

ARMY
CODE No
22262

**CARRIER, FULL TRACKED,
SNOWTRAC ST4**

USER HANDBOOK

1975

PRODUCED TO THE REQUIREMENT OF
THE MINISTRY OF DEFENCE

BY DIRECTOR OF QUALITY ASSURANCE
(FIGHTING VEHICLES AND ENGINEER EQUIPMENT)

U4354/1

NOTES TO READERS

The subject matter of this publication may be affected by Defence Council Instructions.

If possible, amendments are issued to correct this publication accordingly. When an Instruction contradicts any portion of this publication, the Instruction is to be taken as the overriding authority.

ASSOCIATED PUBLICATIONS

Code No.

Servicing Schedule	
Technical Handbook	
Parts List	22649

AMENDMENT RECORD SHEET

To record the incorporation of an Amendment List in this publication, sign against the appropriate A.L. No. and insert the date of incorporation.

A.L. No.	Amended by	Date
1		
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**SUPPLEMENT No.1 - SUPPLEMENTARY SERVICING
and STORAGE INFORMATION**



The SNOW TRAC is built for travel in roadless snow-covered terrain and is capable of carrying heavy loads in difficult conditions. The well-adapted ground pressure combined with low centre of gravity makes it very easy to control even on steep slopes.

Like any other vehicle it needs regular servicing and careful maintenance in order to function satisfactorily and to keep running costs low.

We therefore urge you to read this booklet, as well as the special engine manual, and to follow the instructions and advice given. In return your SNOW TRAC will give you good service and much enjoyment for many winters to come.

AKTIV-FISCHER AB

INSTRUMENTS AND CONTROLS

1. Windscreen wipers Two-speed
Extra equipment, see page 7
2. Petrol heater switch with indicator lamp
3. Starter button
4. Light switch
The parking lights are switched on by pulling out the switch to the first position and the headlights by pulling it fully out.
5. Horn
6. Fuse box
7. Fuel gauge
This indicates the speed in km. p. h.
8. Speedometer
9. Choke
10. Oil temperature gauge
The maximum permissible oil temperature when running is 120°. If the oil becomes hotter than this, stop the vehicle and let the engine run at idling speed until the temperature has gone back to normal.
11. Hand throttle control
12. Oil pressure warning lamp (GREEN)
If this lamp lights while running, stop the engine at once and check the oil level. If this is correct, there is a fault in the oil circulation system or in the electrical circuit to the warning lamp. If the lamp flashes when the engine is idling, this is of no significance as long as

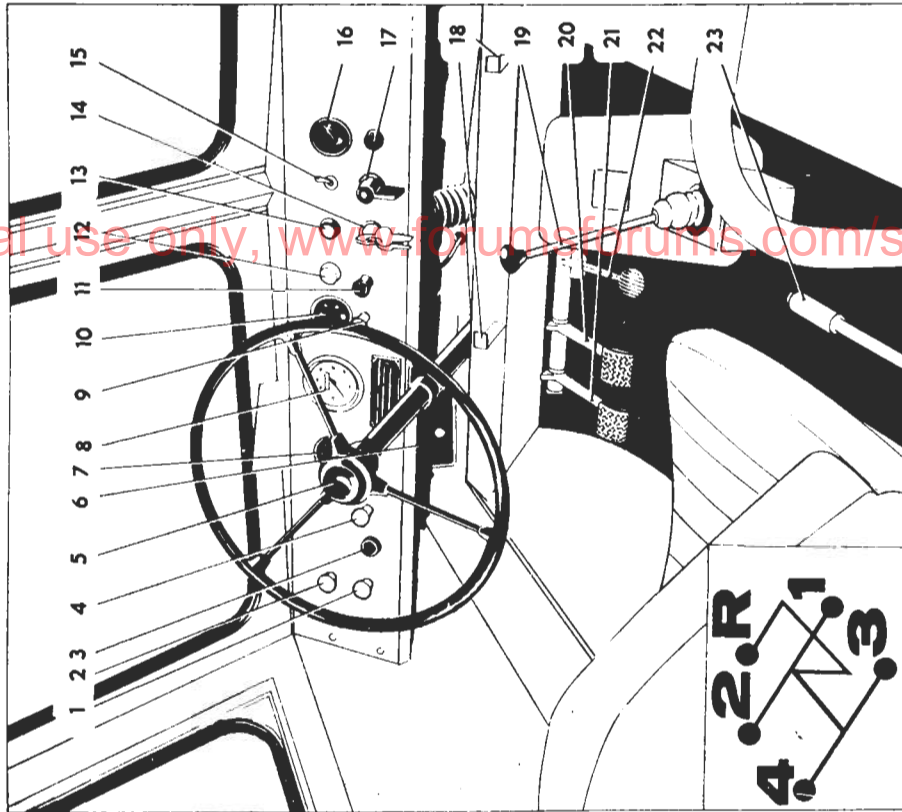


Fig.1

- it goes out when the engine speed is increased.
- 13. Charging control lamp (RED)** This lamp lights when the battery is being discharged.
- 14. Ignition switch** When the key is turned in the switch the ignition current is switched on, as well as current to the direction indicator flashers, measuring instruments, horn and brake lights.
- 15. Headlight dipper switch**
- 16. Hour recorder** Extra equipment. This indicates the running time in hours.
- 17. Direction indicator switch with indicator lamp** The lamp flashes simultaneously with the direction indicator flashers. If any flasher is not functioning, the indicator lamp goes out.
- 18. Heater and defroster controls** See page 7
- 19. Gear lever** The gear positions are shown in the insert in fig. 1.
- 20. Brake pedal**
- 21. Clutch pedal**
- 22. Accelerator pedal**
- 23. Hand brake**

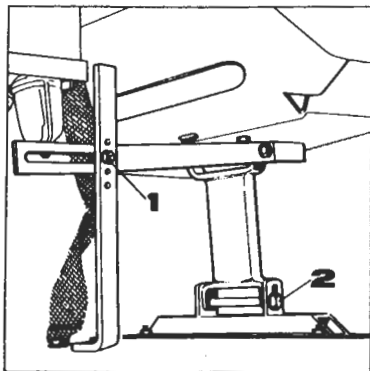


Fig. 2

Driving seat

The driving seat is adjustable both vertically and longitudinally, and the seat inclination can also be altered. The height of the seat is adjusted by moving the attaching screw 2 to one of the four holes in the frame. The longitudinal position is adjusted by loosening the screw 1 and moving the whole seat backwards or forwards. The seat inclination is altered by moving the bolt 1 to one of the four holes in the seat support leg.

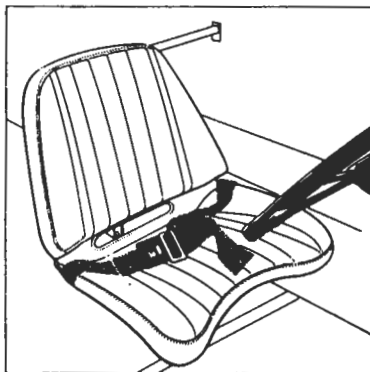


Fig. 3

Safety belt

The safety belt should be adjusted so that it holds the driver firmly to the seat. The length of the belt is adjusted by moving the locking buckle on the free end of the belt. The lock is released by lifting the rear edge of the black locking buckle.

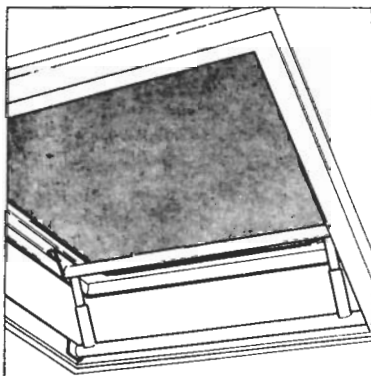


Fig. 4

Roof hatch

The roof hatch is opened by pressing the hatch support upwards. The hatch is locked in the open position by a spring-loaded ball. The roof hatch can be opened fully by releasing it from the front attachments and hinging it backwards.

Heater and defroster

Warm air from the cab and windscreens is obtained when both the controls are pulled outwards. By setting the controls to different positions warm air can be distributed in the cab as desired.

The adjusting nut for the variator belt tension is reached through the opening between the controls.

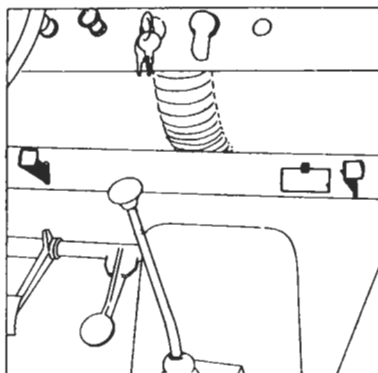


Fig. 5

Air heater unit

(Extra equipment)

The heater is started by pulling out the switch to position 2. This switches on an electric glow plug which ignites the fuel which runs in at the same time. Combustion starts and the heated air is blown into the cab. After about 45 seconds the heater reaches its full operating temperature. A thermostat cuts off the current to the glow plug at the same time that the control lamp on the switch lights to indicate that the unit is in full operation. When the switch is pushed in the fuel supply ceases and combustion is stopped. The fans continue to run in order to cool the heater. After 2 - 3 minutes when the temperature of the heater has fallen sufficiently, the current to the fan motor is cut off automatically and the control lamp on the switch goes out at the same time.

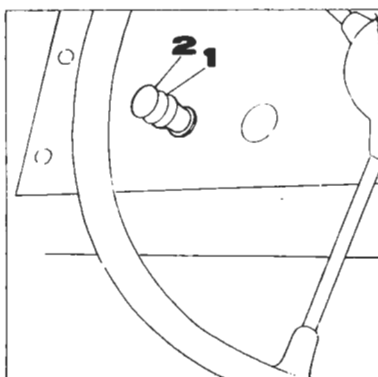


Fig. 6

N.B. On no account must the heater be switched on during the cooling period since the glow plug will not then be energized and the fuel flowing in will not be ignited. When the switch is in position 1, only the fans of the unit are in operation, whereby heated fresh air is blown into the cab.

STARTING AND DRIVING

Before driving

Check that:

- The oil level in the engine comes between the maximum and minimum marks on the dipstick
- There is sufficient fuel
- The brakes function properly

Starting the engine when cold

- Pull out the choke control fully
- Press down the clutch pedal
- Do not touch the accelerator pedal until the engine has started
- Switch on the ignition by turning the key
- Push in the starter button

If the engine does not start within 10 seconds, release the starter button and wait half a minute before making another attempt to start.

When the engine has started:

- Push in the choke control until the engine runs smoothly
- Operating temperature is reached most quickly by running the vehicle under moderate loading during the warming-up period
- Push in the choke successively until the engine runs smoothly with the choke pushed in fully

Starting the engine when warm

- Push down the accelerator pedal about halfway
- Switch on the ignition by turning the key
- Push in the starter button

If the engine does not start immediately when it is thoroughly warm, press down the accelerator pedal fully and make a fresh attempt to start.

Driving

The weasel can be started in any gear since it has low overall gear ratios. A suitable gear is chosen with regard to the snow and terrain conditions existing at the time. Make a habit of glancing at the instruments now and then. This will avoid any unnecessary engine breakdowns.

The engine oil temperature must not exceed 120°C (248°F) when running. If the oil becomes hotter than this, stop the weasel and let the engine idle until the temperature goes back to normal.

WARNING. On no account must the steering wheel be turned when the vehicle is not moving. If force is used to turn the steering wheel when the vehicle is stationary, this can cause breakage of the steering components.

After finishing driving

The engine is stopped by turning back the ignition key. When parking the vehicle for any length of time, for example, overnight, the crawler tracks should be cleaned free from snow and ice. This is particularly important when it is thawing. Fir twigs can be placed under the track to prevent them from freezing to the ground. The handbrake should not be used when parking for prolonged periods during the winter as there is a risk that it will freeze solid. At very low temperatures it is advisable to take the battery indoors during the night. At -20°C (-4°F), the battery capacity is only half of that at room temperature. A fully discharged battery freezes at about -10°C ($+14^{\circ}\text{F}$).

DRIVING TECHNIQUE

The weasel is very easy to drive on hard surfaces. However, the steering responds more slowly than that of a car. The delay in steering response is due to the fact that it takes a certain amount of time for the steering variator to alter the speed of the crawler tracks. This does not present any difficulty to the experienced driver, although it should be borne in mind by a driver who is not used to the vehicle.

Cross-country driving

Cross-country driving calls for greater judgement and caution on the part of the driver than travelling on level ground.

- Adapt the speed to suit the prevailing terrain conditions
- Avoid driving over tree stumps and rocks to prevent the tracks and track carriages from being subjected to shock loads
- Always choose the easiest route even if it means going a longer way round

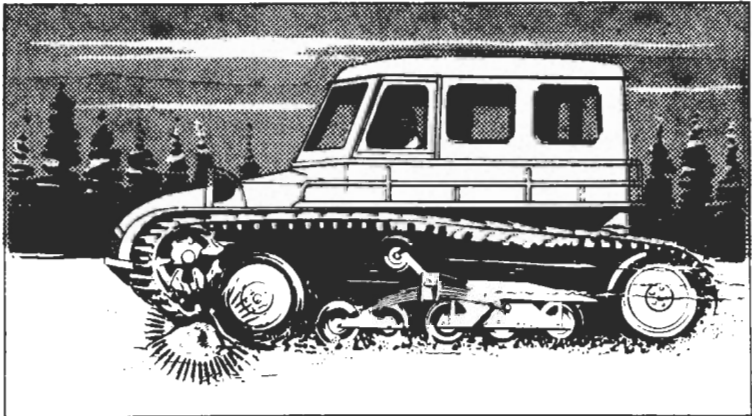


Fig. 7

Driving in mountainous country

When driving in mountainous or other hilly districts it should be remembered that the hill-climbing capacity of the vehicle is greatest on frozen and hard-packed snow. However, even in loose snow it can still negotiate slopes if the right driving technique is used.

Diagonal driving

If the tracks spin and bury themselves in when driving up a steep slope, a diagonal driving technique must be used.

- First reverse the vehicle while turning at the same time, and then choose a course which is less steep
- A zig-zag pattern can often be adopted for diagonal hill-climbing. In order to gain as much altitude as possible when turning on to a new leg of the zig-zag course, steer straight uphill as far as possible. As soon as the tracks begin to slip, reverse the vehicle while turning to bring it on to the new course

If when driving diagonally uphill in loose snow a course is selected which has too steep a gradient so that the lower track begins to spin and bury itself in, reverse the vehicle and choose a new course which is less steep. When driving diagonally uphill on frozen or hard-packed snow, take special care that the vehicle does not begin to side-slip down the slope.



Fig. 8

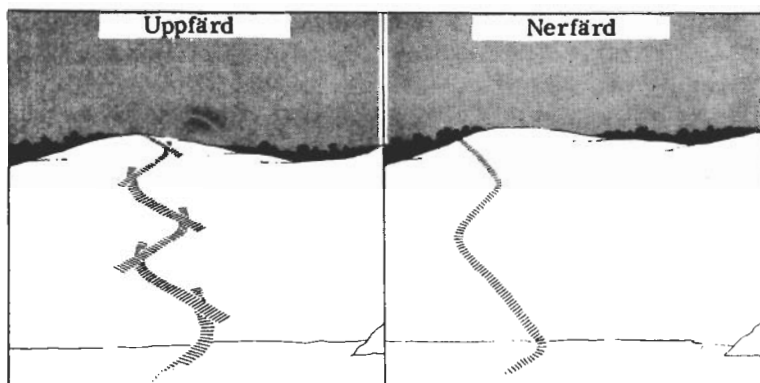


Fig. 9

Utilizing the terrain

Making zig-zag turns when driving up steep slopes is considerably facilitated by making use of the forward speed of the vehicle. The gradient of the slope will thus help the vehicle to turn while reversing. If it is necessary to drive repeatedly up a slope with loose snow which has a steeper gradient than the vehicle can manage, the following method can be adopted:

- Take a zig-zag course to the top. On the way down, take a shorter route with a steeper gradient
- On the next trip up, drive in the same tracks made on the way down. This will provide a much better grip for the crawler tracks, so that the vehicle will be able to climb to the top more quickly

At all times when driving the weasel, but especially in mountainous districts, remember to avoid jerky control movements and sudden acceleration.

TECHNICAL DESCRIPTION

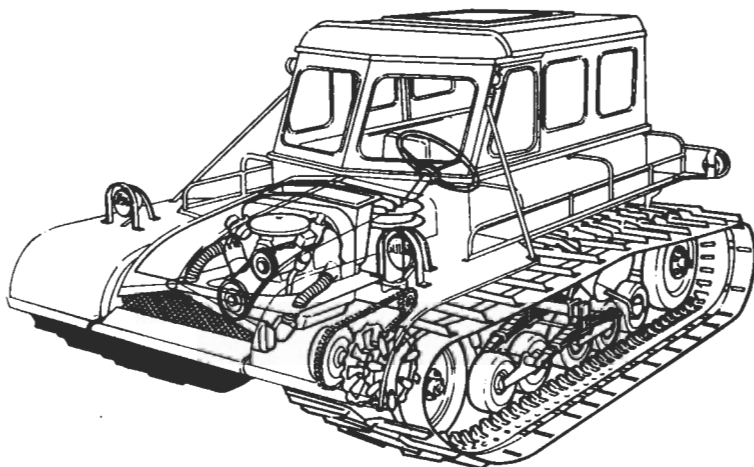


Fig.10

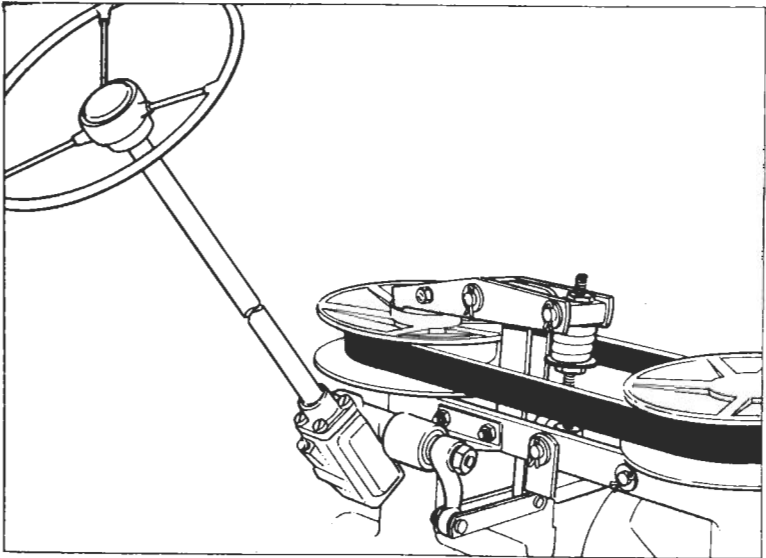
The weasel is intended for use in roadless snow-covered terrain. It can carry a load of 500 kg (1102 lb.) and can also tow as much again. There is plenty of room in the cab for six people in addition to the driver.

Chassis and body

The chassis consists of a welded frame made of cold-drawn steel tubing. The body is made of aluminium alloy and is mounted on the frame by three-point suspension.

Engine

The weasel is powered by a Type 126 Volkswagen engine. It is an air-cooled, four-cylinder opposed unit and is mounted at the front with the drive on the front axle.



Power transmission and steering

Fig.11

The weasel is equipped with a variator steering arrangement. The movements of the steering wheel act on a steering variator which distributes the engine output between the two crawler tracks in a continuously variable ratio. Both tracks are driven when making turns, but the variator distributes the engine output between them in proportion to the steering wheel movement. The variator works by means of a drive belt which runs between double V-belt pulleys, the flanges of which are adjustable for width. When the steering wheel is turned it acts on the variator pulleys in such a way that the flanges of one of them are pressed together while those of the other are moved apart a corresponding amount. The drive belt is thereby forced outwards towards the periphery of the pulley which is pressed together and at the same time forced inwards towards the shaft of the other pulley. This causes the drive shafts, and thereby also the crawler tracks, to run at different speeds so that the weasel turns.

Crawler tracks

The crawler tracks are made of rubber with interwoven rayon cord. The tracks are reinforced externally with spring steel cleats. These are shaped in such a way that they provide a good grip on the snow. The cleats also run in mesh with the driving

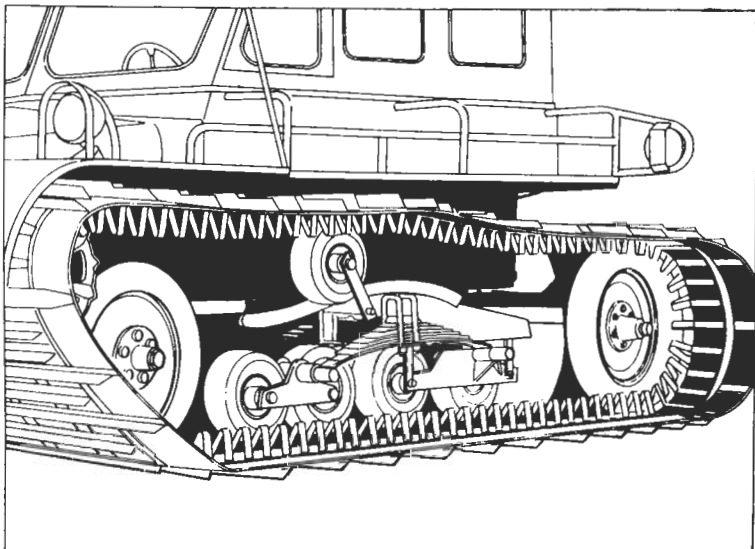


Fig.12

-wheels to drive the tracks. On the inside of the tracks there is a guide ridge which runs against the flanges of the bogie wheels to guide the tracks laterally. The track tension is adjusted by moving the rear wheels.

Track carriers

The weight of the vehicle is transferred to the tracks by means of 12 pneumatic rubber wheels. The wheels are mounted on spring-loaded track carriers which are arranged in such a way that the best possible weight distribution is obtained. Each track has a fixed support wheel against which the upper part of the track rests.

Brakes

The vehicle is equipped with hydraulic drum brakes. The hand-brake is mechanical and acts on the front wheels.

Electrical system

The electrical system has a voltage of 24V. The battery has a capacity of 85 Ah and the negative terminal is earthed. The electrical system includes circuits for charging, starting, lighting, brake lights, direction indicators, horn and windscreen wipers. A flashing warning light is available as extra equipment.

MAINTENANCE INSTRUCTIONS

Engine

All adjustments and servicing work should be carried out in accordance with the instructions in the engine manual.

Variator

Variator belt tension

Check the tension of the variator drive belt occasionally. When correctly tensioned, it should be possible to press in the belt by thumb 20 mm (3/4") as shown in fig. 13.

The belt is tensioned by slackening the two nuts 1, fig. 14, an equal amount. The lower nut is slackened from inside the cab through an opening on the right-hand heater and defroster control, see fig. 5.

N.B. Do not adjust the nuts 2. These are properly adjusted when the variator is installed and their adjustment must not be altered when the belt is tensioned.

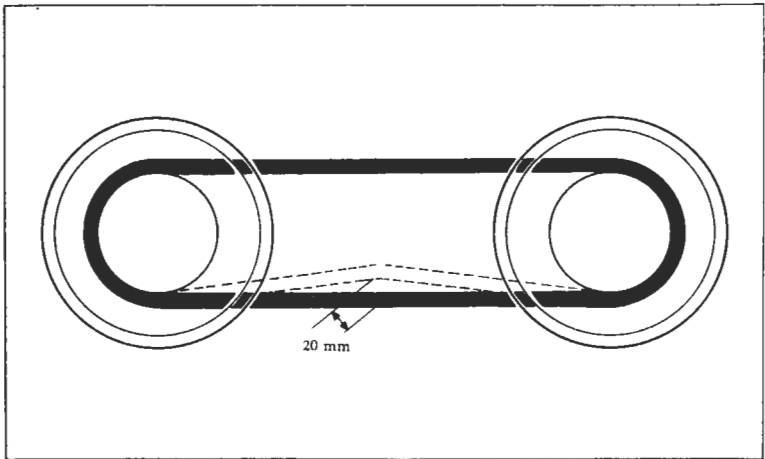


Fig. 13

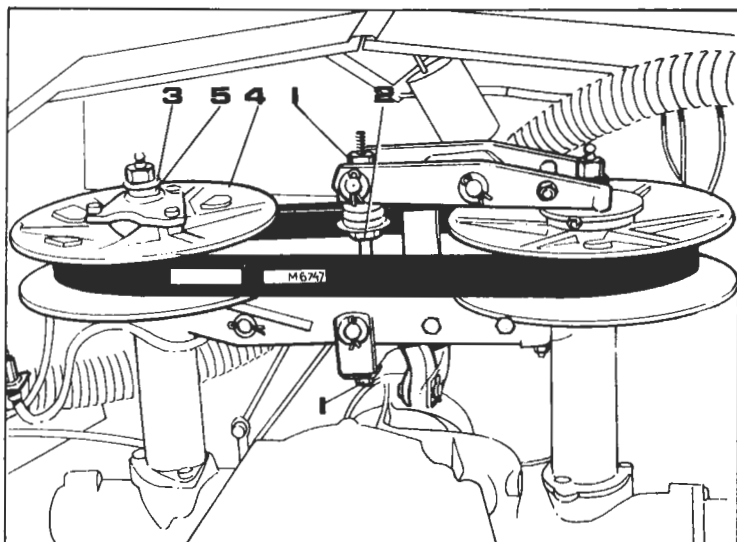


Fig. 14

Changing the variator belt

1. Unscrew the cooling air intake from the engine.
2. Bend down the tab washer 3, fig. 14, screw off the shaft nut on the right-hand steering shaft and pull off the upper half 4 of the variator pulley.
3. Remove the defective belt. Clean the variator pulleys if necessary.
4. Put on the new belt. Push the variator pulley 4 on the shaft. Put on the washer 5 and the tab washer 3. Screw on the shaft nut by hand.
5. Tighten the shaft nut while rotating the variator pulleys by hand or driving them round with the engine. If they are to be turned by hand, one driving chain must be taken off.
6. Check the belt tension and adjust if necessary.
7. Tighten the shaft nuts finally with a torque wrench to a torque of 23-26 kpm (166-188 lb. ft.), and lock with the washer 3.
8. Fit the cooling air intake.

Crawler tracks

Crawler track tension

Check the tension of the track once a week as follows:

1. Drive the weasel straight forward about 25 yards/metres on level ground so that the driving wheels pull evenly on both tracks.
2. The tension is checked on the upper part of the track between the front support wheel and rear drive wheel. Place a straight-edge or similar on top of the track between the points at which it is supported. The tension of the track is correct when it sags 4-5 cm (1 3/16"-1 9/16") as shown in the figure 15.
3. Tighten the tracks if necessary by moving the rear wheels with the nuts on the adjusting screws 1, fig. 15.
4. Drive the weasel another 10 yards/metres straight forward and check the tension again.

If after a long period of use the tightening mechanism no longer suffices to produce the required tension, the tracks must be shortened. To do this, remove the track jointing bolts, lap the track ends over each other one pitch more and then refasten the joint. Tension the tracks as described above.

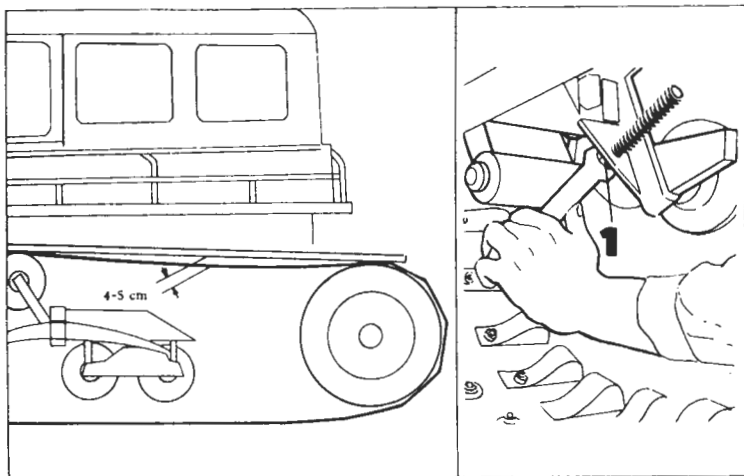


Fig. 15

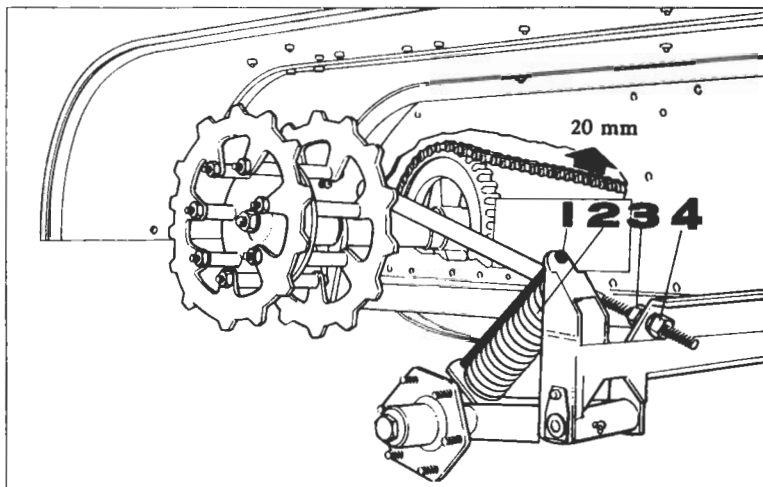


Fig. 16

Dismounting of crawler tracks

1. Mount the black tightening bolt 1, which is placed in the tool box, in the holes over the spring 2 behind the front wheel, fig. 16.
2. Slacken the chain tension with the nut 3 and the locking nut 4.
3. Slacken the crawler track tension with the nut 1, fig. 15.
4. Dismount the rear wheel and remove the crawler tracks.

Driving chains

Driving chain tension

Check the tension of the drive chains now and then, and after every 50 hours running. If the chains are insufficiently tensioned this can result in jerky running, particularly when travelling downhill. The chain tension should be checked on the slack part of the chain. The upper part of one of the chains can be tight while that of the other chain is slack. This depends on the direction in which the vehicle has been turned immediately before stopping. When correctly tensioned, it should be possible to lift the middle of the chain about 2 cm (3/4"). The chains are tensioned with the nuts 3, fig. 16, on the either side of the vehicle body. Note that the vehicle should be driven straight forward at least 10 metres (33 ft.) on level ground before the chain tension is adjusted.

PERIODIC MAINTENANCE

Every day

Before driving

Check that:

- The oil level in the engine comes between the maximum and minimum marks on the dipstick
- There is sufficient fuel
- The brakes function properly

After every 50 hours running

Change the engine oil.

Lubricate all points as shown in the lubrication chart.

Check that:

- The variator belt is correctly tensioned
- The drive chains are correctly tensioned
- The crawler tracks are correctly tensioned
- The pressure in the front tyres is 5 kp/cm^2 (71 lb/sq.in.) and in the other tyres 4 kp/cm^2 (57 lb/sq.in.)
- Both the fanbelts are correctly tensioned. It should be possible to press down the belts with the thumb about 1-2 cm (7/16") at a point halfway between the belt pulleys
- The battery acid reaches 10 mm (3/8") above the cell plates. Top up with distilled water if necessary. After topping up, let the engine run for a while to allow the water to mix properly so that freezing is avoided

Service the engine as described in the engine manual.

End- of -season maintenance

1. Thoroughly clean the weasel both internally and externally. Examine the vehicle and make a note of any parts which need replacing. Order the parts at once or in good time before the next season.
2. Check:
 - Crawler tracks for damage
 - Adjustment of track carriers
 - Bogie spring clamps
 - Rim bolts
 - Nuts for idler wheel bolts
 - Shock absorber bolts
 - Gearbox stay bolts
 - Gearbox attaching bolts
 - Engine mounting bolts
 - Variator frame bolts
 - Variator pulley bolts
 - Bolted joints on engine and exhaust system
 - Body bolts
3. Protect the engine against rust as described in the engine manual.
4. Change the oil in the gearbox. Drain the oil as soon as possible after running while it is still warm and flows easily.
5. Touch up the paintwork where necessary.
6. Carry out all-round lubrication in accordance with the lubricating chart.
7. Block up the vehicle and release the tension on the crawler tracks.

ELECTRICAL EQUIPMENT

Fuses

The fuses are placed in a fusebox under the instrument panel to the left of the steering wheel jacket tube.

If a fuse "blows", first find out the reason and correct the fault before fitting a new fuse.

Never use fuses with a rating higher than 8 A – this can result in danger of fire!

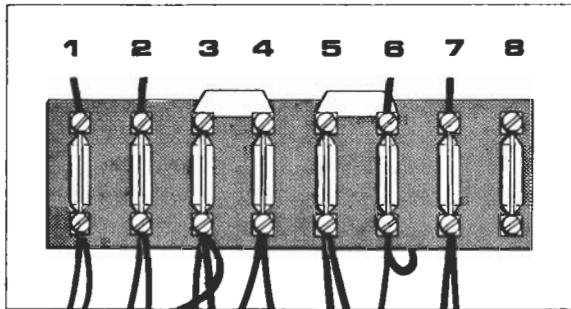


Fig. 17

<u>Fuse</u>	<u>Circuits protected</u>
1	Dipped-beam headlights
2	Full-beam headlights
3	Parking lights, number plate lamp
4	Rear lamps, instruments lights
5	Ignition coil
6	Horn
7	Windscreen wipers, interior lights
8	Spare

Bulbs

Head lamps
 Stop lights
 Rear lights

TECHNICAL DATA**ENGINE**

Make	Volkswagen 126 A	
Type	4-cylinder, 4-stroke boxer engine	
Cooling	Blower-cooled, controlled by a thermostat	
Rating	53 hp SAE at 4000 rpm	
Cylinder volume	1584 cm ³	
Cylinder diameter	85.5 mm	(3.336")
Stroke length	69 mm	(2.717")
Compression ratio	7,7:1	

CLUTCH Single dry-plate type

Make	Fichtel & Sachs
Type	KM 200

GEARBOX All synchronised
4 forwards gears, 1 reverse

Gear ratios	1st gear	3.80
	2nd "	2.06
	3rd "	1.32
	4th "	0.89
	Reverse	3.88

DIFFERENTIAL Built in the gearbox and variator controlled

Ratios	4.125
--------	-------

SPROCKET WHEEL DRIVE Chain drive with roller chain
25.4 x 17

Ratios	Standard 3.17
	Extra 3.45 and 2.53

TYRES

Carrier wheels	Size	4.00-4" ²	6-ply
	Air pressure	4 kp/cm ² (57 lb/sq.in.)	
Front wheels	Size	600-100 mm	6-ply
	Air pressure	5 kp/cm ² (71 lb/sq.in.)	
Rear wheels	Size	600-100 mm	6-ply
	Air pressure	4 kp/cm ² (57 lb/sq.in.)	

Travelling speeds

Gear	Standard reduction	Speed in mph	
		High reduction	Low reduction
1st	1 - 3 1/4	1 - 4	1 - 3
2nd	2 - 5 1/2	2 - 7	1 1/2 - 5
3rd	2 1/2 - 10	3 - 12 1/2	2 - 9
4th	4 1/2 - 15	5 - 19	4 - 14

Measurements, Weight, etc.

Dimensions	Length	3640 mm (11' 11 5/16")
	Width	1900 " (6' 2 13/16")
	Ground clearance	300 " (11 13/16")
	Height	1850 " (
Weight	Service weight, approx.	1250 kg (
Performance	Load capacity	500 kg (1102 lb.)
	Track ground pressure (with driver)	50 g/cm ² (
	Tow capacity	500 kg (1102 lb.)
	Load-carrying area	2,6 m ² (28 sq. ft.)

EXTRA EQUIPMENT

Flashing warning light	Recommended when driving in places where there is a risk of colliding with skiers
Air heater unit	See page 7
Engine speed limiter	Prevents the engine from running at an excessive speed
Hour recorder	Registers the number of running hours
Spare parts kit	Contents: Spare part and tool kit Variator belt Head lamp bulb Oil pressure warning lamp bulb Fuse 25 A Hub nut Idler wheel, complete with hub bolt 1 metre jointing track 5+5 track grippers 5 screw U6S 5/8"x38 5 screw U6S 5/16"x32 5 screw U6S 5/16"x25 5 lubricator 1/8", 40° 5 lubricator, 1/8", straight

LUBRICATION CHART

After 50 hours running

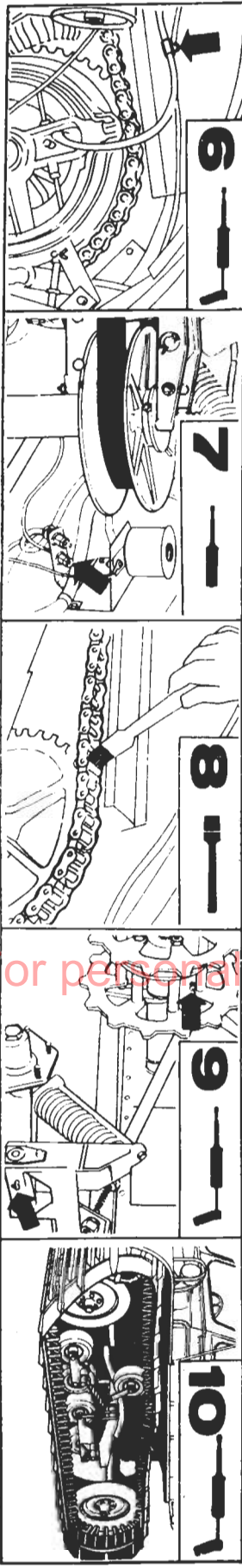
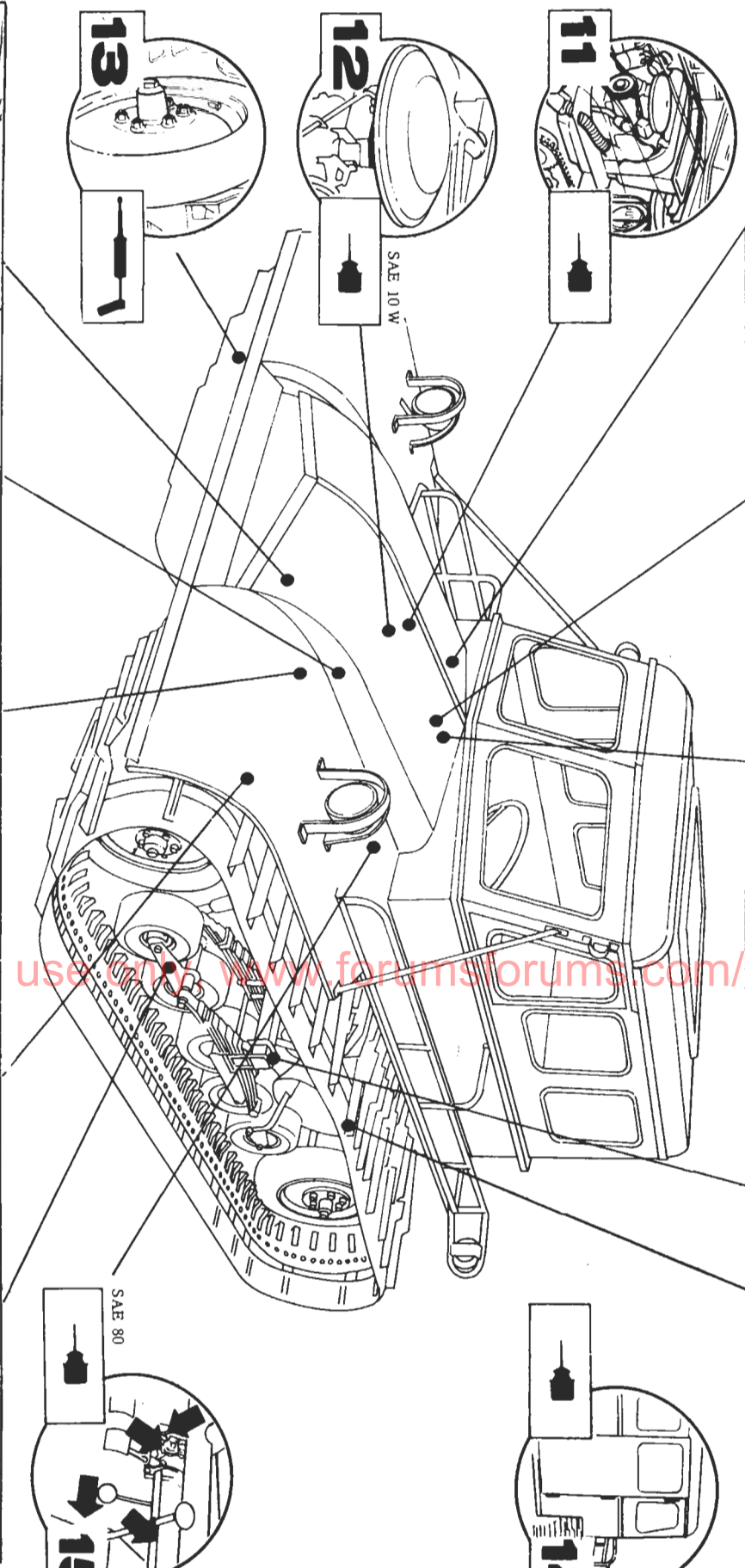
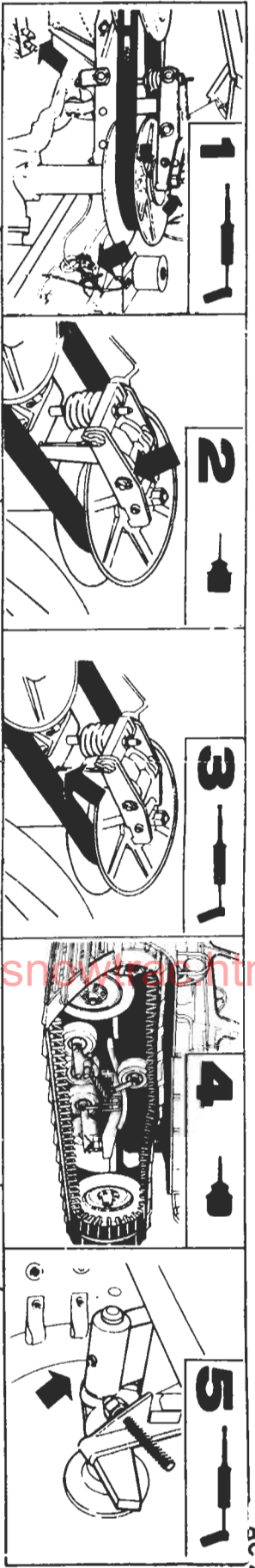
Pos. No.		Lubrication points	
		Left	Right
1	Steering shaft upper bearing	1	1
	Thrust bearing bracket	1	1
	Variator pulleys	1	1
2	Variator, adjustment arms, links	12	
3	Link arm	1	
4	Bogie spring	1	1
5	Rear wheel suspension	1	1
6	Brake wire	1	1
7	Steering box	1	
8	Driving chains	1	1
9	Front axle bearing housing	1	1
	Front wheel suspension	1	1
10	Track carriers and idler wheel	6	6

Once a year

11	Engine control	3	
12	Clean and oil air filter	1	
13	Rear wheel hub	1	1
	Front wheel hub	1	1
14	Engine hood and door hinges	5	
15	Pedal shaft	3	
	Gear box	1	

Symbols

Grease gun with Aero-Shell Grease No. 14,
 Texaco Grease 5542 B, BP Grease LS 1
 Oil can with SAE 20 engine oil
 Grease gun with gear oil SAE 80
 Brush dipped in engine oil SAE 20



For personal use only. www.forumsforums.com/snow/ty.html

LUBRICANTS

Engine

Summer

SAE 30, API specification:
"For service MS"

Winter

SAE 10 W, API specification:
"For service MS"

Gearbox

SAE 80 gear oil

Steering box

SAE 80 gear oil

Air cleaner

SAE 10 W engine oil

Hydraulic brakes

BLUE quality brake fluid

Points lubricated
with grease gun

Ball bearing grease
Aero-Shell Grease No. 14,
Texaco Grease 5542 B,
BP Grease LS 1

Points lubricated
with an oil can

SAE 20 engine oil

Fuel and
oil volumes

Fuel tank	40 l
Engine	2,8 l
Gearbox	4,5 l
Steering box	0,3 l
Brake system	0,3 l

SUPPLEMENT No.1

SUPPLEMENTARY SERVICING AND STORAGE INFORMATION

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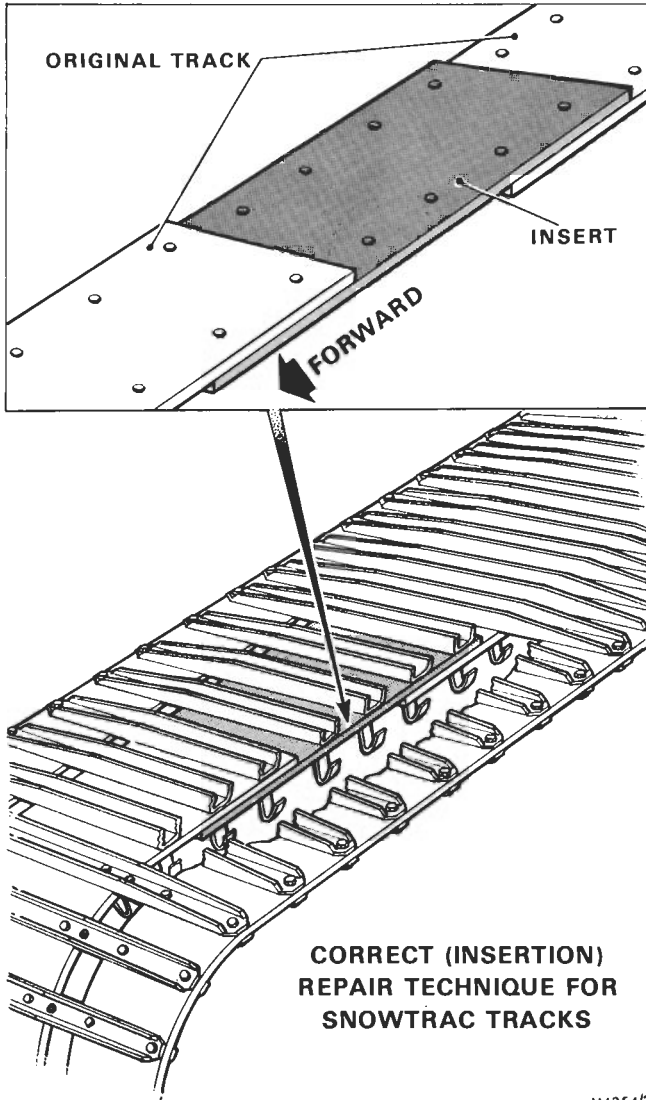
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TRACK REPLACEMENT - ALTERNATIVE METHOD

1. This method will have to be used if damage to the front wing prevents lifting the track off the sprocket.
2. Line the vehicle up, leaving approximately 9 m (30 ft) clear space to the rear and front.
3. Position the track join between the sprocket and the lower part of the front carrier wheel.
4. Split the track at join using speed brace and ring spanner.
5. Position new track in front of vehicle in same alignment with no gap.
6. Reverse the vehicle, remaining straight, guide the old track over the drive sprocket, top bogey and rear carrier wheels, until the old track is laid out flat in front of the vehicle. Drive forward over old track onto new track. Pick up rear of new track and feed over rear wheel, top bogie and over sprocket, pulling all slack to front.
7. Slacken off the adjustment on the rear carrier wheel.
8. Offer up the track ends and join, ensuring they are correctly overlapped.
9. Adjust the new tracks tension on the rear carrier wheel adjuster.
10. Roll up old track and remove.



U4354/2

Fig 1 Track Repair Technique

RIGGING INSTRUCTIONS FOR HELIPORTABILITY OF SNOWTRAC

1. Remove the canopy, fold all items of loose equipment into it, secure it to the post of the driver's seat.

Note: *This equipment and role equipment will be required to be left off the vehicle to achieve the AUW for Arctic Operation of 2,900 lb. Check with AP 101A - 1105 - 1 and 101A - 1104 - 1.*

2. Secure the rear doors in the open position.
3. Check that the chains are secured through the tubes and are positioned with the 17th link (front) and 27th link (rear).
4. Attach the four legged 6,000 lb sling to the chains, front leg hooks 14 links from the pin, rear leg hooks 24 links from the pin, (paragraphs 3 and 4 ensure a correct 'nose down' attitude when lifted).
5. Tape the mouths of all chain hooks after engagement. Tape all surplus chain back onto itself. (There will only be three surplus chain links at the front).
6. Start at the top and tape the slings legs in position together, thus preventing fouling during 'hook up'.

STORES REQUIRED

VAOS SECT	ITEM	QTY
A4.1670-99-102-6537	Sling Chains, 15 ft x 2,500 lb	2
27H 3967	Sling SWR, 4 legged, Helicopter 6,000 lb	1
H4/HD 13622	Tapes adhesive	As required
H4/HD 13623		
A4.4020-99-120-3456	Cord nylon 1,200 lb BS	As required

PROCEDURE FOR TESTING 24 VOLT CHARGING SYSTEM
(To be carried out by a Vehicle Mechanic/Electrician)

1. Check the fan belt tension.

To check field

2. With an AVO measure the resistance between DF and D-, turn the engine and note the lowest reading (approximately 10 ohms).

To check diodes

3. With an AVO measure the resistance between D- and D+ . This should be:

FORWARD 120 ohms - **REVERSE** 0 ohms

then measure the resistance between D- and B+

FORWARD 100 ohms - **REVERSE** 0 ohms.

Note: *During this test the AVO +ve should be on D- for forward rotation.*

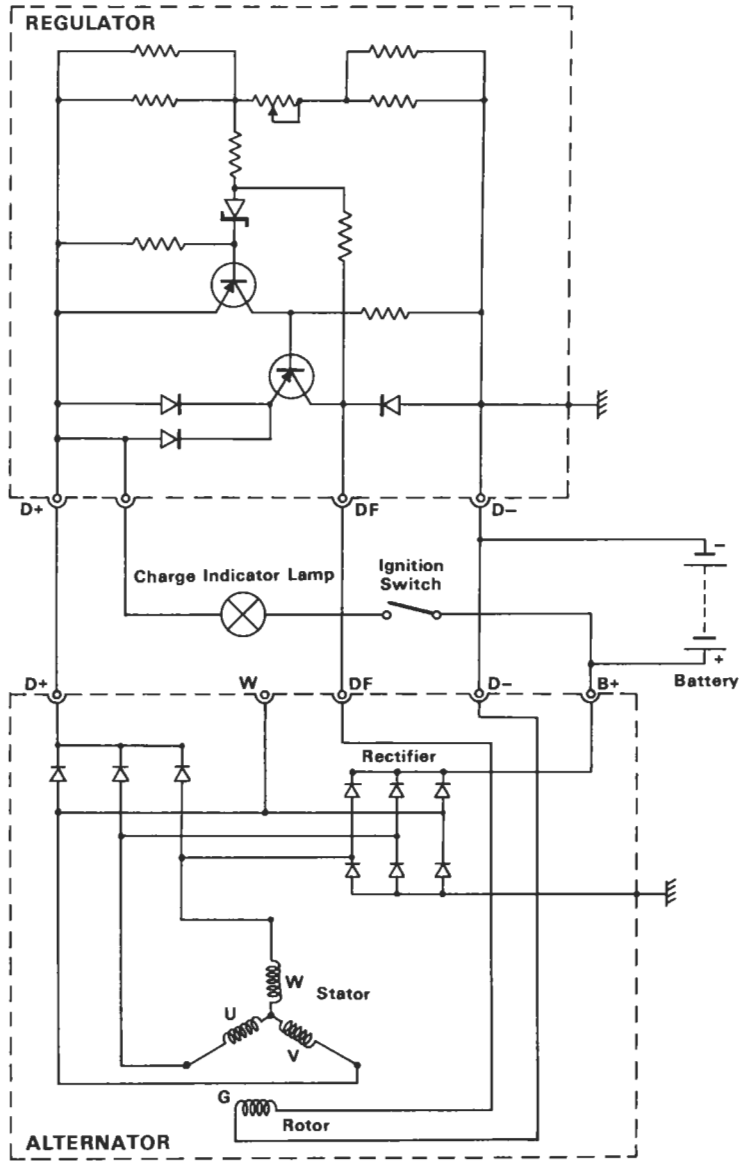
Preparation

4. Connect a voltmeter across the battery modified + tve terminal to earth. Note the reading, if it is low replace the battery. Disconnect the battery earth.

To check charging circuit

5.
 - a. Insert an ammeter between alternator B+ and the disconnected battery earth lead.
 - b. Reconnect battery earth.
 - c. Switch on side lamps (load).

ALTERNATOR CIRCUIT DIAGRAM



- d. Start the engine and run for 3 minutes at charging speed. Let voltage stabilize. If this is over 10 amps after 3 minutes, carry on charging until 10 amps reading is achieved.
- e. Check voltage output, should be between 27.5 - 28.5 V.
- f. Stop engine and switch off lights.
- g. Remove voltmeter.
- h. Disconnect the battery earth.
- j. Remove the ammeter.
- k. Reconnect the cable to the alternator.
- l. Reconnect the battery earth lead.

IMPORTANT

Note: *DO NOT use a MEGGA for testing.
DO NOT disconnect leads while engine is running.
DO NOT run alternator without the battery. Only
DISCONNECT the battery when engine is STOPPED.*

PROCEDURE FOR STORAGE/MAINTENANCE OF SNOWTRAC

Receipt/Storage Inspection

1. a. Carry out a full serviceability inspection. Pay particular attention to 1st and 2nd line repairs completed since the last report. Faults found are to be recorded on the Filed Inspection Report (AF G 932).
- b. Major faults from the previous inspection not completed or repaired satisfactorily, should be referred back to the repair unit.

Servicing General

2. a. Vehicle servicing is to be carried out when painting (paragraph 6) and repairs have been completed. All servicing required during storage should be carried out and details entered in the vehicle documents.
- b. The vehicle is to be serviced in accordance with the instructions below.

Servicing procedure

3. a. Renew the oils in the:
 - (1) Engine.
 - (2) Gearbox.
 - (3) Air cleaner.
- b. Lubricate the:
 - (1) Carburetter/accelerator linkages.
 - (2) Governor.
 - (3) Points shown on the lubrication chart.
 - (4) Pivots, catches and exposed threads.
- c. Check, clean and adjust as necessary the:
 - (1) Fan belts.
 - (2) Fuel pump filter.
 - (3) Valve clearance.
 - (4) Engine idling speed.

- (5) CB points (lubricate cam).
- (6) Governor linkage and belt.
- (7) Variator belt.
- (8) Drive chains.
- (9) Crawler tracks.
- (10) Track carriers.
- (11) Bogie spring clamps.
- (12) Rim bolts.
- (13) Idler wheel nuts.
- (14) Shock absorber bolts.
- (15) Gearbox bolts.
- (16) Gearbox mounting bolts.
- (17) Variator frame and pulley bolts.
- (18) Joints on engine and exhaust systems.
- (19) Tyre pressures are 5 lbf/in² above normal pressure.
- (20) All body bolts are tight and free from corrosion.
- (21) Release tension on the crawler tracks.

Engine protection.

4. To protect the engine against corrosion, when the vehicle HAS BEEN PARKED - UP FOR STORAGE:

- a. Remove the air cleaner.

- b. Run the engine at fast idling whilst slowly pouring PX-4 (HI 8030 - 99-910-0484), into the carburetter.
- c. Switch off the engine when thick white smoke is seen issuing from the exhaust outlet. On no account should the engine now be turned over.
- d. Remove the spark plugs, spray the combustion chambers with PX-4, clean and adjust the spark plugs, spray with PX-4 and install.
- e. Seal all engine apertures to resist dampness, ie exhaust pipe outlet, carburetter, breather pipe.
- f. Lightly spray the exterior of the engine with PX-4.
- g. Record the date of preservation in the Vehicle Log Book.

Storage

- 5. a. When storing the vehicles ensure that the fuel tank is topped-up to the bottom of the filler neck, using a suitable container. THIS TASK MUST BE CARRIED OUT IN THE OPEN TO AVOID A FIRE RISK.
- b. When parking up the vehicle for storage, ensure sufficient space is available for individual vehicle movement in an emergency.
- c. Carry out the anti-corrosion procedure in paragraph 6.a. to b. and 4.a. to g.
- d. Ensure the vehicle handbrake is OFF. If the vehicle is parked on sloping ground, leave the tracks chocked or the vehicle in gear.
- e. Disconnect the vehicle battery and store in accordance with relevant instructions (see page 17).

Cleaning and painting

6. Rust patches must be treated with rust neutralizing paint (Paint Pitan Universal; 2 parts, No.1 HI.8010-99-220-3621, No.2 HI.8010-99-220-3622).

METHOD

- a. Before applying neutralizing paint, all loose rust is to be removed with a wire brush, and the area swabbed with white spirit. The spirit should be allowed to dry before applying the first coat of neutralizing paint.
- b. Apply the second coat of neutralizing paint.
- c. The finishing coat to match the vehicle finish, can be applied directly onto the neutralizing paint.

Note: *Application of paint may only be carried out after 4 hours and within 24 hours of the last application.*

Monthly inspections

7.
 - a. Visually examine the vehicle for any signs of deterioration, including oil leaks, flat tyres, etc. The date of inspection should be entered in the vehicle log book.
 - b. Faults found on the inspection should be actioned as described in paragraphs 9 and 10.

Mid-term exercise/inspection.

8. This will consist of:
 - a. A visual inspection of the vehicle, with the initiation of an AF G 932.
 - b. Tension the tracks and reduce tyre pressures to normal.

c. Fit vehicle batteries and carry out a static engine run observing normal starting precautions.

Note: *The smoke caused by PX-4 in the engine will clear after a short while.*

d. Test all controls with minimum movement of the vehicle (ie before road testing - see paragraph e. below).

e. Road test for 2 miles, ensuring that during the test run all controls and gears are fully checked and that the brakes are used sufficiently to ensure removal of any minor rusting of the surface.

f. Carry out a full post road - test inspection and record any faults found on the report initiated at a.

Vehicles with no faults

9. If the vehicle has no faults, proceed as follows:

a. Return it to its storage position, ensuring the tyre pressures are 5 lbf/in² above normal and that the fuel tank has been topped-up. The latter task must be carried out outside the storage premises.

b. Re-apply the corrosion protection procedure at paragraph 4.a. to g. (ie using PX-4).

c. Disconnect the vehicle battery and remove it to the battery shop for charging.

d. Ensure that any oil or grease removed during the exercising is replenished/lubricated.

e. Ensure that the vehicle brakes are in the OFF position.

f. Slacken track tension.

g. Enter details of road test, inspection and paragraph 6 into the vehicle log book, certifying no faults found.

Vehicles requiring repair

10. If the vehicle requires repairs they should be carried out before complying with paragraphs 9.a. - g.

End of storage inspection

11. Prior to the date by which the vehicle is required, proceed as indicated in paragraph 8.

Vehicles with no faults

12. If the vehicle has no faults, tyre pressures are to be reduced to normal, tracks tension checked and the inspection report endorsed to this effect. Endorse the vehicle documents 'COMPLETE TO DATE' ready for sub-unit handover.

Vehicles requiring repair

13. Carry out the repairs and complete paragraph 12 before vehicle is issued.

Helicopter lifting chains and tubes

14. When a vehicle is prepared for storage the helicopter lifting chains and tubes introduced by MOD Inst No.14 should be removed and serviced as follows:

- a. The tubes should be straightened and restored to their correct cross section or nearly so.
- b. Cleaned internally and externally, then coated with PX-4 before storage in pairs.
- c. Chains are to be cleaned, checked for corrosion, freed, oiled and hung up.
- d. Chains are to remain in their pairs and identified accordingly.

- e. Pairs of chains are to be examined and inspected in accordance with local instruction on inspection of helicopter slings.
- f. These are items of lifting tackle and require the inspection details to be entered in a register for each pair of chains, this must remain with the vehicle documents.

STORAGE AND MAINTENANCE OF SNOWTRAC BATTERIES **(To be carried out by a Vehicle Mechanic/Electrician)**

1. This procedure refers to batteries in a used condition and not to new (dry charged) batteries.
 - a. Remove batteries from vehicle (including radio batteries if fitted) and enter the details into a master register.
 - b. Clean thoroughly the exterior, examine for damage and repair or condemn as necessary. Record in register.
 - c. Stencil the Vehicle Regn No. on to the battery casing.
 - d. Remove to battery shop.

Monthly

2. A check of the specific gravity of each battery is to be carried out. If the SG has not fallen by 0.035 points from the fully charged reading, no action is required.

- a. WHERE THE SG HAS FALLEN BY MORE THAN 0.035 recharge the battery at 1/20th of the battery capacity, using a constant current system. Enter date of charge in the register.

Warning: *THE HEAVY DISCHARGE TESTER MUST NOT BE USED IN A CONFINED SPACE, SPARKING BETWEEN THE PRODS AND CONNECTORS CAN OCCUR AND CAUSE AN EXPLOSION IF BATTERY GASES ARE PRESENT.*

b. SUSPECT BATTERIES that are suspect or do not hold their charge, must be tested with a Heavy Discharge Tester (HDT). The HDT should be placed across the cell terminals for approximately 10 seconds, the reading should not drop below 1.25 volts.

General

3. The following data will assist in assessing battery condition when using a HDT:

a. Equal low readings for each cell indicates a serviceable but flat battery. Recharge.

b. Any cell reading that differs by approximately 0.5 volts from the rest is suspect.

c. A falling reading or near zero reading indicates a defective cell.

Caution: *THIS TEST IS A SEVERE ONE AND UNDER NO CIRCUMSTANCES SHOULD IT BE CONTINUED FOR A LONGER PERIOD THAN IS NECESSARY TO TAKE READINGS.*