



CONCENTRICITY: ϕM OF RECESS TO PITCH DIAM. WITHIN .010" FOR -4 AND BELOW, WITHIN .015" FOR -5 AND ABOVE.

HEAD MARKING SHALL BE DEPRESSED (.010 MAX) AND ARRANGED AS FOLLOWS:

- FIRST SECTOR - MARK WITH BASIC PART NUMBER ("PMT" OPTIONAL) EXCEPT MARK .1120-40 SIZE WITH "4", .1380-32 SIZE WITH "6", .1640-32 SIZE WITH "8", .1640-36 SIZE WITH "8" AND OPTIONAL .1900-32 SIZE WITH "10". THESE SIZES ALSO TO BE MARKED "C" FOR A286 CRES.
- SECOND SECTOR - MARK WITH MANUFACTURER'S SYMBOL OR TRADEMARK (SYMBOL LOCATION OPTIONAL IN ANY SECTOR) LENGTH DASH NUMBER AND "L" OR "P" WHEN APPLICABLE. (SEE NOTE 9) "L" IDENTIFIES SCREWS WITH OPTIONAL LOCKING ELEMENT. "P" IDENTIFIES SCREWS WITH PATCH TYPE LOCKING ELEMENT ONLY.
- THIRD SECTOR - MARK WITH RECESS DASH NUMBER, ENCIRCLED. RECESS NUMBER SHOULD BE APPROXIMATELY 25% LARGER THAN OTHER NUMERALS IN HEAD MARKING.

TABLE I - DIMENSIONS

Ø DASH NUMBER	THREAD SIZE	NOTE 4 ØA	NOTE 1 ØD	H	ØK	+ .000 - .010	RADIUS R	MAX. U	NOTE 6 X	NOTE 7 Y	RECESS SIZE
						C					
-04	.1120-40 UNJC-3A	.183 .178	.1120 .0939	.069 .059	.042 .034	.034	.010 .005	.031	.125	.075	MT-00
-06	.1380-32 UNJC-3A	.226 .221	.1380 .1156	.086 .074		.044					MT-00
-08	.1640-32 UNJC-3A	.270 .265	.1640 .1415	.102 .088	.042 .034	.049	.020 .010	.039	.156	.094	MT-0
-08F	.1640-36 UNJF-3A	.270 .265	.1640 .1415	.102 .088		.049					MT-0
-3	.1900-32 UNJF-3A	.313 .306	.1900 .1674	.118 .103	.068 .060	.056	.020 .010	.045	.179	.107	MT-0
-4	.2500-28 UNJF-3A	.375 .367	.2500 .2243	.150 .133		.075					MT-1
-5	.3125-24 UNJF-3A	.438 .429	.3125 .2827	.183 .162	.068 .060	.094	.020 .010	.052	.208	.125	MT-1
-6	.3750-24 UNJF-3A	.563 .552	.3750 .3450	.215 .191		.113					.025 .015

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TITLE: **SCREW, FLAT FILLISTER HEAD, FULL THREAD, MORTORQ® SPIRAL DRIVE RECESS A286 CRES, SELF-LOCK AND NON-LOCK**

DRAWN G. LaMONICA	DATE 08-13-04	DRAWING NUMBER PMT-735 SHEET 1 OF 4
CHECKED: G. LaMONICA	DATE 08-18-04	

PHILLIPS SCREW CO. 301 EDGEWATER DRIVE, SUITE 320, WAKEFIELD, MA 01880 U.S.A.
PHONE: 781-213-3521 FAX: 781-224-9753

TABLE II - RECESS DIMENSIONS

Ø DASH NUMBER	THREAD SIZE	RECESS SIZE	T MAX. REF.	ØM REF.	GAGE PENETRATION		TORQUE IN-LBS MIN (8)	RAISED METAL MAX (8)
					MAX.	MIN.		
-04	.1120-40 UNJC-3A	MT-00	.052	.1210	.030	.021	13	.005
-06	.1380-32 UNJC-3A	MT-00	.052	.1210	.030	.021	30	.005
-08	.1640-32 UNJC-3A	MT-0	.065	.1704	.032	.023	50	.005
-08F	.1640-36 UNJF-3A	MT-0	.065	.1704	.032	.023	50	.005
-3	.1900-32 UNJF-3A	MT-0	.069	.1704	.036	.027	60	.005
-4	.2500-28 UNJF-3A	MT-1	.087	.2405	.039	.030	140	.005
-5	.3125-24 UNJF-3A	MT-1	.098	.2405	.050	.041	220	.005
-6	.3750-24 UNJF-3A	MT-2	.124	.3080	.062	.053	520	.006

TABLE III

DASH NO.	DASH NUMBER FOR PREFERRED LENGTH																						
	3	4	5	6	7	8	9	10	11	12	13	14	15	16	18	20	22	24	26	28	30	32	34 TO 96
LENGTH	.19	.25	.31	.38	.44	.50	.56	.62	.69	.75	.81	.88	.94	1.00	1.12	1.25	1.38	1.50	1.62	1.75	1.88	2.00	2.12 TO 6.00
LENGTH TOL.	+.00 -.03										+.00 -.06										+.00 -.09		

MATERIAL: A286 CRES PER AMS 5731, AMS 5737 OR AMS 5853
 LOCKING ELEMENT- PLASTIC PER MIL-DTL-18240 AND QPL-18240.

HEAT TREAT: 160 AND 180 KSI ULTIMATE TENSILE.

FINISH: UNPLATED SCREWS - PASSIVATE TO MEET REQUIREMENTS OF NAS4003.
 PLATED SCREWS - CADMIUM PLATE PER AMS-QQ-P-416, TYPE 11, CLASS 2. EMBRITTEMENT TEST PER QQ-P-416 DOES NOT APPLY. CADMIUM PLATED A286 CRES SCREWS SHALL BE IDENTIFIED WITH GREEN DYE OR PAINT ON THE THREAD END. MAXIMUM COVERAGE MAY INCLUDE THE CHAMFER PLUS ONE COMPLETE THREAD.

COATED SCREWS - ALUMINUM COATING PER NAS4006.

CODE: BASIC PART NUMBER = NON-LOCKING, PLATED SCREW.
 FIRST DASH NUMBER INDICATES DIAMETER. SEE TABLE I AND II.
 SECOND DASH NUMBER INDICATES LENGTH IN .0625 INCREMENTS (ROUNDED TO TWO DECIMAL PLACES). SEE TABLE III FOR TABULATIONS OF LENGTH DIMENSIONS. USE OF .25 INCH INCREMENTS IS RECOMMENDED FOR SCREWS OVER 3 INCHES LONG. INTERMEDIATE OR LONGER LENGTHS MAY BE SPECIFIED BY USE OF WHOLE DASH NUMBER ONLY.
 ADD "A" AFTER DIAMETER DASH NUMBER FOR ALUMINUM COATED SCREWS. MAY BE USED WITH "L" OR "P" CODE.
 ADD "F" AFTER DIAMETER DASH NUMBER FOR UNJF THREAD FOR -08 SIZE.
 ADD "H" AFTER DIAMETER DASH NUMBER FOR DRILLED HEAD SCREWS.
 ADD "L" AFTER DIAMETER DASH NUMBER FOR SELF-LOCKING SCREWS, OPTIONAL CONFIGURATION. DO NOT USE WITH "P" CODE.
 ADD "U" AFTER DIAMETER DASH NUMBER FOR UNPLATED SCREWS. MAY BE USED WITH "L" OR "P" CODE.
 ADD "P" AFTER DIAMETER DASH NUMBER FOR SELF-LOCKING SCREWS, PATCH TYPE LOCKING ELEMENT. DO NOT USE WITH "L" CODE.
 WHEN MULTIPLE LETTER CODES ARE USED, SEQUENCE MUST BE IN ALPHABETICAL ORDER.

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DRAWN G. LaMONICA	DATE 08-13-04	DRAWING NUMBER PMT-735
CHECKED: G. LaMONICA	DATE 08-18-04	
SHEET 2 OF 4		
PHILLIPS SCREW CO. 301 EDGEWATER DRIVE, SUITE 320, WAKEFIELD, MA 01880 U.S.A. PHONE: 781-213-3521 FAX: 781-224-9753		

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EXAMPLE OF PART NUMBER:

PMT735-3-10 = SCREW, .1900-32 THREAD, .62 LENGTH, NON-LOCKING, PLATED.
 PMT735-3A10 = SCREW, .1900-32 THREAD, .62 LENGTH, NON-LOCKING, ALUMINUM COATED.
 PMT735-3H10 = SCREW, .1900-32 THREAD, .62 LENGTH, NON-LOCKING, DRILLED HEAD, PLATED.
 PMT735-3L10 = SCREW, .1900-32 THREAD, .62 LENGTH, SELF-LOCKING, OPTIONAL CONFIGURATION, PLATED.
 PMT735-3LU10 = SCREW, .1900-32 THREAD, .62 LENGTH, SELF-LOCKING, OPTIONAL CONFIGURATION, UNPLATED.
 PMT735-3PU10 = SCREW, .1900-32 THREAD, .62 LENGTH, SELF-LOCKING, PATCH TYPE, UNPLATED.

NOTES:

- (1) DIAMETER OF UNTHREADED PORTION OF SCREW SHALL NOT BE LESS THAN MINIMUM PITCH DIAMETER NOR MORE THAN MAXIMUM MAJOR DIAMETER OF THREAD.
- (2) SCREWS LESS THAN 2 DIAMETERS IN LENGTH - COMPLETE THREADS SHALL EXTEND TO WITHIN 2 PITCHES OF BEARING SURFACE OF HEAD AND INCOMPLETE THREADS MAY EXTEND UP TO BEARING SURFACE.
SCREWS 2 DIAMETERS THRU 2 INCHES IN LENGTH - COMPLETE THREADS SHALL EXTEND TO WITHIN 2 PITCHES OF TANGENCY OF "R" AND INCOMPLETE THREADS MAY EXTEND UP TO "R" FILLET AREA.
SCREWS LONGER THAN 2 INCHES - COMPLETE THREADS SHALL EXTEND A MINIMUM OF 1.75 INCHES FROM END OF SCREW AND INCOMPLETE THREADS MAY EXTEND UP TO "R" FILLET AREA.
INCOMPLETE THREADS - SEE NAS4003.
- (3) BEARING SURFACE SQUARENESS: WITHIN .003 FIM OF SHANK DIAMETER.
- (4) CONCENTRICITY: OUTSIDE DIAMETER "A" TO THREAD PITCH DIAMETER WITHIN .008 FIM.
- (5) PROTRUSION OF LOCKING ELEMENTS SHALL BE CONTROLLED SO THAT IT WILL PASS FREELY OR WITH FINGER PRESSURE THROUGH A RING GAGE WITH DIAMETER OF .010 (+.001, -.000) GREATER THAN MAXIMUM MAJOR DIAMETER OF SCREW THREAD.
- (6) "X" MINIMUM (5 THREAD PITCHES) = REGION OF MINIMUM ENGAGEMENT WITH FEMALE THREAD REQUIRED TO MEET MIL-DTL-18240 REQUIREMENTS. LOCKING ELEMENT WITHIN "X" REGION MUST DEVELOP REQUIRED TORQUE WHEN TESTED PER MIL-DTL-18240.
- (7) FOR EASE OF STARTING, LOCKING ELEMENT SHALL NOT BE EFFECTIVE IN "Y" AREA (3 THREAD PITCHES).
- (8) MORTORQ SPIRAL DRIVE SCREW SHALL WITHSTAND MINIMUM TORQUE VALUES LISTED IN TABLE 11 WITHOUT DAMAGE TO RECESS OR DRIVER. SCREW RECESS SHALL BE TORQUE TESTED IN BOTH INSTALLATION AND REMOVAL DIRECTIONS. APPLY TABULATED TORQUE IN CW DIRECTION WITH MAXIMUM END LOAD OF 20 POUNDS. PARTS ARE ACCEPTABLE IF RAISED METAL AT EDGE OF RECESS DOES NOT EXCEED TABULATED VALUES. APPLY TABULATED TORQUE IN CCW DIRECTION WITH MAXIMUM END LOAD OF 40 POUNDS. PARTS ARE ACCEPTABLE IF TORQUE IS ATTAINED WITHOUT RESTRICTION ON RAISED METAL.
- (9) "A", ALUMINUM COATED, "H", DRILLED HEAD, AND "U", UNPLATED CODES NEED NOT APPEAR ON THE HEAD OF THE SCREW.
- (10) THE LOCKWIRE HOLE WILL BREAK THRU INTO THE RECESS. THE LOCATION OF THE DRILLED HOLE IS CONTROLLED BY THE DIMENSION "C" DEPTH AND ORIENTATION OF HOLE MUST CUT THRU THE RECESS THROAT AS SHOWN ON SHEET 1. PENETRATION THRU TOP OR BASE OF HEAD IS NOT PERMITTED. RECESS MUST BE FREE OF BURRS OR SLIVERS THAT INTERFERE WITH DRIVER ENGAGEMENT.
- (11) MAGNETIC PERMEABILITY SHALL BE LESS THAN 2.0 (AIR = 1.0) FOR FIELD STRENGTH H = 200 OERSTEDS USING A MAGNETIC PERMEABILITY INDICATOR PER ASTM A342/A342M, TEST METHOD 3.
- (12) DIMENSIONS TO BE MET AFTER PLATING.
- (13) DIMENSIONS ARE IN INCHES.

SURFACE ROUGHNESS:

(PER ASME B46.1) BEARING SURFACE OF THE HEAD, THREAD FLANKS AND THREAD ROOT 32 MICROINCHES RA
 OTHER SURFACES 125 MICROINCHES RA.

PROCUREMENT SPECIFICATION:

NAS4003, EXCEPT AS NOTED. COLD WORK OF HEAD TO SHANK FILLET IS NOT REQUIRED.
 LOCKING ELEMENT FOR SELF-LOCKING SCREWS: PER NASM5981 AND MIL-DTL-18240. ANY TYPE OF CONFIGURATION IS OPTIONAL WHEN "L" CODE IS SPECIFIED. PATCH TYPE LOCKING ELEMENT (WITH NO METAL REMOVED) IS REQUIRED WHEN "P" CODE IS SPECIFIED. LOCKING ELEMENT MUST BE SUPPLIED BY A QUALIFIED SOURCE LISTED IN QPL18240. SHIPPING NOTICE SHOULD IDENTIFY THE SUPPLIER OF SCREW AND LOCKING ELEMENT SEPARATELY. RECESS TORQUE VALUES SHALL NOT APPLY.

PREPARED FOR ROLLS-ROYCE TO REPLACE NAS400-5406.

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DRAWN G. LaMONICA	DATE 08-13-04	DRAWING NUMBER PMT-735 SHEET 3 OF 4
CHECKED: G. LaMONICA	DATE 08-18-04	
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**ROLLS-ROYCE APPROVED SOURCES OF MORTORQ® PMT-735 BOLTS
ADDITIONAL SOURCES FOR OTHER END USERS AVAILABLE FROM
PHILLIPS SCREW COMPANY UPON REQUEST**

APPROVED SOURCES OF SUPPLY	ADDRESS	IDENTITY CODE
A F FASTENERS, LTD	UNIT 14-15 GLOSSOP BROOK BUSINESS PARK GLOSSOP DERBYSHIRE SK13 7AJ ENGLAND	J
ALCOA, REDDITCH	CROSSGATE ROAD PARK FARM, REDDITCH WORCESTERSHIRE B98 7TD ENGLAND	L
SPS TECHNOLOGIES, LTD T. J. BROOKS DIV.	191 BARKBY ROAD TROON INDUSTRIAL AREA LEICESTER LE4 9HX ENGLAND	TBJ
MONOGRAM AEROSPACE FASTENERS	3423 SOUTH GARFIELD AVENUE P.O. BOX 6847 LOS ANGELES, CA 90022-0547	MH
HEARTLAND PRECISION FASTENERS	301 PRAIRIE VILLAGE DRIVE NEW CENTURY KANSAS 66031	♥
LISI VILLEFRANCHE	18 RUE JEAN VAURS I2202 VILLEFRANCHE-DE-ROUERGUE FRANCE	P

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THREAD, MORTORQ® SPIRAL DRIVE RECESS
A286 CRES, SELF-LOCK AND NON-LOCK

DRAWN L. DOUGAN	DATE 05-01-09	DRAWING NUMBER PMT-735
CHECKED: G. DILLING	DATE 05-01-09	

SHEET 4 OF 4

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