OPERATION AND SERVICE MANUAL
MOUNTAINEER MEANY CAT KNOWN AS "TOM CAT"
BOMBARDIER MODEL M, NO SERIAL NUMBER
EARLY 1950'S PRODUCTION

Updated October 2002

The following document was generated by the Meany committee. The original manual was mostly sales promotion and not up to current manual standards.

The Bombardier Company is still in business and still supports the Tom Cat with parts. The main warehouses for our machine are Calgary and Granby, but the Mountaineer account is through the Salt Lake City office.

Bombardier Parts — Tires, tubes, differential, axles, wheels, sprockets
Justin Williams
2140 North Redwood Rd
Salt Lake City, UT, 84116
801-364-8266
801-364-8275 FAX
Justin.Williams@recreation.bombardier.com

The following is a compilation of possible sources for specialty parts.

Fallline Corp — Track belt,
4625 Aircenter Circle
Reno, NV 89502
775-827-6400
800-325-5463
775-827-6749 FAX

TABLE OF CONTENTS

OPERATION AND MAINTENANCE MANUAL

SECTION I

DESCRIPTIVE INFORMATION

GENERAL

The Bombardier Model M off-highway vehicle is a track laying type cargo and/or personnel carrier adapted for use over snow, marsh, muskeg, and other difficult terrain.

DATA

Engine	Chevrolet Model 292 6 cylinder OHV light truck engine, gasoline
Transmission	Four speeds forward, 1 reverse
Steering differential	Planetary controlled differential in oil bath,
Suspension	Multiple rocking beam with limited spring interconnection
Wheel Base	142 inches nominal
Tread	54 inches
Wheel size	16x4, solid hub
Tire size	4.50 x 16, 6 ply rating
Track width	28 inches
Dimensions	Overall length, 234 inches Overall width, 114 inches with ski boxes Overall width, 100 inches without boxes Overall height, 99 inches
Fuel capacity	16 gallons
Fuel consumption	1-2 miles per gallon[1]
Top speed	25 MPH surface conditions permitting
Empty weight	8850 pounds
Gross weight	16000 pounds
Snow pressure	1.17 psi empty and zero penetration 0.95 psi empty and maximum penetration 2.01 psi gross weight, zero penetration 1.72 psi gross weight, maximum penetration
Maximum snow slope	Maybe 25% in good conditions

[1] Fuel consumption has been as high as 5 gallons per mile in bad snow

SECTION II

OPERATING PROCEEDURES

PRE-STARTING CHECKS

Before starting the engine or driving the vehicle, the following items should be inspected:

Oil, fuel, and coolant levels should be checked and the area beneath the engine and drive line components should be inspected for any evidence of loss of lubricant or coolant.

All tires should be inspected for proper inflation (normally 90 psi)

Tracks should be inspected for proper tension and any damage from previous use. (Instructions for tightening the tracks are given in the section on track maintenance).

A short pre-trip inspection will always pay off and perhaps save a serious breakdown in a remote area.

STARTING ENGINE AND WARM UP

Place both transmission shifting levers in neutral and depress the clutch pedal.[2] Turn on the ignition key and, with the choke button full out, energize the starter. Depress the accelerator pedal approximately ¼ open. After the first few revolutions of the engine, the engine should start.

If the engine does not start with the above procedure, it could be that the engine needs a shot of starting fluid.

To clear a flooded engine, depress the accelerator fully down and hold in this position and continue to run the starter with the ignition on until the engine clears and fires. After the engine has been cleared, it may be started in the normal manner.

Immediately upon starting the engine, check the oil pressure gauge to be sure oil is being supplied to the working parts of the engine.

Warm up the engine at approximately 1200-1500 rpm until normal operating temperature is reached. After the engine is warm and running smoothly, release the clutch pedal. (Under extremely cold conditions, the lubricant in the transmission may be very stiff and the clutch should be released slowly to prevent transmission damage.) While the engine and vehicle are warming up, the driver should check all accessories to make sure they are

[2] The fuel valve, and master electric switch, need to be on.

functioning properly, such as lights, etc. The choke button should be pushed fully in when the engine is warm.

DRIVING ROUTINES

The vehicle is equipped with a 4 speed transmission. Normal starts are made by using first or second gear. The transmission has 2 levers. The left lever controls the 4 forward speeds in a standard "H" pattern. The right lever engages reverse. Only one lever may be engaged at once.

Steering is accomplished through the planetary differential at the front of the vehicle. The differential is actuated mechanically by pulling the steering levers. A turn to the left is made by pulling the left lever and a turn to the right is made by pulling the right lever. The levers should be firmly pulled so that a crisp definite turn is executed. Heavy control pressures are normal in soft snow or heavy load conditions. Steering is generally more responsive in forward than reverse. At high speed, the lever should be handled lightly as the steering is quick and responsive and a skid could be caused by rough handling.

Under very cold conditions it is extremely important that the vehicle be handled carefully until all members of the driving train are warm. Remember, lubricants are stiff and steel is brittle at extremely cold temperatures. The clutch should be depressed and released slowly, gear shifting done carefully, and steering handles engaged gently until the driving and steering mechanisms are warmed up.

The vehicle is equipped with electric engine cooling fans. One set of fans comes on when the engine is started. The other set is manually switched on by the driver when climbing steep grades or other sustained low speed high power settings. The operator needs to monitor the water temperature. The volt meter should also be monitored for early detection of a loose alternator belt.

STOPPING THE VEHICLE

The vehicle can be slowed or brought to a stop by pulling both steering levers simultaneously. When both steering levers are actuated, the steering bands act as brakes, and the vehicle is stopped in the same manner as with conventional hydraulic brakes.

The vehicle is equipped with a hand brake. This is a drive shaft brake. This brake is very effective in holding the vehicle on steep grades while recovering from an engine stall. It can be used to assist in stopping and holding the vehicle or to check its speed. It is not a parking brake and should not be used in lieu of engaging the transmission and stopping the engine when leaving the vehicle unattended.

SECTION III

MAINTENANCE PROCEEDURES

ENGINE AND ENGINE ACCESSORIES

The engine, clutch, starter, transmission, and alternator, are manufactured by the Chevrolet Motor Company and their care is described in the "Light Truck Shop Manual", which is available for reference in the lodge files. The radiator is from a John Deere 4440 farm tractor. Maintenance procedures which are peculiar to this vehicle are described below:

Air Cleaner:

The current installation does not include an air filter.

Oil Filter:

The oil filter supplied is of the spin on cartridge type. At each engine oil change, remove the filter by hand or with a suitable strap wrench. Apply oil to the rubber seal of the new filter and screw the filter on by hand until it seals, then tighten ½ turn. Do not over tighten. Refill the crankcase, operate the engine, and check for leaks.

CLUTCH CONTROLS

The clutch is actuated by direct mechanical linkage. It will rarely require adjustment. The Chevrolet service manual can be consulted if there are problems.

FUEL SYSTEM AND CONTROLS

The vehicle operates best on gasoline with an octane rating of 80-96. The use of Ethyl grade is not necessary.

The canister fuel filter located in the cockpit above the throttle should be serviced each 200 hours. It should be drained any time the weather turns warm after an extended cold spell. Unscrew the canister, remove and discard the filter element. Push a new element firmly into place, then screw on the canister until it seats, and tighten ¼ turn.

The choke control cable should be checked occasionally to insure that the choke valve on the carburetor is fully open when the choke control knob is fully pulled out[3].

[3] There is also a filter in the carburetor body.

SUSPENSION SYSTEM

The walking beams have two grease fittings at each axle pivot point.

The wheel hubs are provided with grease fittings so that grease may be flushed through the bearings. The grease seals are installed with the sealing lip turned outward to allow the excess grease to escape.[4] The bearings should be flushed daily when operating in mud, water, silt, etc.

The wheel bearings should also be removed, cleaned, and repacked as required. Use a heavy duty water proof grease for packing the bearings. When replacing hubs on the spindles, care should be taken to ensure that the grease seal is properly fitted on shoulder of the spindle. The wheel bearings are adjusted according to standard automotive practice. Spin the hub as the slotted nut is tightened until a slight drag is noted. Back off nut approximately one hole to relieve the drag. Install cotter pin.

When the vehicle is on a reasonably level surface, it is usually not necessary to disconnect the track to remove wheels other than the rear ones. The rear wheels are foam filled and rarely need to be removed. In some cases, the removal of the wheel will be facilitated by slacking off the track tension adjustment. Wheel installation will be easier if the tire is not inflated until after installation.

DRIVE LINE COMPONENTS

The drive shaft is comparable to a standard automotive drive shaft.

Maintenance of the drive line components should normally consist of regular lubrication and occasional adjustment of the brake bands in the differential. The adjustment of the brake bands is described in the section on "Steering Controls".

Should it become necessary to reline the brakes or perform other major repairs on the differential unit, it will usually need to be removed from the vehicle. This is a major process and best done on a hard concrete surface. The machine will need to be jacked, both tracks split, both drive sprockets and associated axles removed, fuel tank removed, and a few miscellaneous components disconnected.

ELECTRICAL SYSTEM

[4] The seal may have a small hole drilled in the housing as an alternate.

The electrical system is a 12 volt system using standard automotive components. Alternator, regulator, and starter maintenance are described in the "Chevrolet Shop Manual", which is in the Meany file.

The ignition switch has three positions. With the key vertical, the switch is "off" and there is no electrical power to the vehicle. Turning the key counter clockwise from "off" position engages the "accessory" position and supplies power to all accessories (lights, heater, etc). Turning the key clockwise from the "off" position engages the "on" position. In this position, the engine ignition is "on" as well as the accessories.

Most switch controlled circuits are independently fused. The fuses are in a fuse holder behind the dash.

TRACKS

Track Tension:

Track tension is not critical on this vehicle. Running the tracks excessively tight will reduce power and consume excess fuel due to increased rolling resistance. The tracks should only be tightened enough to eliminate excessive jumping or slippage of the track on the drive sprockets. Occasional jumping of one tooth between the track and sprocket is normal. This happens most often in tight turning conditions. It will be necessary to readjust track tension after the first few hours of operation due to an initial stretch of the track belting.

It is difficult to give an exact setting for track tension because this varies somewhat with the temperature and environment in which the vehicle is operated. As a guide, the upper portion of the track should sag approximately ½ inch between adjacent wheels. Make this check only after driving the vehicle a few hundred yards and allowing it to coast to a stop. Tire pressure should be 90 psi when this check is made.

The only time it has been found necessary to run the tracks with more tension than described above is in severe terrain where muskeg, rocks, and stumps are encountered during turning operations. In these conditions, the tracks should be tightened until the upper portion of the track has little or no sag between wheels and the cleats make a slight impression in the rear tires. After tightening the tracks, the vehicle should be driven a short distance. If the track tensions are unequal, the vehicle will tend to drift or turn slightly toward the side having the tighter track. Equalizing the tension will improve the directional stability of the vehicle and make it more pleasant to drive on long trips.

For long, cross country runs where a minimum of turning and maneuvering is expected, a saving in gasoline and relief from track abuse can be gained by

adjusting the track more loosely than would be required for ordinary yard use, deep snow, or short range trips.

Track Tension Adjustment:

The vehicle should not be loaded while track adjustment is made.

The rear pair of wheels for each track is independently adjusted with a cylinder. Waterproof grease is added or removed via a zirc fitting as required.

Use of the Track Jacks:

Two track jacks were fabricated for the vehicle. When connecting the belt, one jack is placed on each side of the track to apply equal tension to the belts. By operating the jacks simultaneously, in small increments, the ends of the track sections can be brought together and the lap bolts can be inserted.

STEERING CONTROLS

Actuation of the steering brake bands in the differential is accomplished through direct mechanical steering controls. These controls consist of the steering levers, linkage, and adjusting nut.

Adjustment of the Steering Brake Bands:

The steering brake bands should be adjusted when the free play in the steering levers become excessive.

The adjustment is performed on the linkage system by sliding the front cowl forward, loosening the jamb nuts, turning the adjusting nuts until desired play is established, then relocking the nuts.

TRANSMISSION CONTROLS

The transmission shifting linkage normally requires no maintenance. It is a direct connection to the spool shafts.

SECTION IV

SOME THINGS THE VEHICLE OPERATOR SHOULD KNOW

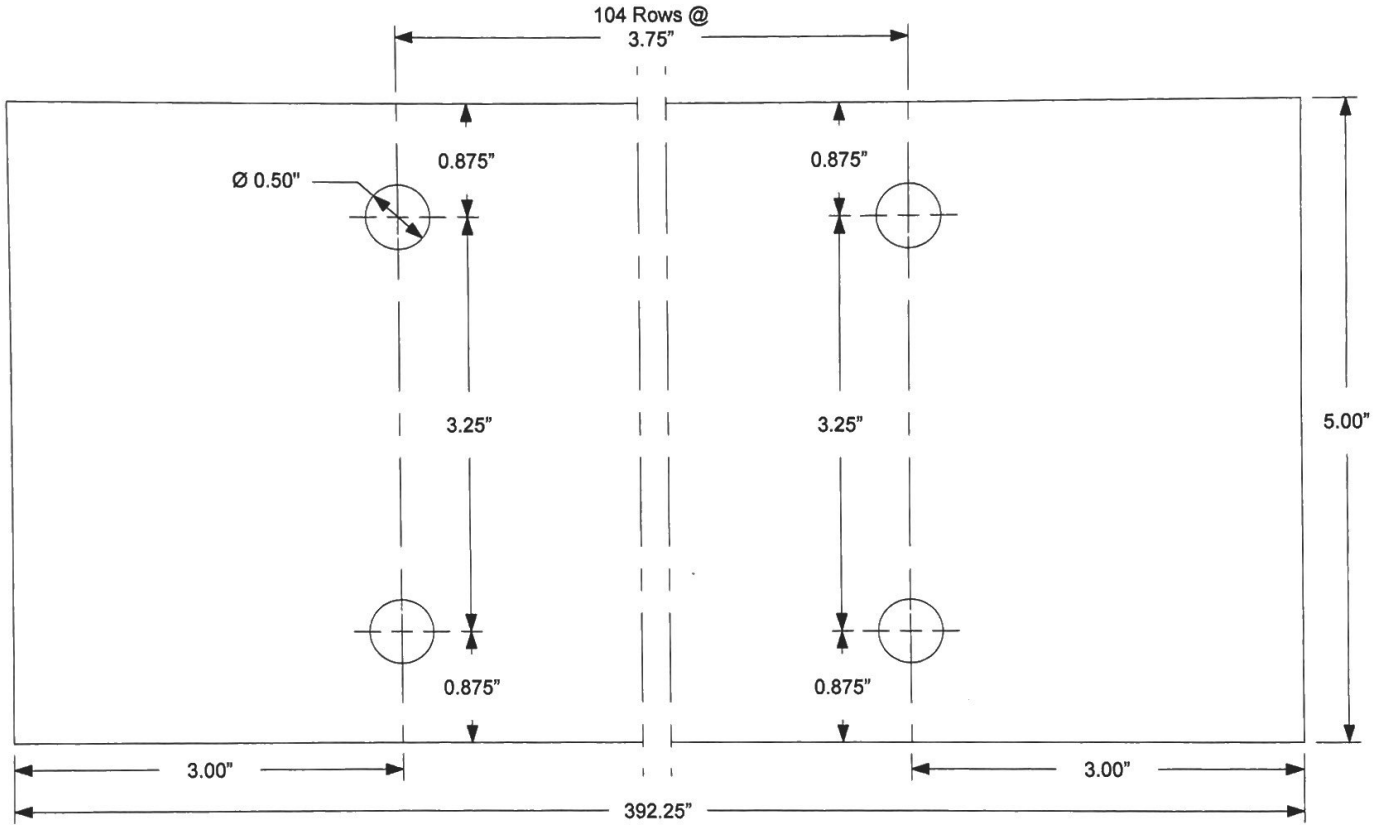
Following is a list of items which should be brought specifically to the attention of the vehicle operator. They will help the customer to realize expected performance and operational safety of the vehicle.

1. Do not run the vehicle in reverse gear for any extended length of time at high engine speeds. This may cause oil starvation of essential parts of the transmission, such as the reverse idler gears, and thus cause premature failure. If reverse operation must be used for extended periods, keep engine speeds below 2000 RPM. Use standard gear lube in the transmission and universal tractor fluid in the differential.
2. Do not use the steering system as a clutch brake system. It is a planetary differential. Power is always maintained to both tracks even in a turn with the outside track running approximately twice the speed of the inner track.
3. Tracks should not be run any tighter than necessary. Tight tracks will rob available horsepower as well as decrease life expectancy of track parts. Run tracks as loose as possible, while still maintaining track retention and sufficient track and sprocket engagement.
4. Prevent over speeding engine[5]. When descending steep grades, the engine can be forced into an over run condition. This can be avoided by using a low gear or by braking the vehicle speed by applying steering levers simultaneously or by using the hand brake. Engine life will be increased if the engine operating RPM is kept below the engine manufacturer's suggested maximum.
5. Caution should be taken when using the hand brake for parking the vehicle. This brake is most beneficial for slowing the vehicle down or limiting its speed. It is likewise helpful in holding the vehicle on a steep grade during operation.
6. Correct vehicle speed to the terrain conditions. Eliminate track throwing and excessive loads on the vehicle by slowing down when negotiating sharp turns. Consider the effects caused by striking hidden objects such as stumps and rocks. Care should be taken when traveling in areas suspected of such objects. Severe impacts can be experienced even at relatively slow speeds.[6]
7. When operating on very steep grades, special care should be taken to ensure that engine oil pressure is always maintained. Keeping an eye on the oil pressure gage can prevent serious and costly repairs. Loss of oil pressure can occur on steep grades if oil is not maintained near the full mark.
8. Care should always be taken to assure that the vehicle is in good operational condition when making long trips. Regular maintenance procedures must be followed. Check listing the vehicle condition daily will save costly repairs

[5] The engine has an over speed governor set at 3400 rpm that can be overcome on downgrades.
[6] Turns on the railroad tracks are guaranteed to result in damage.

and assure safety to the operator and passengers. Special attention should be given to tire inflation and track condition. Always carry some spare belting for emergency repairs.

9. This vehicle has been designed especially for traversing marginal terrain which will support only low pressure vehicles. Some parts of the vehicle are susceptible to damage in the more difficult or rough terrain. Care should be taken to avoid excessive abuse so that long continuous service can be expected.



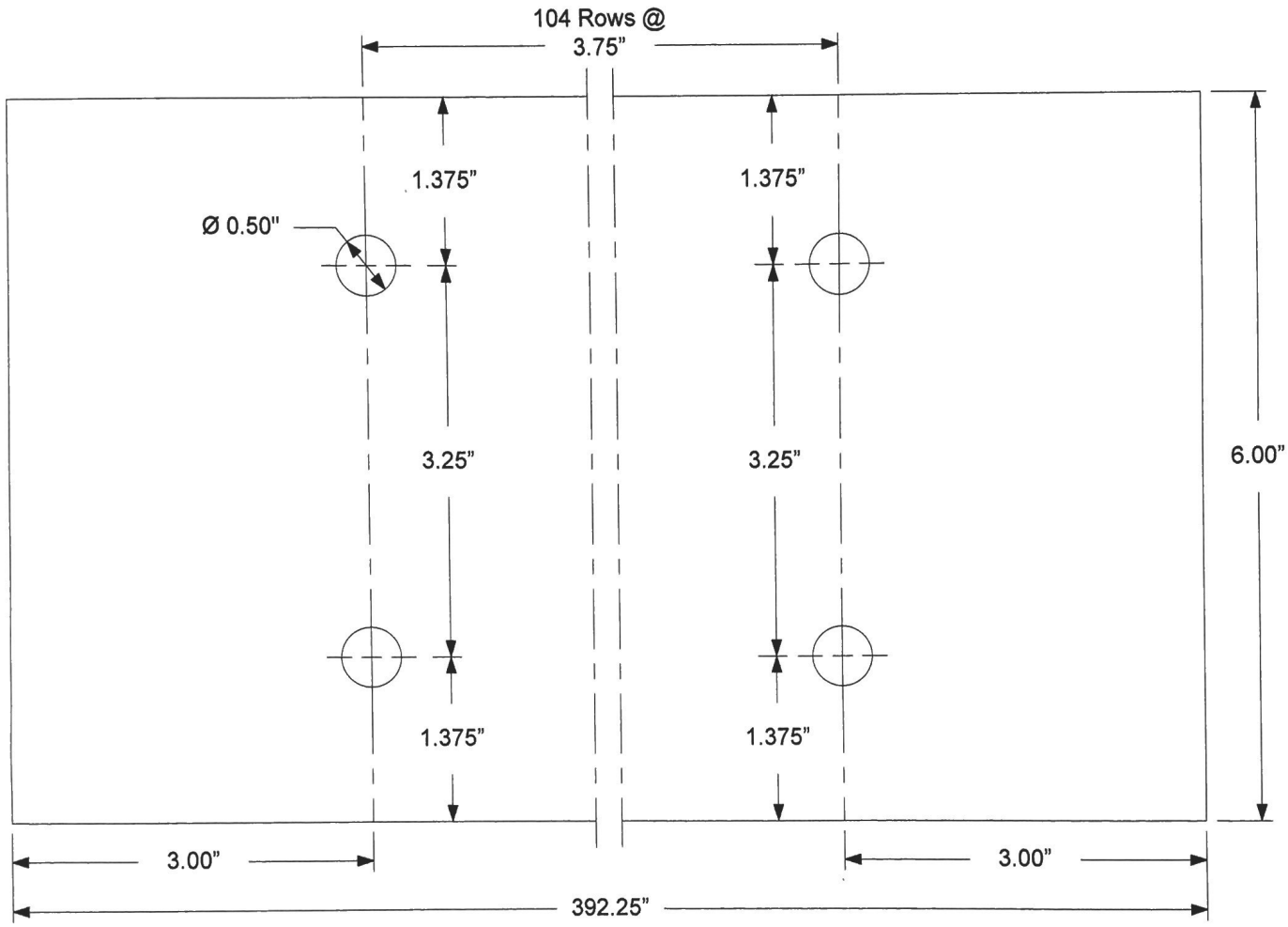
I hereby acknowledge that this drawing is correct, and authorize FallLine to proceed with the production of this product. This is a custom manufactured item, and is not eligible for return.

Signature

1/12/20
Date

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES
DO NOT SCALE DRAWING

DESCRIPTION: Snowcat Special Track Belt		
SNOWCAT MAKE & MODEL: Bombardier Muskeg		PART #:
BELT POSITION: All		NOTES: No Lacing Holes/Utility Series
SCALE: NTS	REV#:	DATE 01/10/20



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ERIKS West, Inc.

ERIKS

SEATTLE
14600 Interurban Avenue South
Seattle, WA 98168

LOS ANGELES
1166 Knollwood Circle
Anaheim, California 92801

~Meany Shi hodge Hyd cyl Parts

ship to (1007682)
WILL CALL CUSTOMER
-

SEATTLE WA 98168

sold to 1007682
ALUMINIM HEAD WELDERS
-
SEATTLE WA 98168

order# 759511-1
date 01/23/01

required 01/23/01

page 1 of 1

control SEA | type CHGSI | customer PO VERBAL | order by BOB | entered by BRIAN | phone - -

item	part#	description	bin / sku	order	SHIP --QUANTITY--	price	extension
1	2-024	70-DURO NITRILE O-RING	3A 124397	3	3	0.1600	0.48
2	2-025	70-DURO NITRILE O-RING	3A 124422	3	3	0.1800	0.54
3	2-026	70-DURO NITRILE O-RING	3A 124423	3	3	0.1900	0.57
4	2-224	70-DURO NITRILE O-RING	3C 124545	4	4	0.3900	1.56
5	2-326	70-DURO NITRILE O-RING	3D 123208	4	4	0.4200	1.68
6	8-216	CONTOURED NITRILE BACK-UP RING	6D 101970	2	2	0.2626	0.53
7	8-326	CONTOURED NITRILE BACK-UP RING	6F 102055	6	6	0.4520	2.71
8	U12501125-N80	HOMOGENOUS U-CUP 1-1/8 X 1-3/8 X 1/8	13B 107048	4	4	3.1315	12.53

Pd Cash

C Bob Brutter

>> ***COD***THANK YOU FOR YOUR ORDER***
>> ********** TAXABLE **********

ship: WILL CALL
ship: WILL CALL

shipped: Brian date: 1-23 frt in: _____

checked: _____ date: _____ frt out: _____

$20.60

Five% +/- quantity standard compounds.
Twenty% +/- quantity special compounds.
Claims for shortages and/or damages must be made within ten days of shipment date.

-PICK- -PICK- -PICK- -PICK- -PICK- -PICK- -PICK- -PICK-

SEA BRIAN 01/23/01 09:53AM p12>g3 01/23/01 10:15AM

$20.60

SEATTLE Phone: (206) 243-9660 FAX: (206) 243-4718

LOS ANGELES Phone: (714) 826-2000 Fax: (714) 826-2001

172
22.37

THIS SHIPPING ORDER must be legibly filled, in ink, in indelible Pencil, or in Carbon, and retained by the Agent

Shipper's No. _____

(Name of Carrier)

Carrier's No. _____

RECEIVED, subject to the classifications and tariffs in effect on the date of issue of this Shipping order,

At **35045 16th Ave. South, P.O. Box 3154, Federal Way, Washington**

From **SCANCO**

1-26, 1901

the property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below, which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is, mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Uniform Freight Classification in effect on the date hereof, if this is a rail or rail-water shipment, or (2) in the applicable motor carrier classification or tariff if this is a motor carrier shipment.

Shipper hereby certifies that he is is familiar with all the terms and conditions of the said bill of lading, including those on the back thereof, set forth in the classification or tariff which governs the transportation of this shipment, and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

Consigned to Meany Tomcat axles (Mail or street address of consignee - For purposes of notification only.)

Destination _____ State _____ Zip Code _____ Delivery Address ★ _____

(★ To be filled in only when shipper desires and governing tariffs provide for delivery thereat.)

Route _____

Delivering Carrier _____ Car or Vehicle Initials _____ No. _____

NO. PACKAGES	HAZARDOUS MATERIALS	Kind of Package, Description of Articles, Special Marks, and Exceptions	★ WEIGHT (SUBJECT TO CORR.)	CLASS OR RATE	CHECK COLUMN
2		AXLES			
		EDUCTOR NOZZLES ONLY	4340		
		50.00			
TOTAL PIECES					

Subject to Section 7 of conditions of applicable bill of lading, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

Per _____
(Signature of Consignor)

If charges are to be prepaid, write or stamp here, "To be Prepaid."

Received $ _____ to apply in prepayment of the charges on the property described hereon.

Agent or Cashier:

Per _____
(The signature here acknowledges only the amounts prepaid.)

Charges Advanced:

$ _____

† Shipper's imprint in lieu of stamp, not a part of Bill of Lading approved by the Interstate Commerce Commission.

SHIPPERS CERTIFICATION This is to certify that the above named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

SIGNATURE Bob Bentley TITLE:

★ If the shipment moves between two ports by a carrier by water, the law requires that the bill of lading shall state whether it is "carrier's or shipper's weight."

NOTE - Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.
The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____

SCANCO
35045 16th Ave. South, P.O. Box 3154
FEDERAL WAY, WASHINGTON 98063

Shipper, Per _____

☞ **Agent must detach and retain this Shipping Order and must sign the Original Bill of Lading.**

Permanent post office address of shipper

2

Reorder Item #F3NC Grayarc, P.O. Box 2944, Hartford, CT 06104-2944

cialty
ETALS
Corporation

8300 South 206th St.
Kent, WA 98032
253•872-8000
Fax 253•872-0437

CASH SALE

REN

NUMBER	DATE	PAGE
063962	01/17/01	1

YOUR RECEIPT
THANK YOU

SPECIALTY METALS CORP
WATERJET CUTTING
FORMING & BENDING

DATE

DATE

DATE 01/17/2001 WED

DATE

INVOICE NO:	63962
CASH CUST	$64.00
TOTAL	$64.00
CASH	$100.00
CHANGE	$36.00
GLORYE	No.01417
TIME 14:55	00

0003

O	ORDER DATE	CUSTOMER NO.	SALES	CUSTOMER P.O. NUMBER	SHIP VIA	COLL.	PPD.	TERMS
		1431	58					CASH

ALUMINUM HEAD WELDING
3411 C ST SE
AUBURN, WA

SHIP TO

GRR

QUANTITY SHIPPED	QUANTITY BACK ORDERED	U/M	ITEM NO.	DESCRIPTION	UNIT PRICE	AMOUNT
1		EA	XRD01750434OHA	HR 4340 ANN RD, 1-3/4" DIA	10.1749	64.00
			USE 6.29 FT 75-1/2" 85380	PIECE IN BIN # Z60		
				HEAT NO.	CUT FROM	RETURN TO

Many Tomcat axles

Bob Brantley

S	SUBTOTAL	MIS. CHARGES	SALES TAX	FREIGHT	TOTAL	RECEIVED BY	DATE
		0.00	0.00	0.00	64.00		

CUSTOMER

PACKING SLIP
FROM

4818

ADVANCED GEAR TECHNOLOGIES, INC.
1009 S. CENTRAL AVE., #10
KENT, WASHINGTON 98032

SOLD TO: Mercy Tom Cat apples
ADDRESS:
SHIP TO: BOB Bentler
ADDRESS:

CUSTOMER'S NO.	SHIPPER'S NO.	SALESMAN	DATE
verbal		Paul.	1/25/2-00

QUANTITY	DESCRIPTION
2	Cut 16 spline tooth double end. Parts
	4 splin tooth
	Paid cash 375.00
	Bob Bentler

PACKED BY	CHECKED BY	CARTON-PKGS.	TOTAL WEIGHT	SHIPPED VIA

REDIFORM
6H 639

PLEASE NOTIFY US IMMEDIATELY
IF ERROR IS FOUND IN SHIPMENT

ALBERTSONS
BONUS BUY PROGRAM
11/04/00 09:26 044 07 00017254
BLEACH 2.79 T
BLEACH 2.79 T
NAPKINS 2.59 T
**** TAX .36- BAL 4.53
CASH 10.03
CHANGE 5.50
TOTAL NUMBER OF ITEMS SOLD = 3
CLUB CARD SAVINGS WITHOUT THE CARD!
THANKS FOR SHOPPING AT ALBERTSONS!
WWW.ALBERTSONS.COM

TOM CAT ENGINE WARRANTY
11/04/60

JONES' AUTOMOTIVE ENGINES, INC.

W. 1302 2nd Avenue • Spokane, WA 99204 • (509) 838-3625

IMPORTANT OWNER'S WARRANTY INFORMATION ENCLOSED

Your engine work-order number is: 48010 292 CK
Your engine part number is: _____

You will need these numbers as reference should a warranty problem occur.

Date	Mileage	Service Performed

WARRANTY INFORMATION

INSTALLATION REQUIREMENTS AND RECOMMENDATIONS

Replacing an engine is a very complex procedure and must be performed by a skilled technician. Most automotive new car dealerships and many automotive repair outlets require their technicians to be N.I.A.S.E. certified.

It is also very important that your installer has the **proper engine diagnostic equipment,** capable of diagnosing emissions, ignition, fuel systems, in-vehicle computers and sensors.

It is the responsibility of the installer to advise the purchaser of the motor, about the condition of the radiator, air filtering systems, pollution control components, sensors, injectors and vacuum operated devices and to replace them as needed.

Your remanufactured engine should begin operation under the same conditions as the original engine. The following list of parts is to be replaced as a requirement of your warranty:

- PCV Valve
- Oil filter
- Oil pump drive rod
- Oil pump
- Spark Plugs
- Fuel filter
- Air filter
- Thermostat
- Clean / Replace Radiator
- Oil pump pick up screen
- Valve lifters (short block)

It is also recommended that you replace or thoroughly test the following parts:

- Water pump
- Fuel pump
- Radiator Cap
- Plug wires
- All hoses
- All belts
- Injectors
- Oxygen, temp & map sensors

YOU MUST PERFORM ROUTINE MAINTENANCE ON YOUR VEHICLE ON A REGULAR BASIS

- **1. Change oil and filter for the first time at 500 miles and have the vehicle inspected for oil leaks, water leaks and a general overall inspection.**
- 2. Change oil and filter every 3 months or 3000 miles.
- 3. Check fluid levels every gas fill up.
- 4. Change air filters and check hoses and belts every 30,000 miles.
- 5. Keep all records in your warranty packet

MAKE SURE THE WARRANTY REGISTRATION CARD SUPPLIED IS COMPLETED AND RETURNED TO THE FACTORY WITHIN **15 DAYS** OF INSTALLATION. READ AND MAKE SURE YOU UNDERSTAND THE TERMS AND CONDITIONS OF THE WARRANTY.

ENGINE FAILURES AND LIMITATIONS NOT COVERED UNDER WARRANTY

- 1. JAE will not be liable for death or injury to person or property, loss of use of vehicle, loss of time, loss of profit or income, travel expenses, towing charges, vehicle rental, or any incidental consequential damages arising from any defect of this product.
- **2. JAE specifically excludes liabilities for broken crankshafts or damage to thrust bearing failures after the installation of the engine.**
- 3. JAE will not be liable, under any circumstances, for scored pistons and cylinders, broken rings and ring lands due to overheating, detonation, pre-ignition, fuel wash or improper break in procedures.
- 4. Failure due to act of nature (flooding, freezing etc.)
- 5. Lack of lubrication, or oil level too low.
- 6. Flushing or cleaning the engine oil cooler is not acceptable, it must be replaced. All engine oil cooler lines must be thoroughly flushed and cleaned.
- 7. If the engine assembly has been overheated or the heat tab has been removed.
- 8. Failure to properly clean the intake manifold and all tin installed back on the engine.
- 9. Failure to have regular oil filter changes every 90 days or 3000 miles whichever comes first.
- 10. The warranty applies to the original purchaser only and may not be transferred.
- 11. The engine must be installed by an N.I.A.S.E. certified technician or equivalent to receive full compensation on a warranty claim.
- 12. Engines that have design defects from the original equipment manufacturer, such as casting flaws.

REMANUFACTURED ENGINE LIMITED WARRANTY

ENGINE PART NUMBER	
ENGINE WORK ORDER NUMBER	48010
INSTALLATION DATE	11/4/00
MILEAGE	N/A

The limited warranty allocates the risks of product failure between JAE and the original customer only, as authorized by the Uniform Commercial Code and other applicable laws. In the event of any legal action against Jones Automotive Engines, the customer agrees that the laws of the state of Washington shall govern such action, and that the venue for such action shall be in Spokane County, Washington.

WARRANTY CLASSIFICATION

PREMIUM LONG BLOCK

A. Passenger cars, pickup trucks and vans of ¾ ton or less used for personal, non-commercial transportation.
B. Heavy-duty trucks and commercial vehicles and all marine.
C. Import cars and pickups
D. Motor homes (We do not catalog or intend one of our engines to be used in these applications. If one is installed, it is done so with no warranty expressed or implied
E. High performance engines are purchased as is. JAE makes no warranties expressed or implied.
J. Self installed Premium Long Block

SHORT BLOCK

F. Passenger cars, pickup trucks and vans of ¾ ton or less used for personal, non commercial transportation.
G. Heavy duty trucks and commercial vehicles
H. Import cars and pick-ups
I. Cylinder Heads
J. Self installed short block

WARRANTY TERMS

CLASSIFICATION A: The warranty term shall be for 5 years or 50,000 miles whichever comes first.
CLASSIFICATION B,F,G,H,I & J: The warranty term shall be 1 year or 12,00 miles whichever comes first.
CLASSIFICATION C: The warranty term shall be for 3 years or 36,000 miles whichever comes first.
CLASSIFICATION D & E: The warranty term shall be no warranty expressed or implied.

WARRANTY LABOR REIMBURSEMENT

See the warranty terms for the length of time applicable to your engine. JAE will reimburse the original purchaser for approved repairs. The payment rates will be as follows.

A. Engines originally installed by a professional mechanic in a service shop open to the general public.
- 1. Rate for the first 12 months or 12,000 miles whichever comes first. $35.00 per hour with a maximum payout of $650.00
- 2. Rate for the next 24 months or 24,000 miles whichever comes first. $20.00 per hour.
- 3. NO LABOR PAID during the remainder of the period.

WARRANTY LABOR REIMBURSEMENT, cntd.

B. Engines that are self installed.

- 1. Rate for 1st 12 months or 12,000 miles or whichever comes first is $15.00 per hour with a maximum payout of $300.00.

C. Approved warranty parts reimbursement.

- 1. Jobber cost only on parts shall be reimbursed on Premium Long Blocks only for the first 2 years or 24,000 miles. The remainder of the warranty carries ½ jobber cost of parts reimbursement.
- 2. Jobber cost reimbursement only on parts for 1 year or 12,000 miles. short blocks manufactured by Jones Automotive Engines.

D. Over the counter parts.

- 1. For parts that are sold over the counter or supplied with assemblies, but not installed in JAE shop, such as gaskets, oil pumps, lifters, etc. The customer must look to the manufacturers for any labor warranty claims.

E. Computation of labor claims

- To determine the total amount of the labor claim, multiply the flat rate time by the labor rate. Diagnostic time is covered as part of the published flat rate time. No additional time will be paid for removing special or auxiliary equipment, such as headers, etc.

F. Who to contact.

- **Prior to proceeding you must first receive approval and a claim number from the Warranty Dept. by calling 800-922-2777.** If proper authorization is not given by JAE before repairs are made, no payment will be made by JAE. All warranty replaced parts must be returned to JAE to receive payment.

G. Authorized Repairs.

- The dealer or the garage making the repair must guarantee any repair that has been authorized by JAE. Repairs or replacements do no extend the warranty beyond the time/mileage period of the original installation.

H. Jones Automotive Engines warrants to the original retail purchaser of our product, that it will be free from defects in materials and workmanship. This warranty does not apply to defects due to misuse, abuse, negligence accidents or defects in parts not supplied by us. Including lack of proper maintenance or incorrect installation.

JONES AUTOMOTIVE ENGINES

WO# 4800 TECH J

ENGINE TYPE CW FWD _____

ENGINE SIZE 292 RWD _____

BLOCK CAST 659 HEAD CAST 184
1001SE

SHORT BLOCK _____

LONG BLOCK _____

PREMIUM LONG BLOCK ✓

OIL PRESSURE 50/30

COMPRESSION 160

ROD BEARING CIRCULATION ✓

MAIN BEARING CIRCULATION ✓

LIFTERS RECEVING PROPER OILING ✓

PROPER INSTALLATION OF PLUGS ✓

REAR MAIN SEAL ✓

TIMING MARKS ALIGNED ✓

PROPER TORQUE READINGS ✓

LIFTER & PUSH ROD ADJUSTMENT ✓

VALVE LASH INT ___ EXH _____