

ALLEN ENGINEERING CORPORATION

ROLLER TUBE FINISHER

ASSEMBLY AND OPERATIONS MANUAL

P.O. Box 819, Paragould, AR 72451 (870) 236-7751

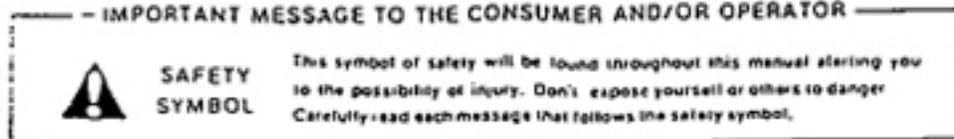
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NEW UNIT START-UP

Your unit has been completely serviced at the factory and is ready to operate. There are several things which you must do, however, to assemble your unit and insure its proper operation.

1. **- IMPORTANT MESSAGE TO THE CONSUMER AND/OR OPERATOR -**



2. Check fluid lubrication levels in:

- a. The gear reducer, with the unit resting on its side see that the oil level is at the fill plug. Use EP-90 lubricant.
- b. The right-angle drive, remove the fill plug and check the fluid level.
- c. NOTE: Fluid levels should be checked at 40 hour intervals. Do not over-fill, fluids become warm during operation and need room to expand. A gear reducer OR right-angle drive will provide trouble-free service if the gear case lubricant is maintained to the fill-plug level.

3. The engine lubricant is obtained by mixing two cycle, non-detergent #30/#40 weight oils @ exactly 5 oz. to one (1) gallon of gasoline. CAUTION: Too little oil will cause piston-cylinder scoring and too much oil will cause power loss. Follow the engine manufacturer's recommendation exactly as stated.

4. Units fitted with air vibrators have a recessed grease fitting located at the air inlet area. Lubricate this fitting at start-up and at 40 hour intervals.

5. Attach power unit to roller tube by aligning key on 1 in. drive aft, slide shaft fully into drive socket. Tighten socket head set screws with allen wrench.

6. Fit idle-end handle to the non powered end, as item 5, fasten with clevis pin.
7. Fill engine with properly mixed fuel. Remember - keep fuel ratio exactly to Mfg's specification.
8. CAUTION: When cranking unit, be careful not to open throttle full open. When engine RPM increases, the centrifugal clutch will engage and power the roller tube. This will cause the tube to rotate and unless you are prepared to control this action, the tube will travel. NOTE: At full throttle the tube will rotate at 150 RPM. When starting the engine, be prepared to reduce engine RPM. Hold operating handles to prevent undesired tube movement.

SAFETY RULES AND PRECAUTIONS

As with any item of power equipment it is necessary that you learn and observe ALL safety precautions. This includes the care for the machine as well as personal safety. This machine is only as dangerous as the person who is operating it. DO NOT BE CARELESS! In the beginning you will be cautious. Don't allow yourself to become careless after you have gotten acquainted with the machine and its operation. DON'T EXPOSE YOURSELF OR OTHERS TO DANGER. After you have become acquainted with this machine and formed good operational habits, your proficiency will improve rapidly toward expert ability.



Never allow children to operate this unit. Keep area of operation clear of all persons, particularly small children and pets.

9. Complete the warranty registration and register your machine.



Dress Properly for the Job

1. It is advisable to wear a long sleeved shirt or jacket. Wear long trousers or slacks. Don't wear shorts.
2. Do not operate this unit when barefoot or wearing sandals. Always wear substantial footwear: leather work shoes or short boots function well for most people.
3. Do not wear loose clothing or jewelry that could become caught.

UNIT SPECIFICATIONS

ENGINE

WEIGHT: 34 lbs.
 ENGINE DISPLACEMENT: 6.0 Cu. In
 TYPE DRIVE: 16:1 Gear Ratio Transmission-Automatic Centrifugal Clutch
 ENGINE: Tecumseh Power Products AV600
 2 Cycle-Air Cooled
 CARBURETOR TYPE: Aircraft Type
 w/Diaphragm - Positive Fuel Feed
 FUEL MIX: Regular gasoline 24:1 or
 5 oz. oil to one (1) gal. gasoline.
 Two cycle oil, or #30, #40 Wt.
 Non Detergent Oil.
 FUEL CAPACITY: One (1) Quart
 IGNITION: Flywheel Type Magneto
 STARTER: Automatic Rewind Manual
 Integral w/Shroud
 MUFFLER: Low Tone

ROLLER TUBE

Operating RPM - 150

Weight/Ft-Prox 7.1 lbs.

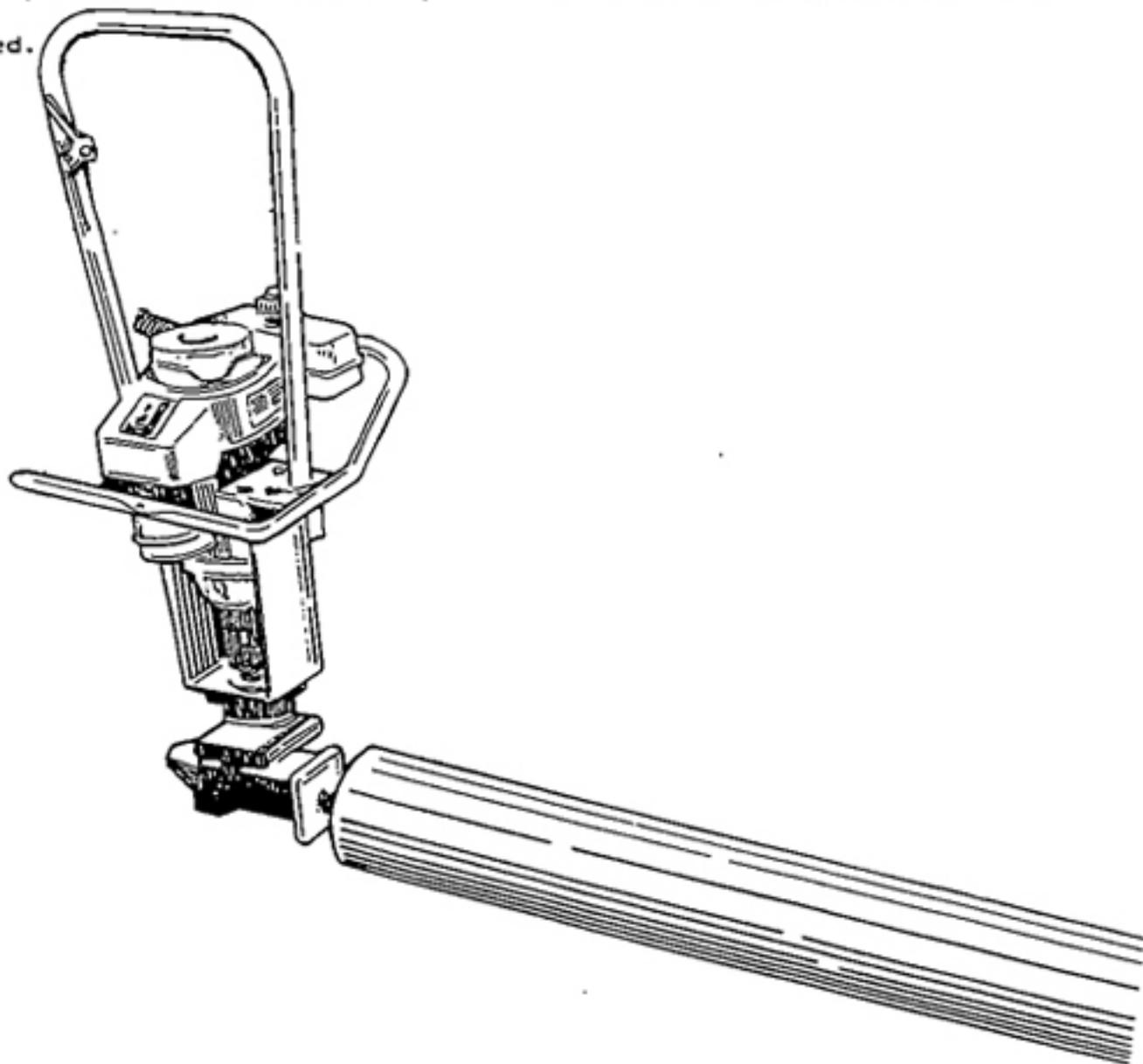
Options: Internal Vibration

- 1) AIR - 17 CFM-MAX one or two vibrators.
- 2) Mechanical vibrators, driven by a separate power unit.
- 3) Winch assembly for slope work.
- 4) Power unit to provide reverse rotation for slope work.

UNIT OPERATION

A roller tube finisher is designed to produce a level, screeded surface on concrete placed on grade. The spinning tube can be successfully moved over a pour to work the surface down to the formed grade. Optional vibration will provide consolidation to various depths depending upon slump, aggregate and vibrator speed. The principal advantage of the roller tube is its minimum set-up time and ease of use. With the addition of a winch, slopes can be finished quickly and economically.

Always clean the unit after use, drain unused fuel, store and transport the power unit in its transport box. Do not transport the unit assembled.



IMPORTANT

The Roller Tube Finisher is not provided with the spark arrester. IT IS THE RESPONSIBILITY OF THE CONSUMER TO INSTALL THE SPARK ARRESTING MUFFLER IN COMPLIANCE WITH REGULATIONS OF THE STATE OF CALIFORNIA.

SPARK ARRESTING MUFFLER ASSEMBLY: (Sec. Codes 4442-4442.5 -effective July, 1978). IT IS THE RESPONSIBILITY OF THE CONSUMER to install the spark arresting muffler in compliance with regulations of the State of California. MAINTENANCE OF SPARK ARRESTOR: (Sec. Code 13005). It is suggested the spark arresting screen be removed and cleaned with a wire brush after every 8 hours of operation. Replace any worn or malfunctional parts at this time.

You may order the SPARK ARRESTING MUFFLER KIT from Hoffco, Inc.:

SPARK ARRESTING MUFFLER KIT-ORDER NO. 207813

<u>ITEM NO.</u>	<u>ORDER NO.</u>	<u>DESCRIPTION</u>
1	203249	Gasket
2	207776	Muffler, Inlet
3	207772	Baffle w/Screen
4	207769	Muffler, Outlet
5	203250	Loc Tab
6	207296	Screw, 1/4-20 x 3/4
7	201623	Nut, Flex-Loc 1/4-20

WARNING TO PURCHASERS OF INTERNAL COMBUSTION ENGINE EQUIPPED MACHINERY OR DEVICES:

This equipment does not include a spark arrester muffler. If this equipment is used on any forest-covered land, brush-covered land or grass-covered land in the State of California, the law requires that a spark arrester be installed and in effective working order before using this equipment on such land. The spark arrester must be attached to the exhaust system and comply with Section 4442 of the California Public Resources Code. If this equipment is used in a state or national park or campground, a U.S.D.A. Forestry Department approved spark arrester muffler must be utilized.

(See page for Hoffco, Inc. address information)

PRE-OPERATION

IT IS ABSOLUTELY NECESSARY THAT YOU READ THESE INSTRUCTIONS BEFORE ATTEMPTING TO START THE ENGINE OF THIS UNIT.

YOUR ENGINE NEEDS THREE THINGS TO RUN: FUEL, AIR, SPARK.

1. FUEL - Be sure it is clean!

BE SURE YOU ARE USING THE PROPER FUEL MIX BEFORE TRYING TO START THIS ENGINE!

Use only a fuel mixture of 24:1 clean regular gasoline and a quality brand two cycle air cooled engine oil. DO NOT USE GASOLINE RATED OTHER THAN REGULAR...DO NOT USE LOW LEAD OR NON-LEAD FUEL. The 24:1 mix means mix 1/4 pint (5 oz.) of the specified oil in each gallon of gasoline. Mix thoroughly, disregard conflicting instructions that may appear on 2 cycle oil containers. Do not mix gasoline and oil directly in the engine fuel tank. Always use separate container that is clean and free of any contaminants.

FIG. 9 MIXING THE FUEL

FUEL MIX CHART					
U.S.		IMPERIAL		METRIC	
GAS	OIL	GAS	OIL	PETROL	OIL
GAL.	OZ.	GAL.	OZ.	LITERS	C.C.
1	5	5	4	166	
2	10	10	8	332	
5	25	25	20	830	



FAILURE TO FOLLOW THE PROPER FUEL MIX INSTRUCTIONS CAN RESULT IN IRREPARABLE DAMAGE TO THE ENGINE AND VOIDING OF THE ENGINE WARRANTY

FAILURE TO FOLLOW THE PROPER FUEL MIX INSTRUCTIONS CAN RESULT IN IRREPARABLE DAMAGE TO THE ENGINE AND VOIDING OF THE ENGINE WARRANTY.

When mixing or filling the fuel tank with the specified fuel mix... USE CAUTION! NEVER MIX FUEL OR FILL THE FUEL TANK ANYWHERE EXCEPT IN A WELL VENTILATED AREA! NEVER MIX FUEL OR FILL THE TANK WHILE SMOKING OR IN THE AREA OF OPEN FLAMES OR SPARKS. Be sure the fuel cap is on tight after the tank has been filled.

2. AIR - KEEP YOUR AIR-FILTER CLEAN!

As a new machine, your filter should be clean...however, after you've used this machine for a while, the filter will accumulate dirt and dust. Check the condition of your filter frequently. A dirty or clogged filter will restrict the air flow to the carburetor thus changing the air fuel mix. This will create symptoms often mistaken as the carburetor being out of proper adjustment. To clean the filter, follow these steps:

- A. Remove the front cover and remove the element, then clean the housing thoroughly.
- B. Clean the element by washing in a strong solution of water and household detergent.

CAUTION: If gasoline or any flammable material is used...exercise extreme caution to prevent fire or an explosion. We do not recommend the use of gasoline or other volatile materials for cleaning the filter.

After the filter has been cleaned, squeeze out all the excess liquids. Cover the ends of the filter with the same oil as you use in the fuel mix. Knead the filter carefully to saturate the element with oil. When completely saturated with oil, squeeze out the excess. After cleaning and adding the oil, reassemble the filter assembly in the sequence as shown.

FIG. 10



3. SPARK - The carbon build-up on the electrode (firing end) of the spark plug will cause hard starting, poor idling, and lack of power. Be sure you use the same type and size of plug as the original equipment when replacing.

IN THE INTEREST OF SAFETY, DO NOT RUN ENGINE AT EXCESSIVE SPEEDS. Operating an engine at excessive speeds increases the hazard of personal injury. DO NOT TAMPER WITH PARTS WHICH MAY INCREASE THE GOVERNED SPEED.

DO NOT RUN THE ENGINE IN AN ENCLOSED AREA. Exhaust gasses contain carbon monoxide, an odorless and deadly poison. DO NOT FILL GASOLINE TANK WHILE ENGINE IS RUNNING. Spilling gasoline on a hot engine may cause a fire or explosion.

STARTING

TO START ENGINE:

- A. Turn ignition switch ON. Switch location is on the engine frame.
- B. Always hold control handle. Remember, if the engine RPM is set too high, the clutch will automatically engage and the tube will travel if not restrained.

REWIND STARTER

FIG. 13



Grasp starter handle as illustrated and pull out cord rapidly. Return it slowly to the engine. Repeat if necessary.

START THE ENGINE AND LET IT WARM UP. Do not adjust carburetor when engine is cold. NOTE: If engine falters or stops after choke lever is moved to "OFF" position, open the mixture adjusting screw 1/4 turn (counter clockwise) and re-start engine.

With the engine running, turn mixture adjustment screw slowly, clockwise from NORMAL setting until engine falters. Remember this location. Now turn screw counter-clockwise until engine just starts to sputter. Remember this location. Turn screw clockwise until it is halfway between your first position where engine started to sputter. This will be the optimum setting on your carburetor.

AT THIS POINT THE FUEL MIXTURE FOR ALL OPERATING RANGES HAS BEEN ADJUSTED. DON'T TOUCH THESE SCREWS FOR ANY REASON DURING THE FOLLOWING ADJUSTMENTS...YOUR FUEL MIXTURE IS PROPERLY SET.

NEVER TAMPER WITH ENGINE GOVERNOR WHICH IS FACTORY SET FOR PROPER ENGINE SPEED. OVER-SPEEDING ENGINE MAY INCREASE THE DANGER OF PERSONAL INJURY AND WILL VOID ENGINE WARRANTY. IF YOU THINK THE ENGINE GOVERNOR HIGH SPEED NEEDS ADJUSTING, CONTACT YOUR NEAR-BY AUTHORIZED TECUMSEH SERVICE DEALER, WHO HAS THE PROPER EQUIPMENT AND EXPERIENCE TO MAKE ANY NECESSARY ADJUSTMENTS.

NOW...LET'S MAKE THE THROTTLE CONTROL OBEY YOUR IDLE COMMAND.

Begin by leaving the throttle control in a rest position...at this point the engine should be idling. The best, or proper IDLE SPEED FOR THE ENGINE IS TO HAVE IT RUN AS FAST AS POSSIBLE WITHOUT HAVING THE TUBE ROTATE...HERE IS HOW YOU DO IT.

1. When the throttle control handle is in the rest position and the tube is still turning - TURN THE IDLE SPEED (B) TO THE LEFT (COUNTER-CLOCKWISE) until the tube stops turning.

OPERATING THE UNIT

1. After the engine is started and runs for a few seconds(15-20), move the choke lever as far as it will go in the opposite direction from closed or on position. The engine firing pattern should now smooth out. Let the engine warm up 20-30 seconds longer with the throttle open. Now test the throttle return. Quickly release the throttle, allowing the engine to idle. It should do this instantly. Run the engine up by opening the throttle. It should respond this way instantly as well.

CARBURETOR ADJUSTMENT

With the engine SHUT OFF...locate the carburetor adjustment screws A, B & C as shown in the illustrations here...this gives you the STARTING POINT. Now follow these instructions:

- A. MIXTURE SCREW
- B. IDLE SPEED ADJUST
- C. CHOKE LEVER
- D. AIR FILTER

FIG. 15



IMPORTANT: When closing adjusting screw with screwdriver, close finger tight only to prevent damage to carburetor or adjusting screw.

1. NORMAL CARBURETOR MIXTURE ADJUSTING SCREW SETTING:
Mixture Adjusting Screw.
One (1) turn open from closed position.

NOTE: This setting is approximate. However, this setting will allow engine to be started so carburetor can be fine tuned.

FINE TUNING YOUR ENGINE:

The engine should be tuned in its normal operating attitude and with the tube attached.

OPERATING THE ROLLER TUBE FINISHER

1. Use the Roller Tube Finisher to move excess concrete forward. Let the roller walk backward and continue to make successive passes until the concrete is no longer being carried over the top onto the area behind the Roller Tube Finisher.
2. Angle the Roller Tube Finisher to carry excess concrete up a cross slope, or to utilize a longer roller for a narrow slab width.

CARE AND MAINTENANCE

LUBRICATION OF TRANSMISSION - Check the transmission fluid level before starting and at 40 hour (operations) intervals.

TYPE OF LUBRICANT REQUIRED FOR TRANSMISSION: API GL5 service SAE 90 to 140 WT HD.

AMOUNT OF LUBRICANT REQUIRED FOR NEW TRANSMISSION: 1/2 Pint
(8 Fl. oz. - 236.2 ml)

IMPORTANT: Transmission should be checked periodically. With transmission positioned on its side as instructed in step #2, lubricant should be even with Vent Plug Hole.

PROCEDURE FOR FILLING TRANSMISSION AND PERIODICALLY CHECKING LUBRICATION:

NOTE: If a pump type oiler can is available, it may not be necessary to remove the transmission from the handlebar bracket as instructed in step #1.

- Step #1: Remove (4) 5/16 x 18 x 5/8 Wiz-Loc Screws (#202547) holding the transmission to the bracket of the handlebar.
- Step #2: Position transmission on its side. Remove Vent Plug (#206599).
- Step #3: Add lubricant. CAUTION! DO NOT OVER-FILL. This will create damage to the seal and will result in excessive oil being pumped out of the Vent Plug.

STORAGE: When you have finished using the Roller Tube Finisher and will not be using it for some time, you should follow these instructions:

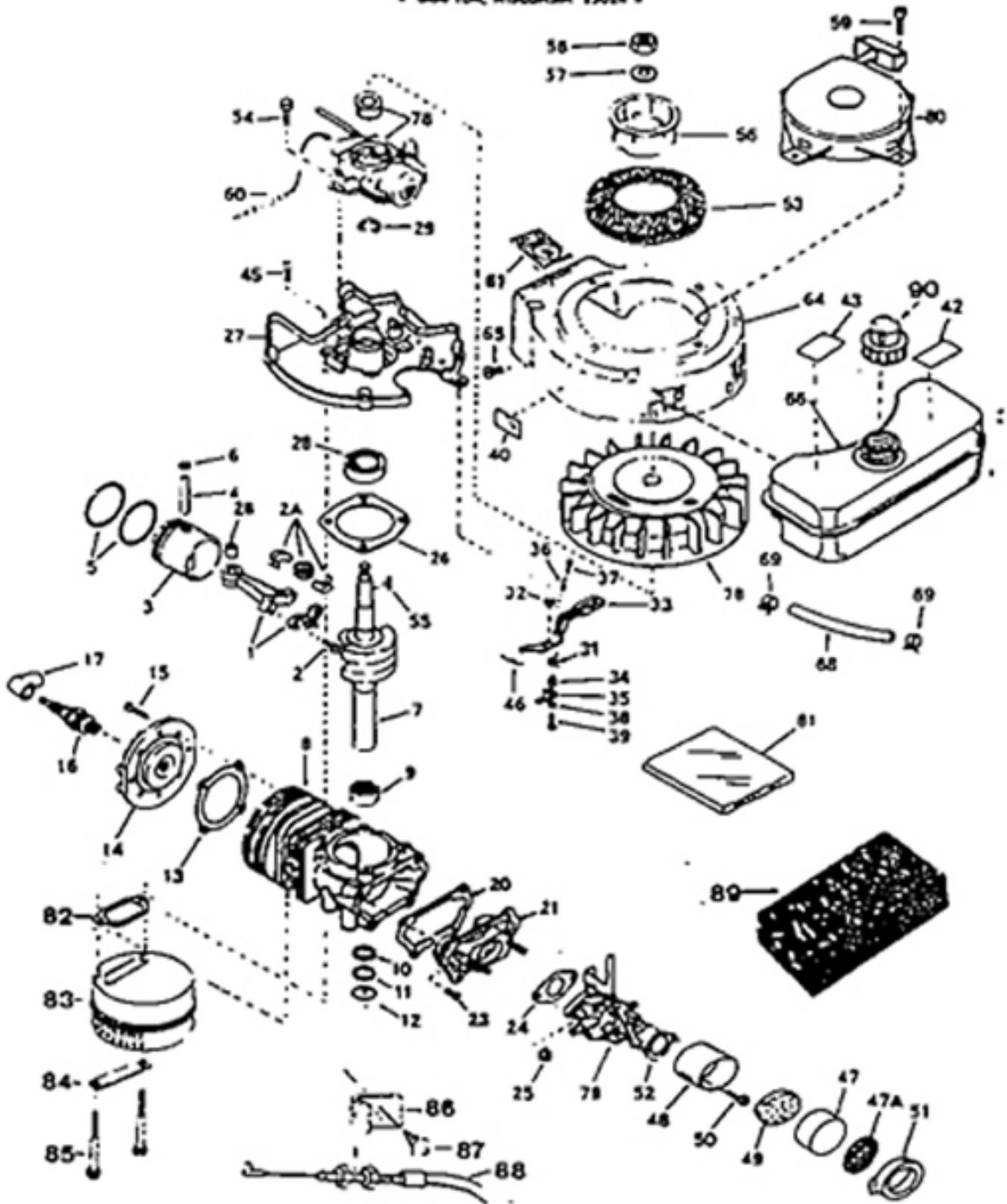
1. Drain the gas tank completely.
2. Start and run the engine until all the lines and carburetor has been consumed.
3. Clean the unit thoroughly. Pay particular attention to the engine, fins, etc., to remove any accumulation of oil soaked dirt and debris.
4. Remove the spark plug and put one or two teaspoons of good lubricating oil into the cylinder. Revolve the fly-wheel several times to spread oil over the cylinder wall, and then replace the spark plug.
5. Wrap or cover the powerhead and attachments to prevent unnecessary dirt or dust accumulation. Always store in a dry place.
6. Use the wood storage box for safe storage of the power unit.

TECUMSEH PRODUCTS COMPANY

ENGINE AND GEAR SERVICE DIVISION

• DRAFTON, WISCONSIN 53024 •

Type 880-38



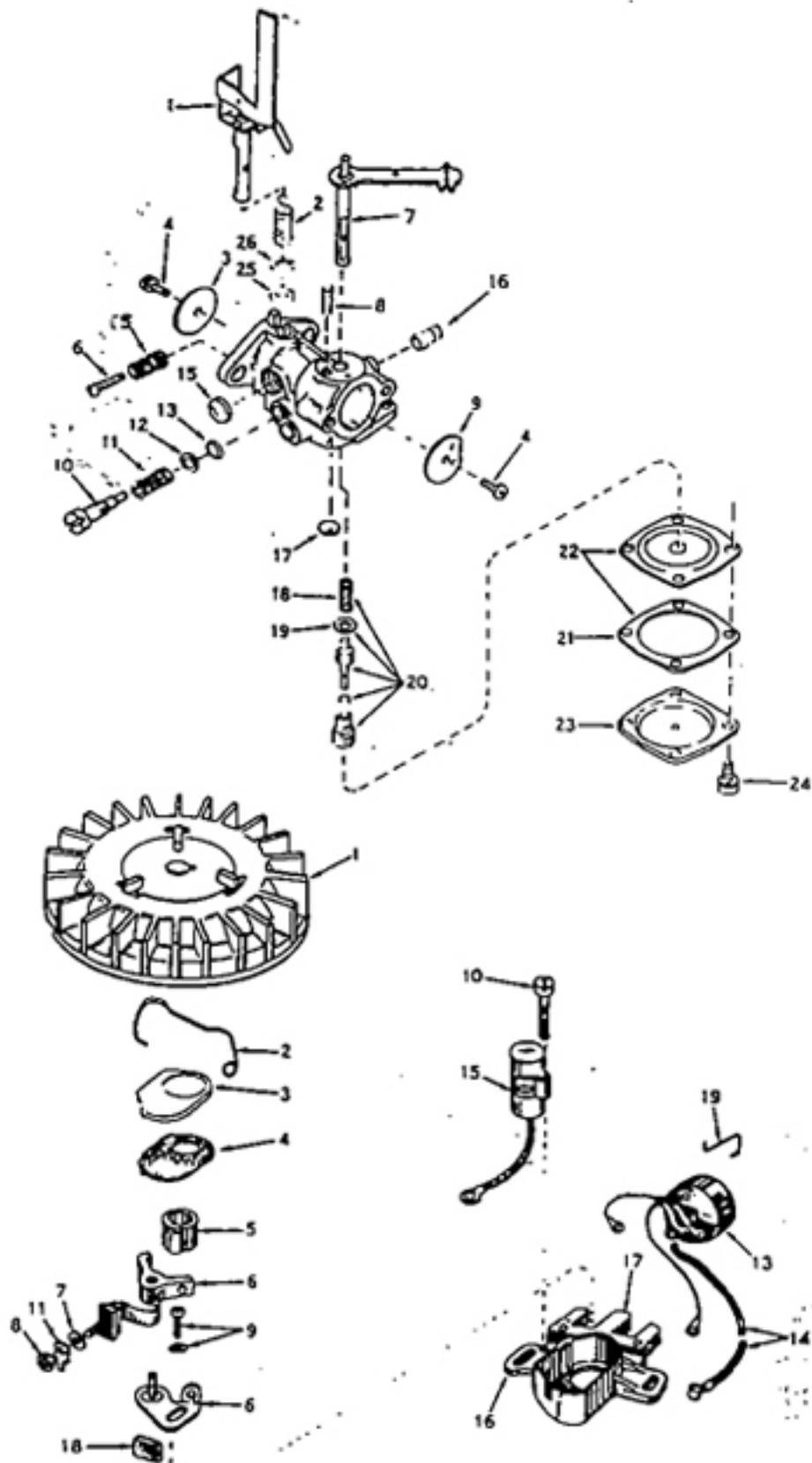
INSTRUCTIONS FOR ORDERING PARTS

When ordering parts, it is important that you first consult your dealer, or distributor from whom you purchased your unit. He should have necessary parts in stock. However, if for some reason the dealer or distributor does not stock the needed parts, feel free to contact the Factory Service Department for information concerning a dealer or distributor that sells replacement parts in your area.

IMPORTANT: Order all parts by part number and name-giving serial no. and model no.

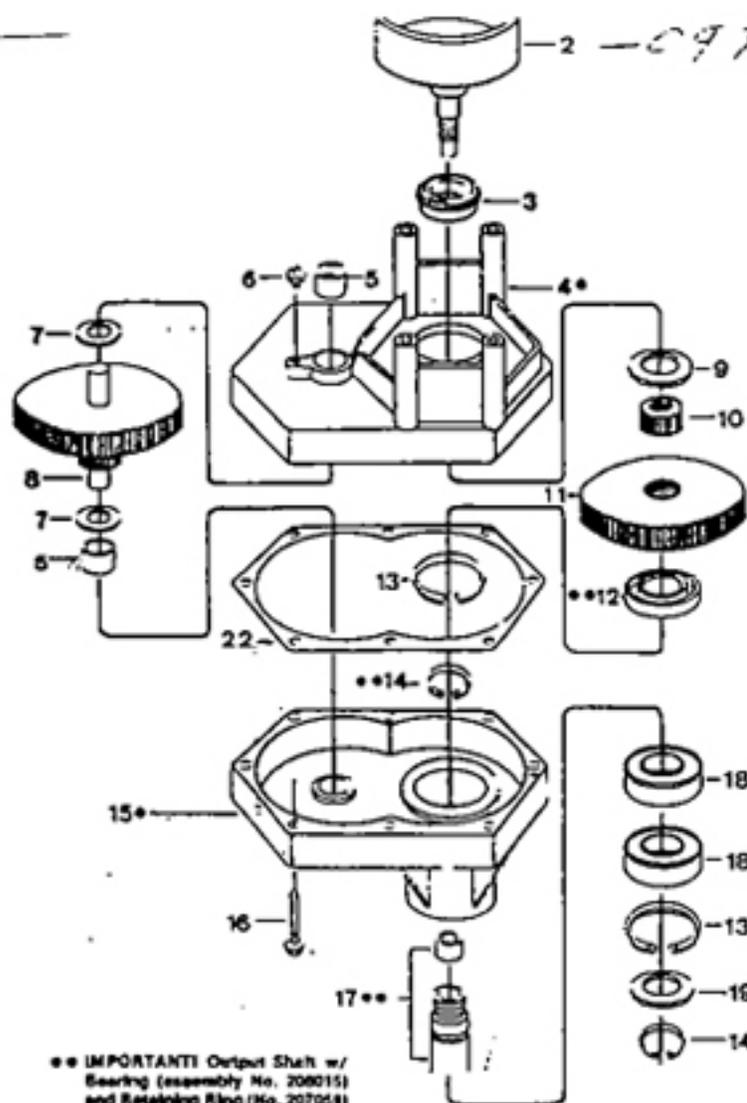
TECUMSEH PRODUCTS COMPANY
ENGINE AND GEAR SERVICE DIVISION
GRAFTON, WISCONSIN
TYPE 660-39 - MODEL AV-600

<u>REF. NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>
1	310246	Rod Assy, Connecting (Inc Nos 2, 2A, & 2b)
2	650633	Screw, Connecting rod
2A	530150	Bearing & Liner Set, Needle
2B	530104A	Bearing, Needle
3	310230C	Piston
4	310178	Pin, Piston
5	310190	Ring Set, Piston
6	310167	Ring, Piston pin retaining
7	290517	Crankshaft
8	251263A	Block Assy. Cylinder (Inc Nos 9 thru 12)
9	530143A	Bearing, Needle
10	510145	Seal, Crankshaft
11	510143	Retainer, Crankshaft seal
12	510142	Spring, Crankshaft seal retainer
13	510274*	Gasket, Cylinder head
14	250240A	Head, Cylinder
15	650477	Screw, Panflx hd. slf lckng, 1/4-20 x 3/4
16	33636	Plug, Sprk (Champion J-17LM or equivalent) Except for Canada
16	34251	Resistor Sprk Plug (Canadian Regulations require Canada RJ-17LM resistor spark plug
17	610118	Cover, Spark Plug
20	510282A*	Gasket, Cover plate
21	470153A	Plate Assy, Reed & cover
23	650579	Screw, Pan flex hd, 10-24 x 1/2
24	510110*	Gasket, Carburetor
25	650456	Hex nut, 1/4-20
26	510292*	Gasket, housing base
27	350405A	Base Assy, Housing (Inc No 29)
28	530110	Bearing, Ball
29	510319	Seal, Crankshaft



REF. NO.	PART NO.	PART NAME
31	570634	Spring
32	570422	Washer
33	570421	Lever, Control
34	570412	Spacer
35	570415	Lever, Adjusting
36	31342	Spring, Regulating Screw
37	650549	Screw, fil hd 5-40 x 7/16
38	650583	Washer, flat
39	650544	Screw, Pan flex hd 10-24 x 7/8
40	550205	Decal, instruction
42	550206	Decal, warning
43	550208	Decal, fuel mix
45	650561	Screw, Hex washer hd 1/4-20 x 5/8
46	490286	Spring, governor
47	450215	Element, air filter
47A	450205	Element, air filter
48	450232	Body, air filter
49	450233	Screen, air filter
50	560431	Screw, Rd hd Sems 10-32 x 5/8
51	450216	Cover, air filter
52	510206	Gasket, air filter
53	35009	Screen, starter cup
54	650747**	Screw, Hex washerhd 1/4-20 x 3/4
55	610961	Key, flywheel
56	590416	Cup, starter
57	650763	Washer, lock
58	650390	Nut, flywheel
59	650499	Screw, Pan hd sems 1/4-28 x3/8
60	610686	Wire, cut off
61	34686	Decal, name
64	350373**	Housing, blower
65	650356	Screw, hex washer hd 1/4-20 x 3/8
66	410233	Tank, fuel
68	29774	Line, fuel
69	26460	Clamp, fuel line
78	610794A	Magneto(The Complete magneto is not available as an assembly. The magneto number is shown for reference purposes only. Order component parts individually as shown in parts list.
79	631539B	Carburetor(inc No 24)
80	590420**	Starter,rewind
81	510296B	Gasket set(inc items marked*)

**On production models, the rewind starter is riveted to the blower housing. If either the starter or the blower housing requires replacement, both will have to be ordered. Also order four screws illustrated to attach replacement starter to replacement blower housing.



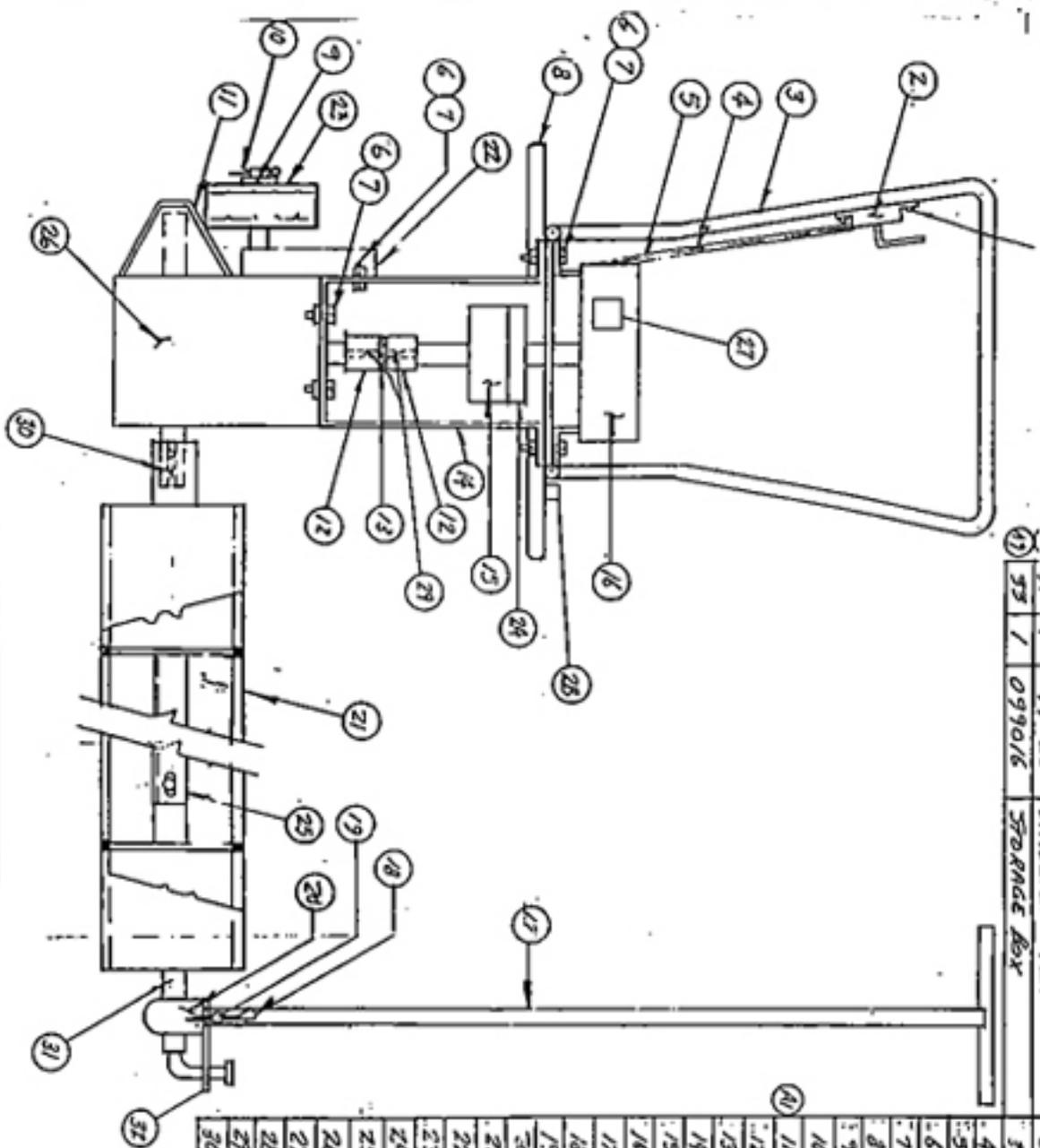
•• IMPORTANT! Output Shaft w/
Bearing (assembly No. 208015)
and Retaining Ring (No. 207058)
MUST BE IN PLACE BEFORE
OIL SEAL NO. 206048.

ITEM NO.	ORDER NO.	DESCRIPTION	QTY. REQ.
1	202547	Screw 5/16-18 x 3/4 Bracket to Transmission	1
2	207250	Drum and Shaft, Clutch	1
3	202010	Bearing, Ball w/Retaining Ring 1 3/8 O.D.	1
4	207799	Housing, Upper, Includes Items 3 and 5A	1
5	207289	Bearing, Roller, 5/8 I.D.	2
6	206599	Fit Plug, Vented	1
7	200634	Washer, 18 Ga., 5/8 I.D., 1 1/16 O.D.	1
8	207256	Gear, Intermediate	1
9	200670	Washer, 18 Ga., 41/64 I.D., 1 5/8 O.D.	1
10	207791	Gear, Pinion, 16T	1
11	207792	Gear, Output	1
12	206048	Seal, Oil	1
13	202862	Ring, Retaining	2
14	207058	Ring, Retaining	2
15	208016	Housing, Lower, Includes 66, 12, 13A, 13B, 18	1
16	207062	Bolt, Wiz-Loc 1/4-20 x 1 3/8	8
17	208015	Shaft, Output-Includes Roller Bearing No. 207790	1
18	206070	Bearing, Ball 1" I.D., 2" O.D.	2
19	201532	Washer, 1 1/32 I.D., 1 5/8 O.D., 11 Ga.	1
20			1
21			1
22	208092	Gasket	1

*Upper and Lower Housing sold only in assemblies.
*Output Shaft sold only in assembly with Roller Bearing No. 207790.

**IMPORTANT
REPLACEMENT PART ASSEMBLY INFORMATION**
WHEN REPLACING SCREWS: Use Loctite #282 or equivalent.

Items purchased from Hoffco, Inc., not considered engine parts.
The Roller Tube Finisher is not equipped with spark arrestor. IT IS THE RESPONSIBILITY OF THE CONSUMER TO INSTALL THE SPARK ARRESTING MUFFLER IN COMPLIANCE WITH REGULATIONS OF THE STATE OF CALIFORNIA.



31	1	099016	Storage Box
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2	1	099007	HANDLE, ROCKER UNIT
3	1	099010	COVER, START
4	2	099006	COUPLER CHIP, 5 x 1"
5	1	099040	WASHER, US5N
6	10	010036	NUT SELFLOCKING 3/8"
7	10	010454	NUT SELFLOCKING 3/8"
8	1	099012	WASHER, BATTERY DRK
9	1	011299	WASHER, PLAT 1"
10	1	010192	PIN COTTER 3/16 x 2"
11	1	099010	COVER, START
12	2	099006	COUPLER CHIP, 5 x 1"
13	1	099040	WASHER, US5N
14	1	099028	WASHER, CONNECTION
15	1	099005	TRANSMISSION
16	1	099001	ENGINE
17	1	099008	HANDLE
18	1	099021	PIN HAIR
19	1	099020	PIN CLEVIS
20	1	099024	BEARING
21	1	099013	TUBE, MAIN
22	1	099023	BRACKET WHEEL RH
23	1	099014	TIRE WHEEL ASY
24	1	099004	CLUTCH
25	0	099027	WASHER
26	1	099009	RIGHT ANGLE DRIVE
27	1	099003	MUTTER ASSY
28	1	099002	IGNITION SWITCH
29	2	024957	KEY 1/4" 5/8 x 1.1/2"
30	1	099030	KEY 1/4" 5/8 x 2.1/4"

44	ROCK C
45	ROCK C
46	ROCK C
47	ROCK C
48	ROCK C
49	ROCK C
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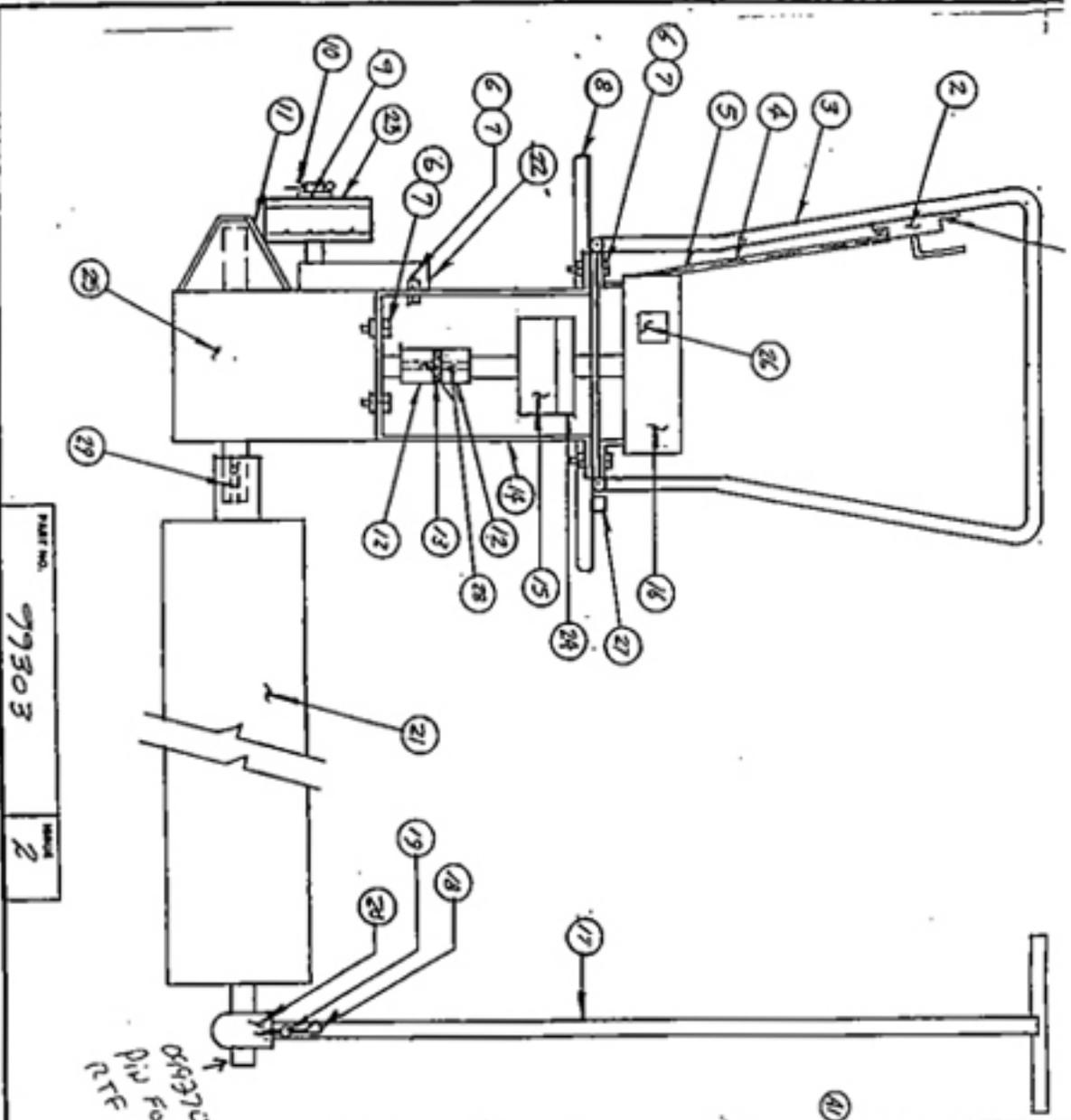
DRAWING NO. 099504 SHEET 2

COMPANY: **allen** ENGINEERING

ROLLER TUBE ASSY
A.O.M. WINDMILL

SCALE: 1/2" = 1"

PART NO. 099504



PART NO. 99303
 REV. 2

DRAG PIN FOR R.T.F.

1	24	1	099004	CLUTCH	(24)
2	25	1	099009	RIGHT AXLES DRIVE	(25)
3	26	1	099003	MURDER ASSY.	(26)
4	27	1	099002	IGNITION SWITCH	(27)
5	28	2	024857	KEY 1/4" SQ. X 1 1/2"	(28)
6	29	1	099080	KEY 1/4" SQ. X 2 1/4"	(29)
7	30	1	099016	STARTER BOX	(30)
8	1	1	099001	ENGINE	(8)
9	17	1	099008	HANDLE	(17)
10	18	1	099089	PIN SPINDLE LOADED	(18)
11	19	1	099021	PIN FEELER	(19)
12	20	1	099022	BEARING	(20)
13	21	1	099012	TUBE, MAIN	(21)
14	22	1	099292	BRACKET MURDER AX	(22)
15	23	1	099014	TRUCK WHEEL ASSY	(23)
16	24	1	099004	CLUTCH	(24)
17	25	1	099009	RIGHT AXLES DRIVE	(25)
18	26	1	099003	MURDER ASSY.	(26)
19	27	1	099002	IGNITION SWITCH	(27)
20	28	2	024857	KEY 1/4" SQ. X 1 1/2"	(28)
21	29	1	099080	KEY 1/4" SQ. X 2 1/4"	(29)
22	30	1	099016	STARTER BOX	(30)
23	1	1	099001	ENGINE	(8)
24	17	1	099008	HANDLE	(17)
25	18	1	099089	PIN SPINDLE LOADED	(18)
26	19	1	099021	PIN FEELER	(19)
27	20	1	099022	BEARING	(20)
28	21	1	099012	TUBE, MAIN	(21)
29	22	1	099292	BRACKET MURDER AX	(22)
30	23	1	099014	TRUCK WHEEL ASSY	(23)
31	24	1	099004	CLUTCH	(24)
32	25	1	099009	RIGHT AXLES DRIVE	(25)
33	26	1	099003	MURDER ASSY.	(26)
34	27	1	099002	IGNITION SWITCH	(27)
35	28	2	024857	KEY 1/4" SQ. X 1 1/2"	(28)
36	29	1	099080	KEY 1/4" SQ. X 2 1/4"	(29)
37	30	1	099016	STARTER BOX	(30)

PROPERTY OF **Allen ENGINEERING**
 2500 N. 10th Street, Phoenix, Arizona 85018
 MADE IN U.S.A.

UNITED STATES PATENT OFFICE
 PATENT NO. 1111

DATE: 11-15-71

DESIGNED BY: C.R. H.B.W. CHECKED BY: []
 DRAWN BY: []

PART NO. 099303

WARRANTY POLICY

The following parts of the RTF Roller Tube Finisher will carry the warranty of the original manufacturer:

Engine:

Tecumseh Products Company
900 North St.
Grafton WI 53024
Ph: (414) 377-2700

Gear Reduction Transmission

Hoffco, Inc.
358 Northwest F
Richmond, IN 47374-9990
Ph: (317) 966-8161

The warranty policies of these companies appear on the following pages.

**HOFFCO INC.
LIMITED WARRANTY
EFFECTIVE DECEMBER 1, 1984**

1. WARRANTY COVERAGE GIVEN BY (WARRANTOR):

HOFFCO INC.
358 Northwest F Street
Richmond, Ind. 47374

2. RECIPIENT OF WARRANTY (WHO):

Any original purchaser *hereinafter referred to as Customer* of a Hoffco Power Equipment product, *other than for purpose of resale*. This warranty is not transferable.

3. TIME LIMITATION

Any Hoffco Power Equipment product purchased is covered by this warranty for a period of ONE (1) YEAR**.

4. WARRANTY COVERAGE EXTENDS TO (WHAT):

Any Hoffco Power Equipment manufactured and/or offered for sale by warrantor with the precise exception of the 2 cycle engines manufactured by Tecumseh* and 4 cycle engines manufactured by Briggs & Stratton*; these engines are covered by the respective manufacturer. Any warranty service must be done by the respective authorized warranty service center as established by the respective engine manufacturer. Copy of the respective manufacturer's engine warranty is enclosed in OWNERS OPERATING MANUAL of product using these specific engines.

5. PRECISE WARRANTY COVERAGE:

Defects in workmanship and/or material that causes failure to occur during warranty period as identified in paragraph #3.

6. WARRANTY DOES NOT COVER:

- (a) Engines manufactured by Tecumseh* and Briggs & Stratton* these engines are warranted by respective servicing organization thru their authorized repair stations.
- (b) This Warranty does not apply to any Chain Saw Power Head that the Hoffco CSA Brushcutter or the Hoffco CSA Trimette unit may be attached to.
- (c) Any incidental, indirect, or consequential loss or damage to the extent permitted by applicable law that may result from any defect, failure or malfunction of the Hoffco Power Equipment.
- (d) Repair work performed by servicing location that is not an authorized and/or REGISTERED SERVICING DEALER recognized and appointed by Hoffco Inc.
- (e) Any failure that occurs due to accident, abuse, misuse, negligence or because operator did not follow instructions pertaining to proper care, operation and maintenance of Hoffco product as outlined in OWNERS OPERATING INSTRUCTIONS supplied with each product.
- (f) Original assembly and/or adjustments. These instructions are covered in the OWNERS OPERATING INSTRUCTIONS.
- (g) Service normally required to maintain product in proper working order such as adjustments, periodic tune ups, sharpening of blades and/or replacing items that wear out due to use *per manufacturer's list*, during warranty period.

7. WARRANTORS RESPONSIBILITY:

Under this warranty, it is the responsibility of the warrantor to provide necessary repair to any Hoffco product *other than those items identified in paragraph #4 of the warranty* that has failed during the warranty period as identified in paragraph #3. This repair will be performed at NO COST to the customer other than those costs identified in paragraph #6.

8. CUSTOMERS RESPONSIBILITY:

To receive service hereunder, the customer must adhere to the following:

- (a) The customer must deliver or ship the Hoffco product covered by this warranty to the retailer from whom it was purchased originally or to the nearest authorized HOFFCO REGISTERED SERVICING DEALER.
- (b) The customer will be responsible for storage, safe and proper operation, reasonable and proper care and maintenance of the product as outlined in the OWNERS OPERATING INSTRUCTIONS.

9. SCHEDULING OF WARRANTY REPAIR:

Upon receipt of Hoffco product under warranty, the HOFFCO REGISTERED SERVICING DEALER will schedule the warranty service according to the normal repair work schedule of the HOFFCO REGISTERED SERVICING DEALER and according to availability of replacement parts.

10. SATISFACTION OF WARRANTY:

If the customer does not receive satisfactory service from the HOFFCO REGISTERED SERVICING DEALER, the customer must contact the Warrantor *see paragraph #1.*

- 11. There are no express warranties other than those stated herein. Implied warranties shall expire ONE (1) YEAR** from the date of purchase by the original purchaser. Some states do not allow limitation on how long an implied warranty lasts, therefore the above limitation may not apply to you. Further, some states do not allow exclusions or limitations of incidental or consequential damages, therefore the above limitation may not apply to you.

- 12. This LIMITED WARRANTY gives you specific legal rights and you may also have other rights which vary from state to state.

*Tecumseh Products Company
900 North Street
Grafton, WI 53024

**Any Hoffco Unit not classified as a Commercial Unit and being used commercially, will be covered for a period of NINETY (90) DAYS.

TECUMSEH PRODUCTS COMPANY'S LIMITED WARRANTY FOR NEW ENGINES

A. Products Warranted

Tecumseh Products Company ("Tecumseh"), subject to the limitations contained below, will, at its option, repair or replace, without charge for parts or labor only, any part or parts of a new Tecumseh engine EXCEPT any engines used to power two-wheeled riding type vehicles, chain-saws and/or any vehicle used in competitive racing or on commercial or rental tracks, which is found upon examination by any Tecumseh authorized service outlet or by Tecumseh's factory in Grafton, Wisconsin to be DEFECTIVE IN MATERIAL AND/OR WORKMANSHIP if received by Tecumseh or a Tecumseh authorized service outlet for such examination within ONE YEAR from the date of sale to the original consumer purchaser. New Tecumseh engines used to power two-wheeled riding type vehicles (including, by way of example, but not limited to, mini-bikes, trail bikes and scooters) are warranted in the same manner and to the same extent EXCEPT such engines are warranted for NINETY (90) DAYS ONLY, and must be received by Tecumseh or a Tecumseh authorized service outlet for such examination within 90 days from the date of sale to the original consumer purchaser. New Tecumseh engines used to power any chain saw is warranted in the same manner and to the same extent EXCEPT such engines are warranted for THIRTY (30) DAYS ONLY, and must be received by Tecumseh or a Tecumseh authorized service outlet for such examination within 30 days from the date of sale to the original consumer purchaser.

B. Products And Items Not Warranted

1. Products Not Warranted By Tecumseh

Tecumseh does not warrant any Tecumseh engine used to power any vehicle used in competitive racing and/or used on commercial or rental tracks. Products or parts not bearing the name "Tecumseh" or the Tecumseh trademark and used parts of any make including Tecumseh are not warranted by Tecumseh.

2. Alterations or Modifications of Tecumseh Engines

All obligations under this warranty shall be terminated if the new Tecumseh engine is altered or modified in any way.

3. Accidents, Normal Maintenance Failure To Follow Tecumseh's Instruction Manual

This warranty covers only parts of a new Tecumseh engine which are found upon examination to be defective in material or workmanship as delivered to the original consumer purchaser. This warranty does not cover defects caused by depreciation or damage caused by normal wear, accidents, improper maintenance, improper use or abuse of the product, failure to follow the instructions contained in an Instruction Manual for the operation of the engine and parts. The cost of normal maintenance and replacement of service items which are not defective, shall be paid for by the original consumer purchaser.

C. Securing Warranty Service

Warranty service can be arranged for by contacting either a Tecumseh Authorized Service Outlet (which includes a Tecumseh Registered Service Dealer, a Tecumseh Authorized Service Distributor and a Tecumseh Central Warehouse Distributor) or by contacting Tecumseh, c/o Director of Service, Lawson Power Products Parts Dept., 900 North Street, Grafton, Wisconsin 53024. Warranty service can only be performed by a Tecumseh authorized service outlet or by Tecumseh at its factory in Grafton, Wisconsin. At the time of requesting warranty service, evidence must be presented of the date of sale to the original consumer purchaser. The purchaser shall pay any charges for making service calls and/or for transporting the product to and from the place where the inspection and/or warranty work is performed. The purchaser shall be responsible for any damage or loss incurred in connection with the transportation of the engine and/or of part or parts of the engine submitted for inspection and/or warranty work.

D. No Additional Warranties Or Representations

The foregoing EXPRESSED WARRANTY IS IN LIEU OF ALL OTHER EXPRESS WARRANTIES. Neither Tecumseh nor any of its affiliates makes any warranties, representations or promises, written or verbal, as to the quality of the Tecumseh engine or its part or parts other than those set forth herein.

ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, TO THE EXTENT EITHER APPLIES TO PART OR PARTS OF A TECUMSEH ENGINE SHALL BE LIMITED IN DURATION TO THE PERIODS OF THE EXPRESSED WARRANTIES AS DEFINED IN PARAGRAPH A OF THIS WARRANTY. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply.

E. Damages

IN NO EVENT WILL TECUMSEH BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES AND/OR EXPENSES. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation may not apply to you. This warranty gives you specific legal rights and you may have other legal rights which vary from state to state.

F. No Dealer Warranty

Tecumseh neither assumes nor authorizes any other person, natural or corporate, to assume for Tecumseh any other obligation or liability in connection with or with respect to any part or parts of a Tecumseh engine. The seller or dealer of part or parts of a Tecumseh engine has no authority to make any representations or promises on behalf of Tecumseh or to modify the terms or limitations of Tecumseh's warranty in any way. The seller or dealer makes no warranty of his own on any item warranted by Tecumseh and makes no warranty on other items unless such seller or dealer delivers to the purchaser a separate written warranty document in which the seller or the dealer individually and specifically, on his own behalf, warrants the item.

TECUMSEH PRODUCTS COMPANY
900 North St., Grafton, Wisconsin 53024