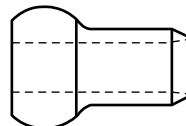
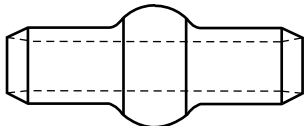


# Genuine Aircraft Hardware Co.

## MS20663 and MS20664

### Ball End, Wire Rope, Swaging, Double and Single Shank

MATERIAL: STEEL, CORROSION RESISTANT IN ACCORDANCE WITH FEDERAL STANDARD 66, STEEL NO. 303se OR 305 STEEL, CARBON, FED-STD-66, STEEL NO. 1020

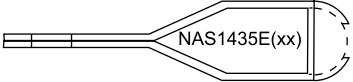
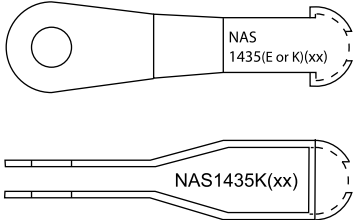


MS20663, Double Shank, Ball End, Swaging				
Cable Size	Part Number	Ball Dia. Tol. +.0 -.004	Cable Hole Dia.	Length B4 Swaging
1/16	MS20663C2	.207	.073	.362
3/32	MS20663C3	.277	.104	.525
1/8	MS20663C4	.345	.139	.688
5/32	MS20663C5	.419	.169	.850
3/16	MS20663C6	.487	.201	1.012

MS20664, Single Shank, Ball End, Swaging				
Cable Size	Part Number	Ball Dia. Tol. +.0 -.004	Cable Hole Dia.	Length B4 Swaging
1/16	MS20664C2	.212	.073	.2685
3/32	MS20664C3	.282	.104	.384
1/8	MS20664C4	.350	.139	.500
5/32	MS20664C5	.424	.169	.616
3/16	MS20664C6	.492	.201	.730

## NAS1435E and NAS1435K

Material is 301,302, or 304 Stainless, Stamped Wire Rope Terminal, Closed (Strap) Eye End, Open Fork End, use with MS20664 Single Shank Ball End

PART#	Length, End to Hole Center	Fork Opening	Eye Hole Dia.	Cable Size	
NAS1435E, eye end 	NAS1435E2	1+1/16"	N / A	1/16"	
	NAS1435E3	1+1/2"	N / A	3/32"	
	NAS1435E4	1+5/8"	N / A	1/8"	
NAS1435K, fork end 	NAS1435E5	1+31/32"	N / A	5/32"	
	NAS1435E6	2+3/16"	N / A	3/16"	
	NAS1435K2	1+1/16"	.094	3/16"	1/16"
	NAS1435K3	1+1/2"	.108		3/32"
	NAS1435K4	1+5/8"	.195		1/8"
	NAS1435K5	1+31/32"	.202	1/4"	5/32"
NAS1435K6	2+3/16"	.260	5/16"	3/16"	

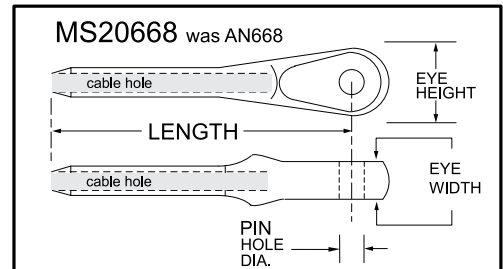
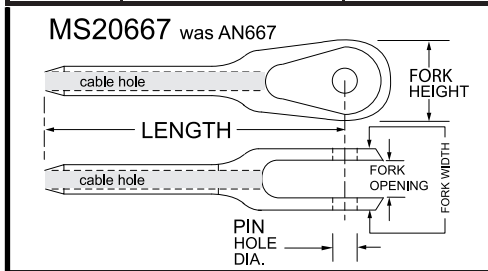
# MS20667 and MS20668

## Terminal, Wire Rope, Swaging, Fork End and Eye End

MATERIAL: STEEL, CORROSION RESISTANT FED-STD-66 STEEL NO. 303se OR 305  
STEEL, CARBON, FED-STD-66 STEEL No's. 1035, 4037, 4130, OR 8630

### MS 20667, Terminal, Fork End, Swaging

Cable Size	Part Number	Pin Hole Dia. Tol. +.002 -.000	Fork Width	Fork Opening	Fork Height	Cable Hole Dia.	Length
1/16	MS20667-2	.190	.218	.093	.344	.078	1.572
3/32	MS20667-3	.190	.254	.108	.438	.109	1.945
1/8	MS20667-4	.190	.383	.195	.547	.141	2.352
5/32	MS20667-5	.250	.406	.202	.688	.172	2.655
3/16	MS20667-6	.313	.543	.260	.781	.203	3.071
7/32	MS20667-7	.313	.625	.296	.906	.234	3.440
1/4	MS20667-8	.375	.688	.313	.969	.265	3.806



### MS 20668, Terminal, Eye End, Swaging

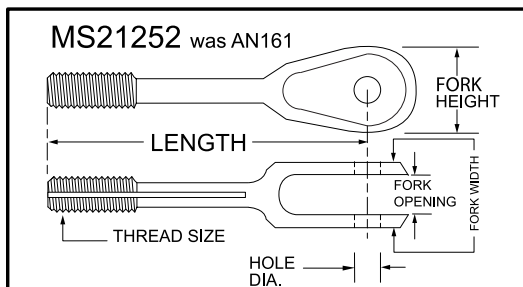
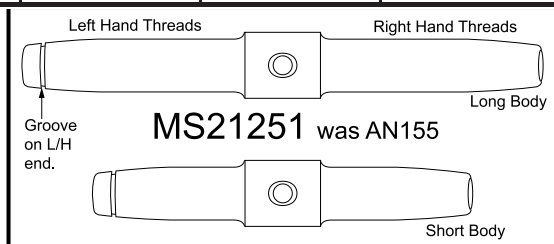
Cable Size	Part Number	Pin Hole Dia. Tol. +.002 -.000	Eye Width	Eye Height	Cable Hole Dia.	Length
1/16	MS20668-2	.190	.088	.359	.078	1.631
3/32	MS20668-3	.190	.103	.438	.109	2.043
1/8	MS20668-4	.190	.190	.500	.141	2.337
5/32	MS20668-5	.250	.197	.640	.172	2.684
3/16	MS20668-6	.313	.255	.781	.203	3.019
7/32	MS20668-7	.313	.291	.813	.234	3.382
1/4	MS20668-8	.375	.307	.968	.265	3.763

# Genuine Aircraft Hardware Co.

## MS21251 and MS21252

### Clevis, Rod End, Turnbuckle, Clip Locking

MS21251 Turnbarrels, Brass (for Aluminum: sub. "A" for "B")						
Cable Size	Part Number	Minumum Breaking Strength Lb.	Overall Length	Thread Size	Body Dia.	Applicable Locking Clip MS21256
1/16	MS21251B2S	800	2.250	No. 6-40	.219	-1
	MS21251B2L		4.000			-2
3/32	MS21251B3S	1600	2.250	No.10-32	.281	-1
	MS21251B3L		4.000			-2
5/32	MS21251B5S	3200	2.250	1/4-28	.391	-1
	MS21251B5L		4.000			-2
3/16	MS21251B6S	4600	2.250	5/16-24	.438	-1
	MS21251B6L		4.000			-2
1/4	MS21251B8L	8000	4.000	3/8-24	.594	-2



MATERIAL: STEEL, CARBON OR ALLOY IN ACCORDANCE WITH PROCUREMENT SPECIFICATION.

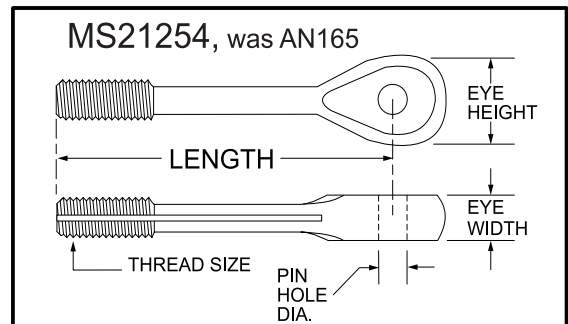
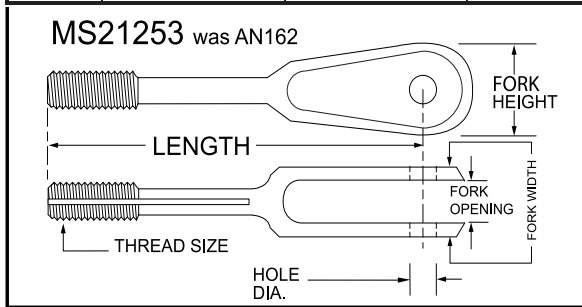
MS21252 Clevis, Rod End, Turnbuckle, Clip Locking								
Cable Size	Part Number		Length + or -.047	Thread Size	Pin Hole Dia. +.002 -.001	Fork Opening +.010 -.000	Fork Width +.010 -.005	Fork Height
	RH Thread	LH Thread						
1/16	MS21252-2RS	MS21252-2LS	1.500	No. 6 - 40	.190	.109	.250	.375
3/32	MS21252-3RS	MS21252-3LS	1.625	No. 10 - 32		.156	.319	.500
	MS21252-3RL	MS21252-3LL	2.500		1/4 - 28	.195	.383	.547
1/8	MS21252-4RS	MS21252-4LS	1.844	1/4 - 28		.250	.218	.452
	MS21252-4RL	MS21252-4LL	2.734					
5/32	MS21252-5RS	MS21252-5LS	1.844	5/16 - 24	.313	.250	.547	.734
	MS21252-5RL	MS21252-5LL	2.734					
3/16	MS21252-6RS	MS21252-6LS	2.031	5/16 - 24	.313	.250	.547	.734
	MS21252-6RL	MS21252-6LL	2.906					
1/4	MS21252-8RL	MS21252-8LL	3.188	3/8 - 24	.375	.312	.687	.922

# MS21253 and MS21254

**Clevis End for Bearings, Eye End for Pin, Turnbuckle, Clip Locking**

MATERIAL: STEEL, CARBON OR ALLOY

MS21253 Clevis End, Turnbuckle, Clip Locking								
Cable Size	Part Number		Length + or -.031	Matches Bearing Part #	Thread Size	Pin Hole Dia. +.002 -.000	Fork Width +.010 -.005	Fork Opening + or -.005
3/32	MS21253-3RS	MS21253-3LS	2.312	MS27640-3	.1900 (#10) - 32	.190	.500	.312
	MS21253-3RL	MS21253-3LL	3.187					
1/8	MS21253-4RS	MS21253-4LS	2.562	MS27640-4	.2500 (1/4) -28	.250	.750	.500
	MS21253-4RL	MS21253-4LL	3.437					
5/32	MS21253-5RS	MS21253-5LS	2.687	MS27640-4	.3125 (5/16) -24	.250	.750	.500
	MS21253-5RL	MS21253-5LL	3.562					
3/16	MS21253-6RS	MS21253-6LS	2.750	MS27640-5	.3125 (5/16) -24	.313	.813	.563
	MS21253-6RL	MS21253-6LL	3.625					



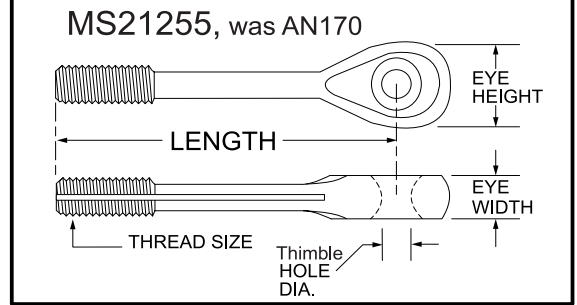
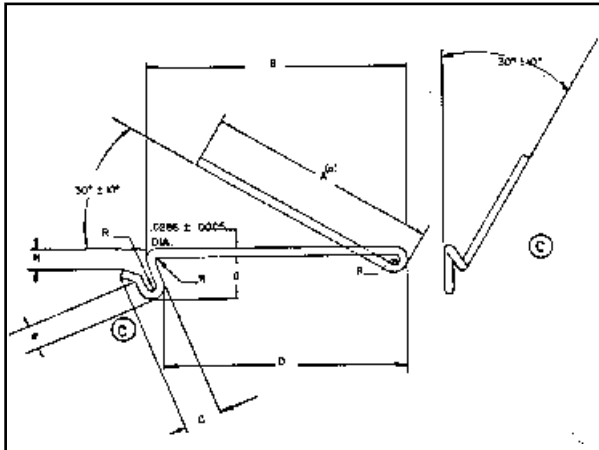
MS21254 Turnbuckle, Eye End, Threaded, for Pin							
Cable Size	Part Number		Length +.031 -.015	Thread Size	Pin Hole Dia. +.002 -.000	Eye Width + or -.005	Eye Height
	RH Thread	LH Thread					
1/16	MS21254-2RS	MS21254-2LS	1.500	No. 6 - 40	.190	.125	.375
	MS21254-2RL	MS21254-2LL	2.375				
3/32	MS21254-3RS	MS21254-3LS	1.625	No. 10 - 32	.190	.188	.500
	MS21254-3RL	MS21254-3LL	2.500				
5/32	MS21254-5RS	MS21254-5LS	1.750	1/4 - 28	.250	.219	.625
	MS21254-5RL	MS21254-5LL	2.625				
3/16	MS21254-6RS	MS21254-6LS	1.875	5/16 - 24	.313	.281	.688
	MS21254-6RL	MS21254-6LL	2.750				
1/4	MS21254-8RL	MS21254-8LL	2.875	3/8 - 24	.375	.328	.875

# Genuine Aircraft Hardware Co.

## MS21255 and MS21256 Connector, Rod End, Turnbuckle, Clip Locking

MATERIAL: STEEL, CARBON OR ALLOY IN ACCORDANCE WITH PROCUREMENT SPECIFICATION.

MS21255 Turnbuckle, Eye End, Threaded, for Thimble							
Cable Size	Part Number		Length +.031 .015	Thread Size	Thimble Hole Dia. +.010 -.000	Eye Width + or -.005	Eye Height
	RH Thread	LH Thread					
1/16	MS21255-2RS	MS21255-2LS	1.500	6 - 40	.188	.125	.375
	MS21255-2RL	MS21255-2LL	2.375				
3/32	MS21255-3RS	MS21255-3LS	1.625	10 - 32	.219	.188	.500
	MS21255-3RL	MS21255-3LL	2.500				
5/32	MS21255-5RS	MS21255-5LS	1.750	1/4 - 28	.218	.219	.625
	MS21255-5RL	MS21255-5LL	2.625				
3/16	MS21255-6RS	MS21255-6LS	1.875	5/16 - 24	.313	.281	.688
	MS21255-6RL	MS21255-6LL	2.750				
1/4	MS21255-8RL	MS21255-8LL	2.875	3/8 - 24	.375	.328	.875



MS21256, CLIP, LOCKING, TURNBUCKLE								
DASH NO.	(a) A	B	C +.010 -.015	D	F	G	H	R RAD
-1	.965	1.115	.150	1.078	.125	.300	.165	.032
-2	1.875	2.000		1.955		.315	.180	
-3	2.045	2.140	.215	2.015	.150	.430	.275	

- MATERIAL: CORROSION RESISTANT STEEL WIRE, QQ-W-423, COMPOSITION FS302, CONDITION B.
- LOCKING CLIPS ARE FOR ONE TIME USE ONLY AND SHALL NOT BE REUSED.
- FOR LOCK CLIPPING OF AIRCRAFT TURNBUCKLES, SEE MS33736.

# **MS21259 and MS21260**

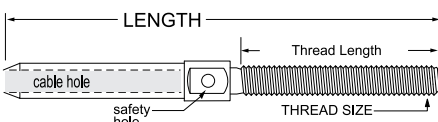
## **Terminal, Wire Rope, Swaging, Stud**

MATERIAL: STEEL, CORROSION RESISTANT STEEL FED-STD-66, STEEL NO. 303se OR 305  
STEEL, CARBON, FED-STD-66 STEEL No's. 1035, 4037, 4130, OR 8430.

### **MS 21259, Terminal, Wire Rope, Stud. Not for use with MS21251 turnbarrel**

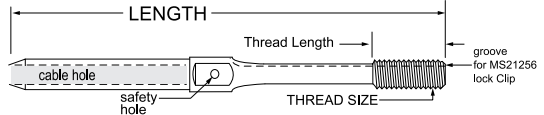
Cable Size	Part Number		Thread	Cable Hole Dia.	Thread Length +.083 -.020	Overall Length +.016 -.000
	RH Thread	LH Thread				
1/16	MS21259-2RH	MS21259-2LH	No. 6-40	.078	1.045	2.473
3/32	MS21259-3RH	MS21259-3LH	No. 10-32	.109	1.204	2.879
1/8	MS21259-4RH	MS21259-4LH	1/4 - 28	.141	1.376	3.333
5/32	MS21259-5RH	MS21259-5LH		.172	1.376	3.627
3/16	MS21259-6RH	MS21259-6LH	5/16 - 24	.203	1.453	4.002
7/32	MS21259-7RH	MS21259-7LH	3/8 - 24	.234	1.625	4.516
1/4	MS21259-8RH	MS21259-8LH		.265	1.750	4.937

**MS21259** was AN666



These Terminals are NOT to be used with Turnbarrels.

**MS21260** was AN669



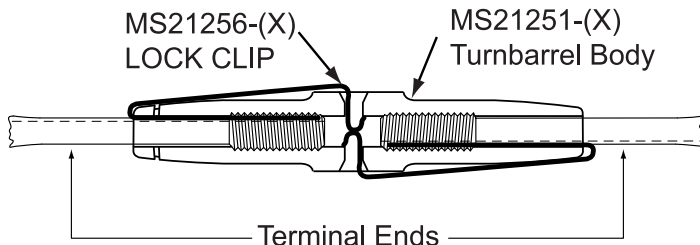
### **MS21260, Terminal, Wire Rope, Stud. For use with MS21251 turnbarrel**

Cable Size	Part Number		Thread Size	Cable Hole Dia. +.005 -.000	Thread Length + or- .047	Overall Length + or- .063
	RH Thread	LH Thread				
1/16	MS21260L2RH	MS21260L2LH	NO. 6-40	.078	.375	3.491
	MS21260S2RH	MS21260S2LH				2.616
3/32	MS21260L3RH	MS21260L3LH	NO.10-32	.109	.500	3.738
	MS21260S3RH	MS21260S3LH				2.863
1/8	MS21260L4RH	MS21260L4LH	1/4 - 28	.141	.563	4.020
	MS21260S4RH	MS21260S4LH				3.145
5/32	MS21260L5RH	MS21260L5LH	1/4 - 28	.172	.625	4.314
	MS21260S5RH	MS21260S5LH				3.439
3/16	MS21260L6RH	MS21260L6LH	5/16 - 24	.203	.750	4.612
	MS21260S6LH	MS21260S6LH				3.737
7/32	MS21260-7RH	MS21260-7LH	3/8 - 24	.234	.875	4.914
1/4	MS21260-8RH	MS21260-8LH		.265		5.218

# Genuine Aircraft Hardware Co.

## MS33736

Not A Part number, This Is A Reference Spec.  
**Turnbuckle Assemblies, Clip Locking of**



Any combination of MS21252, MS21253, MS21254, MS21255, or MS21260

MS33736, TURNBUCKLE ASSEMBLIES NOT A PART NUMBER, THIS IS A REFERENCE SPEC.			
NOMINAL CABLE DIA	THREAD UNF-3	USE LOCKING CLIP MS21256	TURNBUCKLE BODY MS21251
1/16	NO. 6-40	-1	2S
3/32	NO. 10-32		-3S
		-2	-3L
1/8	1/4-28	-1	-4S
		-2	-4L
5/32		-1	-5S
		-2	-5L
3/16	5/16-24	-1	-6S
			-6L
7/32	3/8-24	-2	-7L
1/4		-	8L
9/32	7/16-20	-3	-9L
5/16	1/2-20		-10L

PRIOR TO SAFETYING, BOTH THREADED TERMINALS SHALL BE SCREWED AT EQUAL DISTANCE INTO THE TURNBUCKLE BODY AND SHALL BE SCREWED IN AT LEAST SO FAR THAT NOT MORE THAN THREE THREADS OF ANY TERMINAL ARE EXPOSED OUTSIDE THE BODY.

AFTER THE TURNBUCKLE HAS BEEN ADJUSTED TO ITS LOCKING POSITION, WITH THE SLOT INDICATOR GROOVE ON TERMINAL AND SLOT INDICATOR NOTCH ON BODY ALIGNED, INSERT THE END OF THE LOCKING CLIP INTO THE TERMINAL AND BODY, AS ILLUSTRATED ABOVE, UNTIL THE U CURVED END OF THE LOCKING CLIP IS OVER THE HOLE IN THE CENTER OF THE BODY. PRESS THE LOCKING CLIP INTO THE HOLE TO ITS FULL EXTENT. THE CURVED END OF THE LOCKING CLIP WILL EXPAND AND LATCH IN THE BODY SLOT. TO CHECK PROPER SEATING OF LOCKING CLIP, ATTEMPT TO REMOVE U END FROM BODY HOLE WITH FINGERS ONLY, (DO NOT USE TOOLS AS LOCKING CLIP COULD BECOME PERMANENTLY DISTORTED).

LOCKING CLIPS ARE FOR ONE TIME USE ONLY, AND SHALL NOT BE REUSED.

BOTH LOCKING CLIPS MAY BE INSERTED IN THE SAME HOLE OF THE TURNBUCKLE BODY OR IN OPPOSITE HOLES.

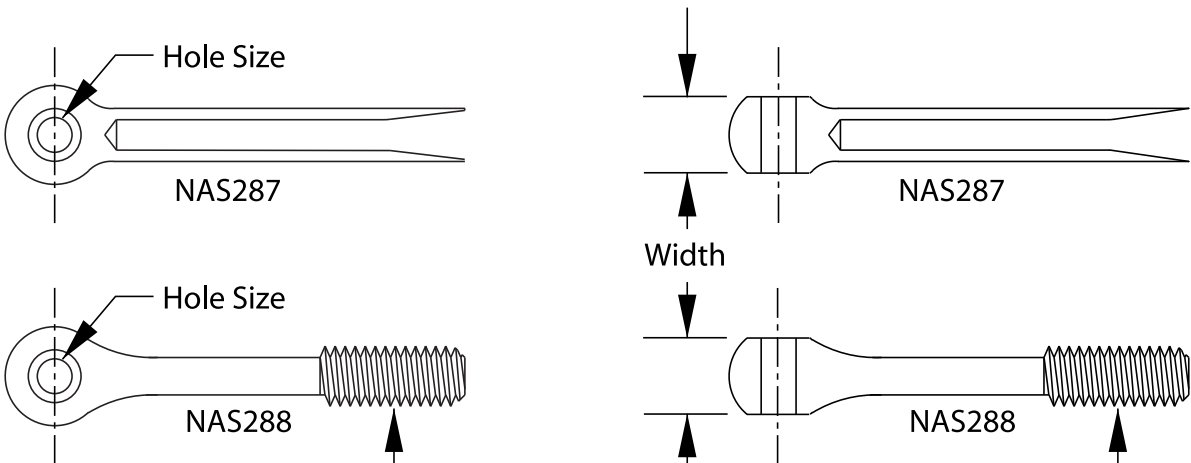
TWO LOCKING CLIPS REQUIRED FOR EACH TURNBUCKLE.

- PROCUREMENT SPECIFICATION: NONE
- SUPERSEDES: N/A
- THIS INFORMATION FROM MILITARY STANDARD MS33736 PAGE 1 OF 1, REVISED NOVEMBER 25, 1963, SOME DETAILS MAY HAVE BEEN OMITTED FOR CLARITY.

# Chain Terminals

## Cable & Turnbuckle

Length is measured from centerline of Head Hole to end of the fitting



NAS287- (Chain #) - (Cable) Corrosion Resistant Steel			Both Part Numbers Common Dimensions			NAS288 - (Chain #)(LH or RH) Carbon Steel Cad II Plated		
NAS287	Length	Cable Size	Chain #	Width	Hole	NAS288	Length	Threads
-25-2	1.35	1/16"	#25	.186	.094	-25	1.60	10-32
-25-3	1.58	3/32"						
-35-4	1.95	1/8"	#35	.293	.144	-35	1.70	1/4-28
-41-4			#41			.355		
-40-6	2.43	3/16"	#40	.436	.159	-40	1.90	5/16-24
-50-8	3.05	1/4"	#50	.540	.203	-50	2.90	3/8-24
N50-8	3.15		#N50	.415	.203	N50		