

**Sand & salt spreader equipped
with gas engine**
Models A-200/260/320
Capacity 1-1/2, 2, 2-1/2 cu.yd.

Warranty Registration Card

Dealer must fill out **Warranty Registration Card** and return to Arctic Equipment Manufacturing Corporation by fax or mail.

Arctic Equipment Manufacturing Corporation

35 Artisans Cres.
London, Ontario
Canada
N5V 5E9
Tel: (519) 452-3406
Fax: (519) 452-7119

Owners Name: _____

Address: _____

Date of Installation: _____

Model #: _____

Serial#: _____

Engine Serial #: _____

How did you become aware of **Arctic Equipment Manufacturing Corporation**?

- Newspaper Friend Radio/TV
 Internet Distributor Previous Purchase
 Other (specify) _____

Distributor's name: _____

Distributor's Address: _____

Spreader Warranty

ARCTIC salt/sanding equipment is guaranteed to be free from defects in material or workmanship under normal use and service for 1 (one) year after the date of purchase. Arctic Equipment Manufacturing Corporation will replace or repair, at its election, without charge, F.O.B. London, Ontario, any part which becomes defective within the period of time described above. Hydraulic motors, pumps and gear reducer, etc. are also covered under warranty for a period of one year, with normal use. Briggs & Stratton engine is covered for 90 days under warranty after the date of purchase and Honda engine is covered for 2 years after the date of purchase. Warranty and service of the engine is handled by Honda or Briggs & Stratton dealers. Specifications below what is not covered under warranty.

In no event shall Arctic Equipment Manufacturing Corporation be liable for claims for loss of use or consequential damages.

This warranty is made only to the original purchaser. There is no other warranty expressed, implied, or statutory.

All parts returned to us, transportation charges prepaid, must be accompanied with a "Return Goods Authorization" number, obtained from the factory. In order to reduce down-time, we will, on your request, send the parts required and you will be billed under the usual terms. A credit will be issued to your account when the parts, in our examination, prove to be defective.

Arctic Equipment Manufacturing Corporation reserves the right to change specification without prior notice.

Specifics not considered under warranty

Certain types of damage can occur, which cannot be attributed to defects in material and/or warranty, but rather as the owner's responsibility.

These conditions include, but are not limited to the following items. Damage resulting from:

1. Lack of or dirty lubrication.
2. Using other than recommended grade and type of lubrication.
3. Accident, abuse or neglect.
4. Stripped keyways or splines on external shafts.
5. Running over recommended speeds.
6. Repairs by an unauthorized person.
7. Damage caused by improper mounting or conditions on units not mounted by factory.
8. Improper maintenance or storage of equipment.

Customer Responsibility

The loaded vehicle, including all after market accessories, the snowplow system, passengers, and cargo, **MUST NOT** exceed the gross vehicle weight ratings (GAWR), front gross axle weight rating (FGAWR) or rear gross axle weight rating (RGAWR) specified on the Safety Compliance Certification Label located in the driver's side door opening. **It is the operator's responsibility to verify that these ratings are not exceeded.**

To determine the Gross Axle Weights for your vehicle, including all after market accessories, the snowplow system, passengers, and cargo, take your loaded vehicle and the snowplow to a scale. With the snowplow attached, place the front wheels of the vehicle on the scale to get the Front Gross Axle Weights (FGAW). To get the Rear Gross Axle Weights (RGAW), place the back wheels of the vehicle on the scale.

The addition of **ballast** weight placed rearward of the rear axle may be required to prevent exceeding the FGAWR, and provide good vehicle braking and handling. When ballast is required it must be secured behind the rear wheels in a manner, which prevents it from sliding during normal driving.

Disclaimer notice

Arctic Equipment Manufacturing Corporation (Arctic) does not assume liability for damage to your motor vehicle resulting from the attachment or use of Arctic salt/sanding equipment. The purchaser assumes all vehicle risk associated with the attachment and operation of this salt/sanding equipment.

The added weight may impair the operation and control of your vehicle. Additional equipment may be necessary before installing salt/sanding equipment. Please consult your vehicle dealers prior to the purchase and installation of the salt/sanding equipment.

Ordering parts

Delays and errors can be eliminated if ordering instructions are followed correctly.

1. Place orders direct with Arctic Equipment Manufacturing or nearest dealer.
2. State company name, address, and postal/zip code.
3. Give exact model and serial number of the machine (stamped on the unit identification plate).
4. Furnish part number, description and quantities required.
5. Print or type order clearly.
6. Give specific shipping instructions.

Sand and salt spreader equipped with gas engine

Operation

These models are powered by a 10.5 H.P. Briggs & Stratton Engine or 11 HP Honda Engine. In order to provide a smooth transmission of power, the units are equipped with a heavy duty electrical clutch. A chain transmits the power from the clutch to a jack shaft by means of a coupling, is connected to the speed reducer. The speed reducer output shaft is what actually drives the conveyor. A single V-belt connects the jack shaft with the spinner shaft.

The amount of sand and/or salt that is discharged is dependant on two factors. One is the engine RPM which is controlled by a throttle. An increase in engine RPM not only increases the discharge rate but the width of spread pattern as well. The other factor that affects the discharge rate is the gate opening. Obviously, as the size of the opening increases so will the discharge rate. A cab mounted switch activates the electric throttle and starter switch. (See page "Payload discharge rate graph")

Maintenance Inspection

Daily Inspection and Lubrication

- a) Check gearbox oil level. It should be filled to the oil level plug. (Item #2, see page "Hopper assembly-gas engine")
- b) Check engine oil level with dipstick (also check gas).
- c) Lubricate the following grease nipples:
 - 1) 1 on gear reducer (item #2, see page "Hopper assembly-gas engine")
 - 2) 2 on conveyor idler shaft (item #7, see page "Hopper assembly-gas engine")
 - 3) 1 on drive shaft bearing (item #3, see page "Hopper assembly-gas engine")
 - 4) 1 on each spinner shaft bearing (item #28, see page "Hopper assembly-gas engine")

Note: Also lubricate chain for half couplings and clutch chain with Anti-Seize compound. (Item #35, see page "Hopper assembly-gas engine")

- d) It is advisable to clean the air filter element. It can be easily washed out and reused. At this time, it would be wise to check the drive belts for any appreciable wear.

Yearly Inspection

- a) At the end of the operating season, the unit should be thoroughly cleaned, lubricated and repainted where necessary. The conveyor chain should, ideally, be stored in oil (item #1, see page “Hopper assembly-gas engine”). These preventative measures should prevent premature rusting of the unit. Grease bolts on the chain tighteners. (Item #6, see page “Hopper assembly-gas engine”)
- b) At this time or before the start of the next season, it is wise to check all drive components for appreciable wear. Any components which are questionable should be replaced now. This short and simple check will avoid down time during the operating season.
- c) Change the gear box oil.

Lubricants

Engine Oil	SAE 30
Speed Reducer Lubricant	80W90 Gear lube

Spreader Installation

The A200/260/320 spreader is designed for installation in a 6'8' pickup truck bed. The A320 spreader is designed for 10' dump truck or flat deck truck Follow the step below to install your unit in your vehicle.

- 1) Slide spreader into position and secure with ratchet straps (item #6, see page “Hopper installation”) into the cargo tie downs of the truck.
- 3) Weld mounting angle bracket to spreader, then bolt it to the back of the truck using ½" bolt. (Item #2, 3, 4, 5, see page “Hopper installation”)
- 4) Install the sand chute using the required pivoting/fastening components. (Item #14, see page “Hopper assembly-gas engine”)
- 5) Position the spinner disc at the desired height. Using the hole in the spinner disc hub as a guide, drill a hole through the shaft, for the mounting bolt. Cut off any excess length

from the shaft and install the spinner disc. (Item #27, 30, see page “Hopper assembly-gas engine”)

6) For wiring information see page with wiring instructions.

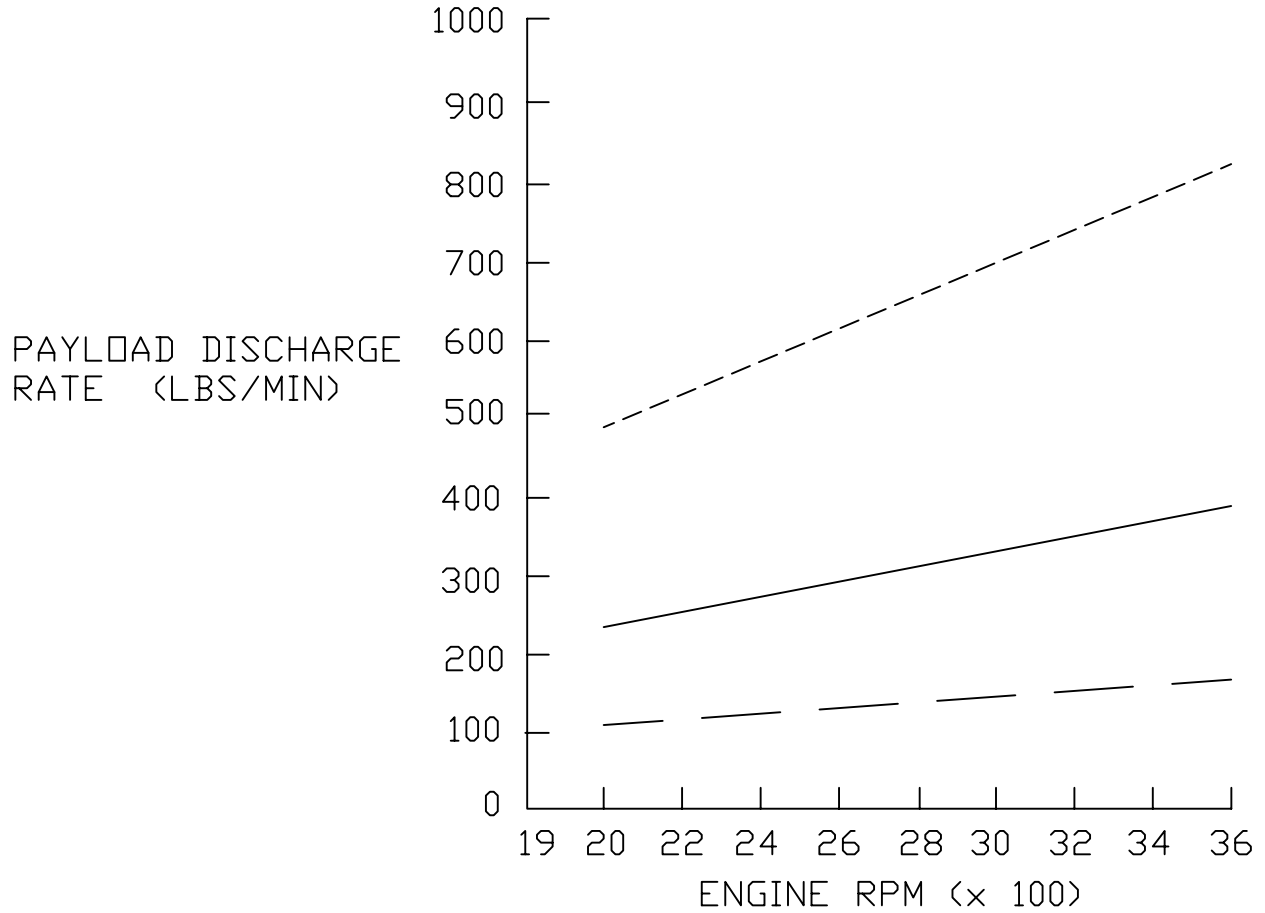
Before Operating

Check the following areas that correspond to your unit.

- 1) Engine oil and speed reducer oil level.
- 2) Grease all lubrication points.
- 3) Ensure all belts are tight (also chain).
- 4) Ensure that the conveyor chain is dragging for one foot on the bottom return channel, or the spreader. (Do not over tighten the chain).

Note: If it is necessary to replace the drive belts, remove the top bearing and work through that hole.

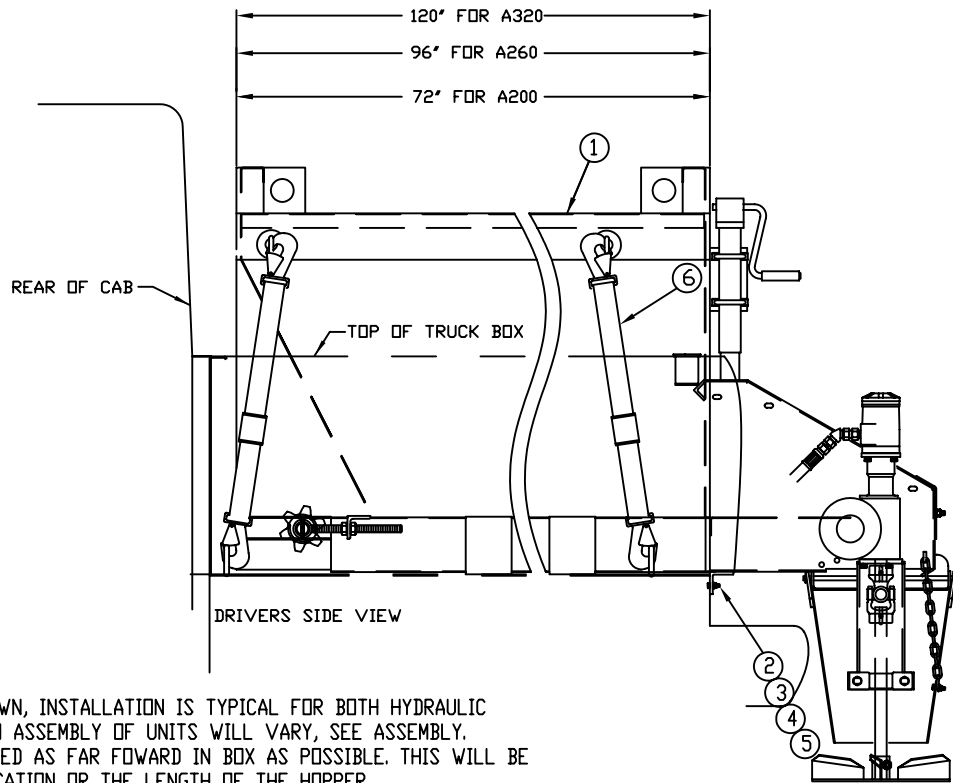
PAYLOAD DISCHARGE RATE GRAPH
(ENGINE EQUIPPED MODEL)



- 6" GATE OPENING
- 3" GATE OPENING
- · - · 1 1/4" GATE OPENING

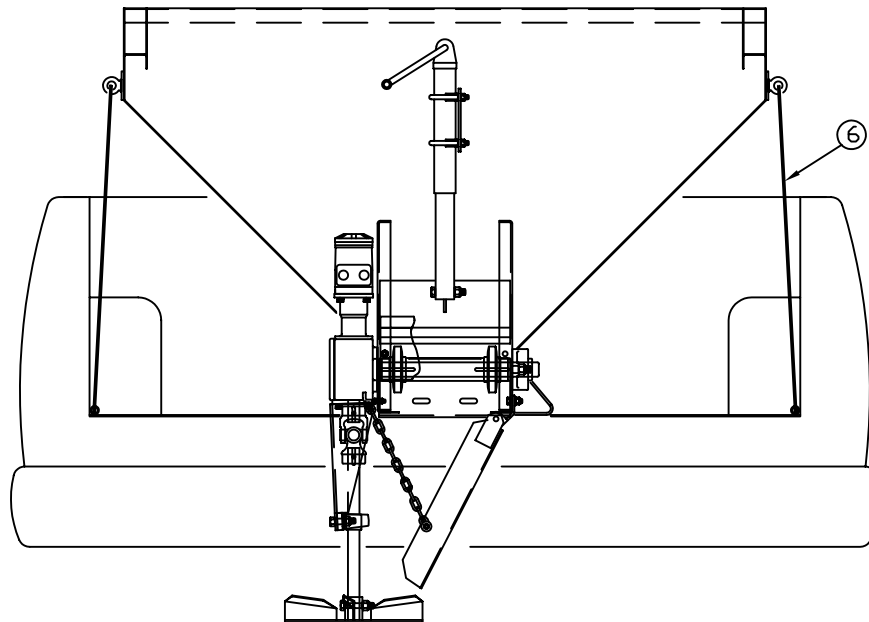
The graph above illustrates the effect that the engine RPM and gate opening has upon the discharge rate. Note that these figures are theoretical and are assuming a 75% efficiency factor.

HOPPER INSTALLATION



NOTE:

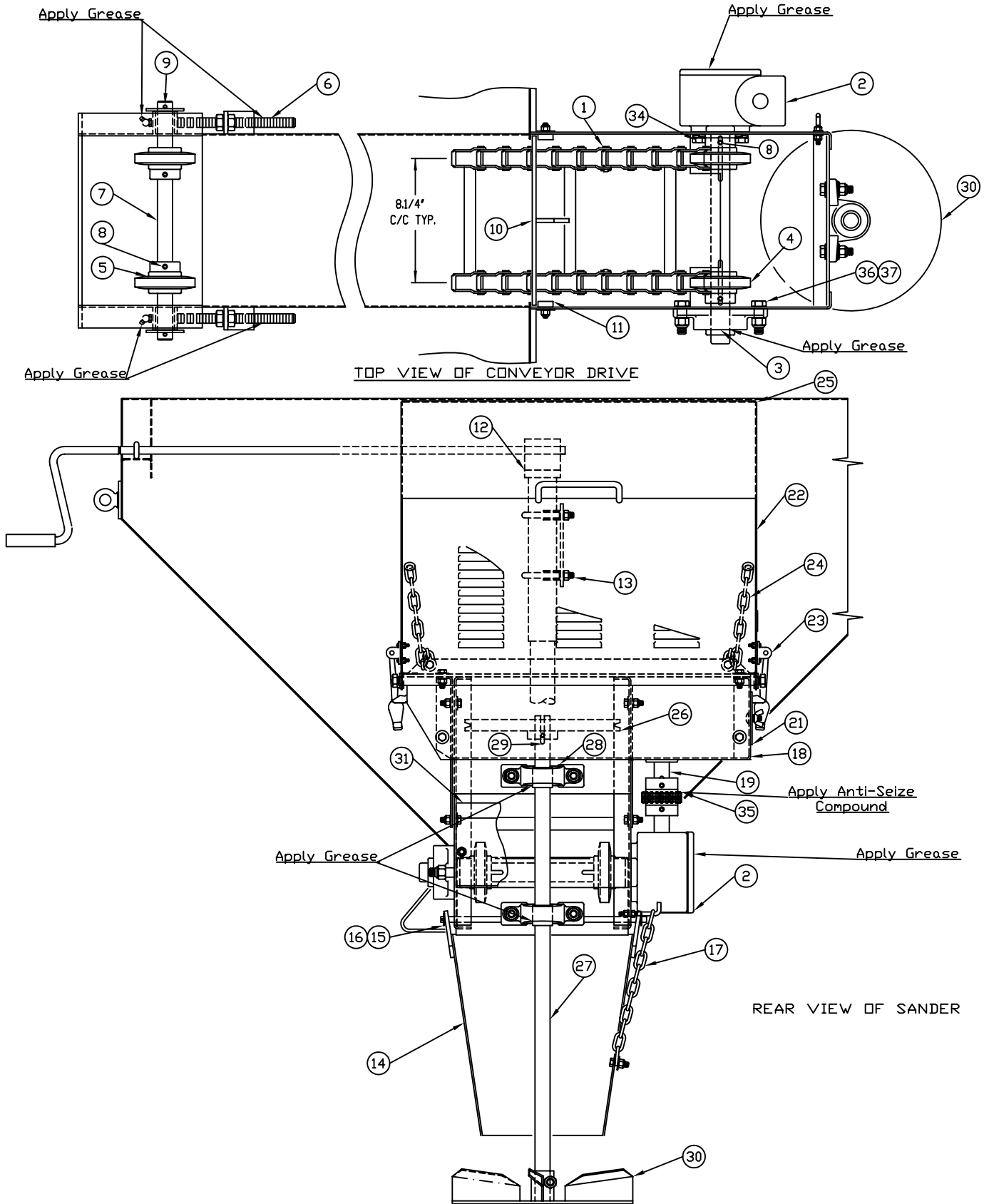
1. HYDRAULIC VERSION SHOWN, INSTALLATION IS TYPICAL FOR BOTH HYDRAULIC AND GAS ENGINE, ALTHOUGH ASSEMBLY OF UNITS WILL VARY, SEE ASSEMBLY.
2. HOPPER IS TO BE LOCATED AS FAR FORWARD IN BOX AS POSSIBLE. THIS WILL BE LIMITED BY THE CHUTE LOCATION OR THE LENGTH OF THE HOPPER.
3. ASSEMBLE CHUTE AND SPINNER SHAFT AS SHOWN IN OWNERS MANUAL. SPINNER DISK HEIGHT IS TO BE DECIDED BY CUSTOMER.



REAR VIEW OF SANDER

ITEM	PART NO.	DESCRIPTION	QTY.
1	RD-38756	HOPPER ASSY. - HYDRAULIC	-
1	RD-38757	HOPPER ASSY. - GAS ENGINE	-
2	RB-38759	MTG. STOP ANGLE	1
3	HH-00972-090	BOLT, HEX. 1/2"-20 x 1 1/2"	2
4	HH-00457-001	LOCKWASHER	2
5	HH-00460-002	HEX NUT, 1/2"-20	2
6	90040-N	RATCHET STRAP	4

HOPPER ASSEMBLY- GAS ENGINE

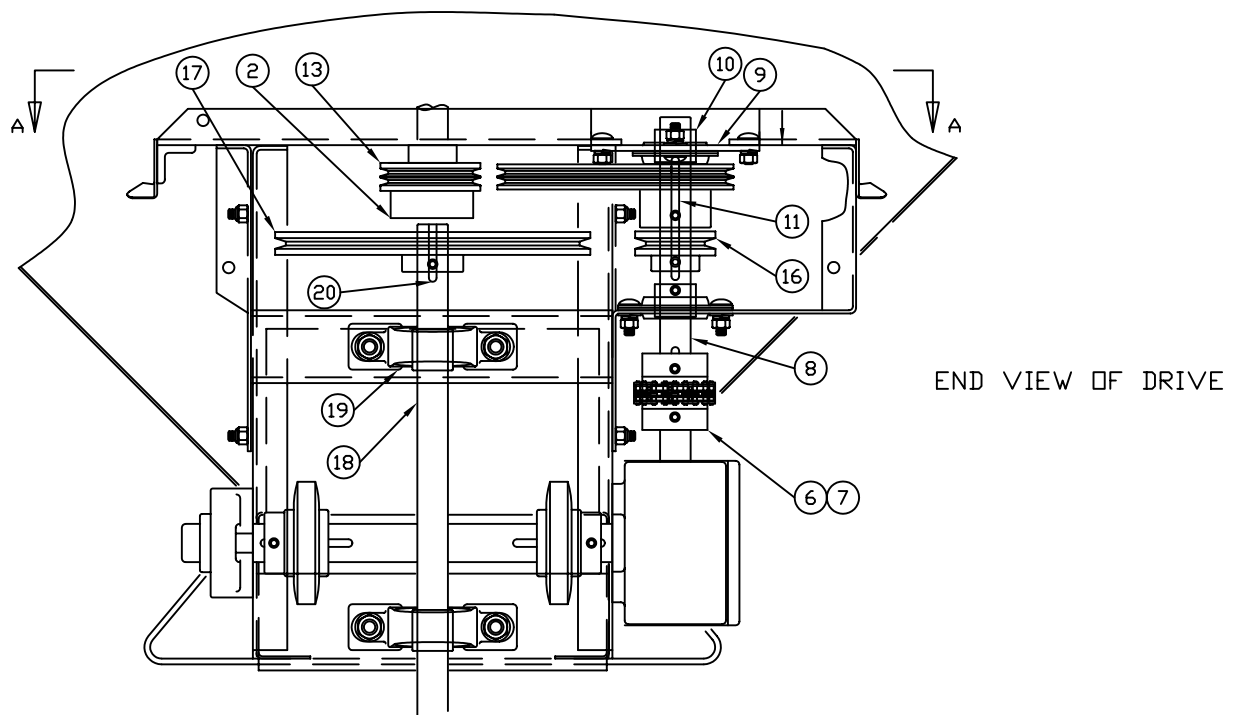
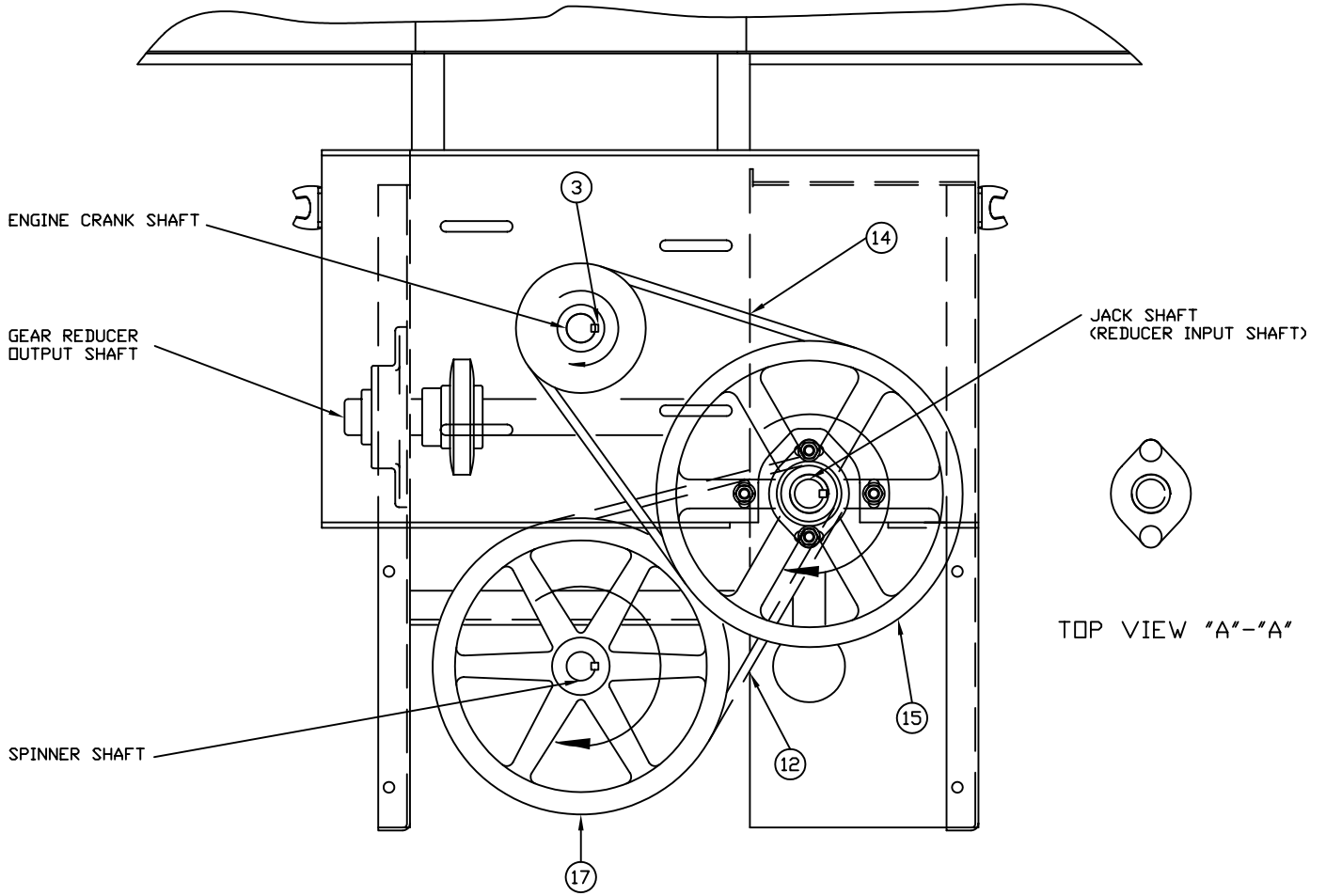


- NOTE:
1. ALL ITEMS ARE TYPICAL FOR BOTH THE A 200/260/320 WITH THE EXCEPTION OF THE CHAIN ASSY. ITEM 1
 2. THE BOTTOM OF THE GATE IS TO BE 1.1/4" CLEAR OF THE CONVEYOR FLOOR WHEN THE JACK SCREW HAS BEEN FULLY EXTENDED.
 3. THE GEAR REDUCER (2) IS TO BE FILLED WITH GEAR OIL (EP SAE 80W-90).

HOPPER ASS'Y - GAS ENGINE

ITEM	PART NO.	DESCRIPTION	QTY.	COMMENTS
1	RB-32992	CHAIN ASSY., A-200 ONLY	1	-
1	RB-32992-02	CHAIN ASSY., A-260 ONLY	1	-
1	RB-32992-03	CHAIN ASSY., A-320 ONLY	1	-
2	RB-38784	GEAR REDUCER, 50:1 ENG.	1	-
3	HH-00860-017	DRIVE SPROCKET BEARING	1	-
4	RB-872	DRIVE SPROCKET	2	-
5	RB-874	IDLER SPROCKET	2	-
6	RB-875	CHAIN TIGHTNER	2	-
7	RB-876	IDLER SHAFT	1	-
8	HH-00017-037	SET SCREW, CUP 5/16-18 x 1/4"LG.	4	-
9	HH-00104-019	ROLL PIN, 1/4"DIA.x 1.1/2"LG.	2	-
10	RB-38771	GATE WELD'T.	1	NOT SHOWN
11	RB-38773	GATE GUIDE	2	NOT SHOWN
12	RB-38775	JACK SCREW ASSY.	1	-
13	HH-00237-008	MUFFLER CLAMP, 1.3/4 CAD. PLATED	2	-
14	RB-32996	SALT CHUTE WELD'T.	1	-
15	RC-32854-02	HINGE PIN WELD'T.	1	-
16	HH-00020-081	COTTER PIN, 1/8" DIA.x 3/4" LG.	1	-
17	HH-00789-003-14	CHAIN, 3/16" DIA.x 14" LG.	1	-
18	RC-38785	ENGINE COMPARTMENT WELD'T.	1	-
19	RD-38786	ENGINE COMPARTMENT DRIVE DETAIL	1	-
20	RB-38793	END COVER WELD'T.	1	-
21	RA-38795	COVER (old 3.5"x12.5" new 3.5"x21")	1	-
22	RB-38796-02	ENGINE HOOD WELD'T (Exhaust on driver side)	1	-
23	HH-00857-006	HOOD LATCH	REF	-
24	HH-00789-003-20	CHAIN - 3/16" x 20" LG.	2	-
25	HH-00000	RUBBER STRIP, ADHESIVE BACK - 1"	1	-
26	RM-32993-01	SHEAVE, 3V-1 GROOVE 10.3 O.D.	1	-
27	RB-892	SPINNER SHAFT	1	-
28	HH-00905-013	SPINNER BEARING	2	-
29	HH-00291-100	KEY, 1/4" SQ. x 1.3/8" LG	1	-
30	RB-889	SPINNER DISC WELD'T. - R.H.	1	-
31	RB-38780	END PLATE	1	-
34	HH-00300-062	BOLT, HEX. 1/2 UNC x 1" LG S.S.T.	4	-
35	HH-00967-041-02	CHAIN	1	-
36	HH-00293-109	BOLT, HEX. 9/16" UNC x 1.5" LG	2	-
37	HH-00340-004	9/16" LOCK NUT NC	2	-

ENGINE DRIVE DETAIL



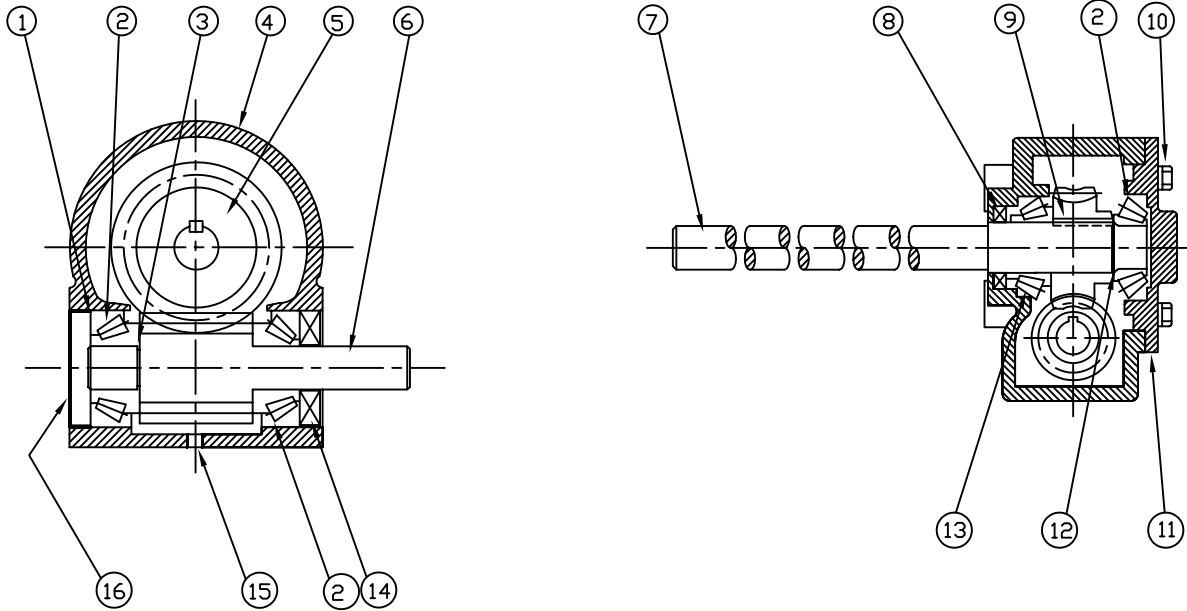
ENGINE DRIVE DETAIL

ITEM	PART NO.	DESCRIPTION	QTY.	COMMENTS
1	RM-33002-10.5HP	GAS ENGINE, 10.5 HP, BRIGGS & ST.	1	SEE PICTURE # 1
1	RM-33002-H	GAS ENGINE, 11 HP HONDA	1	SEE PICTURE # 2
2	90001-M	ELECTRIC CLUTCH	1	SEE INSTALLTION PAGE
3	52909-01-N	KEY, 1/4" X 3/16" x 2 3/4" LONG	1	-
4	HH-00967-041-01	HALF COUPLING (PART OF ITEM# 6)	1	-
5	HH-00967-041-02	CHAIN FOR HALF COUPLING (PART OF ITEM #6)	1	-
6	HH-00967-041	DOUBLE ROLLER CHAIN COUPL. ASS'Y	1	-
7	HH-00291-099	KEY, 1/4" SQ. x 1" LG	2	-
8	RB-882	JACK SHAFT	1	-
9	RA-38792	BEARING PLATE	1	-
10	HH-00960-009	JACK SHAFT BEARING	2	-
11	HH-00291-103	KEY, 1/4" SQ. x 4" LG	1	-
12	RM-32999-01	BELT, 3V425-1 GROOVE	1	-
13	90077-A	SHEAVE FOR ELECTRIC CLUTCH	1	-
14	RB-32999-03	BELT, 3V475-2 GROOVE	1	-
15	RM-32993-02	SHEAVE, 3V-2 GROOVE 10.6" O.D.	1	-
16	RM-32993-03	SHEAVE, 3V-1 GROOVE 2.65" O.D.	1	-
17	RM-32993-01	SHEAVE, 3V-1 GROOVE 10.3 O.D.	1	-
18	RB-892	SPINNER SHAFT	1	-
19	HH-00905-013	SPINNER BEARING	2	-
20	HH-00291-100	KEY, 1/4" SQ. x 1.3/8" LG	1	-

ASSEMBLY PROCEDURE:

1. WITH THE ENGINE COMP. WELD'T. LOOSELY BOLTED IN POSITION, CHECK TO ENSURE THE OUTPUT SHAFT OF THE GEAR REDUCER IS TRULY VERTICAL, LOOSEN BOLTS AND ROTATE IF NECESSARY.
2. LOOSELY ASSEMBLE IT'S. 4 THRU 13 IN POSITION.
3. WITH JACK SHAFT VERTICAL IN BOTH DIRECTIONS, TIGHTEN LOWER BEARING BOLTS, ENGINE COMPARTMENT MAY HAVE TO BE MOVED TO THE FRONT OR REAR, TIGHTEN COMPARTMENT BOLTS.
4. WITH JACK SHAFT STILL VERTICAL, TIGHTEN BOLTS FOR THE UPPER BEARING, AND BEARING PLATE.
5. CHECK THAT JACK SHAFT DOES NOT EXTEND MORE THAN 1" INTO COUPLING, TIGHTEN ALL SET SCREWS WITH SHEAVES IN POSITION AS SHOWN.
6. SUB-ASSEMBLE ENGINE AND CLUTCH, LOCATE ON ENGINE COMP'T. WITH BOLTS REQ'D. LOCATE BELT (#12) AND SLIDE ENGINE AWAY FROM JACK SHAFT TO PUT APPROPRIATE TENSION ON BELT, TIGHTEN ENGINE BOLTS.
7. TENSION ON THE SPINNER BELT WILL BE ACHIEVED BY SLIDING SPINNER ASSY. AWAY FROM JACK SHAFT BEFORE TIGHTENING SPINNER BEARING BOLTS.

GEAR REDUCER (GAS ENGINE) (RB-38784)

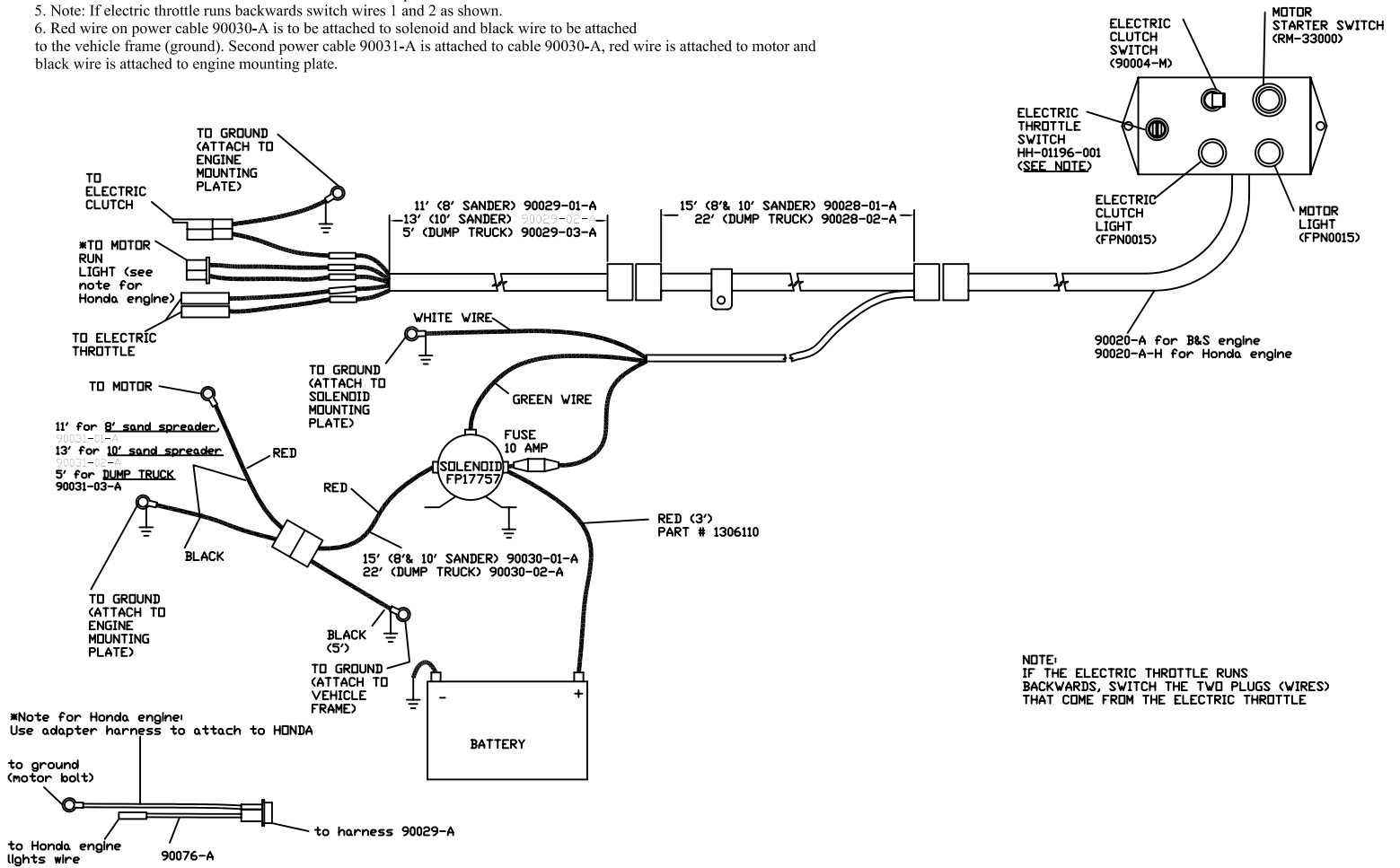


ITEM	PART #	DESCRIPTION	QTY
1	RB-38784-1	INTERNAL CIRCLIP D-1300-0620	2
2	RB-38784-2	TAPERED ROLLER BEARINGS 30206	3
3	RB-38784-3	EXTERNAL CIRCLIP N-1400-0100	1
4	RB-38784-4	HOUSING	1
5	RB-38784-5	WORM GEAR (50 TEETH)	1
6	RB-38784-6	INPUT WORM SHAFT (SINGLE THREAD)	1
7	RB-38784-7	OUTPUT SHAFT $\varnothing 1\frac{1}{4}$ "	1
8	RB-38784-8	OIL SEAL TC (35x50x7) (DOUBLE LIPS)	1
9	RB-38784-9	SQUARE KEY (8x7x40) LONG	1
10	RB-38784-10	BOLTS (M10x1.5)	4
11	RB-38784-11	OUTPUT COVER	1
12	RB-38784-12	EXTERNAL CIRCLIP N-1400-0125	1
13	RB-38784-13	TAPERED ROLLER BEARINGS 30207	1
14	RB-38784-14	OIL SEAL TC (30x62x8) (DOUBLE LIPS)	1
15	RB-38784-15	DRAIN PLUG $\frac{1}{4}$ "-19 NPT	2
16	RB-38784-16	SEAL COVER (62x00x08)	1
	RB-38784-1/4PV	PRESSURE VENT $\frac{1}{4}$ "-19 NPT 5 PSI	1
		FILL IN PLUG $\frac{3}{8}$ "-NPT	1
		6mm STRAIGHT GREASE FITTING	1

NOTE:
 WHEN ORDERING PARTS, ADD PREFIX TO THE ITEM NO. eg. RB-38784-5 WORM
 GEAR

WIRING DIAGRAM FOR 8', 10' AND DUMP TRUCK SAND SPREADER

1. The control box 90020-A is to be installed under the dash.
2. Drill hole 1 1/2" in firewall of the truck to attach harness 90028-A to harness 90020-A.
The cable with 3 wires goes under the hood to be attached to the solenoid (installed under hood of the truck).
Second part of harness goes to the back of vehicle. A cable clip is provided at the end of harness so that it can be secured to the truck.
3. Attach the harness 90029-A to the harness 90028-A. Tie harness 90029-A to the sander. End of the harness is attached to the motor, the clutch and the throttle as shown on drawing.
4. Harnesses 90028-A and 90029-A have "dummy" plugs to be attached when harnesses are not attached to each other for weather protection.
5. Note: If electric throttle runs backwards switch wires 1 and 2 as shown.
6. Red wire on power cable 90030-A is to be attached to solenoid and black wire to be attached to the vehicle frame (ground). Second power cable 90031-A is attached to cable 90030-A, red wire is attached to motor and black wire is attached to engine mounting plate.



Electrical Throttle Kit for Honda Engine RC-38880-01

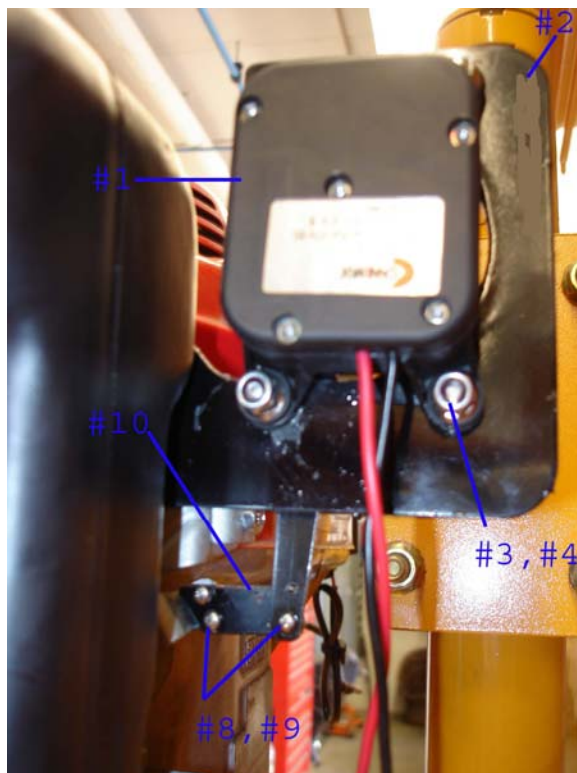
Item	Part#	Description	Qty.
1	1411907	Throttle motor	1
2	90086-A	Throttle mounting bracket	1
3	HH-00013-073	#8-32 x 5/8" Pan Head Machine Screw	4
4	HH-00340-019	#8 Locknut	4
5	90045-N	Retainer	1
6	90076-A	Harness	1
7	90046-M	Handle	1
8	90048-N	2/56 Screw	3
9	90049-N	2/56 Nut	3
10	90050-M	Extension Bracket	1

Installation of electrical throttle for Honda Engine

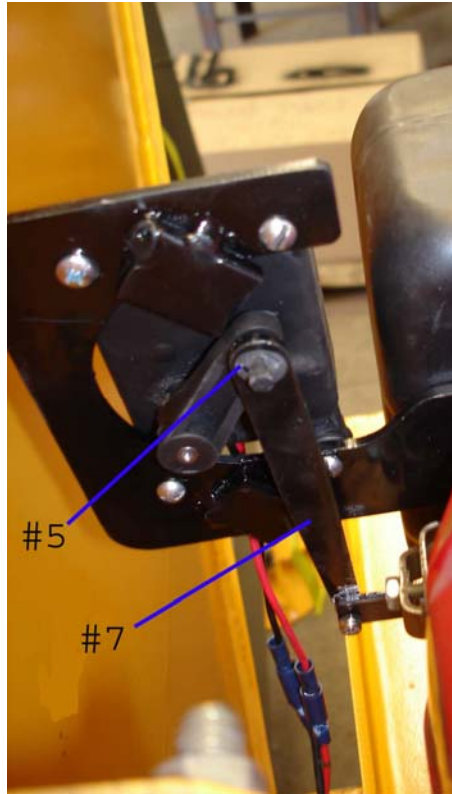
1. Install throttle motor (1) to the throttle mounting bracket (2) using four #8 screws and nuts (3)(4). (For correct orientation of the throttle motor (1) see pictures #1, #2, and #3)
2. Remove two bolts that hold gas tank. Install throttle mounting bracket (2) between engine body and gas tank. Secure throttle mounting bracket (2) and gas tank using existing tank bolts.
3. Using two 2/56 screws and nuts (8)(9) secure extension bracket (10) to the gas engine bracket (See picture#2).
4. Install the handle (7) on the throttle motor arm (1). Secure the handle (7) to the throttle motor arm using the retainer (5). (See picture #3)
5. Attach handle (7) to the extension bracket (10) using one 2/56 screw and nut (8)(9). (See picture #2)
6. One end of the harness (6) attach to the ground (engine bolt) and second attach to Honda engine light wire. (See picture #4)



Picture #1



Picture #2



Picture #3

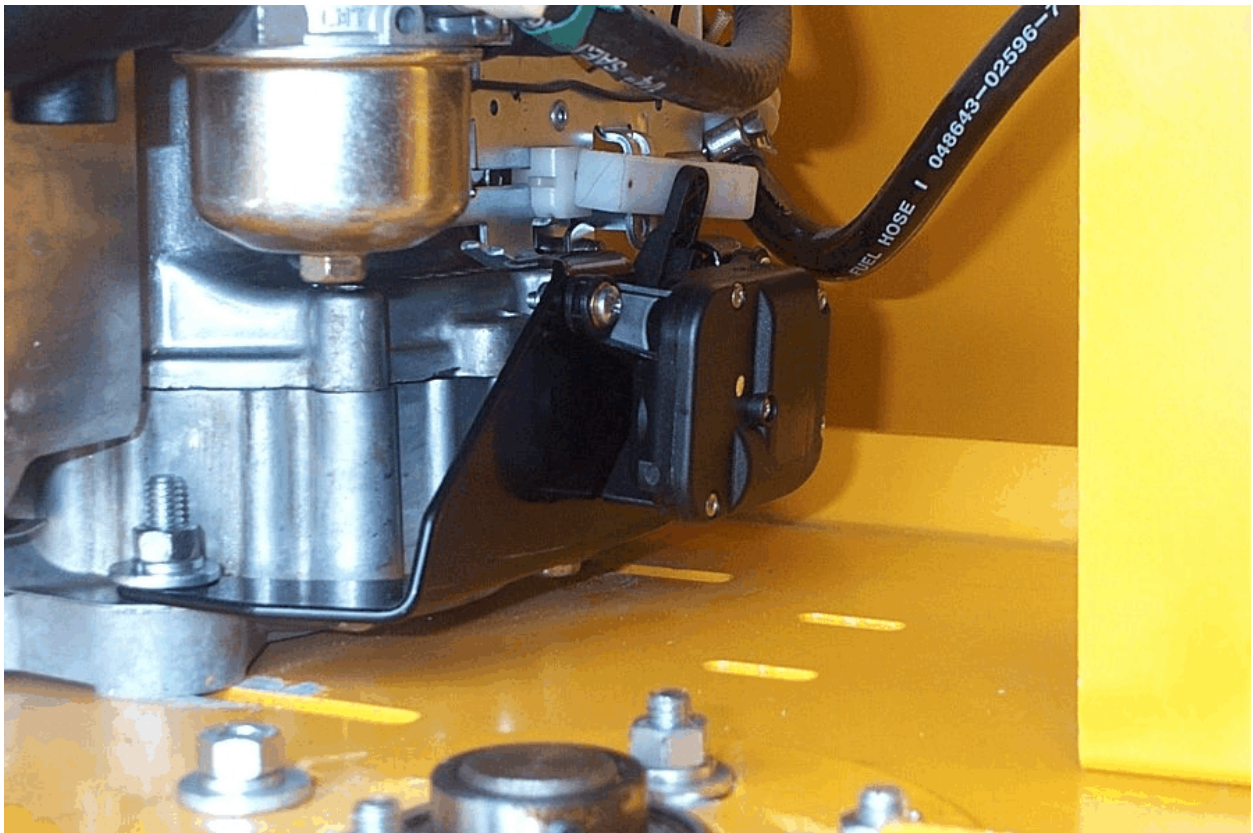


Picture #4

Installation of electrical throttle for Briggs & Stratton Engine

Electrical Throttle for B&S Engine RC-38880			
Item	Part#	Description	Qty.
1	1411907	Throttle motor	1
2	1411910	Throttle pin Assembly	1
3	HH-00013-073	#8-32 x 5/8" Pan Head Machine Screw	3
4	HH-00340-019	#8 Locknut	3
5	90069-A	Throttle mounting bracket	1

Note: Mounting bracket needs to be installed using engine mounting bolts.





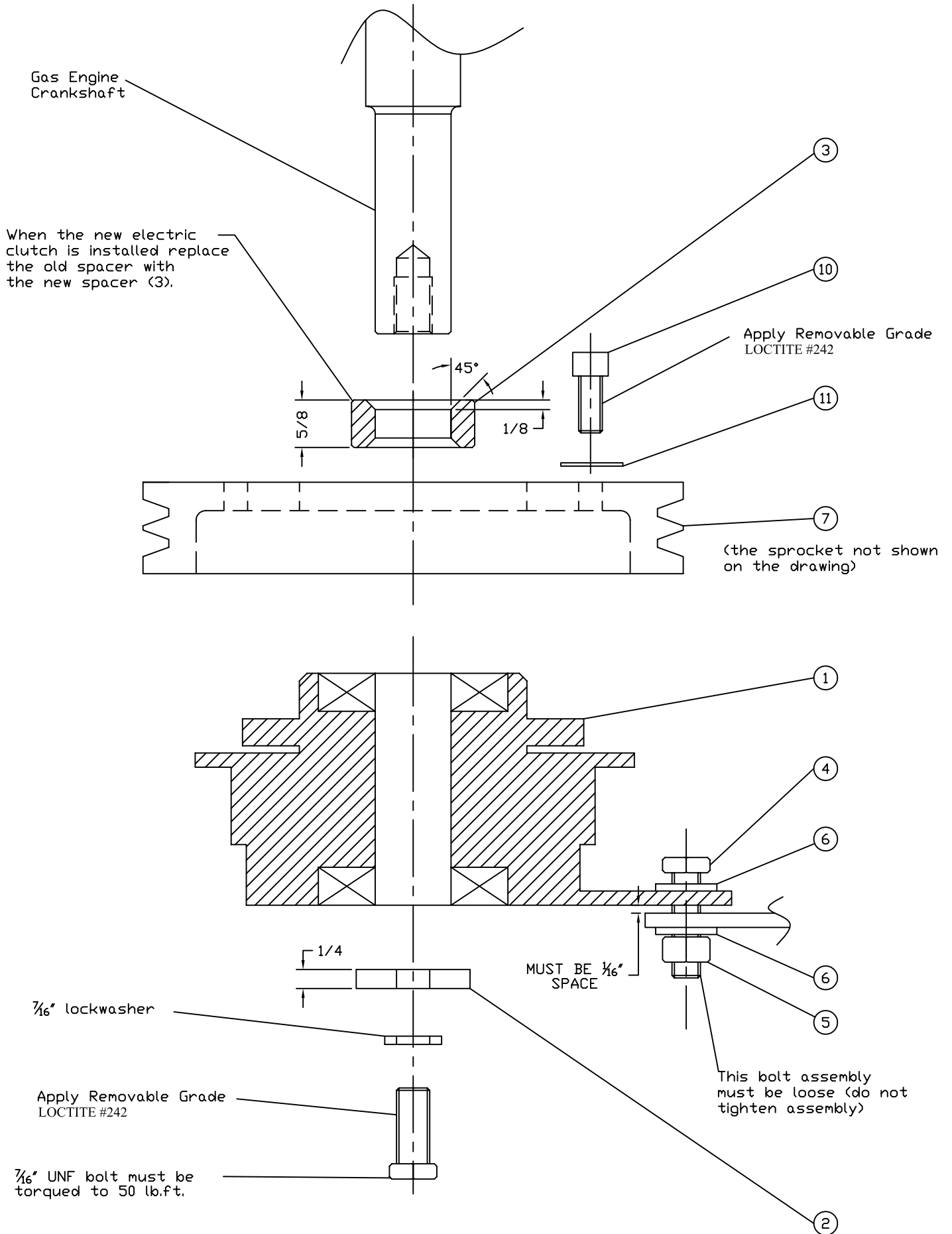
Briggs & Stratton Engine 10.5 HP

Warning:

Before changing the electric clutch or any parts on the engine drive, main harness must be disconnected from the control box.

Note:

This procedure is applied for both chain and belt drive.



Electric Clutch Kit					
Item	Part #	Description	90001-M Electric Clutch Kit (for chain and belt drive)	90001-M-K Belt Conversion Kit come with Electric Clutch (from chain drive to belt drive)	90084-M Belt Conversion Kit without Electric Clutch (from chain drive to belt drive)
1		Electric Clutch	1	1	
2	90082-N	Washer (1/4" thickness)	1		1
3	90023-A	Spacer (5/8" thicknes, 1/8" chamfer)	1		1
4	HH-00293-051	3/8" x 1 1/2" Bolt	1		1
5	HH-00340-001	3/8" Lock nut	1		1
6	HH-00341-004	3/8" Flatwasher	2		2
7	90077-A	Sheave for electric clutch			1
8*	RM-32993-02	Sheave (double-large)			1
9*	RM-32999-03	Belt 2-3VX475 (from engine to the main shaft)			1
10	HH-00356-097	5/16" x 3/4" Socket Head Bolt			3
11	HH-00342-002	5/16" Washer			3

* Not shown on the drawing