
MONOGRAM AEROSPACE FASTENERS

3423 South Garfield Avenue
Los Angeles, California 90040
Ph (323) 722-4760 * Fax (323) 721-1851
www.monogramaerospace.com

PLT5002

INSTALLATION AND INSPECTION

SPECIFICATION FOR

VISU-LOK[®] II BLIND FASTENERS

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"F"	12-06-1985	ECN#4351	_____ H. ROSS WAMBOLT DIRECTOR, QUALITY ASSURANCE
"G"	02-06-1986	ECN#4391	
"H"	08-04-1986	ECN#4585	
"J"	11-21-1986	ECN#4713	
"K"	09-01-1987	ECN#5082	_____ JOE LEE DIRECTOR OF ENGINEERING
"L"	11-11-1987	ECN#5190	
"M"	05-25-1988	ECN#5478	
"N"	09-26-2007	ECN#4298	_____ PAULA MARTIN METHODS MANAGER

(Authorizing signatures on file / printed copies for reference only)



MONOGRAM AEROSPACE FASTENERS

TABLE OF CONTENTS

SECTION		PAGE
1.0	SCOPE	3
2.0	DESCRIPTION	3
3.0	EQUIPMENT	3
4.0	GENERAL INFORMATION	3
5.0	DETAIL REQUIREMENTS	13
6.0	SELECTION OF GRIP LENGTH	14
7.0	DRIVING PROCEDURE	15
8.0	REMOVAL OF VISU-LOK® II	17
9.0	SHAVING OF VISU-LOK® II SCREWS (COREBOLTS)	17
10.0	INSPECTION AFTER INSTALLATION	17

TABLES

1	MP 550 PNEUMATIC PISTOL	4
2	MP 550 BF PNEUMATIC PISTOL	5
3	MRT 550 PNEUMATIC RIGHT ANGLE TORQUE RESPONSIVE TOOL	6
4	MRC 550 CLOSE QUARTER POWER TOOL	7
5	MRCR 250 CLOSE QUARTER RATCHET TOOL	8
6	MR 550 PNEUMATIC RIGHT ANGLE TOOL	9
7	MH75 HAND TOOL	10
8	MHC 75 HAND TOOL CLOSE QUARTER	11
9	RK5000 FASTENER REMOVAL KIT	12
10	HOLES & COUNTERSINK DIAMETERS	13
11	GRIP GAUGES	19
12	SEATING TORQUE	20

FIGURES

1	MP 550 PNEUMATIC PISTOL	4
2	MP 550 BF PNEUMATIC PISTOL	5
3	MRT 550 PNEUMATIC RIGHT ANGLE TORQUE RESPONSIVE TOOL	6
4	MRC 550 CLOSE QUARTER POWER TOOL	7
5	MRCR 250 CLOSE QUARTER RATCHET TOOL	8
6	MR 550 PNEUMATIC RIGHT ANGLE TOOL	9
7	MH75 HAND TOOL	10
8	MHC 75 HAND TOOL CLOSE QUARTER	11
9	RK5000 FASTENER REMOVAL KIT	12
10	GRIP GAUGE	14
11	TAPERED SHEET CONDITION	15
12	FLUSH HEAD HEIGHT	15
13	DESCRIPTION OF INSTALLATION	16
14	BREAK OFF GAUGES	18



MONOGRAM AEROSPACE FASTENERS

1.0 SCOPE:

This specification outlines the installation and inspection requirements considered necessary to insure the proper performance of Visu-Lok® II Blind Fasteners. The installation tooling recommendations given herein are not applicable to fasteners which have an "A" suffix (automatic installation) after the grip dash number (e.g. PLT5170-06-12A). Consult factory for details on "A" coded parts.

2.0 DESCRIPTION:

The Visu-Lok® II is a four-piece (4) blind fastener consisting of a threaded nut and screw, an expandable sleeve, and a disposable drive-nut. It is available in a variety of head styles in sizes from 5/32" diameter through 3/8" diameter and in increments of 1/16" grip lengths. Refer to the "PLT" series product drawings for available sizes and types.

3.0 EQUIPMENT:

- 3.1 In order to insure the best results, only approved pneumatic and/or hand installation tools should be used. The current list of approved tools is noted in Figures 1 through 7 for the information of the user. These tools are available from:

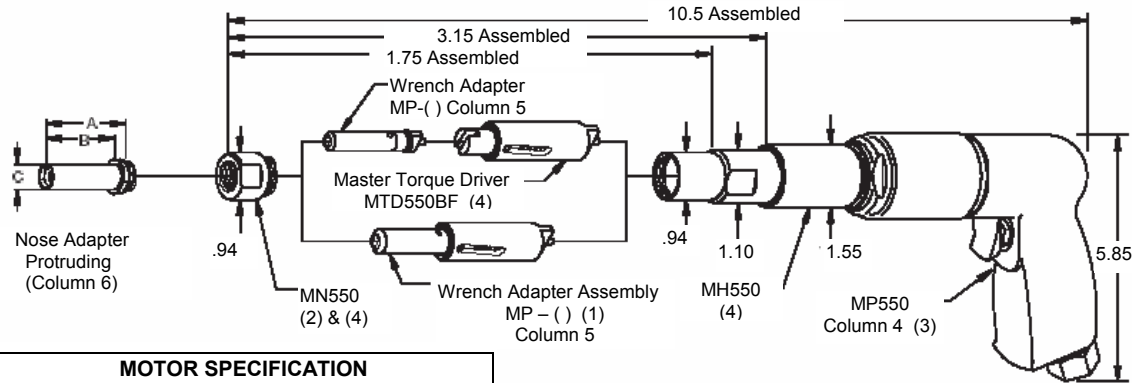
Monogram Aerospace Fasteners
3423 South Garfield Avenue
Los Angeles, CA 90040

4.0 GENERAL INFORMATION:

- 4.1 These fasteners must be used within the grip range limits specified by the manufacturer in order to insure proper performance. In the event that a borderline grip condition exists, it is recommended that the maximum grip condition be favored, example: borderline between -7 and -8 use -7 grip (see Fig. 10). This practice will help assure optimum performance in the event not all sheet gap has been removed.
(NOTE: Half grip sizes are available – contact factory).
- 4.2 The blind sleeve may be driven against an 8° maximum sloping surface (see Figure 11 and Par. 6.2).
- 4.3 It is required that only the approved tools referred to in Paragraph 3 of this specification be used for the installation of these fasteners.
- 4.4 Visu-Lok® II should not be used in cocked hole applications (see Paragraph 5.1.1).
- 4.5 Visu-Lok® II are supplied to the user with proper lubrication to insure satisfactory driving characteristics. This lubricant should not be removed or any additional lubricant added.



**FIGURE 1
MP 550 PNEUMATIC PISTOL**



MOTOR SPECIFICATION	
Operating Pressure:	90 PSIA
(Min)	
Torque Output:	380 In-Lbs
Motor Speed:	300 RPM
Air Consumption at Free Speed:	22 CFM
Horse Power:	4.3
Weight:	4 Lbs
Work Space Needed:	Portable

TABLE 1

1	2	3	4	5	6	7	8	9
BASIC DIA	TYPICAL VISU-LOK® II PART NO.	COMPLETE PNEUMATIC TOOL ASSEMBLY	PNEUMATIC MOTOR ASSEMBLY	WRENCH ADAPTER (TURNS SCREW)	NOSE ADAPTER (HOLDS NUT)	A REF.	B REF.	C REF.
5/32	-5(-)	MP550DN-5AA	MP550 (3) (5)	MP-05	MPP-08	1.37	1.25	0.56
3/16	-6(-)	MP550DN-6AA		MP-06				
1/4	-8(-)	MP550DN-8AA		MP-08				
5/16	-10	MP550DN-11AA		MP-10 ⁽¹⁾	MPPDN ¹	1.41	1.32	.69
3/8	-12 (-)	MP550DN-12AA		MP-12 ⁽²⁾	MPP-12 ⁽²⁾	1.48	1.34	.75

- (1) Combination wrench adapter and master torque driver – requires removal of master torque driver (MTD 550) supplied with the tool.
- (2) Larger male thread on nose adapter requires removal of aluminum nut (MN 550) supplied with the tool.
- (3) See Motor Breakdown section of Tooling Catalog for spare parts and assembly.
- (4) Included with MP550 pneumatic motor assembly (column 4).

The complete pneumatic assembly (column 3) includes the pneumatic motor assembly (column 4), the appropriate wrench adapter (column 5) and the appropriate nose adapter (column 6).



**FIGURE 2
MP 550 BF PNEUMATIC PISTOL**

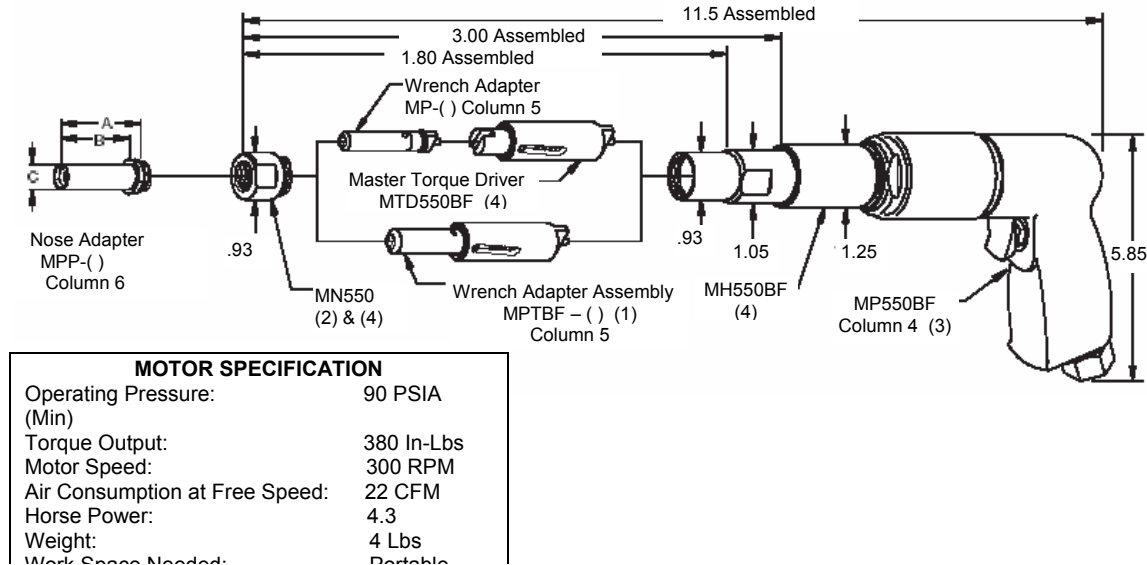


TABLE 2

1	2	3	4	5	6	7	8	9
BASIC DIA	TYPICAL VISU-LOK® II PART NO.	COMPLETE PNEUMATIC TOOL ASSEMBLY	PNEUMATIC MOTOR ASSEMBLY	WRENCH ADAPTER (TURNS SCREW)	NOSE ADAPTER (HOLDS NUT)	A REF.	B REF.	C REF.
5/32	-5(-)	MP550BFVDN-5AA	MP550BF (3) (5)	MP-05	MPP-08	1.37	1.25	0.56
3/16	-6(-)	MP550BFVDN-6AA		MP-06				
1/4	-8(-)	MP550BFVDN-8AA		MP-08				
5/16	-10	MP550BFVDN-10AA		MPTBF-10 ⁽¹⁾	MPP-12 ⁽²⁾	1.48	1.34	.75
3/8	-12 (-)	MP550BFP-12AA		MPTBF-12 ⁽²⁾				

(5)Combination wrench adapter and master torque driver – requires removal of master torque driver (MTD 550 BF) supplied with the tool.

(6)Larger male thread on nose adapter. Requires removal of aluminum nut (MN 550) supplied with the tool.

(7)See Motor Breakdown section of Tooling Catalog for spare parts and assembly.

(8)Included with MP550BF pneumatic motor assembly (column 4).

(9)The use of the housing MH550BF, the master torque driver MTD550BF, the pneumatic motor MP550BF with the appropriate wrench and nose adapters will install either Visu-Loks or Composi-Loks whereas the MP550 permits installation of Visu-Loks only.

The complete pneumatic assembly (column 3) includes the pneumatic motor assembly (column 4), the appropriate wrench adapter (column 5) and the appropriate nose adapter (column 6).



FIGURE 3
MRT550 PNEUMATIC RIGHT ANGLE TORQUE RESPONSIVE TOOL

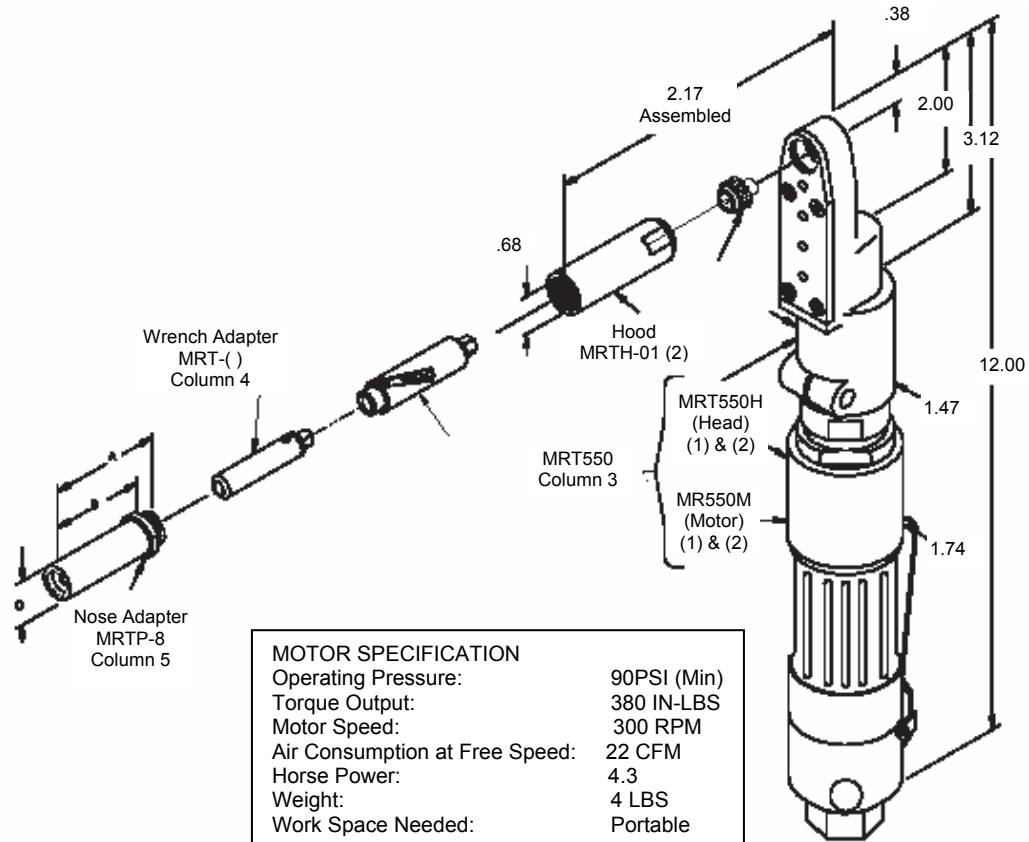


TABLE 3

1	2	3	4	5	6	7	8	9
BASIC DIA	VISU-LOK® II PART NO.	PNEUMATIC MOTOR ASSEMBLY	WRENCH ADAPTER (TURNS SCREW) (3)	NOSE ADAPTER (HOLDS NUT)	A REF.	B REF.	C REF.	COMPLETE PNEUMATIC TOOL ASSEMBLY
5/32	-5-()	MRT550 ⁽¹⁾	MRT-5	MRTP-08	.56	.56	0.68	MRT550DN-5AA
3/16	-6-()		MRT-6					MRT550DN-6AA
1/4	-8-()		MRT-8					MRT550P-8AA

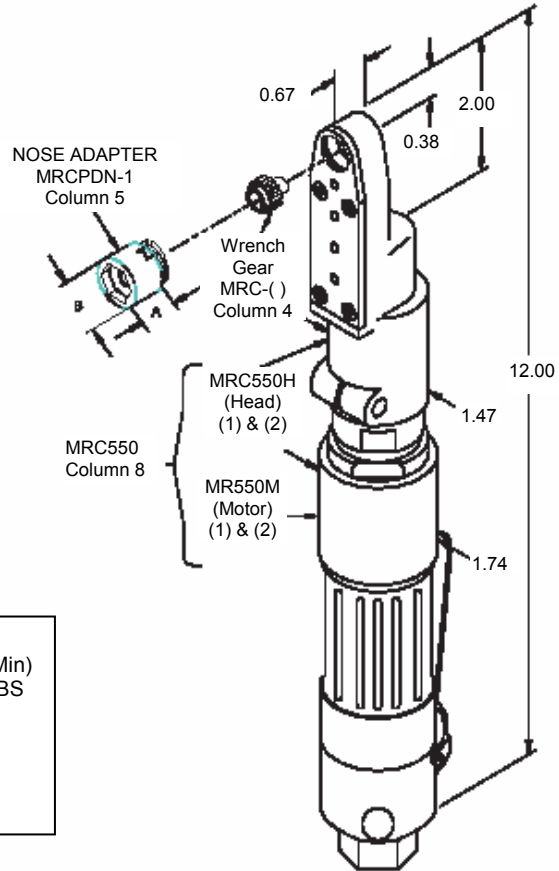
(1) See motor breakdown section of Tooling Catalog for spare parts list and assembly.

(2) Included with MRT550 pneumatic motor assembly (Column 3).

The complete pneumatic assembly (column 9) includes the pneumatic motor assembly (column 3), the appropriate wrench adapter (column 4) and the appropriate nose adapter (column 5).



FIGURE 4
MRC 550 PNEUMATIC CLOSE QUARTER POWER TOOL



MOTOR SPECIFICATION	
Operating Pressure:	90 PSI (Min)
Torque Output:	380 IN-LBS
Motor Speed:	300 RPM
Air Consumption at Free Speed:	22 CFM
Horse Power:	4.3
Weight:	4 LBS
Work Space Needed:	Portable

TABLE 4

1		2	3	4	5	6	7	8
BASIC DIA		VISU-LOK® II PART NO.	PNEUMATIC MOTOR ASSEMBLY	WRENCH ADAPTER (TURNS SCREW) (3)	NOSE ADAPTER (HOLDS NUT)	A REF.	B REF.	COMPLETE PNEUMATIC TOOL ASSEMBLY
5/32	-5-()	ALL PLT5000 SERIES	MRC550 ⁽¹⁾	MRC-05	MRCPDN-01	.44	.69	MRC550DN-5AA
3/16	-6-()			MRC-06				MRC550DN-6AA
1/4	-8-()			MRC-08				MRC550DN-8AA

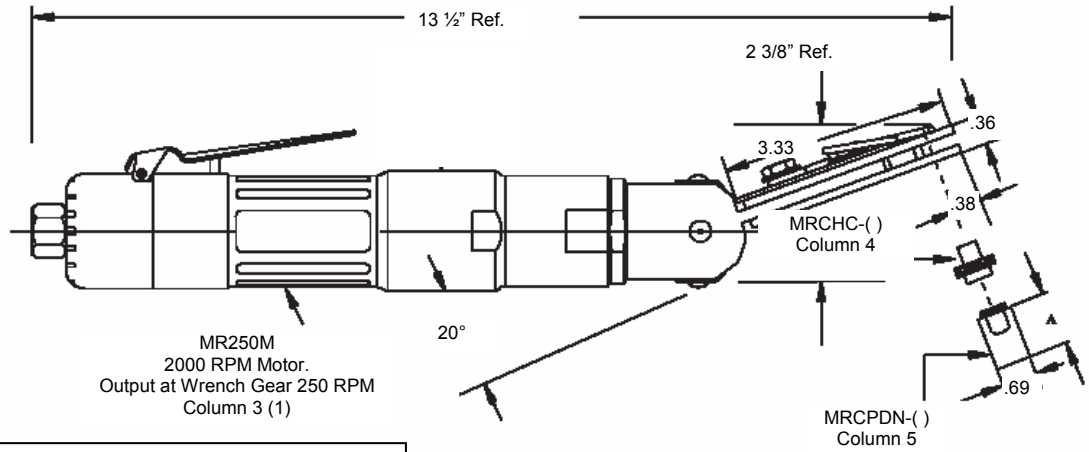
- (1) See Motor Breakdown section of the Tooling Catalog for spare parts list and assembly.
 (2) Included with MRC550 pneumatic motor assembly (column 3).

The complete pneumatic assembly (column 8) includes the pneumatic motor assembly (column 3), the appropriate wrench adapter (column 4) and the appropriate nose adapter (column 5).



MONOGRAM AEROSPACE FASTENERS

FIGURE 5
MRCR 250 CLOSE QUARTER RATCHET TOOL



MOTOR SPECIFICATION	
Operating Pressure:	90PSI
(Min)	
Torque Output:	80 IN-LBS
Motor Speed:	250 RPM
Air Consumption at Free Speed:	22 CFM
Horse Power:	4.3
Weight:	4 LBS
Work Space Needed:	Portable

TABLE 5

1	2	3	4	5	6	7
BASIC DIA	VISU-LOK® II PART NO.	PNEUMATIC MOTOR	WRENCH ADAPTER (TURNS SCREW) (2)	NOSE ADAPTER (HOLDS NUT)	A REF.	COMPLETE PNEUMATIC TOOL ASSEMBLY
5/32	-5-()	MRC250	MRHC-5	MRCRPN-01	.69	MRC250DN-5AA
3/16	-6-()		MRHC-6			MRC250DN-6AA
1/4	-8-()		MRHC-8			MRC250DN-8AA



FIGURE 6
MR 550 PNEUMATIC RIGHT ANGLE TOOL

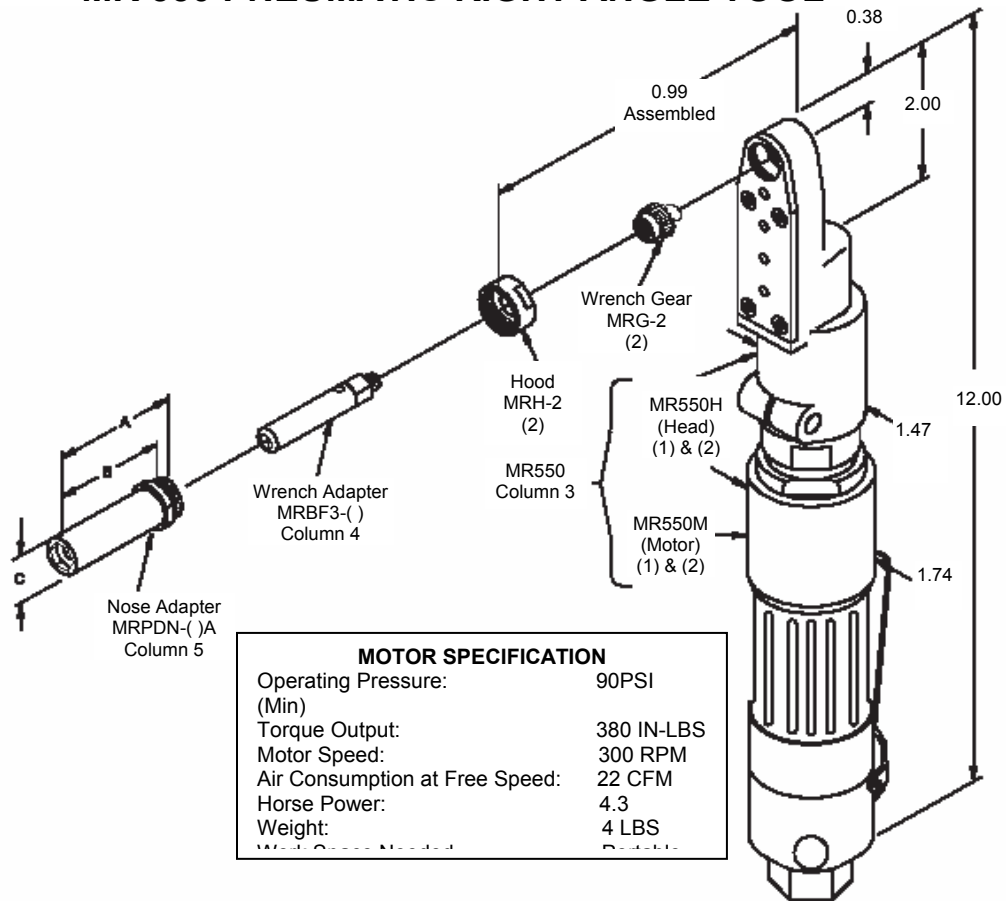


TABLE 6

1	2	3	4	5	6	7	8	9
BASIC DIA	VISU-LOK® II PART NO.	PNEUMATIC MOTOR ASSEMBLY	WRENCH ADAPTER (TURNS SCREW) (3)	NOSE ADAPTER (HOLDS NUT)	A REF.	B REF.	C REF.	COMPLETE PNEUMATIC TOOL ASSEMBLY
5/32	-5(-)	MR550	MR-5	MRPDN-1	1.63	1.51	0.56	MR550DN-5AA
3/16	-6(-)		MR-6					MR550DN-6AA
1/4	-8(-)		MR-8	MRPDN-2				MR550DN-8AA

- (1) See Motor Breakdown section of the Tooling Catalog for spare parts and assembly.
- (2) Included with MR550 pneumatic motor assembly (column 3).

The complete pneumatic assembly (column 9) includes the pneumatic motor assembly (column 3), the appropriate wrench adapter (column 4) and the appropriate nose adapter (column 5).



MONOGRAM AEROSPACE FASTENERS

**FIGURE 7
MH75 HAND TOOL**

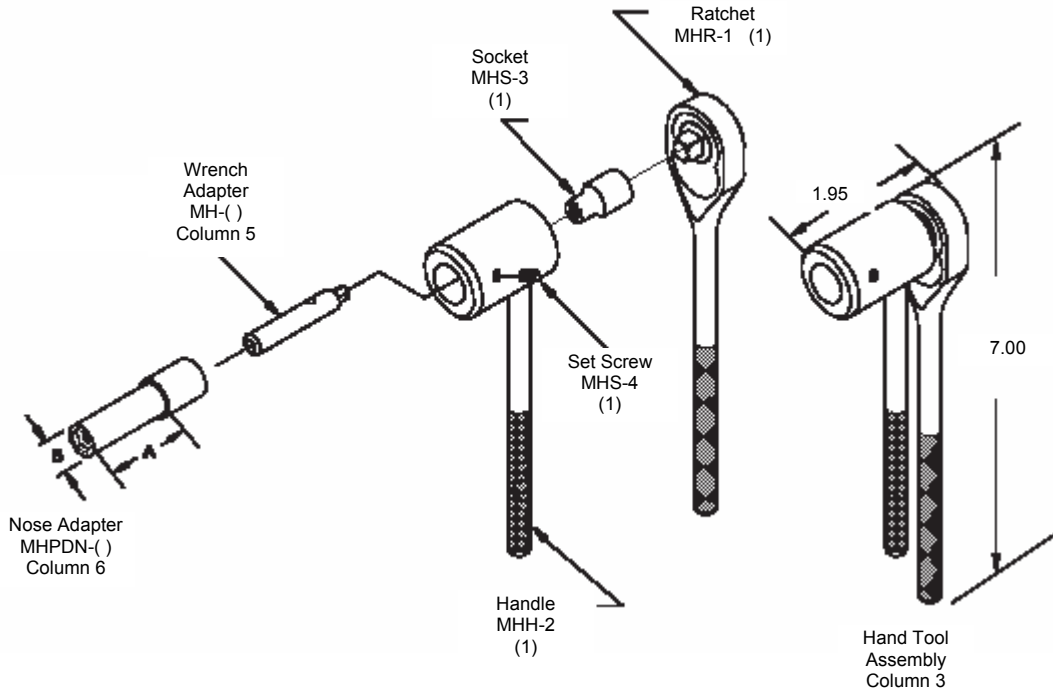


TABLE 7

1		2	3	4	5	6	8	9
BASIC DIA		TYPICAL VISU-LOK® 3 PART NO.	HAND TOOL ASSEMBLY	COMPLETE HAND TOOL ASSEMBLY	WRENCH ADAPTER (TURNS SCREW) (2)	NOSE ADAPTER (HOLDS NUT)	A Ref.	B Ref.
5/32	-5-()	ALL PLT5000 SERIES	MH75	MH75DN-5AA	MH-05	MHPDN-01	1.51	.56
3/16	-6-()			MH75DN-6AA	MH-06			
1/4	-8-()			MH75DN-8AA	MH-08	MHPDN-02	1.65	
5/16	10()			MH75DN-10AA	MH-10	MHPDN-03	1.82	
3/8	12-()			MH75DN-12AA	MH-12			

(1) Included with MH75 hand tool assembly (column 3).

The complete hand tool assembly (column 4) includes the hand tool assembly (column 3), the appropriate wrench adapter (column 5) and the appropriate nose adapter (column 6).



MONOGRAM AEROSPACE FASTENERS

**FIGURE 8
MHC75 CLOSE QUARTER HAND TOOL**

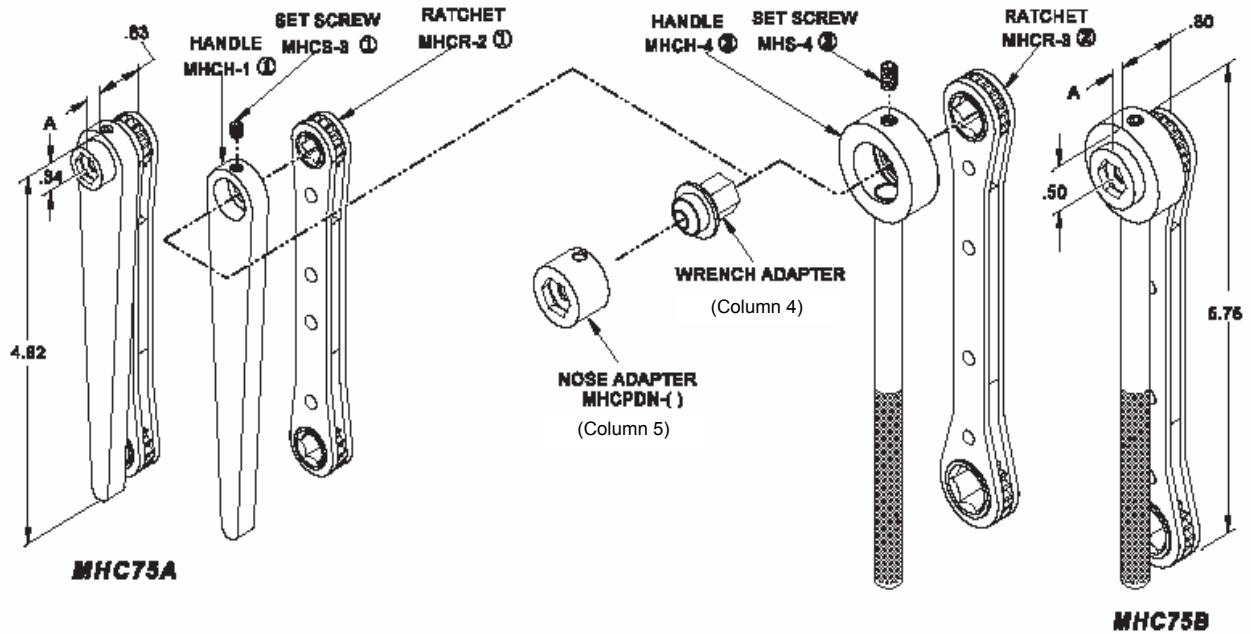


TABLE 8

1		2	3	4	5	6	A REF	B REF	C REF	D REF	E REF
BASIC DIA		VISU-LOK® II PART NO.	HAND TOOL ASSEMBLY	WRENCH ADAPTER (TURNS SCREW (3))	NOSE ADAPTER (HOLDS NUT)	COMPLETE HAND TOOL ASSEMBLY					
5/32	-5-()	ALL PLT5000 SERIES	MHC75A	MHC-05	MHCPDN-01	MHC75BF3-5AA	.65	.38	.32	4.50	.34
3/16	-6-()			MHC-06		MHC75BF3-6AA					
1/4	-8-()		MHC75B	MHC-08	MHCPDN-02	MHC75DN-8AA	.80	.38	.50	5.75	.45
5/16	10-()			MHC-10	MHCPDN-03	MHC75DN-10AA					.60
3/8	12-()			MHC-12		MHC75DN-12AA					

- (1) Included with MHC75A hand tool assembly (column 3).
- (2) Included with MHC75B hand tool assembly (column 3).

The complete hand tool assembly (column 6) includes the hand tool assembly (column 3), the appropriate wrench adapter (column 4) and the appropriate nose adapter (column 5).



MONOGRAM AEROSPACE FASTENERS

**FIGURE 9
RK5000 FASTENER REMOVAL KIT**

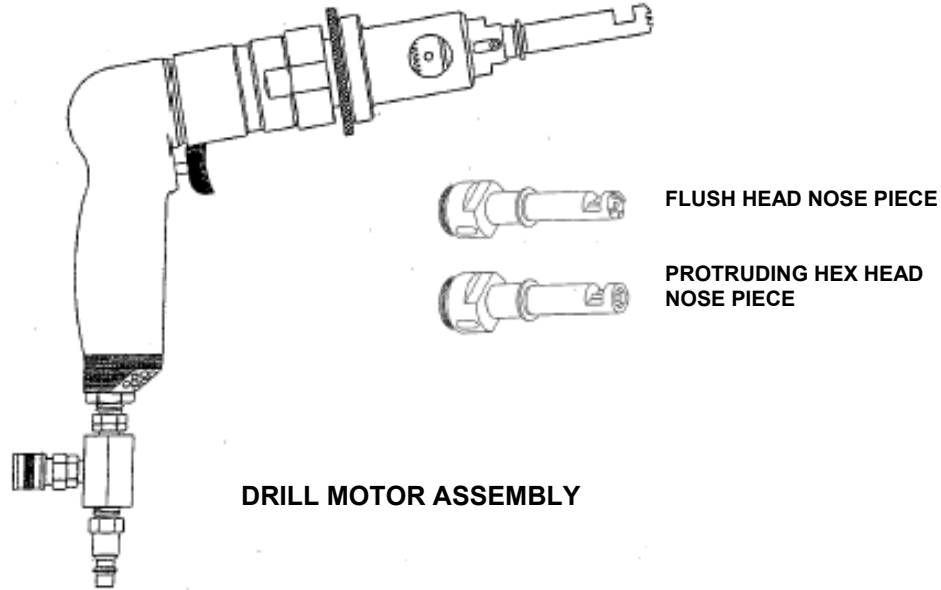


TABLE 9

NOMINAL FASTENER DIAMETER	HEAD STYLE (5)	NOSE PIECE MODULE PART NO.	CARBIDE STAR DRILL PART NO.	DRILL SIZE DIA. +.0000/.0005	DEPTH GAGE (6)
-5 (.1635)	FLUSH	RM3081-05	RM3050-05	.1540	RC3031-5
	PROTRUDING HEX	RM3082-05			
-6 (.1980)	FLUSH	RM3081-06	RM3050-06	.1890	RC3031-6
	PROTRUDING HEX	RM3082-06			
-8 (.2580)	FLUSH	RM3081-08	RM3050-08	.2500	RC3031-8
	PROTRUDING HEX	RM3082-08			
-10 (.3105)	FLUSH	RM3153-10	RM3050-10	.3020	RC3156-10
	PROTRUDING HEX	RM3152-10			
-12 (.3735)	FLUSH	RM3153-12	RM3050-12	.3590	RC3156-12
	PROTRUDING HEX	RM3152-12			

(1) This kit is used to remove alloy steel, titanium, aluminum, H-11 Visu-Loks® and similar material. Contact factory for details.

(2) Corebolt protrusion should be milled flush prior to removal.

(3) A complete tool consists of the air motor module, a nose piece module and a carbide.

(4) One blank receptacle #RC3076 should also be ordered for use with the depth to facilitate set up.



MONOGRAM AEROSPACE FASTENERS

4.6 If a fastener has been removed, the same diameter Visu-Lok® II can be reinstalled provided the hole has not been damaged. In the event that the hole has been damaged, the next larger diameter Visu-Lok® II should be used.

(Note: for flush head fasteners the countersink will have to be deepened).

4.7 Use of the fastener in special applications necessitating the use of sealants, paints, primers, etc. should be thoroughly investigated by the user prior to installation.

5.0 DETAIL REQUIREMENTS

5.1 Hole and Sheet Preparation:

5.1.1 Holes shall be drilled straight and perpendicular (within 1 1/2°) to the surface against which the manufactured head will bear. The hole shall be reasonably round and free from burrs.

The edge of fastener installation holes for both protruding and flush head style Visu-Lok® II should be given a light chamfer on the head side as a radius relief to insure proper seating of the bearing surfaces. Chamfer should be equivalent in size to 50% of the maximum head to shank fillet radius specified on product drawings.

5.1.2 The sheets to be joined should be firmly clamped up or otherwise fixtured to prevent hole misalignment.

5.1.3 The recommended hole sizes and countersink diameter for the various type Visu-Lok® II are shown in Table 10. The countersink diameters shown may be adjusted to suit a specific manufacturer's flushness requirements, as desired.

TABLE 10

DIA. DASH NO.	BASIC FASTENER SIZE (IN.)	ACTUAL FASTENER DIAMETER (IN.)	INSTALLATION HOLE SIZE +.003/-.000 (IN.)	COUNTERSINK DIAMETER (IN.)		
				100° FLUSH TENSION HEAD & 130° FLUSH SHEAR HEAD	100° FLUSH HEAD (ALUMINUM VISU-LOK II)	100° FLUSH SHEAR HEAD
-5	5/32	.1625 - .1645	.1650	.325/.332	.277/.283	.2564/.2612
-6	3/16	.1970 - .1990	.1990	.378/.385	.332/.346	.2966/.3016
-8	1/4	.2580 - .2600	.2600	.499/.507	.458/.472	.3898/.3948
-10	5/16	.3095 - .3115	.3120	.626/.635	-----	.4689/.4739
-12	3/8	.3725 - .3745	.3750	.752/.762	-----	.5554/.5604

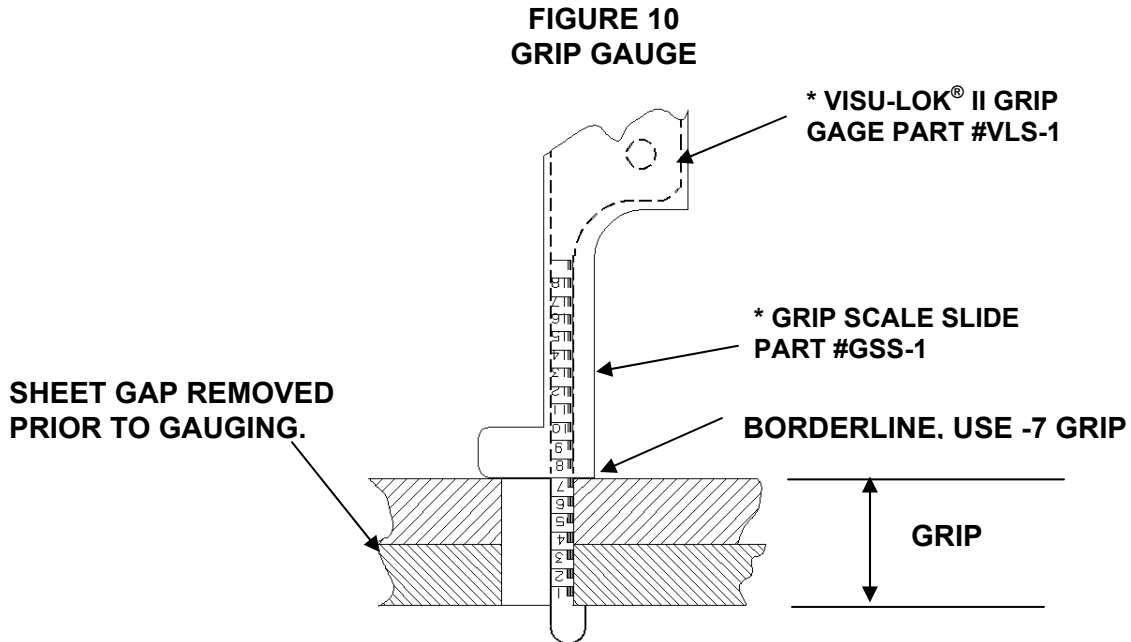


MONOGRAM AEROSPACE FASTENERS
TABLE 10 CONTINUED

DIA. DASH NO.	BASIC FASTENER SIZE (IN.)	ACTUAL FASTENER DIAMETER (IN.)	INSTALLATION HOLE SIZE +.003/-.000 (IN.)	COUNTERSINK DIAMETER (IN.)		
				100° FLUSH TENSION HEAD & 130° FLUSH SHEAR HEAD	100° FLUSH HEAD (ALUMINUM VISU-LOK II)	100° FLUSH SHEAR HEAD
	1/64 O/S					
-5	5/32	.1780/.1800	.1800	.325/.332	.277/.283	.2564/.2612
-6	3/16	.2130/.2150	.2150	.378/.385	.332/.346	.2966/.3016
-8	1/4	.2740/.2760	.2760	.499/.507	.458/.472	.3898/.3948
-10	5/16	.3250/.3270	.3270	.626/.635	----	.4689/.4739
-12	3/8	.3880/.3900	.3900	.752/.762	----	.5554/.5604
	1/32 O/S					
-6	3/16	.2280/.2300	.2300	.378/.385	----	.338/.343
-8	1/4	.2890/.2910	.2910	.499/.507	----	.432/.437
-10	5/16	.3405/.3425	.3430	.626/.635	----	.500/.505
-12	3/8	.4035/.4055	.4060	.752/.762	----	.587/.592

6.0 SELECTION OF GRIP LENGTH:

6.1 Prior to installation, the grip length should be checked with a grip gauge (see Figure 10). Refer to product drawings for available grip ranges. All sheet gap should be removed prior to gauging for proper grip.



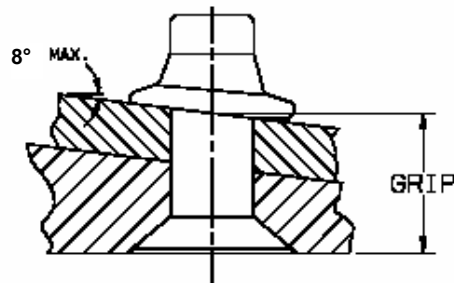
* VISU-LOK GRIP GAGE AND GRIP SCALE SLIDE AVAILABLE AS AN ASSEMBLY – PART #VLS-1A



MONOGRAM AEROSPACE FASTENERS

6.2 In those applications where a tapered sheet condition exists on the blind side, the grip length must be determined by the depth at the centerline of the hole. In no case should this taper exceed 8° , in order to insure proper performance of the fastener. (Refer to Figure 11).

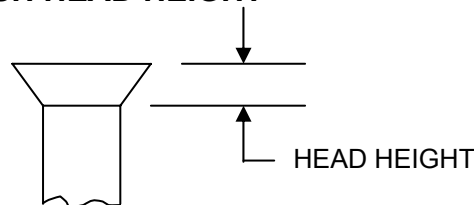
**FIGURE 11
TAPERED SHEET CONDITION**



6.3 In those applications where the grip is a borderline condition or varies due to tolerance build-up, it is recommended that a maximum grip condition be favored, example : borderline between -7 and -8 use -7 grip (see Fig. 10). This practice will help to assure optimum performance.

Note: The minimum grip for a flush-type shall in no case ever be less than the nut head height (see Figure 12).

**FIGURE 12
FLUSH HEAD HEIGHT**



7.0 DRIVING PROCEDURE:

7.1 Visu-Lok® II are driven with special tools and equipment designed specifically for this job. The correct tools and equipment are listed in Paragraph 3 of this specification.

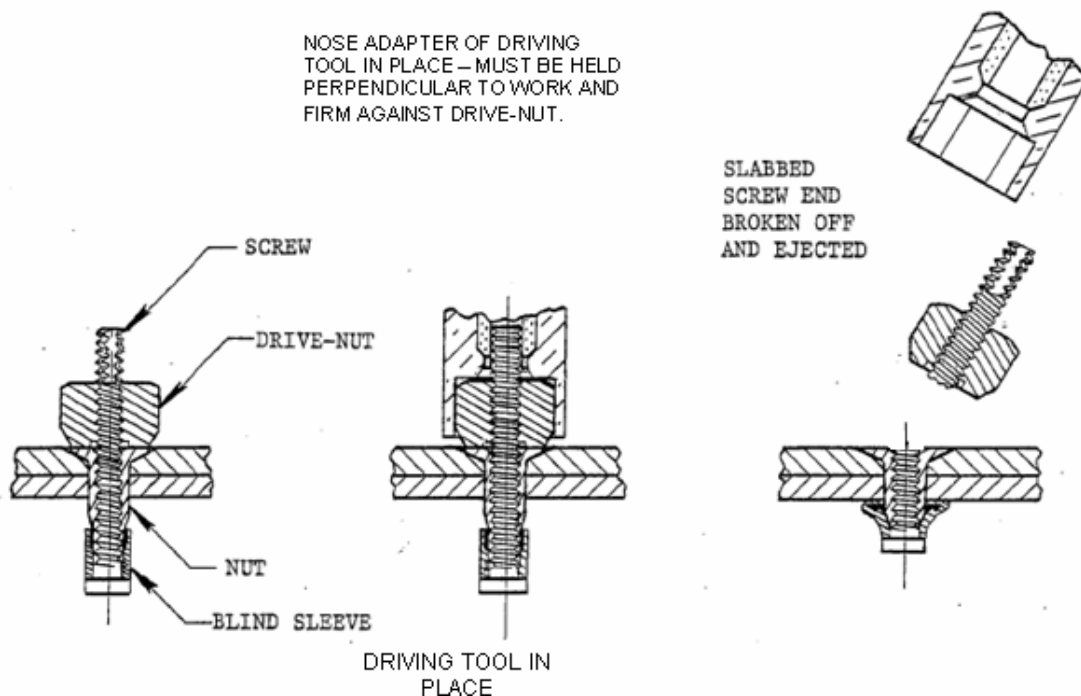
7.2 Insert the fastener in the hole. The Visu-Lok® II can be inserted in a properly prepared hole without interference.



MONOGRAM AEROSPACE FASTENERS

- 7.3 The wrenching part of the adapter assembly is inserted over the slabbed portion of the screw and the nose piece engages the drive nut. The driving tool must be held firmly against the head of the fastener and perpendicular to it. Cocking of the driver may cause premature stem break-off before the fastener is completely driven.
- 7.4 The driving force is then applied by the pneumatic power tool or by a hand driving tool. As power is applied, the screw is turned as the nut is held stationary by the drive-nut which in turn is held stationary by the nose piece. The sleeve is compressed between the screw head and the conical end of the nut and is drawn over the tapered nose portion of the nut. The sleeve is thereby expanded subsequently forming a head against the mating surface being joined. As driving is completed, the slabbed portion of the screw is snapped off and ejected along with the drive-nut (see Figure 13). The resultant break-off should be within the limits specified on the product drawings.
- 7.5 In those instances where special driving tools are adopted by the user, wrenching speed of this tooling shall not exceed 600 RPM.

FIGURE 13
DESCRIPTION OF INSTALLATION





8.0 REMOVAL OF VISU-LOK® II:

Visu-Lok® II may be removed with the tooling shown in Figure 9 of this specification. Complete kits are available from Monogram Aerospace Fasteners. Contact factory for details.

9.0 SHAVING OF VISU-LOK® II SCREWS (COREBOLTS)

9.1 The corebolt protrusion may be shaved flush with the sheet surface using a standard rivet shaver equipped with a carbide cutter. The shaver must turn at a speed of approximately 10,000 RPM. The cutter and skirt diameter must be large enough to permit the corebolt to be approximately 3/16" from the center of the cutter. The shaver will not mill properly if the corebolt is centered on the cutter. A one inch diameter cutter will be required for most fasteners.

10.0 INSPECTION AFTER INSTALLATION:

10.1 The stem break-off position of the screw in the head of the nut is a positive indication that the fastener has been properly installed (provided that the correct grip length has been used).

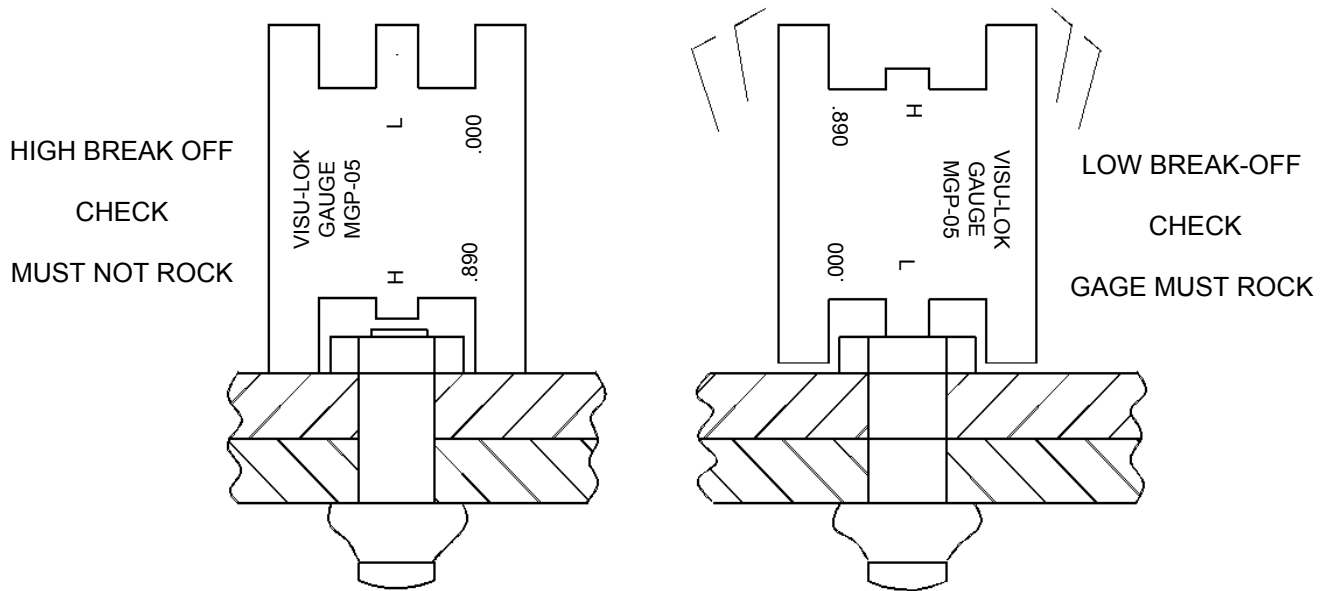
10.2 Product drawings list the acceptable stem break-off limits for a properly installed fastener. Stem break-off higher than the limits shown is an indication that the fastener is too long; stem break-off falling below the limits shown is an indication that the fastener is too short. In either case, the fastener should be removed, the grip length carefully checked, and then replaced by the next longer or shorter grip fastener, as necessary. Stem break-off gauges are available for inspection of installed fasteners. Refer to Table 11 and Figure 14.

10.3 If desired, clamp-up may be determined indirectly by seating torque. Adapt the applicable torque adaptor to a suitable torque wrench, engage the recess in the fastener head and measure the torque required to rotate the fastener in a counter-clockwise direction. The ability of the fastener to resist rotation when subjected to the torque values in Table 12 below is a good indication that the required preload has been imparted to the joint.

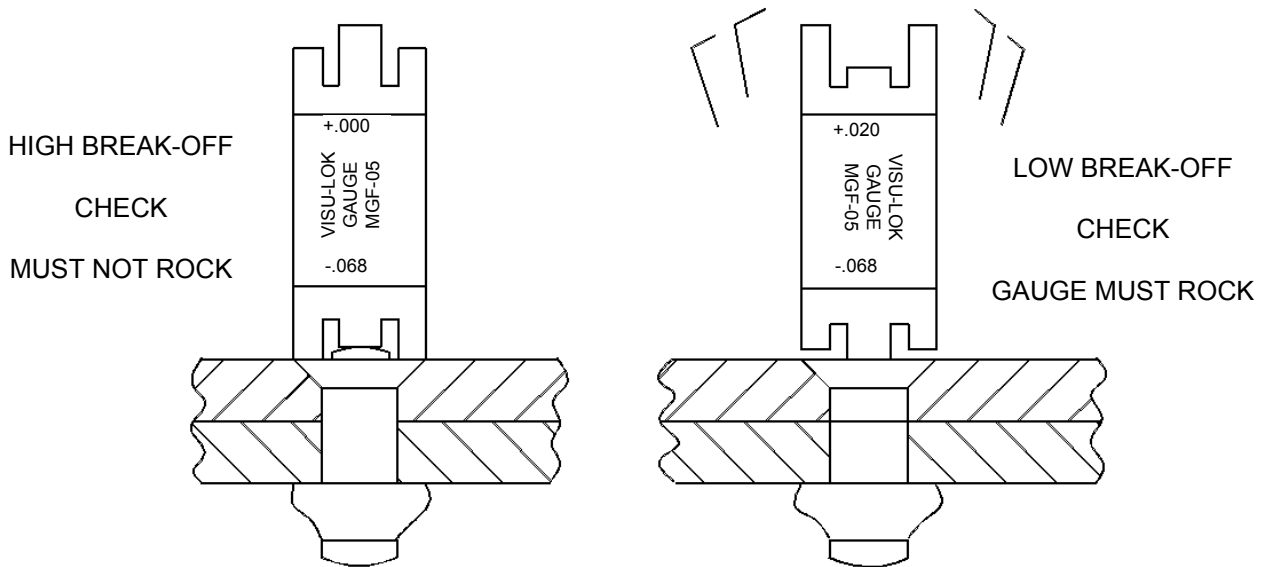


MONOGRAM AEROSPACE FASTENERS

FIGURE 14



MONOGRAM LEAF GAGES: TO CHECK BREAK-OFF ON PROTRUDING HEAD VISU-LOKS, PLACE LEAF GAGE ON THE INSTALLED FASTENER AS SHOWN. WHEN CHECKING HIGH BREAK-OFF, THE GAGE PRONGS MUST STRADDLE BOTH SIDES OF THE SCREW. IF THE GAGE ROCKS, THE BREAK-OFF IS TOO HIGH WHEN CHECKING LOW BREAK-OFF, REPEAT THE PROCEDURE USING LOW BREAK-OFF END OF THE GAGE AS SHOWN. IF GAGE DOES NOT ROCK, THE BREAK-OFF IS TOO LOW.



MONOGRAM ROUND GAGES: TO CHECK BREAK-OFF ON FLUSH HEAD VISU-LOKS, PLACE GAGE ON THE INSTALLED FASTENER AS SHOWN. WHEN CHECKING HIGH BREAK-OFF, THE GAGE PRONGS MUST STRADDLE BOTH SIDES OF THE SCREW. IF THE GAGE ROCKS, THE BREAK-OFF IS TOO HIGH. WHEN CHECKING LOW BREAK-OFF, REPEAT THE PROCEDURE USING LOW BREAK-OFF END OF GAGE AS SHOWN. IF GAGE DOES NOT ROCK, THE BREAK-OFF IS TOO LOW.



MONOGRAM AEROSPACE FASTENERS

TABLE 11

PART NUMBER	DIAMETER SIZE	FLUSH HEAD ROUND GAGE PART NUMBER	PROTRUDING HEAD LEAF GAGE PART NUMBER	SCREW BREAK-OFF LIMITS
PLT 5110 PLT 5150 PLT 5170	-5 -6 -8 -10 -12	MGF-05 MGF-06 MGF-08 MGF-10 MGF-12	----	+ .020/- .068 + .015/- .073 + .010/- .078 + .010/- .083 + .010/- .093
PLT 5120	-5 -6 -8 -10 -12	MGFA-05 MGFA-06 MGFA-08 MGFA-10 MGFA-12	----	+ .082/- .006 + .072/- .016 + .072/- .026 + .072/- .031 + .072/- .031
PLT 5130	-5 -6 -8	MGR-05 MGFB-06 MGFB-08	----	+ .088/+ .000 + .098/+ .010 + .098/+ .010
PLT 5210 PLT 5250 PLT 5270	-5 -6 -8 -10 -12	----	MGP-05 MGP-06 MGP-08 MGP-10 MGP-12	+ .088/+ .000 + .098/+ .010 + .135/+ .047 + .146/+ .043 + .152/+ .049
PLT 5220	-5 -6 -8 -10 -12	----	MGP-05 MGPA-06 MGPA-08 MGPA-10 MGPA-12	+ .088/+ .000 + .103/+ .015 + .130/+ .032 + .130/+ .027 + .130/+ .027
PLT 5230	-5 -6 -8	----	MGP-05 MGPA-06 MGP-08	+ .088/+ .000 + .103/+ .015 + .135/+ .047
PLT 5410 PLT 5420 PLT 5470	-5 -6 -8 -10 -12	MGR-05 MGR-06 MGR-08 MGR-10 MGR-12	----	+ .088/+ .000 + .088/+ .000 + .098/+ .000 + .103/+ .000 + .103/+ .000



MONOGRAM AEROSPACE FASTENERS

**TABLE 12
SEATING TORQUE**

FASTENER SIZE	TORQUE ADAPTOR PART NO.	SEATING TORQUE IN. LB. MINIMUM
-5	MHTFDN-5 MHTPDN-5	4
-6	MHTFDN-6 MHTPDN-6	6
-8	MHTFDN-8 MHTPDN-8	10
-10	MHTFDN-10 MHTPDN-10	20
-12	MHTFDN-12 MHTPDN-12	30