3.4.4.3. Trouble shooting

ERROR **Component is lost during pick-up on CSM**

Possible Cause #01 Possible machine errors. Check vacuum, mount program, feeder position, oil/moist in nozzles.

Possible Cause #02 Chuck head:

- Check nozzle down position. When the head is down, the nozzle should just touch the PCB or the front transport bar. Adjust the nozzle down position.
- Chucks are not opening wide enough. Adjust jaws (this problem may occur with the PLCC84).

Possible Cause #03 Vision head CSM84V

- Check the nozzle down position (see figure 3.5.1.)
- Check the pushrod height (see figure 3.5.1.)

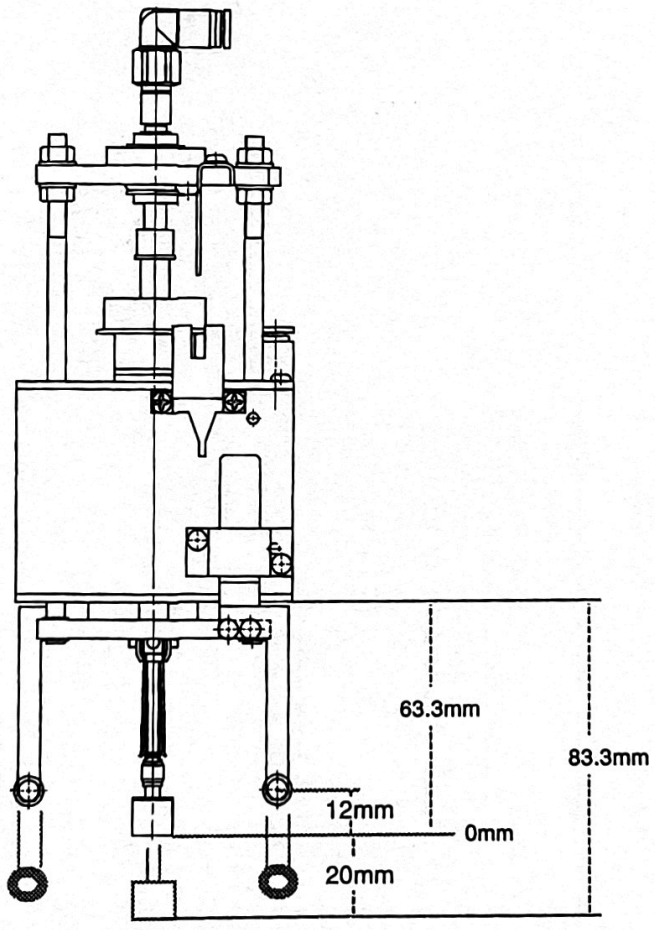


Fig. 3.5.1. Dimensions CSM84V vision head

3.4.5.2. Specifications PLCC-type gravity stick feeders /SF+

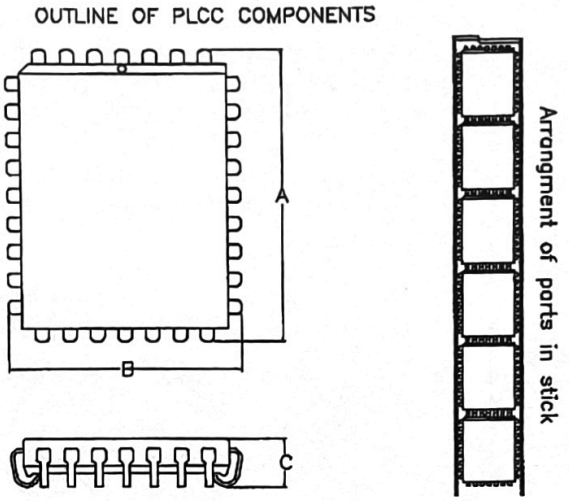


Fig. 3.4.5.1. SO/SOL part dimensions

TYPE /SF+	Specifications	A (mm)	B(mm)	C(mm)
PA2697/33 PLCC20	JEDEC MO-047AA	9.78-10.03	9.78-10.03	4.20-4.57
PA2697/34 PLCC28	JEDEC MO-047AB	12.32-12.57	12.32-12.57	4.20-4.57
PA2697/35 PLCC32	JEDEC MO-052AE	14.86-15.11	12.32-12.57	2.54-3.56
PA2697/36 PLCC44	JEDEC MO-047AC	17.40-17.65	17.40-17.65	4.20-4.57
PA2697/37 PLCC52	JEDEC MO-47AD	19.94-20.19	19.94-20.19	4.20-5.08
PA2697/38 PLCC68	JEDEC MO-047AE	25.02-25.27	25.02-25.27	4.20-5.08
PA2697/39 PLCC84	JEDEC MO-047AF	30.10-30.35	30.10-30.35	4.20-5.08

3.4.5. Specifications

3.4.5.1. Specifications SO-type gravity stick feeders /SF+

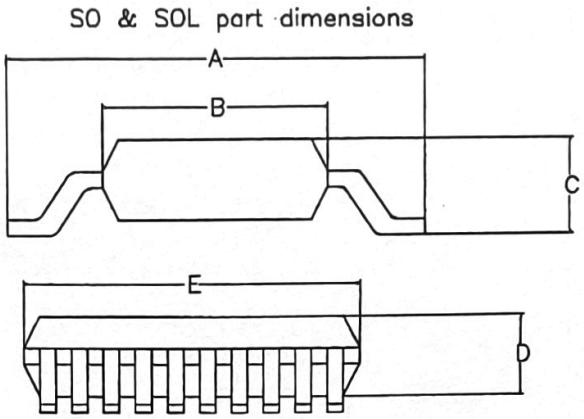


Fig. 3.4.5.1. SO/SOL part dimensions

PA2697/30

Component Type	Specifications	A (mm)	B(mm)	C (mm)	D(mm)	E (mm)
SO-8	JEDEC MS-012AA	3.4-4.0	5.8-6.2	1.35-1.75	1.25-1.45	4.8-5.0
SO14	JEDEC MS-012AB	3.4-4.0	5.8-6.2	1.35-1.75	1.25-1.45	8.55-8.75
SO16	JEDEC MS-012AC	3.4-4.0	5.8-6.2	1.35-1.75	1.25-1.45	9.8-10.0

PA2697/31

Component Type	Specifications	A (mm)	B(mm)	C (mm)	D(mm)	E (mm)
SO-8L	PHILIPS	7.5-7.6	10.0-10.65	2.35-2.65	2.25-2.45	7.55-8.0
SO-14L	JEDEC MS-013AF	7.4-7.6	10.0-10.65	2.35-2.65	2.25-2.45	8.8-9.2
SO-16L	JEDEC MS-013AA	7.4-7.6	10.0-10.65	2.35-2.65	2.45-2.65	10.1-10.5
SO-20L	JEDEC MS-013AB	7.4-7.6	10.0-10.65	2.35-2.65	2.45-2.65	11.35-11.75
SO-24L	JEDEC MS-013AC	7.4-7.6	10.0-10.65	2.35-2.65	2.45-2.65	15.2-15.6
SO-28L	JEDEC MS-013AD	7.4-7.6	10.0-10.65	2.35-2.65	2.45-2.65	17.7-18.1

PA2697/32

Component Type	Specifications	A (mm)	B(mm)	C (mm)	D(mm)	E (mm)
SO-24XL	JEDEC MO-059AB	11.5-12.3*	8.2-8.9	2.55-3.05	2.5-2.8	15.2-16.1
SO28XL	JEDEC MO-059AD	11.5-12.3*	8.2-8.9	2.55-3.05	2.5-2.8	17.7-18.5
VSO40	PHILIPS	11.8-12.3*	7.5-7.6	2.25-2.45	2.35-2.75	15.3-16.0

* = Dimension is not according to specifications

Possible Cause #08: The part is not properly fed to the pick position.

- The rubber strip is not fitted into the slot correctly. Push the line deeper into the slot (see figure 3.5.3.)
- The rubber strip is cut off incorrectly. Rought edges are obstructing the component. Install a new, correctly cut, rubber strip.
- The stick emptying weight is not used, and the last couple of components do not have the gravity force to move them forward.

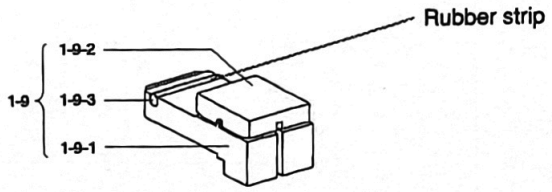


Fig. 3.5.3. Checking the rubber strip

ERROR: **Component is lost during pick-up on LCS**

Possible Cause #01: Head not adjusted correctly.

- Check the head down position and distance between head and pushrod. When this is corrected, check the position at the palettes also (refer to figure 3.5.4.)

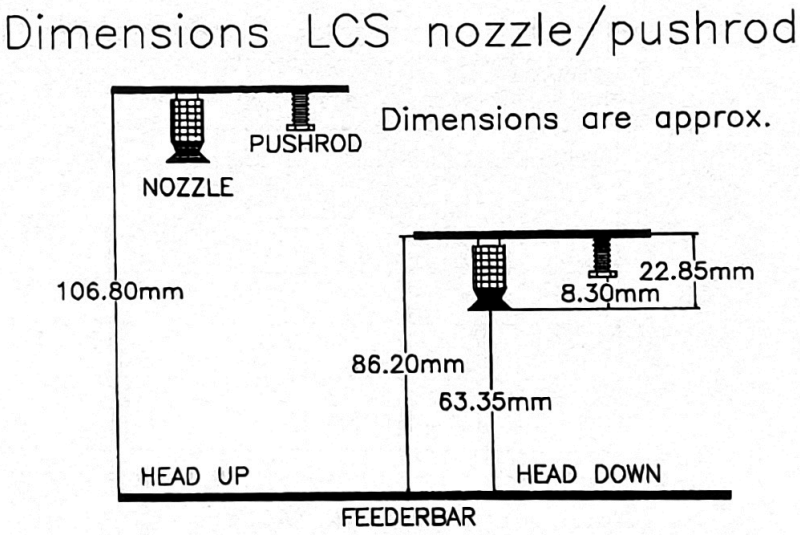


Fig. 3.5.4. LCS Dimensions

Possible Cause #04: Vision head CSM84VZ
- Enter the correct Z-Position parameter in the component file.

Possible Cause #05 Part is not pulled forward correctly
- Check if the rubber strip is present (see figure 3.5.3.).

Possible Cause #06 Incorrect brake adjustment
- At the pick position, part of the component is still located underneath the brake plate. Adjust the brake plate (refer to section 3.4.3.2.)

Possible Cause #07 Component is free but still not picked correctly
- Component might be pressed by the next component. The force on the component to be picked is high and causes pick problems. Check if the brake functions correctly and can hold the components (refer to section 3.4.3.3.).

Possible Cause #08 Covers are closing too soon and 'catch' the component. In general, the jaws should open at a height of approximately 77mm (for SO) or 78mm (for PLCC) measured from the top of the pusher to the feederbar. When the cover 'catches' the component, check:

First: Push rod height of chuck / vision head.
Second: Nozzle height of chuck/vision head.
Third: Defined height as stated above.

The opening moment of the jaws can be adjusted by bending the jaw clip (bend only with small amounts!) Refer to figure 3.5.2.

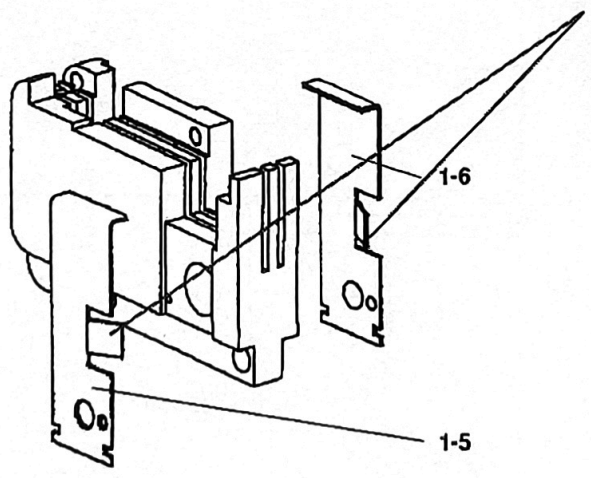


Fig. 3.5.2 Jaw clip adjustment

MANUAL TRAY FEEDER

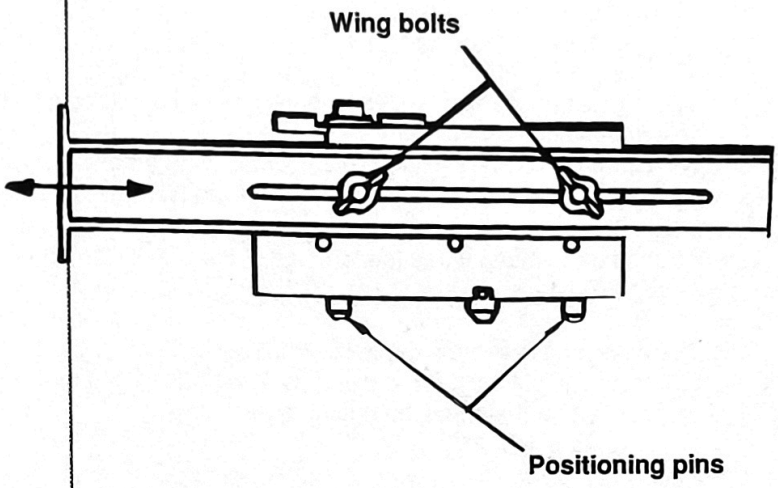


Fig 4-45

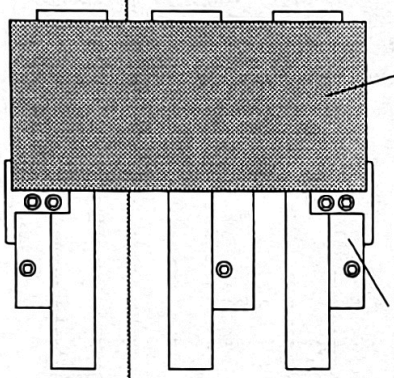


Fig 4-46

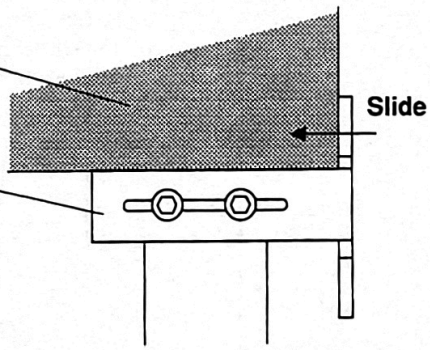


Fig 4-47

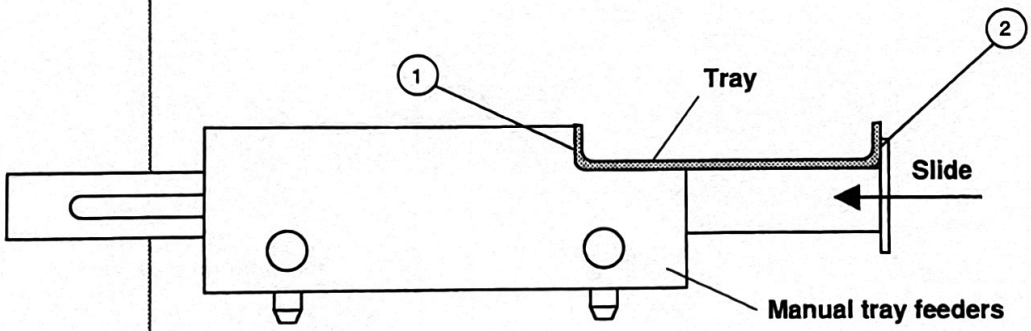


Fig 4-48

MANUAL TRAY FEEDER

3-5 MANUAL TRAY FEEDERS

(1) External diagram --- See Fig 4-44, 4-45

(2) Attaching manual tray feeders

a. Line up the knockpin for positioning the manual tray feeder with the knockpin hole in the feeder plate.
To secure the feeder on the CSM models, insert a hex screwdriver in the head of the one-touch securing pin and turn the pin 90° while pressing down on it.

b. Arrange three manual tray feeders that fit the size of the tray.
--- See Fig 4-46

c. The trays should be secured in the front/back direction as shown below. The tray rests against point (1) and can be moved back and forth within the elongated hole (2) to find the optimum position.
--- See Fig 4-47

d. To secure the tray in the left/right direction, slide the T-shaped stay pictured at the right as though narrowing it.
--- See Fig 4-48

CAUTION

(3) Precautions regarding handling

a. Never replace empty trays while the machine is running.
b. Warping or rattling of the tray during picking and mounting can result in picking and mounting errors. Make sure trays are securely fastened in place.

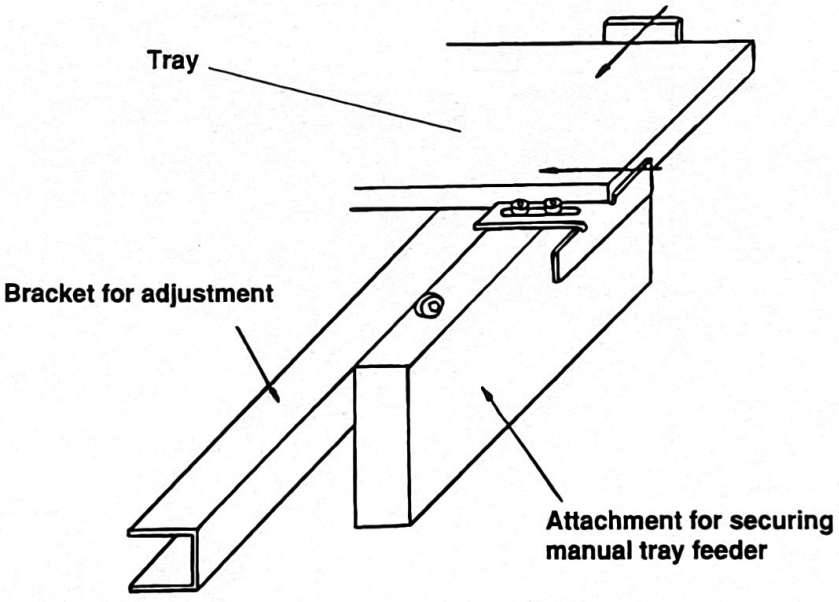
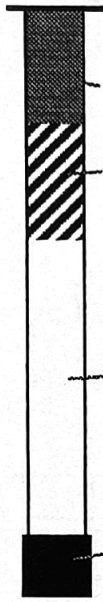


Fig 4-44

3.4.6. STICK EMPTY INDICATOR & STICK EMPTY WEIGHT

With the new gravity stick feeders a stick empty indicator strip is delivered. This strip functions also as the stick empty weight. Gravity force must be applied in order to have all components picked out of the stick. If the weight is not used, the components cannot move forward enough because there is no gravity pressure applied to the components. The component will not have enough force to move forward or will have not enough force to move over the rubber strip.

The second function is to indicated when a stick is running empty. The strip, attached to the weight is divided into five sections. This sections should be used as is indicated in the figure below:



5. Stop: This metal piece prevents the strip to fall into the stick. This can also be used as a grip to remove the strip from the stick.

4. Red: Stick empty. When strip is taken out, there is not enough gravity to move components forward. Mispicks will occur.

3. Dashed: Refill part. If this part is going into the stick, then the stick must be filled again. At this moment there is still enough gravity by the components themselves to move forward and there is time to re-fill the stick.

2 White Strip: As long as this strip is seen, the stick has enough components without the need for refilling the stick.

1. Weight: This weight is designed to bring all components in the stick to the pick position.

3.4.7. IMPORTANT NOTES:

NEIGHBOURHOOD RESTRICTIONS FOR THE PA2697/30 (SO)

For the PA2697/30, SO, Gravity stick feeders /SF+, the following neighbourhood restrictions apply:

1. This feeder cannot be placed on a feeder position directly right of a PA2697/20 gravity stick feeder (earlier generation feeder SO).

2. When using the vision head for this stickfeeder, the pushrod on the vision head will also index the adjecent **tape** feeders. Any adjascent tape feeders should be avoided.

3. The tolerances on the covers of some CSM machines may cause problems of proper mounting of the feeder on that particular machine. A minor adjustment of the covers may be necessary.

4. When more than one of these feeders (PA2697/30) are located next to each other and one feeder has to be removed, then it is necessary to remove the plastic pushcap first of the PA2697/30 stickfeeder that is located on the right hand side of the stickfeeder that will be removed.

FIXED CAMERA

External view of fixed camera

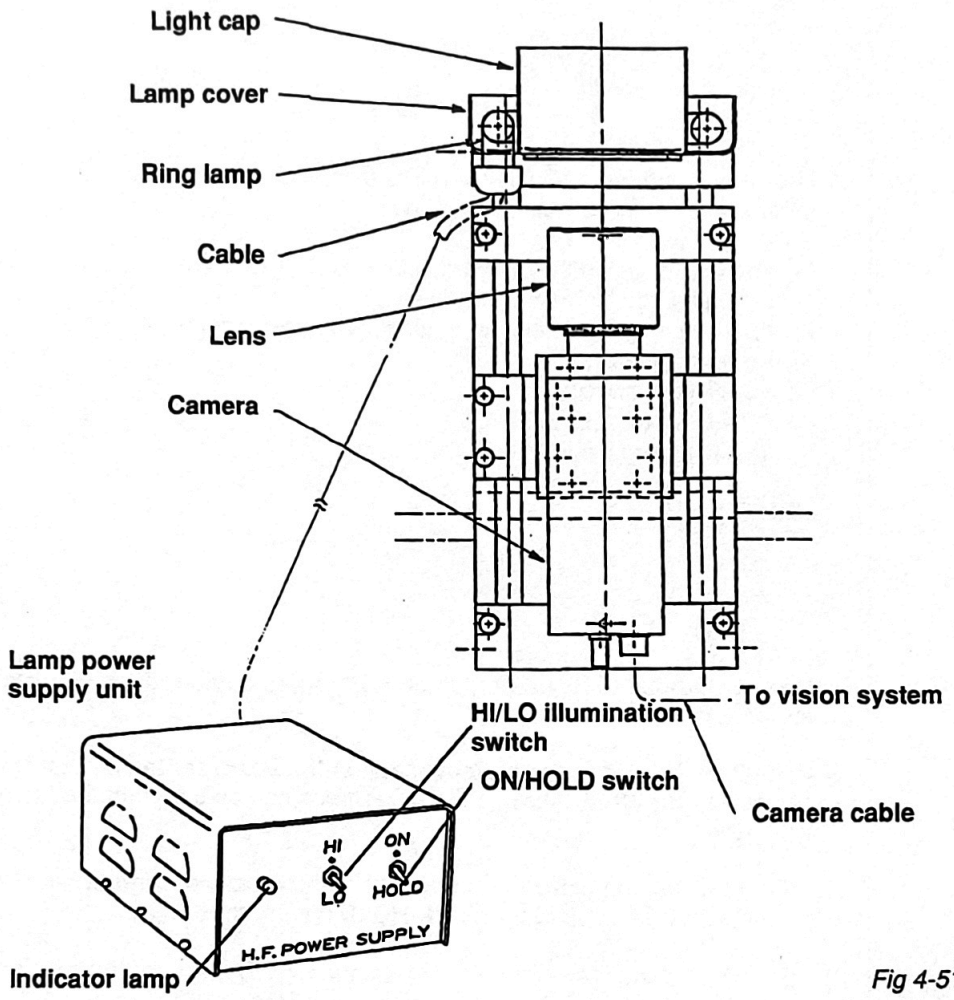


Fig 4-51

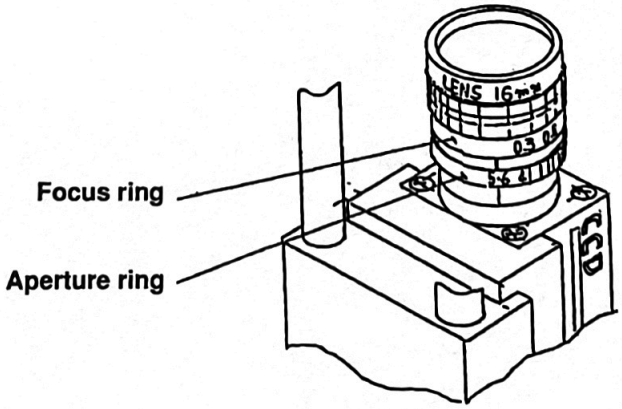


Fig 4-52

FIXED CAMERA

4-2 EXTERNAL VIEW AND NAMES OF PARTS

--- See Fig 4-51

4-3 ADJUSTMENT METHOD

(1) Lens and Lamp Power Supply Unit The lens and lamp power supply unit are set as follows when shipped from the factory:

1) Focus ring: Set to the 0.3 gradation or lower (when viewed from above and turned counterclockwise all the way)
2) Aperture ring: Set to the 5.6 gradation (approximately)
3) Power supply lamp
   - ON/HOLD switch: ON
   - HI/LO switch: LO
   (for switching the illumination intensity)

--- See Fig 4-52

NOTE

1) Do not change the focus ring setting. Doing so could reduce the size of the image, etc.

2) If the lamp brightness diminished, adjust the aperture ring so that the outline of parts is captured clearly. (The brightness can also be adjusted using the HI/LO switch.)

3) When the vision system is not being used for part recognition, the lamp can be turned off by switching the ON/HOLD switch to HOLD.

4) The camera height has been set at the factory. There should be no need to adjust it during normal use. If the camera is moved or readjusted than all vision files have to be recalibrated!!

FIXED CAMERA

4-1

OVER VIEW

The fixed camera (part recognition camera) reads in parts affixed to the visual head and calculates the discrepancy in the positions of the center of the part used by the vision system and the center of the head.

A maximum of two fixed cameras can be installed at once (one is standard) and used for recognition of parts with a maximum size of
n 40mm.

--- See Fig 4-50

NOTE

- **Only one fixed camera can be installed on machines with 10-inch wide conveyors.**
- **Two fixed cameras can be installed only on machines with 16-inch wide conveyors.**

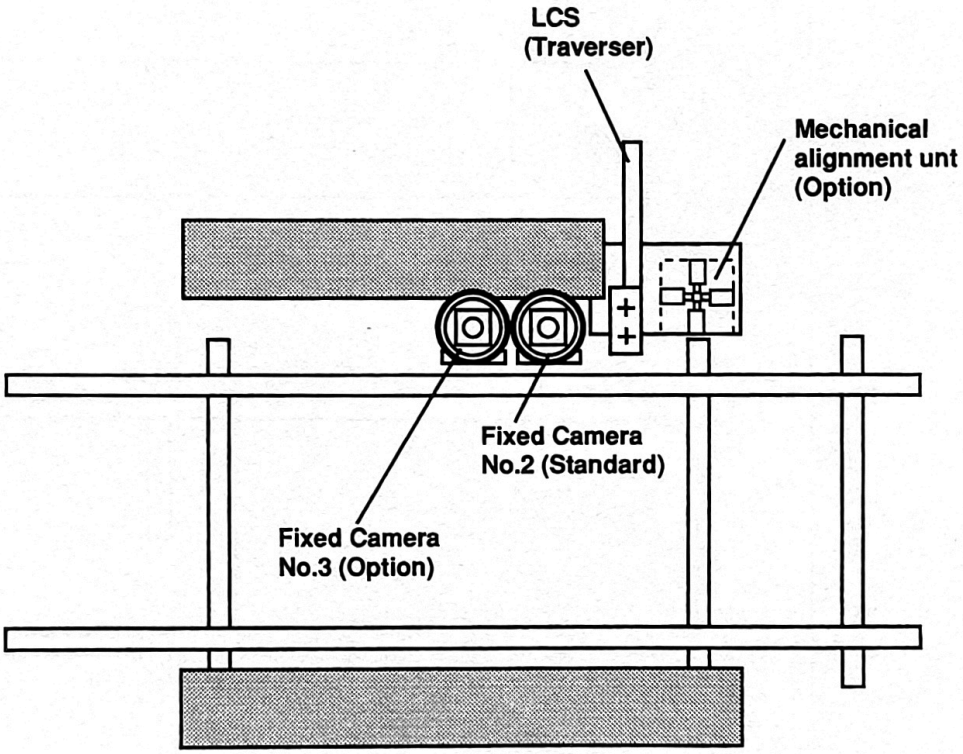


Fig 4-50

FEEDER RAISING PLATE

3-6 FEEDER RAISING PLATE

(1) External diagram --- See Fig 4-49

(2) Description of function

The feeder raising plate enables CSM46/60/60(V) feeders (tape feeders, stick feeders, manual tray feeders) to be used on the CSM66/84/84(V).

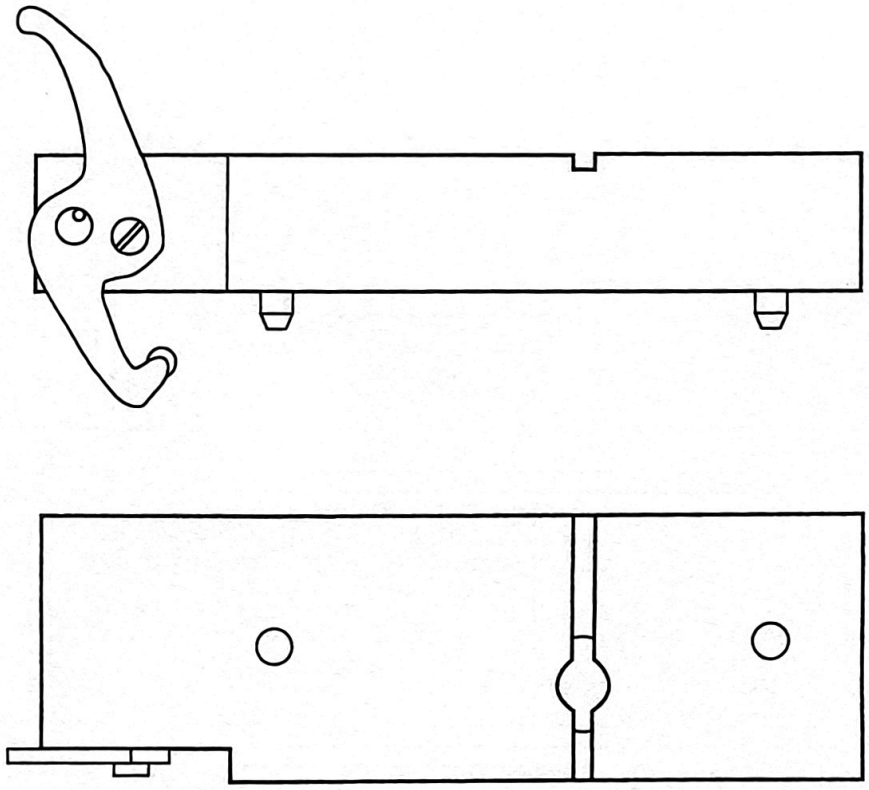


Fig 4-49