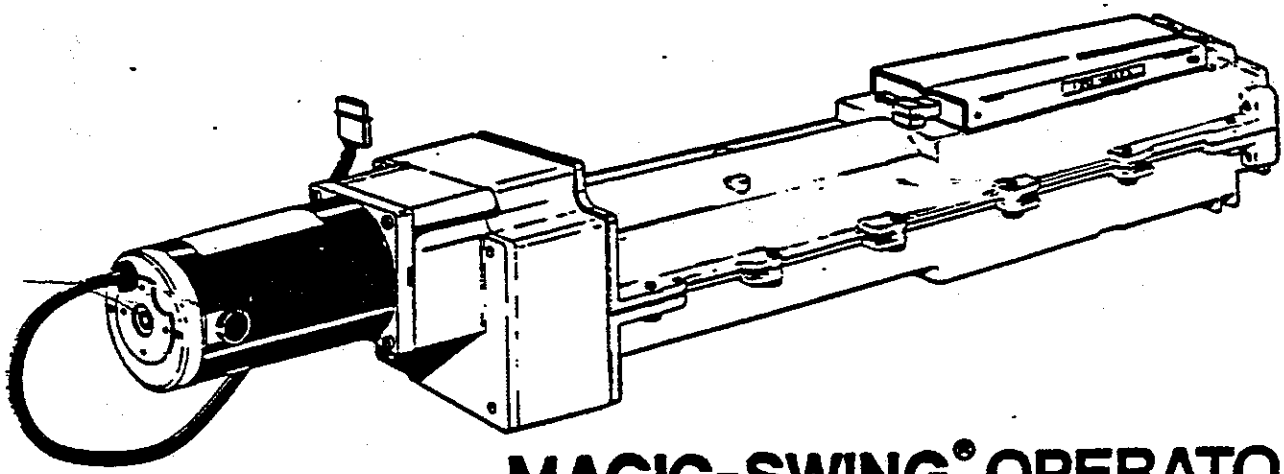
TUNE-IN TROUBLESHOOTING REPAIR



MAGIC-SWING® OPERATOR

STANLEY MAGIC-DOOR

STANLEY®

helps you do things right.®

203587 2M 7/83

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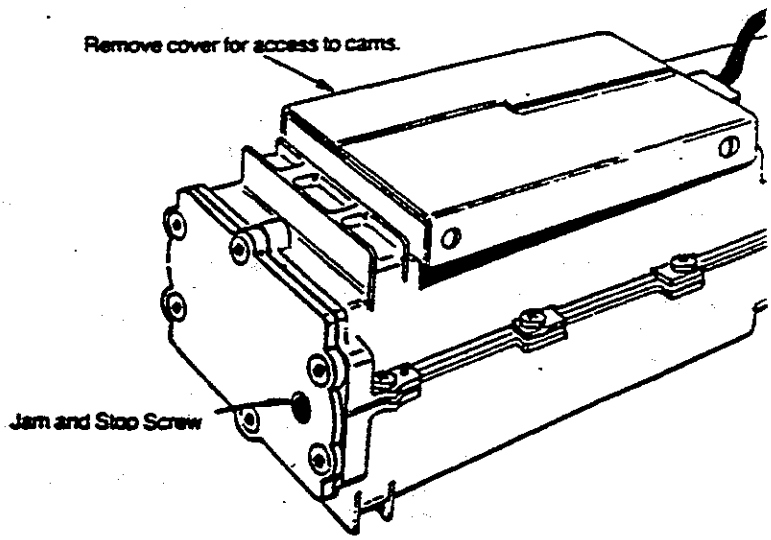
TUNE-IN and ADJUSTMENT

DOOR ADJUSTMENT—90° POSITION

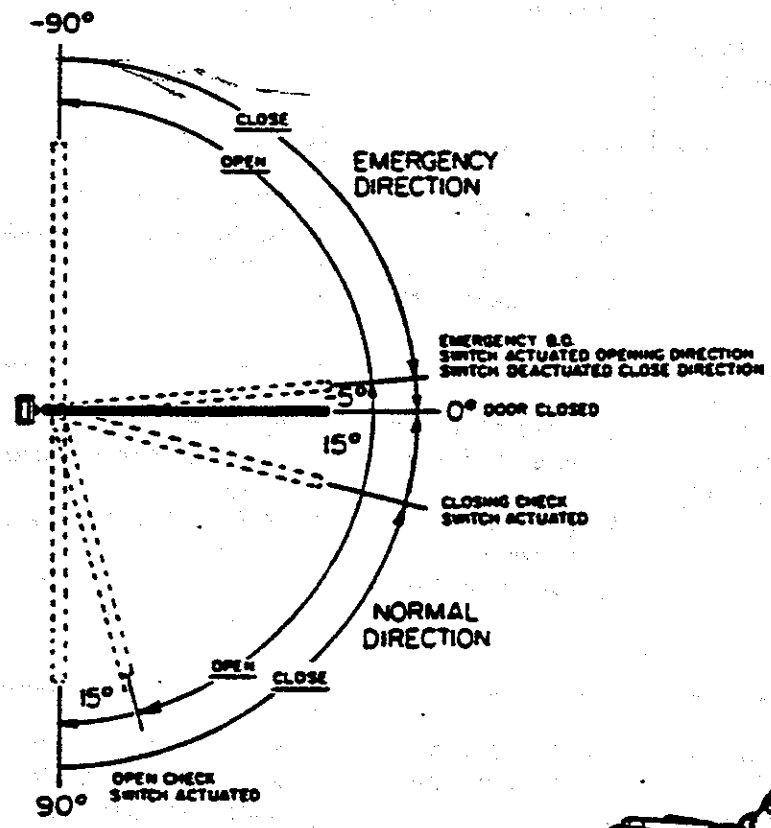
Open the door manually until you feel the operator reach its internal stop. Determine how much more or less travel is required for proper 90° operation.

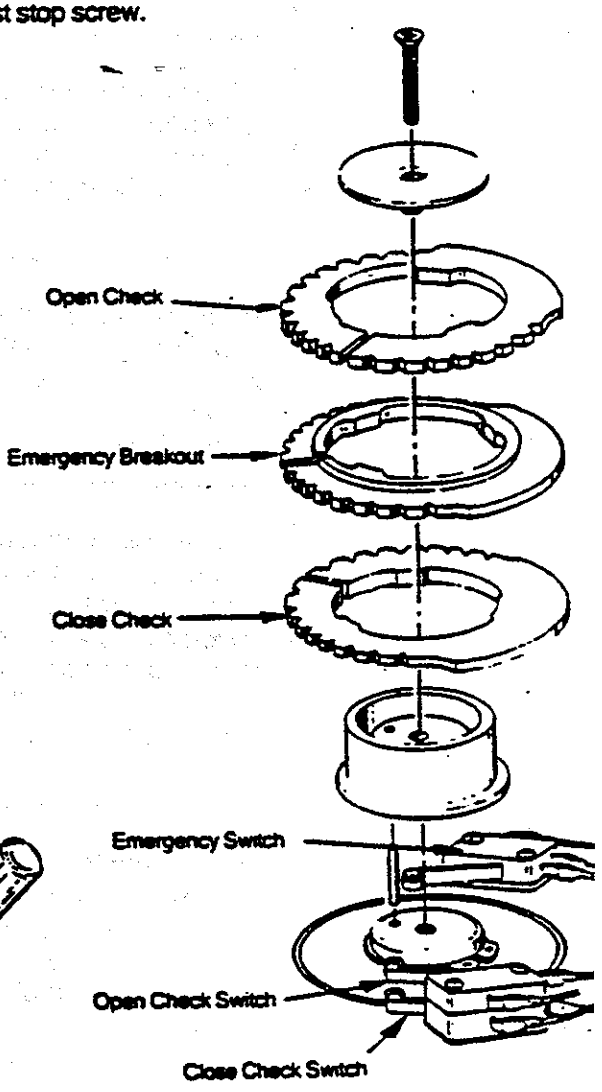
To make 90° position adjustment with the operator in the header, drill a 1" hole in the end cap in line with the stop screw, or remove the header end plate.

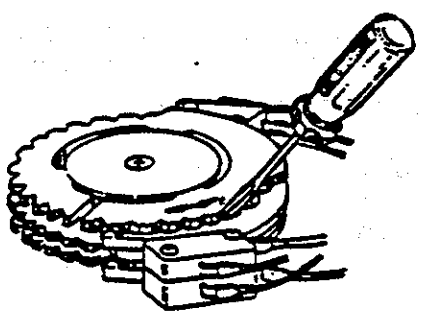
NOTE: Once the stop screw has been adjusted, you may have to adjust the opening check switch cam to obtain the recommended 15° of checking action.



Remove jam screw from stop screw hole. Adjust stop screw in to reduce or out to increase door opening. ½ turn of stop screw w move edge of 42" door 1". Reinstall jam screw and tighten hard against stop screw.







R.H. Shown

Adjust cams if necessary—cams may be adjusted with a screwdriver as shown. It is not necessary to loosen screw to adjust cams.

MAGIC-SWING® OPERATOR TROUBLESHOOTING MANUAL

TROUBLE	TEST	CAUSE	REMEDY
) Door will not open when operate mat is actuated. Motor does not run.	Check that main power is "ON", that ON/OFF/HOLD OPEN switch is "ON"; that ON/OFF switch on control box is ON. If not . . .	No power to operator.	Put all switches in ON position.
	Put ON/OFF/HOLD OPEN on "HOLD OPEN". If door now opens . . .	Open operate mat lead cord connection, broken lead cord.	Repair lead cord or replace mat.
	Disconnect safety mat at wire nut splice. If door opens when opening mat is actuated or switch is on "HOLD OPEN" . . .	Shorted safety mat or safety mat leads.	Repair or replace safety mat or lead cord.
	Disconnect 3-pin power connector from control box & test pins 2 & 3 (black & white) for 117 VAC supply voltage. If no voltage . . .	Open circuit between main circuit breaker & power connector.	Check all power connections in header. Call electrician.
	With power to control box & a jumper between pins 1 & 2 (yellow & orange) of 6 pin mat connector, check for DC motor voltage at pins 6 & 8 (black & white) of 9 pin cable connector. If no voltage . . .	a) Circuit breaker open or blown fuse. b) B/O switch actuated. c) Failed control box.	a) Reset circuit breaker or replace fuse. b) Adjust cam; replace switch. c) Replace control box. See Note below.
	With power to control box & a jumper between pins 1 & 2 (yellow & orange) of 6 pin mat connector, check for DC motor voltage at pins 2 & 3 (black & white) of motor connector. If no voltage . . .	Open circuit in wiring of operator switch box.	Check continuity to schematic & repair wiring in operator switch box or replace operator.

NOTE: Before replacing failed control box with replacement control box, check all pins in 9 pin connector on operator switch box for earth ground. Pin 1 only should show earth ground. If any other pins show earth ground, locate grounding point and repair or replace operator.

TROUBLE	TEST	CAUSE	REMEDY
1) continued	If there is DC voltage to motor . . .	Faulty motor	a) Replace motor brushes, Repair Manual b) Replace motor. Repair Manual, 1.
Door will not open when operate mat is accuated. Motor runs.	Check that motor coupling set screw is tight through access hole on underside of motor & gear housing . . .	Loose coupling set screw.	Loctite & tighten set screw, Repair Manual. 2.
	Remove 5 screws holding motor & gear housing to main housing. Examine gears for broken teeth.	Broken gear.	Replace gears. Repair Manual A.
2) Door opens, but has no open check.	Remove cam cover & check that open check cam is actuating switch. If not . . .	Failure to actuate switch.	Adjust cam.
	With ohmmeter, check action of open check switch at pins 3 & 5 (orange & brown) of connector in switch box. If no action . . .	Switch is broken.	Repair switch, Repair Manual, 10.
	If cam & switch action are correct, but there is still no open check.	Faulty control box.	Replace control box, See Note 1.
3) Door opens, goes into open check, but bangs rail or hits wall.	Determine if door is opening to 90 degrees; it not . . .	Stop set screw not properly adjusted.	Adjust stop screw.
	Examine end cap for looseness or leaking grease.	End cap loose or broken.	If loose, tighten screw in end cap, if broken, replace. Repair Manual 7.

TROUBLE	TEST	CAUSE	REMEDY
4) Door opens but opening check slightly too fast or too slow.	Not applicable	Nature of the operator and/or setting of open damp adjustment.	Control Box I — some control available on open damp control trim pot. See Fig. 1. Control Box II complete control available on open damp control pot. See Fig. 2.
5) Door opens, but will not close.	Disconnect operate mat at wire nut. If door now closes . . .	Shorted operate mat.	Locate short & repair or replace mat.
	With power off, manually push door in open and emergency directions. Check for mechanical binding. If there is binding . . .	a) Door dragging. b) Internal mechanical binding in operator.	a) Adjust door. b) Repair operator, Repair Manual, 6, or replace operator.
6) Door opens normally; closes, but has no closing check.	See No Open Check, 2).	Same as above.	Same as above.
7) Door opens partly, but will not open fully; or door opens fully but will not close fully.	Turn power off. Push door open manually. Determine if obstruction is: a) in the door, or b) in the operator.	a) Door sagging. b) Internal mechanical binding in operator.	a) Adjust door. b) Repair operator, Repair Manual, 6, or replace operator.
8) Door closes not fully or too far and opens too far or not fully.	Visible mount . . .	Locking hub has turned in door arm.	Remove locking hub from door arm: reposition & retighten.
	Concealed mount. Put switch on "HOLD OPEN". Check door arm-spindle set screw & door arm lock screw. If either is not tight . . .	Screw has loosened.	Adjust door arm if necessary, and tighten screw.

TROUBLE	TEST	CAUSE	REMEDY
9) Door opens correctly, but closes very rapidly.	If there is closing check, remove operator from header, remove cam covers, inspect resistor.	Loose or broken closing control resistor.	Fasten or replace resistor, Repair Manual, 9.
10) Grease is leaking from operator.	Check condition of gaskets between motor & gear housing & main housing, & between end cap & main housing.	Broken or displaced gaskets.	Replace gasket, Repair Manual, 4 & 7 - or replace operator.
11) On hold open, door creeps closed from full open.	.....	"HOLD OPEN" voltage too low.	Remove cover of control box & adjust "HOLD OPEN" voltage pot. See Figs. 1 & 2.
12) Door opens too fast or too slowly.	.....	Nature of the operator or adjustment of speed control pot.	Control Box I - some control available on speed control trim pot. See Fig. 1. Control Box II - complete control available on speed control pot. See Fig. 2.
13) Door closes slightly too fast or too slowly.	.....	Variation in value of closing speed.	None .....
14) More time delay needed in open position.	.....	.....	Control Box I - no time delay in control box, add external time delay p/n 514466. Control Box II -adjust time delay control. See Fig. 2 -next page.

Control Box I

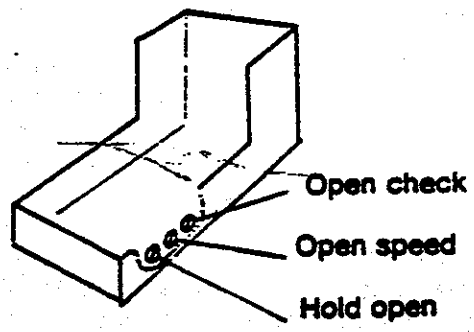


Figure 1

Control Box II

(To replace Control Box I in late 1983)

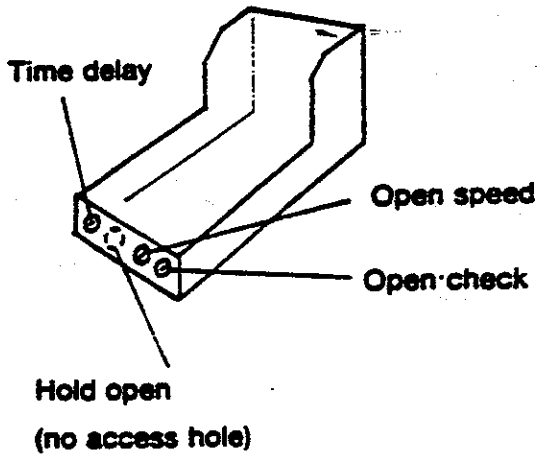


Figure 2

Caution: Operator must always be disconnected from any electric power source before any repairs are attempted.

REPAIR OR REPLACE	PROCEDURE
1. Replace motor.	a. Unplug motor lead from operator switch box. b. Remove four screws holding motor to gear housing. c. Remove motor. d. Loosen set screw and remove coupling half from shaft. Note - it may be necessary to heat coupling half as set screw is held in place with Loctite. e. Clean old Loctite from set screw and tapped hole; reapply Loctite, Grade 242 (medium), to set screw; install coupling half on shaft of replacement motor and fasten new motor in place on gear housing with four screws. Note - be sure elastic coupling piece is in place. f. Plug motor lead into operator switch box.
2. Reset loose coupling.	a. Repeat steps a, b, and c above. b. Determine which coupling half is loose, motor or spur gear half. c. Remove coupling half; remove set screw as in (d) above; reset set screw and reinstall coupling half as in (e) above. d. Plug motor lead into operator switch box.
3. Replace spindle/bearing/ seal assembly.	a. Unplug motor lead from operator switch box. b. Remove motor from motor and gear housing by removing 4 screws. c. Remove 5 screws and remove motor and gear housing assembly from main housing assembly. d. Remove snap ring which retains bearing in motor and gear housing.

REPAIR OR REPLACE	PROCEDURE
	e. In an arbor press, press spindle/bearings/seal assembly out of motor and gear housing, pressing towards the motor end. f. Remove coupling half from spindle (see 1d). g. Fasten coupling half to replacement spindle (see 1e). h. In an arbor press, press spindle assembly into motor and gear housing. Note - apply press force to end of spindle, not to coupling half. i. Reinstall snap ring. j. Reinstall motor and gear housing to main housing, and motor to motor and gear housing. k. Plug motor lead into operator switch box.
4. Replace motor and gear housing/main housing gasket.	a. Unplug motor lead form operator switch box. b. Remove 5 screws and remove motor and gear housing assembly from main housing assembly. c. Remove old gasket and replace with new. Note - examine mating housing surfaces for gouges, and if any are found, replace entire operator. d. Reinstall motor and gear housing. Note - be certain change gear and its thrust bearings are correctly assembled on change gear shaft. e. Plug motor lead into operator switch box.
5. Replace gears.	a. Unplug motor lead from operator switch box. b. Remove 5 screws and remove motor and gear housing assembly from main housing assembly. c. Remove change gear and thrust bearings. d. Disengage prong of bearing lock washer from slot in bearing lock nut.

REPAIR OR REPLACE	PROCEDURE
	e. Remove bearing lock nut, bearing lock washer, and screw gear. Screw gear key may be left in place. f. Clean grease from motor and gear housing cavity. g. Install new screw gear on shaft and screw gear key; reinstall lock washer and lock nut and tighten lock nut firmly; bend appropriate prong of lock washer into slot of lock nut. h. Install new change gear with thrust bearings correctly placed in support in main housing. i. Apply grease liberally to gears and bearings. j. Reassemble motor and gear housing assembly to main housing. Note - use new gasket. k. Plug motor lead into operator switch box.
6. Replace parts contained in main housing, includes: — thrust bearing, washers & collar — spring & screw support — ball screw, spring & rack assembly Note: Only remove parts necessary to reach failed part.	a. Unplug motor lead from operator switch box. b. Remove 5 screws and remove motor and gear housing assembly from main housing assembly. c. Remove change gear and thrust bearings. d. Disengage prong of bearing lock washer from slot in bearing lock nut. e. Remove bearing lock nut, bearing lock washer, screw gear and screw gear key. f. Remove thrust bearing collar, washer, bearing and washer (Note order). g. Using snap ring pliers, remove beveled snap ring. CAUTION - do not attempt to remove snap ring without correct snap ring pliers. h. Remove spring and screw support, slide off ball screw shaft. i. Remove thrust bearing washer, bearing, washer & collar (Note order).

REPAIR OR REPLACE	PROCEDURE

j. Remove snap ring using snap ring pliers.

k. Ball screw, spring and rack assembly will now slide out of housing. Note - do not allow ball screw shaft to spiral out of assembly. Put wire or O-ring around end of ball screw shaft.

CAUTION: Do not attempt to disassemble spring assembly. Spring is under high compression and can cause severe injury if released.

l. Reassemble ball screw, spring and rack assembly in main housing. It is important that the rack be correctly engaged with the drive gear assembly. With ball screw, spring and rack assembly fully inserted into main housing, guide pin hole in top of drive shaft must be on long axis of operator, towards motor end. If drive gear assembly is not correctly positioned, remove ball screw, spring and rack assembly from main housing, reposition drive shaft assembly and reassemble.

m. Reinstall snap ring. Note - two snap rings are different, install non-beveled snap ring first.

n. Reinstall thrust collar, washer, bearing and washer.

o. Reinstall spring and screw support.

p. Reinstall beveled snap ring with bevel towards you.

q. Reinstall thrust washer, bearing, washer & collar.

r. Reinstall screw on key in ball screw shaft, apply bearing lock washer and lock nut.

s. Tighten lock nut finger tight and bend tab of lock washer to hold it in place.

t. Install new gasket on main housing and reassemble motor and gear housing assembly.

u. Plug motor lead into operator switch box.

REPAIR OR REPLACE	PROCEDURE
7. Replace end plate/main housing gasket.	a. Remove 6 (die cast housing) or 4 (sand cast housing) screw b. Remove old gasket and examine end cap and main housing surface. If end cap is bent or gouged, replace. If main housing surface is gouged, replace entire operator. c. Install new gasket and reinstall end cap & screws.
8. Replace drive shaft & gear assembly.	a. Remove operator switch box cover, switches and complete cam assembly. b. Remove ball screw, spring and rack assembly - see 6 a-k above. c. Using snap ring pliers, remove large snap ring retaining larg bearing of drive shaft assembly in main housing. d. With main housing well supported, press drive shaft assemb out of main housing. e. Install replacement drive shaft assembly. Note - a "bullet nose" must be placed over the spline shaft end to protect th seal and assure correct seal lip placement. Seal lip must project inward on shaft surface. f. Reassemble drive elements into main housing, see 6 1-u above. g. Reassemble cam assembly and switches. h. Power operator and adjust cams. i. Reinstall switch box covers.
9. Repair wiring in operator switch box.	a. Remove switch box covers; disconnect motor and control bc connectors. b. Check wiring to schematic. Retighten or reconnect any loos wires; remove any shorts; test diodes and closing speed resistor with an ohmmeter.

REPAIR OR REPLACE	PROCEDURE
	c. Reinstall switch box covers and reconnect motor and control box.
10. Replace any of switches.	a. Remove switch box covers, disconnect motor and control box connectors. b. Locate suspected switch; remove wires from switch terminals and check switch with meter. If faulty . . . c. Remove two screws holding switch in place. d. Install replacement switch; reinstall screws and reconnect wires to correct terminals. e. Reconnect motor and control box connectors. f. Check ALL cam adjustments. See Tune-in Procedure. g. Reinstall switch box covers.

IMPORTANT

After any repair, operator must be tested for correct and safe operation. After any internal component replacement, operator should be run-in on a bench for one hour at a rate of five (5) cycles per minute. Use a cycle timer. At completion of run-in, performance of operator should be:

Open to open check: 1.25 - 1.6 sec.

Open through open check: 1.0 - 1.5 secs.

Close to latch check: 2.5 - 4.0 secs.

Close through last 10°: no less than 1.5 secs.

ELECTRICAL SCHEMATIC

OPERATOR SWITCH BOX