

Afghanistan Mine Action Standards - AMAS 06.06

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Mine Detection Dogs Operations

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Mine Detection Dogs (MDDs) Operations

1. Introduction

Mine Detection Dogs (MDDs) are valuable assets in land release operations and can be efficient and cost effective for demining operations when used under the right conditions. The quality and credibility of MDDs in land release operations depend on effective training, health care, considering limitations of MDDs during planning and implementation of demining operations and their maintenance by mine action organizations. Despite the limitations, MDDs can be used in many situations and land can be released as a result of their actions in Afghanistan.

2. Scope

This AMAS covers the minimum requirements to conduct MDD operations in Afghanistan.

3. Definition of Confirmed and Suspected Hazardous Areas

3.1 Suspect Hazardous Area (SHA)

The term “**Suspected Hazardous Area**” refers to an area where there is reasonable suspicion of mine/ERW contamination on the basis of indirect evidence of the presence of mines/ERW. SHA is described through indirect evidence about status of contamination as below:

3.1.1 Indirect Evidence (SHA)

- a) Information obtained from persons and institutions without being involved in and neither witness of laying mines and or any accident occurred, but have been told about the mine/ERW hazards.
- b) Fear of people that not using potentially productive land, but there is no evidences about the presence of mine/ERW.
- c) Indistinct information from former combatants showing huge area that can be contaminated but not sure about the possible location of the mine/ERW hazards.
- d) Mine/ERW records, where the reliability of such records remains open to doubt.
- e) Former combatant zones.
- f) Evidence from previous surveys, not supported by direct evidence of the presence of contamination.
- g) Mine/ERW accidents or incidents where the location of the event cannot be accurately determined.

3.2 Confirmed Hazardous Area (CHA)

Refers to an area identified by a non-technical survey intervention to be contaminated by mine/ERW on the basis of direct evidence of the presence of mines/ERW. CHA is described through direct evidence:

3.1.2 Direct evidence (CHA)

- a) Mine/ERW records, where the reliability of such records has been confirmed during previous operations;

- b) Information gathered from the people and institutions with sound knowledge of when and where the mines were laid.
- c) Information gathered from survival/s of mine/ERW accident/s or their relatives showing the location of the accident.
- d) Information from nomads and shepherd who have been witness of mine/ERW accidents.
- e) Visible or known mine accident craters.
- f) Known military positions.
- g) Animal bones died due to mine/ERW accidents.
- h) Local mine/ERW marks.

4. Use of MDDs in Land Release Operations

4.1 Test and Accreditation

All MDD teams are subject to test, evaluation and accreditation by the DMAC prior to be deployed to the field for operations. Once accredited, then a randomly selection may be suited for re-testing them on annual basis. Handler changed and new MDDs shall be tested and assessed without considering random selection regime.

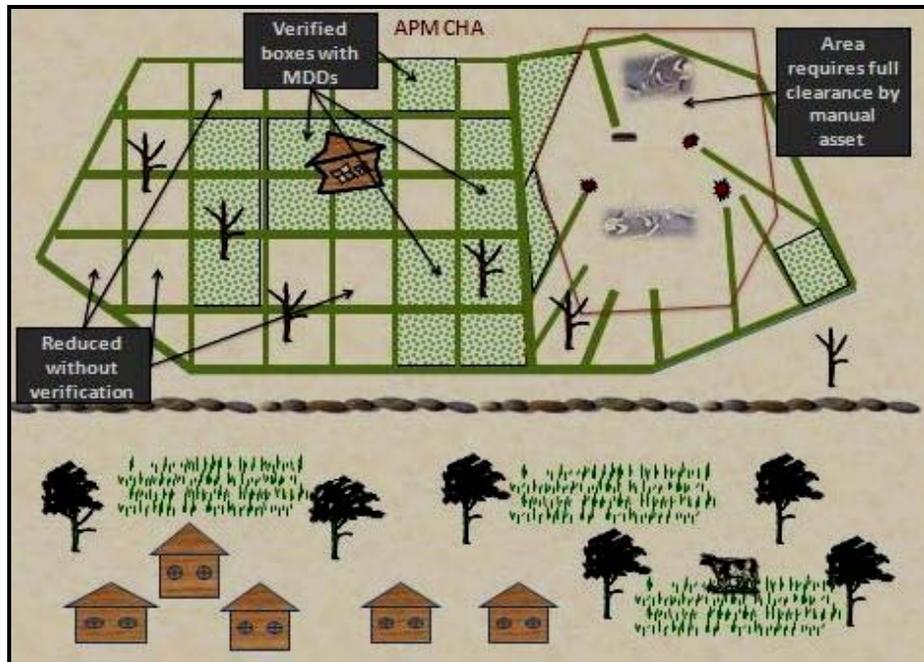
4.2 Acclimatization

A minimum period of 2 weeks may be required to allow the MDD to become acclimatised to the local weather conditions, vegetation, soil condition and surrounding environment. All MDDs deployed into Afghanistan shall undergo this acclimatisation period before being deployed operationally. A week time for acclimatization may be considered when shifting MDDs from different provinces with different weather and climate in Afghanistan.

4.3 Specific Role of MDDs

Considering limitations of MDDs and the extent and scope of mine/ERW hazards in Afghanistan, MDDs can be used in different roles such as:

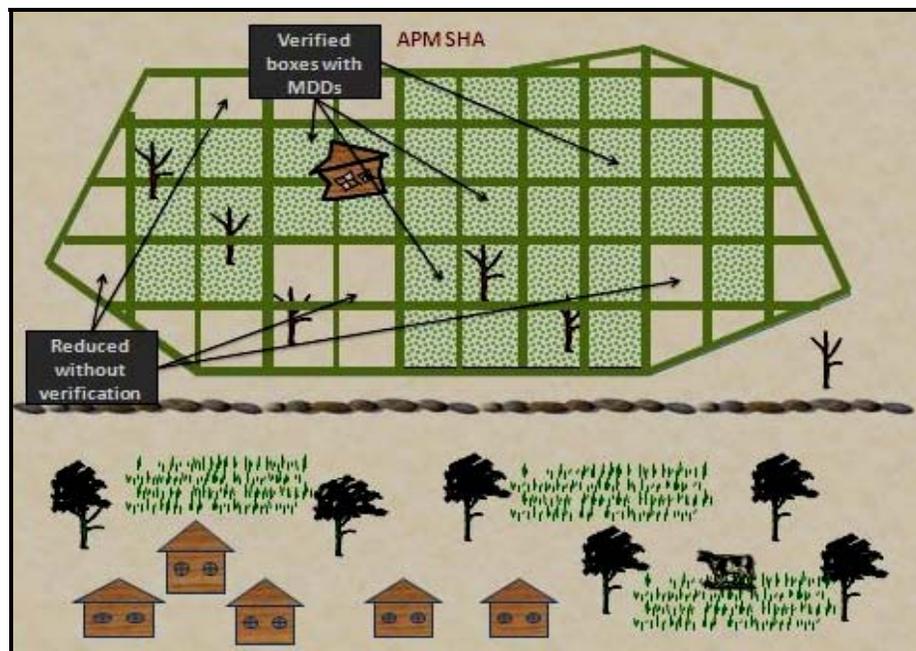
- 1) Anti-Personnel Mine (APM) CHAs:
 - a) In technical survey role to establish base line and also create cross lanes into the area as systematic investigation, to reduce and or verify the area to be released without clearance operations and identify portion(s) of the CHA for full clearance by manual asset.



b) Quality Control (QC) of the areas released through the clearance, reduction and or verification interventions, the QC should be done based on the DMAC approved QC procedures of relevant organization.

2) Anti-Personnel Mine SHAs:

a) In technical survey role to establish base line and create cross lanes into the suspected hazardous area as systematic investigation to verify the presence and or absence of hazards in the area. This may result in releasing entire SHA and or creating CHA(s) and or identify portions of the land as actual mined areas for clearance operations.



Note: As covered in AMAS 05.01, area verification in terms of mine action is the process of confirming through objective evidence the presence or absence of hazard items in a reported hazardous area using as minimum two accredited MDDs or an accredited demining machine. And area reduction during technical survey is the process of decreasing the size of a reported hazardous area through collecting more reliable information and proper assessment combined with some physical intervention of either manual, mechanical or MDD assets.

MDD should mainly be used in technical survey role in APM areas that distinguish between areas requiring clearance operations and areas may not require further clearance and can be released at the result of Technical Survey. Within the scope of “all reasonable efforts” as outlined in AMAS 05.01, the areas verified and or reduced with MDD assets as mentioned in section above of this AMAS, should be considered as safe for their intended use.

3) Anti-Tank Mine (ATM) CHAs:

- a) MDDs may be used to establish base line and access lanes for manual and mechanical assets to reduce the risk and facilitate clearance operations; the access lanes should then be re-checked or be ripped by machine.
- b) MDDs should be used in follow up operations in areas prepared by machines especially after the use of rippers. They can be used immediately after the area being ripped by FEL machines.
- c) MDDs may also be used for clearance verification if required.
- d) Quality Control (QC) of the cleared areas, based on the DMAC approved QC procedures of the relevant organization.

4) Anti-Tank Mine SHAs:

- a) Should be treated the same as AT CHAs, if the clearance operation found to be the only solution for removal of suspicion and or removal of possible hazards, and agreed upon between DMAC and mine action organization.
- 5) MDDs should not be used in mixed AP and AT minefields and in BAC tasks where explosive scent can confuse them.
- 6) MDD should be regarded as a method of confirming the presence of mine contamination rather than identifying the location of every individual mine.

5. Limitations

MDDs are not suitable for working in areas where there is a heavy background contamination from mines, ERW or scattered explosives. Checks shall be made to ensure that this contamination does not overshadow the target signal. MDDs shall not be used in areas with visible contamination from explosives or the remains of detonated mines and ERW.

MDDs shall not work in areas where tripwires are expected, unless they are specifically trained to detect tripwires.

MDDs should not be used in areas where vegetation prevents searching, or if vegetation restricts the ability of the MDD handler to view and control the search.

MDDs shall not be used on areas where the slope is of such a nature that the MDD may dislodge stones rocks or boulders or where such MDD needs to concentrate more on maintaining its balance than on conducting the search.

MDDs shall not be used if the wind speed is greater than 4 m/s at ground level where the soil surface is very dry and dust is being raised. All MDD teams shall have a wind and temperature measuring device on site during operations.

MDDs shall not be used when the prevailing wind is coming from behind the MDD. MDDs should ideally be used to search with a side wind but can also be used when there is a head wind. A general principle is that increased wind speed requires an increased area to be investigated manually after a MDD has indicated.

MDDs shall not be used for vapour detection when the air temperature is colder than 8⁰ Celsius or higher than 35⁰ degree Celsius unless they have been specifically trained and accredited.

MDDs shall not be used for vapour detection when it is raining or until the soil has dried after a heavy rain. MDD operations may commence after 2 days of dry weather.

MDDs should not be used when the ground surface is covered with snow.

MDDs shall not be used in areas where the vegetation has recently been burned (after less than four days at a minimum).

MDDs shall not work in areas flooded by water. Before starting work in a former flooded area the MDD should be tested in the same area, if possible. No work should occur in the area within 14 days of the water having dried up.

If MDDs are only accredited to undertake regular searches for mines and ERW, then shall not be used for follow up behind Mechanical assets. Such operations require specific test and assessment requirements. One MDD may be used where it undertakes secondary search or quality control in areas cleared/prepared by machines.

MDDs shall not be utilized in high-density minefields except for QC operations following the clearance of the mined area.

6. Planning

Planning is important aspect of MDD operations and shall be prepared prior to deployment of MDD asset to the field. The following points shall be considered:

- a) Assessment of the entire project sites to make sure that there are suitable sites for MDDs as per part 4.3 above. The assessment report can be part of the project proposal and site specific operational plans also need to be developed and shared with DMAC regional offices for their approval.
- b) Assessment of the type of mines believed to be present in the area, MDDs shall not be used if the perceived or identified mines contain different explosives or substances to those the MDDs are trained to detect.
- c) Safe lanes are prepared so as to provide access for the MDDs and handlers to a box, or working area to provide safe start line. Safe lanes should normally be two meters wide however they may be a minimum width of 1 meter as required and can be created by the deminers or by MDDs.

- d) The whole search area to be visible to the MDD handler. If the vegetation is such that the handler is not able to observe the MDD at all times during the search then the box can be divided into several smaller boxes or lanes.
- e) MDD personnel shall not carry handheld radios or mobile telephones while in training and demining operations.

7. Personal Protective Equipment (PPE)

MDD handlers are permitted to use reduced face protection to avoid voice distortion. Reduced face protection may be half-face visors or the use of eye protection in the form of sun glasses which has been tested and guaranteed.

8. Medical Support to MDDs

Demining organisations shall provide health care to their MDDs with the same consideration as they provide to humans. When MDDs are operational:

- a) There should be one person on site with the required knowledge and skill for providing emergency medical treatment for MDDs.
- b) Suitable medical equipment shall be available on site for the treatment of MDDs.
- c) A dog emergency evacuation plan should be in place, which includes procedures for retrieving the dog safely from the minefield and transporting it via the quickest and safest route to suitable veterinary support.

When the MDDs are not operational, during non-working hours or on weekends:

- a) There should be one person available on call with the required knowledge and skills to provide medical treatment for dogs.
- b) A plan should be in place for the transferring of sick or injured dogs to a suitable veterinary facility.

Demining accident response plans for MDD operations shall include procedures for removing MDD casualties from hazardous areas and the provision of veterinary support.

A medical logbook should be maintained for each MDD. Information about vaccination, other prophylactics, de-worming, illness, injuries and any medical treatment should be included in the logbook. Some of the most important health care aspects to address in the logbook are listed in Annex B.

9. Medical Clearance for Work

All MDDs shall be examined by veterinarians and cleared as medically fit for work before they are permitted to carry out operations. They shall be re-checked and cleared by a veterinarian on a six-month basis. The age limits based on the nature of MDD shall be considered prior to their deployment to the field to make sure that each MDD is capable to perform the job in a safe, effective and efficient manner. A record of individual MDD showing their age shall be maintained by the organization and a copy of this record submitted to DMAC.

MDDs shall be subjected to daily health checks by dog handlers. This health check should be done before and after working hours of MDDs and the result should be recorded in the logbook. Serious medical problems or instances where a dog fails to respond to treatment should be

reported to a veterinarian for further assessment. Required daily health check points are included in Annex A.

If a MDD has a slight health problem or minor injury and is assessed by the handler as able to work, the MDD group leader/supervisor shall reconfirm this assessment before the MDD is authorised to commence work. In such cases, the MDD's performance shall be closely monitored throughout the entire day.

If the health check reveals that a MDD suffers from illness which might affect its detection capability and reliability, then the MDD shall not be used in demining operations before it has fully recovered. MDD with minor injuries to paws or noses shall not be used.

10. Daily Test (Warm Up):

MDDs are not effective without proper management and verification on a continual basis. This shall include daily warm up test of MDDs. MDDs are subject to weekly training and quarterly evaluation. Handlers should be supervised by task site supervisors/Set Leader on a continuous basis while performing their work.

MDD daily test (warm up) areas should be established on all demining worksites employing MDD teams. The aim of this warm-up is to make sure the MDD is capable of detecting the target odour, and is sufficiently motivated and focused to work. All MDDs should be tested on a daily basis prior to being deployed into a hazardous area.

The area which has been selected should be the same nature as the minefield. This will require an initial established warm up box/panel in a known safe area free from contamination on the start of demining operations. Once search areas have been established the warm up box/panel should be established within the searched area. These boxes/panels may be moved every second day as work progresses and may be established in a distance of 20 meters from the working line.

Pieces of explosive from different types of mines shall be used separately to simulate how they are found in the minefield. The explosive pieces shall be placed at various positions within the box/panel and recorded. The explosive pieces may be a maximum of 1 inch/25mm in size and should be kept in a separate container free from contamination. The explosive pieces should be recovered when the box/panel is moved forward, every alternate day. No person shall enter the warm up area at any time prior to the warm up so as to avoid contamination of the area.

11. Training

The target mine or explosives in training minefields shall be laid at different periods of time and the MDDs shall be evaluated on them after 3 weeks at minimum.

The mines or explosives used for evaluation or training exercises shall be buried, at different depths and quantities.

In order to maintain maximum performance and safety during operations, all MDDs shall be subject to weekly training. All MDDs and their handlers shall receive refresher training and be evaluated on a regular basis. When MDDs are deployed in the field, internal QA tests should be conducted on a regular basis. All organisations should also perform internal Quarterly Evaluation on their MDDs and this may be observed by the DMAC.

The size of each training box may differ depending on the operational search system used by the demining organisations, however, the following rules shall apply when preparing training boxes in a training site:

- a) The test field shall have one or more clearly recognisable benchmarks. Distance and bearing shall be taken from at least one corner marker for each box to the benchmark.
- b) The exact location of each box shall be recorded on a map with reference points.
- c) All corners shall be marked with a recognition pole, which is driven into the soil. At least one corner marker shall be accurately recorded on the training box map.
- d) All training items shall be equipped with a recognition piece, placed centrally under the training mine. Additional recognition pieces should be buried at other locations inside the training box to ensure that a MDD is not indicating on the metal.
- e) The accurate location of all training items and recognition pieces shall be recorded on the map.
- f) The recognition piece should be made of cut reinforcement rods or similar material and should not exceed 15gr.

11.1 Re-training of MDD Assets

For new MDD teams or handler changed ones, the training procedure should be established by MDD organization including the training package in detail. The following criteria shall be used as a minimum training requirements for new MDD teams and handler changed MDD teams before deployment to the field for operation:

- a) If the handler is new and dog is also newly introduced to the program a minimum of three months training should be considered for this MDD team.
- b) If the handler is new and MDD is from experienced operational team, a minimum of two months training should be considered.
- c) If the handler is experienced and the dog is newly trained and introduced to program, a minimum of two months should be considered.
- d) If the handler is from experienced MDD team and the dog is experienced as well then one month re-training is required.
- e) As minimum, there shall be two training boxes for each MDD in a training area established by MDD holding organization, in order to avoid contamination and consider soak time of at least one week after a box is being used by one MDD. All MDDs shall be tested in a test separate test area before being introduced for test and licensing by the DMAC.
- f) The targets in training and test area shall be based on the type of hazards where MDDs are going to be used.

Newly introduced puppies or MDDs for demining operations shall not be less than 18 months of age and have the individual records of breeding, socialization, ball, explosive and mine/ERW training before being introduced to the test and licensing process.

12. Search Patterns

The two most common search patterns currently in use for MDD operations are:

- a) The search lane system. The MDD searches in a series of straight parallel lanes between 0.5m wide within a search box or panel. These lanes are typically up to 10m in length. The lanes may originate from any side of the search box or panel (depending on wind direction). The MDDs may search with or without a leash, and the MDD may search on its way out from the handler only, or both on its way out and back.
- b) The short-leash system. The MDD searches in a series of straight parallel lanes between 0.5m wide within a search box or panel. The lanes may originate from any side of the search area (depending on wind direction). The MDD handler may walk beside or behind the dog in the lane which has been previously checked by other MDD. All the area should be searched by two MDDs before the handler walks on the ground. This generally means that the area has been searched by an MDD on a long-leash before the short-leash system is used.

There are advantages and disadvantages in both the search patterns above, and some programmes prefer to search an area once with the long leash system, and once with the short leash. The relative advantages are:

- a) Long leash are faster, especially when the handler has clear oversight of the search lane
- b) Short leash makes it easier for the handler to monitor the performance of the dog, to ensure complete search to the end of the lane, and to work in difficult terrain with limited visibility.

The following procedures shall apply when searching with MDDs:

- a) All the searches shall be followed in accordance to the search pattern described in the demining organisation's SOPs.
- b) The MDD shall search the whole box or panel with no parts remaining un-checked.
- c) The MDD should search with its nose close to the ground at all times during the search.

13. Marking of Search Boxes

Search boxes shall be marked in a manner whereby the handler is able to see each of the corners of the box. If necessary, flags or other elevated marking such as pegs and tape may be used to achieve this.

Marking of search boxes and cross over lanes during the establishment of MDD worksites shall conform to the general marking requirements covered in AMAS 05.03.

Where painted rocks are used to mark the boundaries of MDD working areas, they should be painted a minimum of three days prior to commencing search by MDD's, the rocks may be painted in the last safe known MDD rest area.

14. Work Routine

Demining organisations using MDDs shall establish work routines for MDDs and lay down the criteria for rotation. However, the length of each search period for each MDD shall be decided by the MDD handler based on the performance of the MDD. It is recommended that MDD's should work for 20 - 30 minutes with 10 minutes of rest. The Maximum time for the MDD to conduct MDD Operations is 4.5 hours per day.

If two MDDs are used as a pair, they shall be rotated systematically between the roles of primary and secondary search. This rotation shall occur several times per day.

15. Indication Requirements

MDDs shall be trained to indicate target scents by sitting or lying down next to the indication. When indicating, they shall not be in physical contact with the point of the indication. If a MDD sits or lies down on the top of an indication or scratches at the ground during operations, training or testing, it shall be withdrawn from operational services and re-trained until the behaviour is corrected.

The handler shall after his MDD has indicated, call the MDD out the area from the shortest distance and over an area that has been already searched by the MDD.

The location of an indication by a MDD shall be clearly and accurately marked to within of the actual indication. During marking, the MDD handler shall not physically enter to the unclear area before it has been checked twice using separate MDD.

A MDD that indicates a target correctly may be rewarded. During rewarding, the MDD shall not be permitted to enter in the hazardous or un-searched area. If a MDD is difficult to control during rewarding; whether during operations, training or tests; it shall be withdrawn from operational service and re-trained until the behaviour is corrected.

16. Searching Drill

Searching methods may vary depending on how the dog is trained according to the SOP of each organisation. In general terms the following procedure should be followed:

- a) There should be an overlap of at least 15 cm on each side of every lane searched. The safety margin of at least one 1 meter shall be considered at the beginning of each searching lane.
- b) When a dog has indicated the presence of a suspected mine, then an area of at least one metre around the indication point (4 sqm) should be cleared manually before the dog can be allowed to continue when no mines are found.
- c) All MDDs searched areas information shall be included in the MDD Daily Work Report.
- d) The command group shall make sure that all dog indications are being appropriately cleared manually.

17. Follow up behind Mechanical Assets

One MDD may be used as a part of a clearance system where the MDD undertakes secondary search or quality control in areas prepared and or cleared by machines. Such machines can be FEL/ripper, flails, tillers, sifters, rollers, soil millers etc. Whilst there are no differences of principle between using MDDs for regular area verification and using them for verification behind machines, the following rules shall apply when MDDs are used behind machines:

- a) If the machine has disturbed the soil, the MDD Teams shall not be used to conduct follow up behind the machine until at least two days after the mechanical operation has taken place, provided that it has rained at least one time during these days. In periods with no rain, the soak time shall be increased to a minimum of five days or longer.
- b) If the machine has been used to clear an area with a relatively high density of mines, MDDs should not be used since lumps of explosives and bits of mines casing are likely to be spread around the area. This may confuse the MDDs and make the search less reliable.
- c) If the machine has been used to prepare an area with ripper, one MDD may be used to conduct follow up operations without any soak time, unless the ground is contaminated with spilled fuel from the machine. As such the soak time as described in point a) above is applicable.

18. Recording Information

The demining organisation shall ensure that a logbook is prepared for each MDD. The aim of the logbook is to provide the demining organisation and monitoring teams with continuous written evaluation of the MDD health condition and search ability. Each handler will be in possession of a copy of his letter of License issued by the DMAC.

It is important for the dog handlers, the trainers, the veterinary and the management of an organisation to be able to follow the development of a MDD on a daily basis. The daily assessment of each MDD shall be written into the logbook prior to starting work every morning. An assessment of the MDD work shall also be written into the logbook after the search has been completed. It should also contain detailed documentation on the MDD daily work, including sketches of the area checked.

The dog handler or the team leader in consultation with the dog handler shall write the logbook. If the dog handler has not written in the logbook himself, then he shall sign the log after each entry to confirm its accuracy. The logbook shall be stored for a minimum period of 24 months after the completion of demining tasks where MDDs are used. The logbook shall be kept by assigned MDD officer and presented to QA teams upon request. A copy of the daily work sheet shall be attached in the completion report. Records of MDDs productivity shall include accurate detail of which boxes were searched by specific MDD teams.

19. Internal Quality Control (QC)

Demining organisations shall conduct 10% QC using one MDD on the areas checked by MDD assets. The 10% shall comprise at least four separate areas spread over the total area checked. All areas checked shall be marked on the ground and recorded in the map. This QC shall be conducted by the third MDD, other than the ones checked or double checked the area.

**Annex A, Daily and monthly health-check points
(Informative)**

Table of recommended daily and monthly health check points

| Daily health check | Monthly health check |
|---|---|
| The dog's general condition and willingness to play and respond to positive stimuli. | The dog's general condition and willingness to play and respond to positive stimuli. |
| Examine the skin and coat and let the hand run over the body to feel for wounds, ticks, thorns and areas of matted hair, or lumps and bumps. | Check the appetite and faeces by asking the dog handler. |
| Examination of breast, legs and paws. Look particularly for hot spots, swollen joints, dry pads, long or damaged claws, and fungus diseases on the feet. Carry out de-worming | Check the skin and coat for wounds, ticks, thorns and areas of matted hair, or lumps and bumps. Check for parasites, and carry out de-worming |
| Examine the tail, anal region and anal sacs. Look for swelling and irritation. | Examine the nose, mucous membranes, mouth, throat, tongue, and teeth. |
| Examine the vagina/penis and testes. | Examine the eyes and ears. |
| Examine the nose, eyes, and ears. | Check visually the lung functions and the hydration status. |
| Examine the mouth and throat. Look for swelling, changes in colour, inflamed gums, bad breath, foreign bodies/objects loose or broken teeth and accumulated tartar. | Inspect lymph nodes for swelling or sore points. |
| Check the temperature if there is any doubt about the dog's health. | Check the pulse and temperature. |
| Check date of next vaccination | Check vaccination status |

**Annex B, Logbook health care check points
(Informative)**

| Daily logging | Monthly logging |
|-----------------------------------|-----------------------------------|
| Appetite | Appetite |
| Thirst | Thirst |
| Skin condition | Skin condition |
| Occurrence of ectoparasites | Occurrence of ectoparasites |
| Condition of the legs | Condition of the legs |
| Condition of paws and claws | Tail condition |
| Tail condition | Condition of the anal region |
| Vagina/penis and testes condition | Vagina/penis and testes condition |
| Nose condition | Nose condition |
| Eye condition | Eye condition |
| Ear condition | Ear condition |
| Mouth condition | Mouth condition |
| Throat condition | Throat condition |
| Teeth condition | Teeth condition |
| Temperature | Temperature |
| Other prophylactics | Other prophylactics |
| De-worming | De-worming |
| Treatment | Treatment |
| Use of medicines | Use of medicines |
| Vaccinations | Vaccinations |
| General physical/mental health | Pulse condition |
| Willingness to work and play | Respiration and lung function |
| | Urine and Blood test |