Rewind/Recoil Starters, Rotating Screens, Air Intake Screens And Conversion Kits By Engine Model

MODEL	DESCRIPTION	PART NO.
ACN, BKN	Rotating screen	SE161S1
ACN, BKN	Starter kit (Obsolete)	SK1230A
ACN, BKN	Starter kit (Obsolete)	SK1230B
ACN, BKN	Starter kit (Repl. by SK1230K4)	SK1230K1
ACN, BKN	Starter kit, RWS100 starter	SK1230K4
ADH, AE, AEH, AEHS	Flywheel screen (Obsolete)	SE6
AFH, AGH, AHH	Flywheel screen (Obsolete)	SE6
AENL	Rotating screen	SE172
AENL	Intake screen	SE303
AENL	Flywheel screen	SE6D
AEN, AENL	Starter kit	SK1230H
AEN, AENL	Starter (recoil)	RWS109
AEN, AENL	Starter (recoil)	RWS110
AEN, AENL	Starter (recoil) (Obsolete)	RWS111
AGND	Rotating screen, manual start	SE201FS2
AGND	Rotating screen, electric start (Obsolete)	SE201HS1
AGND	Flywheel screen	SE3
S7D	Air intake screen	SE273
S7D	Starter kit (Repl. by SK1402H4)	SK1402H1
S7D	Conversion kit (Obsolete)	SK1402H4
S8D	Air intake screen	SE273
S8D	Conversion kit (Repl. by SK1402H5)	SK1402H2
S8D	Conversion kit (Obsolete)	SK1402H3
S8D	Conversion kit (Obsolete)	SK1402H5
S10D, S12D, S14D	Air intake screen	SE303
S12D, S14D	Starter recoil	RWS116
S12D, S14D	Starter recoil	RWS117
S12D, S14D	Starter recoil (Obsolete)	RWS118
TE, TF, THD, TJD, W2-880	Flywheel screen	SE3
TE, TF, THD, TJD, W2-880	Flywheel screen, electric start	SE3G
TE, TF, TFD	Rotating screen	SE201FS2
TH, THD, TJD, W2-880	Rotating screen	SE201FS2
TH, THD, TJD, W2-880	Rotating screen	SE201G
TRA10D, TR10D, TRA12D	Air intake screen	SE273
TRA12D	Conversion kit	SK1402H3

Rewind/Recoil Starters, Rotating Screens, Air Intake Screens And Conversion Kits By Engine Model (Cont.)

MODEL	DESCRIPTION	PART NO.
TRA12D	Conversion kit	SK1402H5
VG4D	Rotating screen	SE205AS2
VG4D	Rotating screen	SE205B
VG4D	Rotating screen	SE320
VE4D, VF4D, VH4D	Rotating screen	SE204CS1
VE4D, VF4D, VH4D	Rotating screen	SE204D
VE4D, VF4D, VH4D	Rotating screen	SE321
VE4D, VF4D, VH4D	Flywheel screen	SE48
VE4D, VF4D, VH4D	Flywheel screen	SE20B3
V460D, V461D, V465D	Rotating screen	SE205AS2
V460D, V461D, V465D	Flywheel screen	SE48
W2-1230, W2-1235, W2-1250	Flywheel screen, solid	SE342B
W2-1230, W2-1235, W2-1250	Flywheel screen, with hole for stub shaft	SE342C
W4-1770	Rotating screen	SE204D
W4-1770	Flywheel screen	SE20H

Rewind/Recoil Starters And Conversion Kits By Part Number

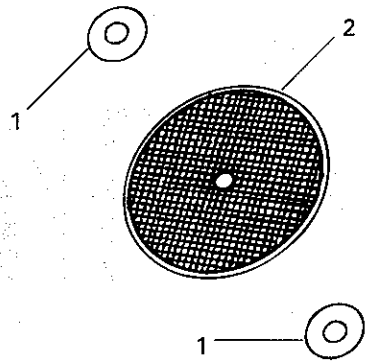
PART NO.	DESCRIPTION	MODEL
SK1230A	Fairbanks-Morse starter kit	ACN, BKN
SK1230B	Starter kit	ACN, BKN
SK1230H	Starter kit	AEN, AENL
SK1402H1	Starter kit	S7D
SK1402H2	Starter kit	S8D
SK1402H3	Conversion kit	S8D, TRA12D
SK1402H4	Conversion kit	S7D
SK1402H5	Conversion kit	S8D, TRA12D
SK1230K1	Starter kit	ACN, BKN
SK1230K4	Starter (RWS100)	ACN, BKN
RWS109	Starter (recoil)	AENL
RWS110	Starter (recoil)	AENL
RWS111	Starter (recoil)	AENL
RWS116	Starter (recoil)	S12D, S14D
RWS117	Starter (recoil)	S12D, S14D
RWS118	Starter (recoil)	S12D, S14D

Rotating Screens And Air Intake Screens By Part Number

PART NO.	DESCRIPTION	MODEL
SE161S1	Rotating screen	ACN, BKN
SE172	Rotating screen	AENL
SE303	Air intake screen	AENL
SE6D	Flywheel screen	AENL
SE201FS2	Rotating screen, manual start	AGND
SE201HS1	Rotating screen, electric start	AGND
SE3	Flywheel screen	AGND
SE201FS2	Rotating screen	TE, TF, TFD
SE201FS2	Rotating screen	TH, THD, TJD, W2-880
SE201G	Rotating screen	TH, THD, TJD, W2-880
SE204CS1	Rotating screen	VE4D, VF4D, VH4D
SE204D	Rotating screen	VE4E, VF4D, VH4D
SE321	Rotating screen	VE4D, VF4D, VH4D
SE20B3	Flywheel screen	VE4D, VF4D, VH4D
SE48	Flywheel screen	VE4D, VF4D, VH4D
SE204D	Rotating screen	W4-1770
SE20H	Air intake screen	W4-1770
SE205AS2	Rotating screen	V461D, V460D, V465D
SE48	Flywheel screen	V461D, V460D, V465D
SE205AS2	Rotating screen	VG4D
SE205B	Rotating screen	VG4D
SE320	Rotating screen	VG4D
SE273	Air intake screen	S7D, S8D, TR10D, TRA10D, TRA12D
SE3	Flywheel screen	TE, TF, THD, TJD, W2-880
SE3G	Flywheel screen, electric start	TE, TF, THD, TJD, W2-880
SE342B	Flywheel screen	W2-1230, W2-1235, W2-1250
SE342C	Flywheel screen, with hole for stub shaft	W2-1230, W2-1235, W2-1250
SE6	Flywheel screen	ADH, AE, AEH, AEHS, AFH, AGH, AHH

SE161S1 Rotating Screen

USE WITH MODELS ACN, BKN

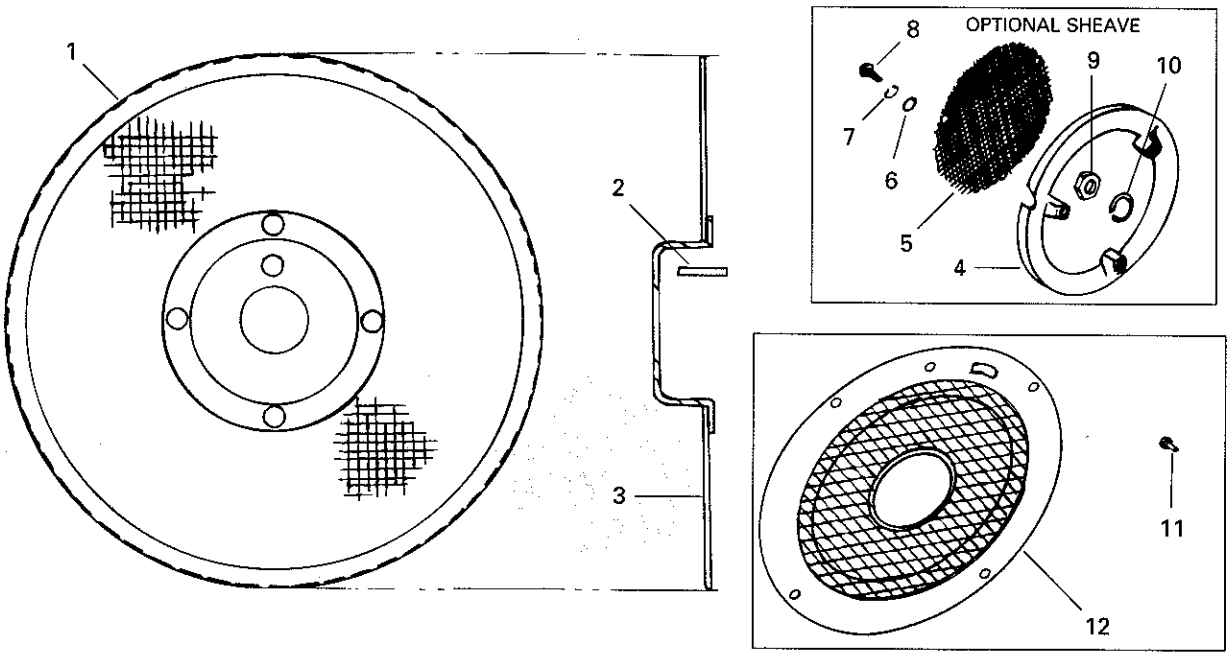


OPTIONAL
ROTATING SCREEN

ITEM	PART NO.	DESCRIPTION	QTY
1	PH243	Washer	2
2	SE161S1	Rotating screen	1

SE172 Rotating Screen And SE303 Sheave Screen

USE WITH MODEL AENL



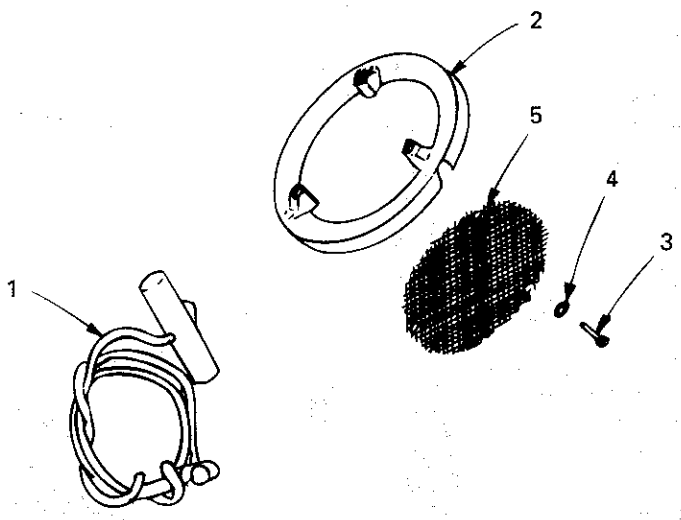
ITEM	PART NO.	DESCRIPTION	QTY
1	SE172	Rotating screen	1
2	PA323	Dowel pin	1
3	SE339	Air shroud (for recoil start, engines beginning with engine serial no. 5789735)	1
—	SE154	Air shroud (for rope start, engines before engine serial no. 5789735) (not illustrated)	1
—	SE339A	Air shroud (electric start engines) (replaces SE154A)	1
—	SSE124	Solid screen assembly (includes item 7; includes SE340, PC635, PD77, PH199A)	1

OPTIONAL SHEAVE

ITEM	PART NO.	DESCRIPTION	QTY
4	UC202	Rope sheave, 8" diameter	1
5	SE303	Rope sheave screen	1
6	PH196	Washer, 1/4"	3
7	PE3	Lock washer, 1/4"	3
8	XD6	Screw, 1/4"-20 thread x 3/4" long	3
9	PD142	Nut, 7/8"-14 thread	1
10	PE101	Lock washer, 7/8"	1
11	XA34	Screw, 1/4"-20 thread x 1/2" long	4
12	SE6D	Flywheel screen, 2-3/4" hole	1

SE303 Sheave Screen

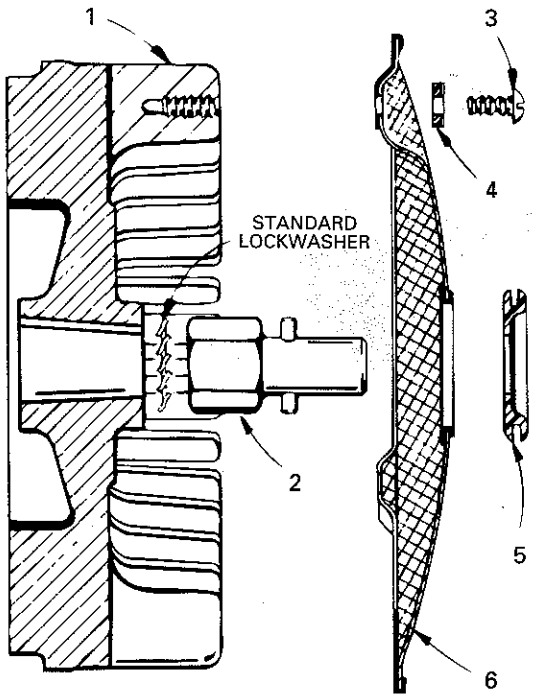
USE WITH MODELS S10D, S12D, S14D

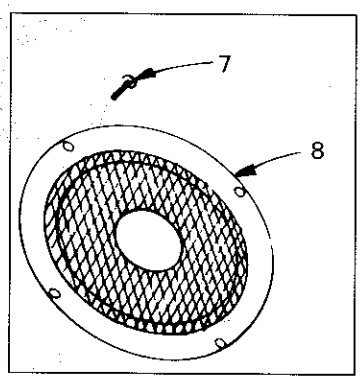


ITEM	PART NO.	DESCRIPTION	QTY
1	U268	Starting rope assembly (obsolete)	1
2	UC202	Starting sheave (beginning with engine serial no. 5368079; screen not included) (replaces UC189, UC189B)	1
3	XD6	Screw, 1/4"-20 thread x 3/4" long, UC202	3
—	XD9	Screw, 1/4"-20 thread x 1-1/2" long (UC189B) (obsolete)	3
—	XD10	Screw, 1/4"-20 thread x 1-3/4" long (UC189) (obsolete)	3
4	PH196	Washer, 1/4"	3
—	PE3	Washer, 1/4" (replaces PH442)	3
5	SE303	Screen	1

SE201FS2, SE201HS1, SE3 Flywheel Rotating Screens And Flywheel Screen (SK1174A For Manual Starting; SK1174G For Starter And Generator Drive)

USE WITH MODEL AGND



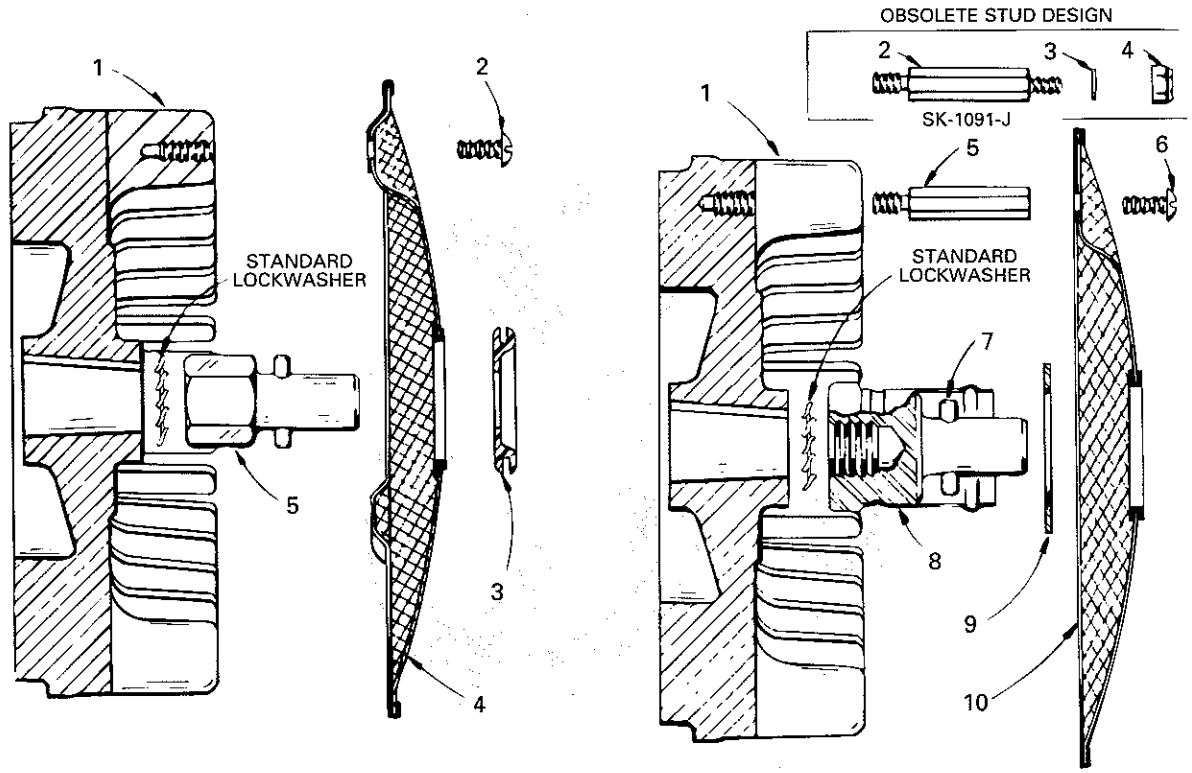


ITEM	PART NO.	DESCRIPTION	QTY
1	N102A8	Flywheel (manual starting) (replaces NC145G8)	1
—	NC145J1S1	Flywheel assembly (electric starter and generator drive, engines beginning with serial no. 3252140) (includes GH55)	1
—	NC145G9S1	Flywheel (electric start, engines to and including serial no. 3252139) (includes GH46)	1
—	SE201HS1	Rotating screen, 3-3/8" hole (electric start and generator drive)	1
2	UC75S1	Starting crank nut assembly (includes PA333, UC75)	1
3	XA104	Lok-Thread screw	3
4	PH442	Washer	3
5	PH426	Grommet	1
6	SE201FS2	Rotating screen assembly (manual start engines) (includes 3-5; includes SE201F)	1
7	XA33	Screw, 1/4"-20 thread x 3/8" long	4
8	SE3	Flywheel screen	1

SK1091C, SK1091F, SK1091J And SE201FS2 Flywheel Rotating Screens

USE WITH MODELS TE, TF, TFD

Flywheel Rotating Screen Illustration SK1091J, replaced SK1091C and SK1091F, the screens themselves are not interchangeable. When ordering parts, in addition to the engine Serial and Specification Numbers, give the equipment manufacturers name.

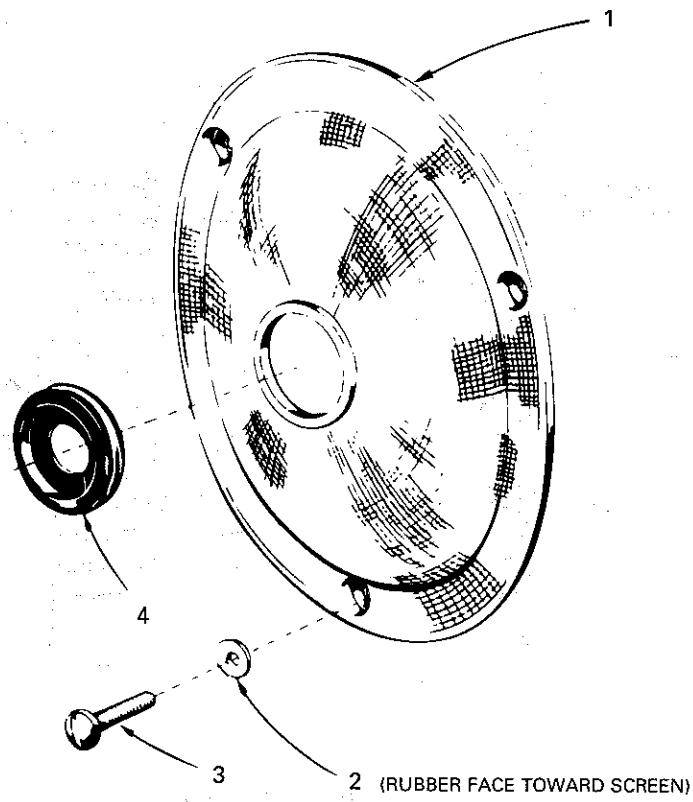


ITEM	PART NO.	DESCRIPTION	QTY
1	N102A8	Flywheel (manual start)	1
—	NC145G9S1	Flywheel assembly (electric start) (includes GH46, NC145G9, XE17)	1
2	XA104	Lok-Thread screw	3
3	PH426	Grommet	1
4	SE201FS2	Rotating screen assembly (includes 2 and 3; includes SE201F)	1
5	UC75S1	Starting crank nut assembly (includes PA333, UC75)	1

ITEM	PART NO.	DESCRIPTION	QTY
1	N102A8	Flywheel (manual start) (replaces NC145G8)	1
—	NC145G9S1	Flywheel assembly (electric start) (replaces NC145G9S1)	1
2	PC475	Stud (includes item 6) (replaces PC475DS1)	3
3	PH84	Washer, 1/4" I.D. x 1/2" O.D. x 1/16" thick	3
4	PD198	Lock nut, 1/4"-20 thread	3
5	PC475DS1	Stud assembly (includes 2, 6)	3
6	XA104	Lok-Thread screw	3
7	PA333	Crank pin	1
8	UC156A	Starting crank nut assembly (includes 7, 9; includes LJ370-1, UC156) (obsolete)	1
9	PH410	Washer	1
10	SE201FS2	Rotating screen	1

SE201FS2 Flywheel Rotating Screen

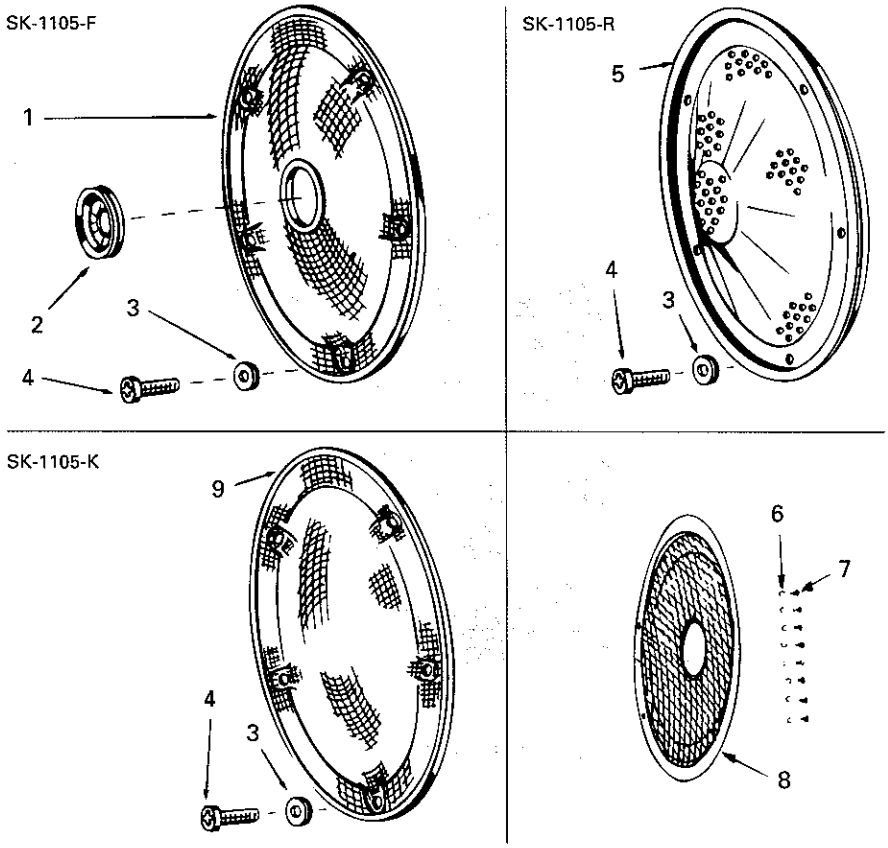
USE WITH MODELS TH, THD, TJD, W2-880



ITEM	PART NO.	DESCRIPTION	QTY
—	N102-7	Special flywheel required for mounting rotating screen	1
1	SE201FS2	Rotating screen assembly (SSE149) (includes 2-4; includes SE201F, HF276)	1
2	PH442	Washer	3
3	XA104	Lok-Thread screw	3
4	PH426	Grommet	1
—	SE201G	Rotating screen (SSE148)	1
—	PD137	Flywheel nut (SSE148)	1

SE204CS1 Rotating Screens And Intake Screen

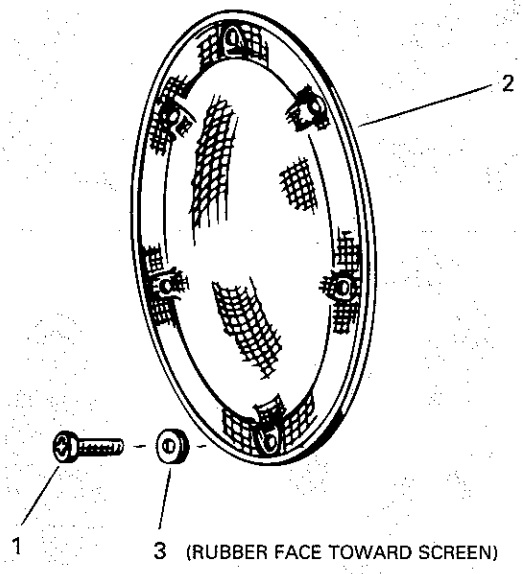
USE WITH MODELS VE4D, VF4D, VH4D



ITEM	PART NO.	DESCRIPTION	QTY
—	N101A2	Flywheel (includes GH43)	1
—	N101-7	Flywheel, 10 amp alternator	1
—	N101-11	Flywheel, 25 amp alternator	1
—	U212A	Hand crank	1
1	SE204CS1	Rotating screen assembly, SK1105F (includes 2-4; includes SE204C)	1
2	PH426	Grommet	1
3	PH442	Washer	5
4	XA104	Loc-Thread screw	5
5	SE321	Rotating screen (SK1105R)	1
6	PE3	Lock washer, 1/4"	8
7	XA33	Screw, 1/4"-20 thread x 3/8" long	8
8	SE48	Screen (VG4D)	1
—	SE20B3	Screen (VE4D, VF4D, VH4D)	1
9	SE204D	Rotating screen (SK1105K)	1

SE204D Rotating Screen

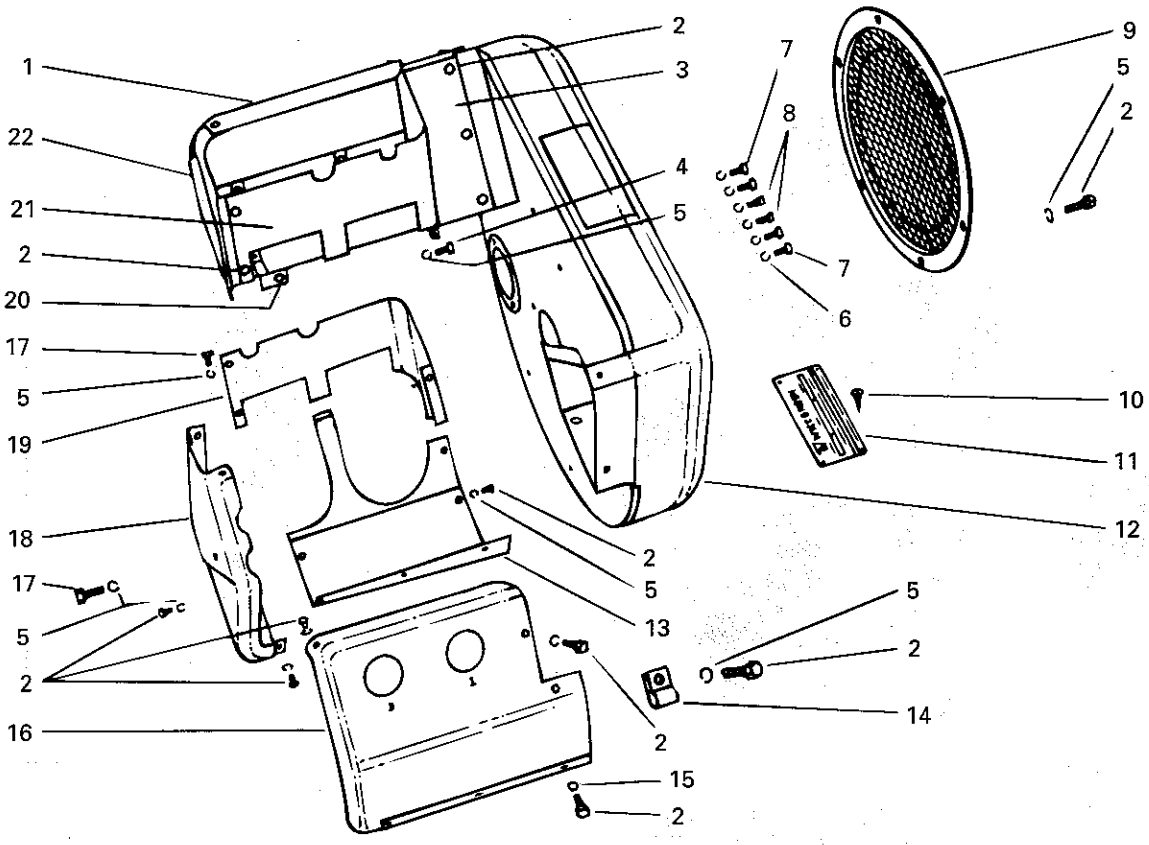
USE WITH MODEL W4-1770



ITEM	PART NO.	DESCRIPTION	QTY
—	N101-17	Flywheel (includes 10 amp alternator rotor, ring gear, rotating screen)	1
—	N101-16	Flywheel (includes 25 amp alternator rotor, ring gear, rotating screen)	1
1	XA104	Screw, 1/4"-20 Lok-Thread, 3/4" long	5
2	SE204D	Rotating screen	1
3	PH442	Washer, 1/4" I.D. x 5/8" O.D. x 3/32" thick	5

SE20H Air Shrouding

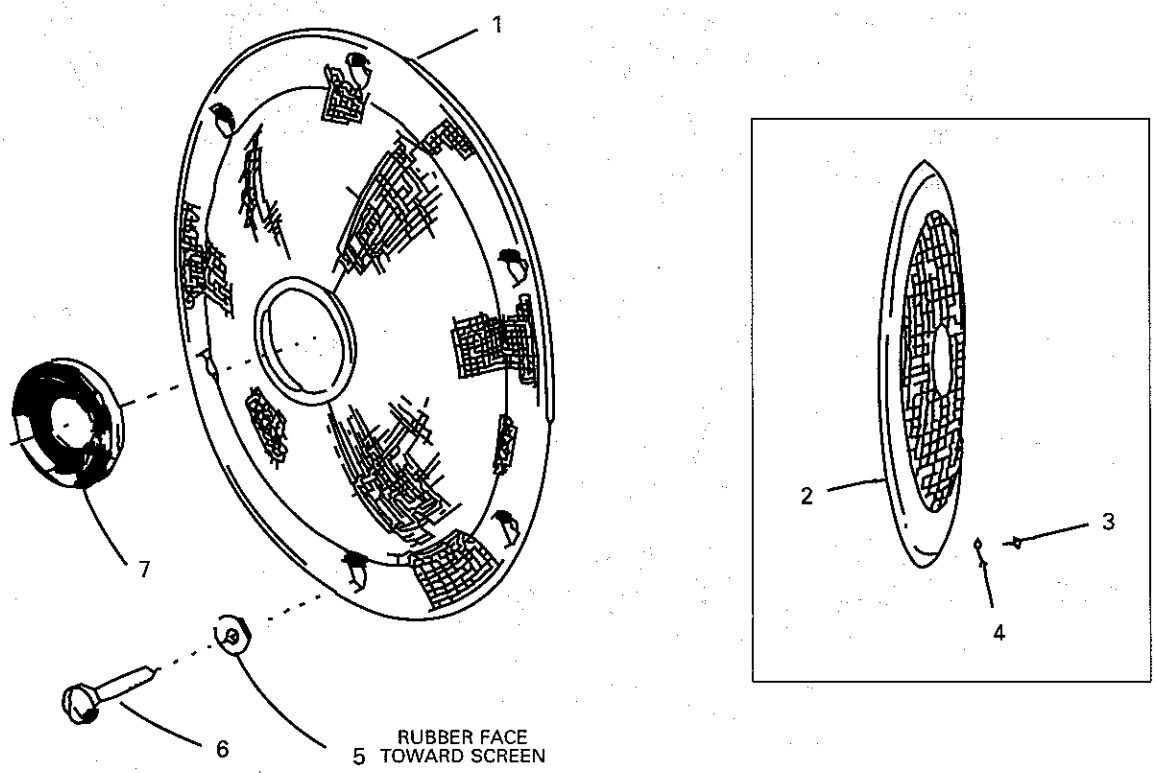
USE WITH MODEL W4-1770



ITEM	PART NO.	DESCRIPTION	QTY
1	SE78C	Cylinder head shroud, right	1
2	XA33	Screw, 1/4"-20 thread x 3/8" long	33
3	SE80	Side cover	1
4	XA34	Screw, 1/4"-20 thread x 1/2" long	4
5	PE3	Lock washer, 1/4"	33
6	PE4	Lock washer, 5/16"	6
7	SC13	Screw, 5/16"-18 thread x 1/2" long	4
8	XD172	Screw, 5/16"-18 thread x 1/2" long	2
9	SE20H	Screen	1
10	XA67	Screw, no. 4 x 1/4" long	4
11	SD312A	Engine name plate	1
12	SE74YBC	Flywheel shroud (standard engine with starter mounting pad)	1
—	SE74YBA	Flywheel shroud (standard engine with air and starter mounting pads)	1
13	SE76B3	Lower cylinder shroud, left	1
14	PG314	Clip	2
15	PH196	Washer, 1/4" x 1/16" thick	6
16	SE79C	Cylinder head shroud, left	1
17	XA36	Screw, 1/4"-20 thread x 3/4" long	4
18	SE82C	Rear shroud cover, left	1
19	SE77C	Heat deflector, left	1
20	SE75B	Lower cylinder shroud, right	1
21	SE77D	Heat deflector, right	1
22	SE83C	Rear shroud cover, right	1

SE205AS2 Rotating Screen And SE48 Flywheel Screen

USE WITH MODELS V465D, V460D, V461D

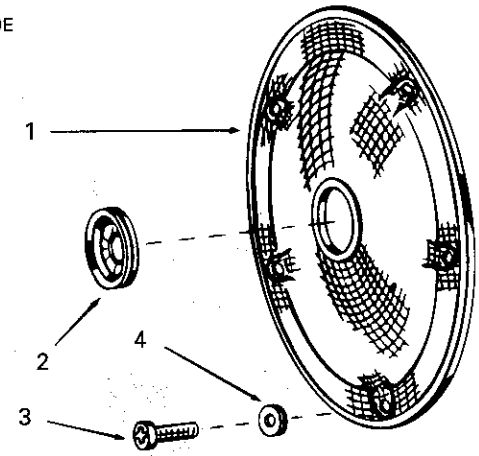


ITEM	PART NO.	DESCRIPTION	QTY
—	N116A1	Flywheel assembly (includes GH43) (replaces NC194-1-51)	1
—	U226A	Starting crank assembly	1
1	SE205AS2	Rotating screen asssembly, SK1334 (includes 5-7; includes SE205A)	1
2	SE48	Screen	1
3	XA33	Screw, 1/4"-20 thread x 3/8" long	8
4	PE3	Lock washer, 1/4"	8
5	PH442	Washer	6
6	XA104	Lok-Thread screw	6
7	PH426	Grommet	1

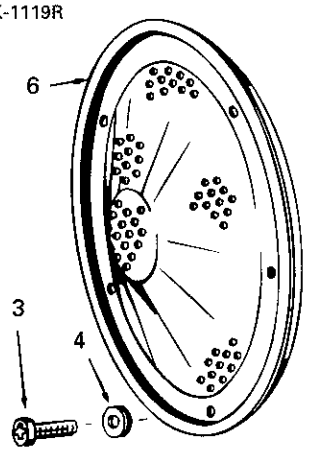
SE205AS2, SE205B Rotating Screens

USE WITH MODEL VG4D

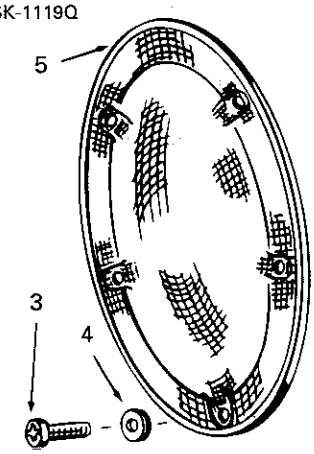
SK-1119E



SK-1119R



SK-1119Q



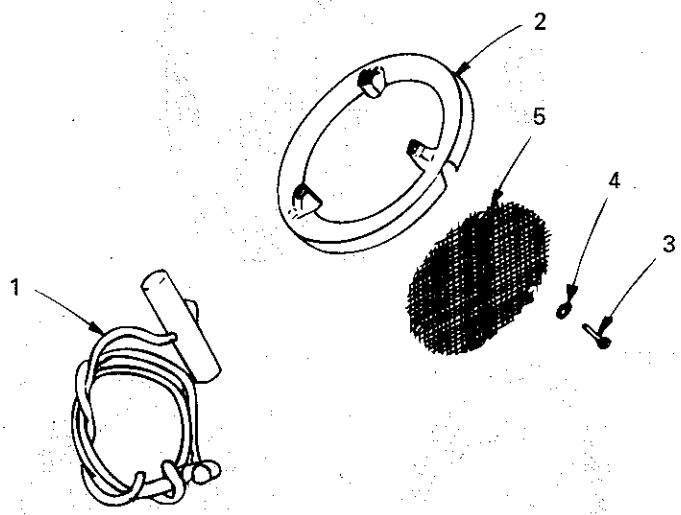
ITEM	PART NO.	DESCRIPTION	QTY
—	N100A2	Flywheel (includes GH43) (replaces NC146H3S1)	1
—	N100-6	Flywheel, 10 amp alternator	1
—	N100-10	Flywheel, 25 amp alternator	1
—	U226A	Starting crank assembly	1
1	SE205AS2	Rotating screen assembly, SK1119E (includes 2-4; includes SE205A)	1
2	PH426	Grommet	1
3	XA104	Lok-Thread screw	6
4	PH442	Washer	6
5	SE205B	Rotating screen (SK1119Q)	1
6	SE320	Rotating screen (SK1119R)	1

SE273 Sheave Screen

USE WITH MODELS S7D, S8D

SE273 Sheave Screen

USE WITH MODELS TRA10D, TR10D, TRA12D

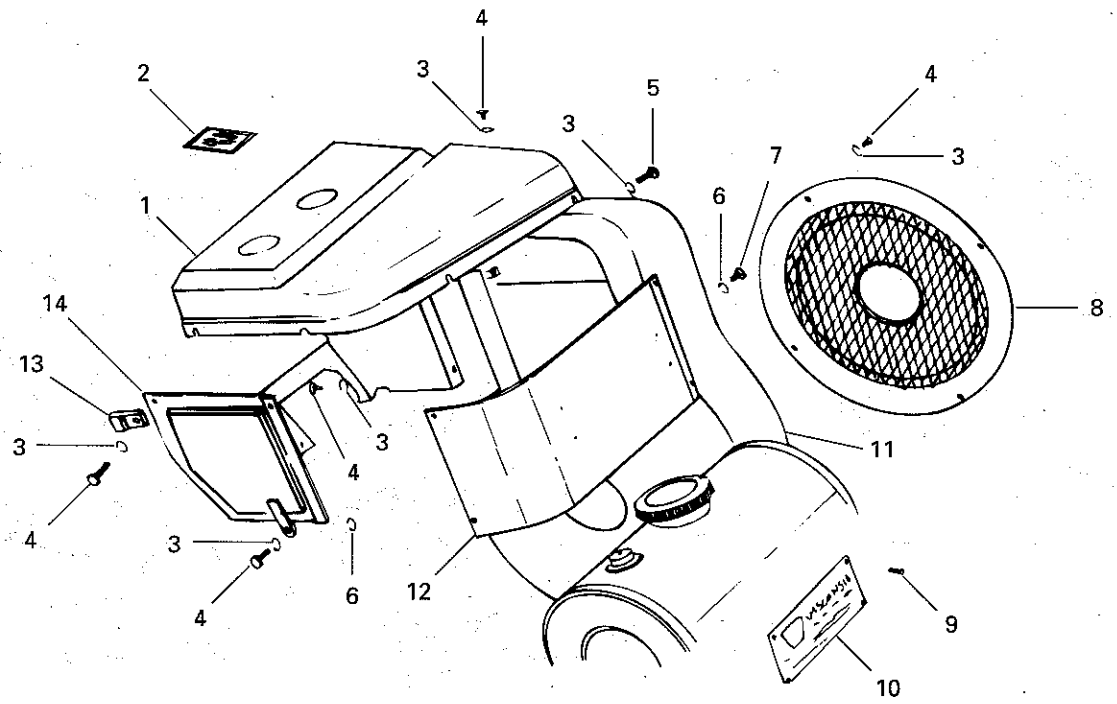


ITEM	PART NO.	DESCRIPTION	QTY
1	U268	Starting rope assembly	1
2	UC203A	Starting sheave (includes 3, 4; includes PE3) (replaces UC203A, UC184)	1
3	XD150	Screw, 1/4"-20 thread x 1-1/8" long, UC203A	3
—	XD5	Screw, 1/4"-20 thread x 5/8" long, UC203 (obsolete)	3
—	XD8	Screw, 1/4"-20 thread x 1-1/4" long, UC184 (obsolete)	3
4	PH196	Washer, 1/4" (replaces PH442)	3
5	SE273	Screen	1

ITEM	PART NO.	DESCRIPTION	QTY
1	U268	Starting rope assembly (obsolete)	1
2	UC203A	Starting sheave (includes item 4; includes XD150, PE3) (replaces UC203, UC184) (obsolete)	1
3	XD8	Screw, 1/4"-20 thread x 1-1/4" long, TRA10D, TR10D	3
4	PH196	Washer, 1/4" replaces PH442)	3
5	SE273	Screen	1

SE3, SE3G Air Shrouding Group

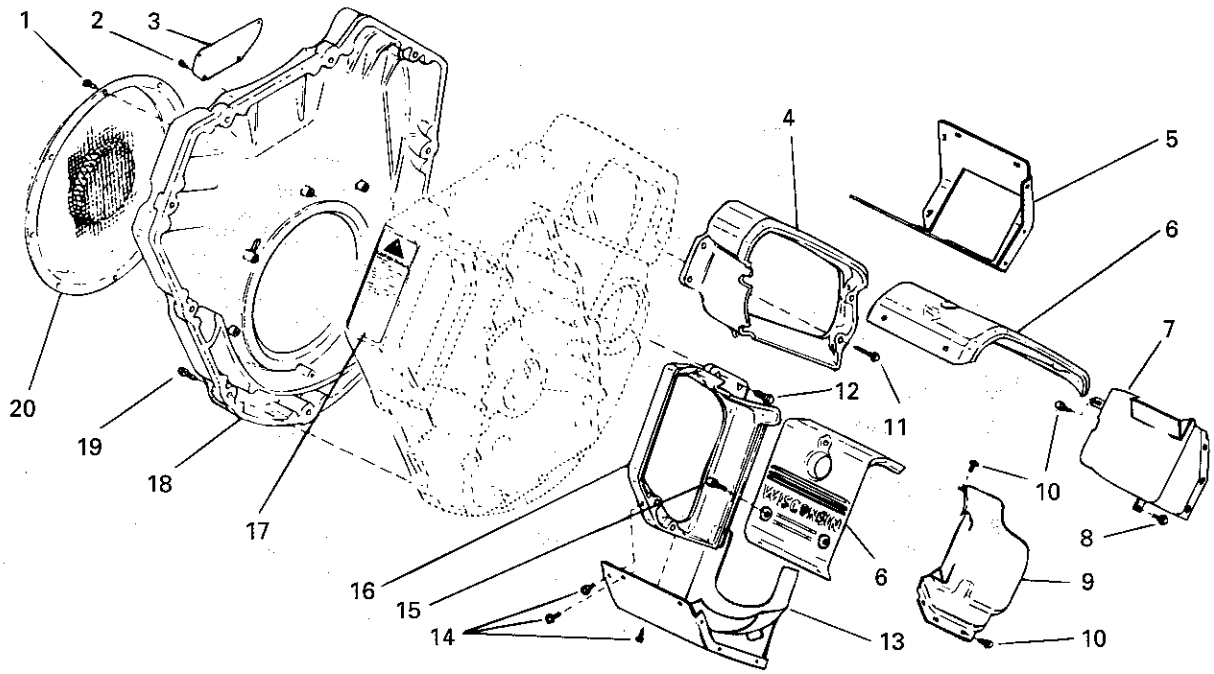
USE WITH MODELS W2-880, TE, TF, THD, TJD



ITEM	PART NO.	DESCRIPTION	QTY
1	SE136D	Air shroud cover	1
2	SD314	Warning decal	1
3	PE3	Lock washer, 1/4"	4
4	XA33	Screw, 1/4"-20 thread x 3/8" long	4
5	XA38	Screw, 1/4"-20 thread x 1" long	1
6	PE4	Lock washer, 5/16"	7
7	XD13A	Screw, 5/16"-18 thread x 1/2" long	3
8	SE3	Screen, 2-3/4" hole	1
—	SE3G	Solid screen, electric	1
9	XA67	Screw, no. 4 x 1/4" long	4
10	SD312A	Name plate	1
11	SE135	Flywheel shroud, standard	1
—	SE135J	Flywheel shroud with pad	1
—	SE135AT	Flywheel shroud, starter/flywheel alternator	1
12	SE136D	Cylinder shroud	1
13	PG314	Clip	1
14	SE138D	Heat deflector	1

SE342B, SE342C Air Shrouding

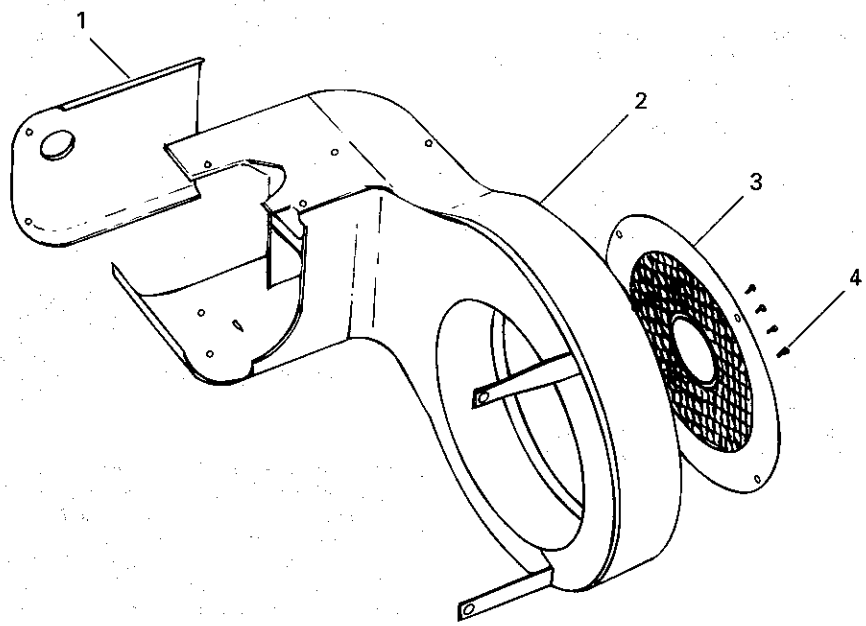
USE WITH MODELS W2-1230, W2-1235, W2-1250



ITEM	PART NO.	DESCRIPTION	QTY
1	XA129	Screw, no. 10-32 thread x 1/2" long	8
2	XA130	Screw, no. 4-40 thread x 1/4" long	4
3	SD318	Engine name plate	1
4	SE344	Air duct, left	1
5	SE350	Shroud, left	1
6	SE345	Cover	2
7	SE349	Shroud, left	1
8	XD157	Screw, 1/4"-20 thread x 1/2" long	7
9	XE347	Shroud, right	1
10	XD188	Screw, 1/4"-20 thread x 3/8" long	2
11	XD182	Screw, 5/16"-18 thread x 1-1/2" long	4
12	XD181	Screw, 5/16"-18 thread x 3/4" long	4
13	SE348	Shroud, right	1
14	XD180	Screw, 1/4"-20 thread x 1/2" long	8
15	XD186	Screw, 1/4"-20 thread x 7/8" long	6
16	SE343	Air duct, right	1
17	SD319	Decal	1
18	SE341A	Shroud	1
19	XD184	Screw, 1/4"-20 thread x 1" long	10
20	SE342B	Solid screen	1
—	SE342C	Screen	1

SE6 Flywheel Screen

USE WITH MODELS ADH, AE, AEH, AEHS, AFH, AGH, AHH



ITEM	PART NO.	DESCRIPTION	QTY
1	SE72	Cover	1
2	SE70	Air shroud	1
—	SE70A	Air shroud, electric start	1
3	SE6	Flywheel screen, rope start	1
—	SE6-3	Flywheel screen, hand crank	1
4	XA33	Screw, 1/4"-20 thread x 3/8" long	4

SK1230A, SK1230B Rewind Starter (Replaced By SK1230K4)

USE WITH MODELS ACN, BKN

DESCRIPTION

The Fairbanks-Morse Model S-475-98 Rewind Starter can be installed on **WISCONSIN** Models **ACN** and **BKN** engines, now in service, which were originally equipped with rope starters.

Two rewind starter kits, **SK-1230-B** with rotating screen and **SK-1230-A** less rotating screen, are available for complete installation.

The engines must be equipped with magnetos that have an impulse throw-out speed of 400 to 500 R.P.M. These magnetos are the Fairbanks-Morse FMXD1B7S (Wis. Motor Part No. Y-109) or Wico Model XH-1 (Wis. Motor Part No. Y-111). The manufacturers model number is identified on the magneto name plate.

Read the installation instructions completely and carefully before starting the assembly procedure. Thoroughly familiarize yourself with all component parts to be assured of a trouble-free installation.

INSTALLATION INSTRUCTIONS

With reference to Fig. 1, remove and discard rope starter sheave, but retain 5/8 inch lockwasher for later use in mounting drive cup to crankshaft. Remove flywheel shroud from engine.

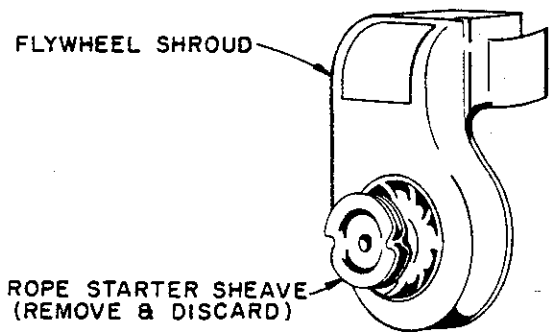
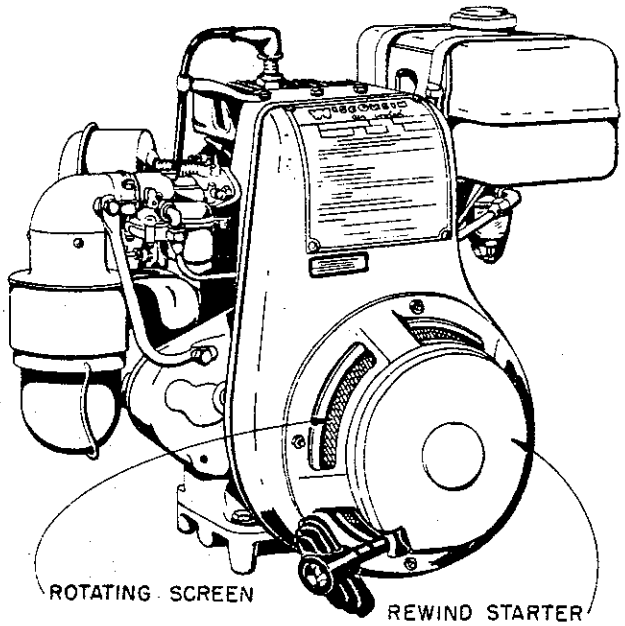


FIG. 1



As illustrated in Fig. 2, drill four 1/2 inch dia. holes on the flywheel shroud at the vertical and horizontal centerlines of the engine, equally spaced on a 7-7/8 inch diameter bolt circle. The rewind starter base can be used as a templet for laying out the location of the holes. If it is necessary to locate the "T" handle other than the four positions shown in Fig. 6, then drill the four 1/2 inch holes, 90° apart at the desired angle.

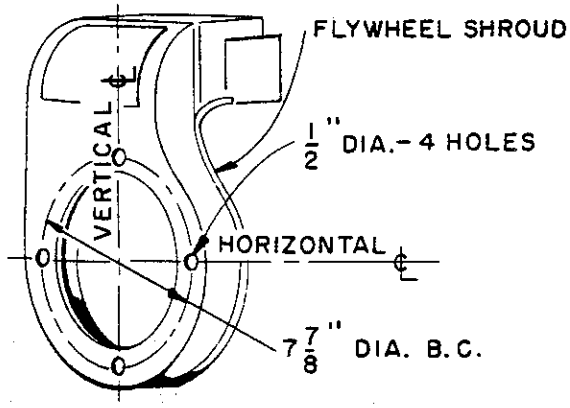


FIG. 2

SK1230A, SK1230B Rewind Starter (Replaced By SK1230K4)

USE WITH MODELS ACN, BKN

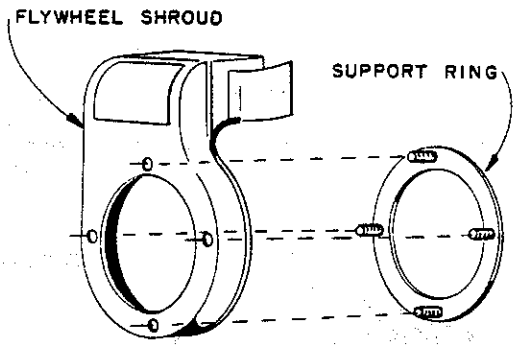


FIG. 3

Place support ring inside flywheel shroud with studs extended thru drilled holes, as shown in Fig. 3. Reassemble flywheel shroud to engine.

If a rotating screen is used, as illustrated in Fig. 4, mount same on to the end of the crankshaft and against flywheel hub. Next, add spacer and cup to crankshaft and secure in place with nut and the 5/8 inch lockwasher originally furnished for mounting rope starter sheave.

Pull out centering pin from rewind starter with pliers and discard as it is not used in this installation. If a rotating screen is used, mount the four spacers to the support ring studs as shown in Fig. 5. Next, mount rewind starter to flywheel shroud with the "T" handle of the rewind starter in any desired position as shown in Fig. 6. Mount four lockwashers and nuts for attaching starter to support ring studs, but do not tighten nuts.

While holding the rewind starter tight against the flywheel shroud, pull out "T" handle, as shown in Fig. 6, until a substantial resistance, indicating starter engagement, is obtained. This automatically centers the starter to the engine crankshaft. Hold starter in this position and tighten the four mounting nuts to securely hold starter in place. The starter will become damaged if it is not centered properly. Place instruction decal on flywheel shroud in location shown. The engine is now ready to start, by opening the fuel valve, close the carburetor choke and follow the starting procedure on instruction decal.

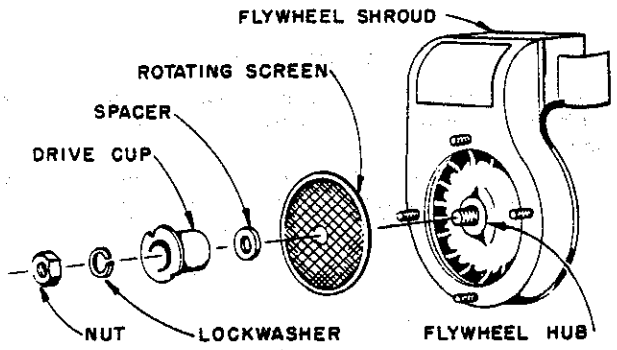


FIG. 4

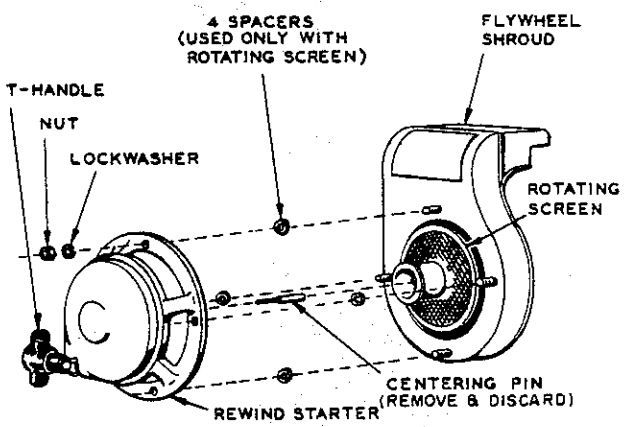


FIG. 5

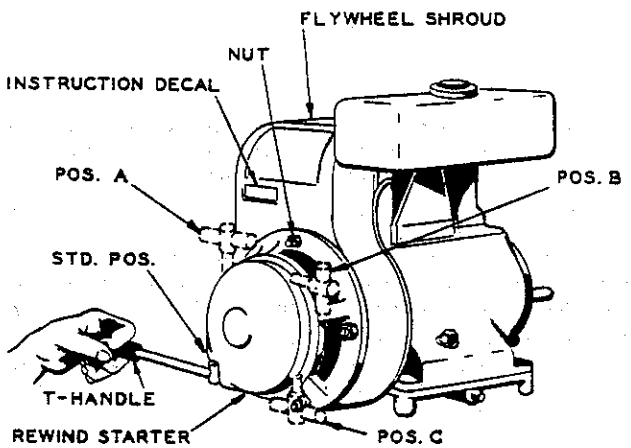


FIG. 6

SK1230A, SK1230B Rewind Starter (Replaced By SK1230K4)

USE WITH MODELS ACN, BKN

DISASSEMBLY

NOTE: The numbers shown in the disassembly procedure are the reference numbers of the parts in the exploded view of the rewind starter.

1. **Loss of brake spring (8) can be avoided by holding washer (7) in position with thumb while removing "Truarc" retainer ring (6) with a screwdriver, as shown in Fig. 7.**

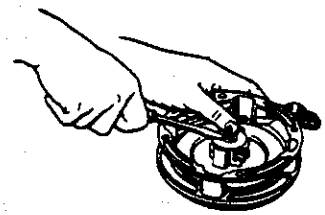


FIG. 7

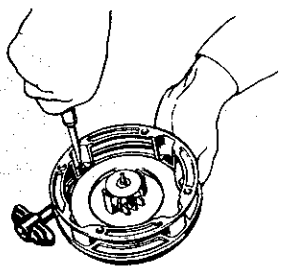


FIG. 8

2. Remove the following parts and assembly: Large washer (7), spring (8), washers (9 and 10), friction shoe assembly (including parts 11, 12, 13 and 14), washers (10 and 9).
3. To prevent rotation of rotor (17), it must be held while removing the four screws as shown in Fig. 8. Continue to hold the assembly as shown and remove flange (3). Now the tension of the rewind spring (18) can be relieved by releasing rotor and allowing spring to unwind slowly.
4. Prevent rewind spring from escaping from cover by carefully lifting rotor about 1/2 inch and detach inside spring loop from rotor. (Note: If spring should escape, it can easily be replaced in cover by coiling in turns.)

CORD REPLACEMENT

1. When installing a new cord (16) in rotor, tie a single knot in end, thread through rotor hole as shown in Fig. 9, then wind rope on rotor as explained in paragraph 3 of Assembly Procedure. Replace handle and tie a double knot in the end of cord.

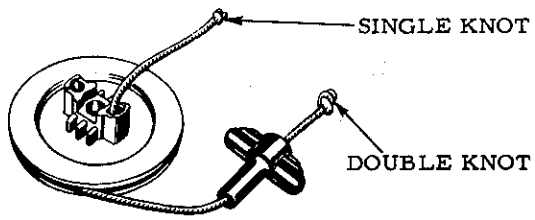


FIG. 9

REWIND SPRING REPLACEMENT

1. Starting with the inside loop, remove spring carefully from cover by pulling out one loop at a time, holding back rest of turns. When replacing with new spring, note the position of spring loop.

ENGINE ROTATION, "CLOCKWISE", VIEWED FROM STARTER END

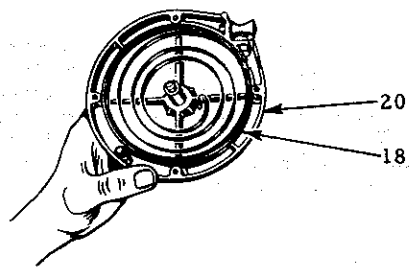


FIG. 10

2. Spring holders furnished with replacement springs simplify the assembly procedure. Place spring in proper position as shown in Fig. 10, with the outside loop engaged around the pin. Then press spring into cover cavity thus releasing the spring holder. A few drops of SAE 20 or 30 oil should then be applied to spring and light grease on cover shaft.

SK1230A, SK1230B Rewind Starter (Replaced By SK1230K4)

USE WITH MODELS ACN, BKN

ASSEMBLY PROCEDURE

1. Place rotor (17) (complete with cord and handle) into cover (20) and hook inside loop of spring (18) to rotor with the aid of a screwdriver as shown in Fig. 11.

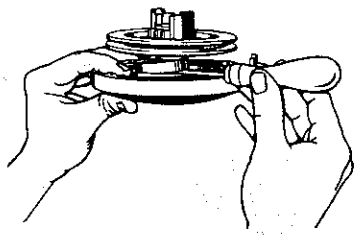


FIG. 11

2. Replace the following parts and assembly: Washers (9 and 10), friction shoe assembly (see Fig. 12 for position.) (Including parts 11, 12, 13 and 14.), washers (10 and 9), spring (8), large washer (7) and "Truarc" retainer ring (6).
3. Starter cord is now completely wound on rotor in direction as shown in Fig. 12.

IMPORTANT: Turn rotor four turns in the same direction for pre-tension.

ENGINE ROTATION, "CLOCKWISE", VIEWED FROM STARTER END

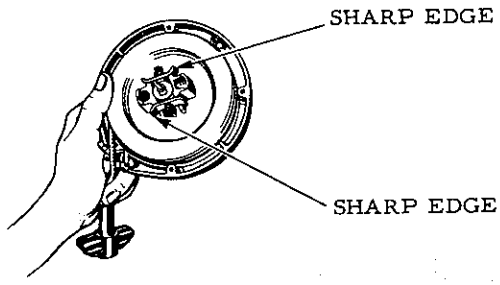
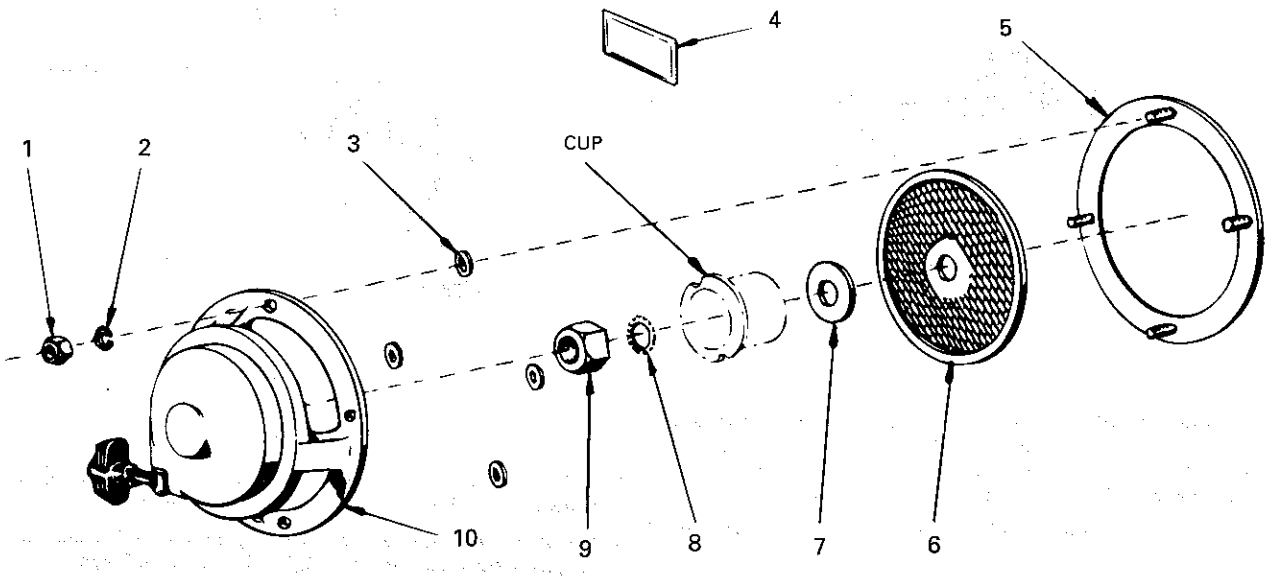


FIG. 12

4. Holding rotor in a similar manner as shown in Fig. 8, replace flange (3) and mount in place with screws (4).
5. Mount rewind starter unit to engine as explained in paragraphs with reference to Fig's. 5 and 6, on Page 2.

SK1230A, SK1230B Rewind Starter (Replaced By SK1230K4)

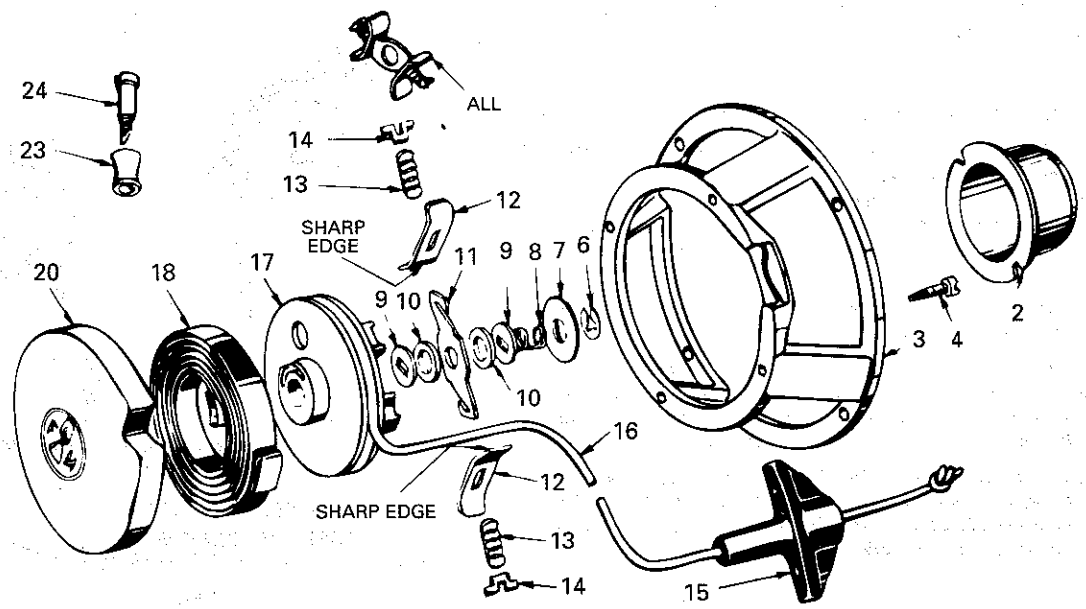
USE WITH MODELS ACN, BKN



ITEM	PART NO.	DESCRIPTION	QTY
1	PD77	Nut, 1/4"-20 thread	4
2	PE3	Lock washer, 1/4"	4
3	PH196	Rotating screen spacer	4
4	SD228	Instruction decal	1
5	PG827	Support ring	1
6	SE161	Rotating screen	1
7	PH266	Drive cup spacer	1
8	PE112	Lock washer, 5/8" (not included)	1
9	PD162	Nut, 5/8"-18 thread	1
10	U266A	Rewind starter, F-M no. S475-98	1

S475-98 Fairbanks-Morse Rewind Starter

USE WITH MODELS ACN, BKN



ITEM	F-M PART NO.	DESCRIPTION	QTY
2	14-360	Drive cup (replaces 14-36) (NLA)	1
3	38-13	Mounting flange	1
4	23-5	Mounting screws	4
6	29-3	Retainer ring	1
7	27-8	Brake retainer washer	1
8	20-3	Brake spring	1
9	27-80	Brake washer (replaces 27-3) (NLA)	2
10	———	Fibre washer (discontinued)	1
A11	111-71	Friction shoe assembly (includes 11-14)	1

ITEM	F-M PART NO.	DESCRIPTION	QTY
11	———	Brake lever	1
12	———	Friction shoe plate	2
13	———	Friction shoe spring	2
14	———	Spring retainer plate	2
15	44-14	Handle (includes 27-98) (replaces 144-7)	1
16	140-7	Cord (replaces 40-3) (NLA)	1
17	13-3	Rotor (NLA)	1
18	20-28	Rewind spring	1
20	151-7	Cover	1
23	56-2	Roller (replaces 56-1)	1
24	23-12	Roller screw	1

SK1230H Rewind Starter Kit

USE WITH MODELS AEN, AENL

The **U-274** Rewind Starter can be installed on **WISCONSIN** engine models **AEN** and **AENL**, which were originally equipped with a rope starter. No special tools or machining are required for this installation.

Read the installation instructions completely and carefully before starting the assembly procedure. Thoroughly familiarize yourself with all component parts to be assured of a trouble-free installation.

INSTALLATION INSTRUCTIONS

In mounting the Rewind Starter, it is absolutely necessary that proper alignment be maintained between the starter and the engine crankshaft. Do not assume that the opening and mounting holes in the air shroud are in perfect alignment, but locate the starter housing by using the engine crankshaft as your center.

1. Remove and discard the rope starter sheave, lockwasher, rim and screen, from front end of engine.
2. Screw hexagon **drive nut** (Ref. 15) on to crankshaft, using a new **lockwasher** (Ref. 32). Tighten drive nut securely in place and locate flat of hex on top or perpendicular to the vertical centerline mark on air shroud (see Fig. 2).
3. Mount complete starter unit to the flywheel shroud, as shown in Fig. 2, using new **speed nuts** (Ref. 33), **screws** (Ref. 36) and **lockwashers** (Ref. 31). **Slotted hole** in starter base plate should line up with **timing marks** on flywheel shroud.

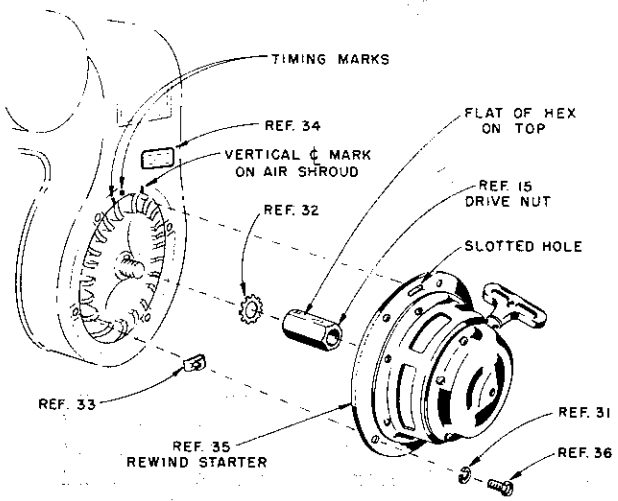


FIG. 2

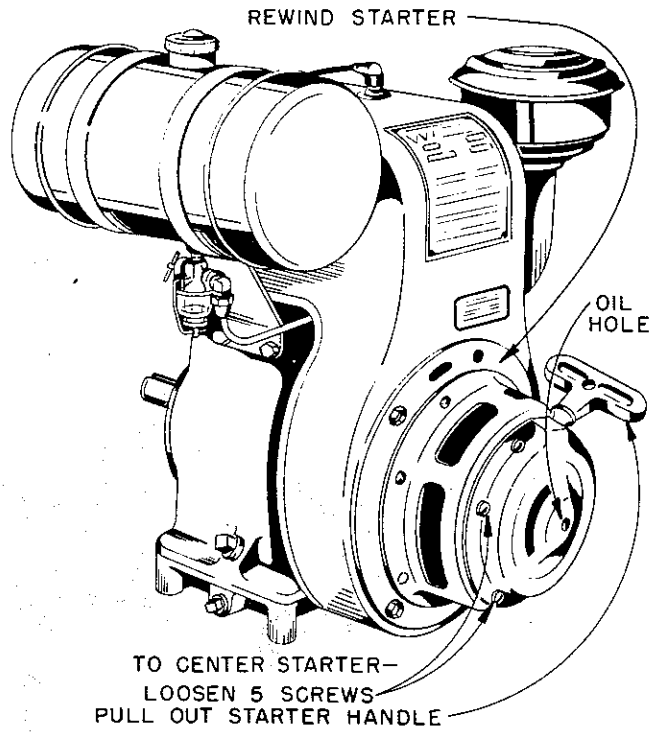


FIG. 1

4. After you have the starter mounted, **loosen**, but do not remove the **5 screws** (see Fig. 1) that fasten the sheave housing to the starter housing. This will allow about 1/8" radial movement of the sheave housing. With the 5 screws loosened, **pull** the **starter handle out**, then tighten the 5 screws while you have the starter engaged.

   In this operation, be sure the engagement is secure and that the starter is beginning to drive the engine while the 5 screws are loose. When you do this, the engaging pawls in the starter engage the nut on the end of the crankshaft and pull the sheave assembly into proper center location.
5. Mount **instruction decal** (Ref. 34) on flywheel shroud at location shown in Fig. 2.

SK1230H Rewind Starter Kit

USE WITH MODELS AEN, AENL

OPERATING AND MAINTENANCE INSTRUCTIONS

1. Start engine by opening the fuel valve, close the carburetor choke and follow starting procedure on instruction decal. After engine starts, open choke fully.
2. Always maintain your hold on the starter handle and allow it to return slowly.
3. Pull the starter handle so that the cable remains in a straight line through the handle and cable guide. This will prevent kinks in the cable and will result in much longer cable life.
4. DON'T allow the holes in the starter housing to become "clogged up." Brush them clean to allow the proper air flow to reach the engine.
5. DON'T release the starter handle allowing it to snap back against the starter.
6. DON'T attempt to tighten the starter spring unnecessarily. The units are properly assembled at the factory so that the outward pull of the starter is stopped by the end of the cable. When you tighten the spring too much, you stop the starter on the end of the spring which may cause it to break.
7. DON'T jerk the cable out to its very end in an unnecessarily rough manner. A smooth but forceful pull will accomplish just as much.

   If your engine does not start after a half-dozen or so attempts, refer to your engine service manual for help in locating the trouble.
8. Deposit a few drops of oil, whenever necessary, in the oil hole accessible through the sheave housing.

SK1230H Rewind Starter Kit

USE WITH MODELS AEN, AENL

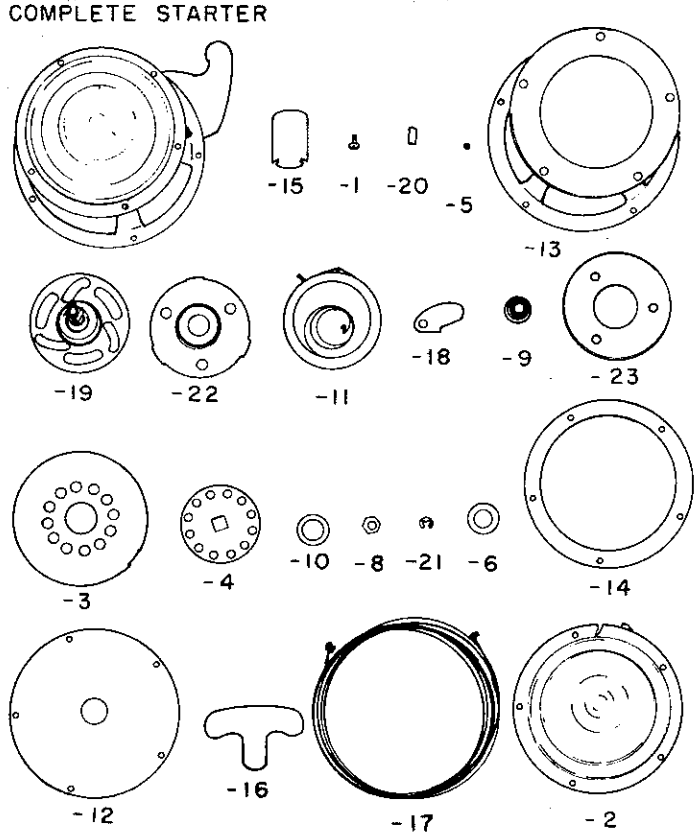
SERVICE PARTS LISTS

CONTENTS OF SK-1230-H KIT – Fig. 2

Ref. No.	Wis. Motor Part Number	Description	No. Req.
15	PD-241	**DRIVE NUT** (furnished with starter)	1
31	PE-3	**LOCKWASHER**, 1/4" Positive, for rewind starter to shroud	4
32	PE-73	**LOCKWASHER** for drive nut mounting	1
33	PG-315	**SPEED NUT**, for flywheel shroud	4
34	SD-228	**INSTRUCTION DECAL**	1
35	U-274	**REWIND STARTER ASSEMBLY** Service parts list below.	1
36	XA-34	**SCREW**, 1/4"-20 thread x 1/2" long, hex. hd. For rewind starter to shroud.	4

SCHNACKE REWIND STARTER – MODEL No. 1550

COMPLETE STARTER



SCHNACKE MFG. CO. PART NUMBERS SHOWN

1150-1	SCREW & LOCKWASHER (5 req'd.)
1550-2	SHEAVE HOUSING ASSEMBLY
1550-3	SHEAVE
1550-4	BALL RETAINING PLATE (2 req'd.)
1550-5	BALL (12 req'd.)
1550-6	WASHER
1550-8	SELF-LOCKING NUT
1550-9	SPRING RETAINING COLLAR
1550-10	BALL RETAINING PLATE SPRING
1550-11	RECOIL SPRING
1550-12	MOUNTING PLATE ASSEMBLY
1550-13	STARTER HOUSING
1550-14	NUT PLATE
1550-15	NUT-DRIVEN MEMBER (Wis. Part No. PD-241)
1550-16	HANDLE
1550-17	CABLE ASSEMBLY
1550-18	PAWLS (3 req'd.)
1550-19	CAM PLATE & AXLE ASSEMBLY
1550-20	DRIVING PINS (3 req'd.)
1550-21	PIN RETAINING RINGS (3 req'd.)
1550-22	DRIVING PLATE
1550-23	DRIVING PLATE CUP

When Ordering Parts: Give the model number of the starter and the make and model No. of your engine, as well as the starter part number and description.

SK1402H1, SK1402H2 Rewind Starter Kits (Replaced By SK1402H5)

USE WITH MODELS S7D, S8D

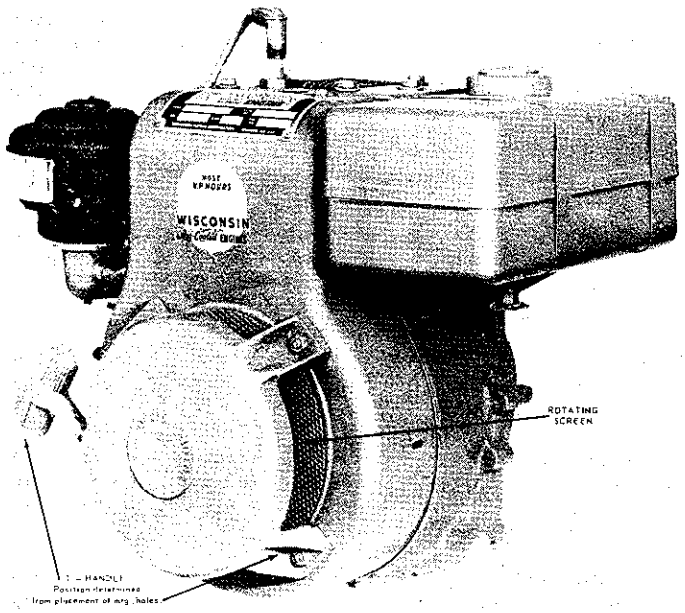


FIG. 1

The U-278A Rewind Starter can be installed on WISCONSIN engine models S-7D and S-8D, that were originally started by means of a rope sheave. The starting handle can be located in any desirable position.

Read the installation instructions completely and carefully before starting the assembly procedure. Thoroughly familiarize yourself with all component parts to be assured of a trouble-free installation.

INSTALLATION INSTRUCTIONS

A. Remove and discard rope sheave, screen, three mounting screws and washers.

B. With reference to *Fig. 2*, remove flywheel nut from end of crankshaft and discard, but retain lockwasher. Mount **drive cup** and **screen assembly** and secure in place with standard engine **lockwasher** and new **jam nut.**

C. Use the starter housing as a templet for locating the mounting holes on the face of the flywheel shroud.

1. With reference to *Fig. 3*, place starter over drive cup and hold unit firmly against the shroud, with the **'T'** starting handle location in the most convenient starting position.

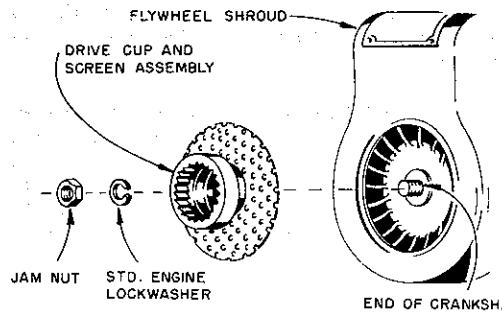


FIG. 2

2. Center the unit on the shroud by pulling outward on the **'T'** handle until engagement with the drive cup can be felt.

3. Thru the mounting feet of the starter housing, scribe the location of the four mounting holes on the face of the flywheel shroud.

D. Disassemble flywheel shroud from engine by unhooking governor spring and then removing the two capscrews holding the shroud to the bottom of the crankcase, and the two screws at the cylinder head.

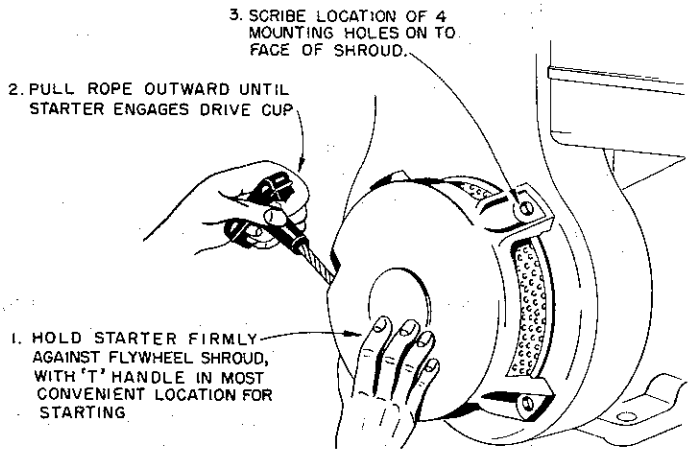


FIG. 3

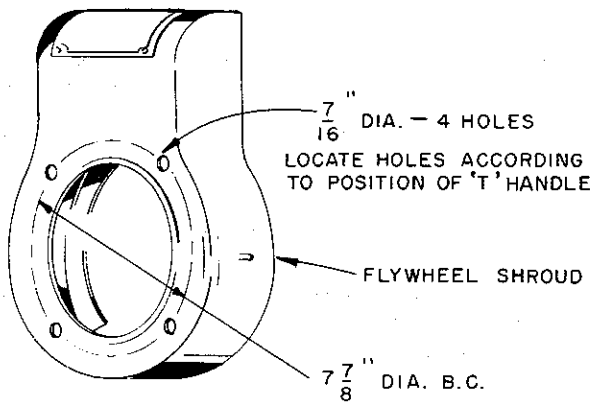


FIG. 4

SK1402H1, SK1402H2 Rewind Starter Kits (Replaced By SK1402H5)

USE WITH MODELS S7D, S8D

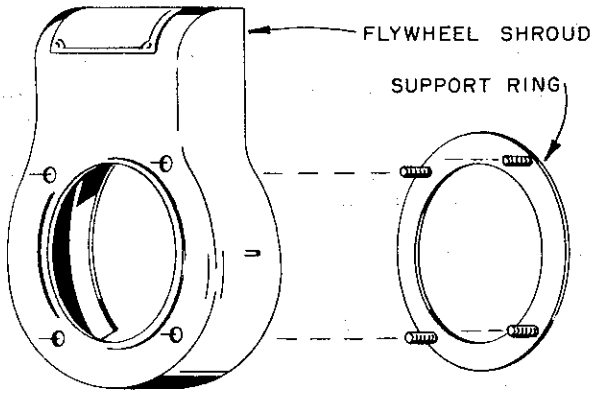


FIG. 5

E. Drill four 7/16 inch diameter holes on the 7-7/8 inch diameter bolt circle, as illustrated in *Fig. 4.*

F. Place **support ring** inside **flywheel shroud** with studs extended thru drilled holes, as shown in *Fig. 5.* Reassemble flywheel shroud to engine.

The excessive clearance between the studs in the support ring and the mounting holes of the shroud is necessary for the proper alignment of the starter with the drive cup on the end of the crankshaft.

Mount rewind starter to support ring studs with the **'T'** handle in the most convenient starting position. Place the four lockwashers and nuts on the studs and **hand tighten only** – for alignment purposes.

Proper **alignment** of the starter is obtained by pulling out the **'T'** handle until a substantial resistance, indicating starter engagement, is obtained. This automatically centers the starter to the **drive cup.** Hold starter in this position and tighten the four mounting nuts to securely hold starter in place. **The starter will become damaged if it is not centered properly.** Place instruction decal on flywheel shroud or fuel tank. The engine is now ready to start.

OPERATING AND MAINTENANCE INSTRUCTIONS

1. Start engine by opening the fuel valve, close the carburetor choke and follow starting procedure on instruction decal. After engine starts, open choke fully.
2. Always maintain your hold on the starter handle and allow it to return slowly.
3. Pull the starter handle so that the cord remains in a straight line through the handle and guide.
4. **DON'T allow the holes in the rotating screen to become "clogged up." Brush them clean to allow the proper air flow to reach the engine.**
5. **DON'T release the starter handle allowing it to snap back against the starter.**
6. DON'T attempt to tighten the starter spring unnecessarily. The units are properly assembled at the factory so that the outward pull of the starter is stopped by the end of the cable. When you tighten the spring too much, you stop the starter on the end of the spring which may cause it to break.
7. DON'T jerk the cord out to its very end in an unnecessarily rough manner. A smooth but forceful pull will accomplish just as much.

If your engine does not start after a half-dozen or so attempts, refer to your engine service manual for help in locating the trouble.

DISASSEMBLY OF REWIND STARTER

NOTE: The numbers shown in the disassembly procedure are the reference numbers of the parts in the exploded view of the rewind starter, *Fig. 6.*

To remove **handle** (627), pull cord out about two feet and tie a knot to prevent cord from rewinding on to pulley. Untie double knot at top of handle and remove. Loosen **center screw** (630) about two turns so that brake action is free.

Hold **pulley** (636) firmly to prevent it from unwinding and untie retaining knot. Pull cord to inside of housing thru pilot bushing and insert into **notch** in outer rim of pulley. Allow pulley to turn slowly until spring tension is spent.

Remove **center screw** (630), **washers** (629) and (633), **retainer cup** (634), **washer** (632) and three **dogs** (631). **Brake** (628) and **return spring** (635) normally stay attached to retainer cup.

Prevent spring from escaping from housing by carefully lifting pulley about 1/2 inch and then detaching inside **spring hook** from pulley, with a screw driver. **Note:** If spring should escape, it can easily be replaced into cover by coiling in the turns. See *Fig. 8,* for proper direction of spring coiling.

CORD REPLACEMENT

To install new cord, remove four screws from pulley assembly and separate sheave from pulley. Place end of new cord around **post** in **pulley** as illustrated in *Fig. 7.* Reassemble sheave to pulley and tighten the four mounting screws securely in place. Wind cord completely on to pulley in a clockwise direction, facing pulley, as shown in *Fig. 7.* Insert end of cord into **notch** to prevent it from unwinding.

REWIND SPRING REPLACEMENT

Starting with the inside loop, remove spring carefully from cover by pulling out one loop at a time, holding back rest of turns. When replacing with new spring, note the position of **spring hook.** *See Fig. 8.* **Engine rotation is clockwise, viewed from starter end.**

Spring holders furnished with replacement springs simplify the assembly procedure. Place **rewind spring** in proper position as shown in *Fig. 8,* with the outside loop engaged around the **anchor post.** Then press spring into **housing cavity** thus releasing the spring holder. A few drops of SAE 20 or 30 oil should then be applied to spring and light grease on cover shaft.

SK1402H1, SK1402H2 Rewind Starter Kits (Replaced By SK1402H5)

USE WITH MODELS S7D, S8D

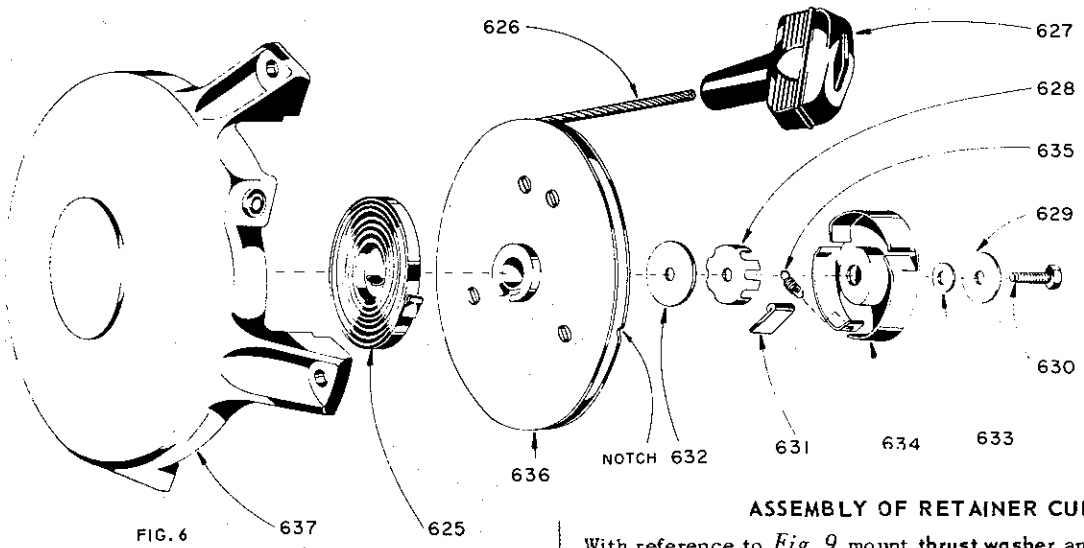


FIG. 6

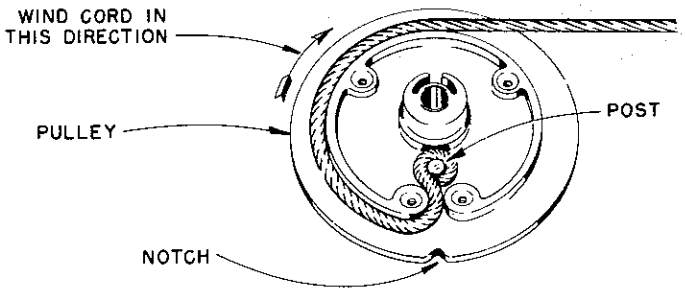


FIG. 7

ASSEMBLY OF PULLEY

Mount **pulley assembly** to housing so that **cavity** in pulley hub **interlocks with hook** on inside loop of **rewind spring.** *See Fig. 8.*

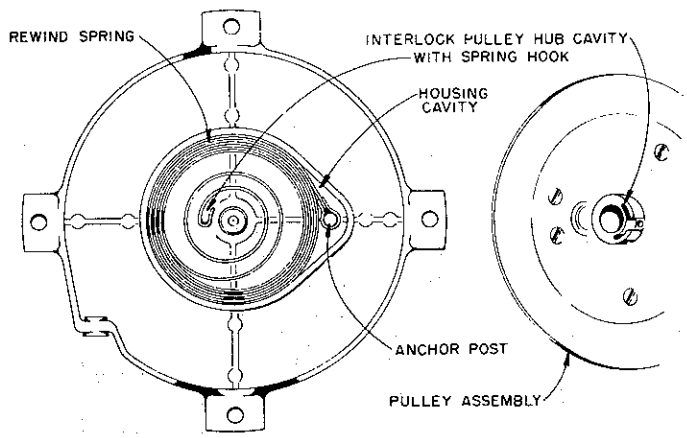


FIG. 8

ASSEMBLY OF RETAINER CUP

With reference to *Fig. 9,* mount **thrust washer** and the three **dogs** to the pulley as shown.

Place **brake** on to hub of **retainer cup** and hook small **spring,** from the inside, to the tab hole on the lip of the cup. Drop retainer cup assembly over the dogs on the pulley with **loop** of **retainer spring** fitting over the **dog post,** as illustrated in *Fig. 9.*

With reference to *Fig. 6,* assemble **washers** (633) and (629). Mount **center screw** (630) and tighten 45 to 65 inch pounds torque.

CORD HANDLE AND PRE-TENSION

With cord wound completely on pulley in direction shown in *Fig. 7,* turn pulley **four complete revolutions** in a **counter-clockwise** direction for **pre-tension** of rewind spring. Slip end of cord into guide bushing of housing, – pull about two feet of cord thru and then tie a retaining knot in place. Mount handle, tie a double knot at end of cord and then untie retaining knot.

Mount rewind starter unit to engine as per installation instructions.

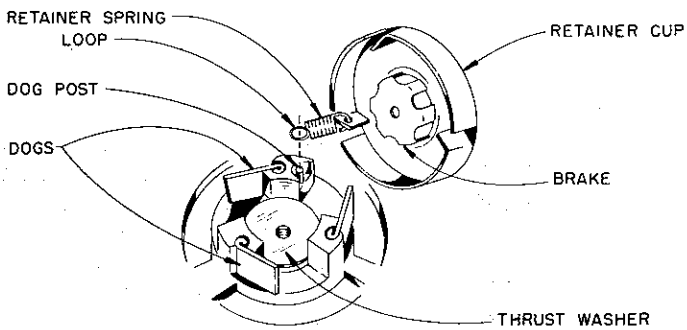


FIG. 9

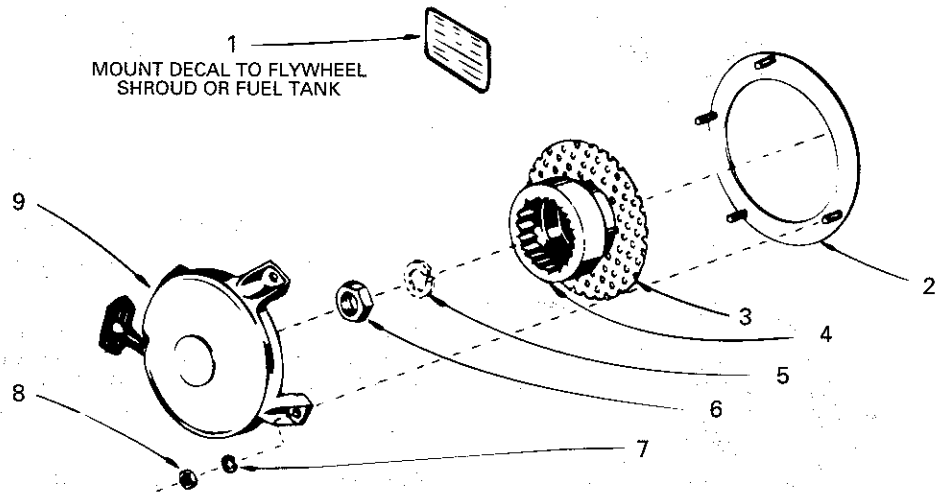
Order parts from nearest *SERVICE STATION* shown in Engine Instruction Book.
***IMPORTANT:* Always give Model, Specification and Serial Numbers as shown on name plate.**

SK1402H1 Rewind Starter Kits (Replaced By SK1402H5)

USE WITH MODEL S7D

SK1402H2 Rewind Starter Kits (Replaced By SK1402H5)

USE WITH MODEL S8D

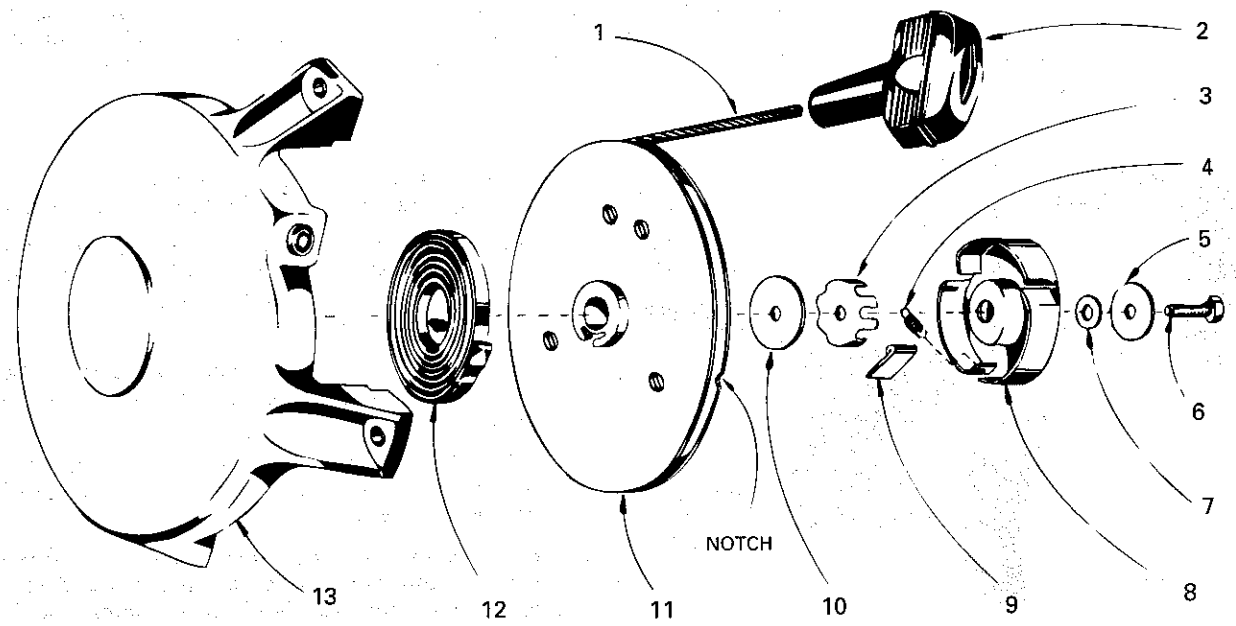


ITEM	PART NO.	DESCRIPTION	QTY
1	— — —	Instruction decal	1
2	PG827	Support ring	1
3	SE335	Screen	1
4	UC196	Drive cup (NLA)	1
5	PE57	Lock washer, 5/8" (not included)	1
6	PD162-1	Jam nut, 5/8"-18 thread	1
7	PH27A	Washer, 1/4"	4
8	PD198	Nut, 1/4"-20 thread	4
9	U278C	Rewind starter assembly	1

ITEM	PART NO.	DESCRIPTION	QTY
1	— — —	Instruction decal	1
2	PG827	Support ring	1
3	SE335	Screen	1
4	UC196A	Drive cup	1
5	PE58	Lock washer, 1" (not included)	1
6	PD137-1	Jam nut, 1"-14 thread	1
7	PH27A	Washer, 1/4"	4
8	PD198	Nut, 1/4"-20 thread	4
9	U278C	Rewind starter assembly	1

U278A Rewind Starter

USE WITH MODELS S7D, S8D



ITEM	PART NO.	DESCRIPTION	QTY
1	110-129	Nylon cord, 66" long	1
2	110-209	Handle assembly (includes bushing)	1
3	112-18	Brake	1
4	504-007-0	Retainer spring	1
5	112-28	Washer	1
6	113-17	Screw	1
7	502-19	Spacing washer	1
8	504-004-0	Retainer cup	1
9	494-040-0	Dog	3
10	502-15	Thrust washer	1
11	504-101	Pulley assembly (includes item 1; includes 110-89, 110-121, 504-2)	1
12	110-68	Recoil spring	1
13	504-104	Housing assembly (includes shaft, cord bushing) (NLA)	1

SK1402H3 Rewind Starter Kits (Replaced By SK1402H4, SK1402H5)

USE WITH MODELS S7D, S8D, TRA12D

SK1402H3 Production Engine Assembly No. for Models S-8D, TRA-12D

SK1402H4 Conversion Service Kit for Model S-7D SK1402H5 Conversion Service Kit for Models S-8D, TRA-12D

Replaces SK1402H1 and SK1402H2, which included a U 278 A starter that had a 5-1/2" diameter rewind pulley. SK1402H4 and SK1402H5 have a U 278 C starter assembly that has a 6-3/8" diameter rewind pulley. Component parts of U 278 A and U 278 C are not interchangeable, therefore refer to Form No. MU-4 for breakdown of obsolete U 278 A rewind starter service parts.

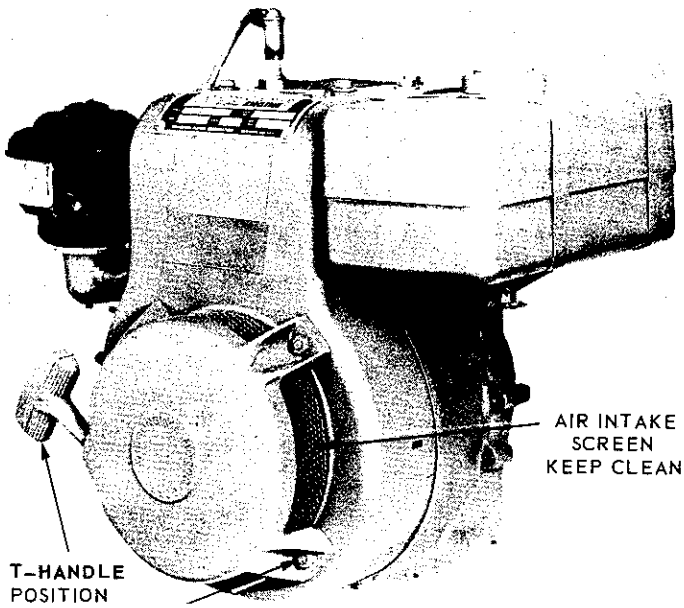


FIG. 1

CONVERSION

A Rewind Starter can be installed on ***WISCONSIN*** engine models S-7D, S-8D and TRA-12D that were originally started by means of a rope sheave. The starting handle can be located in any desirable position, depending on placement of mounting holes.

Read the installation instructions completely and carefully before starting the assembly procedure. Thoroughly familiarize yourself with all component parts, to be assured of a trouble-free installation.

INSTALLATION INSTRUCTIONS

A. Remove and discard rope sheave, screen, three mounting screws and washers.

B. With reference to *Fig. 2*, remove flywheel nut from end of crankshaft and discard, but retain ***lockwasher.*** Mount ***drive cup*** to end of crankshaft and secure in place with standard engine ***lockwasher*** and new ***jam nut.***

C. Use starter housing as a templet for locating the mounting hole centers on the face of flywheel shroud.

1. With reference to *Fig. 3*, place starter over drive cup and hold unit firmly against the shroud, with the ***'T'*** starting handle located in the most convenient position.

2. Center the unit on the shroud by pulling outward on the ***'T'*** handle until engagement with the drive cup can be felt.

3. Thru the mounting feet of starter housing, scribe location of the four mounting holes on the face of flywheel shroud.

D. Remove ***drive cup.*** Disassemble ***flywheel shroud*** from engine by unhooking governor spring and then removing the two capscrews holding the shroud to the bottom of the crankcase, and the two screws at the cylinder head.

E. Drill four 7/16 inch diameter holes on the 7-7/8 inch diameter bolt circle, as illustrated in *Fig. 4.*

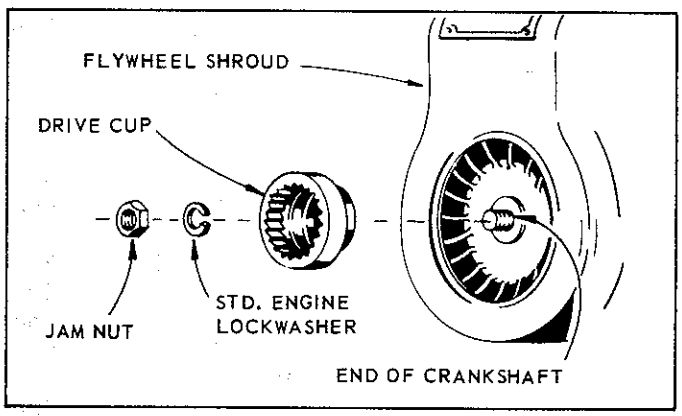


FIG. 2

SK1402H3 Rewind Starter Kits (Replaced By SK1402H4, SK1402H5)

USE WITH MODELS S7D, S8D, TRA12D

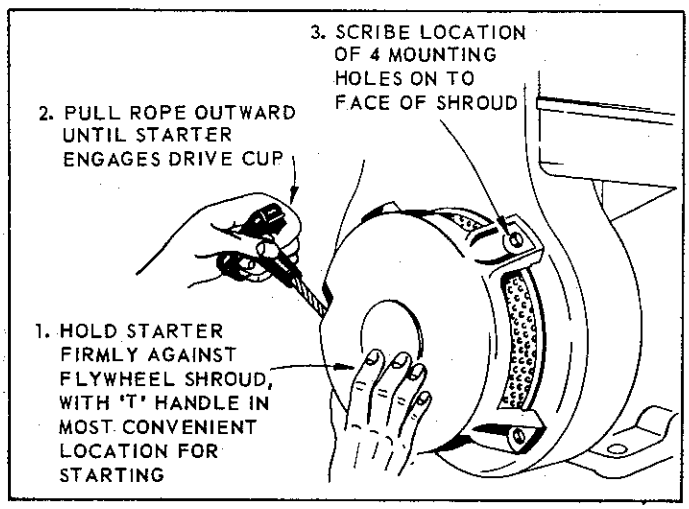


FIG. 3

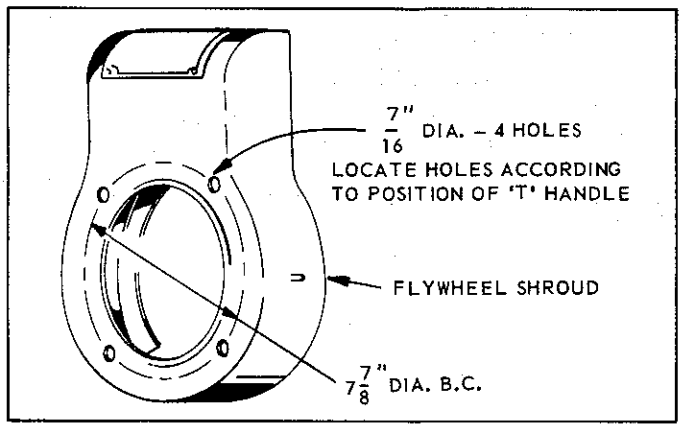


FIG. 4

F. Place ***support ring*** inside ***flywheel shroud*** with studs extended thru drilled holes, as shown in *Fig. 5*. Reassemble ***flywheel shroud, drive cup, lockwasher*** and ***jam nut***, as illustrated in *Fig. 2*.

The excessive clearance between the studs in the support ring and mounting holes of the shroud is necessary for proper alignment of the starter with drive cup on the end of crankshaft.

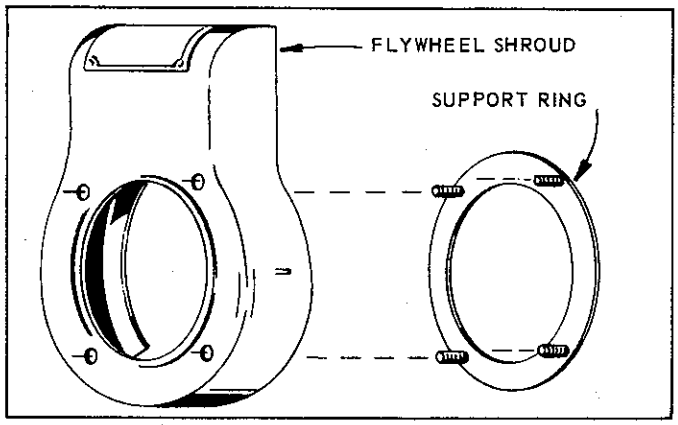


FIG. 5

Place ***screen*** in starter housing with the 1/4 x 3" long cut-out located at the rope guide boss, see *Fig. 10*. Then, mount rewind starter to support ring studs with ***'T'*** handle in predetermined starting position. Place the four lockwashers and nuts on the studs and ***hand tighten only*** – for alignment purposes.

Proper ***alignment*** of the starter is obtained by pulling out the ***'T'*** handle until a substantial resistance, indicating starter engagement, is obtained. This automatically centers the starter to the ***drive cup***. Hold starter in this position and securely tighten the four mounting nuts. ***The starter will become damaged if it is not centered properly***. The engine is now ready to start.

OPERATING AND MAINTENANCE INSTRUCTIONS

1. ***To start engine;*** open fuel valve and close carburetor choke. Pull engine over against compression. Let rope rewind into starter slowly. Pull firmly and rapidly to start engine. (Repeat procedure if necessary). After engine starts, open choke fully.
2. Always maintain your hold on the starter handle and allow it to return slowly.
3. Pull the starter handle so that the cord remains in a straight line through the handle and guide.

SK1402H3 Rewind Starter Kits (Replaced By SK1402H4, SK1402H5)

USE WITH MODELS S7D, S8D, TRA12D

4. ***Do not*** jerk the cord out to its very end in an unnecessary rough manner. Use a smooth but forceful pull.
5. ***Do not*** let go of starter handle allowing it to snap back against the starter.
6. ***Do not*** attempt to pre-load starter spring unnecessarily. Units are properly adjusted at the factory so that the outward pull of the starter is stopped by the end of the cable, not the spring.
7. ***Do not*** allow housing screen to become "clogged up." Brush clean to allow proper air flow to reach the engine.

DISASSEMBLY

With reference to *Fig. 6;* to remove ***handle*** (627), pull cord out about two feet and tie a knot to prevent cord from rewinding on to pulley. Untie double knot at top of handle and remove. Loosen ***center screw*** (630) about two turns so that brake action is free.

Hold ***pulley*** (636) firmly to prevent it from unwinding, and untie retaining knot. Pull cord to inside of housing thru pilot bushing and allow pulley to turn slowly until spring tension is spent.

Remove ***center screw*** (630), ***washer*** (629) and (633), ***retainer cup*** (634), ***washer*** (632), three ***dogs*** (631) and ***dog springs*** (638). ***Brake*** (628) and ***return spring*** (635) normally stay attached to retainer cup.

CORD REPLACEMENT AND PRE-TENSION

If it is only necessary to replace the starting cord, it can be done without further dismantling the starter.

Assuming the old cord has been removed, refer to *Fig. 7* and ***pre-load coil spring*** by turning starter sheave in a ***counter-clockwise*** direction ***6 complete revolutions,*** and stop when ***notch*** in pulley is just to the right of the ***guide bushing*** in housing. Lock sheave in this position by placing a large screw driver across the dog lugs of the pulley and against one of the mounting feet of the housing.

Tie a knot at one end of the new cord and slip opposite end of cord into ***notch*** and thru ***holes in sheave*** and ***guide bushing.*** Pull complete cord thru until knot appears at notch. See *Fig. 7A.*

Tie a retaining knot about 12 inches from handle end of cord, remove screw driver and allow pulley to slowly rewind in a clockwise direction. Mount handle, tie double knot at end of cord and then untie retaining knot.

Refer to ***'Assembly of Retainer Cup'*** paragraphs for mounting of remaining parts.

REWIND SPRING REPLACEMENT

Prevent spring from escaping from housing by carefully lifting pulley about 1/2 inch and then detaching inside ***spring hook*** from pulley, with a screw driver. Starting with the inside loop, remove spring carefully from cover by pulling out one loop at a time, holding back rest of turns. When replacing with new spring, note the position of ***spring hook.*** *See Fig. 8.*

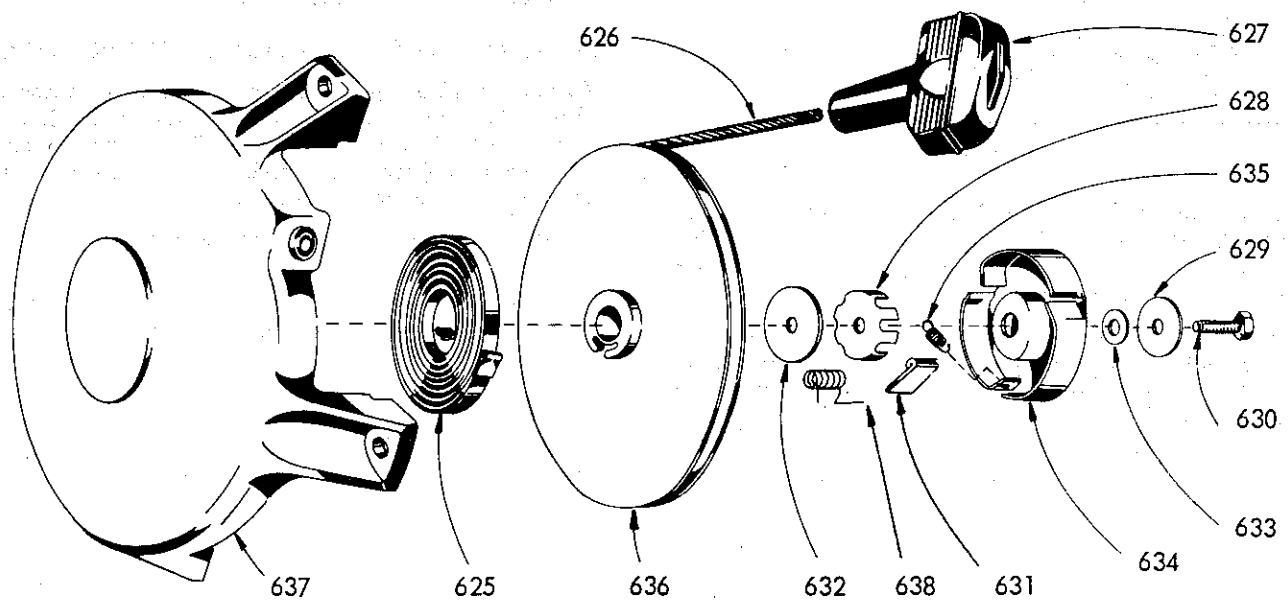


FIG. 6

SK1402H3 Rewind Starter Kits (Replaced By SK1402H4, SK1402H5)

USE WITH MODELS S7D, S8D, TRA12D

Spring holders furnished with replacement springs simplify the assembly procedure. Place ***rewind spring*** in proper position as shown in *Fig. 8*, with the outside loop engaged around the ***anchor post***. Then press spring into ***housing cavity*** thus releasing the spring holder. A few drops of SAE 20 or 30 oil should be applied to spring and light grease on cover shaft.

Note: If spring should inadvertently escape from housing and ***is not*** being replaced with a service spring, it can be reassembled by coiling the turns in, counter-clockwise, starting at the anchor post. See *Fig. 8*.

ASSEMBLY OF PULLEY

Mount ***pulley assembly*** to housing so that ***cavity*** in pulley hub ***interlocks with hook*** on inside loop of ***rewind spring***. *See Fig. 8.*

ASSEMBLY OF RETAINER

With reference to *Fig. 9*, apply light grease to dog lug cavity of pulley, then mount ***thrust washer***, the three ***dogs*** and ***dog springs*** to the pulley as shown. ***Note:*** Be sure that springs hold dog pawls to innermost position.

Place ***brake*** on to hub of ***retainer cup*** and hook small ***spring***, from the inside, to the tab hole on the lip of cup. Drop retainer cup assembly over the dogs on pulley with ***loop of retainer spring*** fitting over ***dog post*** as illustrated.

With reference to *Fig. 6*, assemble washers (633) and (629). Mount ***center screw*** (630) and torque 115 to 135 inch pounds.

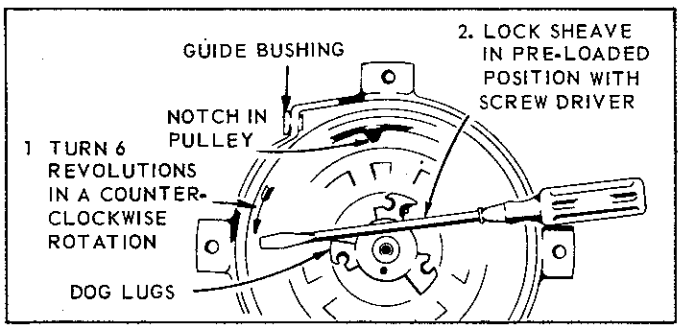


FIG. 7

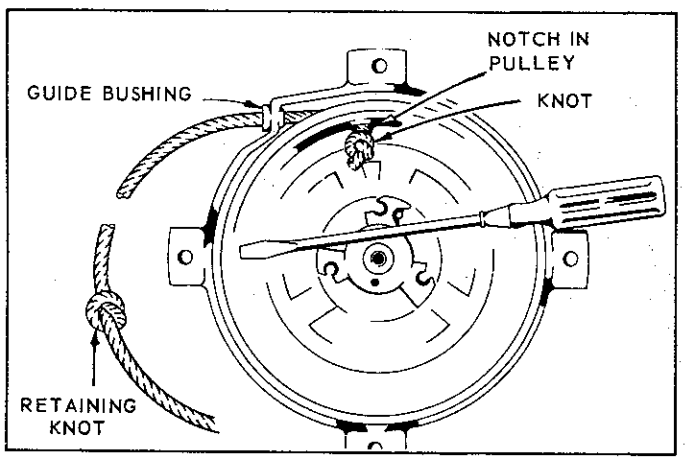


FIG. 7A

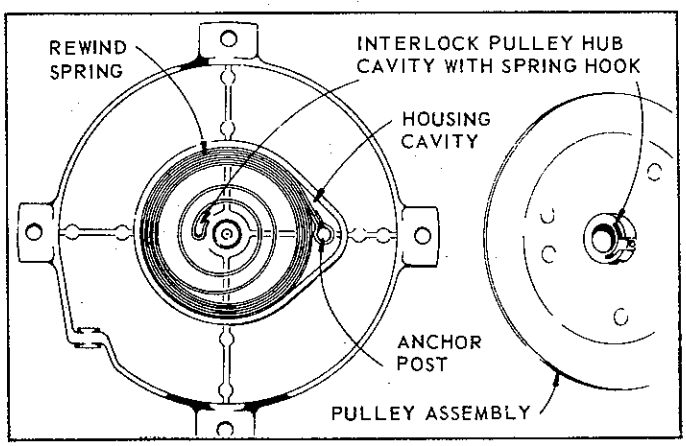


FIG. 8

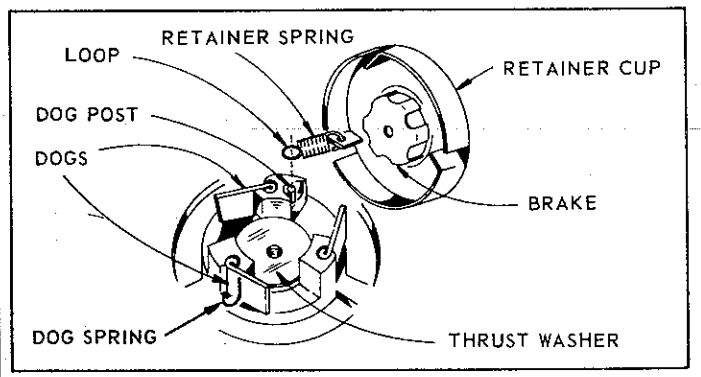
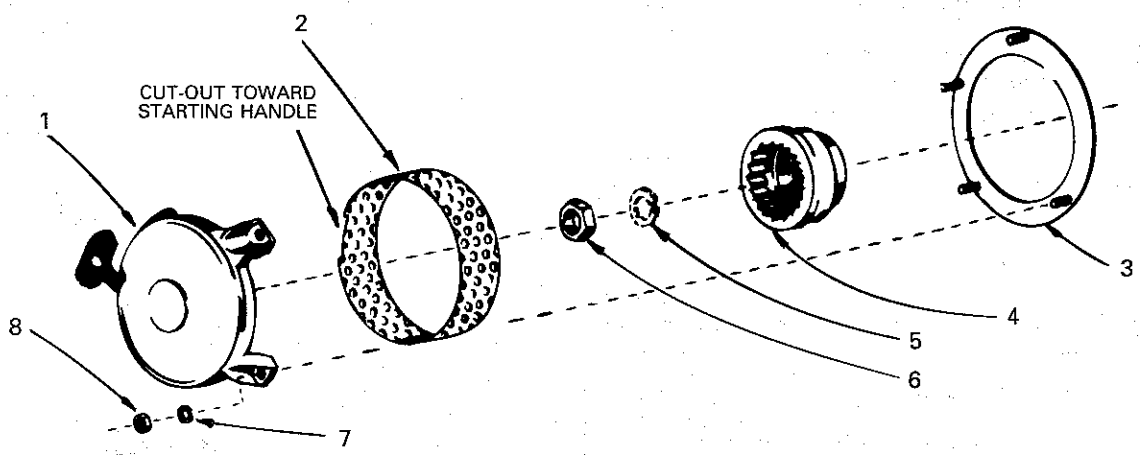


FIG. 9

SK1402H3 Rewind Starter Kits (Replaced By SK1402H4, SK1402H5)

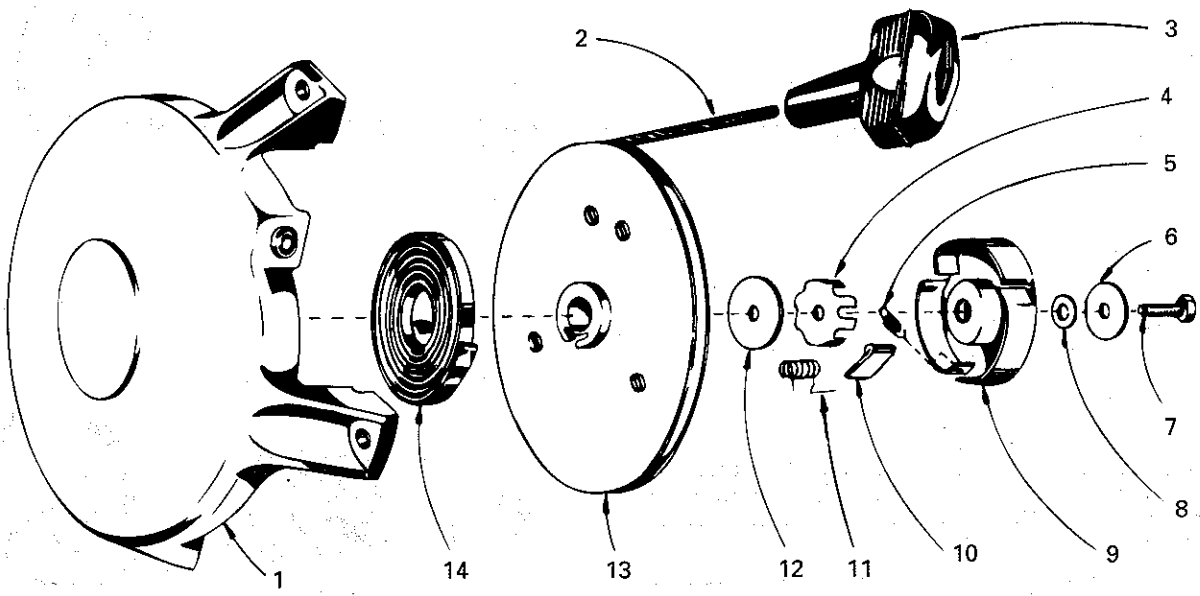
USE WITH MODELS S7D, S8D, TRA12D



ITEM	PART NO.	DESCRIPTION	QTY
1	U278C	Rewind starter assembly	1
2	SE335	Air intake screen	1
3	PG827	Support ring	1
4	UC196	Drive cup (S7D) (replaces UC280) (NLA)	1
—	UC196A	Drive cup (S8D, TRA12D) (replaces UC280A)	1
5	PE57	Lock washer, 5/8" (S7D) (not included)	1
—	PE58	Lock washer, 1" (S8D, TRA12D) (not included)	1
6	PD162-1	Jam nut, 5/8"-18 thread (S7D)	1
—	PD137-1	Jam nut, 1"-14 thread (S8D, TRA12D)	1
7	PH27A	Washer, 1/4"	4
8	PD198	Nut, 1/4"-20 thread	4

U278C Rewind Starter

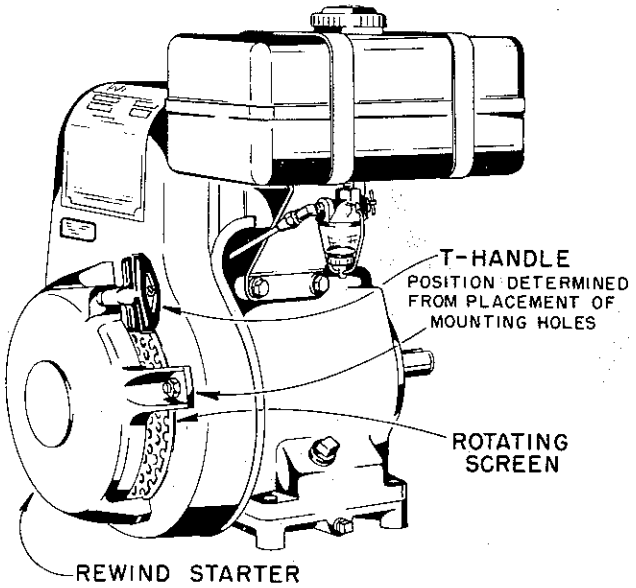
USE WITH MODELS S7D, S8D, TRA12D



ITEM	PART NO.	DESCRIPTION	QTY
1	27-504-107-0	Housing assembly (includes shaft, cord bushing)	1
2	27-504-022-0	Cord, 74" (replaces 27-504-22)	1
3	27-508-008-0	Handle (replaces 27-110-209)	1
—	27-508-009-0	Bushing	1
4	27-504-020-0	Brake (replaces 27-504-20)	1
5	27-504-007-0	Retainer spring (replaces 27-504-7)	1
6	27-504-015-0	Washer (replaces 27-504-15)	1
7	27-504-016-0	Screw, 1/4"-20 thread x 5/8" long (replaces 27-504-16)	1
8	27-504-014-0	Washer (replaces 27-504-14)	2
9	27-504-004-0	Retainer cup (replaces 27-504-4)	1
10	27-494-040-0	Dog (replaces 27-494-40)	3
11	27-504-096-0	Dog spring	3
12	27-504-021-0	Thrust washer (replaces 27-504-21)	1
13	27-504-117-0	Pulley assembly (cord not included; replaces 27-504-108)	1
14	27-502-032-0	Recoil spring (replaces 27-502-32)	1

SK1230K1 Rewind Starter Kit (Replaced By SK1230K4)

USE WITH MODELS ACN, BKN



The **U-278A** Rewind Starter can be installed on **WISCONSIN** engine models ACN and BKN, that were originally started by means of a rope sheave. The starting handle can be located in any desirable position.

Read the installation instructions completely and carefully before starting the assembly procedure. Thoroughly familiarize yourself with all component parts to be assured of a trouble-free installation.

INSTALLATION INSTRUCTIONS

A. With reference to **Fig. 1**, remove and discard rope starter sheave, but retain 5/8 inch **lockwasher** for use in mounting drive cup to crankshaft.

B. Mount **spacer, drive cup** and **screen assembly** to end of crankshaft, as illustrated in **Fig. 2.** Secure in place with standard engine **lockwasher** and new **jam nut.**

C. Use the starter housing as a templet for locating the mounting hole centers, on the face of the flywheel shroud.

1. With reference to **Fig. 3**, place starter over drive cup and hold unit firmly against the shroud, with the **'T'** starting handle location in the most convenient starting position.
2. Center the unit on the shroud by pulling outward on the **'T'** handle until engagement with the drive cup can be felt.
3. Thru the mounting feet of the starter housing, scribe the location of the four mounting holes on the face of the flywheel shroud.

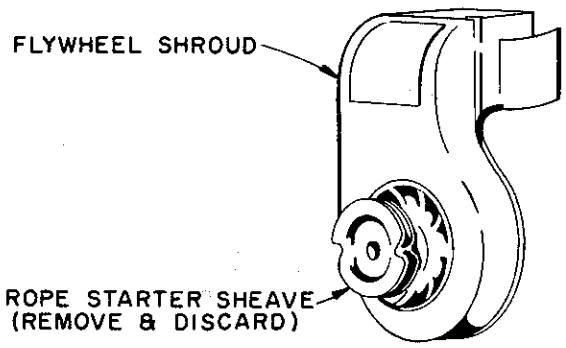


FIG. 1

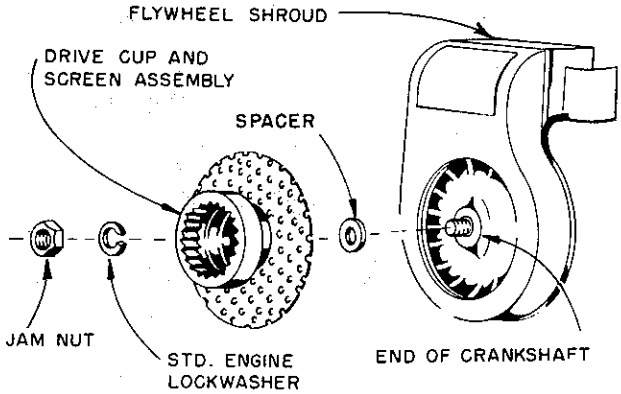


FIG. 2

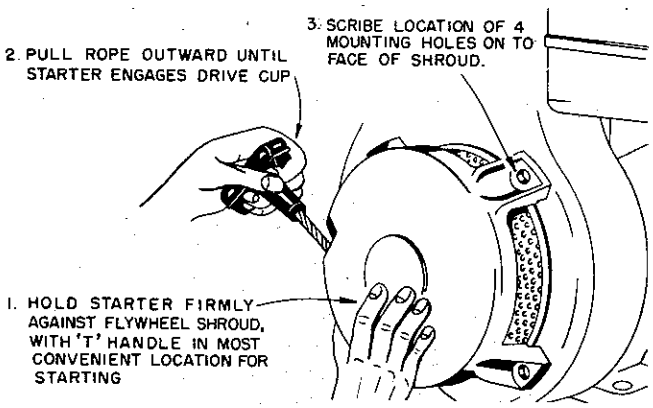


FIG. 3

SK1230K1 Rewind Starter Kit (Replaced By SK1230K4)

USE WITH MODELS ACN, BKN

D. Remove **drive cup - screen assembly**, and disassemble **flywheel shroud** from engine by removing the three capscrews holding the shroud to cylinder head and the two lower screws holding the shroud to lugs on the crankcase.

E. Drill four 7/16 inch diameter holes on the 7-7/8 inch diameter bolt circle, as illustrated in **Fig. 4.**

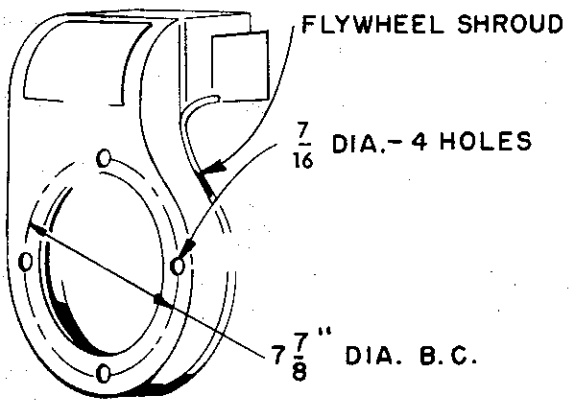
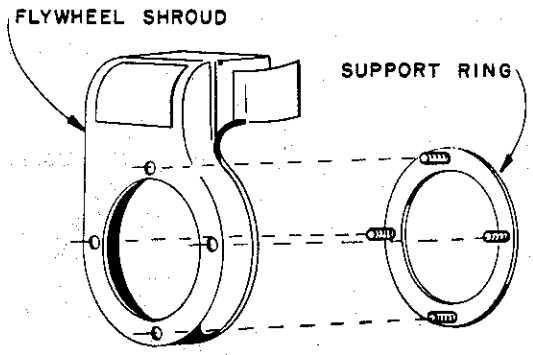


FIG. 4

F. Place **support ring** inside **flywheel shroud** with studs extended thru drilled holes, as shown in **Fig. 5.** Reassemble **flywheel shroud, spacer, drive cup - screen assembly, lockwasher** and **jam nut**, as illustrated in **Fig. 2.**



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The excessive clearance between the studs in the support ring and the mounting holes of the shroud is necessary for the proper alignment of the starter with the drive cup on the end of the crankshaft.

Mount rewind starter to support ring studs with the 'T' handle in the most convenient starting position. Place the four lockwashers and nuts on the studs and **hand tighten only** — for alignment purposes.

Proper **alignment** of the starter is obtained by pulling out the 'T' handle until a substantial resistance, indicating starter engagement, is obtained. This automatically centers the starter to the **drive cup.** Hold starter in this position and tighten the four mounting nuts to securely hold starter in place. **The starter will become damaged if it is not centered properly.** Place instruction decal on flywheel shroud or fuel tank. The engine is now ready to start.

OPERATING AND MAINTENANCE INSTRUCTIONS

1. Start engine by opening the fuel valve, close the carburetor choke and follow starting procedure on instruction decal. After engine starts, open choke fully.
2. Always maintain your hold on the starter handle and allow it to return slowly.
3. Pull the starter handle so that the cord remains in a straight line through the handle and guide.
4. DON'T allow the holes in the rotating screen to become "clogged up." Brush them clean to allow the proper air flow to reach the engine.
5. DON'T release the starter handle allowing it to snap back against the starter.
6. DON'T attempt to tighten the starter spring unnecessarily. The units are properly assembled at the factory so that the outward pull of the starter is stopped by the end of the cable. When you tighten the spring too much, you stop the starter on the end of the spring which may cause it to break.
7. DON'T jerk the cord out to its very end in an unnecessarily rough manner. A smooth but forceful pull will accomplish just as much.

If your engine does not start after a half-dozen or so attempts, refer to your engine service manual for help in locating the trouble.

DISASSEMBLY OF REWIND STARTER

NOTE: The numbers shown in the disassembly procedure are the reference numbers of the parts in the exploded view of the rewind starter, **Fig. 6,** Page 3.

To remove **handle** (627), pull cord out about two feet and tie a knot to prevent cord from rewinding on to pulley. Untie double knot at top of handle and remove. Loosen **center screw** (630) about two turns so that brake action is free.

Hold **pulley** (636) firmly to prevent it from unwinding, and untie retaining knot. Pull cord to inside of housing thru pilot bushing and insert into **notch** in outer rim of pulley. Allow pulley to turn slowly until spring tension is spent.

Remove **center screw** (630), **washers** (629) and (633), **retainer cup** (634), **washer** (632) and three **dogs** (631). **Brake** (628) and **return spring** (635) normally stay attached to retainer cup.

SK1230K1 Rewind Starter Kit (Replaced By SK1230K4)

USE WITH MODELS ACN, BKN

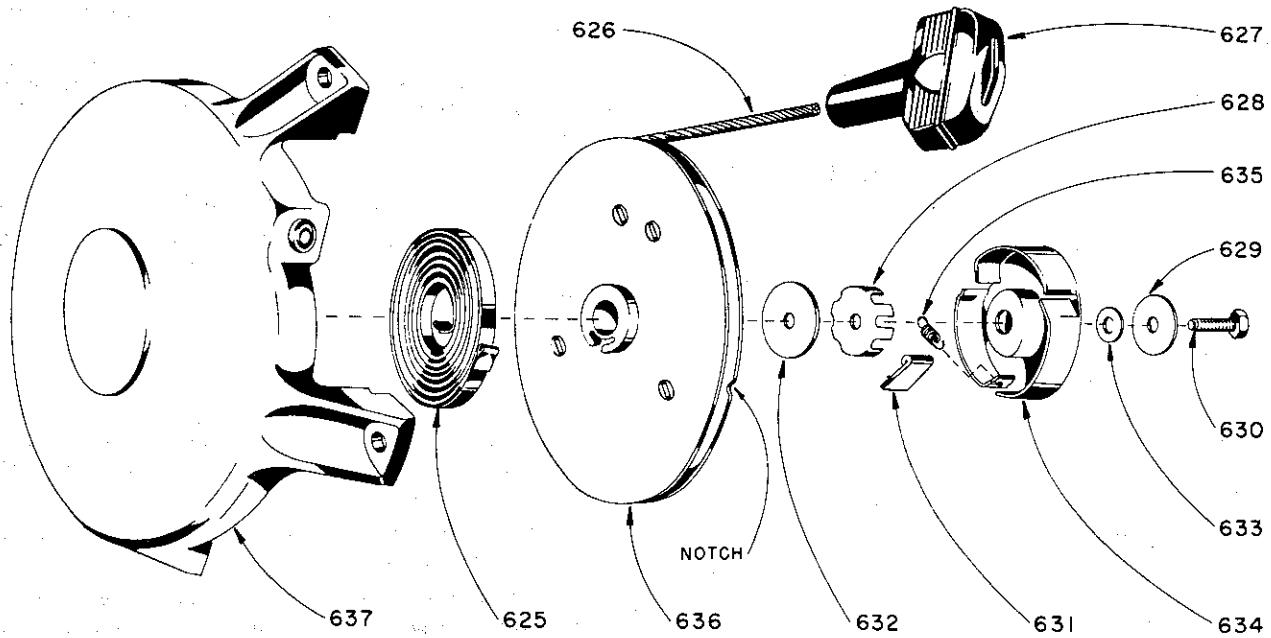


FIG. 6

Prevent spring from escaping from housing by carefully lifting pulley about 1/2 inch and then detaching inside **spring hook** from pulley, with a screw driver. **Note:** If spring should escape, it can easily be replaced into cover by coiling in the turns. See **Fig. 8,** for proper direction of spring coiling.

CORD REPLACEMENT

To install new cord, remove four screws from pulley assembly and separate sheave from pulley. Place end of new cord around **post in pulley** as illustrated in **Fig. 7.** Reassemble sheave to pulley and tighten the four mounting screws securely in place. Wind cord completely on to pulley in a clockwise direction, facing pulley, as shown in **Fig. 7.** Insert end of cord into **notch** to prevent it from unwinding.

REWIND SPRING REPLACEMENT

Starting with the inside loop, remove spring carefully from cover by pulling out one loop at a time, holding back rest of turns. When replacing with new spring, note the position of **spring hook. See Fig. 8. Engine rotation is clockwise, viewed from starter end.**

Spring holders furnished with replacement springs simplify the assembly procedure. Place **rewind spring** in proper position as shown in **Fig. 8,** with the outside loop engaged around the **anchor post.** Then press spring into **housing cavity** thus releasing the spring holder. A few drops of SAE 20 or 30 oil should then be applied to spring and light grease on cover shaft.

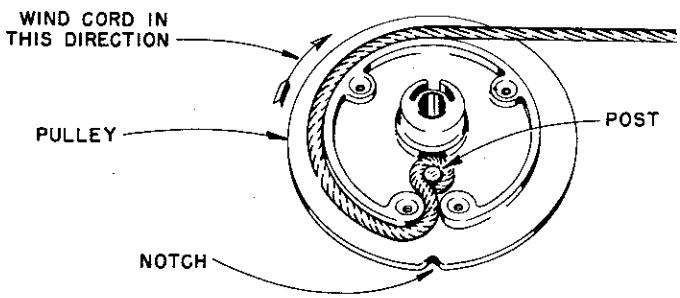


FIG. 7

SK1230K1 Rewind Starter Kit (Replaced By SK1230K4)

USE WITH MODELS ACN, BKN

ASSEMBLY OF PULLEY

Mount **pulley assembly** to housing so that **cavity** in pulley hub **interlocks with hook** on inside loop of **rewind spring. See Fig. 8.**

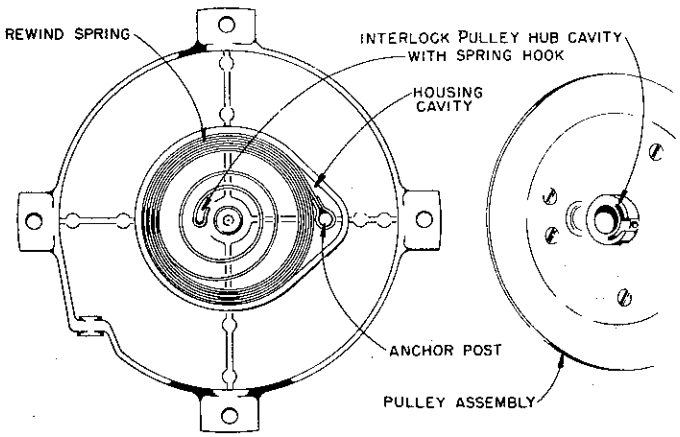


FIG. 8

ASSEMBLY OF RETAINER CUP

With reference to **Fig. 9,** mount **thrust washer** and the three **dogs** to the pulley as shown.

Place **brake** on to hub of **retainer cup** and hook small **spring,** from the inside, to the tab hole on the lip of the cup. Drop retainer cup assembly over the dogs on the pulley with **loop** of **retainer spring** fitting over the **dog post,** as illustrated in **Fig. 9.**

With reference to **Fig. 6,** assemble **washers** (633) and (629). Mount **center screw** (630) and tighten 45 to 65 inch pounds torque.

CORD HANDLE AND PRE-TENSION

With cord wound completely on pulley in direction shown in **Fig. 7,** turn pulley **four complete revolutions** in a **counter-clockwise** direction for **pre-tension** of rewind spring. Slip end of cord into guide bushing of housing, — pull about two feet of cord thru and then tie a retaining knot in place. Mount handle, tie a double knot at end of cord and then untie retaining knot.

Mount rewind starter unit to engine as per installation instructions.

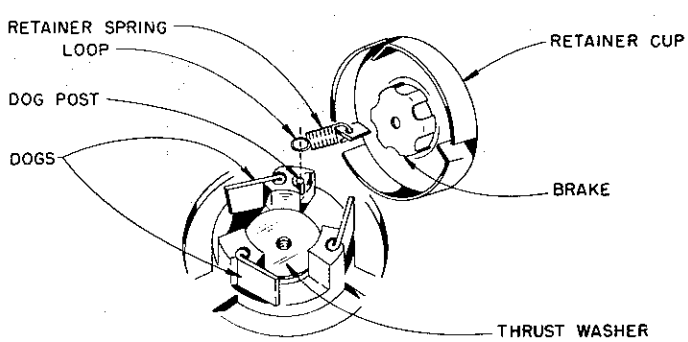
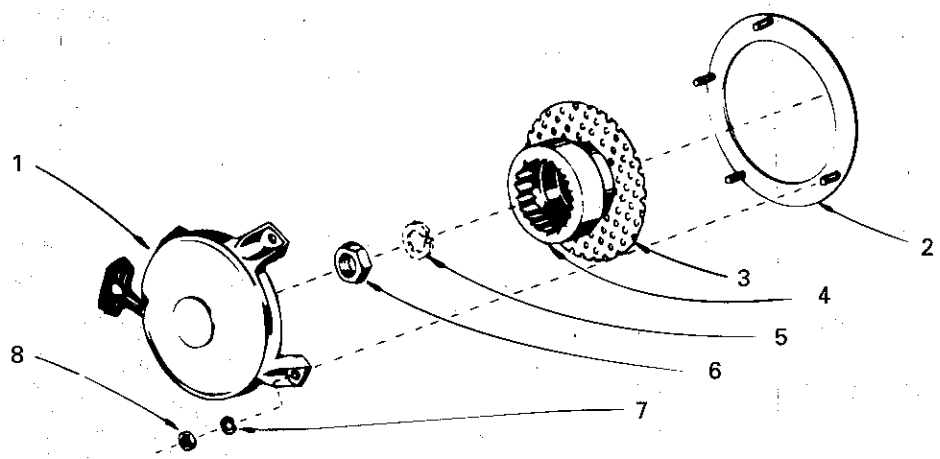


FIG. 9

SK1230K1 Rewind Starter Kit (Replaced By SK1230K4)

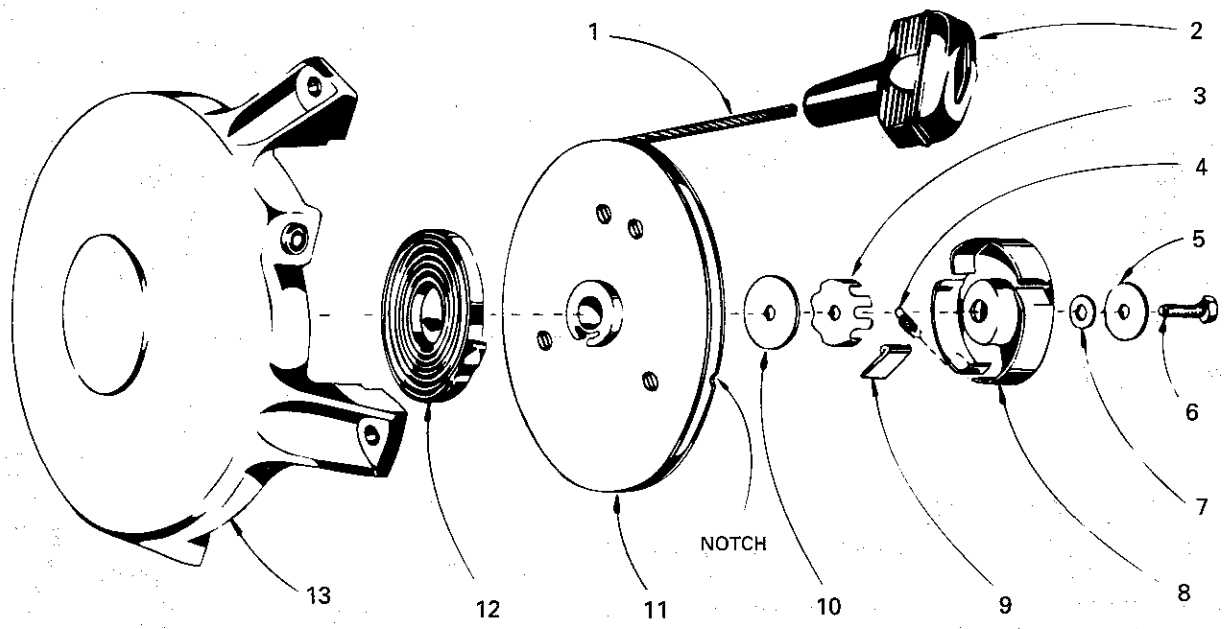
USE WITH MODELS ACN, BKN



ITEM	PART NO.	DESCRIPTION	QTY
1	U278C	Rewind starter assembly	1
2	PG827	Support ring	1
3	SE335	Screen	1
4	UC197	Drive cup	1
5	PE37A	Lock washer, 5/8"	1
6	PD162-1	Jam nut, 5/18"-18 thread	1
7	PH27A	Washer, 1/4"	4
8	PD198	Nut, 1/4"-20 thread	4

U278A Rewind Starter

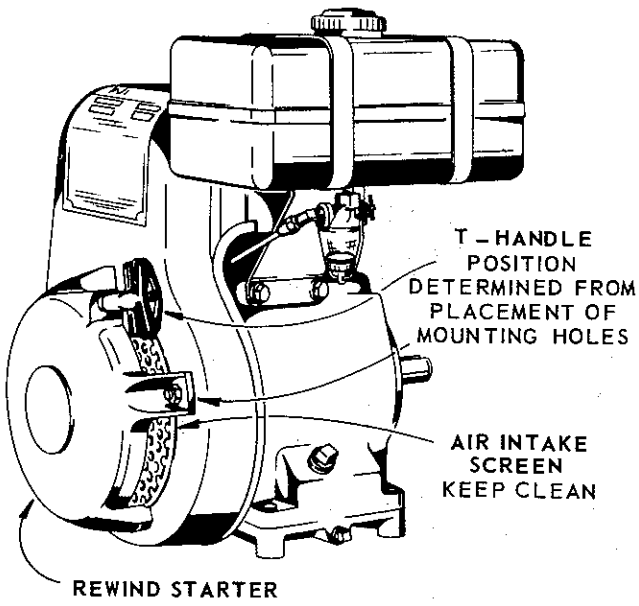
USE WITH MODELS ACN, BKN



ITEM	PART NO.	DESCRIPTION	QTY
1	110-129	Nylon cord, 66" long	1
2	110-209	Handle assembly (includes bushing)	1
3	112-18	Brake	1
4	504-007-0	Retainer spring	1
5	112-28	Washer	1
6	113-17	Screw	1
7	502-19	Spacing washer	1
8	504-004-0	Retainer cup	1
9	494-040-0	Dog	3
10	502-15	Thrust washer	1
11	504-101	Pulley assembly (includes item 2; includes 110-89, 110-121, 504-2)	1
12	110-68	Recoil spring	1
13	504-104	Housing assembly (NLA)	1

SK1230K4, RWS100 Rewind Starter Kit

USE WITH MODELS ACN, BKN



CONVERSION

A Rewind Starter can be installed on ***WISCONSIN*** engine models ACN and BKN that were originally started by means of a rope sheave. The starting handle can be located in any desirable position.

Read the installation instructions completely and carefully before starting the assembly procedure. Thoroughly familiarize yourself with all component parts to be assured of a trouble-free installation.

INSTALLATION INSTRUCTIONS

A. With reference to *Fig. 1*, remove and discard rope starter sheave, but retain 5/8 inch ***lockwasher*** for use in mounting drive cup to crankshaft.

B. Mount ***drive cup*** to end of crankshaft, as illustrated in *Fig. 2*. Secure in place with standard engine ***lockwasher*** and new ***jam nut***.

C. Use starter housing as a templet for locating the mounting hole centers on the face of flywheel shroud.

1. With reference to *Fig. 3*, place starter over drive cup and hold unit firmly against the shroud, with the **'T'** starting handle located in the most convenient position.
2. Center the unit on the shroud by pulling outward on the **'T'** handle until engagement with the drive cup can be felt.
3. Thru the mounting feet of starter housing, scribe location of the four mounting holes on the face of flywheel shroud.

D. Remove ***drive cup***. Disassemble ***flywheel shroud*** from engine by removing three capscrews holding the shroud to cylinder head and two lower screws holding shroud to lugs on the crankcase.

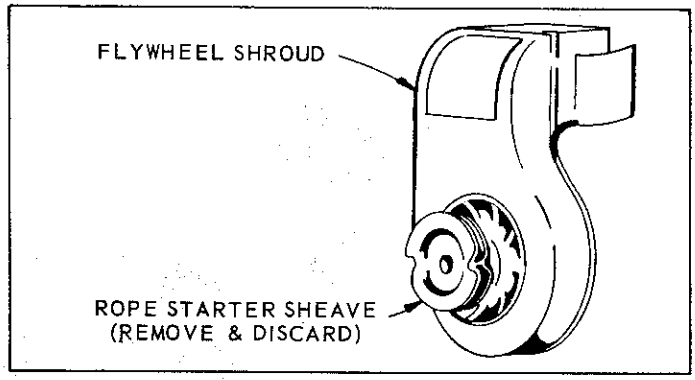


FIG. 1

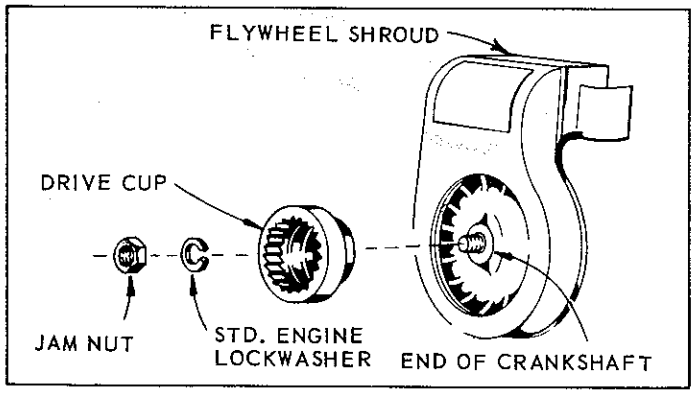


FIG. 2

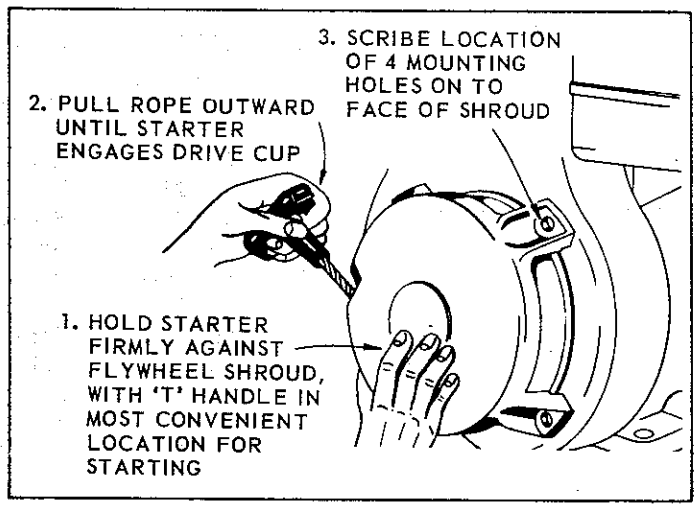


FIG. 3

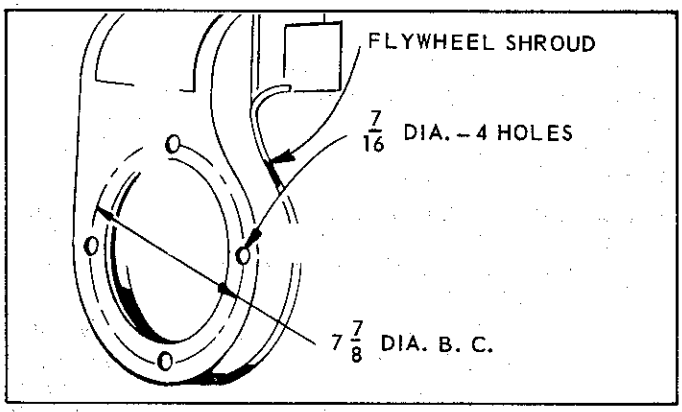


FIG. 4

E. Drill four 7/16 inch diameter holes on the 7-7/8 inch diameter bolt circle, as illustrated in *Fig. 4.*

F. Place ***support ring*** inside ***flywheel shroud*** with studs extended thru drilled holes, as shown in *Fig. 5.* Reassemble ***flywheel shroud, drive cup, lockwasher*** and ***jam nut,*** as illustrated in *Fig. 2.*

The excessive clearance between the studs in the support ring and mounting holes of the shroud is necessary for proper alignment of the starter with drive cup on the end of crankshaft.

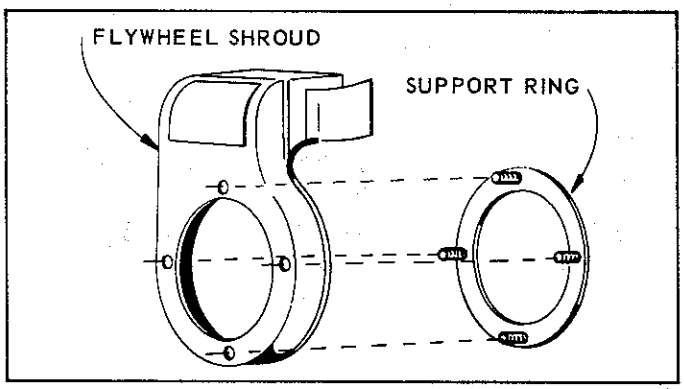


FIG. 5

Place ***screen*** in starter housing with the 1/4 x 3" long cut-out located at the rope guide boss, see *Fig. 10.* Then, mount rewind starter to support ring studs with ***'T'*** handle in predetermined starting position. Place the four lockwashers and nuts on the studs and ***hand tighten only*** – for alignment purposes.

Proper ***alignment*** of the starter is obtained by pulling out the ***'T'*** handle until a substantial resistance, indicating starter engagement, is obtained. This automatically centers the starter to the ***drive cup.*** Hold starter in this position and securely tighten the four mounting nuts. ***The starter will become damaged if it is not centered properly.*** The engine is now ready to start.

OPERATING AND MAINTENANCE INSTRUCTIONS

1. ***To start engine;*** open fuel valve and close carburetor choke. Pull engine over against compression. Let rope rewind into starter slowly. Pull firmly and rapidly to start engine. (Repeat procedure if necessary). After engine starts, open choke fully.
2. Always maintain your hold on the starter handle and allow it to return slowly.
3. Pull the starter handle so that the cord remains in a straight line through the handle and guide.
4. ***Do not*** jerk the cord out to its very end in an unnecessary rough manner. Use a smooth but forceful pull.
5. ***Do not*** let go of starter handle allowing it to snap back against the starter.
6. ***Do not*** attempt to pre-load starter spring unnecessarily. Units are properly adjusted at the factory so that the outward pull of the starter is stopped by the end of the cable, not the spring.
7. ***Do not*** allow the stationary screen to become "clogged up." Brush clean to allow proper air flow to reach the engine.

DISASSEMBLY

With reference to *Fig. 6;* to remove ***handle*** (627), pull cord out about two feet and tie a knot to prevent cord from rewinding on to pulley. Untie double knot at top of handle and remove. Loosen ***center screw*** (630) about two turns so that brake action is free.

Hold ***pulley*** (636) firmly to prevent it from unwinding, and untie retaining knot. Pull cord to inside of housing thru pilot bushing and allow pulley to turn slowly until spring tension is spent.

Remove ***center screw*** (630), ***washer*** (629) and (633), ***retainer cup*** (634), ***washer*** (632), three ***dogs*** (631) and ***dog springs*** (638). ***Brake*** (628) and ***return spring*** (635) normally stay attached to retainer cup.

SK1230K4, RWS100 Rewind Starter Kit

USE WITH MODELS ACN, BKN

CORD REPLACEMENT AND PRE-TENSION

If it is only necessary to replace the starting cord, it can be done at this time without further dismantling the starter.

Assuming the old cord has been removed, refer to *Fig. 7* and ***pre-load coil spring*** by turning starter sheave in a ***counter-clockwise*** direction ***6 complete revolutions,*** and stop when ***notch*** in pulley is just to the right of the ***guide bushing*** in housing. Lock sheave in this position by placing a large screw driver across the dog lugs of the pulley and against one of the mounting feet of the housing.

Tie a knot at one end of the new cord and slip opposite end of cord into ***notch*** and thru ***holes in sheave*** and ***guide bushing.*** Pull complete cord thru until knot appears at notch. See *Fig. 7A.*

Tie a retaining knot about 12" from handle end of cord. remove screw driver and allow pulley to slowly rewind in a clockwise direction. Mount handle, tie double knot at end of cord and then untie retaining knot.

Refer to ***'Assembly of Retainer Cup'*** paragraphs for mounting of remaining parts.

REWIND SPRING REPLACEMENT

Prevent spring from escaping from housing by carefully lifting pulley about 1/2 inch and then detaching inside ***spring hook*** from pulley, with a screw driver. ***Note:*** If spring should escape, it can easily be replaced into cover by coiling in the turns. See *Fig. 8,* for proper direction of spring coiling.

Starting with the inside loop, remove spring carefully from cover by pulling out one loop at a time, holding back rest of turns. When replacing with new spring, note the position of ***spring hook.*** *See Fig. 8.*

Spring holders furnished with replacement springs simplify the assembly procedure. Place ***rewind spring*** in proper position as shown in *Fig. 8,* with the outside loop engaged around the ***anchor post.*** Then press spring into

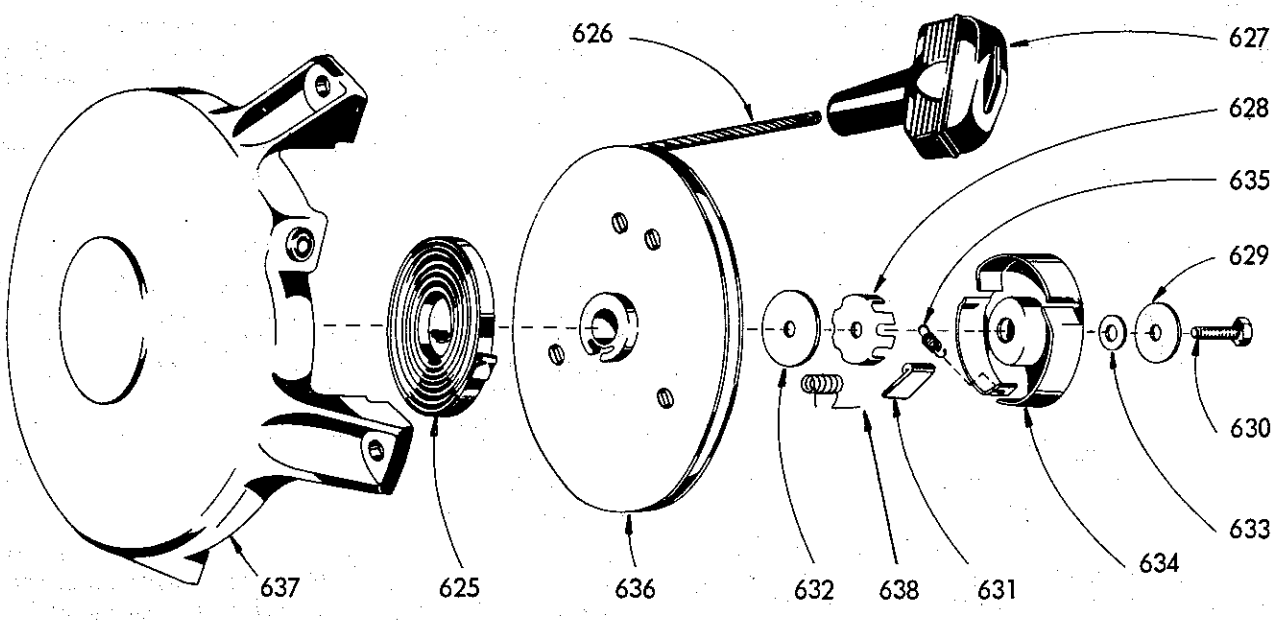


FIG. 6

housing cavity thus releasing the spring holder. A few drops of SAE 20 or 30 oil should be applied to spring and light grease on cover shaft.

ASSEMBLY OF PULLEY

Mount ***pulley assembly*** to housing so that ***cavity*** in pulley hub ***interlocks with hook*** on inside loop of ***rewind spring.*** *See Fig. 8.*

ASSEMBLY OF RETAINER CUP

With reference to *Fig. 9*, apply light grease to dog lug cavity of pulley, then mount ***thrust washer,*** the three ***dogs*** and ***dog springs*** to the pulley as shown. ***Note:*** Be sure that springs hold dog pawls to innermost position.

Place ***brake*** on to hub of ***retainer cup*** and hook small ***spring,*** from the inside, to the tab hole on the lip of cup. Drop r etainer cup assembly over the dogs on pulley with ***loop of retainer spring*** fitting over ***dog post*** as illustrated.

With reference to *Fig. 6*, assemble washers (633) and (629). Mount ***center screw*** (630) and torque 115 to 135 inch pounds.

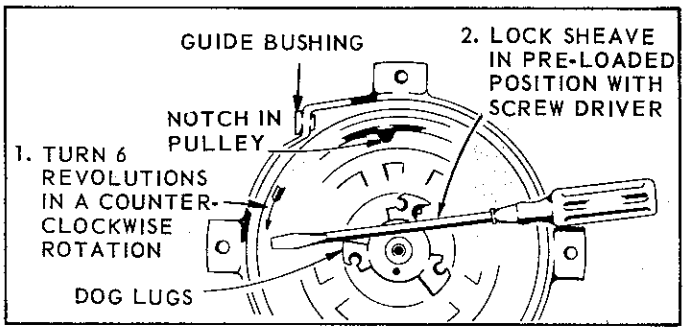


FIG. 7

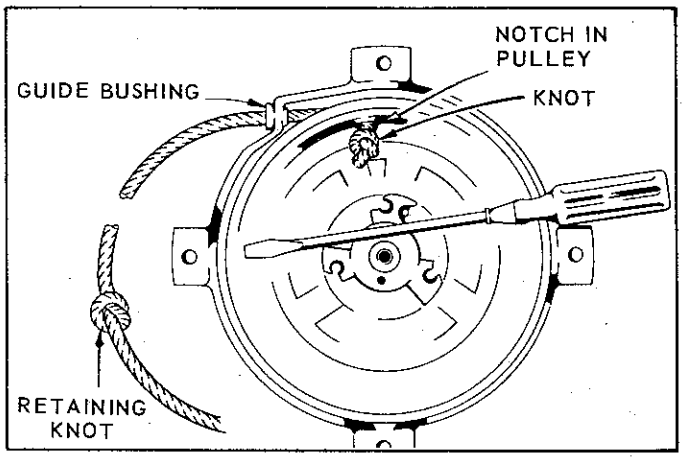


FIG. 7A

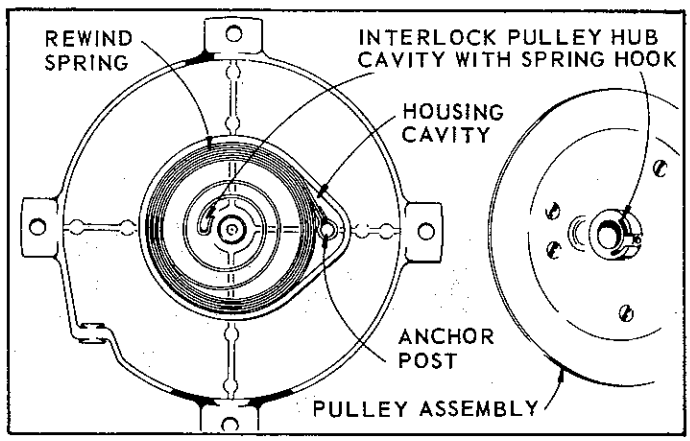


FIG. 8

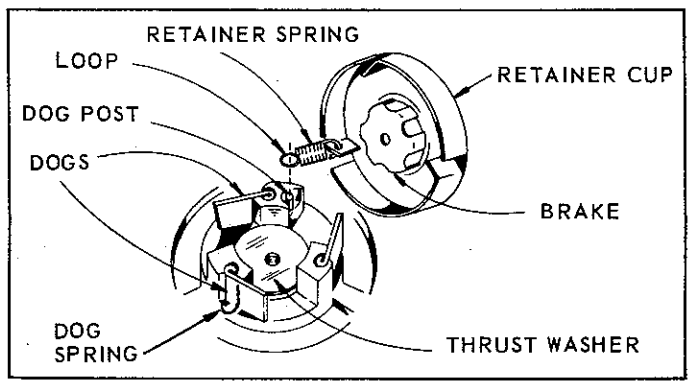
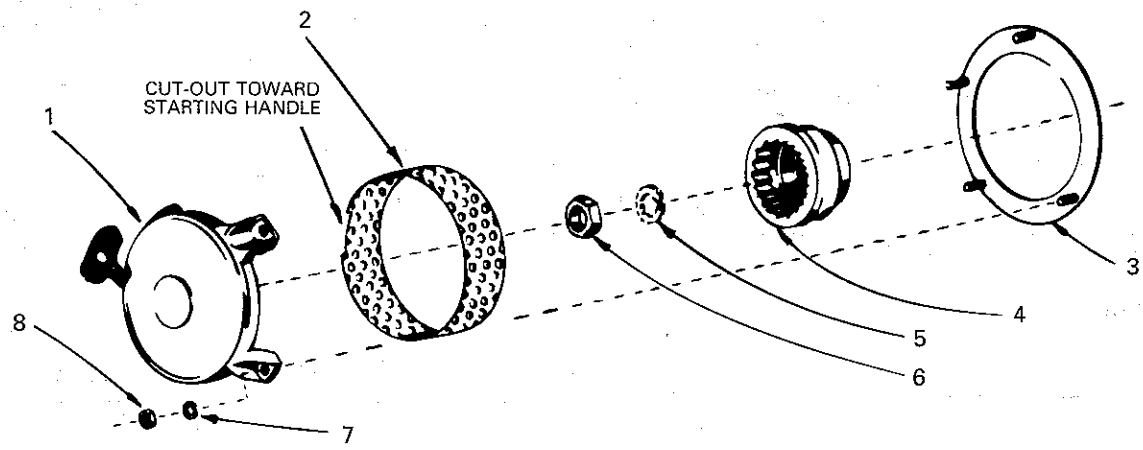


FIG. 9

RWS100 Rewind Starter Kit

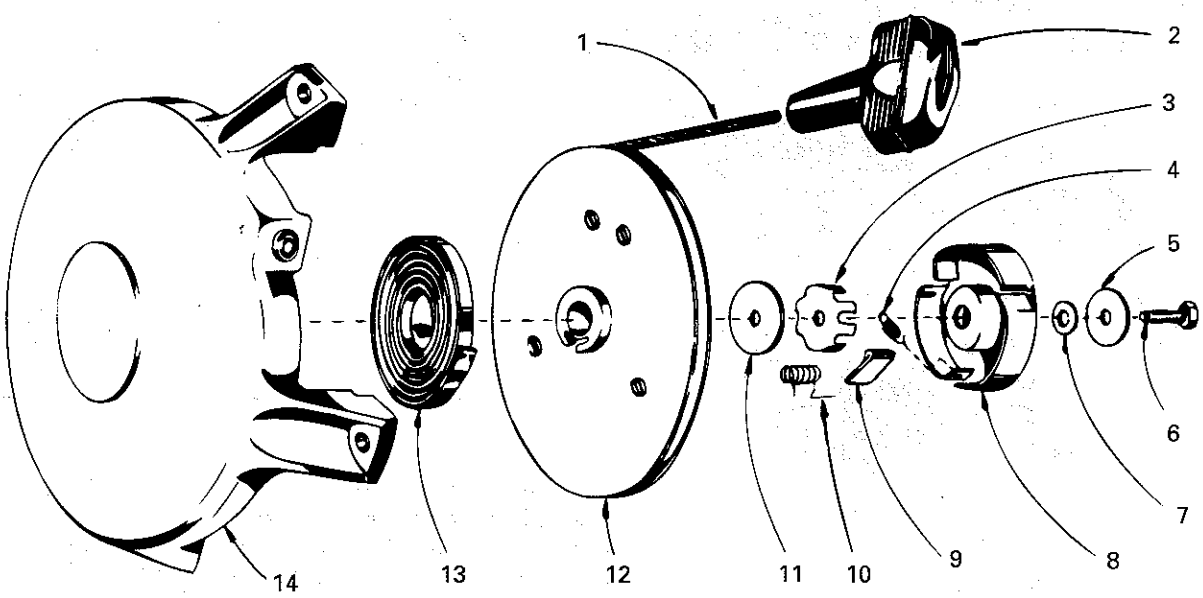
USE WITH MODELS ACN, BKN



ITEM	PART NO.	DESCRIPTION	QTY
1	U278C	Rewind starter assembly	1
2	SE335	Air intake screen	1
3	PG827	Support ring	1
4	UC197	Drive cup (replaces U281)	1
5	PE112	Lock washer, 5/8"	1
6	PD162-1	Jam nut, 5/8"-18 thread	1
7	PH27A	Washer, 1/4"	4
8	PD198	Nut, 1/4"-20 thread	4

U278C Rewind Starter

USE WITH MODELS ACN, BKN



ITEM	PART NO.	DESCRIPTION	QTY
1	27-504-022-0	Cord, 74" (replaces 27-504-22)	1
2	27-508-008-0	Handle (replaces 27-110-209)	1
—	27-508-009-0	Bushing	1
3	27-504-020-0	Brake (replaces 27-504-20)	1
4	27-504-007-0	Retainer spring (replaces 27-504-7)	1
5	27-504-015-0	Washer (replaces 27-504-15)	1
6	27-504-016-0	Screw, 1/4"-20 thread x 5/8" long (replaces 27-504-16)	1
7	27-504-014-0	Washer (replaces 27-504-14)	2
8	27-504-004-0	Retainer cup (replaces 27-504-4)	1
9	27-494-040-0	Dog (replaces 27-494-40)	3
10	27-504-096-0	Dog spring	3
11	27-504-021-0	Thrust washer (replaces 27-504-21)	1
12	27-504-117-0	Pulley assembly (cord not included) (replaces 27-504-108)	1
13	27-502-032-0	Recoil spring (replaces 27-502-32)	1
14	27-504-107-0	Housing assembly (includes shaft, cord bushing)	1

RWS116, RWS117, RWS118 Rewind Starter Assembly

USE WITH MODELS S12D, S14D

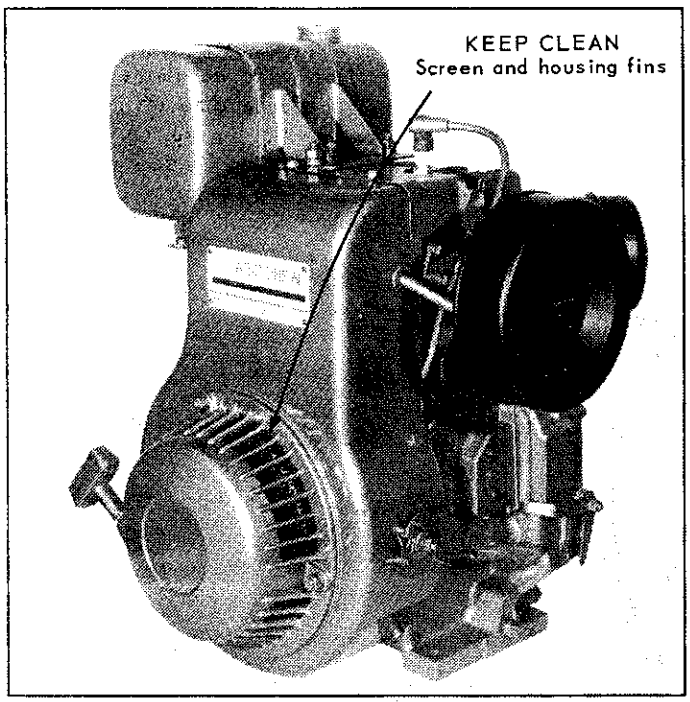


FIG. 1

PRINCIPLES OF OPERATION

A recoil spring, connecting the pulley to the housing, provides tension for actuating the starter, and it rewinds the rope on to the pulley whether the engine starts or not.

Three dogs (pawls) are mounted in a cluster to the starting pulley, around a dog cam attached to a shaft in the housing. As the rope handle is pulled to start the engine, the dogs are forced outward as they act against the contour of the stationary mounted cam. In this outward action the dogs engage with teeth in a flywheel mounted drive hub to turn the engine over.

When the engine starts and the 'T' handle returns, the dogs back out of the drive hub teeth, as the pulley rewinds in the opposite direction, and they revert back to an inactive position by means of the cam and individual dog return springs.

'T' HANDLE LOCATION, Fig. 2

The starting handle can be located in any of three locations with the standard location being toward the left side of the engine, pulling from an approximate 10 o'clock position.

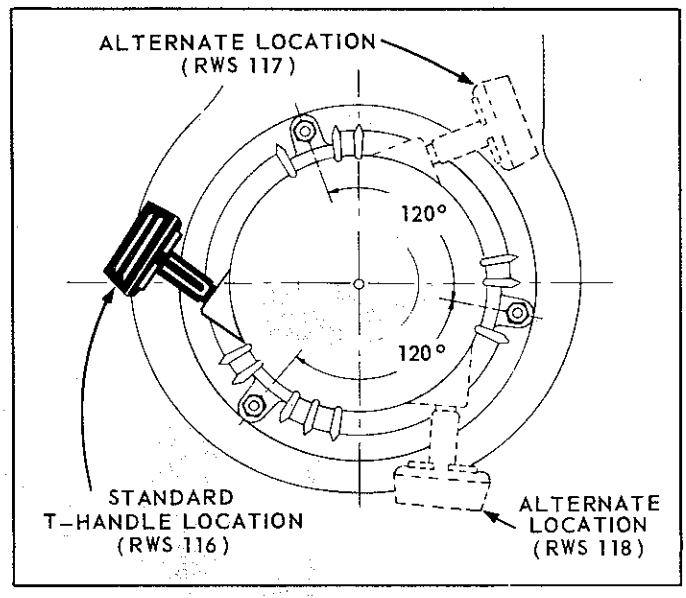


FIG. 2

Either of the two optional locations can be obtained by simply removing the three mounting nuts and rotating the housing 120° in either direction. *Caution:* Before tightening the mounting nuts the starter will have to be centered with the drive hub per *Fig. 7*, paragraph *H.*

OPERATING INSTRUCTIONS

1. ***To start engine;*** open fuel valve and close carburetor choke. Pull engine over against compression. Let rope rewind into starter slowly. Pull firmly and rapidly to start engine. (Repeat procedure if necessary). After engine starts, open choke fully.
2. Always maintain your hold on the starter handle and allow it to return slowly.
3. Pull the starter handle so that the rope remains in a straight line through the handle and guide.
4. ***Do not*** jerk the cord out to its very end in an unnecessary rough manner. Use a smooth but forceful pull.
5. ***Do not*** let go of starter handle allowing it to snap back against the starter.
6. ***Do not*** attempt to pre-load starter spring unnecessarily. Units are properly adjusted at the factory so that the outward pull of the starter is stopped by the end of the cable not the spring.

RWS116, RWS117, RWS118 Rewind Starter Assembly

USE WITH MODELS S12D, S14D

MAINTENANCE AND REPAIR

Oil and dirt, if allowed to accumulate in and around the the starter, will cause wear and eventual failure of not only the starter parts, but engine parts as well.

Do not allow internal rotating screen and housing fins to become "clogged up" with dirt. Brush clean to allow proper air flow to reach the engine.

Inspect rope for wear – replace before it breaks at a critical time.

If engine does not turn over as rope is pulled out, starter dogs are not engaging with drive hub teeth.

If rope does not rewind; rope or pulley may be binding – insufficient spring tension – spring disengaged or broken.

To overhaul the rewind starter, follow the disassembly and assembly procedures in the following 'Repair Instructions'. ***Rope replacement*** can be accomplished without completely disassembling the starter. *See paragraph D.*

REPAIR INSTRUSTIONS

In order to do any repair work on the rewind starter, it is advisable to secure the starter housing either in a vise, or to a work bench by means of a 'C' clamp.

DISASSEMBLY

A. REMOVE HANDLE and ROPE, Fig. 3

Pull rope out about two feet and tie knot to prevent rope from rewinding into pulley. Extract metal handle reinforcement (129) from handle (128) and untie or cut off end knot. Remove handle and reinforcement from rope, and untie knot that kept the rope from rewinding into the pulley. PULL rope all the way out (about 6 feet) and at the same time hold the starter housing (127), with thumb pressing against pulley assembly (137) to prevent rewinding. Pull the rope knot (visable thru square opening in pulley) and the rope will slide out through rope bushing in housing and hole in the pulley.

Carefully release thumb pressure and the pulley will completely unwind. At this point the main recoil spring is in a relaxed position.

B. REMOVE PULLEY and SPRING, Fig. 3

Remove ***cam center screw*** (130), ***dog cam*** (135), ***brake spring*** (134) and ***washer*** (125).

Prevent recoil spring from escaping from housing by carefully lifting pulley about 1/2 inch and then detaching inside ***spring hook*** from pulley, with a screw driver. ***Note:*** If spring should escape, it can easily be replaced into cover by coiling in the turns. *See Fig. 6,* for proper direction of spring coiling. If it is necessary to remove spring, start with the inside loop and carefully pull out one loop at a time while holding back rest of turns. When replacing spring, note the position of ***spring hooks*** in *Fig. 6.* Engine rotation is clockwise, viewed from starter end.

C. REMOVAL of DOGS, Fig. 3

Remove dog ***retainer clips*** (133) using a screw driver or other pointed tool. The ***dogs*** (132) and ***springs*** (131) can then be lifted off the axis pins.

Dogs and springs can be removed and replaced without removing rope, recoil spring or cam retainer screw.

D. ROPE REPLACEMENT, Fig. 3, 4, 5

If it is only necessary to replace the rope, the starter need not be completely disassembled.

Assuming the rope has broken, remove what ever remains of the rope from the starter. Tie knot at end of new rope. Turn the ***pulley*** in starter ***counter clockwise*** until it stops (about 6-7 turns). Allow the pulley to rotate slightly in the opposite direction (clockwise) until the hole in the pulley is in line with the rope bushing in the housing. Lock sheave in this position by placing a screw driver between two of the housing support ribs and wedging the end of the screw driver under the dog cam and against the dog, *see Fig. 4.* Thread rope through hole in pulley and through ***rope bushing*** in housing. Pull rope completely through until the knot in end of rope (previously tied) can be tucked into the ***square pocket*** in the pulley, *see Fig. 5.* Allow the rope to recoil into the pulley about 2 feet, then tie a ***retaining knot*** in the rope to prevent it from being completely rewound into the pulley. Install the 'T' handle (128) on the rope, then the handle insert (129). Tie a knot at end of rope and tuck it into the handle insert, then assemble insert into the rubber 'T' handle. Remove the retaining knot and allow the rope to recoil completely.

RWS116, RWS117, RWS118 Rewind Starter Assembly

USE WITH MODELS S12D, S14D

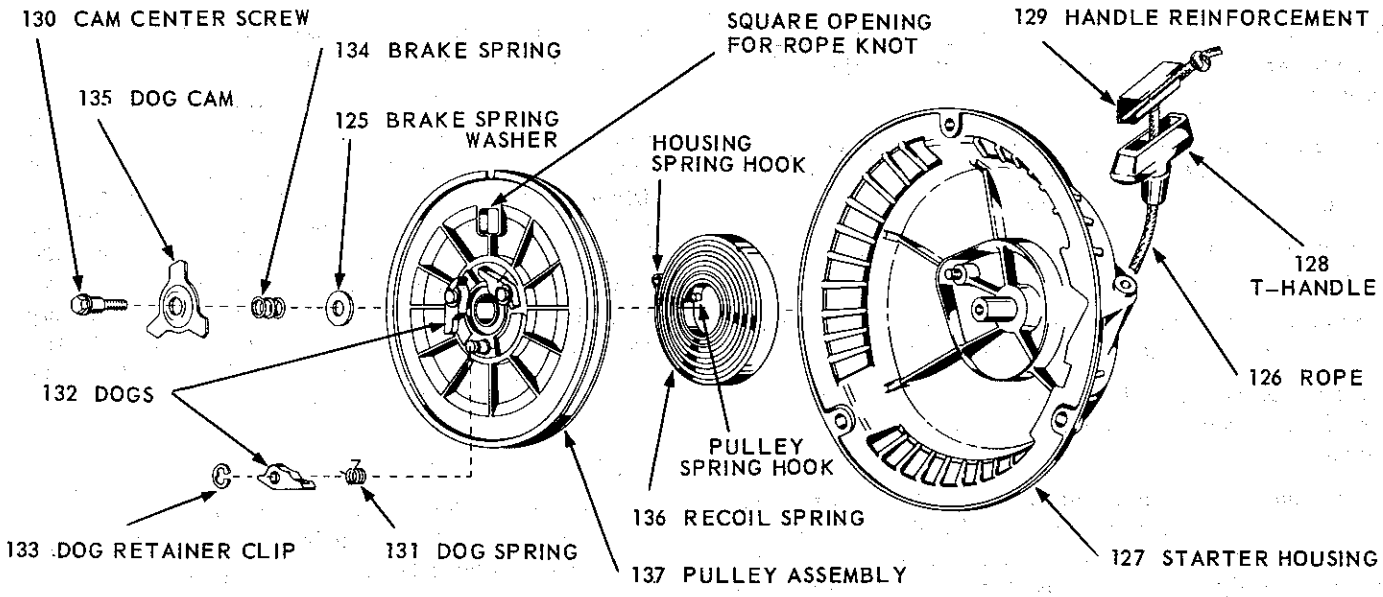


FIG. 3

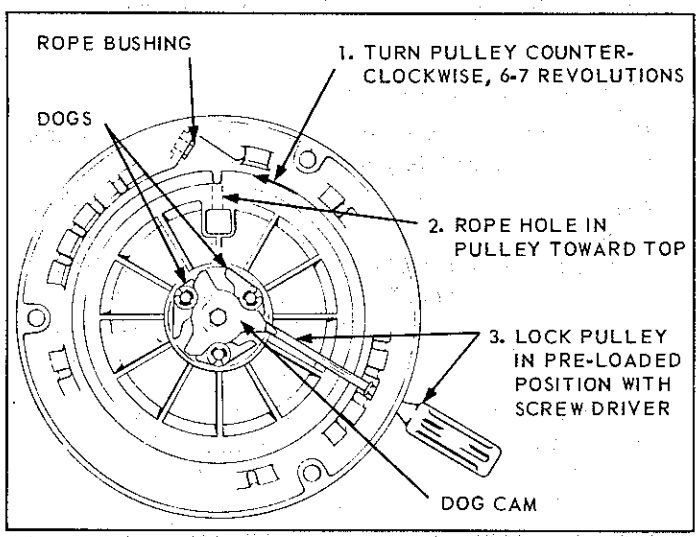


FIG. 4

E. RECOIL SPRING REPLACEMENT, Fig. 6

Spring holders furnished with replacement springs simplify the assembly procedure. Place ***recoil spring*** in proper position as shown in *Fig. 6*, with the outside loop hooked around the ***anchor post***. Then press spring into ***housing cavity*** thus releasing the spring holder. A few drops of SAE 20 or 30 oil should be applied to spring and light grease on housing shaft.

REASSEMBLY

F. ASSEMBLY of PULLEY, Fig. 6

After recoil spring has been installed in housing, mount pulley. Push housing and pulley together with a twisting motion so that the ***hook*** on end of spring engages the ***notch*** in pulley. When this occurs, the pulley will seat properly in the housing.

RWS116, RWS117, RWS118 Rewind Starter Assembly

USE WITH MODELS S12D, S14D

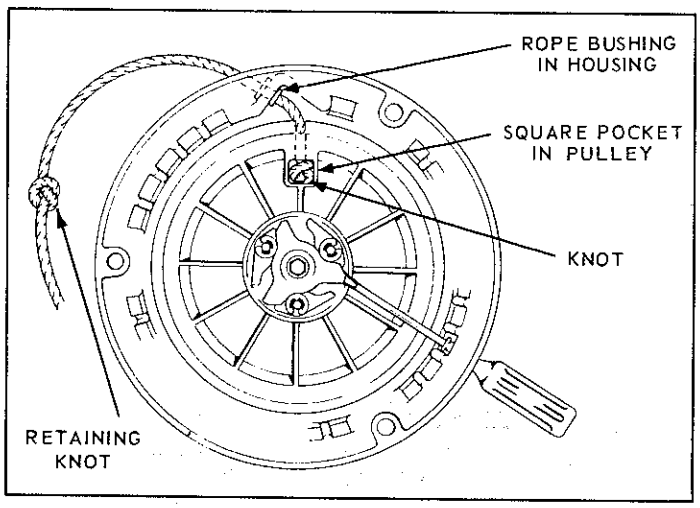


FIG. 5

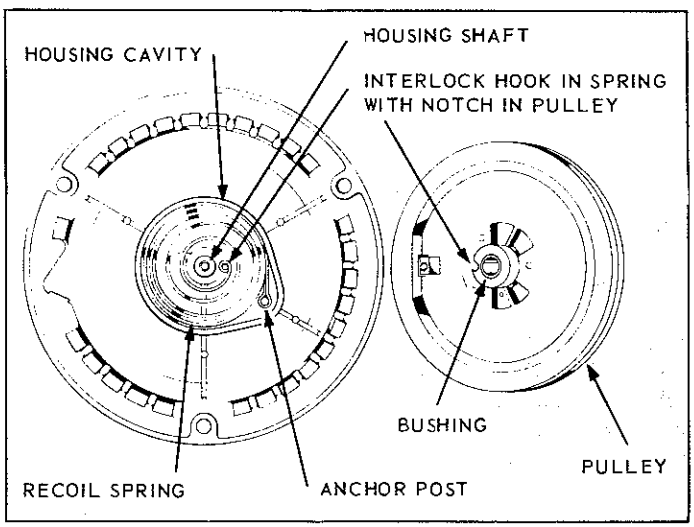


FIG. 6

G. **ASSEMBLY of DOG GROUP**, Fig. 3

Assemble brake washer (125), brake spring (134), dog cam (135), cam and center screw (130). Torque center screw 115-130 inch pounds. Install three dog springs (131) over the axis pins on the pulley and seat in the pockets. Mount the three dogs (132) on the same pins on pulley. Make sure that the ***dog springs are actuated*** as the dogs are positioned – to insure that the dogs are held in against the cam plate (135). Install three dog retainers (133). ***Note:*** When ever the dog retainers (133) are removed they should be replaced with new parts.

H. **REWIND STARTER ALIGNMENT**, Fig. 7

Mount rewind starter to support ring studs with ***'T'*** handle in required starting position. Place the three plain washers, lockwashers and nuts on studs and ***hand tighten only*** – for alignment purposes.

Proper ***alignment*** of the starter is obtained by pulling out the ***'T'*** handle until a substantial resistance, indicating starter engagement, is obtained. This automatically centers the starter to the ***drive hub.*** Hold starter in this position and securely tighten the three mounting nuts. ***The starter will become damaged if it is not centered properly.*** The engine is now ready to start.

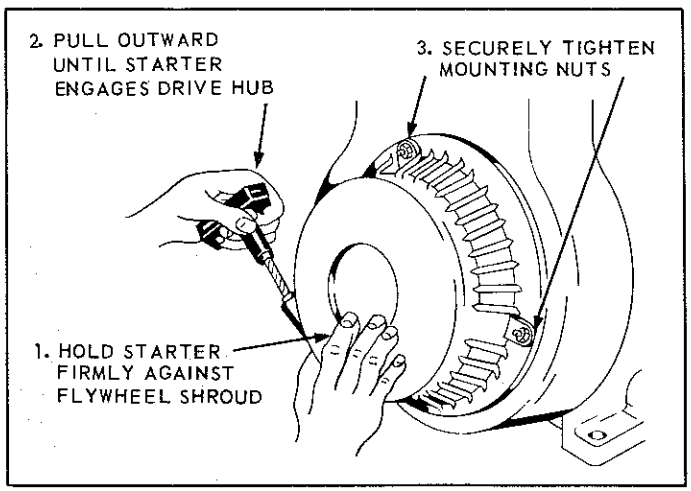
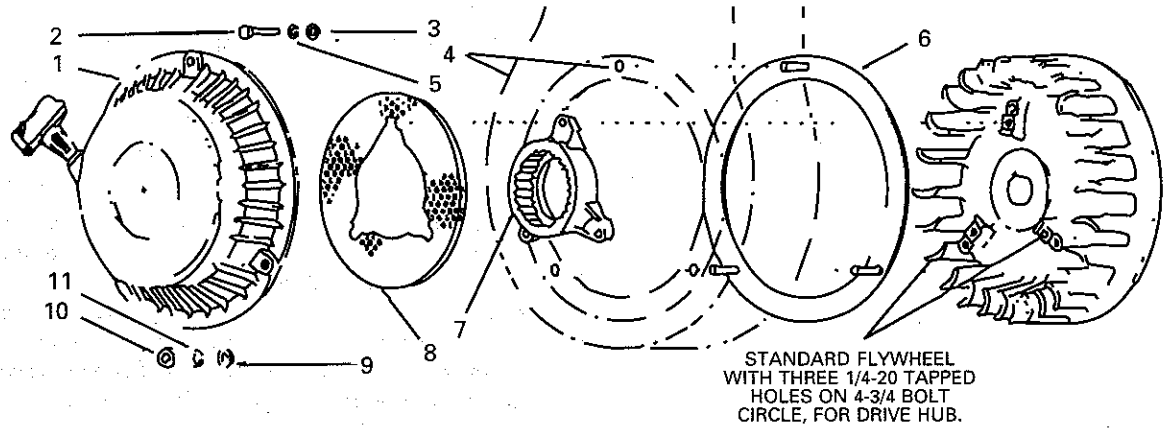


FIG. 7

RWS116, RWS117, RWS118 Rewind Starter Assembly

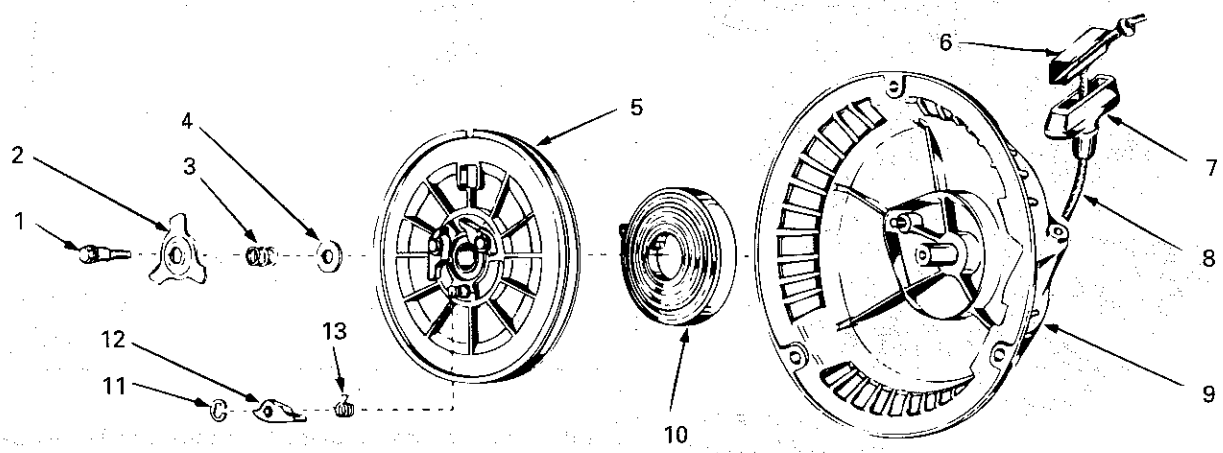
USE WITH MODELS S12D, S14D



ITEM	PART NO.	DESCRIPTION	QTY
1	U283	Rewind starter assembly	1
2	XD7	Screw, 1/4"-20 thread x 1" long	3
3	PH196	Washer, 1/4" x 5/8" O.D.	3
4	SE337-1	Flywheel shroud	1
5	PE3	Lock washer, 1/4"	3
6	PG1300	Support ring	1
7	UC204	Drive hub	1
8	SE334	Rotating screen	1
9	PH14D	Washer, 5/16" x 19/32" O.D.	3
10	PD199	Lock nut, 5/16"-18 thread	3

U283 Rewind Starter

USE WITH MODELS S12D, S14D



ITEM	PART NO.	DESCRIPTION	QTY
1	27-525-003-0	Screw	1
2	27-526-001-0	Dog cam	1
3	27-525-013-0	Brake spring	1
4	27-504-015-0	Washer	1
5	27-526-504-0	Pulley and bearing assembly	1
6	27-508-009-0	T-handle reinforcement	1
7	27-508-008-0	T-handle	1
8	27-504-022-0	Rope, no. 6 x 74" long	1
9	27-504-116-0	Housing assembly	1
10	27-526-003-0	Recoil spring	1
11	27-525-012-0	Dog retainer clip	3
12	27-525-008-0	Dog	3
13	27-525-007-0	Dog spring	3

RWS109, RWS110, RWS111 Rewind Starter Assembly (Beginning With Serial No. 5789735)

USE WITH MODEL AENL

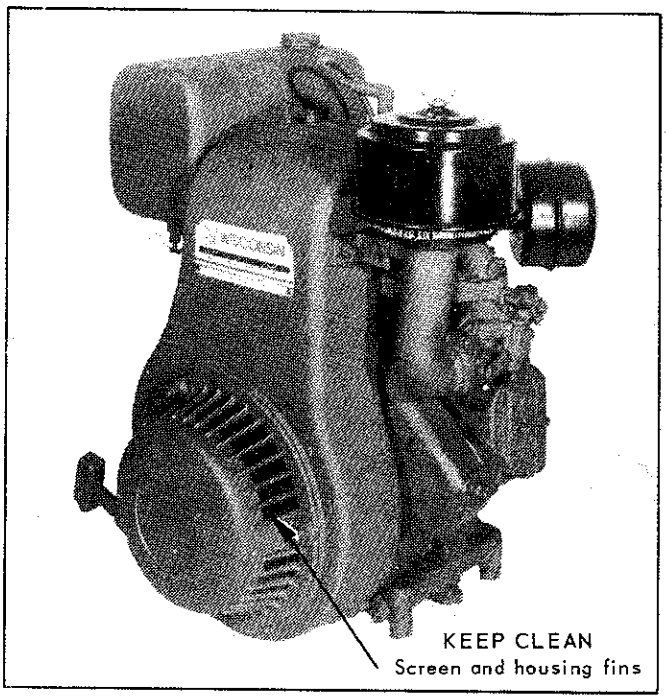


FIG. 1

PRINCIPLES OF OPERATION

A recoil spring, connecting the pulley to the housing, provides tension for actuating the starter, and it rewinds the rope on to the pulley whether the engine starts or not.

Three dogs (pawls) are mounted in a cluster to the starting pulley, around a dog cam attached to a shaft in the housing. As the rope handle is pulled to start the engine, the dogs are forced outward as they act against the contour of the stationary mounted cam. In this outward action the dogs engage with teeth in a flywheel mounted drive hub to turn the engine over.

When the engine starts and the 'T' handle returns, the dogs back out of the drive hub teeth, as the pulley rewinds in the opposite direction, and they revert back to an inactive position by means of the cam and individual dog return springs.

'T' HANDLE LOCATION, Fig. 2

The starting handle can be located in any of three locations. The standard location is toward the left side of the engine, pulling from an approximate 10 o'clock position.

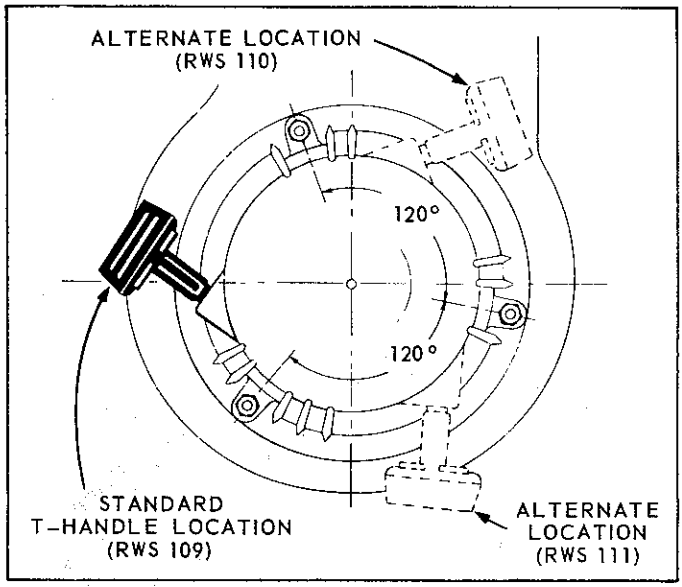


FIG. 2

Either of the two optional locations can be obtained by simply removing the three mounting nuts and rotating the housing 120° in either direction. *Caution:* Before tightening the mounting nuts the starter will have to be centered with the drive hub per *Fig. 7*, paragraph *H* on page *3*.

OPERATING INSTRUCTIONS

1. ***To start engine;*** open fuel valve, close carburetor choke, set throttle about ½ open, disengage clutch if furnished. Pull engine over against compression and then let rope slowly rewind into starter. Pull firmly and rapidly to start engine. (Repeat procedure if necessary). After engine starts, open choke fully.
2. Always maintain your hold on the starter handle and allow it to return slowly.
3. Pull the starter handle so that the rope remains in a straight line through the handle and guide.
4. ***Do not*** jerk the cord out to its very end in an unnecessary rough manner. Use a smooth but forceful pull.
5. ***Do not*** let go of starter handle allowing it to snap back against the starter.
6. ***Do not*** attempt to pre-load starter spring unnecessarily. Units are properly adjusted at the factory so that the outward pull of the starter is stopped by the end of the cable not the spring.

RWS109, RWS110, RWS111 Rewind Starter Assembly (Beginning With Serial No. 5789735)

USE WITH MODEL AENL

MAINTENANCE AND REPAIR

Oil and dirt, if allowed to accumulate in and around the the starter, will cause wear and eventual failure of not only the starter parts, but engine parts as well.

Do pot allow internal rotating screen and housing fins to become "clogged up" with dirt. Brush clean to allow proper air flow to reach the engine.

Inspect rope for wear – replace before it breaks at a critical time.

If engine does not turn over as rope is pulled out, starter dogs are not engaging with drive hub teeth.

If rope does not rewind; rope or pulley may be binding – insufficient spring tension – spring disengaged or broken.

To overhaul the rewind starter, follow the disassembly and assembly procedures in the following 'Repair Instructions'. ***Rope replacement*** can be accomplished without completely disassembling the starter. *See paragraph D.*

REPAIR INSTRUSTIONS

In order to do any repair work on the rewind starter, it is advisable to secure the starter housing either in a vise, or to a work bench by means of a 'C' clamp.

DISASSEMBLY

A. **REMOVE HANDLE and ROPE,** Fig. 3

Pull rope out about two feet and tie knot to prevent rope from rewinding into pulley. Extract metal handle reinforcement (129) from handle (128) and untie or cut off end knot. Remove handle and reinforcement from ope, and untie knot that kept the rope from rewinding into the pulley. PULL rope all the way out (about 6 feet) and at the same time hold the starter housing (127), with thumb pressing against pulley assembly (137) to prevent rewinding. Pull the rope knot (visable thru square opening in pulley) and the rope will slide out through rope bushing in housing and hole in the pulley.

Carefully release thumb pressure and the pulley will completely unwind. At this point the main recoil spring is in a relaxed position.

B. **REMOVE PULLEY and SPRING,** Fig. 3

Remove ***cam center screw*** (130), ***dog cam*** (135), ***brake spring*** (134) and ***washer*** (125).

Prevent recoil spring from escaping from housing by carefully lifting pulley about 1/2 inch and then detaching inside ***spring hook*** from pulley, with a screw driver. ***Note:*** If spring should escape, it can easily be replaced into cover by coiling in the turns. *See Fig. 6,* for proper direction of spring coiling. If it is necessary to remove spring, start with the inside loop and carefully pull out one loop at a time while holding back rest of turns. When replacing spring, note the position of ***spring hooks*** in *Fig. 6.* Engine rotation is clockwise, viewed from starter end.

C. **REMOVAL of DOGS,** Fig. 3

Remove dog ***retainer clips*** (133) using a screw driver or other pointed tool. The ***dogs*** (132) and ***springs*** (131) can then be lifted off the axis pins.

Dogs and springs can be removed and replaced without removing rope, recoil spring or cam retainer screw.

D. **ROPE REPLACEMENT,** Fig. 3, 4, 5

If it is only necessary to replace the rope, the starter need not be completely disassembled.

Assuming the rope has broken, remove what ever remains of the rope from the starter. Tie knot at end of new rope. To obtain the required amount of **tension** on the **recoil spring,** turn the **pulley** in starter **counter clockwise** until it stops (about 6-7 turns). Allow the pulley to rotate slightly in the opposite direction (clockwise) until the hole in the pulley is in line with the rope bushing in the housing. Lock sheave in this position by placing a screw driver between two of the housing support ribs and wedging the end of the screw driver under the dog cam and against the dog, *see Fig. 4.* Thread rope through hole in pulley and through ***rope bushing*** in housing. Pull rope completely through until the knot in end of rope (previously tied) can be tucked into the ***square pocket*** in the pulley, *see Fig. 5.* Allow the rope to recoil into the pulley about 2 feet, then tie a ***retaining knot*** in the rope to prevent it from being completely rewound into the pulley. Install the 'T' handle (128) on the rope, then the handle insert (129). Tie a knot at end of rope and tuck it into the handle insert, then assemble insert into the rubber 'T' handle. Remove the retaining knot and allow the rope to recoil completely.

RWS109, RWS110, RWS111 Rewind Starter Assembly (Beginning With Serial No. 5789735)

USE WITH MODEL AENL

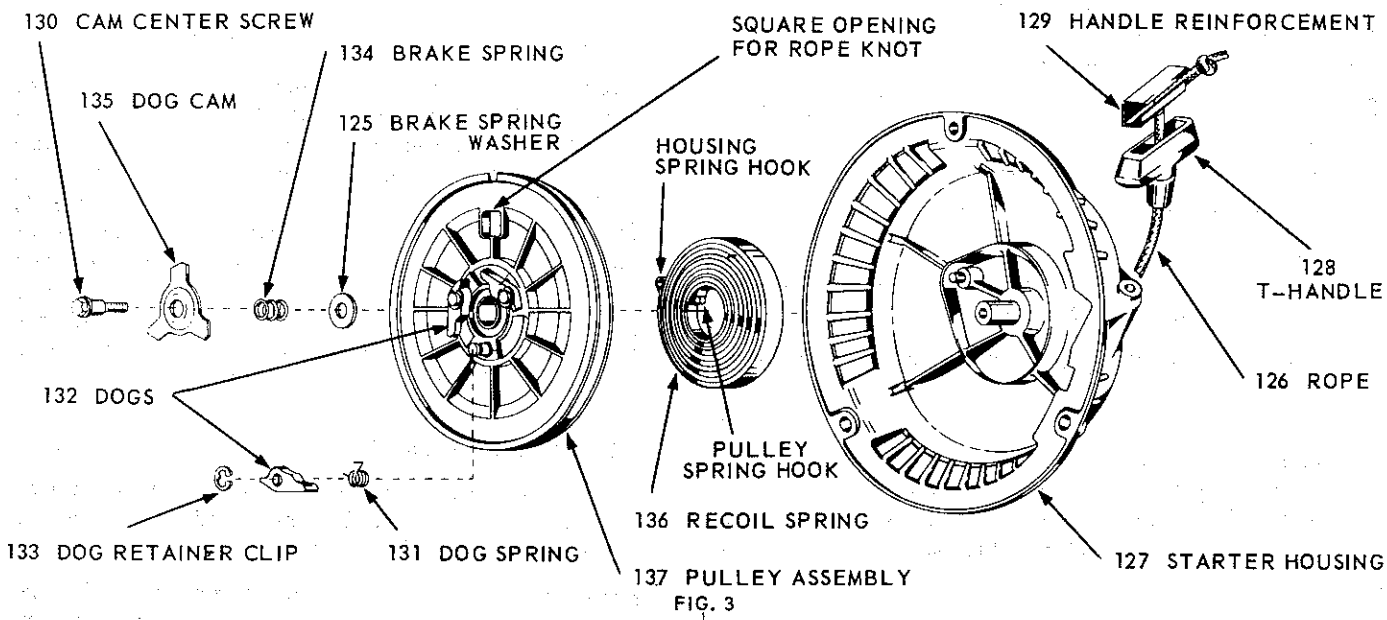


FIG. 3

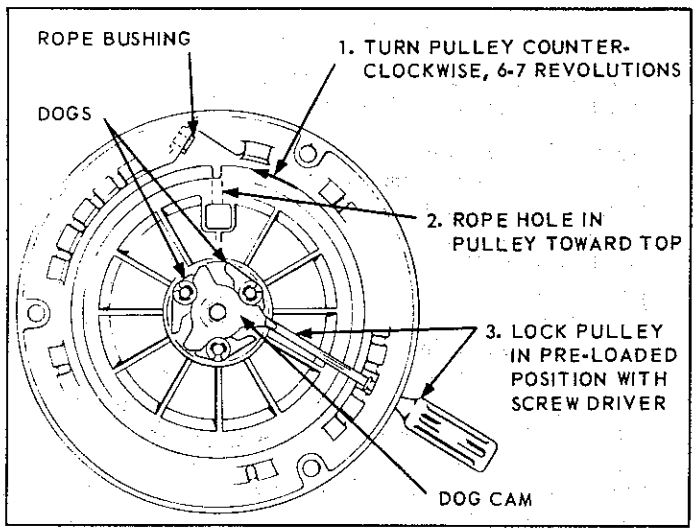


FIG. 4

E. **RECOIL SPRING REPLACEMENT,** Fig. 6

Spring holders furnished with replacement springs simplify the assembly procedure. Place ***recoil spring*** in proper position as shown in *Fig. 6*, with the outside loop hooked around the ***anchor post***. Then press spring into ***housing cavity*** thus releasing the spring holder. A few drops of SAE 20 or 30 oil should be applied to spring and light grease on housing shaft.

REASSEMBLY

F. **ASSEMBLY of PULLEY,** Fig. 6

After recoil spring has been installed in housing, mount pulley. Push housing and pulley together with a twisting motion so that the ***hook*** on end of spring engages the ***notch*** in pulley. When this occurs, the pulley will seat properly in the housing.

RWS109, RWS110, RWS111 Rewind Starter Assembly (Beginning With Serial No. 5789735)

USE WITH MODEL AENL

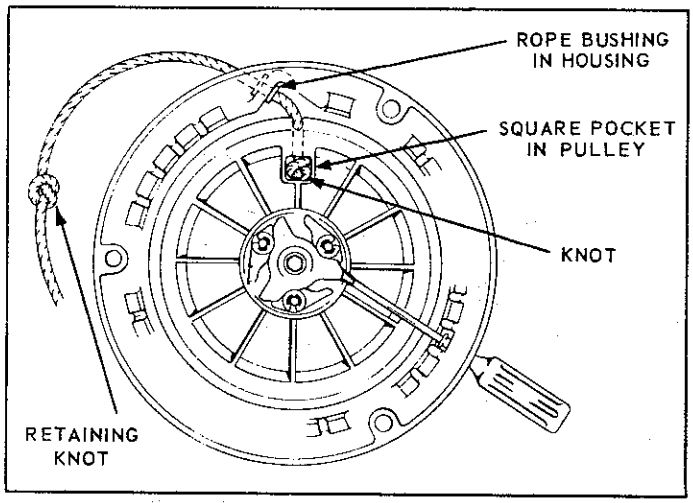


FIG. 5

G. **ASSEMBLY of DOG GROUP,** Fig. 3

Assemble brake washer (125), brake spring (134), dog cam (135), cam and center screw (130). Torque center screw 115-130 inch pounds. Install three dog springs (131) over the axis pins on the pulley and seat in the pockets. Mount the three dogs (132) on the same pins on pulley. Make sure that the ***dog springs are actuated*** as the dogs are positioned – to insure that the dogs are held in against the cam plate (135). Install three ***new*** dog retainers (133). ***Note:*** Be sure there is sufficient recoil ***spring tension*** before mounting unit to engine. See *'Rope Replacement'*, paragraph D, page 2.

H. **REWIND STARTER ALIGNMENT,** Fig. 7

Mount rewind starter to support ring studs with ***'T'*** handle in required starting position. Place the three plain washers, lockwashers and nuts on studs and ***hand tighten only*** – for alignment purposes.

Proper ***alignment*** of the starter is obtained by pulling out the ***'T'*** handle until a substantial resistance, indicating starter engagement, is obtained. This automatically centers the starter to the ***drive hub.*** Hold starter in this position and securely tighten the three mounting nuts. ***The starter will become damaged if it is not centered properly.*** The engine is now ready to start.

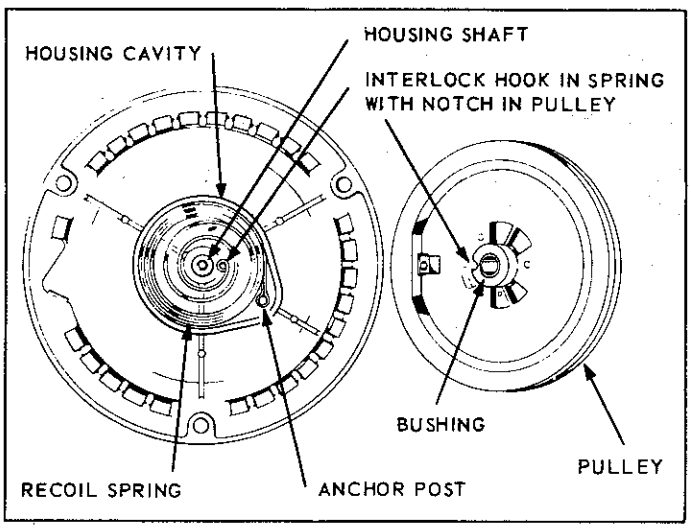


FIG. 6

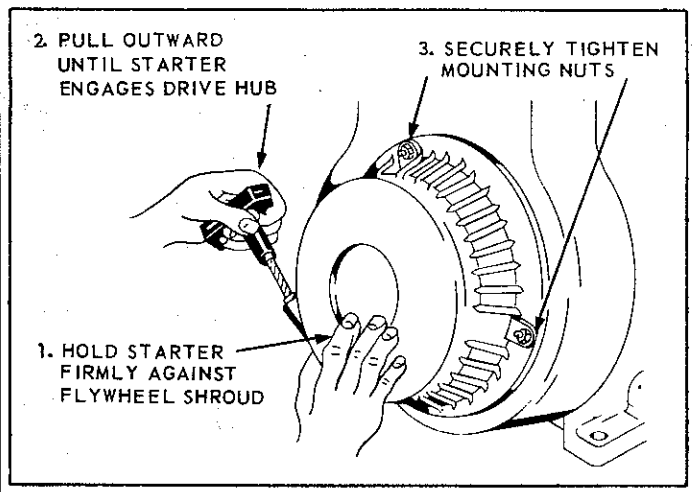
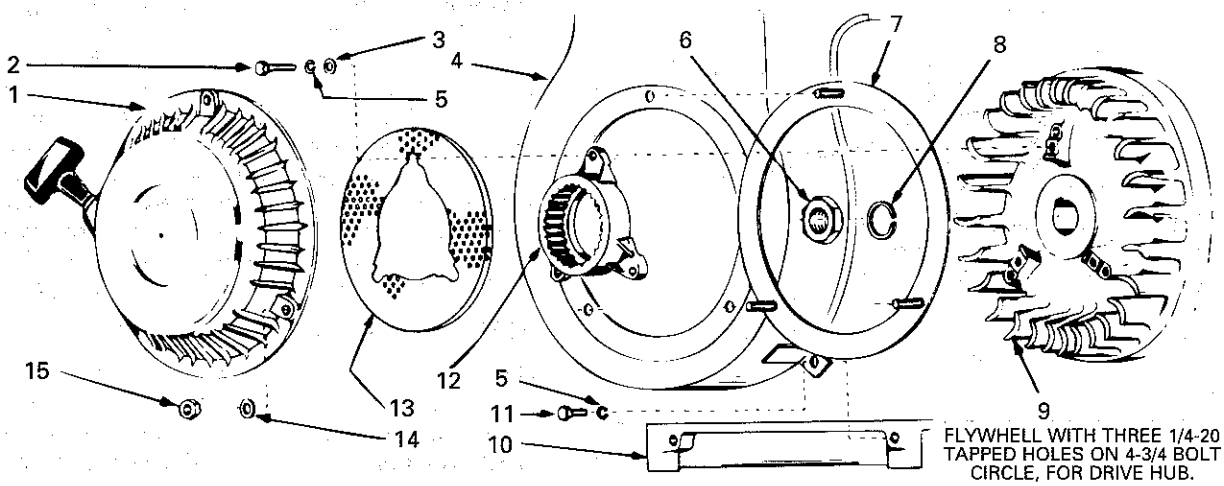


FIG. 7

RWS109, RWS110, RWS111 Rewind Starter Assembly
(Beginning With Serial No. 5789735)

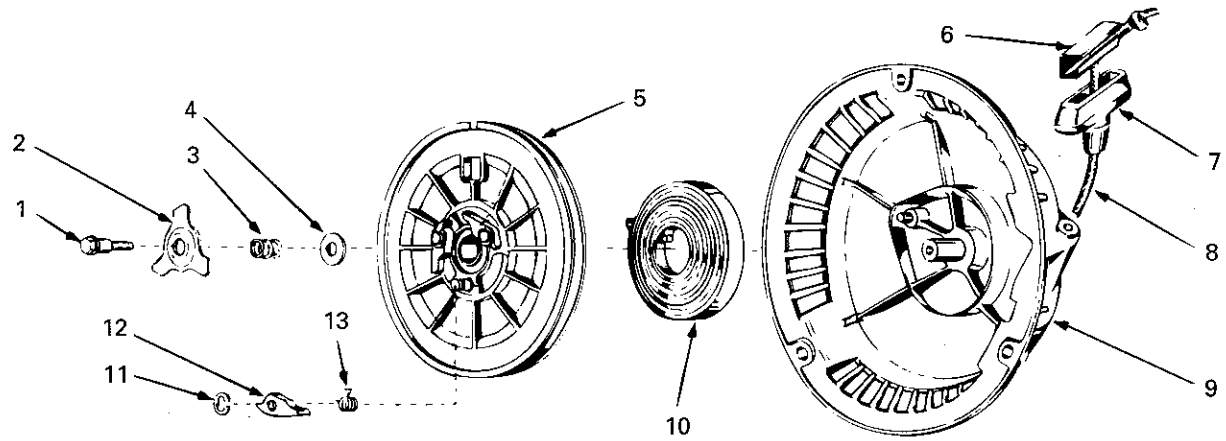
USE WITH MODEL AENL



ITEM	PART NO.	DESCRIPTION	QTY
1	U283	Rewind starter assembly	1
2	XD7	Screw, 1/4"-20 thread x 1" long	3
3	PH196	Washer, 1/4" x 5/8" O.D.	3
4	SE339	Flywheel shroud	1
5	PE3	Lock washer, 1/4"	5
6	PD142	Nut, 7/8"-14 thread, 1-1/4" jam	1
7	PG1300	Support ring	1
8	PE38	Lock washer, 7/8"	1
9	NC215	Flywheel	1
10	BB128A5	Engine base	1
11	XB87	Screw, 1/4"-20 thread x 5/8" long	4
12	UC204	Drive hub	1
13	SE334	Rotating screen	1
14	PH14D	Washer, 5/16" x 19/32" O.D.	3
15	PD199	Lock nut, 5/16"-18 thread	3

U283 Rewind Starter

USE WITH MODEL AENL



ITEM	PART NO.	DESCRIPTION	QTY
1	27-525-003-0	Screw	1
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3	27-525-013-0	Brake spring	1
4	27-504-015-0	Washer	1
5	27-526-504-0	Pulley and bearing assembly	1
6	27-508-009-0	T-handle reinforcement	1
7	27-508-008-0	T-handle	1
8	27-504-022-0	Rope, no. 6 x 74" long	1
9	27-504-116-0	Housing assembly	1
10	27-526-003-0	Recoil spring	1
11	27-525-012-0	Dog retainer clip	3
12	27-525-008-0	Dog	3
13	27-525-007-0	Dog spring	3