

DECISION PAPER



May 10, 2018

Issue:

Cross Country Ski Area Snow Grooming Machine Replacement

Background:

Grooming machine (snowcat) replacement at our winter operations has evolved over the years based on our experience. The reserve replacement schedule had the replacement snowcat for XC budgeted for 2017. This replacement was pushed back to 2018 as a result of a few drought years where the machines did not accumulate very many hours. It has been the philosophy of Tahoe Donner to replace machines once they approach or surpass 7,000 hours (usually every 7 years) for the following reasons.

There are two “hour intervals” where significant maintenance is required. The first 3,500 hours are relatively trouble free requiring only scheduled preventative maintenance services and minor repairs. At 3,500 hours the cost of ownership begins to increase due to several wear items needing to be replaced. Rubber track belts will be worn out and track grousers will start cracking due to the fatigue of several thousand hours. High pressure hydraulic hoses should be replaced at this time as well, on both the snowcat and the tiller. Suspension and wheel bearings should be inspected, and some will need to be replaced. Push frame, blade pivot points and hydraulic cylinders will start to show wear and may need to be replaced or repaired. Gearboxes, tires and sprockets are inspected but usually do not need replacement, and at 3,500 hours, engine and electronics should require minimal repairs.

The 7,000 “hour interval” requires a much larger maintenance commitment. This is the stage that many resorts replace their equipment or relegate to a lower hour utility role to avoid large maintenance costs as well as considerable time commitment from staff. The snowcat will likely require major components to be replaced. The tracks will need a significant overhaul consisting of rubber track belts as well as grouser replacement. In some cases, the complete track set is replaced. In addition to the high pressure hydraulic hoses being replaced, at 7,000 hours many of the low pressure hoses will begin to fail as well. It is typical to replace all the suspension and wheel bearings at this time. Blade, push frame, rear frame, and main frame steel will be fatigued by 7,000 hours and begin to crack. In some cases, weld repairs can be performed, in other cases components will have to be replaced. Gear boxes including splitter box and final drives should be disassembled for the first time, often requiring replacement parts. Tires and sprockets very rarely exceed 7,000 hours and should be changed to prevent damage to other components as a result of their failure. At 7,000 hours, engine repairs can be expected. Turbos, high pressure injection pumps, and injectors are all reaching their reliable service life. Radiators, hydraulic pumps, and electronics will begin to fail at this interval as well. Depending on conditions and use, it is typical for the tiller to be completely rebuilt with new finishing combs and new rotors.

Another factor is the trade in value, 7,000-hour cats can be worth up to \$25,000 or more, higher hour cats fall into the \$10,000 range. Overall, 7,000 hours is a good time to trade/replace a snowcat to avoid all the above maintenance expenses while still receiving a decent trade value.

There is a known steep increase in the cost of ownership at or near the 7,000-hour mark, but there are other factors to consider as well. Even with all the appropriate maintenance, the reliability of the snowcat begins to decline as it ages. Properly functioning, reliable machines are incredibly important to our XC operations – our grooming is the product that we sell. We have a reputation for high quality trails that are open and consistently groomed to a high standard, which is why we have experienced an increase in season passes sold over recent years. With season pass holders providing 28% of our revenue expectations, and over 100 km of trails to groom each day, having 3 functioning machines is very important. While breakdowns are not uncommon, they are more frequent with older machines. Repair can take a machine out of service for several days, or even weeks, while parts are ordered. If the grooming fleet



DECISION PAPER



is reduced because of mechanical breakdowns, the quality and quantity of our trails is compromised. Along these lines, our experience with both major snowcat manufacturers shows that Pisten Bully's (Kassbohrer) equipment produces a better-groomed surface than our Prinoth machines, and their service is far superior to Prinoth. The result is that it is staff's desire to use Pisten Bully when purchasing new equipment (see attached spreadsheet).

The recent history of snowcat replacement for XC is as follows. In 2012, the association purchased a PB 400 (vehicle #220) to replace our Prinoth Bombardier 350 (vehicle #114). At that time, the board of directors recognized the importance of our grooming product and approved that staff retain #114, rather than trade it in, to use it when necessary as a back-up grooming machine. Since that time, management has utilized #114 when we have other failures, but also to gain efficiencies in our grooming operations (shift efficiencies, spring conditions, major storm events, hours reduction etc.). Three functioning machines at XC has allowed for high grooming quality and increased quantity of trails open throughout each season, contributing to our season pass sales success – 64% increase in passes sold from the 14-15 season to 17-18 season. The replacement of a machine this season provides another opportunity to improve our grooming product in two ways:

1. Recent low snow conditions have highlighted the need for a smaller grooming machine. Our three larger machines excel during "normal" years when our trails have adequate snow coverage and they have the power necessary to open trails after snow events. The smaller machine (Pisten Bully 100 for example), has a narrow tiller to accommodate tight trails through trees and would be a valuable resource during lower snow years. Our larger grooming machines have 18' wide tillers which are too wide for the low snow conditions we have been experiencing in recent winters, as most of our roadbeds are only 12'-14' wide. The PB 100 is a small but powerful machine with a 13' wide tiller.
2. We can once again hold onto vehicle #114. This would provide 3 machines for the XC operation to use on a regular basis while ensuring a back-up machine for when one requires service or repair (for the DH operation as well). Adding a snowcat to the fleet will also reduce the hours accumulation of all the machines, assuming normal operating conditions.

Options

There are a few options to consider for this replacement:

- Option 1:** Approve the purchase of a new small snowcat to *add* to the XC fleet so there would be a total of four machines with the oldest, the Prinoth 350 #114, to be used as a back up – current budget \$373,852.
- Option 2:** Approve the purchase of a new small snowcat to replace the Prinoth 350 #114. Vehicle #114 would be traded in as a credit towards the final cost (trade-in estimate - \$15,000 to \$20,000).
- Option 3:** Do not approve the replacement of a grooming machine for the 2018-2019 season and continue to use the existing equipment with the understanding that we will have increased maintenance costs, and a compromised grooming product.

Recommendation:

Staff recommends Option 1, to use scheduled Reserve Replacement budget to purchase a new small snowcat, preferably the PB 100, with several attachments, for a total not to exceed \$330,500.

Prepared by: Miguel Sloane, Sally Jones *MS*

Reviewed by: Forrest Huisman *[Signature]*

Reviewed by: Michael Salmon *[Signature]*

General Manager approval: _____ *[Signature]*



DECISION PAPER



Prinoth Husky/PB 100 Comparison:

	PB 100	Prinoth Husky
Tier 4 Machine	\$ 235,000.00	\$ 215,000.00
Rubber Tracks	\$ 35,000.00	\$ 25,000.00
Track Setter	Included	\$ 8,000.00
PB Bucket	\$ 12,000.00	NA
Push Frame Upgrade	\$ 1,000.00	NA
Renovator	\$ 9,500.00	NA
Hydraulic Tiller Wings	\$ 3,500.00	Included
YTS Roller	\$ 4,000.00	\$ 4,000.00
Delivery	\$ -	\$ 4,750.00
Tax	\$ 25,500.00	\$ 21,823.75
Warranty	2 years	1 year
Total	\$ 325,500.00	\$ 278,573.75

Staff recommendation - PB 100

- Pisten Bully offers a 2-year warranty versus Prinoth's 1-year warranty.
- A primary function of this smaller machine will be to move snow during low snow years. The Husky does not offer a bucket option.
- The Renovator is a blade attachment that adds a second snow processing mechanism to be used during firm snow conditions (spring grooming) for a better finished product. The Husky does not offer a Renovator attachment.
- Efficiencies in staff training, part inventory compatibility, and service calls are realized when we have machines from the same manufacturer.

XC Machines	Purchased	Total Repair Cost				Total	Hours as of 4/5/18
		2015	2016	2017	YTD 2018		
GR114- BR 350 OLD	2005	\$498	\$12,224	\$19,595	\$4,883	\$37,199	7091
GR218- PRINOTH 350	2010	\$3,196	\$14,563	\$22,376	\$994	\$41,129	5163
GR220- PB NORDIC 400	2012	\$150	\$5,693	\$11,548	\$550	\$17,940	2465



For perfect pistes...



5/7/2018

Robert McClendon
Tahoe Donner
Downhill Ski Area Manager
11509 Northwoods Blvd., Truckee, CA 96161

Dear Robert,

Please see below my proposal for new Prinoth grooming vehicles as requested.

1 New 2018 New Bison X Tier 4 Grooming vehicle equipped as follows:

Caterpillar C9.3 405hp engine - Tier 4
Master Park Blade w/Side Cutter Wings
66" Aluminum Tracks
Rubber tracks
New 45 Series Rexroth Drives
Posi-Flex Tiller W/Hydraulic finisher wings and Posi Hyds w/flat lock
High Output Hydraulic Controls w/Proportional Dual Functions
Center operator seat
Long Rear Lift Frame
LED Lights
Inclinometers and Tape Measure Function
Solid Rubber Tires
Heated Glass and Wipers
Vehicle Price:

\$320,000.00

1 New 2018 New Husky Grooming Vehicle Tier 4 equipped as follows:

Master Blade
3.1 Meter Aluminum tracks
All season rubber tracks
Power Tiller w hydraulic finisher wings
Drive lever steering controls
MTU Tier 4 230 HP engine
Vehicle Price:

\$215,000.00

For perfect pistes...

Prinoth

1 New Snow Loading Bucket Price:	\$12,500.00
1 Set Rubber Tracks Bison Price:	\$30,000.00
1 Set Rubber Tracks Husky:	\$25,000.00
1 Set 2 pan Track Setter:	\$8,000.00

Additional Incentives:

- Service school at no charge for 4 people per resort
- Operator and shop training at no charge

**** All prices and terms of this proposal are considered confidential and do not include sales tax.**

Terms:

20% down at contract signature and balance due at delivery

Warranty:

Vehicle: 1 year or 1500 hours

Engine: Standard Caterpillar and MTU warranty

Freight:

\$4,750.00 per vehicle

I look forward to discussing the proposal with you in more detail, in the meantime if you need more information, please don't hesitate to call.

Best Regards

Jason Smith
Sales Representative

PRINOTH LLC
2620 East 5th Street
Reno, NV 89512 USA
Tel.: 775.359.7517 - Fax: 775.359.7725
www.prinoth.com
prinoth.us@prinoth.com



KÄSSBOHRER ALL TERRAIN VEHICLES, INC.

PistenBully[®]

Exclusive Proposal



TAHOE DONNER™

January 2018



KÄSSBOHRER ALL TERRAIN VEHICLES, INC.

PistenBully[®]

Exclusive Proposal



TAHOE DONNER™

January 2018

Pricing

• 2018 PB 100 (Tier 4) Two Pan Nordic

\$235,000

Above pricing includes:

Complimentary Shipping to Tahoe Donner
Full Width Rear Deck
Constant Up/Down Pressure
Rexroth Hydraulics

Available Options:

Park Mount Push Frame	\$1,000
Hydraulic Tiller Wings	\$3,500
YTS Compactor jumbo roller	\$4,000
Rubber X Tracks	\$35,000
Renovator	\$9,500
PB Bucket (PB 100)	\$12,000



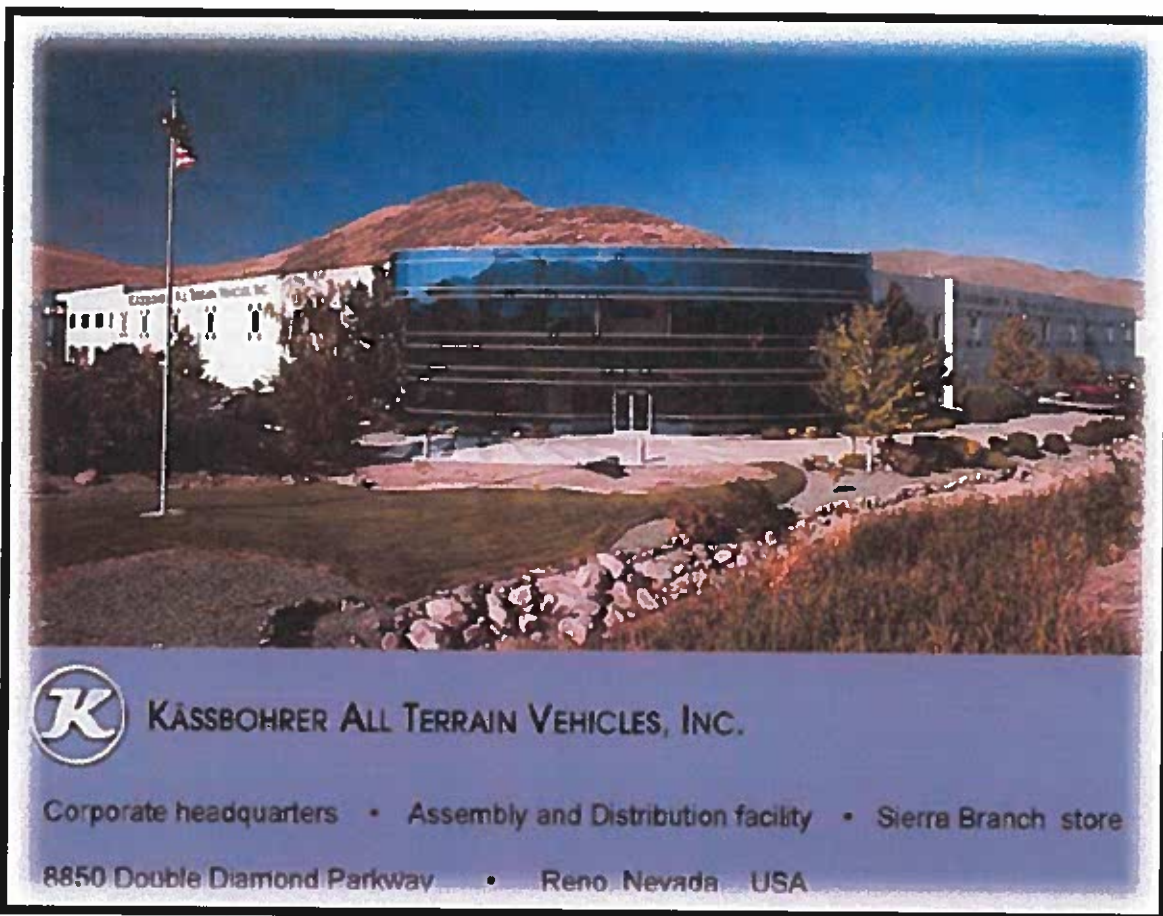
Incentives

All new PistenBullys have a TWO year limited warranty.

Technical Service Center is always:
24 hours a day seven days a week.

Kassbohrer representative to provide onsite assistance with your first summer service.

Kassbohrer's North American headquarters in Reno, Nevada proves our commitment to Tahoe Donner. This facility contains the Sierra Office and over 10 million dollars in parts inventory in addition to the utility production facility.



PistenBully



KASSBOHRER ALL TERRAIN VEHICLES, INC.

Parts

PistenBully's North American parts warehouse is located in Reno, NV. allowing Tahoe Donner same day accessibility to millions of parts.

PistenBully's parts department is open six days a week during the winter season, and is available Sundays for urgent orders with no additional charge.

Our Parts Department averages a 93% fill rate and can be **ordered online** with the Electronic Parts List

KÄSSBOHRER GELÄNDEFahrZEUG AG // VIN: WKU x 824 xx x 0 10281
PISTENBULLY 400 STANDARD 10275 - 10299

Spare parts book Tool catalog Search Shopping cart

back 01 - ENGINE AND POWER TRAIN // ENGINE, ENGINE MOUNTS // DRIVE TRAIN PDF

Item	Part No	Designation	Description
0	824 31 10 000 05 0	ENGINE ENGINE MOU	DRIVE TRAIN
1	8 312 105 000 0	DIESEL ENGINE	6 CYL.
5	8 743 899 000 0	OIL PRESSURE SENSOR	
6	8 743 854 000 0	TEMPERATURE SENDER	
7	824 31 10 112 01 0	CONNECTING SOCKET	

Overview shopping cart
Part information

Fleetmanager
Profile
Logout

PistenBully



KÄSSBOHRER ALL TERRAIN VEHICLES, INC.

Peace of Mind

Routine visits by factory trained staff to assist your operators and technical staff with the Kassbohrer product.

Annual service and parts training to educate, train and prepare your staff.

Kässbohrer World



Kassbohrer has been manufacturing snow cats for over 49 years. We have produced over 22,500 machines and are successful in 68 different countries. Our experience and quality can't be beat!

Technical and Product information located on our website:

www.pistenbullyusa.com

Jeb Ellermeyer
Sierra Sales/Operations Manager
jellermeyer@pistenbullyusa.com
1-775-636-4290

PistenBully®



KÄSSBOHRER ALL TERRAIN VEHICLES, INC.

Added by TDA Staff - Justification for optional attachments for the PB 100

Hydraulic tiller wings

The hydraulic tiller wings will allow the operator to widen the pass where the road and conditions permit. The tiller width will go from 13' to 15'.

YTS compactor jumbo roller

The YTS compactor will allow staff to use this machine in very low snow conditions without damaging the tiller.

Rubber X tracks

Rubber tracks will save the aluminum grousers during low snow conditions. Coupled with the YTS compactor, the rubber tracks will make this the ultimate low snow conditions snowcat.

Renovator

The renovator is a blade attachment that adds a second snow processing mechanism to be used during firm snow conditions (spring grooming) for a better finished product.

PB bucket

The bucket will allow staff to transport snow efficiently which has been critical for the past several seasons to both get trails open and keep trails open.

Park mount push frame

The park push frame allows the blade arm to raise higher in front of the machine. This upgrade is required to allow the bucket to angle enough to dump snow.