

TRAVIS "BIKE" MOTOR

TRADE MARK REG.

PATENTS PENDING

MANUAL

YES!

...you can do it yourself

One of the big features of the TRAVIS "Bike" Motor is that you can install it yourself on your present bicycle—regardless of whether it is old or new, or a boy's or girl's, man's or woman's model. By following step by step the simple directions that follow, you should be able to put the TRAVIS motor on your bicycle in less than half an hour, and be ready to enjoy THE WORLD'S LOWEST COST TRANSPORTATION.

*Can be installed on any balloon-tire bicycle

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PART NO.	NAME OF PART	REQ'D	PART NO.	NAME OF PART	REQ'D
7001	Spark Plug Cover	1	7038	Crankcase (with 2 ball bearings)	1
7002-A	Control Grip Slide	1	7039	Crankcase Ball Bearing	2
7002-B	Control Grip Guide	1	7040	Crankshaft Seal	2
7002-C	Control Grip Handle	1	7041	Crankshaft Seal Retainer	2
7003	Control Cable	1	7042	Crankshaft Seal Ret. Spring	2
7005	& Housing (Short)	1	7043	Carburetor Stud	2
7004	Control Cable Housing (Long)	1	7044	Reed -	1
7006	Control Cable Clamp (Lower)	1	7045	Reed Plate†	1
7007	Compression Release Body	1	7046	Reed Plate Gasket	1
7008	Comp. Release Body Gasket	1	7047	Carburetor Gasket	1
7009	Compression Release Valve	1	7048	Carburetor Adapter	1
7010	Compression Release Valve Arm	1	7049	Carburetor Adapter Gasket	1
7011	Comp. Release Valve Arm Pin	1	7050	Gas Line	1
7012	Comp. Release Valve Spring	1	7051	Gas Line Connector	1
7013	Comp. Release Valve Washer	1	7052	Gas Line Sleeve	2
7014	Compression Release Valve Clip	1	7053	Gas Line Nut	2
7015	Comp. Release Transfer Tube	1	7054	Gas Line Shut-Off Valve	1
7016	Control Cable Clamp (Upper)	2	7055	Gas Tank	1
7017	Cylinder	1	7056	Gas Tank Cap and Measure	1
7018	Cylinder Gasket	1	7057	Gas Tank Cap Gasket	1
7019	Exhaust Manifold	1	7058	Air Filter	1
7020	Exhaust Manifold Gasket	1	7059	Air Filter Bracket	1
7021-A	Intake Port Cover	1	7060	Air Filter Cover	1
7022-A	Intake Port Cover Gasket	1	7061	Air Filter Cover Bracket	1
7024	Muffler	1	7062	Drive Housing	1
7025	Piston	1	7063	Drive Housing Stud	1
7026	Piston Pin	1	7064	Drive Hous. Stud Shoulder Nut	2
7027	Piston Ring	2	7065	Mounting Bracket (Left)	1
7028	Connecting Rod	1	7066	Mounting Bracket (Right)	1
7029	Connecting Rod Screw	2	7067	Mounting Clamp	4
7030	Crankshaft	1	7068	Mounting Clamp Shims	8
7031	Drive Stone	1	7069	Hold Down Spring	2
7032	Drive Stone Fibre Washer	2	7070	Tension Bolt Spring	2
7033	Drive Stone Steel Washer	2	7071	Tension Bolt Sleeve	2
7034	Timer Cover (Rear)	1	7072	Ratchet Release Lever	1
7035	Timer Cover (Front)	1	7073	Ratchet Release Lever Spring	1
7036	Flywheel Key	1	7074	Ratchet Release Lever Sleeve	1
7037	Cylinder Stud	4	7075	Front Fender	1
			7076	Name Plate Shield	1

CONTROL GRIP ASSEMBLY

7002-A Control Grip Slide
 7002-B Control Grip Guide
 7002-C Control Grip Handle

CRANKCASE ASSEMBLY

7038 Crankcase (with 2 ball bearings)
 7040 Two Crankshaft Seals
 7041 Two Crankshaft Seal Retainers
 7042 Two Crankshaft Seal Retainer Springs
 7037 Four Cylinder Studs
 7043 Two Carburetor Studs

REED PLATE ASSEMBLY

7045 Reed Plate
 7044 Reed

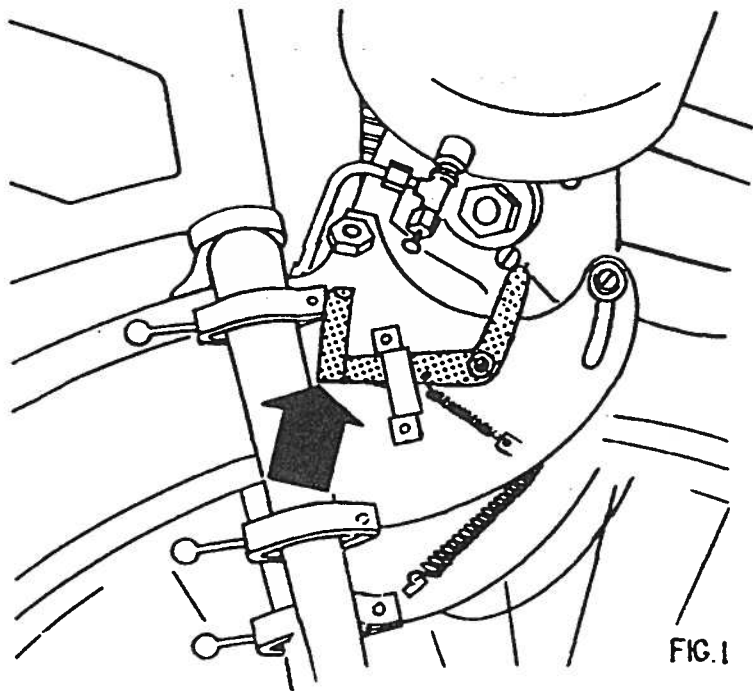
PISTON AND ROD ASSEMBLY

7028 Connecting Rod (complete)
 7025 Piston
 7026 Piston Ring
 7027 Two Piston Rings
 3/32 x 3/4 inch Cotter Pin

COMPRESSION RELEASE ASSEMBLY

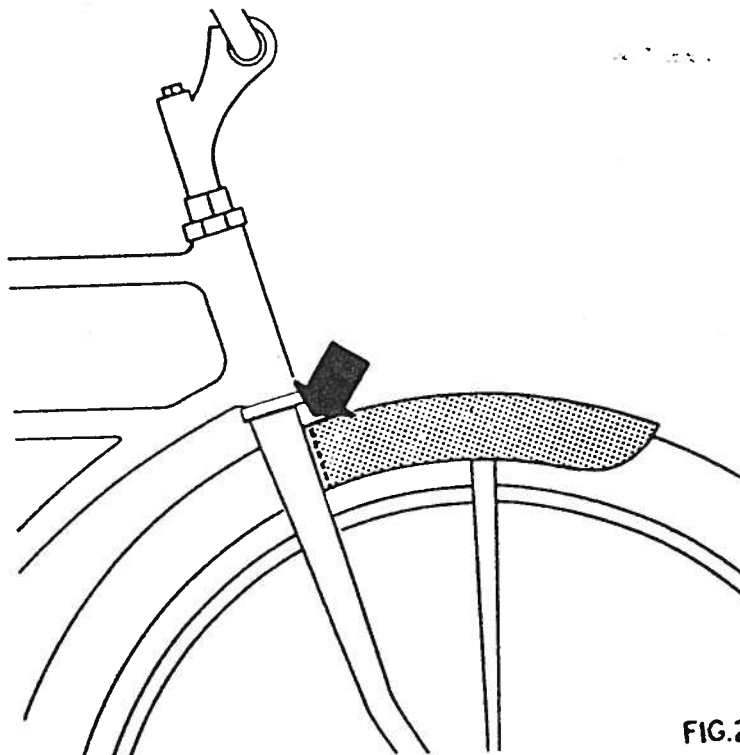
7007 Compression Release Body
 7008 Compression Release Body Gasket
 7009 Compression Release Valve
 7010 Compression Release Valve Arm
 7011 Compression Release Valve Arm Pin
 7012 Compression Release Valve Spring
 7013 Compression Release Valve Washer
 7014 Compression Release Valve Clip

INSTALLATION INSTRUCTIONS



BEFORE installing your TRAVIS "Bike" Motor to your bike:

- A. Spin the front wheel of your bike while holding it off the ground. Make sure it runs true, and if it is out of line, have it straightened before installing the motor.
- B. Check the front fork and if it is bent, make sure it is in alignment before proceeding.
- C. Make sure that the front tire is properly inflated. If it has a "bump" in it, the tire should be replaced.
- D. If your bike has "dress-up" rods from the front axle to the handle bars, remove them.
- E. When this engine was shipped to you, the Release Lever was in the "Down" position (Fig. 1). See that it is in this position, and that both Mounting Brackets line up.
- F. Make a mark on front fender at front of bearing housing (Fig. 2.). Turn your bike upside-down, letting it rest on the saddle and handle bars.
- G. Familiarize yourself with the names of the various parts of your motor.

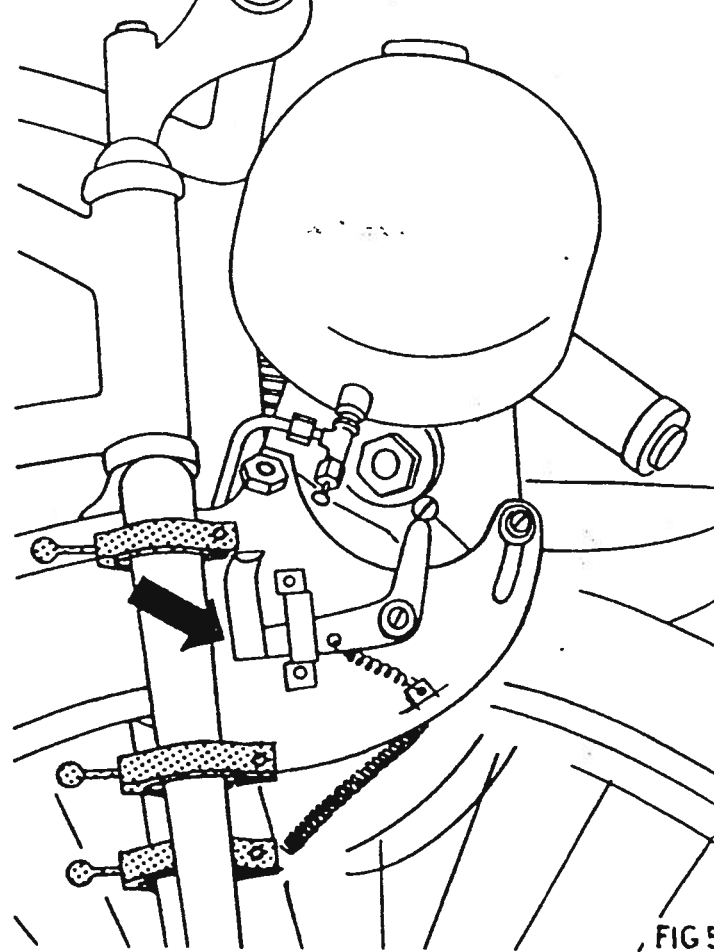
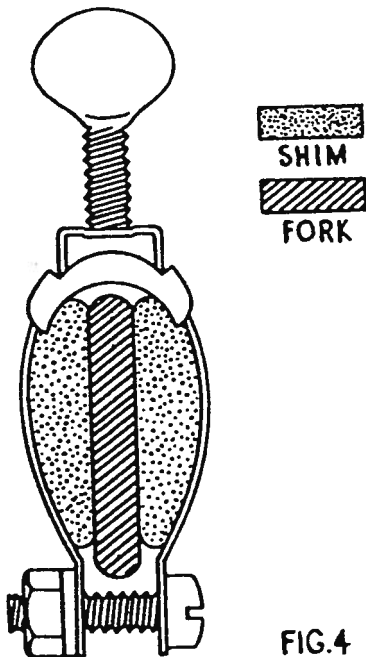
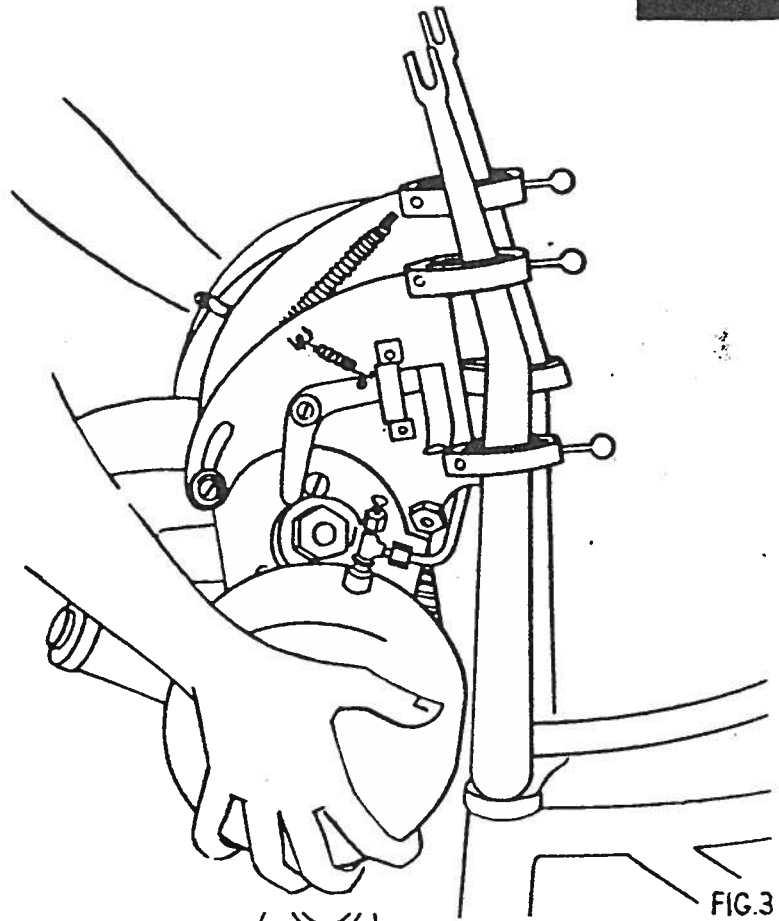


STEP I—Remove the front wheel and front fender. Cut off the fender where marked with tin snips or hacksaw and re-attach the fender with its screw.

STEP II—Slip the engine unit down, cylinder foremost, so that two Mounting Clamps fit around each side of the fork (Fig. 3). Let the engine down gradually until it is down as far as it will go without forcing it.

STEP III—Tighten all four Mounting Clamp screws to a snug position. (If the fork of your bike is the flat steel type rather than the tubular, or oval-shaped, use the "Mounting Clamp Shims" which are included.) Place one of these crescent-shaped shims on each side of the fork, round side out, so that there are two shims under each Mounting Clamp (Fig. 4).

STEP IV—Replace the wheel and fender brackets. Line the wheel up properly and tighten it. Turn the bike right-side-up and you are ready to adjust the engine to the proper height for your particular bike. Pull up on the front fender, lifting the engine to the "Up" position (Fig.5).



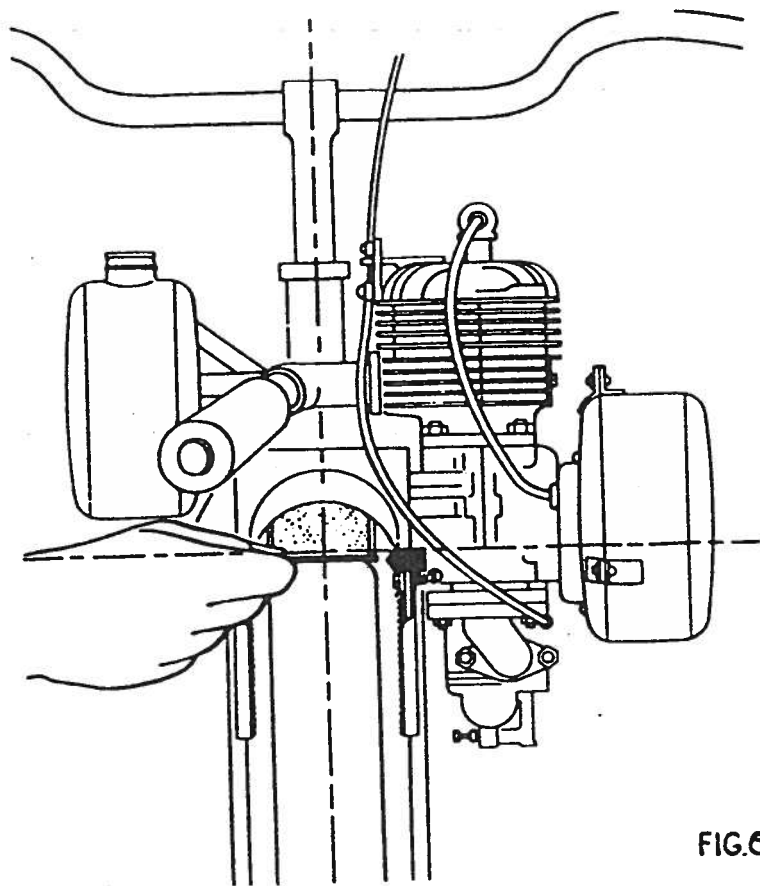


FIG.6

In the envelope marked "SPACING GAUGE" you will find a spacer about 3/16" thick. Place this on the front tire just under the drive stone of the engine (Fig. 6).

Release the tension of all Mounting Clamps by loosening the screws, and allow the engine to rest lightly on the Spacing Gauge. Stand in front of the unit and, if necessary, adjust the engine so that it is parallel to the ground, from left to right, and so that the front fender and the entire engine are in line with the wheel and fork (Fig. 6).

While holding the engine in this position, snug up on all mounting clamps a little at a time on each sufficiently to set firmly. This will secure your engine to your bike without the necessity of drilling any holes, and at the same time permit easy removal of the unit if and when service is required. Then remove Spacing Gauge.

STEP V—Mounting the Throttle Control: Remove the handle bar grip, if any, from the right handle bar and proceed according to instructions contained inside grip. The Control Cable is already adjusted for correct operation. If you find the Control Cable too long and therefore in the way, it can be shortened by dis-assembling, cutting the same amount off handle bar end of both cable and cable-housing, and re-assembling.



Put a few drops of oil on throttle control slide and on all 4 ends of the 2 control cable housings. OIL AGAIN whenever control cable becomes tight.

This completes the installation and you are now ready to enjoy limitless hours and miles of safe, economical transportation.

OPERATION

FUEL: One-half pint of No. 30 Motor Oil (do not use a detergent oil) must be mixed with each gallon of gasoline. (Low grade, or white gasoline is preferred). DO NOT use ethyl! Oil and gasoline should be mixed in a separate CLEAN container, and the gas tank filled from this container. If the engine is to be operated at prolonged high speeds, $\frac{3}{4}$ pint of oil should be added to each gallon of gasoline. There is an air hole in the gas tank cap so it is necessary to keep your bike in a more or less upright position AT ALL TIMES. If you lay your bike down on its side when not in use, gas will leak out of this air hole.

THROTTLE CONTROL: The throttle control does TWO jobs. First, by turning the Grip to the right you speed up the engine, and by turning it to the left the speed is decreased. By turning the Grip HARD left a compression-release valve is opened permitting the engine to be easily started and smoothly stopped. Be sure to have Grip HARD left whenever starting, then turn it sharply RIGHT when ready to start engine.

STARTING ENGINE: Open the Shut-off valve, located just below the Gas Tank, all the way. Pull up the Ratchet Release Lever with right hand, and at the same time press front fender down with left hand as far as it will go. (The Dyno-Grip stone will seek its own level from then on.) Move Choke Lever to "Choke" position, or forward, as far as it will go. Turn the control grip left HARD, releasing the Compression and start pedaling. As soon as you attain a speed sufficient for good balance turn Grip sharply to the right, and the engine will start running. As it starts up, gradually move choke lever back until it is fully closed. (Choking a warm engine or over-choking a cold one may result in flooding. If this occurs, continue pedaling with choke lever "off" until engine starts. In severe cases of flooding, shut-off valve should be closed and bike pedaled until engine starts, then turn on valve.)

In stopping, the Grip should be turned HARD left, releasing the Compression to KILL the engine and permitting perfectly smooth stops. When re-starting, just push down on the pedals once or twice, turn the Grip sharply to the right, and you are under way. (Choking is NOT necessary after engine has become warm.)

SPARK ADJUSTMENT: (Fig. 8) With the top Timer Cover bracket at top center the spark is in the "normal" position. By turning the entire timer cover so that the top bracket moves rearward, the spark is retarded, giving more power on hills, and smoother running at low speeds. By turning the opposite way the spark is advanced, giving more top speed. "Normal" should be maintained for most running.

MUFFLER: The end of muffler can be squeezed together with pliers so as to reduce noise. (The less noise . . . the less power.)

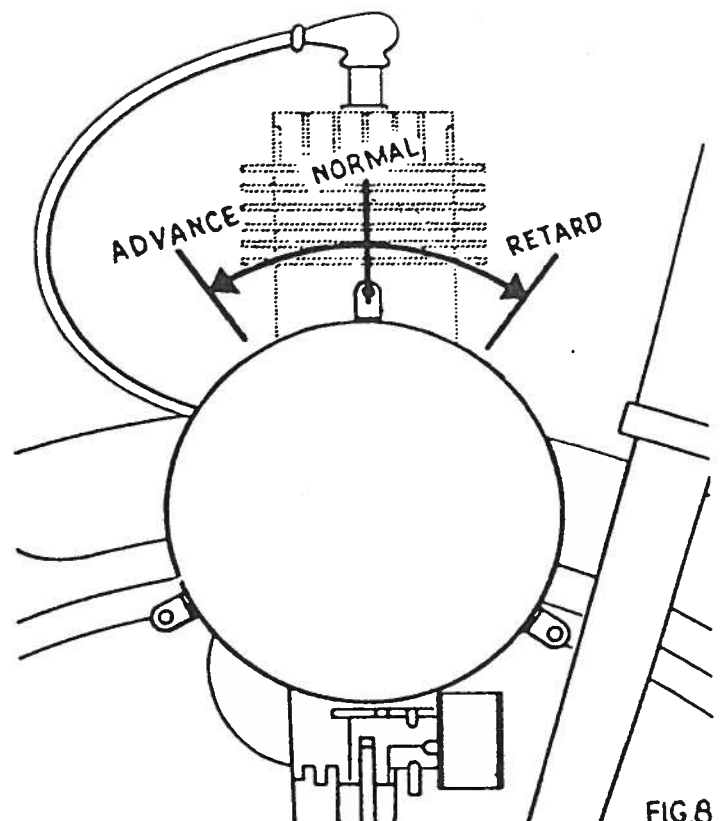


FIG. 8

GENERAL INFORMATION:

- Magneto point setting020 inch
- Spark plug gap030 inch
- Fuel ratio . . . 1/2 pt. No. 30 oil per gal. of gasoline
- For high speeds . . . 3/4 pt. oil per gal. of gasoline

The compression release valve should start opening when motor speed gets down to about 5 MPH. This can be adjusted by slightly bending the loop in the lower end of control cable. It can also be adjusted by loosening lower control cable clamp at the carburetor adapter and moving the control housing backward or forward.

Never fill the tank to the very top.

Clean muffler and exhaust ports every 75 to 100 hours. Mark position of magneto stator plate before removing it from engine. Be sure to replace cam in original position with bevel end out.

When replacing piston, be sure tapered side of baffle is toward exhaust side of engine.

Make sure that in "Up" position the drive stone is always about 3/16" from tire. If this changes, engine has slipped and should be re-set and clamped securely.

Engine will not develop maximum power and speed until after about 100 miles of operation.

ENGINE MAINTENANCE

SPEEDS: It is not advisable to operate any engine at top speed for any great length of time. The engine will run smoothly at all speeds from 5 to 25 MPH.

SPARK PLUG: The spark plug should be checked periodically. A dirty, oily or carboned plug causes starting trouble and poor operation.

The spark plug should be cleaned, and the points set at .030 inches. If there is any doubt about the condition of the plug it should be replaced with the same type as is in the engine.

AIR FILTER: The air filter on the engine is the dry type and needs little attention. If the engine is run in a dusty atmosphere, the filter element should be removed and cleaned in gasoline after 75-100 hours. Allow the filter to dry before starting the engine. Do not use oil on filter.

MUFFLER & EXHAUST PORTS: The muffler and the exhaust ports should be cleaned every 75-100 hours of running time. Failure to clean these parts periodically results in loss of power.

To clean the muffler, remove the muffler and the exhaust manifold. Scrape away carbon in the manifold and then blow a strong stream of air (at any filling station) through the entire muffler assembly.

To clean the cylinder exhaust ports, remove the spark plug, and turn the engine over so that the piston is at the bottom of the stroke, exposing the exhaust holes. With any blunt instrument scrape the carbon from the three cylinder exhaust holes so that they are completely open and remove the carbon from the surrounding exhaust chamber. Turn the engine several times to blow out the loosened carbon. Replace the spark plug and muffler.

CARBURETOR ADJUSTMENTS: There are two adjustments on the carburetor, the running adjustment and

the idling adjustment. These adjustments are set at the factory and seldom need to be changed.

The running adjustment is located at the bottom of the carburetor. The idling adjustment is located at the top of the carburetor ahead of the choke lever (Fig. 9).

The normal setting of both adjustments is $\frac{5}{8}$ turns open.

For idling: Retard spark about 25 degrees—then adjust idling jet (top left on carburetor) up or down until smooth operation results.

For running: With spark in normal position and throttle 3/4 or more open, adjust main valve (at bottom of carburetor) for maximum power and speed.

Two cycle engines when running under light loads may appear to miss. This in no way affects the operation of the engine.

If carburetor is set correctly absolutely no oil will blow back on rider from muffler.

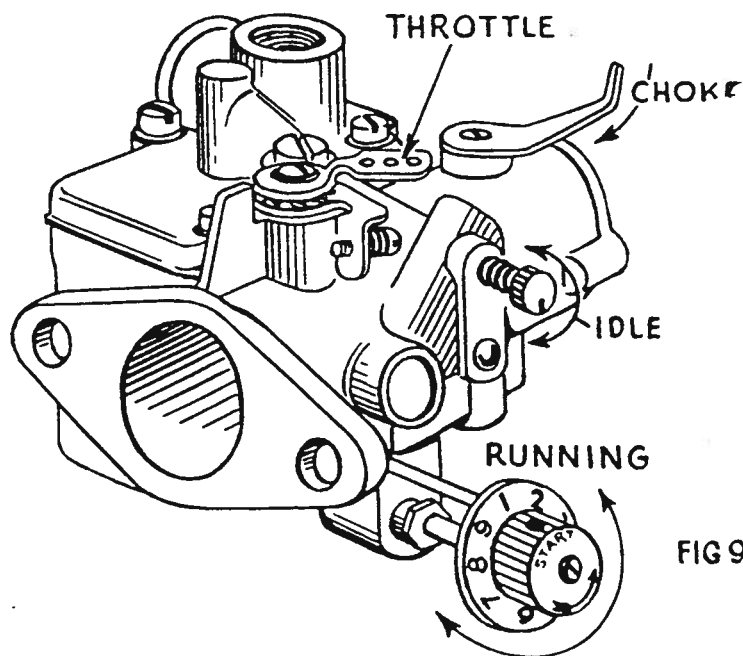


FIG 9

SHOULD ENGINE FAIL TO START:

1. Check for fuel in the gas tank and check to see that shut-off valve is open.
2. Check for spark; remove spark plug and with magneto wire attached hold the base of the plug against the engine, turn engine over. A spark should jump across the plug points. If it doesn't, clean or replace with new plug.
3. Check magneto. Hold the spark plug wire 3/16" from engine; spark should jump from the terminal to the engine when turned over. If no spark occurs, test the condenser and coil; if faulty, replace.
4. Check for gasoline flow to carburetor. Loosen gas line nut at carburetor. Gasoline should flow in a small continuous stream. If it does not, clean gas line; also clean filter screen in the gas tank shut-off valve.
5. Check to make sure compression release valve is not stuck down.

SHOULD ENGINE OVERHEAT: Check air flow around cylinder and remove any obstructions. Be sure to have correct fuel mixture; 1/2 pt. No. 30 motor oil to each gallon of gasoline. Use a separate clean container for mixing oil and gasoline.

SHOULD ENGINE KNOCK: Check connecting rod bearings; quickly move flywheel back and forth a few degrees—if rod is worn, play can be felt and a loud click can be heard; if worn, replace. Check piston and pin; if worn, replace.

SHOULD ENGINE LACK POWER:

1. Check carburetor adjustments.
2. Check magneto timing. Normal position is when the top bracket on timer cover is approximately vertical. The timing may be advanced by moving the top bracket forward. Moving the top bracket backward will retard the spark.
3. Check for carbon. If exhaust ports, exhaust flange, muffler and pipe are restricted by carbon, scrape clean.
4. Check compression. Remove spark plug and place compression gauge in cylinder spark plug hole. After turning the engine several times, the gauge should register between 70 and 80 lbs. If not, place a few drops of some suitable carbon solvent (Ex-pell-it, Casite, etc.) on the compression release valve (No. 7009) stem. If this does not improve compression, check the compression release valve head. This may be done by removing the four screws holding the compression release body to the cylinder. Remove the compression release valve clip (No. 7014), remove valve (No. 7009). If there is excessive carbon, remove from valve and seat by using a very fine valve grinding compound. If valve is burnt, replace. Be sure to use a new gasket (No. 7008) upon replacing compression release body. If compression is still faulty, replace piston rings.

5. Check gasoline and oil ratio in fuel. Be sure engine has 1/2 pt. of oil for each gallon of gasoline.

SUGGESTED PROCEDURE FOR DISMANTLING ENGINE:

The engine should be dismantled by removing the parts in the following order:

Air Filter—Remove screw and filter cover.

Gas Tank—Disconnect gas line at petcock and remove the screws holding gas tank to engine.

Muffler—Remove exhaust manifold screws and unscrew muffler.

Flywheel—Remove timer cover and loosen flywheel nut two turns; sharply strike the center of the nut until the flywheel is loosened from the crankshaft taper.

Magneto Stator Plate—Loosen the friction screw at the base of the stator plate. It is important to mark the position of the stator plate before removing it, since its position controls the timing of the engine.

Cam and Key—Remove by tapping. Note position before removal. Replace with bevel end out.

Carburetor, Adaptor and Reed Plate—Remove nuts and bolts. Note position of control cable clamp so it can be re-installed the same way.

Cylinder—Remove 4 nuts.

Drive Stone—Remove large nut, washers and drive stone. Replace with 35-40 lbs. pressure.

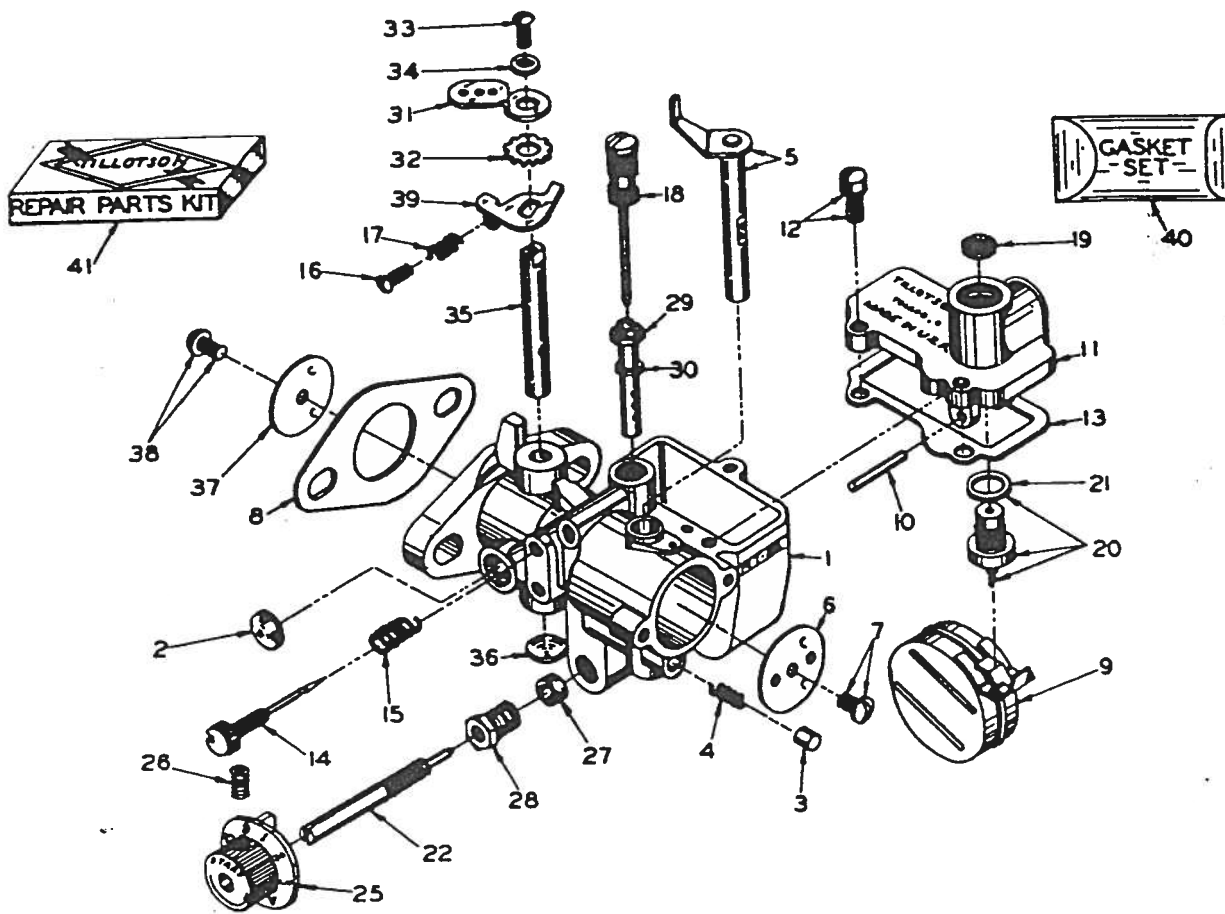
Housing—Remove 3 Phillips head screws from inside housing.

Crankcase—Remove 6 screws holding the crankcase together, then tap the end of the crankshaft gently to separate the case. To remove case and bearing from shaft, tap the shaft gently.

To replace ball bearing in the case, remove lock ring, washer and seal. Heat the case evenly with a blow torch or over a gas flame until the bearings drop out. At this temperature a new cold bearing can be dropped in. Make sure that the beveled side of the inner race of the bearing is up when dropped into the crankcase. Also be sure when replacing the seal that the lip is toward the center of the engine.

Connecting Rod—To remove the connecting rod from shaft remove the 2 screws holding the cap to the rod. When re-assembling the rod and cap to the shaft be sure that the match markers on the rod and cap are on the same side. Be sure that the piston baffle is toward the tapered end of shaft. To remove the rod from the piston pin, extract the cotter pin from the inside of the piston and slide the piston to one side.

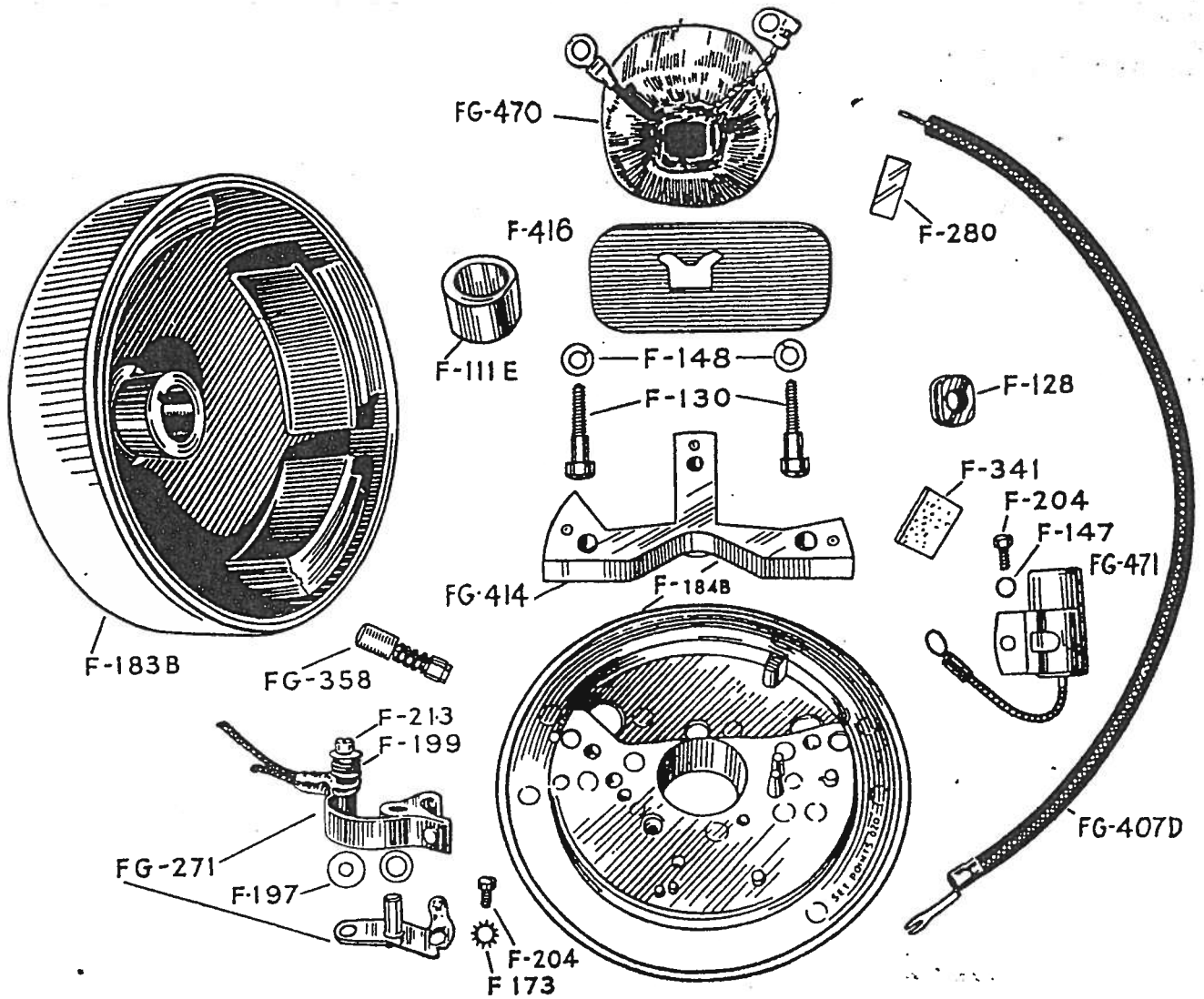
It is extremely important that all parts be thoroughly clean, and the moving parts oiled before assembly. A re-assembled engine will require a run-in period of about an hour before full power will be developed.



Ref. No.	Req. No.	Part No.	Part Name
1	1	08991	Body
2	1	*02531	Body Channel Welch Plug
3	1	*05454	Choke Friction Pin
4	1	*08805	Choke Friction Pin Spring
5	1	09158	Choke Shaft & Lever
6	1	05088	Choke Shutter
7	1	08942	Choke Shutter Screw & Lockwasher
8	1	08880	Flange Gasket
9	1	08656	Float
10	1	*08796	Float Lever Pin
11	1	09161	Float Bowl Cover
12	3	08315	Float Bowl Cover Screw & Lockwasher
13	1	08658	Float Bowl Cover Gasket
14	1	*08765	Idle Adjustment Screw
15	1	*08793	Idle Adjustment Screw Spring
16	1	*09066	Idle Speed Regulating Screw
17	1	*09068	Idle Speed Regulating Screw Spring
18	1	*08875	Idle Tube
19	1	*07283	Inlet Connection Screen
20	1	*09145	Inlet Needle, Seat & Gasket
21	1	02510	Inlet Seat Gasket

Ref. No.	Req. No.	Part No.	Part Name
22	1	*09059	Main Adjustment Screw
23			Main Adjustment Screw
24			Main Adjustment Screw
25	1	08612	Main Adjustment Screw Knob
26	1	06969	Main Adjustment Screw Knob Set Screw
27	1	0705	Main Adjustment Screw Packing
28	1	07282	Main Adjustment Screw Packing Nut
29	1	*08873	Main Nozzle
30	1	06076	Main Nozzle Gasket
31	1	08983	Throttle Lever
32	1	*08988	Throttle Lever Lockwasher
33	1	*06393	Throttle Lever Retaining Screw
34	1	*03804	Throttle Lever Retaining Washer
35	1	08989	Throttle Shaft
36	1	02531	Throttle Shaft Bearing Welch Plug
37	1	04119	Throttle Shutter
38	1	*08942	Throttle Shutter Screw & Lockwasher
39	1	09067	Throttle Stop Lever
40		*08827	Gasket & Packing Set
41		09134	Repair Parts Kit

(*) Indicates contents of REPAIR PARTS KIT.



PHELON MAGNETO F-109FS

PART NO.	NAME OF PART	PRICE EACH	PART NO.	NAME OF PART	PRICE EACH
F-111E	Breaker Cam	\$ 1.00	FG-414	Core	\$ 1.80
FG-470	Coil	4.00	F-184B	Complete Stator Assembly (Incl. Coil, Condenser, Points, etc.)	12.00
FG-358	Friction Shoe Group	.40	FG-407D	Lead Wire 12-9/16"	.25
F-128	Lead Wire Grommet	.10	F-280	Coil Wedge	.05
F-204	Condenser Screw	.10	F-341	Cam Felt	.03
F-147	Condenser Screw L.W.	.10	F-130	Core Screw	.10
FG-471	Condenser	.90	F-148	Core Screw Lock Washer	.02
F-213	Breaker Spring Screw	.05	F-173	Fixed Contact Screw Lock Washer	.03
F-204	Fixed Contact Screw	.10	F-199	Breaker Connection Ins. Bushing	.10
FG-271	Breaker Point Set (Incl. Plate, Arm, Pivot, Insulators, Long Screw, Washers)	1.55	F-197	Breaker Connection Ins. Washer	.02
F-183B	Flywheel	7.50	F-416	Coil Shield	.15
			7036	Flywheel Key (not shown)	.07
	F-109FS Complete Magneto	\$23.00			

SERVICE NOTES

Make sure cam is assembled with bevelled end out. Proper cam for use with F-109FS magnetos has letter "E" marked on bevelled end. Make sure coil and condenser lead terminals are assembled under in-

ulating bushing, No. F-199, as shown above. Make sure insulating washer, No. F-197, is in place under eye of breaker spring. Set breaker points .020".

PRICES SUBJECT TO CHANGE WITHOUT NOTICE

Basic Warranty

TRAVIS "BIKE" MOTORS

The Manufacturer warrants each new engine sold by the Manufacturer to be free from defects in material and workmanship for six (6) months from date of shipment, but not to exceed ninety (90) days of service, or such other period of time as may be agreed upon in respect to the application in which the engine is used. The obligation under this Warranty, statutory or otherwise, is limited to the replacement or repair at the Manufacturer's factory, or at a point designated by the Manufacturer, of such part as shall appear to the Manufacturer, upon inspection at such point, to have been defective in material or workmanship.

This Warranty does not obligate the Manufacturer to bear the cost of labor or transportation charges in connection with the replacement or repair of defective parts, nor shall it apply to an engine upon which repairs or alterations have been made unless authorized by the Manufacturer.

The Manufacturer makes no Warranty in respect trade accessories, such being subject to the Warranties of their respective manufacturers. The Manufacturer shall in no event be liable for consequential damages or contingent liabilities arising out of the failure of any engine or parts to operate properly. No express, implied or statutory Warranty other than herein set forth is made or authorized to be made by the Manufacturer.

TRAVIS PRODUCTS
224 W. Huron Street Chicago 10, Illinois

IMPORTANT—To put the above Warranty into effect, it is necessary that you fill out and return the attached card.

TRAVIS PRODUCTS 224 WEST HURON STREET CHICAGO 10, ILLINOIS