INSTRUCTIONS

and

Replacement Parts

for

Tucker SNO-CAT

Series 400

Standard

Table of Contents

	Page
Specifications	2
List of Illustrations	3
Foreword and Identification for Ordering Parts	3
SECTION I	
USE AND MAINTENANCE	
Description	4
Preparing for Service	4
Operation	5
MAINTENANCE INSTRUCTIONS	
Lubrication and Service:	
Engine, Transmission, Power Transfer Case, Drive Shaft Crosses, Drive Axles (front and rear), Chassis, Tie Rods, Drag Link, Hydraulic System, Steering Gear, Cooling System and Battery	8-9
Track Rollers	9
MAINTENANCE AND ADJUSTMENTS	
Installing Track and Tightening Track:	
Non-Adjustable Pontoons	10-11
Adjustable Pontoons	12
Replacing a Track Section	13
To Remove Pontoon from SNO-CAT	13
SECTION II	
Replacement Parts	14-21

Specifications

Make	Tucker Sno-Cat
Model	400 Series Double Drive
Load Capacity	1350 lbs.
Towing Capacity	2500 lbs.
Engine	Chrysler Industrial 3 Speed Ind 30 - 100 h.p.
Drive Axles— Front and Rear	Dodge ½-ton
Transmission	Chrysler 3 Speed
Speeds	3 Forward - 1 Reverse
Gas Tank Capacity	35 Gallon
Recommended Speed	10 mph Cruising 15 mph Maximum
Miles Per Gallon	Average 4 to 8 mpg
Turning Radius	18 Feet (approximately)
Pontoon and Track	18" Wide x 84" Long
Overall Length	15' 10"
Overall Width	6' 3"
Overall Height	7' 5"
Weight	3500 lbs. to 3990 lbs.

Illustrations

Thawing Ice from Sprocket Drive 7
Track Tightening Tool 11
Track Clamp 13
Parts Illustrations 14-17

Foreword

This **Instruction Book and Replacement Parts** is published as a guide and reference to assist the driver and maintenance technician to obtain the many miles of satisfactory over-the-snow transportation that is to be expected when the SNO-CAT is properly driven and maintained.

The SNO-CAT is a unique vehicle in performance and design. Although it appears to be in the tractor class, it must be built as light as possible in order to travel over deep soft snow.

The SNO-CAT should be thought of and cared for more as an aircraft and handled accordingly. Competent and reliable men should be given the privilege and responsibility of operating and maintaining the SNO-CAT.

IDENTIFICATION FOR ORDERING PARTS

A nameplate is secured to the Instrument Panel showing the serial number and model number of vehicle. **Please furnish this information with your parts order.**

Section I

USE AND MAINTENANCE

Description

The Model 400 Series SNO-CAT is a light-weight vehicle employing unique "Pontoon and Open Track Drive" which support the vehicle in deep snow and provide traction in soft snow that is not available in any other known tracked vehicle.

A combination of this novel form of snow traction and the light aircraft type of construction give the SNO-CAT the ability to travel and take you "sitting down" where you must go over deep, soft snow during patrols and emergencies.

Preparing for Service

The SNO-CAT is very similar to an automobile or light truck in respect to preparing for service. Special personnel heaters, engine preheaters, radio equipment and "extra" accessories should be installed in accordance with the "authorized" requirements dictated for your particular operations.

Check battery, engine oil, hydraulic steering system, engine coolant in radiator, gasoline, lubricant in transmission, transfer case and drive axles, all to be same specifications as being customarily used in automobiles and light trucks at that particular geographical point with consideration as to the season of the year affecting temperatures. Track rollers and chassis have been lubricated at factory for first 200 miles with lubricants suitable for operation at air temperatures of 90° to -50° Fahrenheit.

Operation

The operator should be a skilled driver and take a personal interest in the care of the SNO-CAT, for it requires slightly more care than does an automobile and closer attention to lubrication, especially of the track rollers. Maintenance of pontoons and adjustment of the track are discussed later in this section.

After the SNO-CAT has been driven its first 25 miles, all nuts that hold the flanged rollers to the grouser castings should be checked and tightened with a torque wrench (65 foot pounds). When they are once properly seated they seldom loosen.

After approximately ten hours of operation, the engine, transmission and front and rear drive axle adjustments that may be needed should be made by a specialist in accordance with Chrysler recommendations. The Chrysler Manual Supplement to this manual covers the engine and transmission.

The SNO-CAT is primarily designed for travel over snow and it is also successful on ice. Travel should always be at moderate speeds through areas where obstacles hidden by the snow might be encountered. Reduce speed when crossing rocks, logs, ditches, creek banks and other rough country. A crusing speed of 10 MPH is proper for most other conditions.

It is recommended to "break-in" the tracks and other major parts of this SNO-CAT on the following schedule as nearly as possible.

1. Drive at speeds under 6 MPH for the first 25 miles.

2. Drive at speeds under 8 MPH for the 25 to 100 mile period.

3. Drive at speeds under 10 MPH for mileage period between 100 to 200 miles.

4. 10 MPH is the recommended cruising speed on smooth terrain after 200 mile period.

5. Always take up any excess slack evenly as it may develop in the tracks. (SEE MAINTENANCE INSTRUCTIONS.)

Keep in a sufficiently low gear when descending steep hills and always keep tracks revolving.

Never disengage clutch or coast in neutral. Use the same gears going down hill that you would use in going up.

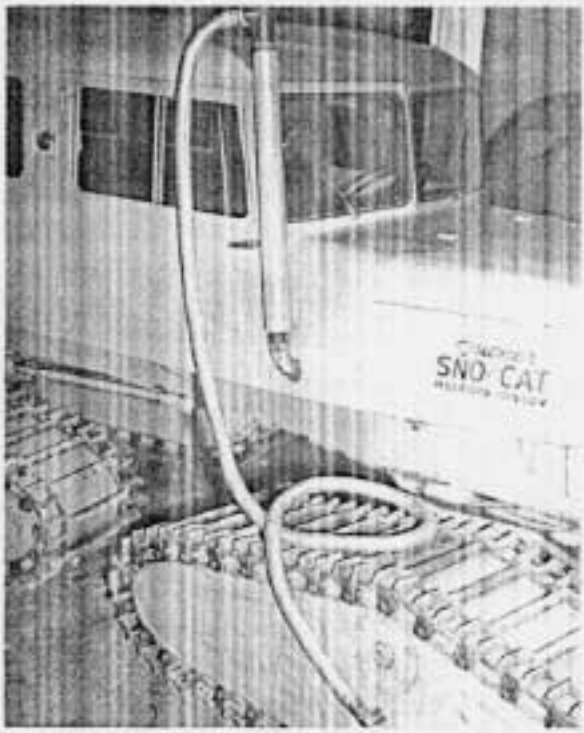
Never overload the SNO-CAT with more passengers or equivalent weight than its rated capacity. SNO-CAT TRAILERS are available to carry additional loads.

When in unusually difficult terrain where traction is limited, "rock" the SNO-CAT back and forth slowly with an idling throttle to pack the snow and break a trail. Do not spin the tracks for they will cut deeper into the snow.

The drain holes on the faces of each pontoon at the bottom of the sprocket housings should be kept free from dirt, leaves or other obstructions. If water accumulates in these chambers it may freeze solid around the sprockets. When freezing occurs it is necessary to thaw it before applying full power to the sprockets to avoid breaking an axle or other damages.

THE SNO-CAT SPROCKET HOUSING DE-ICER is available for this purpose. It is a flexible metal tube with a fitting on one end to fit over the engine exhaust and a fitting on the other end to insert in one of the pontoon drain holes. The engine exhaust will thaw the ice from the sprocket drive. This procedure should be followed for all four pontoon drives, if necessary.

Note illustration below:



PONTOON DE-ICER REACHES ALL FOUR PONTOONS

Maintenance Instructions

LUBRICATION AND SERVICE

Engine

Refer to supplementary Chrysler Manual. Use grease and oil customarily used in engines of automobiles and light trucks in your immediate geographical areas with consideration as to the season of the year which affects temperatures.

Transmission

Dodge. Same procedure as above recommended.

Power Transfer Case

(Part #4700) Immediately to rear of transmission. Check with your technician in charge of vehicles. Manufacturer recommends a light-weight hypoid grease or a conventional light-weight transmission lubricant.

Drive Shaft Crosses

(6 places) Conventional duty and grease requirements similar to light truck.

Drive Axles, Front and Rear

Dodge ½-ton Hypoid (ratio 4.56) Conventional duty and grease requirements as per ½-ton Dodge truck. Use light-weight Hypoid grease.

Chassis

Conventional lubricant: Tie rods, 4 fittings; Drag Link, 2 fittings; Fifth Wheel Pivots and Trunion Bearings, 4 fittings; and Steering Swing Main Bearings.

Hydraulic System

Reservoir tank under hood. **Pump** driven by V-belt from front of crankshaft (Vickers' equipment). **Steering Booster Cylinder** (Vickers'), Hydraulic oil or light-weight engine oil,

non-detergent type. See Vickers' Manual Supplement to this Manual, for servicing and maintenance.

Steering Gear

Conventional automotive lubricant requirements for temperatures expected.

Cooling System

A permanent type anti-freeze is recommended or anti-freeze specified by the maintenance technician. (16-quart System and Heater.)

Battery

Conventional Automotive Storage Battery servicing and procedure.

Track Rollers

SCREW TYPE:

Grease flanged rollers on track every 200 miles with a light, waterproof grease, or as specified by your maintenance technician.

Remove flathead screws in center of each track roller pin. Use low pressure gun equipped with special fitting provided. Do not "over grease" or use high pressure. Replace screws and make sure they are tight. It is important that these screws are in place when the SNO-CAT is in use for they keep these vitally important bearings clean.

ALEMITE FITTED TYPE:

Use low pressure gun equipped with special fitting provided. Do not "over grease" or use high pressure.

Proper and frequent lubrication of all flanged track rollers is vitally important.

Before summer storage run the SNO-CAT several blocks to force the water out of bearings. Grease rollers and paint tracks and other steel parts with rust resistant paint.

Maintenance and Adjustments

NON-ADJUSTABLE PONTOONS

Installing Track

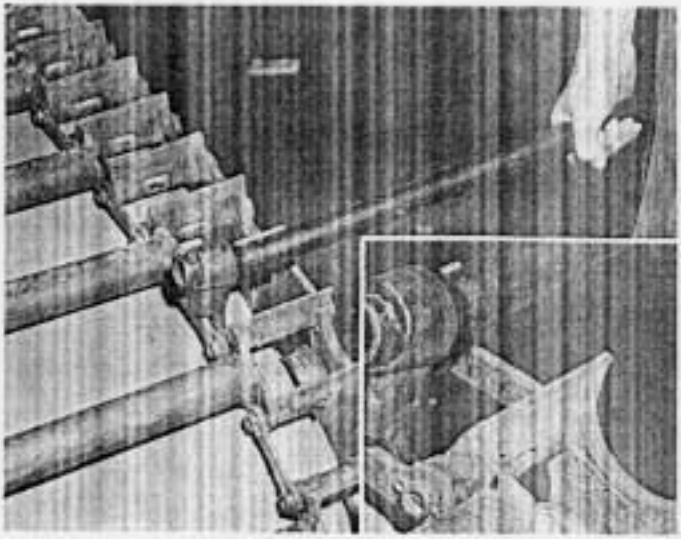
To install or remove a track, one of the pontoons of the opposite set must be raised up so its track can turn freely. Use reverse or low range gear for turning sprocket when running track into place for coupling. Use track clamp provided, or very strong "C" clamps for drawing ends together sufficiently to install connecting links.

Tightening Track

Periodic checking of tracks for looseness is advisable. When it is evident that there is slack in the tracks, they should be tightened to increase efficiency. The number of miles the SNO-CAT may be driven before it is necessary to tighten the tracks, depends upon the amount of care given the SNO-CAT and the type of terrain traveled. The slack can be eliminated by slightly "bowing" the four (two sets) connecting links between track sections. They should be bent the same amount evenly around the entire track. This procedure shortens and tightens the entire track.

This "bowing" or bending of the connecting links is best accomplished with the "track tightener" tool, which is provided with the SNO-CAT. (See illustration below.) This tool is composed of two pieces, a loose handle and a head with fingers and adjustment screw which provides sufficient lever-

age to "bow" the connecting links. This tool and the "track clamp" should be kept in the SNO-CAT. Evenly and properly adjusted tracks are vitally necessary for obtaining full life expectancy from them. A track is properly adjusted when **all** connecting links are bent evenly and when **all slack is removed without the track being under great tension.**



TRACK TIGHTENER

Maintenance and Adjustments

ADJUSTABLE PONTOONS

Installing Track

To install or remove a track, **one** of the pontoons of the opposite set must be raised up so its track can turn freely. Use reverse or low range gear for turning sprocket when running track into place for coupling. Use track clamp provided, or very strong "C" clamps for drawing ends together sufficiently to install connecting links.

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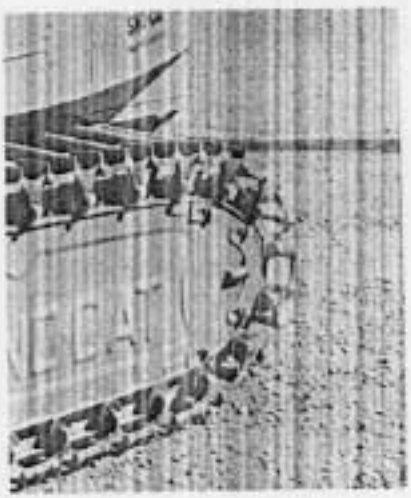
By turning the capscrews on the adjustment plate of the pontoon right or left, the track can be tightened or loosened.

DO NOT OVER-TIGHTEN TRACK, AS THIS SHORTENS THE TRACK LIFE!

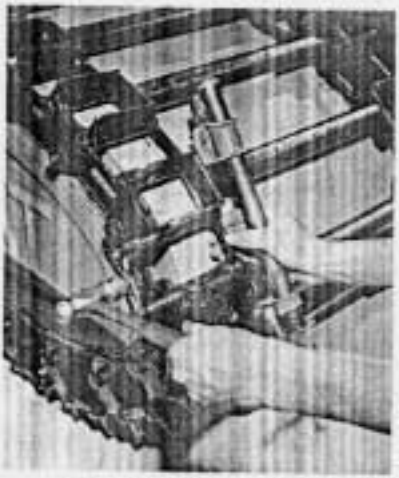


TRACK TAKE-UP ADJUSTMENTS

Replacing a Track Section

Revolve the track until the track section to be replaced is located at either of the extreme ends of the pontoon. The following procedure should be followed:

1. Relieve the track tension by placing the Track Clamp or a similar clamp across the two Track Sections on right or left side of the track and remove the connecting links that secure the section on that side. Next, place the clamp across the opposite side and remove the remaining connecting links.
2. Replace the damaged track section with a new track section.
3. To reassemble the track, replace connecting link assemblies and couple track with help of track clamp. Note use of clamp below.



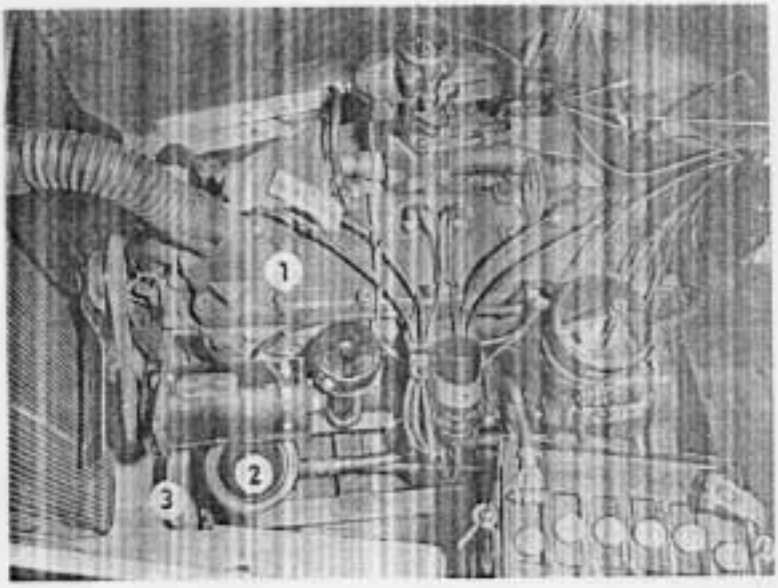
COUPLE OR UNCOUPLE TRACK WITH CLAMP

To Remove Pontoon from Sno-Cat

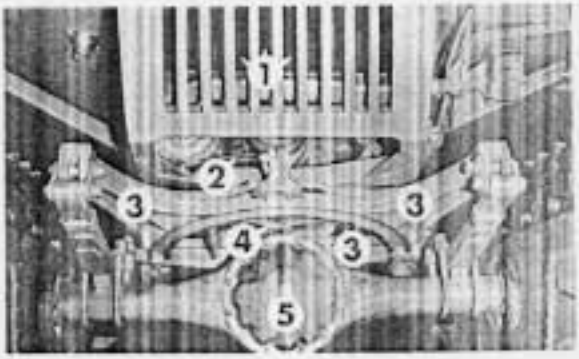
ON MODEL 400 STANDARD SERIES

1. Remove track.
2. Remove large hexagon axle extension nut on outside face of pontoon and the 5 nuts, which allow removal of outer pontoon bearing plate.
3. Remove inner axle extension nuts with extension socket wrench.
4. Slide pontoon off.

Section II



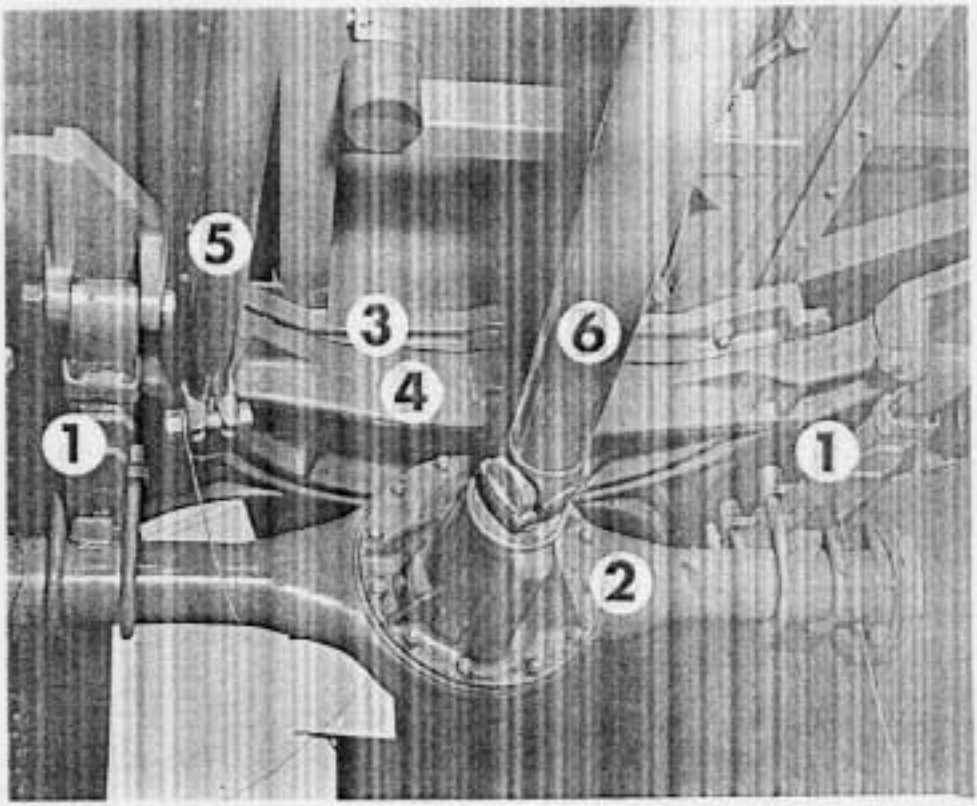
1 Chrysler Engine — IND 30-1181-1 — 110 h.p. - 6 cylinder
2 Hydraulic Oil Reservoir Tank
3 Vickers Hydraulic Steering Pump ..... VT-16 or VTM-27



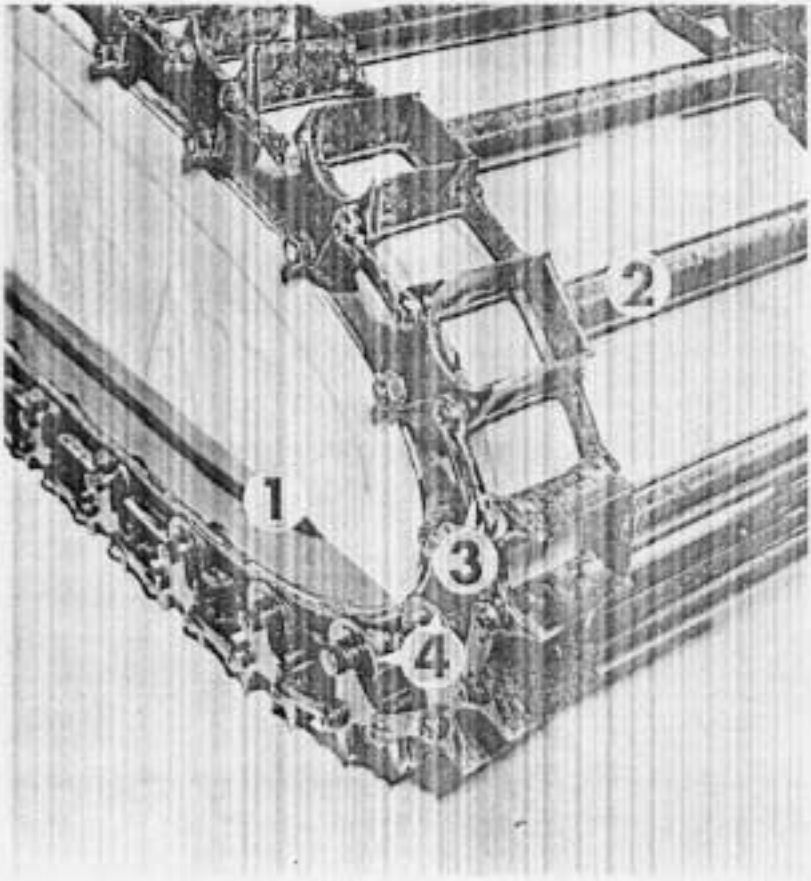
1 Radiator 4125
2 Pump Drive Belt ..... B Width
3 Front Fifth Wheel 4012
4 Fifth Wheel Trunion Pin 4013
5 Front or Rear Axle Assembly 4900-F

Important — Specify Ratio 4.89, 4.78 or 4.56

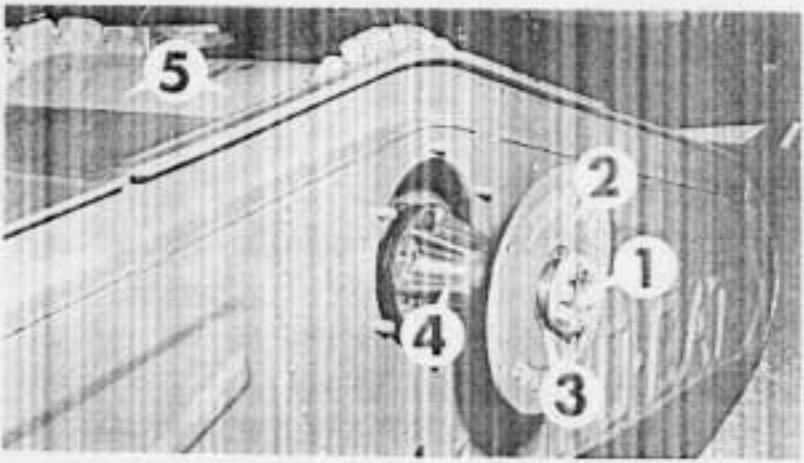
Parts Breakdown



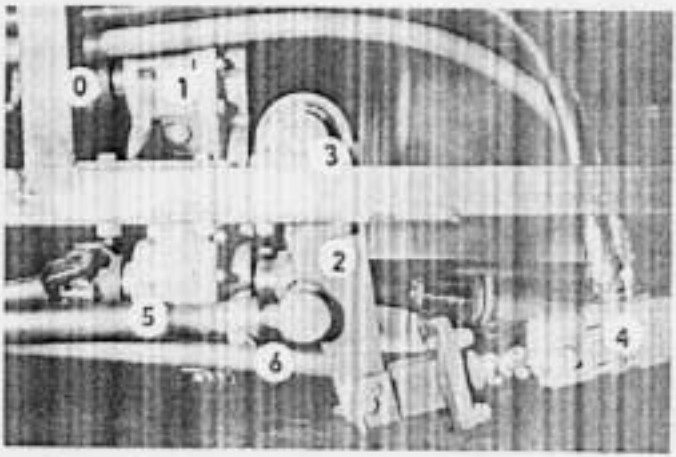
1	Springs	4016
2	Rear Axle Assembly	4900-R
3	Rear Fifth Wheel (top half)	4014
4	Rear Fifth Wheel (bottom half)	4015-F
5	Rear Tie Rod	4022
6	Rear Drive Shaft (same as front)	4070



1	Pontoon	4001	(state position)
2	Track Section	4200	
3	Connecting Link Assembly	4300	
4	Flanged Track Roller	4400-X	
	Track Clamp	10005	see picture on page 13



1	Axle Extension Nut	4004
2	Outer Pontoon Bearing Plate	4001-P
3	Bearing, Pontoon, SKF	6208-2RS
4	Axle Extension	4003
5	Sprocket Drum	4005



0	Top Drive Shaft	4069
1	Transfer Case	4700
2	Steering Swing	4017
3	Swing Bearing Holder	4018
4	Steering Booster Cylinder	S23N-070 or S20B16-28AXNN12N-10
5	Front Tie Rod	4021
6	Drag Link	4019

Item	Nomenclature
1	Chrysler Engine, Industrial 3 Speed
2	Radiator
3	Gas Tank
4	Transfer Case Assembly
5	Bearings, transfer case
6	Grease Seal
7*	Propeller Shaft (top) engine to transfer case
8	Propeller Shaft (lower) transfer case to axle
9	Cab Assembly - including doors and frame
10	Fifth Wheel, front
11	Fifth Wheel, rear top half
12	Fifth Wheel, rear bottom half
13	Trunion Pin, front fifth wheel
14	Fifth Wheel side clamp
15	Fifth Wheel rear clamp
16	Springs
17*	Steering Gear Assembly
18	Steering Pump
19	Belt (for Pump Drive)
20	Steering Booster Cylinder
21	Hydraulic Hose (pump to booster cylinder)
22	Steering Swing
23	Swing Bearing Holder
24	Swing Bearing
25	Drag Link (booster cylinder to Pitman)
26*	Pitman Arm
27	Tie Rod, front
28	Tie Rod, rear
29	Tie Rod End — right or left
30*	Drive Axle Assembly — front

SPARK PLUG AC R46 OR AUTOLITE 306

Parts

Manufacturer and Address	Part Number
Chrysler Industrial Engine Div., Detroit, Mich.	IND 30-1181-1
Chrysler Industrial Engine Div., Detroit, Mich.	4125
Tucker Sno-Cat Corp., Medford, Oregon	4072
Tucker Sno-Cat Corp., Medford, Oregon	4700
SKF, Philadelphia, Pennsylvania	4041
Federal Mogul Brg. Co., Redwood City, Calif.	4042
Cleveland Steel Products, Cleveland, Ohio	4069
Cleveland Steel Products, Cleveland, Ohio	4070
Tucker Sno-Cat Corp., Medford, Oregon	
Tucker Sno-Cat Corp., Medford, Oregon	4012
Tucker Sno-Cat Corp., Medford, Oregon	4014
Tucker Sno-Cat Corp., Medford, Oregon	4015-F
Tucker Sno-Cat Corp., Medford, Oregon	4013
Tucker Sno-Cat Corp., Medford, Oregon	4011-S
Tucker Sno-Cat Corp., Medford, Oregon	4011-R
Tucker Sno-Cat Corp., Medford, Oregon	4016
Gemmer Manufacturing Co., Detroit, Mich.	#335
Vickers, Inc., Detroit, Mich.	2-VT-16 or VTM-27
Tucker Sno-Cat Corp., Medford, Oregon - (Truflex 3360)	4020
Vickers, Inc., Detroit, Mich.	S23N-070 or S20B16
Tucker Sno-Cat Corp., Medford, Oregon	4024
Tucker Sno-Cat Corp., Medford, Oregon	4017
Tucker Sno-Cat Corp., Medford, Oregon	4018
Tucker Sno-Cat Corp., Medford, Oregon	4018-B
Tucker Sno-Cat Corp., Medford, Oregon	4019
Tucker Sno-Cat Corp., Medford, Oregon	4023
Tucker Sno-Cat Corp., Medford, Oregon	4021
Tucker Sno-Cat Corp., Medford, Oregon	4022
Tucker Sno-Cat Corp., Medford, Oregon	4025
Tucker Sno-Cat Corp., Medford, Oregon	4900-F

Item	Nomenclature
31*	Drive Axle Assembly — rear
32	Sprocket Drum
33	Sprocket Teeth
34	Axle Extension
35	Nut (Axle Extension)
36	Pontoon (left front) (right front) (left rear) (right rear)
37	Cover (pontoon)
38	Plate (outer pontoon)
39	Bearing (outer pontoon)
40	Track Assembly (complete roll)
41	Track Section (with rollers)
42	Track Section (without rollers)
43	Track Roller (flanged)
44	Connecting Link Assembly
45	Connecting Link-Pin Assembly
46	Removable Link
47	Sleeves, track pin
48	Headlight
49	Windshield Wiper
50	Arm, wiper
51	Blade, wiper
52	Flexible tube de-icer
53	Track tightener tool
54	Track clamp
55	Heater and defroster

*Altered in Tucker Sno-Cat Corporation plant, however, a good machinist or welder can alter the original part to suit the needs of the Sno-Cat on location.

Parts (cont.)

Manufacturer and Address	Part Number
Tucker Sno-Cat Corp., Medford, Oregon	4900-R
Tucker Sno-Cat Corp., Medford, Oregon	4005
Tucker Sno-Cat Corp., Medford, Oregon	4006
Tucker Sno-Cat Corp., Medford, Oregon	4003
Tucker Sno-Cat Corp., Medford, Oregon	4004
Tucker Sno-Cat Corp., Medford, Oregon	4001-LF, etc.
Tucker Sno-Cat Corp., Medford, Oregon	4001-C
Tucker Sno-Cat Corp., Medford, Oregon	4001-P
SKF, Philadelphia, Pennsylvania	4001-B
Tucker Sno-Cat Corp., Medford, Oregon	4150
Tucker Sno-Cat Corp., Medford, Oregon	4200
Tucker Sno-Cat Corp., Medford, Oregon	4002
Tucker Sno-Cat Corp., Medford, Oregon	4400-X
Tucker Sno-Cat Corp., Medford, Oregon	4300
Tucker Sno-Cat Corp., Medford, Oregon	4301
Tucker Sno-Cat Corp., Medford, Oregon	4302
Tucker Sno-Cat Corp., Medford, Oregon	4303
Tucker Sno-Cat Corp., Medford, Oregon	4071
American Bosch, Springfield, Mass.	Specify: WWA-6C-127 (6-volt) or WWA—Model 114 (12-volt) or WWF12A13 920 (12-volt)
American Bosch, Springfield, Mass.	LE-721 or LE-725
American Bosch, Springfield, Mass	BD-724 or BD-725
Tucker Sno-Cat Corp., Medford, Oregon	10001-F
Tucker Sno-Cat Corp., Medford, Oregon	10004
Tucker Sno-Cat Corp., Medford, Oregon	10005
Hupp Corp., Detroit, Mich.	10006 Installed 10007 Not Installed

Dependable
Over-Snow
Transportation

TUCKER SNO-CAT CORPORATION
MEDFORD, OREGON