

# STRUTS/HOLD-OPEN RODS



**AVIBANK**  
MFG., INC.

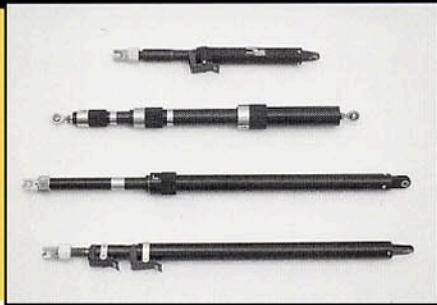
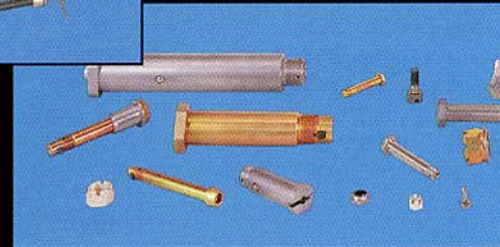
# AVIBANK'S LINE OF PRODUCTS

## ADJUSTABLE DIAMETER FASTENERS



## QUICK RELEASE PINS & ACCESSORIES

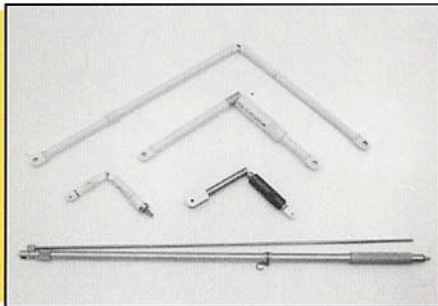
## SELF RETAINING BOLTS AND ACCESSORIES



## TELESCOPING STRUTS

PAGES 4-7

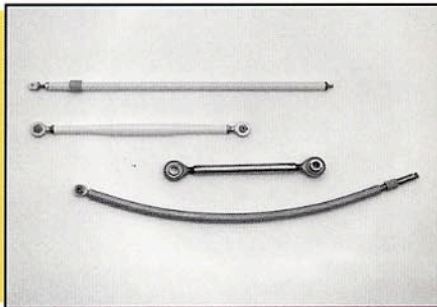
Telescoping struts collapse inside themselves! They can be automatically locked in any position. Secondary locking safety features are optional.



## SCISSOR/FOLDING STRUTS

PAGES 8-9

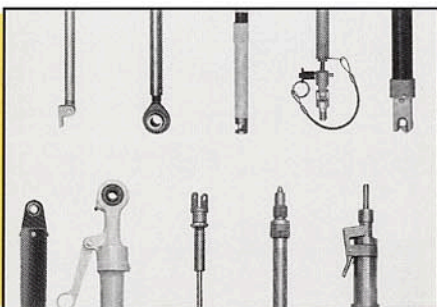
Scissor struts fold when the door or compartment is closed and extend and lock in the open position. Optional exterior sleeves provide extra strength in the open position.



## FIXED LENGTH STRUTS

PAGES 10-11

Fixed length struts are used as supports and as push-pull rods for controls.

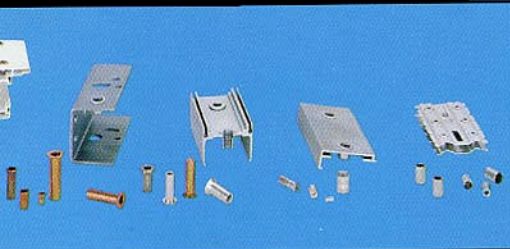


## END FITTINGS

PAGES 12-13

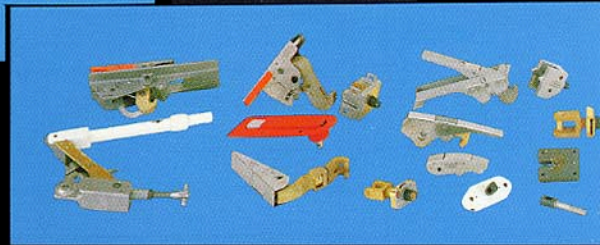
Different end fittings are available.

## THREADED INSERTS



## STRUCTURAL PANEL FASTENERS

## LATCHES & KEEPER ASSEMBLIES



# STRUTS/HOLD-OPEN RODS

## FEATURES

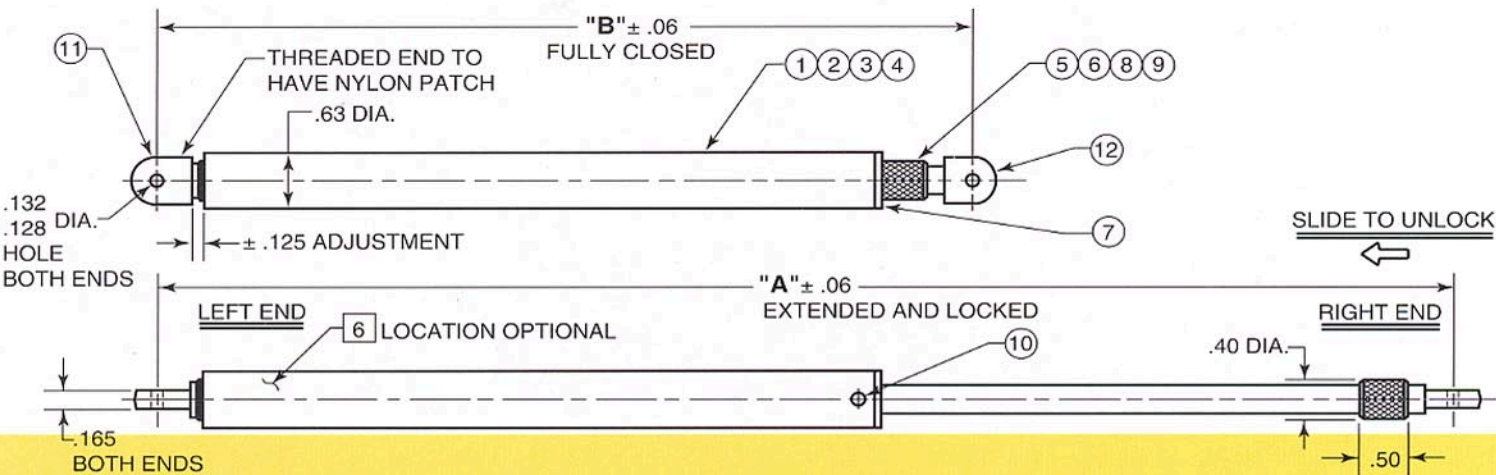
- ◆ AUTO-LOCK FEATURE
- ◆ EASY ONE HAND RELEASE
- ◆ NO SPECIAL RECEPTACLES REQUIRED
- ◆ RELIABILITY
- ◆ FLEXIBILITY IN DESIGN
- ◆ HIGH COMPRESSION, TENSION LOADS
- ◆ WITHSTAND HIGH TEMPERATURES
- ◆ VARIOUS END FITTINGS
- ◆ DOUBLE SAFETY-LOCKS
- ◆ ONE PERSON OPERATION OF MULTIPLE STRUTS

## APPLICATIONS

- ◆ ENGINE NACELLE STRUTS
- ◆ RADOME HOLD-OPEN RODS
- ◆ INTERIOR LIGHTING SUPPORTS
- ◆ BAGGAGE RACK SUPPORTS
- ◆ HOLD-OPEN RODS FOR ELECTRONIC DRAWERS
- ◆ HOLD-OPEN RODS FOR APU AND BAGGAGE COMPARTMENT DOORS
- ◆ RACK & PANEL ATTACHMENTS IN SPACE HAB
- ◆ LANDING GEAR DOOR ACCESS STRUTS
- ◆ PORTABLE RADAR MAST SUPPORTS

SEE INSIDE BACK COVER FOR APPLICATION DESIGN FORM

# TELESCOPING STRUTS - ST 200 SERIES



## SAMPLE CALL-OUT

ST200 A 28 A 1 C 2

- FIG. -2 END FITTING (RIGHT END) USE "O" FOR NO END FITTING.
- END FITTING MATL: (RIGHT END) A=ALUM., C=CRES
- FIG. -1 END FITTING (LEFT END) USE "O" FOR NO END FITTING.
- END FITTING MATL: (LEFT END) A=ALUM., C=CRES
- EXTENDED LENGTH IN 1/4" INCREMENTS (-99 MAX. LENGTH, -28 MIN LENGTH)
- MATERIAL: A=ALUMINUM, C=CRES
- BASIC PART NO.

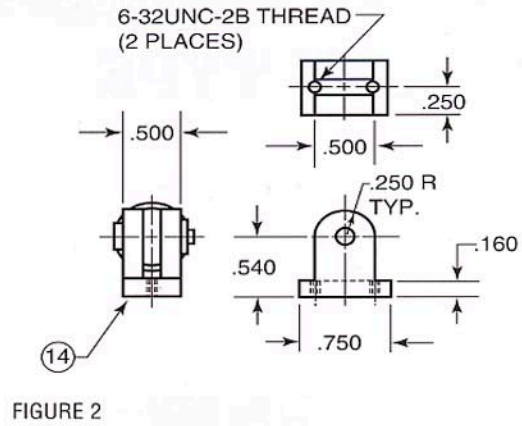
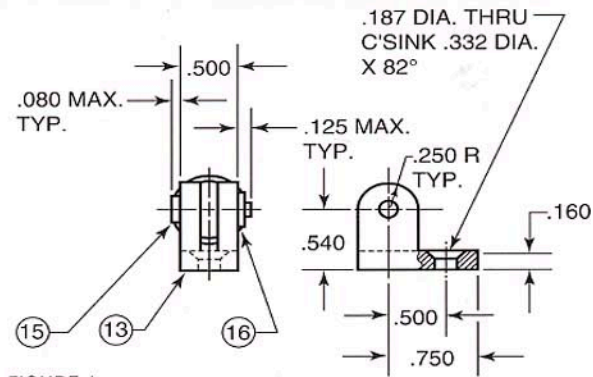
## NOTES

- 1 TABULATION FOR "A" AND "B" DIMENSIONS  
 $A=(B-1.50)/2$        $B=(A/2)+1.50$
- 2 HEAT TREAT TO H900 OR H1025.
- 3 PASSIVATE PER QQ-P-35.
- 4 ANODIZE PER MIL-A-8625, TY. II OR III, CL. 2, DYED BLACK.
- 5 BALL HARDNESS Rc 58-62.
- 6 IDENTIFY WITH "AVIBANK ST200-XXXX"
- 8 HEAT TREAT TO CH900.
- 9 CAD PLATE PER QQ-P-416.

## SPECIFICATIONS

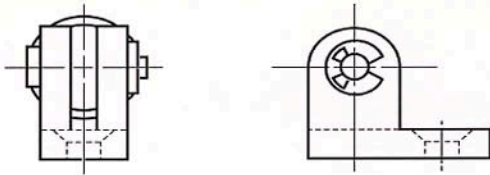
APPLICABLE NOTES	ITEM NO.	QTY REQ'D	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	MATERIAL OR NOTE	SPECIFICATION
	4	1		TUBE	ALUMINUM ALLOY 7075-T6	QQ-A-200/11 or QQ-A-225/9
	9	3		BODY	303 CRES	ASTM-A-581/582
	3	2		SPINDLE	17-4 PH CRES	AMS 5643
		5		BALL	440C CRES	QQ-S-763
	3	8		SPRING	17-7 PH CRES	AMS 5678
		4		SLEEVE	ALUMINUM ALLOY 2024	QQ-A-200/3 or QQ-A-225/6
9	3	2		PLUG	17-4 PH CRES	AMS 5643
		3		WASHER	17-4 PH CRES	AMS 5643
		9	79-012-062-0437	ROLL PIN		
	3	2		PIN	17-4 PH CRES	AMS 5643
	9	3		THREADED END 7/16"	303 CRES	ASTM-A-581/582
		3		THREADED END 1/4"	303 CRES	ASTM-A-581/582
		4	FIG. -1	END PIVOT	ALUMINUM ALLOY 2024	QQ-A-200/3 or QQ-A-225/6
		4	FIG. -2	END PIVOT	ALUMINUM ALLOY 2024	QQ-A-200/3 or QQ-A-225/6
	9	3		PIN	303 CRES	ASTM-A-581/582
		16		TRUARC RING		
		3		TUBE	300 SERIES CRES	QQ-S-763
		3		SLEEVE	300 SERIES CRES	QQ-S-763
	3	2		END PIVOT	300 SERIES/17-4 PH CRES	QQ-S-763/AMS 5643
	3	2		END PIVOT	300 SERIES/17-4 PH CRES	QQ-S-763/AMS 5643

# END FITTINGS



# OPTIONS — MAY BE ORDERED SEPARATELY

## ST200E1

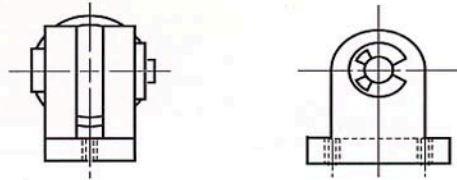


ASSEMBLY INCLUDES PIVOT END (FIGURE 1)  
PIN AND TRUARC RING

ST200E1A

MATERIAL: A=ALUMINUM, C=CRES

## ST200E2

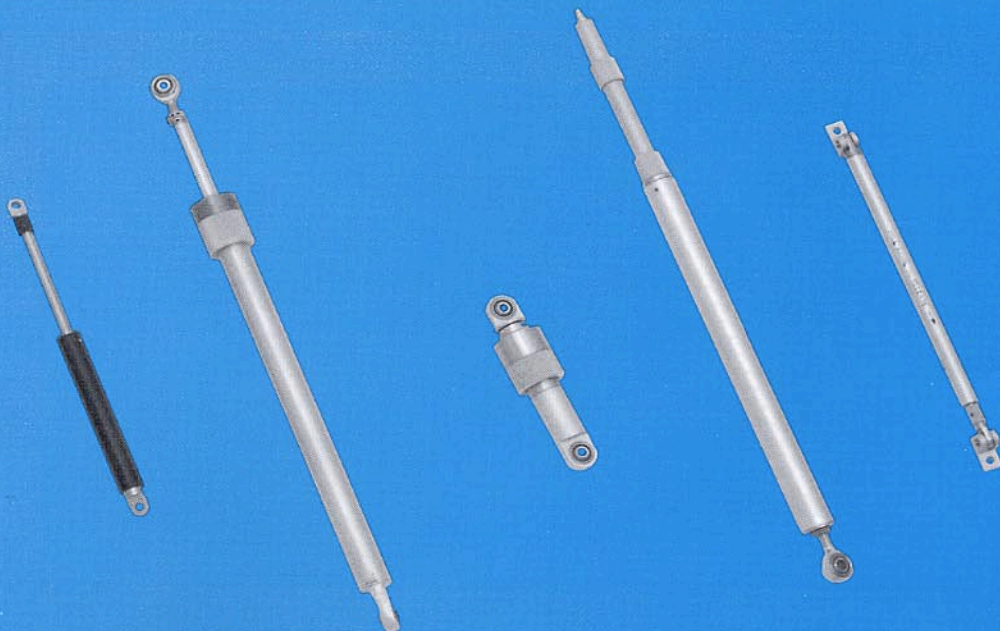


ASSEMBLY INCLUDES PIVOT END (FIGURE 2)  
PIN AND TRUARC RING

ST200E2A

MATERIAL: A=ALUMINUM, C=CRES

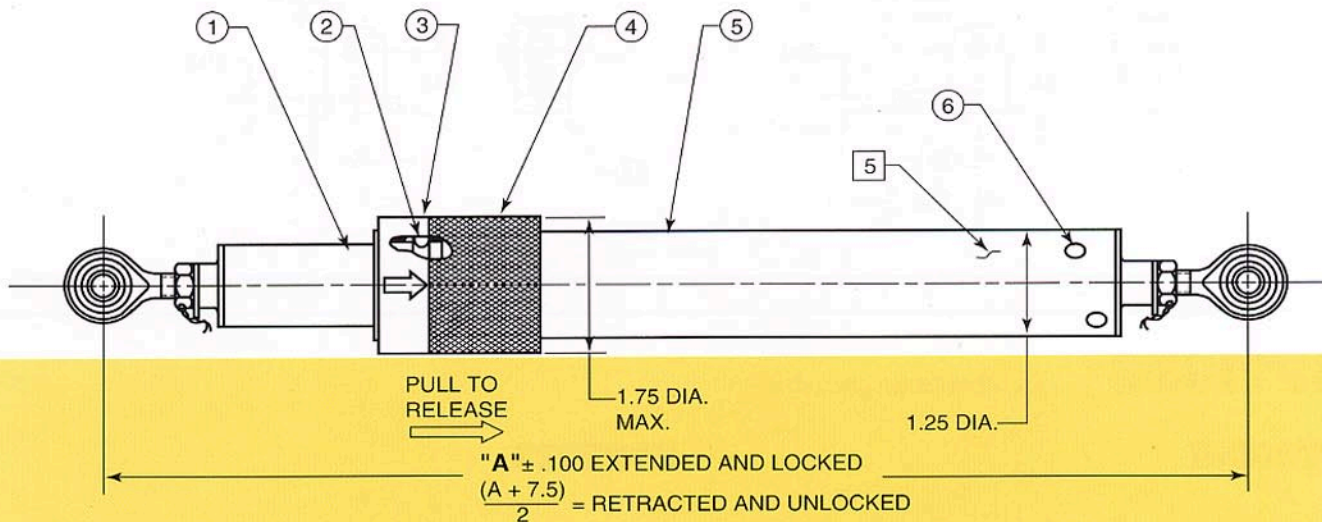
# SPECIAL TELESCOPING STRUTS



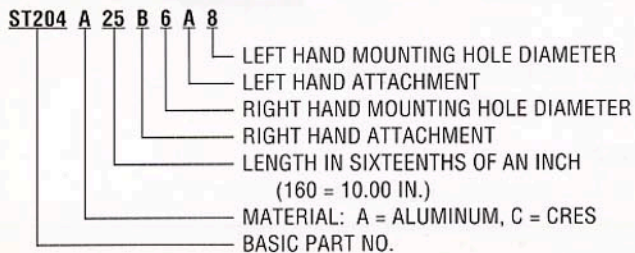
NOTE: WEIGHTS AND LOADS VARY WITH SIZE OF THE STRUT. CONTACT OUR BURBANK PLANT FOR INFORMATION ON SPECIFIC SIZES.

# TELESCOPING STRUTS - ST 204 SERIES

## HEAVY DUTY TYPE



### SAMPLE CALL-OUT



### NOTES

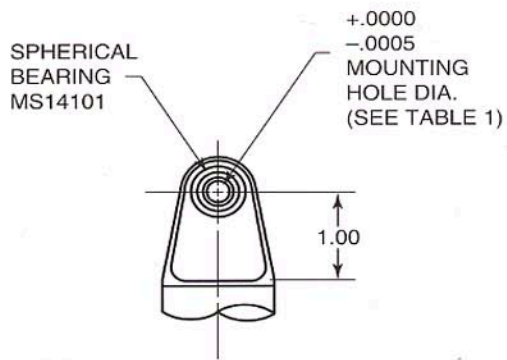
- 1 HEAT TREAT 17-4 PH TO H900 OR H1025.
- 2 PASSIVATE PER QQ-P-35.
- 3 CAD PLATE PER QQ-P-416.
- 4 ANODIZE PER MIL-A-8625, DYED BLACK.
- 5 IDENTIFY WITH "AVIBANK ST204-(APPROPRIATE DASH NO.)".

### SPECIFICATIONS

APPLICABLE NOTES	ITEM NO.	QTY REQ'D	NOMENCLATURE OR DESCRIPTION	MATERIAL OR NOTE	SPECIFICATION		
- - - - - ALUMINUM - - - - -							
		4	1	1	TUBE, SMALL	ALUMINUM ALLOY 7075/2024	QQ-A-225/9/6
			2	6	BALL	440C CRES	QQ-S-763
3	2	1	3	1	SLEEVE	17-4 PH CRES	AMS 5643
		4	4	1	KNURLED SLEEVE	ALUMINUM ALLOY 6061/2024	WW-T-700/6/3
		4	5	1	TUBE OUTER	ALUMINUM ALLOY 6061/2024	WW-T-700/6/3
3	2	1	6	2	RIVET	17-4 PH CRES	AMS 5643
- - - - - CRES - - - - -							
	2	1	1	1	TUBE, SMALL	17-4 PH/304A CRES	AMS 5643/AMS 5639
			2	6	BALL	440C CRES	QQ-S-763
	2	1	3	1	SLEEVE	17-4 PH CRES	AMS 5643
	2	1	4	1	KNURLED SLEEVE	17-4 PH/300 SERIES CRES	AMS 5643/QQ-S-763
		2	5	1	TUBE OUTER	304A CRES	AMS 5639
	2	1	6	2	RIVET	17-4 PH CRES	AMS 5643

# END FITTINGS

## TYPE A



## TYPE B

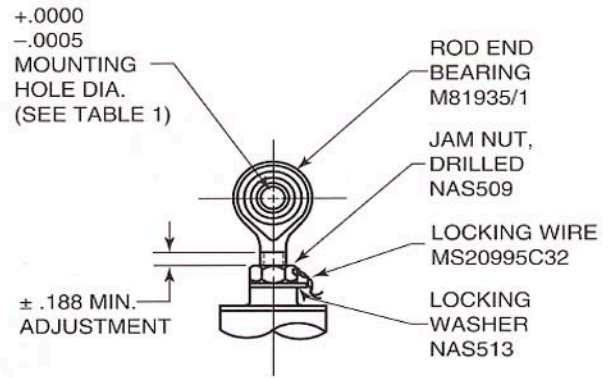
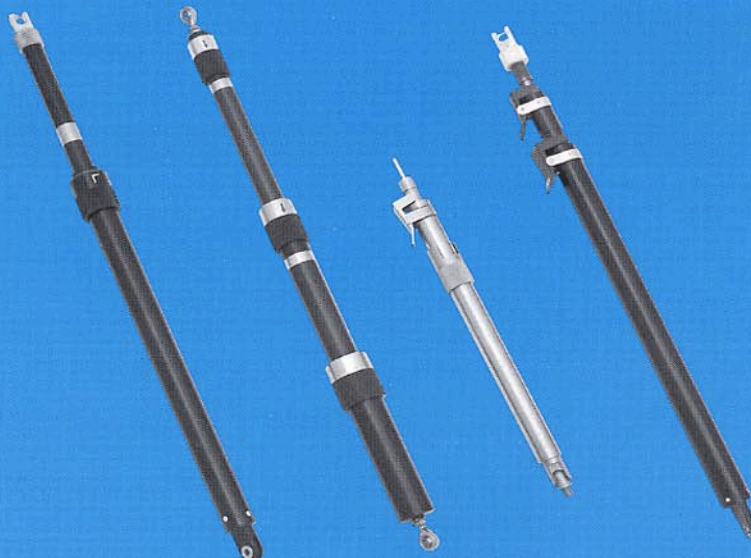


TABLE I

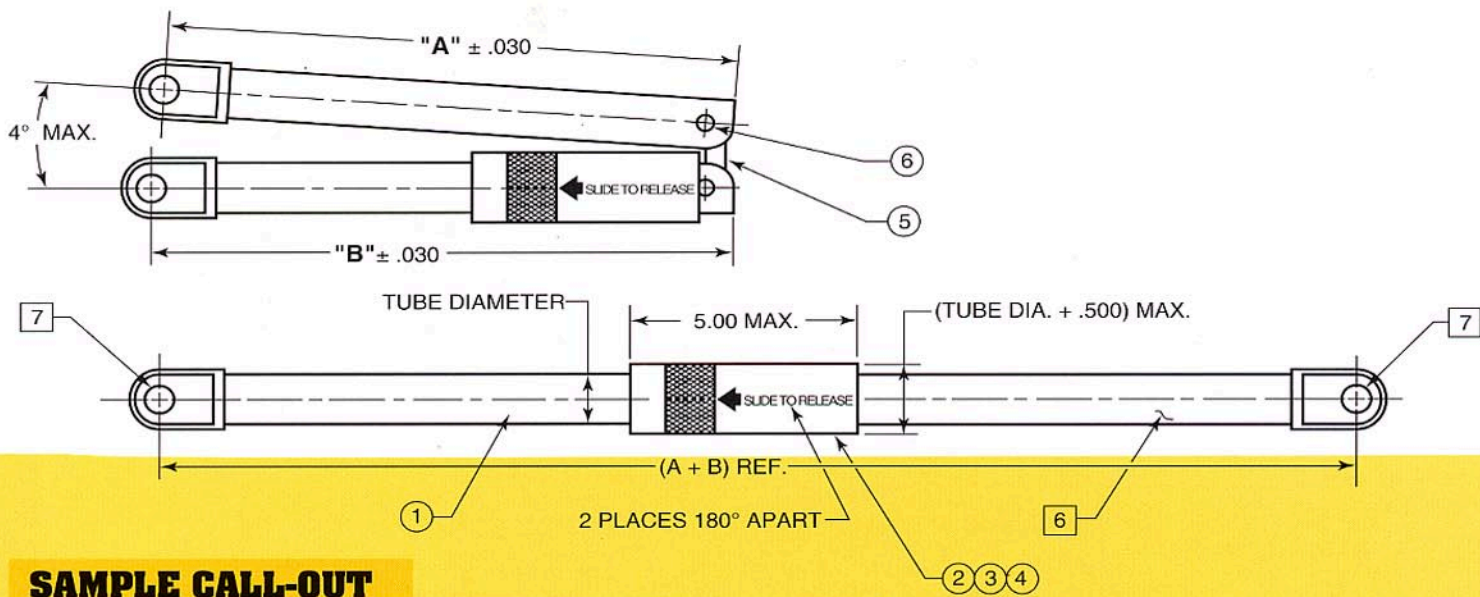
SIZE	HOLE DIA.
3	.190
4	.250
5	.313
6	.375
8	.500

# SPECIAL HEAVY DUTY TELESCOPING STRUTS



NOTE: WEIGHTS AND LOADS VARY WITH SIZE OF THE STRUT. CONTACT OUR BURBANK PLANT FOR INFORMATION ON SPECIFIC SIZES.

# FOLDING STRUTS - ST 201 SERIES



## SAMPLE CALL-OUT

ST201 C 60-45-8 A 6 B 4

- LEFT HAND MOUNTING HOLE (SEE TABLE 1, PAGE 9)
- LEFT HAND ATTACHMENT
- RIGHT HAND MOUNTING HOLE (SEE TABLE 1, PAGE 9)
- RIGHT HAND ATTACHMENT
- TUBE DIAMETER IN SIXTEENTHS OF AN INCH
- "B" DIAMETER IN QUARTER INCH INCREMENTS (5.00 MIN.)
- "A" DIAMETER IN QUARTER INCH INCREMENTS
- MATERIAL: A = ALUMINUM; C = CRES
- BASIC PART NO.

## NOTES

- 1 HEAT TREAT TO CH900.
- 2 HEAT TREAT TO TH1050.
- 3 PASSIVATE PER QQ-P-35.
- 4 CAD PLATE PER QQ-P-416, TY. II, CL. 2.
- 5 ANODIZE PER MIL-A-8625, TY. II, CL. 2, DYED BLACK.
- 6 IDENTIFY WITH "AVIBANK ST201-(APPROPRIATE DASH NO.)".
- 7 MOUNTING HOLES TO BE ORIENTED AS SHOWN ± 2°.
- 8 HEAT TREAT TO H900 OR H1025.
- 9 DRY FILM LUBE PER MIL-L-46010, TY. 1.

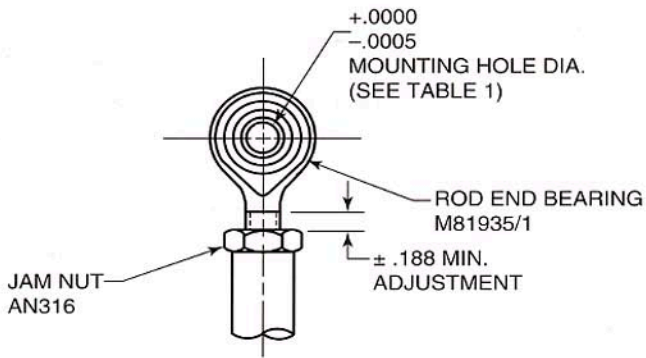
## SPECIFICATIONS

APPLICABLE NOTES	ITEM NO.	QTY REQ'D	NOMENCLATURE OR DESCRIPTION	MATERIAL OR NOTE	SPECIFICATION		
ALUMINUM							
	5	1	2	TUBE	ALUMINUM ALLOY 7075/2024	QQ-A-225/9 OR /6	
	5	2	1	SLEEVE	ALUMINUM ALLOY 7075	QQ-A-225/9	
4	3	1	3	SPRING	17-7 PH/302 CRES	AMS 5678/ASTM-A-313	
	5	4	1	PLUG	ALUMINUM ALLOY	QQ-A-225/WW-T-700	
9	4	3	2	5	LINK	17-7 PH CRES	AMS 5528
9	4	3	8	6	PIVOT PIN	17-4 PH/300 SERIES CRES	AMS 5643/ASTM-A-581
CRES							
	3	8	1	2	TUBE	17-4 PH/300 SERIES CRES	AMS 5643/QQ-S-763
	3	8	2	1	SLEEVE	17-4 PH/300 SERIES CRES	AMS 5643/QQ-S-763
	3	1	3	1	SPRING	17-7 PH/302 CRES	AMS 5678/ASTM-A-313
	3	8	4	1	PLUG	17-4 PH/300 SERIES CRES	AMS 5643/QQ-S-763
9	3	2	5	1	LINK	17-7 PH CRES	AMS 5528
9	3	8	6	2	PIVOT PIN	17-4 PH/300 SERIES CRES	AMS 5643/QQ-S-763

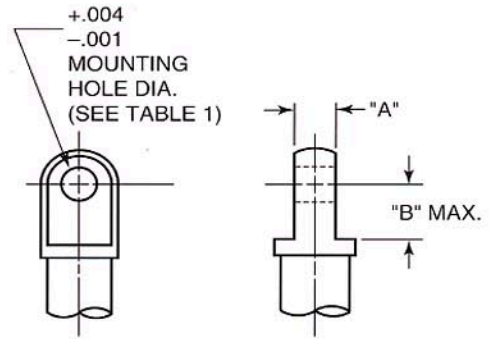


# OPTIONAL END FITTINGS

## TYPE A



## TYPE B



## TYPE C

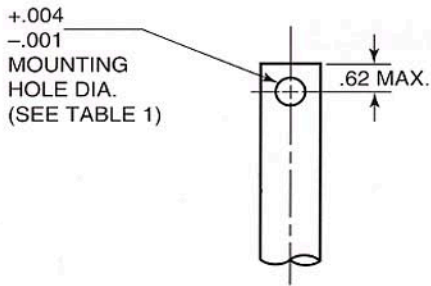
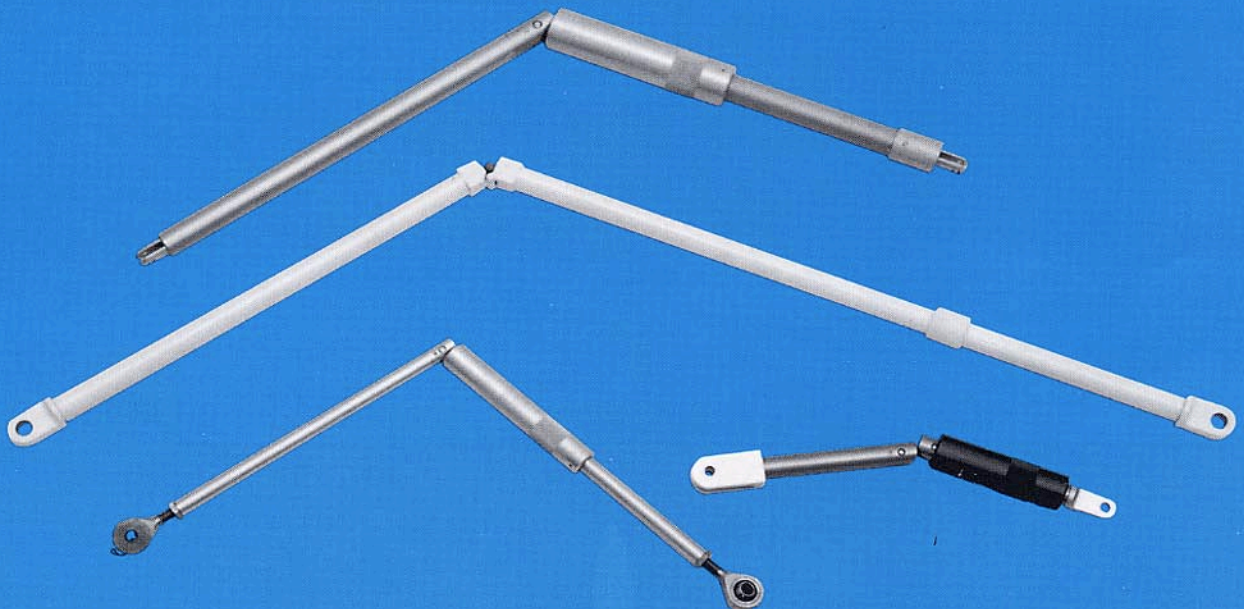
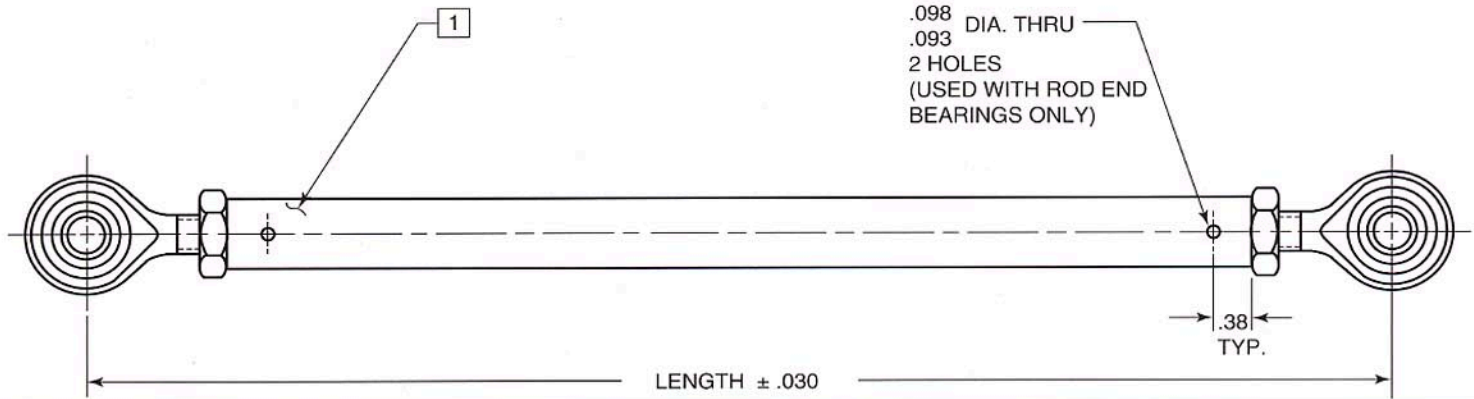


TABLE I	
SIZE	DIA.
-3	.190
-4	.250
-5	.313
-6	.375
8	.500

# SPECIAL FOLDING STRUTS



# FIXED LENGTH STRUTS - ST 202 SERIES



## SAMPLE CALL-OUT

**ST202 C 100-8 A 4 B 6**

- LEFT SIDE MOUNTING HOLE (SEE TABLE 1, PAGE 11)
- LEFT SIDE ATTACHMENT METHOD
- RIGHT SIDE MOUNTING HOLE (SEE TABLE 1, PAGE 11)
- RIGHT SIDE ATTACHMENT METHOD
- TUBE DIA. IN SIXTEENTHS OF AN INCH (8 = .500)
- LENGTH IN SIXTEENTHS OF AN INCH (160 = 10.00)
- MATERIAL:
  - A = ALUMINUM ALLOY [3]
  - C = CRES [2]
- BASIC PART NO.

## NOTES

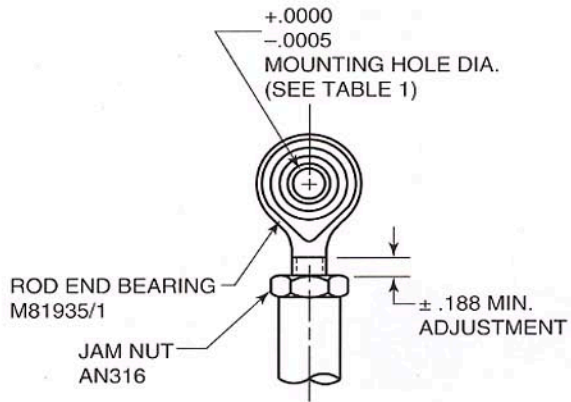
- [1] IDENTIFY WITH "AVIBANK ST202-(APPROP. DASH NO.)".
- [2] PASSIVATE CRES PER QQ-P-35.
- [3] ANODIZE ALUMINUM PER MIL-A-8625, TY. II, CL. 2, DYED BLACK.

## SPECIFICATIONS

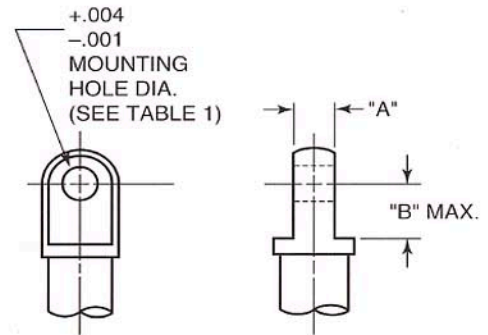
APPLICABLE NOTES	ITEM NO.	QTY REQ'D	NOMENCLATURE OR DESCRIPTION	MATERIAL OR NOTE	SPECIFICATION
ALUMINUM					
	3	1	TUBE	ALUMINUM ALLOY 7075	QQ-A-225/9
CRES					
	2	1	TUBE	300 SERIES CRES	QQ-P-35

# OPTIONAL END FITTINGS

## TYPE A



## TYPE B



## TYPE C

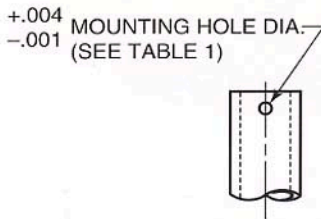


TABLE I	
SIZE	MOUNTING HOLE DIA.
3	.188
4	.250
5	.313
6	.375
8	.500

TUBE DIAMETER	"A"	"B" MAX.
.625 & UNDER	.300 .295	.750
OVER .625	.435 .430	1.25

# SPECIAL FIXED LENGTH STRUTS

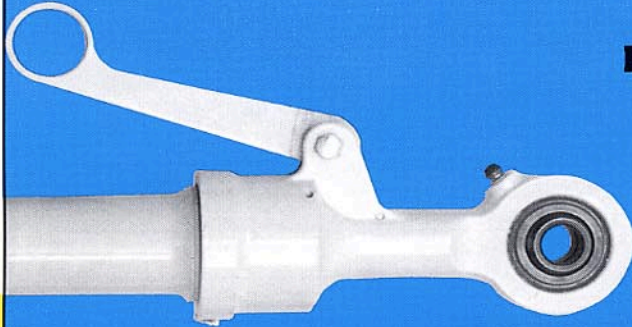


NOTE: WEIGHTS AND LOADS VARY WITH SIZE OF THE STRUT. CONTACT OUR BURBANK PLANT FOR INFORMATION ON SPECIFIC SIZES.

# OTHER END FITTINGS



**PRESSED BEARING**



**PIVOT BLOCK**

**ROD END BEARING WITH GREASE FITTING**



**ROD END BEARING**



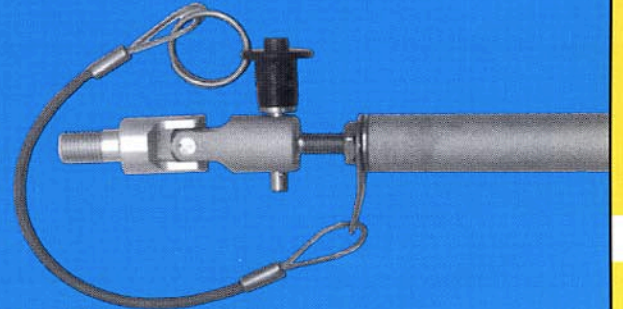
**CLEVIS END**



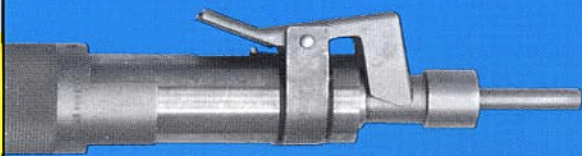
**SPINDLE-LOK**



**AUTO-LOK BALL-TYPE**



**SWIVEL END**



**STRAIGHT END**



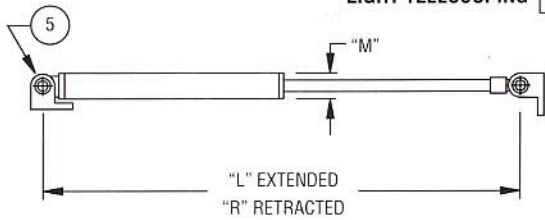
**AUTO-LOK J-LOK TYPE**

# AVIBANK SPECIAL REQUESTS

COPY AND FILL OUT THIS FORM TO SUBMIT YOUR SPECIAL REQUIREMENTS FOR REVIEW.

## STRUTS/HOLD-OPEN RODS

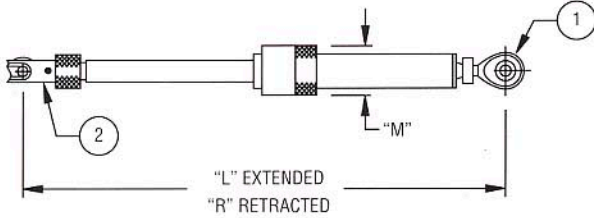
LIGHT TELESCOPING



FORMULA FOR "L" AND "R" DIMENSIONS:

$$L = (R - 1.50) \times 2 \quad R = (L/2) + 1.50$$

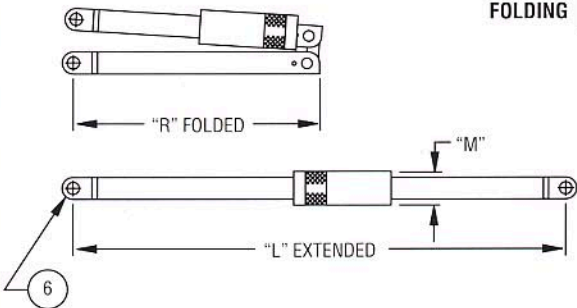
HEAVY DUTY TELESCOPING



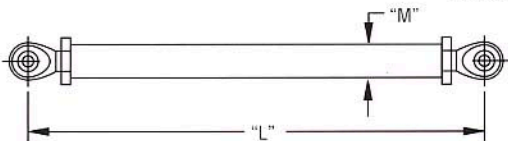
IF STRUT REQUIRES "J" LOK, WE NEED THE FOLLOWING INFORMATION ON CUSTOMER RECEIVER.

1. DETAIL DRAWING OR SKETCH SHOWING ALL DIMENSIONS OF RECEIVER.
2. RECEIVER MATERIAL AND HARDNESS.
3. ANGULARITY REQUIRED TO LOCK.
4. STRUCTURE CLEARANCES WHERE THE RECEIVER IS MOUNTED.

FOLDING



FIXED



NOTES:

1. CHOOSE TYPE OF STRUT
2. FILL IN INFORMATION FOR STRUT APPLICATION.

"L" EXTENDED \_\_\_\_\_ LOCKED/UNLOCKED

"R" RETRACTED OR FOLDED \_\_\_\_\_ LOCKED/UNLOCKED

"M" MAX DIA. \_\_\_\_\_

MAX WEIGHT REQUIRED \_\_\_\_\_

MAXIMUM TEMPERATURE \_\_\_\_\_

COMPRESSION LOAD REQUIRED

OPERATING LOAD \_\_\_\_\_  
STRUT MUST BE FUNCTIONAL AFTER TEST.

ULTIMATE LOAD \_\_\_\_\_  
STRUT NOT FUNCTIONAL AFTER TEST

TENSION LOAD REQUIRED

OPERATING LOAD \_\_\_\_\_  
STRUT MUST BE FUNCTIONAL AFTER TEST.

ULTIMATE LOAD \_\_\_\_\_  
STRUT NOT FUNCTIONAL AFTER TEST

TRANSVERSE/SIDE LOAD

SIDE LOAD ONLY \_\_\_\_\_

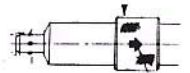
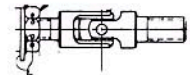
SIDE SIMULTANIOUS WITH COMPRESSION LOAD REQ. \_\_\_\_\_

OTHER \_\_\_\_\_

COMMENTS: \_\_\_\_\_

TYPE OF ENDS

1. ROD END BEARING
2. PIVOT BLOCKS
3. SWIVEL END \_\_\_\_\_
4. PRESSED BEARING
5. "J" LOK
6. STRAIGHT END
7. AUTO-LOK (BALL TYPE). \_\_\_\_\_



CUSTOMER NAME: \_\_\_\_\_ DATE: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

PHONE: \_\_\_\_\_



**AVIBANK**  
MFG. INC.