)	WEIGHT (LBS) INCLUDES ARMS	POLE DIAMETER		STANDARD HANDHOLE LOCATION FROM BASE (IN)	RECOMMENDED MAX. SIZE OF EACH LUMINAIRE				BOLT HOLE CIRCLE	CATALOG NUMBER
			SHAFT TOP (IN)	SHAFT BASE (IN)		WEIGHT (LBS) PER LUM	80 MPH EPA * (SQ. FT)	90 MPH EPA * (SQ. FT)	100 MPH EPA * (SQ. FT)		

47	45	240	6.2	11.7	18	75				15 1/2"	AA47
47	45	320	6.4	11.8	18	75				15 1/2"	AB47
47	45	369	6.6	11.9	18	75				15 1/2"	AC47
47	45	440	6.9	12.0	18	75				15 1/2"	AD47

See TEST DATA & ACCESSORIES Section for Mast Arm and attachment hardware part numbers.

Shakespeare

10 ft. MAST ARM ANCHOR BASE FIBERGLASS LIGHT POLES

CATALOG SHEET MA-8

Series
AA, AB,
AC, AD,
AH and
AS

NOMINAL MOUNTING HEIGHT (FT)	SHAFT LENGTH (FT)	WEIGHT (LBS) INCLUDES ARMS	POLE DIAMETER		STANDARD HANDHOLE LOCATION FROM BASE (IN)	RECOMMENDED MAX. SIZE OF EACH LUMINAIRE				BOLT HOLE CIRCLE	CATALOG NUMBER
			SHAFT TOP (IN)	SHAFT BASE (IN)		WEIGHT (LBS) PER LUM.	80 MPH EPA* (SQ. FT)	90 MPH EPA* (SQ. FT)	100 MPH EPA* (SQ. FT)		

LIGHT POLE WITH ONE MAST ARM

26	22'8"	136	6.2	6.0	18	75	3.2"	3.2"	3.2"	14"	AA26-11
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40	37'8"	205	6.2	11.4	18	75	3.2"	2.4	0.5	15 1/2"	AA40-11
40	37'8"	272	6.4	11.5	18	75	3.2"	3.2"	3.2"	15 1/2"	AB40-11
45	42'8"	232	6.2	11.7	18	75	2.8	0.7	—	15 1/2"	AA45-11
45	42'8"	309	6.4	11.8	18	75	3.2"	3.2"	2.0	15 1/2"	AB45-11
45	42'8"	354	6.6	11.9	18	75	3.2"	3.2"	3.2"	15 1/2"	AC45-11

LIGHT POLE WITH TWO MAST ARMS

25	20'0"	152	6.2	6.0	18	75	3.2"	2.9	1.0	14"	AA25-21
25	22'0"	190	6.4	6.4	18	75	3.2"	3.2"	3.2"	14"	AB25-21

30	27'8"	220	6.4	10.1	18	75	3.2"	3.2"	3.0	14 1/2"	AB30-21
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30	30'0"	257	6.4	10.0	18	75	3.2"	3.0	1.5	16"	AB30-21
36	30'0"	200	6.6	10.0	18	75	3.2"	3.2"	3.2	16"	AC36-21

40	37'8"	289	6.4	11.5	18	75	3.2"	1.6	0.3	15 1/2"	AB40-21
40	37'8"	329	6.6	11.6	18	75	3.2"	3.2"	2.4	15 1/2"	AC40-21
40	37'8"	369	6.9	11.7	18	75	3.2"	3.2"	3.2"	15 1/2"	AD40-21
45	42'8"	371	6.6	11.9	18	75	3.2"	3.0	1.2	15 1/2"	AC45-21
45	42'8"	439	6.9	12.0	18	75	3.2	3.2"	3.0	15 1/2"	AD45-21

LIGHT POLE WITH FOUR MAST ARMS

26	22'8"	180	6.2	6.0	18	75	3.1	2.0	1.2	14"	AA26-41
25	22'0"	227	6.4	6.4	18	75	3.2"	3.2"	2.9	14"	AB25-41
26	22'8"	260	6.6	6.5	18	75	3.2"	3.2"	3.2"	14"	AC26-41

30	27'8"	267	6.6	10.2	18	75	3.2"	3.2"	3.2"	14 1/2"	AC30-41
36	32'8"	261	6.4	10.0	18	75	3.2"	2.0	1.0	16"	AB36-41
36	32'8"	326	6.6	10.0	18	75	3.2"	3.2"	2.6	16"	AC36-41
33	32'0"	378	6.9	11.0	18	75	3.2"	3.2"	3.2"	16"	AD33-41

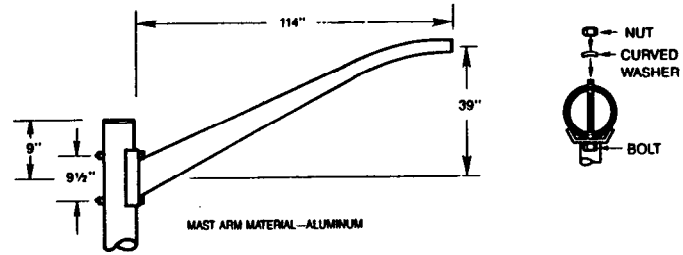
40	37'8"	323	6.4	11.5	18	75	3.2"	2.2	1.1	15 1/2"	AB40-41
40	37'8"	363	6.6	11.6	18	75	3.2"	2.9	1.6	15 1/2"	AC40-41
40	37'8"	423	6.9	11.7	18	75	3.2"	3.2"	2.9	15 1/2"	AD40-41
45	42'8"	405	6.6	11.9	18	75	3.2"	2.0	0.8	15 1/2"	AC45-41
45	42'8"	473	6.9	12.0	18	75	3.2"	3.2"	2.1	15 1/2"	AD45-41

*Poles are not rated above 3.2 EPA as the mast arms are not rated for luminaires greater than 3.2 EPA. EPA recommendations are calculated per AASHTO Standards and include a 30% gust factor. See Post

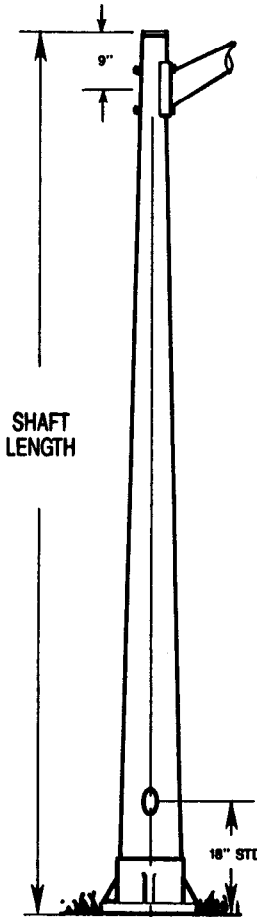
MA-8-88 Top section for EPA ratings without arms.

(See other side for additional product information)

All poles are individually wrapped. Aluminum cap, 2 1/2" x 5" handhole, and anchor bolts standard. Bolt covers and base shrouds are optional... see accessories. Optional: 4" x 6" handholes.



See TEST DATA & ACCESSORIES Section for Mast Arm and attachment hardware part numbers.



For Anchor Base Dimensions See Catalog Sheet GI-4

NOMINAL MOUNTING HEIGHT (FT)	SHAFT LENGTH (FT)	WEIGHT (LBS) INCLUDES ARMS	POLE DIAMETER		STANDARD HANDHOLE LOCATION FROM BASE (IN)	RECOMMENDED MAX. SIZE OF EACH LUMINAIRE				BOLT HOLE CIRCLE	CATALOG NUMBER
			SHAFT TOP (IN)	SHAFT BASE (IN)		WEIGHT (LBS) PER LUM.	80 MPH EPA* (SQ. FT)	90 MPH EPA* (SQ. FT)	100 MPH EPA* (SQ. FT)		
47	44'6"	241	6.2	11.7	18	75				15 1/2"	AA47
47	44'6"	323	6.4	11.8	18	75				15 1/2"	AB47
47	44'6"	372	6.6	11.9	18	75				15 1/2"	AC47
47	44'6"	447	6.9	12.0	18	75				15 1/2"	AD47

MA-8-88

Shakespeare

CATALOG SHEET MA-10

12 ft. MAST ARM ANCHOR BASE FIBERGLASS LIGHT POLES

Series
AA, AB,
AC, AD,
AH and
AS

Shakespeare

CATALOG SHEET MA 10

12 ft. MAST ARM ANCHOR BASE FIBERGLASS LIGHT POLES

Series
AA, AB,
AC, AD,
AH and
AS

NOMINAL MOUNTING HEIGHT (FT)	SHAFT LENGTH (FT)	WEIGHT (LBS) INCLUDES ARMS	POLE DIAMETER		STANDARD HANDHOLE LOCATION FROM BASE (IN)	RECOMMENDED MAX. SIZE OF EACH LUMINAIRE			BOLT HOLE CIRCLE	CATALOG NUMBER
			SHAFT TOP (IN)	SHAFT BASE (IN)		WEIGHT (LBS) PER LUM	80 MPH EPA* (SQ FT)	90 MPH EPA* (SQ FT)		

LIGHT POLE WITH ONE MAST ARM

26	22'	196	6.2	9.2	18	75	0.2'	3.2'	0.2'	14"	AA25-12
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40	37'	205	6.2	11.3	18	75	3.2'	1.9	—	15 1/2"	AA40-12
40	37'	272	6.4	11.4	18	75	3.2'	3.2'	3.2'	15 1/2"	AB40-12
45	42'	309	6.4	11.8	18	75	3.2'	3.2'	1.5	15 1/2"	AB45-12
45	42'	354	6.6	11.9	18	75	3.2'	3.2'	3.2'	15 1/2"	AC45-12

LIGHT POLE WITH TWO MAST ARMS

26	22'	156	6.2	9.2	18	75	0.2'	2.4	1.8	14"	AA25-22
26	22'	196	6.4	9.3	18	75	0.2'	3.2'	0.2'	14"	AB25-22

30	27'	225	6.4	10.0	18	75	0.2'	3.2'	2.4	14 1/2"	AB30-22
30	27'	264	6.6	10.1	18	75	0.2'	3.2'	3.2'	14 1/2"	AC30-22
35	32'	260	6.4	10.7	18	75	0.2'	2.9	0.9	15"	AB35-22
35	32'	294	6.6	10.8	18	75	0.2'	3.2'	0.2'	15"	AC35-22

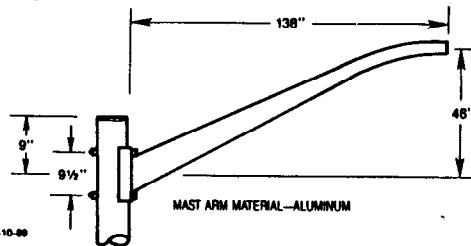
40	37'	292	6.4	11.4	18	75	2.6	1.0	—	15 1/2"	AB40-22
40	37'	332	6.6	11.5	18	75	3.2'	3.2'	1.8	15 1/2"	AC40-22
40	37'	390	6.9	11.6	18	75	3.2'	3.2'	3.2'	15 1/2"	AD40-22
45	42'	374	6.6	11.9	18	75	3.2'	2.3	0.6	15 1/2"	AC45-22
45	42'	440	6.9	12.0	18	75	3.2'	3.2'	2.4	15 1/2"	AD45-22

All poles are individually wrapped. Aluminum cap, 2 1/2" x 5" handhole, and anchor bolts standard. Bolt covers and base shrouds are optional... see accessories.

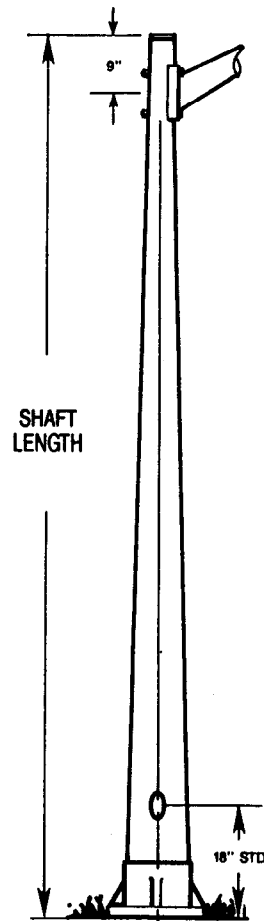
Optional: 4" x 6" handhole.

*Poles are not rated above 3.2 EPA as the mast arms are not rated for luminaires greater than 3.2 EPA.

EPA recommendations are calculated per AASHTO Standards and include a 30% gust factor. See Post Top section for EPA ratings without arms.



MA-10-99



For Anchor Base Dimensions See Catalog Sheet G1-4

See TEST DATA & ACCESSORIES Section for Mast Arm and attachment hardware part numbers.

NOMINAL MOUNTING HEIGHT (FT)	SHAFT LENGTH (FT)	WEIGHT (LBS) INCLUDES ARMS	POLE DIAMETER		STANDARD HANDHOLE LOCATION FROM BASE (IN)	RECOMMENDED MAX. SIZE OF EACH LUMINAIRE			BOLT HOLE CIRCLE	CATALOG NUMBER
			SHAFT TOP (IN)	SHAFT BASE (IN)		WEIGHT (LBS) PER LUM	80 MPH EPA* (SQ FT)	90 MPH EPA* (SQ FT)		

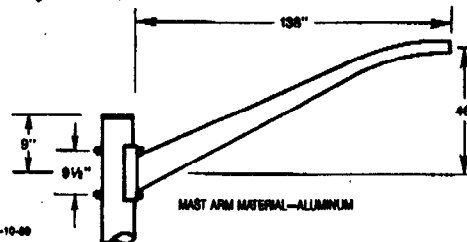
47	44	326	6.4	11.8	18	75				15 1/2"	AB47
47	44	375	6.6	11.9	18	75				15 1/2"	AC47
47	44	450	6.9	12.0	18	75				15 1/2"	AD47

All poles are individually wrapped. Aluminum cap, 2 1/2" x 5" handhole, and anchor bolts standard. Bolt covers and base shrouds are optional... see accessories.

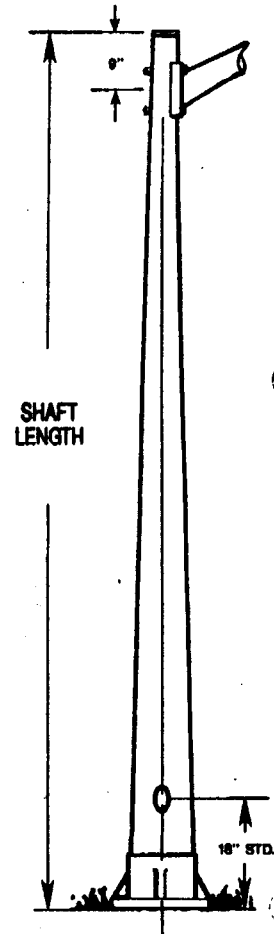
Optional: 4" x 6" handhole.

*Poles are not rated above 3.2 EPA as the mast arms are not rated for luminaires greater than 3.2 EPA.

EPA recommendations are calculated per AASHTO Standards and include a 30% gust factor. See Post Top section for EPA ratings without arms.



MA-10-99



For Anchor Base Dimensions See Catalog Sheet G1-4

See TEST DATA & ACCESSORIES Section for Mast Arm and attachment hardware part numbers.

Shakes

15 ft. MAST ARM ANCHOR BASE FIBERGLASS LIGHT POLES

CATALOG SHEET MA-12

Series
AB, AC
and AD

Shakespeare

15 ft. MAST ARM ANCHOR BASE FIBERGLASS LIGHT POLES

CATALOG SHEET MA 12

Series
AB, AC
and AD

NOMINAL MOUNTING HEIGHT (FT)	SHAFT LENGTH (FT)	WEIGHT (LBS) INCLUDES ARMS	POLE DIAMETER		STANDARD HANDHOLE LOCATION FROM BASE (IN)	RECOMMENDED MAX. SIZE OF EACH LUMINAIRE				BOLT HOLE CIRCLE	CATALOG NUMBER
			SHAFT TOP (IN)	SHAFT BASE (IN)		WEIGHT (LBS) PER LIM	80 MPH EPA * (SQ FT)	90 MPH EPA * (SQ FT)	100 MPH EPA * (SQ FT)		

LIGHT POLE WITH ONE MAST ARM

26	22'	184	6.4	9.3	18	75	3.2"	3.2"	3.2"	14"	AB25-16
30	27'	220	6.4	10.0	18	75	3.2"	3.2"	3.2"	14 1/2"	AB30-15
35	32'	258	6.4	10.7	18	76	3.2"	3.2"	2.6	16"	AC35-16
35	32'	262	6.6	10.6	18	75	3.2"	3.2"	3.2"	15"	AC35-15
40	37'	290	6.4	11.4	18	75	3.2"	2.9	—	15 1/2"	AB40-15
40	37'	330	6.6	11.5	18	75	3.2"	3.2"	3.2"	15 1/2"	AC40-15
45	42'	327	6.4	11.8	18	75	3.2"	0.8	—	15 1/2"	AB45-15
45	42'	372	6.6	11.9	18	75	3.2"	3.2"	2.2	15 1/2"	AC45-15
45	42'	438	6.9	12.0	18	75	3.2"	3.2"	3.2"	15 1/2"	AD45-15

LIGHT POLE WITH TWO MAST ARMS

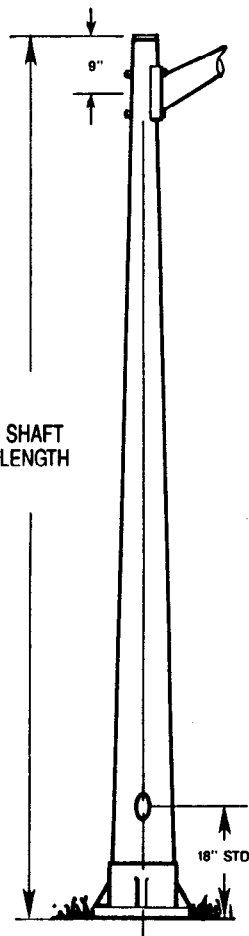
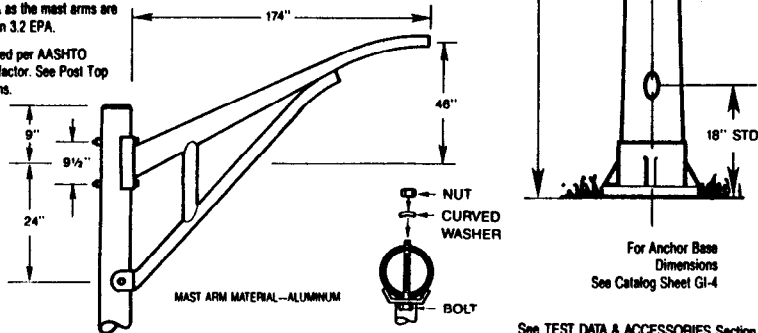
25	22'	232	6.4	9.3	18	75	3.2"	2.5	0.7	14"	AB25-23
25	22'	254	6.6	9.4	18	75	3.2"	3.2"	3.2"	14"	AC25-26
30	27'	261	6.4	10.0	18	76	3.2"	1.0	—	14 1/2"	AB30-26
30	27'	290	6.6	10.1	18	75	3.2"	3.2"	2.1	14 1/2"	AC30-26
30	27'	323	6.8	10.2	18	76	3.2"	3.2"	3.2"	14 1/2"	AB30-25
35	32'	330	6.6	10.0	18	75	3.2"	2.1	—	16"	AC25-25
35	32'	381	6.9	10.9	18	75	3.2"	3.2"	2.9	15"	AD35-25
40	37'	368	6.6	11.5	18	75	3.0	0.5	—	15 1/2"	AC40-25
40	37'	432	6.9	11.6	18	75	3.2"	3.0	0.6	15 1/2"	AD40-25
45	42'	476	6.9	12.0	18	75	3.2"	1.5	—	15 1/2"	AD45-25

All poles are individually wrapped. Aluminum cap, 2 1/2" x 5" handhole, and anchor bolts standard. Bolt covers and base shrouds are optional... see accessories.

Optional: 4" x 6" handhole.

*Poles are not rated above 3.2 EPA as the mast arms are not rated for luminaires greater than 3.2 EPA.

EPA recommendations are calculated per AASHTO Standards and include a 30% gust factor. See Post Top section for EPA ratings without arms.



For Anchor Base
Dimensions
See Catalog Sheet GI-4

See TEST DATA & ACCESSORIES Section
for Mast Arm and attachment hardware part numbers.

NOMINAL MOUNTING HEIGHT (FT)	SHAFT LENGTH (FT)	WEIGHT (LBS) INCLUDES ARMS	POLE DIAMETER		STANDARD HANDHOLE LOCATION FROM BASE (IN)	RECOMMENDED MAX. SIZE OF EACH LUMINAIRE				BOLT HOLE CIRCLE	CATALOG NUMBER
			SHAFT TOP (IN)	SHAFT BASE (IN)		WEIGHT (LBS) PER LIM	80 MPH EPA * (SQ FT)	90 MPH EPA * (SQ FT)	100 MPH EPA * (SQ FT)		

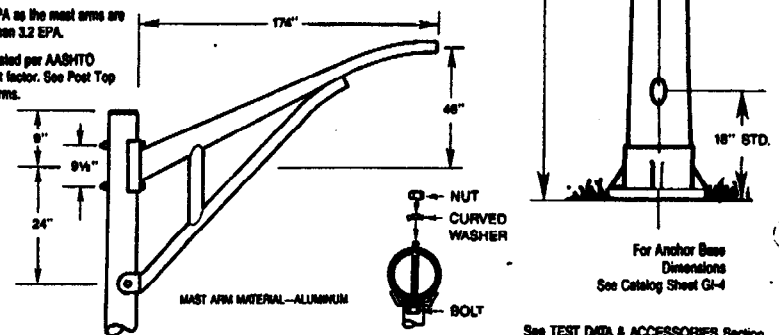
47	44	346	6.4	11.8	18	75				15 1/2"	AB47
47	44	395	6.6	11.9	18	75				15 1/2"	AC47
47	44	470	6.9	12.0	18	75				15 1/2"	AD47

All poles are individually wrapped. Aluminum cap, 2 1/2" x 5" handhole, and anchor bolts standard. Bolt covers and base shrouds are optional... see accessories.

Optional: 4" x 6" handhole.

*Poles are not rated above 3.2 EPA as the mast arms are not rated for luminaires greater than 3.2 EPA.

EPA recommendations are calculated per AASHTO Standards and include a 30% gust factor. See Post Top section for EPA ratings without arms.



For Anchor Base
Dimensions
See Catalog Sheet GI-4

See TEST DATA & ACCESSORIES Section
for Mast Arm and attachment hardware part numbers.