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HexaFeeder Instruction Manual

Original Instructions

INS-HEXFDR-001E0

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HexaFeeder
Instruction Manual

INS-HEXFDR-001E0

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Contents

MEMO:

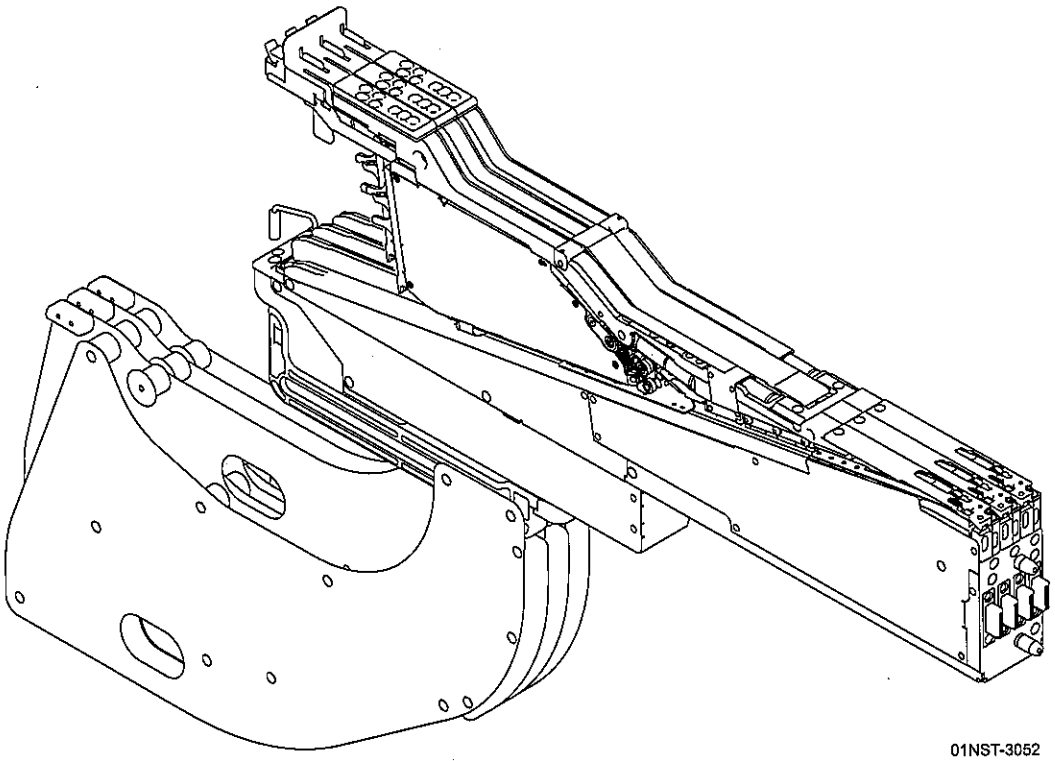
1. HexaFeeder

1.1 Overview

HexaFeeders enable six types of 8 mm reels to be set using 4 slots on the feeder pallet.

They can be loaded on the feeder pallet, MFU, and tray unit-LT/LTC/LTW used for the following machine types.

- NXT-2, NXT-2c, NXT-3, AIMEX, AIMEX-2, AIMEX-2S



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1.2 Important Handling Points

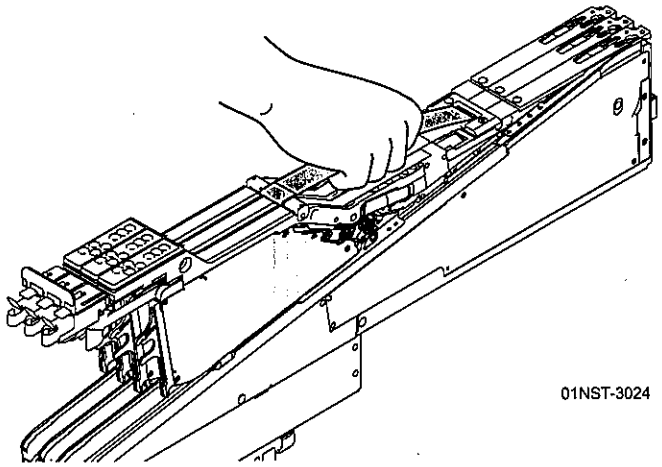
This section explains important points on handling HexaFeeders.

Note: Refer to "2. Unit Components and Functions"for item names used in this section.

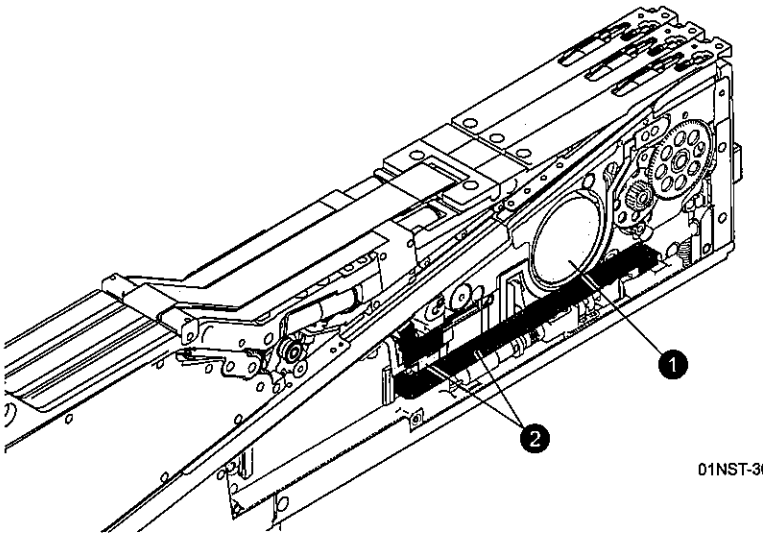
1.2.1 Important points regarding HexaFeeders

Be aware of the following important points when handling HexaFeeders.

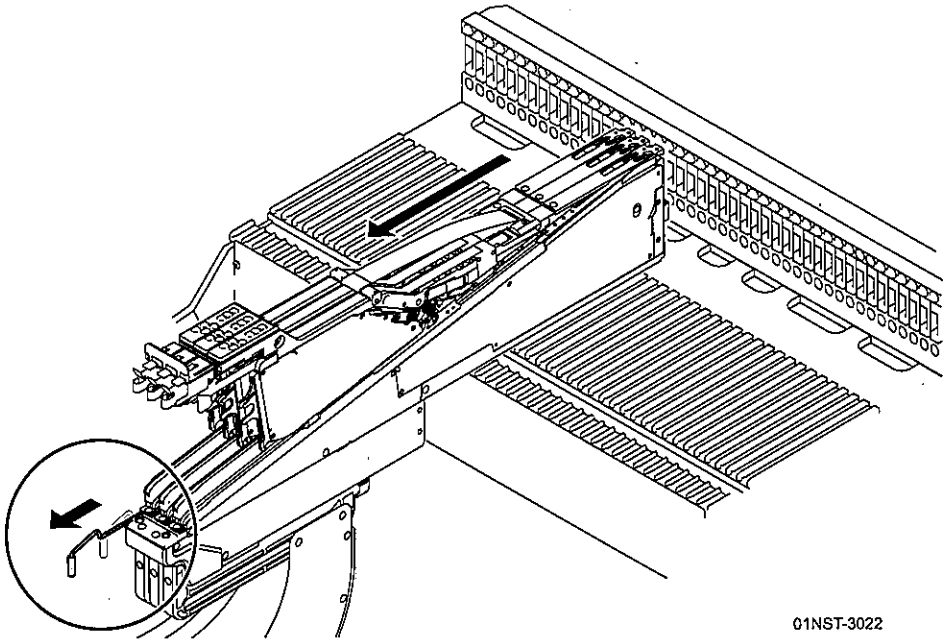
1. Do not hit or drop feeders when carrying or setting them. Shocks may cause operational failure or damage.
2. When carrying a feeder, have one or more cassettes set and always hold the feeder by the handle. Failure to follow this may deform the feeder.



3. Do not touch the connector section at the end of the feeder. If the connector gets dirty, poor contact may prevent communication.
4. When touching the feeder during or immediately after production, beware of heat near the feeder motor and circuit board.
5. Keep all tools away from the flat cable (2) inside the feeder unit. Tools can easily damage the cable.



6. When removing feeders, it is essential that the clamp lever is pulled back all of the way and kept in that condition when the feeder is pulled out from the feeder pallet or feeder inspection jig. If the clamp lever is not completely pulled back, it is possible that the power to the feeder is not disconnected. If the feeder is removed with power still being supplied, the connector can become bad and the internal feeder board can be damaged.



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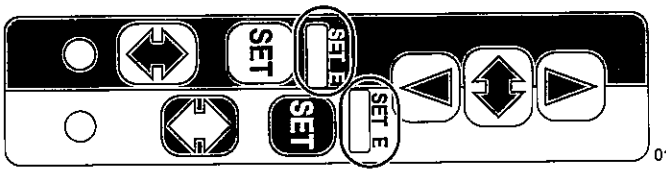
7. When removing cassettes from a HexaFeeder loaded on the machine, check the [SET E] LED for the applicable slot on the HexaFeeder operation panel.

[SET E] condition	Important points
Red	Parts are no longer being picked from that feeder due to an error such as parts out, pickup miss, or vision processing error. If the LED indicating the feeder condition is yellow, this feeder can be removed even during production.
Green or yellow	Parts are currently being supplied from this feeder. Do not remove the feeder because it is possible that nozzles will be damaged if the feeder is removed.
Green and yellow	This feeder is specified as an alternate feeder when using the dynamic alternate feeder function and will be used to supply parts once the original feeder runs out of parts. In order to allow parts to be supplied when required, do not remove this feeder.

Note: If it is necessary to remove a feeder with the green and yellow LEDs lit, push CYCLE STOP and wait for the machine to stop before removing the feeder.



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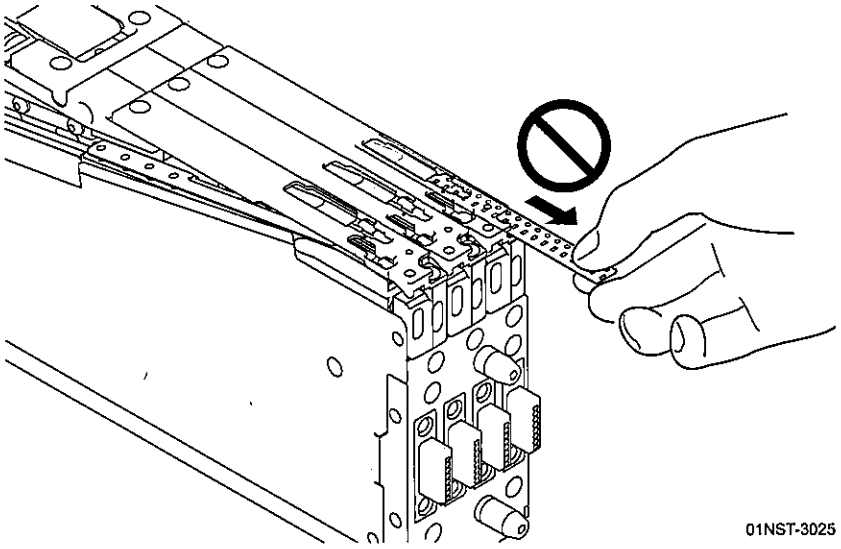
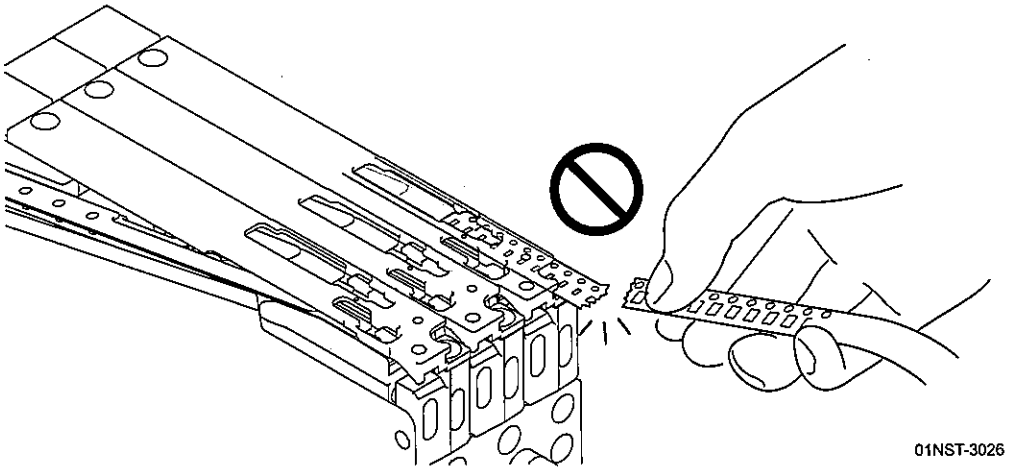
8. When the carrier tape is set in the feeder, do not pull on the carrier tape or cover tape. Pulling on the carrier or cover tape can damage the feeder. When setting the tape on the feeder or removing it and you want to advance or rewind the carrier tape, set the feeder on the feeder set stand or in the machine and use the buttons on the feeder control panel to advance or rewind the carrier tape.



9. Use scissors to cut any excess tape protruding from the end of the feeder before setting the feeder on the machine. If scissors are not used and the tape is torn by hand, problems may occur when advancing the tape.



1.2.2 Important point when using RFIDs

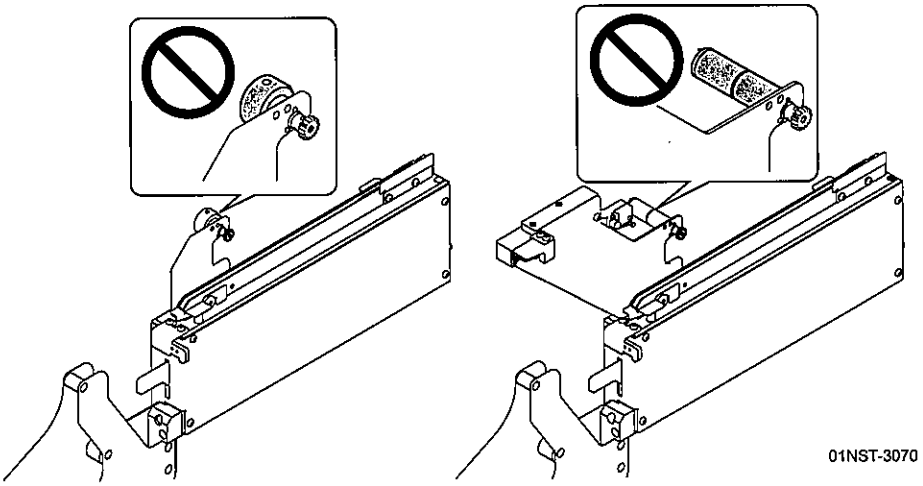
RFIDs are used in HexaFeeders. Be aware of the following point.

FCC CAUTION

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

1.2.3 Important points regarding the tape setting jig

When handling the tape setting jig, do not hold the jig by the winding gear section knob or motor. This may cause problems with operation.



1.2.4 Important points regarding splicing

1. From the point that the splicing sensor detects the splice between the tapes to the point that this position passes the pickup point, do not remove the feeder or use any of the buttons on the feeder's operation panel.

   Note: If this is not followed, then the splicing detection function of the feeder will not operate correctly.

2. Tape type misrecognition may occur for the following cases if the feeder is removed or set with the splicing tape (the spliced section) in the pickup area. In this case, index the feeder until the first part of the new carrier tape is in the pickup position.

   - When different tape types have been spliced together.
   - When using transparent embossed tape.

3. In order to correctly use the features listed in 1 and 2 above, it is necessary to have empty cavities before and after the splicing point.
4. When using the splicing detection function, it is necessary to use splicing tape.
5. For other splicing related information, refer to the Fuji Intelligent Feeder Splicing Metal Detection Unit Instruction Manual (QD175-xx) for details.

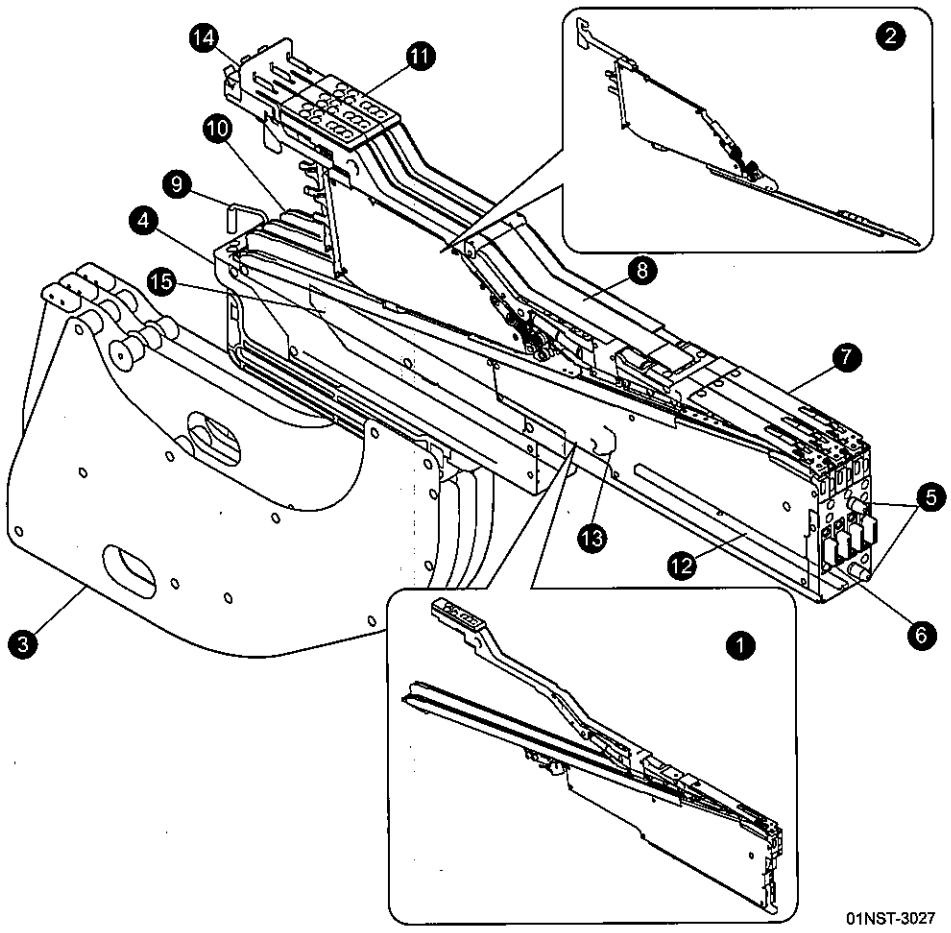
MEMO:

2. Unit Components and Functions

This section gives the names of components and functions of the HexaFeeder and related jigs.

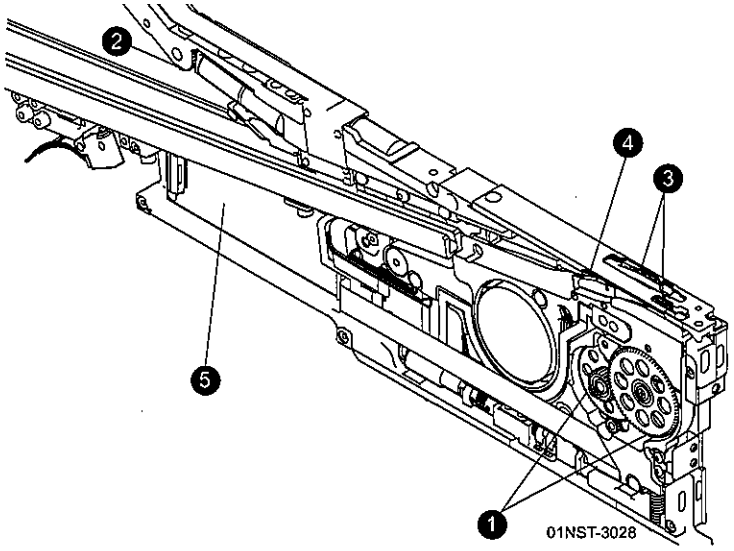
2.1 HexaFeeder

HexaFeeders consist of feeder units, cassettes, reel holder, and a feeder base.



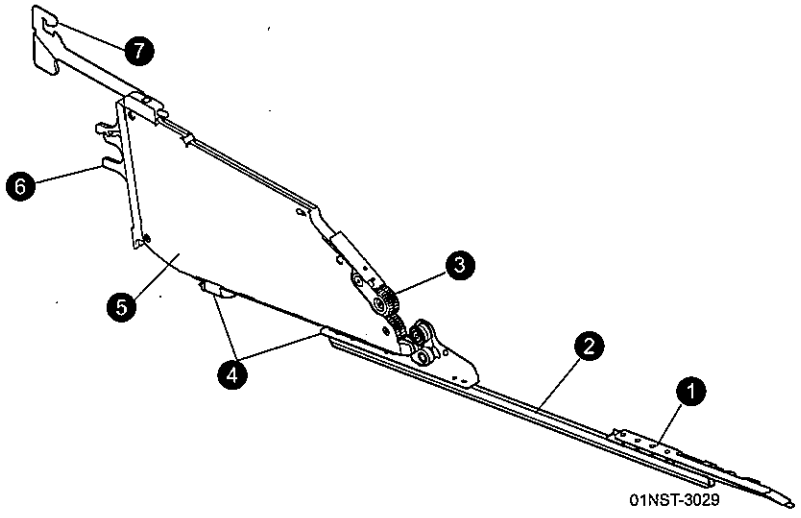
Number	Name	Number	Name
1	Feeder unit	2	Cassette
3	Reel holder	4	Feeder base
5	Positioning pin	6	Communication connector
7	Tape guide	8	Handle
9	Clamp lever	10	Cassette slot
11	Operation panel	12	Feeder guide
13	Clamper	14	Handle
15	Control board		-

Feeder unit



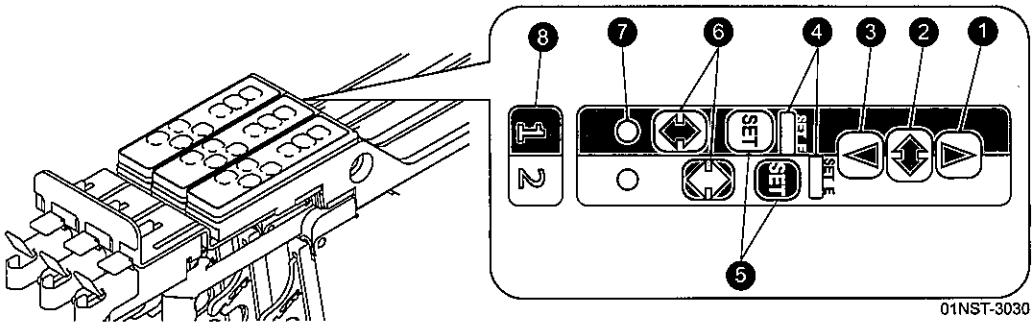
Number	Name	Number	Name
1	Gears	2	Winding gears
3	Sprocket	4	Splicing detection sensor
5	Control board		-

Cassette



Number	Name	Number	Name
1	Tape retainer	2	Cassette guide
3	Winding gears	4	Tape holder
5	Cover tape storage section	6	Cover
7	Hook		-

2.2 Operation panel

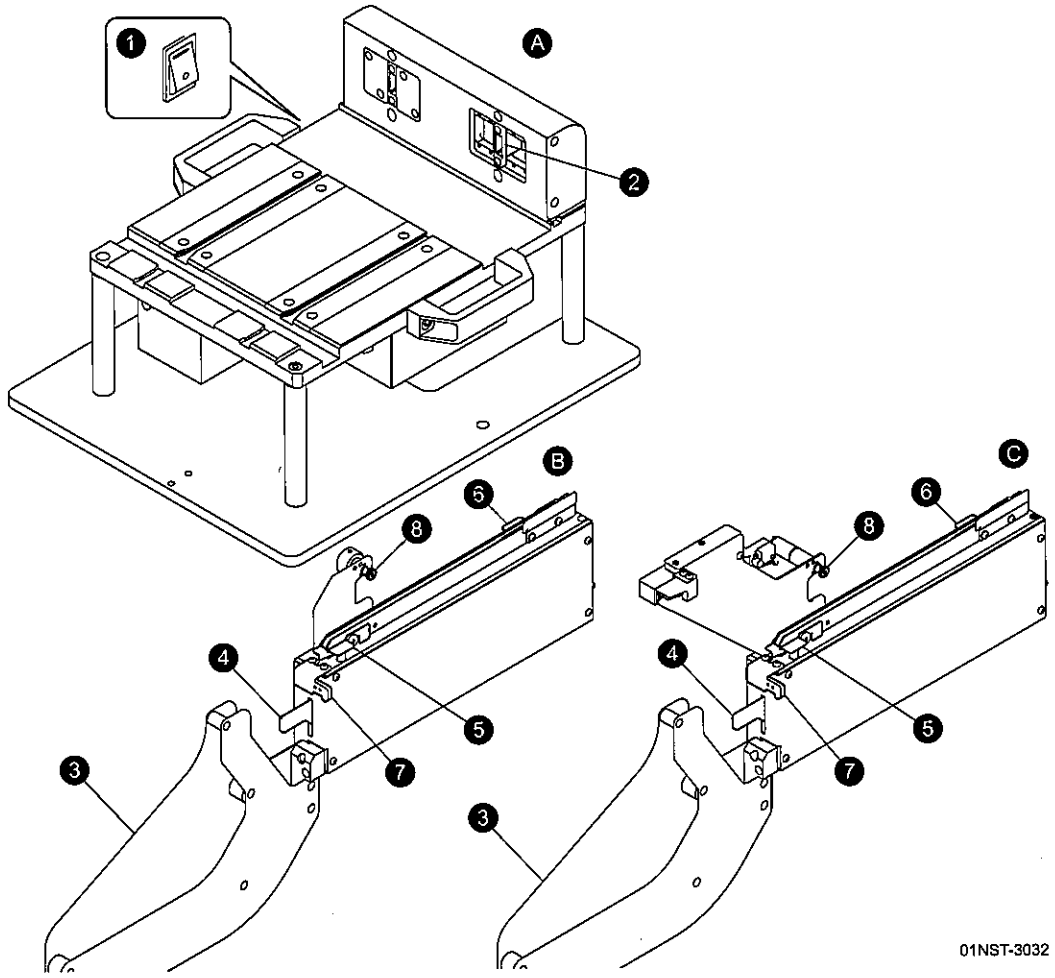


	Name	Explanation
1	Forward button*1	Advances the carrier tape by the amount set for the feed pitch in the job. Hold this button down to advance the tape continuously at high speed. This cannot be used during operation.
2	Switch operation button	This is used to switch which subslot is being controlled. When this is pushed, the feeder status display for the selected subslot turns on for 10 seconds. Forward and reverse operation can be performed while the light is on. This cannot be used during operation.
3	Reverse button*1	Reverses the carrier tape by the amount set for the feed pitch in the job. Hold this button down to reverse the tape continuously at high speed. This cannot be used during operation.
4	Status display	Displays the status of the device in the subslot. Displays the same status as the machine device indicator.
5	SET button	Tells the machine that the feeder is ready. Push this button after setting the cassettes on the feeder.
6	Cassette clamp/ unclamp button	This clamps/unclamps cassettes. This only unclamps during production.
7	Feeder status display	Displays the feeder status using LEDs. White: No cassette set Green: Cassette clamped Yellow: Cassette set but not clamped Red: Tape indexing error Red flashing: Operator work is required (such as when the recovery limit has been reached) Purple: Error (other than red LED errors) Remove and set the cassette to restart production.
8	Subslot number	Indicates the subslot number.

*1. If the feeder is set at a slot not specified in the job, the carrier tape is advanced at a 4 mm pitch.

2.3 Jigs

These items are required to set tape on HexFeeders outside of a machine.



	Name	Explanation
A	HexaFeeder feeder set stand	This is for setting HexaFeeder or tape setting jigs and supplying power to the feeder.
B	Tape setting jig	This jig is used for setting carrier tape on cassettes.
C	Tape setting jig (type supporting Fujitrax Verifier)	This jig is used for setting carrier tape on cassettes. This supports Fujitrax Verifier.

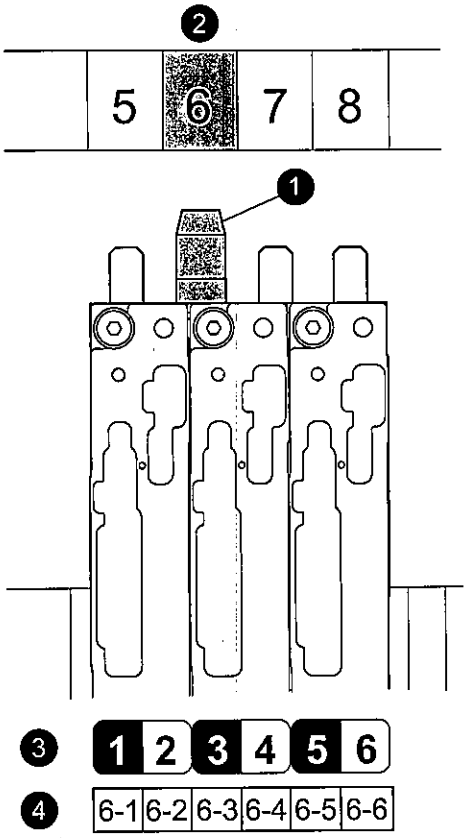
Number	Name	Number	Name
1	Power switch	2	Communication connector
3	Reel holder	4	Clamp lever
5	Stopper lever	6	Hook lever
7	Cover tape cutter		-

2.4 About HexaFeeder slot numbers

HexaFeeders enable six 8 mm reels to be set using 4 slots on the feeder pallet. Slot numbers for HexaFeeders are as follows.

The slot (2) used by the HexaFeeder is the slot into which the positioning pin (1) is inserted. Subslots 1 to 6 (3) are allocated to this slot.

Slot numbers for HexaFeeders (4) therefore display as the [Slot number - Subslot number].



MEMO:

3. Setting Up

This section explains the method for setting tape parts on a HexaFeeder. This section also has the explanations for removing a feeder unit from the feeder base such as for preparing for maintenance.

3.1 Points of Caution

- Do not knock or drop feeders when carrying or setting them. Shocks may cause operational failure or damage.
- Do not touch the connector section at the end of the feeder. If the connector gets dirty, poor contact may prevent communication.
- When the carrier tape is set in the feeder, do not pull on the carrier tape or cover tape. Pulling on the carrier or cover tape can damage the feeder.

3.2 Setting Up HexaFeeders

When setting parts in a HexaFeeder, it is important to check the part types to be used in production.

The basic steps for setting tape parts in a HexaFeeder are given below.

Order	Procedure	Reference
1	Set a HexaFeeder in the feeder set stand.	3.3.2
2	Remove a cassette from the HexaFeeder.	3.5.2
3	Set the tape setting jig in the feeder set stand.	3.4.2
4	Set the carrier tape in a cassette.	3.6
5	Set the cassette in the HexaFeeder.	3.5.1
6	Remove the HexaFeeder from the feeder set stand.	3.3.3
7	Remove the tape setting jig from the feeder set stand.	3.4.3

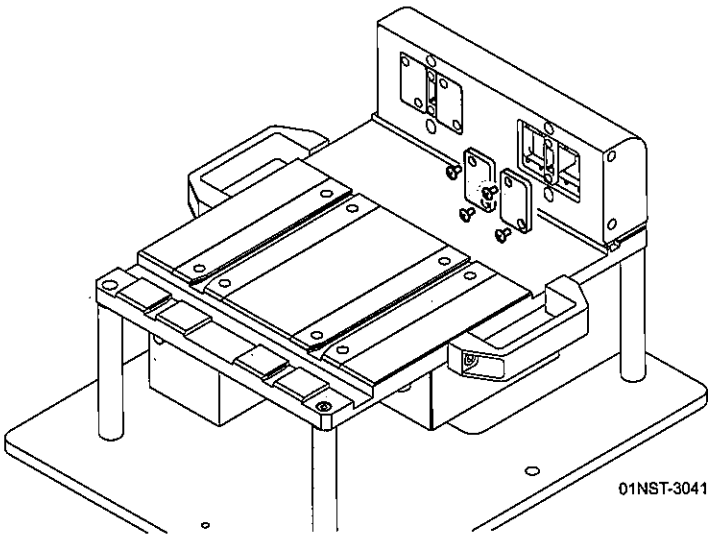
3.3 Attaching and Removing HexaFeeders

This section explains the method for attaching and removing HexaFeeders from the feeder set stand and feeder pallets. When setting on feeder pallets, do it with power being supplied to the feeder pallet.

Note: To supply power to feeder pallets, have it set on the machine and the machine turned on or use the offline power supply unit for feeder pallets not on a machine.

3.3.1 Preparing the feeder set stand

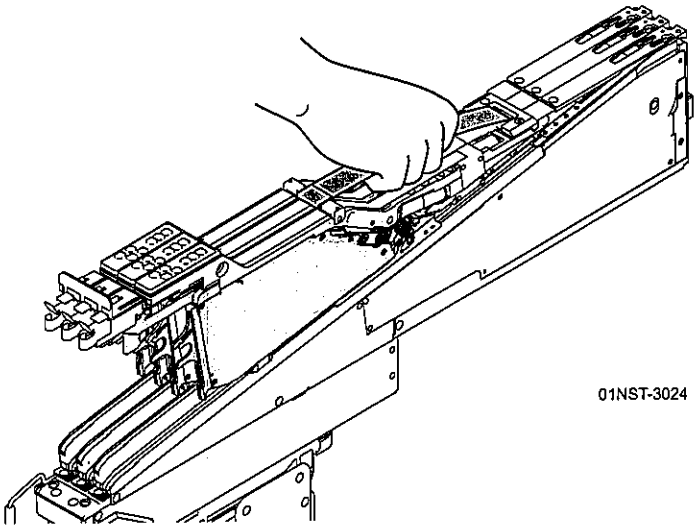
When you are going to set a HexaFeeder in a feeder set stand, remove the side covers from the communication connector area.



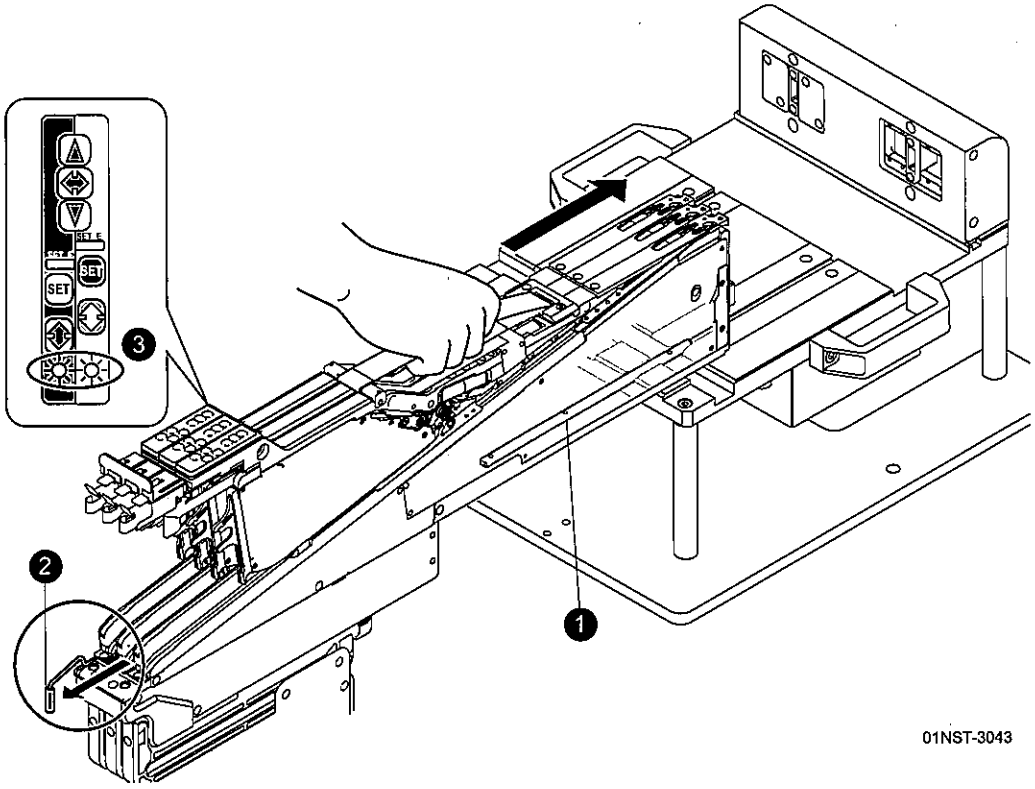
3.3.2 Attaching procedure

1. Turn on the feeder set stand. For feeder pallets, supply power to it by turning on the machine.
2. Set the feeder in the feeder set stand or on the feeder pallet.

Caution: When carrying a feeder, have one or more cassettes set and always hold the feeder by the handle.



3. Align the HexaFeeder guide (1) and positioning pins with the slot and set the front of the feeder on the feeder set stand.
4. While pulling the feeder clamp lever (2), insert the feeder until the positioning pins and connector are properly inserted into their respective positions. Return the lever back to its original position to lock the feeder in position.
5. Check the feeder condition LEDs (3) on the feeder operation panel. If the feeder is set properly, the LEDs turn on.



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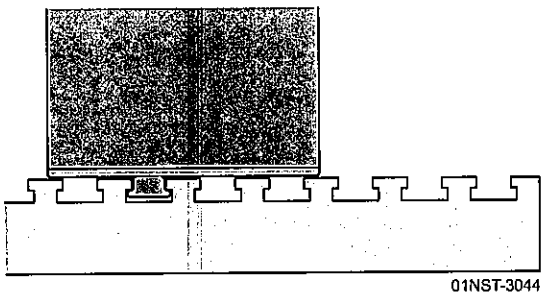
Caution: Ensure that the guide at the base of the feeder is inserted into the slot. If it is not inserted correctly on the feeder pallet, there is the danger of the feeder colliding with the placing head.



01NST-3044

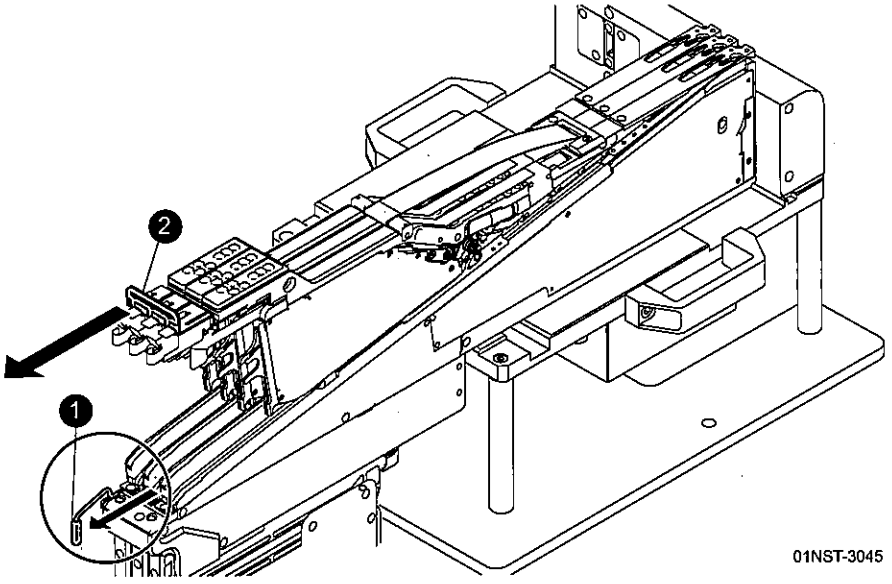
3.3.3 Removing procedure

When carrying a feeder, have one or more cassettes set and always hold the feeder by the handle.

1. While pulling the feeder clamp lever (1), grasp the handle (2) at the back of the operation panel and pull back the feeder just until the positioning pins and connector are removed from their respective positions.

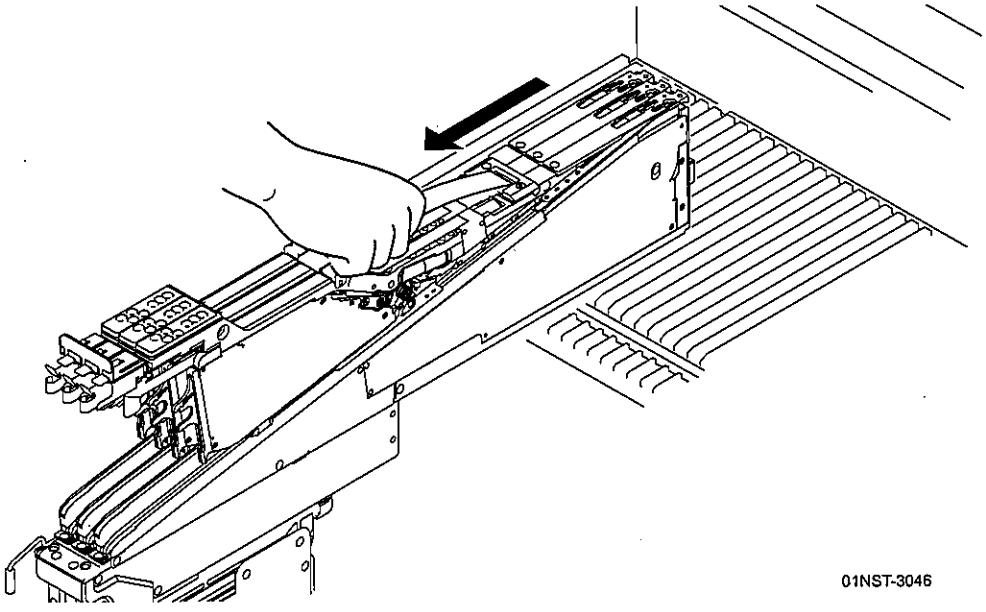
   Caution: If the feeder is removed forcibly without pulling the lever, the feeder may be damaged.

2. When the unit is on a feeder pallet, grasp the handle (2) at the back of the operation panel and gently pull back the feeder until the handle in the middle of the feeder is available.



3. Firmly grasp the handle in the middle of the HexaFeeder and pull out the feeder.

   Caution: Be sure to firmly grip the handle so the feeder does not fall after it is removed from the feeder pallet.



3.4 Attaching and Removing the Tape Setting Jig

This section explains the method for attaching and removing the tape setting jig from the feeder set stand and feeder pallets.

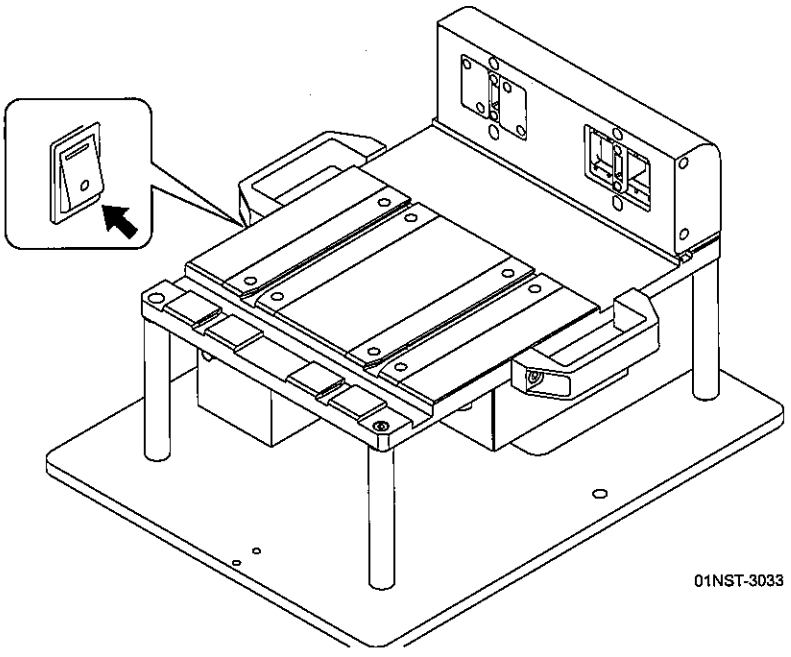
The tape setting jig is used to set carrier tape on cassettes. It is recommended to use the tape setting jig when setting carrier tape in cassettes.

3.4.1 Preparing the feeder set stand

It is recommended to use the tape setting jig when setting carrier tape in cassettes.

Prepare the feeder set stand. When using the Fujitrax Verifier compatible tape setting jig, turn on the power to the feeder set stand.

Note: Work can also be performed on feeder pallets. To supply power to feeder pallets, have it set on the machine and the machine turned on or use the offline power supply unit for feeder pallets not on a machine.

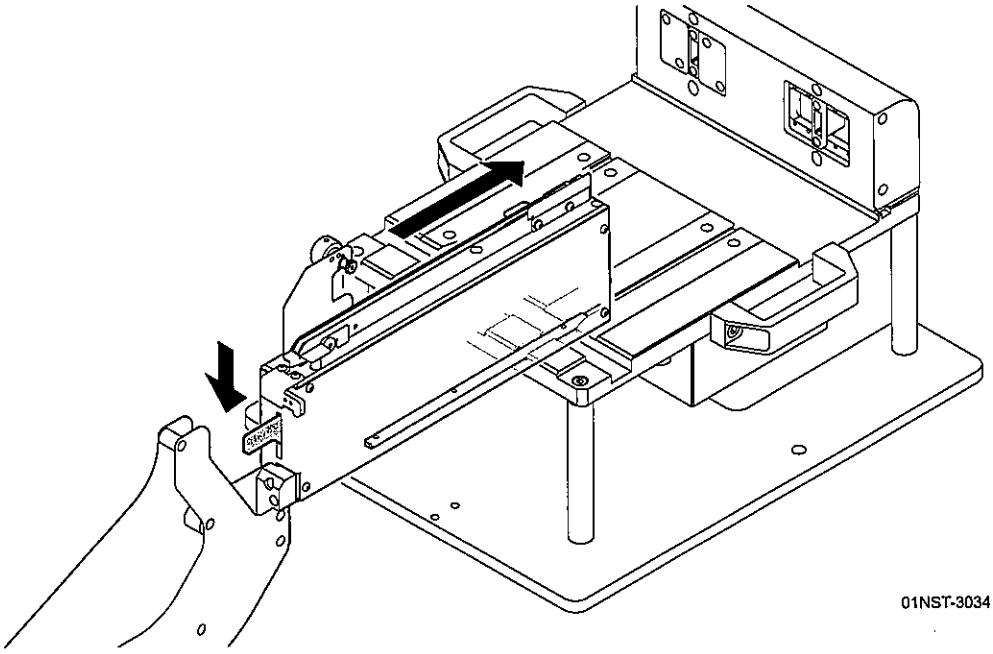


3.4.2 Attaching procedure

1. Align the jig guide with the slot on the feeder set stand and set the front of the tape setting jig on the feeder set stand.

Caution: When handling the tape setting jig, do not hold the jig by the winding gear section knob or motor (for Fujitrax Verifier compatible types). This may cause problems with operation.

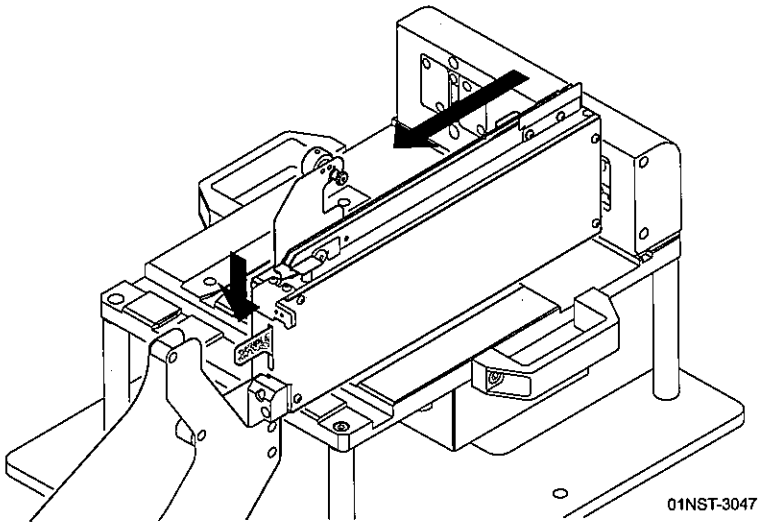
2. While pushing down the clamp lever, slide the tape setting jig fully into the feeder positioning holes. Return the lever back to its original position to lock the jig in position.



3.4.3 Removing procedure

1. While pushing down the clamp lever, remove the tape setting jig by gently pulling it out.

Caution: When handling the tape setting jig, do not hold the jig by the winding gear section knob or motor (for Fujitrax Verifier compatible types). This may cause problems with operation.

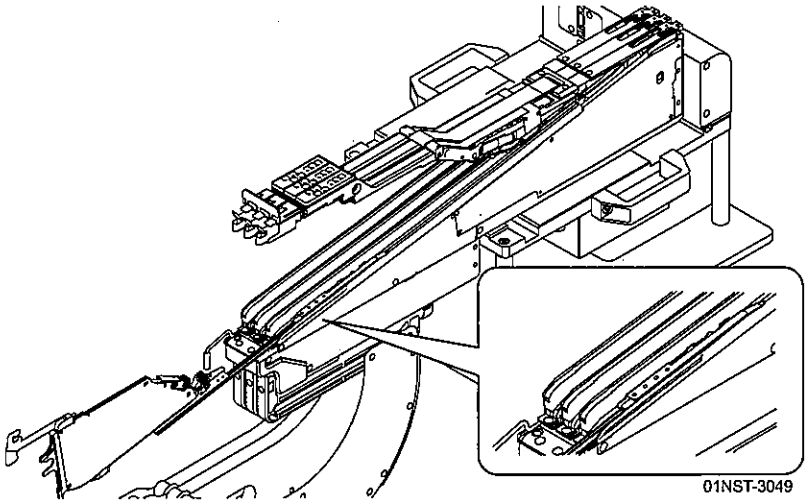


3.5 Attaching and Removing Cassettes

This section explains the method for attaching and removing cassettes from HexaFeeders set in a feeder set stand or feeder pallet.

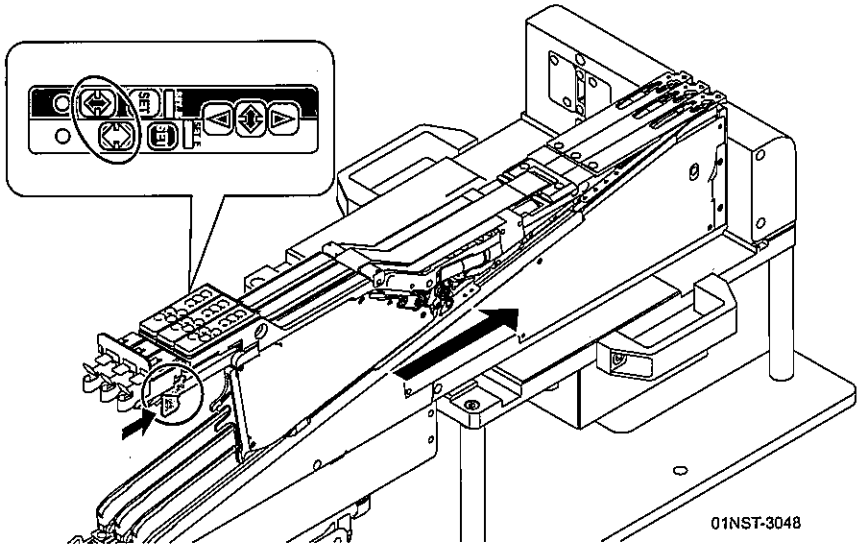
3.5.1 Attaching procedure

1. Turn on the feeder set stand. For feeder pallets, supply power to it by turning on the machine.
2. Fit the guide on the cassette into the cassette slot on the HexaFeeder.



3. Push the lower side hook and insert the cassette all of the way into the cassette slot. The cassette hook catches on the plate of the feeder handle section.
4. Push the clamp/unclamp button for the cassette on the feeder operation panel. When the cassette is clamped, the feeder condition LED for that position turns green.

Note: When exchanging cassettes during production, this work is not necessary.



5. When carrier tape is set in the cassette, insert the parts reel into the reel holder.

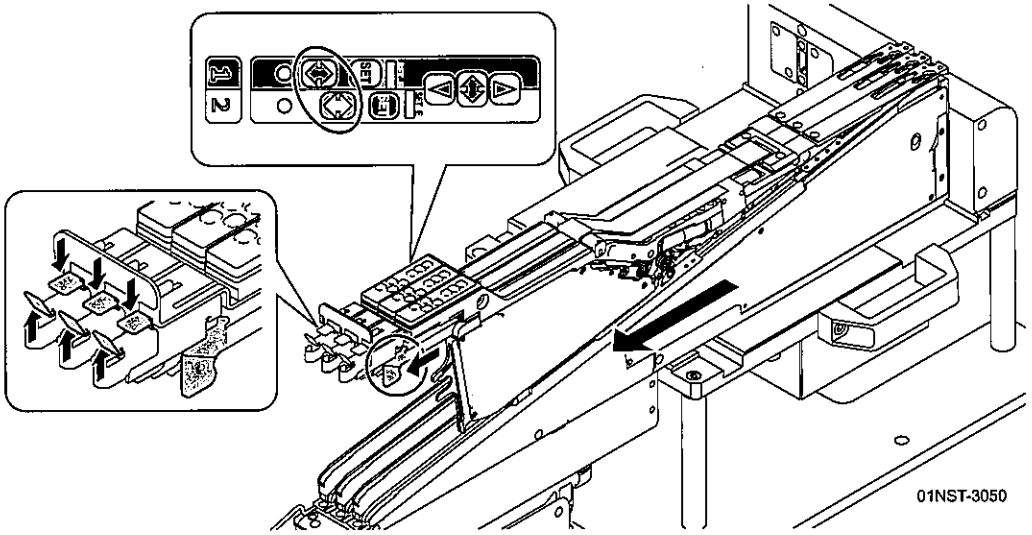
3.5.2 Removing procedure

1. Push the clamp/unclamp button for the cassette on the feeder operation panel. When the cassette is unclamped, the feeder condition LED for that position turns yellow.

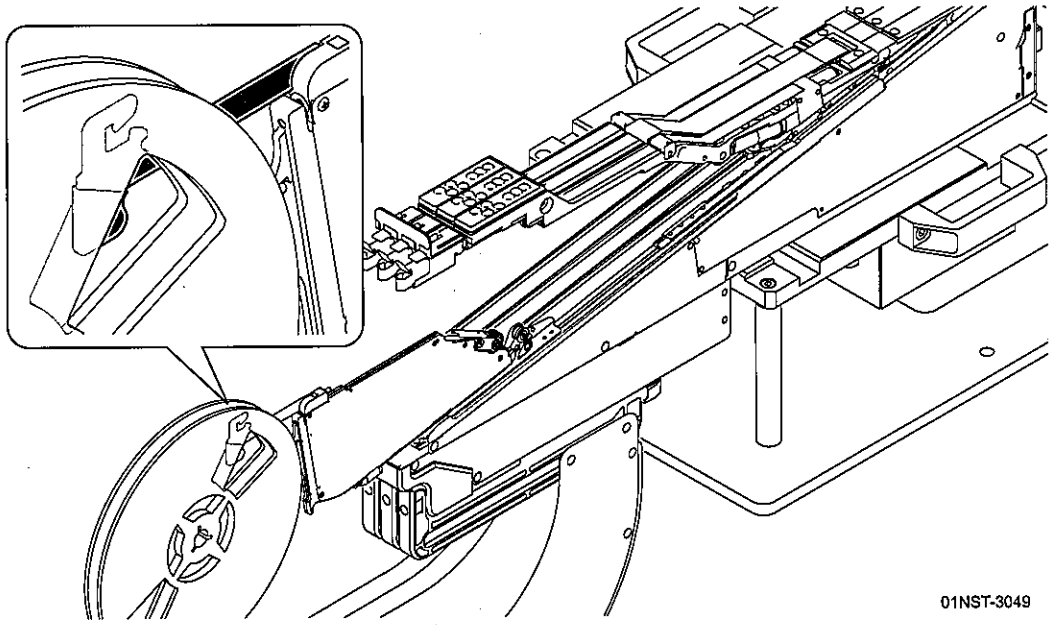
   Note: When exchanging cassettes based on cassettes exchange guidance during production, this work is not necessary.

2. Remove the cassette.

   - For subslots 1, 3, and 5, while raising the cassette unclamp lever, hold the hook lower section and gently pull out the cassette.
   - For subslots 2, 4, and 6, while pushing down the cassette unclamp lever, hold the hook lower section and gently pull out the cassette.



3. Fully pull out the the cassette from the cassette slot.
4. When carrier tape is set in the cassette, remove the parts reel from the reel holder and set the reel on the hook.

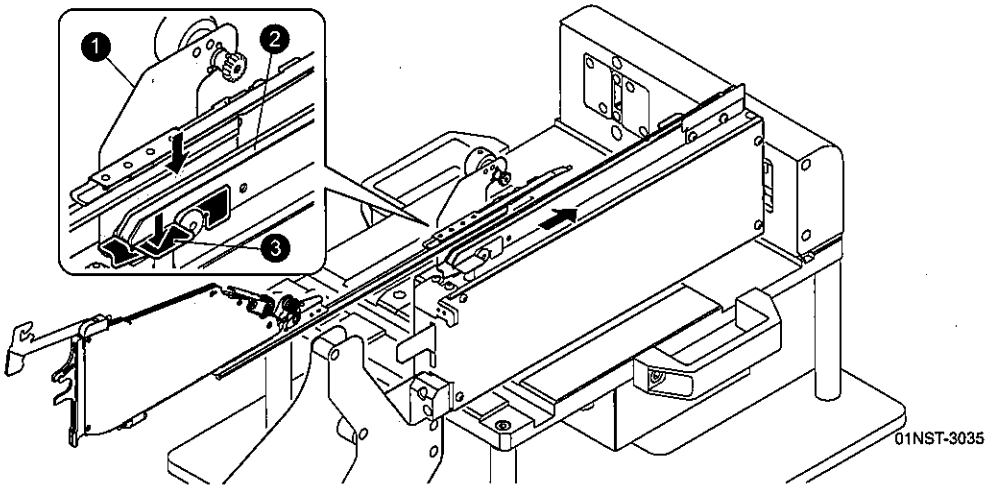


3.6 Set the carrier tape in a cassette.

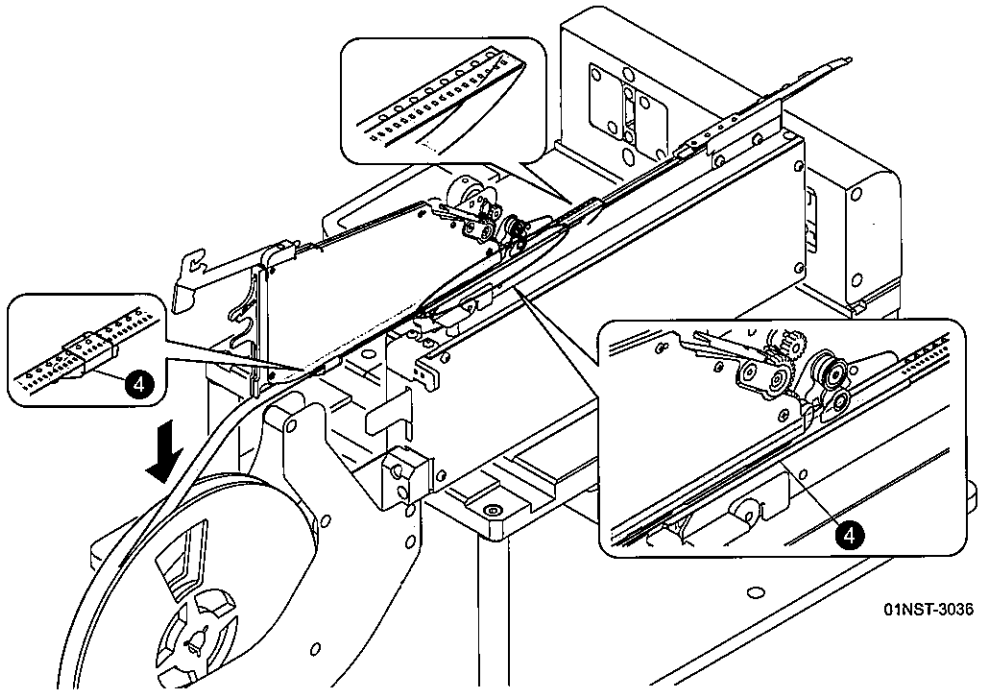
This section explains how to set carrier tape in cassettes. It is recommended to use the tape setting jig when doing this work.

3.6.1 Procedure

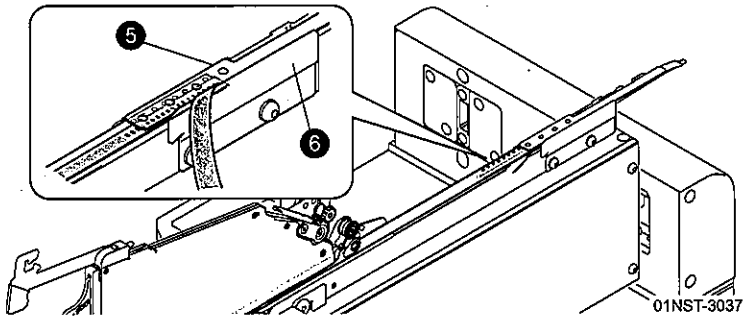
1. Set the cassette in the tape setting jig. Set the front of the cassette aligned to the plate on the tape setting stand and insert the cassette guide into the slot (2).
2. While pushing down the stopper lever (3), slide the cassette to be fully on the unit.



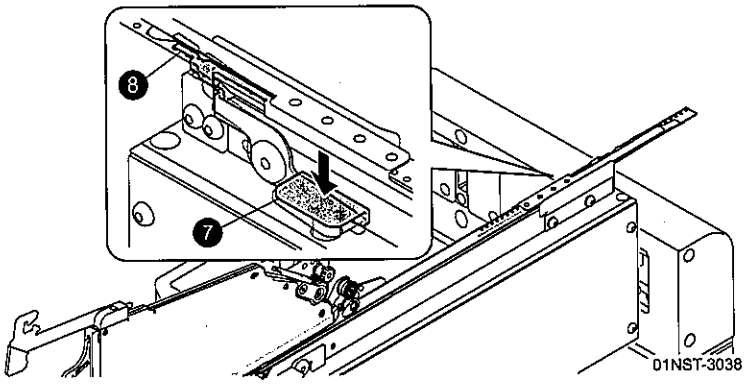
3. Set the part reel in the reel holder.
4. Set the carrier tape in the cassette. Run the carrier tape along the tape holder (4).
5. Fold the cover tape over the front of the tape like that shown below.



6. Insert the tip of the tape into the tape holder (5) and gently push the tape through. With the tape advanced a little, have the cover tape come out between the cassette front reel holder and the tape setting jig plate (6).



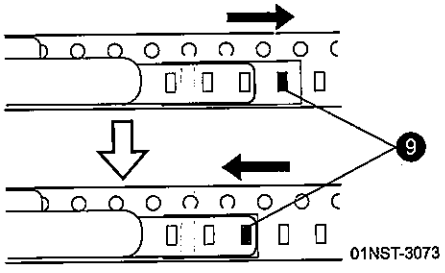
7. Move the tape until it is close to the tip of the tape holder and then lower the hook positioning lever (7) at the front of the jig. The positioning hook (8) is raised.



8. Align the carrier tape position.

   a. With the positioning hook raised, advance the carrier tape until it is possible to see the the position of the first part (9) in the carrier tape.

   b. Return the carrier tape back to the position at which the first part in the carrier tape is hidden by the front of the tape retainer.

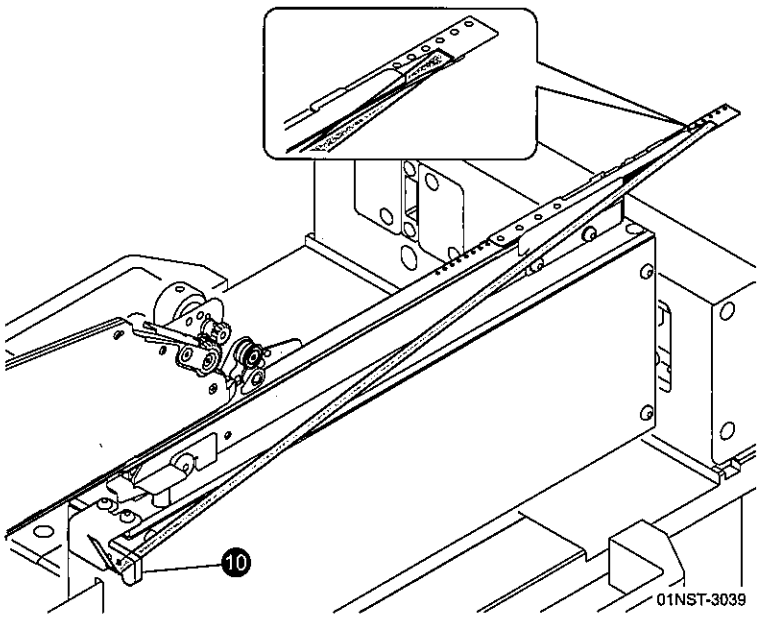


   c. Release the positioning hook lever. The positioning hook is lowered.

   d. If the positioning hook does not go into an indexing hole, move the carrier tape back little by little until the hook goes into the first indexing hole.

   e. Ensure that the first part in the carrier tape is being hidden under the tape retainer. If the first part can be seen, return the carrier tape by one indexing hole pitch back and lock into position with the hook.

9. Gently pull the cover tape through the front of the cassettes tape holder and then cut with the cutter (10) at the rear of the tape setting jig.

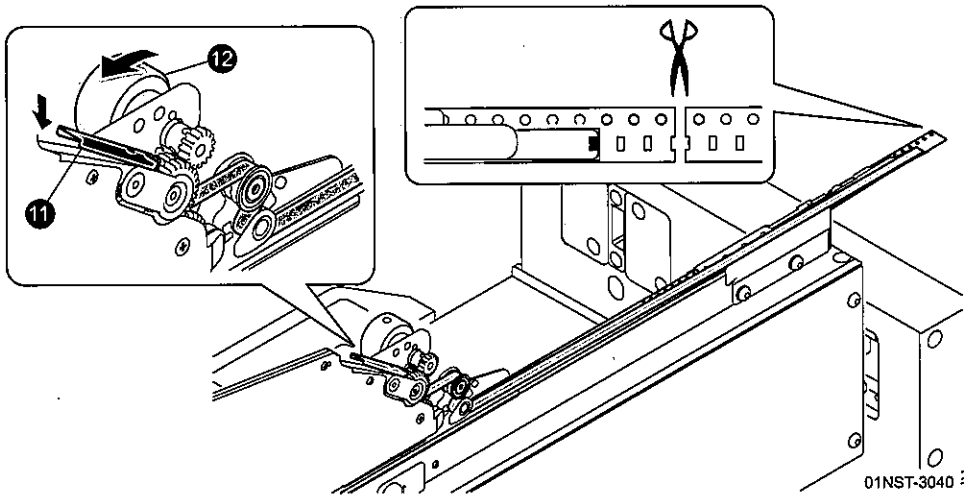


10. Run the cover tape like that shown below. Push lever (11) to open the take-up gears and insert the beginning of the cover tape between the gears.

11. Gently turn the knob (12) to wind up the cover tape.

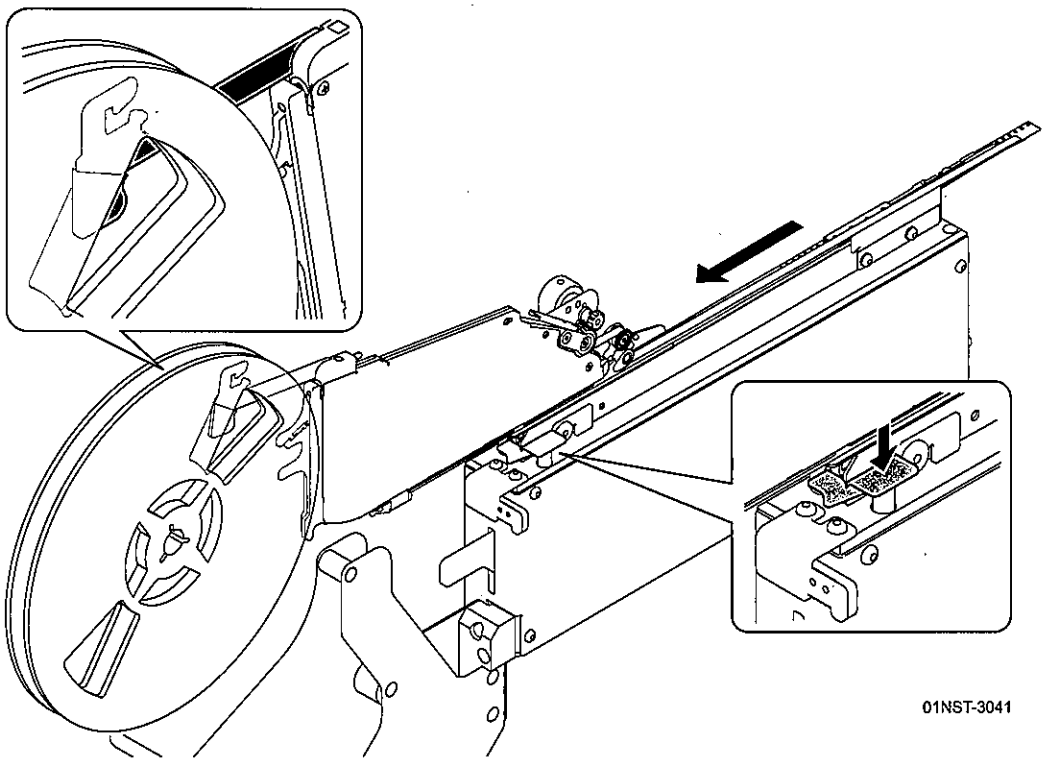
12. Use scissors to cut the carrier tape between the third to fourth indexing hole from the tip of the cassette.

Caution: Scissor must be used when cutting the carrier tape. If the tape is torn by hand, problems may occur when advancing the tape.



13.Set the parts reel on the hook.

14.While pushing down the stopper lever, slide the cassette out.



3.7 Removing a Feeder Unit

This section has the explanation for removing a feeder unit. Remove the feeder unit from the feeder base before performing maintenance on it.

Note: The values shown in the illustrations are the values (Nm) for the torque to tighten bolts. When attaching parts, use the specified torque to tighten the bolts.

1. Remove the HexaFeeder from the machine and set it on its side on a work bench with its right side facing up. (Refer to "3.3 Attaching and Removing HexaFeeders".)

   Caution: When carrying a feeder, have one or more cassettes set and always hold the feeder by the handle.

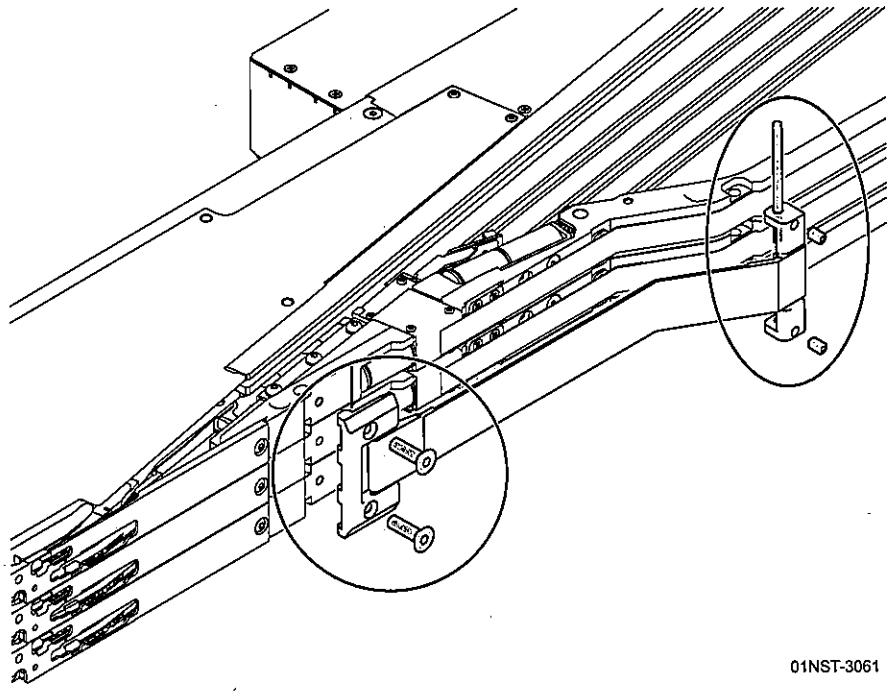
2. Remove the cassettes from the HexaFeeder. (Refer to "3.5 Attaching and Removing Cassettes".)

3. Remove the handle.

   a. Remove the two screws from the front of the handle.

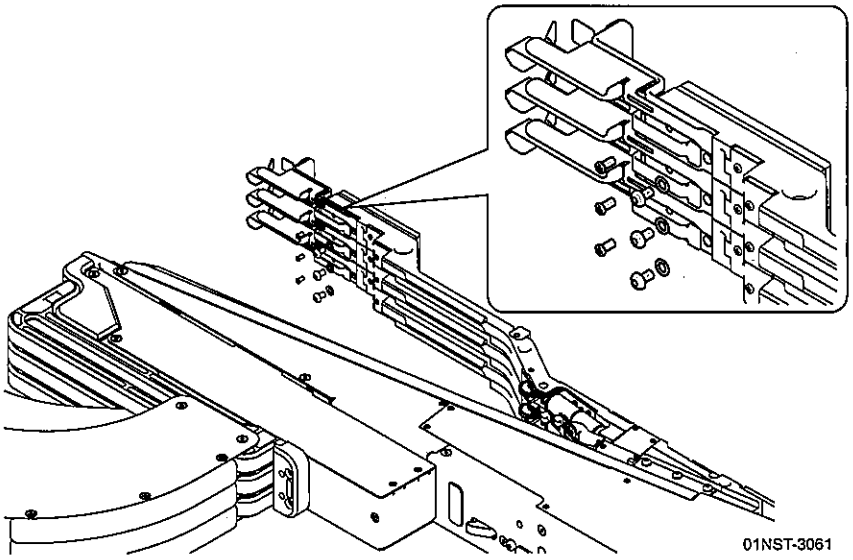
   b. Remove the two set screws at the rear side of the handle.

   c. Take out the shaft from the handle rear side and then remove the handle.

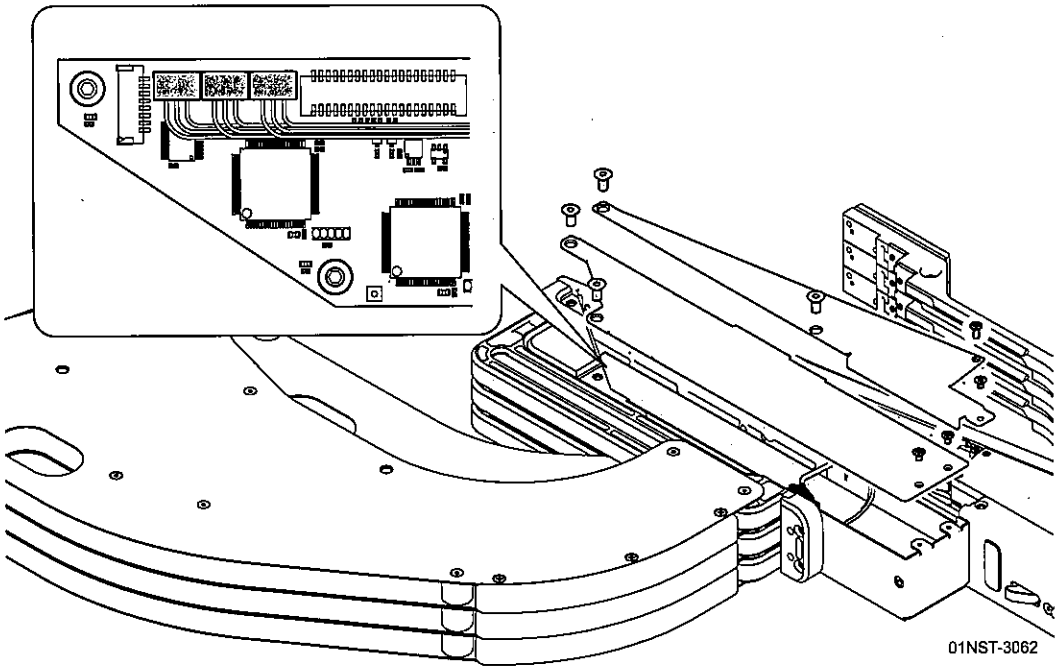


01NST-3061

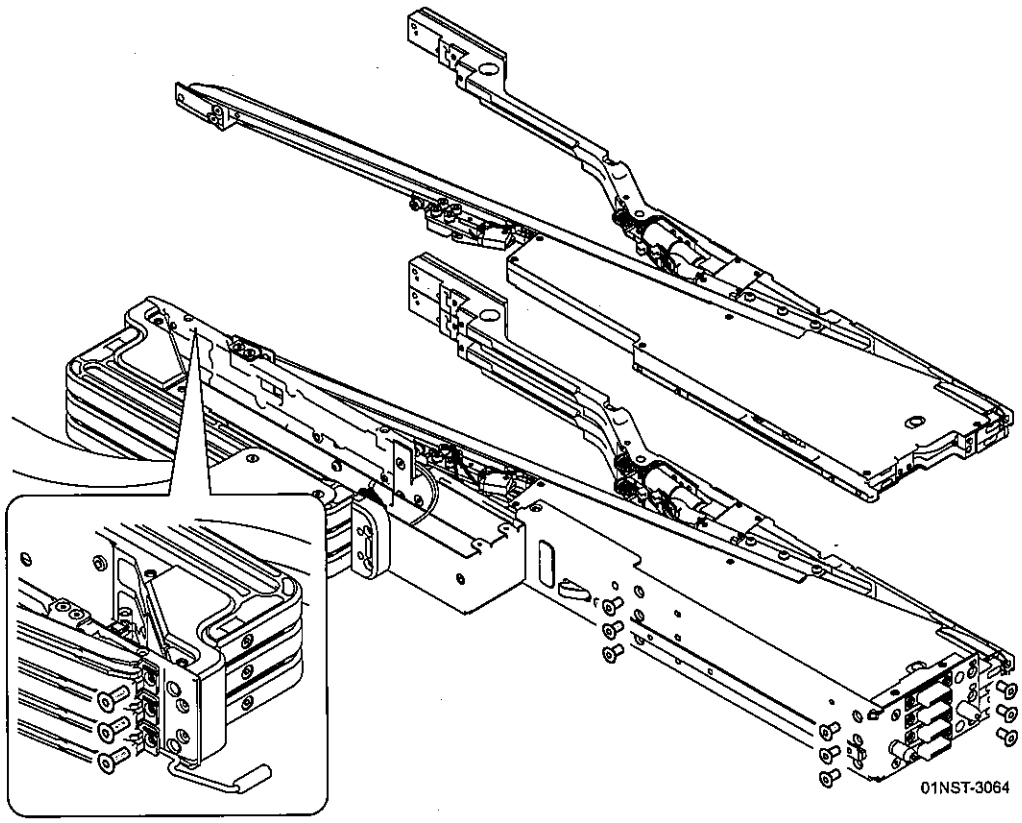
4. Remove the six screws and remove the handles at the rear side of the operation panel.



5. Remove the four screws and then remove the side cover of the feeder base that is currently sticking up.
6. Remove the four screws and then remove the side cover of the feeder base that is currently sticking down.
7. Remove the three connectors from the board in the feeder base.



8. Remove the feeder unit.
   a. Remove the three screws from the front of the feeder.
   b. Remove the six screws from the bottom of the feeder.
   c. Remove the three screws from the back of the feeder.
   d. Remove the three feeder units from the feeder base.



9. After performing maintenance, attach the feeder units back to the feeder base.
   a. Insert the positioning pins at the front and bottom of the feeder units into the appropriate holes in the feeder base.
   b. Return all the items to their original position on the HexaFeeder using the reverse procedure.

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4. Job Settings

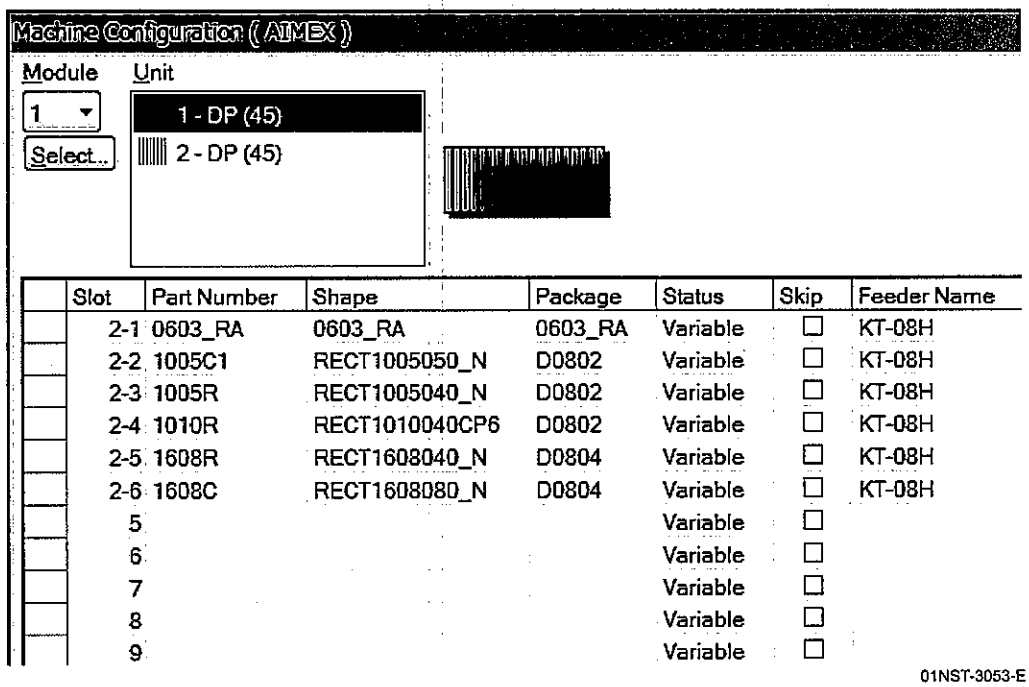
This section explains job settings for HexaFeeders.

4.1 How to Specify Settings

4.1.1 Feeder setup settings

This section explains how to allocate HexaFeeders manually.

1. Start Fuji Flexa Director.
2. Double-click the job for which HexaFeeders are to be used. Job Builder starts.
3. From the job information bar, select the [Top] or [Bottom] tab.
4. Double-click [Configuration] for the machine to which to add feeders. The [Machine Configuration] window displays.
5. Select the [Feeder Setup] tab in the [Machine Configuration] window.
6. Specify [KT-08H] for [Feeder Name]. Sub-slots for the HexaFeeder display.
7. Specify parts for each of the sub-slots.



Slot	Part Number	Shape	Package	Status	Skip	Feeder Name
2-1	0603_RA	0603_RA	0603_RA	Variable	☐	KT-08H
2-2	1005C1	RECT1005050_N	D0802	Variable	☐	KT-08H
2-3	1005R	RECT1005040_N	D0802	Variable	☐	KT-08H
2-4	1010R	RECT1010040CP6	D0802	Variable	☐	KT-08H
2-5	1608R	RECT1608040_N	D0804	Variable	☐	KT-08H
2-6	1608C	RECT1608080_N	D0804	Variable	☐	KT-08H
5				Variable	☐	
6				Variable	☐	
7				Variable	☐	
8				Variable	☐	
9				Variable	☐	

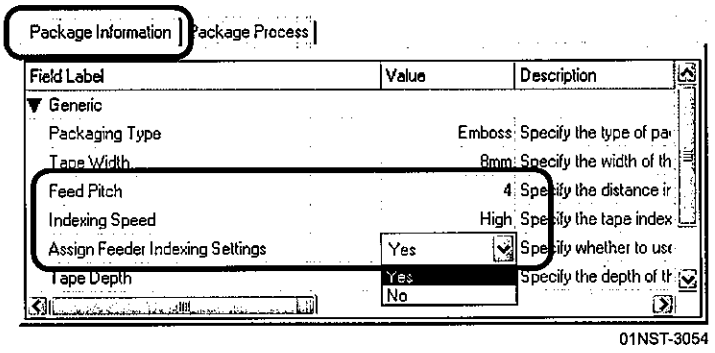
01NST-3053-E

4.1.2 Package information settings

When using HexaFeeders, specify the tape indexing pitch and indexing speed in the job. These cannot be specified on the HexaFeeder itself.

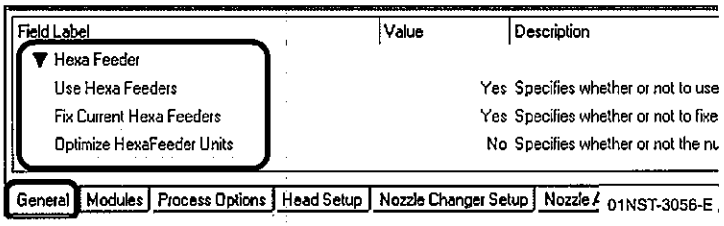
1. Start Fuji Flexa Director.
2. Double-click the job for which HexaFeeders are to be used. Job Builder starts.
3. Select the [Package Data] tab from the job information bar.
4. Double-click the package data used by the HexaFeeders. The [Package Data] window displays.
5. Select the [Package Information] tab from the [Package Data] window.
6. Specify [Yes] for [Assign Feeder Indexing Settings].
7. Specify the [Feeder Pitch] and [Indexing Speed].

Item	Contents
Feed Pitch	The pitch of the tape (mm)
Indexing Speed	Tape indexing speed (High/Low)
Assign Feeder Indexing Settings	Set whether to specify the tape pitch and indexing speed in the job (Yes/No).



4.1.3 Optimization option settings

1. Start Fuji Flexa Director.
2. Double-click the job for which HexaFeeders are to be used. Job Builder starts.
3. From the job information bar, select the [Top] or [Bottom] tab.
4. Double-click [Configuration] for the machine to which to add feeders. The [Machine Configuration] window displays.
5. Select the [General] tab in the [Machine Configuration] window.
6. Specify [Yes] for [Use Hexa Feeders] in the [Hexa Feeder] section.
7. Specify the desired setting for [Fix Current Hexa Feeders] and [Optimize HexaFeeder Units]



Item	Contents
Use Hexa Feeders	Specifies whether to use HexaFeeders (Yes/No)
Fix Current Hexa Feeders	Specifies whether to fix the position of existing HexaFeeders (Yes/No)
Optimize HexaFeeder Units	Specifies whether the number of HexaFeeders can be changed when optimizing (Yes/No)

Depending on the settings specified for [Fix Current Hexa Feeders] and [Optimize HexaFeeder Units], optimization is performed as follows. Specify settings to suit your operation.

Fix Current Hexa Feeders	Optimize HexaFeeder Units	Optimization conditions
No	No	HexaFeeders set in [Feeder Setup] are moved to the optimum positions. The number of HexaFeeders is not changed.
Yes	No	HexaFeeders set in [Feeder Setup] are not moved. The number of HexaFeeders is not changed.
No	Yes	HexaFeeders set in [Feeder Setup] are moved to the optimum positions. The number of HexaFeeders is changed as required.
Yes	Yes	HexaFeeders set in [Feeder Setup] are not moved. The number of HexaFeeders is increased as required. (The number is not decreased.)

When you want to limit the number of HexaFeeders

Specify the following setting to limit the number of HexaFeeders which can be added automatically by the optimizer.

1. Select the [Feeder Setup] tab in the [Machine Configuration] window.
2. Set the upper limit for HexaFeeders in the [Qty] field of [KT-08H].

Optimization of HexaFeeders

HexaFeeders are added automatically if there are insufficient slots. HexaFeeders are not allocated if there are sufficient slots.

If you wish to use HexaFeeders when there are still sufficient slots, optimize after specifying the following settings.

1. Allocate the desired HexaFeeders in the [Feeder Setup].
2. Specify [Yes] for [Fix Current Hexa Feeders].
3. Optimize.

4.2 Loading Conditions

This section explains feeder pallet loading conditions when using HexaFeeders. Refer to this information when creating jobs.

4.2.1 Loading conditions for the ends of feeder pallets

4 slots are required to load on a feeder pallet, which means the following restrictions apply for loading HexaFeeders at the end of feeder pallets. HexaFeeders cannot be loaded at the following slots.

Machine or unit	Slot number
M3 type modules	1, 19, 20
M6 type modules	1, 44, 45
AIMEX	
AIMEX-2	
AIMEX-2S	1, 64, 65
Tray unit-LT	39, 44, 45
Tray unit-LTC	27, 44, 45
Tray unit-LTW	39, 64, 65

4.2.2 HexaFeeder slot pickup conditions

Some restrictions apply for part pickup at the end of feeder pallets depending on the machine and head types. Slots for which HexaFeeders cannot be set are given below.

Machine	Placing head	Slot number
M3 type modules	Except G04	No restrictions
	G04	2-1, 18-5, 18-6
M6 type modules (Excluding M6-2SP)	Except G04	No restrictions
	G04	2-1, 2-2, 43-5?43-6
M6-2SP modules	Except G04	42-6, 43-5, 43-6
	G04	2-1, 2-2, 41-6?42-5?42-6?43-3?43-4?43-5?43-6

4.2.3 Adjacent feeder loading conditions

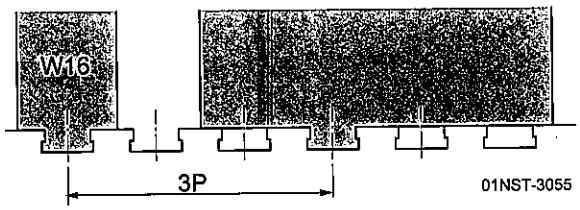
This section explains the required pitches when loading other Fuji Intelligent Feeders next to HexaFeeders.

Note: "Left" and "Right" in the table below indicate feeder set positions as viewed from the operator side. The numbers in the table (1P, 2P, 3P etc.) indicate the number of slots required from the center of one feeder to the center of the next.

Feeder type	Left	Right
HexaFeeder	4P	4P
W04b, W04f, W08, W08b, W08c, W08f	2P	3P
W8 13"	3P	4P
W12	3P	4P
W16	3P	4P
W24	4P	5P
W32	4P	5P
W44	4P	5P
W56	5P	6P
W72	6P	6P
W88	6P	7P
W104	7P	8P

Table explanation example

On the left side of the HexaFeeder is a W16 feeder (viewed from operator)



4.2.4 Maximum loadable quantity of HexaFeeders

The maximum number of HexaFeeders which can be loaded on each machine is given below.

Machine	Maximum quantity
M3 type modules	5
M6 type modules	11
AIMEX	22
AIMEX-2	22
AIMEX-2S (twin robots)	32
AIMEX-2S (single robot)	12
AIMEX-2S (single robot) + tray unit-LTW (x 1)	7
AIMEX-2S (single robot) + tray unit-LTW (x 2)	2

MEMO:

5. Performing Production

5.1 Specifying Machine Settings

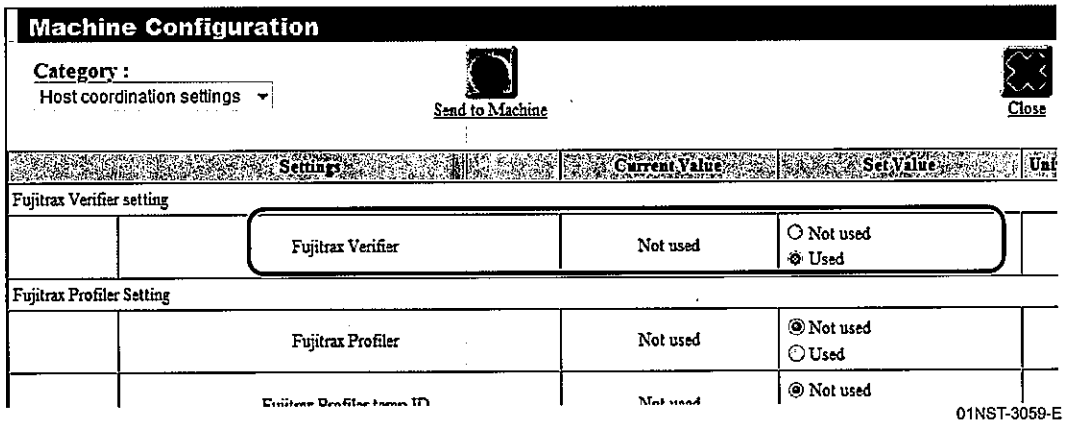
This section explains settings which need to be specified when using HexaFeeders.

5.1.1 Settings When Using Fujitrax Verifier

Note: For details regarding Fujitrax Verifier settings, refer to the Fujitrax Verifier User Manual.

When using Fujitrax Verifier, specify the following settings.

1. Start Accessory Software.
2. Click [Machine Configuration] from [Menu].
3. Select [Host coordination settings] from the [Category] drop-down list.
4. Specify "Used" for [Fujitrax Verifier].
5. Click [Send to Machine].



Regarding verification of HexaFeeders

Individual cassettes are verified on HexaFeeders. Create data linking cassettes and parts. By loading a cassette which has been linked to a part on a HexaFeeder, production using Fujitrax Verifier can be performed.

Important points

When [ON (look for Removable)] or [ON (Look for Removable) and Splicing] is set for [Dynamic Alternate Feeder], you cannot use W08 feeders as an alternate feeder for a HexaFeeder and vice-versa. Specify alternate feeders for each feeder type.

5.2 Work During Production

This section explains the work required on HexaFeeders during production such as changeover and parts supply.

5.2.1 Points of Caution

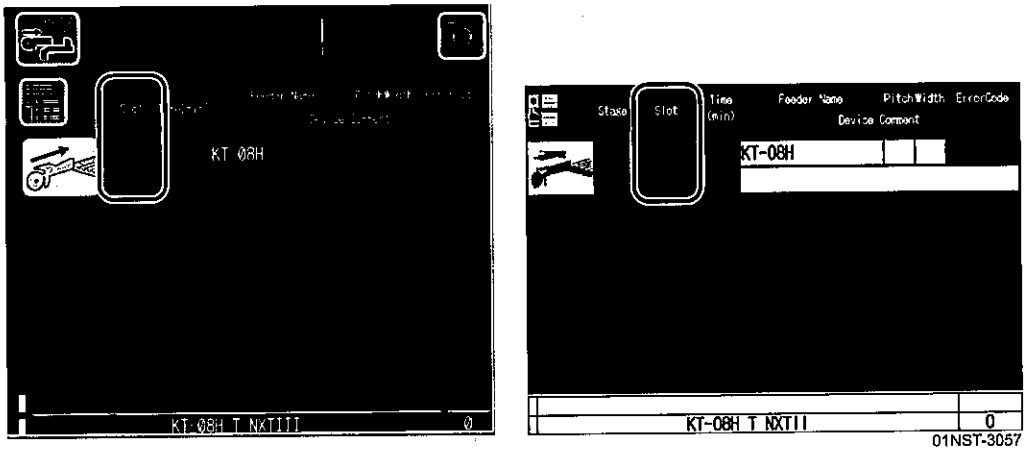
- Do not hit or drop feeders when carrying or setting them. Shocks may cause operational failure or damage.
- When carrying a feeder, have one or more cassettes set and always hold the feeder by the handle. Failure to follow this may deform the feeder.
- Do not touch the connector section at the end of the feeder. If the connector gets dirty, poor contact may prevent communication.
- When removing cassettes from a HexaFeeder loaded on the machine, check the [SET E] LED for the applicable slot on the HexaFeeder operation panel.
- When the carrier tape is set in the feeder, do not pull on the carrier tape or cover tape. Pulling the carrier or cover tape can damage the feeder.

5.2.2 Loading HexaFeeders

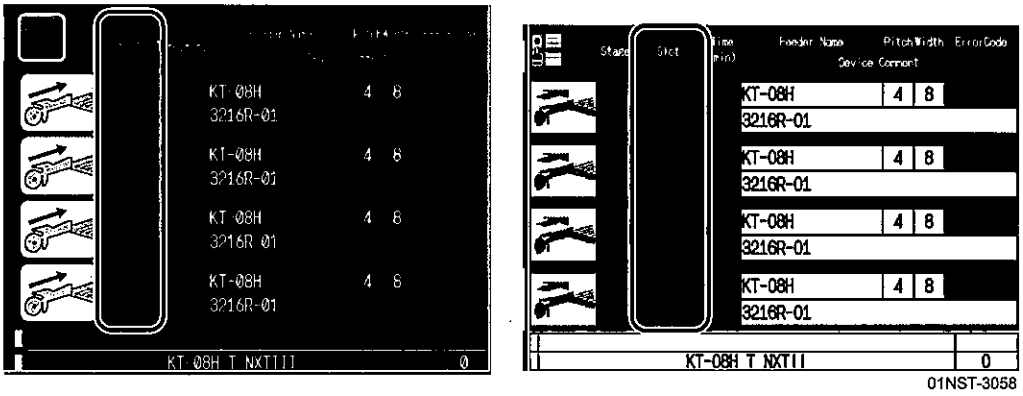
This section explains how to load HexaFeeders when starting production.

Note: When setting HexaFeeders in slots next to W04 or W08 feeders, lower the reel holder on the W04 or W08 feeder.

1. If a HexaFeeder is not loaded on the machine when production is started, guidance to load the feeder displays.
2. Load the HexaFeeder on the slot displayed in the guidance. (Refer to "3.3 Attaching and Removing HexaFeeders".)



3. If a cassette is not set in the HexaFeeder, guidance to set cassettes displays.
4. Set a cassette loaded with parts into the subslot on the HexaFeeder which is displayed in the guidance. Cassettes are clamped automatically. (Refer to "3.5 Attaching and Removing Cassettes".)



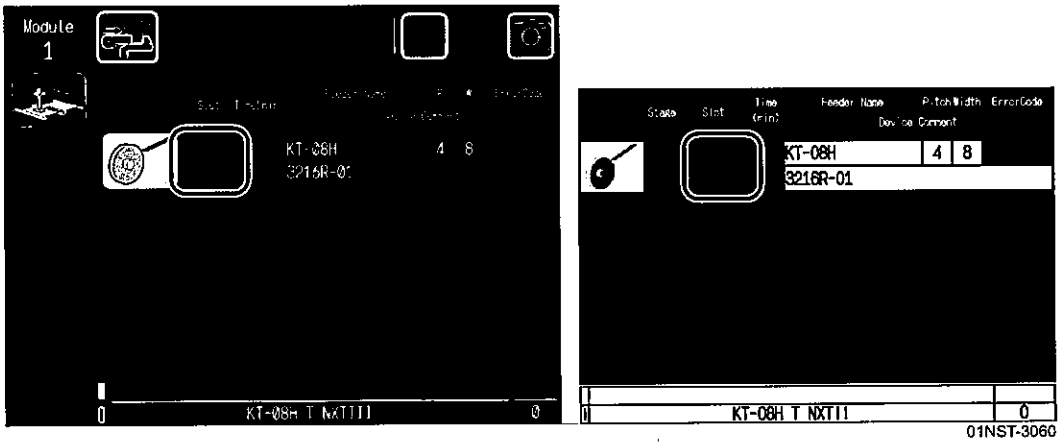
5. Push the SET button for the subslot to which you set the cassette. The SET button is on the HexaFeeder operation panel. If the cassette is set correctly, the feeder status LED turns green.

Note: If Fujitrax Verifier is being used, this work is not required.

5.2.3 Exchanging cassettes

This section explains how to exchange cassettes during production.

1. If a part runs out during production, guidance to exchange cassettes displays.



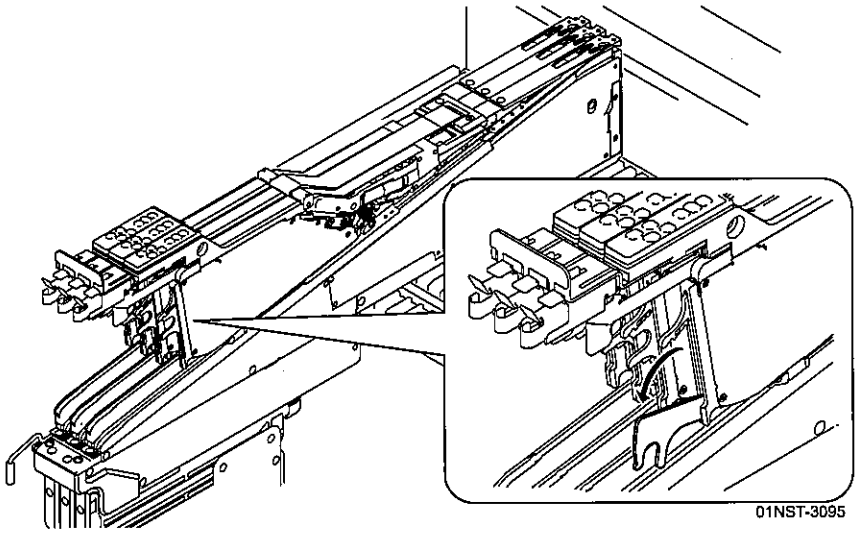
2. Cassettes which need to be exchanged are unclamped automatically. Remove the cassettes from the HexaFeeder.?Refer to "3.5 Attaching and Removing Cassettes".?
3. Set a cassette loaded with parts into the subslot on the HexaFeeder which is displayed in the guidance. Cassettes are clamped automatically.
4. Push the SET button for the subslot to which you set the cassette. The SET button is on the HexaFeeder operation panel. If the cassette is set correctly, the feeder status LED turns green.

Note: If Fujitrax Verifier is being used, this work is not required.

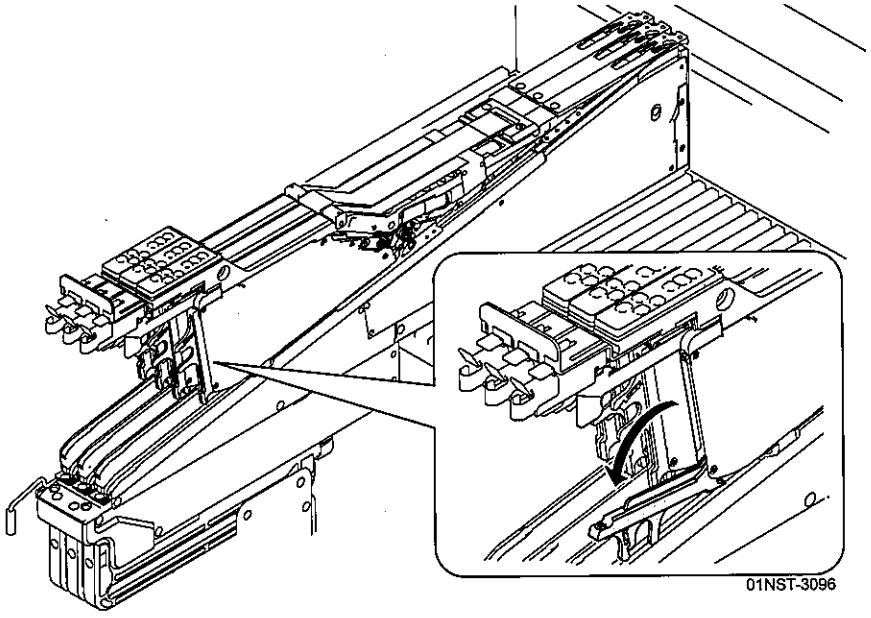
5.2.4 Disposing of cover tape

This section explains how to dispose of cover tape. This work can be performed with the cassette set on the HexaFeeder.

If the cover tape cannot be contained in the cassette during production, the plate on the cover drops. Dispose of the cover tape as given below.



1. Open the cover at the rear of the cassette.



2. Remove the cover tape from the storage section.
3. To remove cover tape connected to carrier tape being used in production, cut it with scissors.

   Caution: Do not pull on cover tape that is connected to carrier tape.

4. Close the cover at the rear of the cassette.

6. Preventive Maintenance

This section explains regular work such as cleaning, lubrication and replacement of consumable parts, which are important for proper machine maintenance.

Note: The values shown in the illustrations are the values (Nm) for the torque to tighten bolts. When attaching parts, use the specified torque to tighten the bolts.

6.1 Important points regarding HexaFeeders

- Do not hit or drop feeders when carrying or setting them. Shocks may cause operational failure or damage.
- When carrying a feeder, have one or more cassettes set and always hold the feeder by the handle. Failure to follow this may deform the feeder.
- Do not touch the connector section at the end of the feeder. If the connector gets dirty, poor contact may prevent communication.
- When removing feeders, it is essential that the clamp lever is pulled back all of the way and kept in that condition when the feeder is pulled out from the feeder pallet or feeder inspection jig. If the clamp lever is not completely pulled back, it is possible that the power to the feeder is not disconnected. If the feeder is removed with power still being supplied, the connector can become bad and the internal feeder board can be damaged.

6.2 Maintenance Checklist

6.2.1 Periodic maintenance

Operator work

Item	Maintenance frequency
Clean feeder mark	Daily (every 24 hours)
Clean sprocket	Daily (every 24 hours)
Clean splicing detection section	Daily (every 24 hours)
Clean communication connector	Monthly (every 700 hours)
Clean cover tape take-up section	Monthly (every 700 hours)

Maintenance performed by maintenance personnel

Item	Maintenance frequency
Lubricating feeder unit gears	Every 3 months (2,000 hours)
Lubricating cover tape take-up gears	Every 3 months (2,000 hours)
Lubricating cam shaft of feeder unit lifter section	Every 6 months (4,000) hours
Lubricating guide of feeder unit lifter section	Every 6 months (4,000) hours

6.2.2 Replacing Consumable Parts

Consumable parts	Replacement period
Tape retainer	When tape retainer is deformed
Cassette guide	When cassette guide is deformed
Fuses on control board inside feeder base	When fuses blow
Fuses on servo board in feeder unit	When fuses blow

6.3 Daily (24 hours) Maintenance Tasks

6.3.1 Clean feeder mark

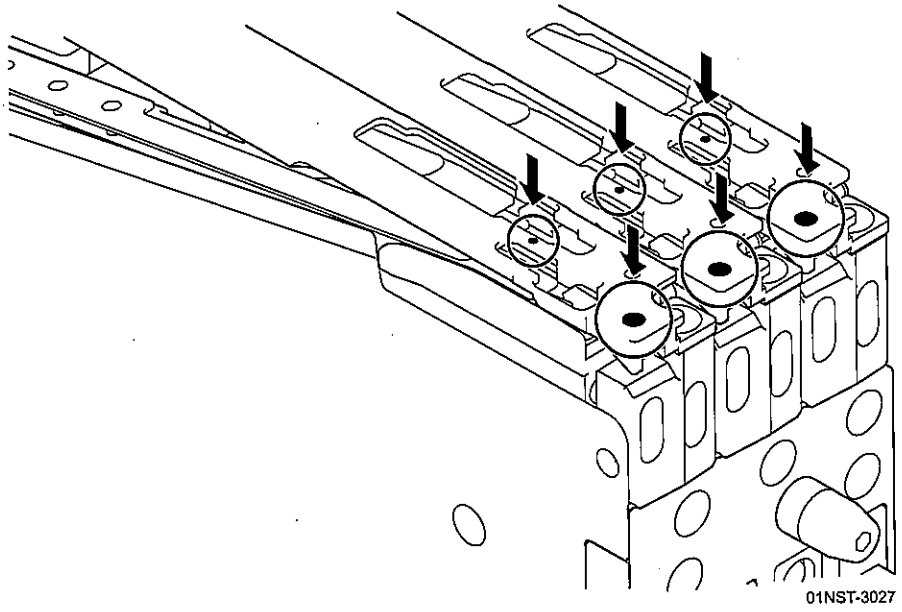
In addition to cleaning feeder marks daily, clean them if feeder mark reading errors occur or if any foreign material gets on the feeder mark.

Required items

Air gun

Procedure

1. Set the HexaFeeder in the feeder set stand. (Refer to "3.3 Attaching and Removing HexaFeeders")
2. Clean the feeder marks at the end of the feeder using compressed air. If the dirt or foreign object cannot be removed by using compressed air, wipe the mark with a soft, dry cloth. If the mark is particularly difficult to clean, apply a small bit of alcohol to the cloth and wipe the mark until clean.



6.3.2 Clean sprocket

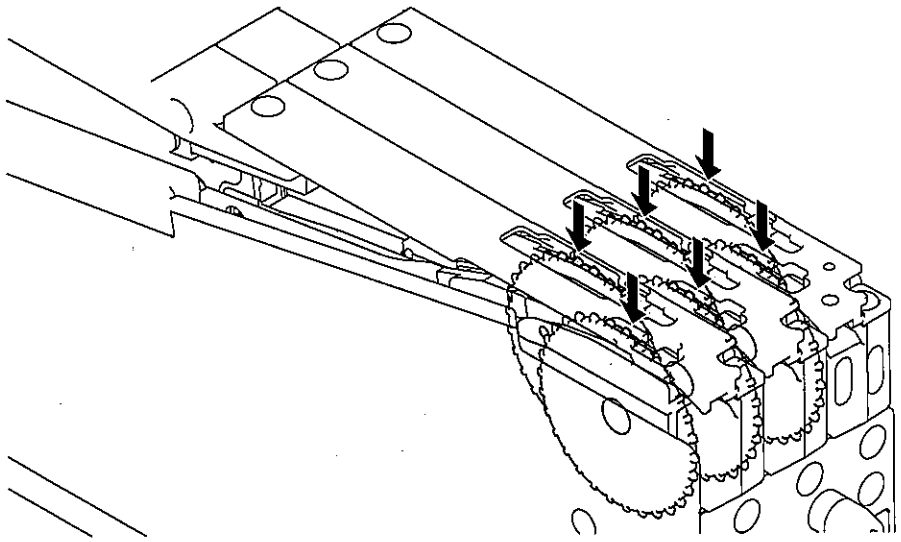
In addition to daily cleaning, clean the sprocket when tape indexing problems occur (if the red LED is on at the feeder status display).

Required items

Air gun

Procedure

1. Set the HexaFeeder in the feeder set stand. (Refer to "3.3 Attaching and Removing HexaFeeders")
2. Remove the cassettes from the HexaFeeder. (Refer to "3.5 Attaching and Removing Cassettes")
3. Remove any foreign matter such as paper tape particles from the sprocket by blowing air. Push the forward indexing button on the operation panel to rotate the sprocket and blow air on the entire sprocket.



01NST-3066

6.3.3 Clean splicing detection section

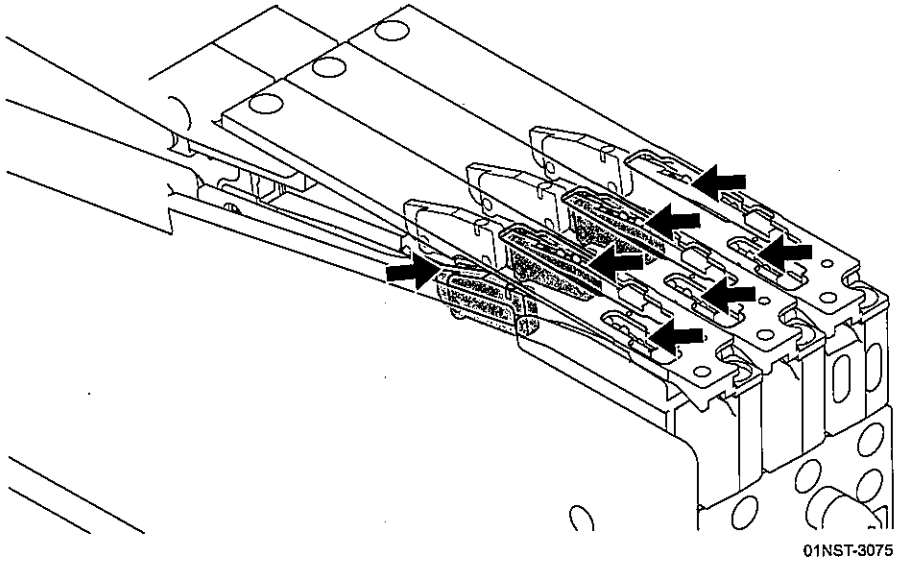
In addition to daily cleaning, clean the sprocket when operation errors occur.

Required items

Air gun

Procedure

1. Set the HexaFeeder in the feeder set stand. (Refer to "3.3 Attaching and Removing HexaFeeders")
2. Remove the cassettes from the HexaFeeder. (Refer to "3.5 Attaching and Removing Cassettes")
3. Remove any foreign matter such as paper tape particles from the tape guide opening and splicing detection sensor by blowing air.



01NST-3075

6.4 Monthly (700 Hrs)

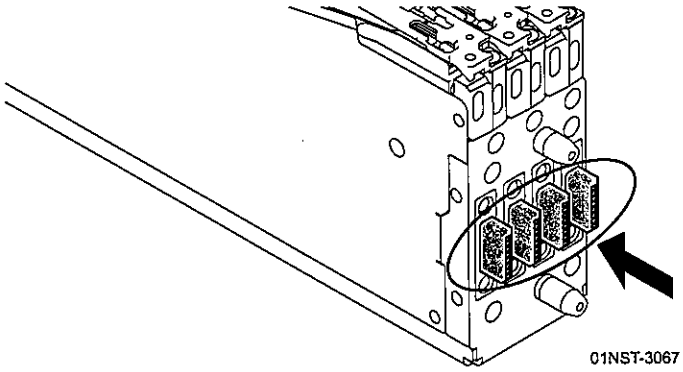
6.4.1 Clean communication connector

Required items

Air gun

Procedure

Remove any dust that has accumulated in the connector by blowing air.



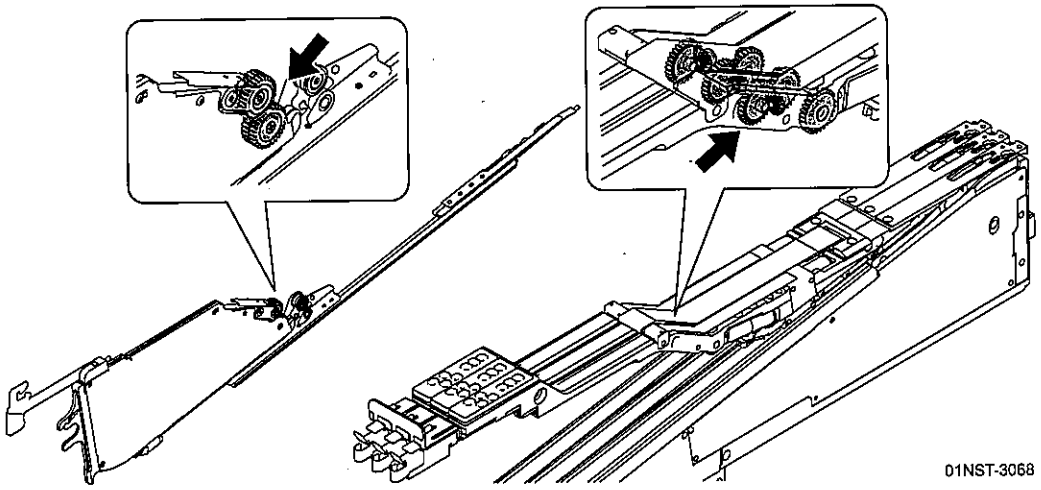
6.4.2 Clean cover tape take-up section

Required items

Air gun

Procedure

1. Set the HexaFeeder in the feeder set stand. (Refer to "3.3 Attaching and Removing HexaFeeders")
2. Remove the cassettes from the HexaFeeder. (Refer to "3.5 Attaching and Removing Cassettes")
3. Remove any foreign matter such as paper tape particles from the take-up gears of the cassette and feeder unit by blowing air. Rotate the gears manually and blow air on the entire gears.



6.5 3 Monthly Maintenance (Every 2000 Hrs)

6.5.1 Lubricating feeder unit gears

Required items

Air gun, Phillips screwdriver, torque screwdriver, Allen wrench set, torque wrench, clean cloths, cotton swabs, degreaser

Required grease	Lubrication points
AFC grease (THK)	Gears

Transparent film is used inside the feeder units. If the adhesion of the film is weak, use new film.

Part name	Drawing
Tape sticker	2MGLFA0811**
Tape sticker	2MGLFA0747**
Tape sticker	2MGLFA0863**

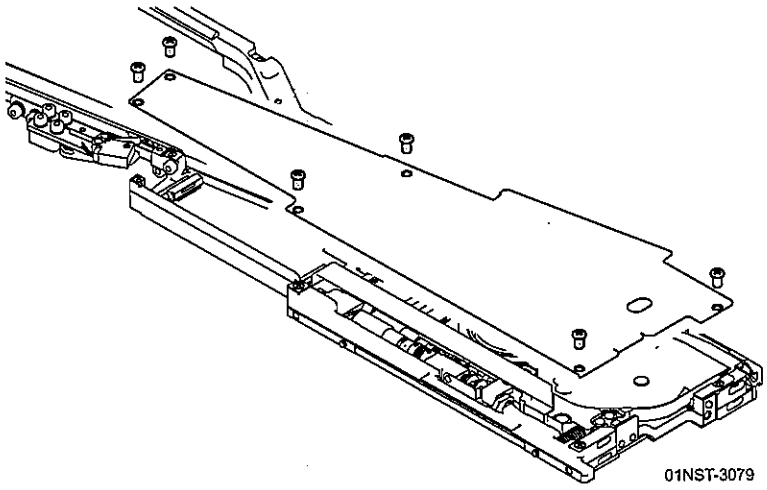
Procedure

Remove the feeder unit from the feeder base. (Refer to"3.7 Removing a Feeder Unit")

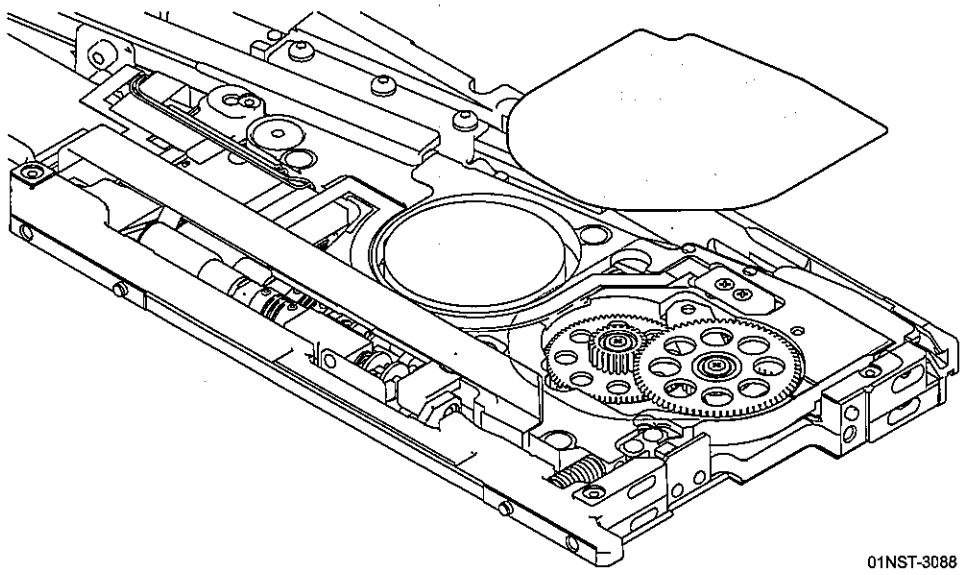
Procedure for applying grease to the right side gears

1. Remove the 6 screws and remove the right cover from the feeder unit.

Caution: When touching the feeder during or immediately after production, beware of heat near the feeder motor and circuit board. Also, keep all tools away from the flat cable inside the feeder unit. Tools can easily damage the cable.

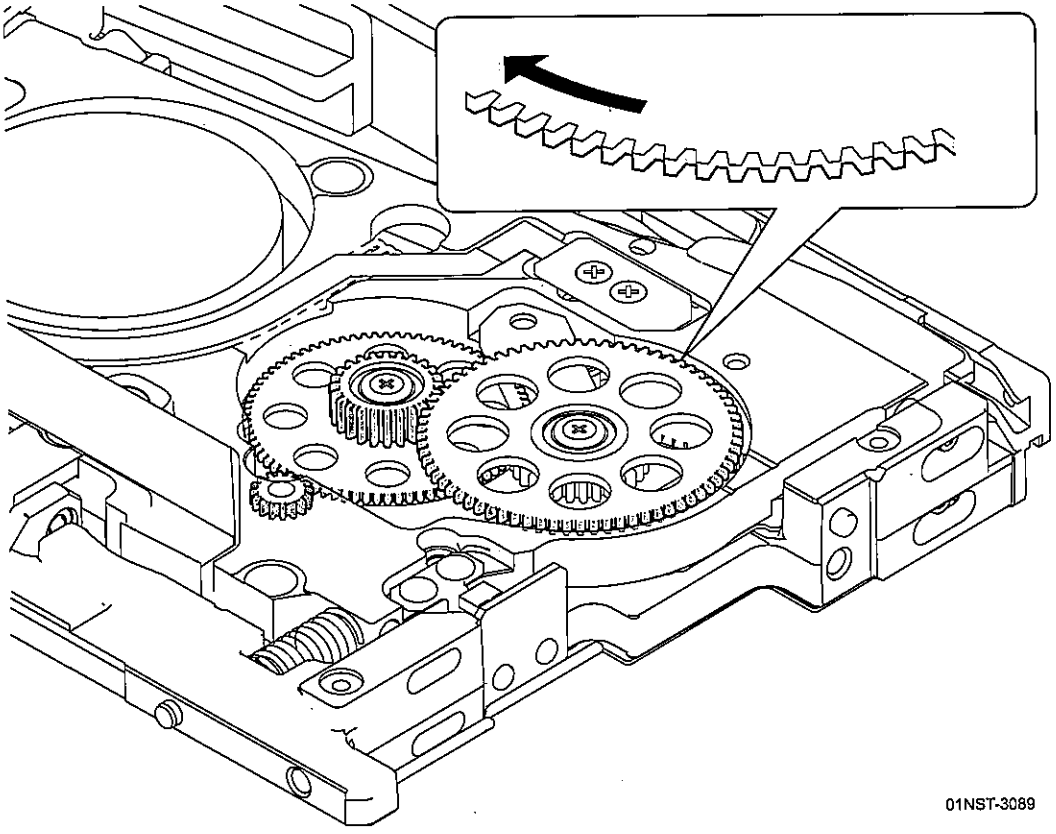


2. Remove the film attached to the gears by hand.



01NST-3088

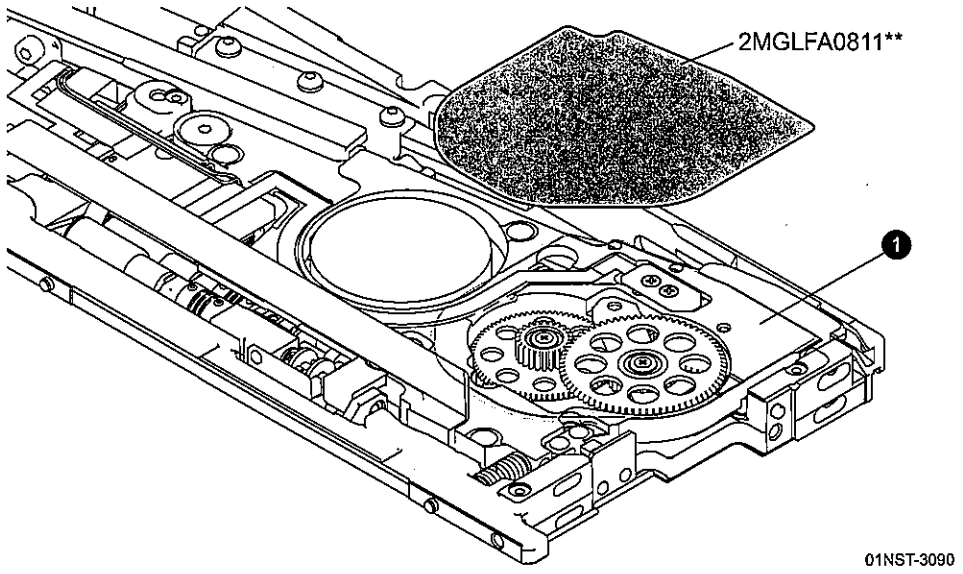
3. Lightly apply grease to the teeth of the gears using your finger or cotton swab. To apply to the gears, contact the teeth with your finger or cotton swab and rotate the gear 2 to 3 times. Wipe off any excess grease from the sides of the gear.



01NST-3089

4. If grease gets on any items other than the gears, wipe off the grease with a clean cloth or cotton swab.

5. Apply degreaser to a clean cloth and clean the surface of the gears to which the film is attached.
6. Attach the film to the gears. If the adhesion of the film is weak and it cannot be attached, use a new film.

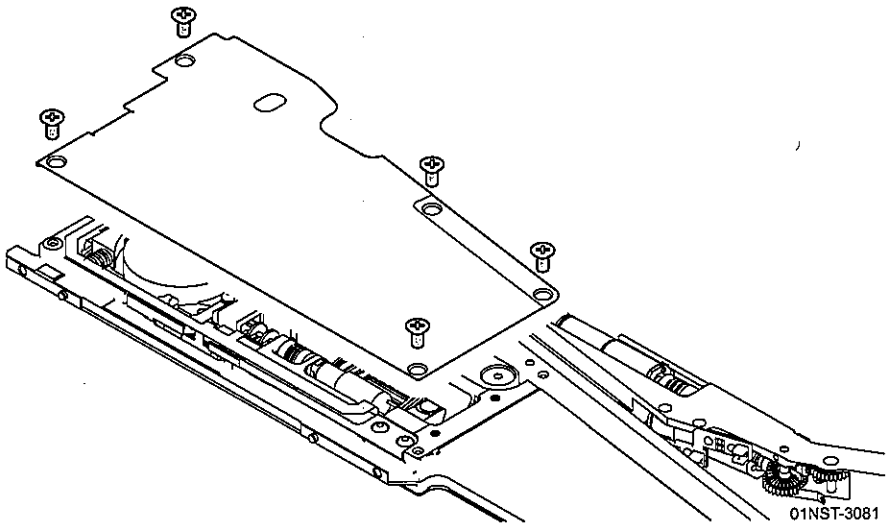


7. Attach the feeder unit right cover.

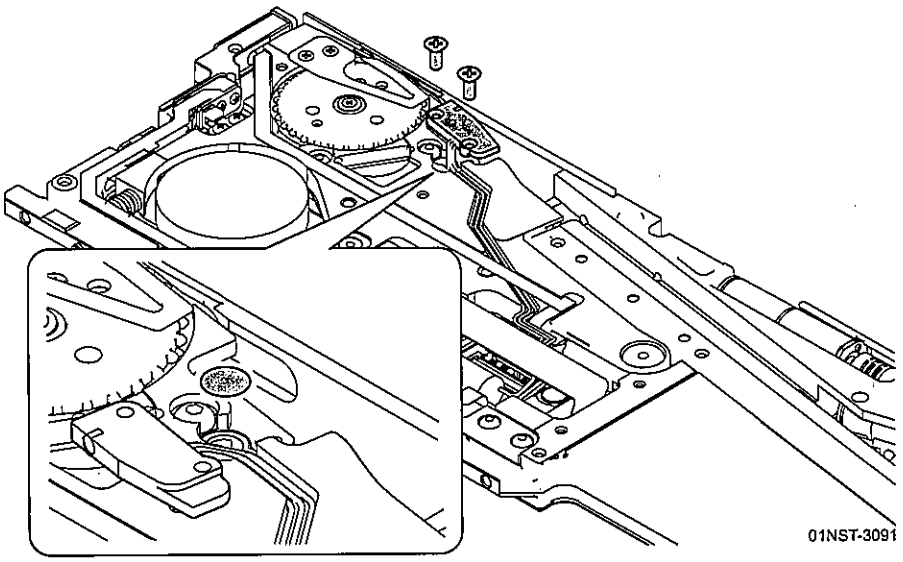
Procedure for applying grease to the left side gears

1. Remove the 5 screws and remove the left cover from the feeder unit.

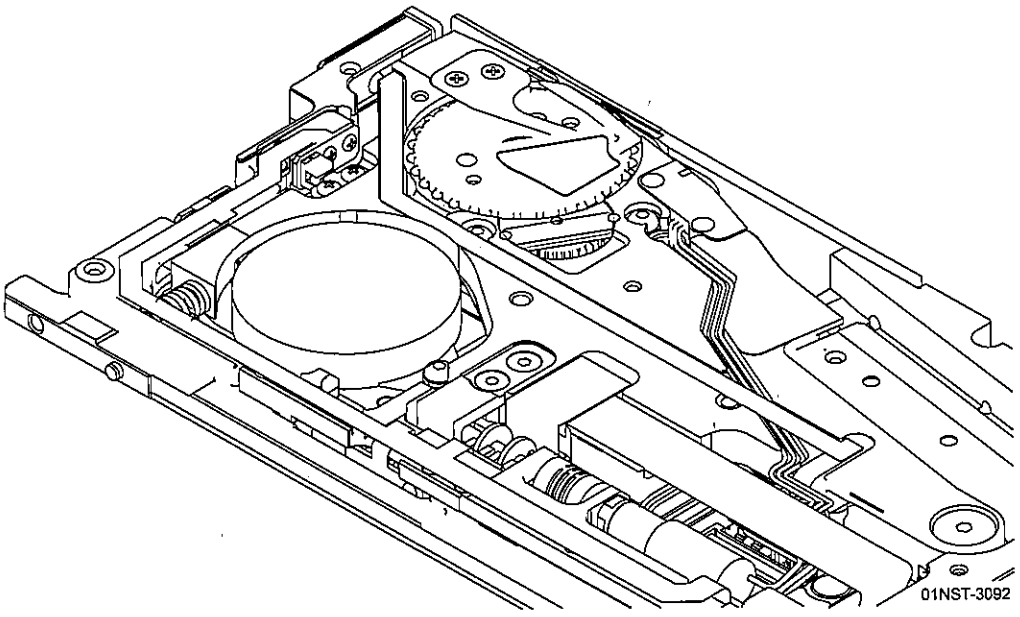
Caution: When touching the feeder during or immediately after production, beware of heat near the feeder motor and circuit board. Also, keep all tools away from the flat cable inside the feeder unit. Tools can easily damage the cable.



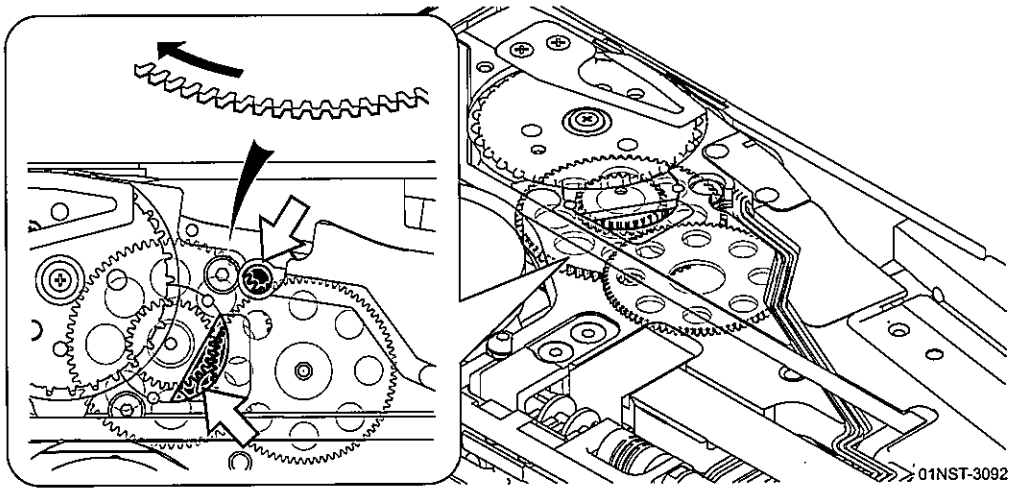
2. Remove the sheet under the splicing detection sensor.
   a. Remove the 2 screws securing the splicing detection sensor.
   b. The splicing detection sensor cable is attached to the body with tape. As far as possible without detaching the cable from the tape, move the sensor to a position in which it is not in the way of removing the sheet under the sensor.
   c. Remove the sheet under the splicing detection sensor.



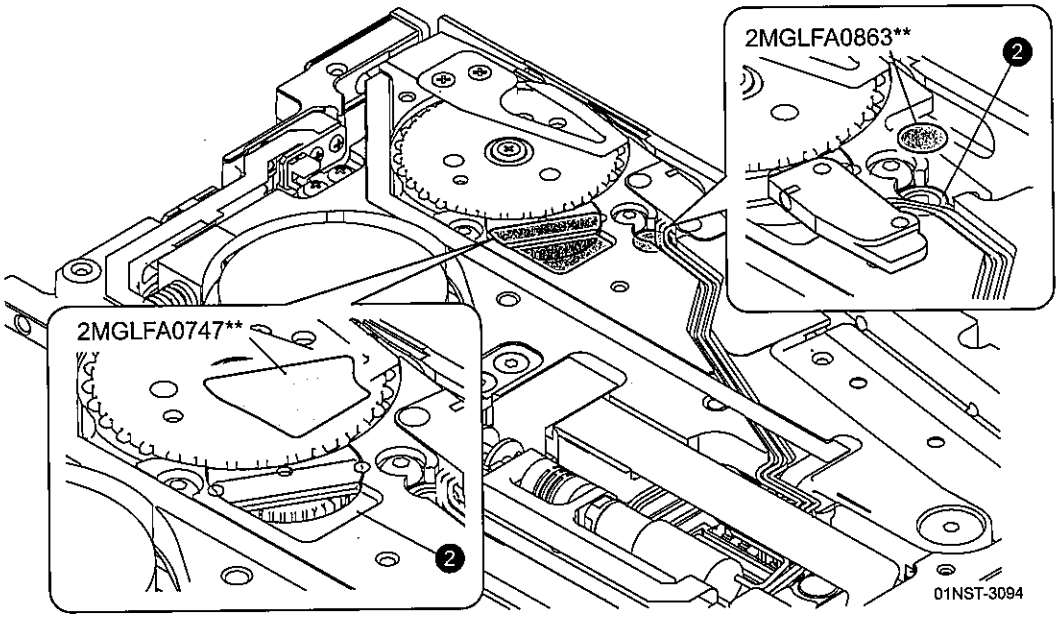
3. Remove the film from the side of the sprocket.



4. Lightly apply AFC grease to the teeth of the gear through the opening revealed by removing the film using a clean cotton swab. To apply to the gear, contact the teeth with the cotton swab and rotate the gear 2 to 3 times. Rotate the sprocket to rotate the gear. Wipe off any excess AFC grease from the sides of the gear with a clean cotton swab.



5. If grease gets on any other items, wipe off the grease with a clean cloth or cotton swab.
6. Apply degreaser to a clean cloth and clean the surfaces (2) to which the films are attached.
7. Attach the 2 films. If the adhesion of the film is weak and it cannot be attached, use a new film.



8. Attach the splicing detection sensor.
9. Attach the feeder unit left cover.

6.5.2 Lubricating the feeder unit cover tape take-up gears

Required items

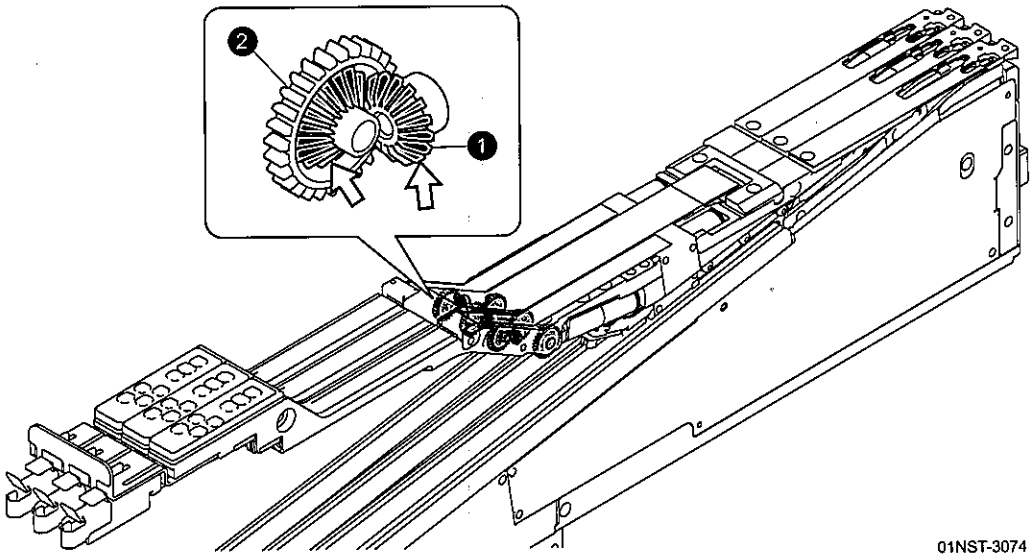
Clean cotton swabs

Required grease	Lubrication points
AFC grease (THK)	Gears

Procedure

There are 2 sets of gears (as shown in the figure below) for taking up cover tape in each feeder unit, making a total of 6 sets in each HexaFeeder.

1. Set the HexaFeeder in the feeder set stand. (Refer to "3.3 Attaching and Removing HexaFeeders")
2. Remove the cassettes from the HexaFeeder. (Refer to "3.5 Attaching and Removing Cassettes")
3. Apply AFC grease to each gear using a clean cotton swab. Do not apply grease to location (2). If grease gets on this area, wipe it off with a clean cloth or cotton swab.



6.6 6 Monthly Maintenance (Every 4000 Hrs)

6.6.1 Lubricating the cam shaft of the feeder unit lifter section

Required items

Phillips screwdriver, torque screwdriver, Allen wrench set, torque wrench, clean cloths or cotton swabs

Required grease	Lubrication points
AFC grease (THK)	Cam shaft

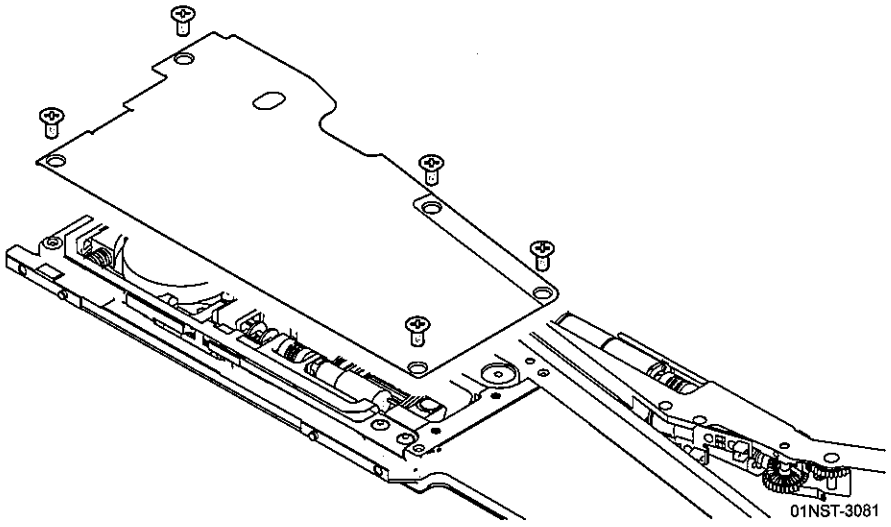
Procedure

There is 1 cam shaft for each subslot (left and right).

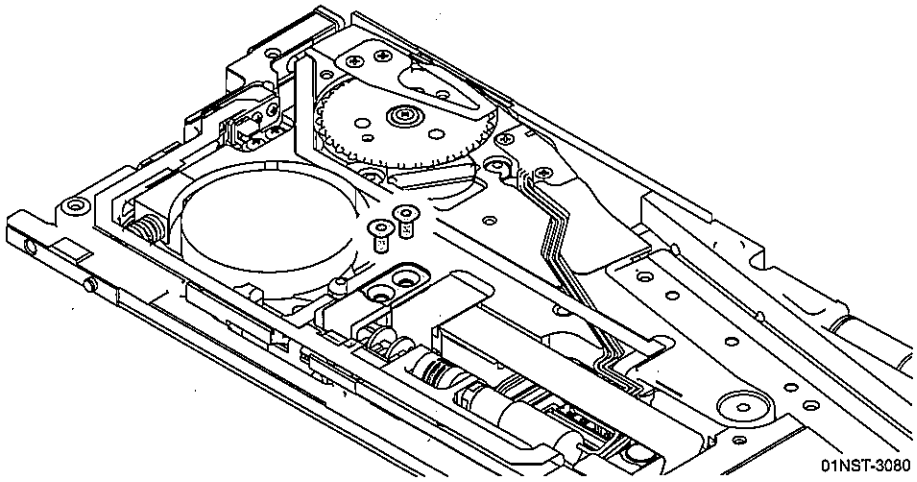
Remove the feeder unit from the feeder base. (Refer to"3.7 Removing a Feeder Unit")

1. Remove the 5 screws and remove the left cover from the feeder unit.

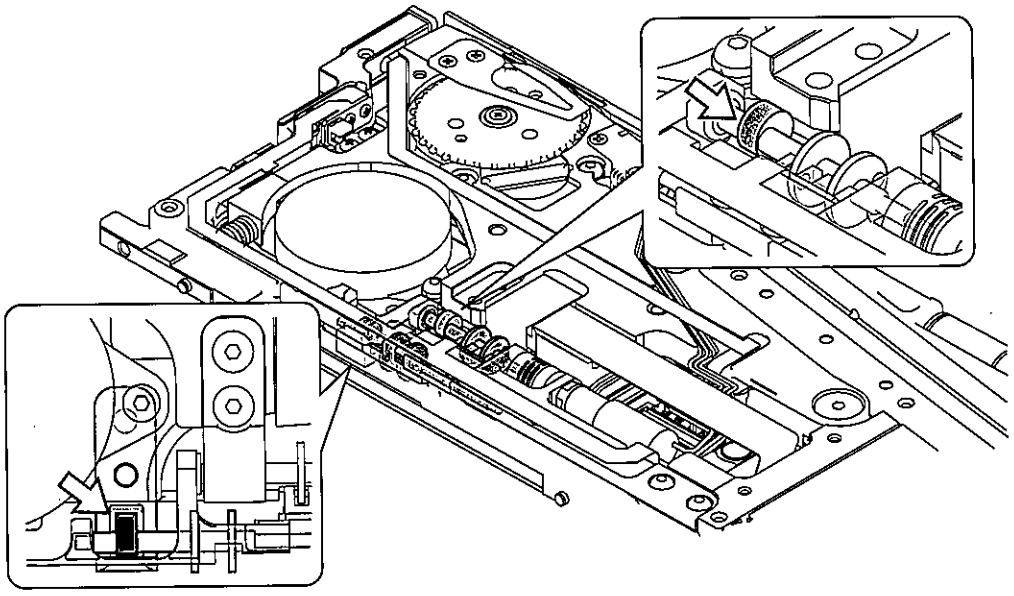
Caution: When touching the feeder during or immediately after production, beware of heat near the feeder motor and circuit board. Also, keep all tools away from the flat cable inside the feeder unit. Tools can easily damage the cable.



2. Remove the lifter bracket for the left slot.



3. Apply AFC grease to the moving section of the left slot cam shaft using a clean cotton swab.
4. From the side of the left slot lifter bracket, there is a location from which the right slot lifter bracket and cam shaft can be seen. From here, apply AFC grease to the moving section of the cam shaft using a clean cotton swab.



5. If grease gets on any other items, wipe off the grease with a clean cloth or cotton swab.
6. Attach the left cover for the left slot lifter bracket.

6.6.2 Lubricating the guide of the feeder unit lifter section

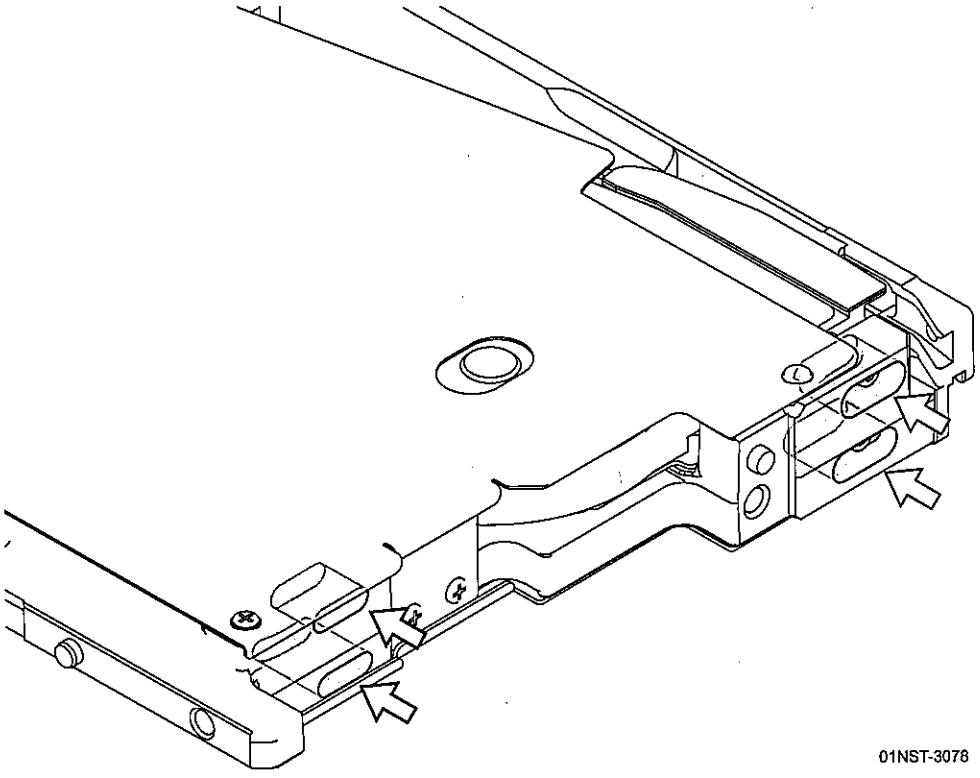
Required items

Phillips screwdriver, torque screwdriver, Allen wrench set, torque wrench, clean cloths or cotton swabs

Required grease	Lubrication points
AFC grease (THK)	Guide section

Procedure

1. Remove the feeder unit from the feeder base. (Refer to "3.7 Removing a Feeder Unit")
2. Apply AFC to the moving surface of the guide section at the front of the feeder unit using a clean cotton swab.



3. If grease gets on any other items, wipe off the grease with a clean cloth or cotton swab.

6.7 Replacing Consumable Parts

6.7.1 Replacing the tape retainers

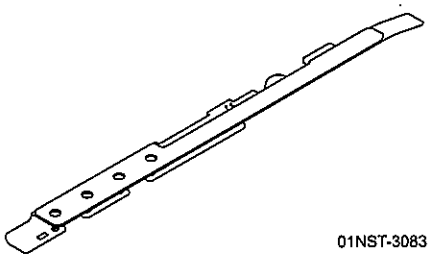
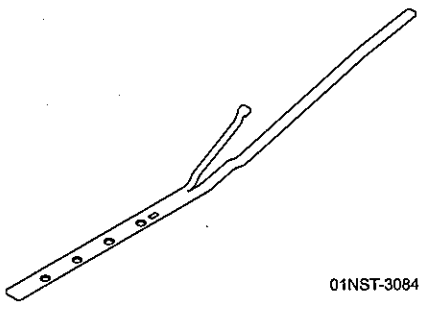
This section explains how to replace the tape retainers at the end of the cassette.

Replacement period

When tape retainer is deformed

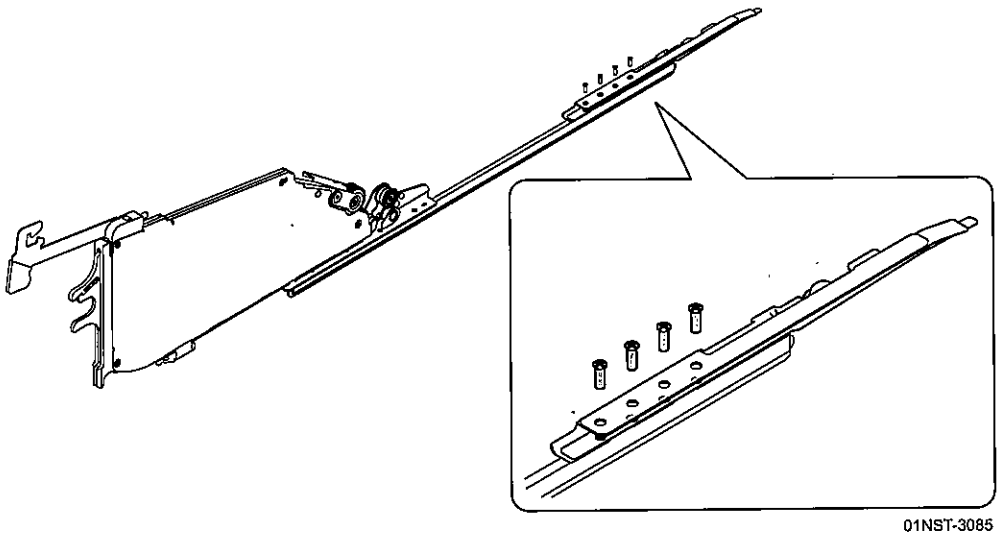
Required items

Phillips screwdriver, torque screwdriver

Name	Shape
Upper tape retainer Drawing number, 2MGLFL0022**	 01NST-3083
Lower tape retainer Drawing number: 2MGLFL0012**	 01NST-3084

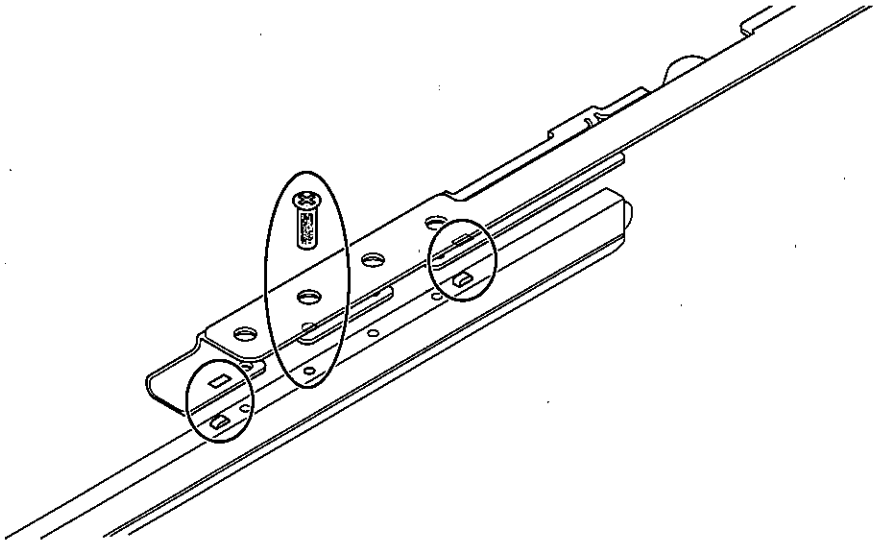
Procedure

1. Remove the 4 screws and remove the tape retainer from the cassette guide.



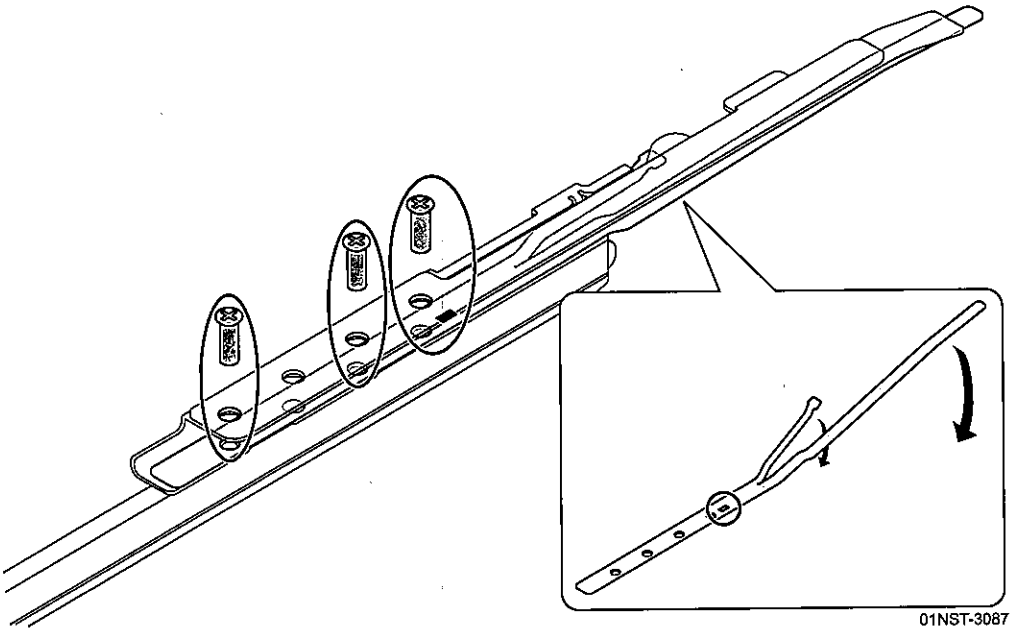
01NST-3085

2. Attach a new tape retainer to the cassette guide.
   a. Engage the 2 rectangular holes in the upper tape retainer with the protrusions in the cassette guide.
   b. Insert a screw into the 3rd hole from the front and secure the upper tape retainer. (Screw tightening torque:)



01NST-3087

3. Attach a new lower tape retainer to the cassette guide.
   a. Engage the 2 rectangular holes in the lower tape retainer with the protrusions in the cassette guide. When doing this, hold down with your hand the section of the lower tape retainer that bends upwards and contact against the upper tape retainer.
   b. Insert 3 screws into the remaining holes in the upper tape retainer and secure the lower tape retainer. (Screw tightening torque:)



01NST-3087

6.7.2 Replacing cassette guides

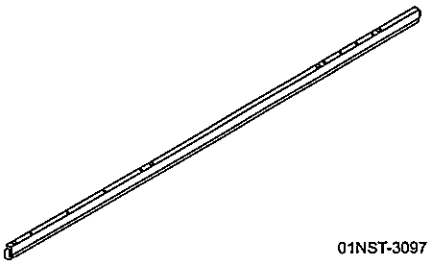
This section explains how to replace cassette guides.

Replacement period

When cassette guide is deformed

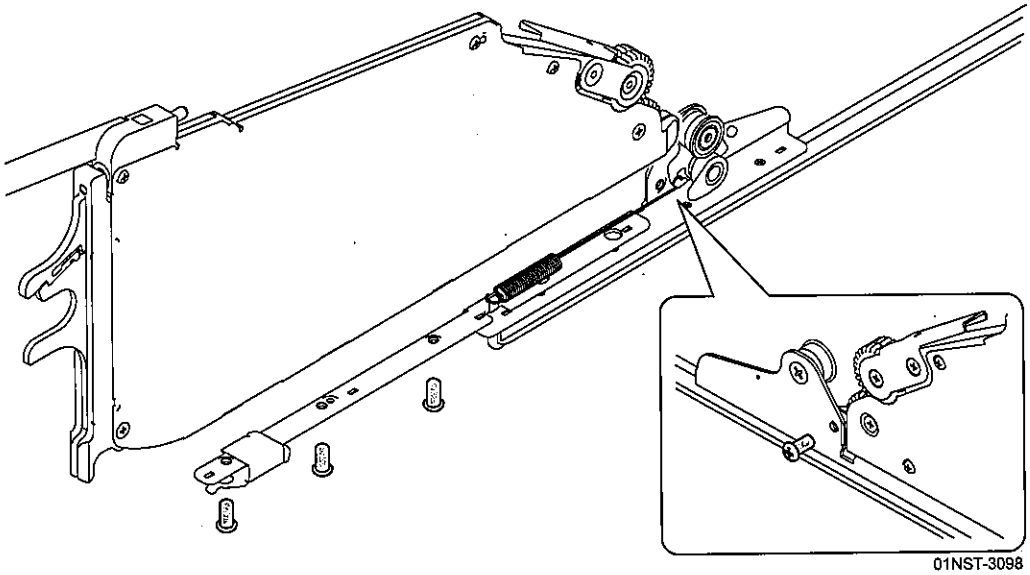
Required items

Phillips screwdriver, torque screwdriver

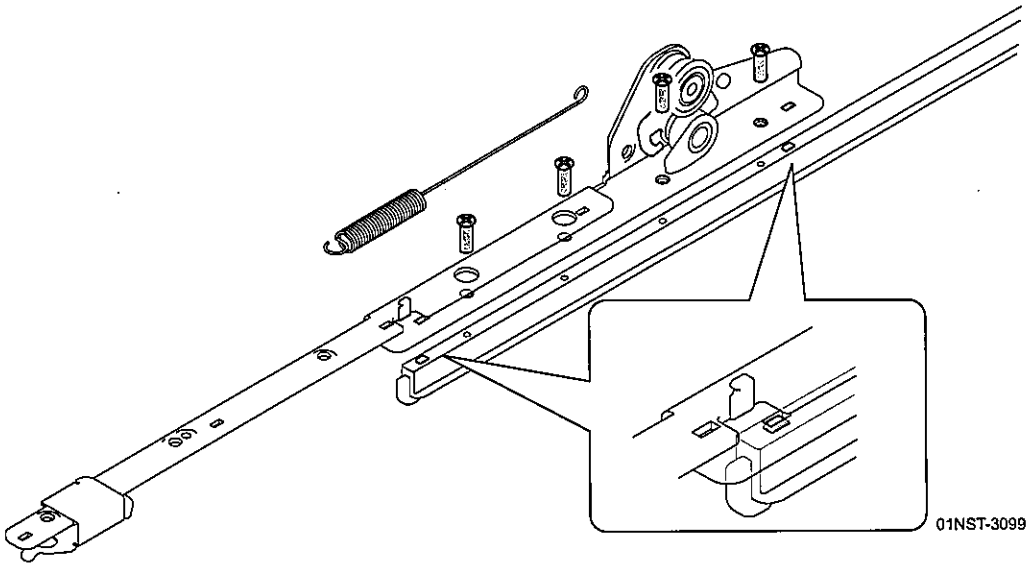
Name	Shape
Cassette guide Drawing number: 2MGLFL0007**	

Procedure

1. Remove the tape retainer. (Refer to "6.7.1 Replacing the tape retainers".)
2. Remove the 3 lower screws and 1 left side screw and then remove the cassette body section.



3. Remove the spring from the tape holder.
4. Remove the 4 screws and remove the cassette guide.
5. Insert the protrusions in the new tape guide into the rectangular holes in the tape holder and secure using the 4 screws.



6. Attach the spring to the tape holder.
7. Attach the 3 lower screws and 1 left side screw to the cassette body section.
8. Attach the tape retainer. (Refer to "6.7.1 Replacing the tape retainers".)

6.7.3 Replacing fuses on the control board in the feeder base

Replacement period

When fuses blow

Required items

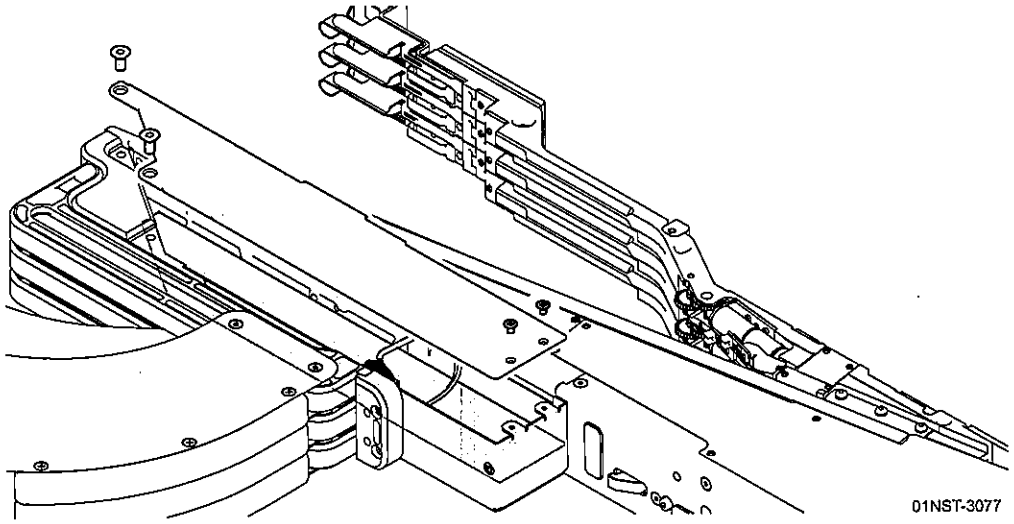
Phillips screwdriver, torque screwdriver, fuses

Name	Drawing	Manufacturer	Model
Fuse	H66510	Retail fuse	0453002.MRL

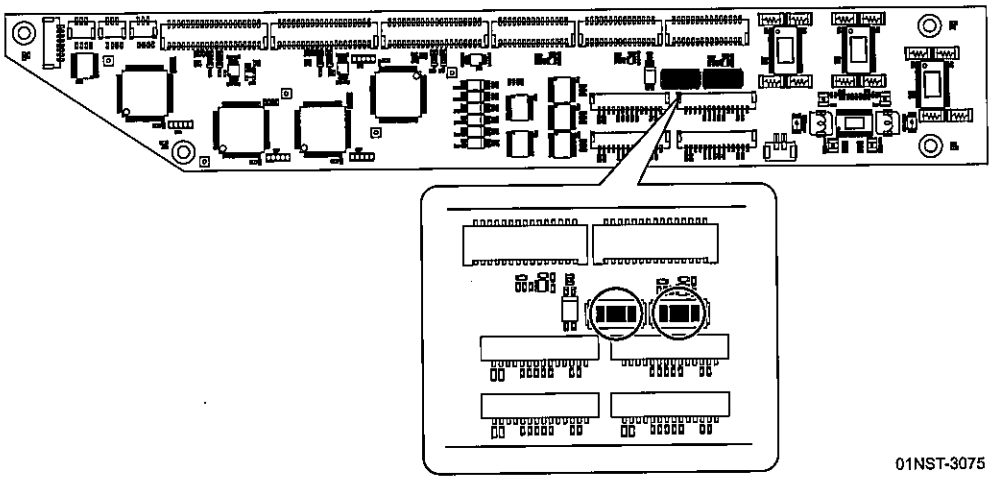
Procedure

Remove the feeder from the machine before replacing fuses.

1. Remove the 4 screws and remove the right cover from the feeder base.



2. Remove the fuse from the control board in the feeder base using tweezers and attach a new fuse.



3. Attach the feeder base right side cover.

6.7.4 Replacing fuses on the servo board in the feeder unit

Replacement period

When fuses blow

Required items

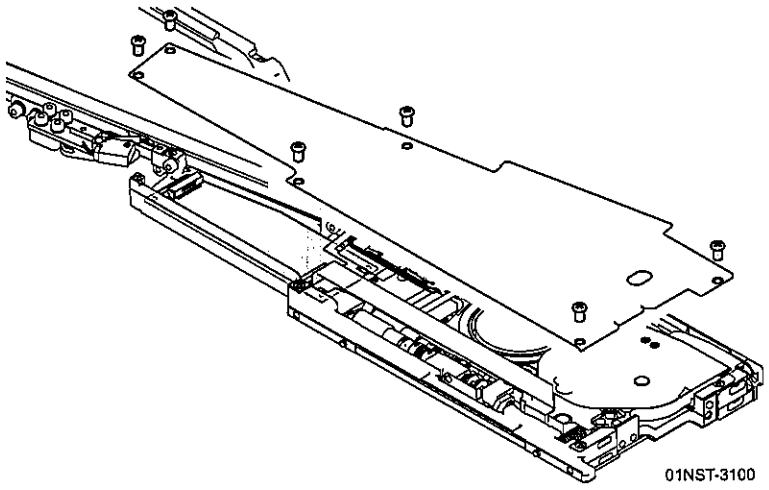
Phillips screwdriver, torque screwdriver, tweezers

Name	Drawing	Manufacturer	Model
Fuse	H66510	Retail fuse	0453002.MRL

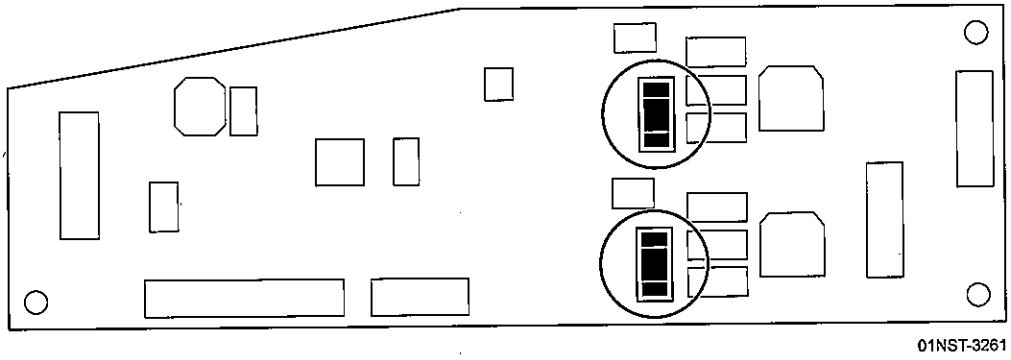
Procedure

1. Remove the feeder unit from the feeder base. (Refer to "3.7 Removing a Feeder Unit")
2. Remove the 6 screws and remove the right cover from the feeder unit.

Caution: When touching the feeder during or immediately after production, beware of heat near the feeder motor and circuit board. Also, keep all tools away from the flat cable inside the feeder unit. Tools can easily damage the cable.



3. Remove the fuse from the servo board in the feeder unit using tweezers and attach a new fuse.



4. Attach the feeder unit right cover.

MEMO:

7. Troubleshooting

This section explains how to troubleshoot errors. When feeder errors occur, refer to the countermeasures listed here to quickly correct errors and resume normal operation. Please note that this manual does not have countermeasures for all possible errors. Contact your Fuji Machine service representative when errors cannot be corrected using the countermeasures provided here.

7.1 A Feeder Unit Cannot Be Used

If one of the feeder units on the HexaFeeder cannot be used because it is broken or requires maintenance, do the following to continue using the HexaFeeder.

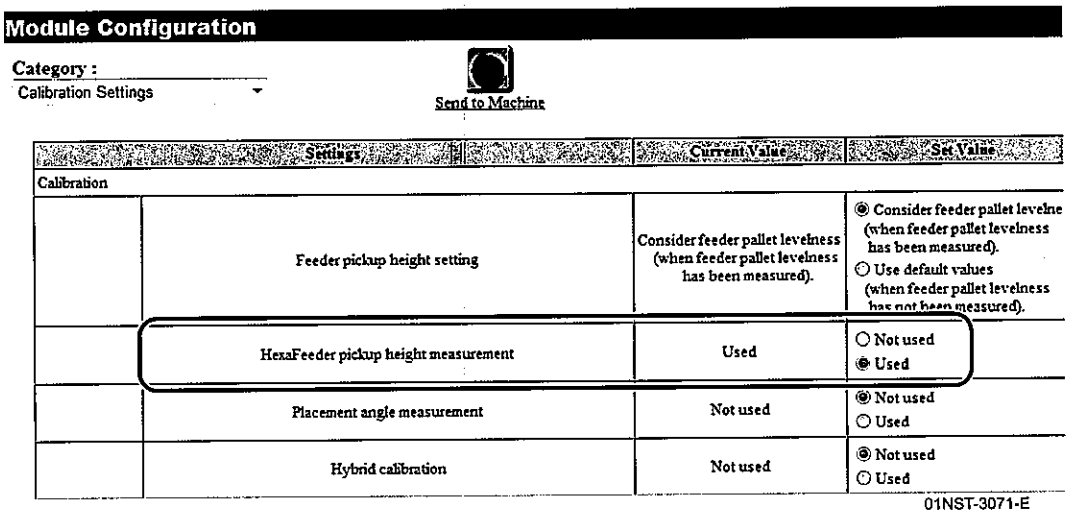
HexaFeeders have 3 feeder units. Remove the feeder unit that cannot be used and continue production with the remaining feeder units.

1. Remove the feeder unit which cannot be used from the feeder base. (Refer to "3.7 Removing a Feeder Unit")
2. Edit the job by moving the parts which were in the removed feeder unit to other slots or modules.

7.2 A Height Measurement Error (816D) Occurs

Change the following settings if a height measurement error (816D) occurs at a module with the PH2 type panel height sensor.

1. Start Accessory Software.
2. Select the module with the error and select [Module Configuration].
3. Select [Calibration Settings].
4. Change [Not used] to [HexaFeeder pickup height measurement].
5. Click [Send to Machine].



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MEMO:

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The Fuji Technical Information website aims at providing up-to-date information to our customers in the most efficient manner. This site provides the latest technical information and a range of services, from manuals, upgrade reports, sample part data, to custom part support. Fuji hopes that the vast wealth of information on this site will be used in addition to the services provided by your Fuji representative.

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Any comments or opinions regarding this document can be sent to the email address below.
Email address: **intnetqst@fuji.co.jp**

HexaFeeder Instruction Manual

Management No.	Date	Notes
INS-HEXFDR-001E0	February 26, 2014	-

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