Custom Industrial Mowers Case

Name of Student

Institution Affiliation

Course

Date

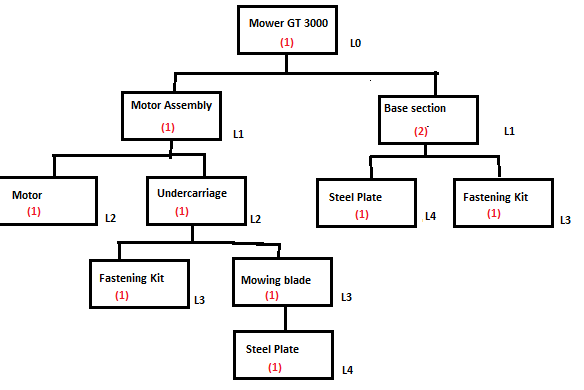
**Items listed on MRP charts**

The 10 items listed in the MRP charts are

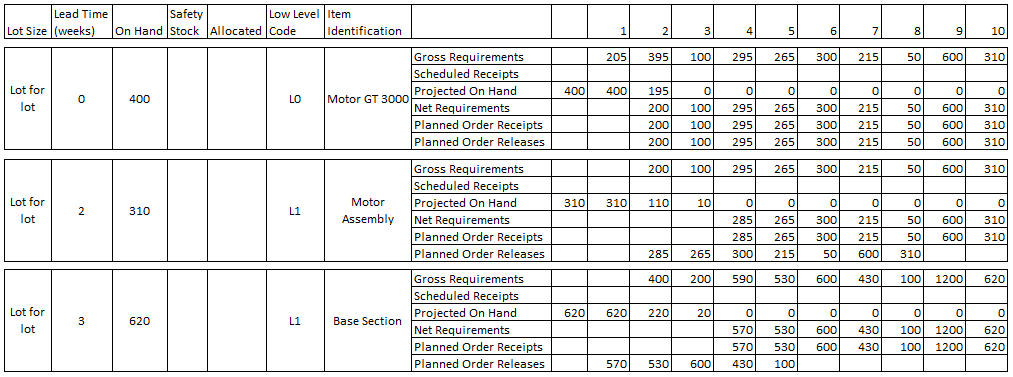
1. Gross Requirements: This is the requirement or demand for that product/item over the period
2. Scheduled Receipts: This is the quantity of the item which would be added in inventory. This is receipts from external sources which are not part of the MRP chart
3. Projected-on hand: This is the left-over inventory every period after accounting for scheduled receipts, beginning inventory and gross requirements
4. Net requirements: This is the requirement which cannot be fulfilled by the projected-on hand and scheduled receipts in that period. This is what needs to be fulfilled by production planning
5. Planned Order receipts: This is computed basis the net requirement and lot size. It is what is needed to be produced to be delivered in that period to meet the net requirements.
6. Planned Order release: This is the quantity of order to be released keeping in view the lead time. So, if lead time is 2 periods, then planned order release is 2 periods before the planned order receipts
7. Lot size: This is the minimum quantity which can be ordered in one lot or subsequent lots. This is dependent on EOQ and other factors.
8. Lead time: This is the time taken to produce an item from initiation of planned order release
9. Safety stock: This is the minimum quantity which needs to be maintained in inventory to tackle the variability in demand.
10. Allocated: This is the quantity allocated to a particular item.

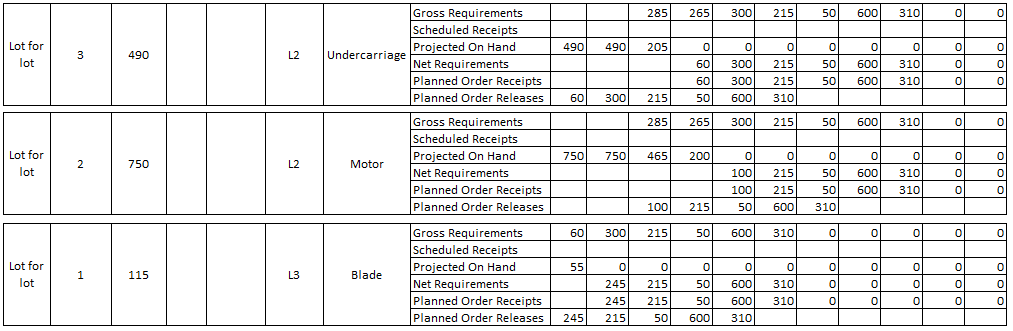
**Product structure tree**

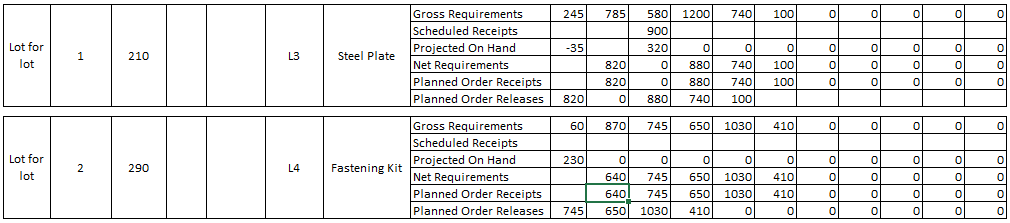
The product structure tree for Grass Hog GT 3000 Mowers is given below



**Material Requirements Plan (MRP) for next 10 weeks**







**Interpretation of MRP plan**

The MRP plan is as shown below. Basis the plan we see that we do not have to start producing Motor GT 3000 until week 2. However, some of the components need to be ready now in order to meet production readiness of the upper layer in required time. These are Undercarriage, Blade, Steel Plate and Fastening Kit.

One of the problem area in the MRP is the requirement for many items being there in week 1, the planned order for which should have been released in the weeks before.

We notice that the projected on-hand for Steel plate is negative. This means that there is a risk of that much quantity, and it will impact the final production. Some of the processes would have to be moved to next week, till the negative quantum is subsidized and hence the production plan would be at a stretch. This stress would release when there is a scheduled receipt of 900 units in week 2. This is because the steel plate is not produced internally and is procured from outside suppliers. Hence, it won’t be possible to balance the negative inventory in next week by producing more.

**Impact of lead time and lot sizing**

For the purpose of this case lot sizing has been assumed to be lot for lot for all the items. This means that we can produce and procure as many quantities we want, without any restriction. However, items typically have varied lot sized depending on economic order quantity, minimum order quantity requirement by vendors, bundling size, etc. Hence, when the planned order receipts and releases are planned, the quantum should be in accordance with the lot size. This invariably means that often the firm would carry more inventory that required as planned order receipt would be more or equal to net requirements, such that the firm doesn’t loose the demand. This has a negative impact on working capital. Example: If the lot size for motor is 250 units, then the planned order receipt for week 4 would be 200 units (as net requirement is 100, but order can only be in multiple of 200 units). This would mean that the company is carrying an excess of 150 units in inventory in week 5. Subsequent weeks planned order receipts would have to be modified accordingly.

Lead time determines the number of periods. before which the order should be released in order to receive the item in a period. Example: For motors, the lead time is 2 weeks, which means that in order to get the product ready by week 4, the order for same must be released in week 2. Greater the lead time, earlier the order should be placed in form of planned order release.

**Recommendation**

In order to tackle the problem of previous weeks planned order releases for some of the items, Laila should check if any item is in production and scheduled to be ready in the next few weeks. If that is so, then she should incorporate the data in the scheduled receipts and adjust the MRP table accordingly. However, if there was no plan to produce these in weeks before, then she should recommend producing them over and above the current production plan in order to mitigate the risks of stockout.

Additionally, Laila should figure out the safety stock of the items as the demand for Motors is fluctuating and the company would not want to lose out on sudden surge in sales.