

NAVISTAR, INC.

Material, Parts, and Process Specifications (MPAPS)

NUMBER:

MPAPS S-S-X-2.101

Former Designation: **ESP-X-2.101**

TITLE:

Parts List (Service Only and Void)

CURRENT REV No.:

1506

DATE:

June 2015

WRITTEN/EDITED BY:

Materials Engineering

APPROVED BY:

Materials Engineering

SUPERSEDES:

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This specification may involve hazardous materials, equipment, and procedures. This specification does not purport to address all of the safety issues associated with its use. The user is responsible to consult appropriate safety and health practices and to determine the applicability of regulatory limits prior to use.

Change Notice: Changed to New MPAPS format.

1.0 SERVICE ONLY PARTS:

1.1 Section B – Bolts - English Series:

Nominal Size-TPI	Length	Finish	Material	Part Number	Old ESP Std	Cross Reference with New MPAPS S Std
5/16 -18	3	PHC	8	25236R1	ESP-B-2.121-PP	MPAPS S-B-1.101-GS/PL
3/8 -16	4	PHC	8	24845R1	ESP-B-2.121-PP	MPAPS S-B-1.101-GS/PL
1/4-20	4	PHC	8	26289R1	ESP-B-2.121-PP	MPAPS S-B-1.101-GS/PL
3/8-16	6 1/2	PHC	8	25686R1	ESP-B-2.121-PP	MPAPS S-B-1.101-GS/PL
1/2-13	1	ZN8F	5	180173	ESP-B-2.121-PP	MPAPS S-B-1.101-GS/PL
1/2-13	2 3/4	PHC	8	25281R1	ESP-B-2.121-PP	MPAPS S-B-1.101-GS/PL
5/8-11	3/4	PHC	8	25694R1	ESP-B-2.121-PP	MPAPS S-B-1.101-GS/PL
3/4-10	4 1/2	PHC	8	24895R1	ESP-B-2.121-PP	MPAPS S-B-1.101-GS/PL
1/4-28	1/2	ZN8F	5	181561	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
1/4-28	1/2	PHC	8	26080R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
1/4-28	3/4	PHC	8	26620R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
5/16-18	3/4	ZN8F		454869	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
7/16-20	2	PHC	8	25801R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
1/2-13	4.75	PHC	8	25290R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
9/16-12	1.25	PHC	8	25830R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
9/16-12	2.5	PHC	8	25320R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
5/8-18	1.5	PHC	8	25331R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
5/8-18	2.75	PHC	8	25854R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
3/4-16	2.25	PHC	8	25963R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
7/16-14	2	PHC	8	203762R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
5/16-18	7/8	PHC	8	25492R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
7/16-14	2 1/4	PHC	8	24852R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
7/16-14	5.5	PHC	8	25904R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
7/16-14	4 1/2	PHC	8	24857R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
7/16-14	3-1/2	PHC	8	40357R1	ESP-B-4.221-NPP	MPAPS S-B-4.101-GS/PL

1.2 Section BM – Bolts – Metric Series:

Nominal Size	Length	Finish	Material	Part Number	Old ESP-STD	Cross Reference with New MPAPS S Std
M22	130	PHC	10.9	30506R1	ESP-BM-1.221-NPP	MPAPS S-BM-1.101-GS/PL
M6	18	PHC	10.9	40072R1	ESP-BM-4.121-NPP	MPAPS S-BM-4.101-GS/PL

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1.3 Section C – Screws - English Series:

Nominal Size	Length	Finish	Material	Part Number	Old ESP-STD	Cross Reference with New MPAPS S Std
6-32	5/8	ZN6A	CST	159341	ESP-C-3.101-PP	MPAPS S-C-1.101-GS/PL
1/4 - 20	1/2	ZN6A	CST	160515	ESP-C-3.101-PP	MPAPS S-C-1.101-GS/PL
10-32	1/2	ZN6A	CST	160046	ESP-C-3.105-NPP	MPAPS S-C-1.101-GS/PL
3/8 -16	1	PLN	AST	138242	ESP-C-28.121-PP	MPAPS S-C-28.101-GS/PL
5/8 - 11	1.75	PHC	9	26145R1	ESP-C-29.121-PP	MPAPS S-C-29.101-GS/PL
1/2 - 13	2	PHC	9	26044R1	ESP-C-29.121-PP	MPAPS S-C-29.101-GS/PL

1.4 Section CM – Screws - Metric Series:

Nominal Size	Length	Finish	Material	Part Number	Old ESP-STD	Cross Reference with New MPAPS S Std
M8	40	PLN	12.9	31212R1	ESP-CM-28.121-PP	MPAPS S-CM-28.101-GS/PL
M8	110	PHC	12.9	3702651C1	ESP-CM-28.121-PP	MPAPS S-CM-28.101-GS/PL

1.5 Section D – Thread Generating Screws - English Series:

Nominal Size-TPI	Length	Type	Slotted Head?	Finish	Material	Part Number	Old ESP Std	Cross Reference with New MPAPS S Std
10-16	3/4	AB	-	PLN	SST-410	27209R1	ESP-D-5.103-NPP	MPAPS S-D-1.101-GS/PL
6 -20	1/2	AB	-	PHC	STL	27571R1	ESP-D-8.101-PP	MPAPS S-D-1.101-GS/PL
1/4 -14	3/4	AB	-	ZN6A	STL	24200R1	ESP-D-16.101-PP	MPAPS S-D-1.101-GS/PL
1/4 -14	1	AB	-	ZN6A	STL	24201R1	ESP-D-16.101-PP	MPAPS S-D-1.101-GS/PL
3/8 -12	3/4	AB	-	ZN6A	STL	24208R1	ESP-D-16.101-PP	MPAPS S-D-1.101-GS/PL

1.6 Section E – Nuts - English Series:

Nominal Size	Length	Finish	Material	Part Number	Old ESP-STD	Cross Reference with New MPAPS S Std
5/8 -11	-	ZN8F	5	124589	ESP-E-1.121-PP	MPAPS S-E-1.101-GS/PL
5/16-24	-	PHC	8	25521R1	ESP-E-1.221-NPP	MPAPS S-E-1.101-GS/PL
5/8 - 18	-	PHC	8	25676R1	ESP-E-1.221-NPP	MPAPS S-E-1.101-GS/PL
1/4-20	-	ZN8A	5	124818	ESP-E-2.221-NPP	MPAPS S-E-1.101-GS/PL
7/16-20	-	PHC	5	272125	ESP-E-2.221-NPP	MPAPS S-E-1.101-GS/PL
1/2-20	-	PHC	8	25922R1	ESP-E-2.221-NPP	MPAPS S-E-1.101-GS/PL
5/16-24	-	PHC	8	27036R1	ESP-E-56.221-NPP	MPAPS S-E-56.101-GS/PL
3/8-24	-	PHC	8	9413980	ESP-E-56.221-NPP	MPAPS S-E-56.101-GS/PL
1/2-20	-	PHC	8	9411648	ESP-E-56.221-NPP	MPAPS S-E-56.101-GS/PL

Nominal Size	Nut Type	Finish	Material	Part Number	Old ESP-STD	Cross Reference with New MPAPS S Std
5/8-18	LT-REG	ZN8F	8	144423H	ESP-E-47.221-NPP	MPAPS S-E-47.201-GS/PL

Type	R
Nominal Stud Diameter	-
Nominal Thread Size	10-32
Number of Notches	1 Notch - 5 Slits
A Formed Hole Gage Diameter, Min	-
Formed Hole Gage Diameter, Max	-
C Hexagon Across Flats, Max	0.375
Hexagon Across Flats, Min	0.369
P Hexagon Across Corners, Max	0.433
Hexagon Across Corners, Min	0.418
D Overall Height, Max	0.115
Overall Height, Min	0.095
M Stock Thickness	0.013
Finish	PART NUMBER-STEEL
Zinc Trivalent (ZN6A)	144562
Old ESP Std	ESP-E-71.103-PP
Cross Reference with New MPAPS S Std	MPAPS S-E-71.101-GS/PL

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	Nominal Size	1/4
P	Between Wings	9/32
D	Wing Spread	1
E	Wing eight	1/2
N	Radius	1/16
S	Radius	5/32
J	Radius	9/16
K	Wing Thickness	3/64
L	Wing Thickness	5/32
M	Boss Diameter	5/16
F	Boss Diameter	1/2
O	Radius	3/8
C	Boss Height	7/32
B	Threads Per Inch	20
	Pitch Diameter, Maximum	0.2223
	Pitch Diameter, Minimum	0.2175
	Minor Diameter, Maximum	0.2067
	Minor Diameter, Minimum	0.1959
	Finish	PART NUMBERS - STEEL
	Zinc	126177
	Phosphate Coated	
	Old ESP Std	ESP-E-74.102-PP
	Cross Reference with New MPAPS S Std	MPAPS S-E-74.101-GS/PL

1.7 Section EM – Nuts - Metric Series:

Nominal Size-TPI	Length	Finish	Material	Part Number	Old ESP Std	Cross Reference with New MPAPS S Std
M14	-	PHC	10	30410R1	ESP-EM-1.221-NPP	MPAPS S-EM-1.101-GS/PL

1.8 Section F – Washers

Nominal Size	Inside Diameter	Series	Material	Finish	Part Number	Old ESP Std	Cross Reference with New MPAPS S Std
9/16	0.572	REGULAR	STL	ZN6A	120898	ESP-F-1.221-NPP	MPAPS S-F-1.101-GS/PL
7/8	0.89	REGULAR	STL	ZN6A	131047	ESP-F-1.221-NPP	MPAPS S-F-1.101-GS/PL

Nominal Size	Washer Type	Inside Diameter	Outside Diameter	Material	Finish	Part Number	Old ESP Std	Cross Reference with New MPAPS S Std
3/8	INT	0.384	0.67	STL	ZN6A	138542	ESP-F-1.421-NPP	MPAPS S-F-1.301-GS/PL

Inside Diameter	Outside Diameter	Minimum Thickness	Washer Type	Finish	Material	Part Number	Old ESP Std	Cross Reference with New MPAPS S Std
0.406	1	0.12	-	ZN6A	CST	21403R1	ESP-F-15.321-NPP	MPAPS S-F-15.101-GS/PL
0.406	1	0.209	-	ZN6A	CST	21843R1	ESP-F-15.321-NPP	MPAPS S-F-15.101-GS/PL

Nominal Size	Nominal Inside Diameter	Outside Diameter	Nominal Thickness	Washer Type	Finish	Part Number	Old ESP Std	Cross Reference with New MPAPS S Std
1/2	.531	1.062	.134	B	PHC	26273R1	ESP-F-16.104-PP	MPAPS S-F-16.101-GS/PL
9/16	0.594	1.188	0.095	A	ZN6A	390308C1	ESP-F-16.221-NPP	MPAPS S-F-16.101-GS/PL
9/16	0.594	1.188	0.134	B	ZN6A	25879R1	ESP-F-16.221-NPP	MPAPS S-F-16.101-GS/PL
7/8	0.938	1.75	0.134	A	PHC	25539R1	ESP-F-16.221-NPP	MPAPS S-F-16.101-GS/PL

Size	Material	Finish	PART Number	Old ESP Std	Cross Reference with New MPAPS S Std
#10	SST 302	Plain	140260	ESP-F-40.101-PP	VOID

1.9 Section FM – Washers – Metric Series:

Inside Diameter		Length		OD	Nom Size	Type	Part Number	Old ESP Std	Cross Reference with New MPAPS S Std
inch	mm	inch	mm	inch					
0.493	12.5	0.375	9.52	0.675	3/8	STD	S5375	ESP-FM-2.121-PP	MPAPS S-FM-2.101-GS/PL
0.622	15.8	4.109	104.37	0.84	1/2	STD	463580R1	ESP-FM-2.121-PP	MPAPS S-FM-2.101-GS/PL

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1.10 Section J – Pins, Plugs and Keys

Nominal Size	Length	Series	Finish	Material	Part Number	Old ESP Std	Cross Reference with New MPAPS S Std
1/8	1 1/4	-	PLN	STL	103386	ESP-J-1.121-PP	MPAPS S-J-1.101-GS/PL
7/32	2 1/4	-	PLN	STL	108563	ESP-J-1.221-NPP	MPAPS S-J-1.101-GS/PL
1/2	1.25	-	-	-	19846R1	ESP-J-2.102-PP	MPAPS S-J-2.101-GS/PL
1/8	7/16	HEAVY	PLN	1070	17172R1	ESP-J-6.221-NPP	MPAPS S-J-6.101-GS/PL
3/16	1	HEAVY	PLN	1070	364436R1	ESP-J-6.302-PP	MPAPS S-J-6.101-GS/PL

Nominal Size	Length	Head to Hole	Finish	material	Part Number	Old ESP Std	Cross Reference with New MPAPS S Std
5/16	0.94	0.812	PHC	HARD	16616R1	ESP-J-7.121-PP	MPAPS S-J-7.101-GS/PL

1.11 Section KM - Clips and Clamps - Metric - Inch Series:

	Open Diameter		Closed Diameter		Part Number	Old ESP-STD	Cross Reference with New MPAPS S Std
	mm	Inch	mm	Inch			
20	44	1.75	20	.81	311164C91	ESP-KM-2.103-PP	MPAPS S-KM-2.101-GS/PL
		4.63		3.75	274090R91	ESP-KM-2.103-PP	MPAPS S-KM-2.101-GS/PL
48 LINR	89	3.5	65	2.56	27392R1	ESP-KM-2.103-PP	MPAPS S-KM-2.101-GS/PL

Clamping Diameter (A)		Nominal Bolt Size		Hole Diameter		Steel Clamp Thickness		Width		Center to Center		Slot Length		Total Width		Type	Part Number	Old ESP Std	Cross Reference with New MPAPS S Std
				B		C		D		F		N		G					
				± 0.41	± .015	± 0.10	± .004	± 1.6	± .062	± 0.8	± .031	± 1.6	± .062						
mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in				
6.4	1/4	M6	1/4	7.1	0.281	0.8	0.03	15.7	0.62	16.2	0.639	9.5	0.375	18.2	0.718	double	311842C91	ESP-KM-3.402-PP	MPAPS S-KM-3.401-GS/PL
9.5	3/8	M8	5/16-3/8	10.3	0.406	0.8	0.03	15.7	0.62	15.5	0.61	12.7	0.5	18.2	0.718	double	505183C1	ESP-KM-3.402-PP	MPAPS S-KM-3.401-GS/PL

1.12 Section L - Tube and Lubrication Fittings - English Series:

Tubing OD			3/4
B	Straight Thread		1-1/16
	Threads per inch		14
	Pitch Dia, Max		1.0145
	Pitch Dia, Min		1.0092
	Pitch Dia, Basic		1.0161
C1	Hexagon Width		1-1/16
D	Hole Dia, Drill		0.625
T	Hexagon Thk (Min)		0.43
L1	Overall Length		2.44
Material & Finish			PART NUMBERS
BRS PLN			110288
Old ESP Std			ESP-L-1.121-PP
Cross Reference with New MPAPS S Std			MPAPS S-L-1.101-GS/PL
Nominal Tube OD			5/8
B	Dryseal Pipe Thd (NPTF) Straight Thread Hole Diameter, Drill End to Center Hole Diameter, Drill End to Center Shoulder Length, Max		3/8-18
C			7/8-14
D			0.500
M7			1.23
D1			0.406
N2			0.95
P			0.59
	Material & Finish		PART NUMBERS
	BRS PLN		317778C1
Old ESP Std			ESP-L-1.121-PP
Cross Reference with New MPAPS S Std			MPAPS S-L-1.101-GS/PL

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Tubing OD		1/4
A	Dryseal Pipe Thd (NPTF)	1/8
B	Straight Thread	7/16
	Threads per inch	20
	Pitch Dia, Max) See	0.4037
	Pitch Dia, Min)-- Gen	0.3995
	Pitch Dia, Basic) Specs	0.405
C₂	Hexagon Width	9/16
D	Hole Dia, Drill	0.188
T₁	Hexagon Thickness, Min	0.24
L₂	Overall Length	1.03
W	Body Diameter	0.56
P₁	Tap Drill Depth	0.38
Material & Finish		PART NUMBERS - (BRASS - PLAIN ARE PREFERRED)
	BRS PLN	125620
	STL ZN6A	
Old ESP Std		ESP-L-1.121-PP
Cross Reference with New MPAPS S Std		MPAPS S-L-1.101-GS/PL

Tubing OD		1/8
B	Dryseal Thread	1/8-27
C	Straight Thread	5/16-24
	Maximum Pitch Dia	0.2843
	Minimum Pitch Dia	0.2806
	Minimum Full Thread	3/16
E	Hexagon Width	7/16
S	Hole Diameter	0.094
D	Diameter (+/- .002)	0.134
P	Length	3/8
R	Hexagon Thickness	5/32
I	End to Hexagon	1/4
K	Depth	3/16
F	Length	25/32
Finish - Material		PART NUMBERS
	Plain Brass	140284
Old ESP Std		ESP-L-3.221-NPP
Cross Reference with New MPAPS S Std		MPAPS S-L-1.101-GS/PL

Tubing OD	1/8	Old ESP Std	Cross Reference with New MPAPS S Std
Assembly Number	140304	ESP-L-3.221-NPP	MPAPS S-L-1.101-GS/PL

Nominal Tube -OD		1/2
B	Dryseal Pipe Th (NPTF)	3/8-18
C	Straight Thread	3/4-16
	Pitch Dia, Max (See)	0.7079
	Pitch Dia, Min (Gen)	0.7029
	Pitch Dia, Basic (Spec)	0.7094
D	Hole Diameter, Min	0.387
	Hole Diameter, Max	0.395
D₁	Hole Diameter, Drill	0.406
S	Diameter, Max	0.429
	Diameter, Min	0.423
R	Diameter, Max	0.654
	Diameter, Min	0.649
P	Pull Thread, Min	0.642
J	Nose Length, Min	0.253
	Nose Length, Max	0.268
F	End to Center	1.25
E	End to Center	1.22
K	Shoulder Length, Min	0.56
	Shoulder Length, Max	0.59
Y	Across Flats -Forged	0.75
	Across Flats, Max - Bar	0.875
Material & Finish		PART NUMBERS - (STEEL - ZN6A PREFERRED)

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Steel	ZN6A	9402865
Old ESP Std		ESP-L-7.121-PP
Cross Reference with New MPAPS S Std		MPAPS S-L-7.101-GS/PL

Nominal Size		37° Tube End		NPTF Pipe End		E Hex Width	F Overall Length	T Hex Thick Ref **	Finish	Mat'l	Part Number	Old ESP Std	Cross Reference with New MPAPS S Std
Tube	Pipe	C Thread Size	D Hole Dia Drill **	B Thread Size	D ₁ Hole Dia Drill *								
1/4	1/4	7/16-20	0.169	1/4-18	0.281	0.562	1.42	0.25	ZN6A	STL	317783R1	ESP-L-7.221-NPP	MPAPS S-L-7.101-GS/PL

Part Number	Description	C	S	E	D	G	F	Old ESP Std	Cross Reference with New MPAPS S Std
		Length ±.04	Shank ±.03	Effective Thd Min	Hex	Swing Radius	Angle		
16964R91	1/4-28 SAE LT	0.75	0.19	0.109	0.375	0.5	90°	ESP-L-21.121-PP	MPAPS S-L-21.101-GS/PL

													3/8
A	Dryseal Pipe Thread (NPTF)												1/2
C	Hexagon Width												11/16
D	Hole Dia, Drill**												0.281
D ₁	Hole Dia, Drill**												0.406
G	Shoulder Length												0.56
H	Hexagon Thickness (Ref)												0.24
I	End To Hexagon												0.62
L	Overall Length												1.44
	Material	Finish											PART NUMBERS (BRASS - PLAIN ARE PREFERRED)
	BRS	PLN											986296R1
	Old ESP Std												ESP-L-1.121-PP
	Cross Reference with New MPAPS S Std												MPAPS S-L-1.101-GS/PL

1.13 Section M – Pipe Fittings – English Series

A	B	C	N	L		PART NUMBERS		Old ESP Std	Cross Reference with New MPAPS S Std
Dryseal Taper Thread	Hexagon Width	Shoulder Length	*Hole Diameter	Min	Length	Brass	Steel		
						Plain	ZN6A		
1/2-14	1/4-18	.875	.75	.309	1	-	444033	ESP-M-1.221-NPP	MPAPS S-M-1.101-GS/PL

A	Dryseal Taper Thread								1/8-27
D	Body or Boss								.56
	Diameter (Min) ± .02								
K	Shank Diameter (Min)								.44
S	Drill Diameter								.188
	Width Across Wrench Pads								9/16
E	End to Center								.72
F	End to Center								.47
R	Radius								.22
	Material & Finish								
	Brass Plain								
	Steel ZN6A								454096
	Old ESP Std								ESP-M-1.221-NPP
	Cross Reference with New MPAPS S Std								MPAPS S-M-1.101-GS/PL

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PIPE PLUGS			
B	Dryseal Thread (NPTF)	1/8-27	3/8-18
C	Shoulder Length	.37	.56
L	Full Thread Length	.30	.46
D	Head Width, Max	.440	.690
	Head Width, Min	.428	.674
E	Head Thickness, Max	.194	.227
	Head Thickness, Min	.181	.212
S	Recess Diameter, Max	.16	.38
T	Wall Thickness, Min	.12	.16
	Material & Finish	PART NUMBERS	
	Steel Zinc Trivalent (ZN6A)		444625
	Steel Plain (PLN)	444612	
	Old ESP Std	ESP-M-2.221-NPP	ESP-M-2.221-NPP
	Cross Reference with New MPAPS S Std	MPAPS S-M-2.101-GS/PL	MPAPS S-M-2.101-GS/PL

PIPE PLUGS		
B	Dryseal Thread (NPTF)	1/2-14
C	Shoulder Length	.75
L	Full Thread Length	.61
D	Head Width, Max	.877
	Head Width, Min	.860
E	Head Thickness, Max	.227
	Head Thickness, Min	.212
S	Recess Diameter, Max	.50
T	Wall Thickness, Min	.16
	Material & Finish	PART NUMBERS
	Steel Zinc Trivalent (ZN6A)	444631
	Old ESP Std	ESP-M-2.221-NPP
	Cross Reference with New MPAPS S Std	MPAPS S-M-2.101-GS/PL

B	Dryseal Thread (NPTF)	1/8-27	1/4-18	1/2-14	3/4-14	2- 11-1/2	3/4-14
C	Body Length, Max	.350	.525	.700	.710	.98	.640
	Body Length, Min	.330	.495	.660	.670	.93	.600
L	Full Thread Length	.30	.46	.61	.62	.88	.55
D	Head Width, Max	.283	.377	.565	.627	1.312	.627
	Head Width, Min	.276	.370	.553	.615	1.300	.615
E	Head Height, Max	.255	.300	.410	.470	.72	.470
	Head Height, Min	.240	.280	.380	.440	.68	.440
F	Recess Diameter, Max (1)	-	-	.38	.56	1.28	.56
F	Recess Diameter, Max (2)	-	-	.53	.72	1.48	.72
T	Wall Thickness, Min (1)	-	-	.16	.18	.26	.18
T	Wall Thickness, Min (2)	-	-	.12	.13	.15	.13
T ¹	Wall Thickness, Min (2)	-	-	.09	.10	.17	.10
	Material & Finish	PART NUMBERS					
	Steel Zinc Trivalent (ZN6A)	-	-	-	444595	-	-
	Cast Iron Plain (PLN)	-	-	-	-	-	-
	Brass Plain	-	-	-	-	-	-
	Cast Iron Zinc Trivalent (ZN6A)	-	-	-	-	-	16845R1
	Old ESP Std	ESP-M-2.221-NPP	ESP-M-2.221-NPP	ESP-M-2.221-NPP	ESP-M-2.221-NPP	ESP-M-2.221-NPP	ESP-M-2.221-NPP
	Cross Reference with New MPAPS S Std	MPAPS S-M-2.101-GS/PL	MPAPS S-M-2.101-GS/PL	MPAPS S-M-2.101-GS/PL	MPAPS S-M-2.101-GS/PL	MPAPS S-M-2.101-GS/PL	MPAPS S-M-2.101-GS/PL

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NUMBER: MPAPS S-X-2.101	TITLE: Void and Service Only Parts	REVISION: 1506
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A	Straight Thread	3/4-16
	Pitch Dia., Max	.7079
	Pitch Dia., Min	.7029
	Pitch Dia., Basic	.7094
C	Shoulder Length	.38
K	Relief Width	.12
T	Relief Diameter, Max	.660
	Relief Diameter, Min	.651
N	Pilot Diameter, Max	.766
	Pilot Diameter, Min	.757
L	Wall Thickness, Min	.16
S	Recess Diameter, Max	.50
P	Hexagon Width, Max	1.002
	Hexagon Width, Min	.983
D	Overall Length	.62
Material & Finish		PART NUMBERS
	Steel Plain	445090
	Old ESP Std	ESP-M-3.102-PP
Cross Reference with New MPAPS S Std		MPAPS S-M-3.101-GS/PL

B	Dryseal Thread	3/8-18
C	Overall Length, Max	.475
	Overall Length, Min	.445
D	Socket Width, Min	.313
	Socket Width, Max (Cast)	.318
D ¹	Socket Width, Min (Broached)	.313
	Socket Width, Max (or Upset)	.318
F	Drilled Hole Dia, Max (Non-Ferrous)	.323
D ¹	Socket Width, Min (Broached)	.312
	Socket Width, Max (or Upset)	.315
F	Drilled Hole Dia, Max (Steel)	.318
P	Socket Depth, Min	.19
T	Wall Thickness, Min (1)	.13
T	Wall Thickness, Min (2)	.08
L	Wall Thickness, Min (3)	.06
Material & Finish		PART NUMBERS
	Steel Plain (PLN)	444697
	Old ESP Std	ESP-M-2.221-NPP
Cross Reference with New MPAPS S Std		MPAPS S-M-2.101-GS/PL

A	Taper Pipe Thread	1/2
B	Thread Depth, Min	.43
C	Inside Diameter, Max	.90
	Inside Diameter, Min	.84
D	Wall Thickness, Nom	.090
	Wall Thickness, Min	.081
E	Flange Diameter, Min	1.17
F	Flange Thickness, Min	.19
H	Center to End, Max	1.07
	Center to End, Min	.95
J	Center to End, Max	1.54
	Center to End, Min	1.42
K	Thread Length, Min	.54
M	Port Diameter, Max	.53
Material & Finish		PART NUMBERS
	Plain	127849
	Old ESP Std	ESP-M-7.221-NPP
Cross Reference with New MPAPS S Std		MPAPS S-M-5.101-GS/PL

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1.14 Section N - Balls, Retaining Rings and Bearing Locknuts and Washers - English Series:

Size Number	Housing	Ring Dimensions					Groove Dimensions				Part Number	Old ESP Std	Cross Reference with New MPAPS S Std
	Diameter	Free Diameter		Thickness			Diameter		Width				
	E	A	Tol	B	Tol	G	Tol	F	Tol				
					± .002				+.003 -.000				
87	.875	.810	+.005	.042		.821	± .003	.046		454331R1	ESP-N-5.121-PP	MPAPS S-N-5.101-GS/PL	

1.15 Section R – Electrical Parts:

T-3-1/4 (APPROX. 7/32 INCH DIA)											
Trade No.	DESIGN		Mean CP	AVG Life Hrs	FILAMENT		Over -all LG	BASE DESCP	PART NUMBER	Old ESP Std	Cross Reference with New MPAPS S Std
	Volt	Amps			Type	LCL In					
194	14.	.27	2.	1500	C2F	.56	1.06	WEDGE	20627R1	ESP-R-4.121-PP	MPAPS S-R-4.121-PP

1.16 Section S – Seals - English Series:

Size No.	Width	Nominal ID	Material Class	Part Number	Old ESP Std	Cross Reference with New MPAPS S Std
152	3/32	3 1/4	5	347360R1	ESP-S-1.121-PP	MPAPS S-S-1.101-GS/PL

1.17 Section SM - Seals - Metric Series:

W			Part Number	Old ESP Std	Cross Reference with New MPAPS S Std
Section Diameter					
2.65 Nominal					
2.56 min - 2.74 max					
Inside Diameter					
nom	min	max	Class 5		
16.0	15.80	16.20	30879R1	ESP-SM-1.104-PP	VOID

1.18 Section W – Miscellaneous - English Series:

A-SPAN B-HOLE	C-SPAN D-HOLE	E-LEG LENGTH	F-LEG LENGTH	G-THK H-WIDTH	PART NUMBER	Old ESP Std	Cross Reference with New MPAPS S Std
1.12 - .34	2.75 - .28	1.500	3.125	.12 - .750	194665R1	ESP-W-7.125-PP	MPAPS S-W-7.101-GS/PL
1.50 - .28	1.50 - .34	2.000	2.000	.12 - 1.00	434380C1	ESP-W-7.125-PP	MPAPS S-W-7.101-GS/PL

1.19 Section WM - Miscellaneous - Metric Series:

Part Description	Navistar P/N	Color	Hole / Stud Size	Panel Thickness	Max. Bundle Diameter	A	B	C	D	E	Old ESP Std	Cross Reference with New MPAPS S Std
50lb. Domed Fir Tree	3664020C1	BLACK	6.3-7.0	0.8 - 7.0	31	22±0.5	12.5±0.5	1.5±0.2	5±0.5	170±5	ESP-WM- 8.102-PP	MPAPS S- WM-8.101- GS/PL

Part Description	Navistar P/N	Color	Min. Tensile Strength	Max. Ø Bundle	Cable Strap		Mount					Old ESP Std	Cross Reference with New MPAPS S Std
					L	W	Disc Ø	L2	L3	W 3	H2		
Fir Tree Mount & Cable Strap Assembly	3678677C1	BLACK	50 lbs	44.5	203.2	4.6	16.0	11.6	13.8	5	7.5	ESP- WM- 8.102- PP	MPAPS S-WM- 8.101- GS/PL

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NUMBER: MPAPS S-X-2.101	TITLE: <i>Void and Service Only Parts</i>	REVISION: 1506
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2.0 VOID PARTS:

2.1 Section B – Bolts - English Series:

Nominal Size-TPI	Length	Finish	Material	Part Number	Old ESP Std	Cross Reference with New MPAPS S Std
1/4-20	2 1/4	ZN8F	5	180046	ESP-B-2.121-PP	MPAPS S-B-1.101-GS/PL
1/4-20	3 1/4	PHC	8	26286R1	ESP-B-2.121-PP	MPAPS S-B-1.101-GS/PL
1/4-20	3 1/2	ZN8F	5	189293	ESP-B-2.121-PP	MPAPS S-B-1.101-GS/PL
5/16-18	2 1/2	ZN8F	5	180091	ESP-B-2.121-PP	MPAPS S-B-1.101-GS/PL
5/16-18	2 3/4	ZN8F	5	180112	ESP-B-2.121-PP	MPAPS S-B-1.101-GS/PL
5/16-18	3 3/4	ZN8F	5	189297	ESP-B-2.121-PP	MPAPS S-B-1.101-GS/PL
5/16-18	5 1/2	PHC	8	26704R1	ESP-B-2.121-PP	MPAPS S-B-1.101-GS/PL
5/16-18	6	PHC	8	26594R1	ESP-B-2.121-PP	MPAPS S-B-1.101-GS/PL
3/8-16	6	PHC	8	25685R1	ESP-B-2.121-PP	MPAPS S-B-1.101-GS/PL
3/8-16	8	ZN8F	5	20570R1	ESP-B-2.121-PP	MPAPS S-B-1.101-GS/PL
3/8-16	8	PHC	8	25502R1	ESP-B-2.121-PP	MPAPS S-B-1.101-GS/PL
5/8-11	5 1/2	PHC	8	25346R1	ESP-B-2.121-PP	MPAPS S-B-1.101-GS/PL
5/8-11	7	PHC	8	25696R1	ESP-B-2.121-PP	MPAPS S-B-1.101-GS/PL
5/8-11	7 1/2	PHC	8	26256R1	ESP-B-2.121-PP	MPAPS S-B-1.101-GS/PL
3/4-10	1	PHC	8	24884R1	ESP-B-2.121-PP	MPAPS S-B-1.101-GS/PL
3/4-10	1 1/4	PHC	8	24885R1	ESP-B-2.121-PP	MPAPS S-B-1.101-GS/PL
3/4-10	1 1/2	PHC	8	24886R1	ESP-B-2.121-PP	MPAPS S-B-1.101-GS/PL
3/4-10	5 1/2	ZN8F	5	19873R1	ESP-B-2.121-PP	MPAPS S-B-1.101-GS/PL
3/4-10	7	PHC	8	25700R1	ESP-B-2.121-PP	MPAPS S-B-1.101-GS/PL
1-8	1 1/2	PHC	8	26047R1	ESP-B-2.121-PP	MPAPS S-B-1.101-GS/PL
1-8	2 1/4	PHC	8	25518R1	ESP-B-2.121-PP	MPAPS S-B-1.101-GS/PL
1-8	2 3/4	PHC	8	25646R1	ESP-B-2.121-PP	MPAPS S-B-1.101-GS/PL
1-8	5 1/2	PHC	8	25998R1	ESP-B-2.121-PP	MPAPS S-B-1.101-GS/PL
5/16 -18	5	PHC	8	26703R1	ESP-B-2.121-PP	MPAPS S-B-1.101-GS/PL
1/2 -13	2 1/2	PHC	8	24866R1	ESP-B-2.121-PP	MPAPS S-B-1.101-GS/PL
1/4-20	3/8	PHC	5	25220R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
1/4-20	3/4	PHC	5	181063	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
1/4-20	1.375	PHC	8	25486R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
1/4-20	2.5	PLN	SST 304	40215R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
1/4-28	1.25	PHC	8	26258R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
1/4-28	1.75	PHC	8	26621R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
5/16-18	1/2	PHC	5	181082	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
5/16-18	5/8	ZN8F	5	180075	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
5/16-18	1.5	ZN8F	8	454871	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
5/16-18	2.25	PHC	5	181097	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
5/16-18	2.875	PHC	8	26564R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
5/16-18	3.25	ZN8F	8	40046R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
5/16-24	5/8	ZN8F	5	181593	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
5/16-24	5/8	PHC	8	25978R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
5/16-24	1.25	ZN8F	5	181610	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
5/16-24	1.25	PHC	8	25230R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
5/16-24	2.25	PLN	8	26221R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
3/8-16	1.375	ZN8F	8	131822R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
3/8-16	2	PLN	SST 410	27256R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
3/8-16	2.75	ZN8F	8	897520R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
3/8-16	3.25	ZN8F	1	20628R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
3/8-16	4.75	PHC	8	25786R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
3/8-16	5.25	PHC	8	25787R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
3/8-16	6.25	ZN8F	5	16922R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
3/8-16	8	PLN	8	25000R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
3/8-16	10	PHC	8	25948R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
3/8-24	1/2	PHC	8	25767R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
3/8-24	3/4	ZN8F	8	874889R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
3/8-24	1	ZN8F	8	80594R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
3/8-24	1.5	PHC	8	80297R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
3/8-24	1.75	PHC	8	25705R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
3/8-24	5	PHC	8	25247R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
7/16-14	3/4	PHC	8	24848R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
7/16-14	1.75	ZN8F	5	180151	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL

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Nominal Size-TPI	Length	Finish	Material	Part Number	Old ESP Std	Cross Reference with New MPAPS S Std
7/16-14	2	ZN8F	5	180153	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
7/16-14	4.5	ZN8F	5	187543	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
7/16-20	1/2	PHC	8	25790R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
7/16-20	1.25	ZN8F	5	181668	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
7/16-20	2.25	PHC	8	80293R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
7/16-20	3.25	PHC	8	25260R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
7/16-20	3.75	PHC	8	25263R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
7/16-20	4.5	PLN	8	171607R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
1/2-13	1.5	CRB	8	40302R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
7/16-20	2	PLN	SST-304	40324R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
7/16-14	5	PHC	8	24858R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
1/2-13	1.75	ZN8F	8	20534R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
1/2-13	2	PLN	SST 304	23802R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
1/2-13	4	PLN	SST 304	40057R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
1/2-13	4.25	PHC	8	25658R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
1/2-13	4.75	ZN8F	8	211217R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
1/2-13	5.5	ZN8F	5-DRLD	24994R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
1/2-13	7.25	PLN	8	28209R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
1/2-13	12.25	ZN8F	8	40388R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
1/2-13	14.25	ZN8F	1	40360R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
1/2-20	1.25	PHC	8	25809R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
1/2-20	1.75	PLN	5	181433	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
1/2-20	2.5	PHC	8	80289R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
1/2-20	4.5	PHC	8	25289R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
1/2-20	4.75	PHC	8	25814R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
1/2-20	5	PHC	8	25815R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
1/2-20	6.5	ZN8F	5	191748	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
9/16-12	1.25	ZN8F	5	180201	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
9/16-12	2	PHC	8	25316R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
9/16-18	3/4	PHC	5	182793	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
9/16-18	3/4	PHC	8	25944R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
9/16-18	1	PHC	8	25828R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
9/16-18	1.5	PHC	8	25833R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
5/8-11	2	ZN8F	8	469805R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
5/8-11	2	PLN	SST 304	28302R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
5/8-11	4.25	PHC	8	25511R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
5/8-18	3/4	PHC	8	25850R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
5/8-18	1	ZN8F	5	271740	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
5/8-18	1	PHC	8	25851R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
5/8-18	1.25	PHC	8	25329R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
5/8-18	3.5	PHC	8	25342R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
3/4-10	2	ZN8F	8	21452R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
3/4-10	3.75	ZN8F	8	21705R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
3/4-10	4.25	PHC	8	25754R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
3/4-10	5	ZN8F	8	22376R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
3/4-10	8.75	PHC	8	25364R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
3/4-16	6.5	PHC	8	25868R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
3/4-16	7	PHC	8	28507R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
3/4-16	8	PHC	8	305694C1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
3/4-16	9	PHC	8	27757R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
7/8-9	2	PHC	8	25693R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
7/8-9	2.75	PHC	8	25740R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
7/8-9	3.25	ZN8F	8	21243R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
7/8-9	6	PHC	8	25977R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
7/8-14	2	PHC	8	25870R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
7/8-14	6	ZN8F	8	28310R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
1-14	7	ZN8F	8	40384R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
1-14	8.5	PHC	8	25631R1	ESP-B-2.221-NPP	MPAPS S-B-1.101-GS/PL
1/4 - 20	1 3/4	PHC	8	27428R1	ESP-B-4.121-PP	MPAPS S-B-4.101-GS/PL
7/16-14	3	PHC	8	40241R1	ESP-B-4.221-NPP	MPAPS S-B-4.101-GS/PL
9/16-12	2-3/4	PHC	8	40020R1	ESP-B-4.221-NPP	MPAPS S-B-4.101-GS/PL
7/16-14	3-3/4	PHC	8	40247R1	ESP-B-4.221-NPP	MPAPS S-B-4.101-GS/PL
3/8-24	3/4	PLN	8	9409131	ESP-B-7.221-NR	MPAPS S-B-7.201-GS/PL

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NUMBER: MPAPS S-X-2.101	TITLE: Void and Service Only Parts	REVISION: 1506
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Nominal Size-TPI	Length	Finish	Material	Part Number	Old ESP Std	Cross Reference with New MPAPS S Std
3/8-24	1	PLN	8	20589R1	ESP-B-7.221-NR	MPAPS S-B-7.201-GS/PL
1/2-20	3/4	PLN	8	9409056	ESP-B-7.221-NR	MPAPS S-B-7.201-GS/PL
1/2-20	1	PLN	8	9409058	ESP-B-7.221-NR	MPAPS S-B-7.201-GS/PL
5/16-18	1 1/4	ZN8F	5	598804R1	ESP-B-11.102-PP	MPAPS S-B-10.101-GS/PL
1/4 - 20	1 1/2	ZN8F	5	598798R1	ESP-B-11.102-PP	MPAPS S-B-10.101-GS/PL
1/4 - 20	2	ZN6A	5	598800R1	ESP-B-12.121-PP	MPAPS S-B-10.101-GS/PL
1/4 - 13	3 1/2	ZN6A	5	18711R1	ESP-B-12.121-PP	MPAPS S-B-10.101-GS/PL
5/8 - 11	3	ZN6A	5	608337R1	ESP-B-12.121-PP	MPAPS S-B-10.101-GS/PL
1/4-20	3 1/2	ZN8F	1	18636R1	ESP-B-12.221-NPP	MPAPS S-B-10.101-GS/PL
5/16-18	3	ZN8F	1	18678R1	ESP-B-12.221-NPP	MPAPS S-B-10.101-GS/PL
5/16-18	3 1/2	ZN8F	1	18477R1	ESP-B-12.221-NPP	MPAPS S-B-10.101-GS/PL
5/16-18	9 1/2	ZN8F	1	21080R1	ESP-B-12.221-NPP	MPAPS S-B-10.101-GS/PL
5/16-18	1/2	PLN	STL	220853	ESP-B-30.102-PP	MPAPS S-B-30.101-GS/PL
5/16-18	5/8	PLN	STL	220854	ESP-B-30.102-PP	MPAPS S-B-30.101-GS/PL
3/8-16	2 1/4	PLN	STL	24678R1	ESP-B-30.102-PP	MPAPS S-B-30.101-GS/PL
1/2-13	2 3/4	PLN	STL	23725R1	ESP-B-30.102-PP	MPAPS S-B-30.101-GS/PL
5/16 - 18	1	PLN	STL	221775	ESP-B-30.201-NR	MPAPS S-B-30.101-GS/PL

Nominal Size-TPI	A Span Width	B Center DIM	C Shank Length	D THD	E RAD	Part Number	Old ESP Std	Cross Reference with New MPAPS S Std
1/4-20	1	1.25	1.34	0.75	0.5	40328R1	ESP-B-40.102-PP	MPAPS S-B-40.101-GS/PL
1/4-20	2	2.25	2.5	1	1.02	27338R1	ESP-B-40.102-PP	MPAPS S-B-40.101-GS/PL
5/16-18	0.94	1.25	2.25	1	0.49	27023R1	ESP-B-40.102-PP	MPAPS S-B-40.101-GS/PL
3/8-16	1.25	1.62	2.25	1	0.64	27024R1	ESP-B-40.102-PP	MPAPS S-B-40.101-GS/PL
3/8-16	2.81	3.19	3.75	1.5	1.43	608950C1	ESP-B-40.102-PP	MPAPS S-B-40.101-GS/PL

2.2 Section BM – Bolts - Metric Series:

Nominal Size-TPI	Length	Finish	Material	Part Number	Old ESP Std	Cross Reference with New MPAPS S Std
M6	70	PHC	10.9	30203R1	ESP-BM-1.121-PP	MPAPS S-BM-1.101-GS/PL
M8	90	PHC	10.9	30016R1	ESP-BM-1.121-PP	MPAPS S-BM-1.101-GS/PL
M8	110	PHC	10.9	30018R1	ESP-BM-1.121-PP	MPAPS S-BM-1.101-GS/PL
M10	80	PHC	10.9	30031R1	ESP-BM-1.121-PP	MPAPS S-BM-1.101-GS/PL
M10	130	PHC	10.9	30037R1	ESP-BM-1.121-PP	MPAPS S-BM-1.101-GS/PL
M12	110	PHC	10.9	30056R1	ESP-BM-1.121-PP	MPAPS S-BM-1.101-GS/PL
M16	55	PHC	10.9	934646R1	ESP-BM-1.121-PP	MPAPS S-BM-1.101-GS/PL
M16	130	PHC	10.9	30078R1	ESP-BM-1.121-PP	MPAPS S-BM-1.101-GS/PL
M16	180	PHC	10.9	30083R1	ESP-BM-1.121-PP	MPAPS S-BM-1.101-GS/PL
M20	90	PHC	10.9	30097R1	ESP-BM-1.121-PP	MPAPS S-BM-1.101-GS/PL
M24	180	PHC	10.9	30126R1	ESP-BM-1.121-PP	MPAPS S-BM-1.101-GS/PL
M24	220	PHC	10.9	30128R1	ESP-BM-1.121-PP	MPAPS S-BM-1.101-GS/PL
M16	240	PHC	10.9	40256R1	ESP-BM-1.221-NPP	MPAPS S-BM-1.101-GS/PL
M6	10	ZN8F	8.8	930775R1	ESP-BM-1.221-NPP	MPAPS S-BM-1.101-GS/PL
M6	30	PHC	8.8	931432R1	ESP-BM-1.221-NPP	MPAPS S-BM-1.101-GS/PL
M6	65	PHC	10.9	30202R1	ESP-BM-1.221-NPP	MPAPS S-BM-1.101-GS/PL
M8	14	PLN	8.8	30728R1	ESP-BM-1.221-NPP	MPAPS S-BM-1.101-GS/PL
M8	95	PHC	8.8	31235R1	ESP-BM-1.221-NPP	MPAPS S-BM-1.101-GS/PL
M8	100	PHC	8.8	931451R1	ESP-BM-1.221-NPP	MPAPS S-BM-1.101-GS/PL
M10	20	ZN8F	8.8	931168R1	ESP-BM-1.221-NPP	MPAPS S-BM-1.101-GS/PL
M10	22	PLN	8.8	930048R1	ESP-BM-1.221-NPP	MPAPS S-BM-1.101-GS/PL
M10	30	PHC	8.8	931419R1	ESP-BM-1.221-NPP	MPAPS S-BM-1.101-GS/PL
M10	40	ZN8F	8.8	30483R1	ESP-BM-1.221-NPP	MPAPS S-BM-1.101-GS/PL
M10	110	ZN8F	10.9	30283R1	ESP-BM-1.221-NPP	MPAPS S-BM-1.101-GS/PL
M14	35	PHC	10.9	30846R1	ESP-BM-1.221-NPP	MPAPS S-BM-1.101-GS/PL
M14	55	PHC	10.9	40216R1	ESP-BM-1.221-NPP	MPAPS S-BM-1.101-GS/PL
M16	25	PHC	10.9	30241R1	ESP-BM-1.221-NPP	MPAPS S-BM-1.101-GS/PL
M16	190	PHC	10.9	30363R1	ESP-BM-1.221-NPP	MPAPS S-BM-1.101-GS/PL
M20	110	ZN8F	8.8 DRLD	30761R1	ESP-BM-1.221-NPP	MPAPS S-BM-1.101-GS/PL
M8	90	PHC	10.9	40212R1	ESP-BM-3.121-PP	MPAPS S-BM-3.101-GS/PL
M10	116	PHC	10.9	2016145C1	ESP-BM-3.221-NPP	MPAPS S-BM-3.101-GS/PL
M14	75	PHC	10.9	40455R1	ESP-BM-3.221-NPP	MPAPS S-BM-3.101-GS/PL
M16	55	PHC	10.9	30828R2	ESP-BM-3.221-NPP	MPAPS S-BM-3.101-GS/PL
M16	170	PHC	10.9	31231R1	ESP-BM-3.221-NPP	MPAPS S-BM-3.101-GS/PL

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NUMBER: MPAPS S-X-2.101	TITLE: <i>Void and Service Only Parts</i>	REVISION: 1506
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Nominal Size-TPI	Length	Finish	Material	Part Number	Old ESP Std	Cross Reference with New MPAPS S Std
M16	170	ZACLR	10.9	40310R1	ESP-BM-3.221-NPP	MPAPS S-BM-3.101-GS/PL
M10	120	ZACLR	10.9	40390R1	ESP-BM-3.221-NPP	MPAPS S-BM-3.101-GS/PL
M8	40	PLN	SST-304	40334R1	ESP-BM-4.121-PP	MPAPS S-BM-4.101-GS/PL
M22	40	PHC	10.9	40410R1	ESP-BM-4.121-PP	MPAPS S-BM-4.101-GS/PL
M22	55	PHC	10.9	40411R1	ESP-BM-4.121-PP	MPAPS S-BM-4.101-GS/PL
M12	40	ZN8F	8.8	30640R1	ESP-BM-11.107-PP	MPAPS S-BM-11.101-GS/PL

2.3 Section C – Screws - English Series:

Nominal Size-TPI	Length	Finish	Material	Part Number	Old ESP Std	Cross Reference with New MPAPS S Std
5/16 - 18	1	ZN6A	CST	156466	ESP-C-1.105-PP	MPAPS S-C-1.101-GS/PL
5/16 - 18	1 1/4	ZN6A	CST	3017476R1	ESP-C-1.105-PP	MPAPS S-C-1.101-GS/PL
5/16 - 18	1 1/2	ZN6A	CST	156477	ESP-C-1.105-PP	MPAPS S-C-1.101-GS/PL
5/16 - 18	2	ZN6A	CST	3019123R1	ESP-C-1.105-PP	MPAPS S-C-1.101-GS/PL
1/4 - 28	1/2	ZN6A	CST	191905	ESP-C-1.107-NPP	MPAPS S-C-1.101-GS/PL
5/16 - 18	1 1/4	PHC	CST	157538	ESP-C-2.101-PP	MPAPS S-C-1.101-GS/PL
1/2 - 20	1	PLN	CST	117248	ESP-C-1.201-NPP	MPAPS S-C-1.101-GS/PL
1/2 - 20	1 3/4	ZN6A	CST	126184	ESP-C-1.201-NPP	MPAPS S-C-1.101-GS/PL
10-24	1/2	ZN6A	CST	156963	ESP-C-2.101-PP	MPAPS S-C-1.101-GS/PL
10-24	1/2	PLN	SST-410	27235R1	ESP-C-2.103-NPP	MPAPS S-C-1.101-GS/PL
1/4 - 20	1/2	PLN	SST-410	27103R1	ESP-C-2.103-NPP	MPAPS S-C-1.101-GS/PL
1/4 - 20	1	PLN	SST-410	27241R1	ESP-C-2.103-NPP	MPAPS S-C-1.101-GS/PL
1/4 - 20	1 1/2	PLN	SST-410	27242R1	ESP-C-2.103-NPP	MPAPS S-C-1.101-GS/PL
5/16-18	1	PLN	SST-410	27244R1	ESP-C-2.103-NPP	MPAPS S-C-1.101-GS/PL
8-32	5/8	ZN6A	CST	159612	ESP-C-3.101-PP	MPAPS S-C-1.101-GS/PL
10-24	3/8	PHC	CST	159911	ESP-C-3.101-PP	MPAPS S-C-1.101-GS/PL
10-24	7/8	ZN6A	CST	159952	ESP-C-3.101-PP	MPAPS S-C-1.101-GS/PL
10-24	7/8	PHC	CST	27094R1	ESP-C-3.101-PP	MPAPS S-C-1.101-GS/PL
10-24	2 1/4	ZN6A	CST	28151R1	ESP-C-3.101-PP	MPAPS S-C-1.101-GS/PL
1/4 - 20	1 3/4	ZN6A	CST	160586	ESP-C-3.101-PP	MPAPS S-C-1.101-GS/PL
1/4 - 20	2.25	PHC	CST	160657	ESP-C-3.101-PP	MPAPS S-C-1.101-GS/PL
5/16 - 18	1 1/2	ZN6A	CST	160731	ESP-C-3.101-PP	MPAPS S-C-1.101-GS/PL
5/16 - 18	3 1/2	PLN	SST	40010R1	ESP-C-3.101-PP	MPAPS S-C-1.101-GS/PL
3/8 - 16	1 1/4	ZN6A	CST	160844	ESP-C-3.101-PP	MPAPS S-C-1.101-GS/PL
1/4-20	2 3/4	PHC	CST	28201R1	ESP-C-3.101-PP	MPAPS S-C-1.101-GS/PL
10-24	1.5	PLN	SST-304	40317R1	ESP-C-3.105-NPP	MPAPS S-C-1.101-GS/PL
10-24	2 3/4	PHC	CST	27340R1	ESP-C-3.105-NPP	MPAPS S-C-1.101-GS/PL
10-32	3/8	ZN6A	CST	160035	ESP-C-3.105-NPP	MPAPS S-C-1.101-GS/PL
10-32	1/2	PHC	CST	28166R1	ESP-C-3.105-NPP	MPAPS S-C-1.101-GS/PL
12-24	1 1/4	ZN6A	CST	160436	ESP-C-3.105-NPP	MPAPS S-C-1.101-GS/PL
1/4 - 20	5/8	PLN	SST-410	27223R1	ESP-C-3.105-NPP	MPAPS S-C-1.101-GS/PL
1/4 - 20	7/8	PLN	SST-410	27225R1	ESP-C-3.105-NPP	MPAPS S-C-1.101-GS/PL
1/4 - 20	3 1/2	PLN	SST-410	28608R1	ESP-C-3.105-NPP	MPAPS S-C-1.101-GS/PL
5/16 - 18	5/8	PLN	SST-410	27230R1	ESP-C-3.105-NPP	MPAPS S-C-1.101-GS/PL
5/16 - 18	1 3/4	PLN	SST-410	28383R1	ESP-C-3.105-NPP	MPAPS S-C-1.101-GS/PL
5/16 - 18	2	PLN	SST-410	28485R1	ESP-C-3.105-NPP	MPAPS S-C-1.101-GS/PL
10-32	5/16	ZN6A	CST	436747	ESP-C-3.201-NPP	MPAPS S-C-1.101-GS/PL
4-40	5/8	PHC	CST	436806	ESP-C-3.201-NPP	MPAPS S-C-1.101-GS/PL
1/4 - 20	3/4	PHC	CST	153789	ESP-C-4.201-NPP	MPAPS S-C-1.101-GS/PL
10-24	3/4	ZN6A	CST	132051	ESP-C-4.203-NPP	MPAPS S-C-1.101-GS/PL
10-32	1/4	ZN6A	CST	132892	ESP-C-6.203-NR	MPAPS S-C-1.101-GS/PL
8-32	3/8	ZN6A	CST	450644	ESP-C-8.101-PP	MPAPS S-C-1.101-GS/PL
1/4-20	3/4	ZN6A	CST	20245R1	ESP-C-8.101-PP	MPAPS S-C-1.101-GS/PL
1/4-20	1 1/2	ZN6A	CST	27603R1	ESP-C-8.101-PP	MPAPS S-C-1.101-GS/PL
1/4-20	1 3/4	ZN6A	CST	22432R1	ESP-C-8.101-PP	MPAPS S-C-1.101-GS/PL
10-32	5/16	ZN6A	CST	18269R1	ESP-C-8.221-NPP	MPAPS S-C-1.101-GS/PL
5/16 - 18	1	PHC	CST	27875R1	ESP-C-11.101-PP	MPAPS S-C-10.101-GS/PL
10-24	3/8	ZN6A	CST	188749	ESP-C-13.101-PP	MPAPS S-C-10.101-GS/PL
10 - 32	1/4	ZN6A	CST	442807	ESP-C-13.201-NPP	MPAPS S-C-10.101-GS/PL
5/16 - 18	5/8	ZN6A	CST	187527	ESP-C-14.101-PP	MPAPS S-C-10.101-GS/PL
5/16 - 24	5/8	ZN6A	CST	425589	ESP-C-14.221-NPP	MPAPS S-C-10.101-GS/PL
6-32	5/16	SL-ZN	CST	454161	ESP-C-21.201-NPP	MPAPS S-C-10.101-GS/PL
10-32	7/16	ZN6A	CST	19394R91	ESP-C-22.101-PP	MPAPS S-C-10.101-GS/PL

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NUMBER: MPAPS S-X-2.101	TITLE: <i>Void and Service Only Parts</i>	REVISION: 1506
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Nominal Size-TPI	Length	Finish	Material	Part Number	Old ESP Std	Cross Reference with New MPAPS S Std
10-24	1 1/2	ZN6A	AST	28564R1	ESP-C-28.121-PP	MPAPS S-C-28.101-GS/PL
5/16 - 18	2 3/4	PLN	AST	25427R1	ESP-C-28.121-PP	MPAPS S-C-28.101-GS/PL
5/16 - 18	3	PLN	AST	138230	ESP-C-28.121-PP	MPAPS S-C-28.101-GS/PL
5/16 - 18	1.75	PLN	AST	138245	ESP-C-28.121-PP	MPAPS S-C-28.101-GS/PL
3/8 - 16	2.25	PLN	AST	138247	ESP-C-28.121-PP	MPAPS S-C-28.101-GS/PL
5/16 - 18	3/4	PHC	9	27586R1	ESP-C-29.121-PP	MPAPS S-C-29.101-GS/PL
5/16 - 18	2	PHC	9	28320R1	ESP-C-29.121-PP	MPAPS S-C-29.101-GS/PL
5/16 - 18	2.25	PHC	9	28086R1	ESP-C-29.121-PP	MPAPS S-C-29.101-GS/PL
3/8 - 16	1	PHC	9	27279R1	ESP-C-29.121-PP	MPAPS S-C-29.101-GS/PL
5/8 - 11	2.25	PLN	9	375250R1	ESP-C-29.121-PP	MPAPS S-C-29.101-GS/PL
3/8 - 24	1	PHC	9	28451R1	ESP-C-29.221-NPP	MPAPS S-C-29.101-GS/PL
7/16 - 14	1.25	PLN	9	880982C1	ESP-C-29.221-NPP	MPAPS S-C-29.101-GS/PL
7/16 - 14	1.25	PHC	9	27693R1	ESP-C-29.221-NPP	MPAPS S-C-29.101-GS/PL
7/16 - 14	1.5	PHC	9	27957R1	ESP-C-29.221-NPP	MPAPS S-C-29.101-GS/PL
5/16-18	2	ZACLR	9	40456R1	ESP-C-29.221-NPP	MPAPS S-C-29.101-GS/PL

Nominal Size-TPI	Length	Point Type	Finish	Part Number	Old ESP Std	Cross Reference with New MPAPS S Std
1/4-20	1/4	CUP	ZN6A	127782	ESP-C-32.103-PP	MPAPS S-C-32.101-GS/PL
5/16-18	1/2	CUP	ZN6A	22210R1	ESP-C-32.103-PP	MPAPS S-C-32.101-GS/PL
1/4 -20	3/4	CUP	PLN	102573	ESP-C-32.221-NPP	MPAPS S-C-32.101-GS/PL
7/16 - 14	1/2	CUP	PLN	102604	ESP-C-32.221-NPP	MPAPS S-C-32.101-GS/PL
3/4 - 10	3/4	CUP	PLN	139230	ESP-C-32.221-NPP	MPAPS S-C-32.101-GS/PL
3/4 - 16	3/4	OVAL	PLN	138924	ESP-C-32.221-NPP	MPAPS S-C-32.101-GS/PL
1/2-13	2 1/2	OVAL	PLN	110097	ESP-C-34.221-NPP	MPAPS S-C-34.101-GS/PL

2.4 Section CM – Screws - Metric Series:

Nominal Size-TPI	Length	Finish	Material	Part Number	Old ESP Std	Cross Reference with New MPAPS S Std
M6	16	ZN6A	4.8	30442R1	ESP-CM-1.105-PP	MPAPS S-CM-1.101-GS/PL
M6	50	ZN6A	4.8	40347R1	ESP-CM-1.105-PP	MPAPS S-CM-1.101-GS/PL
M4	20	PHC	4.8	30433R1	ESP-CM-2.101-PP	MPAPS S-CM-1.101-GS/PL
M6	16	ZN6A	4.8	31009R1	ESP-CM-2.101-PP	MPAPS S-CM-1.101-GS/PL
M6	25	PHC	4.8	30300R1	ESP-CM-2.101-PP	MPAPS S-CM-1.101-GS/PL
M3	12	ZN6A	4.8	30495R1	ESP-CM-3.101-PP	MPAPS S-CM-1.101-GS/PL
M3.5	40	ZN6A	4.8	40333R1	ESP-CM-3.101-PP	MPAPS S-CM-1.101-GS/PL
M4	20	PHC	4.8	31040R1	ESP-CM-3.101-PP	MPAPS S-CM-1.101-GS/PL
M4	50	ZN6A	4.8	31143R1	ESP-CM-3.101-PP	MPAPS S-CM-1.101-GS/PL
M5	25	ZN6A	4.8	30464R1	ESP-CM-3.101-PP	MPAPS S-CM-1.101-GS/PL
M4	50	PHC	12.9	30948R1	ESP-CM-28.121-PP	MPAPS S-CM-28.101-GS/PL
*M5	40	PLN	SST-304	40399R1	ESP-CM-28.121-PP	MPAPS S-CM-28.101-GS/PL
*M12	45	PHC	12.9	3901258C1	ESP-CM-28.121-PP	MPAPS S-CM-28.101-GS/PL
M10	45	ZACLR	10.9	3921371C1	ESP-CM-29.104-PP	MPAPS S-CM-29.101-GS/PL
M10	100	PHC	12.9	40211R1	ESP-CM-29.104-PP	MPAPS S-CM-29.101-GS/PL
M5	10	PLN	AST	40429R1	ESP-CM-32.106-PP	MPAPS S-CM-32.101-GS/PL

2.5 Section D – Thread Generating Screws - English Series:

Nominal Size-TPI	Length	Type	Finish	Material	Part Number	Old ESP Std	Cross Reference with New MPAPS S Std
*10 -16	1/2	AB	ZN6A	STL	27373R1	ESP-D-2.101-PP	MPAPS S-D-1.101-GS/PL
6-20	3/4	B	ZN6A	STL	162606	ESP-D-2.101-PP	MPAPS S-D-1.101-GS/PL
10-16	3/4	AB	PLN	SST-410	40332R1	ESP-D-2.101-PP	MPAPS S-D-1.101-GS/PL
12-14	1- 1/2	AB	PLN	SST-410	40344R1	ESP-D-2.101-PP	MPAPS S-D-1.101-GS/PL
6-20	1/2	AB	PHC	STL	27573R1	ESP-D-5.101-PP	MPAPS S-D-1.101-GS/PL
8-18	1 3/4	AB	ZN6A	STL	40343R1	ESP-D-5.101-PP	MPAPS S-D-1.101-GS/PL
10-16	1	AB	PHC	STL	27076R1	ESP-D-5.101-PP	MPAPS S-D-1.101-GS/PL
8-18	1	AB	PLN	SST-410	27205R1	ESP-D-5.103-NPP	MPAPS S-D-1.101-GS/PL
10-16	5/8	AB	PLN	SST-304	24450R1	ESP-D-5.103-NPP	MPAPS S-D-1.101-GS/PL
8-32	1/2	D	PLN	SST-410	27192R1	ESP-D-6.101-PP	MPAPS S-D-1.101-GS/PL
* 10 -16	3/8	AB	ZN6A	STL	24388R1	ESP-D-8.101-PP	MPAPS S-D-1.101-GS/PL
10 -16	7/8	BT	ZN6A	STL	26220R1	ESP-D-8.101-PP	MPAPS S-D-1.101-GS/PL
10 -16	1.25	AB	PHC	STL	27683R1	ESP-D-8.101-PP	MPAPS S-D-1.101-GS/PL

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Nominal Size-TPI	Length	Type	Finish	Material	Part Number	Old ESP Std	Cross Reference with New MPAPS S Std
1/4 -14	1.5	AB	ZN6A	STL	24412R1	ESP-D-8.101-PP	MPAPS S-D-1.101-GS/PL
6-20	3/8	AB	PLN	SST-410	27140R1	ESP-D-8.103-NPP	MPAPS S-D-1.101-GS/PL
6-20	1/2	AB	PLN	SST-410	27194R1	ESP-D-8.103-NPP	MPAPS S-D-1.101-GS/PL
6-20	3/4	AB	PLN	SST-410	27142R1	ESP-D-8.103-NPP	MPAPS S-D-1.101-GS/PL
8-18	3/8	B	ZN6A	STL	163158	ESP-D-8.103-NPP	MPAPS S-D-1.101-GS/PL
8-18	1/2	AB	PLN	SST-304	26235R1	ESP-D-8.103-NPP	MPAPS S-D-1.101-GS/PL
8-18	1.25	AB	PLN	SST-410	27145R1	ESP-D-8.103-NPP	MPAPS S-D-1.101-GS/PL
*10-16	3/8	AB	PLN	SST-410	27040R1	ESP-D-8.103-NPP	MPAPS S-D-1.101-GS/PL
10-16	3	AB	PHC	STL	27890R1	ESP-D-8.103-NPP	MPAPS S-D-1.101-GS/PL
12-14	3/4	AB	PHC	STL	40279R1	ESP-D-8.103-NPP	MPAPS S-D-1.101-GS/PL
12-14	1.5	AB	PLN	SST-410	40320R1	ESP-D-8.103-NPP	MPAPS S-D-1.101-GS/PL
*1/4- 14	1/2	AB	PLN	SST-410	27147R1	ESP-D-8.103-NPP	MPAPS S-D-1.101-GS/PL
1/4- 14	1	AB	PLN	SST-304	40286R1	ESP-D-8.103-NPP	MPAPS S-D-1.101-GS/PL
1/4- 14	1	AB	PLN	SST-410	27499R1	ESP-D-8.103-NPP	MPAPS S-D-1.101-GS/PL
1/4- 14	1.75	AB	PLN	SST-410	27686R1	ESP-D-8.103-NPP	MPAPS S-D-1.101-GS/PL
10 -16	3/8	AB	ZN6A	STL	24240R1	ESP-D-8.201-NPP	MPAPS S-D-1.101-GS/PL
12 -14	1.25	AB	ZN6A	STL	24406R1	ESP-D-8.201-NPP	MPAPS S-D-1.101-GS/PL
* 8-32	1/4	D	ZN6A	STL	167024	ESP-D-9.101-PP	MPAPS S-D-1.101-GS/PL
8 -32	1.25	D	PHC	STL	27187R1	ESP-D-9.101-PP	MPAPS S-D-1.101-GS/PL
10 -24	1/2	D	ZN6A	STL	167084	ESP-D-9.101-PP	MPAPS S-D-1.101-GS/PL
10 -24	1.5	D	ZN6A	STL	167140	ESP-D-9.101-PP	MPAPS S-D-1.101-GS/PL
* 1/4 -20	1/2	D	ZN6A	STL	167257	ESP-D-9.101-PP	MPAPS S-D-1.101-GS/PL
1/4 -20	7/8	F	ZN6A	STL	167266	ESP-D-9.101-PP	MPAPS S-D-1.101-GS/PL
5/16 -18	3/4	D	ZN6A	STL	167345	ESP-D-9.101-PP	MPAPS S-D-1.101-GS/PL
8 -32	3/8	D	PLN	SST-410	27188R1	ESP-D-9.103-NPP	MPAPS S-D-1.101-GS/PL
8 -32	3/4	D	PLN	SST-410	27156R1	ESP-D-9.103-NPP	MPAPS S-D-1.101-GS/PL
10 -24	1/2	D	PLN	SST-410	27189R1	ESP-D-9.103-NPP	MPAPS S-D-1.101-GS/PL
10 -24	1	F	PLN	SST-410	40068R1	ESP-D-9.103-NPP	MPAPS S-D-1.101-GS/PL
10 -32	1/2	C	ZN6A	STL	164475	ESP-D-9.103-NPP	MPAPS S-D-1.101-GS/PL
12 -24	1/2	D	ZN6A	STL	167214	ESP-D-9.103-NPP	MPAPS S-D-1.101-GS/PL
1/4 -20	1	D	CRB	STL	167270	ESP-D-9.103-NPP	MPAPS S-D-1.101-GS/PL
10 -32	5/8	G	ZN6A	STL	448237	ESP-D-14.203-NR	MPAPS S-D-1.101-GS/PL
1/4 -14	5/8	AB	PHC	STL	24198R1	ESP-D-16.101-PP	MPAPS S-D-1.101-GS/PL
10 -16	3/4	AB	PLN	SST-304	40074R1	ESP-D-16.201-NPP	MPAPS S-D-1.101-GS/PL
1/4 -14	1	B	ZN6A	STL	145350	ESP-D-16.201-NPP	MPAPS S-D-1.101-GS/PL
1/4 -14	1.25	B	ZN6A	STL	23216R1	ESP-D-16.201-NPP	MPAPS S-D-1.101-GS/PL
1/4 -20	1.5	D	ZN6A	STL	28062R1	ESP-D-17.101-PP	MPAPS S-D-1.101-GS/PL
3/8 -16	5/8	D	ZN6A	STL	172480	ESP-D-17.101-PP	MPAPS S-D-1.101-GS/PL
3/8 -16	3/4	D	ZN6A	STL	172482	ESP-D-17.101-PP	MPAPS S-D-1.101-GS/PL
3/8 -16	1	D	ZN6A	STL	172487	ESP-D-17.101-PP	MPAPS S-D-1.101-GS/PL
3/8 -16	1.5	D	ZN6A	STL	176022	ESP-D-17.101-PP	MPAPS S-D-1.101-GS/PL
1/4 -14	3/4	AB	PHC	STL	27294R1	ESP-D-19.101-PP	MPAPS S-D-1.101-GS/PL
*5/16 -12	1	AB	PLN	SST-304	40304R1	ESP-D-19.101-PP	MPAPS S-D-1.101-GS/PL
5/16 -18	1.75	F	ZN6A	STL	40258R1	ESP-D-20.101-PP	MPAPS S-D-1.101-GS/PL
10 -32	1	D	ZN6A	STL	40264R1	ESP-D-20.101-PP	MPAPS S-D-1.101-GS/PL
10 -13	5/8	RD-CR	ZN6A	STL	149921	ESP-D-51.221-NR	VOID

Nominal Size-TPI	Length	Type	Finish	Recess - Head	Panel Thickness	Part Number	Old ESP Std	Cross Reference with New MPAPS S Std
6 - 20	1/2	BSD	ZN6A	CR - PAN	.035-.090	328390C1	ESP-D-40.121-PP	MPAPS S-D-40.101-GS/PL
6 - 20	3/4	BSD	PHC	CR - OVAL	.035-.090	40063R1	ESP-D-40.121-PP	MPAPS S-D-40.101-GS/PL
8- 18	3/4	BSD	ZN6A	CR - OVAL	.035-.100	328389C1	ESP-D-40.121-PP	MPAPS S-D-40.101-GS/PL
8- 18	1	BSD	ZN6A	CR - PAN	.035-.100	368018C1	ESP-D-40.121-PP	MPAPS S-D-40.101-GS/PL
10- 16	1.25	BSD	PHC	CR - OVAL	.035-.110	40083R1	ESP-D-40.121-PP	MPAPS S-D-40.101-GS/PL
10- 16	1.5	BSD	PHC	CR - PAN	.035-.110	40000R1	ESP-D-40.121-PP	MPAPS S-D-40.101-GS/PL
10- 16	1.75	BSD	ZN6A	CR - PAN	.035-.110	28206R1	ESP-D-40.121-PP	MPAPS S-D-40.101-GS/PL
10- 16	2	BSD	ZN6A	CR - PAN	.035-.110	40008R1	ESP-D-40.121-PP	MPAPS S-D-40.101-GS/PL
6- 32	3/8	CSD	ZN6A	CR-PAN	.035-.090	328404C1	ESP-D-40.221-NPP	MPAPS S-D-40.101-GS/PL
10- 16	9/16	BSD	ZN6A	CR-PAN	.035-.110	379232C1	ESP-D-40.221-NPP	MPAPS S-D-40.101-GS/PL
1/4- 14	7/8	BSD	ZN6A	CR-PAN	.035-.175	453869C1	ESP-D-40.221-NPP	MPAPS S-D-40.101-GS/PL
10- 16	5/8	BSD	ZN6A	CR-OVAL	.110-.175	27888R1	ESP-D-40.221-NPP	MPAPS S-D-40.101-GS/PL
10- 16	9/16	BSD	ZN6A	CR-PAN	.110-.175	328396C1	ESP-D-40.221-NPP	MPAPS S-D-40.101-GS/PL
10- 16	1	BSD	ZN6A	CR-OVAL	.110-.175	27492R1	ESP-D-40.221-NPP	MPAPS S-D-40.101-GS/PL

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Nominal Size-TPI	Length	Type	Finish	Recess - Head	Panel Thickness	Part Number	Old ESP Std	Cross Reference with New MPAPS S Std
10- 16	1	BSD	ZN6A	PL-HEX	.110-.175	40326R1	ESP-D-40.221-NPP	MPAPS S-D-40.101-GS/PL
1/4- 14	1	BSD	ZN6A	PL-HEX	.110-.210	27705R1	ESP-D-40.221-NPP	MPAPS S-D-40.101-GS/PL

2.6 Section E – Thread Nuts - English Series:

Nominal Size-TPI	Length	Finish	Material	Part Number	Old ESP Std	Cross Reference with New MPAPS S Std
1/4-28	-	ZN8F	8	225851	ESP-E-1.221-NPP	MPAPS S-E-1.101-GS/PL
5/16-18	-	ZN8F	5	19296R1	ESP-E-1.221-NPP	MPAPS S-E-1.101-GS/PL
5/16-24	-	PHC	5	115729	ESP-E-1.221-NPP	MPAPS S-E-1.101-GS/PL
5/16-24	-	PLN	SST-304	21358R1	ESP-E-1.221-NPP	MPAPS S-E-1.101-GS/PL
7/16-14	-	ZN8F	5	271501	ESP-E-1.221-NPP	MPAPS S-E-1.101-GS/PL
7/16-20	-	PLN	8	456939	ESP-E-1.221-NPP	MPAPS S-E-1.101-GS/PL
7/16-20	-	ZN8F	8	24513R1	ESP-E-1.221-NPP	MPAPS S-E-1.101-GS/PL
1/2-20	-	ZN8F	5	120371	ESP-E-1.221-NPP	MPAPS S-E-1.101-GS/PL
5/8-11	-	ZN8F	8	21434R1	ESP-E-1.221-NPP	MPAPS S-E-1.101-GS/PL
1/4-28	-	ZN8A	5	120613	ESP-E-2.221-NPP	MPAPS S-E-1.101-GS/PL
5/16-24	-	ZN8A	5	124920	ESP-E-2.221-NPP	MPAPS S-E-1.101-GS/PL
7/8-14	-	ZN8A	5	219759	ESP-E-2.221-NPP	MPAPS S-E-1.101-GS/PL
1 1/4 - 12	-	ZN8A	5	219792	ESP-E-2.221-NPP	MPAPS S-E-1.101-GS/PL
7/8 - 14	-	ZN8A	5	272336	ESP-E-5.201-NPP	MPAPS S-E-1.101-GS/PL
3/8 - 24	-	ZN8A	5	125233	ESP-E-6.201-NPP	MPAPS S-E-1.101-GS/PL
1/2 - 13	-	ZN8A	5	121592	ESP-E-6.201-NPP	MPAPS S-E-1.101-GS/PL
1 1/8 - 12	-	ZN8A	5	427655	ESP-E-6.201-NPP	MPAPS S-E-1.101-GS/PL
1 1/2 - 12	-	ZN8A	5	427668	ESP-E-6.201-NPP	MPAPS S-E-1.101-GS/PL
12 - 24	-	ZN6A	1	121743	ESP-E-31.121-PP	MPAPS S-E-31.101-GS/PL
8 - 32	-	PHC	1	115998	ESP-E-31.123-NPP	MPAPS S-E-31.101-GS/PL
10 - 24	-	PHC	1	26303R1	ESP-E-31.123-NPP	MPAPS S-E-31.101-GS/PL
1/2 - 13	-	ZACLR	5	9413967	ESP-E-56.121-PP	MPAPS S-E-56.101-GS/PL
1-8	-	ZACLR	8	9414002	ESP-E-56.121-PP	MPAPS S-E-56.101-GS/PL
3/4 - 10	-	ZACLR	8	359793C1	ESP-E-56.121-PP	MPAPS S-E-56.101-GS/PL
5/8-11	-	ZACLR	8	40227R1	ESP-E-56.221-NPP	MPAPS S-E-56.101-GS/PL
3/8-16	-	ZN6A	STL	131422	ESP-E-72.102-PP	MPAPS S-E-72.101-GS/PL
3/8-16	-	PLN	SST-304	28614R1	ESP-E-72.102-PP	MPAPS S-E-72.101-GS/PL
5/16-18	-	CRB	STL	131594	ESP-E-72.103-PP	MPAPS S-E-72.101-GS/PL
5/16-24	-	PLN	SST-304	21271R1	ESP-E-72.103-PP	MPAPS S-E-72.101-GS/PL

Nominal Size -TPI	L Length	D O.D.	Material	Part Number	Old ESP Std	Cross Reference with New MPAPS S Std
5/16-18	0.62	0.75	2-202W	153749H1	ESP-E-42.123-PP	MPAPS S-E-42.101-GS/PL

Nominal Size-TPI	Nut Type	Finish	Material	Part Number	Old ESP Std	Cross Reference with New MPAPS S Std
10-32	LT-THN	ZN6A	5	21017R1	ESP-E-47.221-NPP	MPAPS S-E-47.201-GS/PL
7/16-20	LT-REG	ZN6A	8	144420H	ESP-E-47.221-NPP	MPAPS S-E-47.201-GS/PL
7/16-20	LT-REG	PLN	SST-304	40321R1	ESP-E-47.221-NPP	MPAPS S-E-47.201-GS/PL
3/4-16	LT-REG	ZN6A	5	19638R1	ESP-E-47.221-NPP	MPAPS S-E-47.201-GS/PL
3/4-16	LT-THN	ZN6A	5	102609R1	ESP-E-47.221-NPP	MPAPS S-E-47.201-GS/PL
1 - 8	HV-THN	PLN	5	19613R1	ESP-E-47.221-NPP	MPAPS S-E-47.201-GS/PL

Nominal Size-TPI	C-Width Style	D Length	E-Thick ness	F-Pilot Diam.	Part Number	Old ESP Std	Cross Reference with New MPAPS S Std
10 - 24	.438-2	0.844	0.094	0.234	403371C1	ESP-E-39.102-PP	MPAPS S-E-39.101-GS/PL

Screw	Panel Thickness Range	STYLE	D	E	J	G	F		K *	L*	M	N	H	O	PART NUMBERS	Old ESP Std	Cross Reference with New MPAPS S Std										
			LEG	TH	NUT	WIDT	H	TO	CENT	AT	DEPT	Stock Thickness															
			LEG	TH	NUT	WIDT	H	TO	CENT	AT	DEPT	IC	H	DEP	WIDT			H	HEI	GH	T	LEG	TH	WIDT	H	WIDT	H
			Max	Min	±.015			±.005																			
1/4-14 Types B & AB Tapping	.028 to .056		.90	.562	.281	.50	.042	.038	.050	.19	.040	.50	.09	.05	445362	ESP-E-70.104-PP	MPAPS S-E-70.101-GS/PL										

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Nominal Size	Across Flats	E	D	K	L	M	Rec Hole Size in Plate	Reference Weld Quality Test **				Part Number	Old ESP Std	Cross Reference with New MPAPS S Std
		Across Corners	Thickness	Projection Height	Pilot Height	Pilot Dia		.0359 Sheet		.0598 Sheet				
	Max	Min	±.010	±.002	0 -0.005	0 - 0.012	0 - 0.013	Torque Ft Lbs Min	Pushout Load Lbs Min	Torque Ft Lbs Min	Pushout Load Lbs Min			
* 1/4 - 28	0.5	0.556	0.188	0.015	0.035	0.406	0.422	30	490	35	1175	257925C1	ESP-E- 40.102- PP	MPAPS S-E- 40.101- GS/PL

Nominal Size & TPI	C		E		D		Minimum Ultimate Tensile Strength lbs	Finish	Part Number	Old ESP Std	Cross Reference with New MPAPS S Std
	Width Across Flats		Width Across Corners		Thickness						
	Basic	Max Min	Max	Min	Basic	Max Min					
1 1/4 - 18	1.812	1.815 1.803	2.093	2.038	0.734	.765 .703	55,130	PLN	19990R1 (8)	ESP-E-47.224-NR	MPAPS S-E-47.201-GS/PL
2 - 16	2.75	2.762 2.715	3.084	3.035	1	1.063 .937	138,000	PLN	19858R1 (1) (8) (TIR-.005)	ESP-E-47.224-NR	MPAPS S-E-47.201-GS/PL

Stud Diameter	Style	Series	D	E	C		F	PART NUMBERS		Old ESP Std	Cross Reference with New MPAPS S Std
			Length	Width	Arch		Thick-ness	STEEL			
					Max	Min		Phosphate Coated	Rustproof		
5/16	I	Medium	11/16	1/2	0.06	0.03	0.02		27311R1	ESP-E-69.102-PP	MPAPS S-E-69.101-GS/PL

Screw	STYLE	SINGLE BOSS								Old ESP Std	Cross Reference with New MPAPS S Std
		D	E	C		F		PART NUMBERS			
		Nut Length	Nut Width	Height		Thickness		STEEL			
				Max	Min	Max	Min	Phos. Coated	Rust- Proofed		
8-18 Types B & AB Tapping	II	0.88	0.469	0.065	0.035	0.029	0.026	28675R1	-	ESP-E-70.103-PP	MPAPS S-E-70.101-GS/PL
8-18 Types B & AB Tapping	III	1.25	0.562	0.05	0.01	0.029	0.026	40006R1	-	ESP-E-70.103-PP	MPAPS S-E-70.101-GS/PL
10-24 Machine	I	0.62	0.375	0.065	0.035	0.023	0.02	-	445135	ESP-E-70.103-PP	MPAPS S-E-70.101-GS/PL

Screw	Panel Thickness Range	STYLE	D	E	J	G	F		K *	L*	M	N		P	H	O	PART NUMBERS		Old ESP Std	Cross Reference with New MPAPS S Std				
			LEG LENGTH	NUT WIDTH	EDGE TO CENTER	T DEPTH	Stock Thickness		NOTCH DEPTH	WIDTH	HEIGHT	LEG LENGTH	TANG LENGTH	TANG HEIGHT	GAP WIDTH	GAP WIDTH	STEEL							
							Max	Min									±.015	±.005			±.015	±.015	Phos. Coated	Rust Proof
1/4-14 Types B & AB Tapping	.060 to .087	I	0.91	0.562	0.281	0.5	0.042	0.038	0.05	0.19	0.025	0.48	-	-	0.12	0.06	445363	445407	ESP-E-70.104-PP	MPAPS S-E-70.101-GS/PL				
10-24 Machine	.045 to .062	III	0.95	0.375	0.187	0.61	0.024	0.02	0.28	0.14	0.025	0.96	0.09	0.09	0.08	0.031	445443	-	ESP-E-70.105-PP	MPAPS S-E-70.101-GS/PL				
10-16 Types B & AB Tapping	.025 to .040	II	0.56	0.625	0.312	0.3	0.033	0.029	0.02	0.13	0.025	0.56	0.09	0.09	0.06	0.015	187999	-	ESP-E-70.105-PP	MPAPS S-E-70.101-GS/PL				
10-16 Types B & AB Tapping	.045 to .062	I	0.76	0.5	0.25	0.42	0.033	0.029	0.11	0.12	0.03	0.76	0.09	0.09	0.08	0.031	-	445491	ESP-E-70.105-PP	MPAPS S-E-70.101-GS/PL				

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Type	SR	R	R
Nominal Stud Diameter	3/16	-	-
Nominal Thread Size	-	10-24	5/16-18
Number of Notches	-	1 Notch - 5 Slits	6
A Formed Hole Gage Diameter, Min	0.166	-	-
Formed Hole Gage Diameter, Max	0.173	-	-
C Hexagon Across Flats, Max	0.375	0.375	0.562
Hexagon Across Flats, Min	0.368	0.368	0.533
P Hexagon Across Corners, Max	0.433	0.433	0.65
Hexagon Across Corners, Min	0.418	0.418	0.627
D Overall Height, Max	0.126	0.115	0.155
Overall Height, Min	0.106	0.095	0.135
M Stock Thickness	0.02	0.017	0.024
Finish	PART NUMBER-STEEL		
Zinc Trivalent (ZN6A)	390493C1	144567	107815
Old ESP Std	ESP-E-71.103-PP	ESP-E-71.103-PP	ESP-E-71.103-PP
Cross Reference with New MPAPS S Std	MPAPS S-E-71.101-GS/PL	MPAPS S-E-71.101-GS/PL	MPAPS S-E-71.101-GS/PL

	Nominal Size	10
P	Between Wings	7/32
D	Wing Spread	27/32
E	Wing eight	13/32
N	Radius	1/16
S	Radius	1/8
J	Radius	7/16
K	Wing Thickness	1/32
L	Wing Thickness	1/8
M	Boss Diameter	1/4
F	Boss Diameter	7/16
0	Radius	5/16
C	Boss Height	3/16
B	Threads Per Inch	24
	Pitch Diameter, Maximum	0.1672
	Pitch Diameter, Minimum	0.1629
	Minor Diameter, Maximum	0.1555
	Minor Diameter, Minimum	0.1449
Finish	PART NUMBERS - STEEL	
Zinc	144233	
Phosphate Coated	140741	
Old ESP Std	ESP-E-74.102-PP	
Cross Reference with New MPAPS S Std	MPAPS S-E-74.101-GS/PL	

2.7 Section EM – Nuts - Metric Series:

Nominal Size-TPI	Length	Finish	Material	Part Number	Old ESP Std	Cross Reference with New MPAPS S Std
M12	-	PLN	SST-304	40395R1	ESP-EM-1.221-NPP	MPAPS S-EM-1.101-GS/PL
M22	-	PHC	10	30509R1	ESP-EM-1.221-NPP	MPAPS S-EM-1.101-GS/PL

2.8 Section F – Washers - English Series:

Nominal Size	Inside Diameter	Series	Material	Finish	Part Number	Old ESP Std	Cross Reference with New MPAPS S Std
4	0.115	REGULAR	STL	ZN6A	131043	ESP-F-1.221-NPP	MPAPS S-F-1.101-GS/PL
6	0.141	REGULAR	SST	PLN	27300R1	ESP-F-1.221-NPP	MPAPS S-F-1.101-GS/PL
12	0.221	REGULAR	STL	ZN6A	121744	ESP-F-1.221-NPP	MPAPS S-F-1.101-GS/PL
7/8	0.89	HEAVY	STL	PHC	131168	ESP-F-1.221-NPP	MPAPS S-F-1.101-GS/PL
Nominal Size	Washer Type	Inside Diameter	Outside Diameter	Material	Finish	Part Number	Cross Reference with New MPAPS S Std
6	EXT-INT	0.141	0.495	-	ZN6A	178349	ESP-F-1.321-PP
5/16	EXT-INT	0.32	1.045	-	ZN6A	178542	ESP-F-1.321-PP
6	EXT	0.141	0.305	STL	ZN6A	138473	ESP-F-1.421-NPP
8	INT	0.168	0.325	STL	ZN6A	138530	ESP-F-1.421-NPP
12	CTSK-EXT	0.22	0.421	STL	ZN6A	138600	ESP-F-1.421-NPP
1/4	EXT	0.256	0.494	STL	ZN6A	121753	ESP-F-1.421-NPP

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