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MD70

Operation and Maintenance Manual

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LIMITED WARRANTY

The WARRANTY hereinafter set forth applies solely to the POSI-TRACK manufactured by All-Season Vehicles, Inc. (hereinafter referred to as ASV, Inc.) and is in lieu of all other warranties, expressed or implied. No person, agent, or dealer is authorized or empowered to give any other warranty or to assume any other liability on behalf of ASV, Inc. The WARRANTY is limited to the original purchaser only. No warranty is transferable to any subsequent owner.

ASV, Inc. warrants the POSI-TRACK and accessories against defects in material and workmanship under normal use and service for a period of ONE YEAR from the date of delivery or 500 HOURS, and will repair or replace at ASV, Inc.'s option, free of charge to the original purchaser, any part that our examination reveals to be defective in material or workmanship. The warranty does not include transportation costs, labor, or consequential damages.

- (a) Only parts of ASV, Inc.'s manufacture are covered by this warranty.
- (b) All parts not manufactured by ASV, Inc. are warranted insofar as warranted by the manufacturer of such parts.
- (c) Wear items are not warranted against normal use.

ASV, Inc. reserves the right to inspect the equipment prior to any decisions involving a warranty claim. ASV, Inc. also reserves the right to make warranted repairs or replacements either at the site or at ASV, Inc.'s factory. In no case shall ASV, Inc. grant a remedy that either exceeds the purchase price of the product or ASV, Inc.'s cost of the component or part.

ASV, Inc. reserves the right to make design changes without incurring any obligation to make such changes to previously manufactured equipment. This warranty does not apply to damage in transit, or damage caused by misuse, abuse, neglect, improper adjustment, accident, or improper application. Any repairs or alterations made to the equipment, without authorization from ASV, Inc., will void this warranty.

NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY ASV, INC. EXPRESSED OR IMPLIED, STATUTORY, BY OPERATION OR LAW, OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. ASV, INC. DISCLAIMS LIABILITY FOR INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY KIND.

October 1993

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FOREWORD

This manual contains operation, service, maintenance, and trouble shooting information for the ASV Posi-Track. It is designed to aid and instruct operators and service personnel in the safe operation and normal maintenance of the vehicle.

This manual is divided into five sections. The sections cover safety related items, specifications, maintenance schedules, adjustments, and operating instructions.

By studying this manual, operators and service personnel will become more familiar with the construction and safe operation of the vehicle. As operators and technicians become more efficient in the safe operation and maintenance of the vehicle it is our hope they will gain confidence in ASV and its products.

Throughout this manual the words **WARNING**, **CAUTION**, and **NOTE** are used to emphasize certain information. The word **!WARNING!** is used to identify personal safety information. The information should be read carefully and understood. Failure to heed warnings could result in bodily injury. The word **CAUTION** is used to identify possible damage to the vehicle or components. Failure to follow the suggested procedures will probably result in damage to the vehicle. The word **NOTE** identifies supplementary information worthy of particular attention.

At the time of publication of this manual all information, photographs, and illustrations were technically correct. Since ASV, Inc. is constantly improving and refining its products, no retroactive obligation is incurred.

VEHICLE IDENTIFICATION NUMBERS (VIN)

The Posi-Track VIN is located on the side of the Main Control Console. (See fig. 1)



FIGURE 1. Vehicle Identification Number location.

Always provide the VIN when contacting the dealer about parts, service, warranty, or accessories. No warranty claims will be allowed if the VIN has been removed or mutilated in any way.

SPECIFICATIONS

GENERAL

Length w/o loader	113 in. (287 cm)
Length w/loader	146 in. (371 cm)
Width w/o loader	64 in. (162.5 cm)
Height	78 in. (198 cm)
Dry weight	5050 lbs. (2290 Kg)
Curb weight	5200 lbs. (2359 Kg)
Clearance	14 in. (35.5 cm)
Speed	8 MPH (12.9 KPH)

DIESEL ENGINE

Engine	Isuzu 4JB1
Type	4 cylinder, water cooled 4 cycle, OHV, direct injection
Bore	3.7 in. (93 mm)
Stroke	4.0 in. (102 mm)
Displacement	169 cid (2.8 L)
Compression ratio	19.2:1
Injection pump	inline
Fuel shut off	Mechanical
Starting	glow plug assist

TRANSMISSION

Transmission	Sundstrand MDT
Transmission type	Tandem, Variable Disp. Hydrostatic, Servo-controlled
Volumetric output	2.8 cu in./rev (46cc/rev)
Pressure limits for 300 hr./year	
Continuous	3000 psi (210 BAR)
Maximum	5000 psi (345 BAR)
Case pressure limits	
Continuous	50 psi (3.5 BAR)
Maximum intermittent	75 psi (5 BAR)
Charge pressure setting	220-240 psi (15.2-16.5 BAR)
Speed limits	
Continuous at full angle	4000 RPM
Cont. at low swash plate angle	5000 RPM
Maximum at full angle	5000 RPM
Maximum at low swash angle	6000 RPM
Temperature	
Operating range	-30 F to 180 F (-34 C to 82 C)
Maximum intermittent	220 F (104 C)
Max. charge pump/inlet vac.	10 in. Hg (254 mm Hg)
Fluid viscosity limits	
Optimum	70 SUS (15 cSt)
Min. continuous	55 SUS (9cSt)
Min. intermittent	47 SUS (6.4 cSt)
Fluid contaminant Limit	ISO Code 17/13

DRIVE MOTORS

Track drive	Danfoss OMT-400
Type	Caroler
Displacement	25.06 (400 cc)
Maximum pressure	
Cont.	2600 psi (180 BAR)
Intermittent	3050 psi (210 BAR)

PRIMARY AUXILIARY PUMP

Type	Gear
Displacement	1.95 cid (32 cc)
Maximum pressure	3000 psi (210 BAR)
Maximum speed	3000 RPM

SECONDARY AUXILIARY PUMP

Type	Gear
Displacement	1.51 cid (24.75 cc)
Maximum pressure	3000 psi (210 BAR)
Maximum speed	3000 RPM

ELECTRICAL

Battery	950 CCA @ 0 F
Alternator	35 Amp
Headlights	Quartz halogen
Floodlights	Quartz halogen
Starter	Solenoid actuated

CAPACITIES

Fuel tank	13 gal US (49 L)
Hydraulic reservoir	27 gal US (102.2 L)
Coolant	3 gal US (11.5 L)
Engine oil w/filter	5.8 qt US (5.5 L)

LUBRICANTS & FLUIDS

Engine oil	
Summer	SAE 30
Winter	SAE 10W 30
Grease	Low temp Texaco 2346 EP or equivalent
Hydraulics	AMOCO Rykon MV or equivalent
Anti-freeze	Ethylene glycol (50% Mix)

FILTERS

Engine oil	0301-349
Diesel Fuel Filter	0301-348
Diesel Air Filter	0301-302
Transmission Filter	0300-649
Auxiliary Hydraulic Filter	0302-144

General Bolt Torque Specifications

SIZE	SAE GRADE 2 ASSEMBLY TORQUE		SAE GRADE 5 ASSEMBLY TORQUE		SAE GRADE 8 ASSEMBLY TORQUE	
	DRY	LUB	DRY	LUB	DRY	LUB
8-32	19 in-lb	14 in-lb	30 in-lb	22 in-lb	41 in-lb	31 in-lb
8-36	20 in-lb	15 in-lb	31 in-lb	23 in-lb	42 in-lb	32 in-lb
10-24	27 in-lb	21 in-lb	43 in-lb	32 in-lb	59 in-lb	45 in-lb
10-32	31 in-lb	23 in-lb	49 in-lb	36 in-lb	68 in-lb	51 in-lb
1/4-20	66 in-lb	50 in-lb	8 ft-lb	75 in-lb	9 ft-lb	10 ft-lb
1/4-28	76 in-lb	56 in-lb	10 ft-lb	86 in-lb	14 ft-lb	12 ft-lb
5/16-18	11 ft-lb	8 ft-lb	17 ft-lb	13 ft-lb	25 ft-lb	18 ft-lb
5/16-24	12 ft-lb	9 ft-lb	19 ft-lb	14 ft-lb	28 ft-lb	20 ft-lb
3/8-16	28 ft-lb	15 ft-lb	30 ft-lb	23 ft-lb	45 ft-lb	33 ft-lb
3/8-24	23 ft-lb	17 ft-lb	35 ft-lb	25 ft-lb	50 ft-lb	35 ft-lb
7/16-14	32 ft-lb	24 ft-lb	50 ft-lb	35 ft-lb	70 ft-lb	55 ft-lb
7/16-20	38 ft-lb	27 ft-lb	58 ft-lb	40 ft-lb	80 ft-lb	60 ft-lb
1/2-13	50 ft-lb	35 ft-lb	75 ft-lb	55 ft-lb	110 ft-lb	80 ft-lb
1/2-20	55 ft-lb	40 ft-lb	88 ft-lb	65 ft-lb	120 ft-lb	90 ft-lb

NOTE: Lub indicates lubricants or plating on fasteners.

Torque Conversions

$$\text{kg-m} \times 7.233 = \text{ft-lb}$$

$$\text{ft-lb} \times 0.1383 = \text{kg-m}$$

ft-lb	kg-m	ft-lb	kg-m	ft-lb	kg-m	ft-lb	kg-m	ft-lb	kg-m
1	0.1	21	2.9	41	5.7	61	8.4	81	11.2
2	0.3	22	3.0	42	5.8	62	8.6	82	11.3
3	0.4	23	3.2	43	5.9	63	8.7	83	11.5
4	0.6	24	3.3	44	6.1	64	8.9	84	11.6
5	0.7	25	3.5	45	6.2	65	9.0	85	11.8
6	0.8	26	3.6	46	6.4	66	9.1	86	11.9
7	1.0	27	3.7	47	6.5	67	9.3	87	12.0
8	1.1	28	3.9	48	6.6	68	9.4	88	12.2
9	1.2	29	4.0	49	6.8	69	9.5	89	12.3
10	1.4	30	4.2	50	6.9	70	9.7	90	12.5
11	1.6	31	4.3	51	7.1	71	9.8	91	12.6
12	1.7	32	4.4	52	7.2	72	10.0	92	12.8
13	1.8	33	4.6	53	7.3	73	10.1	93	12.9
14	1.9	34	4.7	54	7.5	74	10.2	94	13.0
15	2.1	35	4.8	55	7.6	75	10.4	95	13.1
16	2.2	36	5.0	56	7.7	76	10.6	96	13.3
17	2.4	37	5.1	57	7.8	77	10.7	97	13.4
18	2.5	38	5.3	58	8.0	78	10.8	98	13.6
19	2.6	39	5.4	59	8.2	79	10.9	99	13.7
20	2.8	40	5.5	60	8.3	80	11.1	100	13.9

THINK SAFETY FIRST!

The Posi-Track has been designed with the safety of the operator and bystanders in mind. There are many industry leading safety features built into every machine. However, any motorized vehicle requires common sense, good judgement, and awareness on the part of the operator.

Always wear your seat belt when operating the Posi-Track.

Always drive the Posi-Track with the loader in the lowest position possible.

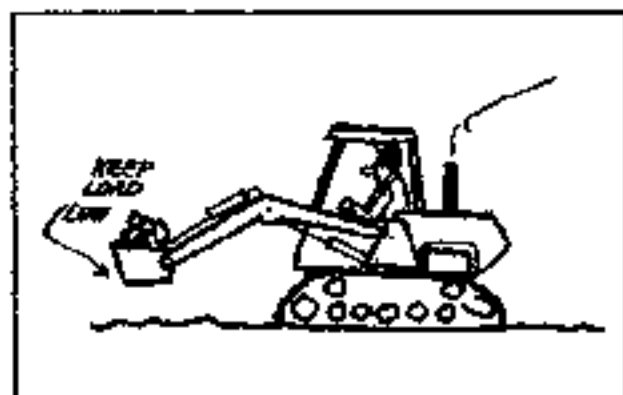


FIG. 2 - Bucket in proper driving position.

Traveling with the loader raised causes the center of gravity (CG) to be raised which increases the possibility of roll over in any direction.

Use caution and common sense when traveling on inclines. Avoid sudden stops, excessive speed, and avoid obstacles. Sudden shifts in (CG) could cause roll over.

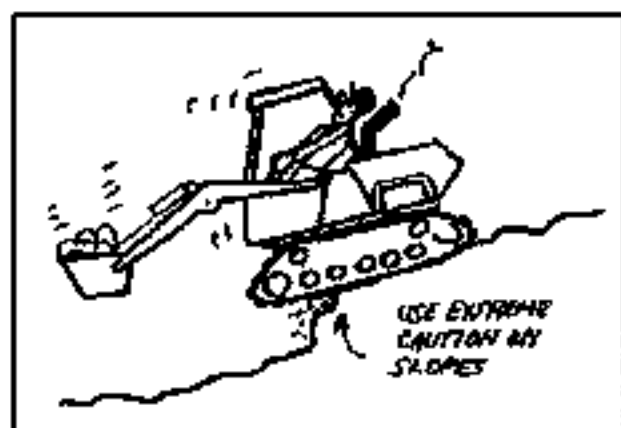


FIG. 3

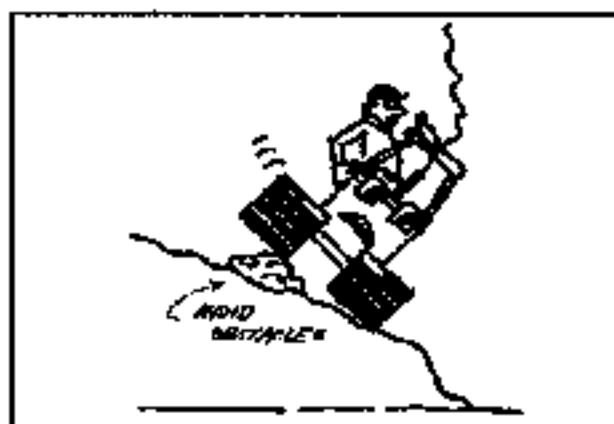


FIG. 4

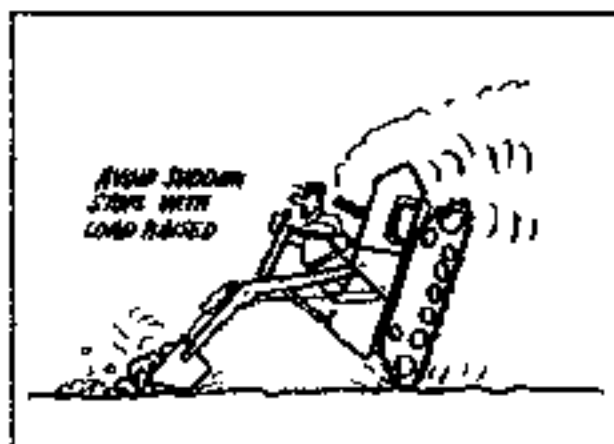


FIG. 5

The unique design of the Posi-Track allows the operator to face either direction while driving. Attachments can be mounted on either end of the vehicle. The preceding safety precautions and illustrations and all subsequent ones apply regardless of the position of the operator or the direction of travel.

Whenever the loader is mounted on the PTO end of the machine it is extremely important to install side screens. (See fig. 6)

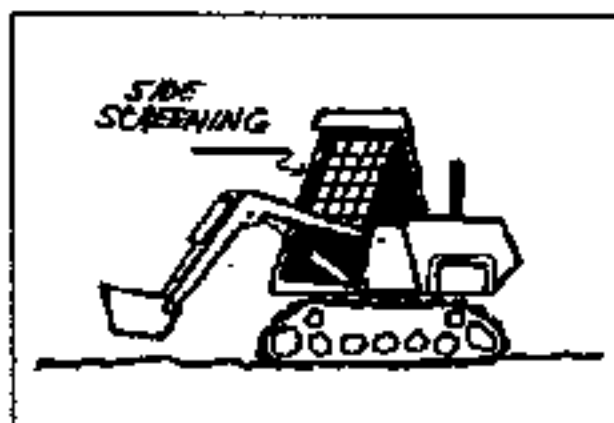


FIG. 6 - Side screens installed.

Failure to install side screens could result in serious injury to the operator. **THINK SAFETY FIRST!**

Never get in or out of the operators seat with the loader in the raised position. Rocks or debris could fall from the loader and strike the operator.

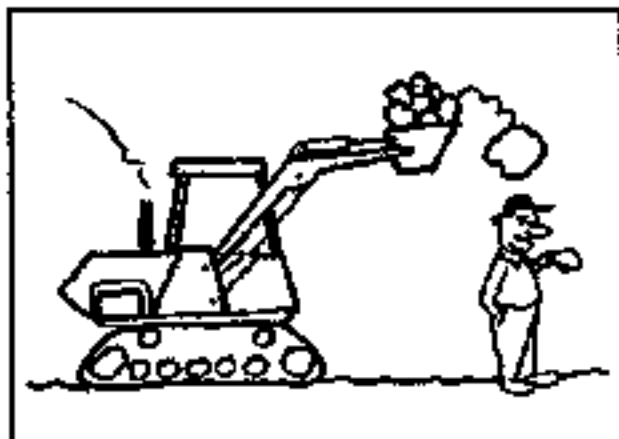


FIG. 7

THINK SAFETY FIRST! Lower the loader before getting out of the machine. Always step over the bucket when getting in or out of the machine—**NEVER UNDER IT.**

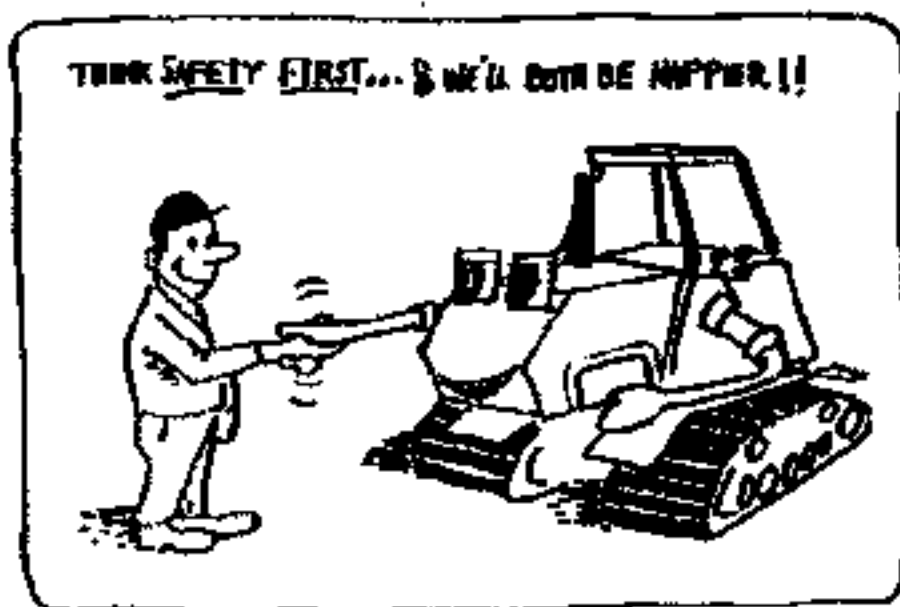
Always shut the engine off when adding fuel, oil, or water to the engine. Sparks from a hot engine can ignite fumes from fuel and oil causing serious injury to the operator. The fan blades can cause injuries when working near the radiator. **THINK SAFETY FIRST!** Shut the engine off.

Never get on or off the machine with the PTO engaged!



FIG. 8

THINK SAFETY FIRST! Never operate a PTO shaft with the safety shields removed. Always use extreme caution when working near a PTO driven machine.



GENERAL INFORMATION

Break-In Procedure

The Posi-Track requires a 2 - 3 hour break-in period before it is subjected to heavy engine load. During the break-in period set the engine at 2400 RPM. Brief periods of full throttle operation and variations in engine load also contribute to good engine break-in.

A visual check of track tension is recommended after 5 - 10 hours of operation. Tracks may show some initial stretch after the first few hours. If tracks appear loose, reset track tension. (See page 21).

FUELS

The Isuzu diesel engine will operate most efficiently on fuels that meet ASTM D975 No.2D (general purpose automotive diesel engine fuel oil). Automotive fuels blended for certain hot or cold weather areas are also acceptable. Fuels must be clean and have adequate viscosity.

Use of any other fuels than those listed above could void the Isuzu warranty.

GENUINE PARTS

Use only genuine ASV Posi-Track replacement parts. Posi-Track parts are precision made to ensure high quality and correct fit. Refer to the Posi-Track parts manual for correct part numbers, descriptions, and quantities.

STORAGE

Prior to storing the Posi-Track for an extended period of time attention must be given to the following items.

- 1) Either fill the fuel tank or drain completely.
- 2) Use a high pressure washer to clean the entire vehicle. Take care not to spray water directly into the air intake.

- 3) Grease all fittings and change the engine oil and filter. Run the engine for a short period of time.

- 4) Store the Posi-Track indoors if possible on a level floor.

- 5) Run the engine for short periods of time periodically during storage.

Properly preparing the Posi-Track after storage will ensure many hours of trouble free service. Use the following as a guideline.

- 1) Clean the exterior thoroughly. Polish the exterior using an automotive type cleaner wax.
- 2) If the fuel tank was drained, fill it.
- 3) Drain the hydraulic system and change the filter. Check the suction screens in the bottom of the reservoir and clean if required. Remove the magnet in the bottom of the reservoir and clean thoroughly.
- 4) Fill the reservoir with 27 gal. (102.2L.) of AMOCO Rykon MV hydraulic fluid.

CAUTION

Do not use Dexron II or any additives in the hydraulic system. Transmission damage could result.

- 5) Inspect all wires and cables for signs of cracking, fraying, and wear. Replace as necessary. Secure wires away from hot or rotating parts.
- 6) Clean the battery cables and posts.
- 7) Check the operation of all controls, gauges, and switches. Adjust or replace as necessary.
- 8) Test drive the Posi-Track to ensure proper operation and adjustments.

Oil Pressure

PRESTART CHECKLIST

Prior to operating the Posi-Track, several items need to be checked to ensure safe trouble-free operation. It is also important that periodic maintenance be done correctly and professionally. Follow a regular maintenance schedule that includes replacement and/or adjustment of any component found to be excessively worn, out of adjustment, or damaged. Before starting the engine check the following:

ITEM	REMARKS
Engine Oil	Check level and cleanliness
Engine Coolant	Check level and ensure proper specific gravity
Hydraulic Fluid	Check level and cleanliness
Belts	Check tension and condition
Fuel	Fill tank
Hoses and Fittings	Check condition and for leaks
Radiator	Clean as conditions warrant and check for leaks
Loose Nuts and Bolts	Tighten as required
Battery	Check cables for tightness and cleanliness and ensure proper charge
Tracks	Check alignment and tension
Lights	Ensure proper operation
Linkages and Cables	Ensure proper operation adjustments & free movement

CONSOLE DEFINITIONS

Main Control Console

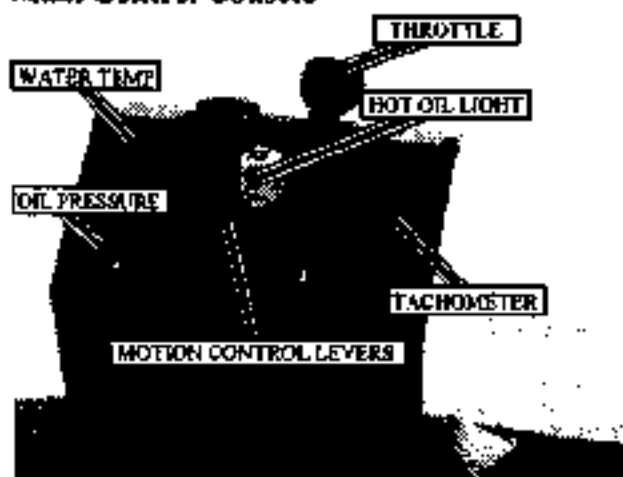


FIG. 9

This gauge indicates the internal oil pressure of the engine. Under normal operating conditions, the oil pressure should never go below 18-20 lbs. @ idle or 48-50 lbs. @ 2500 RPM.

CAUTION

Never operate the machine with insufficient oil pressure or serious engine damage could result.

Water Temperature

This gauge indicates the coolant temperature in the engine. If the coolant temperature exceeds 220 F (100 C), the machine should be allowed to cool down to prevent serious engine damage.

CAUTION

Never operate machine with coolant temperature above 220 F or serious engine damage could result.

!WARNING!

Never open radiator cap when hot. Severe burns can result from escaping steam and water.

Throttle

The throttle control allows the user to set the speed of the engine. The operator can select the desired RPM to provide sufficient power to do the job at hand.

Oil Temperature Warning Light

The oil temperature warning light located on the controls console indicates to the operator when the temperature of the transmission fluid exceeds 200 degrees F (93 C). If the light comes on, stop all hydraulic functions. Check the radiator screen and the front of the radiator core for debris. Clean if necessary. Check the oil level in the reservoir. Add oil if required.

!WARNING!

If the hot oil light comes on, use extreme caution when touching anything in contact with the oil.

All hoses, fittings, tubing, and metal surfaces could cause burns to hands and other unprotected skin.

Tachometer

This gauge indicates current engine RPM and has a built in hour meter to display total running time of the machine. Maximum engine RPM has been pre-set @ ~3100 RPM. If the engine RPM exceeds this pre-set by more than 300 RPM, consult your dealer to prevent serious engine damage.

CAUTION

Excessive engine RPM can cause serious engine damage. Tampering with the governor settings will void engine warranty.

Motion Control Levers

These levers allow the operator to control the movement of the machine. The levers should move freely and spring return to neutral. For further explanation of their function, see Page (13).

Auxiliary Controls Console

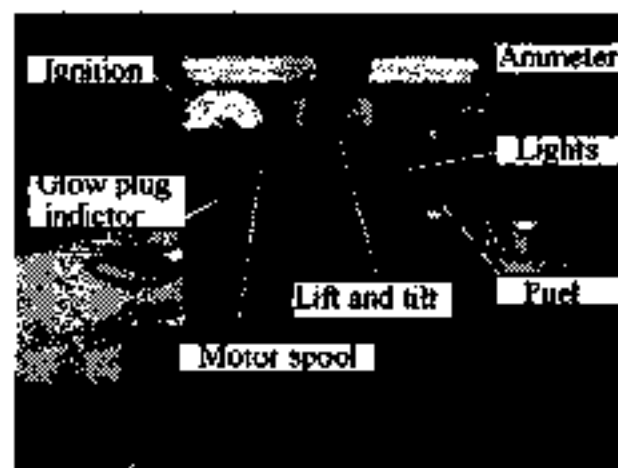


FIG. 10

Fuel

This gauge indicates the level of diesel fuel in the fuel tank.

Lights

This switch operates both the front and rear driving lights. Pull the switch out to turn on the lights, push it in to turn off the lights.

Ammeter

This gauge indicates the battery charging status. Under normal operating conditions, this gauge should always read on the positive side or charging. A negative charge with the engine running indicates an electrical problem and you should consult your dealer.

Ignition

The ignition switch is used to start and stop the engine. It also has a Pre-Heat position which is used to heat the glow plugs in the engine to aid in cold weather starting. More information on each switch position can be found in the Starting Instruction Section (See Page 12).

Motor Speed

This lever controls the auxiliary hydraulic ports that extend from the auxiliary control console. This lever controls the flow and flow direction to these ports. A detent position is also present and will provide continuous flow in one direction.

Glow Plug

This indicator reflects the operation of the glow plugs in the engine. After a short time with the ignition switch in the Pre-Heat position, this indicator should start to become red hot. If this indicator does not heat up with the switch in the Pre-Heat position, there may be an electrical problem and you should consult your dealer.

PTO Control

This lever controls the PTO motor or the auxiliary pressure port located to the right of the PTO motor (See Fig. 11). Moving the lever in the indicated direction will activate either one of these options.



FIG. 11A

Port locations shown in Fig. 11A were used on all machines through Ser. # 089



FIG 11B

All machines built after Ser. # 090 have auxiliary ports located at the back end of the cable covers. Fig. 11B shows the return port location. The pressure port is on the opposite side of the machine.

!WARNING!

ALWAYS use extreme caution when working near a live PTO shaft or equipment operating under auxiliary power.

- 1) DO NOT STEP OR REACH OVER LIVE PTO SHAFTS.
- 2) DO NOT TRY TO SERVICE ROTATING OR OSCILLATING EQUIPMENT.
- 3) DO NOT WEAR LOOSE OR TORN CLOTHING NEAR ROTATING SHAFTS
- 4) NEVER OPERATE PTO DRIVEN EQUIPMENT WITH SAFETY SHIELDS REMOVED.

Serious injury or death can result if safety rules are ignored!

Lift And Tilt

This dual axis lever operates both functions of the loader. More information on this lever can be found in the Operating Instructions Section (See Page 13).

STARTING INSTRUCTIONS

Make sure you have completed the prestart checklist before attempting to start the engine.

- 1) Sit in the seat and fasten the seat belt.
- 2) Make sure the PTO lever is in neutral.
- 3) Make sure the motion control levers operate freely and return to neutral.



FIG. 12

- 4) Move the throttle lever to the idle position.
- 5) Preheating: In temperatures below 32 F (0 C) it may be necessary to preheat. Turn the key all the way to the left to operate the glow plugs. The state of preheating can be observed by the glow plug indicator. See Fig 13.

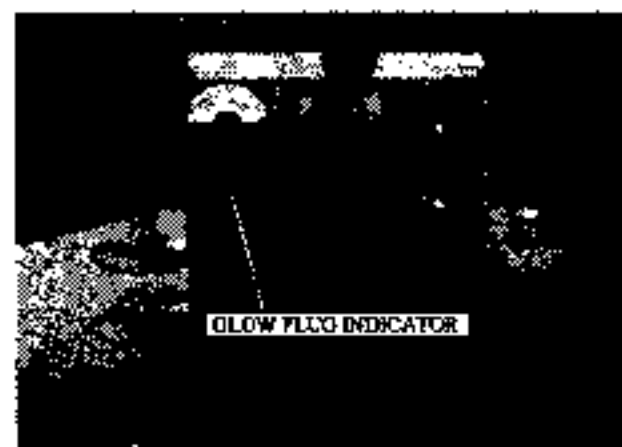


FIG. 13

Preheating will be complete when the resistor turns red hot. This normally takes about 20 seconds. Continue holding the key in preheat for 10 seconds to 3 minutes depending on outside temperature. Colder temperatures require longer preheat.

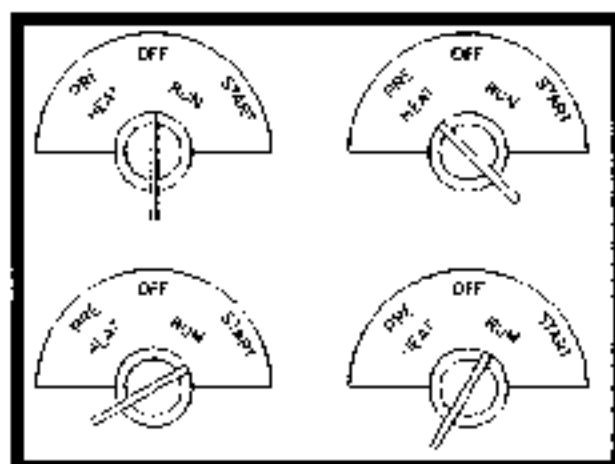


FIG. 14

- 6) Starting: Immediately turn the key from preheat to start. Do not keep the starter engaged for more than 30 seconds on each attempt or the starter may overheat. If the engine fails to start with the initial cranking, allow the engine and starter to stop turning completely. Repeat the preheat and start procedures.

Under normal conditions the engine should start with one or two revolutions of the starter.

CAUTION

In extremely cold weather 10 F (-12 C) do not operate the engine above 2000 RPM for the first three minutes.

NOTE: The glow plugs continue to heat when the key is turned to the start position. Any hesitation between preheat and start may allow the glow plugs to cool down. If that happens it may be necessary to start the preheat procedure again.

OPERATING INSTRUCTIONS

Ground Speed Controls

- 1) Set the throttle to the desired engine RPM.
- 2) Place one hand over both control lever knobs. Push both handles forward in unison slowly to move forward and pull both levers back slowly to move in reverse. The further the control handles are moved the faster the machine goes in either direction.

To turn to the right in the forward mode, push the left handle forward while pulling back on the right handle.

To turn to the left in the forward mode push the right handle forward while pulling back on the left handle. This can be done with a rotating motion of the wrist clockwise or counter clockwise. (See fig. 15). Use the same movement of the handles in reverse.

Maximum power is transmitted to the tracks at slow speed. As track speed increases power decreases. Maximum engine power is achieved at full throttle.

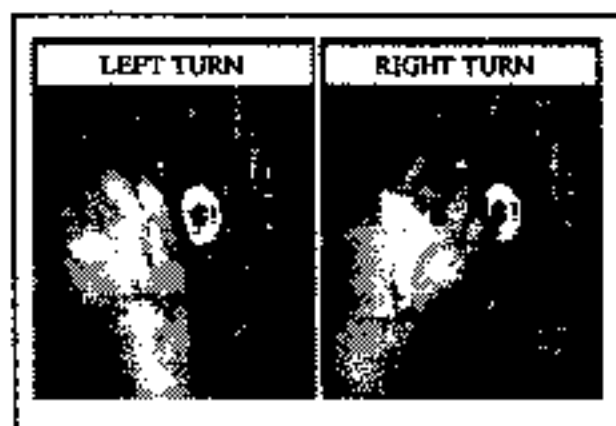


FIG. 15

CAUTION

Fast movement of the controls causes the machine to accelerate quickly. Move controls slowly for smooth acceleration and stopping.

To slow down or stop the machine move the controls to a neutral position. Moving the controls to neutral provides dynamic hydraulic braking.

!WARNING!

Use caution when stopping. Moving the controls through neutral to the opposite direction will cause the machine to reverse directions very abruptly. Use slow deliberate movements when accelerating, decelerating, or reversing directions.

Auxiliary Controls

The control levers on the auxiliary controls console operate the hydraulic valves in the console. The lever located in the center of the console is a dual axis control. Fore and aft movement of the lever lowers and raises the loader arms. Side to side movement of the lever retracts and dumps the bucket cylinders. Both modes of loader operation can be actuated simultaneously with one lever. (See fig. 16)

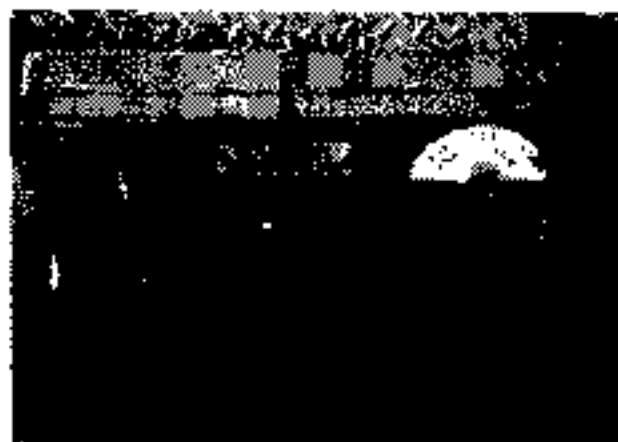


FIG. 16

The second lever, next to the dual axis control, operates from side to side only. This valve controls the two outlets on the side of the console. These outlets can be connected to a remote cylinder or can provide a constant flow for a remote valve on a backhoe, trencher, etc. Constant flow is obtained by pulling the lever toward the center of the machine until it snaps into a detent in the valve spool. (See fig. 17)

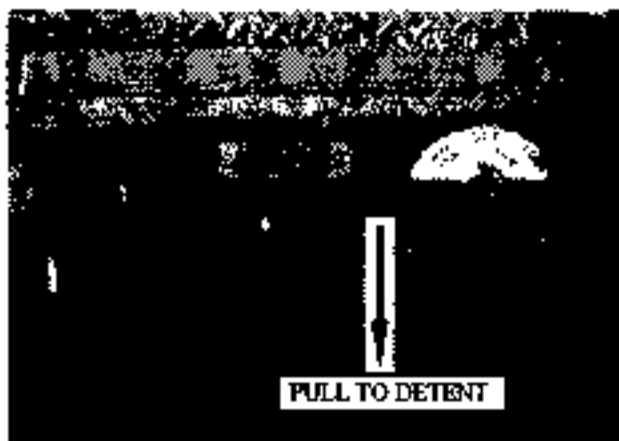


FIG. 17

A light pressure back towards neutral will cause the lever to “pop out” of the detent and back to neutral. A detent is provided for the opposite direction of travel also.

Bi-Directional Operation

The Posi-Track may be driven in either direction by simply reversing the seat and footrest. Some attachments require the seating to be reversed for normal operation.

NOTE: When the loader is mounted on the engine end of the machine, the side screens should be removed to allow better access to the operators seat.

MAINTENANCE

Lubrication

The Post-Track requires only a minimal amount of lubrication under normal operating conditions. The ten inch diameter wheels on the undercarriage should be greased every 50 hours.

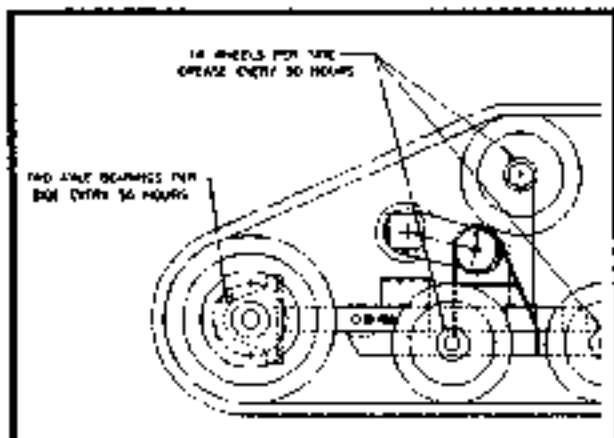


FIG. 18

Grease the two rear axle bearings and the inside drive shaft bearing every 50 hours. Use a low temperature grease (Texaco 2346 EP or equivalent).

NOTE: All suspension wheel bearings should be greased daily if the wheels have been operating under water for any length of time.



FIG. 19

There are three grease fittings on the drive shaft between the engine and the transmission. The first two are located on the universal joints on each end of the shaft and the third is located on the slip joint housing.

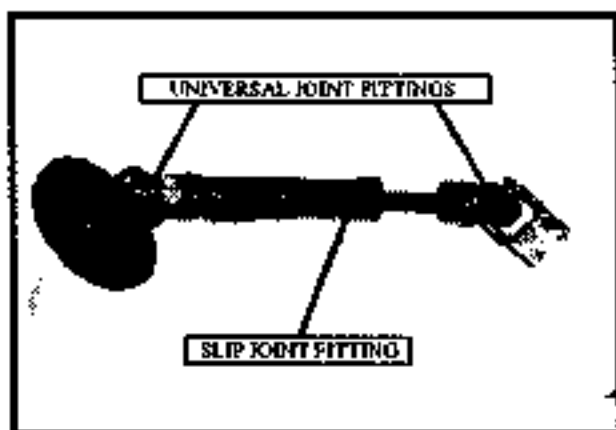


FIG. 20

These fittings should be greased every 250 hours of operation. It may be necessary to remove the rear engine cover and the battery to grease the front fitting.

Every 100 operating hours the engine oil and filter should be changed. (See fig. 23)



FIG. 21

Also change the air filter and check the dust cover at each oil change. Check the dust cover more often when operating in dusty conditions.

Change the hydraulic filters and the engine fuel filter every 250 operating hours.

Change the hydraulic oil and clean the suction screens every 500 hours of operation.

MAINTENANCE AND LUBRICATION CHART

ITEM	FREQUENCY	LUBRICANT
Undercarriage Bearings	50 Hours	Low Temperature Grease
Engine Oil & Filter	100 Hours	See Chart (Page 17)
Engine Air Filter	100 Hours	
Engine Fuel Filter	250 Hours	
Hydraulic Oil Filter	250 Hours	
Transmission Filter	250 Hours	
Hydraulic Oil	500 Hours	Amoco Rykon MV
Suspension Hubs	500 Hours	Low Temperature Grease
Suspension Chain Case	250 Hours	SAE 90 Gear Lube

!WARNING!

Never perform maintenance on the Posi-Track with the engine running. If unsure of any maintenance procedure, contact your dealer or call ASV, Inc.

General

As with any piece of equipment, periodic inspection and maintenance is necessary. In order to keep your Posi-Track in tip top condition, a periodic visual inspection is necessary. Visually check the entire vehicle and all moving parts. Look for the following items.

- 1) Unusual wear.
- 2) Loose nuts and bolts.
- 3) Damaged or broken parts.
- 4) Oil, coolant, and fuel leaks.
- 5) Obstructions on any air intakes or vents.
- 6) Frayed or broken cables and wires.
- 7) Worn, frayed, or stretched belts

and hoses.

Be sure to take necessary corrective actions before operating the Posi-Track.

Filters

Engine Oil Filter

Replace the engine oil filter every 100 hours of operation or whenever the engine oil is changed. The filter is located on the lower right rear corner of the engine.



FIG. 22

- 1) Drain the oil from the filter by loosening the drain plug on the filter body.

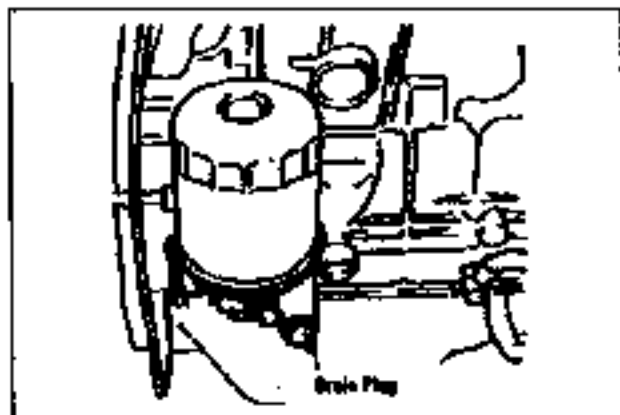


FIG. 23

- 2) Loosen the filter by turning it counter clockwise with a filter wrench.

- 3) Wipe the seal surface with a clean rag so the new filter will seat and seal properly.

- 4) Put a light coating of clean oil on the filter seal ring. Screw the filter down until the seal contacts the seat. Screw the filter down 1 to 1 1/4 turns more with a filter wrench.

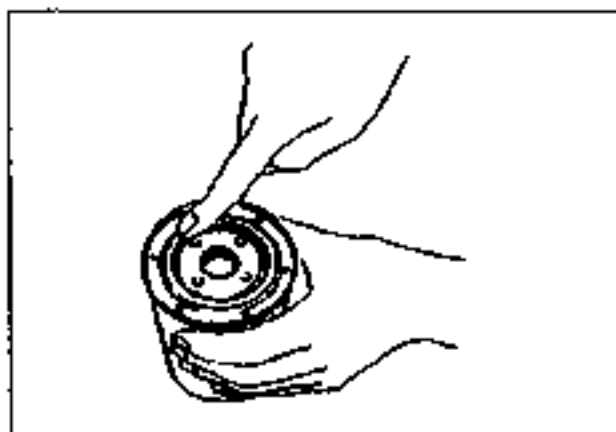


FIG. 24

liter) if empty. Start the engine and check to make sure there are no leaks around the filter. Use genuine Isuzu filters to insure proper filtration.

Engine Fuel Filter

Replace the fuel filter element every 250 hours of operation. Since the injection pump assembly consists of precision machined parts, entry of dust or other foreign materials into the fuel system could cause scuffing of plungers and in extreme cases, leads to plunger seizure. To prevent this the filter should be serviced carefully at regular intervals. The filter is located on the left front side of the engine.

Make sure the engine has oil in it. Add 6 qt. (5.5

- 1) Loosen the fuel filter by turning it

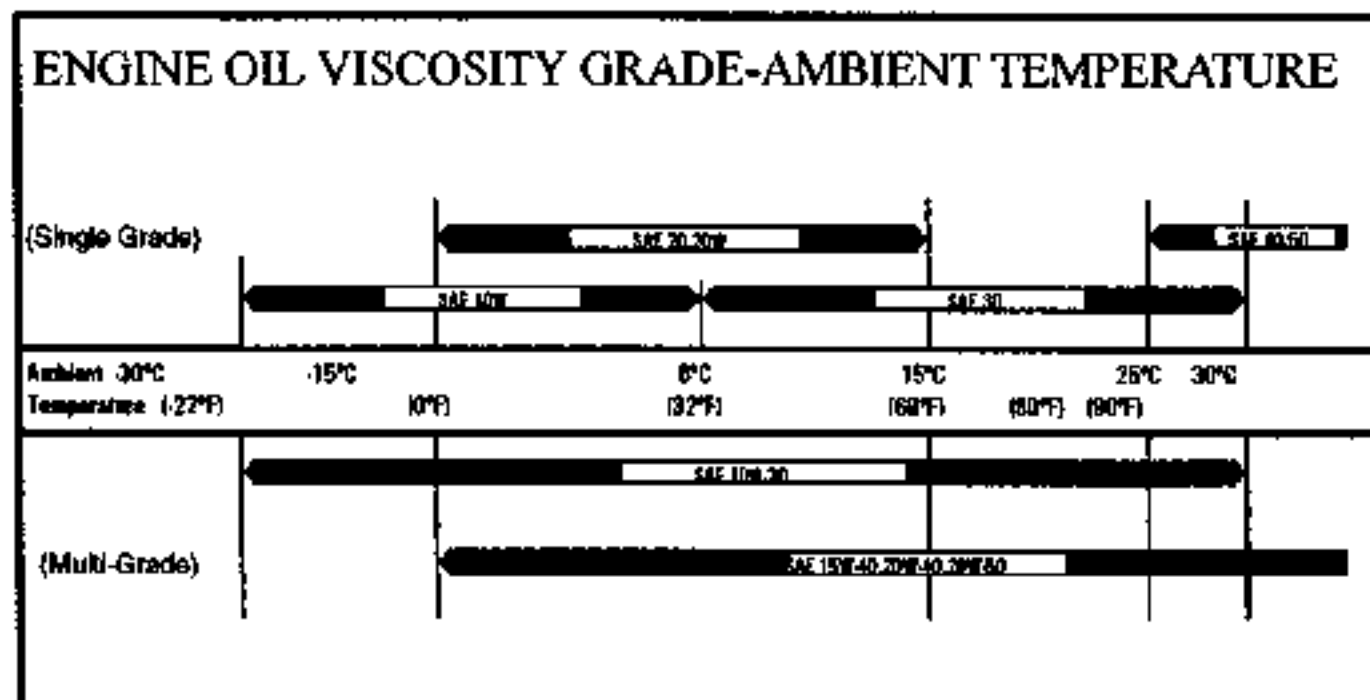




FIG. 26

counter clockwise with a filter wrench.

2) Wipe the seal seat carefully with a clean rag.

3) Apply a thin coat of light oil to the o-ring seal. Turn in the filter clockwise until the filter seal contacts the sealing face of the filter cover. Tighten the filter another 2/3 of a turn with a filter wrench.

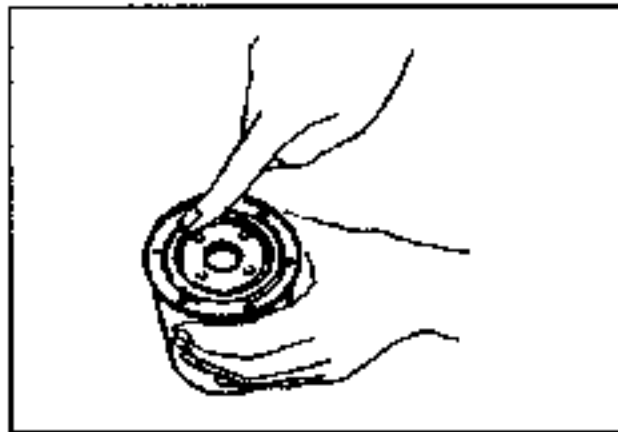


FIG. 28
Use genuine Isuzu filters to insure proper filtration.

Transmission Filter

Change the transmission filter every 250 operating hours. The filter is located on the left side of the engine and is mounted to the Posi-Track fender.

1) Remove the cover from the filter



FIG. 27

canister.

2) Remove the complete inside filter assembly. The assembly includes the seal cap, a series of magnets, the filter, and base cover. All contamination should be retained inside the filter assembly when removed.

3) Discard the filter. Clean all traces of

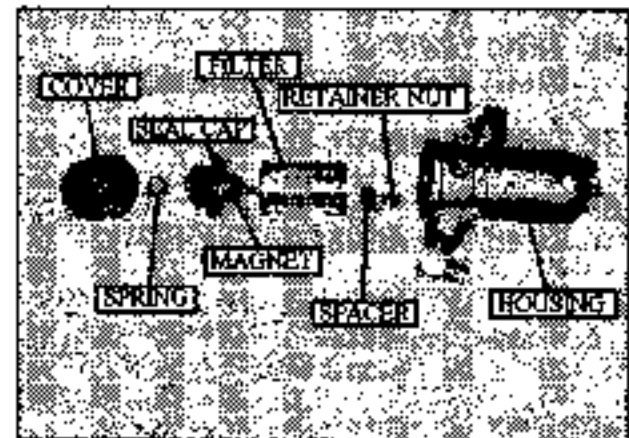


FIG. 28

contamination from the magnets.

4) Reassemble the parts with a new filter. Insert the assembly back into the canister and tighten down the cover.

Hydraulic System Filter

The hydraulic oil filter should be replaced every 250 operating hours. The filter is located on the left side of the engine and is mounted to the radiator cover.

- 1) Remove the filter by turning counter



FIG. 29

clockwise with a filter wrench.

- 2) Discard the old filter. Wipe the seal seat on the filter cover with a clean rag.
- 3) Apply a thin coat of clean oil to the seal of the new filter.
- 4) Turn the new (10 micron) filter on clockwise until the seal contacts the

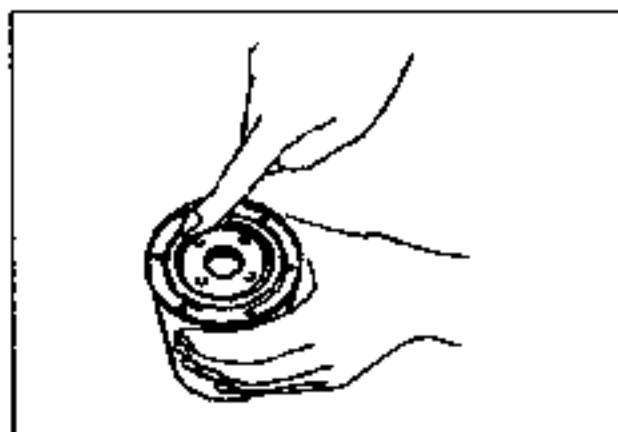


FIG. 30

seal. Turn the filter another 1 to 1 1/4 turns with a filter wrench.

Engine Air Filter

Replace the engine air filter every 100 operating hours. The filter is located at the rear of the engine under the engine cover. It can be serviced through the access door on the rear engine cover. The filter consists of a precleaner located in the end cap and a paper filter inside the canister.

- 1) Loosen the clamp screw and remove

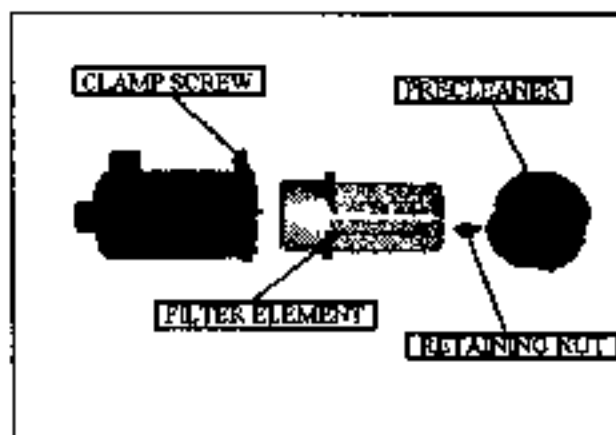


FIG. 31

the precleaner.

- 2) Remove the retaining nut and remove the filter element.
- 3) Remove the rubber baffle from the precleaner and dump out any dust or debris. Replace the baffle.
- 4) Install a new filter element and tighten the retaining nut.
- 5) Install the precleaner with the arrows pointing up. Tighten the clamp screw securely.

Battery

The battery is located under the access door of the rear engine cover. Maintain the cables and posts free of corrosion at all times. Make sure the cables are tight on the posts and the battery is secured properly. Always maintain the battery at full charge. If the condition of the battery is suspect, replace it.



FIG. 32

Bleeding The Fuel System

Whenever the fuel filter has been replaced, the fuel tank emptied, or a fuel line removed, air has entered the system. Air in the system causes the fuel pump to lose its prime and interferes with the smooth flow of fuel.

It is usually necessary to purge the air (bleed the system) out of the lines and the pump. The procedure is as follows:

- 1) Unscrew the bleed screw 1 to 1 1/2 turns. Unscrew the feed/priming cap on the injection pump. Operate the feed/priming pump by hand.



FIG. 33

- 2) Pump the primer until only fuel comes out by the air bleed screw. Tighten the bleed screw and primer cap.

- 3) Energize the starter until the engine starts. When the engine starts the pump should purge the system of any remaining air.

- 4) If the engine does not start repeat the bleeding procedure.

CAUTION

Be sure to screw the primer cap down when through bleeding the system. Engine and pump damage could result if primer is not secured.

Track Adjustments

The Posi-Track track suspension system is uniquely designed to provide proper track tension under variable loads, uneven terrain, and all soil conditions. However, if the track should need adjustment it can be adjusted in 1/2 inch increments.

NOTE: Too much tension in the track can lead to power loss and premature bearing failure. Not enough track tension can lead to jumping the drive lugs under load and derailing especially on a side slope.

For proper tension, tighten the track until all slack is removed and then tighten to the next available aligned lock screw hole. This must be done with machine weight on the suspension.

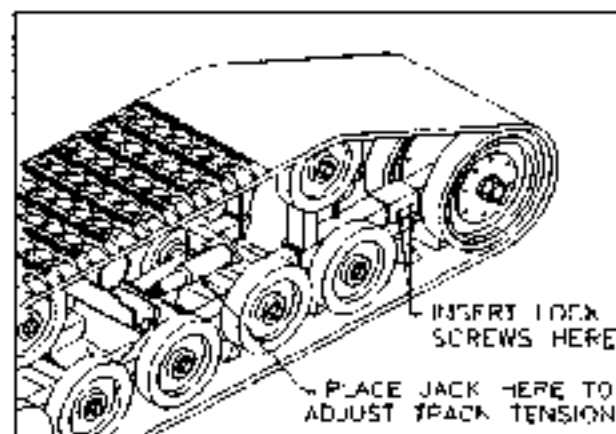


FIG. 34

DISASSEMBLY & ASSEMBLY PROCEDURES

INCLUDES:

TRACK REMOVAL	22
SUSPENSION	23
DRIVE SPROCKETS	25
EQUALIZER SPRING	26
WHEELS	26
WHEELS	27
DRIVE SPROCKET ASSEMBLY	27
DRIVE ASSEMBLY	28
WHEELS	29
TRACK TENSION ASSY.	29
TRANSMISSION & PUMPS	31
TRANS. & THROTTLE CONTROLS	33

TRACK REMOVAL

To remove a track.

- 1) Remove the 1 1/2 inch nut from the outside end of the axle shaft. Also remove the 1/2 inch nuts on the locking screws. Jack the machine up so the track is just slightly off the ground. Block the machine up securely.



FIG 35

- 2) Place the hydraulic jack in place on the suspension and apply enough force to release the tension on the locking screws. Remove the screws. (The hydraulic jack is stored under the seat).

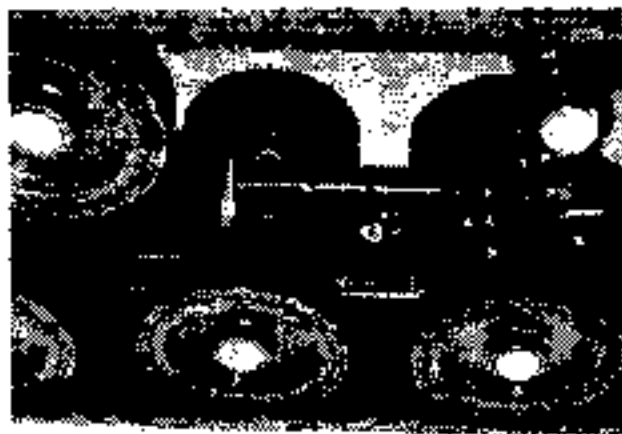


FIG 36

- 3) Release the tension on the rear axle and remove the jack. Push the rear axle as far forward as possible. Remove the outside wheel.

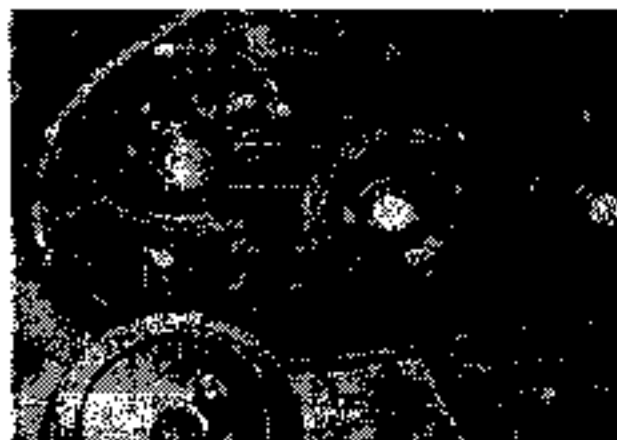


FIG 37

- 4) Pull the track back as far as possible to slide the inside drive lugs over the center wheel. Remove the track from the suspension.

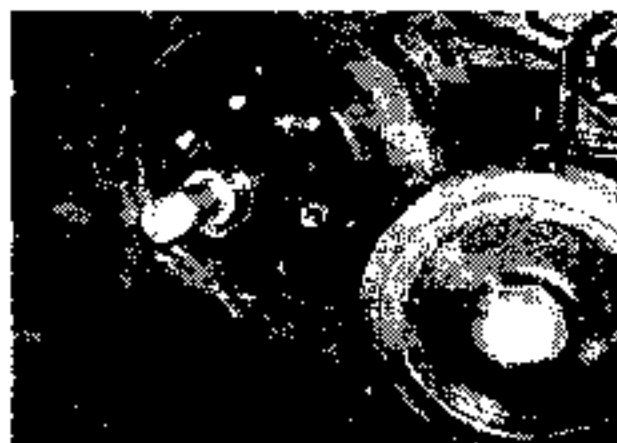


FIG 38

NOTE: It may be necessary to remove the top carrier wheels to provide more excess track.

To install a track:

Reverse the above procedure. Replace the locking screws in the same holes to achieve the previous track tension.

NOTE: Too much tension in the track can lead to power loss and premature bearing failure. Not enough track tension can lead to jumping the drive lugs under load and derailing especially on a side slope.

For proper tension, tighten the track until all slack is removed and then tighten to the next available aligned lock screw hole. This must be done with machine weight on the suspension.

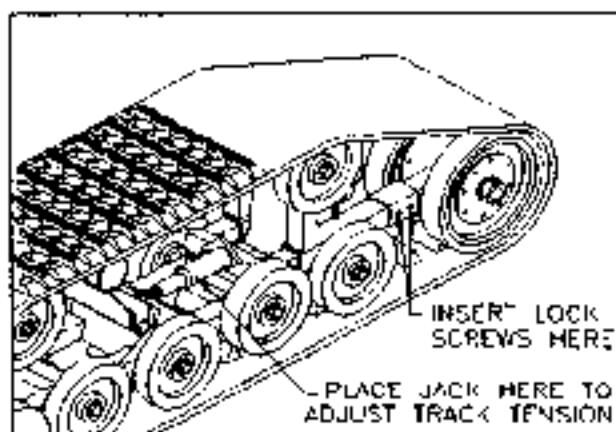


FIG 39

CAUTION

Be sure both ends of axle are tightened equally. Failure to do so will result in premature track failure and accelerated wear on wheels and other suspension components.

SUSPENSION

Removal and Disassembly

- 1) Remove track - see previous section.
- 2) Drain the hydraulic reservoir.
- 3) Remove hub caps from front and rear axle hubs. Hub caps are pressed in. Care must be taken not to damage the caps when removing from the hubs.

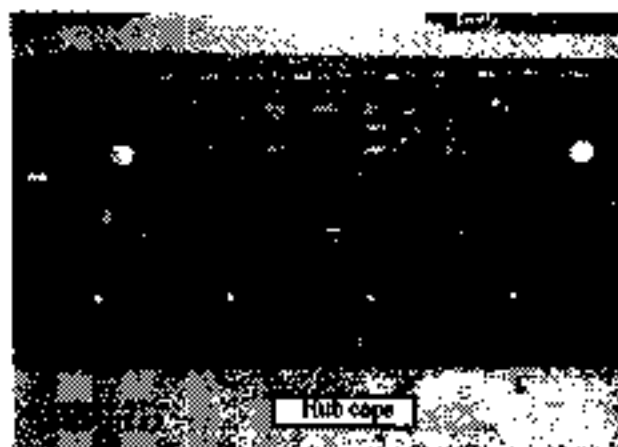


FIG 40

- 4) Loosen the clamp on the center hub.

!WARNING!

Be sure the machine is blocked up securely before removing either suspension assembly. Serious injury could result if the chassis should fall off its blocking.

- 5) Disconnect the drive hoses and the case drain hose from the chassis. Cap the hoses and fittings to prevent dirt from entering the hydraulic system.

- 6) Remove the cotter pins and castle nuts from the front and rear axles. See FIG 41.

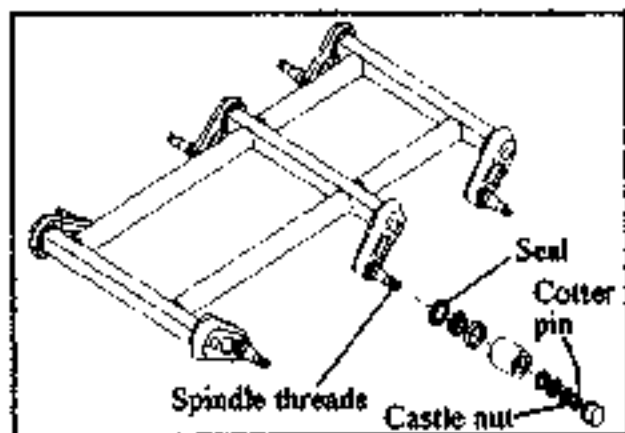


FIG 41

7) Carefully slide the suspension outward off the spindle and center hub. Be careful not to damage the threads on the spindles or the rear seals when removing the suspension from the axle.

TRACK TENSION AXLE

1) Remove one or both of the 1 1/2 in. nuts from the track tension axle. The three 14 in wheels should rotate freely on the axle. Over time they may rust or seize to the axle. If they cannot be loosened from the axle it may be necessary to remove the entire axle assembly from the frame and press the axle shaft through the hubs and bearings with a hydraulic press.

CAUTION

Do not pound on end of shaft with a hammer. Damage to the shaft threads will result.

2) Inspect the track tension wheels and hubs. If the wheels are loose on the hub they should be replaced. Loose wheels cause the holes in the wheel and hub to become worn and enlarged. Replace the hubs and wheels if worn.

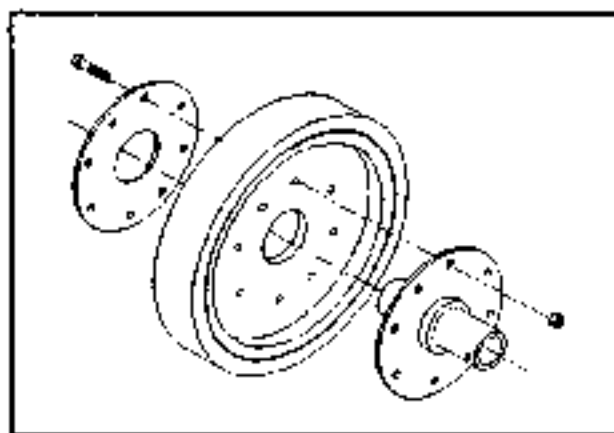


FIG 42

DRIVE MOTOR

1) Remove the three socket head screws from the chain case cover. Place a pan under the chain case to catch the oil when the cover is removed. Remove the cover.



FIG 43

2) Remove the cap screw from the end of the motor shaft.

3) Remove both sprockets and the chain from the chain case.



FIG 44

4) Disconnect the hoses from the drive motor. Cap the hoses and fittings on the motor to prevent dirt from entering the hydraulic system.

5) Remove the four screws holding the motor to the chain case. Remove the motor from the chain case.

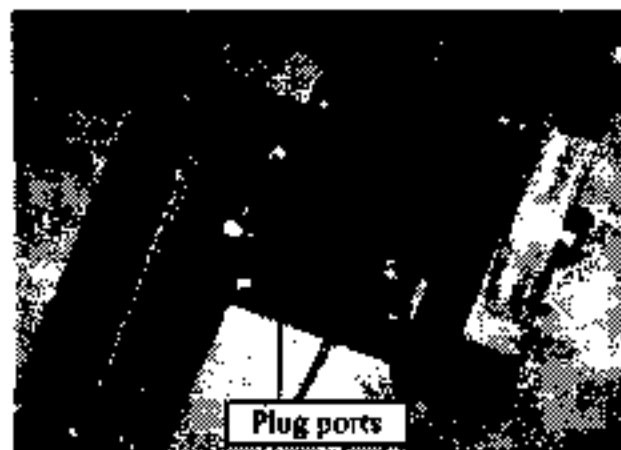


FIG 45

NOTE: All machines before serial #096 used a paper gasket to seal the motor to the chain case. After #096 a rubber o-ring was used. Be careful not to damage the gasket or the o-ring when removing or replacing the motor.

DRIVE SPROCKETS

1) Remove the four capscrews that attach the outboard bearing block to the bearing support and frame. Remove the bearing and the support.

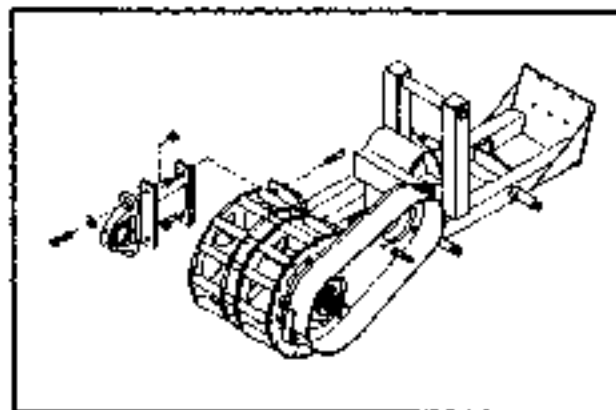


FIG 46

2) Using a hammer and a punch, bend back the locking tabs on the lock nut on the chain case bearing.



FIG 47

3) Remove the lock nut.

4) The chain case bearing is a two piece bearing and sleeve combination. The sleeve is tapered into the inner bearing race.

Sometimes it is very difficult to break contact with the bearing.

ASV, Inc. has made a special tool available that will force the sleeve and bearing apart without damaging the parts. This tool may be purchased or fabricated as shown.

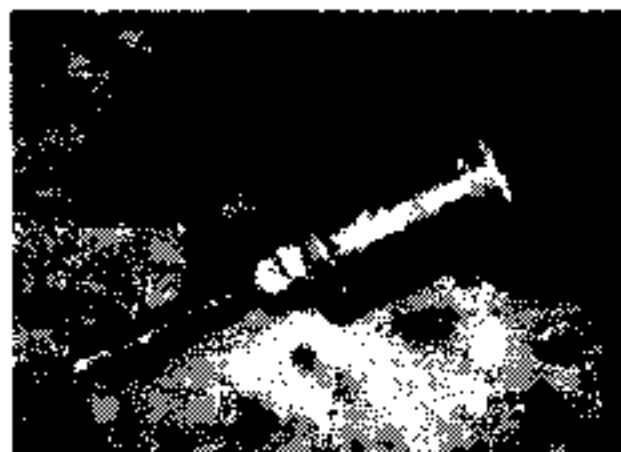


FIG 48

5) Once contact is broken the sprocket assembly may be removed.

NOTE: The tapered bearing sleeve must be pulled out through the seal. Be careful not to damage the seal when removing the shaft if the seal is to be reused.

6) Remove the bearing flange and bearing from the inside the chain case. The seal may be driven out the back side.

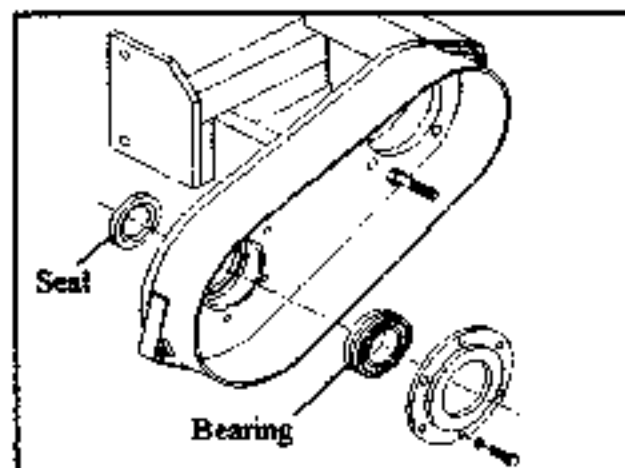


FIG 49

EQUALIZER SPRING

1) Remove the 12 capscrews that hold the equalizer springs and hub clamp to the suspension frames.

NOTE: Be sure to note which side of the plates the screw heads are on. Replace the screws in the same direction when assembling the suspension. Reversing the screws could restrict the rotation of the spring plates.

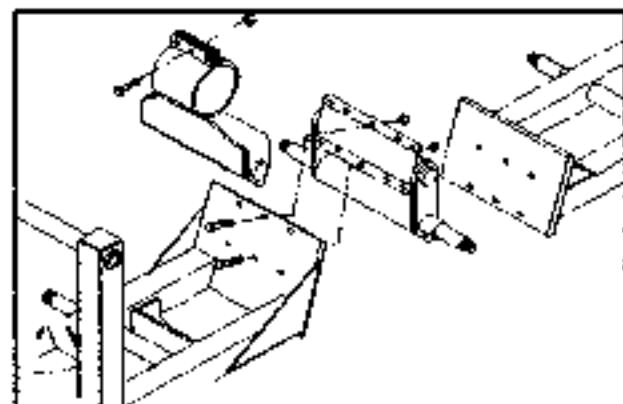


FIG 50

WHEELS (Plastic with steel hub)

1) Remove the cap from the wheel hub by turning counter-clockwise. Remove the lock nut from the axle end and slide the wheel assembly off the axle.

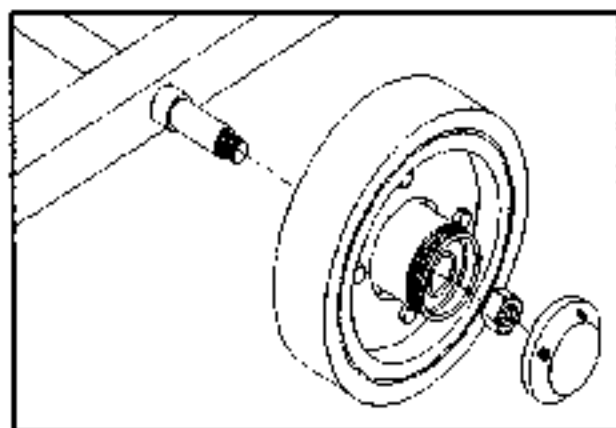


FIG 51

2) Using a hammer and a long punch, reach through the bearings and tap out the seal shield.

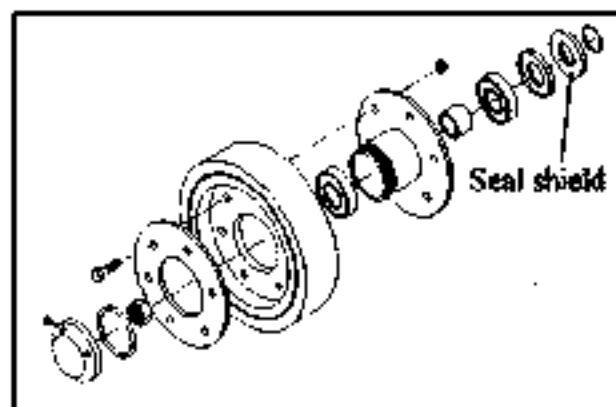


FIG 52

NOTE: It is very unlikely the bearings and seal can be removed without damage at this point. Be sure to have replacement parts available for re-assembly.

3) The bearings are pressed in from each end against a shoulder. Drive the bearings and seal out with a hammer and punch.

CAUTION

Use extreme care to keep from gouging or marring the machined surfaces of the hub.

WHEELS (Aluminum)

- 1) Remove the cap from the hub and the lock nut from the axle.

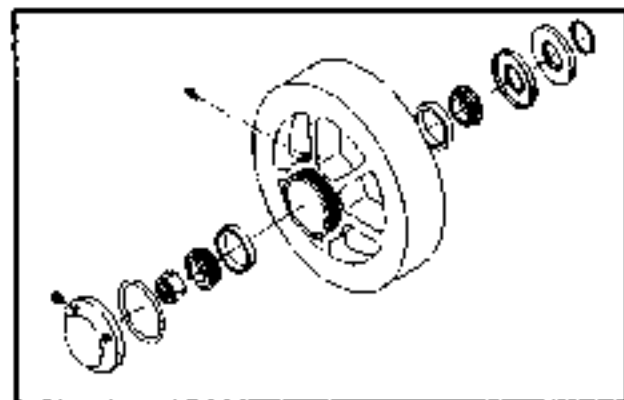


FIG 63

- 2) Remove the wheel assembly from the axle and remove the outside bearing cone.

- 3) It may be necessary to press the inside bearing out the back side of the hub. The seal shield and the seal will be removed in the same operation.

The seal will be damaged when removed. Install a new seal when the hub is re-assembled.

SUSPENSION

(Assembly and Installation)

Each end of the suspension should be assembled and placed on the suspension axle separately. This will make handling and alignment much easier.

DRIVE SPROCKET ASSEMBLY

- 1) Assemble the drive sprocket as shown in FIG 54. Be sure to insert drive tooth bolts from the splined end of the shaft. Reversing the bolts could cause an interference with the back side of the chain case.

Drive tooth rollers must rotate freely on the inner sleeve when bolts are tight.

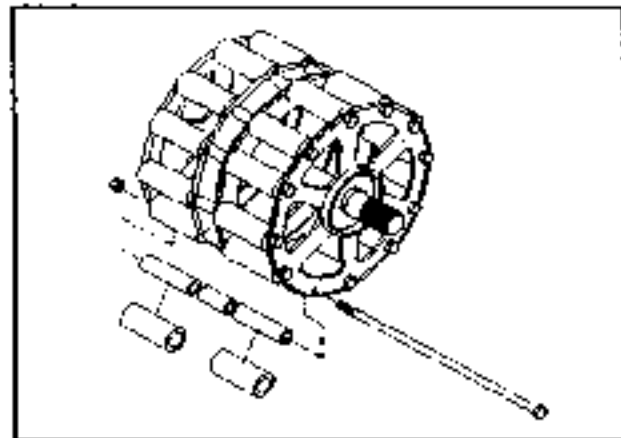


FIG 54

- 2) Install the chain case bearing in the case with the large end of the taper towards the seal. Install the bearing retainer ring and fasten securely with six capscrews and lock washers.

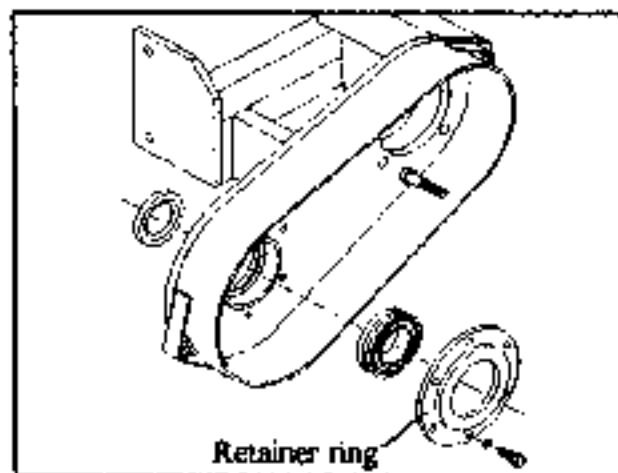


FIG 55

3) Press the seal in from the back side of the case.

4) Place the large teflon washer on the drive shaft and over the seal race. Install the tapered bearing sleeve on the shaft tightly against the seal race.

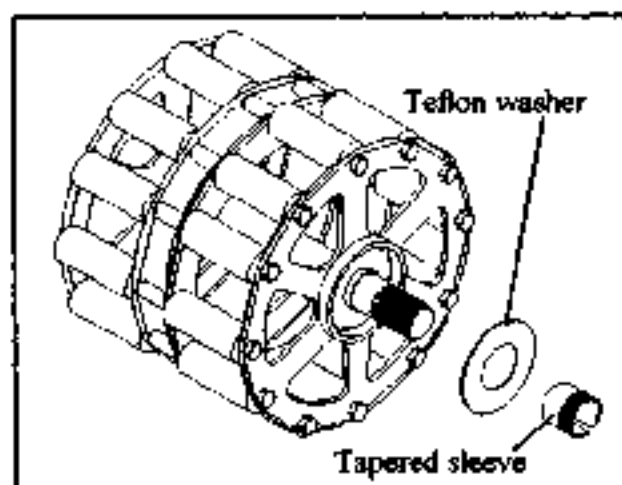


FIG 56

NOTE: Machines built before Ser.# 107 did not have teflon washers installed.

5) Slide the drive shaft and the tapered sleeve through the seal and into the tapered bearing.

CAUTION

Do not drag the tapered sleeve across the seal lip when installing the shaft. Damage to the seal lip may occur.

6) Put the retaining ring and the nut on the sleeve to hold the shaft in place. Tighten the nut by hand as much as possible. Do not tighten securely at this time.

7) Slide the outboard bearing on the drive shaft and attach the bearing mount and the bearing to the frame. Make sure the drive shaft is aligned parallel with the frame before tightening the bearing base securely.

8) Tap the drive shaft and sprocket towards the chain case to remove any clearance. Lock the outboard bearing to the shaft securely.

9) Tighten the lock nut on the tapered sleeve to approximately 120 lb.-ft. (162 Nm). Turn the nut clockwise or counter-clockwise to the nearest locking tab on the retaining ring. Bend the tab in to the notch to lock the nut.

DRIVE ASSEMBLY

1) Install the drive motor on the frame with the hydraulic ports facing up. Use extreme care to prevent any damage to the o-ring (after Ser# 096) or the paper gasket (before Ser# 096).

Install the mounting screws with the heads inside the chain case.

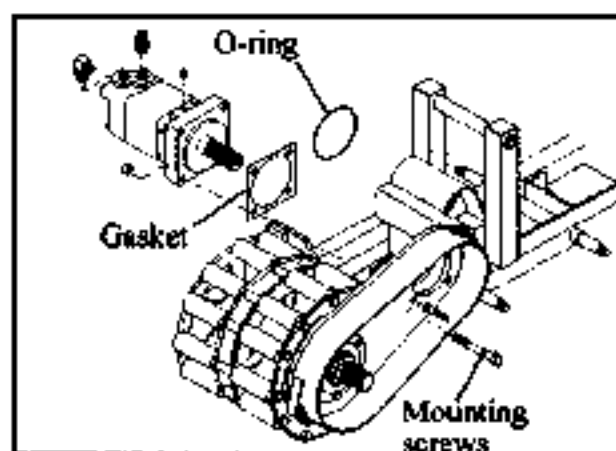


FIG 57

2) Install the plastic chain slide on it's mounting pin. Secure in place with a 1/2-13 NC nut.

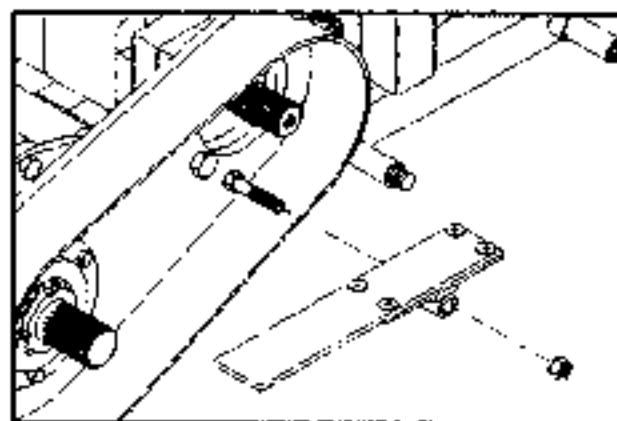


FIG 58

3) Install the sprocket spacer on the drive motor shaft.

4) Place the drive chain on the drive and driven sprockets and install both sprockets on the splined shafts simultaneously. Install a washer and cap-screw in the motor shaft and tighten securely.



FIG 59

WHEELS

1) All lower undercarriage wheels should be packed with a good quality grease. Bearings should be packed before assembly and hubs should be packed at the time of assembly.

2) Fig 60 and 61 show the two types of wheel assemblies used on the Posi-Track. Fig 60 shows the steel hub with ball bearings and Fig 61 shows the aluminum wheel with tapered roller bearings.

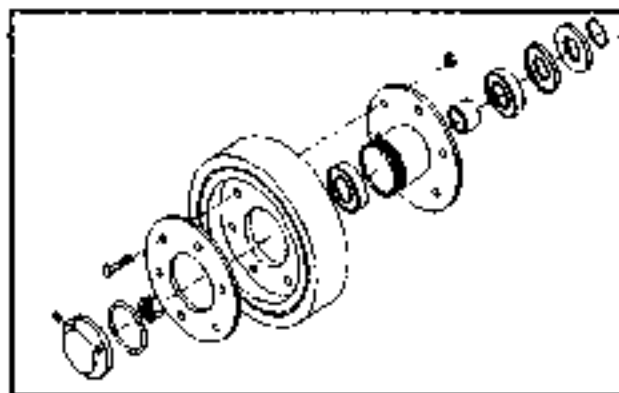


FIG 60

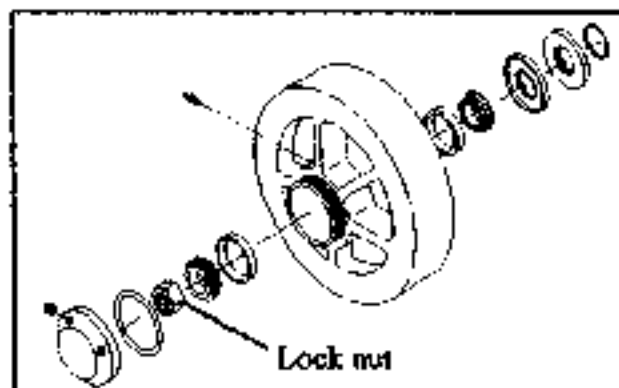


FIG 61

CAUTION

Do not over-tighten the lock nut on the axle when using the aluminum wheel with tapered bearings. Over-tightening will result in premature bearing failure.

3) Tighten the hub caps by hand. Make sure the o-ring in the cap is seated on the end of the hub. Over tightening by mechanical means could strip the threads in the cap or on the hub.

NOTE: Do not install the top carrier wheels at this time. The carrier wheels should be installed after the track is put on the machine and before the track is tightened.

4) Pack the suspension hub bearings with grease. Install the inside bearing and the seal.

5) Slide the hub on to the spindle and install the outside bearing and nut. Tighten the castle nut to remove any bearing clearance. Rotate the nut to the nearest notch and install the cotter pin. Pack the hub with grease and drive the hub cap into place.

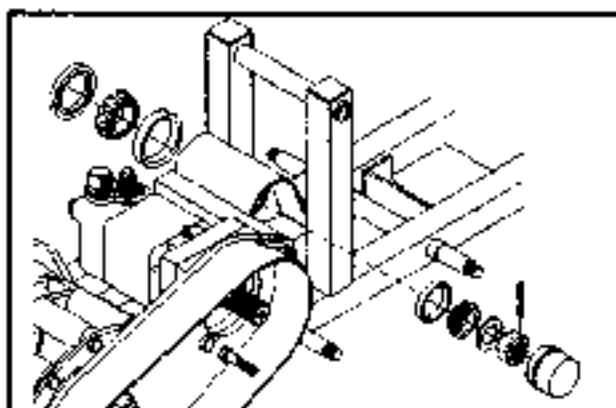


FIG 62

TRACK TENSION ASSY.

1) Assemble the tension axle as shown in Fig 63. Fasten the bearing blocks to the track tension tubes with the grease fittings pointing up. It is not necessary to tighten the large axle nuts securely at this time.

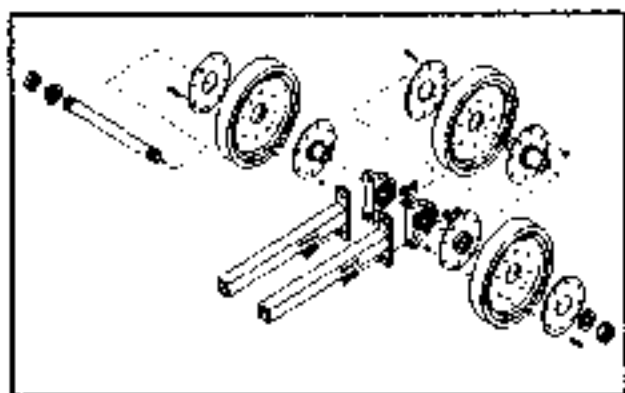


FIG 63

2) Slide the tension tubes into the carriage frame as shown in Fig 64.

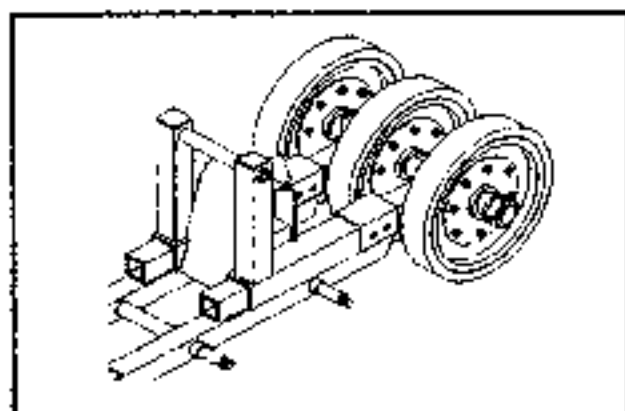


FIG 64

4) Pack the axle bearings and install the inside bearing and seal. Fill the hub with grease.

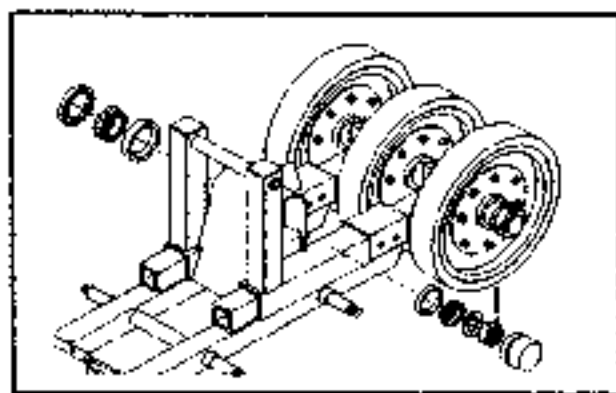


FIG 65

5) Slide the carriage on the suspension spindle and install the outside bearing. Tighten the castle nut to remove any slack in the bearings. Rotate the nut to the nearest notch and install the cotter pin. Press in the hub cap.

6) Install the equalizer springs to complete the assembly. Fasten the cast iron guide rails to the undercarriage.

7) Install the center suspension hub and bearings using the same procedure as the carriage hubs.

8) Align all the undercarriage wheels with a straight edge and tighten the clamp on the center hub to maintain alignment. See Fig 67.

9) The illustration below (Fig 66) shows the complete break down of the suspension for reference purposes.

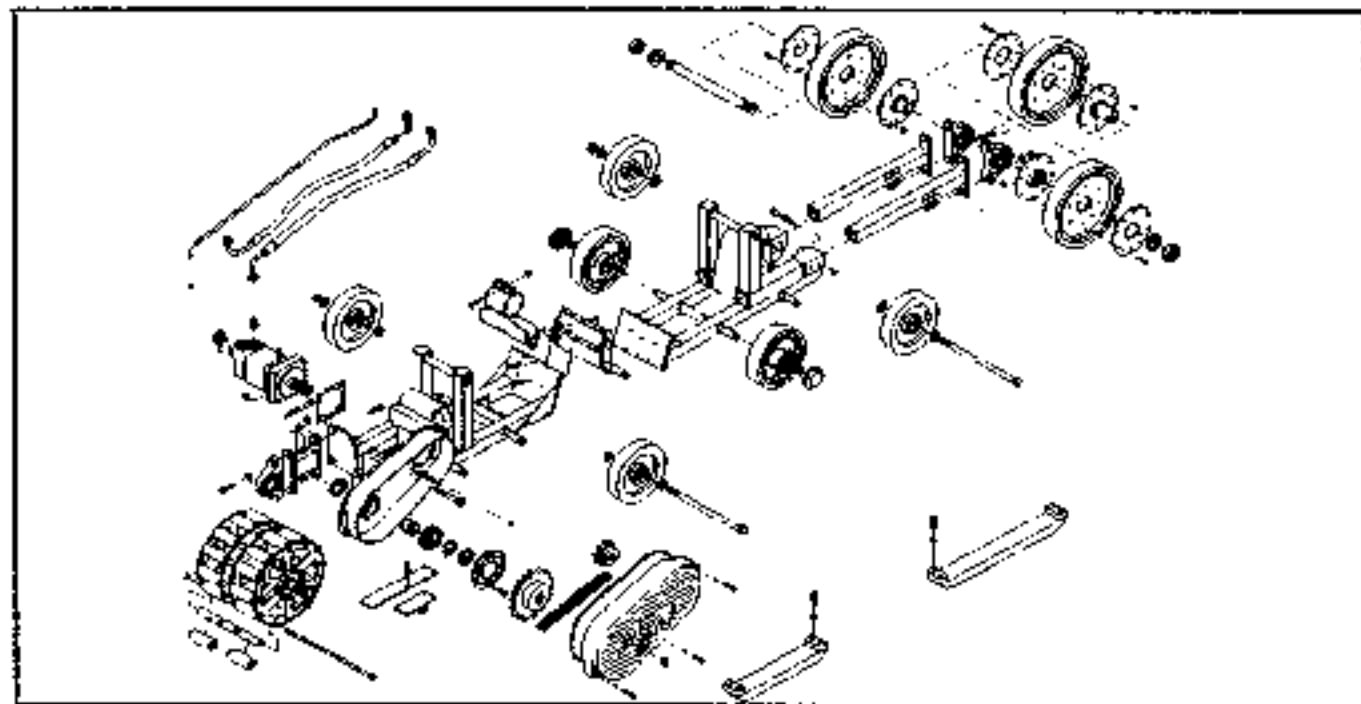


FIG 66

10) See page 22 for track installation instructions and page 20 for adjustment instructions. After the track has been tensioned be sure to tighten the large nuts on the track tension axle.

11) Install the chain case cover. Be sure the chain case rim and the o-ring seal are clean and free of any debris to insure a good seal. Remove the check plug and fill with SAE 90 gear lube to the check plug hole.

TRANSMISSION & PUMPS

1) Drain the hydraulic reservoir. Be sure to have a large container as the reservoir holds approximately 25 gal. (95 l.). If the fluid is to be reused, be sure the container(s) is clean so that no dirt or other material is placed back in to the system.

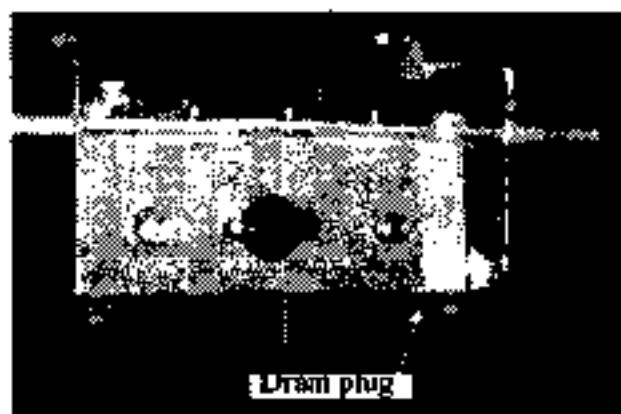


FIG 67

2) Remove the seat and foot rest.

3) Remove the drive shaft cover plate.

4) Rotate the drive shaft until the socket head capscrew that clamps the drive shaft to the transmission shaft is visible and accessible. Remove the capscrew.



FIG 68

5) Slide the drive shaft coupler off the transmission shaft.

6) Remove the cover from the reservoir.

CAUTION

Clean all debris from around the edge of the cover to prevent dirt or other particles from entering the reservoir.

7) Disconnect the control cables and pull them out the front of the reservoir. See Fig 69.

8) Disconnect all tubes and hoses from the transmission. Some tubes may require complete removal from the reservoir before the transmission can be removed.

9) Remove the capscrews from the left rear transmission mounting bracket. Remove the front two mounting screws.

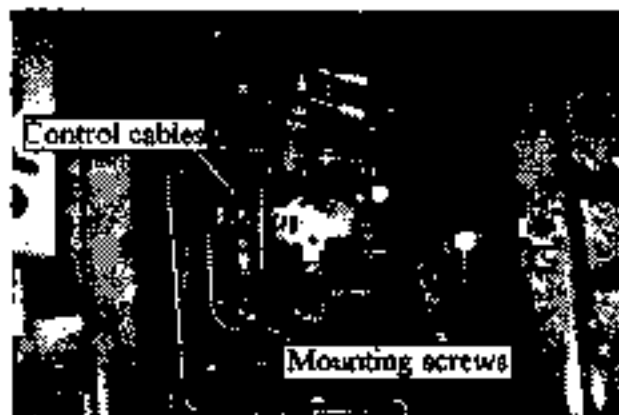


FIG 69

10) Remove the transmission from the reservoir.

11) Remove the capscrews and nuts and remove the gear pumps from the back of the transmission.

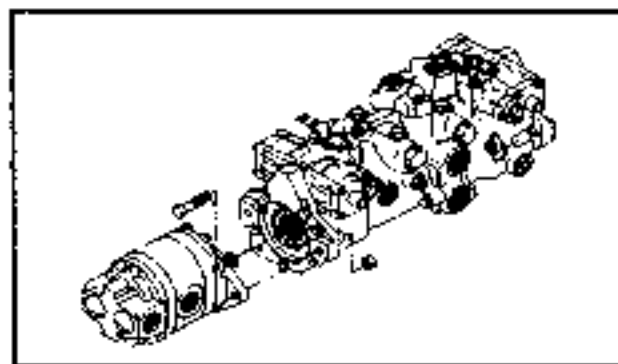


FIG 70

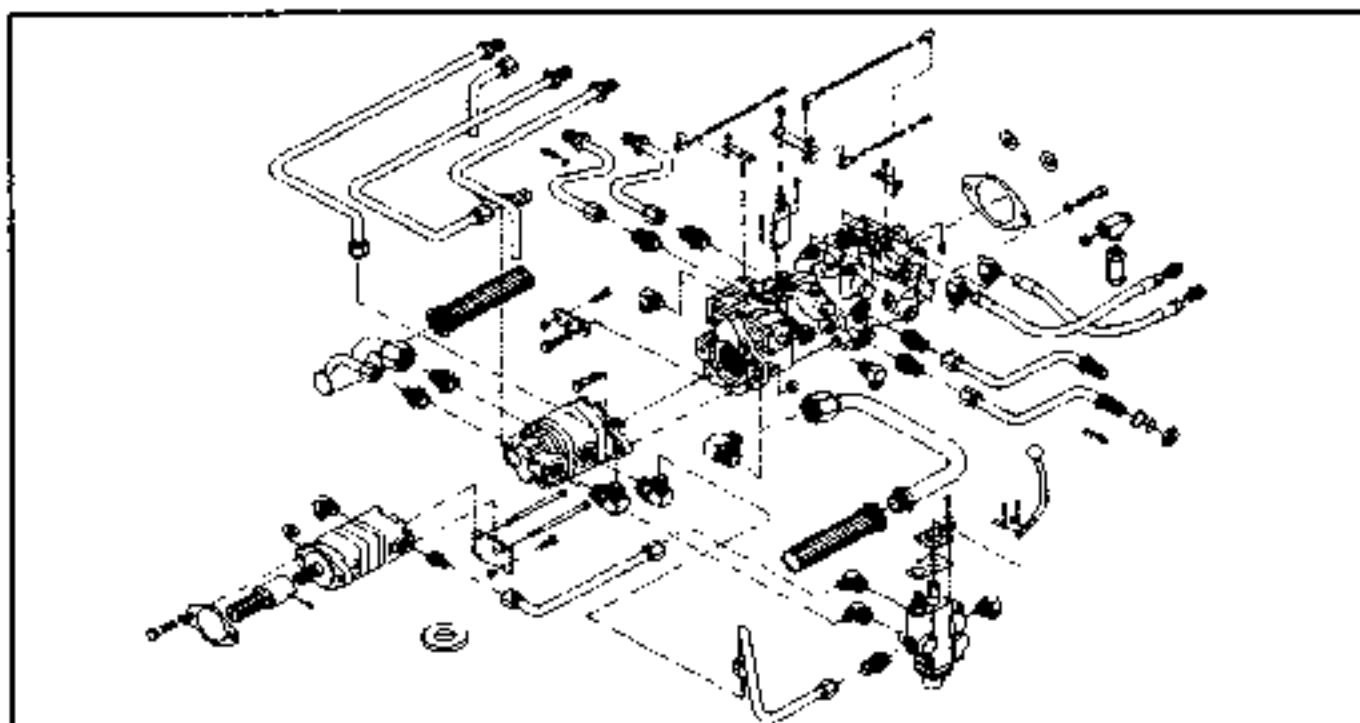


FIG 71

Fig. 71 shows how all the components are installed in the reservoir. To identify each part refer to the Posi-Track parts manual.

Service of the transmission, gear pumps, and PTO drive motor should be done by an authorized manufacturer's service center or by ASV, Inc. authorized service personnel.

ASSEMBLY

Inspect all parts removed from the reservoir for cracks, dents, or cuts. Inspect all gaskets and o-rings carefully. Replace all damaged parts with new parts.

Check all transmission actuators and linkages for wear. Check for loose fasteners.

NOTE: It is very important that the transmission controls and linkages return to neutral freely. Check linkages at every stage of installation to insure that the controls return to neutral when released.

Use an oil resistant sealant on all gaskets, pipe threads, and cables that go through the reservoir wall.

Remove the magnet from the bottom of the reservoir and clean it thoroughly. Check for any steel particles on the magnet that may have come from the transmission, motors, or valves.

NOTE: There are always a few iron particles in the system that get washed through and end up on the magnet. A large quantity of particles or large shavings attached to the magnet is not normal. Try to determine where the particles originated before re-assembling the system.

Be sure to place the magnet over the short pin welded to the bottom of the reservoir.

Check the suction screens for particles or debris. Inspect the screens for damage. Wash the screens thoroughly before installation. Use pipe sealant when installing the fitting attached to the screen.

Make sure all tubes and fittings tighten in place without bending the tubes. Threaded fittings should start and tighten squarely in line. If they do not align properly try to determine the reason for the misalignment. **DO NOT FORCE THEM TO FIT.** Improper installation could cause the system to malfunction.

After all components have been installed and all linkages properly adjusted, fill the reservoir to within 1 in. (25mm) of the top with Amoco Rykon MV hydraulic oil. It is recommended the oil be pre-filtered through a 10 micron filter before putting it in the reservoir. If pre-filtering is not feasible then start the engine and allow the oil to circulate through the hydraulic system filters for about ten minutes. Stop the engine and replace

both hydraulic filter elements.

Install the rubber seal around the top rim of the reservoir. Place the cover on the seal and check to make sure the seal is contacting the cover all the way around. Tighten the cover down securely.

TRANS. & THROTTLE CONTROLS

Disassembly

- 1) Remove the front cover from the control console.
- 2) Remove the lock nut from the back side of the pivot screw. Remove the set screw from the pivot block.
- 3) Disconnect the control cables from the bottom end of the levers.
- 4) Remove the pivot screw to remove the levers and the spacer washers from the console.
- 5) The control knobs can be removed or replaced by removing the two set screws on the under side of the knob.

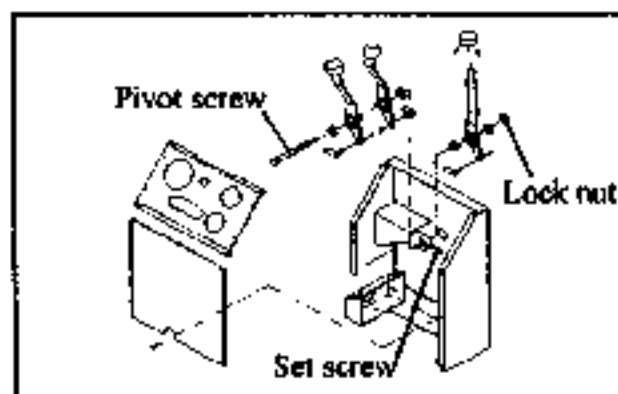


FIG 72

Assembly

Fig 72 shows how the control levers and washers should be installed. It is important to follow this procedure. Do not add or subtract any washers. Be sure the levers are installed in the right sequence as shown.

- 1) Place the transmission control levers and the spacer washers on the pivot screw and run the screw through the pivot block. Leave enough space to install the throttle lever.

- 2) Turn the pivot screw in until it starts to tighten on the control levers. Turn the screw counter-clockwise 1/8 turn at a time until the levers begin to pivot freely. **THE LEVERS SHOULD BE FREE TO PIVOT BUT NOT LOOSE.**

- 3) Install the set screw and tighten securely.

- 4) Install the lock nut on the pivot screw and tighten so that resistance can be felt when operating the throttle lever. Adjust to the desired resistance level.

- 5) Connect the control cables. Operate the levers fore and aft. When the operators hand is removed from the levers they should return to neutral from any position.

The throttle lever should stay in any position.

The transmission controls should both be in the center of the control panel slot. If they are not centered the transmission pumps may not go to full stroke in both directions. Adjust to center by lengthening or shortening the control cables.

- 6) Install the cover plate and cable covers.

- 7) Tension on the throttle lever can be adjusted at any time by tightening the lock nut through a hole in the console.

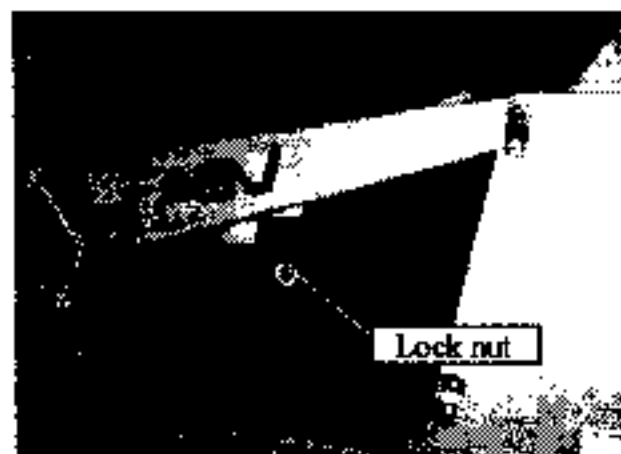
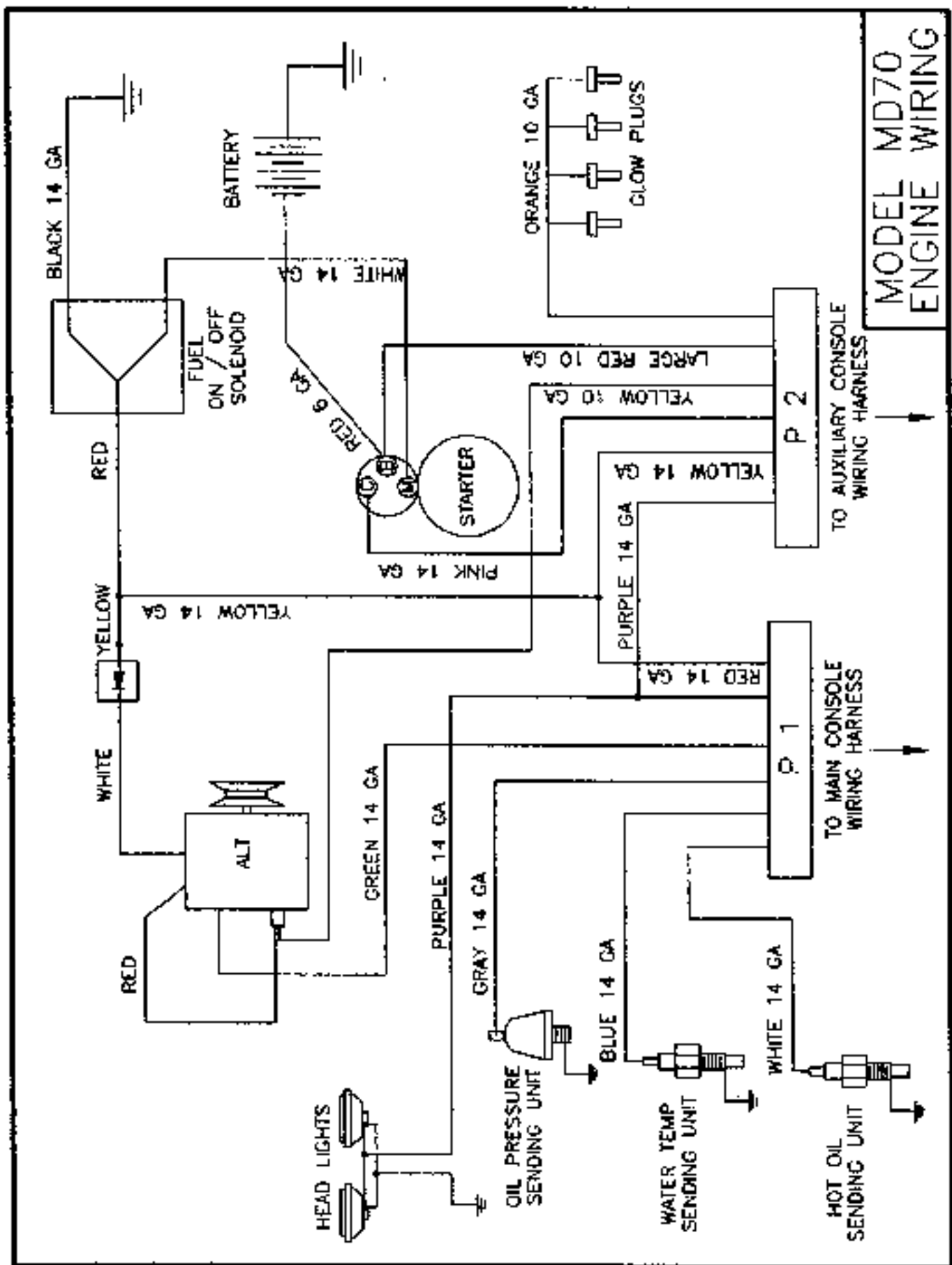
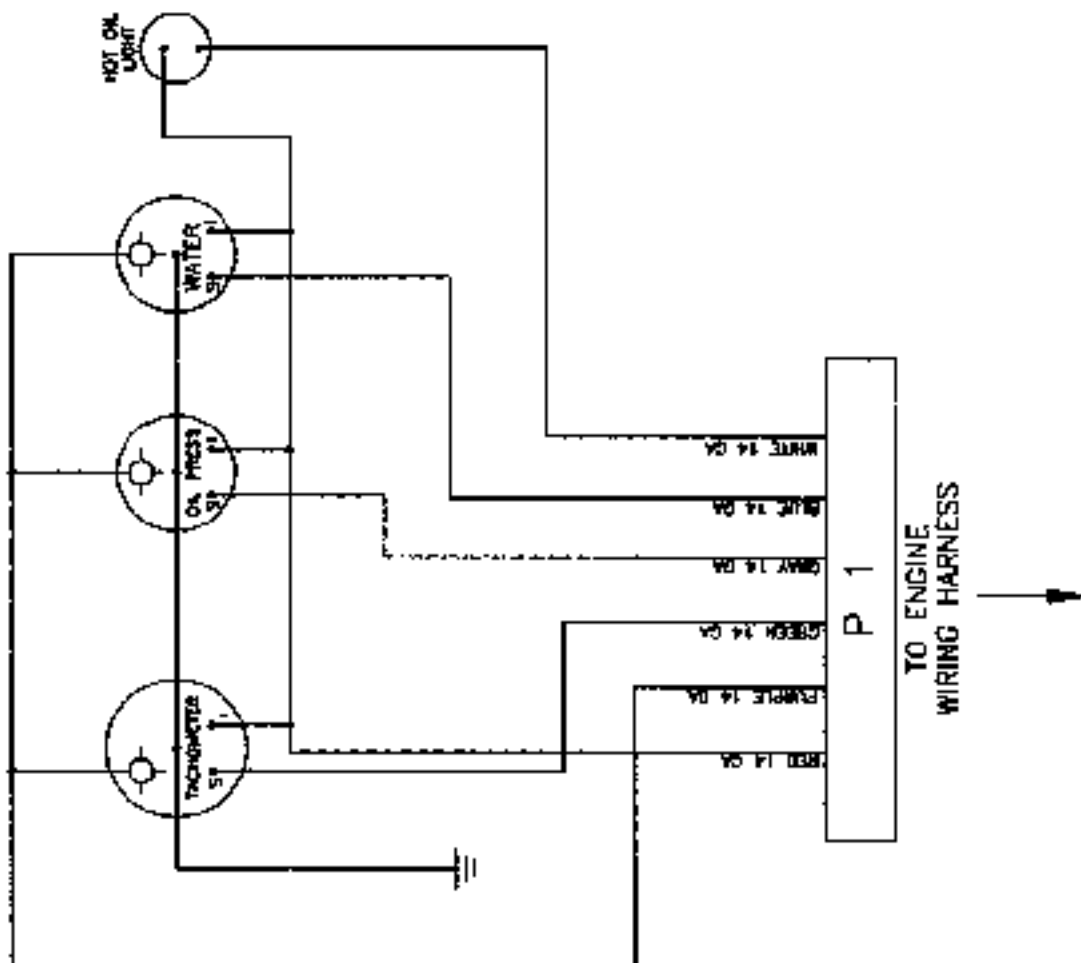


FIG 73





MODEL MD70 MAIN CONSOLE WIRING

NOTES

[illegible]

NOTES

[illegible]

[illegible]

MAINTENANCE AND SERVICE RECORD			
Item / Frequency	Hours / Date	Hours / Date	Hours / Date
Undercarriage Bearings 50 Hours	/	/	/
	/	/	/
	/	/	/
	/	/	/
	/	/	/
	/	/	/
	/	/	/
Engine Oil & Filter 100 Hours	/	/	/
	/	/	/
	/	/	/
	/	/	/
Engine Air Filter 100 Hours	/	/	/
	/	/	/
	/	/	/
	/	/	/
Engine Fuel Filter 250 Hours	/	/	/
	/	/	/
Hydraulic Oil Filter 250 Hours	/	/	/
	/	/	/
Transmission Filter 250 Hours	/	/	/
	/	/	/
Chain Case Oil 250 Hours	/	/	/
	/	/	/
Hydraulic Oil - 500 Hrs	/	/	/
Suspension Hubs - 500 Hrs	/	/	/