

# Service Information



NAKAMICHI

Model Nakamichi 500  
Serial No. Up to 370140

Subject MHX Motor Ass'y and MHX Governor P.C.B. Ass'y No. NR-0006 (1/13)  
(B) Modification Procedures for Previous Models Date 9 August 1976

## I. General:

The motor ass'y and governor ass'y have been changed.

Following will explain how to incorporate the latest motor ass'y and governor ass'y in the previous Models.

Previous motors (JA motor and NE motor) will not be supplied to you as spare parts in future due to discontinuation of production, therefore application of latest motor (MHX motor) instead of previous motors will be desired.

Latest motor has no compatibility with previous motors.

When latest MHX motor ass'y and MHX governor ass'y (B) are incorporated in the previous Models, additional parts and modifications are also required.

Refer to Service Information OOD-M-0036 "Modification for Motor, Governor and Other Modifications Accompanied.

## A. History:

Motor ass'y and governor ass'y have been revised in the following four stages:

1. Models bearing serial Nos. 370141 and greater:

MHX motor ass'y, MHX governor P.C.B. ass'y (B)

2. Models bearing serial Nos. 361541 to 370140:

MHX motor ass'y, MHX governor P.C.B. ass'y

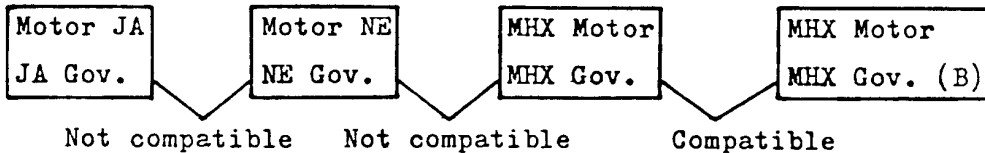
3. Models bearing serial Nos. 358441 to 361540:

Motor ass'y (NE), NE governor P.C.B. ass'y

4. Models bearing serial Nos. from beginning to 358440:

Motor ass'y (JA), JA governor P.C.B. ass'y

## B. Compatibility:



II. Modification Procedures:

A. Modification Procedures for MHX motor Models :  
(Serial Nos. 361541 to 370140)

1. Parts for Modification:

a. Parts to be removed:

Part No. CA03253A: MHX Motor Ass'y (1 pce.)

CA03250A: MHX Governor P.C.B. Ass'y (1 pce.)

b. Parts for Modification:

Part No. CA03253B: MHX Motor Ass'y (1 pce.)

OB08204A: MHX Governor P.C.B. Ass'y (B)

c. Note:

Modification of resistor R610 (on the MHX shut-off (A) ass'y) from 4.7K to 3.9K is recommended to increase the margin for erroneous shut-off operation while in play mode.

2. Modification Procedures:

a. MHX Shut-off Ass'y:

Remove resistor R610 4.7K and replace with 3.9K.

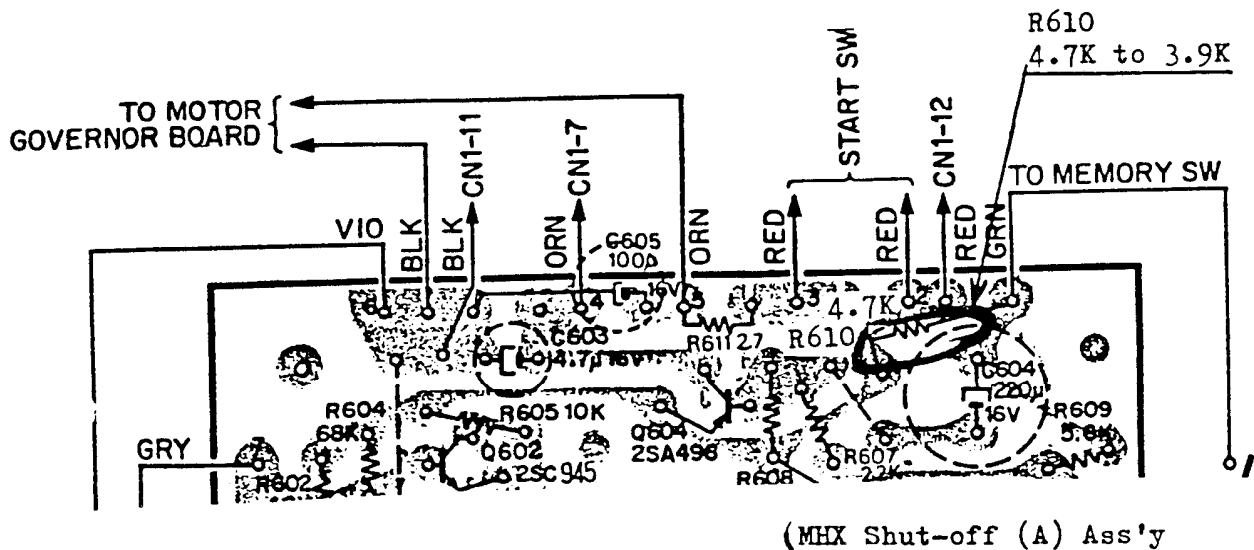
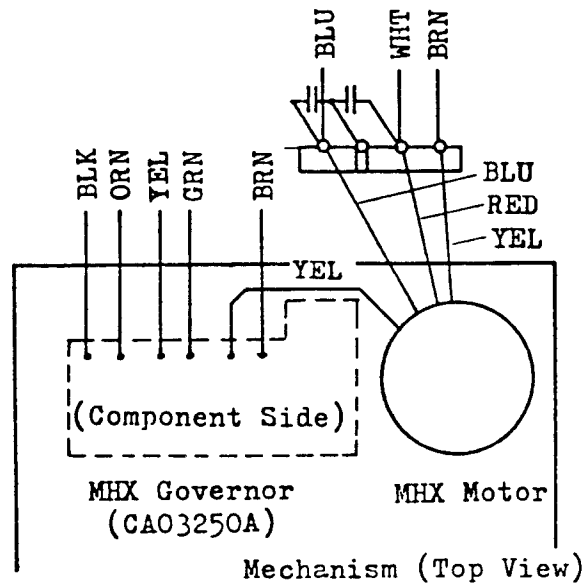


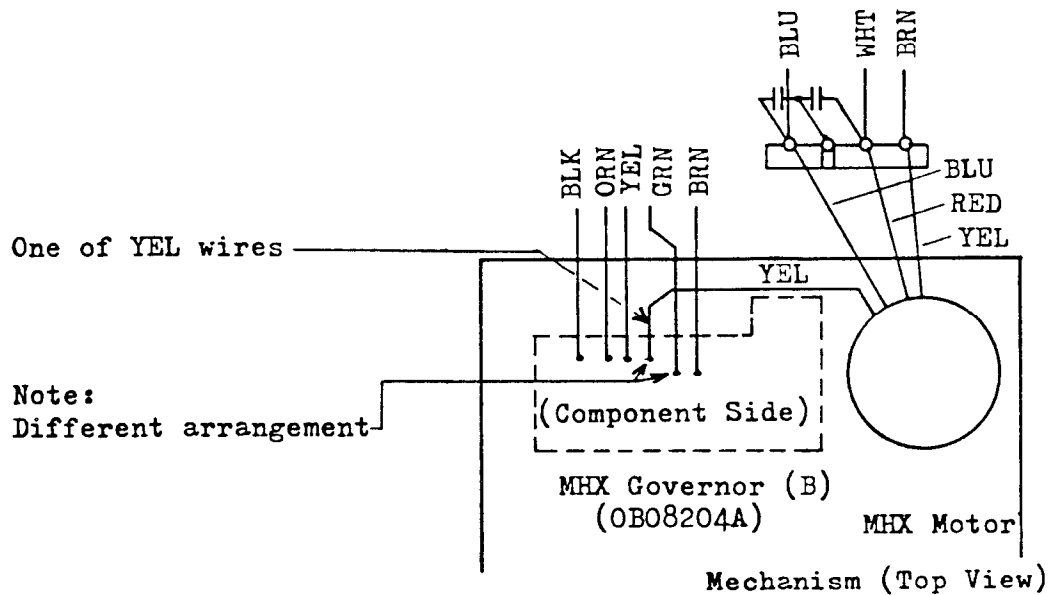
Fig.1

b. Motor Ass'y and Governor Ass'y:

Remove previous motor ass'y and/or governor ass'y, and replace with new motor and/or governor ass'y.



Previous Type



Note:  
Different arrangement

New Type

Fig.2

**B. Modification Procedures for NE Motor Models:  
(Serial Nos. 358441 to 361540)**

**1. Parts for Modification:**

**a. Parts to be Removed:**

- Part No. CA-3223: Motor Ass'y (NE) (1 pce.)  
 CA-3235: NE Governor P.C.B. Ass'y (1 pce.)  
 CA-3208: Auto Shut-off Ass'y: CA-3208 (1 pce.)

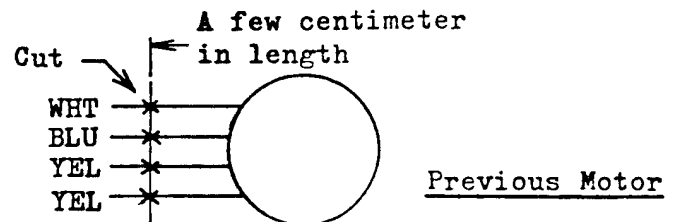
**b. Parts for Modifications:**

- Part No. CA03253B: MHX Motor Ass'y (1 pce.)  
 OBO8204A: MHX Governor P.C.B. Ass'y (B) (1 pce.)  
 CA03251B: MHX Shut-off (A) Ass'y (1 pce.)  
 OBO1908A: 1L 3P Lug Terminal:(1 pce.)  
 OTO4025A: Ceramic Capacitor 1000P (2 pcs.)  
 OC03875A: MHX Governor Shield (1 pce.)  
 CA03254A: Start Sw. Shield Ass'y (1 pce.)

**2. Modification Procedures:**

**a. Motor Ass'y:**

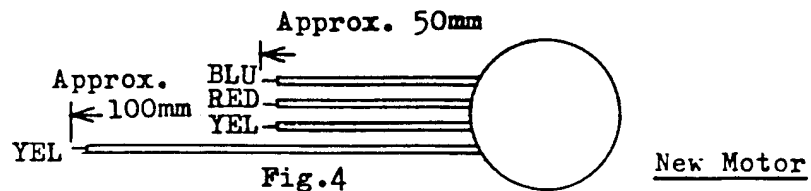
- (1) Cut the signal wires (WHT,BLU,YEL,YEL) from the previous motor.



- (2) Remove the previous motor ass'y (Motor, Motor Pulley, Bracket), and replace it with new motor ass'y.

Prior to replacement of motor ass'y, shorten the signal wires as shown in Fig.4.

Connect the motor signal wires referring to Fig.7, 8 and 10.



- (3) After replacement of motor ass'y, adjust the pulley position of new motor as shown in Fig.5 then check the position of driving belt to insure the following:

- (a) Set a driving belt through Flywheel, Idler Pulley, Belt Guide and Motor Pulley.

- (b) Turn the motor back and forth by hand and check to insure whether the drive belt is travelling along the correct position i.e. the centerpart of the idler pulley is free from contact with the belt guide.

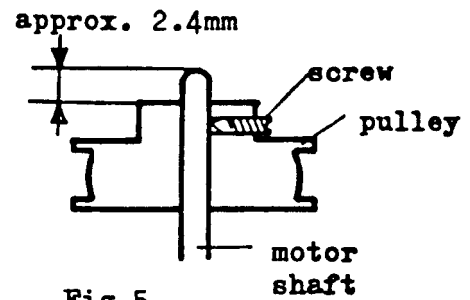


Fig.5

- (c) Tighten the motor pulley screw then apply a drip of lock tight paint to that screw.

b. Motor Governor Ass'y:

Refer to Fig.6, 7 and 8.

- (1) Remove the previous motor governor ass'y and replace with new one.
- (2) Unsolder signal wires from previous type governor ass'y and resolder to the new one, and also solder one of the optional YEL wires of motor ass'y.

Note: Shorten the BLK and ORN wires connected to the auto shut-off P.C.B. ass'y and change the wiring route as illustrated in Fig.8 Wiring Form.

- (3) Assemble the MHX Governor Shield referring to Fig.6.

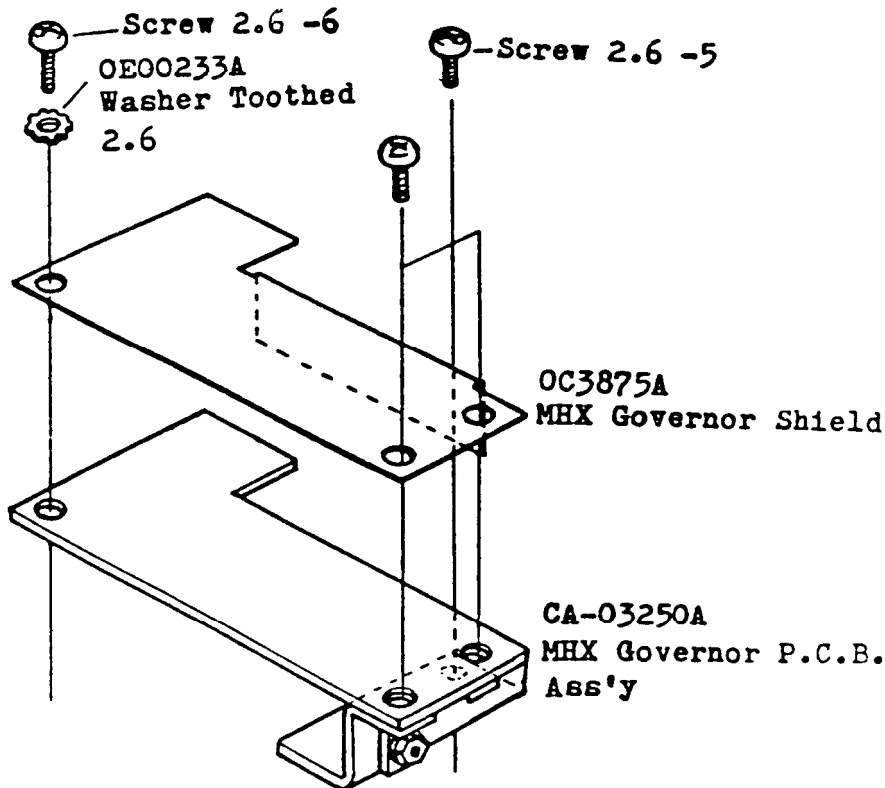


Fig.6

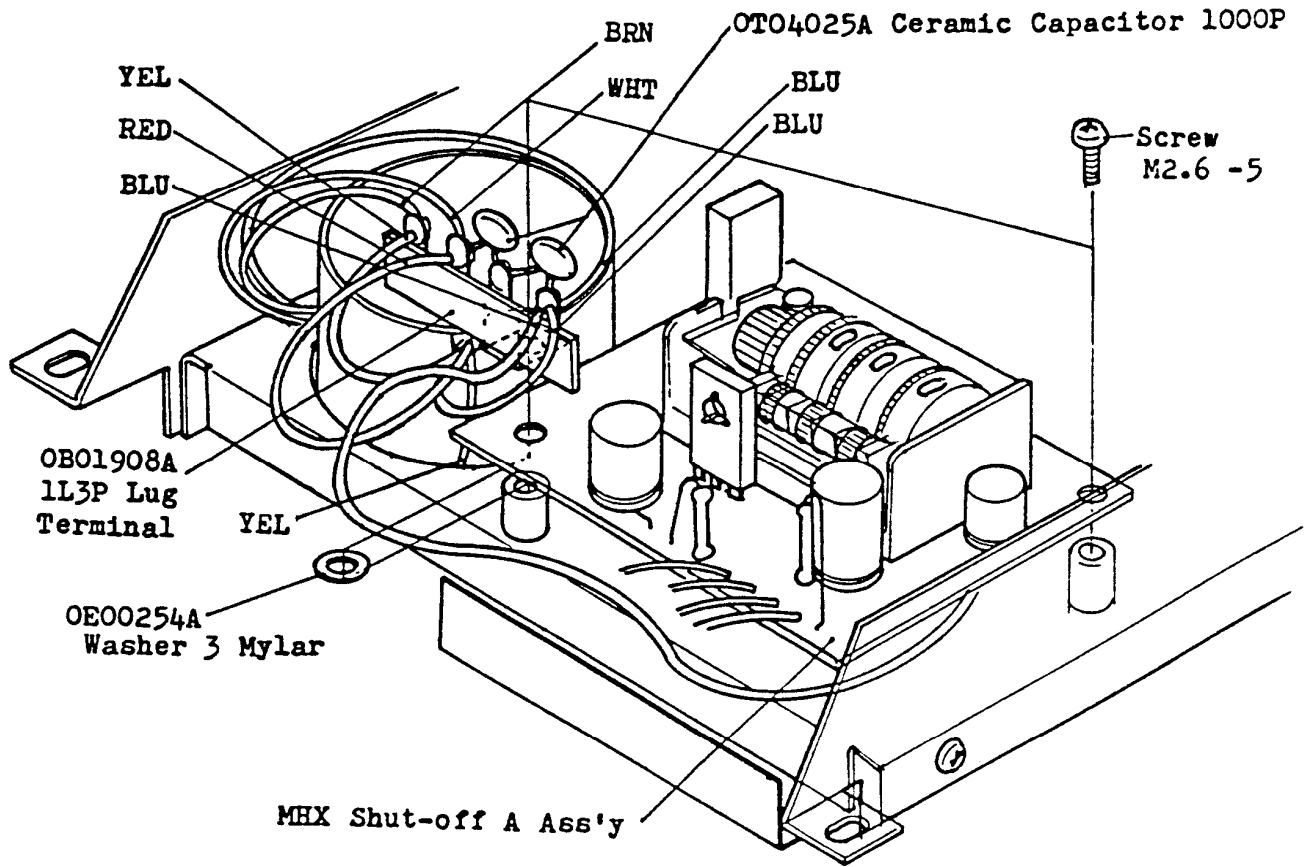


Fig.7

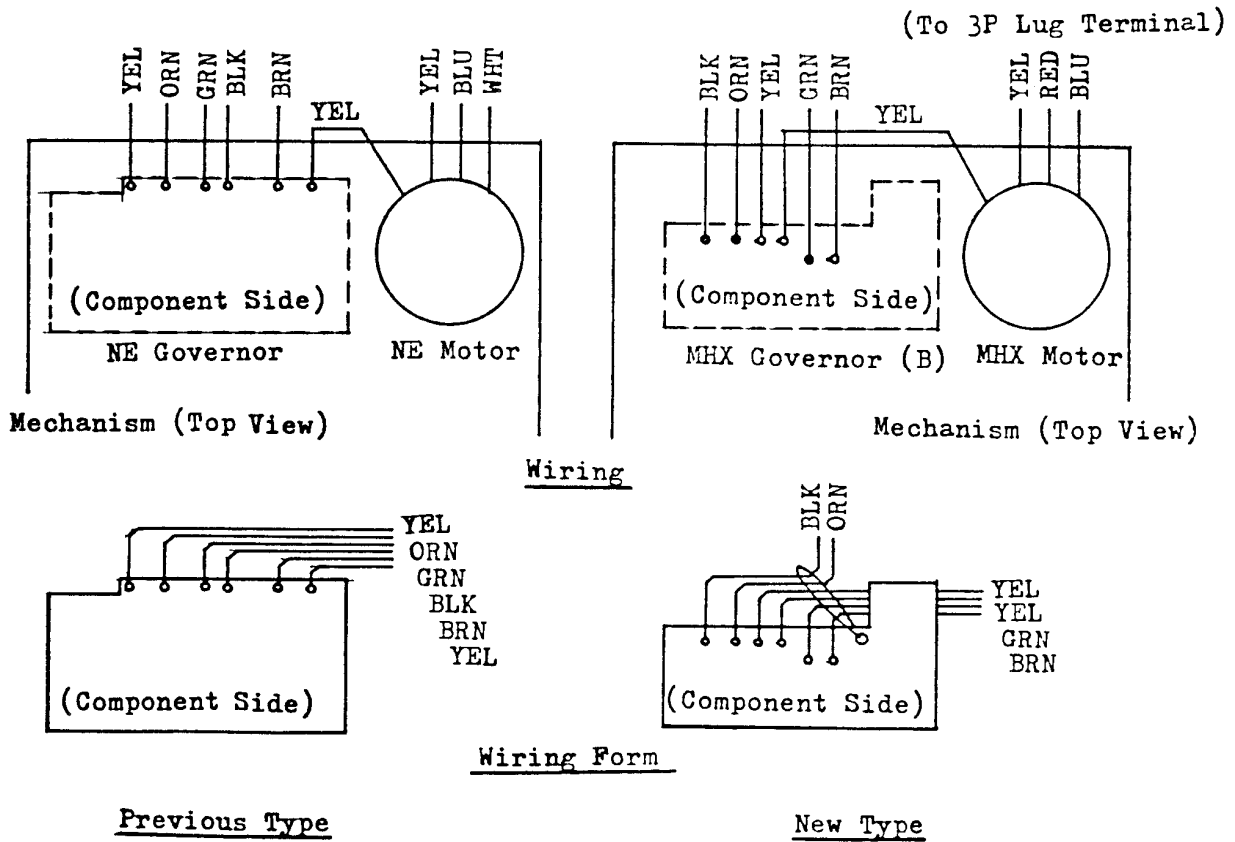


Fig.8

c. Auto Shut-off Ass'y, 1L 3P Lug Terminal and Ceramic Capacitors:

(1) Unsolder signal wires from previous shut-off ass'y and resolder to the new one (wiring arrangement is the same).

Refer to Fig.9.

(2) Assemble the lug terminal and ceramic capacitors, referring to Fig.7 and 10.

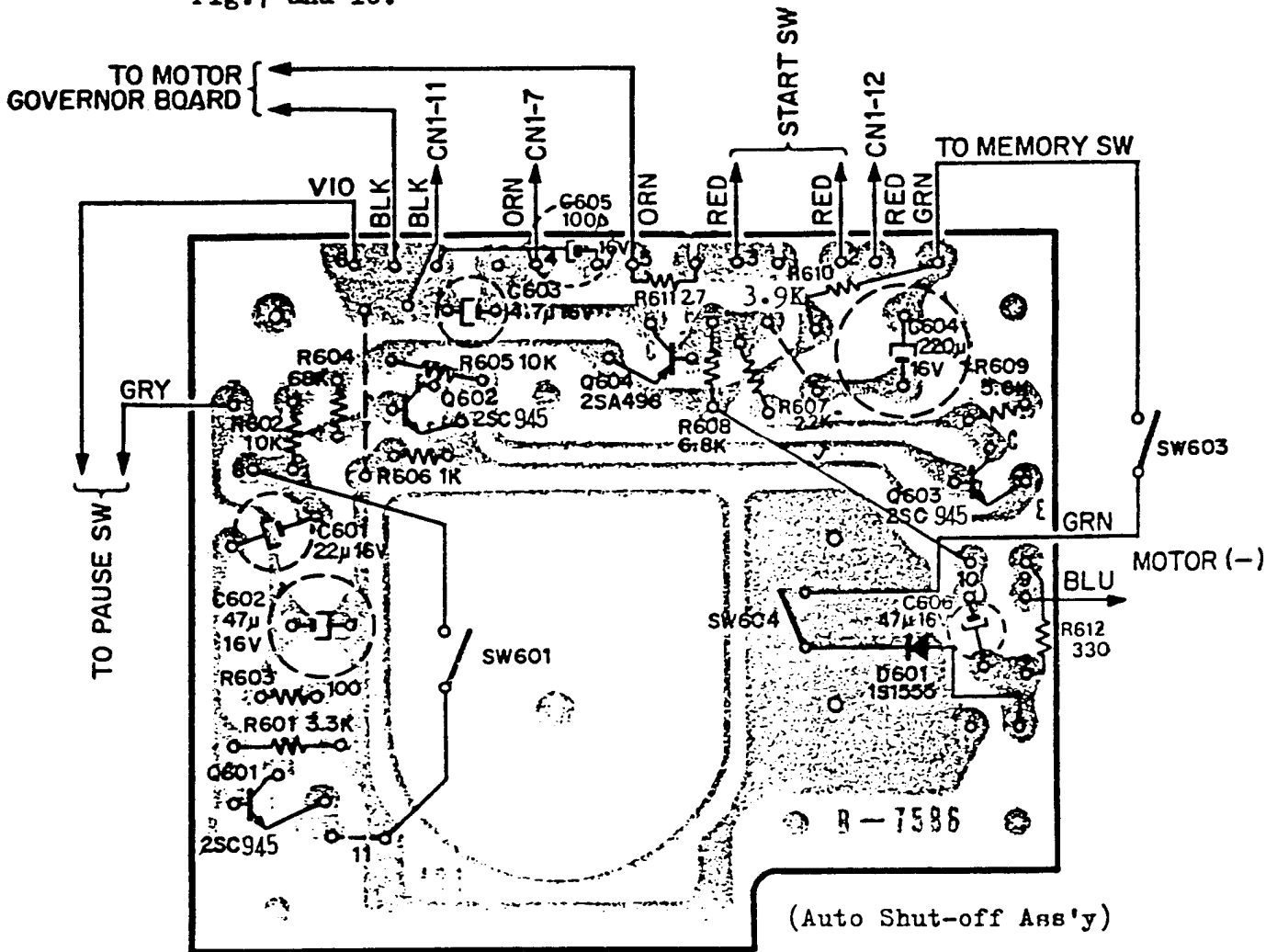


Fig.9

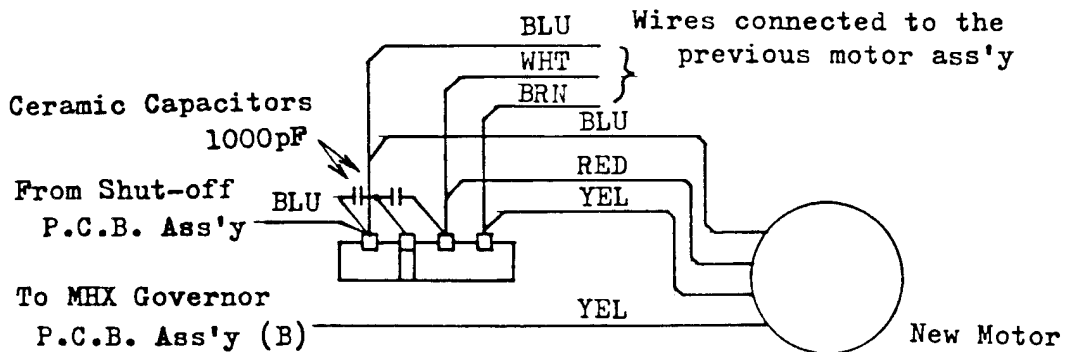
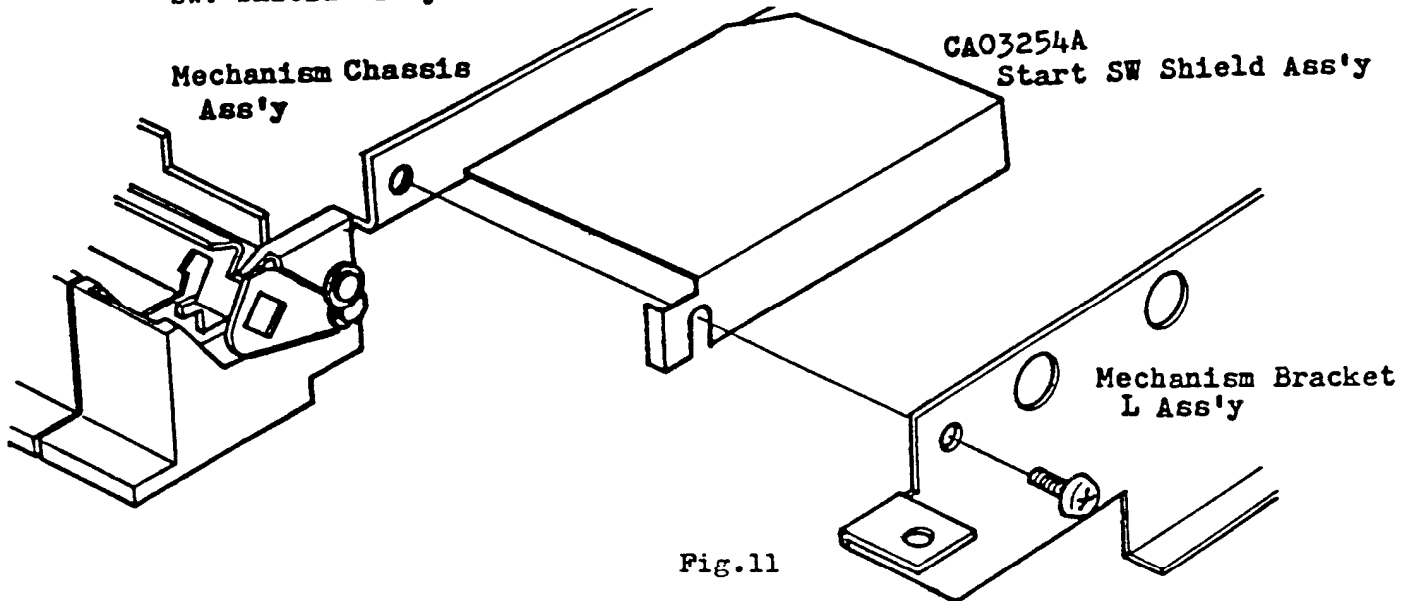


Fig.10

d. Start Sw. Shield Ass'y:

See Fig.11. Loosen mechanism bracket L ass'y and insert the start sw. shield ass'y between mechanism chassis and mechanism bracket.



3. Readjustment:

After the modifications, following adjustments are required.

a. Driving Belt Adjustment:

Check to insure that the belt remains at the correct position after the following modes:

FF to Stop

REW to Stop

Quickly FF to REW then Stop

If the belt is away from its correct position, readjustment of motor pulley position will be required.

b. Tape Speed Adjustment:

- (1) Connect a frequency counter either to left or right output jack.
- (2) Load the 3KHz Speed Wow/Flutter Tape (DA09006A) and play it back.
- (3) Adjust the tape speed adjust potentiometer for an average reading of correct frequency on the counter.



**C. Modification Procedures for JA Motor Models:  
(Serial Nos. From beginning to 358440)**

**1. Parts for Modification:**

**a. Parts to be removed:**

Part No. CA-3163: Motor Ass'y (JA) (1 pce.)

CA-3164: NE Governor P.C.B. Ass'y (1 pce.)

CA-3208: Auto Shut-off Ass'y (1 pce.)

E-130 : Earth Lug 2.6mm (for Auto Shut-off Ass'y) (1 pce.)

**b. Parts for Modification:**

Part No. CAO3253B: MHX Motor Ass'y (1 pce.)

OBO8204A: MHX Governor P.C.B. Ass'y (B) (1 pce.)

CAO3251B: MHX Shut-off (A) Ass'y (1 pce.)

OBO1908A: 1L 3P Lug Terminal (1 pce.)

OTO4025A: Ceramic Capacitor 1000P (2 pce.)

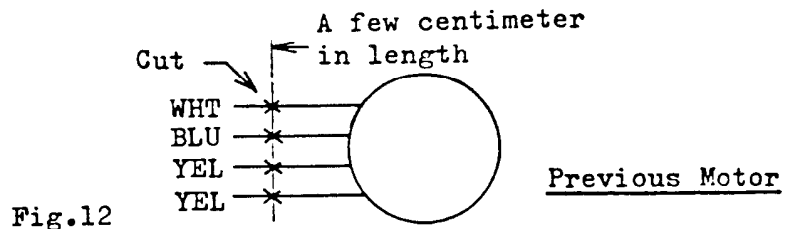
CAO3254A: Start Sw. Shield Ass'y (1 pce.)

OE00254A: Washer 3 Mylar

**2. Modification Procedures:**

**a. Motor Ass'y**

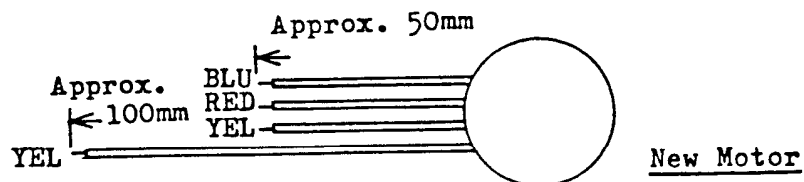
(1) Cut the signal wires (WHT,BLU,YEL,YEL) from the previous motor.



(2) Remove the previous motor ass'y (Motor, Motor Pulley, Bracket) and replace it with new motor ass'y.

Prior to replacement of motor ass'y, shorten the signal wires as shown in Fig.13.

Connect the motor signal wires referring to Fig.16, 17 and 19.



(3) After replacement of motor ass'y, adjust the pulley position of new motor as shown in Fig.14 then check the position of driving belt to insure the following:

- (a) Set a driving belt through Flywheel, Idler Pulley, Belt Guide and Motor Pulley.
- (b) Turn the motor back and forth by hand and check to insure whether the drive belt is travelling along the correct position i.e. the centerpart of the idler pulley is free from contact with the belt guide.

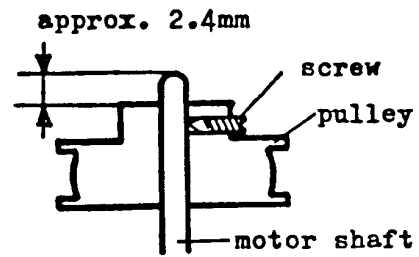


Fig.14

- (c) Tighten the motor pulley screw then apply a drip of lock tight paint to that screw.

**b. Motor Governor Ass'y and Washer:**

Refer to Fig.15, 16 and 17.

- (1) Remove the previous motor governor ass'y and replace with new one.
- (2) Unsolder signal wires from previous type governor ass'y and resolder to the new one, and solder one of the optional YEL wires of motor ass'y.

Note: Shorten the BLK and ORN wires connected to the auto shut-off P.C.B. ass'y and change the wiring route as illustrated in Fig. 17 wiring form.

- (3) Assemble the MHX Governor Shield referring to Fig.15.

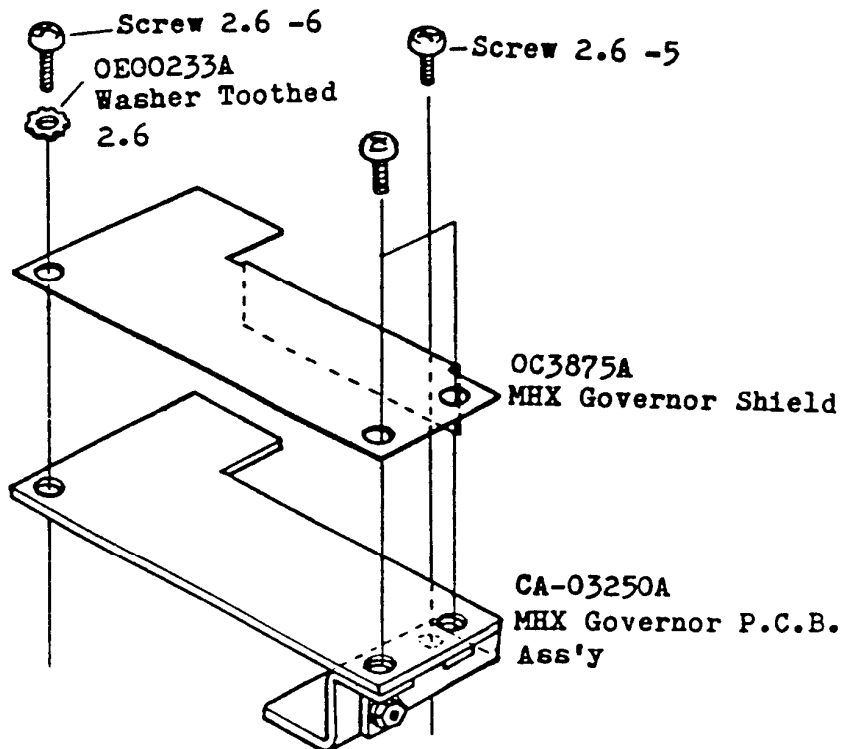


Fig.15

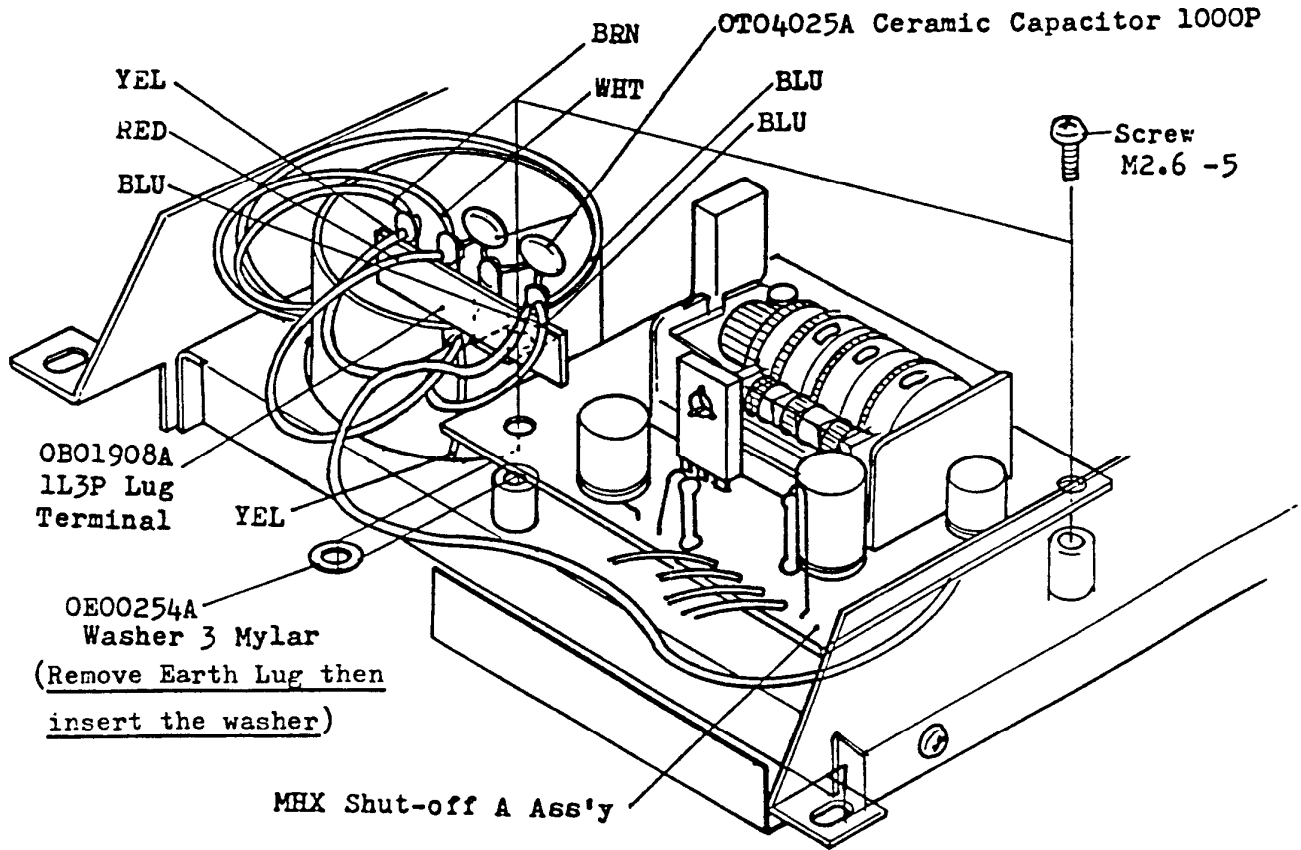


Fig.16

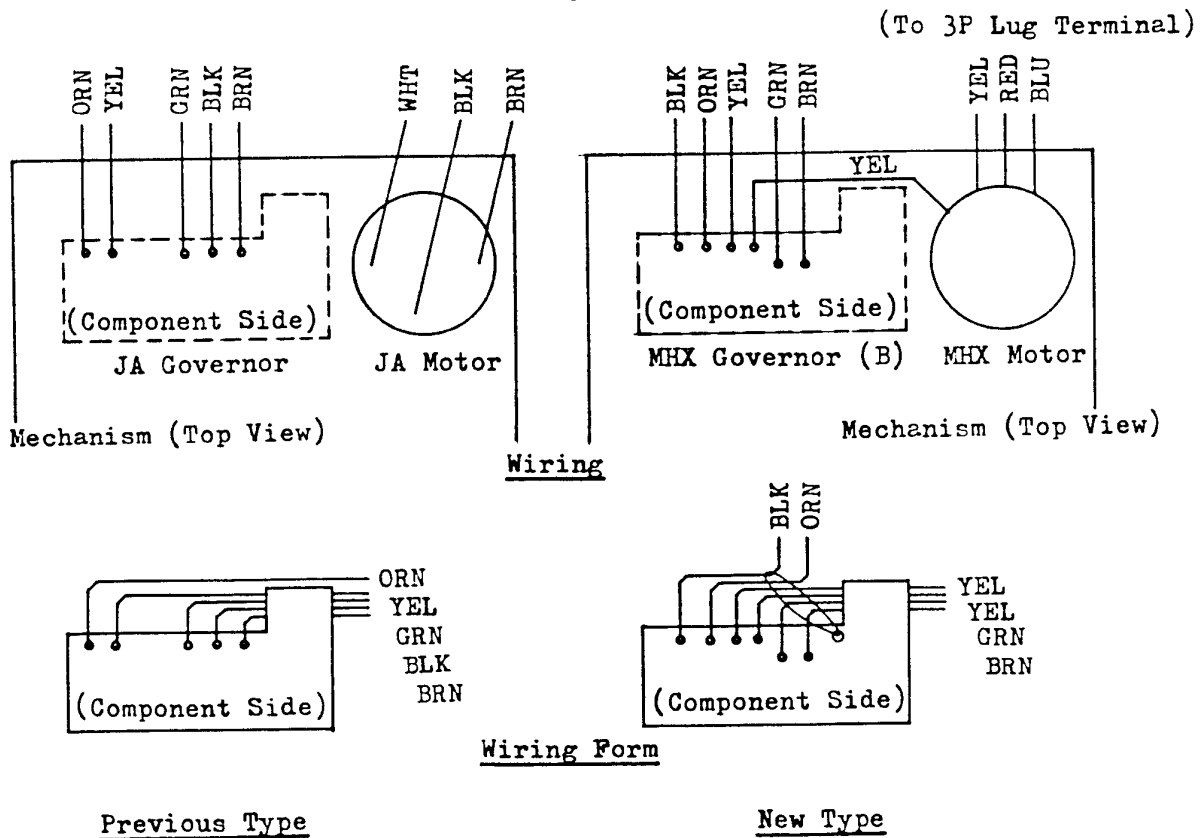


Fig.17

c. Auto Shut-off Ass'y, Mylar Washer, 1L 3P Lug Terminal and Ceramic Capacitors:

- (1) Unsolder signal wires from previous shut-off ass'y, and resolder to the new one (wiring arrangement is the same). Refer to Fig.18.
- (2) Remove earth-lug from the auto shut-off ass'y then insert the mylar washer between auto shut-off ass'y and chassis as illustrated in Fig.16.
- (3) Assemble the lug terminal and ceramic capacitors, referring to Fig.16 and 17.

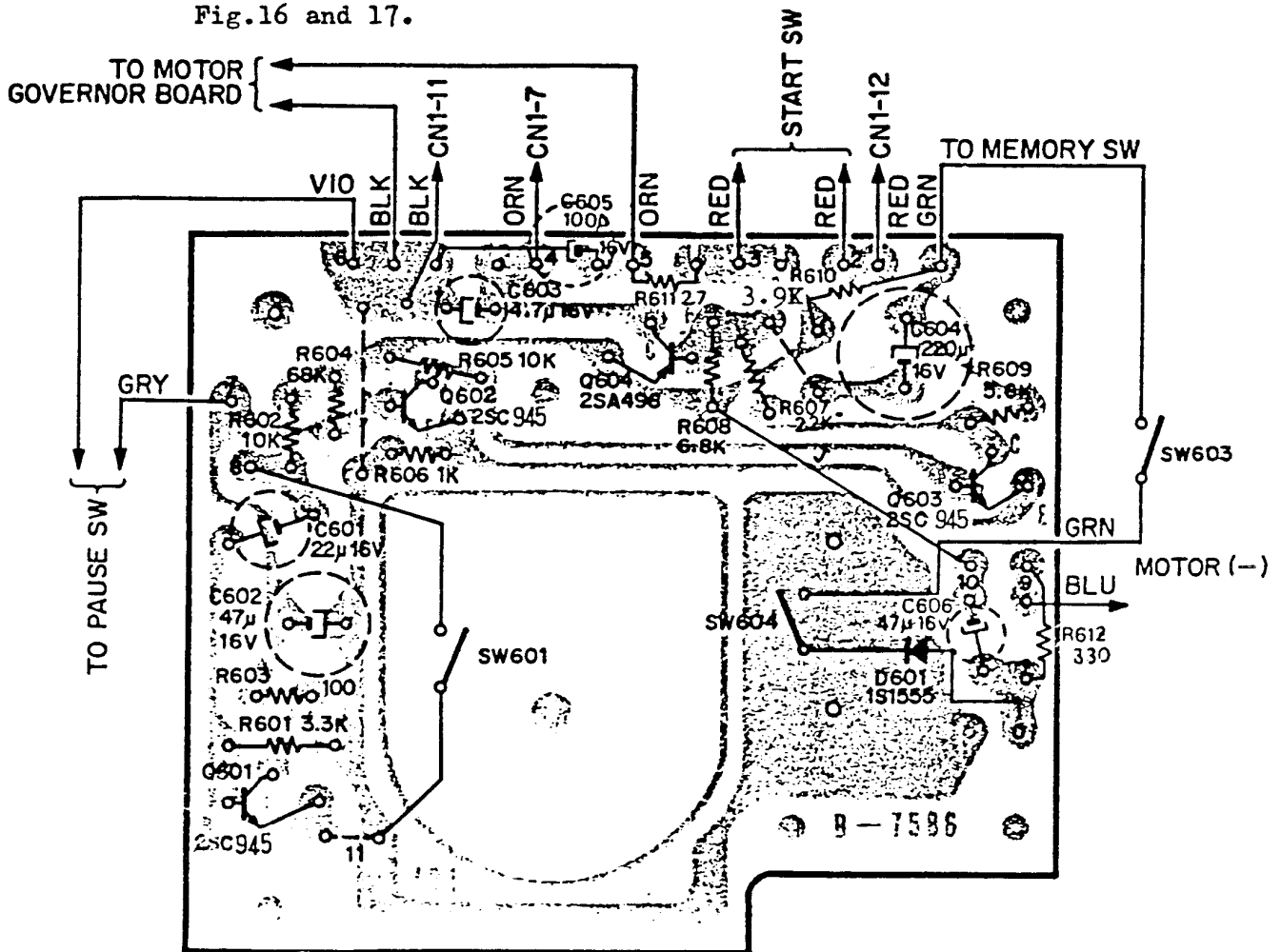


Fig.18 Auto Shut-off Ass'y

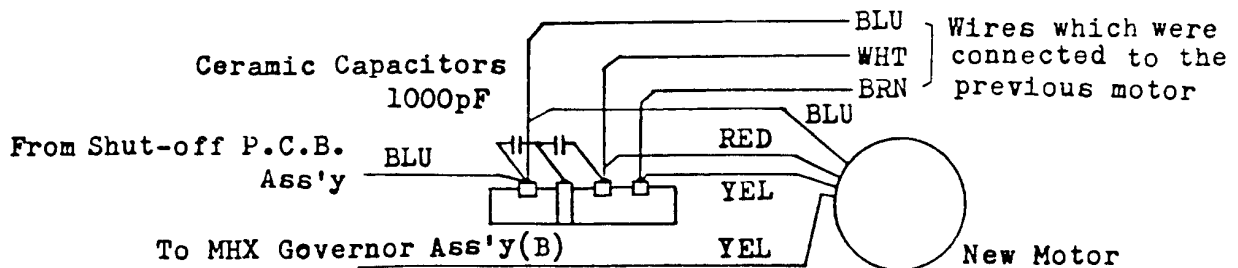


Fig.19

d. Start Sw. Shield Ass'y:

See Fig. 20. Loosen mechanism bracket L ass'y and insert the start sw. shield ass'y between mechanism chassis and mechanism bracket.

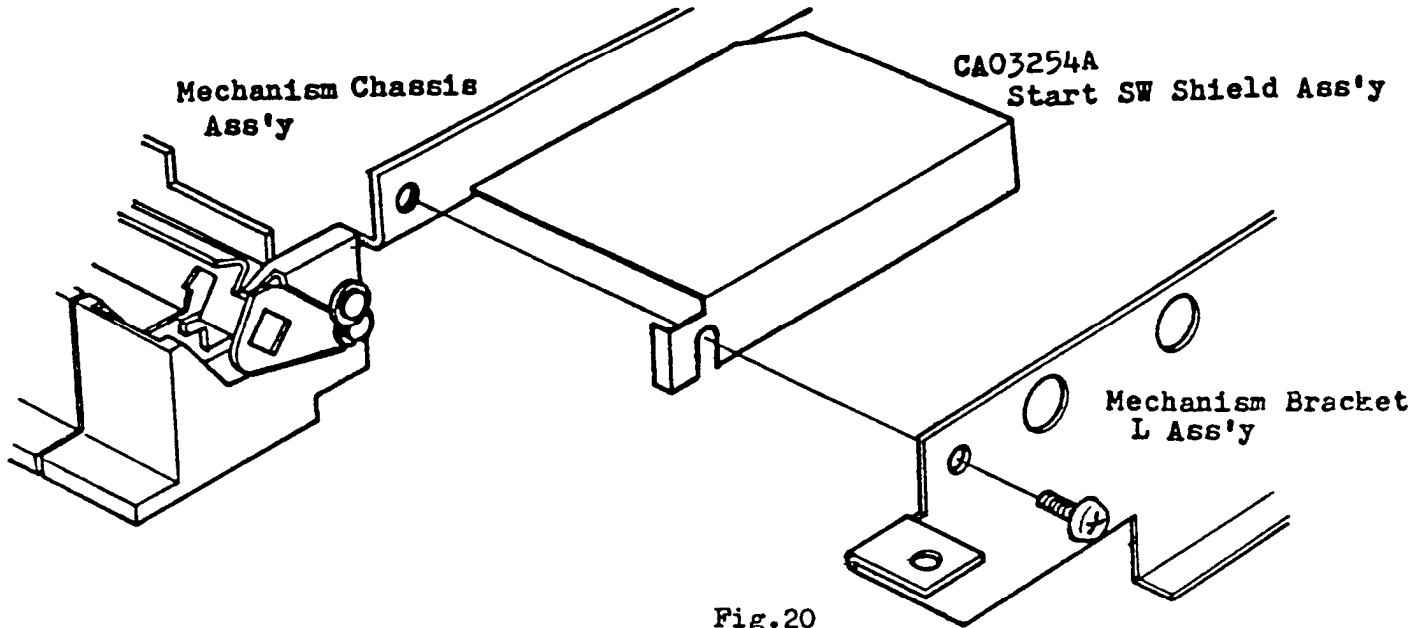


Fig.20

3. Readjustment:

After the modification, following adjustments are required.

a. Driving Belt Adjustment:

Check to insure that the belt remains at the correct position after the following modes: FF to Stop

REW to Stop

Quickly FF to REW then Stop

If the belt is away from its correct position, readjustment of motor pulley position will be required.

b. Tape Speed Adjustment:

(1) Connect a frequency counter either to left or right output jack.

(2) Load a 3KHz Speed Wow/Flutter Tape (DA09006A) and play it back.

(3) Adjust the tape speed adjust potentiometer for an average reading of correct frequency on the counter.