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***Drumbeaters
of America Inc.***





Yukon River Inter-Tribal Watershed Council

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Whitehorse Office: PO Box 3123-211 Whitehorse, Yukon Territory Canada Y1A-5P7

**Do not Operate
The Drum Crusher when it is
Raining
This will Damage the electrical
And the Engine
Since the Intake Air
Is on top of the
Engine and Enter
The electrical parts
And might create
Electrical shock
Cover up after the engine
Has cooled off**

CAUTION - READ BEFORE OPERATING

Be sure to read understand and follow all of the instructions in this manual.

BE CAREFUL - SAFETY AND CAUTION PAYS

Do not operate this equipment if you are under the influence of alcohol or drugs.

Do not allow any one to operate equipment unless they thoroughly understand requirements, procedures and controls.

Never operate this equipment in the vicinity of children or pets.

Keep hands, feet, and bystanders away from crush-chamber, ram platen and door when operating.

Do not make any changes or alterations to equipment components. This will void warranty and may cause a safety hazard.

Never operate this equipment if it is in poor mechanical condition.

Always wear safety glasses, gloves and shoes when operating this equipment.

Do not allow anyone under 18 years of age to operate equipment.

CAUTION:

CLOSE DOOR DURING CRUSHING

KEEP CLEAR OF CRUSH-CHAMBER DURING CRUSHING

USE #ISO 32 HYDRAULIC OIL ONLY

OPERATING INSTRUCTIONS

SAFETY FIRST

IF YOU DON'T THINK IT'S SAFE - DON'T DO IT!

A. Position for Use:

Position the Portable Drum Crusher on a hard level surface, and in a convenient position with a minimum clearance of 6', on all sides. Do not disconnect the drum crusher from the vehicle before tilting the unit into the run / crush position. You should anticipate your work area to allow fork trucks easy access to bring drums to and from the work area.

B. Setup Procedure:

1. Cut and remove all the Red Zip Ties.
2. Fill the hydraulic tank with hydraulic oil.
3. Fill the fuel tank with gasoline.
4. Reattach the red battery cable to the starter battery.

C. Startup Procedure:

You may review the engine manual enclosed in the rear of this manual.

1. Verify the machine is on hard level ground.
2. Verify the machine is attached to the tow vehicle.
3. Verify the hydraulic tank is full.
4. Verify the fuel tank is full.
5. Verify the rear of the unit is clear.
6. Pull the choke to the out position.
7. Pull the throttle to the out position.
8. Remove the travel strap from the crushing cylinder.
9. Turn the start key to the on position.
10. Wait 10 – 15 seconds for the fuel pump to pump fuel to the engine.
11. Turn the start key to the start position.
12. When the engine starts, release the start switch.
13. Slowly push the choke in fully, if the engine stops, pull out the choke and try again until the engine is warm enough to stay running. Do not try to run the machine with the choke in the out position.
14. When the engine is running proceed to the tilting section.

D. Safety Procedure.

1. With the hydraulic package running.
2. Unlock door latch and open.
3. Check the crush chamber cavity for emptiness. Empty if necessary.
4. Close and latch door.
5. Check door operation interlock each day.
6. While engaging the "Crush" lever down which will start the hydraulic cylinder moving, unlatch and open the chamber door. If the hydraulic cylinder does not stop moving when the door is opened, do not use the crusher until the Maintenance Department has checked and repaired the door interlock feature.
7. Close and latch door.
8. Return the crush head to the top position.

E. Tilting Procedure:

1. Verify the travel strap is removed from the crushing cylinder.
2. Verify the rear of the unit is clear.
3. Start the engine and run at ½ speed.
4. Move the selector valve to the tilt position.
5. Slowly move the tilt valve in the desired chamber direction.
6. When the chamber is in position, move the selector valve to the crush position.
7. Avoid holding the valve under pressure in either direction.

F. Crushing Drums:

Once the above instructions have been completed successfully, the unit is ready for crushing.

1. Release door latch and open door.
2. Inspect drum for acceptability for crushing. Drum should be empty and not contain any material. All the bung caps should be removed.
3. Pressure relief holes may be punched in the upper 1/2 of drum in addition to the open bung or as a substitute to an open bung.
4. Tilt and roll drum into chamber. Do not lift drums, rolling is easier and saves backs. Slide drum to rear of chamber cavity.
5. Close and latch door.
6. To start the crush cycle, push down and hold the "Manual Directional Control Valve". The crush head will start to crush the drum and the pressure gauge will start to rise.
7. Watch the pressure gauge and when the pressure stops rising (aprox. 2700 PSI.), the crush cycle is complete. Pull the crush valve up, the valve will "detent" up until the crush head comes to the top. The valve will then release. At this point the door may be opened.

Keep the operating area clear of obstructions. Drums and/or crushed drums not neatly placed in work area can result in physical injury.

G. General Information:

1. Electric Brakes.

Electric brake systems consist of components mounted both on the tow vehicle and the trailer. For these systems to operate properly, the trailer wiring end plug on the trailer must match the wiring pattern of the mating plug on the tow vehicle. The most common plug types for electric brake trailers are the 6-pole round pin and 7-pole RV flat blade connectors. An ELECTRONIC BRAKE CONTROLLER must be properly mounted at the dash area of the tow vehicle. The brake controller allows for adjustment of braking strength and also offers a manual brake control for emergency braking. Some controllers are available with a pre-wired quick connect plug for easy installation on select late model vehicles that have a factory tow prep package. Be certain to follow the installation instructions and to use the proper gauge wire and circuit breaker size when installing a brake controller on your tow vehicle.

The trailer side of an electric brake system consists of left & right ELECTRIC BRAKE ASSEMBLIES, drum & hub assemblies, EMERGENCY BREAKAWAY KIT-(battery w/box, breakaway switch, trickle charger) and end plug connector.

2. Towing.

See the addendum included in the rear of this manual.

3. Use only high quality hydraulic oil, such as Amoco AW Oil #32.
4. This equipment must not be operated by untrained personnel.
5. When operating equipment outside, during winter months, operator must warm up the hydraulic oil by running through approximately 15 crushing cycles without a drum or container in the drum crusher.

H. Safety Tips:

1. **ONLY CRUSH EMPTY DRUMS!!**
2. Drums should never be completely sealed prior to crushing. Remove all bungs and vent to allow air to escape as drum is crushed.
3. Make sure no one stands in front of the drum crushing chamber door during the drum crushing operation.
4. No adjustments or modifications should be made to equipment without written approval from Drumbeaters of America Inc. Any adjustments or modifications to the equipment or components, shall void manufacturer's warranty.
- 5.

I. Maintenance:

| <i>Maintenance Item:</i> | | <i>Daily</i> | | <i>Weekly</i> | <i>Annually</i> |
|--------------------------|--|------------------------|-----------------------|---------------|-----------------|
| | | <i>Before Start-Up</i> | <i>After Start-Up</i> | | |
| 1. | <i>Remove dirt and spillage from around the crusher.</i> | x | | | |
| 2. | <i>Remove dust and dirt from the drive motor.</i> | x | | | |
| 3. | <i>Verify that crushing chamber is clear.</i> | x | | | |
| 4. | <i>Check hydraulic system for leaks.</i> | | x | | |
| 5. | <i>Check hydraulic system oil level. Add oil if low</i> | x | | | |
| 6. | <i>Listen for any unusual noises or vibrations after crusher is started.</i> | | x | | |
| 7. | <i>Inspect all hoses and lines for wear or fatigue.</i> | x | | | |
| 8. | <i>Check for loose nuts and bolts on crusher.</i> | | | x | |
| 9. | <i>Change oil in hydraulic reservoir. Replace oil filter element.</i> | | | | x (2 TIMES) |

ENGINE OIL

TECUMSEH FOUR-CYCLE ENGINES REQUIRE THE USE OF CLEAN, HIGH QUALITY DETERGENT OIL. Be sure original container is marked: A.P.I. service "SF" thru "SJ" or "CD".

TECUMSEH RECOMMENDS USING ONE OF THE FOLLOWING FOUR CYCLE OILS THAT ARE SPECIALLY FORMULATED TO TECUMSEH SPECIFICATIONS.

DO NOT USE SAE 10W40 OIL.

FOR SUMMER (Above 32° F) (0°C) USE SAE 30 OIL. PART 730225

Use SAE 30 oil in high temperature, high load applications. Using multigrade oil may increase oil consumption.

FOR WINTER (Below 32°F) (0°C) USE SAE 5W30 OIL. PART 730226

(SAE 10W is an acceptable substitute.)

(BELOW 0°F (-18°C) ONLY): SAE 0W30 is an acceptable substitute.

| Oil Capacity | | |
|--------------------|-----|------|
| Engine Model | oz. | ml. |
| TVT691 with Filter | 80 | 2366 |
| TVT691 Oil Only | 72 | 2129 |

Change oil and filter after the first two operating hours. Standard oil change intervals are every 50 hours. Oil filter changes are recommended every 100 operating hours.

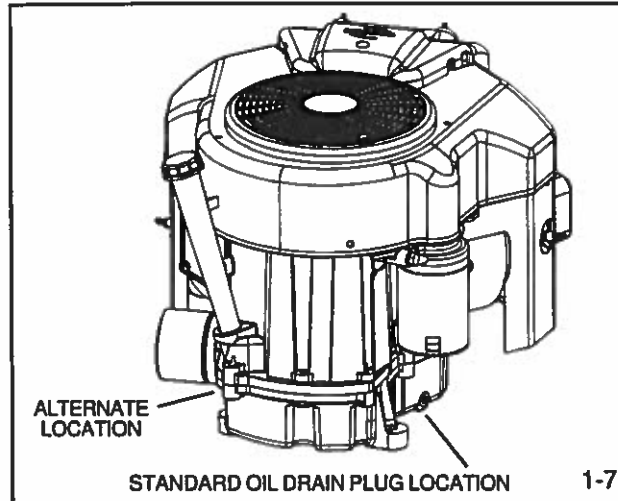
Oil Change Intervals: Change the oil and filter after the first 2 hours of operation. Thereafter oil change intervals are every 50 hours. Oil and oil filter changes are requested every 100 operating hours. Service should be performed more often if operated under extremely dusty or dirty conditions. The oil and filter (if equipped) should be changed yearly if operated less than 100 hours.

Oil Check: Check the oil each time the equipment is used or every five-(5) hours of operation. Position the equipment so the engine is level when checking the oil level.



CAUTION: A TWIN CYLINDER ENGINE MAY START AND RUN ON ONLY ONE CYLINDER. ALWAYS DISCONNECT BOTH SPARK PLUG WIRES FROM THE SPARK PLUGS AND GROUND TO THE DEDICATED RETAINING POSTS LOCATED ON THE VALVE COVER BOXES BEFORE ATTEMPTING ANY SERVICE OR MAINTENANCE WORK ON THE ENGINE OR EQUIPMENT.

Oil Change Procedure: Locate the oil drain plug in the mounting flange. The drain plug or cap on most units is located above the frame in one of the locations shown. (Illust. 1-7) The oil filter if equipped, can be removed with a commercially available filter wrench.



NOTE: An oil change is best performed after the engine is warm.

Remove the oil plug or cap and allow the oil to drain into a proper receptacle. Always make sure that drain oil and filter are disposed of properly. Contact your local governing authorities to find a waste oil disposal site. Once the oil is drained, reinstall the drain plug and fill the engine with new oil to the proper capacity.

| BASIC MAINTENANCE CHART | |
|----------------------------|--------------------------------------|
| Pre-filter (Dry Poly) | Clean every 25 hours |
| Air filter (Paper Element) | Replace every 100 hours of operation |
| Oil change | Every 50 hours or annually |
| Oil filter | Every 100 hours or annually |
| Spark plug replacement | Every 100 hours or annually |
| Clean cooling fins | Every 200 hours or annually |
| Fuel Filter (Replace) | Every 100 hours or annually |

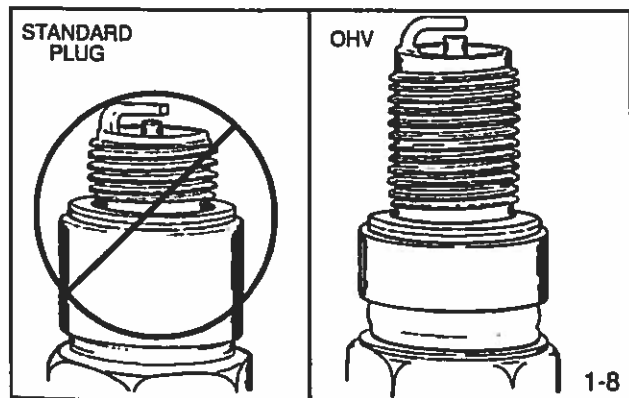
BASIC TUNE-UP PROCEDURE:

NOTE: Today's fuels can cause many problems in an engine's performance due to the fuel quality and short shelf life (as little as 30 days). Always check fuel as a primary cause of poor engine performance before performing any other service.

The following is a minor tune-up procedure. When this procedure is completed, the engine should operate properly. Further repairs may be necessary if the engine's performance remains poor.

CAUTION: REMOVE THE SPARK PLUG WIRES AND ATTACH TO THE DEDICATED RETAINING POSTS BEFORE DOING ANY SERVICE WORK ON THE ENGINE.

1. Service or replace the air cleaner. See Chapter 2 under "Service".
2. Inspect the level and condition of the oil, change or add oil as required.
3. Remove the blower housing and clean all dirt, grass or debris from the intake screen, Cylinder head, cooling fins, carburetor, governor levers and linkage.
4. Check that the fuel filter, fuel tank, and fuel line are clean. We recommend replacing the fuel filter every 100 hours or annually.
5. Replace the spark plugs every 100 hours or annually, consult the parts breakdown for the correct spark plug to be used. Set the spark plug gap (.030") (.762 mm) and install the plug, being careful not to cross thread. Tighten the spark plug to 21 foot pounds (28 Nm) of torque. If a torque wrench is not available, turn the spark plug in as far as possible by hand, then use a spark plug wrench to turn the plug 1/2 turn further. If installing a used plug, only 1/8 to 1/4 turn after seat is needed. Note: The correct plug reach must be used see (Illust. 1-8).



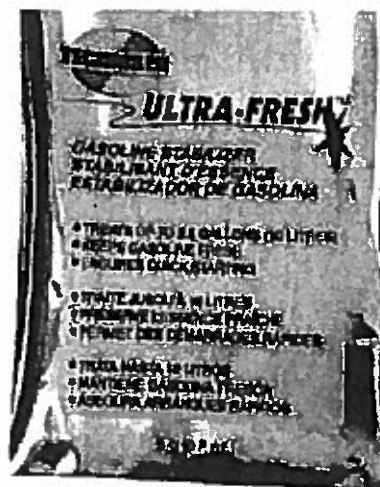
6. Make sure all ignition wires are free of abrasions or breaks and are properly routed so they will not rub on the flywheel.
7. Completely clean the cooling fins, intake screen and linkages of all dirt and debris. Reinstall the blower housing, fuel tank, fuel line, and air cleaner assembly if removed. Be careful not to pinch any of the wires upon re-assembly.
8. Make sure all remote cables are correctly routed and adjusted for proper operation. See Chapter 4, under "Speed Controls and Linkage".
9. Reinstall the spark plug wires, add fuel and oil as necessary, start the engine.

STORAGE

(IF THE ENGINE IS TO BE UNUSED FOR 30 DAYS OR MORE)

CAUTION: NEVER STORE THE ENGINE WITH FUEL IN THE TANK INDOORS OR IN ENCLOSED, POORLY VENTILATED AREAS, WHERE FUEL FUMES MAY REACH AN OPEN FLAME, SPARK OR PILOT LIGHT AS ON A FURNACE, WATER HEATER, CLOTHES DRYER OR OTHER GAS APPLIANCE.

Gasoline can become stale in less than 30 days and form deposits that can impede proper fuel flow and engine operation. To prevent deposits from forming, all gasoline must be removed from the fuel tank and the carburetor. An acceptable alternative to removing all gasoline, is by adding Tecumseh fuel stabilizer, part number 730245, to the gasoline. Fuel stabilizer is added to the fuel tank or storage container. Always follow the mix ratio found on the stabilizer container. Run the engine at least 10 minutes after adding the fuel stabilizer to allow it to reach the carburetor. (Illust. 1-9)



CHAPTER 2. AIR CLEANERS

GENERAL INFORMATION

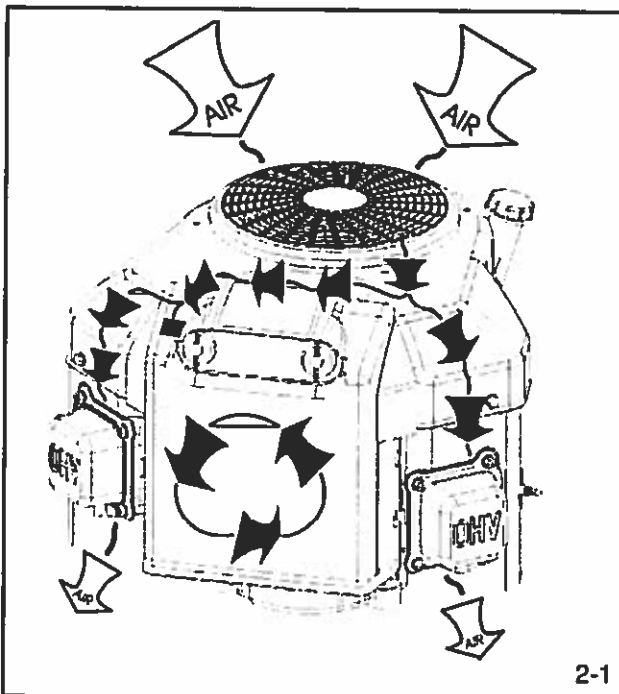
The air cleaner is the device used to eliminate dust and dirt from the air supply. Filtered air is necessary to assure that abrasive particles are removed before entering the combustion chamber. Dirt allowed into the engine will quickly wear the internal components and shorten engine life.

The TVT series engine uses a paper-type air filter system and also has a dry foam pre-filter.

Extremely dirty conditions require more frequent pre-filter cleaning or paper element replacement.

OPERATION

The air filter cover secures and seals the paper filter element in place. The cover also prevents large particles from entering the filter body and completes the Kleen-Aire® circuit. The air is first filtered through the flywheel and blower housing then enters the air filter cover. It travels through the pre-filter then the paper filter element. Pre-filters typically extend the paper filter life. (Illust. 2-1)

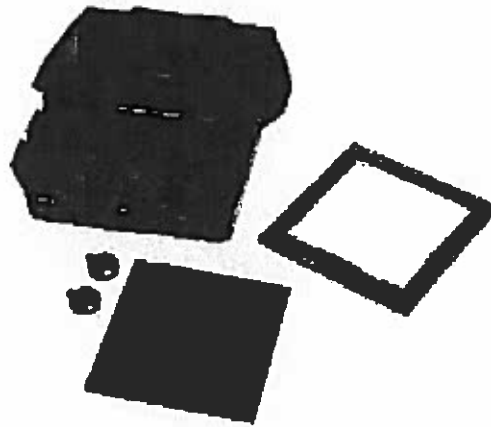


COMPONENTS

The cover holds the poly pre-cleaner and clamps the paper filter in place, creating a dirt tight seal. The cover also prevents large debris from entering the filter body.

The pre-cleaner is made of a polyurethane foam and designed to pre-filter the air prior to it passing through the paper filter. This added stage, assures the operator of maximum air filtering and extends paper filter life.

The paper filter element is the main filter to stop impurities from entering the engine. This dry-type element is pleated paper for increased surface area maximizing its life. The filter has rubberized edges to assure sealing. (Illust. 2-2)



2-2

TROUBLESHOOTING AND TESTING

If the engine's performance is unsatisfactory (runs unevenly, starts smoking abnormally or loses power), the first engine component(s) to be checked are the air filter(s). A dirt restricted or oil soaked filter will cause noticeable performance problems. Polyurethane pre-filter can be cleaned following the service procedure listed under "Service" in this chapter. A paper-type air filter can only be replaced NEVER attempt to clean a paper filter. The paper-type filter must not have any oil film or residue present. Should the paper have a brown tint it may have been damaged by an excessively oiled pre-filter or crankcase breather problems. Follow the procedure listed in the "Service" section of this chapter for filter replacement or cleaning.

SERVICE

Cleaning of the polyurethane pre-filter element is recommended every twenty-five (25) operating hours or (3) months, whichever comes first. Extremely dirty or dusty conditions may require daily cleanings.

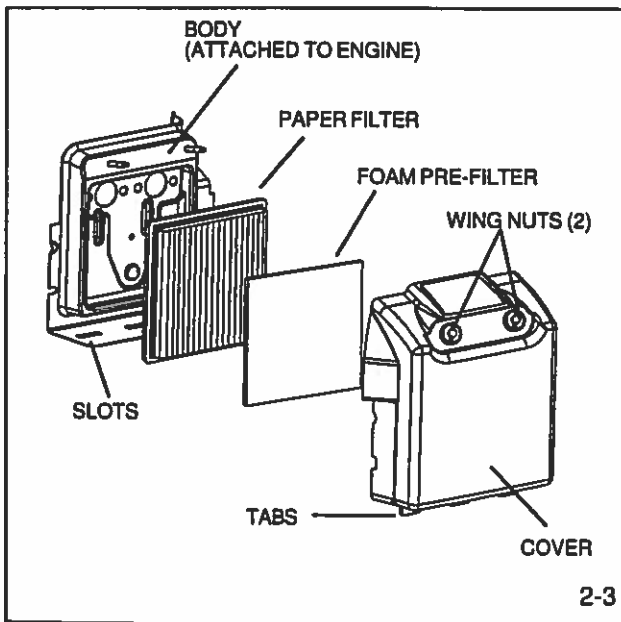
NOTE: Do not oil the pre-filter, paper element damage can occur.

The paper filter element should be replaced once a year or every 100 operating hours, more often if used in extremely dusty conditions.

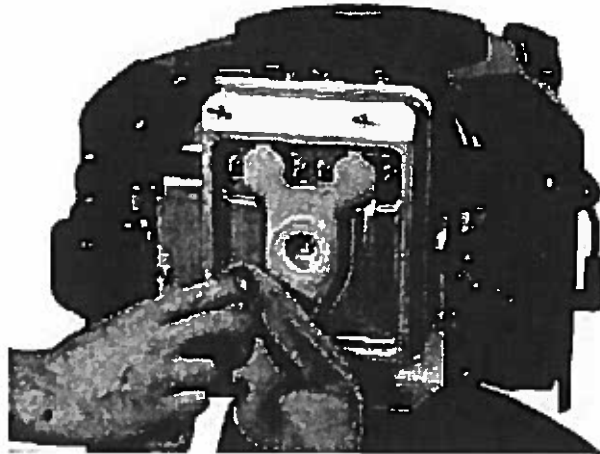
NOTE: Never run the engine without the complete air cleaner assembly installed on the engine. Always replace the filter element with a Tecumseh original replacement part to maintain proper filtration, emissions compliance and long engine life.

Disassembly Procedure

1. Remove the wing nuts holding the air cleaner cover in place. Swing the cover out, then lift to remove. (Illust. 2-3)



2. Remove the paper filter. Note: Paper filters must be replaced NEVER attempt to clean a paper filter.
3. Remove the polyurethane pre-cleaner from the cover.
4. Wipe or wash out the air filter cover and base. (Illust. 2-4)



5. Service the polyurethane pre-filter element by washing in liquid dish soap and warm water until clean. Squeeze out the excess water (Never Twist). Finish drying the element by squeezing it in a dry cloth or paper towel.

NOTE: DO NOT OIL THE PRE-FILTER IT MUST BE INSTALLED DRY TO PREVENT SATURATION OF THE PAPER FILTER ELEMENT.

6. Install the pre-cleaner and new air filter in the cover. Replace the filter cover and tighten the wing nuts, be careful not to over-tighten it. Note: The air filter system on all models can be upgraded to include the pre-cleaner if the OEM did not originally request one.