

SECTION III

STANDARD REPAIR AND REPLACEMENT

The purpose of this section of the Chaparral dealer's handbook is to provide for the possibility of modification kits. While it is not the intention of the Chaparral Industries to make such modifications, if it should become necessary in the interests of safety or enjoyment of the Chaparral Snow Vehicles to modify those machines already in use, a service bulletin will be issued to each dealer to explain the modification which must be made. In this case, the service bulletin will also list the modification time which Chaparral Industries will use to compensate the dealer.





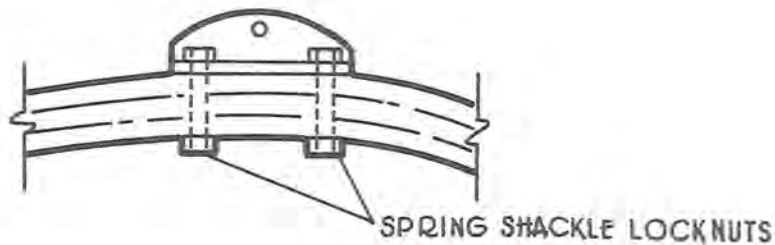
SERVICE BULLETIN NUMBER 1

November 6, 1969

TO ALL DISTRIBUTORS:

Locknuts on the Spring Shackles will loosen with use if not properly tightened.

Before Snowmobile use, Dealers should verify that Spring Shackle Locknuts are torqued to 40 ft. - lbs.



Spring Shackle Locknuts

James B. Halverson
Sales Manager

JBH:lmb

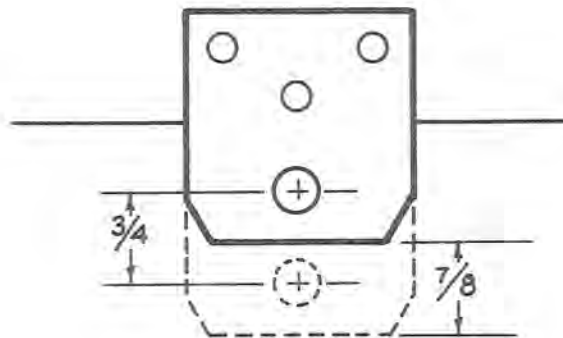


SERVICE BULLETIN NUMBER 2

November 6, 1969

TO ALL DISTRIBUTORS:

The three Bogie Assemblies may be raised $3/4$ " for added Snowmobile stability. The Bogie hangers should be trimmed off $7/8$ " for added ground clearance if Bogies are raised. A slight loss of climbing ability may be noticed.




James B. Halverson
Sales Manager

JBH:lmb

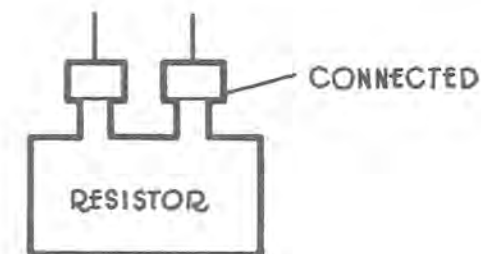


SERVICE BULLETIN NUMBER 3

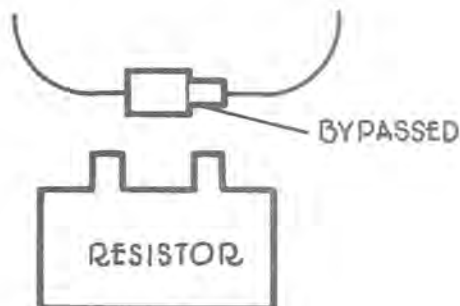
November 6, 1969

TO ALL DISTRIBUTORS:

Dim lights on some manual start Firebird Models using GE 44-16 light bulbs can be corrected by bypassing the resistor. The resistor is mounted on the aluminum body forward of the engine. One of the two female terminals must be replaced by a male terminal for ease of connection. The resistor has been removed from later models.



Resistor Connected



Resistor Bypassed



James B. Halverson
Sales Manager

JBH:lmb



SERVICE BULLETIN NO. 4

November 1, 1969

TO ALL DISTRIBUTORS:

IMPORTANT: SUMMER STORAGE

For summer storage of Chaparral snowmobiles, be certain that all gasoline has been drained from the tank, and that the tank is properly vented.

If this is not done, summer temperatures may cause expansion and vaporization of remaining gas to the point at which the tank will rupture.

James B. Halverson
Sales Manager

JBH:lmb



SECTION III

SERVICE BULLETINS

The purpose of this section of the Chaparral dealer's handbook is to provide for the possibility of modifications or additional service information on the Snowmobiles. While it is not the intention of Chaparral Industries to make such modifications, if it should become necessary in the interests of safety or enjoyment of the Chaparral Snowmobile to modify those machines already in use, a service bulletin will be issued to each dealer to explain the modification which must be made. In this case, the service bulletin will also list the modification time which Chaparral Industries will use to compensate the dealer.

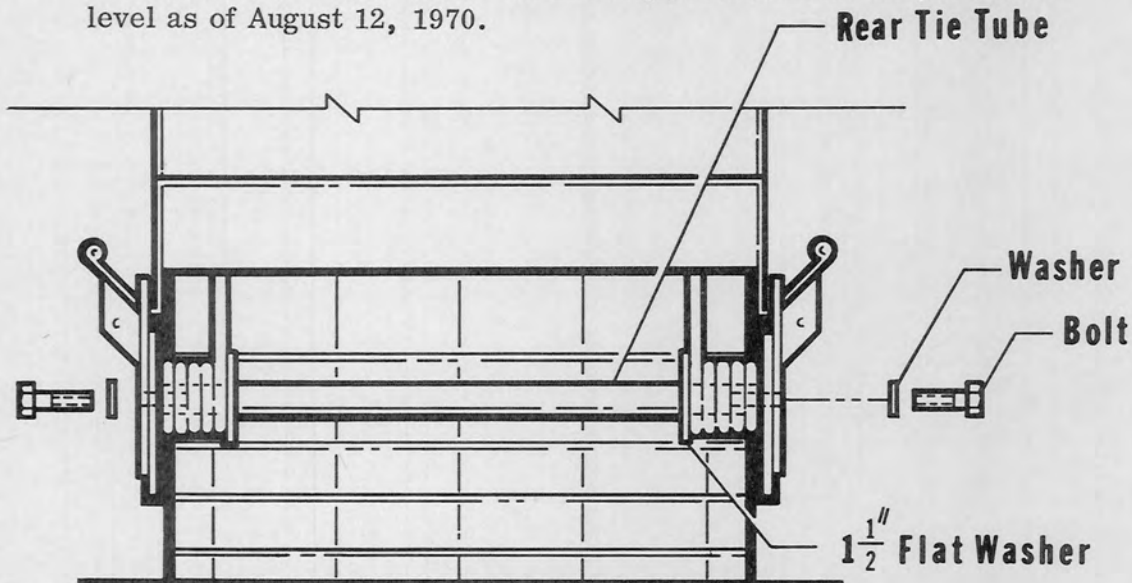
Each service bulletin will also specify whether the change is mandatory, usually in the interests of safety, or merely a production change or improvement for subsequent models. As stated in the warranty, Chaparral Industries, reserves the right to make changes or improvements without imposing an obligation on itself to install the same change or improvement upon any vehicle previously manufactured.

August 12, 1970

SERVICE BULLETIN NO. 5

As a precautionary measure, the following operation can be completed on all 1971 Snowmobiles purchased before August 12, 1970.

Loosen rear tie tube bolts backing them out approximately 1/4". Push spring and flat washer towards outer edge of chassis. Place a few drops of Loc-Tite stud lock on the exposed portion of bolt treads. Re-tighten tie tube bolts. This operation is being performed at the production level as of August 12, 1970.



REAR VIEW

John R. Lindsey
John R. Lindsey

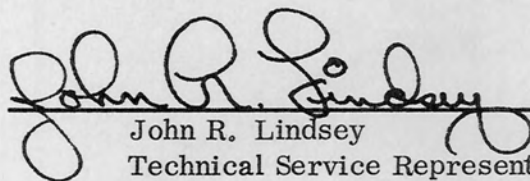
Technical Service Representative

August 31, 1970

SERVICE BULLETIN NO. 6

It is recommended that on the Firebird and Executive models a special Kaynar locknut be utilized on the ski spindle mounting bolt. (This only applies to shipments received before August 15, 1970.)

The Kaynar locknuts will be supplied as a no charge item and should be installed as soon as possible.



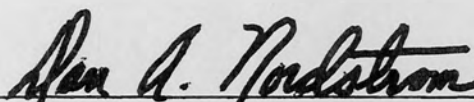
John R. Lindsey
Technical Service Representative

September 16, 1970

GATES POLY-TRAC AND POLY-DRIV WARRANTY

This is to rescind the information contained in our previous bulletin of Sept. 4, 1970 to the effect that the Gates Rubber Company warranty on Poly-Trac and Poly-Driv was only valid for a period of twelve months. We have subsequently been informed by the Gates Rubber Company that the original Gates Product Service Guarantee will apply to all Poly-Trac and Poly-Driv installed on all 1971 Model Chaparral Snowmobiles. This guarantee reads as follows:

"GATES PRODUCTS ARE WARRANTED TO BE FREE FROM DEFECTS IN MATERIAL AND WORKMANSHIP AND WHILE NOT GUARANTEED FOR ANY SPECIFIC LENGTH OF TIME OR MEASURE OF SERVICE, THE GATES RUBBER COMPANY WILL REPLACE ANY PRODUCT WHICH UPON EXAMINATION IS FOUND TO BE DEFECTIVE."



Dan A. Nordstrom
Vice President, Sales

DAN/nb

DATUMS AND DATA

It is to be noted that the information contained in this report is based on the data furnished by the Bureau of Census and is not intended to be a substitute for the data furnished by the Bureau of Census. The data furnished by the Bureau of Census are based on the data furnished by the Bureau of Census and are not intended to be a substitute for the data furnished by the Bureau of Census.

DATUMS AND DATA ARE PRESENTED IN THIS REPORT IN THE FORM OF A SUMMARY OF THE DATA FURNISHED BY THE BUREAU OF CENSUS. THE DATA FURNISHED BY THE BUREAU OF CENSUS ARE BASED ON THE DATA FURNISHED BY THE BUREAU OF CENSUS AND ARE NOT INTENDED TO BE A SUBSTITUTE FOR THE DATA FURNISHED BY THE BUREAU OF CENSUS.

It is to be noted that the information contained in this report is based on the data furnished by the Bureau of Census and is not intended to be a substitute for the data furnished by the Bureau of Census. The data furnished by the Bureau of Census are based on the data furnished by the Bureau of Census and are not intended to be a substitute for the data furnished by the Bureau of Census.

CAW:ab

October 20, 1970

SERVICE BULLETIN #7

TO: All Dealers and Distributors

SUBJECT: Installation of Extra Length Brake Return Springs,
Carburetor Deflector and Hand Rail Kit

You will receive very shortly a retro kit containing the following:

1 - Brake Control Return Spring	Part #31372
1 - Carburetor Deflector	Part #31300/31307
8 - Spacers With Bolts	Part #31123 (Firebird Only)

To install the extra length spring, disconnect the brake cable from the clevis on the brake actuating arm. Remove the short spring and replace it with the spring supplied in the kit. Re-connect the brake cable, lubricate the clevis and do not tighten the clevis bolt down solid. Make sure it is free to swivel on the actuating arm.

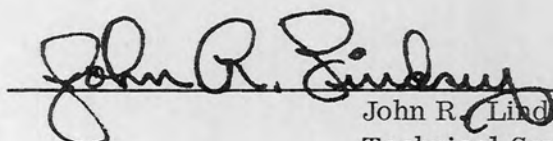
This spring will be utilized on machines up to the following serial number:

Up to #3045 on Firebirds
Up to #965 on Executives

Machines that have been recently produced come with the proper cable and spring.

The extra long spacers and bolts replace the narrow spacers and short bolts on the hand rails on Firebirds only. Carburetor deflector #31300 fits on HD series carburetor. #31307 fits on the HR series carburetor.

JRL:bas


John R. Lindsey
Technical Service
Representative

October 10, 1950

ATTENTION: Mr. [Name]

TO: Mr. [Name]

SUBJECT: [Subject]

Enclosed for you are [Number] copies of [Document]

Very truly yours,
[Signature]

The enclosed [Document] is for your information and is not to be distributed outside your office.

This matter will be [Action]

cc: [List of recipients]

Respectfully,
[Signature]

The enclosed [Document] is for your information and is not to be distributed outside your office.

[Handwritten signature and notes]



INDUSTRIES, Inc.

DIVISION OF FTS/HITCO

5995 North Washington Street • Denver, Colorado 80216 • (303) 292-1240

SERVICE

BULLETIN

January 28, 1971

SERVICE BULLETIN #10

TO: All Dealers and Distributors

Continuing with the Chaparral Policy of constant research and improvement, it has been brought to our attention that in some areas of extremely bad snow conditions the left ski is coming in contact with the belly pan in the chain case cavity location.

You will receive very shortly an additional ski bumper, Part No. 31612, and the long clevis pin, Part No. 31604-5, to facilitate the installation of the additional bumper. Please make sure the double bumpers are installed on each side of the ski.

John R. Lindsey
Technical Service
Representative

JRL:ls

CHAPARRAL INDUSTRIES, INC.

3905 North Washington Street - Denver, Colorado 80218 - (303) 395-1340

SERVICE

BULLETIN

January 27, 1973

SERVICE BULLETIN #10

TO: All Dealers and Distributors

Continuing with the Chaparral Policy of constant research and improvement, it has been brought to our attention that in some areas of extremely bad snow conditions the left side is coming in contact with the belly pan in the chain case cavity location.

You will receive very shortly an additional left jumper, Part No. 3162, and the long clevis pin, Part No. 3164-A, to facilitate the installation of the additional jumper. Please make sure the double jumpers are installed on each side of the ski.


John H. Lindsay
Technical Service
Representative

HT:ls



INDUSTRIES, Inc.

DIVISION OF FTS/HITCO

5995 North Washington Street • Denver, Colorado 80216 • (303) 292-1240

SERVICE

BULLETIN

March 1, 1971

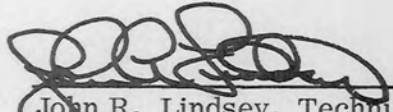
TO: All Snowmobile Distributors and Dealers

The following correspondence has been received from The Gates Rubber Company:

"The normal mode failure in any type of track is cracking. You will note in some tracks on some sleds the edge cracking may develop early in the life of the track dependent upon what service conditions have been. This type of cracking should not progress past the steel cable molded into the edge of each track. The steel cable is located a maximum of 1 3/4" from the outside edge of the track.

If cracks do develop and progress past the steel cable, these tracks are to be considered as defective and under warranty and should be returned for credit.

There may be an occasional track in which the steel cable has not been molded in. Tracks of this type should also be returned for adjustment and credit."


John R. Lindsey, Technical
Service Representative

JRL:bas

SERVICE

BULLETIN

March 1, 1971

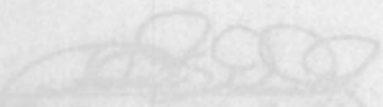
TO: All Stockholders, Distributors and Dealers

The following correspondence has been received from The Gates Rubber Company:

"The normal wear failure in any type of track is cracking. You will find in some tracks on some skids the edge cracking may develop early in the life of the track dependent upon what service conditions have been. This type of cracking should not progress past the steel cable molded into the edge of each track. The steel cable is located a minimum of 1 3/4" from the outside edge of the track.

If cracks do develop and progress past the steel cable, these tracks are to be considered as defective and under warranty and should be returned for credit.

There may be an occasional track in which the steel cable has not been molded in. Tracks of this type should also be returned for adjustment and credit."


John R. Linn, Technical
Sales Representative

JRL:bas



INDUSTRIES, Inc.

DIVISION OF FTS/HITCO

5995 North Washington Street • Denver, Colorado 80216 • (303) 292-1240

SERVICE

BULLETIN

March 1, 1971

TO: All Snowmobile Distributors and Dealers

A few isolated complaints of excessive wear on the #32132 Executive drive sprocket has been reported from the field. If any of these worn sprockets are discovered, ship them immediately, freight collect, to The Gates Rubber Company, attention Mr. Ray Palmer at 999 South Broadway, Denver, Colorado 80217.

Please obtain replacement sprockets from Chaparral Industries, Inc., Denver, Colorado.

This apparently is an isolated problem but care and inspection should be utilized on all machines with this sprocket.

John R. Lindsey, Technical
Service Representative

JRL:bas



INDUSTRIES, Inc.

DIVISION OF FTS/HITCO

5995 North Washington Street • Denver, Colorado 80216 • (303) 292-1240

SERVICE

BULLETIN

March 10, 1971

SERVICE BULLETIN #13

TO: All Distributors and Dealers

FROM: B. L. Wilson

SUBJECT: Dealer Manuals, Section 5, Pages 5-26 thru 5-33.

In reference to the muffler clamp assembly, Part Number 31326, is the band encircling the muffler only, if the muffler bracket weldment is required this should be ordered as Part Number 31327 which is not listed in your dealer service manual.

This information should be inserted in your manual so that you will have it for future use.

The list price for this item will be \$1.75.

B. L. Wilson

Manager Sales/Service

BLW:ls

SERVICE

BULLETIN

March 10, 1977

SERVICE BULLETIN #10

TO: All Distributors and Dealers

FROM: B. L. Wilson

SUBJECT: Dealer Manuals, Section 5, Pages 5-50 thru 5-53

In reference to the weather strip assembly, Part Number 31320, in the band attaching the weather strip, if the weather strip is not inserted into the band as shown in Figure 5-50, the weather strip will not function properly. This information should be inserted in your manual so that you will have it for future use.

The list price for this item will be \$1.00.

B. L. Wilson

B. L. Wilson
Manager, Sales/Service

B.L.W.

SERVICE BULLETIN

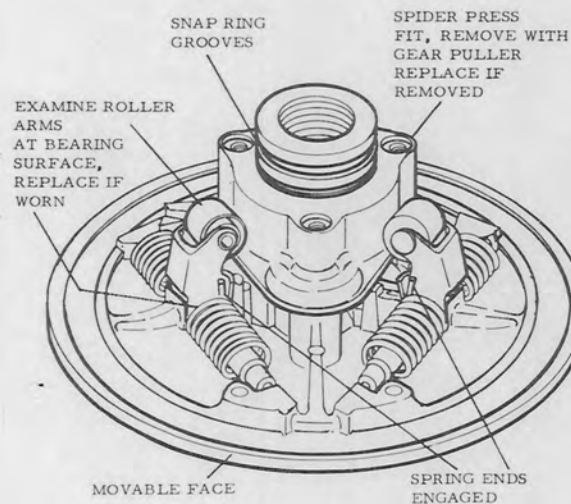
March 15, 1971

SERVICE BULLETIN #14

It is recommended that the drive clutch on a 1971 Chaparral should be inspected for wear every 30 hours of operation. The following is an excerpt from the Salsbury Service Manual. It would be beneficial to purchase the service manual from Salsbury Corporation. The manual is Form Number S 70-4-42.


John R. Lindsey, Tech. Rep.

2-B-3 Removal of ramp plate exposes roller arms, springs, pins, bushings. (figure 2-B-3) Clean thoroughly and service as required. Replace all worn parts. Use complete service kits for springs or roller arms. Do not combine new and used parts of the same kind. Any indication of wear requires replacement.





INDUSTRIES, Inc.

DIVISION OF FTS/HITCO

5995 North Washington Street • Denver, Colorado 80216 • (303) 292-1240

SERVICE

BULLETIN

SERVICE BULLETIN - #8

November 6, 1970

TO: ALL SNOWMOBILE DISTRIBUTORS AND DEALERS

SUBJECT: SKI SPINDLES

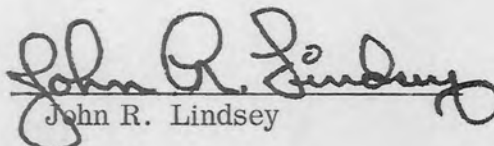
Early production, 1971 Chaparral Snowmobiles were manufactured with a steel spindle that was not heat treated. We have discovered that by heat-treating the spindle, better results are achieved. In furtherance of our policy to continually seek ways to produce a better product, we are asking you to recall all the machines that do not have the heat-treated spindle and replace them with such a spindle. The machines involved are:

Executive Model - Serial #0001 thru 510
Skylark Model - Serial #0001 thru 579
Firebird Model - Serial #0001 thru 2582

All later serial number machines have heat-treated spindles already installed.

In order to accomplish this change-over, please check your inventory as well as your list of machines already delivered to customers, and inform us of the number of new spindles required. Upon receipt of your requirements, we will immediately ship the new spindles to you. You will be charged for these spindles, however, we will issue a corresponding credit upon receipt of the replaced items, thereby resulting in no actual cost to you.

Thank you for your assistance in this matter.


John R. Lindsey

SECTION III

SERVICE BULLETINS

Throughout the 1970-71 Snowmobile production year, Service Bulletins 8 through 14 were issued for immediate distribution to all dealers. These bulletins are reprinted in this issue of the Dealer's manual in case the originals have been lost.

<u>BULLETIN NO.</u>	<u>DATE</u>	<u>SUBJECT</u>
8	Nov. 6, 1970	Ski Spindles
9	Not Issued	
10	Jan. 28, 1971	Ski Bumper
11	March 1, 1971	Gates Tracks
12	March 1, 1971	Drive Sprocket
13	March 10, 1971	Muffler Clamp
14	March 15, 1971	Drive Clutch

SECTION III

SERVICE BULLETINS

Throughout the 1970-71 Schoolmobile production year, Service Bulletins 5 through 14 were issued for immediate distribution to all dealers. These bulletins are reprinted in this issue of the dealer's manual in case the originals have been lost.

BULLETIN NO.	DATE	SUBJECT
8	Nov. 8, 1970	Skid Steer
9	Not issued	
10	Jan. 22, 1971	Skid Steer
11	March 1, 1971	Clutch Friction
12	March 1, 1971	Drive Shaft
13	March 10, 1971	Roller Chain
14	March 15, 1971	Drive Chain

**REINHARD
BROTHERS
COMPANY •**

DISTRIBUTORS

4301 HIGHWAY 7, P. O. BOX 1060,

MINNEAPOLIS, MINNESOTA 55416 • 927-9781



• GIBSON • WHEELHORSE • ARMSTRONG • WASTEKING
FROST QUEEN • R MARK • CHAPARRAL

• 300 NORTHERN PACIFIC AVENUE, FARGO, NORTH DAKOTA 58101 • 232-3388

NEWS

BULLETIN

SERVICE BULLETIN #1

Early production - Unsatisfactory Candy Apple paint on SS ~~III~~ Units

Following serial numbers only:

103334-103337 inclusive	103939-104057 inclusive	103448-103674 inclusive
103676-103799 inclusive	103801-103836 inclusive	103838-103937 inclusive
104059-104067 inclusive	104069-104075 inclusive	104077-104378 inclusive

One of the 2 procedures may be followed:

Plan #1 - Dealer may go to his local paint shop and have the hood and pan painted the Candy Apple color if needed. Total allowance will be \$20.00 labor and \$2.00 for paint plus new decals. Fill out warranty claim completely and attach the painting bill.

Plan #2 - Chaparral will in the next four weeks be painting hoods with the original Candy Apple Red color. If the dealer desires, he may wait for this replacement program. In doing so, he will be required to send the original hood back to Reinhard Brothers Company.

We have had several units painted locally in order to come up with a color that is close to the original color. One that matches quite close is the Ford Candy Apple, Ditzler paint number 71528.

Be sure to follow the above listed serial numbers only.

Jim Shellum

Jim Shellum
Service Manager

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Chaparral Industries, Incorporated
5995 North Washington Street
Denver, Colorado 80216 / Telephone (303) 292-1240

WARRANTY ADMINISTRATION BULLETIN

August 30, 1972

WARRANTY ADMINISTRATION BULLETIN #11

To: All Snowmobile Distributors and Dealers (Principal, Parts Manager, Service Manager)

Subject: PolyTrac Inspection - New Snowmobiles

As a part of normal pre-delivery inspection, set up, and adjustment procedures, track set up and inspection should be a routine procedure on the part of every Chaparral Dealer. We are calling special attention to this area by this Warranty Administration Bulletin in order that we may make you aware of the possibility of a minimal number of new snowmobiles being equipped with PolyTracs that have been improperly compounded.

This deficiency will most likely evidence itself by obvious cracks along the edges, particularly in the drive and rear axle contour areas of the track. It is also possible to detect a softer than normal "feel" on the ice cleats and tread bar locations.

Investigating the time periods of our supplier's production, and the production dates of our snowmobiles, we have determined most of these tracks are still in house and have been eliminated from our production stock.

Tracks in question can be identified by the date code number sixty-one (61) located on the outside of the track between the same tread bar section as the location of the Chaparral part number. NOTE: NOT ALL CODE DATE 61 TRACKS ARE DEFECTIVE, HOWEVER EACH SHOULD BE CAREFULLY CHECKED FOR THE EDGE CRACKING INDICATION. AS INDICATED IN THE FIRST PARAGRAPH, A TRACK CHECK ON ALL NEW SNOWMOBILES SHOULD BE A MATTER OF ROUTINE INSPECTION.

The following action is to be taken:

1. All tracks are to be inspected during pre-delivery preparation.

over...

2. If deficiencies in the track are found (code 61), the track is to be replaced.

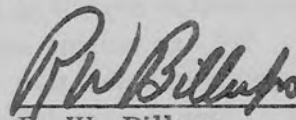
NOTE: Parts inventories should be checked for this deficiency

3. When a code date sixty-one (61) is located and is determined to be defective, it will not be necessary to return the entire track. The entire code date stamping is to be cut out of the track in at least a 4-inch square section. One entire width section, evidencing cracks and including two adjacent tread bars, is to be cut from the track. Both the code date section and the cracked section are to be returned to the appropriate Chaparral Distributor, who will in turn forward them to Chaparral to the attention of the Service and Warranty Department. THIS PARTS RETURN ACTION APPLIES ONLY TO NEW TRACKS EITHER INSTALLED ON NEW SNOWMOBILES OR IN PARTS INVENTORY.

All mailings are to be either minimally insured or mailed registered with the receipt attached to any subsequent claim. Postage for the returned track section will be reimbursed on the claim in the amount of the receipt.

4. Standard warranty practices apply and ALL claim forms MUST have COMPLETE information. DO NOT SEND A CLAIM WITHOUT SHIPPING THE PIECES.

Your cooperation in this matter will be appreciated.



R. W. Billups
General Service Manager

RWB:ap



Chaparral Industries, Incorporated
5995 North Washington Street
Denver, Colorado 80216 / Telephone (303) 292-1240

SERVICE BULLETIN

September 1, 1973

Service Bulletin #19

To: All Chaparral Distributors and Dealers (Principal and Service Manager)
Subject: Minicycles T80 and ST80 Engine Specifications

Name of part or check	Location of Adjustment		Standard Dimension	Adj. or Remd. Rep. Limit	Range or Tolerance	Action for Adjustment
Compression Check				7.0 KG/CM 100 IN. LB.	9-10 KG/CM 125-142 IN. LB.	Engine Hot
Cylinder and Cylinder Head	Cylinder head limit of deformation			0.05 MM .0019 IN.	0.03 MM .0011 IN.	Replace
	Inside diameter of cylinder		48 MM 1.891 IN.	48.2 MM 1.899 IN.		Rebore or replace
	Clearance between piston and cylinder			0.07-0.09 MM .0027-.0035 IN.		
Piston	Outside diameter		48 MM	47.8 MM		
	Width of ring groove		1.891 IN. 20 MM .079 IN.	1.883 IN. 2.1 MM .087 IN.		Replace
Piston Pin	Outside diameter		12 MM .473 IN.	11.97 MM .471 IN.		Replace
	Clearance between piston pin & pin hole			0.05 MM .0019 IN.	0.008-0.01 .0002-.0003 IN.	Replace piston or piston pin
Piston Ring	Cap dimension			1.0 MM .039 IN.	0.15-0.35 MM .006-.014 IN.	Replace cylinder or piston ring
	Clearance between piston ring and ring groove	Top		0.2 MM .008 IN.	0.02-0.06 MM .0007-.0023 IN.	Replace piston
		Btm.		0.2 MM .008 IN.	0.01-0.05 MM .0003-.0019 IN.	Ring or piston
	Width		2.0 MM .079 IN.	1.9 MM .075 IN.		Replace
	Inside diameter of small end of connecting rod		15 MM .591 IN.	15.05 MM .593 IN.		Replace
Connecting Rod and Crankshaft	Clearance between piston pin, needle bearing and inside diameter of small end of connecting rod		0.05 MM .0019 IN.	0.005 - 0.020 MM .0001-.0007 IN.		Replace piston pin, needle bearing or connecting rod
	Inside diameter of large end of connecting rod		23 MM .906 IN.	23.05 MM .908 IN.		Replace
	Outside diameter of crank pin		18 MM .709 IN.	17.95 MM .707 IN.		Replace
	Clearance between crank pin, needle bearing and inside diameter of large end of connecting rod			0.06 MM .0023 IN.	0.005- 0.025 MM .0001-.0009 IN.	Replace
	Misalignment of Crankshaft			0.07 MM .0027 IN.	0.02 MM .0007 IN.	Check with dial indicator
	Crankshaft end play			0.1 MM .004 IN.	0-0.1 MM 0-.004 IN.	Adjust or replace

Name of part or check	Location of Adjustment		Standard Dimension	Adj. or Remd. Rep. Limit	Range or Tolerance	Action for Adjustment
Magneto	Gap between points			0.3-0.4 MM 0.012-0.015 IN.	0.3-0.4 MM 0.012-0.015 IN.	Adjust
	Ignition timing advanced		25° B. T. D. C.	23° - 27°	23° - 27°	Adjust
Crankcase	Inside diameter of bearing bore for crank shaft	Magneto side	47 MM 1.852 IN.	47.05 MM 1.854 IN.		Replace
		Clutch side	47 MM 1.852 IN.	47.05 MM 1.854 IN.		
	Inside diameter of bearing bore for transmission	Main shaft	40 MM 1.576 IN.	40.05 MM 1.578 IN.		Replace
		Counter shaft	47 MM 1.852 IN.	47.05 MM 1.854 IN.		
	Inside diameter of bushing	Main shaft	12 MM .473 IN.	12.1 MM .477 IN.		Replace
		Counter shaft	18 MM .709 IN.	18.1 MM .713 IN.		
Clutch	Thickness of clutch plate	Driven	4 MM .158 IN.	3 MM .118 IN.		Replace
	Clutch springs	Spec. load	9 KG 20 IN. LBS.	7 KG 15 IN. LBS.		
		Free height	20 MM .789 IN.	18.7 MM .736 IN.		
		Square-ness	2°	4°		
	Height of push rod			50 - 50.5 MM 1.97 - 1.99 IN		Adjust with shims
Torque Specifications	Cylinder head nut		100-140 KG/CM 7.2-10.1 Ft. LB.			
	Crank shaft nuts	Magneto side	300-350 KG/CM 21.7-25.3 Ft. LB.			
		Clutch side	270-320 KG/CM 19.5-23 FT. LB.			
	Primary gear nut		300-350 KG/CM 21.7-25.3 Ft. LB.			
	Chain sprocket nut		450-500 KG/CM 32.5-36.2 Ft. LB.			
	Crankcase screws		70-90 KG/CM 5.1-6.5 FT. LB.			
	Other bolts, screws, and nuts	M8	150-180 KG/CM 10.8-13 FT. LB.			
		M6	70-90 KG/CM 5.1-6.5 FT. LB.			
		M4	30-50 KG/CM 2.2-3.6 FT. LB.			



Chaparral Industries, Incorporated
5995 North Washington Street
Denver, Colorado 80216 / Telephone (303) 292-1240

SERVICE BULLETIN

October 19, 1972

Service Bulletin #25

To: All Snowmobile Distributors and Dealers (Principal, Parts Mgr., Service Mgr.)

Subject: IMMEDIATE TILLER BAR INSPECTION - NEW 1973 SNOWMOBILES

A problem POSSIBLY exists with the tiller bar weldment assembly whereby Chaparral is instructing all dealers to perform an immediate check on all 1973 snowmobiles thus far sold and those that are in inventory. Two areas exist where severe physical pressure on the tiller bar handles could result in damage that may affect the steering ability of the machine. The first is at the welded joint of the tiller bar handle and tiller bar column; the second is the tiller bar column at the ground welded seam. In both instances where this damage is encountered, a flexing or spongy feeling of the steering system will be experienced and is easily distinguished from units that are satisfactory.

As a means to insure that all new 1973 snowmobiles are satisfactory in this area, we strongly urge every machine received to date be given a physical check to assure that the tiller bar handle and tiller bar column are of sufficient strength. This can most easily and simply be done as follows:

1. Place the machine in a suitable position, with the skis straight ahead, assuring that the skis are stationary and cannot be turned.
2. The person performing the check should position himself on the machine so as to be able to provide normal maximum body leverage on the tiller bar.
3. The person performing the check should assert a physical effort so as to exceed at least 50 ft. lbs. of torque in a rotating direction on the tiller bar, first in one direction and then the other. This should be done several times.

(over)

Should any flexing of the tiller bar be experienced where it will not return to normal position, the entire tiller bar should be closely inspected at the areas indicated. If there is any evidence of damage to either of these areas indicated, the complete tiller bar should be replaced. Immediate telephone contact is to be made with the appropriate Distributor, who will then be in contact with this office.

The preceding check is not necessary for 1973 snowmobiles date stamped 10/72 on the Federal Safety Tag located adjacent to the Machine Identification nameplate.

Further information will be published as required and, once again, this action is being effected ONLY AS A PRECAUTIONARY MEASURE.

Thank you for your cooperation.



R. W. Billups
General Service Manager

RWB:ap



Chaparral Industries, Incorporated
5995 North Washington Street
Denver, Colorado 80216 / Telephone (303) 292-1240



SERVICE BULLETIN



October 3, 1972

Service Bulletin #21

To: All Distributors and Dealers (Principal, Service Mgr., Parts Mgr.)

Subject: Test Procedure for Capacitor Discharge Ignition (CDI)

Chaparral is anticipating high performance and reliability of our 1973 snowmobiles. There are expected occasions, however, where a unit may experience unsatisfactory performance in the eyes of the customer, and it will be necessary for the dealer to thoroughly check out the unit through normal troubleshooting techniques.

If after eliminating all maintenance items or other possible causes of the problem and it is necessary to check through the CDI ignition, the following check-out procedure should be used: Please note that no specific ohmeter is recommended; however, of prime importance is the use of one on which scale readings can be obtained from RX1, RX100, and RX1K scales.

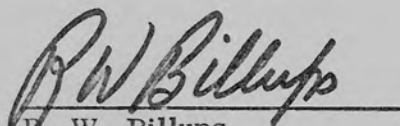
1. Completely isolate the ignition system for check-out by disconnecting the engine wiring harness coupler.
2. Remove the spark plugs. Use a 3 needle gap spark tester and rotate the engine with the recoil starter. The spark ark at 300 RPM should be .315" or more.
3. Exciter coil and pulser coil: Disconnect the 3-way wiring plug between the engine and CDI unit and also disconnect the black/white wire connector testing the engine side of the 3-way plug. The resistance between the red and brown wires (exciter coil) should be 199 to 255 ohms, and the resistance between the red and white wires (pulser coil) should be 22 to 26 ohms. Use RX1 scale.
4. Ignition coil: Disconnect the 2-way wire plug between the CDI and the ignition coil. Testing the ignition coil of the 2-way plug, the resistance between the brown and orange wires (primary coil resistance) should be 0.44 to 0.52 ohms. Use RX1 scale. The resistance between the high tension leads (secondary coil resistance) should be 10,000

to 12,000 ohms. Use RX100 scale.

5. CDI Unit:

- (a) "Off" indicates the resistance should be infinite.
- (b) "On" indicates a short between the leads although some resistance is read because of the diode characteristics.
- (c) "Con" represents the condenser characteristics: When "Con" is tested, the tester needle will swing once and reset. The swing speed of the tester needle will vary with the terminals being checked. After each test reverse the leads P+ - from the tester to the wires being tested, this will polarize the condenser and is required before proceeding with the test. Use RX1K scale.

<u>Tester Lead Red (Pos.)</u>	<u>Tester Lead Black (Neg.)</u>	<u>Meter Reading</u>
Exciter Lead (red)	white	off
	brown	on
	black/white	on
	orange	off
Pulser Lead (white)	red	off
	brown	on
	black/white	off
	orange	off
Earthing Lead (brown)	red	off
	white	off
	black/white	off
	orange	off
Stop Lead (black/white)	red	on
	white	off
	brown	on
	orange	con
Primary Lead (orange)	red	con
	white	off
	brown	con
	black/white	con


R. W. Billups
General Service Manager



Chaparral Industries, Incorporated
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WARRANTY ADMINISTRATION BULLETIN

November 1, 1972

Warranty Administration Bulletin # 16

To: All Chaparral Distributors and Dealers (Principal, Service Mgr., Parts Mgr.)

Subject: 1973 Firebird Slide Rail Retrofit (Limited)

The first three hundred forty Firebirds were produced with rails that had the lower forward section between each channel of the rails extending upwards approximately 3/4" from the bottom horizontal plane of the rail. Due to the Unit Serial numbering sequence, the approximated last serial number is, 100440. Positive identification of rails can be made by looking at one of the later Firebirds or a spare parts rail which has the extended center in each rail. The dimensional difference is readily apparent.

In order to preclude the possibility of any track damage being experienced due to the track flexing in operation causing non-destructive gouging between the drive lugs, rail inserts are being provided direct to each Distributor for forwarding to Dealers having units that need to be modified. Installation details are provided on the reverse side of this Bulletin.

Total repair time of .7 hours, or \$4.20 per snowmobile is being provided for this repair. Due to the nature of the repair operation, up to fifteen units may be included on each warranty claim form that will include each Chassis Serial Number modified with repair dates indicated. Reference to this WAB #16 is to be inserted in the repair section of the claim form.

Thank you for your usual fine cooperation.


R. W. Billups
General Service Manager

RWB:cjb

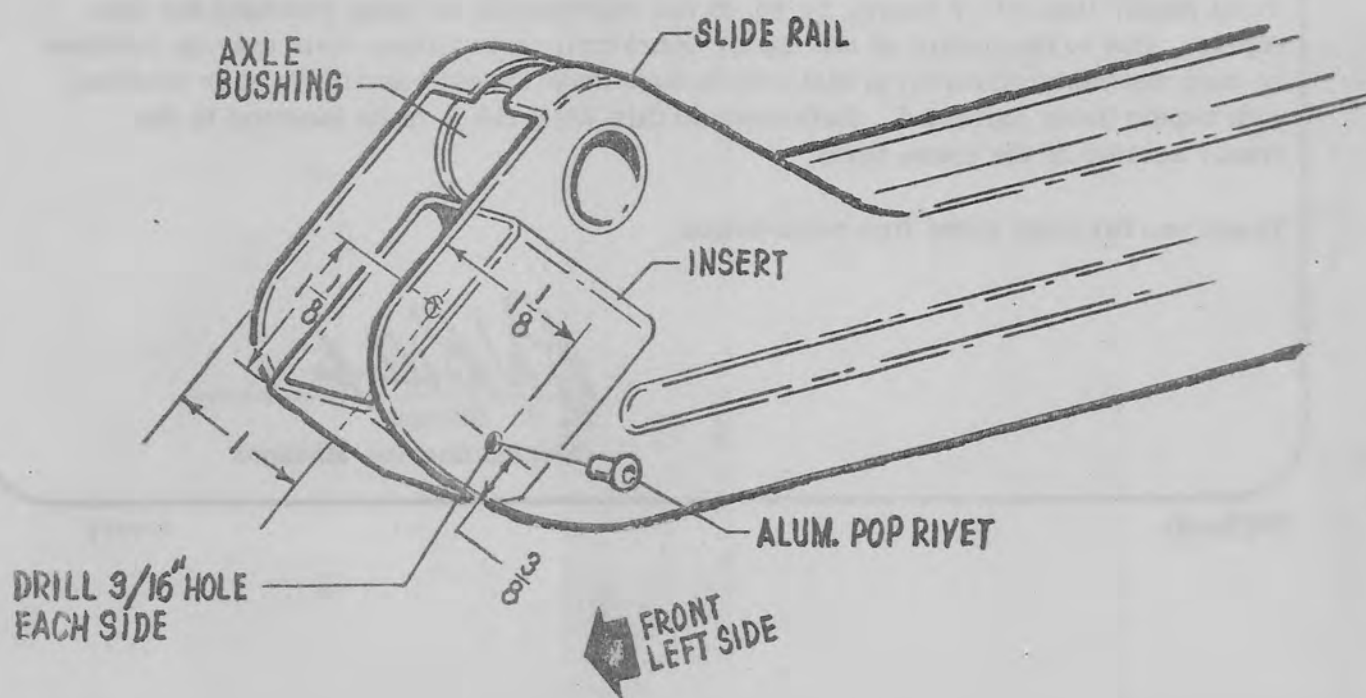
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Repair action for slide rail insert:

1. Remove the complete suspension system from the unit by removing four (4) mounting capscrews from the mounting locations.
2. With the slide rail assembly firmly held by one rail in a vise, force the insert into the forward position of the rail as indicated in the sketch.

Note: Be sure the slightly ground corners of the insert are on the exposed side and are to the rear of the rail.

3. The insert should be positioned with a hammer so that the rear or backside of the insert is solid against the steel front axle bushing in the rail.
4. Hold the insert firm by clamping with a pair of vise grips on the outside forward edge of the rail.
5. Center punch and drill one 3/16" hole through each side of each rail per the sketch.
6. One aluminum pop rivet with "1/4 inch grip" in each hole is to be used to permanently fasten the insert. Remove vise grips.
7. Reinstall the assembly.
8. Adjust track alignment and tension.





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SERVICE LETTER

November 8, 1972

Service Letter #7

To: All Snowmobile Distributors and Dealers
(Principal, Service Manager, Parts Manager)

Subject: 1973 Snowmobile Engine Service Manual

We now have quantities of 1973 Chaparral Engine Service Manuals
available for immediate shipment:

Chaparral Pt. Nr. 79231

For reference only 2575-93410 (250 cc engine) \$1.50 each

Chaparral Pt. Nr. 79230

For reference only 2576-93400 (all other engines) \$1.50 each

Place your orders NOW through regular parts ordering channels.

R. W. Billups
General Service Manager

RWB:ap

REINHARD
BROTHERS
COMPANY •

DISTRIBUTORS

4301 HIGHWAY 7, P. O. BOX 1060,
MINNEAPOLIS, MINNESOTA 55416 • 927-9781



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• 300 NORTHERN PACIFIC AVENUE, FARGO, NORTH DAKOTA 58101 • 232-3388

NEWS BULLETIN

SALES BULLETIN #8

November 29, 1972

TO: ALL CHAPARRAL DEALERS & SALESMEN

SUBJECT: ITEMS OF GENERAL INFORMATION

1. Oil - We are distributing Stihl 40-1 oil which we recommend. Price per case (24 cans) as low as \$10.80 per case.
2. Spark Plugs - We are distributing AC Spark Plugs which are standard equipment on all Chaparral 1973 engines. Price each as low as .53. See your salesman on these or call Bob Mertens or John in Parts.
3. Please be reminded that only the Firebird and Thunderbird 400 & 440CC engines have a ring gear standard for electric starters.
4. We found some 72 ski shock brackets in inventory and these are for sale while they last at \$4.95 per pair list; dealer cost \$3.49 pair.
5. VERY IMPORTANT - ----
Read Sales Bulletin #9 as soon as you receive it.

Very truly yours,

REINHARD BROTHERS COMPANY

Billie P. Breedlove
Vice President
Outdoor Power Equipment Division

BPB:jmb

REINHARD
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1001 HIGHWAY 7 P. O. BOX 1000

MINNEAPOLIS, MINNESOTA 55401

6 - 252-41-429-21

NEWS

transmission

BULLETIN

November 22, 1972

SALES BULLETIN #3

TO: ALL CHAPARRAL DEALERS & SALESMEN

SUBJECT: TERMS OF GENERAL INFORMATION

1. Oil - We are distributing Shell 40-1 oil which we recommend. Price per case (24 cases) as low as \$17.89 per case.

2. Spark Plugs - We are distributing AC Spark Plugs which are standard equipment on all Chaparral 1973 engines. Price each as low as .32. See your customers on this or call Bob Mathews or John in Parts.

3. Batteries - We recommend that only the Eveready and Thunderbolt 400 & 450CC engines have a new year standard for electric starters.

4. We found some 75 cc shock absorbers in inventory and these are for sale while they last at \$4.95 per pair. New dealer cost \$14.95 pair.

VERY IMPORTANT - Read Sales Bulletin #3 as soon as you receive it.

REINHARD BROTHERS COMPANY

WILLIE P. BRECHER
Vice President
Customer Power Equipment Division

BT:lmh



Chaparral Industries, Incorporated
5995 North Washington Street
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WARRANTY ADMINISTRATION BULLETIN

December 13, 1972

Warranty Administration Bulletin #21

To: All Chaparral Distributors and Dealers (Principal, Parts Mgr., Service Mgr.)

Subject: Modifications to 1973 Snowmobile Exhaust System (SS III) and Engine Mount
Modifications (All Units)

1. **SS III EXHAUST DUMP TUBE EXTENSION:** In order to prevent excessive movement of the muffler and outlet tube on SS III snowmobiles, it is recommended that dump tube extension, PN 31292-9, and clamp, PN 31321, are to be immediately installed. At the time these are installed, the muffler springs top end should be looped through the mounting bracket and reconnected to the body of the spring. This will assist in minimizing muffler movement.
2. **ENGINE MOUNT MODIFICATION:** The engine mount, PN 40266-1 (item #4, page 5-36 of the Illustrated Parts Book), is to be flipped over in order to provide a greater center-to-center distance between the engine mounts and the offset, or "pork chop" section will be pointed inward, or towards the recoil side of the engine. No parts are required for this change, and it is being effected in order to provide greater engine stability. Normal clutch alignment procedures are to be performed after this modification, as described in Fig. 4 of WAB #20. Although greater engine stability will be realized on the higher horsepower engines, this program is extended to all 1973 snowmobiles.

A labor reimbursement of .5 hours, or \$3.00 per snowmobile modified will apply for the above two changes. As with other recent modification programs and considering the nature of the above changes, up to nine (9) modifications can be included on a single claim form with the usual information being required.

Thank you for your cooperation.


R. W. Billups
General Service Manager

RWB:ap

WARRANTY ADMINISTRATION BULLETIN

December 13, 1973

Warranty Administration Bulletin #21

To: All Chevrolet Distributors and Dealers (Principal, Parts Mgr., Service Mgr.)

Subject: Modification to 1973 Buick Wildcat Exhaust System (SS) and Engine Mount Modification (All Units)

1. **SS III EXHAUST DOWN TUBE EXTENSION:** In order to prevent excessive movement of the muffler and outlet pipe on SS III automobiles, it is recommended that down tube extension, PN 31230-9, and clamp, PN 31231, are to be immediately installed. At the time these are installed, the muffler springs top end should be locked through the muffler bracket and reconnected to the body of the spring. This will assist in maintaining muffler movement.

2. **ENGINE MOUNT MODIFICATION:** The engine mount, PN 40268-1 Item 44, page 2 of the Illustrated Parts Book, is to be fitted over in order to provide a greater center-to-center distance between the engine mounts and the offset, or "port chop" section will be pointed forward, or towards the recoil side of the engine. No parts are required for this change, and it is being effected in order to provide greater engine stability. Normal clutch alignment procedures are to be performed after this modification, as described in Fig. 4 of WAB 150. Although greater engine stability will be realized on the higher power engines, this program is extended to all 1973 automobiles.

A later reinforcement of 2 hours, or \$3.00 per automobile modified will apply for the above two changes. As with other recent modification programs, and considering the nature of the above changes, up to nine (9) modifications can be included on a single claim form with the usual information being required.

Thank you for your cooperation.

[Signature]
R. W. Hillings
General Service Manager



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5995 North Washington Street
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WARRANTY ADMINISTRATION BULLETIN

February 16, 1973

WARRANTY ADMINISTRATION BULLETIN #24

TO: All Chaparral Snowmobile Distributors and Dealers (Principal,
Service Mgr., Parts Mgr.)

SUBJECT: Bogie Kits - 1973 SS III Snowmobiles
Ref: Parts Bulletin #6 - P/N 51186 Rodded Track

To increase the reliability and to help eliminate track burning caused by improper lubrication when running in marginal snow conditions, Chaparral Industries feels it is imperative to install Bogie Kit, P/N 51956 on all model SS III Snowmobiles.

If at the time of installation of the Bogie Kit, a dealer detects a slight burn effect on the track, this is not to be considered a justifiable track replacement, as the track will continue to function normally.

In the event of severe track burning, a complete detailed description of the cause of track failure must be included on the claim. Parts such as bent or broken rails, rear bell cranks damaged for any reason causing track burning, etc., are to be returned to the respective Distributor for subsequent recall to the factory. These hardware items are to be securely fastened and identified with any failed track to be returned.

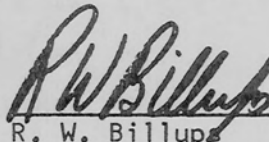
A reimbursement for the installation of a Bogie Kit at suggested list price and repair labor of .8 hours or \$4.80 is to be claimed for these instances per standard warranty practices.

Referencing Parts Bulletin #6, all track failures are presently being repaired with the non-rodded track P/N 41186. In those cases where a non-rodded track is installed, Chaparral will reimburse the Distributor/Dealer

over. . .

for the parts and labor costs involved for the installation of Bogie Kit, P/N 51956, IF THE MACHINE HAS NOT BEEN PREVIOUSLY EQUIPPED WITH A BOGIE KIT.

Thank you for your cooperation.



R. W. Billups
General Service Manager

RWB:co



DIVISION OF ARMCO RECREATIONAL PRODUCTS, INC.

5995 NORTH WASHINGTON STREET • DENVER, COLORADO 80216 • TELEPHONE (303) 292-1240

WARRANTY ADMINISTRATION BULLETIN

March 8, 1973

Warranty Administration Bulletin #31

To: Chaparral Distributors and Dealers (Principal, Service Mgr., Parts Mgr.)

Subject: 1. Bogie Springs - 1972 Snowmobiles
Ref: Parts Bulletin #8
2. Return of failed tracks

1. Due to certain vendor problems, Chaparrals action plans for the "problem" of questionable strength bogie springs for 1972 snowmobiles, has been delayed unfortunately, until now. Springs of increased material and tensile strength are now immediately available and are identified by their grey color. There is no change in part number, however, only the new springs are available from the factory.

Effective immediately, the following guidelines will apply to replacement of bogie springs on any 1972 snowmobiles still within the warranty period, i.e. 90 days, or track failures, i.e. 1 year, that are attributed to weak bogie springs.

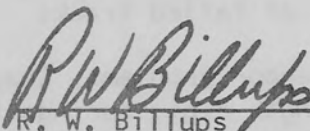
- A. No retro fit program is being initiated.
- B. For snowmobiles out of the warranty period and routine sales of replacement springs are involved, the latest springs, (grey), only are to be sold.
- C. For 1972 snowmobiles in the shop for legitimate track or bogie spring warranty repairs, all six bogie springs are to be replaced AT THE TIME OF FAILURE. Any resultant spring or track claims involved must have the failed springs/tracks returned to the factory. Springs claimed defective when accompanying a track failure, Gates or Goodyear, are to be wired securely to the track involved. Standard warranty and R.M.A. procedures are to be followed.

2. Also effective immediately, all failed Goodyear tracks claimed as being warrantable failures, are to be returned to Chaparral in Denver, under

over. . .

the same R.M.A. and warranty procedures as used for the Gates Polytrac. We anticipate a considerable reduction in processing time as experienced in the past for Goodyear tracks.

NOTE: On-site Distributor visits are, in certain cases, being planned to determine disposition of failed tracks, Gates and/or Goodyear. Applicable Distributors will be advised. Until such time as particular Distributors are advised of these visits, all failed tracks are to be returned to Chaparral in Denver, through the Distributors per current procedures, freight prepaid. Please note that on tracks only, Chaparral will reimburse Distributor claims for the freight charges involved when the freight bill is provided for each shipment returned.


R. W. Billups
General Service Manager

RWB:co