

Revision

7

HASTINGS

Load Pick Up Tool Manual



Model 6600



Model 6605

Operating and Maintenance Manual

Manual part number P31086

HASTINGS LOAD PICKUP TOOL

Operating and Maintenance Manual

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Specifications

The following specifications apply to the Hastings Model 6600 and Model 6605:

Voltage Rating 27kV Nominal, 29.2 kV Maximum*

Current Rating 300 Amps*

Minimum Conductor Size #6 AWG

Maximum Conductor Size 1 1/4" diameter

*While the maximum rating for the Model 6600 and Model 6605 is stated above, the actual rating will be based on the lowest rating of any component used with the Load Pickup tool. If you use 15kV jumper cable, the entire assembly will be rated at 15kV. If you use less than a 2/0 cable, the current rating will be reduced accordingly.

Chapter 1

Basic Operations

Catalog Number 6600 and 6605



WARNING This unit is designed for use on high voltage systems. It must be properly assembled and maintained to provide adequate worker safety. Only trained individuals, willing to take the responsibility for the quality of this tool should assemble or use this tool! Any misuse or improper maintenance of this tool could result in serious injury or death!

This manual covers the assembly and operation of both the Model 6600 and Model 6605 load pickup tool. The Model 6600 has the ability to accept a jumper cable ferrule, while the Model 6605 has a stud to accept a jumper clamp. The upper portions of these two tools are identical.

Cable Installation (for Model 6600 only)

To install a jumper cable in Model 6600, use the following procedure. First, the unit should be cocked, or at least have the contact rod withdrawn far enough to clear the lower contact. (For information on cocking the tool, see the paragraph on cocking on page 6.) Remove the two screws holding the red hand guard in place, using a ¼ inch slotted screwdriver. (See Fig. 1)

After the screws are removed, the two halves of the red hand guard can be pulled away from the clear housing. Be careful not to damage or trip the operating mechanism by moving the hand guard a long distance. It only has to move away from the housing far enough for the locking pins to be free of the lower contact assembly. (See Fig. 2) If the lower contact assembly doesn't slide freely out of the housing, a light shaking should be sufficient to cause it to slide free of the housing.

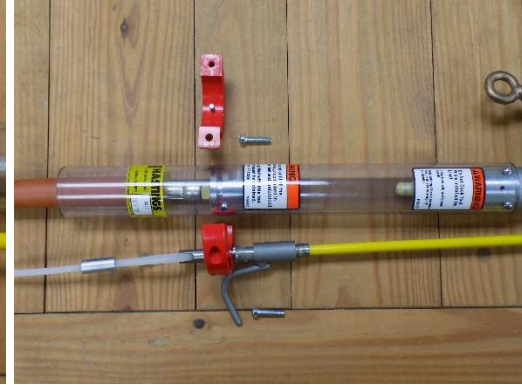


Fig. 1

Fig. 2



Fig. 3

The jumper cable should have a tin plated copper threaded ferrule termination on the end to be connected to the load pickup tool. Place the lock washer between the nut and the lower contact assembly and thread the ferrule into the lower contact assembly its full length. The flat side of the ferrule must align with the setscrew in the lower contact assembly. (See Fig. 3) Turn the ferrule as necessary to align the flat with the setscrew. Tighten the setscrew with a 5/32" hex wrench. Lock the ferrule in place with the ferrules lock nut and washer, using a 13/16" and a 1 1/4" wrench.

Insert the lower contact assembly with cable into the clear tube using the jumper cable to push the contact back in place. The groove in the lower contact assembly must align with the pin holes under the hand guards. Once aligned, install the hand guards back in place locking the lower contact assembly in place with the pins. Visually check to make sure the pins in the hand guard are in the groove of the contact assembly. It is possible to incorrectly assemble the tool with the pins in the area of the wrench flats. This incorrect assembly will prevent the tool from working properly. Insert the screws in the hand guard and tighten.

Prior to use

Inspect the tool for any damage and for any loose or missing parts. There should be no cracks in the clear tube or any other part of the tool. There should be no visible metal flash or contamination on the inside or outside of the tool. The cable attached to the tool and the clamp on the opposite end should be secure and in good working order. The tool should be capable of being cocked and tripped without undue force or roughness of operation.

Cocking

The safety latch should be in the upper, or locked position prior to cocking. (See Fig. 6) This can be accomplished by pushing the safety upwards, or by pulling on the lanyard. To cock the load pickup tool, it must be removed from the conductor. Remove the cocking tool from its holder. (See Fig. 4)

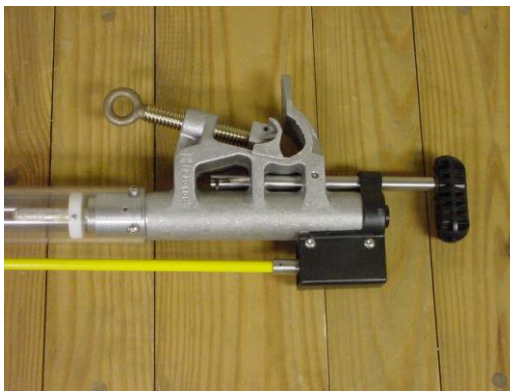


Fig. 4

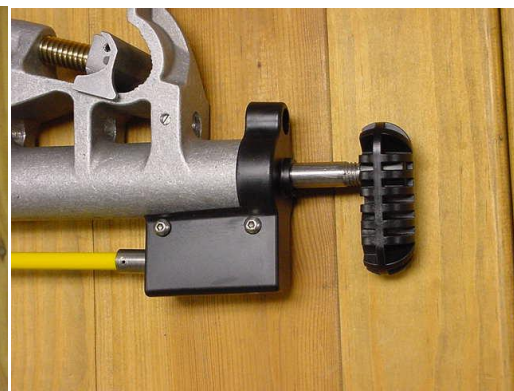


Fig. 5

Push the cocking tool all the way into the load pickup tool until it makes contact with the internal assembly. While turning the cocking tool clockwise continue to keep light pressure on the cocking tool. (See Fig. 5) This will engage the cocking tool with the internal assembly. If you see the contact rod rotating in the housing, you have already engaged the assembly. Continuing to turn slightly while pulling will aid in breaking the contacts internally. Continue to pull the cocking tool until the contact has latched in the fully open position and the tool can be pulled no further. Release the pulling pressure on the cocking tool and rotate it slightly counter clockwise to release it from the internal assembly. Remove the cocking tool completely and replace it back in its storage position in the aluminum clamp casting. Damage to the internal assembly will occur if the cocking tool is not removed prior to tripping. The load pickup tool is now cocked. The contacts can be seen to be visually open, through the clear tube.

Installation

When installing the load pickup tool, it is recommended to attach the opposite end of the jumper to the de-energized line first. Unless the de-energized line is grounded, the jumper must now be considered and handled as energized. The load pickup tool should then be attached to the energized conductor using either rubber gloves or a shotgun stick. The energized conductor must be secure enough to support both the weight of the load pickup tool as well as withstand

the pull that will be applied to the lanyard during the operation of the tool. Both ends must be securely attached and the de-energized line must have all grounds removed prior to operating the load pickup tool.

Tripping

Once all of your company's operating procedures for energizing a line have been completed, the tool can be operated. Using an insulated stick or rubber gloves, the safety latch must be pulled to its lower position, which will place the unit in the firing position. (See Fig. 6 & 7)



Locked Position
Fig. 6



Firing Position
Fig. 7

Any downward motion of the operating rod from this point on may operate the load pickup tool. It is recommended that either a hot stick be used to pull on the operating lanyard, or that a rope be attached to the end of the lanyard so that the operator can be positioned away from the load pickup tool prior to operating it. Once the operator is in a safe position, the lanyard should be pulled firmly to operate the load pickup tool.

If the lanyard is not pulled far enough to trip the Load Pickup tool, the safety latch may re-engage, preventing it from tripping with another pull on the lanyard. Should this happen, it will be necessary to repeat the step of moving the safety latch to its lower position before attempting to operate the Load Pickup tool again.

There should be no attempt to remove the load pickup tool unless the tool has been bypassed with other equipment or the line has been de-energized. There are **no** provisions on the load pickup tool to break the load. Regardless of which clamp is removed first, both clamps and cable will still be energized and must be handled according to standard operating procedures.

Chapter 2

Care & Maintenance

It may become necessary to disassemble the Load Pickup tool to complete a thorough inspection of the tool or to make necessary repairs.

Inspect the contact rod to make sure there is no pitting in the contact area.

Inspect the clear tube to make sure there is no contamination on the inside or outside.

Inspect the contacts to make sure there is no pitting on the contact itself, or on the housing that would interfere with the contact rod.

Inspect the safety mechanism (including the spring plungers) for smooth, positive operation.

Inspect the unit for smooth operation of the lanyard and correct operation of the safety mechanism.

Inspect the internal contact rod for smooth operation.

Inspect the lanyard for any cuts or nicks.

Inspect the eye-screw of the clamp for smooth operation.

Do not use acetone or chlorinated solvents for cleaning plastic parts. Isopropyl Alcohol, VM&P naphtha, turpentine, or soap and water can be used.

The tool should always be stored in the “tripped” condition to remove long term stress from the spring.

Chapter 3

Testing

Testing the Load Pickup Tool

To insure that your Hastings Load Pickup tool is in proper working order, the unit can be tested using the Hastings Ground/Jumper Assembly Tester, Catalog number 6714.

Attach the jumper assembly to the Load Pickup tool by securing a jumper clamp to the stud (model 6605) or a cable to the threaded cable ferrule termination (model 6600). The jumper clamp on the opposite end of the cable and the Load Pickup tool can now be securely tightened onto opposite ends of the copper test bar of the tester.

For proper instructions of the tester, refer to instructions P15094 that are included with the tester. When measuring the cable length, measure to the bottom of the red hand guard. Select the input voltage from the correct cable chart supplied with the tester. The voltage input is determined by the cable size and length. To include the Load Pickup tool, an additional voltage must be added to the input voltage. An additional voltage of 3.5 is added for model 6600, and 5.0 volts for model 6605. Note that the Load Pickup tool must be in the fired position to complete the circuit.

Chapter 4

Lower Contact

Disassembly of lower contact

The load pickup tool should not be cocked prior to disassembly. Remove screws from red hand guard; pull the hand guard halves apart until holding pins exit the clear tube. (See Fig. 1 & 2) On model with the cable attached, pull cable and bottom assembly will come out of the clear tube. (See Fig. 8)



Fig. 8

On the model with the stud, use the cocking tool to pull the contact rod from the lower contact assembly. It is not necessary to completely cock the tool, just pull back on the cocking tool far enough to allow the contact rod to clear the lower contact assembly. Loosen setscrew in the lower contact housing with a 5/32" hex wrench and then remove the threaded stud by turning counter clockwise with a wrench on the nut. Hold the unit upright and shake, the contact assembly should come out of the tube, if not, use a screwdriver to pry with through the hole in the tube where the threaded stud was removed.

The lower bushing holder that contains the contacts can be removed by using a 1" and a 1 1/4" wrench. Turn counter clockwise to loosen and remove the lower bushing. For field replacement of the contact, the contact bushing must be replaced with one from the factory with the contact already installed.

On the model with the cable installed, the cable does not have to be removed. If the cable is to be removed, loosen the setscrew that secures the threads of the ferrule. Use a 13/16" and a 1 1/4" wrench to loosen the locknut. Unscrew the ferrule from the bushing holder.

Assembly of lower contact

Install lower bushing into the lower bushing holder and tighten with a 1" and 1 1/4" wrench. On the model with requiring a ferrule with cable, install the lock washer between the nut and the lower contact assembly, then thread the ferrule into the bushing holder fully and align the

flat on the ferrule with the setscrew in the bushing holder. Tighten the setscrew and tighten the lock nut on the ferrule.

Ferrule model - slide the bushing assembly into the clear tube until the groove in the bushing holder aligns with the mounting holes for the hand guard. Visually check to make sure the pins in the hand guard are in the groove of the contact assembly. It is possible to incorrectly assemble the tool with the pins in the area of the wrench flats. This incorrect assembly will prevent the tool from working properly. Install hand guard and tighten the two screws.

Stud model - slide the bushing assembly into the clear tube until the holes of the bushing align with the holes for the hand guard and the stud. Install the hand guard and tighten the two screws. Install the stud until it bottoms out and then tighten the setscrew in the bushing holder.

Chapter 5

Trigger Mechanism

Disassembly of trigger mechanism

The load pickup tool should not be cocked prior to disassembly. Remove the two screws and nuts that hold the black plastic cap on, using a 1/8" hex wrench and a 3/8" socket wrench, and remove the cap. (See Fig. 9) Remove the extension spring from the aluminum casting. (See Fig. 10)



Fig. 9

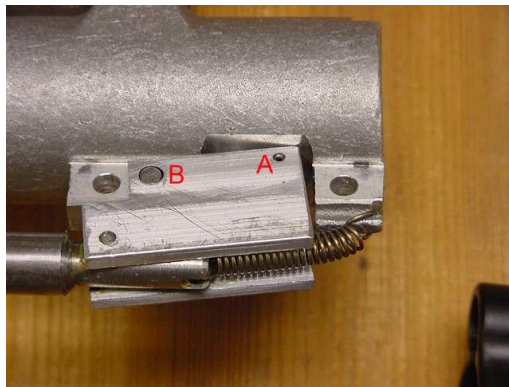


Fig. 10

Remove the square bellcrank from the aluminum casting by driving out the drive pin using a hammer and a 3/16" diameter punch. ("B" in Fig. 10) Move the operating rod assembly slightly off to the side. The plunger can be removed from the main body casting. If the plunger needs to be removed from the bellcrank, remove the drive pin that secures the plunger (trigger) to the square bellcrank using a hammer and a 3/32" diameter punch. ("A" in Fig. 10).

Assembly of trigger mechanism

Install the 3/32" diameter drive pin through the square bellcrank and the plunger. ("A" in Fig. 10)

Grease the small diameter portion of the plunger with lithium grease and insert it into the main body casting.

Place the square bellcrank over the two hole lug of the casting and secure it through the top hole of the lug with a 3/16" drive pin. ("B" in Fig. 10) The square bellcrank should freely pivot after the pin is installed.

If the operating rod was removed, attach it to the square bellcrank using the 1/8" diameter pin. Note that the pin goes through the square bellcrank and the slot of the fitting on the end of the operating rod. The spring plunger on the lower end of the operating rod must be facing away from the clear tube when it is installed.

Attach the extension spring to the aluminum casting. (See Fig. 10) Reinstall the black plastic cap with the two screws and nuts. (See Fig. 9)

Chapter 6

Upper Contact

Disassembly of upper contact

The Load Pickup tool should not be cocked during disassembly of the upper contact to prevent the spring from creating a hazard to the operator. Make sure the unit is "tripped" or in the closed position before continuing.

Remove the two screws from the red hand guard using a 1/4" slotted screwdriver. Disengage the hand guards from the clear tube. (See Fig. 1 & 2) Remove the four screws that hold the clear tube to the aluminum clamp body with a 1/8" hex wrench. Remove the clear tube. Loosen the set screw in the main body casting with a 3/32" hex wrench. Secure the aluminum clamp body and turn the upper bushing counter clockwise using a 1" wrench.

When the upper bushing is removed from the aluminum clamp body, the entire contact rod assembly will come with it. (See Fig. 11)



Fig. 11

The compression spring inside of the aluminum clamp body can also be removed at this time.

To remove the upper bushing, disengage the larger diameter plastic disc by driving out the drive pin with a hammer and a 3/16" punch. If there are any raised deformations around the pinhole, they will have to be removed prior to sliding the upper bushing off that end. A slight amount of lithium grease in that area will also aid removal of the bushing.

For field replacement, a new upper bushing must be used with the new contacts already installed. (See Fig. 12)



Fig. 12

Assembly of upper contact

Lightly grease the contacts inside the upper bushing and both raised contact areas of the contact rod with lithium grease. (See Fig. 11 & 12) Do not get grease in the chamfer area, on the back side of the contact assembly. (See Fig. 13)



Fig. 13

Slide the bushing onto the rod until it is beyond the area for the large diameter disc. Make sure that the large internal chamfer is facing the mating chamfer of the small diameter disc. Slide the large diameter disc over the rod and secure in place with the 3/16" diameter drive pin. Both ends of the drive pin must be below flush of the O.D. of the disc.

The inside of the main body casting needs to be cleaned with a solvent to remove any metal particles or dirt that may have accumulated from prior use.

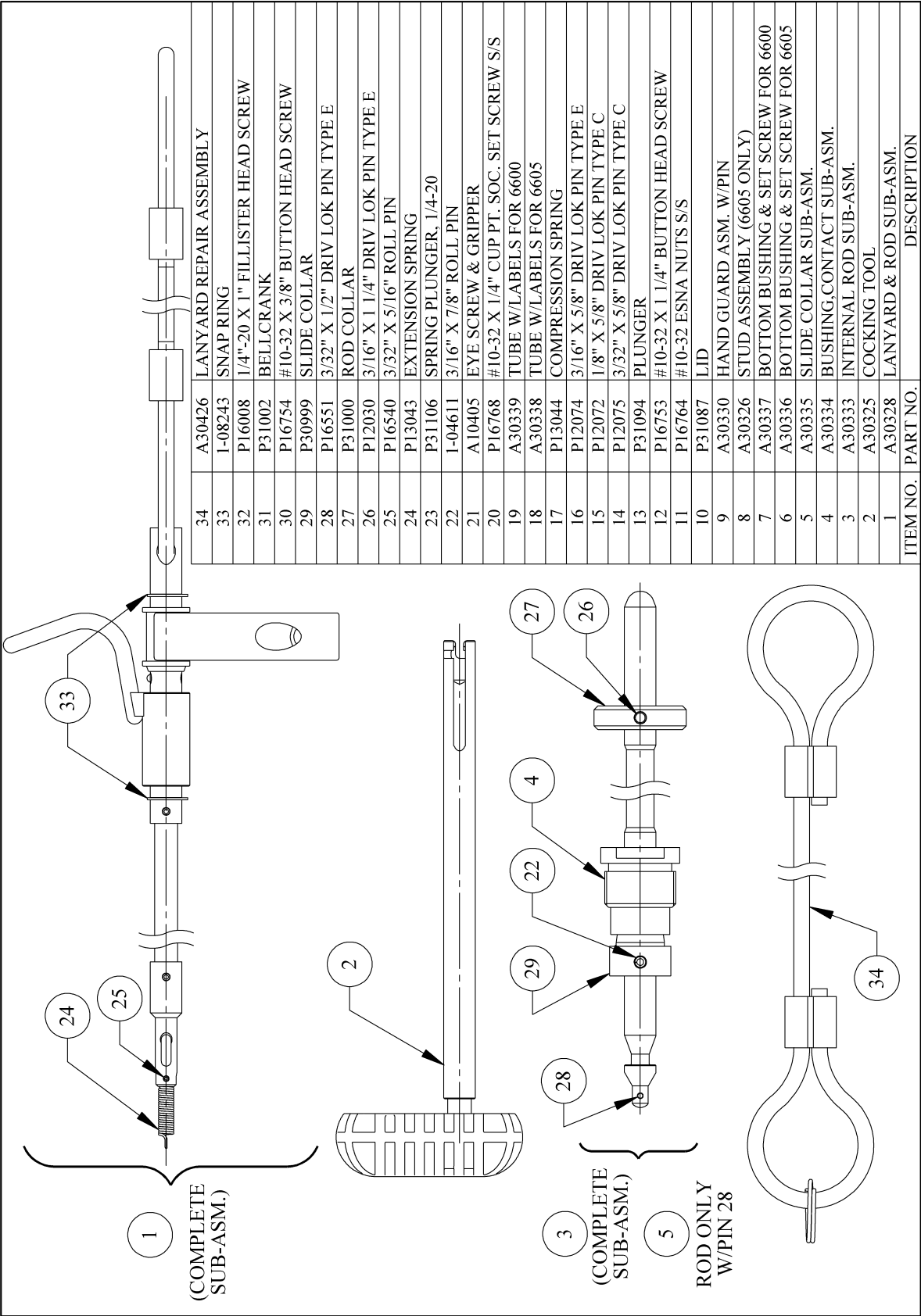
Lightly grease the compression spring O.D. with lithium grease, and install inside the aluminum clamp body. Place the contact rod assembly, starting with the end with the small diameter disc, into the aluminum clamp body. Captivate by screwing the bushing into the aluminum clamp body and tighten with a 1" wrench. Tighten the set screw with a 3/32" hex wrench.

Slide the clear tube onto the aluminum clamp body and align the four screw holes. Note that the tube must be rotated until the mounting holes for the red hand guard are in the location to allow the operating rod run parallel to the clear tube. Install and tighten the four screws holding the tube to the clamp body. Install hand guard and tighten the two screws.

Chapter 7

Parts List

The following two pages show replacement part numbers that may be used for repairs.



34	A30426	LANYARD REPAIR ASSEMBLY
33	1-08243	SNAP RING
32	P16008	1/4"-20 X 1" FILLISTER HEAD SCREW
31	P31002	BELLCRANK
30	P16754	#10-32 X 3/8" BUTTON HEAD SCREW
29	P30999	SLIDE COLLAR
28	P16551	3/32" X 1/2" DRIV LOK PIN TYPE E
27	P31000	ROD COLLAR
26	P12030	3/16" X 1 1/4" DRIV LOK PIN TYPE E
25	P16540	3/32" X 5/16" ROLL PIN
24	P13043	EXTENSION SPRING
23	P31106	SPRING PLUNGER, 1/4-20
22	1-04611	3/16" X 7/8" ROLL PIN
21	A10405	EYE SCREW & GRIPPER
20	P16768	#10-32 X 1 1/4" CUP PT. SOC. SET SCREW S/S
19	A30339	TUBE W/LABELS FOR 6600
18	A30338	TUBE W/LABELS FOR 6605
17	P13044	COMPRESSION SPRING
16	P12074	3/16" X 5/8" DRIV LOK PIN TYPE E
15	P12072	1/8" X 5/8" DRIV LOK PIN TYPE C
14	P12075	3/32" X 5/8" DRIV LOK PIN TYPE C
13	P31094	PLUNGER
12	P16753	#10-32 X 1 1/4" BUTTON HEAD SCREW
11	P16764	#10-32 ESNA NUTS S/S
10	P31087	LID
9	A30330	HAND GUARD ASM. W/PIN
8	A30326	STUD ASSEMBLY (6605 ONLY)
7	A30337	BOTTOM BUSHING & SET SCREW FOR 6600
6	A30336	BOTTOM BUSHING & SET SCREW FOR 6605
5	A30335	SLIDE COLLAR SUB-ASM.
4	A30334	BUSHING, CONTACT SUB-ASM.
3	A30333	INTERNAL ROD SUB-ASM.
2	A30325	COCKING TOOL
1	A30328	LANYARD & ROD SUB-ASM.
ITEM NO.	PART NO.	DESCRIPTION

