

AD Boivin
Manufacturing **Fun**

EXPERT X 2007

**MANUEL D'INSTALLATION
INSTALLATION MANUAL**

PART # EXPX-121-07

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Note: Keep this installation manual in a safe location for future reference.

Important information to read before installation:

Installation:

- Verify that your suspension adaptor kit is compatible with your sled's model.
(Refer to table 1, page 4)
- Ensure that the suspension is generally inspected before installation.
- Read and follow the instructions and steps for installation.
- It's your responsibility to torque the bolts well as recommended in the instructions.
- In the first 50 miles, the suspension will seem stiff. We recommend that you fine-tune your setup after your first 50 miles. (Refer to the adjustment chart, page 17)
- Again check your setup after the first 500 miles, inspect all bolts and nuts and re-torque if necessary.

Responsibility:

A & D Boivin Design Inc. is not responsible, in any case, for problems such as; broken parts, damage to the sled or accidents due to an improper installation or use. The owner (or dealer if applicable) is responsible for the EXPERT X's installation. The owner must drive safely, follow the rules and trail regulations and respect local laws.

Ride smart:

Riding responsibly and safely is always more fun! Use common sense and courtesy, observe applicable local laws, respect the rights of other enthusiasts, always keep a safe distance from other riders and always wear the appropriate protective clothing and apparel. Carefully read and pay particular attention to your Assembly Book and to the safety labeling on your suspension. Remember, if you're going to drink, please don't drive.

Warranty:

- The EXPERT X is guaranteed for 90 days (one riding season) against any manufacturing faults or defects.
- Any broken parts must be returned to AD Boivin design Inc. for replacement.
- The EXPERT X shall be installed in accordance with the assembly book provided.
- In the case of a part failure due to a faulty installation or improper use as judged by the manufacturer, the warranty is void and no broken parts will be replaced.

Design property:

The EXPERT X is the intellectual property of AD Boivin design Inc.. Any copy or reproduction of this product (or the use of the principle) is subject to legal action from the designer. This product is protected by both U.S. and Canadian patents.

TABLE I

EXPERT "X" Installation adaptor kits

EXPERT X installation in 12 steps

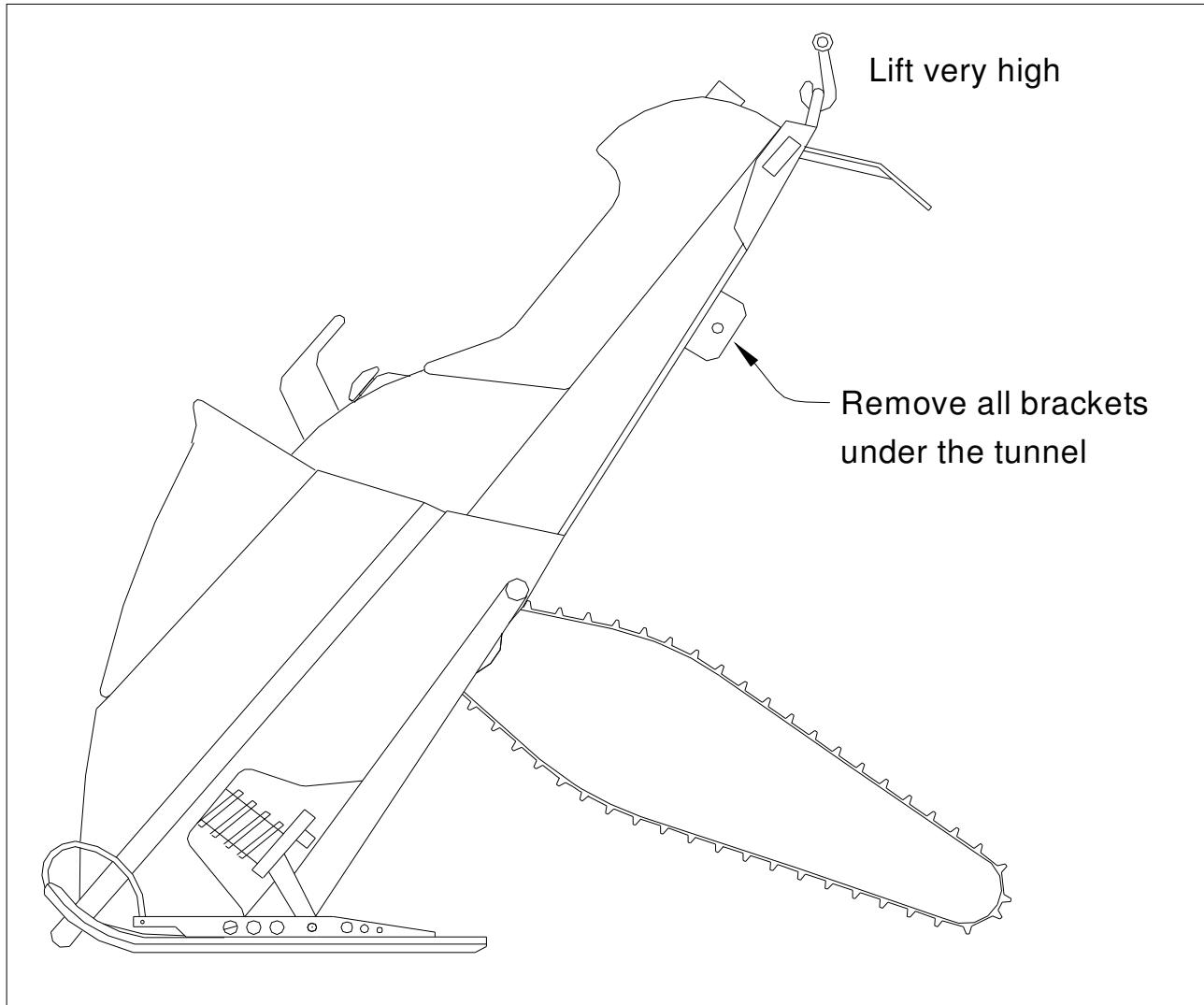
Do **not** skip or by-pass any steps.
Follow the step-by-step installation procedures closely.

NOTE: For RX-1 customers, please go directly to pages 11 and 12 to bypass the general installation instructions.

STEP 1:

Lift the rear of your sled fairly high off the ground. Remove the original suspension on your sled and all brackets located under the tunnel which may interfere with the installation/operation of the suspension, as shown in Figure 1.

Figure 1



STEP 2:

This suspension is universal. For installation on your sled, you must accurately take the measurement of "H" and "D" shown in figure 2 on page 7. Write the values of "H" and "D" below into the worksheet labeled Table 2, in the blanks provided.

STEP 3:

From Table 2, find the row corresponding to the value of "D" found on your sled. Calculate and write the value of "B" in the blank provided in the same row as your value of "D". To calculate "B", take "H" minus the indicated value.

IMPORTANT: If the value "B" is **less** than 5 3/8 in. then take 5 3/8 in. as value "B".

If the value "B" is **greater** than 5 3/8 in. then take the calculated value of "B".

In other words, the minimum value of "B" is 5 3/8 in.

STEP 4:

From table 2, take the "Installation Value" and trace on the tunnel the position of the front holes as shown in figure 3. This operation is critical: make sure that the axis of the two front holes are parallel to the front drive axle and, consequently, the axis of the two front holes are perpendicular to the tunnel.

For the tracing of value "A", we recommend the use of a flat bar as a spacer between the outside of the drive axle and the center trace mark for the front mounting hole. With this method we assume that your drive axle is perfectly perpendicular to the tunnel. The sketch of this method is in Figure 3 on page 8.

For the tracing of value "B", use (by the interior of the tunnel) a square against the top plate of the tunnel and trace value "B".

Also, you can use a big square (i.e. carpenters square) and verify that the axis of the two front holes are perpendicular to the tunnel.

Note: For Ski-Doo* F-2000 snowmobile chassis (DSA), use the original front hole.

STEP 5:

Drill the two front holes (left and right) as shown in figure 3. (10 mm or 25/64" dia.).

*Note: Ski-Doo is a registered trademark of Bombardier Inc

Figure 2 (see figures 5A and 5B on pages 11 and 12 for RX-1 and RX-Warrior applications)

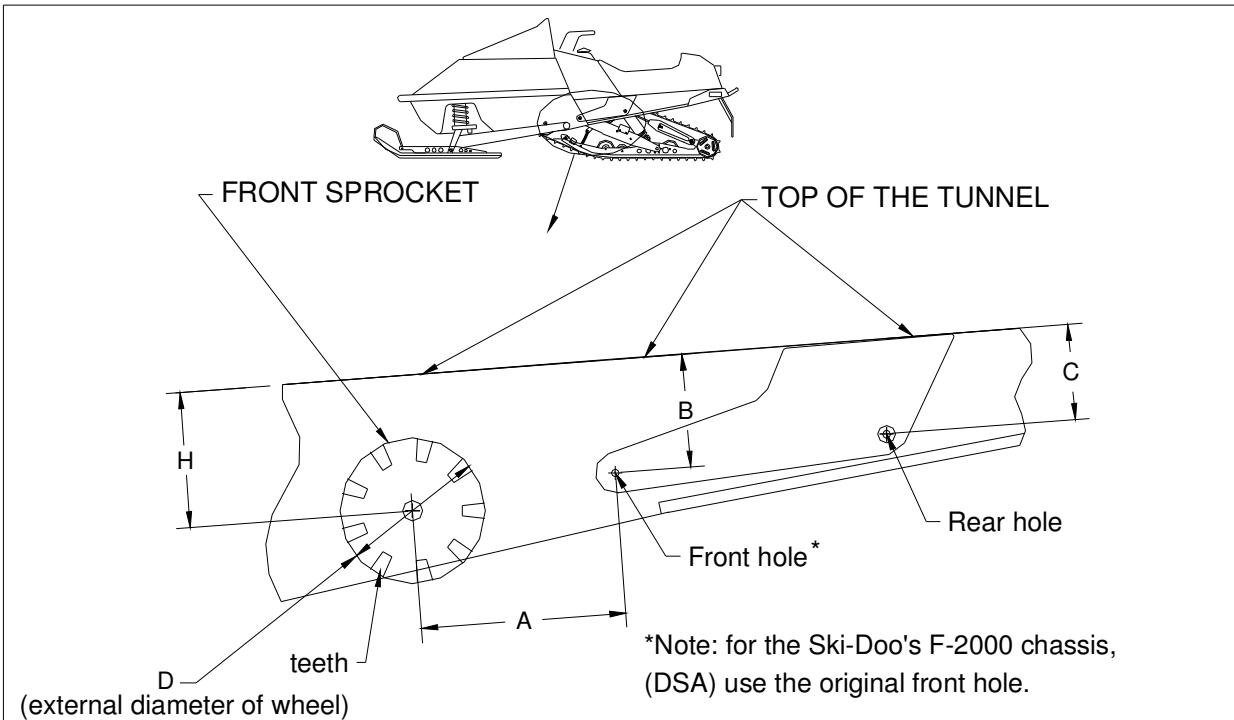


TABLE 2

Installation values (for 121 in. tracks only)

$$D = \underline{\quad} \text{ in.} (\underline{\quad} \text{ tooth}) \quad H = \underline{\quad} \text{ in.}$$

D (pitch 2.52 in.)	A	B **	C	Remarks
5.250 in. (7 tooth)	11 5/8 in.	H minus 1/4 in.= <u> </u>	5 1/4 in.	2 in. paddle ONLY
5.250 in. (7 tooth)	11 5/8 in.	H minus 1/2 in.= <u> </u>	4 3/4 in.	
6.375 in. (8 tooth)	10 3/4 in.	H minus 5/8 in.= <u> </u>	4 3/4 in.	
7.125 in. (9 tooth)	10 1/4 in.	H minus 7/8 in.= <u> </u>	4 3/4 in.	
8.000 in. (10 tooth)	9 5/8 in.	H minus 1 1/4 in.= <u> </u>	4 3/4 in.	

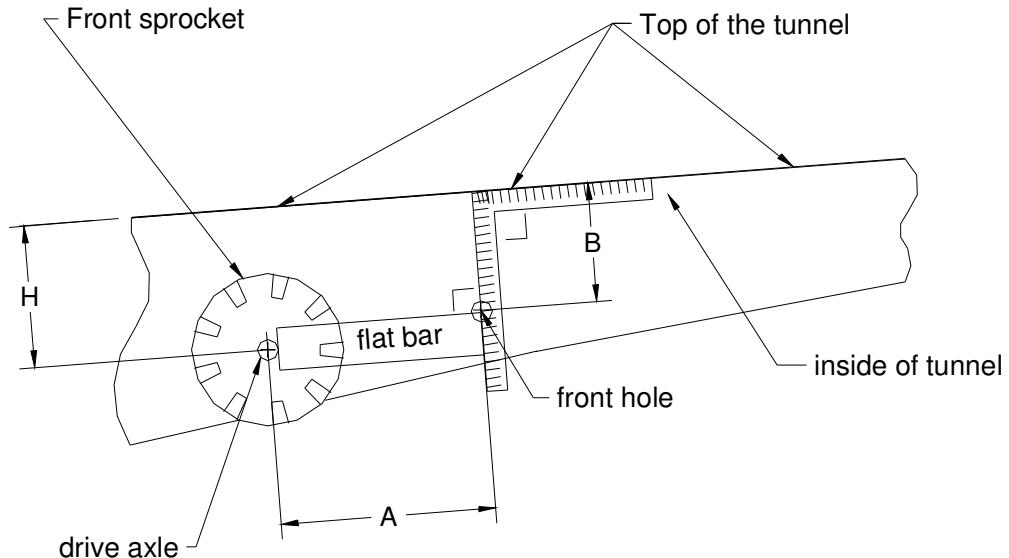
** B minimum= 5 3/8 in.

Value "A" may have to be corrected for some track/rail configurations :

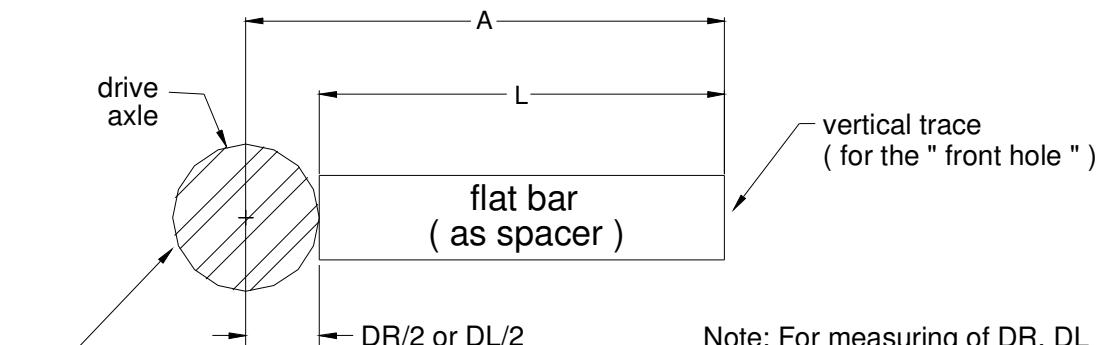
TRACK LENGTH	Rail Length Options	Setback	A (corrected)
136"	EXP-LT (136)	N/A	A (no setback required)
141"	EXP-LT (136)	2 1/2 in.	A + 2 1/2"
144"	EXP-LT (136)	4 in.	A + 4"
144"	EXP-LT (144)	N/A	A (no setback required)
151"	EXP-LT (144)	3 1/2 in.	A + 3 1/2"
151"	EXP-LT (151)	N/A	A (no setback required)
156"	EXP-LT (151)	2 1/2 in.	A + 2 1/2"
159"	EXP-LT (151)	4 in.	A + 4"

Figure 3

Method for tracing the position of the "Front holes"



Do this tracing inside the tunnel



DR: (dia. of the drive axle at right)= _____

DL: (dia. of the drive axle at left) = _____

use value "A"
from table 2

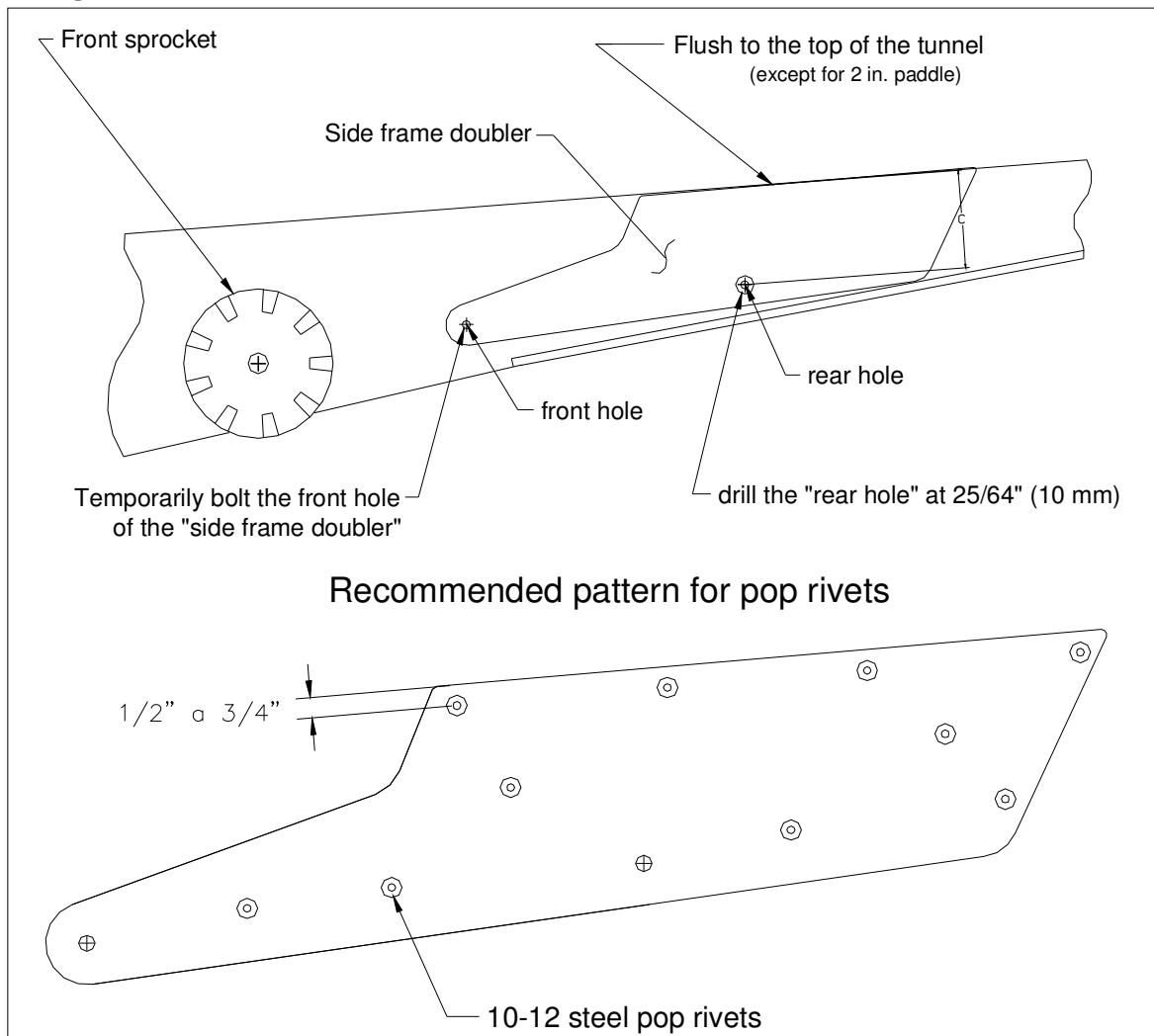
Flat bar lenght	
L	
left side of tunnel	right side of tunnel
A minus (DL/2) = _____	A minus (DR/2) = _____

STEP 6:

Install the two “side frame doublers” by using the front hole as a reference point.

- Temporarily bolt the side frame doubler on the chassis in the front hole and place the top of the side frame doubler flush to the top of the tunnel (except for the case of 2 in. paddle tracks where C= 5 1/4 in.)
- Use the “side frame doublers” as a template and drill the rear hole (10 mm or 25/64 in. dia.)
- Temporarily bolt the side frame doubler on the chassis with the front hole and the rear hole.
- Install a minimum of 8 steel pop rivets (for each “side frame doubler”) supplied with the suspension and use the recommended pattern shown in the figure 4.

Figure 4



STEP 7:

Inspect the inside of the tunnel where the front and the rear holes are located. You must have a clean area around the hole about 1 3/8 in. diameter. If you see a rivet, reinforcement or a mismatch of reinforcement's sheet you must remove the rivets or repair this area as shown in figure 5. You must make sure that the swing arm front adaptor and the upper axle adaptor are in perfect contact (flush) with the inside of the tunnel.

Figure 5

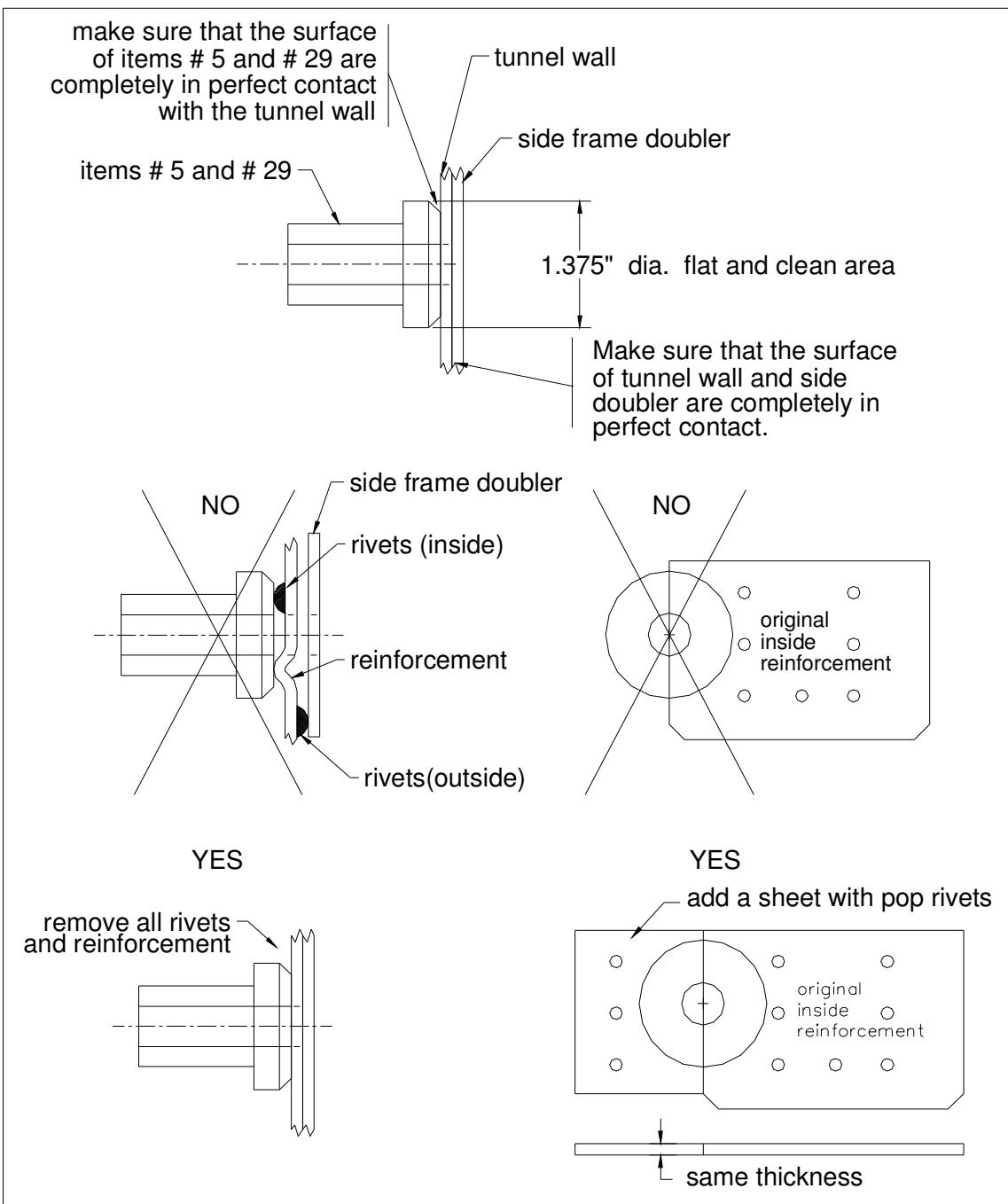
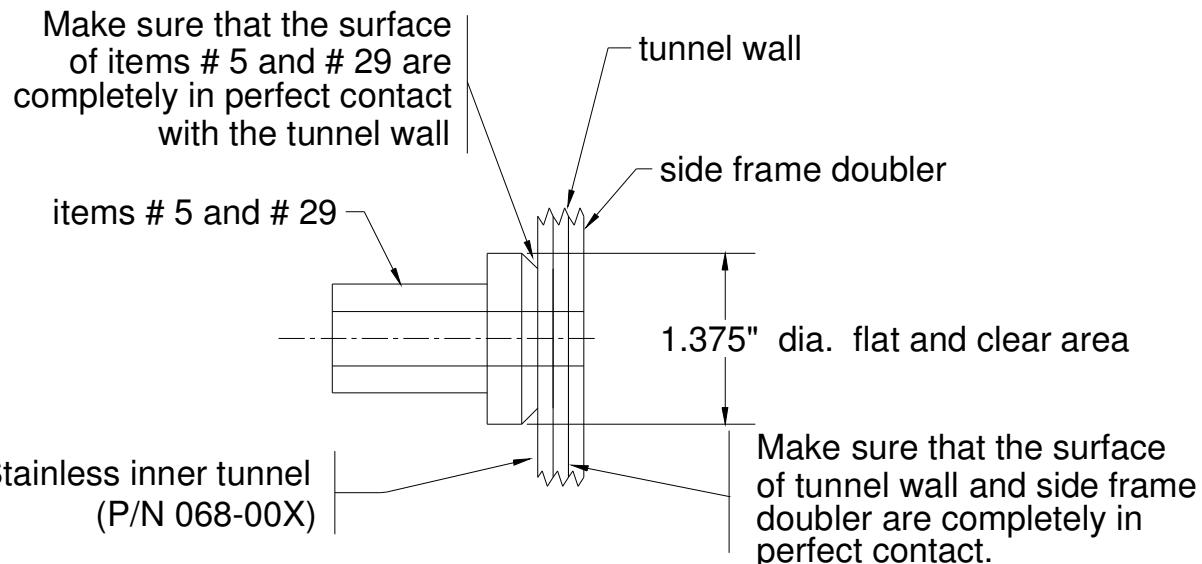


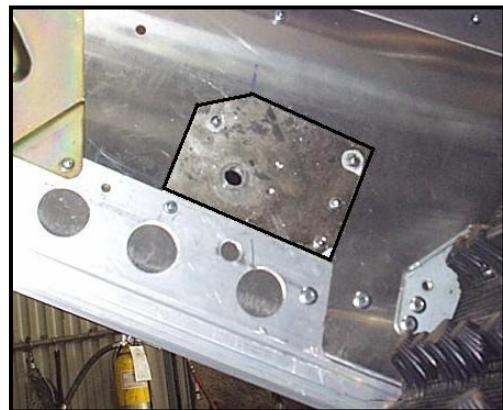
Figure 5A



NOTE:

We highly recommend that you install the supplied stainless steel inside reinforcement plates (P/N 068-00x) if there is no existing inside tunnel reinforcement at the points where the new holes are drilled.

Be sure to remove all rivets or any other obstructions that will prohibit a flush-mount between the plates and the inside of the tunnel.



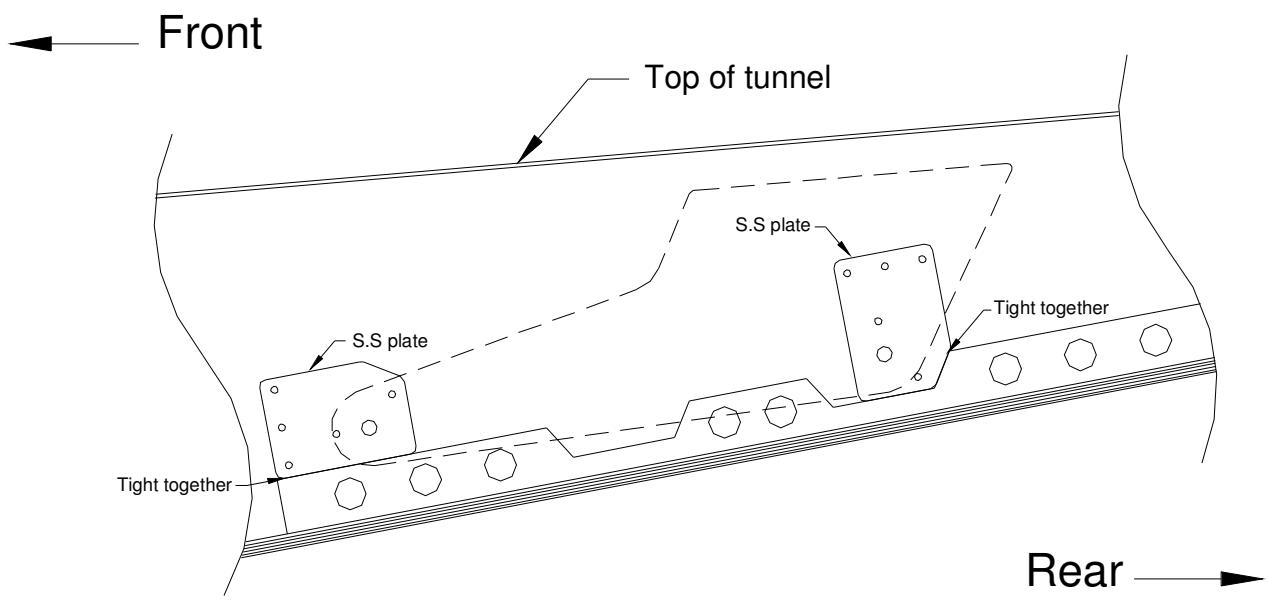
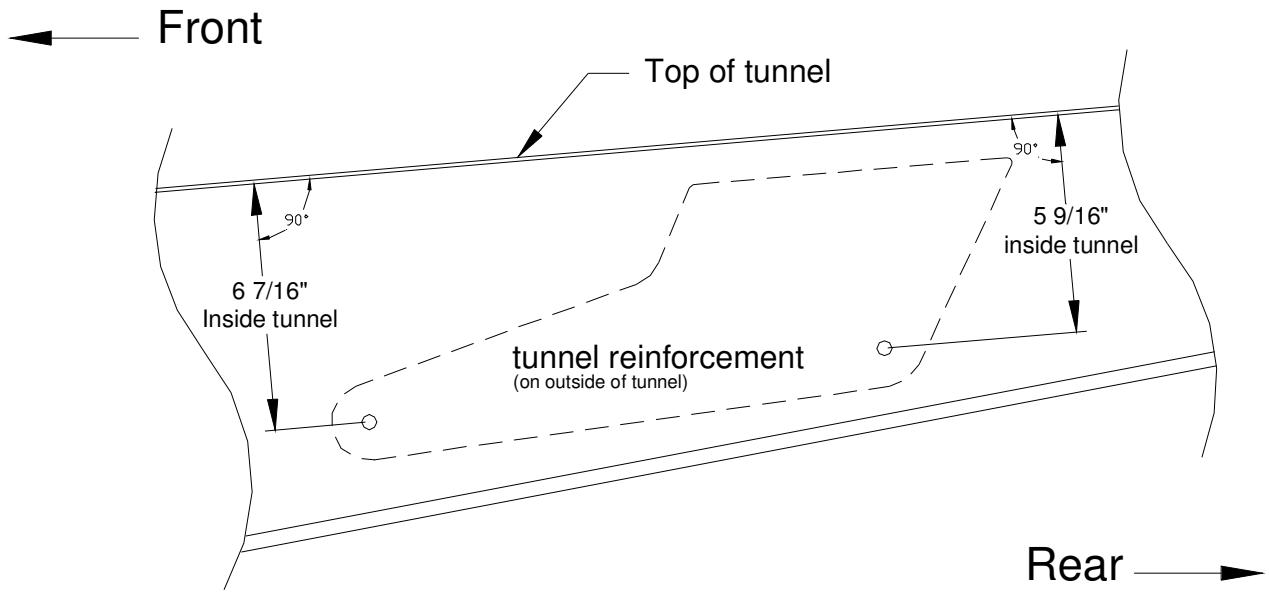
Front Mounting Points
PTO side, RX-1 shown [Front →]



Rear Mounting Points
MAG side, RX-1 shown [Rear →]

Figure 5B

Note: Reference tunnel reinforcement placement for all RX-1 121" application with stock lug height.



STEP 8:

For installation on your sled, leave item #27 unbolted, just as we shipped it to you. Install the two "swing arm front axle adaptors" item # 29 and two "upper axle adaptors" item # 5 on the suspension as shown in the exploded view of the Expert X on page 18.

Install the two M10 x 30 bolts (Item #35) and washers (Item #3) securing the softness drawbar shaft (Item #73) to the rear of the skidframe. Be sure to use red Loctite 271 for both of these bolts.

Also, set-up the dynamic stopper springs (Item #31D & 31G) so that the forward leg is resting in the hole with the steel insert pressed into it, NOT in the slot, as it will be when you take your Expert X out of the box.

Now the suspension is ready to be installed onto your sled!

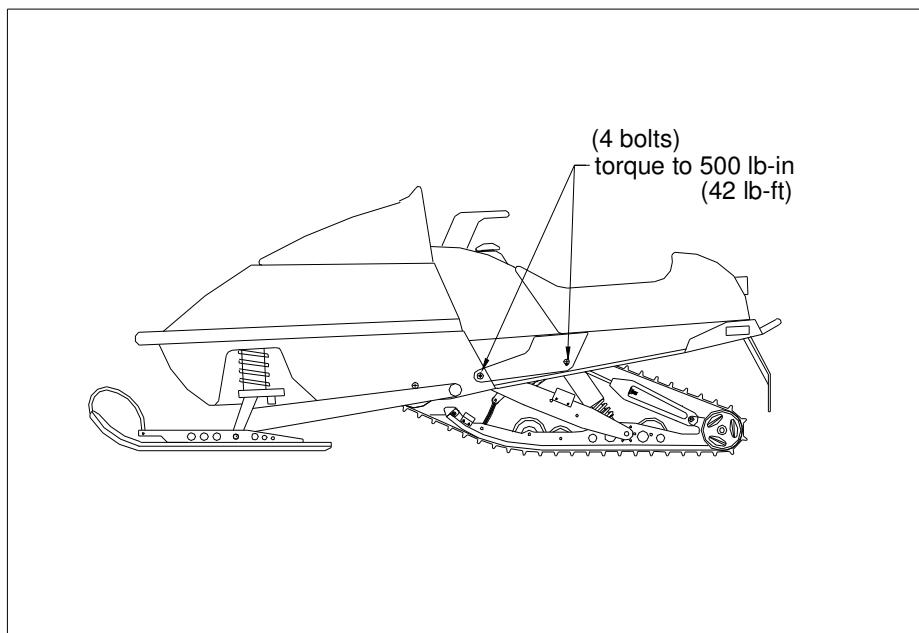
STEP 9:

Lower the rear of your sled at mid-range just as the height shown in figure 1 from page 5.

- Put the suspension inside your track and first bolt the "swing arm front axle" onto the chassis.
- Lower the rear of the sled until you can install the rear mounting bolts onto the chassis.

Torque the 4 bolts (item #1 and item #28) to 500 lb-in (42 lb-ft) as shown in Figure 6 below:

Figure 6



STEP 10:

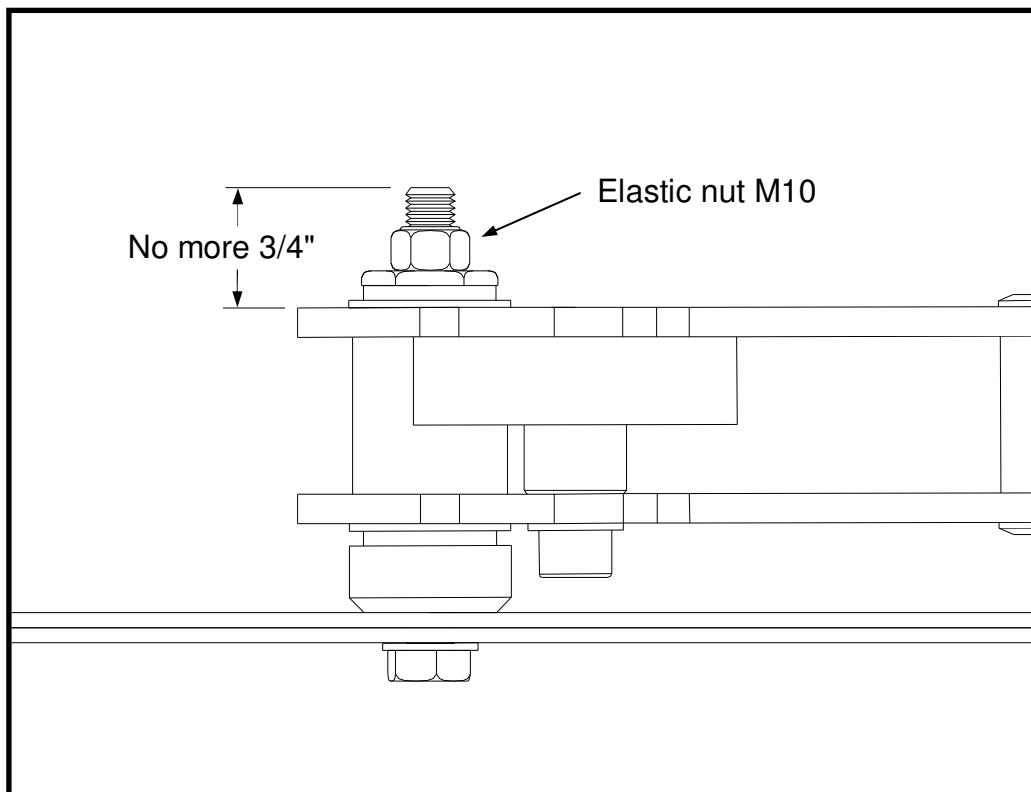
Fixation of the upper swing arm (continued)

Once the bolts are screwed, install the M10 elastic nuts like locknut. See the picture.

IMPORTANT

Ensure that the swing arm attaching bolt does not exceed of more than $\frac{3}{4}$ " inside the swing arm. Refer to the drawing indication. If the bolts exceed the length, cut it to the adequate length.

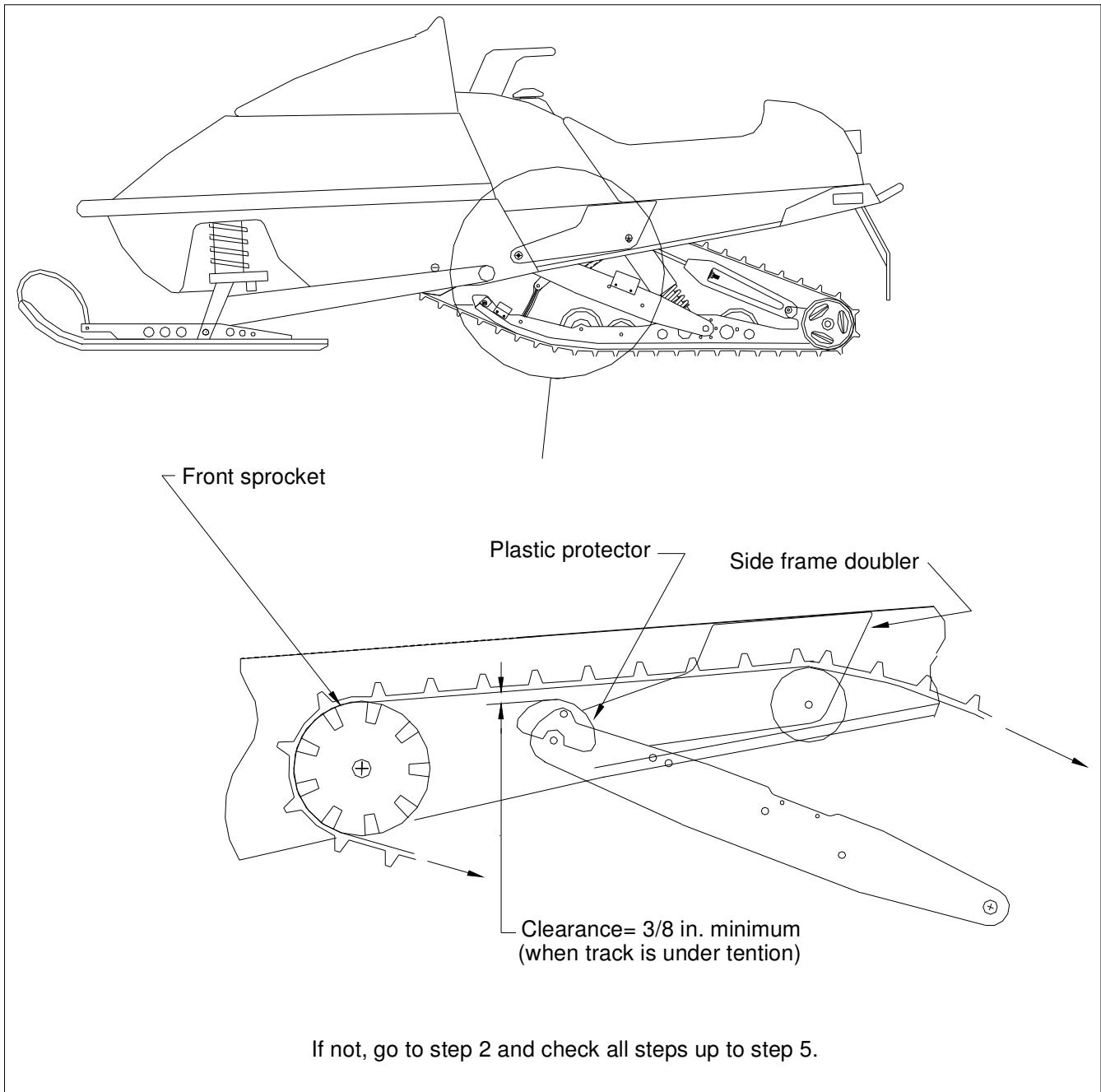
Figure 6



STEP 11:

Verify the clearance between the track and the plastic protector as shown in the figure 7. The distance must be greater than 3/8 in. If not, go back to step 2 and check all measurements up to step 5. If all the data is indeed correct but your clearance is less than 3/8 in here, you must fix this problem by increasing the value of "B" and "C" equally, then reinstall the two side frame doublers.

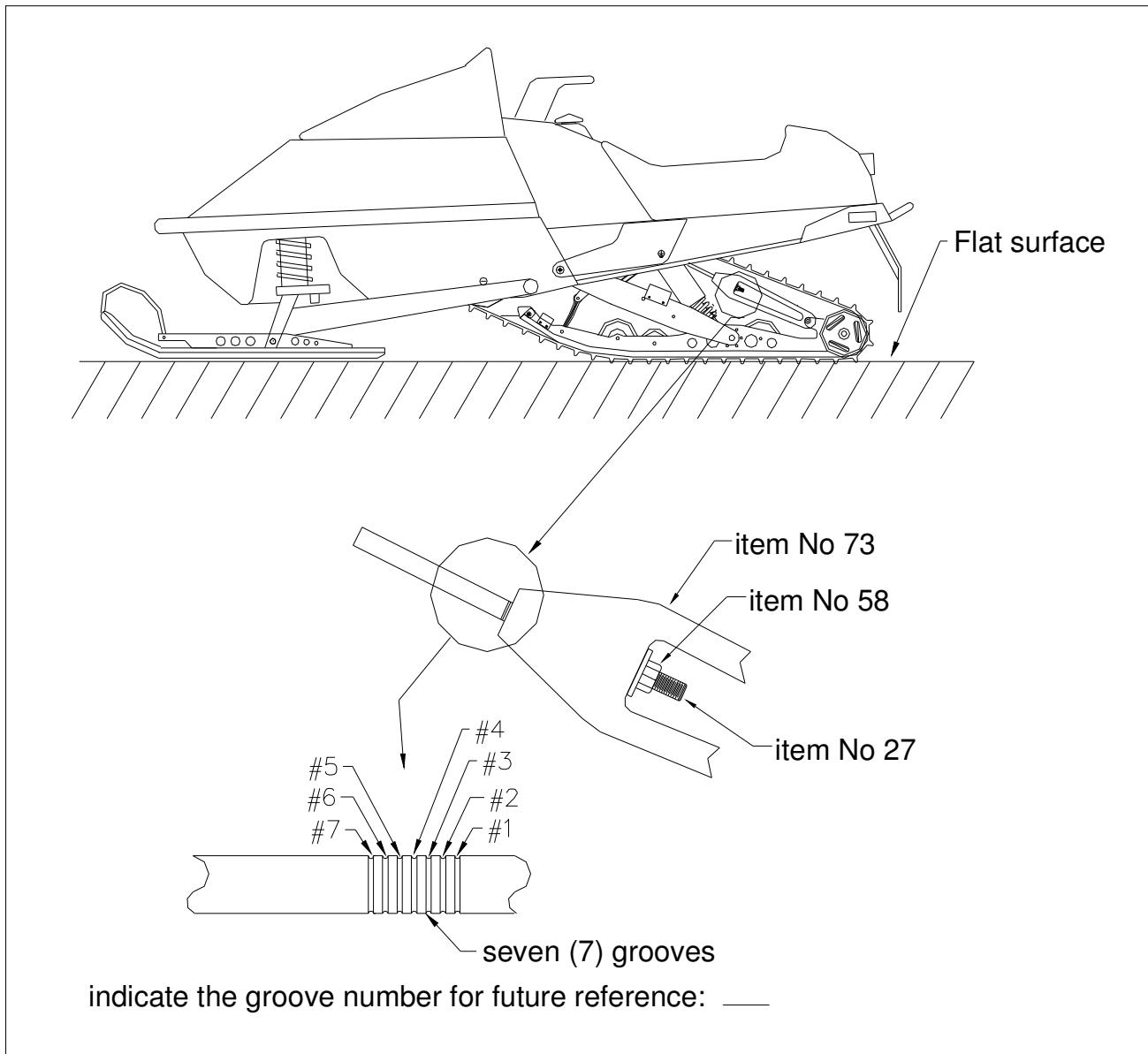
Figure 8



STEP 12:

Lower the sled to the floor (or a flat surface). As shown in figure 8, install the front-to-rear coupling adjustment nut (item #58) onto the softness drawbar rod (item #27). Screw on the nut until the flanged part of the nut is flush with the softness drawbar. The groove #'s are indicated as shown in figure 8 below. A good starting point for this adjustment is to have $\frac{1}{4}$ " to $\frac{3}{8}$ " of thread showing out through the back of the lock nut (item #58).

Figure 9

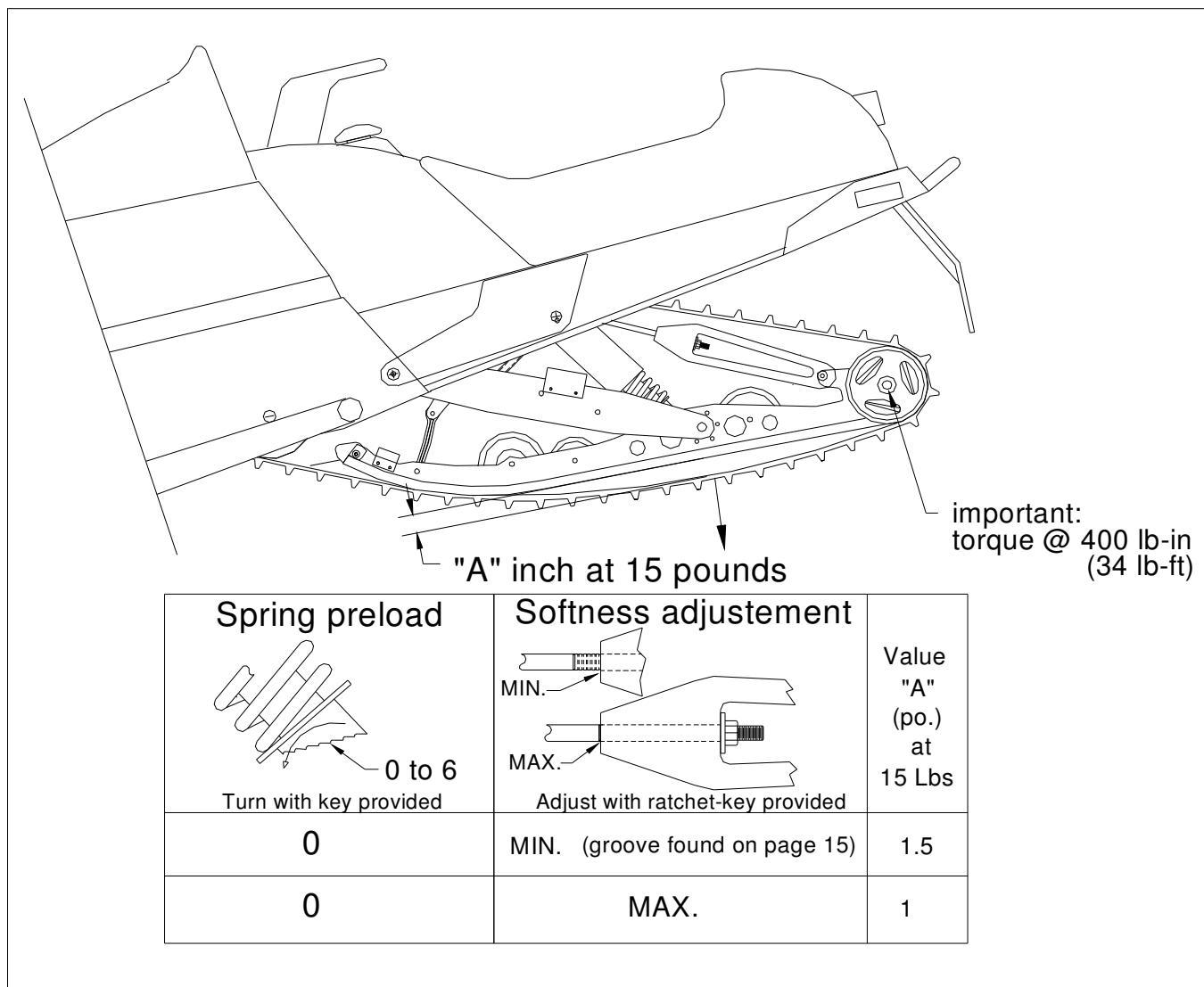


STEP 13:

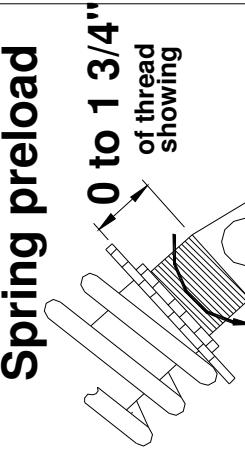
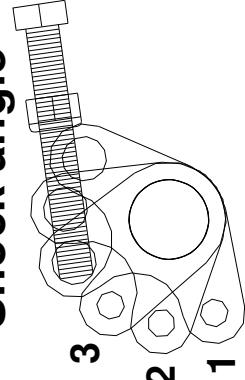
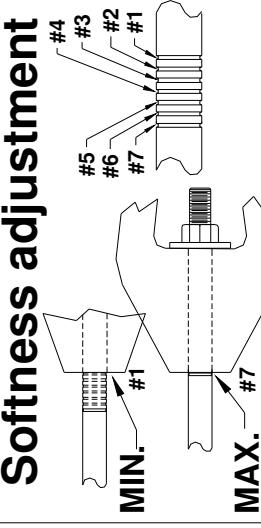
Tension the track following the specifications as shown in Figure 9. For better "free wheeling" do not over-tension the track. The Expert X is specially designed to create a little tension on the track when the suspension is compressed. Tension it by trial and error, and re-tension if it slips or "ratchets" on the drive sprockets. The track tension will seem very loose compared to a conventional rear suspension, that's OK!

NOTE: The 136", 144" and 151" versions of the Expert X will have similar track tension and deflection values, based on the 121" suspension shown below. Do not be afraid to run the Expert X extra-loose, it's designed to work that way. A failsafe method to tensioning is to tighten the track as shown below and then slack off the tension by one-turn per side until the track begins to ratchet. The instant you hear (or suspect) ratcheting, re-tighten the track by 2-3 turns of the tensioner bolt per side.

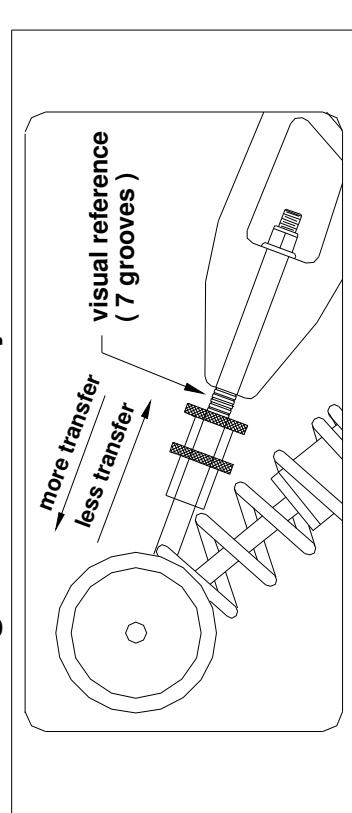
Figure 10



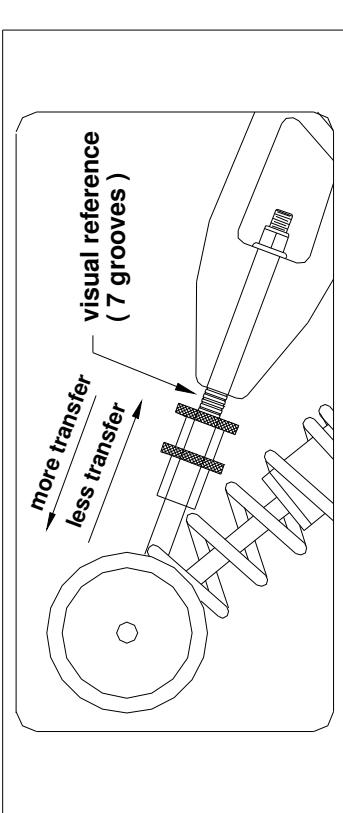
ADJUSTMENT CHART

Setup code	Spring preload 	Shock angle 	Softness adjustment 
AD	0	3	MIN. (groove found on page 16)
BD	0 to 1 3/4"	2	MIN. (groove found on page 16)
CD	1 3/4"	1	MIN. (groove found on page 16)
AE	0	3	MEDIUM to MAX.(#4 to #7)
BE	0 to 1 3/4"	2	MEDIUM to MAX.(#4 to #7)
CE	1 3/4"	1	MEDIUM (#4)

Note: the suspension is shipped with the "BD" setup code.



Weight Transfer Adjuster



Weight Transfer Adjuster

The suspension setup is function of two (2) criterias:

Your weight:

- A - 100 to 140 pounds
- B - 150 to 190 pounds
- C - 200 to 300 pounds

Your type of driving:

- D - fast driving, stability at high speed in nice trails. Stiffer.
- E - slow and medium speed in bumpy trails. Softer.

By combining the two criteria, you'll obtain the "setup code".
Ex.: You weigh 135 pounds (A) and drive med/slowly (E). Your setup code is "AE".

PARTS LIST /
LISTE DE PIÈCES

EXPERT X 2007 (EXP-121-07) /
2007 EXPERT X(EXP-121-07)

1A	30628P	Hex screw M10x45	Vis hex M10x45	2
1B	30631P	Hex screw M10x60	Vis hex M10x60	2
1C	30629P	Hex screw M10x50	Vis hex M10x50	2
2	21111P	Lock washer	Rondelle frein	6
3	181-188P	Flat washer	Rondelle plate	18
4	022-01	Side frame doubler	Renfort de châssis	2
5A	014-00X	Upper axle adaptor	Adapteur d'arbre supérieur	2
5B	014-01X	Upper axle adaptor	Adapteur d'arbre supérieur	2
5C	014-02X	Upper axle adaptor	Adapteur d'arbre supérieur	2
5D	014-03X	Upper axle adaptor	Adapteur d'arbre supérieur	2
5E	014-04X	Upper axle adaptor	Adapteur d'arbre supérieur	2
6	RO100C-1001A	Wheel 100mm	Roue 100mm	4
7	044-00	Spacer	Entretoise	2
8	046-00	UHMW sleeve	Douille UHMW	2
9	062-00X	Bushing	Douille	6
10	045-00	Spacer	Entretoise	1
11	BR16L	Shim	Cale	2
12	018-00	Spacer	Entretoise	2
13	028-00	Bushing	Douille	2
14	021-00X	Upper axle	Arbre supérieur	1
15	049-00	Spacer	Entretoise	4
16	055-00	UHMW cushion	Coussinet UHMW	2
17	SF-2428-16	Oil lite bushing	Douille lubrifiante	6
18	071-00	Upper axle bushing	Bague d'arbre supérieur	2
19	20165P	Hex screw M6x45	Vis hex M6x45	2
20	21085P	Flat washer	Rondelle plate	4
21	025-00	Protector	Protecteur	2
22	23162P	Hex elastic nut M6	Écrou élastique M6	4
23	20200P	Hex screw M8x25	Vis hex M8x25	8
24	517 078 700	Flat washer	Rondelle plate	8
25	SH-409	Stopper strap	Courroie d'arrêt	2
26	048-00	Spacer	Entretoise	3
27	029-SAX	Softness rod	Tige de douceur	1
28A	30637P-CUT95	Hex screw M10x95mm	Vis hex M10x95mm	2
28B	29664AP	Hex screw M10x110mm	Vis hex M10x110mm	2
28C	30637P	Hex screw M10x100mm	Vis hex M10x100mm	2
29A	008-00X	Axle adaptor	Adapteur d'arbre	2
29B	008-01X	Axle adaptor	Adapteur d'arbre	2

PARTS LIST /
LISTE DE PIÈCES

EXPERT X 2007 (EXP-121-07) /
2007 EXPERT X (EXP-121-07)

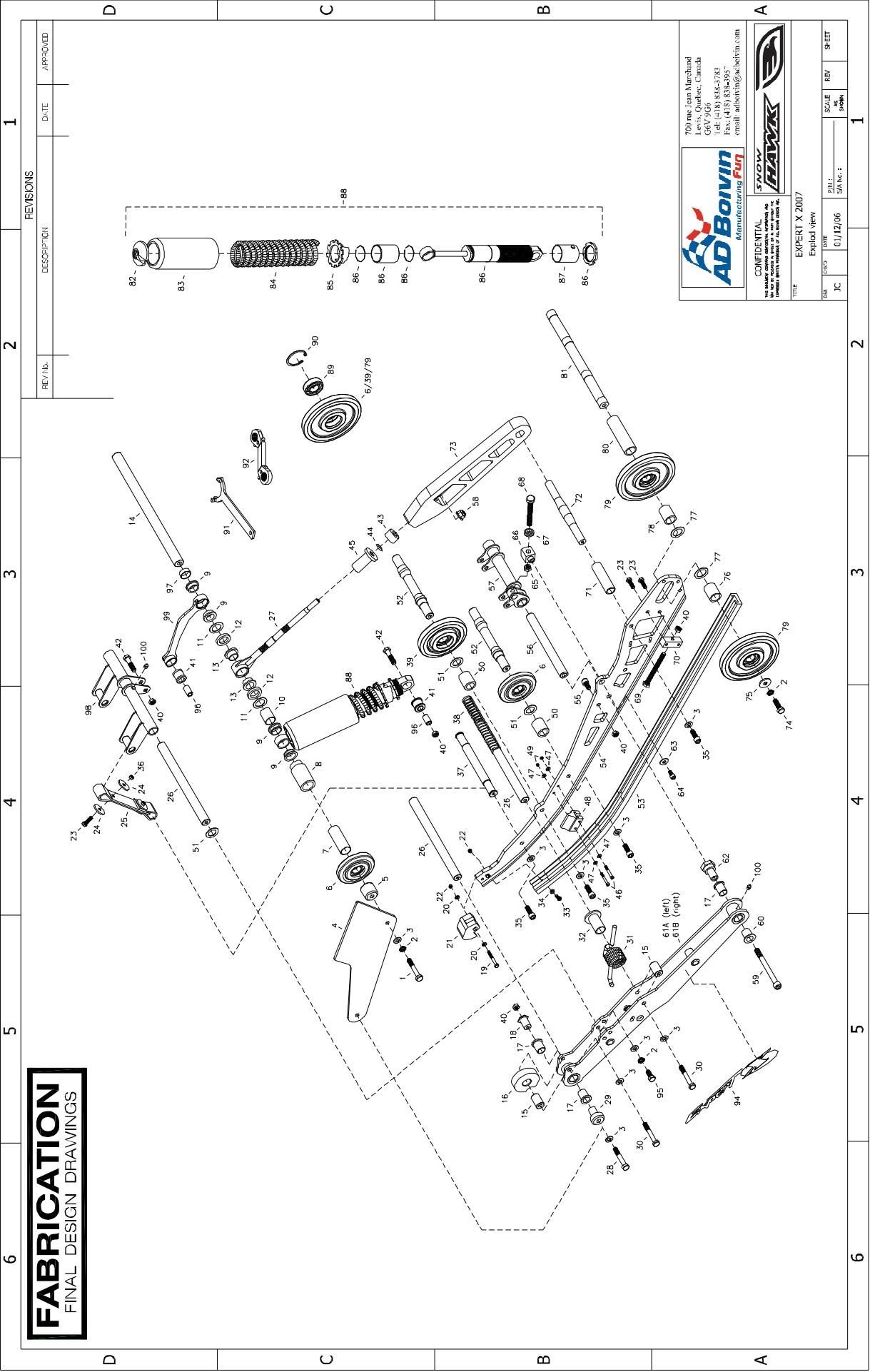
29C	008-02X	Axle adaptor	Adapteur d'arbre	2
29D	008-03X	Axle adaptor	Adapteur d'arbre	2
29E	008-04X	Axle adaptor	Adapteur d'arbre	2
30	30633P	Hex head screw M10x70	Vis hex M10x70	4
31	T-362-1850-4.0-R	Right side tensional spring	Ressort de torsion droit	1
31	T-362-1850-4.0-L	Left side tensional spring	Ressort de torsion gauche	1
32	DS-001	Plastic bushing	Douille de plastique	2
33	22205P	Button head screw M6x25	Vis tête bouton M6x25	2
34	341-103P	Flat washer	Rondelle plate	2
35	21681P	Socket screw M10x30	Vis Allen M10x30	8
36	23164P	Elastic nut M8	Écrou élastique M8	4
37	001-00X	Axle	Arbre	1
38	C-083-1160-10000	Compression spring	Ressort de compression	1
39	RO135P-1001B	Wheel 135mm	Roue 135mm	2
40	23166P	Elastic nut M10	Écrou élastique M10	7
41	414 942 300	Rubber cushion	Coussinet de caoutchouc	3
42	20235P	Hex screw M10x45	Vis hex M10x45	3
43	DDR6261	Rubber damper	Butée de transfert	1
44	236-220A	O-ring	Joint torique	1
45	040-00	Adjustment bushing	Bague d'ajustement	1
46	20144P	Hex screw M5x40	Vis hex M5x40	4
47	21084P	Flat washer	Rondelle plate	8
48	570 047 900	Rubber stopper	Butée de caoutchouc	2
49	23161P	Elastic nut M5	Écrou élastique M5	4
50	023-00	Spacer	Entretoise	4
51	BR14L	Shim	Cale	6
52	010-00	Wheel axle	Arbre de roue	2
53	01-50.63-1-01-BLK	Slider shoe	Glissière	2
54	001-01X	Runner	Rail	2
55	21678P	Socket screw M10x20	Vis Allen M10x20	1
56	042-00X	Axle	Arbre	1
57	063-SAX	Lower shock shaft	Arbre d'amortisseur inférieur	1
58	23167F	Elastic nut flange M12	Écrou élastique épaulement M12	1
59	21736P	Socket screw M12x120	Vis Allen M12x120	2
60	064-00	Bushing	Douille	2
61A	006-SAXL	Swing arm assy (left side)	Bras pivotant assemblé (gauche) ...	1
61B	006-SAXR	Swing arm assy (right side)	Bras pivotant assemblé (droite)	1
62	041-00	Lower swing arm bushing	Douille de bras pivotant inférieur	2

PARTS LIST /
LISTE DE PIÈCES

EXPERT X 2007 (EXP-121-07) /
2007 EXPERT X (EXP-121-07)

63	SN680-217P	Flat washer	Rondelle plate	1
64	21648P	Socket screw M8x16	Vis Allen M8x16	1
65	23167P	Elastic nut M12	Écrou élastique M12	1
66	067-00	Adjuster block	Bloc d'ajustement	1
67	066-00	Adjuster shim	Cale d'ajustement	1
68	20282CP	Hex screw M12x100	Vis hex M12x100	1
69	20246CP	Hex screw M10x110	Vis hex M10x110	2
70	057-00	Tensioner block	Bloc tentionneur	2
71	047-00	Rubber tube	Tube de caoutchouc	2
72	033-00X	Axle	Arbre	1
73	030-00X	Softness bar	Barre d'accouplement	1
74	250 000 019	Hex screw M10x35	Vis hex M10x35	2
75	503 183 300	Flat washer	Rondelle plate	2
76	503 189 809	Spacer	Entretoise	2
77	504 108 200	Shim	Cale	4
78	503 139 600	Spacer	Entretoise	2
79	RO165K-1001A	Wheel 165mm	Roue 165mm	4
80	503 156 000	Spacer	Entretoise	1
81	020-00	Axle	Arbre	1
82	013-00	Spring stopper	Butée de ressort	2
83	503 188 930	Protector	Protecteur	2
84	C-375-2650-10650	Dual rate spring 185/460	Ressort deux stage 185/460	2
85	11301-04205	Cam	Came	2
86	11300-10252-1	Shock absorber	Amortisseur	2
87	YA-001	Sleeve	Bague de réglage	2
88	EXPX-SHOCKASSY	Rear shock assy	Amortisseur assemblé	2
89	6205-2RS	Bearing 6205	Roulement à billes 6205	10
90	N1300-206	Circlip	Circlip	10
91	529 035 582	Wrench adjuster	Clé d'ajustement	1
92	VT1886M	Softness key	Clé d'ajustement	1
93	BS01-0618	Pop rivet 3/16	Rivet 3/16	18
94	SH-609	Sticker EXPERT X	Décalque EXPERT X	2
95	20231P	Hex screw M10x25	Vis hex M10x25	2
96	503 163 700	Spacer	Entretoise	3
97	045-00X	Spacer	Entretoise	1
98	002-SAX	DTR rod	Tige DTR	1
99	003-SAX	DTR pivot	Pivot DTR	1
100	2106	Grease fitting	Raccord de graissage	2

FABRICATION
FINAL DESIGN DRAWINGS



RENDER AND PRINT

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TIME EXP-RT X 2007											
DB	500	Start	200	End	200	SCALE	1	REV	1	SPCFT	1
IC	01/12/06	SYNTH:				%	5%	REV		SPCFT	