ENGINE SPECIFICATIONS

ENGINE	3010G	3011G, 3011H, 3211G	3012G, 3012H
MANUFACTURER	Briggs and Stratton	Briggs and Stratton	Briggs and Stratton
MODEL/SPEC. NUMBER	255707-0123	253707-0144	404707-0117
TYPE	single cyl., air cooled, 4-cycle	single cyl., air cooled, 4-cycle	single cyl., air cooled, 4-cycle
BORE X STROKE	3.44" 2.38" (87.3 x 60.3 mm)	3.43" x 2.64" (87.3 x 66.7 mm)	N/A
DISPLACEMENT	22.04 cu. in. (361.2 cc)	24.36 (399.5 cc)	N/A
MANUFACTOR'S H.P RATING	10 HP @ 3600 RPM	11 HP @ 3600 RPM	12.5 HP @ 3600 RPM
IGNITION	Magnetron	Magnetron	Magnetron
AIR CLEANER	Dry type	Dry type	Dry type
OIL CAPACITY w/filter	3 Pts. (1.42 L)	3 Pts. (1.42 L)	3 Pts. (1.42 L)
OIL FILTER	N/A	N/A	N/A
GOVERNOR SETTING	Mechanical	Mechanical	Mechanical
SPEED CONTROL	Remote, cable operated	Remote, cable operated	Remote, cable operated
SPARK PLUG	Resistor type	Resistor type	Resistor type
SPARK PLUG GAP	0.030" (0.76 mm)	0.030" (0.76 mm)	0.030" (0.76 mm)

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TORQUE VALUES FOR CAP SCREWS

SIZE	SAE GRADE 2			SAE GRADE 5			SAE GRADE 8		
	Lb. In.	Nm	Kgm	Lb. In	Nm	Kgm	Lb. Ins	Nm	Kgm
1/4-20	49	5.5	0.6	75	8.5	0.9	108	12.2	1.2
1/4-28	56	6.3	0.6	86	9.7	1.0	120	13.6	1.4
	Lb. Ft.	Nm	Kgm	Lb. Ft.	Nm	Kgm	Lb. Ft.	Nm	Kgm
5/16-18	8	10.8	1.1	13	17.6	1.8	18	24.4	2.4
5/16-24	9	12.2	1.2	14	18.9	1.9	20	27.1	2.7
3/8-16	15	20.3	2.0	23	31.2	3.1	35	47.4	4.8
3/8-24	17	20.3	2.3	25	33.9	3.4	35	47.4	4.8
7/16-14	24	32.5	3.3	35	47.4	4.8	55	74.5	7.6
7/16-20	25	33.9	3.4	40	54.2	5.5	60	81.3	8.3
1/2-13	35	47.4	4.8	55	74.5	7.6	80	108.4	11.0
1/2-20	40	54.2	5.5	65	88.1	9.0	90	122.0	12.4
9/16-12	55	74.5	7.6	80	108.4	11.0	110	149.1	15.2
9/16-18	60	81.3	8.3	90	122.0	12.4	130	176.2	18.0
5/8-11	75	101.6	10.3	110	149.1	15.2	170	230.4	23.5
5/8-18	85	115.2	11.7	130	176.2	18.0	180	243.9	24.9
3/4-10	130	176.2	18.0	200	271.0	27.7	280	379.4	24.9
3/4-16	145	196.5	20.0	220	298.1	30.4	320	433.6	44.3
7/8-9	125	169.4	17.3	320	433.6	44.3	460	623.3	63.7
7/8-14	140	189.7	19.3	350	474.3	48.4	500	677.5	69.2
1-8	190	257.7	26.3	480	650.4	66.5	680	921.4	94.2
1-12	200	271.0	27.7	530	718.2	73.4	740	1002.7	102.5

Conversion Formula:

To obtain Nm, multiply ft. lbs. by 1.355.
To obtain Kgm, multiply ft. lbs. by 0.138.

All torques ± 10% unless otherwise specified.
All torque values are for capscrews that have been lubricated with engine oil or grease.

Multiply standard assembly torque by the following factors:

1.25 when threads are dry
0.85 when parts are plated
0.75 when parts are parkerized
0.70 when parts are coated with Molykote
0.65 for jam nuts

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ENGINE: TROUBLESHOOTING

TROUBLE	POSSIBLE PROBLEM	SOLUTION
Hard starting or loss of power.	Engine over-choked.	Close fuel petcock and engage starter until engine fires. Re-open fuel petcock.
	Carburetor dirty or improperly adjusted	Re-adjust or clean carburetor. See engine manual.
	Faulty spark plug or improper gap.	Adjust gap or replace plug.
	Clogged fuel line or filter.	Check fuel line or filter.
	Loose or grounded high tension wire.	Check and repair wire lead.
Overheating.	Insufficient available cool air.	Make sure flywheel screen is free of debris.
	Dirty air intake screen, shroud or cooling fins.	Clean intake screen, shroud & cooling fins.
	Improper fuel.	Clean and refill tank with proper grade of fuel.
	Fuel mixture too lean.	Adjust carburetor. See engine manual.
	Engine overloaded.	Reduce load.
Backfiring.	Fuel mixture too lean.	Adjust carburetor.
	Hot spot in muffler.	Replace muffler.
	Valve sticking.	Free up valve. See engine manual.
Skip at high speed.	Spark plug gap too wide or wrong spark plug.	Adjust spark plug or install correct plug. See page 3-4.
Operating erratically.	Clogged fuel line.	Clean fuel line.
	Water in fuel.	Clean fuel system.
	Improper carburetor adjustment.	Adjust carburetor. See engine manual.
	Vent in gas cap plugged.	Clean gas cap vent.
	Faulty choke control.	Replace choke control.
	Loose ignition connections.	Clean and tighten ignition connections.
	Air leaks in manifold or carburetor connections.	Tighten manifold and carburetor.
Engine will not idle.	Improper carburetor idle adjustment.	Adjust idle speed.
	Carburetor clogged.	Clean carburetor.
	Spark plug gap set too close.	Adjust spark plug. See page 3-4.
	Leaking carburetor or manifold gaskets.	Replace gaskets.

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GEAR DRIVE MODELS

1. BRAKE ADJUSTMENT (ALL GEAR DRIVE MODELS EXCEPT 3118), FIGURE 2-1.

When the brake will no longer hold the tractor with the brake lock engaged, an adjustment is required (all gear drive models except 3118).

a. Adjust brake arm movement:

1. Brake arm should apply initial braking force when arm moves 1/4" to 7/16" (9 to 11 mm) from the center position.
2. To reach this travel, adjust nuts (B, Figure 2-1).
3. With rod (C) of brake removed, total travel of brake arm from side to side should not be more than 7/8 " (22 mm).
4. After completing adjustment, check brakes for proper braking action.

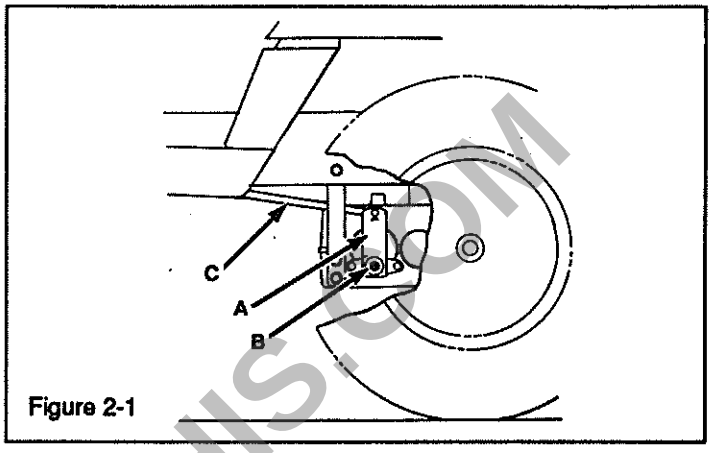


Figure 2-1

b. With brake disengaged, adjust brake rod (C) so that the arm on transmission is vertical. Brake spring (D) should be compressed to approximately 5" long.

c. With shift lever (G) in neutral detent, adjust shift rod (E) until the transmission reaches neutral position.

2. BRAKE/CLUTCH ADJUSTMENT (ALL GEAR DRIVE MODELS EXCEPT 3118)

a. With brake lock engaged, adjust clutch rod (A, Figure 2-2). Provide a clearance of 3-1/2" to 3-3/4" between idler (B) and inside of side frame.

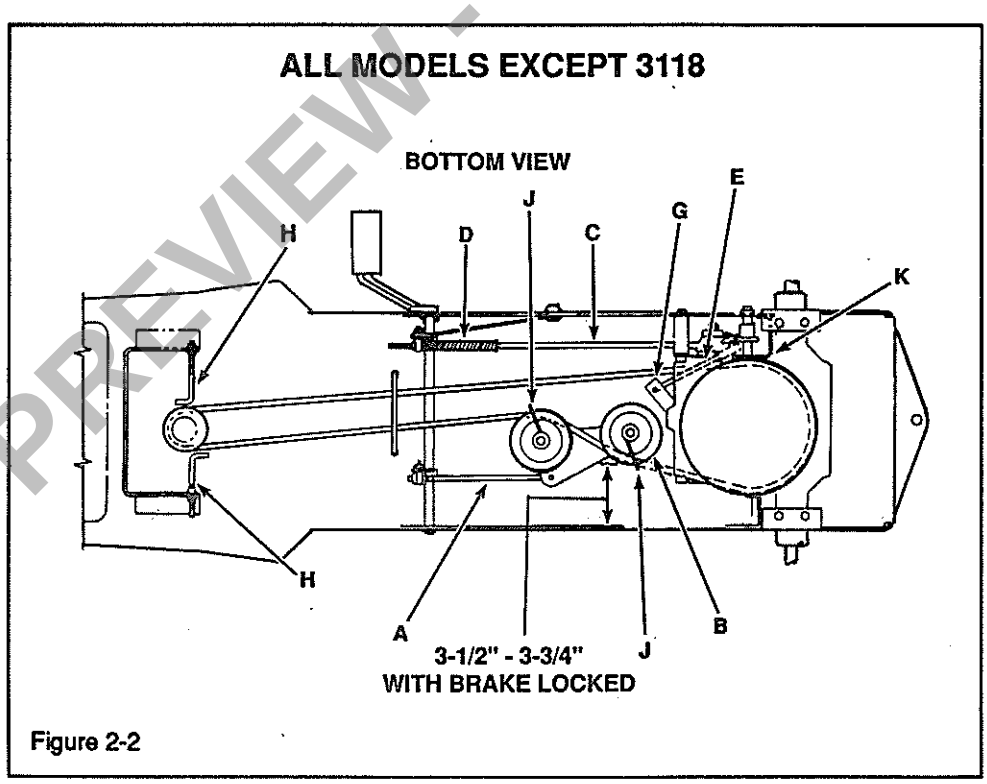


Figure 2-2

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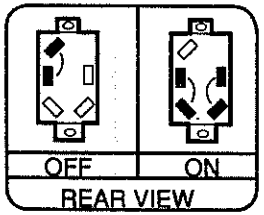
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WIRING DIAGRAM 2

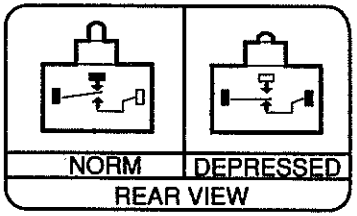
ITEM CODE	
1	Magneto
2	Alternator
3	Fuel Solenoid
4	Headlights
5	Attachment Clutch
6	Diode Assembly
7	Starter
10	Connector
11	Battery
12	Fuse
13	Start Solenoid
14	Seat Switch
15	Brake Switch
16	Headlight Indicator
17	Key Switch
18	Light Switch
19	Attachment Switch
20	Attachment Light
21	Start Light
22	Voltage Sensor
23	Voltage Sensor Light
24	Ammeter
25	Hourmeter (Optional)
26	Capacitor
27	Diode
29	Accessory Socket
30	Accessory Plug
31	Cruise Light
32	Cruise Switch
33	Cruise Relay
34	Cruise/Brake Switch
35	Cruise Magnet
38	Electric Lift Switch
39	Electric Lift Motor
40	Hydrostatic Temp. Sensor
41	Hydrostatic Temp. Light
42	Engine Oil Sensor
43	Engine Oil Light
44	Tachometer

WIRE COLOR CODE	
B	Black
BL	Blue
O	Orange
P	Purple
R	Red
W	White
Y	Yellow
GN	Green
BR	Brown
GR	Gray
R/W	Red/White
R/B	Red/Black
R/Y	Red/Yellow
W/B	White/Black

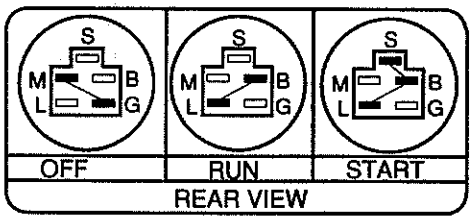
ATTACHMENT DRIVE SWITCH



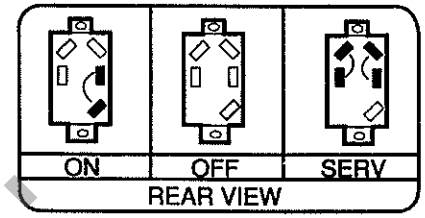
BRAKE SWITCH SEAT SWITCH



IGNITION SWITCH



LIGHT SWITCH



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MOWER DECKS

MOWER DECKS

WARNING!

BEFORE LEVELING DECK, DISCONNECT THE ATTACHMENT DRIVE (PTO), SHUT OFF ENGINE, REMOVE IGNITION KEY, DISCONNECT THE SPARK PLUG WIRE AND KEEP IT FROM TOUCHING THE SPARK PLUG.

1. LEVEL MOWER DECK FRONT TO REAR: MODELS 30036S AND 31036S

a. Check tractor tire pressure:

Front tires: 12 - 14 PSI.
Rear tires: 8 -12 PSI.

b. Place mower on a level surface. Rotate blades so they run front to rear.

c. Measure the distance from the front edge of the blades to the ground (A, Figure 6-1) and from the rear edge of the blades to the ground (B, Figure 6-1). Both measurements should be equal. If not, adjust length of rod (C, Figure 6-2) at pivot (D).

d. Re-check leveling after raising and lowering the mower attachment several times.

2. LEVEL MOWER DECK FRONT TO REAR: MODELS 30042S, 30042R AND 30048S

a. Check tractor tire pressure:

Front tires: 12 - 14 PSI.
Rear tires: 8 -12 PSI.

b. Place mower on a level surface.

c. Measure height (H, Figure 6-3) and (G) along bottom surface of mower base. Front of deck (H) should be 1" higher (25 mm) than the rear (G). If not, adjust rod length (L, Figure 6-4) at pivot (M).

d. Re-check leveling after raising and lowering the mower attachment several times.

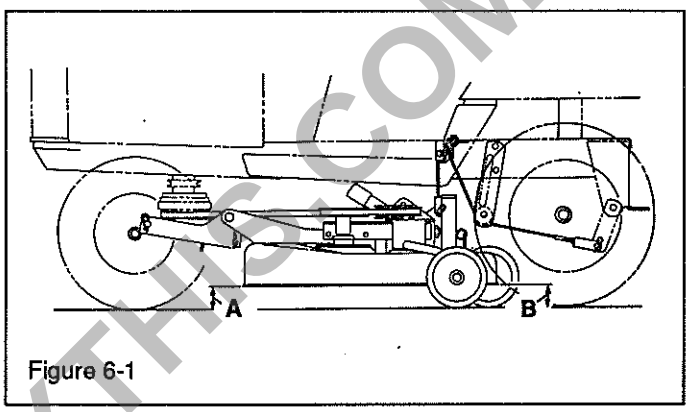


Figure 6-1

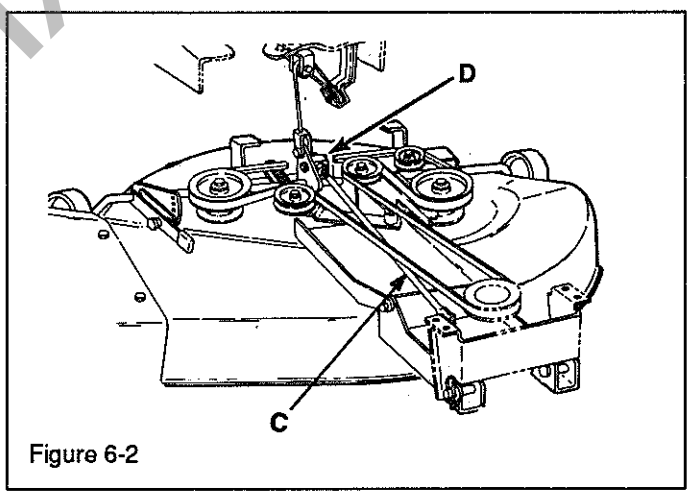


Figure 6-2

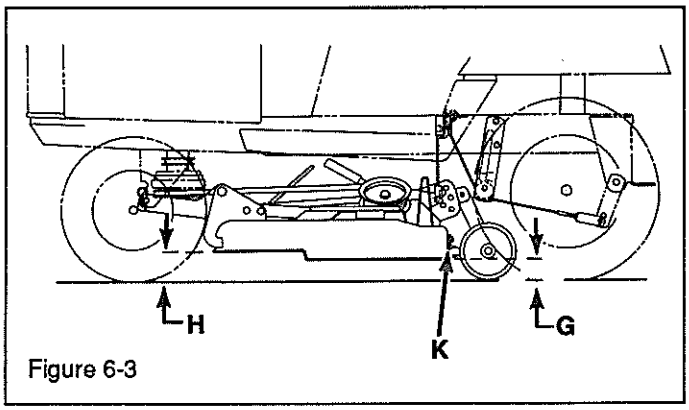


Figure 6-3

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TABLE OF CONTENTS

SECTION I: GENERAL 1-3

General Information 1-3
Model / Serial Number Range 1-4
Torque Values for Cap Screws 1-6
Engine Specifications .....(1-7 through 1-12)
Maintenance 1-13
Lubrication Chart 1-14
Chassis Specifications.....(1-7 through 1-12)

SECTION II: CHASSIS 2-1

Gear Drive Models 2-1
Hydrostatic Models 2-3
Lift Systems 2-8
Steering Assembly 2-9

SECTION III: ENGINE 3-1

Troubleshooting 3-1
Engine Oil Recommendations 3-2
Engine Maintenance 3-3
Engine Oil 3-3
Spark Plugs 3-4
Clean Cylinder Head Deposits 3-4
Clean Cooling System 3-4

SECTION IV: FUEL SYSTEM 4-1

Troubleshooting 4-1
Fuel Recommendations 4-2
Service Air Cleaner 4-2
Service Carburetor 4-6
Basic Function of a Carburetor 4-6

SECTION V: DRIVE TRAIN 5-1

ST Transmission Model Chart 5-1
Troubleshooting 5-2

HYDROSTATIC DRIVE 5-3
Introduction 5-3
Removal/Installation
Eaton Model 7 5-8
Eaton Model 750/751 5-9

GEAR DRIVE 5-11
Introduction 5-11
Removal
Peerless 801, 920 and 930 5-13
1327C 5-15
Re-installation (All Peerless trans.) 5-16

SECTION VI: ATTACHMENTS 6-1

Mower Decks 6-1
Tiller 6-8
2-Stage Snowthrower 6-11
Single-Stage Snowthrower 6-14
Power Packer Plus 6-17
Grass Reduction System 6-20

SECTION VII: ELECTRICAL 7-1

Key to Diagrams .....(7-1 through 7-2)
Diagrams .....(7-3 through 7-21)
Test Battery 7-22
Test Ignition Switch 7-23
Test Attachment Drive Switch 7-23
Test 2-Position Light Switch 7-23
Test 3-Position Light Switch 7-24
Test Electric Lift Switch 7-24
Test Plunger Switch 7-24
Test Seat Switch 7-24
Test Diode 7-25
Electric Clutch Adjustment 7-25
Attachment Drive Clutch 7-26
Interlock Switches 7-28
Relay Test 7-28

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MODEL/SERIAL NUMBER RANGE

SALES DESCRIPTION	MODEL
1984	
ST 110	3011G-01
ST 160	3016H-01
ST 160	3016G-01
1985	
ST 110	3011H-01
ST 110	3011G-02
ST 160	3016H-02
ST 160	3016G-02
1986	
ST 110	3011G-03
ST 110	3211G-01
ST 125	3012G-01
ST 125	3012H-01
1987	
ST 120	3112G-01
ST 120	3212G-01
ST 125	3012G-02
ST 125	3012H-02
1988	
ST 120	3212G-02
ST 120	3212H-01
ST 140	3114G-01
ST 140	3114H-01
ST 180	3018G-01
ST 180	3018H-01

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LIFT SYSTEMS

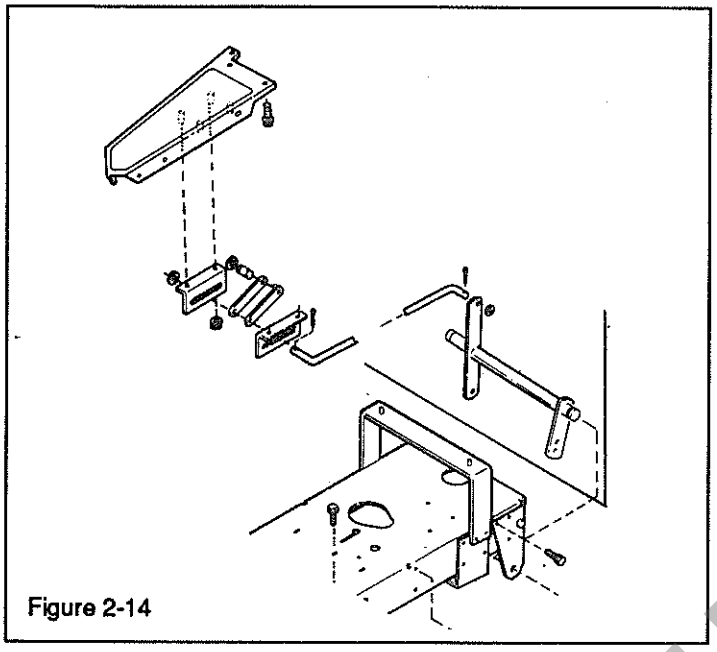


Figure 2-14

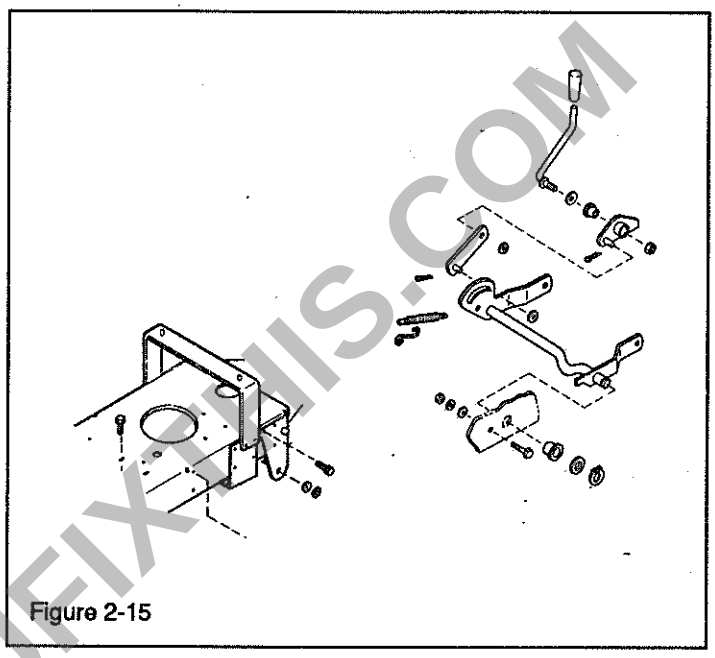


Figure 2-15

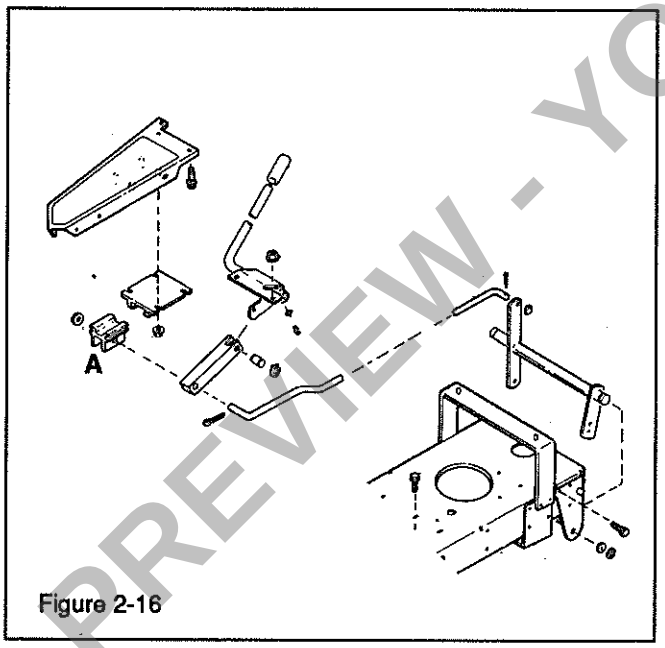


Figure 2-16

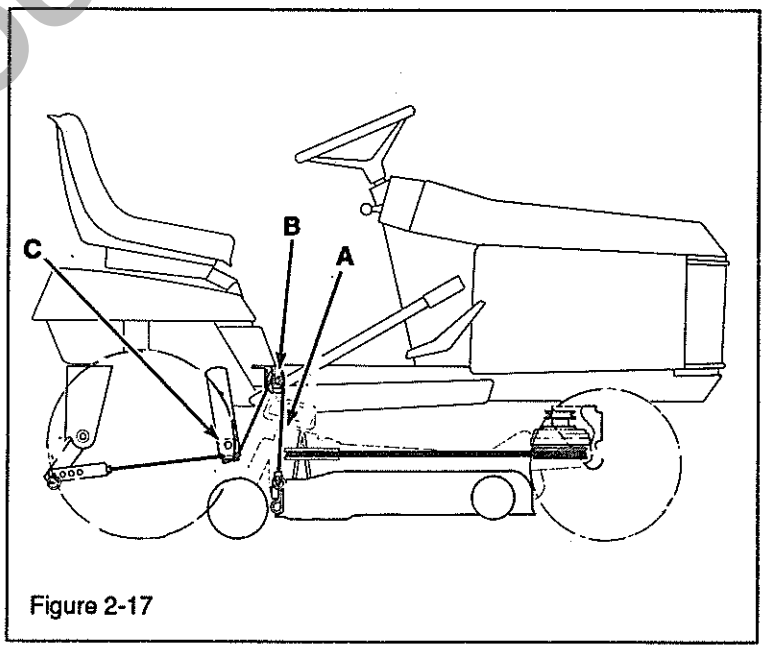


Figure 2-17

LIFT ASSEMBLY

All Suburban Tractors are equipped with a standard manual lift assembly from the factory. An optional electric lift can be added to the unit. Models 3212G, 3212H, 3010G and 3114H cannot be equipped with electric lift.

The Suburban Tractor series has 3 types of lift systems. See Figures 2-14, 2-15 & 2-16.

1. Servicing Lift System

a. Periodic servicing of the lift system is required.

b. All styles use flange bearings to support the pivoting arms. These bearings should be inspected and oiled every 50 hours or as conditions require. This ensures free movement of the pivot points and linkages.

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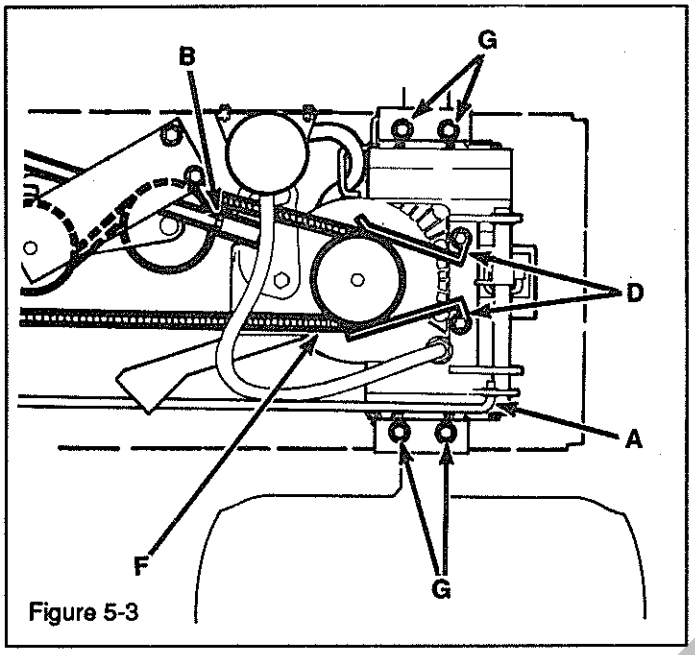


Figure 5-3

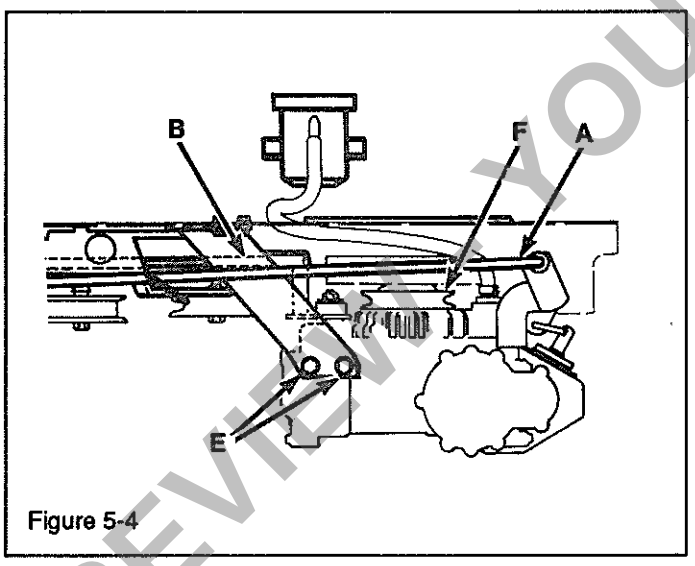


Figure 5-4

REMOVAL/INSTALLATION: EATON MODEL 750 AND MODEL 751

1. **Hydrostatic Transaxle Removal - Eaton Model 750/751**
   a. Disconnect brake rod (A) at rear. Figure 5-3 and 5-4.
   b. Disconnect hydrostatic control rod (B) from pivot arm.
   c. Disconnect hydrostatic fluid hoses (C, Figure 5-5) from hydro. **Oil may flow from hoses.**
   d. Loosen the two belt guides (D, Figure 5-3).
   e. Remove the 2 mounting bolts (E, Figure 5-4) securing the bracket on the L.H. side.
   f. Place the brake pedal in the parking brake position and lock.
   g. Remove the drive belt from the hydrostatic drive sheave (F, Figure 5-3 and 5-4). On later models, route around plastic cooling fans.

      NOTE: It may be necessary to remove the belt when removing the hydro from under the frame.

   h. Block up the center of the tractor.
   i. Remove the 4 axle mounting bolts and nuts (G, Figure 5-3).
   j. Raise the rear of the frame and remove the hydrostatic transaxle.

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2-STAGE SNOWTHROWER (continued)

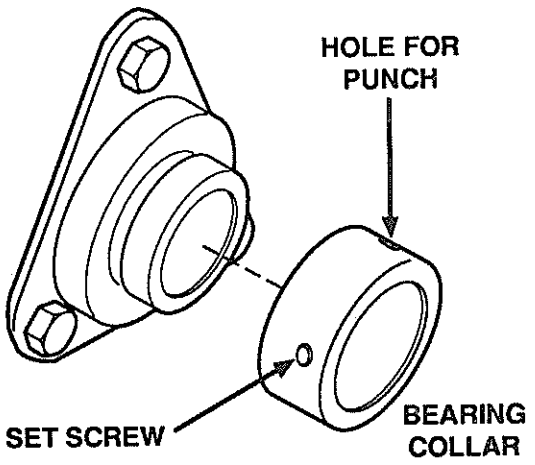


Figure 6-20

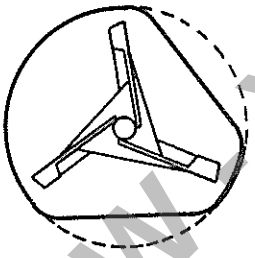


Figure 6-21

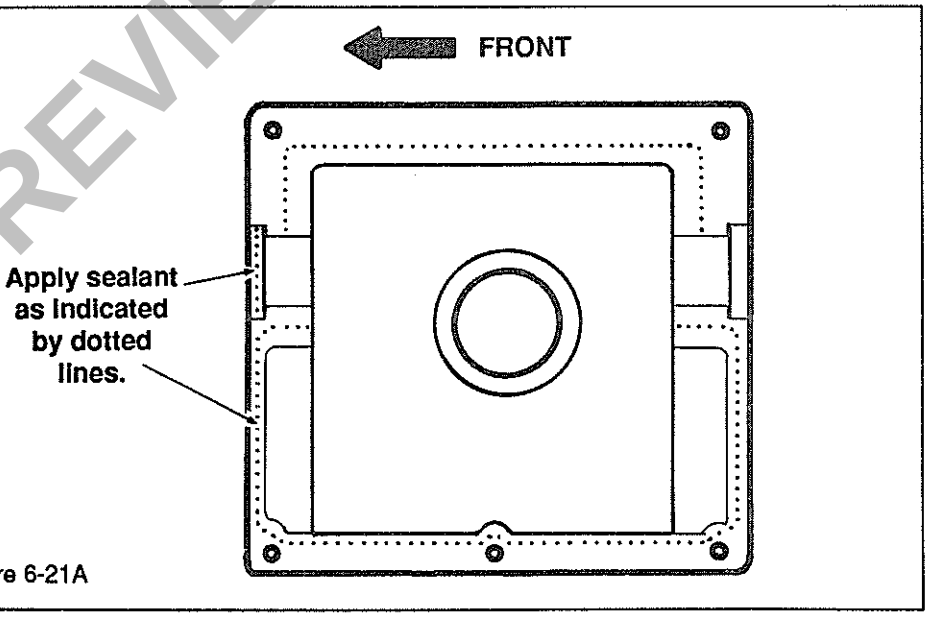


Figure 6-21A

14. Install fan bearing lock collar. Tighten the collar with a hammer and punch in the same direction as the shaft rotation. Tighten fan bearing lock collar set screw.
15. Install chain and chain guard (PTO protector).
16. Fill gear case with SAE 90 to the bottom edge of the fill hole. Check for leaks.

NOTE: Check chain tension and oil level after first hour of use.

13. MAINTENANCE

GEARBOX—Check oil level every 10 hours. Fill if necessary with EP90 extreme pressure oil.

AUGER SHAFT—Grease each shaft at fittings (G, Figure 8-20) every 24 hours of use.

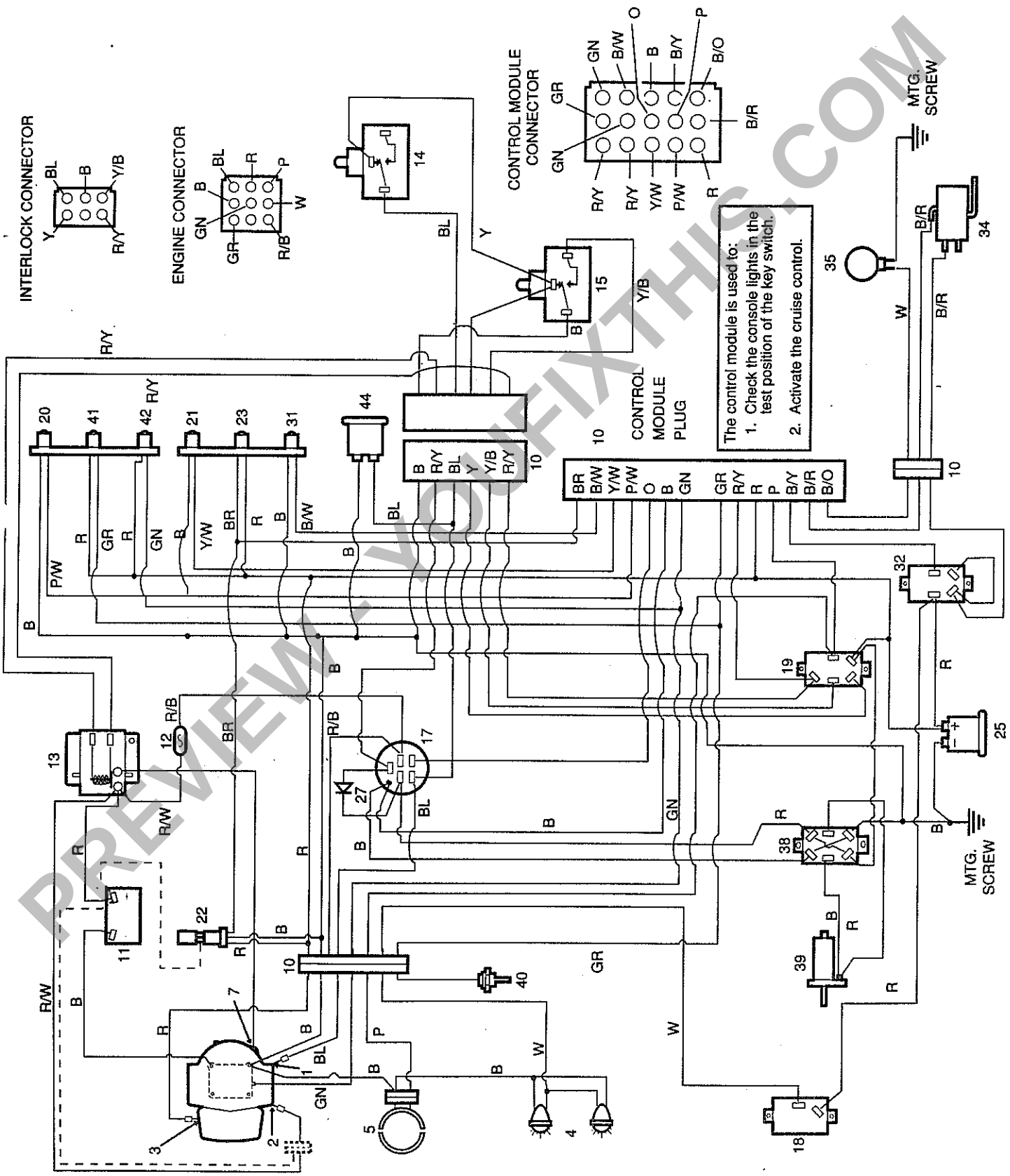
DRIVE CHAIN—Lubricate chain with chain saw oil after each use.

MOVING PARTS—Oil rotating parts and bearings with multi-purpose oil every 24 hours of use.

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WIRING DIAGRAM 5



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