ski-doo®

SHOP MANUAL 2003

REV™ Series

BOMBARDIER

484 200 046

2003
Shop Manual

REV SERIES

MX Z 600 HO SPORT
MX Z 600 HO X
MX Z 600 HO
MX Z 600 HO 007 SPECIAL EDITION
MX Z 800 SPORT
MX Z 800 X

BOMBARDIER
RECREATIONAL PRODUCTS

Legal deposit:

National Library of Quebec
National Library of Canada 2002

Technical Publications
Bombardier Inc.
Valcourt (Quebec) Canada

Printed in Canada

TABLE OF CONTENTS

TABLE OF CONTENTS

SAFETY NOTICE

This manual has been prepared as a guide to correctly service and repair some 2003 Ski-Doo snowmobiles. See model list below.

This edition was primarily published to be used by snowmobile mechanic technicians who are already familiar with all service procedures relating to Bombardier made snowmobiles. Mechanic technicians should attend continuous training courses given by Bombardier Training Dept.

Please note that the instructions will apply only if proper hand tools and special service tools are used.

This *Shop Manual* uses technical terms which may be slightly different from the ones used in the *Parts Catalog*.

It is understood that this manual may be translated into another language. In the event of any discrepancy, the English version shall prevail.

The content depicts parts and/or procedures applicable to the particular product at time of writing. *Service* and *Warranty Bulletins* may be published to update the content of this manual. Make sure to read and understand these.

In addition, the sole purpose of the illustrations throughout the manual, is to assist identification of the general configuration of the parts. They are not to be interpreted as technical drawings or exact replicas of the parts.

The use of Bombardier parts is most strongly recommended when considering replacement of any component. Dealer and/or distributor assistance should be sought in case of doubt.

The engines and the corresponding components identified in this document should not be utilized on product(s) other than those mentioned in this document.

Torque wrench tightening specifications must strictly be adhered to. Locking devices (ex.: locking tab, self-locking fasteners, etc.) must be installed or replaced with new ones. If the efficiency of a locking device is impaired, it must be renewed.

This manual emphasizes particular information denoted by the wording and symbols:

⚠ WARNING

Identifies an instruction which, if not followed, could cause serious personal injury including possibility of death.

CAUTION: Denotes an instruction which, if not followed, could severely damage vehicle components.

NOTE: Indicates supplementary information needed to fully complete an instruction.

Although the mere reading of such information does not eliminate the hazard, your understanding of the information will promote its correct use. Always use common shop safety practice.

Bombardier Inc. disclaims liability for all damages and/or injuries resulting from the improper use of the contents. We strongly recommend that any services be carried out and/or verified by a highly skilled professional mechanic. It is understood that certain modifications may render use of the vehicle illegal under existing federal, provincial and state regulations.

INTRODUCTION

This *Shop Manual REV Series* covers the following Bombardier made 2003 snowmobiles:

MODELS	MODEL NUMBER
MX Z SPORT 600 HO (BLACK-YELLOW) (U.S./CDN)	2283 2285
MX Z SPORT 600 HO (BLACK-BLACK) (U.S./CDN)	2284 2286
MX Z SPORT 600 HO (R) (BLACK-YELLOW) (U.S./CDN)	2289 2291 2293 2287
MX Z SPORT 600 HO (R) (BLACK-BLACK) (U.S./CDN)	2288 2290 2292 2294
MX Z SPORT 600 HO (R) (BLACK-BLACK) (EUR)	2612
MX Z SPORT 600 HO (R) (ORANGE-YELLOW) (EUR)	2649
MX Z X 600 HO (R) (BLACK-BLACK) (U.S./CDN)	2256 2258
MX Z X 600 HO (R) (Orange - Yellow) (U.S./CDN)	2255 2257
MX Z SPORT 800 (BLACK-YELLOW) (U.S./CDN)	2259 2265
MX Z SPORT 800 (BLACK-BLACK) (U.S./CDN)	2260 2666
MX Z SPORT 800 (R) (BLACK-BLACK) (U.S./CDN)	2665 2274 2268 2663 2270 2272
MX Z SPORT 800 (R) (BLACK-YELLOW) (U.S./CDN)	2267 2269 2271 2273 2664
MX Z X 800 (R) (BLACK-BLACK) (EUR)	2648
MX Z X 800 (R) (ORANGE-YELLOW) (EUR)	2611
MX Z X 800 (R) (ORANGE-YELLOW) (U.S./CDN)	2654 2228 2230
MX Z X 800 (R) (BLACK-BLACK) (U.S./CDN)	2231 2229 2655

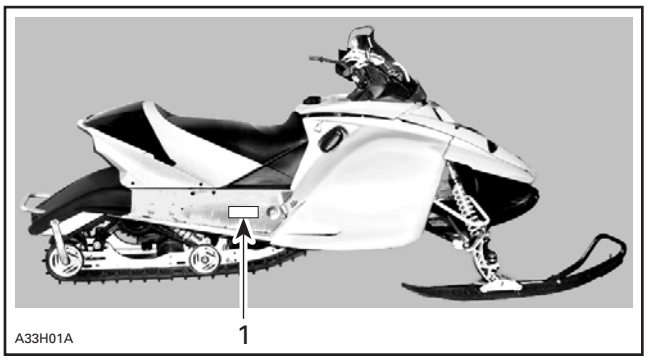
MODELS	MODEL NUMBER
MX Z (E) 007 SPECIAL EDITION 600 HO (R) (SYLVER-BLACK) (U.S./CDN)	2675
MX Z (E) 007 SPECIAL EDITION 600 HO (R) (SYLVER-BLACK) (EUR)	2678
MX Z (E) SPORT 600 HO (R) (BLACK-BLACK) (U.S./CDN)	2298 2305 2300 2296
MX Z (E) SPORT 600 HO (R) (BLACK-YELLOW) (U.S./CDN)	2299 2304 2297 2295
MX Z (E) SPORT 600 HO (R) (BLACK-BLACK) (U.S./CDN)	2659 2661
MX Z (E) SPORT 600 HO (R) (ORANGE-YELLOW) (U.S./CDN)	2660 2658
MX Z (E) SPORT 800 (R) (BLACK-BLACK) (U.S./CDN)	2282 2276 2278 2280 2281 2669
MX Z (E) SPORT 800 (R) (BLACK-YELLOW) (U.S./CDN)	2277 2279 2281 2668 2275
MX Z (E) X 800 HO (R) (BLACK-BLACK) (U.S./CDN)	2653 2651 2657
MX Z (E) X 800 HO (R) (ORANGE -YELLOW) (U.S./CDN)	2652 2650 2656

All the above listed models are REV Series models.

TYPICAL — REV SERIES

VEHICLE IDENTIFICATION NUMBER

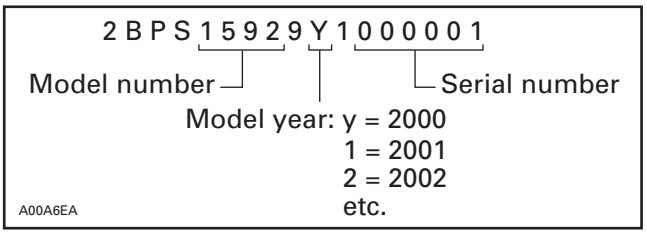
Vehicle Identification Number Location



TYPICAL

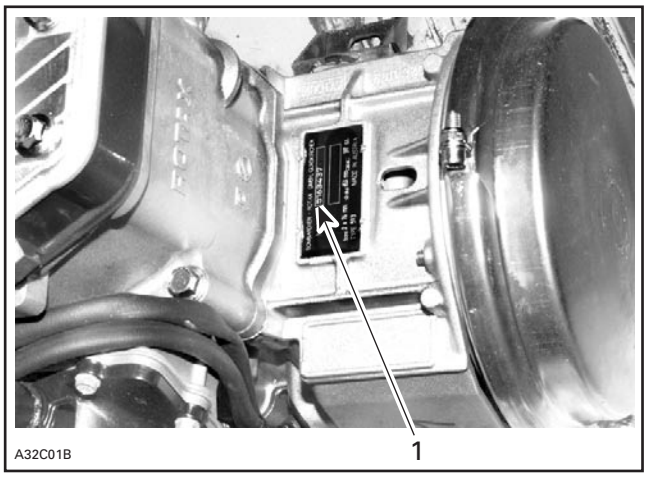
1. Vehicle identification number

Identification Number Meaning



ENGINE SERIAL NUMBER

Engine Serial Number Location



TYPICAL

1. Engine serial number

LIST OF ABBREVIATIONS USED IN THIS MANUAL

A	ampere
amp	ampere
A•h	ampere-hour
AC	alternate current
ACM	acceleration and control modulator
ADSA	advanced direct shock action
AMG	absorbed glass mat
BDC	bottom dead center
BTDC	before top dead center
°C	degree Celsius
cc	cubic centimeter
CDI	capacitor discharge ignition
CTR	center
cm	centimeter
cm^2	square centimeter
cm^3	cubic centimeter
DC	direct current
DESS	digitally encoded security system
DPM	digital performance management
°F	degree Fahrenheit
FC	fan cooled
fl. oz	fluid ounce

ft	foot
GRD	ground
H.A.C.	high altitude compensator
hal.	halogen
HI	high
IFP	internal floating piston
imp. oz	imperial ounce
in	inch
in^2	square inch
in^3	cubic inch
k	kilo (thousand)
kg	kilogram
km/h	kilometer per hour
kPa	Kilopascal
L	liter
lb	pound
lbf	pound (force)
lbf/in^2	pound per square inch
LH	left hand
LO	low
LT	long track
m	meter
MAG	magneto
Max.	maximum
Min.	minimum
mL	milliliter
mm	millimeter
M.E.	millennium edition
MPEM	multi-purpose electronic module
MPH	mile per hour
N	newton
N.A.	not applicable
no.	number
00.0	continuity
0.L	open line (open circuit)
O.D.	outside diameter
OPT	optional
oz	ounce
P/N	part number
PSI	pound per square inch
PTO	power take off
R	rectangular
RAS	Response Angle Suspension
RH	right hand
RAVE	Rotax adjustable variable exhaust
RER	Rotax electronic reverse
RPM	revolution per minute
RMS	root mean square
RRIM	reinforced reaction injection molding
Sp. Gr.	specific gravity
ST	semi-trapez
TDC	top dead center
TRA	total range adjustable
U.S. oz	ounce (United States)
V	volt
Vac	volt (alternative current)
VSA	variable sheave angle

ARRANGEMENT OF THE MANUAL

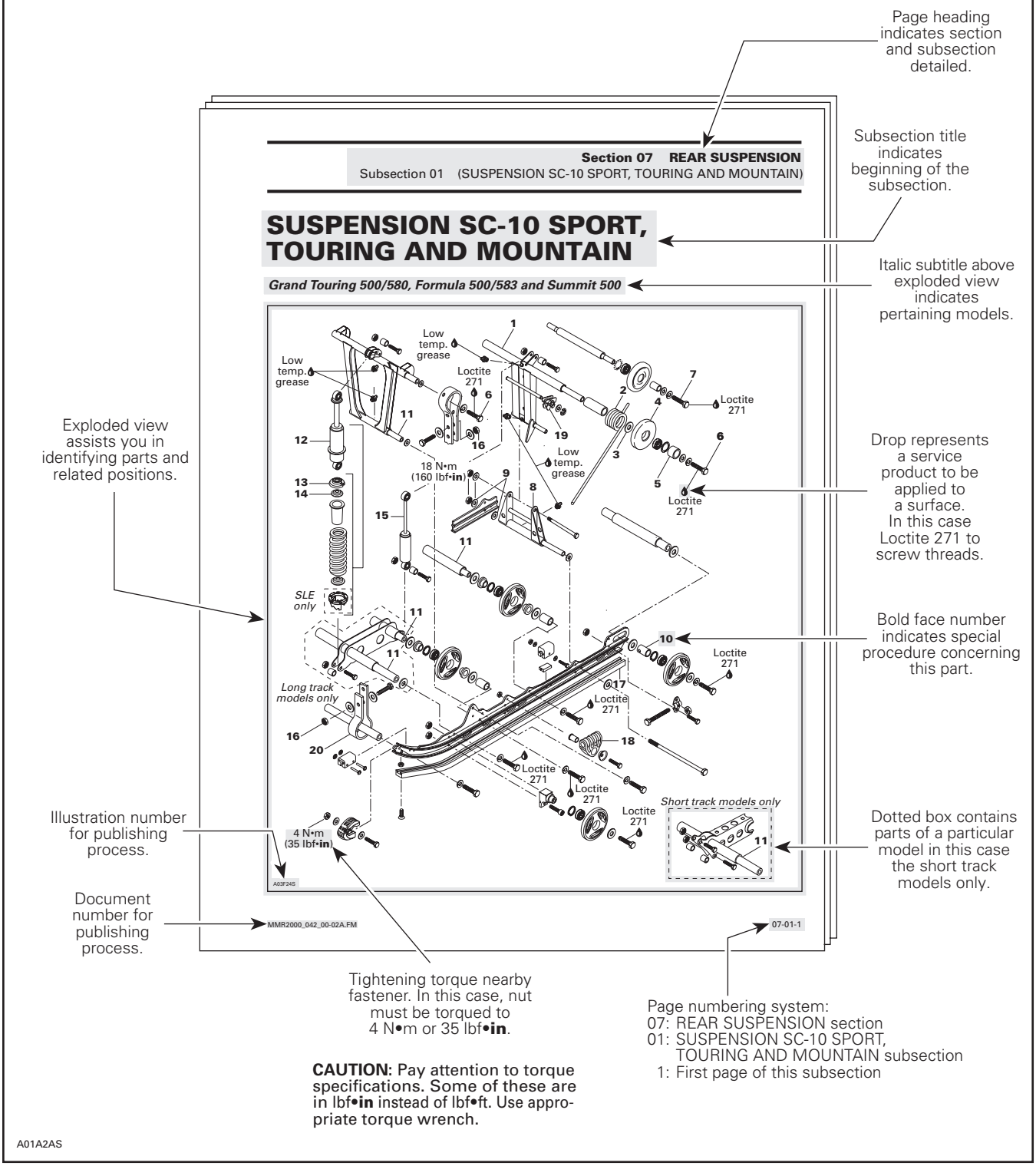
The manual is divided into 11 major sections:

01 SERVICE TOOLS AND SERVICE PRODUCTS
02 MAINTENANCE
03 TROUBLESHOOTING
04 ENGINE
05 TRANSMISSION
06 ELECTRICAL
07 REAR SUSPENSION
08 STEERING/FRONT SUSPENSION
09 BODY/FRAME
10 TECHNICAL DATA
11 WIRING DIAGRAMS

Each section is divided in various subsections, and again, each subsection has one or more division.

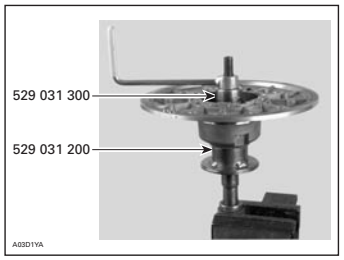
This *Shop Manual* uses technical terms wich may be slightly different from the ones in the parts catalog.

TYPICAL PAGE



TYPICAL PAGE

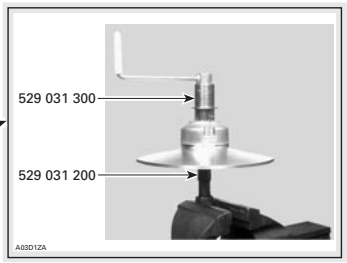
Turn puller handle and sliding half at once to extract the bushing.



IMPORTANT: Large bushing retaining screws and washers must be removed before small bushing installation.

Coat bushing outside diameter with Loctite 609 (P/N 413 703 100).

Install bushing as following photo.



ASSEMBLY

Came Slider Shoe

When replacing slider shoes **no. 4**, always install a new set (3 shoes) to maintain equal pressure on the cam.

Assemble driven pulley components by reversing the disassembly procedure.

Cam

Coat cam **no. 18** interior with anti-seize lubricant.

INSTALLATION

Countershaft

CAUTION: Always apply anti-seize lubricant (P/N 413 701 000) on the countershaft before final pulley installation.

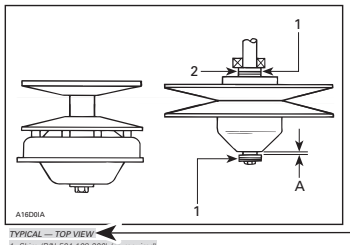
A-Series and B-Series Only

Should installation procedure be required, refer to BRAKE then look for **Brake Disc and Countershaft Bearing Adjustment**.

Reinstall the pulley on the countershaft by reversing the removal procedure.

All Models

Check end play of driven pulley on countershaft by pushing pulley towards outer housing so that the inner shims (P/N 504 108 200) contact it. Measure end play at the mounting screw end between shim(s) and puley. See illustration.



TYPICAL — TOP VIEW.
1. Shim (P/N 504 108 200) (as required)
2. Contact
A. 0 to 1 mm (0 to 3/64 in)

Torque retaining screw **no. 13** to 25 N•m (18 lbf•ft).

ADJUSTMENT

Refer to PULLEY DISTANCE AND ALIGNMENT to adjust pulley distance. Adjust drive belt height between pulley halves to obtain specified belt deflection.

Title indicates main procedure to be carried-out.

Italic bold face type setting indicates a particular procedure concerning a model.

Italic bold face setting in this case indicates that particular procedure for A and B-Series is finished, so from this point, all models are concerned.

"TYPICAL" caption indicates a general view which does not represent full detail. "TOP VIEW" caption helps you in understanding illustration.

Call-outs for above illustration.

Illustration always follows text to which it pertains.

Subtitle indicates a particular procedure for the named part.

Reference to look up a certain section and subsection. In this case it concerns pulleys adjustment.

Bold face number following part name refers to exploded view at beginning of subsection.

A01A2BS

GENERAL INFORMATION

The information and component/system descriptions contained in this manual are correct at time of publication. Bombardier Inc. however, maintains a policy of continuous improvement of its products without imposing upon itself any obligation to install them on products previously manufactured.

Due to late changes, it may have some differences between the manufactured product and the description and/or specifications in this document.

Bombardier Inc. reserves the right at any time to discontinue or change specifications, designs, features, models or equipment without incurring obligation.

ILLUSTRATIONS AND PROCEDURES

Illustrations and photos show the typical construction of the different assemblies and, in all cases, may not reproduce the full detail or exact shape of the parts shown. However, they represent parts which have the same or a similar function.

CAUTION: Most components of those vehicles are built with parts dimensioned in the metric system. Most fasteners are metric and must not be replaced by customary fasteners or vice-versa. Mismatched or incorrect fasteners could cause damage to the vehicle or possible personal injury.

As many of the procedures in this manual are interrelated, we suggest, that before undertaking any task, you read and thoroughly understand the entire section or subsection in which the procedure is contained.

A number of procedures throughout the book require the use of special tools. Before commencing any procedure, be sure that you have on hand all the tools required, or approved equivalents.

The use of RIGHT and LEFT indications in the text, always refers to driving position (when sitting on vehicle).

TYPICAL

1. *Left*
2. *Right*

SELF-LOCKING FASTENERS PROCEDURE

The following describes the most common application procedures when working with self-locking fasteners.

Use a metal brush or a tap to clean the hole properly then use a solvent (Methyl-Chloride), let act during 30 minutes and wipe off. The solvent utilization is to ensure the adhesive works properly.

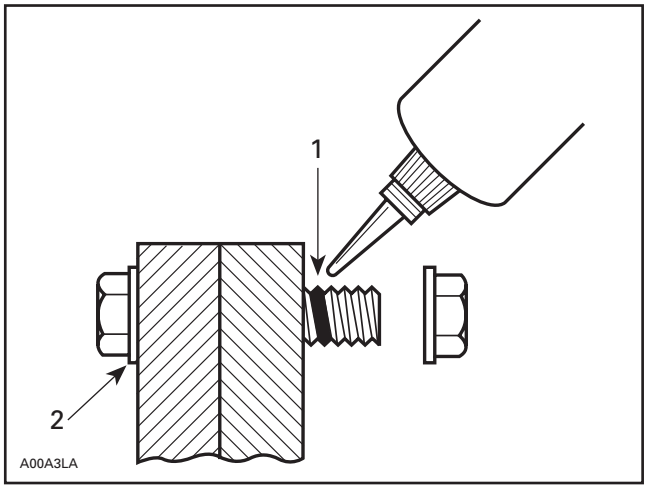
LOCTITE APPLICATION PROCEDURE

The following describes the most common application procedures when working with Loctite products.

NOTE: Always use proper strength Loctite product as recommended in this *Shop Manual*.

THREADLOCKER

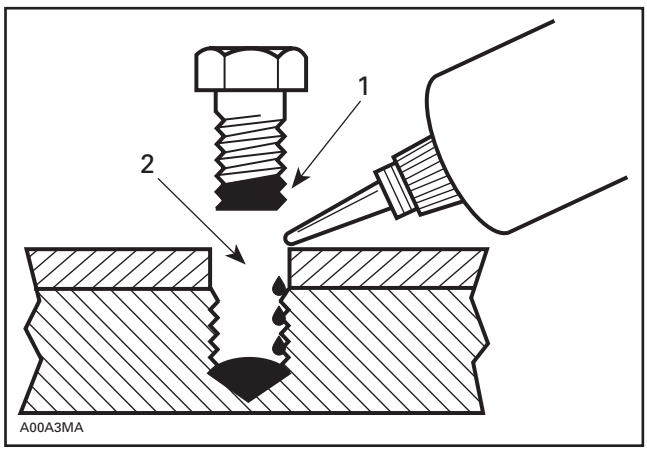
Uncovered Holes (bolts and nuts)



1. Apply here
2. Do not apply

1. Clean threads (bolt and nut) with solvent.
2. Apply Loctite Primer N (P/N 293 800 041) on threads and allow to dry.
3. Choose proper strength Loctite threadlocker.
4. Fit bolt in the hole.
5. Apply a few drops of threadlocker at proposed tightened nut engagement area.
6. Position nut and tighten as required.

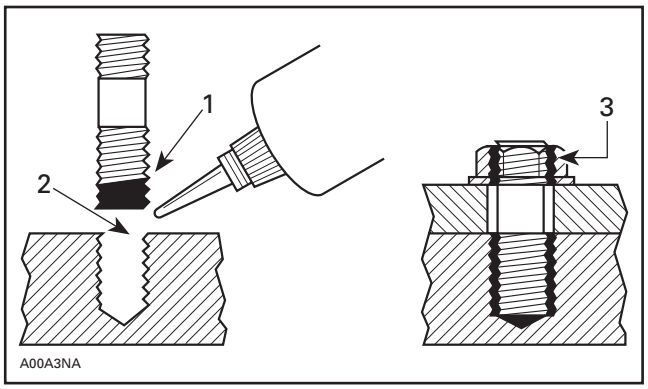
Blind Holes



1. On threads
2. On threads and at the bottom of hole

1. Clean threads (bolt and hole) with solvent.
2. Apply Loctite Primer N (P/N 293 800 041) on threads (bolt and nut) and allow to dry for 30 seconds.
3. Choose proper strength Loctite threadlocker.
4. Apply several drops along the threaded hole and at the bottom of the hole.
5. Apply several drops on bolt threads.
6. Tighten as required.

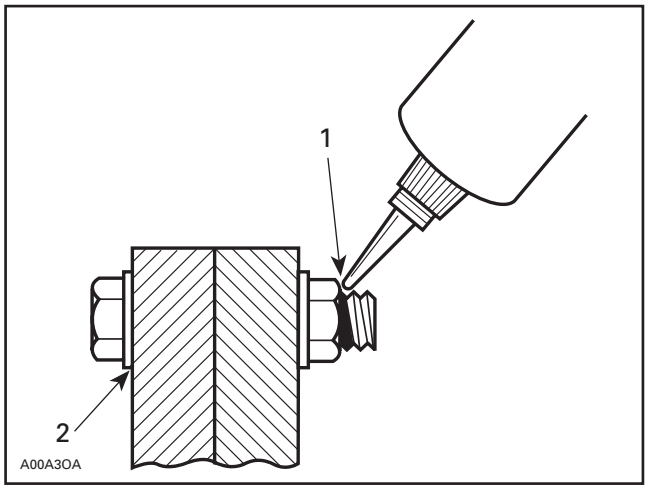
Stud in Blind Holes



1. On threads
2. On threads and in the hole
3. Onto nut threads

1. Clean threads (stud and hole) with solvent.
2. Apply Loctite Primer N (P/N 293 800 041) on threads and allow to dry.
3. Put several drops of proper strength Loctite threadlocker on female threads and in hole.
4. Apply several drops of proper strength Loctite on stud threads.
5. Install stud.
6. Install cover, etc.
7. Apply drops of proper strength Loctite on uncovered threads.
8. Tighten nuts as required.

Preassembled Parts

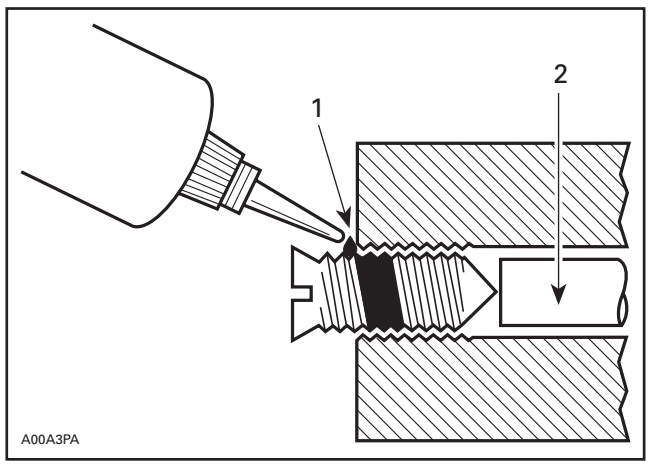


1. Apply here
2. Do not apply

1. Clean bolts and nuts with solvent.
2. Assemble components.
3. Tighten nuts.
4. Apply drops of proper strength Loctite on bolt/nut contact surfaces.
5. Avoid touching metal with tip of flask.

NOTE: For preventive maintenance on existing equipment, retighten nuts and apply proper strength Loctite on bolt/nut contact surfaces.

Adjusting Screw



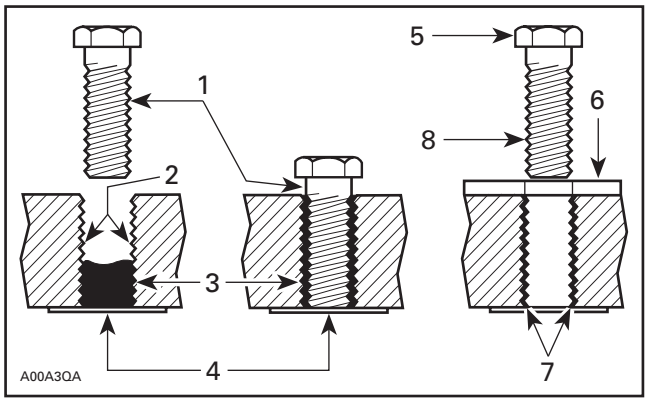
1. Apply here
2. Plunger

1. Adjust screw to proper setting.
2. Apply drops of proper strength Loctite threadlocker on screw/body contact surfaces.
3. Avoid touching metal with tip of flask.

NOTE: If it is difficult to readjust, heat screw with a soldering iron (232°C (450°F)).

STRIPPED THREAD REPAIR

Stripped Threads



1. Release agent
2. Stripped threads
3. Form-A-Thread
4. Tape
5. Cleaned bolt
6. Plate
7. New threads
8. Threadlocker

Standard Thread Repair

1. Follow instructions on Loctite FORM-A-THREAD 81668 package.
2. If a plate is used to align bolt:
   a. Apply release agent on mating surfaces.
   b. Put waxed paper or similar film on the surfaces.
3. Twist bolt when inserting it to improve thread conformation.

NOTE: NOT intended for engine stud repairs.

Repair of Small Holes/Fine Threads

Option 1: Enlarge damaged hole, then follow **Standard Thread Repair** procedure.

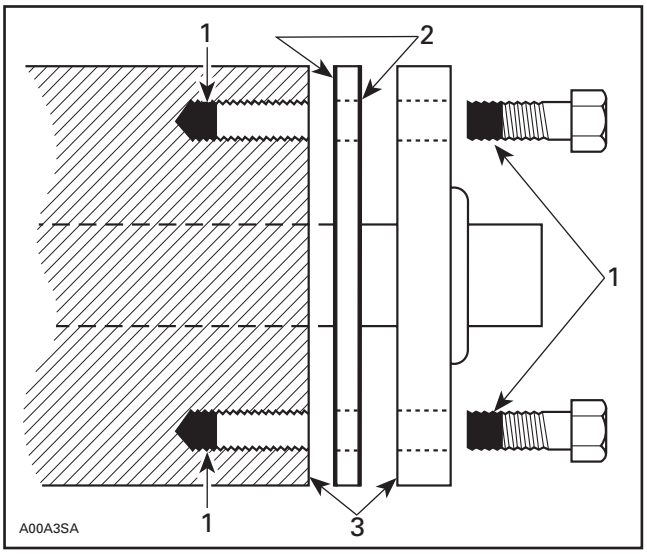
Option 2: Apply FORM-A-THREAD on the screw and insert in damaged hole.

Permanent Stud Installation (light duty)

1. Use a stud or thread on desired length.
2. DO NOT apply release agent on stud.
3. Do a **Standard Thread Repair**.
4. Allow to cure for 30 minutes.
5. Assemble.

GASKET COMPOUND

All Parts



1. Proper strength Loctite
2. Loctite Primer N (P/N 413 708 100) and Gasket Eliminator 515 (P/N 413 702 700) on both sides of gasket
3. Loctite Primer N only

1. Remove old gasket and other contaminants with Loctite Chisel remover (P/N 413 708 500). Use a mechanical mean if necessary.

NOTE: Avoid grinding.

2. Clean both mating surfaces with solvent.
3. Spray Loctite Primer N on both mating surfaces and on both sides of gasket. Allow to dry 1 or 2 minutes.
4. Apply GASKET ELIMINATOR 515 (P/N 413 702 700) on both sides of gasket, using a clean applicator.
5. Place gasket on mating surfaces and assemble immediately.

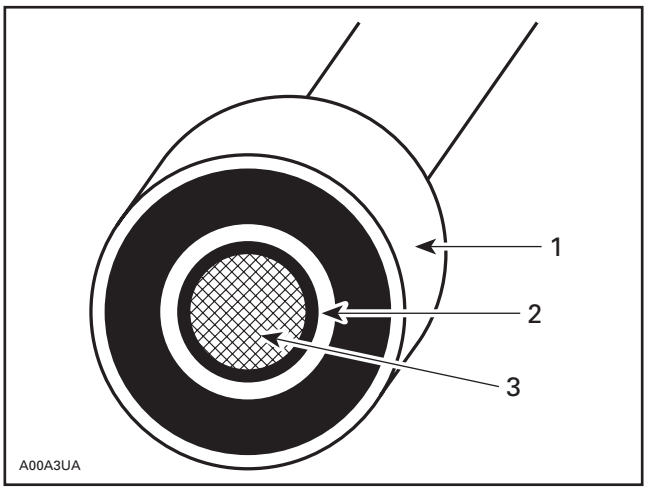
NOTE: If the cover is bolted to blind holes (above), apply proper strength Loctite in the hole and on threads. Tighten.

If holes are sunken, apply proper strength Loctite on bolt threads.

6. Tighten as usual.

MOUNTING ON SHAFT

Mounting with a Press



1. Bearing
2. Proper strength Loctite
3. Shaft

Standard

1. Clean shaft external part and element internal part.
2. Apply a strip of proper strength Loctite on shaft circumference at insert or engagement point.

NOTE: Retaining compound is always forced out when applied on shaft.

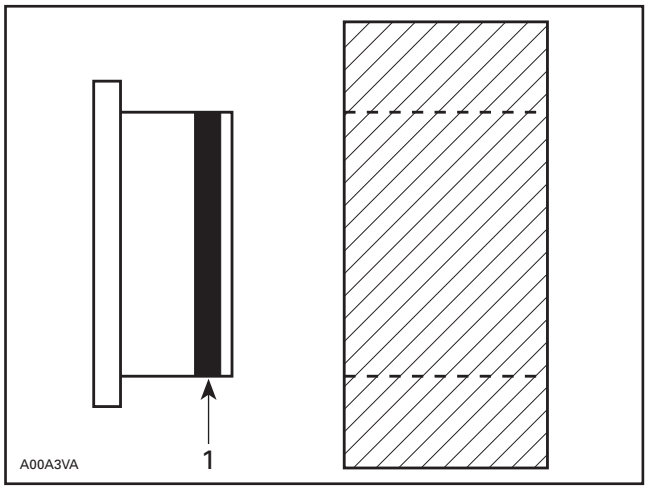
3. DO NOT use anti-seize Loctite or any similar product.
4. No curing period is required.

Mounting in Tandem

1. Apply retaining compound on internal element bore.
2. Continue to assemble as shown above.

CASE-IN COMPONENTS

Metallic Gaskets



1. Proper strength Loctite

1. Clean inner housing diameter and outer gasket diameter.
2. Spray housing and gasket with Loctite Primer N (P/N 293 800 041).
3. Apply a strip of proper strength Loctite on leading edge of outer metallic gasket diameter.

NOTE: Any Loctite product can be used here. A low strength liquid is recommended as normal strength and gap are required.

4. Install according to standard procedure.
5. Wipe off surplus.
6. Allow it to cure for 30 minutes.

NOTE: Normally used on worn-out housings to prevent leaking or sliding.

It is generally not necessary to remove gasket compound applied on outer gasket diameter.

TIGHTENING TORQUES

⚠ WARNING

Torque wrench tightening specifications must strictly be adhered to.

Locking devices (ex.: locking tabs, elastic stop nuts, self-locking fasteners, etc.) must be installed or replaced with new ones where specified. If the efficiency of a locking device is impaired, it must be renewed.

Tighten fasteners to torque mentioned in exploded views and text. When they are not specified refer to following table. Bold face size (e.g. **M4)** indicates nominal value (mean value).

N•m	FASTENER SIZE (8.8 grade)	Lbf•**in**
2	**M4**	18
3	M4	27
4	**M5**	35
8	M6	71
9	M6	80
10	**M6**	89
11	M6	97
12	M6	106

N•m	FASTENER SIZE (8.8 grade)	Lbf•ft
21	M8	15
22	M8	16
23	**M8**	17
24	M8	18
25	M8	18
43	M10	32
44	M10	32
45	M10	33
46	M10	34
47	M10	35
48	**M10**	35
49	M10	36
50	M10	37
51	M10	38
52	M10	38
53	M10	39
76	M12	56
77	M12	57
78	M12	58
79	M12	58

N•m	FASTENER SIZE (8.8 grade)	Lbf•ft
80	**M12**	59
81	M12	60
82	M12	60
83	M12	61
84	M12	62
121	M14	89
122	M14	90
123	M14	91
124	M14	91
125	M14	92
126	M14	93
127	M14	94
128	M14	94
129	M14	95
130	M14	96
131	M14	97
132	M14	97
133	M14	98
134	M14	99
135	**M14**	100
136	M14	100
137	M14	101
138	M14	102
139	M14	103
140	M14	103
141	M14	104
142	M14	105
143	M14	105
144	M14	106
145	M14	107
146	M14	108
147	M14	108
148	M14	109
149	M14	110
150	M14	111

We would be pleased if you could communicate to Bombardier any suggestions you may have concerning our publications.

Bombardier SERVICE PUBLICATIONS REPORT

Publication title and year _____ Page_____

Machine_____ Report of error ❑ Suggestion ❑

_____

_____

_____

_____

_____

_____

Name _____

Address _____

City and State/Prov. _____ Date_____

Zip code/Postal code _____

Bombardier SERVICE PUBLICATIONS REPORT

Publication title and year _____ Page_____

Machine_____ Report of error ❑ Suggestion ❑

_____

_____

_____

_____

_____

_____

Name _____

Address _____

City and State/Prov. _____ Date_____

Zip code/Postal code _____

Bombardier SERVICE PUBLICATIONS REPORT

Publication title and year _____ Page_____

Machine_____ Report of error ❑ Suggestion ❑

_____

_____

_____

_____

_____

_____

Name _____

Address _____

City and State/Prov. _____ Date_____

Zip code/Postal code _____

AFFIX
PROPER
POSTAGE

BOMBARDIER
RECREATIONAL PRODUCTS

Technical Publications
After Sales Service
565 de la Montagne Street
Valcourt, Quebec, Canada J0E 2L0

AFFIX
PROPER
POSTAGE

BOMBARDIER
RECREATIONAL PRODUCTS

Technical Publications
After Sales Service
565 de la Montagne Street
Valcourt, Quebec, Canada J0E 2L0

AFFIX
PROPER
POSTAGE

BOMBARDIER
RECREATIONAL PRODUCTS

Technical Publications
After Sales Service
565 de la Montagne Street
Valcourt, Quebec, Canada J0E 2L0