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MANUAL PREVIEW

**Allis Chalmers**

Operator's Manual

42

Speed Patrol

Operator's Manual

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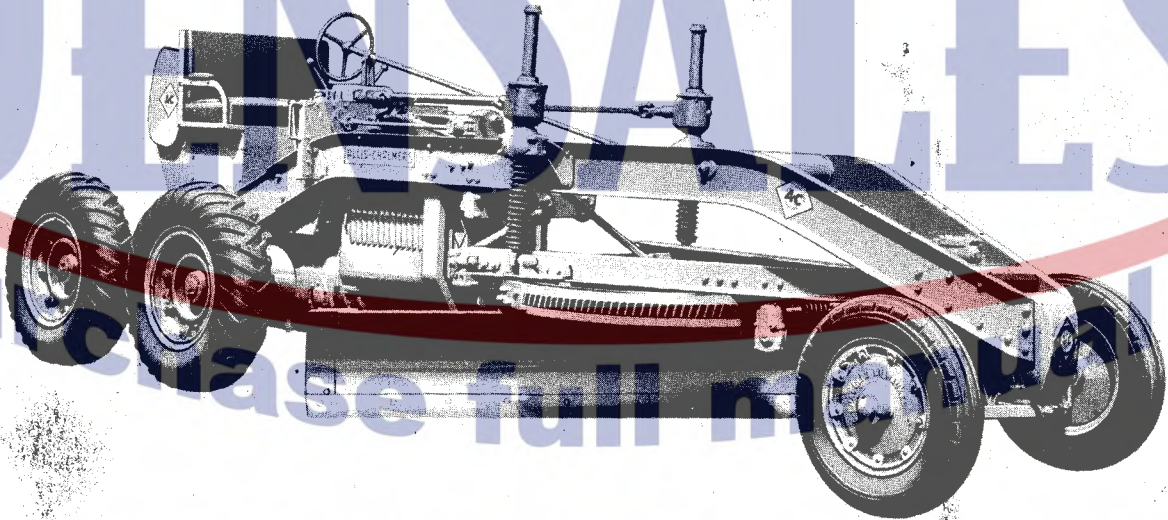
AC-O-42 SP

INSTRUCTION BOOK  
FOR

# ALLIS-CHALMERS MODEL

42

## SPEED PATROL



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Allis-Chalmers Mfg. Co.

TRACTOR DIVISION

MILWAUKEE, WISCONSIN

U. S. A.

FORM No. MS-92A 5-38

## FOREWORD

The Allis-Chalmers Model "42" Speed Patrol is the product of many years machinery building experience, and if reasonable care is exercised in its operation there will be no need for making frequent repairs because of undue wear.

Whether or not the owner derives the maximum of service from his machine depends largely on the care exercised in its operation and maintenance.

This book is written for the purpose of giving the operator essential information regarding the day-to-day care, lubrication and adjustments. A careful adherence to these instructions will insure economical operation.

Many Allis-Chalmers owners employ the dealer's Service Department for any work other than routine care and adjustments. This practice is good as our dealers are kept well informed by the factory regarding advanced methods of servicing Allis-Chalmers products and are equipped to render satisfactory service.

## SPECIFICATIONS

NOTE: Specifications refer to all standard Model "42" Speed Patrols except as otherwise noted.

|                                                                                                                |                        |
|----------------------------------------------------------------------------------------------------------------|------------------------|
| Engine:                                                                                                        |                        |
| Make (Allis-Chalmers Mfg. Co.)                                                                                 | Own                    |
| Cylinders                                                                                                      | 4                      |
| Bore and Stroke                                                                                                | 4-1/2" x 5"            |
| R.P.M. (Governed at full load)                                                                                 | 1200                   |
| Brake H.P. (Max. at 1200 R.P.M.)                                                                               | 42                     |
| Fuel                                                                                                           | Distillate or Gasoline |
| Lubrication                                                                                                    | Full Pressure          |
| Capacities:                                                                                                    |                        |
| Cooling system (gallons)                                                                                       | 6                      |
| Fuel tank (gallons)                                                                                            | 52                     |
| Crankcase (quarts)                                                                                             | 10                     |
| Transmission Case (quarts)                                                                                     | 48                     |
| Tandem cases (quarts)                                                                                          | 40                     |
| Speed in miles per hours (engine governed from 900 to 1200 R.P.M.) (Tandem Single with 11.25 x 24 rear tires): |                        |
| First                                                                                                          | 1.8 to 2.4             |
| Second                                                                                                         | 2.54 to 3.39           |
| Third                                                                                                          | 3.83 to 5.10           |
| Fourth                                                                                                         | 7.67 to 10.22          |
| Reverse                                                                                                        | 2.06 to 2.74           |
| Weight (approx. lbs.):                                                                                         |                        |
| Single Drive 8.25 x 24 tires                                                                                   | 12,350                 |
| Tandem Single 11.25 x 24 tires                                                                                 | 15,200                 |
| Blade Range:                                                                                                   |                        |
| Lift above ground                                                                                              | 13"                    |
| Depth of cut below wheel level                                                                                 | 6"                     |
| Side Shift                                                                                                     | 24"                    |
| Dimensions (Tandem Single):                                                                                    |                        |
| Length overall                                                                                                 | 25' 6"                 |
| Width overall                                                                                                  | 7' 11"                 |
| Height overall (with canopy top)                                                                               | 9' 1"                  |
| Wheel base                                                                                                     | 17' 4"                 |
| Tread (center to center of tires):                                                                             |                        |
| Front (long axle)                                                                                              | 86-1/2"                |
| Front (short axle)                                                                                             | 60-3/4"                |
| Front (leaning wheels)                                                                                         | 81-5/8"                |
| Rear                                                                                                           | 83"                    |
| Blade base                                                                                                     | 94"                    |
| Scarifier Straight type:                                                                                       |                        |
| Swath width                                                                                                    | 46"                    |
| Teeth (Number)                                                                                                 | 11                     |

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vent condensation and give sediment in fuel a chance to settle out. Keep outside of sediment bowl clean. Drain sediment bowl when necessary before starting engine.

#### BLADE PITCH - Figure 1

To adjust moldboard pitch position, lower blade to ground. Loosen pivot bolt(A), do not loosen pitch bracket anchor bolts (C), and remove pitch bracket adjusting bolts(B). Raise or lower blade until the desired pitch position is obtained, tapping bracket bars into proper position with a hammer.

The moldboard used on the Speed Patrol is designed to do a wide range of work effectively, but its usefulness is largely dependent upon proper setting of the pitch angle. In general, the moldboard is designed to discharge a large quantity of material into a wind row with a minimum amount of power when the top of the moldboard is tipped back toward the ramshorns in the last pitch bracket hole (D). This is the proper hole for ditching and casting. As the moldboard is tipped forward, it becomes most effective as an oil mix blade in which case downward pressure on the material is needed for proper rubbing action. The proper hole for each oil mix job can best be determined by experiment, the second hole being used to handle large quantities where thorough mixing is not required and the third and fourth holes each reducing the capacity but improving the quality of the mix. The fifth hole is largely used for dragging roads where it is not desired to cut into the surface and only a small amount of material is to be handled.

#### SCARIFIER - Figure 2

Various positions of the pitch adjustment linkage (A) permit sufficient adjustment of the tooth angle for the most effective operation under all scarifying conditions.

The V-Type scarifier block should be adjusted so that the bottom of the block is as nearly parallel to the ground as possible in the proper working depth. This rule should also be followed in setting the straight scarifier block if the "dog-leg" type of teeth are to be used. The correct tooth angle can best be determined by experiment.

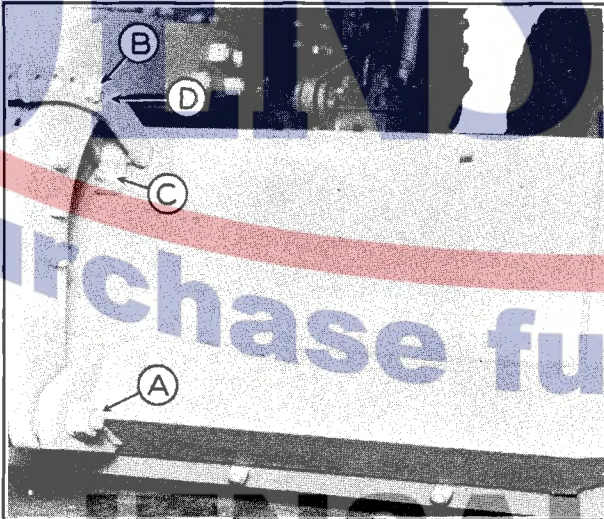


Figure 1



Figure 2

#### LUBRICATION

The following table gives the viscosity in S.A.E. (Society Automotive Engineers) numbers of lubricants and the atmospheric temperatures for which they are recommended.

Table No. 2

| ATMOSPHERIC TEMPERATURE | TRANSMISSION AND TANDEM CASE LUBRICANT | CRANKCASE LUBRICANT | SEMI-FLUID LUBRICANT                                                                               |
|-------------------------|----------------------------------------|---------------------|----------------------------------------------------------------------------------------------------|
| Above 32 deg. F.        | S.A.E. 160                             | S.A.E. 40           | Use a heavy solidified oil that does not contain acids and will not cake or gum in existing temps. |
| Below 32 deg. F.        | S.A.E. 90                              | S.A.E. 30           |                                                                                                    |

Use S.A.E. 90 transmission lubricant summer and winter in Control Gear Box, Upper and Lower Power take-off Cases, Circle Lift cases and Scarifier Spur Gear Case. Fill all other gear cases with semi-fluid lubricant.

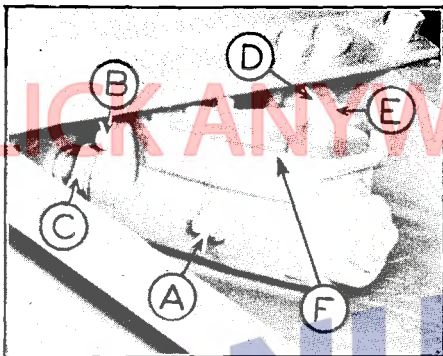


Fig. A. STEERING CASE

(A) Level plug-check every 90 hours. Use steering gear lubricant. To add lubricant, remove cover (F). When replacing cover adjust set screw (D). See Page 24.  
(B) Lock bolt, (C) Adj. Nut (E) Lock nut

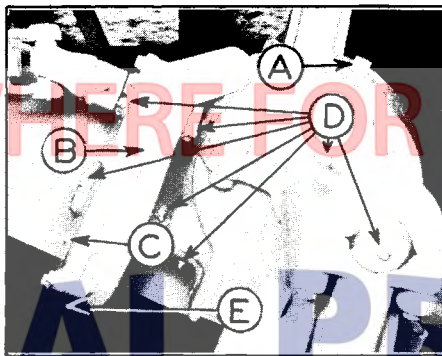


Fig. B. SCARIFIER CASE ASSEMBLY

(A) Filler plug - Semi-fluid lubricant.  
(B) Filler plug - Transmission lub.  
(C) Level plug-check every 90 hours.  
(D) 11 Fittings, lubricate every 10 hrs.  
(E) Drain plug.

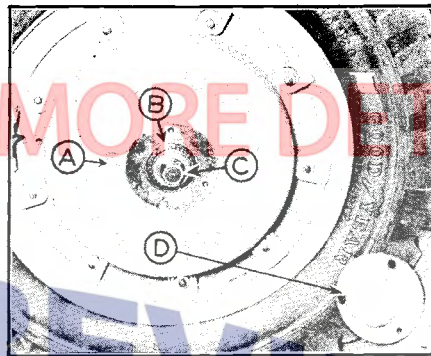


Fig. C. FRONT WHEEL BEARINGS

(A) 2 Fittings, lubricate every 10 hrs.  
(B) Roller bearing.  
(C) Shims.  
(D) Hub Cap (Pack with semi-fluid lub.)

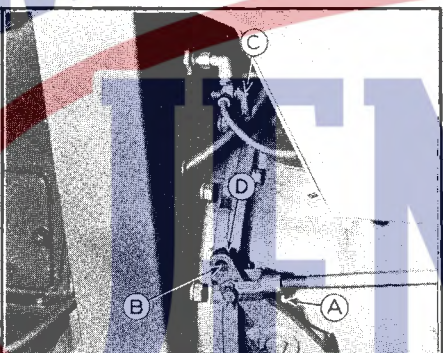


Fig. J. CLUTCH THROW-OUT SHAFT

(A) 2 Fittings, lubricate every 10 hrs.



Fig. K. FRONT AXLE AND STEERING ASSY.

(A) 9 Fittings, lubricate every 10 hrs.

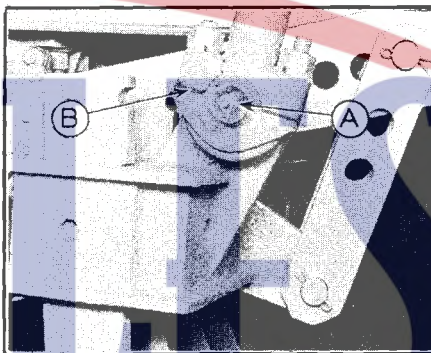


Fig. L. SCARIFIER LIFT LINKS

(A) 2 Fittings, lubricate every 10 hrs.  
(B) Shims for wear take-up.

#### LUBRICATION CHART

"IMPORTANT" Use Lubrication Chart for a guide when lubricating machine. Keep all gear cases, tandem drive cases, control box, engine crankcase, transmission case, and air cleaner filled to the correct oil level at all times with proper lubricant as specified in Table No. 2, Page 4.

Use good quality lubricants, lubricate systematically and frequently. Keep all wearing parts free from the accumulation of grit. Use a brush to clean around air cleaner, breather caps and to clean off grease fitting when lubricating.

Whenever an oil compartment requires changing, drain old lubricant when machine is warm (after an operating period). Then flush compartment with kerosene to remove remaining sediment and refill with proper lubricant.

NOTE: Use semi-fluid lubricant for all grease fittings. The number of fittings indicated under each figure is the total number on that assembly.

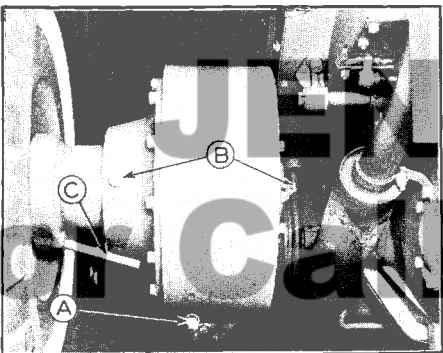


Fig. P. TANDEM CASE (Front End)

(A) Drain plug.  
(B) 4 Fittings, lubricate every 10 hrs.  
(C) Rear wheel bearing drain pipe, one on each rear wheel.

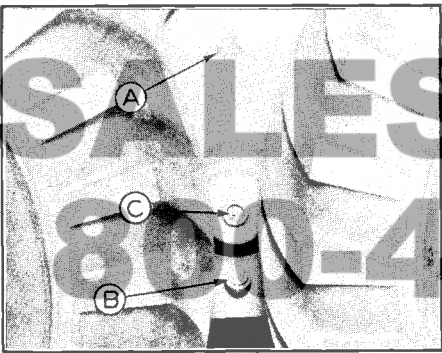


Fig. Q. TANDEM CASE

(A) Filler plug-transmission lubricant.  
(B) Level plug - check every 90 hours.  
(C) 2 Fittings, lubricate every 10 hrs.

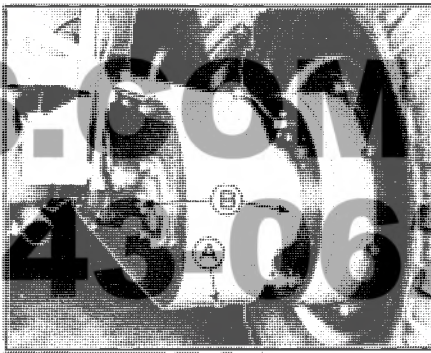


Fig. R. TANDEM CASE (Rear End)

(A) Drain plug.  
(B) 4 Fittings, lubricate every 10 hrs.



Figure 3 - RIGHT SIDE OF ENGINE

- |                                      |                                |
|--------------------------------------|--------------------------------|
| A. Oil Filter                        | E. Drain Cock                  |
| B. Crankcase Breather Cap            | F. Water Drain Cocks           |
| C. Generator Belt Adjustment         | G. Magneto Adjustable Coupling |
| D. Lubricating Oil Pump Relief Valve | H. Throttle Adjustment         |
|                                      | I. Magneto Timing Hole Cover   |

#### CARE OF OIL FILTER

The oil filter is a highly efficient unit for the purpose of filtering abrasive particles from the engine crankcase oil supply. This naturally adds life to the many moving parts that are dependent upon this supply for lubrication.

The filtering element consists of a metal can packed with a special long thread filtering yarn. The oil is forced through a tube to the top of the oil filter element and is filtered as it passes down through the filtering yarn.

When gasoline is being used for fuel it is necessary to replace the filtering element and its container after each 200 to 400 hours of operation, but if low grade fuel is being used, it is necessary to replace this element after each 100 to 200 hours of operation.

The replacement container is supplied packed with the necessary quantity of filtering yarn and has a wood stick in the center to keep the hole in the filtering yarn open, so that the oil tube which extends up in the element, can enter freely. This wood stick should be removed with a twisting motion before attempting to install the element.

A new element can be purchased from any Allis-Chalmers dealer for a few cents.

It is very important to replace the above element as directed as this unit will aid in keeping the crankcase oil clean and add many hours of carefree service to the life of the motor.

**CAUTION:** Do not attempt to remove and wash the filtering yarn or use any material in container except that as furnished as regular equipment.

Install, only, a new container, packed, as is supplied by the Allis-Chalmers Mfg. Co. for the protection of the motor.

#### BREATHING CAPS

The crankcase and transmission breather caps contain a filtering mat which is covered with a perforated retaining washer. This mat must be kept moistened with oil to properly filter the air which passes through into the crankcase or transmission.

Should the mat become dry or the perforated washer become clogged with dust or other substances from the air, remove the breather caps and rinse in kerosene or gasoline until thoroughly cleaned. Then allow mat and breather caps to partially dry; moisten with oil before replacing.

## COOLING SYSTEM

To drain cooling system remove the two petcocks (F), Figure 3. This will drain the entire cooling system. In draining the cooling system, be sure the drain holes do not become clogged.

The temperature gauge in the cooling system is located near the radiator cap above the hood. The normal operating temperature of the engine when using gasoline is from 160 to 180 degrees F., and the temperature when using low grade fuel should be from 185 to 190 degrees F.

The radiator curtain (H) is for the purpose of aiding in regulating the operating temperature of the engine during cold weather. The curtain may be adjusted to any desired position.

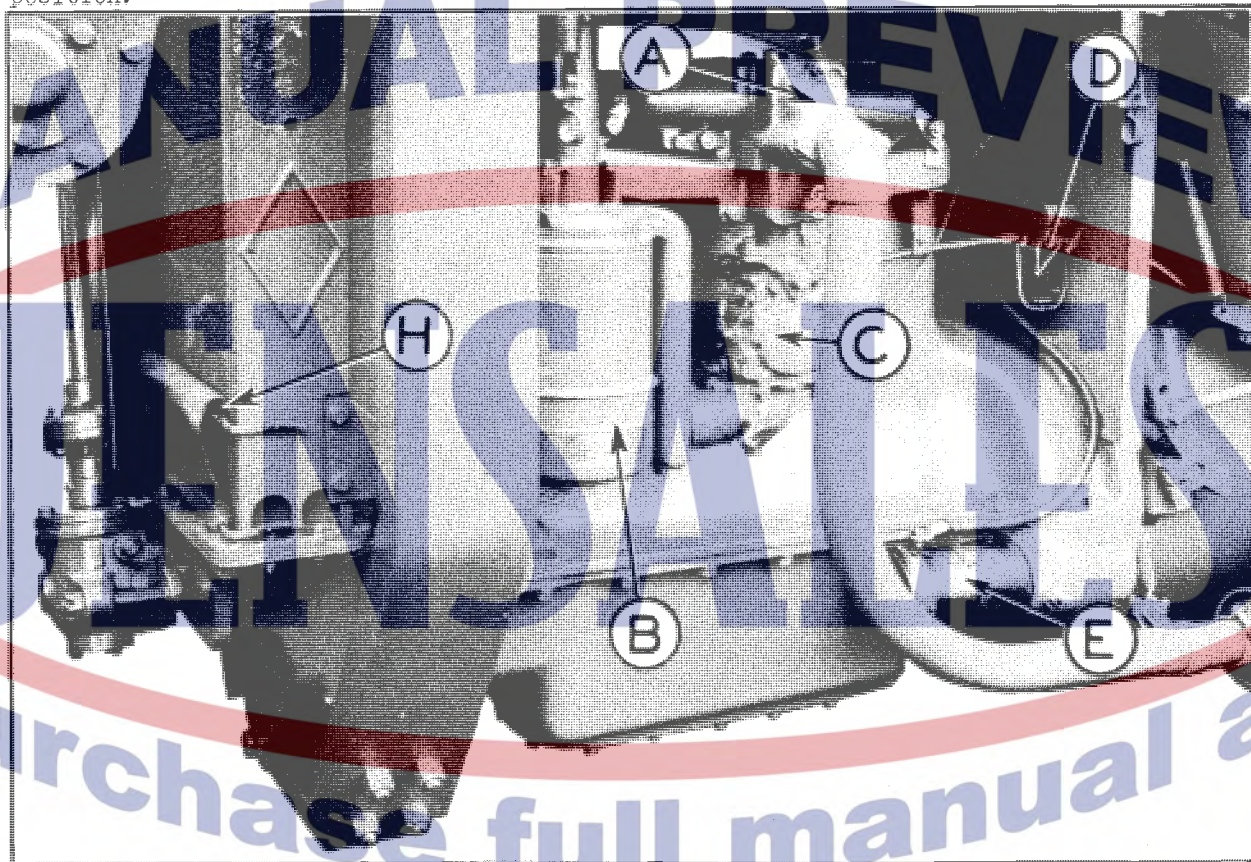


Figure 4 - LEFT SIDE OF ENGINE

A. Manifold Heat Control Cover  
B. Air Cleaner  
C. Carburetor

D. Sediment Bowl  
E. Starter  
H. Radiator Curtain

## LOW GRADE FUEL BURNING INSTRUCTIONS

When burning low grade fuel, fill fuel tank through the center opening which is over the larger compartment. Fill the smaller compartment through the end opening with gasoline for starting purposes.

Speed Patrols Serial No. 3226 and above are equipped with the manifold as illustrated in Figure 4. This exhaust manifold is designed to be used for either gasoline or low grade fuel burning engines. To burn low grade fuel, the heat control cover (A) is to be installed on the manifold so that the letter "K" which is cast on the cover is on top. When gasoline is used the cover is reversed and installed so the letter "G" is on top.

The three way valve illustrated in Figure 12 has three positions. When the valve handle is vertical with the pointer upward, both lines are shut off. The marks "KERO" and "GAS" are located on the left and right side of the valve handle, respectively. With the valve set at a 45 degree angle to the left of the vertical, or the side marked "KERO", the fuel will be drawn from the large tank. Setting the valve at a 45 degree angle to the right of the vertical, or the side marked "GAS", the fuel will be drawn from the small tank.

#### SPEED CHANGE POSITIONS - Figure 5

The transmission speed change positions are as follows: FIRST, shift lever to the left and back; SECOND, shift lever to the right and back; THIRD, shift lever to the right and forward; FOURTH, shift lever to extreme left, past first, and back; REVERSE, shift lever to the left and forward.

#### POWER CONTROLS - Figure 5

The different operating positions of the moldboard, circle, front wheel lean and scarifier are controlled by control levers which actuate beveled jaw, double acting clutches inside control gear box. Engaging these clutches connects the power of the engine with the operating shafts. For front wheel lean instructions, see Page 27.

Each control consists of two beveled jaw clutches revolving in opposite direction. The beveled jaw clutch provides a safety device to prevent overloading of the various driving mechanisms when the controls reach the end of travel. Any over load on the mechanism will automatically throw out the control lever. Whenever the control lever cannot be engaged with a reasonable amount of pressure an inspection should be made to locate the trouble.

The clutch jaws are cut with the correct degree of angle to assure ease in operation. When operating control levers it is necessary to hold them in an engaged position until the desired position is reached. These clutches are held in neutral position by compression springs located on shifter yoke shafts.

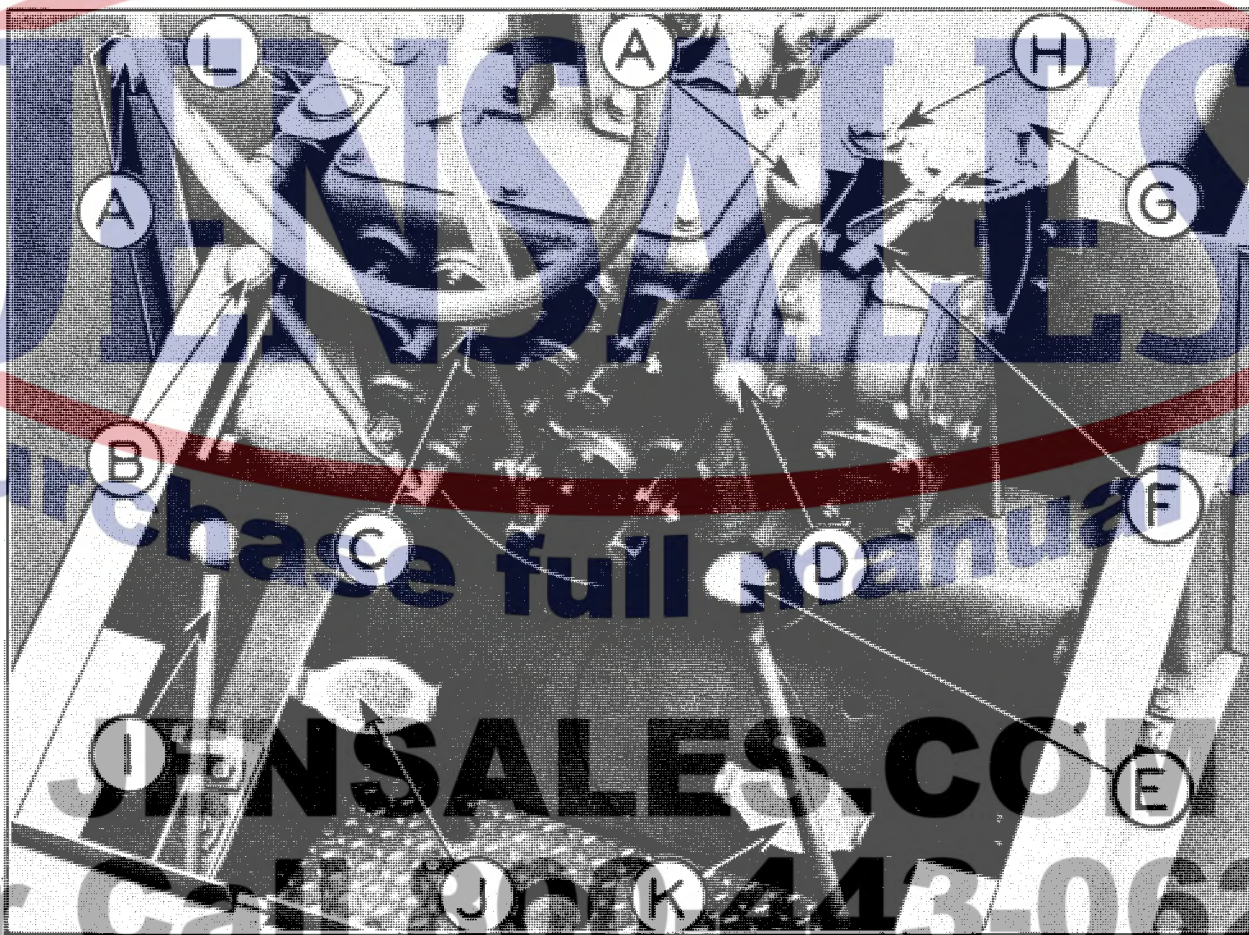


Figure 5 - CONTROLS

- A. Blade Lift Levers
- B. Side Shift Lever
- C. Circle Turn Lever
- D. Scarifier Lever
- E. Gear Shift Lever
- F. Throttle Lever

- G. Choke Control
- H. Ignition Switch
- I. Hand Brake
- J. Clutch Pedal
- K. Brake Pedal
- L. Oil Pressure Gauge